Spring 5-12-2022

BON APPÈTIT: FAUNAL SUBSISTENCE AT FORT TOMBECBE (1SU7)

Sarah Coffey

BON APPÈTIT: FAUNAL SUBSISTENCE AT FORT TOMBECBE (1SU7)

by

Sarah Morgan Coffey

A Thesis
Submitted to the Graduate School,
the College of Arts and Sciences
and the School of Social Science and Global Studies
at The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Master of Arts

Approved by:

Dr. Daniel A. LaDu, Committee Chair
Dr. Marie Elaine Danforth
Dr. H. Edwin Jackson
Dr. Ashley A. Dumas

May 2022

Published by the Graduate School

THE UNIVERSITY OF SOUTHERN MISSISSIPPI®

ABSTRACT

The frontier fort known as Tombecbe is situated on the Tombigbee River in present day Epes, Alabama. Tombecbe was constructed in 1736 as a staging point for Bienville's campaign against the Chickasaw and to block encroachments by the British military. Following the Treaty of Paris, the fort was occupied successively by the British and then Spanish in the eighteenth century. Fortunately, historic documents and physical modifications to the fort suggest that it is possible to isolate and examine the French, British, and Spanish separately, however the breadth of the faunal analysis leaves this for future research. The soldiers at Tombecbe were reliant on supply chains from their countries of origin but also depended on trade with their Indigenous neighbors, the Choctaw, due to perennially late shipments.

My thesis analyzes, compares, and contrasts the French and British faunal subsistence strategies employed by those stationed at the fort as observed from the Bakery and soldiers' Barracks contexts. My findings of analyzing faunal remains from these contexts shows that both French and British soldiers were forced to rely on white-tailed deer when rations were short, regardless of preferred subsistence practices, supplemented by chicken, with very little fish identified compared to what is expected for a river-front fort. Fragmentary bone indicates purposeful making of bone marrow and broth to supplement possible shortages in meat supplies. In combination, this data shows there were occasions of dietary stress on those garrisoned at Tombecbe.

ACKNOWLEDGMENTS

I want to thank my advisor and professors – Dr. Daniel LaDu, Dr. Marie Danforth, Dr. Ed Jackson – who answered my unending questions about how to polish my thesis and proposal. Dr. Jackson was imperative to this project, and I cannot thank him enough for taking time out of his retirement for a semester to help me learn as much as possible in zooarchaeology. I especially want to thank Dr. Ashley A. Dumas – without her guidance and knowledge during my undergraduate career, I would not have found my interest in archaeology that led to my transition from chemistry to anthropology.

DEDICATION

Outside of help from my advisor and professors, I want to acknowledge my parents. Without their endless support and help through my undergraduate and graduate years, I would not have been able to focus on my interests and come this far in my academic career. You pushed me to go further, but let me go in the direction I wanted and have supported every endeavor I have undertaken.

After my introduction to the field, I was still nervous to take the next steps due to my limited academic background. However, I pushed myself to continue. Prior to entering graduate school, I met an amazing group of women who are also aiming for a career in anthropology/archaeology. I want to mention the ladies of The Cool Room™ and Associates for their endless messages and humor that always kept my spirits up during stressful times.

I also want to thank my friend Jen for putting up with me while we "hung out" at either of our homes while one or both of us worked on coursework. Those late nights of just having someone there helped in ways I cannot put into words. I want to thank Sparky for letting me bounce ideas around about this project since you understand the history and methods used at Tombecbe. And for providing the kettle for late-night cups of tea. I also want to thank Clelie for the random conversations in the lab – even when we had work to get done. You helped keep me from losing my sanity numerous times.

There are not enough pages to fully thank each person who helped me throughout my journey to completing my Master's degree. Even if you are not mentioned, you were just as important to me in how you helped me in reaching this goal.

I never could decide how to include this last dedication. I did not expect to be including it in the manner I am. No matter how many times I try and rewrite it, I am sure it will never seem like enough.

In the Fall of 2021, I found out that Susan Scott had unexpectedly passed. Even prior to my admittance to the University of Southern Mississippi (USM), I had a very ambitious project, despite having little to no idea how to go about accomplishing that project. I reached out to professors and arranged a few days at the archaeology lab on campus where the USM comparative collection is housed. In addition to Dr. Ed Jackson, his wife Susan Scott spent hours at the lab helping me learn everything she knew about identifying faunal remains. Susan had incredible knowledge about faunal remains and made it easy to understand the minute differences between similar pieces of bone. I learned so much from her, but feel as if I did not learn enough at the same time. She was just as excited about my undergraduate paper as I was when I submitted it. I hope I at least did her teaching a small amount of justice with my thesis.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ILLUSTRATIONS

LIST OF ABBREVIATIONS

FUI	Food Utility Index
MNI	Minimum Number of Individuals
M/L	Medium/Large, as used in Medium/Large Mammal
NISP	Number of Identified Specimens
UID	Unidentified/Unidentifiable
USM	The University of Southern Mississippi
UWA	The University of West Alabama
WT	White-tailed, as used in White-tailed Deer

CHAPTER I – INTRODUCTION

French colonial archaeology has been a primary area of interest for historical archaeologists since the field's inception. However, much of this focus has been on historically influential sites established in North America such as New Orleans, Mobile, Quebec, and others. Sites located in coastal regions, major waterways, or otherwise near modern population centers, such as Fort Michilimackinac at the Straits of Michigan or Old Mobile on the Gulf Coast of Alabama, have also garnered a great deal of attention. Michilimackinac has been the subject of study and numerous publications since 1959 (Mackinac State Historic Parks n.d.). Old Mobile has also been the subject of in-depth studies since the 1980s (Waselkov 1989, 1990, 1991, 1996, 2002a-b, 2005, 2009). While not on the coast or other major waterway, Fort Toulouse on the Coosa River in Alabama has also been extensively studied since the mid-20th century due to its role in withstanding British advances through the Southeast (Sheldon et al. 2008; Thomas 1989; Waselkov 1989, 1996; Waselkov et al. 1982). Other inquiries have focused on the broad history and archaeological studies of the French colonies in North America, rather than case studies of a specific site or regional area (Brown 1992; Hardy 2011; Scott 1989, 2017; Waselkov 1997, 2002b, 2009).

There are far fewer in-depth studies on frontier posts in French Louisiana compared to studies conducted on prominent forts, trading posts, towns, and cities. Despite their muted histories and size, these frontier forts were important to the French strategy in the New World and played an important part in the events that took place in New France in the eighteenth century. Fort Tombecbe, located on the Tombigbee River in Alabama, has been the subject of limited excavation and study since the 1980s; an interest that was renewed in 2010 when more comprehensive excavations began under the direction of Dr. Ashley A. Dumas at the University of West Alabama (UWA) (Parker 1982; Pate 1980; Wilkins 1988). Investigations into the lives of the soldiers is one of many ways to understand these frontier military posts with regards to the wider history of the American colonies. One of the more intimate means of investigating the lives of those garrisoned at these frontier forts is determining what they were eating.

My thesis focuses on the subsistence practices of those stationed at Fort Tombecbe in the eighteenth century based on the faunal remains recovered during the 2010 through 2020 excavations. In analyzing this assemblage and the subsequent data, I wanted to answer two questions:

1) What were the soldiers relying on most at Fort Tombecbe? Was the majority wild or domestic species, and what were those species?

2) Can the French and British material be distinguished from one another or is there too much admixture and/or not enough data to make the distinction?

Tombecbe was one of the last frontier forts established in the colonial Southeast, with sixteen forts established prior to and only five after (Chartrand 2013a; Chartrand 2013b). This military post was considered key to maintaining French-Choctaw relations (Wilkins 1988). Even today, this period in Gulf Coast and Alabama history is not very well known. Colonial archaeology is preoccupied with either later British settlements or younger, more historically prominent locations such as Mobile’s and New Orleans’s importance to the establishment of colonials on the Gulf Coast. While artifacts such as metal, glass, and other man-made materials give insight into life at colonial posts, faunal and floral remains can tell historians and archaeologists what those living at these sites ate. This helps address the implicit bias of most historic documents that focus on the lifeways of prominent historical figures of means and wealth, and ignore the middle- and lower-class individuals that make up the majority of any society.

Chapter II discusses broad trends at similar forts to highlight similarities and differences between Tombecbe and forts such as those in Mobile, Mackinaw City, Michigan, and Fort Toulouse. Lastly, I discuss subsistence practices during the eighteenth century when the fort was occupied by the French, British, and Choctaw in terms of meat in the respective diets, as well as a brief overview of animal butchering during the eighteenth century.

Chapter III delves into the relevant history of Fort Tombecbe as conveyed in the documentary record, including the founding by Bienville and the various European occupations. This chapter concludes with a general background history of the archaeological excavations that have been conducted at Fort Tombecbe up to the end of 2020.

Chapter IV begins with a consideration of what a faunal collection contributes to our understanding of the fort and the inherent taphonomic issues. I explain my selection of the assemblage from the Bakery and Barracks of the fort and present my methods of analysis and documentation of the assemblage. This includes definitions of the body portions used to separate the assemblage, as well as any modification made to the faunal remains. I conclude by identifying the statistical means of comparison I selected to analyze and contextualize the Tombecbe assemblage, with examples of the methods and equations used to analyze this assemblage.

Chapter V details the results of these analyses, starting with the various taxa identified with specifics for the Bakery and Barracks components and followed by the Minimum Number of Individuals (MNI). Body portions are discussed in regard to the entire assemblage and compared to the results when separated into the Bakery and Barracks components. Results of the diversity and equitability calculations are then discussed, along with biological profiles and seasonality of the identified remains. Remains with discernable post-mortem modifications are considered first as part of the entire assemblage and then separated between the Bakery and Barracks components. I further consider the observed to expected ratios, food utility index, and estimated meat available to the soldiers based on the identified remains. Finally, I discuss the results shown on the frequency maps produced in ArcMap, as part of the ArcGIS 10.7.1 software program (Esri, Inc. 2019).

Chapter VI will discuss the results detailed in Chapter IV in order to answer the above listed questions and how these conclusions fit into the broader narrative of how soldiers lived at Fort Tombecbe, particularly those living in the soldiers' Barracks and those who made use of the Bakery. Opportunities for future research will close out the chapter and my thesis.

CHAPTER II – BACKGROUND INFORMATION

Broad Trends at Frontier Forts

Given that historians and historical archaeologists have focused the bulk of their efforts on the most prominent sites in the Southeast, our understanding of faunal consumption at smaller, more remote sites is limited. We do not yet know how representative the faunal assemblages analyzed and described are of broader colonial trends in North America. However, they do provide a useful proof of concept that faunal remains can be used to reconstruct subsistence strategies and dietary preferences of the people living at these sites during this period. Additionally, they can show what interpretations can be made based on differing or similar taphonomic conditions.

Correspondence between officers and officials stationed at these interior forts, their commanding officers and governors in Mobile, and the crown in France, of which numerous are mentioned in James P. Pate's 1980 manuscript and Daniel H. Thomas's 1989 book, describes the late, short, or missing supplies throughout the entire colony (Pate 1980; Thomas 1989). They were forced to adapt to their environment and what foods were available. It was also incumbent upon them to establish and maintain good relations with their Indigenous neighbors. These same two sources, as well as the Mississippi Provincial Archives edited by Rowland, Sanders, and Galloway, include various accounts and documents that detail how soldiers and colonists in Louisiana adapted to the remote environment in which they were living – either by acquiring their own food or by trading with the local Indigenous tribes.

Old Mobile

Old Mobile, near present day Le Moyne, Alabama, was the site of the first French colonial settlement in Alabama, established in 1702 and abandoned in 1711 (Figure 1). The site was set against open forests and cleared fields; the cultural landscape maintained by the Mobile and Tomé. This environment supported abundant terrestrial species for the French to rely on, as well as the diverse aquatic resources from the nearby Mobile River and Mobile Bay. Despite this, the colonists reported a preference for supplies from France, and provisions traded from the local Indigenous tribes or the Spanish in Pensacola, Havana, and Veracruz. When possible, the colonists kept livestock, but were only successful with pigs, chickens, and sometimes cattle. Janet Clute and Gregory Waselkov (2002) analyzed the faunal remains from Old Mobile, but only a small portion of the collection could be identified to a specific taxon. Clute and Waselkov attribute this to taphonomic processes that affected the site. Soil in the Mobile area averages a 5.5 pH, which is relatively acidic, and only becomes more neutral around shell accumulations. The Mobile area sees large amounts of rainfall throughout the year, averaging approximately 72 inches, which leaches the bones already buried in the acidic soil at Old Mobile. From this limited assemblage, Clute and Waselkov concluded that French colonists at Old Mobile relied heavily on wild game, supplemented by pig, chicken, and cattle (Clute and Waselkov 2002, 129-133).

Fort Toulouse

Fort Toulouse, in modern day Wetumpka, Alabama (Fort Toulouse – Fort Jackson n.d.), was occupied by the French continuously between 1717 and 1763 when the Treaty of Paris was signed (Figure 2). The land where Fort Toulouse once stood consists of different soil types in varying areas. These soils include "sandy and loamy upland soils of the

Figure 1. Old Mobile/Fort Louis Lot Map.

Waselkov, Gregory. 2005. *Old Mobile Archaeology*. Tuscaloosa, AL: The University of Alabama Press.

Coastal Plain; alluvial terraces and poorly drained floodplains of the Alabama, Coosa, and Tallapoosa rivers; and alkaline and acid, clayey soils of the Alabama Black Belt prairie region" (Mitchell, Rodekohrs, and Harris 2018). With an average rainfall of approximately 50 inches per year (World Climate n.d.), Fort Toulouse and Old Mobile exhibited similar preservation conditions. The historic record at Toulouse, however, provides additional clues as to how the diet of the residents was affected by irregular supply chains. During the French occupation, as soldiers retired from duty, they remained at the site and began farming the land, resulting in a civilian population around the fort. Supplies from Mobile were inconsistent, and the soldiers and civilians had to either hunt or grow their own food or trade with the local Indigenous population. As they became more established, the occupants at Fort Toulouse became more self-reliant; growing their own crops, maintaining their own livestock, and supplementing with wild species of plants and animals (Thomas 1989). Faunal analysis of this assemblage was conducted by

John T. Thurmond. In his 1973 report, approximately 29% of the bones recovered could be identified to the genus or species level. Three percent of the assemblage was unidentifiable due to not having an adequate reference sample, and the remaining 68% was so fragmented that identification was not possible. Based on the identifiable species, Thurmond suggested that the French occupants relied more on wild game rather than domestic species, bringing deer back to the site whole or field dressed with the organs removed. Overall, while deer and pig contributed a large amount of meat to the diet, cows were the largest contributors due to the overall size of the individual animals compared to the size of deer and pig carcasses (Thurmond 1973). While the taphonomic conditions heavily affected the assemblage, the historic record corroborates Thurmond's conclusions.

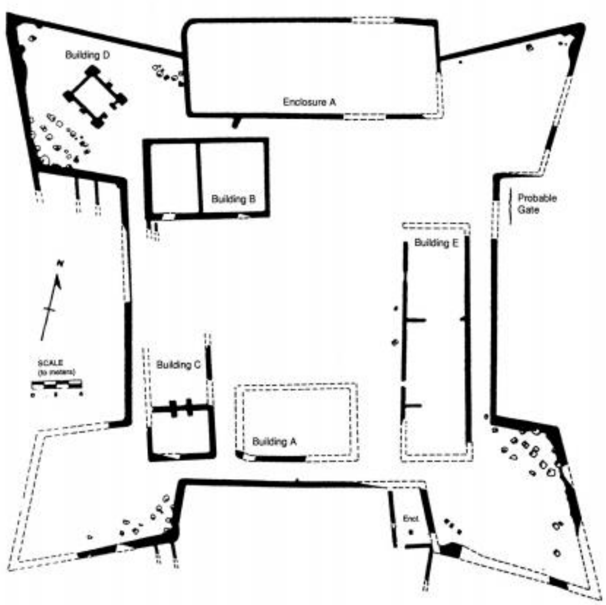


Figure 2. Map of Fort Toulouse II, 1751-1763 Based on Archaeological Excavations.

(Waselkov 1989, xiv).

Fort Michilimackinac

Fort Michilimackinac is located in present-day Mackinaw City, within the Straits region of Michigan (Figure 3). Although not in the Southeast or Gulf Coast region, Michilimackinac has been the subject of historic archaeological inquiry every summer since 1959 and has yielded an incredible diversity of foodstuffs. The results of floral and faunal analyses from houses inside the fort have identified some important similarities and differences between the French and British foodways at the site. Besides both groups eating fish, the French were more likely to dine on native, wild foods acquired themselves or by the Indigenous Anishinaabe groups. This not only became ingrained in the soldiers at Michilimackinac, but the soldiers in the northern Michigan area. By comparison, the British were more likely to dine on domestic foods grown and raised in and around the fort or imported from Montreal, retaining as much of their English diet as possible (Carlson 2012; Scott 1996).

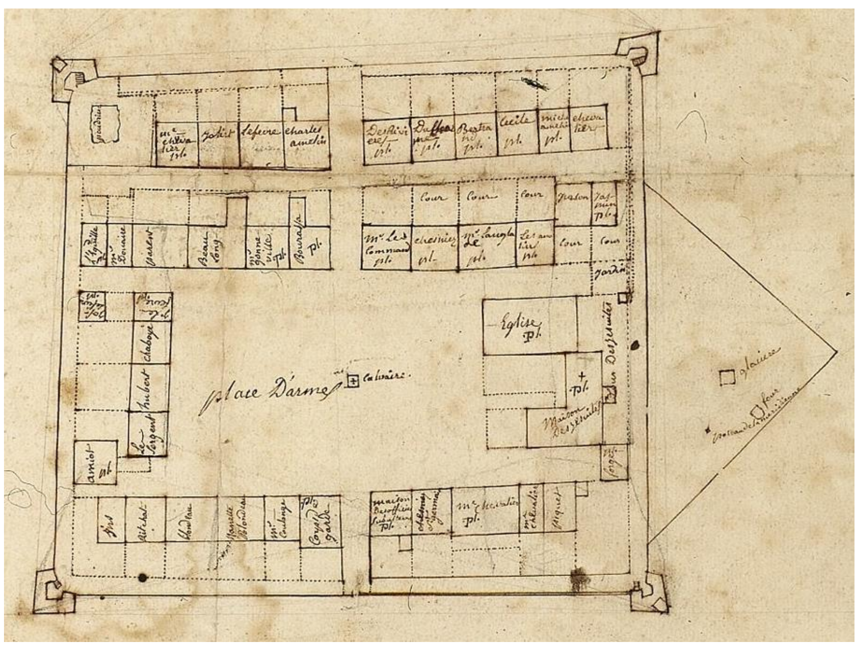


Figure 3. Map of Fort Michilimackinac by Lotbinière, 1749.

Mackinac State Historic Parks. 2015. “The Four Maps of Michilimackinac.” Accessed May 5, 2021. https://www.mackinacparks.com/the-four-maps-of-michilimackinac/.

Subsistence Practices and Preferences

Dietary Practices by Ethnic Group

French. The Canadian Museum of History's Virtual Museum of New France exhibit summarizes the information of French colonial history and life, including foodways. According to Dr. Yvon Desloges, who gathered information for the Foodways portion of the Daily Life exhibit, the French quickly adapted and were interested in the local resources, but returned to the plants and livestock that they knew once they were able to independently sustain themselves. French peasantry was not as used to the variety of meats available to the upper-class French colonists. This changed as they migrated to North America, where wild game was in abundance for all classes of French citizens. Concerning European domesticates, cattle were initially the most important faunal resource while the contribution of pigs and sheep increased over time. Cattle were slaughtered young due to resource shortages and were preferred over pigs, which were the main producer for animal fat used in cooking. Sheep became especially prevalent during the wars that plagued the eighteenth century, but beef and pork remained preferable to mutton. In addition to livestock, colonists raised hens, roosters, capons, turkey, and geese. Hens stopped laying during the winter; thus there was an increase in chicken in the diet in late autumn (Desloges, n.d.).

With respect to animals native to the Americas, Jean-Bernard Bossu documented his travels through the interior of North America from 1751 to 1762 and described the taste of buffalo (bison), wild goat, and opossum meat that he or other Frenchmen had eaten (Bossu 1962, 187, 196-198). Antoine Simon Le Page du Pratz also traveled North America, describing not only the plants and animals available but also the Indigenous peoples and the environment in the Southeast. Du Pratz lists a number of wild game that were native to the Southeast, some of which he described as preferred species or cuts of meat. According to du Pratz, shoulder meat from buffalo (bison) was the best cut and had a delicate taste; rabbit, woodrat, swan, Canada goose, perching ducks, cranes, flamingos, spatulas, egrets, crooked bills, sea larks, turkeys, partridges, woodcocks, snipes, quail, barbell fish, freshwater drum, ring-skates, bowfin, and oysters were described as edible in some way. However, he reports that pheasant and gar were not a choice resource because of the taste or toughness of the meat (Du Pratz 1947 [1775], 240-277).

While all posts struggled with the inconsistent supply route from France, important regional differences have been noted; a result of either preference on the colonists' part or environmental differences. Archaeology at Old Mobile shows that French occupants made little effort to become self-sufficient in the ten years the site was occupied. Instead, they relied on supplies from France and trade with the Indigenous tribes and the Spanish. Sheep husbandry failed utterly and their efforts to rear cattle were only moderately successful. While pigs and chickens proved well adapted to their new environment(s), wild game contributed significantly to the Old Mobile diet (Clute and Waselkov 2002, 129). At Fort Toulouse, colonists initially survived by trading with the Indigenous peoples for deer meat, bear oil, and poultry. Eventually they established small livestock populations comprised primarily of cattle and pigs, with some horses bought from the British, "Creole hens", sheep, and pigeons (Waselkov 1989, xxv-xxvi). Analysis of faunal remains shows that these colonists were heavily reliant on cattle, deer, pigs, while fish and fowl also contributed; a subsistence strategy similar to the one at Old Mobile. Both Old Mobile and Toulouse illustrate that French colonists consumed more meat than their contemporaries of comparable status living in France at the time (Waselkov 1989, xxvi). Interestingly, the French colonists demonstrated a clear preference for wild game, even when beef, pork, and chicken were available (Clute and Waselkov 2002, 133). This is exhibited at Michilimackinac between 1744 and 1761. Even when these domesticates were available, they selected deer, pig, beaver, rabbit, lake sturgeon, lake whitefish, as well as geese, ravens, and passenger pigeons for meat (Carlson 2012, 10).

These historic, ethnohistoric, and archaeological accounts make it clear that French colonists were dependent on wild game or provisions traded with the local Indigenous populations (Brown 1992, 29; Hardy 2011, 162, 167; Scott 2017, 100; Waselkov 2009. 623). While most of these posts were military installations, their choice of location also reflects a primary interest in trade and relations with Indigenous communities. It is no accident that the same species that were prized for their fur, such as deer, bear, bison, and beaver, were also popular foodstuffs (Brown 1992, 19-20; Scott 2017, 100).

British. There have been very few subsistence studies on eighteenth century British colonial sites. This gap in our knowledge of colonial foodways has been attributed to the uncritical assumption that Old World foodways were easily accommodated by the New World environment (Reitz 1979, 49; Reitz and Honerkamp 1983, 4). In reality, this was not the case for European colonists (Reitz 1979, 60). British colonists could not rely only on the domestic species they were used to, but had to supplement with species of wild game native to North America; a pattern which accounts for the varied use of species at British sites (Reitz and Honerkamp 1983, 4-5, 21). The most important wild game during this period was deer, bear, buffalo (bison), as well as beaver, muskrat, rabbits, raccoons, and squirrels, the same as those utilized by their French counterparts. Wild birds such as turkey, cranes, swans, ducks, and geese were particularly popular. Fish also made a vital contribution to the British diet. Colonists favored freshwater bass, catfish, flounder, salmon, shad, perch, pike, sturgeon, and trout. Like the French, prior to adapting to their new environment, British entrepreneurs had to rely on food supplied by the Indigenous peoples (Smith 2004, 546, 616). When colonists were able to obtain and raise domestic species, they would include horses, oxen, cattle, goats, sheep, pig, rabbits, poultry, and various other bird species. Cattle were not raised for meat but for dairy products and were customarily slaughtered when they were at least ten years old. Colonists subsisted mostly on fish when they lived in or close to the larger cities due to the increased meat prices (Reitz 1979, 51-52).

At Fort Ligonier, a fort site in Westmoreland County, Pennsylvania occupied from 1758 to 1766, those species best represented in the faunal record were older cattle, sheep, and wild fauna such as deer. In addition, British occupants also consumed goats, both domestic and wild rabbits, and large amounts of fish. Interestingly, the Hird site near Fort Frederica in Georgia, yielded a very different pattern. There, only young cattle, deer, pig, and a single element from a goat or sheep were identified in the faunal record. The variation in faunal species between Fort Ligonier and Fort Frederica is attributed to the sandy forest environment in this area of Georgia (Reitz and Honerkamp 1983). At New Amsterdam and early New York City, Greenfield determined that British colonists grew less reliant on wild species, as evidenced by the decrease in deer remains over time. Those in this area that continued to consume native resources were either the poor who could not afford domestic cuts of meat or the wealthy who viewed wild species as delicacies to hunt for sport (Greenfield 1989 85-97). Regardless of the site or environment, it appears that the British colonists would boil foods, as it was easier and required less attention, in order to consume some form of meat daily (Reitz 1979, 52).

Choctaw. The Choctaw are recognized as one of the "Five Civilized Tribes" in the Southeast, as they were quick to see the political benefits of adopting European cultural models. During the eighteenth century, Choctaw villages were concentrated to the south of Chickasaw territory and southwest of Creek territory (see Figure 8) (Editors 2013). While the Choctaw were intensive maize agriculturists, they balanced their diet through hunting, fishing, small garden plots of native cultigens, and gathering of wild resources (Bowes 2010, 24; Editors 2013). During the period of European and post-European contact, there were no significant breaks from traditional Choctaw subsistence methods (Gremillion 1993, 16). The Choctaw used all parts of animals for clothing or ornamentation, including hides, bones, teeth, and claws or hooves (Bowes 2010, 24). Wild game that were favored by the Choctaw were deer, black bear, buffalo (bison), squirrel, raccoon, rabbit, opossum, turkey, quail, duck, geese, herons, passenger pigeons, rattlesnakes, fish, and occasionally shellfish, turtles, and bullfrogs (Blitz 1985, 17; Caldwell 2015, 21; Editors 2013; Thompson 2019, 130-139; Voss and Blitz 1988, 129); notably the same species that occur in the French and British assemblages discussed earlier. These wild animals had access to diverse plants for food, which imbued the meat with increased levels of protein, omega 3, vitamin B, as well as lower in calories and total and saturated fats, making it healthier to eat larger amounts of game (Thompson 2019, 129).

According to Thompson (2019), deer were the primary source of protein consumed by the Choctaw. The organs were removed before the animal was skinned by hand to avoid damaging the meat, which was then removed in muscle groups, rather than cutting through the bones as in Western cultures. Known cuts of meat, translated from the Choctaw language, include sirloin, tenderloin, brisket, and neck meat. This meat was either roasted, boiled, or preserved in the form of jerky. The bones that were not used for ornamentation were broken to release the marrow inside, which is used in broths and stews or to produce bone grease. Black bear was hunted during the winter when the fat content was at its highest; the leaner cuts of meat were made into jerky, with the ribs being the choice cut of meat of the entire animal. Buffalo (bison), although not a choice meat source, was a large contributor to the meat supply. A single male could yield up to 400 pounds of meat. Raccoon was only part of the diet when these animals dug into fields and destroyed crops. While the most common type of rabbit eaten were cottontails, the elders' favorite was noted to be swamp rabbits, which was hunted during the winter when parasites were gone. Opossum was a minor meat contributor during the summer months, similar to raccoon, if they were found digging up crop fields. Turkey was used to flavor stews. Fish were caught in nets or weirs; small specimens were cooked whole or strung for smoking or drying and the larger fish were cut into pieces and roasted, fried, boiled, or made into jerky (Thompson 2019, 130-139).

After European contact, the Choctaw also incorporated beef, pork, and chicken into their diet. On occasion, horses were eaten, but they were primarily used as a mode of transport for carrying goods or supplies (Caldwell 2015, 21; Little, et al. 2017, 9; Thompson 2019, 32). Pigs and chickens were considered unclean and were not eaten by the Choctaw. They were, however, raised to trade to Europeans (Little, et al. 2017, 9; Thompson 2019, 30-31).

For any of these animals, either wild or domestic, the Choctaw would not hunt the best animals out of respect. Of the animals that were hunted, they were butchered in the village, as the act of butchering was seen as honorable in that it fed hungry bellies and all parts could be used by the community (Thompson 2019, 68, 130).

Likely methods of preparation include salting, boiling, roasting, smoking, and drying, with few specific details on those methods. An exception is when the Choctaw ate fish with scales, they would coat the fish with mud and cook it in the fire or on coals. The mud would break away, taking the scales and skin with it, leaving the meat on the bones (Caldwell 2015, 59).

Butchering Practices

The subject of butchering was briefly mentioned in the discussion on Choctaw subsistence, but European butchering practices deserve a more expanded discussion. Marks from butchering can, in some instances, reveal the method of processing – whether it be for meat or marrow resources. The first endeavor in butchering an animal is to subdivide the carcass into more manageable pieces, commonly done using a saw. Crabtree and Campana give examples, shown in Figures 4-6, of modern cuts on different types of animals and approximately where on the skeleton these cuts would fall (Crabtree and Campana 2012).

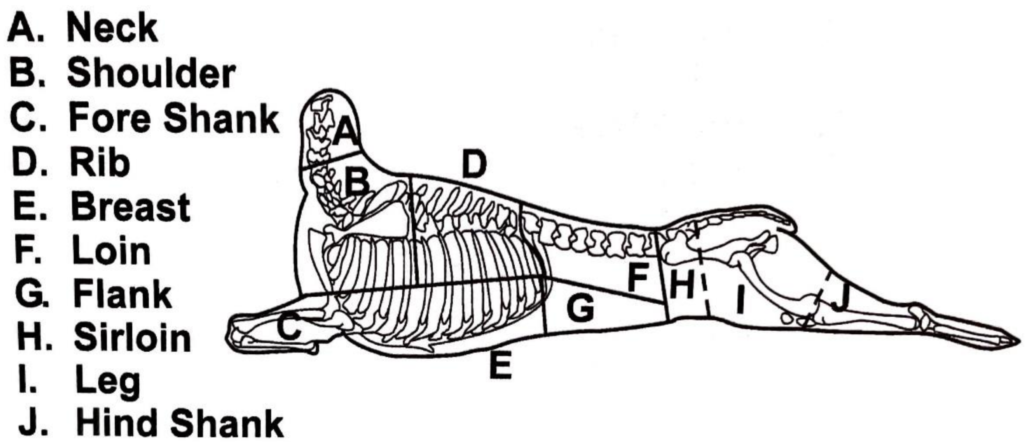


Figure 4. Venison Meat Cuts.

(Crabtree and Campana 2012, Figure 24-07).

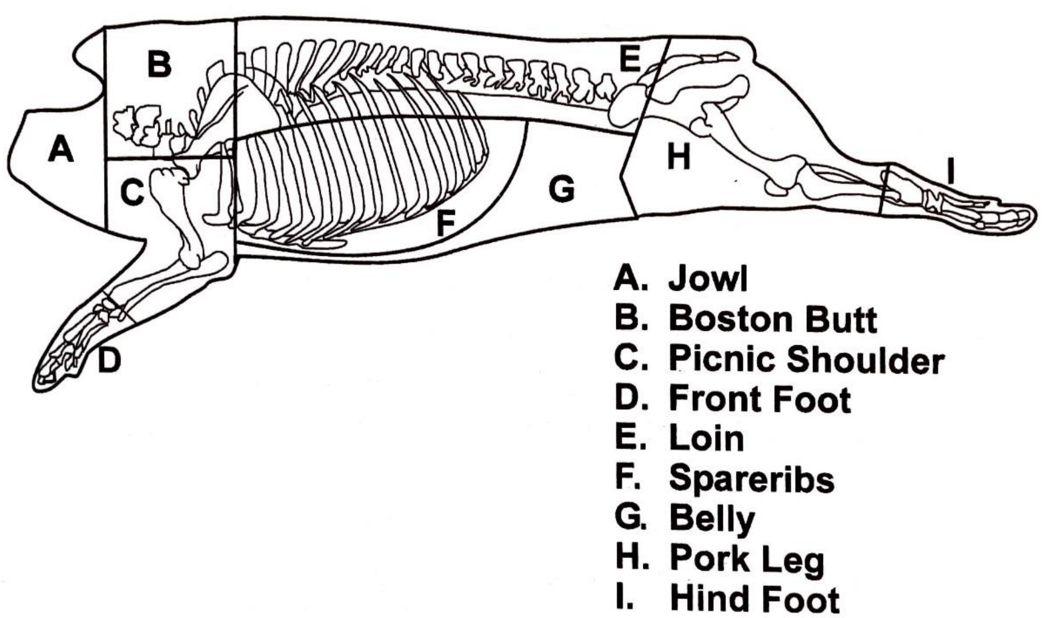


Figure 5. Pork Meat Cuts.

(Crabtree and Campana 2012, Figure 24-05).

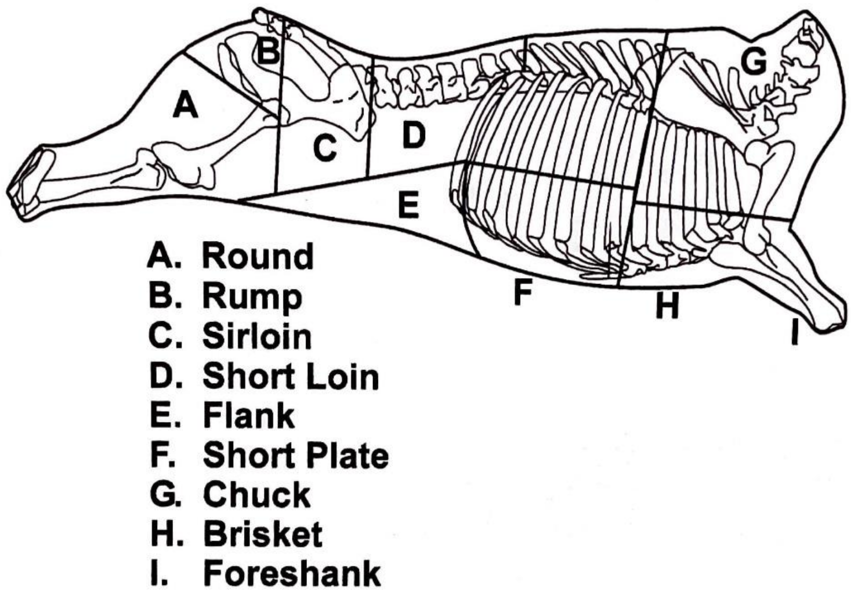


Figure 6. Beef Meat Cuts.

(Crabtree and Campana 2012, Figure 24-04).

During the eighteenth century, cleavers were also used for home butchering of animal carcasses and hand saws grew in popularity as time passed to subdivide carcasses (Crabtree and Campana 2012). While analysis was not as detailed as looking at the kerf marks left behind in the bone to differentiate cleaver from hand saw butchering, there is room for further research to determine if these kerf marks can be separated in the Tombecbe collection.

In comparison, all three groups used native resources to some degree. In ideal situations, the Choctaw used the most native resources, the French used the most while supplementing with their own European supplies, and the British used the least as they preferred domestic resources and would only supplement with native resources if necessary.

CHAPTER III – HISTORY AND ARCHAEOLOGY OF FORT TOMBECBE

Bienville and the Founding

As French interests in what would be later known as Louisiana renewed, French officials appointed Pierre Le Moyne d'Iberville for the expedition to the Gulf Coast. Jean-Baptiste Le Moyne, Sieur de Bienville (Figure 7), Iberville's brother, expanded upon the initial expeditions of the Gulf Coast in present-day Alabama, Mississippi, and Louisiana (Pate 1980, 3-4).

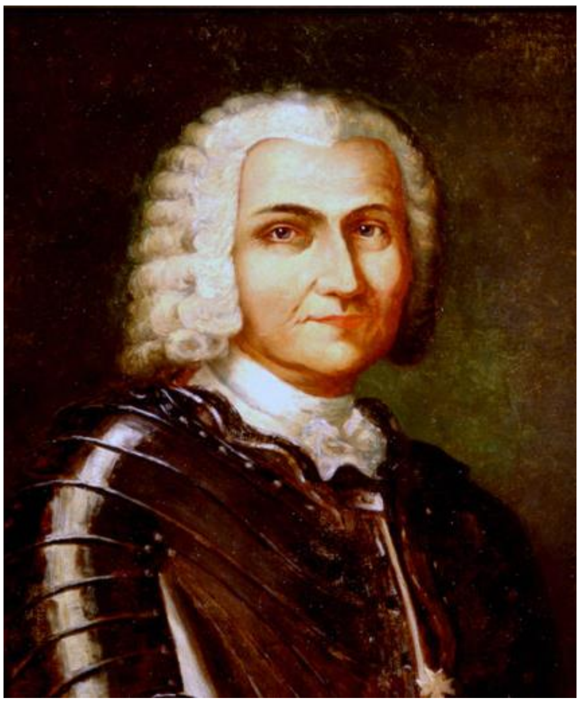


Figure 7. Portrait of Jean-Baptist Le Moyne, Sieur de Bienville by Rudolph Bohunek.

Pasquier, Michael T. n.d. "Jean-Baptiste Le Moyne, Sieur de Bienville." 64 Parishes. Access May 5, 2021. https://64parishes.org/entry/jean-baptiste-le-moyne-sieur-de-bienville-2.

After establishing the temporary Fort Maurepas on Biloxi Bay, Iberville returned to France, leaving Bienville in charge (Iberville 1981, 7; Pate 1980, 4). During Iberville's absence, Bienville intercepted and waylaid a British ship that had come into Biloxi Bay. Despite his brother's protests, Iberville hastened to establish a more permanent fort on the Gulf Coast after returning from France. Mobile was chosen as the permanent location for a new fort in 1702, and most of the supplies were moved from Fort Maurepas to the new

Fort Louis de las Louisiana (Iberville 1981, 8 & 11; Pate 1980, 5). Shortly after, Iberville returned to France permanently and Bienville was appointed governor of Louisiana (Pate 1980, 7). Over the next thirty years, Bienville was beset by issues concerning the governance of the infant colony and was summoned to France on various occasions. During this period, conflict with the Chickasaw and Natchez came to a head. When the Natchez attacked Fort Rosalie in 1729, it ignited a two-year conflict known as the Natchez War (Pate 1980, 25 & 34). Bienville returned to Louisiana in 1733 to take control and handle the ensuing conflict with the Indigenous tribes (Pate 1980, 35; Wilkins 1988, 137).

On another front, French tensions with the Chickasaw began to simmer as early as 1700, when Iberville and Bienville established Louisiana. This conflict boiled over after the Natchez War when the Chickasaw knowingly harbored surviving Natchez refugees in their villages, both allies of the British that were encroaching on French territory (Du Pratz 1947 [1775], 1 & 3; Hardy 2011, 83-84). Bienville was hesitant to declare war on the Chickasaw, until the British renewed their efforts in 1734 to encroach on Choctaw trade, who were allied with the French (Wilkins 1988, 138). In late 1735, Bienville dispatched Joseph Christophe de Lusser north to establish a fort as a depot for the upcoming attack on the Chickasaw. It was Lusser who established Fort Tombecbe on a bluff on the west side of the Tombigbee River (Wilkins 1988, 140).

Bienville arrived at Tombecbe with his garrison in late April of 1736, where he presented gifts to the Choctaw, before leaving shortly thereafter for the Illinois Country (Du Pratz 1947 [1775], 7; Parker 1982, 12-13; Wilkins 1988, 144). Bienville’s campaign

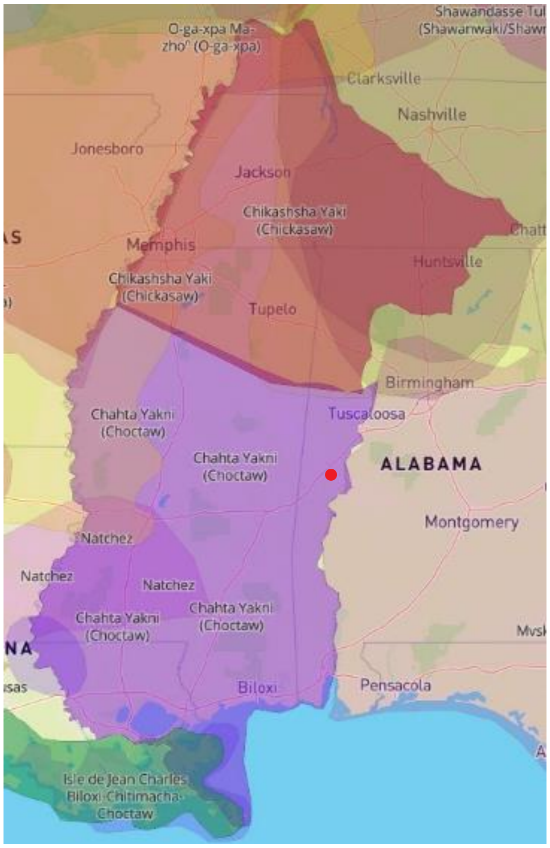


Figure 8. Map of Choctaw and Chickasaw Land Holdings in Mississippi and Western Alabama.

Native Land. n.d. Accessed May 5, 2021. https://native-land.ca.

was defeated and returned briefly to Tombecbe in June of 1736 before returning to New Orleans via Mobile. The remaining garrison at Tombecbe was under orders to complete work at the fort. The exterior palisade was completed in May of 1737 and the interior later that same year (Pate 1980, 68; Wilkins 1988; 149-150).

Occupations of Fort Tombecbe

French Occupation

Shortly after Bienville's defeat in the Illinois Country, he began making plans for a second attack on the Chickasaw. He had supplies sent to Tombecbe in February of 1737 to aid in preparation. However, he later decided to take a different route upriver (Pate 1980, 68). By November of 1743, reports were made by Pierre de Vaudreuil that Tombecbe needed additional supplies, not only for soldiers but for trading with the

Choctaw as well (Figure 9). This constant shortage of European trade goods inspired the Choctaw to turn to the British, who were better provisioned and able to meet supply demands (Barron 1975, 299-300; Pate 1980). When supplies were available, the French would trade the Choctaw for deer; bear skin, tallow, oil; beaver pelts; and buffalo (bison) wool and hides. Its interior location and high demand made Tombecbe the sixth largest distributor in the deer skin trade at one point in time (Barron 1975, xxi; Parker 1982, 9). When this occurred, however, is never specifically stated in any of the literature.

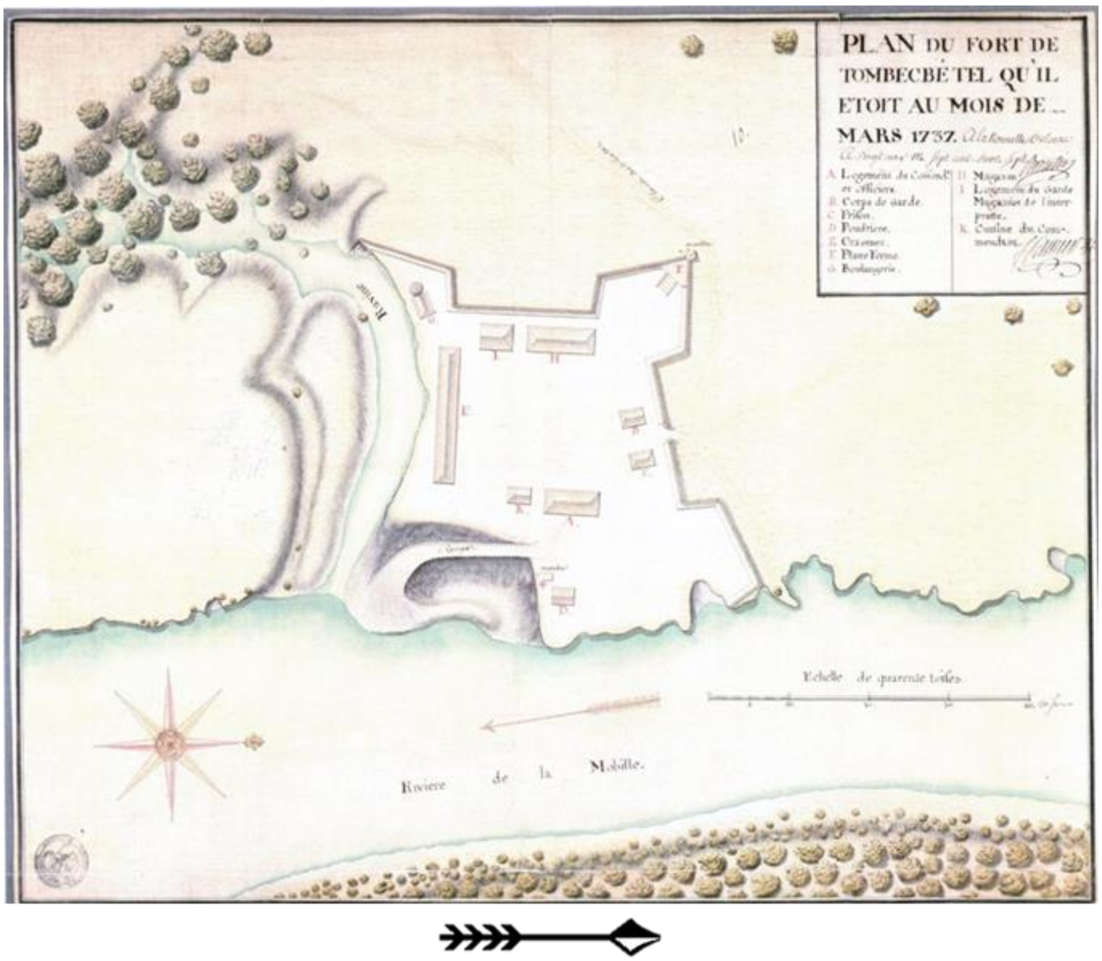


Figure 9. Fort Tombecbe by Ignace Broutin, 1737.

Ignace-François Broutin. 1737. “Plan du Fort de Tombecbé tel qu'il etoit au mois de mars 1737.” Accessed October 15, 2020. http://anom.archivesnationales.culture.gouv.fr/ulysse/notice?id=FR_ANOM_F3-290-10.

Pierre de Rigaud de Vaudreuil was appointed as Governor of Louisiana after Bienville returned to France in October of 1742. Vaudreuil saw benefits in trading with the Spanish in Mexico and Florida for goods that were not forthcoming from France (Barron 1975, xxvi; Pate 1980, 82). While the immediate supply needs on the coast had trickled further inland in the Louisiana colony, French vessels still had to contend with the changing water levels in the Mobile and Tombigbee Rivers. By April 1744, orders were made that supplies could only be sent upriver to Tombecbe when the river levels were high, keeping the boats from being forced to empty and travel by land, increasing the cost and time of shipment (Barron 1975, 325).

Supplies from France became even scarcer once the War of Austrian Succession began in 1744. The increased presence of the British Navy in the Atlantic led directly to supply shortages that were felt at Tombecbe. The commissary of the colony imposed a one hundred percent price increase on goods in the fall of 1745, inspiring a group of soldiers to desert their post. Disaster was averted due to the vigilance of the post commandant, Chevalier d'Erneville (Pate 1980, 93-94). Provisions became so scarce that in October of 1745 the residents of the fort became entirely dependent on the Choctaw for food. This continued for some time, as supplies that were due in December of that same year were further delayed (Barron 1975, 208, 383). Tensions between the French-allied and the British-allied Choctaw came to a head when the leader of the pro-British faction in the region, Red Shoe, had a group of Frenchmen killed in 1746. Red Shoe was killed in retaliation in 1747 by a group of French-allied Choctaw. These actions sparked the beginning of the Choctaw Civil War that lasted for three years. At some point during this time, Tombecbe received supplies for the soldiers and for trade with the Choctaw

(Pate 1980, 96-99, 101, 105). Tombecbe continued to struggle as an independent fort. Messages between Antoine Louis Rouillé and Vaudreuil discussed whether to abandon or keep a garrison at the fort, and if a garrison should remain how to keep it supplied (Barron 1975, 81, 92, 94).

By the summer of 1751, Vaudreuil ordered repairs be made to Tombecbe and increased support from Mobile to ensure that they had a year's supply of provisions at all times out of fear that they would be besieged by British-allied Choctaws. Despite these requests, flour shortages led explicitly to eight soldiers deserting their post and trying to escape the harsh conditions (Barron 1975, 272; Pate 1980, 105-106). These issues persisted with the beginning of the Seven Year's War, also known as the French and Indian War, due to the British Navy patrolling the Atlantic and delaying or stopping supply ships from leaving French ports. The Treaty of Paris was signed in 1763, turning part of the Louisiana colony over to the British (Parker 1982, 9; Pate 1980, 111, 115). Thus ended twenty-seven years of occupation by the French military at Fort Tombecbe.

British Occupation

The British flag was raised over Mobile on October 20, 1763, and Lieutenant Thomas Ford was dispatched to Tombecbe to take possession of the fort and place a British garrison on site (Parker 1982, 9). Ford arrived at Tombecbe on November 22, 1763 with thirty soldiers in tow and renamed the site Fort York (see Figure 10) (Parker 1982, 9; Pate 1980, 124, 126; Rea 1968, 21). Upon his arrival, Ford paid French Captain Pierre Chabert for the bull, four cows, and calf the French soldiers owned, but refused to pay for the pigeon house that the French had built (Pate 1980, 125; Rea 1968, 22-23). Whether this is due to a reimbursement for the pigeon house not being in the treaty agreements or a misunderstanding on Chabert's part is unknown. Ford also took possession of the French gardens where corn, barley, oats, and vegetables were being grown (Rea 1968, 22). Chabert and the French garrison departed the fort on December 3, 1763, finalizing the transition to British command (Pate 1980, 126).

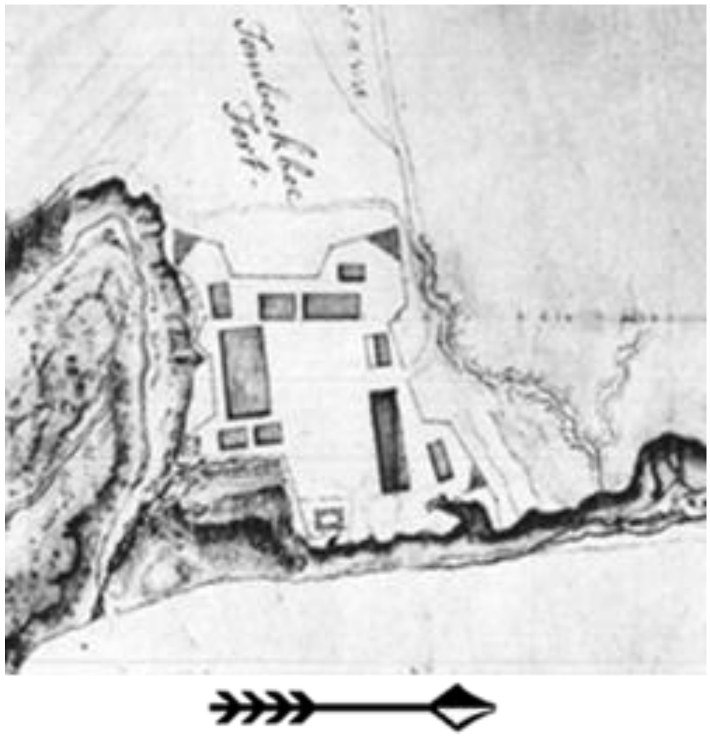


Figure 10. Fort York by Lieutenant Thomas Ford, 1763.

Archer B. Hulbert. 1915. *The Crown Collection of Photographs of American Maps.* Series III. Accessed October 15, 2020. https://rla.unc.edu/Mapfiles/CC/CC-3.maps.076-100.pdf.

England's initial occupation of Fort York lasted less than a year. It was abandoned as a part of a strategy of consolidating posts in the Southeast (Parker 1982, 9). Under orders from Major Robert Farmar of Mobile, the garrison at Fort York was withdrawn on October 15, 1764 and control was given to Jeremiah Terry, a private trader who was popular among the Choctaw (Parker 1982, 9; Pate 1980, 134; Rea 1968, 23, 25). George Johnstone, the new governor of West Florida, and General Thomas Gage, military commander for North America stationed in New York, later learned of Major Farmar removing the garrison and worked to re-established military contacts with the Choctaw at Tombecbe. Terry was removed from the fort and control was given to Elias Lagardère, who occupied one of the Barracks buildings with his family (Parker 1982, 9; Pate 1980, 134-135; Rea 1968, 23, 25). Lagardère had come from Charleston to West Florida in 1764 with his wife and servants and had been vying for the post of Commissary to the Choctaws for months, despite a notable lack of experience (Lagardere 1765; Rea 1968, 25).

The British garrison was ordered to return under Lieutenant Ritchy, with twenty soldiers, in August 1766 (Parker 1982, 9; Pate 1980 136-137). Ritchy and his men were sent upriver with six months' supplies, including rice, flour, and peas. John Dawson was assigned to take Ritchy's supplies upriver from Mobile. Unfortunately, several incidents along the way led to some of the provisions being lost and delayed until September 27. When supplies did arrive, Ritchy reported that there were only eight casks of flour, two casks of pork, one-and-a-quarter casks of beef, and no rice, peas, butter, cheese, or pots or kettles to cook food. The only way for the soldiers to survive until November 20 was for Ritchy to give shorter rations to each soldier (Pate 1980, 136-138; Rea 1968, 27-28).

Daily life was difficult for the soldiers during this time. One account describes when a soldier brought in a deer and Ritchy attempted to keep the meat for himself and tried to sell it to the soldiers for his own profit, but failed. Ritchy also ordered the Commissary to restrict soldiers from receiving fresh vegetables (Rea 1968, 29, 31). At some point; however, the soldiers were able to acquire the means to supply themselves with produce from a garden on site by the summer of 1767. Around the same time Ritchy asked that no rice be sent from Mobile, as it was spoiled by the time it arrived in the past (Pate 1980, 141; Rea 1968, 33-34). British efforts at self-sufficiency were foiled when the Choctaw attacked in October of 1767. They raided the gardens, burned buildings, and stole vegetables (Pate 1980, 142). By November 1767, the British troops at Fort York were in the same dire situation as the previous year, Ritchy detailing supplies as only being:

1259 pounds or 559 5/9 rations of beef

672 pounds or 512 rations of pork

3185 pounds or 910 rations of flour

46 ½ pints or 62 rations of oil

which totaled 2043 5/9 rations for Ritchy and his garrison. According to Captain John Knox in his journal from 1757, soldiers were allotted seven rations per week, which included seven pounds of beef or four pounds of pork, seven pounds of biscuits (bread or flour), six ounces of butter, three pints of peas, and half a pound of rice. However, Lieutenant Ritchy would have been allotted two rations per day based on his rank (Knox 1769, 27). Using Knox's numbers for approximately twenty soldiers and Lieutenant Ritchy, these food supplies listed would have been exhausted by February 9, 1768, the date of the next resupply. Based on this information, it is apparent that Ritchy had no inclination of the plan to abandon the fort in the near future, as he expected more supplies prior to February of 1768 (Pate 1980, 144-145).

The final expedition upriver from Mobile, led by Charles Stuart, departed in November 1767, but was delayed by rains until mid-December (Pate 1980, 146; Rea 1968, 37). The British garrison abandoned Fort York in early January of 1768 and arrived in Mobile by mid-January, equating to only approximately two years and three months of military occupation during the just over four years Tombecbe was under British control. The fort was left vacant and in ruins as described by Bernard Romans, who passed through in 1772 (Parker 1982, 9; Pate 1980, 147-148; Rea 1968, 37, 39).

Spanish and American Occupation

Fort Tombecbe sat vacant until 1793. Delegates from the Choctaw and the Spanish signed the Treaty of Boucfouca on May 10 of that same year that ceded approximately twenty-five-and-a-half acres of land, including the site of old Fort Tombecbe, to the Spanish (Pate 1980, 155). The Spanish began building on the site in the spring of 1794, the engineer completing plans by June 24 (Parker 1982, 18). The new fort came to be known as Fort Confederation (Figure 11).

Unlike the French and British, the Spanish were not only contending with soldiers charging the palisade with muskets and bayonets, but the newly formed United States also had cannons in their arsenal. This required more than a wooden palisade for defense, leading the Spanish to build mounded earthworks around the perimeter, with a palisade at the crest. With the fortifications in place and interior structures nearing completion, it was proposed in November that the front of the palisade posts be shored with soil and a rampart of stone and mortar be built. The Choctaw were pleased to once again have a trading post within the Louisiana interior, saving them the trip to Mobile.

American interests in the region brought Spanish control to an end after only a few short years. On October 27, 1795, Spanish minister Manuel de Godoy and American minister Thomas Pinckney signed the Treaty of San Lorenzo, ceding all Spanish territory north of the thirty-first parallel and east of the Mississippi River to the United States. The remaining territory along the Gulf Coast was ceded by March of 1796, but Fort Confederation did not receive word until mid-summer. The fort was evacuated by March 17, 1797, less than three years after the Spanish initially took possession (Pate 1980, 162-174).

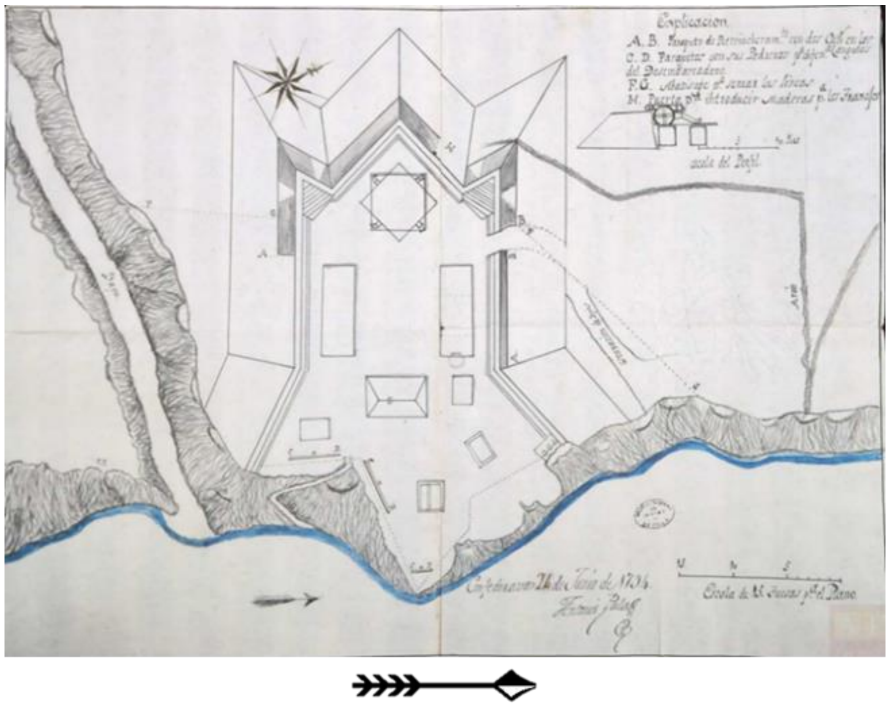


Figure 11. Fort Confederation, 1794.

Antonio Palao. 1794. “Plano del fuerte de Confederación, en Luisiana.” Accessed October 15, 2020. http://pares.mcu.es/ParesBusquedas20/catalogo/description/19326.

Fort Tombecbe sat fallow again until 1816 when George Strother Gaines met with Choctaw leader Pushmataha, who recommended that a trading house be built where Fort Confederation once stood. After some deliberation, Gaines decided on a site on the Old Box Maker’s Creek, now known as Factory Creek, approximately two miles north of the site of Fort Tombecbe. Construction of the trading house begin in January 1816 and was completed in May, when Gaines ordered supplies moved from the trading house at Fort St. Stephens, in present-day St. Stephens, Alabama, to the new trading house on Factory

Creek (Figure 12). The trading post was only operational for a few years before it closed in 1822, when the factory system was abolished by Congress (Gaines 1988, 164; Pate 1980, 189-99). A private trading company took over the property for a short period afterwards and was owned and operated by Gaines and his partner Allen Glover, a planter and slave owner that moved to Demopolis from South Carolina in 1818. The company continued to be referred to as the Choctaw Trading House until it closed in 1831 (Gaines 1988, 162).

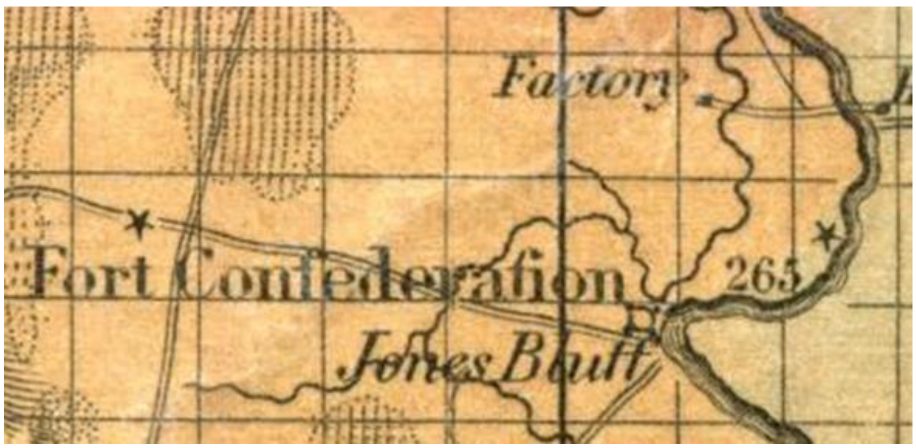


Figure 12. Choctaw Trading House/Factory Site by La Tourette, 1837.

John La Tourette. 1837. "An Accurate Map of the State of Alabama and West Florida." Accessed October 15, 2020. http://cartweb.geography.ua.edu/lizardtech/iserv/calcrgn?cat=North%20America%20and%20United%20States&item=States/Alabama/sheet%2008latFIX.sid&wid=1000&hei=900&props=item(Name,Description),cat(Name,Description)&style=default/view.xsl&plugin=true.

The site remained vacant while the surrounding land was used for agricultural farming. In 1915, the Colonial Dames, a society for female descendants of someone paramount to the founding of the United States, bought the parcel containing the earthworks and interior of the Spanish Fort Confederation. In the 1960s, a campground was established on the adjacent land and this period is when the most damage is suspected to have occurred from campground visitors and looters looking for relics

(Parker 1982, 11). One of the more detrimental destructive events occurred when the campground owner misunderstood property lines and removed a small section of the Spanish earthworks with a bulldozer to make way for a small road. Another likely occurred when a bath house was built to the southwest of the original fort site, possibly where exterior buildings or encampments once stood.

Archaeological Excavations

1980s Excavations

Archaeological excavations at Fort Tombecbe first began in the summer of 1980 as a research project funded by the Alabama Historical Commission (Figure 13). Under the direction of James W. Parker and Roy E. Blair, the focus of these excavations was the interior of the Spanish earthworks. The multi-component occupation of the fort and Parker and Roy's selection of contexts limited their control to Franco-British and Spanish contexts.

Layers in each unit were based on the natural stratigraphy in the soil. Soil was water screened through quarter-inch mesh. Parker notes that window screen was used for sampling throughout the excavation, but not used in screening every context. Looter activity over the winter of 1980-81 compelled further excavation in the summer of 1981 in order to document the damage and exposed stratigraphy. By the end of the two summers of excavation, approximately eighteen kilograms of faunal material were recovered, among other types of artifacts (Parker 1982).

2010-Present Excavations

Dr. Ashley A. Dumas joined the faculty at UWA in 2009 and was appointed the director of the Fort Tombecbe Archaeological Site (Dumas 2021). In 2010, Dumas began surveying the property where Fort Tombecbe lies. Her work began by conducting shovel tests around the fort, followed by locating Parker's previously excavated unit in the Bakery and Barracks areas. Finding this unit led to outlining the palisade wall, shown

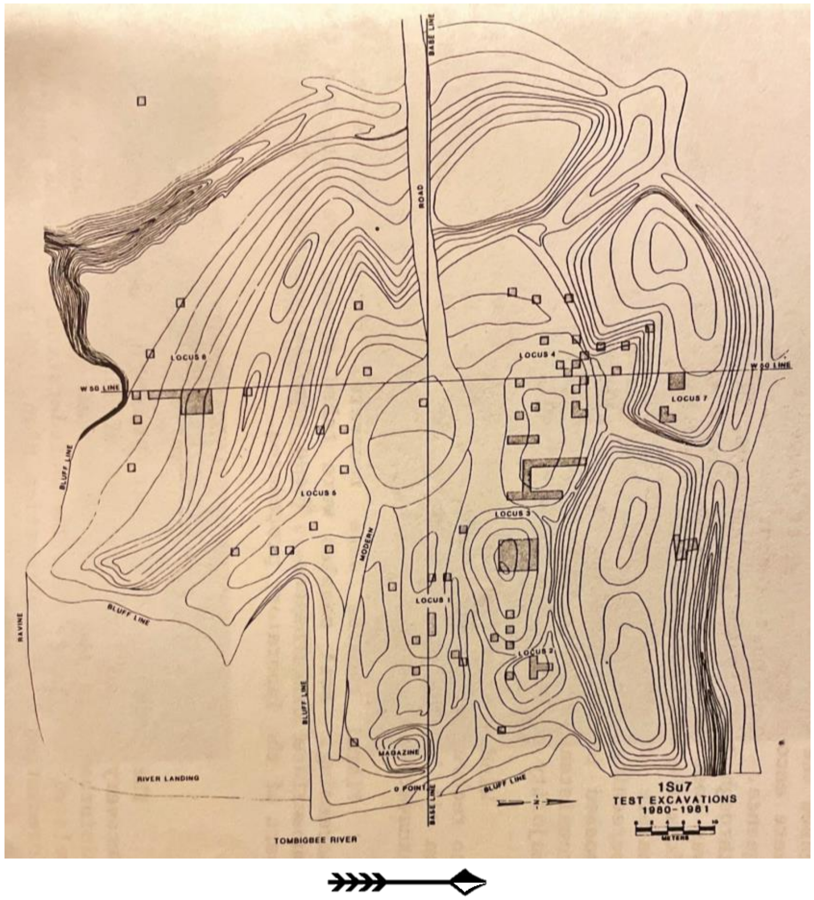


Figure 13. Topographic Map of Excavations of Fort Tombecbe, 1980-81.

Parker, James W. 1982. "Archaeological Test Investigations at 1Su7: The Fort Tombecbe Site." *Journal of Alabama Archaeology* 28, no.1.

in Figure 14 in relation to Broutin's 1737 map, as well as locating the Southwest bastion corner. Excavations have continued in this area with field work occurring in 2010, 2012, 2014, 2018, and 2020, uncovering remains of the original French Bakery, and soldiers' Barracks; contexts utilized exclusively by the French and British occupants of the fort. The units excavated in these areas are shown in the upper left of Figure 15. The units in the area of the Bakery and soldiers' Barracks are shown in Figure 16. Of the units shown, Units 202 and 206 through 210 have not been excavated as of March of 2022.

Excavations since 2010 have employed eighth- and sixteenth-inch mesh, and a

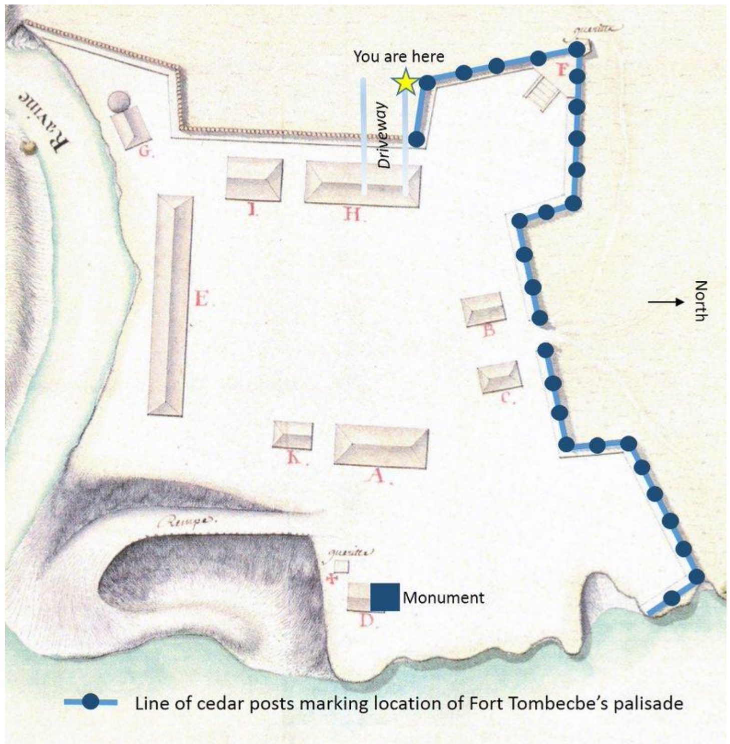


Figure 14. Palisade Posts Set in Approximate Original Locations.

Dumas, Ashley A. n.d. Black Belt Museum Laboratory, University of West Alabama, Livingston, AL.

combination of dry and wet screening, to recover smaller artifacts such as glass trade beads or small animal or fish bones. In these five field seasons, eighth-inch screens were used if the soil was particularly dry, there was a heavy chalk presence, or upper layers were being excavated where not many artifacts were present. Sixteenth-inch screen was used for dry screening in the field, but due to the heavy clay content, this was difficult at times and required additional wet screening. During the 2012 and 2014 field seasons, wet screening was set up on-site using sixteenth-figure inch screen, but during the other field seasons wet screening was conducted at the archaeology lab on the UWA campus. As units were excavated, forms were filled out based on the layer and/or feature being excavated, as well as general notes made in a site-wide field notebook. Pictures were taken, rough plan view drawings were completed after each layer, and plan and profile view drawings were drawn upon the completion of a unit (Dumas 2012, 2014, n.d.). I worked on the Barracks excavations during the Fall of 2018, as part of my field school while attending UWA. [1]

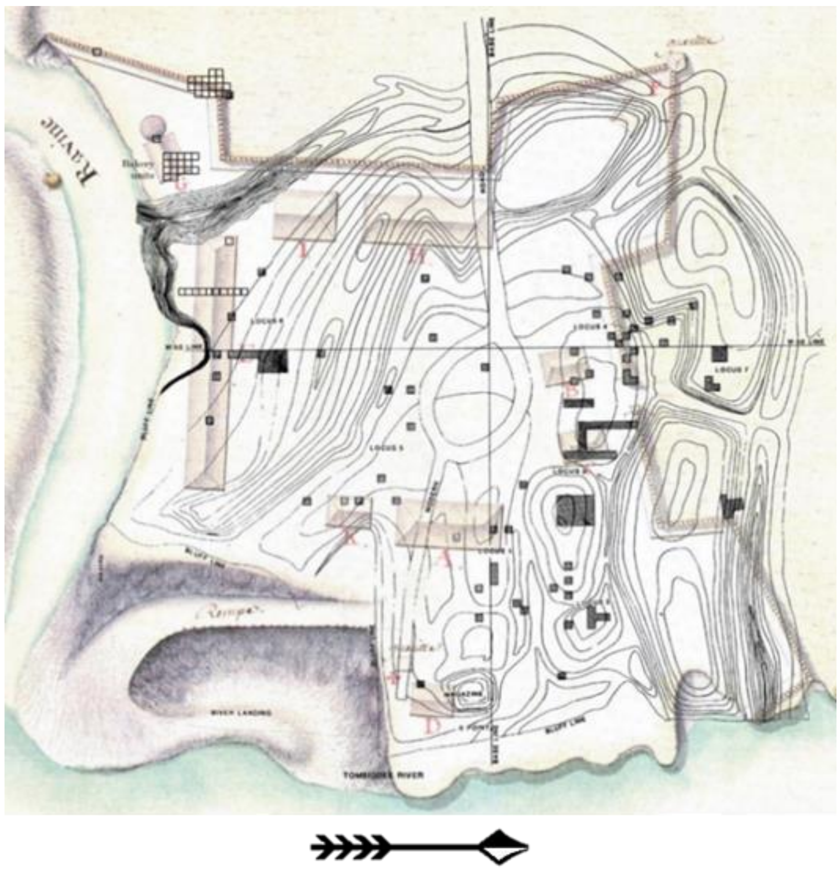


Figure 15. Excavations at Fort Tombecbe under Ashley A. Dumas, 2020.

Dumas, Ashley A. n.d. Black Belt Museum Laboratory, University of West Alabama, Livingston, AL.

[1] While the data is not included in my thesis, Dumas was awarded a National Endowment for the Humanities grant in 2020 to fund not only additional excavation, but also educational filming for K-12 students as a way to show what archaeology is to future generations, and purchase needed lab materials for continued curation of artifacts. The excavation was limited to one day, but I was able to volunteer and help excavate the first level in Unit 213 in the soldiers' Barracks, which is to the south of Unit 212.

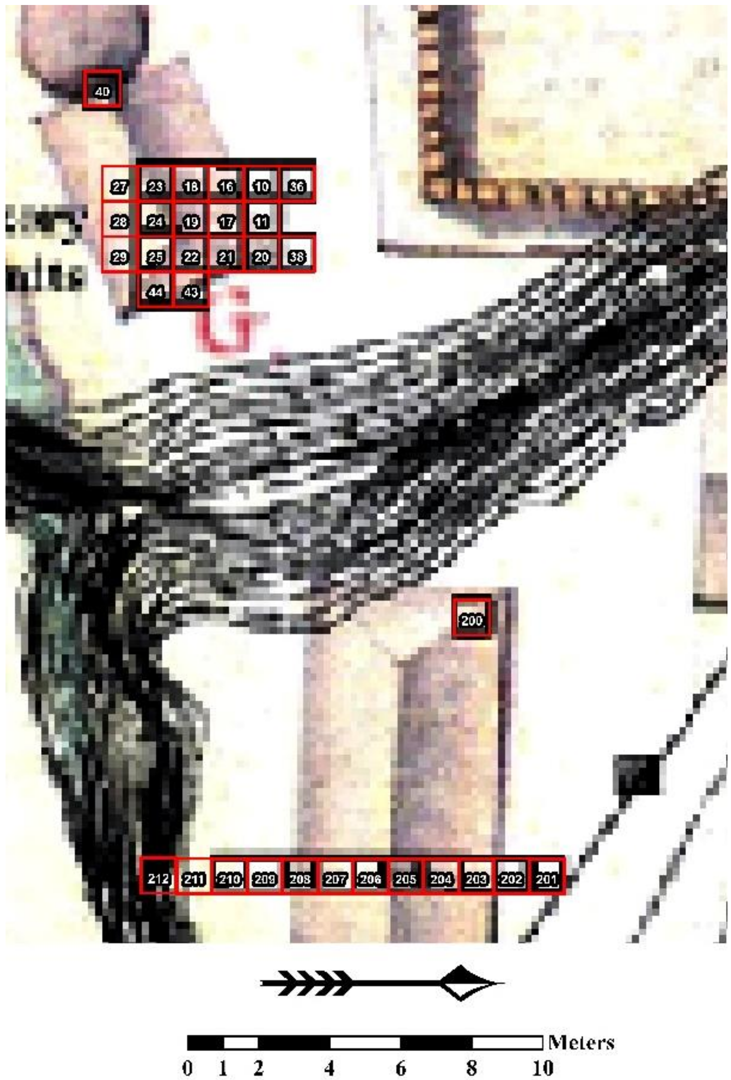


Figure 16. Units in the Bakery and Barracks Components, Fort Tombecbe.

Coffey, Sarah. May 22, 2021.

Summary

To summarize, the history of Fort Tombecbe mentions numerous issues with maintaining subsistence supplies for the soldiers during the French and British occupation. This was due to various political, geographical, and environmental issues at the time. While not explicitly mentioned within the correspondence and other accounts, this most likely led to soldiers hunting native species and/or trading in a larger capacity with the local Choctaw. With the focus of the study being on the Bakery and soldiers' Barracks, which are isolated outside of the Spanish occupation at Jones Bluff, the French and British subsistence practices are the primary focus, in addition to the local Choctaw diet.

French colonials seemed more adept at adapting to new environments and incorporating native species into their diet. On the other hand, the British seemed less likely to make these changes and preferred similar foods as those found in Britain and more well-established British settlements in North America. Until both the French and British adapted to their new environments, local Indigenous populations were imperative to helping Europeans survive. Noticeable differences between the adapted diet of the French and the regular diet of the Choctaw seems to be that while the French adapted their butchering practices to new species, the Choctaw butchered with muscle groups, cutting around bones rather than through them.

While the statistical methods discussed in Chapter III are useful in making interpretations about the Tombecbe assemblage, the most important information in answering the questions outlined in Chapter I are these differences in European diets and the differences between European and Choctaw butchering practices. In answering these questions, a more comprehensive history of Fort Tombecbe can be made and then be used to compare other contemporary fort sites in the Southeastern United States.

CHAPTER IV – MATERIALS AND METHODS

Considerations for Faunal Analysis

One of the most efficient means of answering the question of subsistence practices is by examining faunal remains. Like any other form of material culture, however, context is the key to interpretation. Thus sampling strategy and identification of a suitable assemblage must take multiple taphonomic factors into consideration.

Recovery rate and condition of faunal remains is dependent on taphonomic processes. Preservation is affected by environmental conditions, animals and insects, looting, as well as methods of recovery during excavation. Environmental conditions, such as precipitation and soil pH, have a major effect on the faunal assemblage while it lies in situ prior to excavation. How much average rainfall a geographical area receives influences the degree of bone leaching. Additionally, an acidic soil pH, below a 7.0, accelerates bone deterioration. Damage by other means, such as animals, insects, or flora may have some effect on the identification of faunal remains, but not as drastically in some instances.

While most natural and cultural forces are beyond the control of the archaeologist (e.g., rain, soil pH, and animals and insects), the method of recovery, which is within their control, also has a profound effect on the assemblage. This includes screen size, sampling strategy, and documentation at all stages of excavation. Using screen size as an example: most field directors opt to use quarter-inch screen by default. Others select eighth- to sixteenth-inch screen because their focus is on all faunal material or other, smaller artifacts that might otherwise be lost. Even at sites where large mammals are the focus of study, there is still the issue of skewing the data by using the larger, quarter-inch screen. At the Suberde site in Turkey, large and medium bovids – cattle and sheep/goats – were the focus of the study (Redding 2002). The smaller carpals and tarsals of the sheep/goats were lost during screening. While others see the Suberde assemblage as an over-representation of non-meat bearing elements from cattle, Redding sees the data skewed in this direction – towards evidence of schlepping, or butchering of meat-bearing elements prior to transport, for sheep and goats. Redding attributes this under representation of carpals and tarsals from sheep and goats to the larger screen size that was used during excavations (Redding 2002).

The first systematic archaeological excavations at Fort Tombecbe, under James W. Parker and Roy E. Blair in 1980 and 1981, used quarter-inch screen for the entirety of the project; however, any information or field documentation otherwise detailing the methods of excavation are in private collections and unavailable to use as a resource. Parker recognized that screen size biased the recovered assemblage towards those faunal remains that are larger than a quarter-inch (Parker 1982, 79-80). Subsequently, Parker (1982) was only able to separate Franco-British and Spanish occupational layers, but the transcribed catalogs and catalog numbers make no differentiation beyond unit number and general layer number (Figure 17).

The excavations conducted since 2010, under the direction of Dr. Ashley A. Dumas, made use of eighth- or sixteenth-inch screen, not only to improve faunal recovery, but artifact recovery overall at Fort Tombecbe (Dumas 2012, 2014, n.d.). This not only increased the overall number of remains, but also the recovery of small elements and species that would have otherwise been lost. Paperwork and notes were recorded for each unit, separated by layer and/or feature (Figure 18). Artifacts were separated and

Unit Number	Catalog	Level	F.S.	Material	Category/Description	Number/ Count	Weight (g)
W13 N14	4	A	1	Ceramic- European	Cinnamon Brown- Poss. [Possibly?]Clear Lead Glazed Redware	1	1.4
W13 N14	4	A	2	Ceramic- European	T.G. [Tin Glazed?] EW. [Earthenware?] Brown Backed- Grey-Red Hard Body	1	0.8
W14 N14	5	A	1	Metal	Nail Without Head	1	2.7
W14 N14	5	A	2	Metal	Nail with Head Bent 60	1	8.2
W14 N14	5	A	3	Metal	Nail with Head 35-40	1	3.2
W14 N14	5	A	4, 5	Metal	Nail with Head 40-45	2	5.2
W14 N14	5	A	6	Faunal	Animal Tooth	1	0.9
W14 N14	5	A	7--12	Faunal	Animal Bone	6	4.0

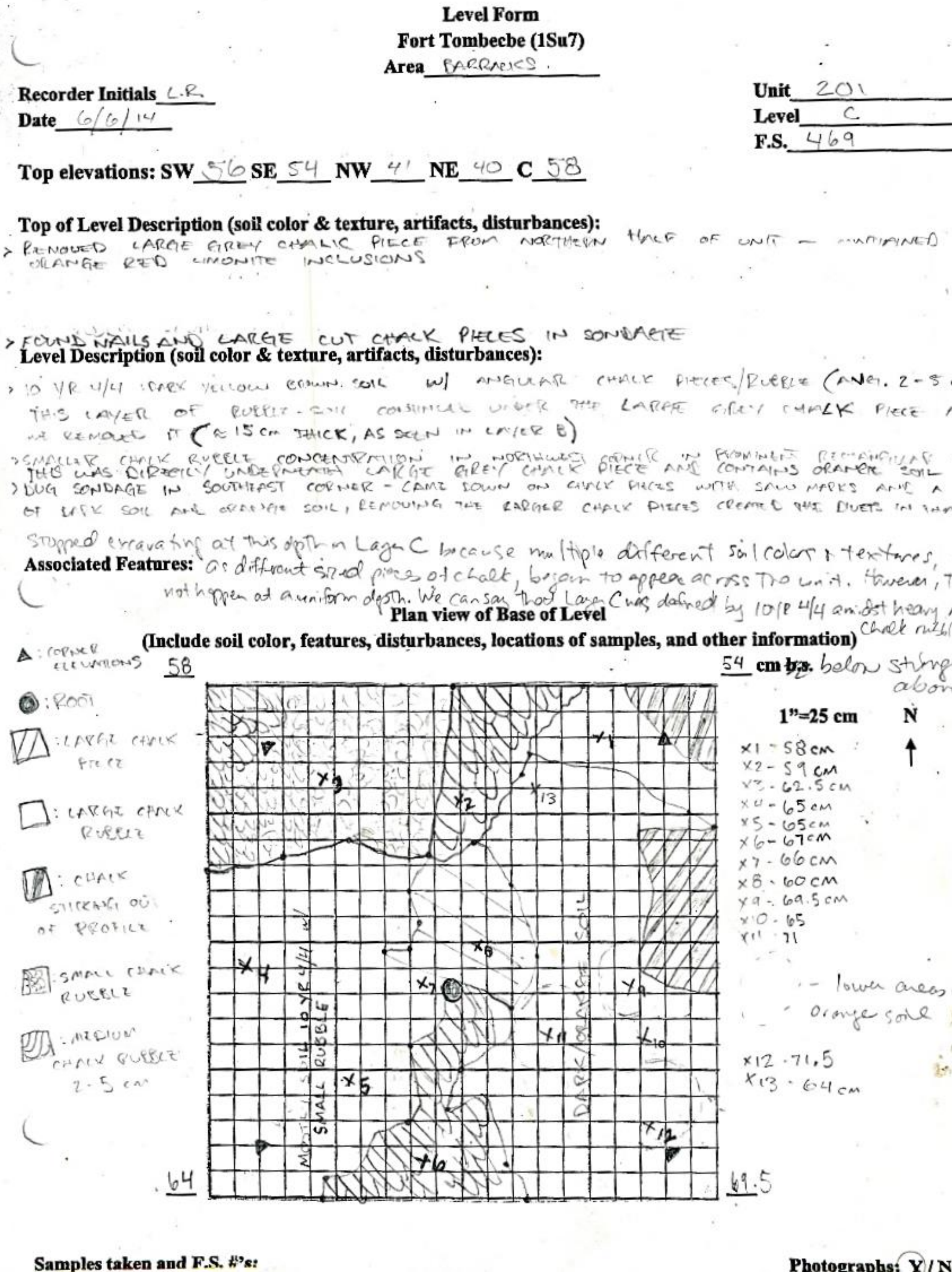
Figure 17. Parker's Ambiguous Catalog Descriptions.

Fort Tombecbe 1980 Artifact Catalog. Black Belt Museum Laboratory, University of West Alabama, Livingston, AL.

bagged in the same manner to aid in contextual analysis. Based on these differing methods, Dumas's excavations allow for better control of cultural and stratigraphic separation allowing us to pose more pointed questions.

A remaining issue that needs to be taken into consideration is the effect of the local environment on preservation. At Fort Tombecbe, the underlying bedrock is the Selma Chalk formation, known to some as Demopolis chalk, which has a pH above 7.0, making it more likely for faunal remains to preserve in the soil (Parker 1982, 3; Pate 1980, 141); the average rain fall in the area is between 50 and 60 inches of rain, leaving a slightly smaller chance of the bones being leached compared to other sites, such as Old Mobile (Searcy 1985, 33).

In an ideal situation, the best preservation of faunal remains would be an area of little to no rain, to reduce the chances of bone leaching, and a neutral or slightly basic soil pH to reduce the likelihood of bone integrity being lost to more acidic soils. In short, this is due to the acidity of the soil breaking down the inorganic material hydroxyapatite that



Level Form
Fort Tombecbe (1Su7)
Area BARRACKS

Recorder Initials L.R.
Date 6/6/14

Unit 201
Level C
F.S. 469

Top elevations: SW 56 **SE** 54 **NW** 41 **NE** 40 **C** 58

Top of Level Description (soil color & texture, artifacts, disturbances):
> REMOVED LARGE GREY CHALK PIECE FROM NORTHERN HALF OF UNIT – CONTAINED ORANGE RED LIMONITE INCLUSIONS

> FOUND NAILS AND LARGE CUT CHALK PIECES IN SONDAGE

Level Description (soil color & texture, artifacts, disturbances):
> 10 YR 4/4 DARK YELLOW BROWN SOIL W/ ANGULAR CHALK PIECES/RUBBLE (AVG. 2–5 CM ACROSS) THIS LAYER OF RUBBLE-SOIL CONTINUES UNDER THE LARGE GREY CHALK PIECE AFTER WE REMOVED IT (≈ 15 CM THICK, AS SEEN IN LAYER B)
> SMALLER CHALK RUBBLE CONCENTRATION IN NORTHWEST CORNER IN PROMINENT RECTANGULAR SHAPE; THIS WAS DIRECTLY UNDERNEATH LARGE GREY CHALK PIECE AND CONTAINS ORANGE SOIL
> DUG SONDAGE IN SOUTHEAST CORNER – CAME DOWN ON CHALK PIECES WITH SAW MARKS AND A MIX OF DARK SOIL AND ORANGE SOIL, REMOVING THE LARGER CHALK PIECES CREATED THE DIVETS IN THAT AREA

Stopped excavating at this depth in Layer C because multiple different soil colors & textures, as well

Associated Features: as different sized pieces of chalk, began to appear across the unit. However, this did not happen at a uniform depth. We can say that Layer C was defined by 10YR 4/4 amidst heavy medium chalk rubble.

Plan view of Base of Level
(Include soil color, features, disturbances, locations of samples, and other information)

▲: CORNER ELEVATIONS
●: ROOT
LARGE CHALK PIECE
LARGE CHALK RUBBLE
CHALK STICKING OUT OF PROFILE
SMALL CHALK RUBBLE
MEDIUM CHALK RUBBLE 2–5 cm

58 — 54 **cm b.s.** below string 10 cm above g.s.

1"=25 cm **N**

x1 – 58 cm
x2 – 59 cm
x3 – 62.5 cm
x4 – 65 cm
x5 – 65 cm
x6 – 67 cm
x7 – 66 cm
x8 – 60 cm
x9 – 69.5 cm
x10 – 65
x11 – 71
– lower areas within orange soil
x12 – 71.5
x13 – 64 cm

MEDIUM SOIL 10 YR 4/4 W/ SMALL RUBBLE
DARK/ORANGE SOIL

64 — 69.5

Samples taken and F.S. #'s:

Photographs: Y / N

Figure 18. Standardized Field Paperwork Implemented by Dumas.

Level Form Fort Tombecbe (1Su7) Unit 201 Layer C F.S. 469. Black Belt Museum Laboratory, University of West Alabama, Livingston, AL.

makes up approximately 50% of bone by weight (Junqueira and Carneiro 2003, 144). In the case of Tombecbe, as will be discussed later, the more basic soil leads to better preservation and the use of smaller mesh screens further increased recovery of faunal remains, making for a more thorough analysis and interpretation of the assemblage.

Context Selection

Given the previous excavations under James W. Parker and Roy E. Blair and later Dr. Ashley A. Dumas, it was important to consider both the methods of recovery and intrasite settlement patterns observed by the French, British, and Spanish occupations when identifying a location to analyze a sample of the total faunal assemblage and standardizing the assemblages for comparison. Because I am interested in examining the French and British diet at the fort, the Bakery and soldiers' Barracks seemed the best suited to addressing my research questions concerning what the soldiers at Tombecbe were eating in terms of faunal material.

Faunal Analysis

The faunal assemblage from the Bakery and soldiers' Barracks contexts were loaned from UWA and analyzed at USM using the comparative collection housed in the anthropological facility. This material was excavated from 27 square meters of area across the Bakery and Barracks. All unidentifiable bone was separated, counted, and bagged according to whether it was natural, burned, and calcined. Any unidentifiable material less than one-quarter of a centimeter in size was not separated or counted based on these criteria.

All material, identifiable and unidentifiable, was weighed to the nearest one-hundredth gram. The total weight for the assemblage, unidentifiable bone, and identifiable bone aided in determining the proportions of the types of bone (natural, burned, and calcined), as well as the proportions of the species identified in conjunction with the Number of Identified Specimens (NISP), which is defined in the statistical methods below.

Information was collected for all identifiable material and entered into a Microsoft Access database, including:

- Provenience (Area, Unit, Layer, Feature)
- Taxa
- Common Name
- Skeletal Element
- Element Portion (Proximal, Distal, Shaft, etc.)
- Body Portion (Axial, Forelimb, etc.)
- Side
- Element Completeness
- Post-Mortem Modifications (Burned, Cut, etc.)
- Age and Sex (when applicable)
- Count
- Weight

Taxonomic names were taken from those listed in the Integrated Taxonomic Information System (2020), which uses the most accurate and reliable taxonomic information.

Terminology

In some instances, the faunal remains could not be identified beyond a particular size class of mammal or bird. In these cases, the following categories were used: extra-large mammal such as bison or horse; large mammal species such as cow, white-tailed (WT) deer, or black bear; medium mammal species such as canids or pigs; small mammal species such as squirrels, rabbits, and rats; micromammal species such as mice; extra-large bird species may include turkey; large bird may include geese, swans, or cranes; medium bird ducks or chickens; small bird passenger pigeon or other passerines.

Identification of Body Portions

In identifying the bone fragments, the identified elements were separated into larger body portions to see if there was any particular segment that was over represented in the assemblage and thus favored over others.

The head portion includes any part of the skull or mandible from any taxa; the axial skeleton includes the spine, ribcage, and pelvis; forequarter limbs include the scapula, humerus, radius, and ulna; hindquarter limbs include the femur, tibia, and fibula; the forefoot limb includes any carpals and metacarpals; and the hindfoot limb includes any tarsals and metatarsals. Additionally, any fragment that could be generally categorized as long bone were assigned to the "Long Bone" group; any fragment that could not be differentiated as a carpal or tarsal and metacarpal or metatarsal, as well as any phalanx recovered, was assigned to the "Foot/Wing" group; and any fragments that came from the body of the fish were assigned to the "Fish Body" group. There were 14 fish scales in the assemblage that were separated from the rest of the body portions, rather than being assigned to the "None" category. Turtle shell fragments were assigned to their own “Turtle Shell” category. Lastly, any bone that could not be identified and attributed to any of these other portions was assigned as “None”.

Identification of Side

Fragments were sided when possible and labeled as being from the left side, right side, or the midline of the body. In conjunction with the body portion and element completeness, this information can aid in calculating Minimum Number of Individuals (MNI).

Element Completeness

As remains were analyzed, completeness of the individual elements was also assessed. Element completeness is coded in the Access database as “L”, “H”, “G”, or “W” with L being less than half, H being approximately half, G being greater than half, and W being the entire identified element. This data, in conjunction with the Element Portion aids in more precisely estimating Minimum Number of Individuals (MNI), defined below, of a particular species.

Post-Mortem Modifications

Any post-mortem modifications on the faunal remains recovered can aid in making determinations about butchering practices and methods of meat preparations and cooking used by the soldiers at Tombecbe. In the Bakery and Barracks assemblages, these modifications were categorized as natural, burned, calcined, as well as having angled gouges, chop marks, cuprous stains, cuts, gnaw marks, being fossilized, rust residue, saw marks, or indeterminate tool marks.

Natural includes bones that have no color changes other than from the soil.

Bone fragments that were charred or turned partially or completely black were considered “Burned” (Figure 19). While debatable, this is most likely the result of a shorter period in a high temperature fire or some unknown period of time in a fire with lower temperatures.

Bone fragments that have turned partially or completely white and/or white-blue were considered “Calcined” (Figure 20). This likely occurred due to an extended period of time in a fire.

One bone fragment had marks in a faint ‘U’ or ‘V’ shape that could not be confidently determined to be a chop mark or cut mark and was thus was labeled as an “Angled Gouge” (Figure 21). This was a preliminary assessment that, upon further research, is most likely evidence of carnivore gnawing.

Some of the bone fragments had parallel marks clustered together and were assigned as “Chop Marks” (Figure 22). These marks were differentiated from cut marks by the larger width and deeper scoring.

One of the bones had green staining from a cuprous artifact that was buried in contact with the specimen and had no other modifications and was labeled under “Cuprous Stains” (Figure 23). It is unknown what this cuprous artifact might have been, although the staining on the bone was in a circular shape, indicating it could have been a button or other similarly shaped artifact.

Bones with small marks that had a smaller width and shallower scoring were assigned as “Cut” modifications (Figure 24).

Some of the bone fragments evidenced “Gnawing” by carnivores, such as dogs, or rodents, such as rats or mice (Figure 25).

Two bones were “Fossilized” and therefore older than the Fort Tombecbe occupation (Figure 26). The first was unidentifiable to any particular taxa and the second was identified as an astragalus from a white-tailed deer. Fossils in the Black Belt, specifically in Sumter County, are known to be present. In this instance, these two fossil animal bones most likely came from the Pleistocene, which is approximately 2.06 million to 11,430 years ago. White-tailed deer are noted to have occurred throughout the area in Sumter County during the Late Pleistocene, the period closest to the present day (Ebersole and Ebersole 2011). These and other Pleistocene remains are recovered from the soil above the chalk bedrock, in which earlier Cretaceous period fossils are found.

Eight bones had red-orange rust residue on their surface (Figure 27

), likely due to being in contact with a nail or other iron artifacts prior to excavation, and were placed in the “Rust Residue” group.

Bones that showed signs of sawing – evidenced by straight, flat cuts through any portion of an element that left behind parallel striations on the cut surface of the bone – were placed in the “Saw” group (Figure 28).

“Tool” modification was initially designated for one bone that had a mark that could not be identified to any particular modification (Figure 29). However, upon further inspection, appeared similar to identified percussion marks made when long bones were broken for marrow removal.

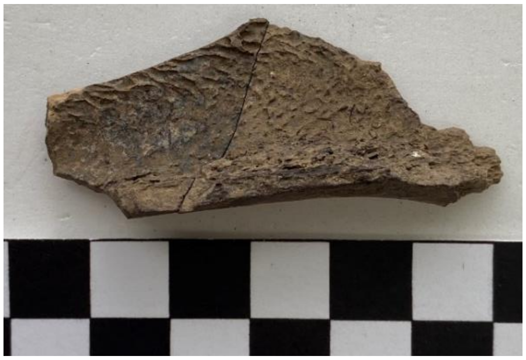


Figure 19. Burned Modification on WT Deer Tibia, FS 374.

Burned Bone, UWA Archaeology Lab, photography by Dr. Ashley A. Dumas, September 8, 2021.

Figure 20. Calcined Modification on M/L Mammal Long Bone, FS 491.

Calcined Bone, UWA Archaeology Lab, photography by Dr. Ashley A. Dumas, September 8, 2021.

Figure 21. Angled Gouge Modification on WT Deer Ulna, FS 459.

Bone with Angled Gouge, UWA Archaeology Lab, photography by Dr. Ashley A. Dumas, September 8, 2021.

Figure 22. Chop Mark Modification on WT Deer Scapula, FS 374.

Bone with Chop Marks, USM Archaeology Lab, photography by Sarah Coffey, May 15, 2021.

Figure 23. Cuprous Stain Modification on WT Deer Tibia, FS 636.

Bone with Cuprous Stain, USM Archaeology Lab, photography by Sarah Coffey, December 8, 2020.

Figure 24. Cut Modification on WT Deer Cervical Vertebra, FS 623.

Bone with Cut Marks, USM Archaeology Lab, photography by Sarah Coffey, December 14, 2020.

Figure 25. Gnawing Modification on WT Deer Tibia, FS 623

Bone with Rodent Gnawing, USM Archaeology Lab, photography by Sarah Coffey, December 14, 2020.

Figure 26. Fossilized WT Deer Astragalus, FS 613.

Fossilized Bone, USM Archaeology Lab, photography by Sarah Coffey, December 12, 2020.

Figure 27. Rust Residue on WT Deer Axis, FS 468.

Bone with Rust, USM Archaeology Lab, photography by Sarah Coffey, May 14, 2021.

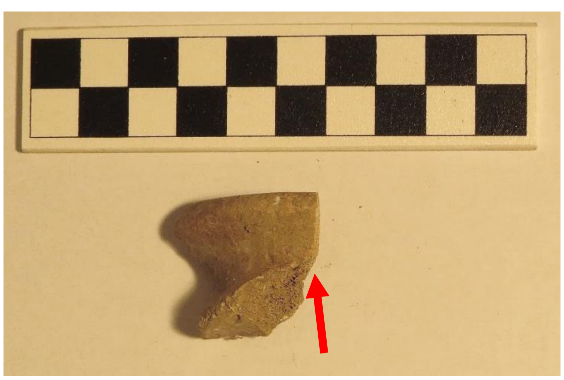


Figure 28. Sawing Modification on WT Deer Femur, FS 623.

Bone with Saw Marks, USM Archaeology Lab, photography by Sarah Coffey, December 14, 2020.

Figure 29. Tool Modification on WT Deer Radius, FS 623.

Bone with Tool Marks, USM Archaeology Lab, photography by Sarah Coffey, December 14, 2020.

Statistical Analysis

Methods of statistical analysis are based on those summarized in Reitz and Wing (2008). These methods of analysis were used for all identifiable material.

The count of all faunal material is recorded as the Number of Identified Specimens (NISP). Elements of the same portion and/or side were used to calculate Minimum Number of Individuals (MNI) for the specimens that could be identified to at least the genus taxonomic level. MNI being the fewest individuals identified in an assemblage based on the elements analyzed. This method of calculating MNI follows the procedures adopted by Theodore E. White (1953). Observed to expected ratio of elements was calculated only for the taxa that could be identified to at least the genus taxonomic level. Observed to expected ratio is used to calculate what elements are in abundance compared to the expected standard of a whole animal being butchered and eaten on site. This is useful in interpreting whether there may have been preferences for a particular portion or cut of meat and whether butchering may have occurred on- or off-site. The expected number is determined either by the element with the highest NISP value or by the total number of that element that is expected based on the calculated MNI for that particular taxa. Examples of these two methods of calculating observed to expected ratios are shown in Figures 30 and 31.

Niche breadth analysis is a method of observing the diversity of the species identified at a site, as well as the equitable use of those species across the site. Diversity (H') is defined as "the relative importance of species present" or the variety in the species present in the assemblage (Reitz and Wing 2008, 245); and equitability (V') being "the evenness with which these resources are used" or the availability across the site (Reitz and Wing 2008, 245). The formulae used to calculate these values comes from the Shannon and Weaver 1949 and Sheldon 1969 methods, respectfully, and are as follows:

$$H' = -\sum_{i=l}^{s} (p_i)(\log_e p_i)$$

$$V' = H' / \log_e S$$

For the H' formula, p_i is the MNI for a particular species is divided by the total MNI and $\log_e p_i$ is the log of this same number. These two numbers are multiplied together. All of these multiplied for each species are then added together, and the negative sign is changed to a positive using the negative multiplier at the front. For the V' formula, using the H' calculated prior, this figure is divided by the $\log_e S$, where S is the number of taxa in the assemblage with a calculable MNI value.

Reitz and Wing (2008) use a hypothetical collection to show how these formulae are used in statistical analyses. Based on their supposed values, the diversity and equitability were calculated for different classes (Molluscs, Mammals) and Reitz and Wing (2008, 246 & 249) determined that:

H' = 0.738 is LOW diversity	V' = 0.379 is LOW equitability
H' = 1.213 is LOW diversity	V' = 0.623 is HIGH equitability
H' = 2.639 is MODERATE diversity	V' = 0.668 is HIGH equitability

Table 7.10. *Hypothetical Collection: Observed/expected ratio for white-tailed deer* (Odocoileus virginianus); *expected based on NISP*

Element	Observed	Expected	*O/E* ratio
Radius, proximal	6	6	1.00
Ulna, proximal	6	6	1.00
Scapula	5	6	0.83
Humerus, distal	5	6	0.83
Mandible	4	6	0.67
Radius, distal	4	6	0.67
Femur, distal	4	6	0.67
Tibia, proximal	4	6	0.67
Tibia, distal	4	6	0.67
Astragalus	4	6	0.67
Ilium	3	6	0.50
Ischium	3	6	0.50
Intermediate carpal	2	6	0.33
Calcaneus	2	6	0.33
Metapodium, distal	2	6	0.33
Radial carpal	1	6	0.17
Ulnar carpal	1	6	0.17
Metacarpus, proximal	1	6	0.17
Acetabulum	1	6	0.17
Femur, proximal	1	6	0.17
Os malleolare	1	6	0.17
Metatarsus, proximal	1	6	0.17

Figure 30. Observed : Expected Ratio Using NISP in a Hypothetical Collection.

Reitz, Elizabeth J., and Elizabeth S. Wing. 2008. "Secondary Data." In *Zooarchaeology*, 2nd ed., 221. New York, NY: Cambridge University Press.

Table 7.11. *Hypothetical Collection: Percentage survival for white-tailed deer* (Odocoileus virginianus) *based on the number of each element expected for eleven individuals*

Element	Observed	Expected	Percentage survival
Radius, proximal	6	22	27.3
Ulna, proximal	6	22	27.3
Scapula	5	22	22.7
Humerus, distal	5	22	22.7
Mandible	4	22	18.2
Radius, distal	4	22	18.2
Femur, distal	4	22	18.2
Tibia, proximal	4	22	18.2
Tibia, distal	4	22	18.2
Astragalus	4	22	18.2
Ilium	3	22	13.6
Ischium	3	22	13.6
Intermediate carpal	2	22	9.1
Calcaneus	2	22	9.1
Metapodium, distal	2	44	4.5
Radial carpal	1	22	4.5
Ulnar carpal	1	22	4.5
Metacarpus, proximal	1	22	4.5
Acetabulum	1	22	4.5
Femur, proximal	1	22	4.5
Os malleolare	1	22	4.5
Metatarsus, proximal	1	22	4.5

Figure 31. Observed : Expected Ratio Using Calculated MNI in a Hypothetical Collection.

Reitz, Elizabeth J., and Elizabeth S. Wing. 2008. "Secondary Data." In *Zooarchaeology*, 2nd ed., 222. New York, NY: Cambridge University Press.

With H' being out of a total of 5 and V' being out of a total of 1, these same values were adopted as standards for whether diversity and equitability are low, moderate, or high at Fort Tombecbe.

Food Utility Index (FUI) is used to view what body portions have the lowest to highest utility and compared to what portions are in abundance at a site. To make comparison easier, these utility numbers are standardized from 0 to 100 by dividing each of the FUI numbers of the recovered remains by the highest FUI of that species. These values can help determine if the diet was stressed. Were the occupants of a site reliant on the low utility portions, or could they survive on the medium or a combination of medium and high utility portions? FUI was found using portion utility numbers shown in Reitz and Wing (2008, 228, Table 7.12) and Trusler (2017, 126, Table 2; 2017, 168, Table 2). These numbers were collected based on the elements from known species recovered at Tombecbe.

Lastly, meat availability was calculated based on Reitz and Wing's (2008) formulas. There are two methodologies for calculating available meat weight: either (1) from the animals' total weight or (2) from the archaeological specimen weight. Reitz and Wing discuss how using the first methodology can lead to over representation due to not considering exchange or disposal of elements. The second methodology is also susceptible to error in that leaching and mineralization of material is not considered, but provides accurate results overall (2008, 237).

For calculating meat availability based on archaeological specimen weight, there are three formulas shown by Reitz and Wing. The first, considered "Method 1", calculates meat from a particular taxon by estimating skeletal weight is 7.5% of the total weight and using this and the total specimen weight to estimate the animals' total body weight. Using the estimated body weight, the usable meat is calculated based on approximately 50% of the body weight being meat. "Method 1" uses the following formulae (2008, 236, Figure 7.20):

$$\frac{skeletal\ weight, kg}{total\ weight} = \frac{archaeological\ specimen\ weight, kg}{X}$$

$$X(0.50) = meat\ weight, kg$$

The percent of body weight for determining the total meat weight is taken from White (1953, 397-398) and Wing and Brown (1979, 132).

"Method 2" uses an animal's known edible meat weight, which is difficult to estimate due to the differing views on edible meat across various cultures and geographic regions. Because of this, this second method was not used. Lastly, an allometric formula, considered "Method 3" in Reitz and Wing's chapter on secondary data collection, is given as the following formula (2008, 236, Figure 7.20):

$$\log_{10} Y = \log_{10} a + b\ (\log_{10} X)$$

Where Y equals the total biomass of a particular taxa being calculated; $\log_{10} a$ and b are the y-intercept and slope, respectively, associated with the same taxa; and X is the weight of the recovered specimens identified to that taxon. After the total biomass (Y) is found, this number can be multiplied by the approximate percentage of meat that makes up part of that total biomass, resulting in the estimated total meat available from a particular taxon based on the remains recovered. The percentage of meat is taken from the same sources as "Method 1", discussed above and the y-intercept and slope associated with other classes are taken from Carlson (2012, 76) and are shown in Table 1.

Table 1 *Estimated Meat "Method 3" Variables Using Regression Analysis.*

Taxa	Y-Intercept	Slope
Mammal	1.12	0.90
Bird	1.04	0.91
Ray-Finned Fishes	0.90	0.81

Together, these statistical methods help in determining the foodways of the soldiers living in and around the Barracks and Bakery at Fort Tombecbe. Species representation and frequency, the ratio of burned to calcined bone, and body portion representation provide multiple lines of evidence from which to address my research questions about whether the soldiers at Fort Tombecbe relied on more wild or domestic species, as well as determining if the French and British contexts can be separated. Further, an estimation of the meat from these animals, the body portions that may have contributed to these estimates, and any differences between the Barracks and Bakery in terms of these statistics can also be noted as well, aiding in making interpretations to answer these same research questions. These results contribute to a more complete understanding of how the soldiers were living at Fort Tombecbe and how that may compare to everyday life at other contemporary military forts.

ArcMap Analysis

The results of any of the above analysis was collected and compiled into an Excel spreadsheet, which was linked into ArcMap. This created a frequency map to visualize different datasets in the collection. The combined map, as shown in Figure 15, was used to orient the units on the site and better show the frequency in different areas of the Bakery and Barracks.

CHAPTER V – RESULTS

A total of 29,529 fragments (NISP) of bone, weighing 9.1 kilograms, were analyzed from both the Bakery and Barracks areas at Fort Tombecbe. These fragments were comprised of unidentifiable bone, unidentifiable mammals and birds of multiple size groups, and 42 identifiable taxa (Table 2). Of these, almost 95% of the NISP, just over 52% of the weight, was categorized as unidentifiable fragments. One thousand five hundred and forty-one NISP and just over 4.3 kilograms were identified to some taxonomic level. However, using the analytical methods previously discussed, what may seem like a small portion out of the total assemblage produced an immense amount of data on Fort Tombecbe subsistence practices at the Bakery and Barracks during the French and British occupations.

Bakery Component

Among the Bakery component of the Tombecbe assemblage, 11,073 fragments (NISP) were analyzed. Unidentifiable fragments contribute 95.02% of the NISP and 53.15% of the weight. The remaining portion of the assemblage contains 551 fragments, totaling approximately 1.7 kilograms in weight, as shown in Table 3. Mammals make up 77.68% of the NISP and 96.02% of the weight. The largest contributing mammals, not including the remains that could only be separated by class size, are white-tailed deer, squirrel, black bear, cottontail rabbit, cow, and pig. Also present are American beaver, an unidentified canid species, a coyote or dog, eastern cottontail rabbit, eastern mole, gray fox, horse, muskrat, an unidentifiable rodent, an unidentifiable ungulate, and Virginia opossum.

Table 2 *Identified Animal Taxa at Fort Tombecbe*

Scientific Name	Common Name
Mammalia	Mammals
Bos taurus	Cow
Odocoileus virginianus	White-tailed Deer
Sus scrofa	Pig
Canis sp.	Canid
Canis latrans/familiaris	Coyote/Dog
Urocyon cinereoargenteus	Gray Fox
Mephitidae	Skunk
Procyon lotor	Raccoon
Ursus americanus	Black Bear
Didelphus virginiana	Virginia Opossum
Scalopus aquaticus	Eastern Mole
Sylvilagus sp.	Cottontail Rabbit
Sylvilagus aquaticus	Swamp Rabbit
Sylvilagus floridanus	Eastern Cottontail Rabbit
Equus caballus	Horse
Rattus sp.	Rat
Castor canadensis	American Beaver
Ondatra zibethicus	Muskrat
Sigmodon hispidus	Hispid Cotton Rat
Sciurus sp.	Squirrel
Sciurus carolinensis	Gray Squirrel
Sciurus niger	Eastern Fox Squirrel
Aves	*Birds*
Accipitridae	Hawk
Anatinae	Duck
Anas crecca	Green-winged Teal
Anas platyrhynchos	Mallard
Branta canadensis	Canada Goose
Lophodytes cucullatus	Hooded Merganser
Ectopistes migratorius	Passenger Pigeon
Gallus gallus	Chicken
Meleagris gallopavo	Wild Turkey
Passeriformes	Passerine
Reptilia	*Reptiles*
Colubridae	Snake
Chelydridae	Snapping Turtle
Emydidae	Pond Turtle
Terrapene	Box Turtle
Actinopterygii	Ray-Finned Fishes
Aplodinotus grunniens	Freshwater Drum
Catostomidae	Sucker
Lepisosteidae	Gar
Siluriformes	Catfish
Ictalurus furcatus	Blue Catfish
Ictalurus punctatus	Channel Catfish

Birds are the next most abundant class. They contribute a relatively small portion of the assemblage when compared to the mammals class, with 14.52% of the NISP and 3.42% of the weight. The most significant contributors to this class are chicken and wild turkey. Additional species represented include Canada goose, either a duck or swan, mallard, an unidentifiable species of hawk, and passenger pigeon.

Reptiles make up only 4.17% of the NISP and 0.33% of the weight, with identifiable species including an unidentifiable non-venomous snake, box turtle, and pond turtle. Fishes represent the smallest class within the sample, with 3.45% of the NISP and 0.23% of the weight. The most abundant species is gar, followed by one fragment from an unidentified species of catfish, and one fragment identified as channel catfish.

Barracks Component

A total of 18,456 fragments (NISP) were analyzed from the Barracks component at Fort Tombecbe. Unidentifiable remains make up 94.6% of the NISP and 51.8% of the weight. Remains that could be identified to at least the class level includes 990 fragments, weighing approximately 2.6 kilograms, as shown in Table 4. The most abundant class is mammals, making up 72.73% of the identifiable fragments and 95.44% of the weight. Of the mammals, the largest contributing species are white-tailed deer, pig, black bear, eastern fox squirrel, rat, squirrel, and cow. The remaining species include an unidentified canid species, cottontail rabbit, a coyote or dog, gray squirrel, hispid cotton rat, raccoon, an unidentified rodent species, skunk, swamp rabbit, and Virginia opossum.

Table 3 *Bakery Component Faunal Remains*

Taxa	NISP	%NISP	Weight (g)	%Weight
UID Small Vertebrate	1	0.18%	0.10	0.01%
UID Mammal	44	7.99%	11.3	0.66%
UID Large Mammal	87	15.79%	237.61	13.84%
UID Medium/Large Mammal	50	9.07%	56.35	3.28%
UID Medium Mammal	8	1.45%	7.92	0.46%
UID Small/Medium Mammal	14	2.54%	6.86	0.40%
UID Small Mammal	6	1.09%	1.16	0.07%
UID Micromammal	1	0.18%	0.01	0.00%
Bos taurus	3	0.54%	37.3	2.17%
Bovidae/Cervidae	2	0.36%	1.35	0.08%
Odocoileus virginianus	179	32.49%	1229.08	71.58%
Sus scrofa	3	0.54%	12.6	0.73%
Canis sp.	2	0.36%	2.35	0.14%
Canis latrans/familiaris	1	0.18%	0.50	0.03%
Urocyon cinereoargenteus	2	0.36%	3.90	0.23%
Ursus americanus	5	0.91%	19.41	1.13%
Didelphus virginiana	1	0.18%	1.00	0.06%
Scalopus aquaticus	1	0.18%	0.10	0.01%
Sylvilagus sp.	4	0.73%	1.83	0.11%
Sylvilagus floridanus	2	0.36%	0.80	0.05%
Equus caballus	1	0.18%	9.86	0.57%
Rodentia	2	0.36%	0.21	0.01%
Castor canadensis	1	0.18%	6.60	0.38%
Ondatra zibethicus	2	0.36%	0.20	0.01%
Sciurus sp.	7	1.27%	0.50	0.03%
Total Mammal	428	77.68%	1648.8	96.02%
UID Bird	7	1.27%	0.60	0.03%
UID Medium/Large Bird	3	0.54%	3.38	0.20%
UID Medium Bird	12	2.18%	1.78	0.10%
UID Small/Medium Bird	9	1.63%	3.04	0.18%
UID Small Bird	3	0.54%	0.26	0.02%
Accipitridae	1	0.18%	0.30	0.02%
Anatidae	1	0.18%	0.30	0.02%
Anas platyrhynchos	2	0.36%	0.64	0.04%
Branta canadensis	1	0.18%	1.80	0.10%
Ectopistes migratorius	2	0.36%	0.36	0.02%
Gallus gallus	25	4.54%	17.99	1.05%
Meleagris gallopavo	14	2.54%	28.22	1.64%
Total Bird	80	14.52%	58.67	3.42%
Colubridae	1	0.18%	0.10	0.01%
UID Turtle	8	1.45%	1.55	0.09%
Emydidae	7	1.27%	1.59	0.09%
Terrapene	7	1.27%	2.44	0.14%
Total Reptile	23	4.17%	5.68	0.33%
UID Fish	9	1.63%	1.17	0.07%
Lepisosteidae	8	1.45%	0.44	0.03%
Siluriformes	1	0.18%	1.80	0.10%
Ictalurus punctatus	1	0.18%	0.52	0.03%
Total Fish	19	3.45%	3.93	0.23%
Total	**551**	**100.00%**	**1717.18**	**100.00%**

Table 4 *Barracks Component Faunal Remains*

Taxa	NISP	%NISP	Weight (g)	%Weight
UID Mammal	5	0.51%	2.42	0.09%
UID Extra-Large Mammal	1	0.10%	4.76	0.18%
UID Large Mammal	234	23.64%	690.14	26.19%
UID Medium/Large Mammal	68	6.87%	38.61	1.46%
UID Medium Mammal	26	2.63%	22.29	0.85%
UID Small/Medium Mammal	12	1.21%	3.10	0.12%
UID Small Mammal	50	5.05%	4.94	0.19%
UID Micro/Small Mammal	1	0.10%	0.01	0.00%
UID Micromammal	2	0.20%	0.02	0.00%
Bos taurus	5	0.51%	57.79	2.19%
Odocoileus virginianus	259	26.16%	1608.87	61.04%
Sus scrofa	11	1.11%	27.98	1.06%
Canis sp.	4	0.40%	1.11	0.04%
Canis latrans/familiaris	1	0.10%	2.30	0.09%
Mephitidae	1	0.10%	0.41	0.02%
Procyon lotor	1	0.10%	0.18	0.01%
Ursus americanus	7	0.71%	46.46	1.76%
Didelphus virginiana	1	0.10%	0.09	0.00%
Sylvilagus sp.	2	0.20%	0.17	0.01%
Sylvilagus aquaticus	3	0.30%	0.29	0.01%
Rodentia	3	0.30%	0.27	0.01%
Rattus sp.	7	0.71%	0.20	0.01%
Sigmodon hispidus	2	0.20%	0.40	0.02%
Sciurus sp.	6	0.61%	0.65	0.02%
Sciurus carolinensis	1	0.10%	0.43	0.02%
Sciurus niger	7	0.71%	1.42	0.05%
Total Mammal	720	72.73%	2515.31	95.44%
UID Bird	10	1.01%	4.15	0.16%
UID Extra-Large Bird	1	0.10%	0.42	0.02%
UID Large Bird	4	0.40%	3.09	0.12%
UID Medium/Large Bird	9	0.91%	3.71	0.14%
UID Medium Bird	9	0.91%	3.03	0.11%
UID Small/Medium Bird	6	0.61%	1.57	0.06%
UID Small Bird	18	1.82%	2.36	0.09%
Anatinae	5	0.51%	2.62	0.10%
Anatidae	1	0.10%	1.32	0.05%
Anas crecca	1	0.10%	0.05	0.00%
Anas platyrhynchos	3	0.30%	3.04	0.12%
Lophodytes cucullatus	1	0.10%	0.06	0.00%
Ectopistes migratorius	6	0.61%	1.34	0.05%
Gallus gallus	43	4.34%	34.83	1.32%
Meleagris gallopavo	17	1.72%	26.96	1.02%
Passeriformes	2	0.20%	0.13	0.00%
Total Bird	136	13.74%	88.68	3.36%
UID Fish	64	6.46%	6.78	0.26%
Aplodinotus grunniens	7	0.71%	1.78	0.07%
Catostomidae	1	0.10%	1.36	0.05%
Centrarchidae	1	0.10%	0.61	0.02%
Lepisosteidae	24	2.42%	1.91	0.07%
Siluriformes	11	1.11%	7.80	0.30%
Ictalurus furcatus	2	0.20%	0.76	0.03%
Ictalurus punctatus	1	0.10%	2.21	0.08%

Table 4 (continued).

Total Fish	111	11.21%	23.21	0.88%
Colubridae	9	0.91%	0.71	0.03%
UID Turtle	6	0.61%	2.76	0.10%
Chelydridae	1	0.10%	0.30	0.01%
Emydidae	7	0.71%	4.64	0.18%
Total Reptile	23	2.32%	8.41	0.32%
Total	**990**	**100.00%**	**2635.61**	**100.00%**

The second most abundant class observed at the Barracks are birds, comprising 13.74% of the fragments, but only 3.36% of the weight. The most abundant species of bird are chicken, wild turkey, passenger pigeon, and duck. The remaining species are from an unidentified duck or goose species, green-winged teal, hooded merganser, mallard, and an unidentified passerine species.

Fishes are a moderately-represented class within the Barracks context with 11.21% of the NISP and 0.88% of the weight. Those species best represented within the sample include gar, catfish, and freshwater drum. The remaining species include blue catfish, channel catfish, sucker, and an unidentifiable species of sunfish (Centrarchidae family).

Reptiles make up only 2.32% of the identified fragments and only 0.32% of the weight. The only identifiable species were a non-venomous snake, pond turtle, and snapping turtle.

Similar to the Bakery component, mammals make up the majority of this portion of the assemblage, with some birds included. However, fish are found here at three times the number as those found at the Bakery. This is possibly due to cooking whole fish at the Bakery or fileting at the Barracks and cooking the deboned filets at the Bakery. Thus far, there is a strikingly small amount of fish overall compared to what was expected, showing that the soldiers relied on mammals for the majority of their meat.

Minimum Number of Individuals

Due to the close proximity of the Bakery and Barracks (approximately ten meters), MNI had to be calculated for the entire assemblage, rather than for each of the two components. This acknowledges that a specimen found at the Bakery could be from the same animal as a specimen of the same species found at the Barracks.

While taxa of a higher level are considered for abundance and frequency calculations, only the lower taxa can be considered when calculating MNI. Of the 42 taxa identified, an MNI was calculated for 40 species (Table 5). These 40 species in the assemblage were found to be made up of at least 57 individuals.

Mammals make up 31 of the MNI, or 54.39% of the total number of individuals. The species with the most individuals is white-tailed deer (8), followed by eastern cottontail rabbit (2) and squirrel (2). The remaining mammals only had one individual identified. The bird category was made up of 16 individuals, or 28.07% of the total. Chicken has the highest MNI of the birds identified with 5 individuals, wild turkey (3) and passenger pigeon (2) are the second and third highest, while the remaining bird species have one individual present. Fishes make up the third largest class of remains (7), with 12.28% of the total. Catfish (2) is the only species with more than one individual represented in the sample, the remaining five can be attributed to blue catfish, channel catfish, freshwater drum, gar, and sucker. Finally, reptiles have the fewest individuals present, one each identified as box turtle, pond turtle, and snapping turtle, making up only 5.26% of the total MNI.

The estimated number of individuals also indicates that mostly mammals were

Table 5 *Minimum Number of Individuals (MNI) at Fort Tombecbe*

Taxa	MNI	%MNI
Bos taurus	1	1.75%
Odocoileus virginianus	8	14.04%
Sus scrofa	1	1.75%
Canis sp.	1	1.75%
Canis latrans/familiaris	1	1.75%
Urocyon cinereoargenteus	1	1.75%
Mephitidae	1	1.75%
Procyon lotor	1	1.75%
Ursus americanus	1	1.75%
Didelphus virginiana	1	1.75%
Scalopus aquaticus	1	1.75%
Sylvilagus sp.	1	1.75%
Sylvilagus aquaticus	1	1.75%
Sylvilagus floridanus	2	3.51%
Equus caballus	1	1.75%
Rattus sp.	1	1.75%
Castor canadensis	1	1.75%
Ondatra zibethicus	1	1.75%
Sigmodon hispidus	1	1.75%
Sciurus sp.	2	3.51%
Sciurus carolinensis	1	1.75%
Sciurus niger	1	1.75%
Total Mammal	31	54.39%
Accipitridae	1	1.75%
Anatinae	1	1.75%
Anas crecca	1	1.75%
Anas platyrhynchos	1	1.75%
Branta canadensis	1	1.75%
Lophodytes cucullatus	1	1.75%
Ectopistes migratorius	2	3.51%
Gallus gallus	5	8.77%
Meleagris gallopavo	3	5.26%
Total Bird	16	28.07%
Chelydridae	1	1.75%
Emydidae	1	1.75%
Terrapene	1	1.75%
Total Reptile	3	5.26%
Aplodinotus grunniens	1	1.75%
Catostomidae	1	1.75%
Lepisosteidae	1	1.75%
Siluriformes	2	3.51%
Ictalurus furcatus	1	1.75%
Ictalurus punctatus	1	1.75%
Total Fish	7	12.28%
Total	**57**	**100.00%**

eaten at Tombecbe. This also shows the small number of fish that contribute to the assemblage, which is surprising for a river-front fort with steady access to fish.

Body Portions and Sides

The previously defined body portions and remains that can be attributed to the left or right side or midline of the body are also important in determining any subsistence methods by helping interpret whether whole animals were brought back to Tombecbe for butchering or subdivided elsewhere.

For the entire assemblage analyzed, as shown in Table 6, 95.2% of the remains could not be identified to any particular body portion, leaving 1,417 fragments left to attribute to a portion of the body. The largest body portion represented in the Tombecbe assemblage in terms of NISP and weight is the axial skeleton, at 34.65% and 28.68% respectively. Long bones are the next largest group with 18.63% of the NISP and 17.69% of the weight. In terms of number of fragments, foot/wing (12.49%) and then head portions (11.86%) are the next largest. The remaining body portions contribute less than six percent of the number of fragments. This trend follows an expected pattern of the highest meat bearing elements being in the largest abundance, while the least meat abundant make up the smallest portion of the assemblage.

In the assemblage from the Bakery, the axial skeleton makes up the largest percentage of the count (34.66%) and weight (35.30%). The second and third largest body portions are the foot/wing (15.55%) and long bone (14.71%) in terms of number of specimens. The head portion contributes 11.34% of the count, while the remaining body portions contribute less than seven percent of the number of specimens.

The Barracks has similar results with the axial skeleton making up the largest portion in terms of the number of fragments (34.64%) and the weight (24.40%). Long bone is the second largest in terms of count (20.62%) and weight (20.70%), head the third largest in terms of count (12.11%), and the foot/wing portion the fourth largest in terms of count (10.95%). The remaining fragments make up less than six percent of the NISP.

In identifying the side of the body particular fragments came from, the total assemblage, Bakery, and Barracks has similar statistics as well (Table 7). For all three, remains from the left side of the body make up approximately 42-47%, the midline 21-26%, and the right side 28-36% of the fragments that could be attributed to a particular side. Overall, it appears the soldiers were focusing on the meatier portions of the body, which begins to indicate there was some stress on their diet, although the difference in the elements from particular sides could be attributed to methods of disposal.

Diversity and Equitability

As with the MNI, diversity and equitability was calculated for the entire assemblage due to the remains possibly being from the same individuals spread across both the Bakery and the Barracks.

Diversity and equitability measures were calculated using the previously discussed MNI results. Biomass was calculated by replacing the respective MNI with the total weight for each species. The diversity based on MNI was high (H’=3.455) while based on biomass it was low (H’=0.815). In a similar instance, equitability based on MNI was high (V’=0.937) but was low based on biomass (V’=0.221). Looking solely at the diversity and equitability based on MNI, the high H’ shows that there was a diverse group of animals that contributed to the faunal assemblage and the high V’ shows that there is equitable presence of these species at Fort Tombecbe. In comparison, if looking

Table 6 *Body Portions by Recovery Location.*

	Element	Head	Axial	Forequarter	Hindquarter	Forefoot	Hindfoot	Long Bone	Foot/Wing	Fish Body	Fish Scale	Turtle Shell	**Total**
Total	Count	168	491	80	38	79	58	264	177	5	29	28	**1417**
	Weight	121.05	1220.69	546.09	277.09	327.47	693.41	753.14	302.36	2.60	2.15	10.64	**4256.69**
	% Count	11.86%	34.65%	5.65%	2.68%	5.58%	4.09%	18.63%	12.49%	0.35%	2.05%	1.98%	
	% Weight	2.84%	28.68%	12.83%	6.51%	7.69%	16.29%	17.69%	7.10%	0.06%	0.05%	0.25%	
Bakery	Count	54	165	29	12	25	22	70	74	0	5	20	**Total**
	Weight	43.52	589.69	271.25	64.37	106.84	292.16	217.85	79.44	0.00	0.24	5.31	**476**
	% Count	11.34%	34.66%	6.09%	2.52%	5.25%	4.62%	14.71%	15.55%	0.00%	1.05%	4.20%	**1670.67 g**
	% Weight	2.60%	35.30%	16.24%	3.85%	6.40%	17.49%	13.04%	4.75%	0.00%	0.01%	0.32%	
Barracks	Count	114	326	51	26	54	36	194	103	5	24	8	**Total**
	Weight	77.53	631.00	274.84	212.72	220.63	401.25	535.29	222.92	2.60	1.91	5.33	**941**
	% Count	12.11%	34.64%	5.42%	2.76%	5.74%	3.83%	20.62%	10.95%	0.53%	2.55%	0.85%	**2586.02 g**
	% Weight	3.00%	24.40%	10.63%	8.23%	8.53%	15.52%	20.70%	8.62%	0.10%	0.07%	0.21%	

Table 7 *Body Sides by Recovery Location.*

	Side	Count	Weight	% Count	% Weight
Total	Left	223	1295.59	44.25%	46.98%
	Mid	115	385.32	22.82%	13.97%
	Right	166	1076.65	32.94%	39.04%
	Total	**504**	**2757.56**		
Bakery	Left	89	632.93	46.35%	52.25%
	Mid	49	235.67	25.52%	19.45%
	Right	54	342.84	28.13%	28.30%
	Total	**192**	**1211.44**		
Barracks	Left	134	662.66	42.95%	42.86%
	Mid	66	149.65	21.15%	9.68%
	Right	112	733.81	35.90%	47.46%
	Total	**312**	**1546.12**		

for diversity and equitability based on the biomass, the low H' and V' shows that there is low diversity in the species based on the weight of those respective species recovered and that the biomass difference is not equitable across all species used in these calculations.

Biological Profile

Of the remains analyzed, only 48 yielded information about the age, sex, and/or body size of an individual animal at Tombecbe. The species of mammals include cow, medium/large mammal, large mammal, an unidentified ungulate, and WT deer. Birds include duck and wild turkey. Fishes include catfish, channel catfish, freshwater drum, and gar. Table 8 summarizes how many specimens were from each taxon.

Table 8 *Biological Profile Species*

Scientific Name	Common Name	NISP
Mammalia	Mammals	
	Medium/Large Mammal	1
	Large Mammal	3
Bovidae/Cervidae	Ungulate	2
Bos taurus	Cow	1
Odocoileus virginianus	White-tailed Deer	32
Aves	Birds	
Anatinae	Duck	1
Meleagris gallopavo	Wild Turkey	1
Actinopterygii	Ray-Finned Fishes	
Aplodinotus grunniens	Freshwater Drum	1
Lepisosteidae	Gar	3
Siluriformes	Catfish	1
Ictalurus punctatus	Channel Catfish	2
Total		**48**

Of these 48 remains, 15 specimens did not exhibit sufficient landmarks to estimate age, sex, or body size. These specimens were identified as white-tailed deer incisors (which cannot be used in age estimation) or molars that were too broken to use for age estimates.

The remaining 33 specimens were able to give information on age, sex, or body size of the individual.

The medium/large and large mammal remains were all identified as teeth or a mandible fragment and only gave information that the mandible fragment was from a domestic species, while the teeth were from juveniles. Because the three teeth were juvenile it was difficult to determine what species they were from.

The unidentifiable ungulate was a similar case. These teeth were from a juvenile ungulate and therefore made it difficult to determine a particular species they came from.

The single cow element was identified as a part of the ilium. This piece of partially unfused pelvis determined that there was at least one juvenile cow present at Fort Tombecbe at some point in time. While a juvenile specimen was not available in the comparative collection at USM, it is most likely that this cow was less than a year old.

The single duck specimen was attributed to a larger species of duck, but an exact species or age could not be determined. A wild turkey tibiotarsus was determined to be from a juvenile individual.

A basioccipital from a freshwater drum was found and was similar in size and proportions to a comparative specimen that had a measured 60 centimeter standard length. Standard length being from the tip of the snout to the end of the last vertebra, or the base of the caudal tail. In Alabama, adult freshwater drum average approximately 28 in, or 71 centimeters (Outdoor Alabama n.d.). Based on the comparison of the basioccipital, this fish was around the average adult size for the species.

Of the 30 gar scales recovered from Tombecbe, two were worth noting due to their large size. One measured 8.76 millimeters wide and 11.41 millimeters long. The second measured 9.39 millimeters wide and 19.59 millimeters long. While scale size is not used to determine fish size directly due to natural variability, these scales are similar in size to those from gar that were close to or just over 100 centimeters long. A vertebra was also recovered as well and measured 4.3 millimeters in diameter. When compared with other specimens, this was a similar measurement to vertebrae from gar that were approximately 50 to 60 centimeters in standard length. While a species could not be determined using these scales or vertebra, these estimated sizes are small or average size individuals of this family.

A single vertebra from an unidentified catfish species was found and had a 17 millimeters diameter. This measurement, when compared with other osteological specimens, is similar in size to catfish with a standard length of approximately 60 to 70 centimeters in length. Without knowing the exact species, this standard length is average size for this order of fish.

Two specimens were identified as channel catfish, one being a fragment of articular dentary and the other about half of a premaxilla. Both fragments had enough bone remaining to make general size comparisons to known specimens. The premaxilla was determined to be from a specimen with a standard length of approximately 50 centimeters, while the articular dentary was from a fish with a standard length of about 60 centimeters. For this species of catfish, this standard length is of average size.

Finally, the largest number of specimens that could give some information about biological profile belonged to white-tailed deer. Seventeen elements furnished information about age, sex, or general body size.[2] Only one specimen had indications of sex among these, a fragment of the skull at the base of the pedicle, which is where the antlers grow from the skull of male deer. Four fragments (a lateral malleolus, an ulna, and

[2] Not including the specimens previously mentioned at the beginning of this section.

two ischium fragments) give indications of at least one large individual at Tombecbe. Based on size comparisons, this is most likely a male individual, whether it is the same individual as the pedicle is unclear.

The remaining twelve specimens provided age estimations. One astragalus was from a juvenile deer less than a year old. The rest of the remains were teeth. In comparing with specimens of known ages, these teeth were determined to be approximately the following ages: six months to one-and-a-half years (2), at least two years (1), approximately two years (1), two to three years (1), three to three-and-a-half years (1), five years or older (3), two to five years (1), and six years or older (1).

Overall, the biological profiles for the assemblage show that individuals were young or middle-age animals. With the relatively larger number of juvenile animals in the collection, there is some evidence of dietary stress at some point in time during Tombecbe's occupation.

Seasonality

Faunal data pertaining to seasonality of procurement at Fort Tombecbe was limited to white-tailed deer remains whose age at death could be assessed. Unless otherwise stated, these remains are either mandible or maxillary fragments. Female white-tailed deer breed during the winter and give birth during the early or mid-summer (Best and Dusi 2014, 394). This period spans April to July. Based on the results discussed in the above section, three of the aged deer would be hard to use to determine seasonality due to the age range being relatively wide (two to three years, two to five years, and the juvenile astragalus) and thus making it possible the individuals were killed at any time during the year. The remaining deer that could be aged are estimated to have been killed between April and July (6), between April and October (1), and between October and January (2). Other than the two individuals aged six months to one-and-a-half years old, the remaining individuals were killed during the early summer to early fall, when deer are less likely to have as much meat or fat on their body compared to during the winter months. As discussed in Chapter II, meat was mostly smoked and stored in cold places for extended use. These estimated seasons of death do not coincide with the expected kill season, given a satisfactory supply of food. A majority of these individuals being killed during the summer and fall seasons indicates some stress on the soldiers' food supply.

Modified Remains

The modified remains recovered from Tombecbe are as previously defined in Chapter IV and were analyzed in a similar way as the body portions discussed earlier in this chapter. It is worth noting that some remains exhibited multiple types of modifications.

For the assemblage as a whole, 81.32% of the NISP and 83.18% of the weight had no discernable modifications on the bone. Of the remaining bone that had discernable modifications, 71.39% of the NISP and 45.50% of the weight was calcined material and 27.48% of the NISP and 22.16% of the weight was burned material. In total, 3,938 specimens were identified as being calcined and 1,516 were identified as being burned.

At the Bakery, remains with no discernable modifications make up 90.36% of the NISP and 90.97% of the weight. Of the remaining specimens, calcined bone makes up 73.97% of the NISP and 59.40% of the weight while burned bone makes up 24.25% of the NISP and 20.14% of the weight. While the number of remains for each type of modification may overlap, it is worth looking at the specific number of specimens recovered, which will be discussed in detail later in this section. Calcined bone includes 790 specimens in total and burned bone includes 259. Of the remaining specimens with modifications at the Bakery, ten had saw marks, five had rust, two had chop marks, one had cut marks, and one was fossilized.

At the Barracks, 75.90% of the NISP and 77.95% of the weight had no discernable modifications. As for the rest, 70.68% of the NISP and 41.28% of the weight were calcined and 28.22% of the NISP and 22.49% of the weight were burned. These percentages translate to 3,148 calcined bones and 1,257 burned bones. Bones with gnaw marks from either carnivores and rodents came up to 17 in total and those with saw marks totaled 12 specimens. Of the remaining types of modification, seven had cut marks, five had chop marks, three had rust stains, and two had green staining from an unknown cuprous object. Of the remaining three specimens, one was fossilized, one had the unknown angled gouge, and one had the unidentifiable tool mark.

Returning to the number of calcined bones in the Bakery and Barracks components, it is shown that the Bakery only contributes 20.06% to the total number of specimens, while the Barracks contributes 79.94% to the total. Additionally, burned bones from Bakery only makes up 17.08% and burned bone from the Barracks makes up 82.92% of the total recovered (Table 9 and Figure 32).

Table 9 *Burned and Calcined Bone Isolated Calculations*

	Calcined	% Calcined	Burned	% Burned
Bakery	790	20.06%	259	17.08%
Barracks	3148	79.94%	1257	82.92%
Total	**3938**	**100.00%**	**1516**	**100.00%**

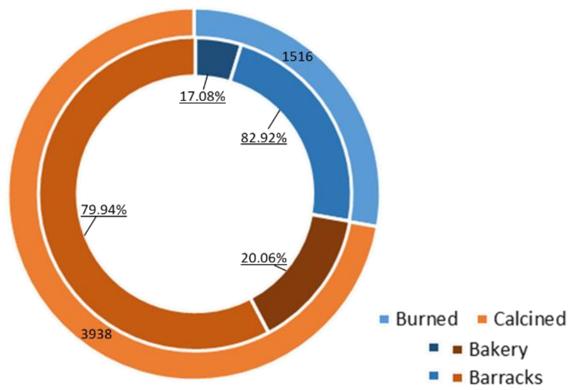


Figure 32. Proportions of Burned and Calcined Bone in Bakery and Barracks Faunal Assemblages.

Coffey, Sarah, September 24, 2021.

In further researching other modification marks, which are discussed in detail below, another aspect of analyzing burned bone was found in the various literary sources used in my thesis.

R. Lee Lyman (1994) has written about identifying and interpreting different types of burned bone. Bone burned naturally, such as in a brush fire, can be differentiated from bone burned by human action based on the amount of carbonization or calcination. One of Lyman's sources is cited in finding that natural fires will only leave carbonized bone, while bone burned by humans will have some amount of carbonized and calcined bone in the assemblage. When bone was purposefully burned, calcination occurs in instances of long periods of time in the fire, high temperatures, or a combination of the two. In instances where bone was purposefully burned, bone with only partially carbonized areas were most likely burned during cooking, while bone carbonized all over was most likely an attempt to incinerate bone in some disposal method. Additionally, absence or presence of burns along fracture lines can show whether bones were broken before or after burning (Lyman 1994, 388-389).

After burned and calcined remains, saw marks were the third largest group of modified remains with 22 specimens. One of the specimens could not be identified to any particular species and is considered unidentifiable. One specimen was a medium-size mammal vertebra and three were large-size mammal vertebrae. The remaining 17 sawed bones were identifiable to at least the genus level. A small portion of sacrum from a pig, a lateral cuneiform from a black bear, and a portion of the acetabulum and ischium from an unidentified species of canid were the only species identified besides WT deer, which makes up the remaining 14 specimens with saw marks.

The next largest modification group are remains with gnaw marks, with 17 specimens. Two specimens could only be identified as large-size mammals, one specimen was identified as black bear, and the remaining 14 were identified as white-tailed deer. What is also worth noting about the remains with gnaw marks, is that they were all recovered from the Barracks component.

The remaining types of modifications for the entire assemblage had the following total NISP: eight with cut marks, seven with chop marks, two with cuprous stains, and two were fossilized. The two unknown modifications – angled gouges and the unidentifiable tool mark – both only had one specimen each.

Due to the possibility that butchering occurred off-site or in another area other than the Bakery or Barracks, it is not necessary to differentiate the remains with chop marks, cut marks, or saw marks based on which component they were recovered from at this time. However, with visual documentation of approximately where subdividing butchering marks would fall on the skeleton, the species and portions of faunal remains exhibiting these marks should be discussed to determine if the soldiers at Tombecbe had a preference for particular cuts of meat. Because the visual butchering guides were limited to beef, pork, and venison, those remains will be the main focus for cut preferences, but other remains with chop, cut, or saw marks will also be briefly mentioned.

Beginning with those minor taxa in the sample, the ischium/acetabulum from an unknown Canid species was found with what appeared to be saw marks. While odd for modern palettes, the French were noted to have eaten dog on occasion and this may explain these butchering marks. However, dogs are notorious for being used as food in times of poverty, as noted at Jamestown (Neely 2013). Being only one individual, this was most likely a single incidence of desperation while Tombecbe was in short supply of food. Black bear remains include a lateral cuneiform and proximal metatarsal with saw marks. With the similar areas and similar butchering methods, while found in different contexts, these may be from opposite hind feet of the same black bear. Because both bones were cut perpendicular to the paw – separating part of the tarsals and/or the metatarsals from the proximal portion of the rest of the paw. Lastly, a cottontail rabbit proximal femur was found with what appeared to be cut marks. This is most likely from separating the hind leg from the rest of the body.

The remainder of elements with chop, cut, or saw marks belong to pig, cow, and white-tailed deer. The marks will be discussed in the opposite order as the visual guides shown in Chapter II. Only one element from a cow (Figure 33) was found with butchering marks, consisting of chop marks on the ilium. These most likely represent attempts at separating the spine from the pelvis, possibly during the initial subdividing stage of butchering. One element from a pig (Figure 34), the sacrum, was found with saw marks. Based on the direction of the saw marks, this was also likely from the subdividing stage of butchering, possibly in efforts to separate the carcass into opposite halves. Based on the single-strike chop marks analyzed, the soldiers at Tombecbe were at least knowledgeable in how to butcher animals for their meals.

Lastly, white-tailed deer (Figure 35) had the most elements with butchering marks. There were chop marks identified on the distal radius, proximal scapula, and an unidentified vertebra; cut marks were noted on the cervical vertebrae, the thoracic vertebrae, and the proximal radius; saw marks were found on the cervical, thoracic, lumbar, and an unidentified vertebra, proximal and distal humerus, proximal and distal radius, distal femur, the patella where only the distal half was recovered, the sacrum, and the semilunar or lunate. The proximal scapula and cervical vertebra both had strange marks – three parallel incisions with what appear to be equal distances between them. The marks on the scapula are much deeper than those on the cervical vertebra. Further research would be needed to determine what these marks are from and, if necessary, reclassify them. The remaining marks appear to be, like the cow and pig, from the subdividing stage of butchering.

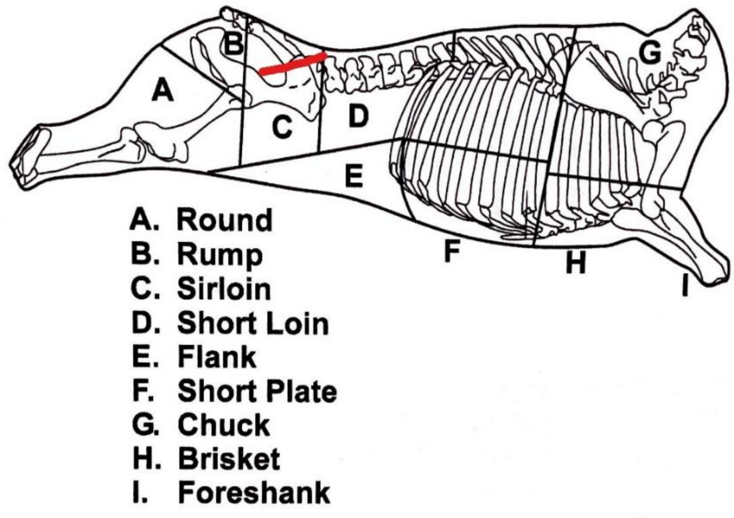


Figure 33. Beef Butchering Marks.

(Crabtree and Campana 2012, Figure 24-04).

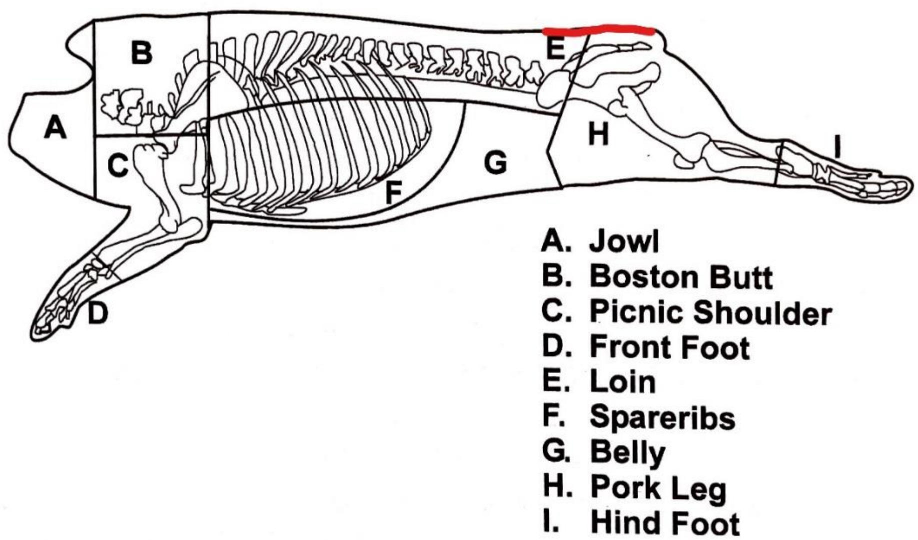


Figure 34. Pork Butchering Marks.

(Crabtree and Campana 2012, Figure 24-05).

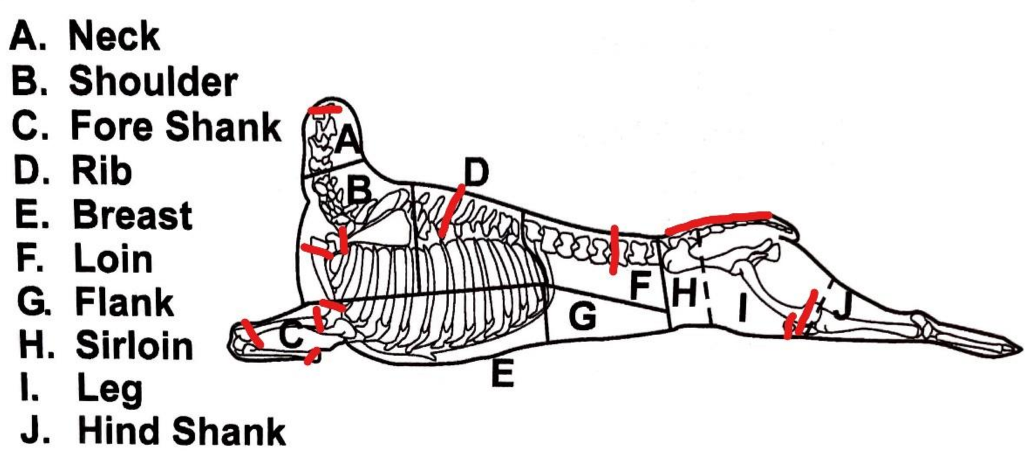


Figure 35. Venison Butchering Marks.

(Crabtree and Campana 2012, Figure 24-07).

What is worth mentioning, however, are the questionable marks labeled as "Angled Gouges" and the unknown "Tool" mark. Upon further research, microimages from Andrews and Jalvo (2012) described as "Pits and Perforations" appeared similar to the mark initially labeled as "Angled Gouge". According to Andrews and Jalvo, the most common cause of pits and perforations on bones are due to carnivore chewing, which leaves "conical or inverted cone-shaped perforations into or through the surface of bones" and give examples in Figures 8 and 9 in their 2012 article (198). In comparing with these images (Figure 36), the "Angled Gouge" closely resembles the inverted cone impression in the top right of Figure 9 in the article (198). Additionally useful is their mention of the differences between these pits and perforations in the diaphysis – the shaft of the bone – versus the epiphysis: tooth perforations being shallower in the diaphysis in comparison to the deeper marks left in epiphyses of bones (Andrews and Jalvo 2012, 197-200).

Figure 36. Comparison of Angled Gouge on WT Deer Ulna, FS 459 to Perforation Indicators.

Bone with Angled Gouge, UWA Archaeology Lab, photography by Dr. Ashley A. Dumas, September 8, 2021; (Andrews and Jolvo 2012); "Online Protractor." 2021. Angle Measuring Tool. Accessed October 22. https://www.ginifab.com/feeds/angle_measurement/.

This finding warranted another search into what the marks were that were initially labeled as unknown "Tool" marks. While this modification was harder to narrow down to a more specific butchering mark, it most closely resembles bone flaking, possibly from percussion striking when breaking open bone to access the marrow (Fisher 1995; Lyman 1994, 319). Specifically, Fisher calls these marks conchoidal bone scars and describes them as having a "smooth, concave shape of the bone surface where the flake detached…[with] a crescentic or semicircular shape…at the point of impact when the specimen is viewed from above" (Fisher 1995, 24). This, in conjunction with the large abundance of fragmented bone and broken long bones, is most likely evidence of marrow extraction for eating or making broth.

Lastly, the two fossilized remains, one unidentified and one deer astragalus, are most likely from the Pleistocene period. There are numerous documented sites throughout Sumter County, as well as other counties in the state of Alabama, from this era. These faunal remains were most likely pulled up from lower soil layers when terraforming occurred at Tombecbe when the French first began construction on the site.

In summary, the modified remains are minimal when compared to those with no modifications. However, the elements with post-mortem modifications are very telling when analyzed closer. The burned and calcined remains show some differing practices between the Bakery and Barracks, whether this is due to cooking or cleaning methods cannot be determined at this time. The remaining modifications show that there is no noticeable trash midden at the Bakery, like there is behind the soldiers' Barracks, due to no identified gnaw marks on the remains at the Bakery. Additionally, the saw, cut, and chop marks is evidence that the soldiers were performing at least some of the butchering themselves.

Observed : Expected Ratio

As previously discussed in Chapter 3, there are two methods of calculating observed remains to expected remains ratios: one is based on the NISP and the other based on the MNI. These two methods can give difference results on how many of a particular element from an individual is expected based on what is found. The expected number is determined either (1) by the element with the highest NISP value or (2) by the total number of that element that is expected based on the calculated MNI for that particular taxon. Because of this, it is worth comparing the two methods for the animals that had calculable MNI values. For the sake of clarity, observed to expected ratio based on NISP will be referred to as NISP ratio from here on and observed to expected ratio based on MNI will be referred to as MNI ratio from here on.

Using similar element portions as Figures 30 and 31 in Chapter IV, vertebrae, ribs, teeth, and phalanges could not be considered in determining observed to expected ratios for the following taxa, so while some taxa had a calculable MNI, they could not have ratios calculated because they only had one of these three elements recovered thus far.

Starting with mammals, the taxon with the most element portions is white-tailed deer with 14 element portions of various quantities. For the NISP ratio, the expected value based on the distal humerus, which had 14 total specimens. The remaining element portions are shown in Table 10. For the MNI ratio, the number of distal humeri specimens recovered is close to the expected number based on the MNI of 16 and the remaining element portions are also shown in Table 10. Following white-tailed deer, squirrel had the second most element portions to compared ratios. The expected value for the NISP ratio is two, which is taken from the number of proximal femurs present. The remaining six element portions, shown in Table 11, only had one specimen recovered thus far. In comparing for the MNI ratio, the number of proximal femurs recovered is only half of the expected value of four. Pig was the third most abundant mammal in terms of element portions present, as shown in Table 12. With one specimen for each of the five elements recovered, only half of the expected specimens were observed based on the MNI ratio. Cow, canid, gray fox, skunk, black bear, eastern mole, cottontail rabbit, eastern cottontail rabbit, rat, American beaver, hispid cotton rat, gray squirrel, and eastern fox squirrel ratios are shown in Appendix B.

Birds was the class with the second highest frequency in terms of element portions recovered. Chicken had the most element portions at 16, with the scapula being the portion with the most specimens (6). This NISP is just over half of the expected MNI ratio of ten. Turkey had the second most number of element portions (13), the distal

Table 10 *WT Deer Observed : Expected Ratios by Body Part*

	NISP			MNI	
Element	Observed	Expected	Ratio	Expected	Percentage Survival
Humerus, distal	14	14	1.000	16	87.50%
Femur, distal	13	14	0.929	16	81.25%
Humerus, proximal	12	14	0.857	16	75.00%
Acetabulum	11	14	0.786	16	68.75%
Radius, distal	10	14	0.714	16	62.50%
Radius, proximal	10	14	0.714	16	62.50%
Tibia, distal	10	14	0.714	16	62.50%
Ulna, proximal	9	14	0.643	16	56.25%
Tarsal	8	14	0.571	112	7.14%
Tibia, proximal	7	14	0.500	16	43.75%
Metapodium, distal	6	14	0.429	32	18.75%
Patella	6	14	0.429	16	37.50%
Skull	6	14	0.429	-	-
Femur, proximal	5	14	0.357	16	31.25%
Astragalus	4	14	0.286	16	25.00%
Intermediate carpal	4	14	0.286	16	25.00%
Ischium	3	14	0.214	16	18.75%
Mandible	3	14	0.214	16	18.75%
Calcaneus	1	14	0.071	16	6.25%
Ilium	1	14	0.071	16	6.25%
Metatarsus, proximal	1	14	0.071	16	6.25%
Radial carpal	1	14	0.071	16	6.25%
Scapula	1	14	0.071	16	6.25%
Ulna, distal	1	14	0.071	16	6.25%
Ulnar carpal	1	14	0.071	16	6.25%

Table 11 *Squirrel Observed : Expected Ratios by Body Part*

	NISP			MNI	
Element	Observed	Expected	Ratio	Expected	Percentage Survival
Femur, proximal	2	2	1.000	4	25.00%
Astragalus	1	2	0.500	4	12.50%
Femur, distal	1	2	0.500	4	12.50%
Ilium	1	2	0.500	4	12.50%
Ischium	1	2	0.500	4	12.50%
Mandible	1	2	0.500	4	12.50%
Radius, proximal	1	2	0.500	4	12.50%

Table 12 *Pig Observed : Expected Ratios by Body Part*

	NISP			MNI	
Element	Observed	Expected	Ratio	Expected	Percentage Survival
Calcaneus	1	1	1.000	2	50.00%
Metacarpus, proximal	1	1	1.000	2	50.00%
Radius, proximal	1	1	1.000	2	50.00%
Skull	1	1	1.000	-	-
Tibia	1	1	1.000	2	50.00%

tibiotarsus being the portion with the most identified specimens (4). This makes up two-thirds of the expected MNI ratio of six. The remaining element portions for both are shown in Tables 13 and 14. Hawk, green-winged teal, mallard, Canada goose, and passenger pigeon ratios are shown in Appendix C.

Table 13 *Chicken Observed : Expected Ratios by Body Part*

	NISP			MNI	
Element	Observed	Expected	Ratio	Expected	Percentage Survival
Scapula	6	6	1.00	10	60.00%
Radius, distal	5	6	0.83	10	50.00%
Acetabulum	4	6	0.67	10	40.00%
Tarsometatarsus, distal	4	6	0.67	10	40.00%
Coracoid, distal	3	6	0.50	10	30.00%
Carpometacarpus, proximal	3	6	0.50	10	30.00%
Synsacrum	3	6	0.50	10	30.00%
Tibiotarsus, distal	3	6	0.50	10	30.00%
Coracoid, proximal	2	6	0.33	10	20.00%
Femur, distal	2	6	0.33	10	20.00%
Humerus, distal	2	6	0.33	10	20.00%
Tarsometatarsus, proximal	2	6	0.33	10	20.00%
Radius, proximal	2	6	0.33	10	20.00%
Ulna, proximal	2	6	0.33	10	20.00%
Femur, proximal	1	6	0.17	10	10.00%
Tibiotarsus proximal	1	6	0.17	10	10.00%

Table 14 *Turkey Observed : Expected Ratios by Body Part*

	NISP			MNI	
Element	Observed	Expected	Ratio	Expected	Percentage Survival
Tibiotarsus, distal	4	4	1.00	6	66.67%
Carpometacarpus, distal	3	4	0.75	6	50.00%
Carpometacarpus, proximal	3	4	0.75	6	50.00%
Coracoid, proximal	2	4	0.50	6	33.33%
Radius, distal	2	4	0.50	6	33.33%
Synsacrum	2	4	0.50	6	33.33%
Ulnar carpal	2	4	0.50	6	33.33%
Femur, proximal	1	4	0.25	6	16.67%
Humerus, distal	1	4	0.25	6	16.67%
Quadrate	1	4	0.25	6	16.67%
Radius, proximal	1	4	0.25	6	16.67%
Tarsometatarsus	1	4	0.25	6	16.67%
Ulna, distal	1	4	0.25	6	16.67%

Fish had the fewest element portions recovered, catfish being the most with six portions identified, as shown in Table 15. The articular dentary had the most specimens

(3), just one short of the expected MNI ratio of four. Freshwater drum, sucker, blue catfish, and channel catfish ratios are shown in Appendix D.

These observed to expected ratios shows that there was some treatment of faunal remains by the soldiers. Without data from outside the boundaries of the French and British fort, it cannot be determined whether this is due to subdividing whole animals outside of the fort or due to disposal of parts in the Tombigbee River or the ravine to the south of the fort.

Table 15 *Catfish Observed : Expected Ratios by Body Part*

		NISP		MNI	
Element	Observed	Expected	Ratio	Expected	Percentage Survival
Articular Dentary	3	3	1.00	4	75.00%
Cleithrum	1	3	0.33	4	25.00%
Epihyal	1	3	0.33	4	25.00%
Operculum	1	3	0.33	4	25.00%
Parasphenoid	1	3	0.33	4	25.00%
Urohyal	1	3	0.33	4	25.00%

Food Utility Index

Food Utility Index (FUI) is used to view the abundance of low- to high-utility body portions at a site. These values are standardized, making it easier to compare various taxa that might have different FUI values for the same body portion. Because only a few studies have featured FUI, only three taxa have known utility values for various elements in the skeleton: pig, cow, and white-tailed deer.

Using the standardized FUI values, cow remains had only low- and high-utility remains recovered, as shown in Table 16. Pig remains recovered fell into the low- to low/mid-utility, as shown in Table 17. Lastly, white-tailed deer had a majority of remains from low/mid-utility, approximately a quarter from mid/high-utility elements, and the remaining specimens being low- and then high-utility remains, shown in Table 18. All of these values are reported in Table 19 to facilitate comparison to the overall standardized FUI in terms of low- to high-utility. Based on these values, half of the identified remains came from low/mid-utility elements. Looking at the elements in this 25-50 range, these include the cranium/maxilla and sacrum of pigs and the pelvis, humerus, metatarsals, radius, scapula, ulna, and all three vertebral regions from WT deer. This reveals that (1) white-tailed deer are the most abundant and most readily sought after species and (2) that even some of the least meat bearing elements were utilized by the soldiers at Tombecbe.

Table 16 *Cow sFUI*

	NISP	%NISP
0-25	3	37.50%
25-50	0	0.00%
50-75	0	0.00%
75-100	5	62.50%
Total	**8**	

Table 17 *Pig sFUI*

	NISP	%NISP
0-25	6	75.00%
25-50	2	25.00%
50-75	0	0.00%
75-100	0	0.00%
Total	**8**	

Table 18 *WT Deer sFUI*

	NISP	%NISP
0-25	60	16.13%
25-50	195	52.42%
50-75	97	26.08%
75-100	20	5.38%
Total	**372**	

Table 19 *Combined sFUI*

	0-25	25-50	50-75	75-100	**Total**
Cow	3	0	0	5	**8**
Pig	6	2	0	0	**8**
White-tailed Deer	60	195	97	20	**372**
NISP Total	69	197	97	25	**388**
%NISP	17.78%	50.77%	25.00%	6.44%	

Meat Availability

Using the two methods discussed in Chapter IV, meat available for soldiers at Tombecbe was not what was expected from the amount of identified bone recovered thus far. Both non-venomous snake and turtle were excluded from these calculations; the former due to a lack of a calculable body weight for the skeleton and the latter because only portions of the shell, vertebrae, phalanges, a portion of the pelvis, and an unidentifiable long bone were recovered. Additionally, gar was calculated based on the weight of the single vertebra found and not the scales that were also recovered.

Based on the results of “Method 1” discussed in Chapter IV, which uses an animal’s total weight, all identified species only had a calculated 21.87 kilogram, or 48.23 pounds, of meat in total. Despite the large number of identified remains, white-tailed deer only had a calculated 18.92 kilograms, or 41.72 pounds of meat. After white-tailed deer, the species with the second largest amount of meat calculated was from cow with 0.634 kilograms, or 1.398 pounds. The third largest came from black bear, with 0.615 kilograms, or 1.356 pounds of meat. Other species that had at least 100 grams, or 0.1 kilograms, of meat were found to be: turkey, with 0.515 kilograms, or 1.136 pounds; chicken, with 0.493 kilograms, or 1.087 pounds; pig, with 0.271 kilograms, or 0.597 pounds; catfish, with 0.108 kilograms, or 0.237 pounds. The remaining species are shown in Table 20.

Using “Method 3” discussed in Chapter IV, which uses the weight of the archaeological specimens, the results were similar, albeit in smaller quantities. The total meat was calculated to 10.25 kilograms, or 22.61 pounds. White-tailed deer was calculated to have only 8.45 kilograms, or 18.62 pounds of meat. The second largest species in terms of calculated meat was found to be black bear, with 0.4 kilograms, or 0.882 pounds. The third largest was found to be from cow, with 0.397 kilograms, or 0.876 pounds. Other species had at least 0.1 kilograms, of calculated meat are: turkey, with 0.284 kilograms, or 0.625 pounds; chicken, with 0.273 kilograms, or 0.601 pounds; pig, with 0.185 kilograms, or 0.407 pounds. The amount of meat calculated for the remaining species is listed in Table 21.

In summary, these two methods, while not exact in estimating meat weight, can be used in determining a range of available meat weight a group has to utilize. In this case, the weight range for meat from each species is small and is further indicative of dietary stress on the soldiers at Tombecbe.

Table 20 *Estimated Meat Using "Method 1"*

Taxa	Meat Weight (kg)	Meat Weight (lbs)
Mammalia		
Bos taurus	0.634	1.398
Odocoileus virginianus	18.920	41.718
Sus scrofa	0.271	0.597
Canis sp.	0.023	0.051
Canis latrans/familiaris	0.019	0.041
Urocyon cinereoargenteus	0.026	0.057
Mephitidae	0.004	0.008
Procyon lotor	0.002	0.004
Ursus americanus	0.615	1.356
Didelphus virginiana	0.010	0.022
Scalopus aquaticus	0.001	0.001
Sylvilagus sp.	0.013	0.029
Sylvilagus aquaticus	0.002	0.004
Sylvilagus floridanus	0.005	0.012
Equus caballus	0.066	0.145
Rattus sp.	0.002	0.004
Castor canadensis	0.062	0.136
Ondatra zibethicus	0.002	0.004
Sigmodon hispidus	0.003	0.006
Sciurus sp.	0.008	0.017
Sciurus carolinensis	0.003	0.006
Sciurus niger	0.009	0.021
Aves		
Accipitridae	0.003	0.006
Anatinae	0.024	0.054
Anas crecca	0.000	0.001
Anas platyrhynchos	0.034	0.076
Branta canadensis	0.017	0.037
Lophodytes cucullatus	0.001	0.001
Ectopistes migratorius	0.016	0.035
Gallus gallus	0.493	1.087
Meleagris gallopavo	0.515	1.136
Actinopterygii		
Aplodinotus grunniens	0.020	0.044
Catostomidae	0.015	0.034
Lepisosteidae	0.002	0.004
Siluriformes	0.108	0.237
Ictalurus furcatus	0.009	0.019
Ictalurus punctatus	0.031	0.067
Total	**21.988**	**48.475**

Table 21 *Estimated Meat Using "Method 3"*

Taxa	Meat Weight (kg)	Meat Weight (lbs)
Mammalia		
Bos taurus	0.397	0.876
Odocoileus virginianus	8.446	18.624
Sus scrofa	0.185	0.407
Canis sp.	0.020	0.044
Canis latrans/familiaris	0.017	0.037
Urocyon cinereoargenteus	0.022	0.049
Mephitidae	0.004	0.009
Procyon lotor	0.002	0.004
Ursus americanus	0.400	0.882
Didelphus virginiana	0.010	0.022
Scalopus aquaticus	0.001	0.002
Sylvilagus sp.	0.012	0.027
Sylvilagus aquaticus	0.002	0.005
Sylvilagus floridanus	0.005	0.012
Equus caballus	0.052	0.114
Rattus sp.	0.002	0.005
Castor canadensis	0.050	0.111
Ondatra zibethicus	0.002	0.005
Sigmodon hispidus	0.003	0.006
Sciurus sp.	0.007	0.016
Sciurus carolinensis	0.003	0.007
Sciurus niger	0.009	0.020
Aves		
Accipitridae	0.002	0.006
Anatinae	0.018	0.040
Anas crecca	0.001	0.001
Anas platyrhynchos	0.025	0.055
Branta canadensis	0.013	0.029
Lophodytes cucullatus	0.001	0.001
Ectopistes migratorius	0.012	0.027
Gallus gallus	0.273	0.601
Meleagris gallopavo	0.284	0.625
Actinopterygii		
Aplodinotus grunniens	0.011	0.025
Catostomidae	0.009	0.019
Lepisosteidae	0.001	0.003
Siluriformes	0.051	0.113
Ictalurus furcatus	0.005	0.011
Ictalurus punctatus	0.016	0.036
Total	**9.976**	**22.000**

ArcMaps

During analysis, there was a vast difference not only in the amount of bone material from each context, but the difference in the number of species recovered from any one context. This gave a need to visually see if there were any noticeable differences in the number of identified species in any given area of the Bakery or Barracks.

As shown in the map in Figure 37, the number of species in the center of the Bakery are in the single digits, while other areas have higher numbers in the double digits. While these units are shown in the approximate area as the Broutin's 1737 map of Tombecbe, these areas with larger numbers of taxa seem to be where footings for the Bakery and Barracks would have been. This is most likely attributable to washing during

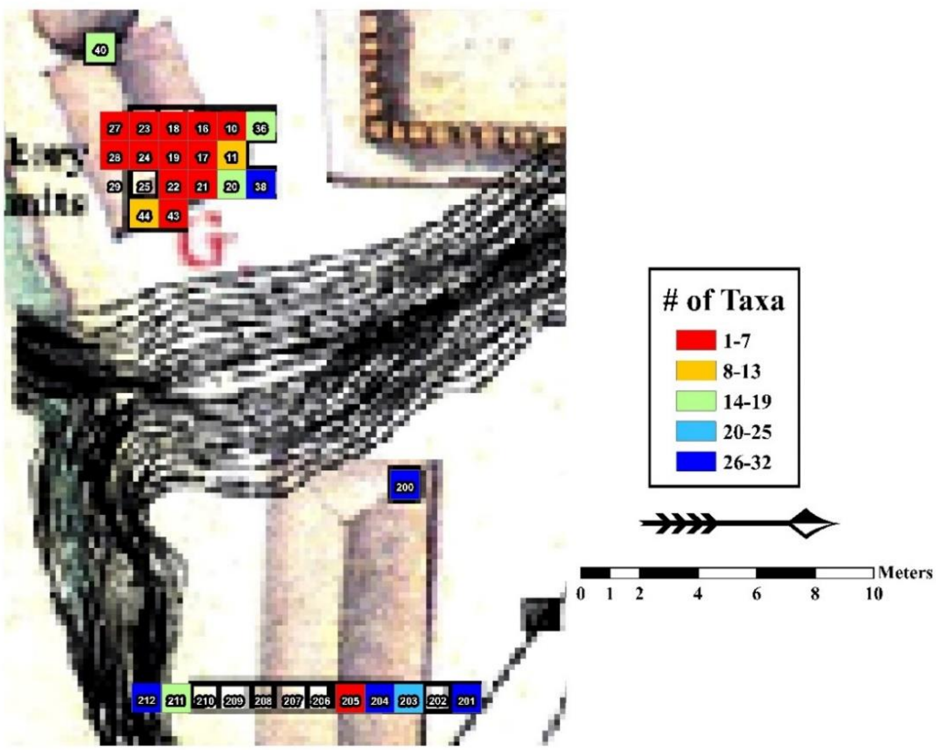


Figure 37. Map of Frequencies of Identified Taxa at Fort Tombecbe.

Coffey, Sarah, October 5, 2021.

heavy rains and bone material getting caught against these footings and in the hole where they were set in the ground.

The only area that does not follow this proposed scenario is in Units 211 and 212 of the Barracks. These units have a high number of taxa but are not in an area of washing where bones would be stopped by building structures. These units are close to the edge of the ravine, also noted on the various maps of the fort. While washing could have occurred depending on how close bone material was to the edge, this could also be due to soldiers throwing trash into a dedicated midden area or attempting to throw trash into the ravine and landing short of the edge.

Figure 38 showing the percent of bone material out of the total NISP in each unit follows similar scenarios as that shown in Figure 37. The only area of notable difference is Unit 212 in the Barracks. Based on this map, there is only a small amount of individual bones in Unit 212. This can be attributed to either trash being thrown into the ravine and falling short or possibly being at the edge of a dedicated trash midden that has collapsed and fallen into the ravine over time.

This final map (Figure 39) shows the percentage of the total unidentified bone weight in each unit in the Bakery and Barracks. Similarly to Figure 37, this map shows similar trends – that washing possibly carried bone material until it was caught against building structures, except in the instance of Units 211 and 212 in the Barracks. Just as in Figure 37, these two units have high percentages of unidentified bone material. As previously mentioned in the Modified Remains section, the amount of burned and calcined bone seems to be, for the majority, in the Barracks and makes up a large portion of the unidentifiable bone in the entire assemblage.

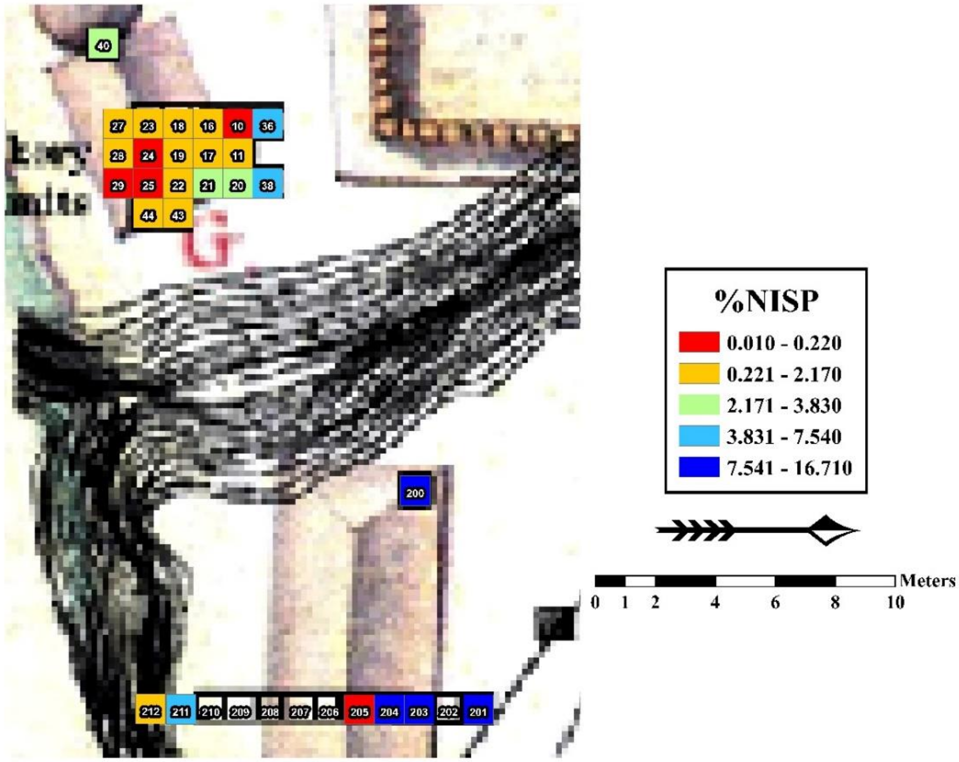


Figure 38. Map of Distribution of Percent NISP at Fort Tombecbe.

Coffey, Sarah, October 5, 2021.

The data presented shows that most of the recovered remains can be identified as mammals, with only a small amount of fish in the assemblage. This is shown in the separated Bakery and Barracks data, as well as the estimated MNI. The data on body portions and FUI shows that the most meat bearing, mid- to high-utility elements were used in larger proportions, with some of the least meat bearing, low-utility elements included in small incidences. There appears to be no large difference in the number of elements from the left or right side of the body. Of the elements that had an identifiable biological profile, young and middle age animals were killed out of the expected hunting season when they would have less meat available. Most of the assemblage has no identifiable postmortem modifications, but those with modifications are made up

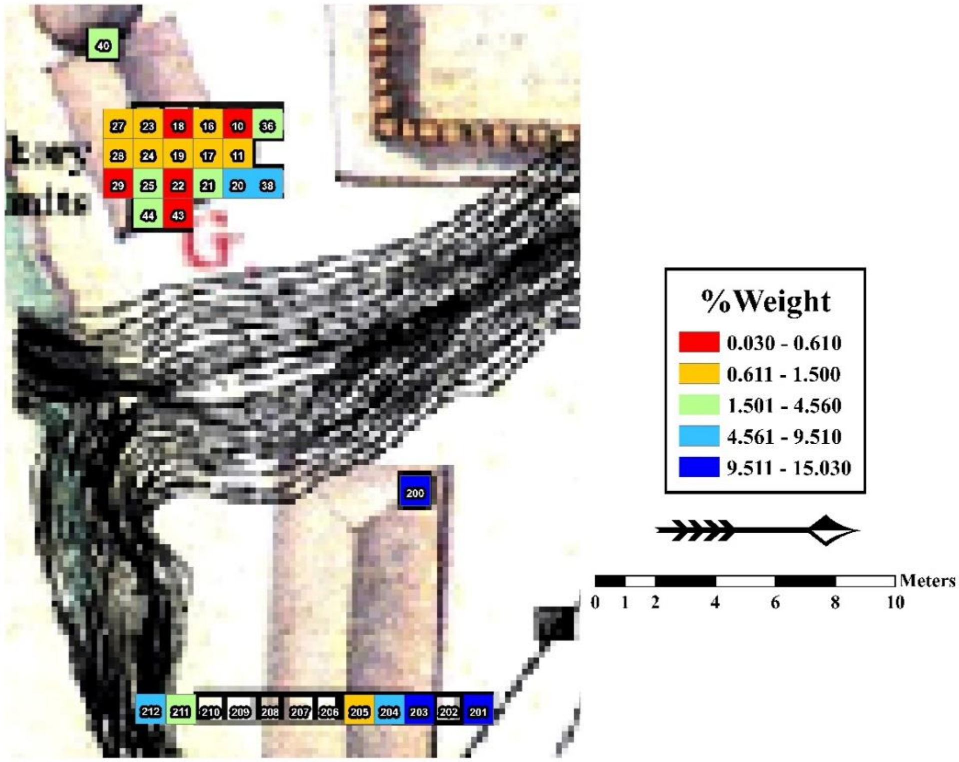


Figure 39. Map of Distribution of Percent UID Bone by Weight at Fort Tombecbe.

Coffey, Sarah, October 5, 2021.

largely by burned or calcined bone. Of these burned and calcined bones, a large majority were recovered from the Barracks. Of the observed to expected remains, the observed remains are in slightly smaller numbers compared to the NISP expected remains and only approximately half of the MNI expected remains. Calculated available meat only estimates a small amount of meat contributed by the identified remains. Lastly, the created maps show that very few identified taxa, a small percentage of the total assemblage, and only a small percentage of the total UID weight are found at the Bakery, with large incidences of bone recovery occurring approximately where footings for buildings would have stood.

CHAPTER VI – DISCUSSION AND CONCLUSIONS

Upon arrival at Fort Tombecbe, the French soldiers were met with European supplies, which are noted to have been sent in February of 1737 in preparation for Bienville's second Chickasaw campaign before the route was changed. Vaudreuil made reports in November of 1743 that additional supplies were needed for the soldiers and trading with the Choctaw. Those historic requests represent the sum total of what we know presently about subsistence at Tombecbe during roughly those six and a half years. The soldiers sought to maintain French relations with the Choctaw and in addition to purchasing skins it seems likely that they also acquired foodstuffs from their neighbors.

The French were dependent on the Choctaw for food by October of 1745, the supply chain having been disrupted by orders not to travel upriver until water levels were high and supplies from France slowed or stopped completely by the British Navy in the Atlantic during the War of Austrian Succession. Sometime in 1747, additional rations made their way upriver to Tombecbe. Vaudreuil ordered for more, along with supplies for repairs in the summer of 1751. These supply issues continued to plague the occupants of the fort until it was transferred to the British in 1763.

That the British that occupied Fort York experience these same disrupted supply chains is telling. The British occupation began with less than a year of military presence at the fort before civilians were given control. Upon reoccupation, supplies were almost two months late for the new garrison and partially lost during the journey upriver. To add to the short supplies, the commandant, Lieutenant Ritchy, tried to profit by selling what little supplies they had for increased prices or restricting what the Commissary could sell.

The soldiers dealt with more shortages in November of 1767 after the Choctaw attacked, burning buildings and raiding the gardens.

My thesis aimed to answer two questions regarding the French and British occupation of the fort: what did the soldiers rely on more in terms or native or domestic species, and could the French and British contexts be separated for further study.

While further analysis will have to be conducted into the differences in faunal remains between the different vertical contexts, it is clear that the French, as mentioned in the wider French colonial histories, readily adapted their diet to incorporate native fauna. It seems that the British were also reliant on these same native species for survival, despite their preference for domestic species. This is evidenced by the prevalence of white-tailed deer within the faunal assemblages recovered from both the Bakery and Barracks. Overall, mammals make up half of the 57 identified individuals, based on the calculated MNI. As noted in Chapter II, chickens were one of the most successful European domesticates to rear in the colonies. Certainly, this was the case at Old Mobile. At Fort Tombecbe, chickens were also well represented in the faunal assemblage. Interestingly, fish only make up a small portion of individual specimens. Possible reasons for this will be discussed below.

The highest number of remains in the entire assemblage from any particular body portion came from the axial body and the general long bones, of which both are multi-use portions. Although elements from the left side are in slightly higher abundance, this is likely due to taxonomic issues, rather than dietary influences. This notion finds further support when you consider the long bones recovered without any notable landmarks to determine a particular side.

Dietary stress is suggested in the faunal record at Tombecbe, as remains from at least one juvenile or small-size ungulate, cow, turkey, and deer were recovered. At the same time, the soldiers were able to acquire a large-size deer at least once during their occupation, possibly a buck based on the pedicle fragment recovered. However, this one incidence only shows evidence of successful hunting on one occasion. If hunting was more successful, more large-size animals would be identified.

White-tailed deer remains were the only specimens that facilitated estimates of seasonality in the faunal assemblage. Deer age, based on teeth recovered, suggest that the summer and early fall was the main hunting season for the soldiers. This is when these animals would have been easier to hunt due to plentiful amounts of food for them to eat compared to the winter season. While not a definitive indicator, this could also be used to support the idea that the soldiers were strictly rationing supplies and supplementing with food they acquired on their own. Easy hunting was most likely a safer choice than waiting until the winter when deer tend to have more meat on their body.

If food supply chains were as erratic as indicated in the historic record, it is surprising that fish remains are so poorly represented; particularly when you consider the site's proximity to the Tombigbee River. Those fishes that were observed were of average or large size. The fish remains identified were, for the majority, from fish that are noted to be favored by the French and/or British – catfish and freshwater drum. The only identified remains from gar, an undesirable fish for the French, were scales, three teeth, and a single vertebra. This shows evidence that the dietary stress was not as severe as initially expected, as the French and British soldiers would have utilized even the undesirable species if they were desperate for sustenance.

Diversity and equitability measures at the Bakery and Barracks rely on the total MNI and biomass that were calculated for the entire assemblage. These methods were used not only to determine assemblage diversity and equal or unequal distribution across the study area, but also to compare the results of the MNI and biomass. In so doing, it was clear that diversity and equitability based on MNI offered more reliable data in that it does not overcompensate for larger taxa, which contribute more biomass and bone weight compared to smaller taxa. Despite what, at a glance, appears to be a large difference in the number of individuals determined for white-tailed deer (8) compared to other identified taxa, white-tailed deer were only slightly more utilized than the other species identified.

Modifications to remains in the faunal assemblage are also telling about the soldiers' diet. The amount of burned and calcined bone at the Bakery as compared to the Barracks begs one of two scenarios, or some combination of the two. With only a small portion being found at the Bakery, meat was most likely either cooked in pans or Indigenous made pottery, or the Bakery was mostly used for making bread or other non-meat dishes. Most of the identified taxa, a large percent of the total NISP, and most of the unidentified bone weight was recovered at the Barracks. The elements may represent bones fragments that washed underneath and were caught against the structural supports of buildings. In the southeast units at the Barracks, Units 211 and 212, however, is where the largest concentration of material is shown in all three frequency maps. While odd, this could indicate some kind of communal cooking fire was located behind the Barracks for the enlisted soldiers, away from the officers of the fort. Alternatively, this could be remnants of a trash midden made as the result of one or two forms of activity: either a dedicated area behind the Barracks where trash was purposely dumped or an area where trash was intentionally thrown over the cliff and into the ravine, but some material fell short and landed on the ground surface. Purposeful disposal in the ravine could also account for the small amount of fish recovered from Tombecbe compared to other taxa. In either case, this midden was left exposed for some period of time, as evidenced by persistent rodent gnawing and eastern mole, rat, hispid cotton rat, and snake remains, all of which are most likely incidental species, rather than used for subsistence.

Other modifications to bone are also indicative of soldiers' activities in producing and processing the meat themselves. As mentioned in Chapter II, the Choctaw practice of butchering aimed to separate muscles from the bone. Some bones have evidence of butchering more like Western practices that Europeans would utilize. This shows that the soldiers were supplying or at least processing and preparing their own food while stationed at Tombecbe. It also shows that soldiers had no particular preferences in cut of venison, beef, and pork, or else; these proteins were in such short supply that they could not have preferences. This latter interpretation is supported by most of the remains being from the axial skeleton and long bones. Although there is the potential to make further assessments based on the frequency, depth, and accuracy of these butchering marks at Tombecbe (and thus how adept we can say the soldiers were at butchering their own kills), this awaits future study. The soldiers there had at least basic skills at butchering to subdivide animal carcasses into these cuts of meat.

These butchering marks could also give further indications on whether hunting was conducted for fulfilling deer skin shipments, for meat, or for both. Upon cursory analysis of post-mortem modifications, there were no noticeable glancing cuts through the surface of bone like what would be left in skinning a deer. The modifications, as discussed were largely attributable to butchering for meat.

While they may seem secondary to further study, the fragmentary remains also aid in answering my first question. The 95 percent of the assemblage that could not be identified is made up of broken and fragmentary bone. In some instances, these fragmentary remains could be attributed to disposal or trampling, but these smaller fragments are indications of some purposeful method of processing bone for marrow or broth extraction due to some incidence of dietary stress.

In comparison to the majority of remains coming from the axial skeleton, food utility indices of particular taxa gives a glimpse into food stress at Tombecbe, something we would expect to see given the constant delay of supplies from Mobile. Of the few cow remains analyzed, most come from areas with 75 to 100% utility, while pig comes from mostly low utility areas with no to only 25% use. White-tailed deer, by comparison, comes from mostly the 25 to 50% use areas of the body. When combined, most of the faunal remains from these three species come from areas with only 25 to 50% utility. This does suggest that the soldiers were subject to dietary stress on one or more occasions. Although we lack the resolution to assign these to the specific periods mentioned in the historic record, these separate lines of evidence line up nicely. It is easy to imagine why the soldiers there attempted to desert their post in 1745.

Finally, the estimated meat available appears to still be just that – an estimate. Of the two metrics calculated, each is subject to distortion. “Method 1” overestimates the available meat, and “Method 3” seems to underestimate the available meat. Therefore, it can only be generally surmised that the meat available from white-tailed deer to be somewhere between 10.25 and 21.87 kilograms. Based on the ration of meat per soldier, this supply of meat alone would have only lasted at most approximately six months, if using the pork rations per soldier per week discussed in Chapter III, only approximately two and a half months at most if using the beef rations.

Also worth mentioning, Chabert is noted to have sold a bull, four cows, and a calf to Ford upon transfer of Tombecbe to the British. However, there were less than a dozen elements identified as belonging to cow. Historical documents mention cattle being one of the most important domesticates in the colonies. This was either a reference to dairy cattle or an assumption for all British colonies. Chabert is also referenced when he tried to receive compensation for his pigeon house and was denied. As passenger pigeon is not noted in British diets, higher incidence in certain contexts would lean more towards being attributable to the French. These areas being mostly in the Barracks, with a couple specimens recovered in Bakery contexts.

In regard to other colonial settlements, the question remains of how does Fort Tombecbe compare to other contemporary settlements. Fort Tombecbe is similar to Old Mobile, Fort Toulouse, and Michilimackinac in that all four settlements relied on wild species for subsistence and supplemented with domesticates of some kind. Also worth mentioning in this comparison, the MNI for Mobile is the lowest of the settlements discussed in Chapter II with 34 individuals identified, while Fort Toulouse had an identified 64 individuals (Waselkov 1989, xl), and Michilimackinac had 226 individuals (Carlson 2012). Fort Tombecbe has a moderate number of individuals with 57 MNI, although not nearly as high as Michilimackinac, but comparable to Fort Toulouse. While it is notoriously difficult to assess how representative archaeological assemblages are, it is important to note that both Fort Tombecbe and Fort Toulouse were frontier forts.

In summary and response to my primary research question of what species soldiers at Tombecbe relied on, they mostly subsisted on wild species, specifically white-tailed deer, and supplemented with domestic chickens. Based on the butchering marks left on the bones recovered, I conclude that the soldiers obtained at least some of the animals they used for food themselves and were at least moderately skilled at butchering the carcasses. While there was possibly some dedicated midden behind the soldiers' Barracks, some trash was left throughout the fort, evidenced by the faunal specimens recovered in all contexts. While the French and British contexts could not be differentiated at this time, the subsistence methods at Tombecbe align more with French practices due to the large number of native species, rather than with British practices, which focused more on domestic species. Although the French generally adopted Indigenous practices, it is difficult to distinguish any explicit Choctaw influence on the diet other than the nearby Choctaw occasionally trading native species to the soldiers, if not living amongst the soldiers.

Suggestions for Future Research

Although I endeavored to be as thorough as possible with my examination and analysis of the Fort Tombecbe faunal remains, there remains much more work to be done. Concerning my second research question, whether or not the French and British contexts could be separated and the material analyzed separately, I discovered that answering such a question required analysis of other non-faunal artifacts recovered from these contexts as well. This was due to multiple factors: the faunal analysis took more time than initially expected and the material required to answer this question was on loan to another university at the time and unavailable for use. Thus, this avenue for study is still open.

A second avenue for future research lies in further investigating Units 211 and 212 in the soldiers' Barracks. This would include an analysis of the types and categories of the artifacts recovered in these contexts to possibly answer the question of whether this was indeed a midden area or something else entirely.

A third area for future research is analyzing the material in the Southwest bastion in the fort, which also fell within the scope of Dr. Dumas's archaeological work since 2010. This area would give further information into daily life at Fort Tombecbe, as there is the potential for washed material from the Bakery, and even the Barracks, to be recovered from this area.

Albeit smaller projects compared to the previous three, there are an additional three topics I would like to see examined at Fort Tombecbe. First, a more in-depth study into use of black bear remains by tribes local to the Southeast would potentially explain the handful of elements recovered at Tombecbe that did not initially appear to be diet related. A second, smaller project would add to the butchering of the elements discussed in Chapter IV by analyzing the kerf marks left on bones with assigned chop, cut, and saw marks to possibly confirm or correct the type of marks assigned to the particular bone fragments. And the third would be further study into the burned and calcined bones as a means of possibly interpreting whether these remains were burned during cooking or as a means of disposal, as discussed in Chapter V on page 74.

Also, while not a zooarchaeological analysis, further research in any recovered flora would also add to what is known, and unknown, about the diets of the enlisted soldiers stationed at Fort Tombecbe.

Although there are many avenues of study remaining at Fort Tombecbe, this preliminary analysis into the broader faunal assemblage helps in beginning to make comparisons with other contemporary sites in the Southeast and North America. While not always possible, the Fort Tombecbe assemblage shows the usefulness in using finer screens for material recovery. In using smaller screens, there is less error and a more definite conclusion that there are fewer fish remains than expected at Tombecbe – opening the door to further research into why this might be. While some posts or towns took more time than others, settlements on major waterways become somewhat, is not completely, self-reliant. In the broader context, some become major ports or waypoints, such as New Orleans or Fort Michilimackinac. Despite Fort Tombecbe lying on the banks of the Tombigbee River, that was not the case. In comparison to Fort Toulouse that had a partially self-reliant military and civilian population, Tombecbe struggled to keep the garrison from desertion or mutiny. Further study into the Tombecbe collection may eventually give further insight into why this might have been. Why Fort Tombecbe was the isolated and distant post.

APPENDIX A – Faunal Data

The following link is for the full datasheet converted from Microsoft Access into Microsoft Excel. The highlighted rows were not used in data calculations. It is recommended to download the file to a personal computer before editing, as not doing so could make changes to the master file. I noticed during data analysis that sometimes the data would mix up, despite telling the program to ‘Sort’ with the ‘Expanded Selection’. So it is also recommended to have duplicates of the original master file in case this same issue occurs.

https://1drv.ms/x/s!An7qv2juTSYQgdUrifxsv_aFrEFzmw?e=dwPZpP

APPENDIX B – Mammals Observed : Expected Ratios

Table A1. *Cow Observed : Expected Ratios*

	NISP			MNI	
Element	Observed	Expected	Ratio	Expected	Percentage Survival
Ilium	1	1	1.00	2	50.00%

Table A2. *Canid Observed : Expected Ratios*

	NISP			MNI	
Element	Observed	Expected	Ratio	Expected	Percentage Survival
Acetabulum	1	1	1	2	50.00%

Table A3. *Gray Fox Observed : Expected Ratios*

	NISP			MNI	
Element	Observed	Expected	Ratio	Expected	Percentage Survival
Tibia, proximal	1	1	1	2	50.00%
Tibia, distal	1	1	1	2	50.00%

Table A4. *Skunk Observed : Expected Ratios*

	NISP			MNI	
Element	Observed	Expected	Ratio	Expected	Percentage Survival
Ischium	1	1	1	2	50.00%

Table A5. *Black Bear Observed : Expected Ratios*

	NISP			MNI	
Element	Observed	Expected	Ratio	Expected	Percentage Survival
Metacarpus, proximal	2	2	1	10	20.00%
Metatarsus, proximal	1	1	1	10	10.00%

Table A6. *Eastern Mole Observed : Expected Ratios*

	NISP			MNI	
Element	Observed	Expected	Ratio	Expected	Percentage Survival
Humerus	1	1	1	2	50.00%

Table A7. *Cottontail Rabbit Observed : Expected Ratios*

	NISP			MNI	
Element	Observed	Expected	Ratio	Expected	Percentage Survival
Femur, proximal	1	1	1	2	50.00%
Tibia, proximal	1	1	1	2	50.00%

Table A8. *Eastern Cottontail Rabbit Observed : Expected Ratios*

	NISP			MNI	
Element	Observed	Expected	Ratio	Expected	Percentage Survival
Humerus, distal	2	2	1	4	50.00%

Table A9. *Rat Observed : Expected Ratios*

	NISP			MNI	
Element	Observed	Expected	Ratio	Expected	Percentage Survival
Mandible	2	3	0.667	2	100.00%
Skull	3	3	1	-	-
Ulna, proximal	1	3	0.333	2	50.00%

Table A10. *American Beaver Observed : Expected Ratios*

	NISP			MNI	
Element	Observed	Expected	Ratio	Expected	Percentage Survival
Femur, shaft	1	1	1	2	50.00%

Table A11. *Hispid Cotton Rat Observed : Expected Ratios*

	NISP			MNI	
Element	Observed	Expected	Ratio	Expected	Percentage Survival
Mandible	2	2	1	2	100.00%

Table A12. *Gray Squirrel Observed : Expected Ratios*

	NISP			MNI	
Element	Observed	Expected	Ratio	Expected	Percentage Survival
Mandible	1	1	1	2	50.00%

Table A13. *Eastern Fox Squirrel Observed : Expected Ratios*

	NISP			MNI	
Element	Observed	Expected	Ratio	Expected	Percentage Survival
Humerus, distal	1	2	0.5	2	50.00%
Mandible	2	2	0	2	100.00%
Scapula	1	2	0.5	2	50.00%
Tibia, distal	1	2	0.5	2	50.00%

APPENDIX C – Birds Observed : Expected Ratios

Table A1. *Hawk Observed : Expected Ratios*

		NISP		MNI	
Element	Observed	Expected	Ratio	Expected	Percentage Survival
Ulna, distal	1	1	1.00	2	50.00%

Table A2. *Green-Winged Teal Observed : Expected Ratios*

		NISP		MNI	
Element	Observed	Expected	Ratio	Expected	Percentage Survival
Femur, proximal	1	1	1.00	2	50.00%

Table A3. *Mallard Observed : Expected Ratios*

		NISP		MNI	
Element	Observed	Expected	Ratio	Expected	Percentage Survival
Coracoid, proximal	1	1	1.00	2	50.00%
Humerus, proximal	1	1	1.00	2	50.00%
Scapula	1	1	1.00	2	50.00%
Tarsometatarsus, proximal	1	1	1.00	2	50.00%

Table A4. *Canada Goose Observed : Expected Ratios*

		NISP		MNI	
Element	Observed	Expected	Ratio	Expected	Percentage Survival
Tibiotarsus, distal	1	1	1	2	50.00%

Table A5. *Passenger Pigeon Observed : Expected Ratios*

		NISP		*MNI*	
Element	*Observed*	*Expected*	*Ratio*	*Expected*	*Percentage Survival*
Carpometacarpus	1	3	0.33	4	25.00%
Coracoid, distal	1	3	0.33	4	25.00%
Coracoid, proximal	1	3	0.33	4	25.00%
Humerus, whole	1	3	0.33	4	25.00%
Radius, distal	1	3	0.33	4	25.00%
Radius, proximal	3	3	1	4	75.00%
Ulna, proximal	1	3	0.33	4	25.00%

APPENDIX D – Ray-Finned Fishes Observed : Expected Ratios

Table A1. *Freshwater Drum Observed : Expected Ratios*

	NISP			MNI	
Element	Observed	Expected	Ratio	Expected	Percentage Survival
Basioccipital	1	1	1.00	2	50.00%

Table A2. *Sucker Observed : Expected Ratios*

	NISP			MNI	
Element	Observed	Expected	Ratio	Expected	Percentage Survival
Cleithrum	1	1	1	2	50.00%

Table A3. *Blue Catfish Observed : Expected Ratios*

	NISP			MNI	
Element	Observed	Expected	Ratio	Expected	Percentage Survival
Articular Dentary	1	1	1	2	50.00%

Table A4. *Channel Catfish Observed : Expected Ratios*

	NISP			*MNI*	
Element	*Observed*	*Expected*	*Ratio*	*Expected*	*Percentage Survival*
Articular Dentary	1	1	1	2	50.00%
Premaxilla	1	1	1	2	50.00%

REFERENCES

Andrews, Peter and Yolanda Fernandez Jalvo. 2012. "How to Approach Perimortem Injury and Other Modifications." Methods in Molecular Biology 915: 191-225. https://www.researchgate.net/publication/230711622_How_to_Approach_Perimortem_Injury_and_Other_Modifications.

Barron, Bill. 1975. *The Vaudreuil Papers: A Calendar and Index of the Personal and Private Records of PIERRE DERIGAUD DE VAUDREUIL, Royal Governor of the French Province of Louisiana, 1743-1753*. New Orleans, LA: Polyanthos.

Best, Troy L. and Julian L. Dusi. 2014. *Mammals of Alabama*. Tuscaloosa, AL: The University of Alabama Press.

Blitz, John Howard. 1985. *An Archaeological Study of the Mississippi Choctaw Indians*. Archaeological Report No. 16, Jackson, MS: Mississippi Department of Archives and History.

Bossu, Jean-Bernard. 1962. *Travels in the Interior of North America 1751-1762*. Edited and translated by Seymour Feiler. Norman, OK: University of Oklahoma Press.

Bowes, John B. 2010. *The Choctaw: The History and Culture of Native Americans*. New York, NY: Chelsea House Publishers.

Brown, Ian W. 1992. "Certain Aspects of French-Indian Interaction in Lower Louisiane." In *Calumet & Fleur-de-Lys: Archaeology of Indian and French Contact in the Midcontinent*, edited by John A. Walthall and Thomas E. Emerson, 17-35. Washington, D.C.: Smithsonian Institution Press.

Caldwell Jr., Robert B. 2015. *Choctaw-Apache Foodways*. Nacogdoches, TX: Stephen F. Austin State University Press.

Carlson, Jenna K. 2012. *Culinary Creolization: Subsistence and Cultural Interaction at Fort Michilimackinac, 1730-1761*. Archaeological Completion Report Series, Number 18, Mackinac Island, MI: Mackinac State Historic Parks.

Chartrand, René. 2013a. *The Forts of New France in Northeast America 1600-1763.* Oxford: Osprey Press.

Chartrand, René. 2013b. *The Forts of New France: The Great Lakes, the Plains and the Gulf Coast, 1600-1763.* Oxford: Osprey Publishing.

Clute, Janet R., and Gregory A. Waselkov. 2002. "Faunal Remains from Old Mobile." *Historical Archaeology* 36 (1): 129-134.

Crabtree, Pam and Douglas V. Campana. 2012. "Traces of Butchery and Bone Working." In Comparative Osteology: A Laboratory and Field Guide of Common North American Animals, by Bradley Adams and Pam Crabtree, 407-428. Cambridge, MA: Academic Press. http://booksite.academicpress.com/9780123884374.

Desloges, Yvon. n.d. "Daily Life." Virtual Museum of New France. Accessed April 15, 2021. https://www.historymuseum.ca/virtual-museum-of-new-france/daily-life/foodways/.

Du Pratz, Antoine Simon Le Page. 1947 [1775]. *The History of Louisiana, or of the Western Parts of Virginia and Carolina: Containing a Description of the Countries that lie on both sides of the River Mississippi: With an Account of the Settlements, Inhabitants, Soil, Climate, and Products*. 1947 facsimile. New Orleans, LA: Pelican Press, Inc.

Dumas, Ashley A. 2012. Field Book #1 Fort Tombecbe 1Su7 (2010-2012). Black Belt Museum Laboratory, University of West Alabama, Livingston, AL.

Dumas, Ashley A. 2014. Field Book #2 Fort Tombecbe 1Su7 (2012-2014). Black Belt Museum Laboratory, University of West Alabama, Livingston, AL.

Dumas, Ashley A. 2021. "this distant and isolated post: The Role of Fort Tombecbe in La Louisiane, 1736-1763." Anthropology Day Lecture 2021 at the University of Southern Mississippi, Hattiesburg, MS February 18, 2021. Video lecture.

Dumas, Ashley A. n.d. Field Book #3 Fort Tombecbe 1Su7 (2017-____). Black Belt Museum Laboratory, University of West Alabama, Livingston, AL.

Ebersole, Jun and Ebersole, Sandy. 2011. "Late Pleistocene Mammals of Alabama: A Comprehensive Faunal Review with 21 Previously Unreported Taxa." *Bulletin of the Alabama Museum of Natural History* 28: 1-66.

Editors, Charles River. 2013. *Native American Tribes: The History and Culture of the Choctaw*.

Esri, Inc. 2019. ArcGIS (10.7.1). Desktop. https://desktop.arcgis.com/en/arcmap/10.7/get-started/setup/arcgis-desktop-quick-start-guide.htm.

Fisher, John W. 1995. "Bone Surface Modifications in Zooarchaeology." *Journal of Archaeological Method and Theory 2*, no. 1: 7–68. http://www.jstor.org/stable/20177322.

Fort Toulouse – Fort Jackson. n.d. "Contact." Accessed April 15, 2021. https://fttoulousejackson.org/contact/.

Gaines, George Strother. 1988. *The Reminiscences of George Strother Gaines: Pioneer and Statesman of Early Alabama and Mississippi, 1805-1843*, edited by James P. Pate. Tuscaloosa, AL: The University of Alabama Press.

Greenfield, Haskell J. 1989. "From Pork to Mutton: A Zooarchaeological Perspective on Colonial New Amsterdam and Early New York City." *Northeast Historical Archaeology* 18: 85-110.

Gremillion, Kristen J. 1993. "Adoption of Old World Crops and Processes of Cultural Change in the Historic Southeast." *Southeastern Archaeology* 12 (1): 15-20.

Hardy, Meredith D. 2011. "Living on the Edge: Foodways and Early Expressions of Creole Culture on the French Colonial Gulf Coast Frontier." In *French Colonial Archaeology in the Southeast and Caribbean*, edited by Kenneth G. Kelly and Meredith D. Hardy, 152-188. Gainesville, FL: University Press of Florida.

Iberville, Pierre. 1981. *Iberville's Gulf Journals*. Edited and translated by Richebourg Gaillard McWilliams. Tuscaloosa, AL: The University of Alabama Press.

Integrated Taxonomic Information System. Accessed October 22, 2020. https://www.itis.gov/.

Junqueira, Luiz Carlos and José Carneiro. 2003. *Basic Histology*. 10th ed. New York: McGraw Hill.

Knox, John. 1769. An Historical Journal of the Campaigns in North—America, for the Years 1757, 1758, 1759, and 1760. London. https://www.loc.gov/resource/rbc0001.2019preimp12669v1/?st=gallery.

Lagardere, Elias. 1765. Letter, 1765 [?] Sept. 30, Mobile, [Alabama to] Joseph Clay, Savannah, [Georgia] / Elias Lagardere. Southeastern Native American Document, 1730-1842. Hargrett Library, University of Georgia, Athens, GA. https://dlg.usg.edu/record/dlg_zlna_krc108?canvas=0&x=1126&y=1396&w=11406

Little, Keith J., Hunter B. Johnson, Kandace D. Hollenbach, Jessica L. Vavrasek, and Travis Rael. 2017. "Post-Colonial Era Impacts of Choctaw Participation in European Deerskin Trade." *Mississippi Archaeology* 52 (1-2): 1-16.

Lyman, R. Lee. 1994. *Vertebrate Taphonomy*. Cambridge, UK: Cambridge University Press.

Mackinac State Historic Parks. n.d. “Books and Publications.” Accessed May 5, 2021. https://www.mackinacparks.com/more-info/books-publications/.

Mitchell, Charles C., Donn Rodekohrs, and Shane Harris. 2018. “Soil Descriptions and Plant Selections for the Montgomery/Prattville/Wetumpka Area.” Accessed April 15, 2021. https://www.aces.edu/blog/topics/landscaping/soil-descriptions-and-plant-selections-for-the-montgomery-prattville-wetumpka-area/.

Neely, Paula.2013. “Jamestown Colonists Resorted to Cannibalism.” National Geographic News, May 3, 2013. https://www.nationalgeographic.com/science/article/130501-jamestown-cannibalism-archeology-science.

Outdoor Alabama. n.d. “Freshwater Drum.” Accessed December 12, 2021. https://www.outdooralabama.com/drum/freshwater-drum.

Parker, James W. 1982. "Archaeological Test Investigations at 1Su7: The Fort Tombecbe Site." *Journal of Alabama Archaeology* 28 (1).

Pate, James P. 1980. The Fort Tombecbe Historical Research and Documentation Project. Livingston, AL: Alabama Historical Commission and Livingston University.

Rea, Robert R. 1968. "The Trouble at Tombeckby." *The Alabama Review: A Quarterly Journal of Alabama History* 21 (1): 21-39.

Redding, Richard W. 2002. "The Study of Human Subsistence Behavior using Faunal Evidence from Archaeological Sites." In *Archaeology: Original Readings in Method and Practice*, edited by Peter Neal Peregrine, Carol R. Ember and Melvin Ember, 92-110. Upper Saddle River, NJ: Prentice Hall.

Reitz, Elizabeth J., and Elizabeth S. Wing. 2008. *Zooarchaeology*. 2nd ed. New York, NY: Cambridge University Press.

Reitz, Elizabeth J., and Nicholas Honerkamp. 1983. "British Colonial Subsistence Strategy on the Southeastern Coastal Plain." *Historical Archaeology* 17 (2): 4-26.

Reitz, Elizabeth Jean. 1979. "Spanish and British Subsistence Strategies at St. Augustine, Florida, and Frederica, Georgia, Between 1565-1783." PhD diss., The University of Florida. https://ufdc.ufl.edu/UF00025914/00001/6j.

Rowland, Dunbar, Albert Godfrey Sanders, and Patricia Kay Galloway, eds and trans. 1984. *Mississippi Provincial Archives, [1701]-1763: French Dominion*. Jackson, MS: Mississippi Department of Archives and History.

Scott, Elizabeth M. 1989. *French Subsistence at Fort Michilimackinac, 1715-1781: The Clergy and the Traders*. Mackinac Island, MI: Archaeological Completion Report Series Number 9, Mackinac Island State Park Commission.

Scott, Elizabeth M. 1996. "Who Ate What? Archaeological Food Remains and Cultural Diversity." In *Case Studies in Environmental Archaeology*, edited by Elizabeth J. Reitz, Lee A. Newsome and Sylvia J. Scudder, 339-356. New York, NY: Plenum Press.

Scott, Elizabeth M. 2017. *Archaeological Perspectives on the French in the New World*. Gainesville: University Press of Florida.

Searcy, Margaret Zehmer. 1985. "Choctaw Subsistence, 1540-1830: Hunting, Fishing, Farming, and Gathering." In *The Choctaw before Removal*, edited by Carolyn Keller Reeves, 32-54. Jackson, MS: University Press of Mississippi and Choctaw Heritage Press.

Shannon, C.E., and W. Weaver. 1949. *The mathematical theory of communication*. Urbana, IL: University of Illinois Press.

Sheldon Jr., Craig T., Ned J. Jenkins, and Gregory A. Waselkov. 2008. "French Habitations at the Alabama Post, ca. 1720-1763." In *Rêves d'Amériques: Regard sur l'archéologie de la Nouvelle-France (Dreams of the Americas: Overview of New France Archaeology) Archéologiques, Collection Hors Série 2,* edited by C. Roy and H. Côté, 112-126. Québec: Associationdes archéologues de Québec.

Sheldon, A.L. 1969. "Equitability Indices: Dependence on the Species Count." *Ecology* 50: 466-467.

Smith, Andrew F., eds. 2004. *The Oxford Encyclopedia of Food and Drink in America*. Vol. 1, *A-J*. Oxford: Oxford University Press.

Thomas, Daniel H. 1989. *Fort Toulouse: The French Outpost at the Alabamas on the Coosa*. Tuscaloosa, AL: The University of Alabama Press.

Thompson, Ian. 2019. *Choctaw Food: Remembering the Land, Rekindling Ancient Knowledge*. Edited by Kathy Carpenter. Durant, OK: Choctaw Print Services.

Thurmond, John T. 1973. "Appendix 6: Analysis of Faunal Remains from the 1972-73 Excavations of Fort Toulouse, Elmore County, Alabama." In *Archaeological Investigations of Fort Toulouse: 1972-73*, by Donald P. Heldman, 235-250.

Trusler, Allison Kate. 2017. "Evaluating Socioeconomic Status Using Food Utility Indices in Historical Faunal Assemblages." PhD diss., University of Missouri-Columbia.

Voss, Jerome A., and John H. Blitz. 1988. "Archaeological Investigation in the Choctaw Homeland." *American Antiquity* 53 (1): 125-145.

Waselkov, Gregory A. 1989. "Introduction: Recent Archaeological and Historical Research." In *Fort Toulouse: The French Outpost at the Alabamas on the Coosa*, by Daniel H. Thomas, vii-xlii. Tuscaloosa, AL: The University of Alabama Press.

Waselkov, Gregory A. 1990. "Archaeology of Old Mobile, 1702-1711." *Gulf Coast Historical Review* 6 (1): 6-21.

Waselkov, Gregory A. 1991. *Archaeology at the French Colonial Site of Old Mobile (Phase I: 1989-1991)*. Anthropological Monograph 1, Mobile, AL: University of South Alabama.

Waselkov, Gregory A. 1996. "Entries for “Fort among the Apalachicolas,” “Fort Louis,” “Louisiana,” “Fort Maurepas,” “Fort Rosalie,” Fort Tombecbé,” and “Fort Toulouse.”." In *Colonial Wars of North America, 1512-1763: An Encyclopedia*, edited by Alan Gallay, 38, 388-389, 397-402, 744-745, 745-746. Mobile, AL: Garland Monograph 2.

Waselkov, Gregory A. 1997. "The Archaeology of French Colonial North America: English-French Edition." *Guide to Historical Archaeological Literature 5*.

Waselkov, Gregory A. 2002a. "French Colonial Archaeology at Old Mobile: Selected Studies." *Historical Archaeology* 36 (1).

Waselkov, Gregory A. 2002b. "French Colonialism." In *Encyclopedia of Historical Archaeology*, edited by Charles E. Orser Jr., 232-235. London: Routledge.

Waselkov, Gregory A. 2005. *Old Mobile Archaeology*. Tuscaloosa, AL: University of Alabama Press.

Waselkov, Gregory A. 2009. "French Colonial Archaeology." In *International Handbook of Historical Archaeology*, edited by Teresita Majewski and David Gaimster, 613-628. New York, NY: Springer.

Waselkov, Gregory A., Brian M. Wood, and Joseph M. Herbert. 1982. *Colonization and Conquest: The 1980 Archaeological Excavations at Fort Toulouse and Fort Jackson, Alabama*. Auburn University Archaeological Monograph 4. Auburn, AL: Auburn University.

Waselkov, Gregory. 1983. "Analysis of Selected Samples of Bones from French Contexts 1Mb156." In "Origins of Mobile," by C. Sheldon and J.W. Cottier. Auburn University Archaeological Monograph 5: 167-170. Auburn, AL: Auburn University.

White, Theodore E. 1953. "A method of calculating the dietary percentage of various food animals utilized by aboriginal peoples." *American Antiquity* 18 (4): 396-398.

Wilkins, Joe. 1988. "Outpost of Empire: The Founding of Fort Tombecbe and de Bienville's Chickasaw Expedition of 1736." *Proceedings of the Meeting of the French Colonial Historical Society* 12: 133-153.

World Climate. n.d. “Average Weather Data for Wetumpka, Alabama.” Wetumpka, Alabama Climate - 36092 Weather, Average Rainfall, and Temperatures.

Accessed April 15, 2021.

http://www.worldclimate.com/climate/us/alabama/wetumpka.