Apalachicola's Gold:

Archaeology and History of Tupelo Honey Production in Northwest Florida

by

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ABSTRACT

Several archaeological sites in the lower Apalachicola River Valley have evidence of beekeeping in the late nineteenth to early twentieth centuries. At least two of these are also prehistoric sites (Depot Creek, 8Gu56 and Clark Creek, 8Gu60), which are *Rangia* (clam) shell mounds. Both sites are deep in the river swamp, which has the largest stand of tupelo trees in the world. The valley has a long tradition of beekeeping. Apiarists (beekeepers) would bring their bees by boat to remote locations in the swamps during the short tupelo flowering season to take advantage of the extensive forest. Tupelo honey has been commercially harvested since at least the nineteenth century, and has the reputation for being one of the finest honeys world-wide. It is prized for its light golden amber color and characteristic ability never to granulate, but to remain in a liquid state.

Shell mounds in the swamps offered high ground on which to build honey production centers. Such remote locations also were ideal for moonshine stills, with the

beekeeping and honey production as a plausible cover operation. A significant amount of historical artifacts was recovered from both sites to merit further research.

A third site, Lower Chipola Apiary (8Gu104) is a single component early-to mid-twentieth-century apiary consisting of a standing two-story honey house and scattered beekeeping equipment.

Archaeological methods, historical research, and oral histories were used to document beekeeping in the Apalachicola River Valley. Exploration of beekeeping and honey production in this valley during the late nineteenth to early twentieth centuries has offered significant data on a once notable industry and way of life in northwest Florida, comparable to other agricultural industries.

Chapter One: Introduction

This thesis documents the historical and archaeological investigations of beekeeping and tupelo honey production dating from the late nineteenth to early twentieth centuries in the lower Apalachicola River Valley, Gulf County, northwest Florida (Figures 1 and 2). Pioneering beekeepers were among the earliest non-aboriginal people to explore the swamps of northwest Florida and take advantage of the natural resources.

This work is significant for several reasons. First, it is the first investigation of archaeological remains from pioneering beekeepers who brought bees to the swamps of the Apalachicola and Chipola Rivers. Second, historical documents, oral histories, and archaeological data illustrate the long tradition of producing this rare honey, and keeping of the necessary bees in these remote areas. Third, due to the age of informants who have knowledge of the region and have worked in the tupelo honey industry, there is a limited time in which to record the stories. Finally, the importance of the tupelo honey industry to the economy and society of the region has been greatly ignored. Other industries such as lumber, fishing, turpentine, and citrus have overshadowed beekeeping and honey-making (Tebeau 1980).

Historical archaeology has significantly contributed toward the revealing of many facets of early beekeepers' lives. Many central questions can be answered. What was life like for beekeepers? Were the beekeepers living in the swamps? How was the honey produced? What structures were needed for beekeeping and honey production? Why was the area chosen for beekeeping, and is there a pattern as to where the apiaries are located? What kind of consumer goods did people bring with them to the swamps? These are just some of the topics to be investigated about beekeepers and tupelo honey production in northwest Florida. This thesis will begin to answer these questions by providing an inventory of existing surface features and historic artifacts (surface-collected and excavated) at these sites, assembling historic records relating to beekeeping and tupelo honey production, and documenting oral history interviews with key informants.

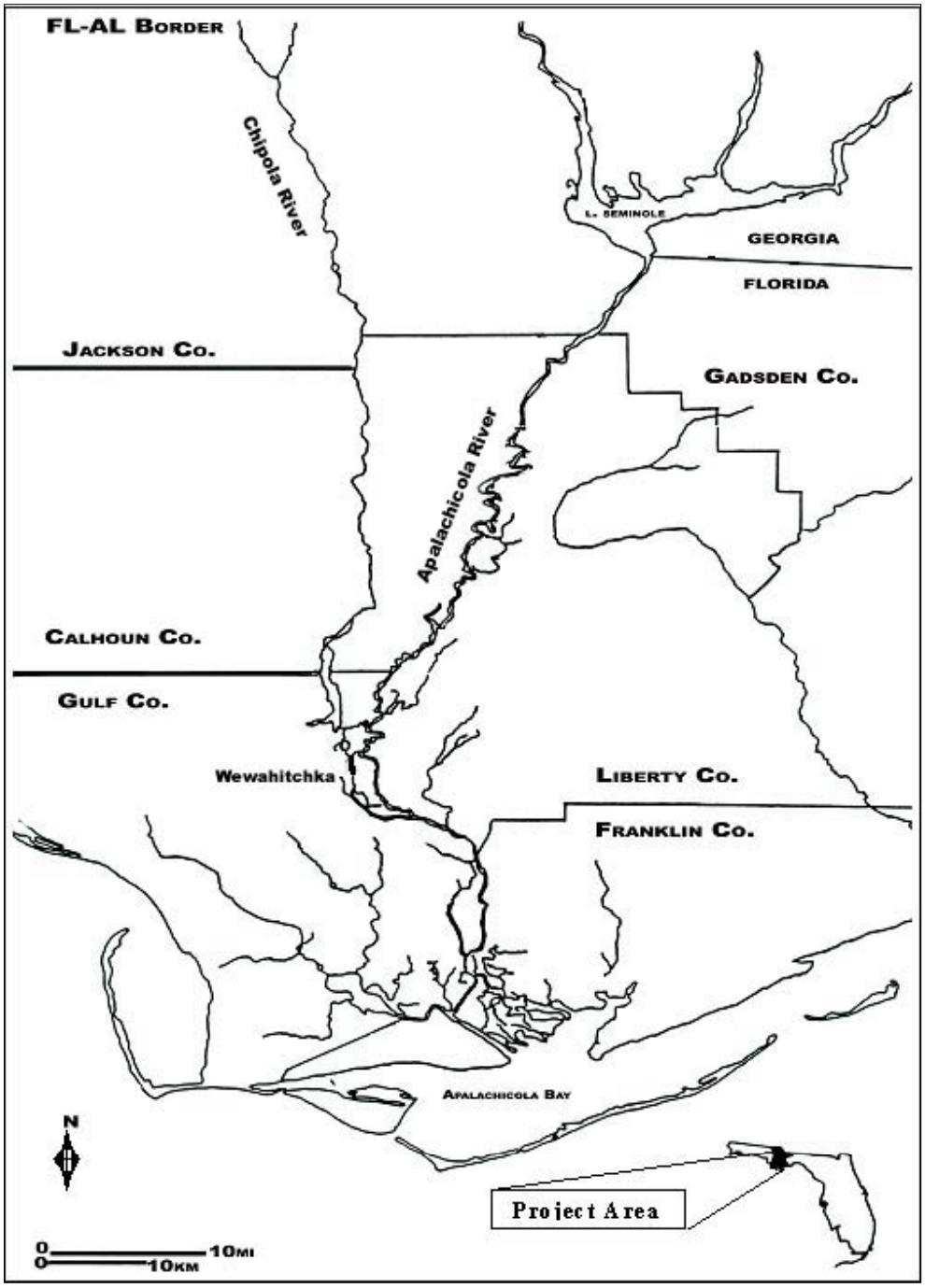


Figure 1. Map showing the Apalachicola River Valley and project area (adapted from Henefield and White 1986:12).

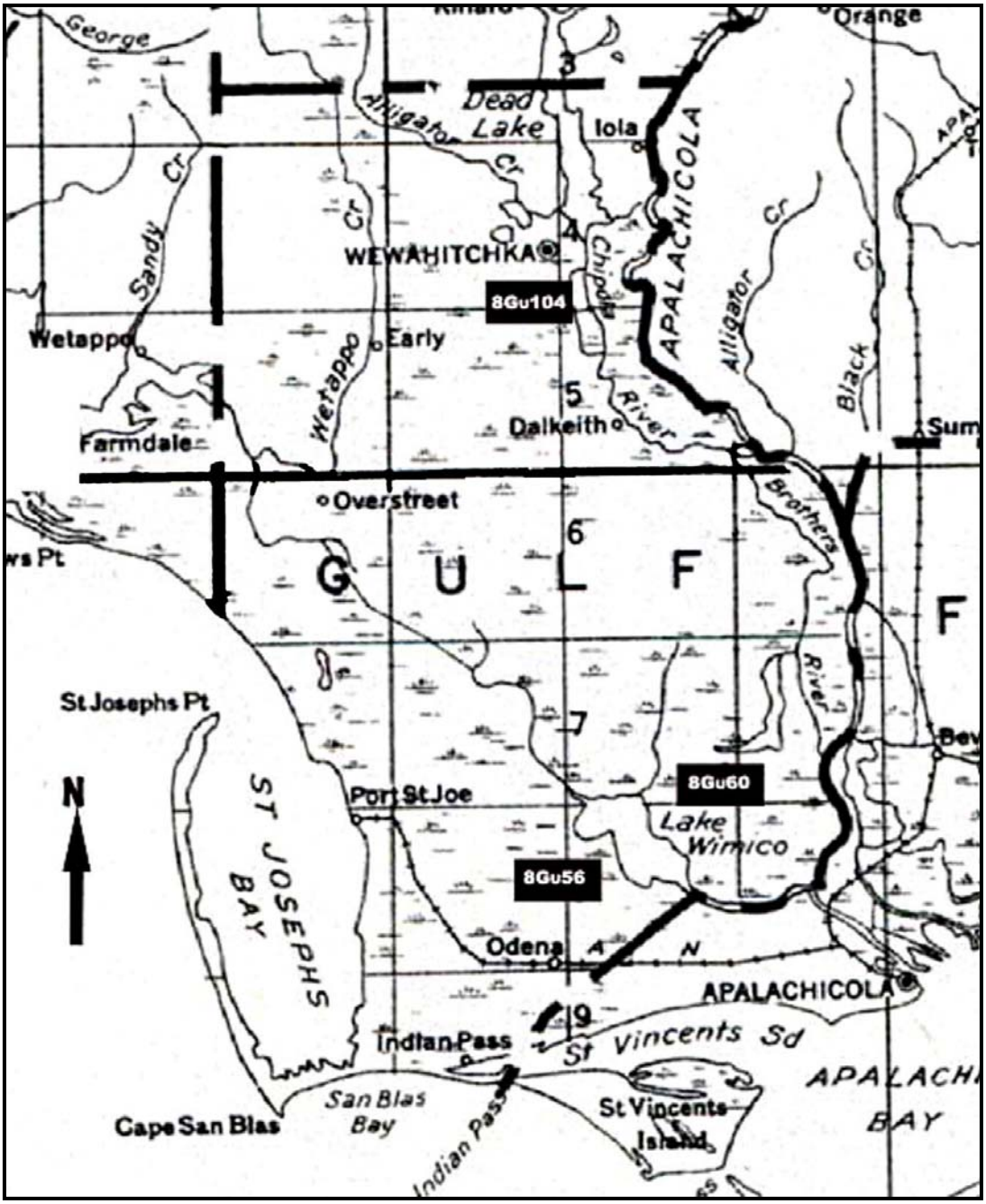


Figure 2. Gulf County map showing historical apiary sites investigated in 2002 and 2003. Map adapted from United States Geological Survey's Florida base map, 1940, Library of Congress, Geography and Map Division.

The Project

As part of a long-term archaeological research program in the Apalachicola River Valley, conducted by University of South Florida (USF), this project was a continuation of a survey of remote, less accessible areas of the valley from which there is little archaeological (prehistoric and historic) information (White 1999). In the summers of 2002 and 2003, Nancy White, several student crews, and I revisited two prehistoric shell mounds in the swamps of the Apalachicola River that were used as apiaries in the late nineteenth to early twentieth centuries, and an early-to mid-twentieth-century honey house on the Chipola River, the largest tributary of the Apalachicola River, in Gulf County, northwest Florida. These sites are only reachable by boat, and we were fortunate to have the assistance of three great boat captains, Pat Millender, Jimmy Moses, and Roy Ogles of the Apalachicola National Estuarine Research Reserve (ANERR).

Three historic apiaries were identified for this study as a result of prior archaeological surveys (Figure 2) directed by Nancy White. Depot Creek shell mound (8Gu56) and Clark Creek shell mound (8Gu60) were located during survey of the middle and lower Apalachicola valley in 1985, after a local informant called the survey crew with information on their locations (Henefield and White 1986:67). These sites were later tested in 1987 and 1988 for research on the prehistoric components of the shell mounds (White 1994). Field crews bagged historical cultural materials, such as nails and ceramics, but no further analysis of them was performed. Lower Chipola Apiary (8Gu104) was recorded during the Apalachicola Valley Remote Areas Archaeological Survey in 1998 (White 1999:26-28) during a brief visit of only a few minutes.

These sites were determined to contain significant archaeological remains pertaining to the historic tupelo honey industry, and worthy of further investigation. These archaeological remains included remnants of boat docks and boardwalks, a standing two-story honey house, brick fireplace, scattered bricks, and domestic refuse such as broken bottles, broken ceramics, nails, and fragments of rusted iron.

Chapter Two: Environment

The Apalachicola River is the lowermost segment of the great drainage system that begins as the Chattahoochee River in the Blue Ridge Mountains of north Georgia (Figure 1). At the Florida border the confluence of the Chattahoochee and the Flint River, which originates near Atlanta, forms the Apalachicola, which then continues flowing southward for 108 navigational miles (172 km) to the Gulf of Mexico (Livingston 1984:26).

The Apalachicola is the largest river in terms of flow in Florida, with the most fish and shellfish species, the highest densities of amphibians and reptiles north of Mexico, and a large number of unique endemic flora and fauna. The Apalachicola system has some of the most unusual environments in the country (Livingston 1984:26-27).

The major tributary of the Apalachicola is the Chipola River, which runs clear and spring-fed, unlike the muddy Apalachicola. The Chipola originates (Figure 1) in south Alabama at the confluence of several creeks and flows southward, paralleling the Apalachicola River on the west side, for some 100 miles until it takes an eastward turn into the bigger river near Apalachicola River navigation mile 28 (White 1999:1).

The subset of this environment of concern in this project is the lowest portion of this valley system, comprising the lower 45 navigation miles (United States Corps of

Engineers 1978) of the Apalachicola River and about the lower 20 navigation miles of the Chipola River. On the banks of these two larger rivers and also those of many tributaries and distributaries are vast stands of tupelos (Figure 3). The forested floodplain broadens along the lower river extending up to 7 km (11.3 mi) wide (Livingston 1984:20). Sixty different species of trees are found in this area; the most common forest type is oak-gum-cypress. Of this bottomland forest, at least 50 percent is tupelo, black gum, sweetgum, oak and cypress (Leitman 1984). The forested flood plain of the Apalachicola basin is the largest in Florida. The river bottomlands represent a floodplain habitat characterized by the river channel, sloughs, swamps and lowlands (Figures 3 and 4). The Apalachicola floodplain remains relatively intact as a functional bottomland hardwood forest.

Figure 3. Tupelo stands along edge of the Apalachicola River (photographed by K. Hockersmith, May 2003).

Figure 4. Top, view of swamp along the banks of Clark Creek (photographed by K. Hockersmith, June 2003). Bottom, view of swamp behind honey house at Lower Chipola Apiary (8Gu104) (photograph taken by K. Hockersmith, May 2003).

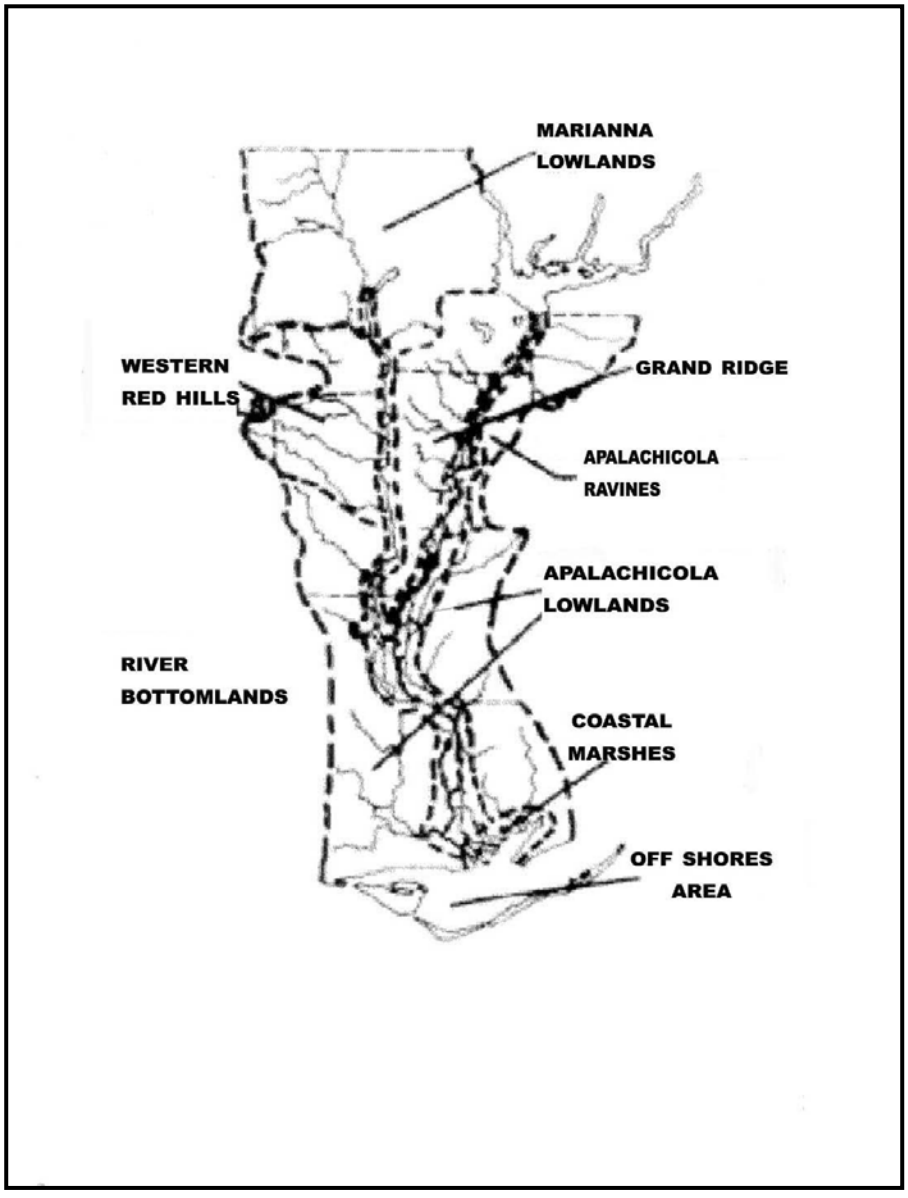
Physiography

The diverse physiographic zones of the entire Apalachicola valley system (Figure 5) include the Marianna lowlands on the upper west side, characterized by karst topography full of sinkholes and caves; the Torreya ravines on the upper and middle east side, with high pine-covered bluffs from which issue steephead springs; and vast lowlands on the middle and lower west side (where all the project's sites are located) full of old meander scars and oxbow lakes formed as the river channel continually migrated eastward through time.

The lower river valley, from about river mile 45 south, is less than 50 feet (15 meters) in altitude. The floodplain is widest where the Chipola River joins the Apalachicola. Levees in this part of the river range from 5-20 feet (1.5-6 meters) in elevation, and rise 2-8 feet (0.6-2.4 meters) above the flood plain. The lowermost segment of the Apalachicola valley is a delta characterized by vast swamp forests, freshwater, brackish and saltwater marshes, and thousands of tributaries and distributaries (named and unnamed creeks, sloughs, bayous). Much of the middle and lower valley is a watery wilderness of oak, gum, cabbage palm, river birch, and cypress and tupelo forest (Livingston 1984; Watts 1972). Because of the low availability of oxygen in soil that is constantly saturated, the water variation in the floodplain influences the distribution of trees. The bald cypress and the tupelo are the trees likely to be standing farthest out in the water along riverbanks, sloughs, and floodplains (Figures 3 and 4). In the very wettest places, where no pines grow and even most hardwoods are drowned out, these

two hold on. "The bald cypress and tupelo like wet feet in the muck of the swamps" (Watts 1972:33).

Figure 5. Physiographic areas of the Apalachicola River Valley (adapted from Means 1977:37).



Shrubs, vines, grasses, and herbaceous plants grow profusely where sunlight penetrates the canopy. Common herbaceous plants and vines include wild grape, greenbrier, saw palmetto, poison ivy, and other water-tolerant plants (Schuster et al. 2001). The soils are flooded in the spring for one month or more. The depth of the water table fluctuates slightly because of the tide. This area is not suited for cultivation of crops, woodland, pasture, hay, or urban and recreational development (though fishing and hunting are very important to the local people).

Geomorphology

The natural geomorphology of the river valley involves the continual movement eastward of the whole river system, leaving old meanders and other streams to form swamps with their tupelo forest. Hydrologic conditions are a primary factor in the creation and maintenance of river floodplains. River flow builds floodplain features such as levees and ridges by depositing sediments during a flood. Floodplain streams and lakes are created from old river channels when the river changes course (Light et al. 1998:15). River flow erodes the banks and beds of floodplain streams when velocities are high enough to scour sediments and carry them downstream. Changes in river stage alternately connect and disconnect floodplain water bodies, changing the conditions for fishes and aquatic invertebrates, as well as for vegetation. Tupelo-cypress swamps are mostly located near the outside edges of the floodplain, but some swamps are located along stream channels.

Human impact has greatly influenced the Apalachicola River Valley. Flow has been regulated with construction of the Jim Woodruff Dam at the northern point of the Apalachicola River. Fluctuations in the river level vary from year to year and from upper river to lower river. Dredging by the Army Corps of Engineers on a regular basis has also changed the course and depth of the river. This river no longer meanders freely, but is straightened and dredged periodically to make way for barges (Henefield and White 1986:3). Consequently, the dredging is filling up the swamps and sloughs with sand and lessening the flooding along the river. Tupelo trees need the fresh water from flooding, however the dredge-spoil and sand cut off the tupelos' only source of water (Holland 2003).

Chapter Three: Regional History

There is an extensive archaeological record demonstrating some 12,000 years of continual habitation in the Apalachicola River Valley (Milanich 1994; White 1994). Prehistoric inhabitants of the northwest coast of Florida often, of their seafood garbage, constructed shell mounds. The first Europeans were Spanish settlers who found the natural ports to be ideal. The Spanish used the Indian word Apalachicola in reference to the river and to all the Indians who lived along the lower part of the Chattahoochee River. Spanish mission efforts began early in the sixteenth century and several smaller missions were built at and near the forks of the Flint, Chattahoochee, and Apalachicola Rivers (Hann 1988; Tebeau 1980; Boyd et al. 1951). The first documented European occupations of the river valley area were these Spanish missions. Later in 1701, a Spanish outpost was placed on St. Joseph Bay (Weddle 1991).

The English, operating from their new settlement of Charleston, and the Spanish at St. Marks and St. Augustine, engaged in a struggle for control of the Apalachicola country during the last part of the seventeenth century. When the Indian allies of the English raided the Spanish province of Guale, the Spaniards retreated to St. Augustine, and their Indian allies deserted the eastern part of Georgia in favor of the Chattahoochee River. Dr. Henry Woodward led English activities in Apalachicola valley. When the Spanish learned of the English infiltration they sent a small detachment of troops to the

Chattahoochee. Woodward easily escaped capture, and the Spanish turned on the Indians, to force them to abandon their trade with the Carolinas (Owens 1966:8).

While the middle reaches of the Chattahoochee River lost population, the lower part of the river, from the forks to the gulf, retained a significant population of Apalachicola and Apalachee Indians (Tebeau 1980; Owens 1966). The Spanish maintained their tenuous hold on the Apalachicola River through the missions and the small fort of St. Marks.

France began to move into the Gulf Coast at the close of the seventeenth century and this intensified the international struggle for the Apalachicola country. The outbreak of the War of Spanish Succession, Queen Anne's War to the Americans, created an alliance between the newcomers from France and the fading Spanish empire in North America (Tebeau 1980). The English governor, James Moore, warned the English in Charleston of a grand Franco-Spanish alliance. He saw the potential threat to English control of the rich Indian trade of the Southwest. Moore was given command of an army with orders to destroy the Spanish Indians on the lower parts of the Chattahoochee and Flint Rivers. Moore and the English Indian allies, mostly Yamassees, attacked the Spanish Indian villages and missions. His army was able to crush Spanish resistance in the Apalachicola and Apalachee country. To complete the destruction of Spanish power, Moore transplanted several thousand Indians and reestablished them in a town on the Savannah River (Tebeau 1980). One of the tribes that were forced to leave was the Apalachicola. The Chattahoochee-Apalachicola River area was now almost depopulated,

and it would be several years before the Indians returned to make that area profitable again (Owens 1966:10-11).

The Franco-Spanish alliance did not last long. Shifting international alliances altered circumstances at Pensacola in 1719 when Austria, Holland, France, and England went to war against Spain (Tebeau 1980:65-66). The French built Fort Crevecoeur and tried to occupy Saint Joseph Bay, a short distance west of the entrance to the Apalachicola River. They quickly abandoned the fort, and a Spanish force then moved into it. After the peace treaty the Spanish dismantled the buildings and used the timber to help rebuild Pensacola. The Spanish, in an effort to prevent further French incursions along the gulf, erected a small fort just west of the mouth of the Apalachicola River, but this outpost was also evacuated after the peace treaty. The treaty provided for the return of Pensacola to Spain. The French saw their future in the Mississippi valley, not in the Gulf of Mexico (Tebeau 1980:66).

The Seven Years War and the Treaty of Paris (1763) marked the beginning of a new period in the history of the Apalachicola country. The Treaty of Paris transferred the Floridas to England in return for English evacuation of Havana. The newly acquired territory was divided by the Proclamation of 1763, and this division of East and West Florida marked the beginning of twenty years of English occupation (Tebeau 1980). The Apalachicola River was the boundary between West and East Florida. Pensacola remained the only settlement that interested the English in West Florida.

In the years prior to the Louisiana Purchase in 1803, the coastal areas that are now Gulf County were occupied and abandoned by the Spanish, French, and English. The

Apalachicola River had been an area of international intrigue for nearly three centuries, and still did not have a permanent non-aboriginal settlement near its banks. The earliest recorded exploration of the area by the United States was by Andrew Jackson and his troops in 1814 (Tebeau 1980). Jackson, after signing the Treaty of Fort Jackson, heard the reports that the British were in Spanish Florida and prepared to move in that direction toward Pensacola (Owens 1966:46).

Among the British force were two men who were to play an important part in the history of Apalachicola River Valley: Colonel Edward Nicholls and Captain George Woodbine. Nicholls and Woodbine, with the British forces, withdrew from Pensacola as Jackson prepared to take the town. They took with them a large number of slaves that had been owned by Spanish citizens in Pensacola and by Forbes and Company. They went to the Apalachicola River, where, the east bank at Prospect Bluff, fifteen miles upstream from the Gulf of Mexico, they erected a fort and supplied it with artillery, powder, and shot. When the English finally withdrew, they left the well-armed fort in the possession of the Indians and slaves, and it became known to Americans as Negro Fort. Most of the Indians moved away to the eastward, and some 300 runaway-slaves established a refuge for any others who chose to join them, settling up and down the river from the fort. The refuge caused much alarm on the Georgia frontier and made travel on the river hazardous. Jackson ordered the fort destroyed and the slaves returned to their owners. Colonel Duncan L. Clinch led the mission to destroy Negro Fort. Hot shot from his invading ship fell into the powder magazine at the fort, and the resulting explosion blew it up, killing 270 of 344 occupants (Tebeau 1980; Owens 1966). The incident

removed any immediate danger to users of the river. In 1818, Jackson ordered Lieutenant James Gadsden to build a fort over the ruins of Negro Fort. This fortification was to help quell the Seminole raids into Georgia (Owens 1966:62).

Interest in the Apalachicola River kept pace with interest in Florida. The process of Indian removal in Florida began as soon as the territory was transferred from Spain to the United States, and the removal of Seminole Indians was completed for the Apalachicola-Chattahoochee-Flint area by 1843 (Owens 1966).

The first decades of nineteenth century were prosperous for the port towns of the Apalachicola River Valley. During the 1820s, the city of Apalachicola saw a marked growth in its importance as a port along the Gulf of Mexico. In 1835, the development of the towns of Apalachicola and St. Joseph was impacted by the validation of the Forbes Purchase. The U.S. Supreme Court recognized an old land grant and gave the Apalachicola Land Company legal rights to over 1 million acres of land. This meant the land that the people of Apalachicola had settled would have to be purchased again. Disgruntled Apalachicola residents relocated westward to coastal Gulf County and founded the city of St. Joseph on the site of the current city of Port St. Joe (see Figure 2; St. Joseph Historical Society 1975).

By the late 1830s, St. Joseph was the largest city in Florida. The number of inhabitants in the St. Joseph Bay area increased in these early decades. With the collapse in the cotton market, St. Joseph became known as a resort town. In 1838 and 1839, it was honored as the site of Florida's Constitutional Convention (Tebeau 1980; Owens 1966). The city of St. Joseph was short-lived. In 1841, tragedy struck the small towns of

St. Joseph and Apalachicola. Yellow fever, possibly brought ashore by a schooner from the Greater Antilles, devastated the population for a period of four months. A severe hurricane on September 8, 1844, destroyed St. Joseph's wharf, and what remained of the town. Storms played a decisive factor in any community along the Gulf Coast (Owens 1966). With as few as 500 inhabitants remaining, the town was forced to sell off its railroad and halt construction of its canal project. The county seat was moved from St. Joseph to Abe Springs in Calhoun County (Childers 2001).

With the outbreak of the Civil War (1861-65), the city of Apalachicola and the surrounding coastal area assumed a dual role of strategic military importance. Sheltered by the chain of offshore islands and situated on the river, which provided easy access to military and industrial centers in the interior, the city of Apalachicola and its port offered refuge to vessels carrying much-needed supplies to the Confederacy. Union operations in the area were concerned with the blockade of the port and the destruction of the Confederate salt-producing installations. Salt works at St. Joseph Bay and St Marks, to the east and west of Apalachicola, respectively, were destroyed. However, nothing took place, which had any major effect on events of the war. The Union forces assisted in the area's return to normal conditions, by collecting and restoring navigation on the river and in the bay. The port of Apalachicola thus achieved renewed activity as a clearinghouse for cotton and other trade merchandise, shipped from the river system to the Gulf (Tebeau 1980:234).

Wewahitchka was the first permanent settlement in what is now Gulf County. Settlers from Georgia, Tennessee, and Alabama, and some from older nearby settlements

founded Wewahitchka in 1875. The settlers cleared the land, planted citrus groves, and began to build up apiaries for the production of honey. The pioneers from Georgia and Tennessee most likely brought the technology of honey production with them to northwest Florida, since sourwood honey was produced early on in the Appalachian Mountain areas (Watts 1975). In addition to producing honey, the pioneers also raised stock and furnished timber for the small sawmills in the area.

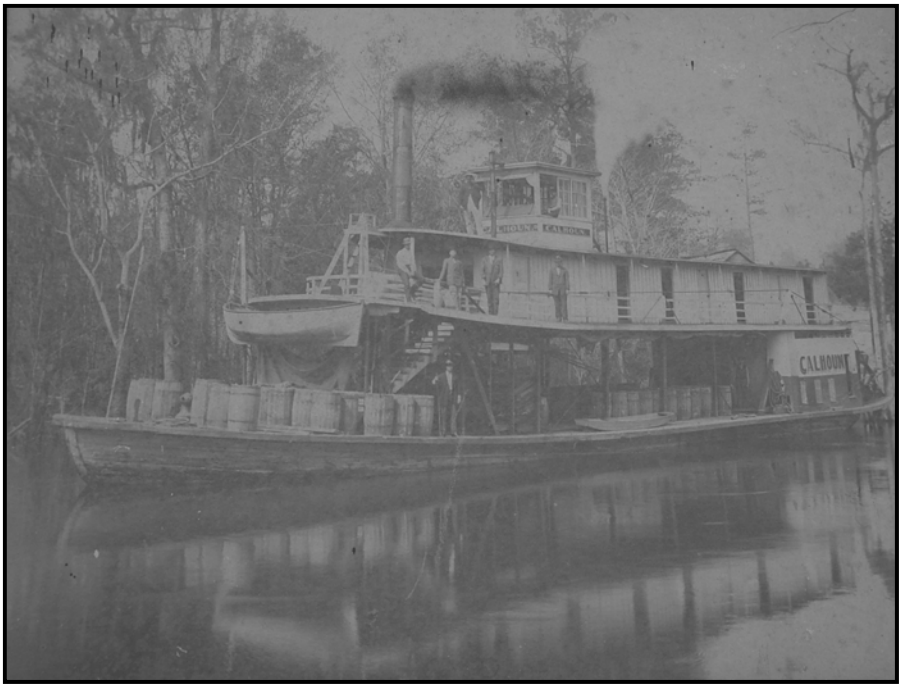
In the early nineteenth century, virtually all travel and commerce was dependent on rivers. Roads were used only to expand river travel by connecting one river system to another. Floating downstream was much easier than riding in a wagon, and watercraft could manage a much larger load than a mule-drawn cart could haul (Willoughby 1999). Cotton prevailed in river cargo during the nineteenth century. Many of the early Wewahitchkans were "riverboat men" on the steamboats plying the Apalachicola-Chattahoochee-Flint River system. The steamboats were the mode of transportation to market the many barrels of honey and hundreds of oranges produced annually in Wewahitchka (St. Joseph Historical Society 1975:6-7).

By the turn of the century, water transportation became less reliable, and its competition (railroads) improved. Steel rail bored deeper and deeper into the river's terrain in the twentieth century. Rails ran in the same direction as the river as well as perpendicularly, and when railroads competed directly with the river, their more dependable and direct routes won. In addition to the railroad, the river had to compete with improved roads.

The character of the freight carried by boat had also changed by the turn of the twentieth century. Cotton no longer predominated in river freight. In the place of cotton bales, general merchandise and naval stores such as resin and turpentine filled the streamers' holds now. Beekeepers collected honey from tupelo trees on the riverbanks and shipped barrel after barrel via steamboats to market. One of the last steamers to service the Chattahoochee-Apalachicola River system was the *John W. Callahan* (Figure 6), which struck a snag and sank in the Chipola River Cut-Off near Wewahitchka in 1923 (Willoughby 1999).

At one time Wewahitchka was home to the Gulf County seat. Gulf County was created out of Calhoun County on June 6, 1925; Calhoun, in turn, had been carved out of Franklin County. Gulf County was the 66th county to be created in Florida, and it was named for the Gulf of Mexico, which borders the county on the south and west. Locals dubbed Gulf County, with its cattle and its bee apiaries, as "the land of milk and honey." With its abundant forests, inviting climate, rivers, lakes, streams, and the beautiful St. Joseph Bay, this county has long been a paradise for fishers and oyster folks, shrimpers, trappers, and hunters. Other important industries in the history of Gulf County included cattle-raising, nurseries, the production of fine timber, turpentining, and in an earlier day, fruits, especially oranges, until winter freezes led to the abandoning the groves (St. Joseph Historical Society 1975).

Figure 6. One of the last steamers to service the Chattahoochee- Apalachicola River, until it sank in 1923, the *John W. Callahan* (photographed by K. Hockersmith, with permission from the Wewahitchka Public Library). On board are barrels of honey and turpentine.



Chapter Four: Florida Honey

Finding good locations for placing beehives is based on proximity to good honey flora, and is both an art and science. It takes a good deal of care and often several years of experience at one location to determine suitability. In this regard, the beekeeper must learn to become a careful experimenter and observer (Sanford 2003a). Florida has a great variety of nectar-producing honey plants and a long growing season. Much of Florida's honey comes from the flowers of wild trees, shrubs, and small plants (Sanford 2003b; Horton 1958). The extreme northern and western (panhandle) parts of the state are dominated by two areas, (1) the south coastal plain which extends some distance into Alabama and Georgia, and (2) the north Florida flatwoods. The principle vegetation mix in both areas is evergreen and deciduous forest, consisting of long- and short leaf pine, oak and hickory in the uplands; and cypress and gum in poorly drained areas. The bee forage (honey sources) in these areas are varied and include sourwood, tulip poplar, gallberry, saw palmetto, cabbage palm, partridge pea and blackberry. Other nectar and pollen sources include white and black (summer) ti-ti, crimson clover, red maple and willow.

The Apalachicola river area supports one of Florida's best- known nectar sources, the white tupelo or ogeechee tree. The principal kinds of agriculture found in these areas

are cattle pasturage and forest-based (naval stores) interspersed with upland forage crops like corn, soybeans and peanuts.

Elsewhere in Florida, the Central Florida Ridge, extending from southeastern Lake County in the north to southern Highlands County in the south, is an area of deep, well-drained soils of low natural fertility. This area supports the major citrus industry of the state. Citrus is a major cultivated bee forage plant, and one of the best nectar sources in the state. Many of the plants found in both southern coastal plain and north Florida Flatwoods are also found here, but are often limited in distribution due to large-scale agriculture. Gopher apple, prairie sunflower, Nutall's thistle, and buttonbush are all found in central and south peninsular Florida. Some cultivated plants in the area besides citrus may also provide limited nectar and pollen such as loquats, kumquats, watermelons and other cucurbits (squash and cucumber). In swampy locations, cypress and gum predominate. The bee forage is dominated by saw palmetto, cabbage palm and gallberry, all major nectar sources. In the southern portion of the flatwoods, introduced plants like Brazilian pepper and the punk tree (*Melaleuca*) are excellent nectar sources, though they are very invasive and therefore not recommended.

The Florida Everglades is found south and west of Lake Okeechobee. This is the major winter vegetable-growing region in the state. The bee forage here is on the decline as large-scale agriculture increases, however, large natural areas still exist where plants like Spanish needles, clovers, gallberry, saw palmetto and cabbage palm grow. Again, coastal areas are dominated by mangrove, and the Brazilian pepper and *Melaleuca* are also well established in this area. In general, the honey bees obtain only small amounts

of nectar from the cultivated vegetables and fruits in this region, but are extremely important in the pollination of many of these crops (Sanford 2003a and 2003b).

Although most bee plants are generally associated with specific land resource areas, they are not necessarily confined to those regions. Many nectar-producing plants are statewide in distribution, although certain localized habitat requirements must be met before they will grow and secrete nectar (Sanford 2003a and 2003b).

Tupelo Honey

The Ogeechee tupelo (white tupelo) bears the name of a Georgia river, the Ogeechee, and was first officially recorded on another Georgia river, the Altamaha, by the famous father-son naturalists John and William Bartram. In his diary, October 3, 1765, John Bartram described "a rare tupelo with large red acid fruite [sic] called limes, which is used for punch" (Watts 1975:34). The official name of the Ogeechee tupelo is *Nyssa ogeche* Bartram. If the Bartrams had paddled up the Apalachicola River into northwest Florida, they would have found the trees in greater abundance. Ignoring the tupelo stands along the Altamaha, Georgia beekeepers promote "sourwood honey" from the mountain regions. However, the Ogeechee tupelos along the Apalachicola and Chipola River banks have been embraced by Florida beekeepers for well over a century.

The tupelo region of northwest Florida embraces an area along both sides of the Apalachicola and Chipola Rivers in Franklin, Gulf, Liberty, and Calhoun Counties (Figure 1). This area, some 15 miles wide and 100 miles long, forms the lower reaches of the Chattahoochee River system, adjoining the Gulf of Mexico on the south. It is here that the world's chief supply of tupelo honey is made. Centrally located in this

undeveloped region and fronting on the Gulf of Mexico is Gulf County. Wewahitchka, located in the north central section of Gulf County, is the nucleus of the tupelo honey industry of northwest Florida (Whitfield 1939). There are several species of tupelo in this area (black tupelo, *Nyssa sylvatica* and water tupelo, *Nyssa aquatica*) all bigger and more upright then the Ogeechee tupelos along the riverbanks.

The tupelo gum tree, both white and black, is native to the swamps and river bottoms of northwest Florida and grows profusely in them. It also grows in Louisiana, Mississippi and other southern states, but Gulf County's beekeepers claim that the production of pure white tupelo honey has not been reduced to an exact science except in their locality (Whitfield 1939). The black tupelo makes a darker and less desirable honey than the white, and mixing of the two is carefully avoided in the Wewahitchka region, where beekeepers have learned to manage their hives in such a way as to accomplish this.

Fancy white tupelo honey comes from the white or Ogeechee tupelo (*Nyssa ogeche*) blossom (Figure 7) and is considered the choicest grade offered to the trade. Tupelo honey is delicately flavored, light in color, smooth in consistency, and not variable in any way. This honey is the only premium honey in the United States that can be certified as pure or not blended with other honey sources (Watts 1975; Lanier 2003). In addition to these advantages, the pure white tupelo honey has the remarkable qualities of never granulating (remains in a liquid state) and never becoming rancid (Whitfield 1939). Ordinary honey will usually granulate; manufacturers must filter the honey, which means heating and putting it through an automatic filtering machine. However, tupelo honey does not need to go through this processing nor heating, since it does not

granulate. Its unique hydroscopic action kills bacteria and makes its growth impossible (Sawyer 1962).

Aside from its delicious flavor, tupelo honey possesses many healthful qualities. A number of physicians have discovered that levulose, the type of fruit sugar in tupelo honey, is tolerated more by diabetics than any other sugar; for this reason tupelo honey has been recommend in small amounts to substitute for the use of refined sugar. Tupelo honey is speedily assimilated by the digestive system (Sawyer 1962). It contains about twice as much levulose as dextrose, the portion being 23 percent dextrose and 46 percent levulose, with the usual 4 or 5 percent of sucrose. The other 26 percent is a complex mix of water, vitamins, protein, and pollen. The average honey contains only about 39 percent levulose, and 34 percent dextrose (State Department of Agriculture 1943:25; Sawyer 1962; Hite 1967). The high amount of levulose is what keeps tupelo honey from granulating.

Figure 7. Tupelo blossom (photograph used with permission from the Florida State Archives).

The tupelo season is comparatively brief. It lasts but three to four weeks, being at its peak from April 20 to May 15 under normal conditions. Honey is removed three or four times from hives during this period, practically all the honey being removed the last time (State Department of Agriculture 1943). After the tupelo season, beekeepers would bring the bees upriver to Georgia and Alabama by steamboats to other locations for different seasons (Hawkins 1920).

Much of this beekeeping paradise is as little known to residents of Florida as to the outside world. The forests are wild and conditions rough. Aside from the lumber industry, hunting, and fishing parties, the tupelo tree was the only lure to bring modern culture to the banks of the Apalachicola.

M. W. Shepherd in his letter to *American Bee-Keeper* wrote:

> The territory traversed by the Apalachicola River seems to be more perculiarly [*sic*] adapted to the production of honey than any section of the south that I have visited; and in fact, I might truthfully say, it is fully equal to any place in the states . . . (1901:7).

Shepherd continues to describe the swamps along the Apalachicola, tupelo trees, and honey production:

> Practically, the country along the river is one vast swamp, covered with the water the greater part of the year and covered with a heavy growth of the famous tupelo gum which produces a honey very light in color, weighting fully twelve pounds per gallon and possessing the property of never granulating. . . More bees can be kept here in one apiary than any place I ever saw–as many as 600 colonies in one place, and the yield per colony has been fully as good as in a yard where a less number is kept (1901:7).
>
> . . . I don't expect the bee-keepers will rush into this country very soon, but for fear some might pull up stakes and come, regardless of results, I will tell them a few of the drawbacks. The first is the question of health, and I will say that from June 1st to November 1st the country is full of malaria. The only means

> of getting from place to place is by boat and all supplies must be brought to the apiary through the swamps after being put off the steamboats. Your honey must be gotten from your apiary to where the steamboats can get it on board; that means that often you must load your honey on a "lighter" and have it towed through the swamp by a small tug-boat (1901:8).

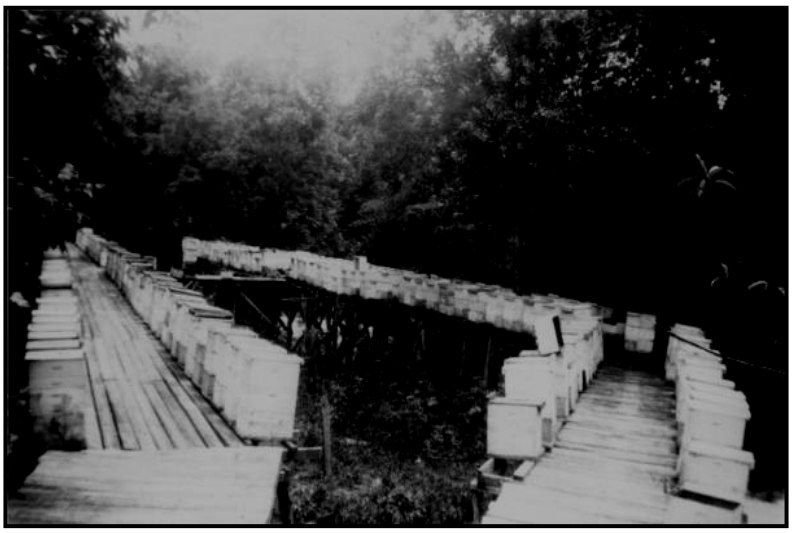
Learning early of the superior quality of honey produced by the tupelo gum and the preference of the bees for it (late nineteenth to early twentieth centuries), local apiarists placed their colonies of bees on the riverbank or well into in the swamps, often ten, twenty, or more miles from any human habitation. Originally, river boats furnished the only links between the bee camps and the outside world. There were few roads that cut through to the edges of the swamp, and many apiaries were inaccessible except by boat. Apiarists leased most of the tupelo acreage from its owner, though some owned the land on which they operated.

One of the essential requirements for tupelo honey apiaries is the platform or walk. Since high water floods the swamps during several months of the year, it was necessary to construct platforms fourteen to sixteen feet high and from 300 to 700 feet in length (Sawyer 1962). The platforms we saw during boat survey on the Apalachicola and Chipola rivers were much lower and shorter in length. Hives are placed in along the platforms in double rows (Figure 8).

However, Shepherd did not see any use of platforms along the river in 1901:

> . . . There are but very few locations where an apiary can be established on the river bank and on ground elevated above over-flow, and if there is such a location the other fellow is ahead of you and got his bees there. In fact, range is almost unlimited, but good dry places to locate an apiary are scarce. A person might build up platforms on which to set his bees, but it has not yet been done that I am aware of (1901:8).

Figure 8. A platform used to guard hives from high water and ants (photograph take in 1948, and used with permission from the Florida State Archives).



The entire work of harvesting the honey and packing it for shipment was handled in the honey house at each apiary (Figure 9). Honey was packaged in barrels then delivered to river steamboats from the dock at the front of each apiary, or from the boat landings (Figures 9,10, and 11).

Figure 9. Lanier Family honey house along the Chipola River circa 1940 (photograph used with permission from the Florida State Archives).

Figure 10. Top, worker filling a steel drum with tupelo honey at Whitfield's Apiary (photographed in May 1960, and used with permission from the Florida State Archives). Bottom, worker is removing honey from a frame using a capping knife (photographed in May 1960, and used with permission from the Florida State Archives).

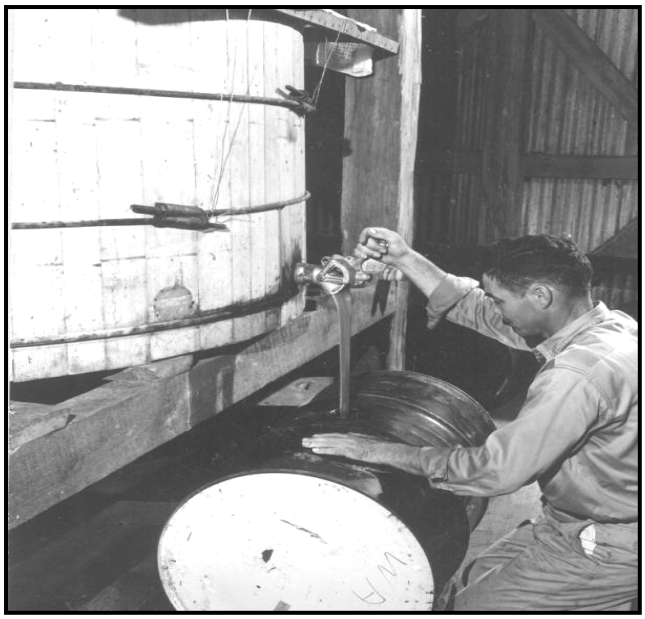


Figure 11. Workers loading barrels of honey onto a barge from a platform along the Apalachicola River (photographed in May 1960, and used with permission from the Florida State Archives).

Many questions remain to be answered concerning settlement and lifeways of beekeepers and tupelo honey production in the lower Apalachicola River valley. The archaeological remains from the investigated historic apiaries present enough data to begin to determine if patterns exist concerning site formation processes. The site formation processes apparent at the apiaries along the Apalachicola and Chipola River are surface refuse disposal and abandonment processes. Site formation processes are reflected in artifact deposition and the limited amount of structures at the apiaries.

Chapter Five: History of Beekeeping

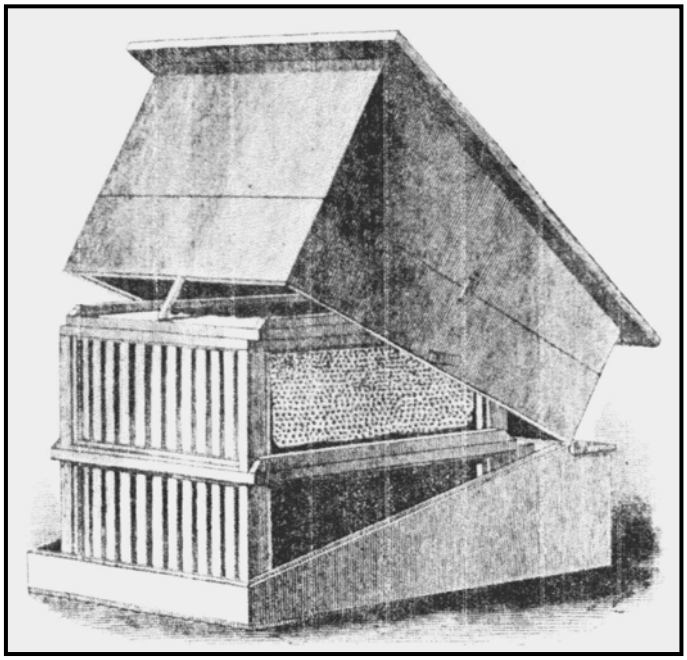
The honey bee (*Apis mellifera* Linnaeus) is not native to the Western Hemisphere. Stingless, social, honey-storing bees (Meliponids and Trigonids) are native to the West Indies, as well as Central and South America, but not native to North America. These bees have been widely hunted for their honey, and also kept in hives (Oertel 1980; Crane 1983). The first definite records of beekeeping in Mexico and the Americas are from Juan de Grijalva in 1518 and Hernan Cortes in 1519 from the island of Cozumel off the east coast of the Yucatan peninsula (Brand 1988:73). There is no doubt that the Yucatan's Maya practiced beekeeping or bee culture. The Indians of Mexico exploited the wild bees and also engaged in apiculture primarily to obtain the honey. This honey was used and still is used directly as food, for sweetening, and as an ingredient of a metheglin or mead (Brand 1988). The Yucatan peninsula continues to lead in stingless bee culture although the European bee is today more important than the native bees.

Early in 1622, *Apis mellifera* bees were successfully introduced into the Colony of Virginia from England. Shipments of bees were made to Massachusetts between 1630 and 1638 (Brand 1988; Free 1982; Oertel 1980). Beekeeping was well established in Virginia and Massachusetts by the middle of the seventeenth century, reached Florida (St. Augustine) in 1763, Kentucky in 1793, and was probably practiced throughout the eastern part of the United States by 1800 (Free 1982). In the 1850s, bees were shipped

from the eastern states to California. A few hives were taken over land, but most were sent by ship to Panama, by land across the Isthmus, and then by ship to California (Oertel 1980).

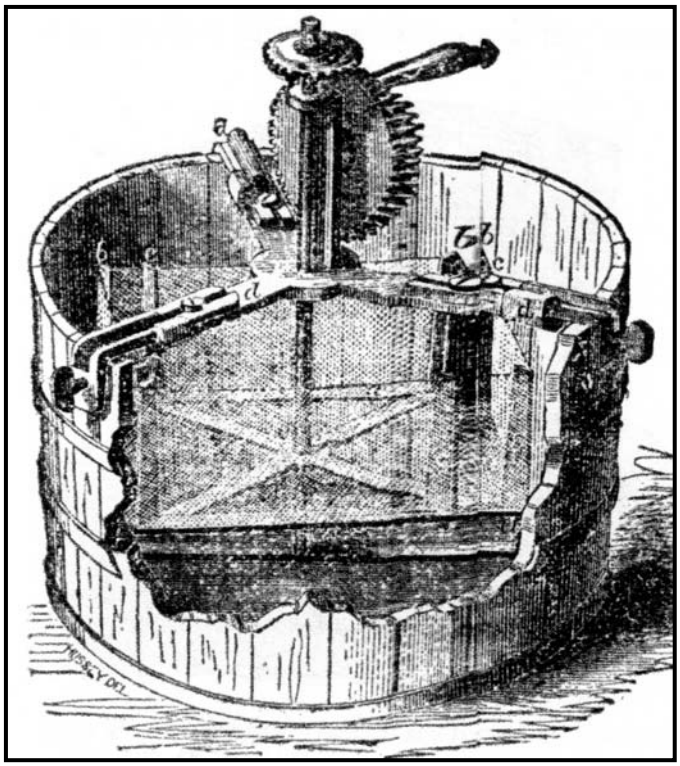
In 1852, L. L. Langstroth, a Congregational minister from Pennsylvania, discovered beespace and revolutionized beekeeping. Beespace is the crawl space that bees maintain between and around the comb. By observing that bees left a space or passageway of approximately five-sixteenths of an inch between their combs, he discovered one of the most important habits of the bee. Langstroth developed a hive that was open at the top and contained hanging frames, each surrounded on all sides by bee space (Figure 12).

Figure 12. Langstroth's original movable-frame hive. Illustrated in *A Practical Treatise on the Hive and the Honey Bee* 1857 (published in Crane 1983:211; used with permission).



He made it possible for beekeepers to establish management for honey production (Grout 1949:2). In the period between the importation of honey bees by the early colonists and invention of the movable frame hive by Langstroth, beekeepers had little capability for managing their colonies of bees. Modern methods of beekeeping came very rapidly following Langstroth's patent. There soon followed other inventions, which made large-scale, commercial beekeeping possible. The invention of the centrifugal honey extractor in 1865 (Figure 13) made possible large-scale production of extracted honey (liquid honey; Oertel 1980).

Figure 13. Illustration of Langstroth's extractor. This was the first extractor made in America (adapted from Pellett 1938:7)



Before the invention of the honey extractor, honey was sold in the comb (chunks of comb cut out and packaged). However, beekeepers recognized from the first that liquid honey was easier to produce and that it helped save the bees the effort of building new combs each year (Morse 1975:131).

From the beginning of beekeeping in the 1600s until the early 1800s, honey was largely an item of local trade. Many farmers and villagers kept a few colonies of bees in box hives to supply their own needs and those of some relatives and neighbors (Oertel 1980). Moses Quinby of New York was the first commercial beekeeper in the United States, as his sole means of livelihood was producing and selling honey in the 1830s (Pellett 1938). Poor roads and the use of horse-drawn vehicles restricted the size of the area in which a beekeeper could manage profitably.

With large quantities of honey available in liquid form, it became common practice to adulterate it with an addition of syrup prior to The Pure Food Law of 1906 (Grout 1949; Morse 1975). For this reason many beekeepers concentrated on the production of comb honey. In 1878, Charles Dadant stated a movement opposing the adulteration of honey and for the establishment of a federal law against such practices (Pellet 1938:206-213). The beekeeping industry joined him enthusiastically. The Pure Food Law of 1906 paved the way for an increasing supply of honey free from adulteration, and honey rapidly became accepted by the public as a pure food. Consumers were more confident in the purity of extracted honey, thereby increasing demand.

The period from 1875 to the First World War is often called the "golden age of beekeeping" (Grout 1949:3). Large amounts of liquid honey were shipped in wooden barrels in the last part of the nineteenth century. The proportion of commercial honey producers increased considerably while the number of small producers decreased, many being put of business by bee disease. Many did not care to meet the competition which arose for honey in the markets when corn syrup became available and the cane and beet sugar industries expanded. This trend continued until those beekeepers who were interested mainly in the returns, which they received, from their beekeeping efforts were in the majority (Grout 1949:4).

The First World War caused a serious shortage of sugar, and honey brought a high price. Consequently, the industry made great expansion and the production of honey offered full-time occupation for many people. As commercial honey producers increased the size of their operations, they found it difficult to pack and sell the crop on the retail market, and specialized honey packing plants developed in the 1920s. Packing plants now are very sophisticated in packing liquid honey (Oertel 1980:6).

After the war, with better highways and the increased use of motor vehicles and more efficient methods of colony management and honey handling, commercial beekeepers throughout the United States were able to expand the size of their businesses. With cheaper energy resources, beekeeping became migratory, moving bee colonies seasonally to avoid colder weather and follow blooming plants. However, prices fell to a low figure and the demand for honey became sluggish after WWI (Grout 1949:4). The honey industry found that demand and price had sagged further than supply, and in the

depression years of the 1930s, the price of extracted honey dropped to 4 cents a pound (Grout 1949; Oertel 1980).

With the beginning of the Second World War, the beekeeping industry again passed through a period of immense change. Honey was sought eagerly for use in place of sugar, which experienced a prolonged world shortage. The government deemed it necessary to place a ceiling on the selling price of honey (Grout 1949:4).

After the Second World War, an entire new group of beekeepers developed, the hobbyists. The hobbyist keeps bees for a wide variety of reasons of which honey production or use of honey bee products is not always the most important objective. They often keep bees for the pollination of crops. These individuals are the most common beehive owner today, but they own only a small number of colonies.

Beekeeping in Florida

Most people assume that the Spanish conquistadors introduced the European honeybee into Florida in the sixteenth century. The late Donald Brand (founder of the Department of Geography at the University of Texas) proposed that the early colonial Spaniards and Creoles in New Spain were not beekeepers, and soon most of the European bees were quite wild or feral (1988:81).

Benjamin Smith Barton, in his 1793 discussion of the introduction of the European bee into the New World, quoted William Bartram as believing that the bee had been in East Florida for perhaps a hundred years. Elsewhere John Bartram and his son William Bartram, who were in Florida in the 1760 and 1770s, commented on the great numbers of wild bees and the great quantities of honey and wax obtained by both local

Seminoles and Whites (Bartram 1773; Slaughter 1996; Weisman 1999:17). Barton (1802) stated that the honey bees in Florida, after having been introduced by the Spaniards, had by 1785 "increased into innumerable swarms" (Oertel 1976:156). The Native Americans in east Florida traded beeswax and honey to the Spaniards in Cuba and to White traders in the area for trade goods. William Bartram in 1792, recorded his own experiences, and noted that he and his friends cut down a bee tree on the banks of the St. Johns River in 1765 and obtained considerable honey (Oertel 1976:156). William Bartram observed bees that escaped from nearby British plantations. In several instances, Bartram had a drink consisting of honey in water in northern Florida given to him by plantation owners (Oertel 1976:156). The European bee reached West Florida some time prior to 1763, and it is likely that after the early imports all increase was by natural swarming (State Department of Agriculture 1943; Oertel 1980).

One of the first commercial apiaries of any significance in Florida was established in connection with a lemon and orange grove on the present city of Daytona Beach by a New York company in 1872 (Wilder 1928). The production of lemons, oranges, and honey made a very good combination. The company came southward during early fall in time to gather their fruit and honey. After spending a few months in Florida, they would sail back to New York in the spring with a cargo of Florida fruit and honey. This practiced excited considerable attention around New York as well as in certain Florida towns (Wilder 1928). Furthermore, beekeeping attracted commercial activity because of its low entry costs relative to other agricultural operations.

S. S. Alderman, from Ohio, started the next apiary of any importance at his orange grove located near Wewahitchka in what is now Gulf County. By 1898, Alderman's apiary contained 1,300 colonies of bees, with about 2,500 other colonies scattered around the Dead Lake area (Figure 2). Another pioneer, W. S. Hart, who came to Florida about 1879, established an apiary at Hawks Point at Indian River in Volusia County. He soon became known as one of the leading beekeepers in Florida (State Department of Agriculture 1943:17).

This early development of beekeeping in Florida took place between 1872 and 1888. Florida was still largely an undeveloped frontier at that time (Tebeau 1980:17). Pioneer beekeepers experienced difficulties in starting apiaries, for they had to get their bees into the forest. The beekeepers lived in remote sections of Florida, which could be reached only by small vessels, and were seldom visited by those from other parts of the country. Still, the success of S. S. Alderman and W.S. Hart soon caused reports to be widely circulated that an average of one barrel, or four hundred pounds, of honey per colony was being secured in Florida. This report meant much to Florida in beekeeping, for almost at once people began to establish apiaries all over the state and to put in modern equipment (Wilder 1928:5). The United States Census report showed Florida had only 4,000 beekeepers with 40,000 colonies of bees in 1900, and by 1956 Florida was third in the nation in honey production (State Plant Board 1956:8-9).

The Florida State Beekeepers Association was organized at Gainesville on October 6, 1920. It was anticipated that the association would make for rapid improvement in the beekeeping industry of Florida (Cutts 1996).

Beginning in the 1930s early methods of harvesting and marketing of Florida honey gave way to more complex methods. The demand for Florida honey increased greatly with improved methods in marketing. General progress in agriculture has brought a substantial growth in beekeeping. The industry is not confined to rural districts, but now extends to the backyards of towns and city suburbs.

Florida beekeeping reached its highest point in the late 1970s and early 1980s, with Florida often ranking number one in the nation in honey production. However, Tracheal and Varroa mites (honey bee parasites that lead to decline and death of infested colonies), competition from foreign imports, and the high costs of beekeeping are the most important threats to the industry (Mairson 1993). Florida beekeeping is declining, as is beekeeping nationwide, despite the sizable benefits associated with the apiculture industry (Hodges et al. 2001; Mairson 1993).

Florida beekeeping has now become almost totally migratory. Most bees in the state are moved annually, and half of Florida's bees are moved to northern states in the summer for pollination or honey production (Cutts 1996). Florida bees also pollinate many important fruit and vegetable crops, including specialty citrus, blueberries, strawberries, cucumbers, squash, watermelons, and avocados. Honey bee pollination activity is responsible for increased yields of these crops.

Today, Florida still has a large apicultural industry, with an estimated 258,000 honey bee colonies operated by 700 full-time or sideline commercial beekeepers and an additional 500 hobbyist beekeepers. Florida is currently the fourth-largest honey

producer in the United States, with a production level of 25.58 million pounds in 1999. The apicultural industry is beneficial to Florida's economy (Hodges et al. 2001).

Chapter Six: Methods

This archaeological and historical project investigating tupelo honey production is the first research of its kind to take place in northwest Florida. The major goal of this project is to document some of the social and natural relationships, and the global market of beekeeping and honey production in the Apalachicola River Valley, as part of USF's ongoing archaeological investigations in this region. Three historic apiaries were investigated using documentary records research, maps and aerial photographs, archaeological fieldwork, and oral history interviews of local experts.

Historical Research

Documentary records contain a substantial amount of information that must be located and then sorted through to find the data that apply to the area under investigation. The process is very time-consuming, and unfortunately, not all records will be found. Research was carried out at Gulf and Calhoun County courthouses, local libraries, and Florida State University Library. Much of the beekeeping literature from the Institute of Food and Agricultural Science (IFAS) library in Gainesville was also reviewed during this research.

The county seat for the land that is now part of the project area has been moved many times. The county seat was in Apalachicola (Franklin County) before Gulf County was carved out of Franklin and Calhoun Counties, then moved to the rival city St. Joseph,

when Calhoun County was created in 1838 (Gulf County Historical Society 1975:25). With the decline of St. Joseph the county seat was moved to Abe Springs (Calhoun County). Later it was moved to River Landing near Blountstown and still later to Blountstown proper. The creation of Gulf County in 1925 necessitated another move, and Wewahitchka was the selection. Forty years later it was moved to its present location in Port St. Joe. Historical documents are located in these locations. For example, the Gulf County courthouse contains no land records prior to 1925, the year Gulf County first became separate from Calhoun County.

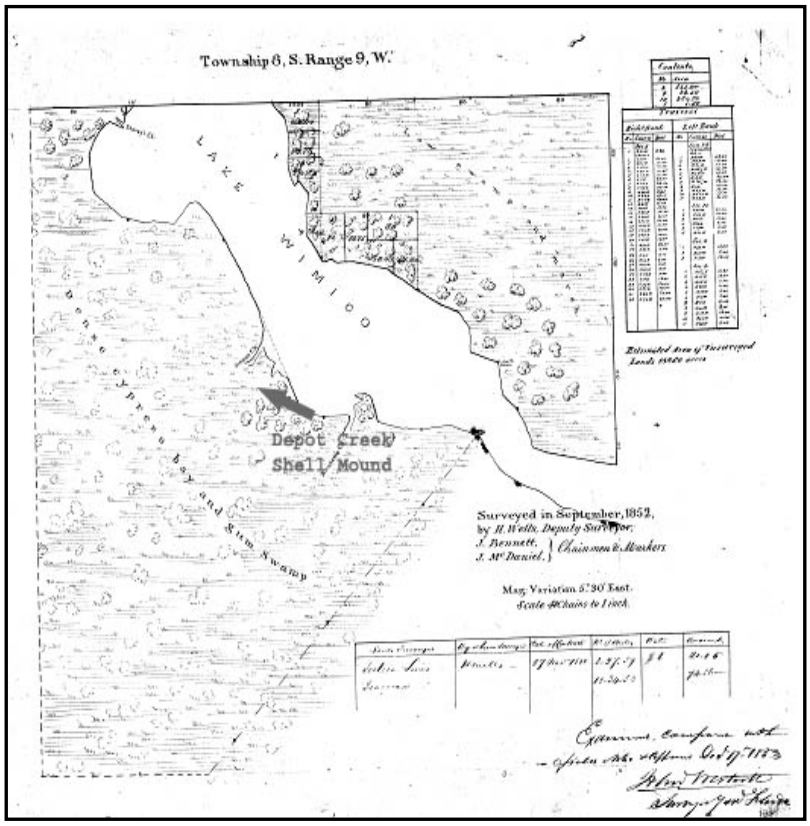
Tracing specific individuals to the three historic apiaries in the project area was not feasible through legal documents at the two county courthouses. Most of the swampland where the project area is located was not well surveyed, and some portions are not even surveyed into sections. For example, on the 1852 Plat map, the area surrounding Lake Wimico (where Depot Creek shell mound, 8Gu56, is located) is labeled as dense cypress and gum swamp (Figure 14). There were no records in the tract books on the project area. Still, many beekeepers did not own the land where they kept their bees because they were migratory beekeepers and they leased the land from either the state, or big landowners such as the St. Joe Paper Company and the Magnolia Oil Texas Company.

An extensive document research was done on the history of beekeeping in northwest Florida, including investigations at libraries in the valley, as well as at the closest university library, in Tallahassee at Florida State University. The public library in Wewahitchka in 2003, had a display on tupelo honey production and many documents

related to beekeeping and the honey industry in the area. The Strozier Library at Florida State University had a set of 1943 aerial photographs of the Apalachicola River Valley produced by the U.S. Army Corps of Engineers, with marked apiaries along the river. These aerials were helpful in understanding land use and settlement patterns of the apiaries in the river valley.

I referred to academic literature, journals, and web sites on beekeeping in the United States and Florida to for background understanding of this distinctive agricultural practice. Florida has a strong history in beekeeping and many local beekeeping/honey production associations, as noted in the previous chapter.

Figure 14. Lake Wimico 1852 Plat map showing dense swamp, marshy areas, and Depot Creek (LABINS: http://data.labins.org/2003/index.cfm).



Archaeology

My own research began with, USF field crews conducting archaeological survey at three historical apiary locations along the Apalachicola and Chipola Rivers in 2002 and 2003. The scope of this project was limited to surface survey, which included surface collections, mapping, and photographs. The sites investigated in this study were chosen based on previous investigations and the potential to contribute information on various levels. A comprehensive surface survey had not been performed at these sites, and one of the main goals of this project was to provide a more detailed picture of the historical archaeological resources on the shell mounds. Two of the sites investigated in this study had structural remains and artifacts on the surface; Depot Creek shell mound (8Gu56) had a dock and fireplace and the Lower Chipola Apiary (8Gu104) had a building. Clark Creek shell mound had only dock pilings at the edge of the creek and scattered artifacts on the surface. Getting to the sites was very time consuming and a factor which determined limited research. Therefore it was crucial to gain the most amount of information at the investigated sites in the least amount of time.

Both Depot Creek and Clark Creek shell mounds had part of their mound summit vegetation cleared and topography altered for beekeeping (Figure 15). The shell mounds offered high, dry locations for such an operation. Depot Creek mound summit has planted fig trees among the native hardwoods and palms. On the summit of both mounds glass and ceramics were scattered; on the highest part of the mound and people would have worked and camped. On the slopes of each mound was abandoned machinery and equipment. The slopes of the mounds probably acted as the refuse or garbage area.

Figure 15. Depot Creek shell mound (8Gu56) view of vegetation, cleared shell mound, and scattered artifacts (photographed by N. White, June 1987, view facing west).

The two shell mounds, because much of their vegetation was removed, clearly appear as white elongated shapes in the midst of the thick forest on infrared aerial photographs (Figures 16).

Figure 16. Infrared aerial photographs of Depot Creek (left) and Clark Creek (right), and their surrounding swamp area. The shell mounds shows up as white streaks in the photographs (adapted from original images at the ANERR, Eastpoint, FL).

The historic impact on Depot Creek and Clark Creek shell mounds was minimal due to the remote location in the swamps. It is important that the archaeologist consider the effect of reoccupation and land disturbance during the historic period. It is not unusual for prehistoric landscapes such as shell mounds to be disturbed by historic period occupations. "In the last hundred years many shell-bearing sites have had their topography altered, vegetation cleared, prehistoric material (especially shell) mined, and their coastal portions eroded or artificially stabilized " (Thomas and Thomson 1992:61). This thesis is an attempt to do justice to the overlooked late nineteenth- to early twentieth-century human activity and occupation at Depot Creek and Clark Creek shell mounds.

Depot Creek Shell Mound Apiary (8Gu56)

This large shell mound sits on the south bank of Depot Creek, a long winding tributary emptying into Lake Wimico from the southwest. Lake Wimico is a large elongated lake considered to be a former main channel of the Apalachicola. It now flows into the river from the west via the Jackson River. The site sits 200 m south of the immediate creek bank but is aligned roughly parallel with it (White 1994:20). The United States Geological Survey (USGS) *Lake Wimico, Florida, 1945* quadrangle map, though not showing any elevated ground, notes the site by marking it with a square indicating a building, and a north-south dashed line indicating where the elevated boardwalk was (Figure 17). The Depot Creek shell mound is 130 m long and 40 m wide at its widest point with a long axis at 115° or just south of due east-west. The main body of the mound runs 100 m east-west, with a smaller projection to the southeast for another

30 m averaging 16 m wide (Figure 18). The mound rises at the highest point 1.8 m above the surrounding wetland (White 1994:21). The shell mound was chosen for an apiary/ bee camp because of its elevation in the swamp.

Figure 17. United States Geological Survey (USGS) quadrangle map, *Lake Wimico, Florida, 1945*. Depot Creek shell mound (8Gu56) is marked by a square and a dashed line showing a boardwalk used by beekeepers to get through the swamp (adapted from USF lab verison).

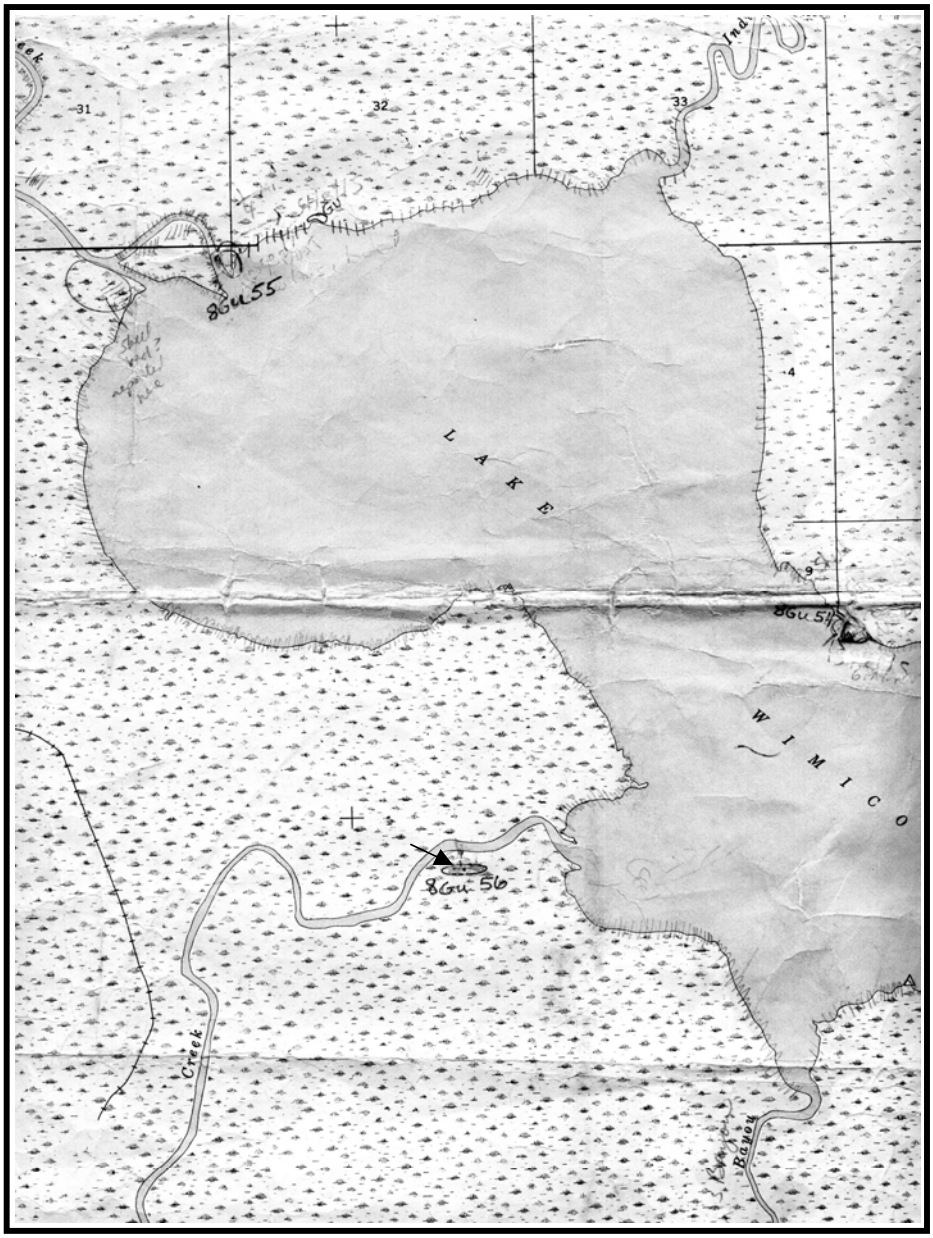
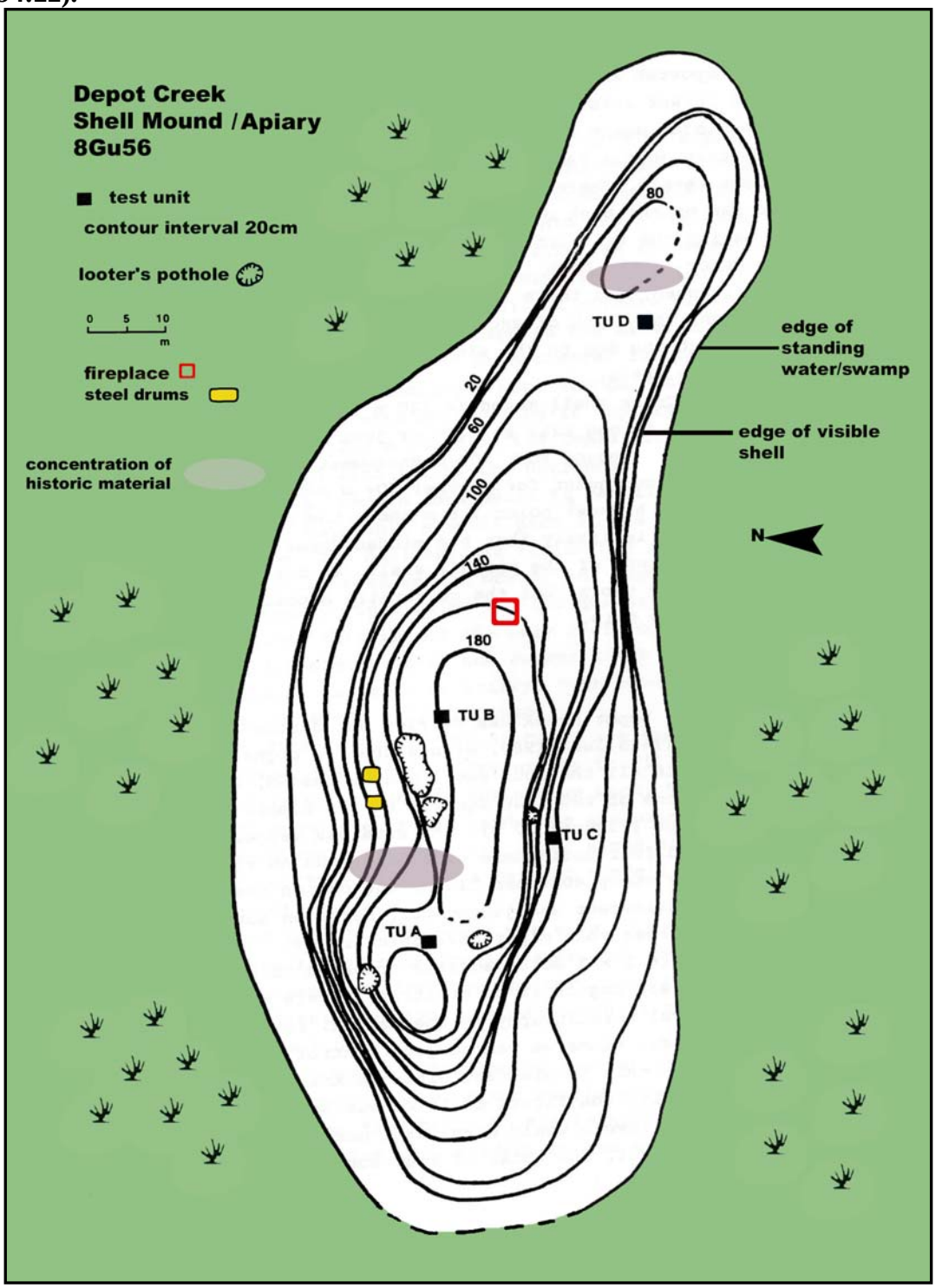


Figure 18. Map of Depot Creek shell mound apiary, 8Gu56 (adapted from White 1994:22).



Henefield and White first recorded the site in 1985 when a local informant called the survey crew with information on its location (1986:66-68). They located the shell mound (with the help of maps and aerial photographs), in the remote areas of the vast swamp. A small boat is needed to navigate through the creek, and then a good hike through the swamp is required. At the entrance point from the bank are the ruins of a small wooden dock built to facilitate access for the beekeepers (Figure 19). From this dock seem the ruins of a wooden walkway to the mound, not usable today except use some old planks to fill in extremely low spots in the long walk through the ankle deep muck.

Figure 19. Dock at the edge of Depot Creek (Photographed by N. White, July 1985, view facing south).

On the summit of the mound, there is a brick fireplace that sits up on a cement slab (Figure 20). The fireplace measures 3.8 feet in height from the concrete slab, which is 3 inches thick. The width of the fireplace is 6 feet. The depth of the fireplace is 2.6 feet. The fireplace opening is 2.3 feet wide, 3 feet high, and 1.8 feet deep. The fireplace is made of yellow and red corrugated brick.

Figure 20. Brick fireplace at Depot Creek shell mound, 8Gu56 (photographed by N. White, June 2002, view facing east).

At the time of the first archaeological investigation, a shovel test extending to 36 cm in depth was placed at the south edge of the summit the shell mound. Historical

artifacts were found mixed with aboriginal pottery, flakes, fauna, and *Rangia* shells (Henefield and White 1986:67).

White (1994) later tested this site in 1987, when USF field crews excavated four 1 m x 1 m test units (see Figure 18) to investigate the prehistoric components (Late Archaic and Early Woodland). Excavations were not specifically carried out to look for historic features and none were noted. However, historic artifacts were recovered from the test units. After a maximum of 30 cm excavation, shallower in most cases, modern intrusions and materials such as glass and iron disappeared and prehistoric potsherds became larger, suggesting little disturbance after the original prehistoric deposition (White 1994:24).

Not all materials on the surface and first couple levels represent the refuse of modern times; in fact many prehistoric artifacts (pottery and chert) also were recovered on the surface and in the first couple levels of excavation. A total of 9 historic artifacts were recovered from Level 1, 2, and wall cleanup of Test Unit A. All test units were excavated in 15 cm arbitrary levels. Test Unit B, Level 1, at a depth of 15 cm, yielded 17 historic artifacts. In the other levels of Test Unit B only prehistoric artifacts were recovered. Only two historic artifacts were recovered from Test Unit C, and three historic artifacts from Test Unit D (refer to Figure 18). One would expect to find some remains of domestic animals at a historic site, but none were recovered.

All soils except for those saved for flotation or future research were dry screened through ¼" (6.35mm) hardware mesh (USF did not have waterscreening equipment in the 1980s), but the inability of the sticky, clayey soil to pass through the screen meant that the screens were used essentially as a sorting boards (White 1994:23).

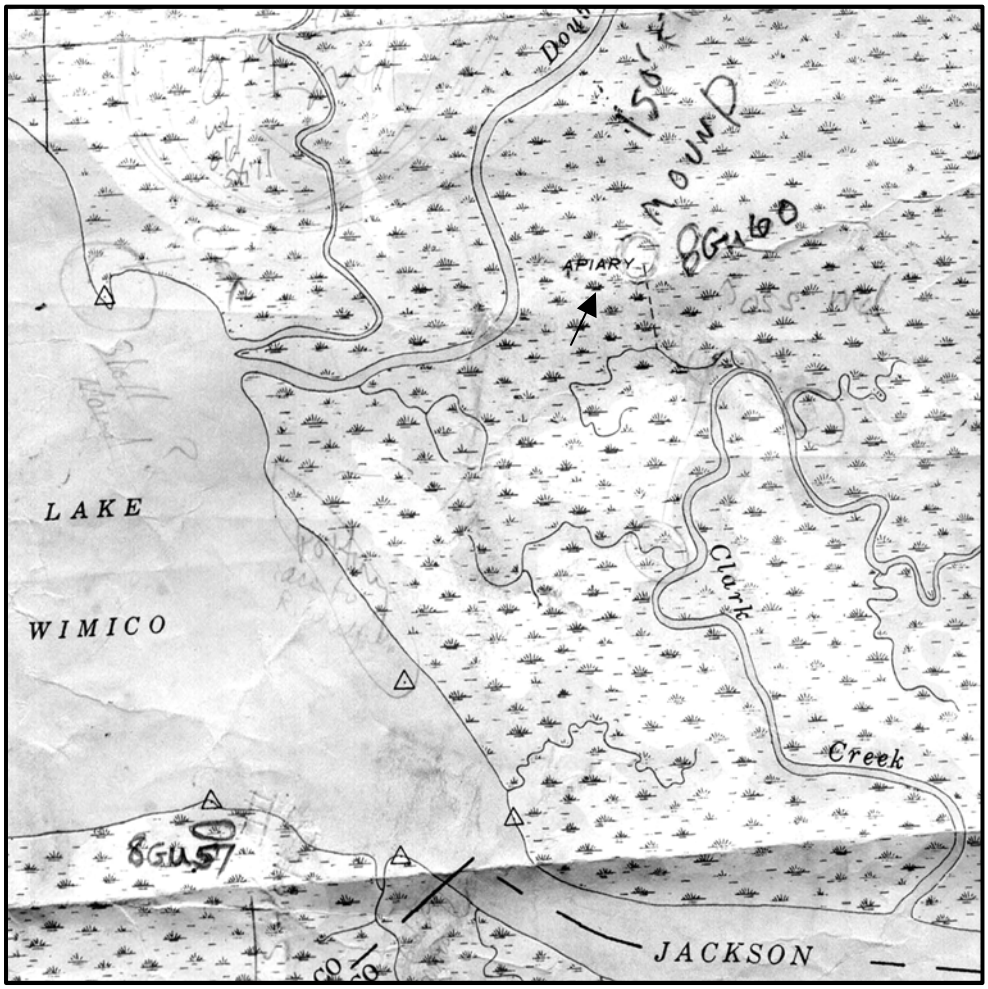
The 1987 excavations are pertinent to this project, because historic artifacts were bagged by provenience and taken back to the lab at USF. However, none of these materials were ever analyzed. Other than a tabulation of the historic materials, there was only discussion of the prehistoric inhabitants and their cultural material on the shell mounds in the final report (White 1994).

In 2002, in addition to reconnaissance survey the USF field crew took a metal detector over the summit of the shell mound. We recovered metal spoons and abundant unidentified metal objects by this method.

Clark Creek Shell Mound Apiary (8Gu60)

Clark Creek shell mound is a large *Rangia* shell midden pile on the west central side of the lower Apalachicola Valley delta. It sits amid low wetlands 800 m north of a tiny tributary of Clark Creek, which flows into the Jackson River, a former main river channel, which today flows eastward out of Lake Wimico and into the Apalachicola River. This mound is also a former apiary, and is labeled as such on the *Jackson River, Florida, 1943* USGS quadrangle map (Figure 21). In contrast with Depot Creek shell mound apiary, the old quadrangle map does not show any black square indicating a building. But it does show a dashed line indicating the wooden walkway running north from the tiny stream.

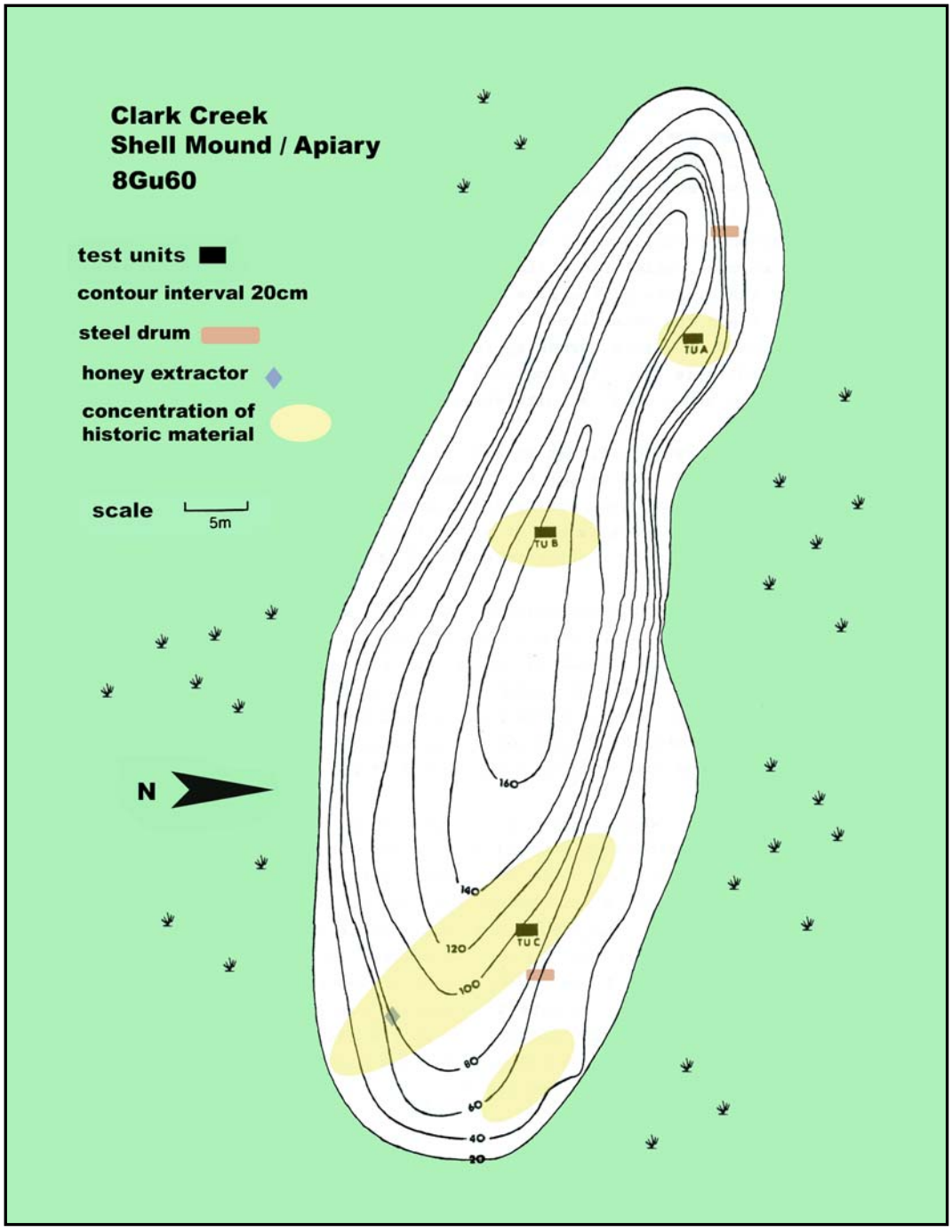
Figure 21. United States Geological Survey (USGS) quadrangle map, *Jackson River, Florida, 1943*. Clark Creek shell mound is labeled as an "Apiary" and a dashed line showing a boardwalk used by beekeepers to get through the swamp (adapted from USF lab version).



This shell mound is 110 m long and 35 m wide (Figure 22), and rises about 1.75 m above the surrounding wetland (White 1994:115). Where not cleared, the site is covered with palms, some planted fig trees, and natural ground cover. Its long axis is oriented at about 110 degrees, or east-southeast to west-northwest, and it's slightly curved. The site is very difficult to reach, as the tidally influenced tiny creek is often barely big enough to navigate, even in a small boat. Clark Creek shell mound would have

been ideal high land in the swamps for beekeepers and also far away from the riverbank to allow for other activities such as moonshine and hunting.

Figure 22. Map of Clark Creek shell mound apiary, 8Gu60 (adapted from White 1994:116).



This site was first recorded during Henefield and White's survey in 1985. There were ruins of a wooden walkway made by the beekeepers (Figure 23). Only pilings of a dock remain along the bank of the small tributary (Figure 23). No structural features were visible at Clark Creek shell mound. However, there were discrete areas on the mound summit with a concentration of historic materials relating to beekeeping activities (see Figures 22 and 24). They placed a shovel test to 50 cm in depth at the time of the first investigation of the site. Brick fragments (from apiary), aboriginal pottery, clamshell fragments, *Busycon* shell fragments, and unidentified bone were found in the shovel test. Bricks were scattered all over the mound summit (Henefield and White 1986:71).

In July 1988, White relocated the shell mound, and three 1 m x 2 m units were excavated (White 1994:118). The prehistoric cultural components dated to the late Archaic and Early Woodland, as at Depot Creek. The densest concentration of historic artifacts (n=107) came from Test Unit C Level 1 (see Figure 22). Like at Depot Creek, all test units were excavated in 15 cm arbitrary levels. Test Unit C was "close to a concentration of modern artifacts left from the time of the apiary" (White 1994:121). Historic artifacts were found in the first four levels (0-60 cm) of the test units, mixed with prehistoric pottery (White 1994:121). Crew members bagged all historic artifacts from test unit excavations.

Figure 23. Top, ruins of a boardwalk leading to Clark Creek shell mound apiary, 8Gu60 (photographed by K. Hockersmith, June 2003). Bottom, pilings from a dock along the bank of the tributary off of Clark Creek (photographed by K. Hockersmith, June 2003, view facing east).

Figure 24. Top, historic tub from honey extractor and concrete blocks at Clark Creek shell mound apiary, 8Gu60 (photographed by K. Hockersmith, June 2003). Bottom, ruins of a steel drum at Clark Creek shell mound apiary, 8Gu60 (photographed by K. Hockersmith, June 2003).

More historic artifacts were recovered through excavation at Clark Creek shell mound (total of 131) than at Depot Creek shell mound (total of 28). This may be due to the different screening methods for the sites. At Depot Creek the soils were not waterscreened, but at Clark Creek soils were waterscreened. However, flotation samples were taken for each level of excavation at both sites, and Clark Creek also had more historic material from flotation samples.

The two shell mound apiaries present an interesting situation. Depot Creek shell mound has a standing brick fireplace, but no other standing structures. Clark Creek shell mound has no standing structures. The apiaries at the mounds were identified through surface features (concentrations of historic material). These features do not represent the complex history that took place at these sites. The building at Depot Creek shell mound was dismantled or never existed. The fireplace could be the only structure built on the mound by the beekeepers. People may have only kept beehives on the mound at Clark Creek and did not see the need for a building. Furthermore, no records or documentation was found on the specific families or individuals who worked at the shell mound apiaries.

Lower Chipola Apiary (8Gu104)

The third site described in this thesis is a single-component early twentieth-century apiary, consisting of a standing structure and some archaeological remains. The site is located on the southwest bank of the Chipola River halfway between Piney Reach Slough and Van Horn Slough, roughly a mile due west from the Apalachicola River at navigation mile 31(White 1999:26). During boat survey along the lower Chipola River, as part of Nancy White's survey of remote areas of the Apalachicola Valley

investigations in 1998, this abandoned apiary was easily visible from the boat. On the *Wewahitchka, Florida, 1943-44* quadrangle (Figure 25) this building is marked, but it does not appear on the 1990 quadrangle. Though today it is in a very remote place, its location is about a half mile above Piney Reach Slough, which would have led right to the Apalachicola River, making it fairly accessible by water.

The building is in fairly good shape (Figure 26), with metal sides standing well, though wooden steps and other wooden structural elements had decayed. The upper story of the honey house would have held the honeycomb, which dripped honey into the tank below (Figure 27). There were very few artifacts other than bits of fencing and rotten lumber. A queen bee cage was the only artifact recovered from the site (Figure 28).

The honey house is in good condition and has potential to yield information on the production of tupelo honey and the buildings where work took place. The building is a wooden structure with metal sides. The interior of the honey house has the holding tank in place. This honey house is the only remaining structure known along the Apalachicola and Chipola River from the booming days of tupelo honey in the 1920s-1940s.

No artifacts were recovered from Lower Chipola Apiary during survey in May 2003, due to high water and swamp surrounding the building (Figure 4). However, we did investigate and photograph the honey house and apiary equipment at the site. We were fortunate to have Jimmy Moses (a beekeeper/honey maker) with us during the investigations at Lower Chipola Apiary to explain some of the interior of the structure.

Figure 25. Left, United State Geological Survey (USGS) quadrangle map, *Wewahitchka, Florida, 1943-1944*, showing Lower Chipola Apiary marked as a square (see arrow).

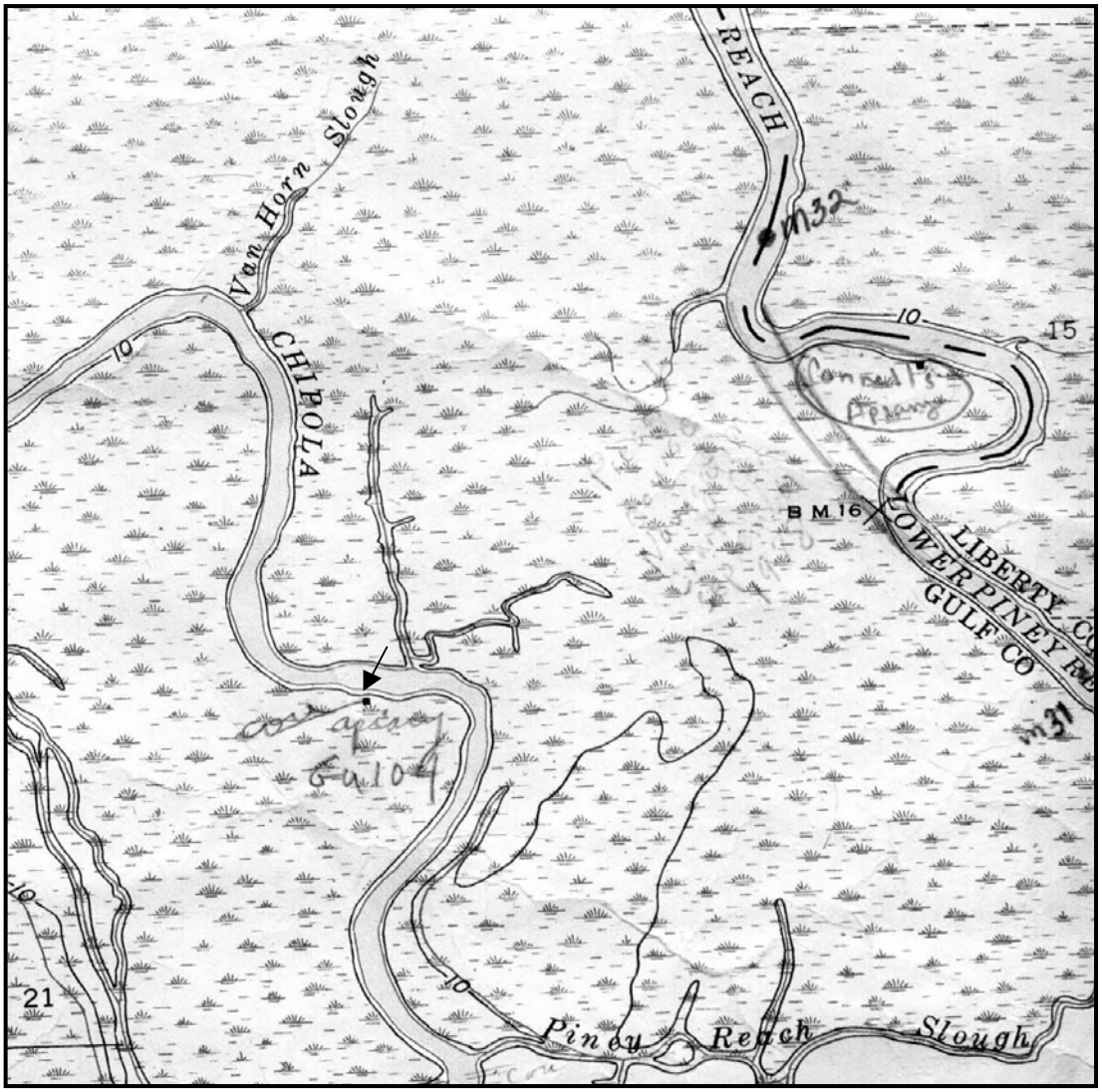


Figure 26. An abandoned honey house at Lower Chipola Apiary, 8Gu104 (photographed by N. White, July 1998, view facing southwest). Building shows high water marks from various floods.

Figure 27. Top, interior of the honey house showing bottom story and holding tank (photographed by K. Hockersmith, May 2003). Bottom, scattered wooden honey-making equipment and steel barrels surround the honey house (photographed by K. Hockersmith, May 2003, view facing west).

Figure 28. A queen bee cage recovered during White's remote areas survey in 1998. Bee breeders send them in a cage to beekeepers, who place the captive in a queenless hives (Mairson 1993:87).

Oral History

This project focuses on beekeeping of the late nineteenth to early twentieth centuries in the lower Apalachicola River Valley. Several people are familiar with early tupelo honey production and beekeeping, and are still living in the area. Some of these people actually worked in honey houses along the Apalachicola and Chipola Rivers. Field survey included interviewing local apiarists in the Apalachicola River Valley and other old-timers. All interviews were videotaped.

Oral histories were collected from Ben and L.L. Lanier Jr., George Core, Jimmy and Beth Moses, and George Watkins. These individuals have lived in the river valley all of their lives and have many colorful stories to tell about Florida's distinctive tupelo honey industry.

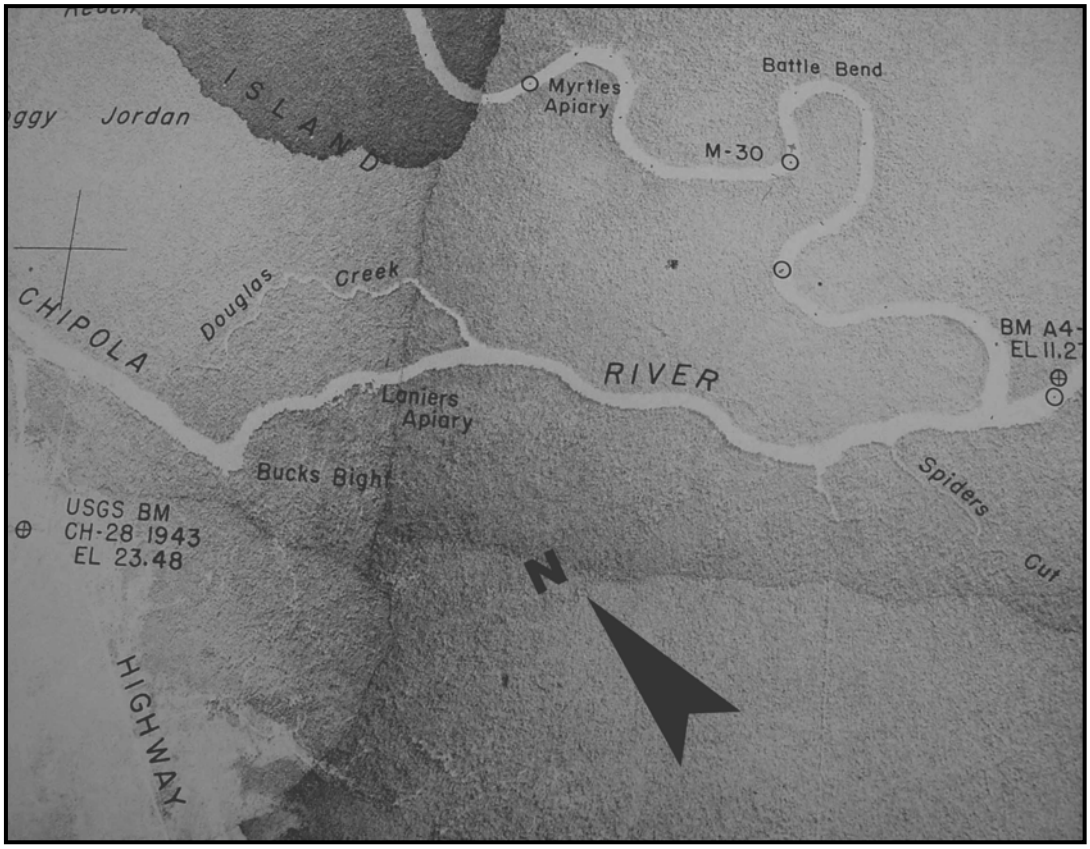
L.L. Lanier Jr. and his son Ben (Figure 29) of Wewahitchka are second-and third-generation beekeepers. L.L. Lanier Jr.'s father, Lavernor Laveon Lanier Sr., first sold tupelo honey commercially in 1898. L. L. Lanier Sr. did not want to continue in the logging industry in north Florida; he became interested in beekeeping and the honey business. He went to see S. S. Alderman (a wealthy local farmer and beekeeper) about starting an apiary. Alderman did citrus honey, and was the first to start an apiary in Wewahitchka. However, L. L. Lanier Sr. apprenticed with a Mr. Acord (I was not given a first name) as a beekeeper. Acord was from Ohio, and moved to Wewahitchka in the

late 1880s. After L. L. Lanier Sr. knew the trade, he started his own apiary on rented swampland owned by a Texas company (Magnolia Oil Company), which was looking for oil in the swamps of the Apalachicola and Chipola River. He recognized the distinctive qualities of the swamps around Wewahitchka. The swamps produce a variety of honey that is in commercial production nowhere else in the world.

Figure 29. Top, Ben Lanier at his honey house (photographed by K. Hockersmith, June 2003). He is standing next to a modern day honey extractor. Bottom, L.L. Lanier Jr. and wife Martha (Ben's father and mother) (photographed by K. Hockersmith, May 2003).

L.L. Lanier Jr. took over his father's honey business in the 1940s. None of L. L. Lanier Sr.'s other sons and nephews wanted to be in business; taking care of the bees was hard work. The Lanier family had 900 colonies at one time on the walks (platforms) along the Apalachicola and Chipola Rivers during the booming days of honey (1920s-1940s). The Laniers had a dock half a mile south of Douglas landing (Figure 30).

Figure 30. War Department (Corps of Engineers) Apalachicola River System Topographic 1943 aerial photograph showing Myrtle's and Lanier's apiaries. Aerial photograph also shows the Chipola River running nearly parallel to the Apalachicola River.



This dock and apiary was featured in a photograph that appeared in *The Saturday Evening Post* in September 1949 (Figure 31). In 2003, when I interviewed him, L. L. Lanier Jr. was 80 years old and retired from the honey business.

Figure 31. L.L. Lanier Sr. (standing, left) and L. L. Lanier Jr. (holding pole) are shown tending bees in a photo that appeared in *The Saturday Evening Post,* September 3, 1949 (reprinted with permission of *The Saturday Evening Post* c 1949 BFL&MS, Inc).

L. L. Lanier Jr. told of a woman (Mrs. Nightingale) having an apiary on Depot Creek shell mound. She was in the honey business to put her daughters through college. It is interesting to note that he also remembered the woman selling moonshine to another local beekeeper. Beekeepers had to purchase large quantities of sugar to feed their bees, but conceivably the sugar could have been used for moonshinig operations. When a local informant first told White and Henefield about Depot Creek shell mound in 1985, he also

mentioned a woman beekeeper. L. L. Lanier Jr. once stayed at Depot Creek shell mound apiary overnight, and he recalled a one-room house on the mound. He thinks that the St. Joe Paper Company tore down the house when they acquired the land. This could explain the standing brick fireplace at Depot Creek shell mound and the scattered bricks on the summit of the mound. Yet, I could not find any written records or deeds indicating that Mrs. Nightingale had a bee camp or house at Depot Creek shell mound.

L. L. Lanier Jr.'s son Ben followed in the steps of his father and grandfather before him. Ben and his wife Glynnis operate the family business today. Ben thinks that the Lower Chipola Apiary was owned and operated by Ernest Whitfield. The Laniers are related to the Whitfields, who were also in the tupelo honey business. Ernest Whitfield had five sons and none of them carried on the honey business. Ben Lanier is definitely the last of his kind. Ben was asked to provide consulting service for *Ulee's Gold*, a Hollywood movie by award-winning Tallahassee filmmaker Victor Nunez, released in June 1997. The movie is about a beekeeper (portrayed by Peter Fonda) who keeps bees in the swamps of north Florida. The beekeeper becomes involved with bank robbers who hide money in a truck in the swamps.

Today Ben Lanier and L. L. Lanier Jr. are advocates for putting an end to dredging of the Apalachicola River. They believe dredging kills a lot of the swamp and tupelo stands in the Wewahitchka area, and that the sand from dredging needs to be removed from the swamp. In addition to interviewing the Laniers, I asked them to identify photographed historic material from Depot Creek and Clark Creek shell mounds.

The Laniers recognized many of the artifacts as equipment for beekeeping and honey production.

George Core is a resident of Port St. Joe who worked in the honey industry as a teenager. Mr. Core is now 80 years old. He knows a lot of local history and was Clerk of Gulf County court for 50 years before his retirement. Core currently writes up local history and was able to expand our knowledge about the tupelo honey business. He was interviewed as part of USF's 2002 survey project; excerpts of this interview pertaining to my research appear in the Appendix of this thesis.

Core once worked for Anthony Marks who had five apiaries along the Apalachicola River. He remembers that some of the apiaries had buildings. Marks had a houseboat with equipment for extracting honeycomb from frames (Figure 32).

Figure 32. Workers unloading hives from tug boat onto a barge. The barge had an extracting room and contained living quarters for workers. This barge may be similar to the workboat that George Core worked on as a teenager (photographed on May 6, 1948, and used with permission from the Florida State Archives).

This workboat had room to store barrels, and it would take barrels to a warehouse in Apalachicola. At the warehouse honey was put into cans, and later glass containers were used instead. Core's job was to turn the honey (turn the extractor). Core also recalled that a man named Joe Anthony also had an apiary on the Apalachicola River and a warehouse in Apalachicola.

George Core explained to us that the shell mound apiaries had also been used as moonshine stills during the prohibition years (1920-1933). The tupelo honey industry was at its peak during prohibition. He believes that most apiaries in the Apalachicola River Valley were blinds (cover operations) for whiskey making. Moonshiners needed something sweet, and grain and base sugar was not available in large quantities so honey was used in its place. The whiskey was made for local consumption. Core knew of only one commercial tupelo honey business during that time, the Lanier family business. Core claims that all the other apiaries only sold a small amount of tupelo honey. The Lanier family sold tupelo honey beyond the local community.

Core, like L.L. Lanier Jr., also mentioned a woman beekeeper who lived in the swamps on Depot Creek shell mound. He referred to the woman as Mrs. Nightingale from Apalachicola. He found a story in the coroner's jury records about a murder that took place at Mrs. Nightingale's apiary. He also knew of a man named Beneki who had an apiary at Clark Creek Shell Mound. Beneki and Nightingale scandalously lived together in Apalachicola according to him (see Appendix).

Jimmy Moses and George Watkins keep bees along the Apalachicola River today. They carry out the traditional way of gathering tupelo honey. They still use boats to get

to the tupelo stands, whereas most beekeepers in the area have moved out of the swamp. Watkins learned everything he knows about beekeeping and tupelo honey from his uncle, Homer Marks of Apalachicola, undoubtedly of the family of Anthony Marks. Marks is 99 years old and still keeps bees, but not in the swamp. George, with his enthusiasm for tupelo honey and beekeeping recruited Jimmy. George and Jimmy are not full time beekeepers, as they also work for the Apalachicola National Estuarine Research Reserve, but do make some income by selling their honey at locally.

Jimmy helped with the USF field crew on a boat survey of the Apalachicola and Chipola Rivers in May 2003. It was very beneficial to have him along on survey, because he identified beekeeping equipment and how honey would have been processed in the honey house at the Lower Chipola Apiary.

Beth Moses (Jimmy's wife) worked in the honey houses as a young girl in Sumatra, a nearby town in Franklin County on the east side of the Apalachicola River. She recollects that women participated in the honey business by working in the hot and sticky honey houses, slinging (turning the extractor) and bottling the tupelo honey.

Some still carry out the tradition of tupelo honey production in the Apalachicola River Valley, but they are few and dwindling. The memories of tupelo honey production in the river valley can provide details for a historic study, and provided invaluable information. Informants remembered and identified how tupelo honey was once produced, distributed, and consumed in local contexts long gone. The information from archaeological materials overlapped with that of oral histories and provided a meaningful

interpretation on the socioeconomic and environmental factors of beekeeping in the late nineteenth to early twentieth centuries in the Apalachicola River Valley.

Chapter 7: Land Use and Settlement Patterns

The investigated apiary sites need to be compared with other agricultural and industrial sites. Industrial sites include the remains of the technologies and workplaces of extractive industries, such as mining, logging, manufacturing, transportation, agriculture and food processing, power, and communication systems. They also include the remains of residential sites and other domestic activities, such as boardinghouses, work camps, and company towns, and they include industrial landscapes (Hardesty and Little 200:97). These sites illustrate a transient form of economic activity, often of very short duration, conducted by persons temporarily residing in the region, and linked closely to external markets (Hardesty 1988). Since the activities of industrial sites are focused on particular resources, production is situated in those locations where the resources naturally occur.

Due to the transient mode of resource exploitation, a resource-base pattern of settlement evolves. Settlements in an industrial frontier include camps, where resource collection and processing occur; at least one permanent settlement (entrepôt), which serves as a processing, collection, and redistribution center linking the camp with the outside world; and sometimes, intermediate supply centers, which often were attached to the camps and moved with them (Lewis 1984:267). The impermanence of the resource base requires the movement of camps and results in their periodic abandonment.

Tupelo honey production is carried out only in a specific region where the resource (the tupelo tree) occurs naturally in the swamp and along the banks of the Apalachicola and Chipola rivers. Most apiarists practiced migratory beekeeping, because they found it profitable to move their hives to southern Georgia during the summer months, where plenty of natural pollen is available. In southern Georgia the bees were subjected to the process of preparation for the brief period of tupelo flow, which in normal seasons is at its height from the middle of April to the middle of May (Whitfield 1939:75). The bees were brought back to their home apiary (in Florida) in January to begin operation all over again. From January to March the bees feed on a variety of early blooming plants. However, local residents of Wewahitchka and Apalachicola also had bee camps along the Apalachicola and Chipola Rivers. Beekeeping and honey production technologies were imported, used for a short time, and abandoned. At the end of the tupelo honey flow the honey houses and platforms were abandoned until the next year's honey flow.

The production of tupelo honey does not follow the same smooth roads as that of other honeys. The problems of transportation north and return, the location of the apiaries with reference to owners' homes, as well as the ordinary expenses and replacements, all make necessary a price slightly higher than that of other honeys. "Tupelo beekeeping is an amphibious operation: a strange combination of applied apiculture and courageous struggle with the natural forces of the indomitable Apalachicola and its wilderness swamp" (Thorpe 1971:373). Before tupelo honey producers could sell to canners and commissioned people, the honey had to be robbed

from the hives and placed into barrels for easy transportation. Tupelo honey was once much sought for by packers for blending with other honey to keep down their granulation. At one time the chief markets for tupelo honey were the large pharmaceutical houses.

Numerous maps show apiaries along the Apalachicola and Chipola Rivers that were in operation during the 1920s, 1930s, and 1940s (Figures 33-35). Table 1 is a compiled list of known historic apiaries in the lower Apalachicola River Valley from Corps of Engineers 1943 and 1978 aerial photographs, interviews with local residents of the river valley, and previous surveys carried out by Nancy White. Interestingly, none of the three apiaries I investigated appear on the Corps's aerial photographs, possibly because they were abandoned by the 1940s.

Figure 33. War Department (Corps of Engineers) Apalachicola River System Topographic Survey 1943 aerial photograph. Aerial showing Acords's apiary and two unnamed apiaries.

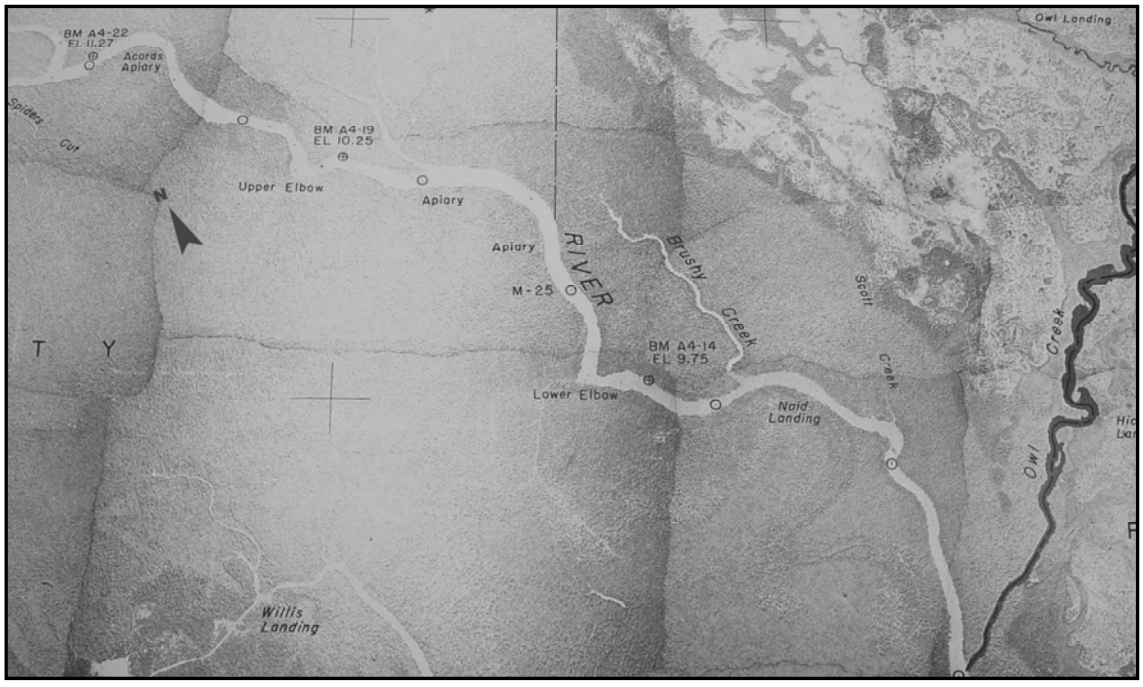


Figure 34. War Department (Corps of Engineers) Apalachicola River System Topographic Survey 1943 aerial photographs. Top, showing Lanier apiary and one unnamed apiary. Bottom, aerial photograph showing Connell's and Myrtle's apiaries.

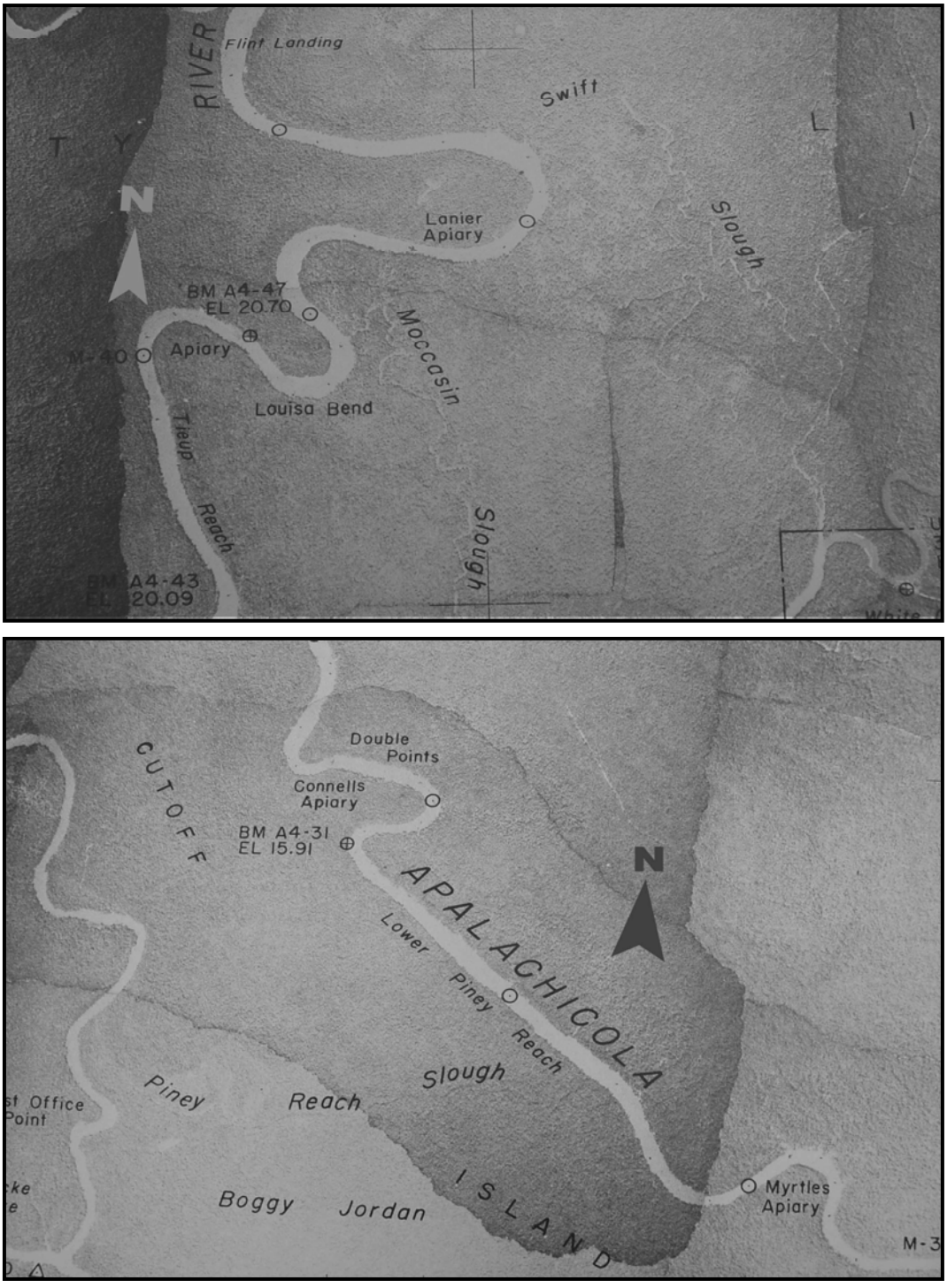


Figure 35. War Department (Corps of Engineers) Apalachicola River System Topographic Survey 1943 aerial photographs. Top, aerial showing Anthony's apiary. Bottom aerial showing Estes's apiary.

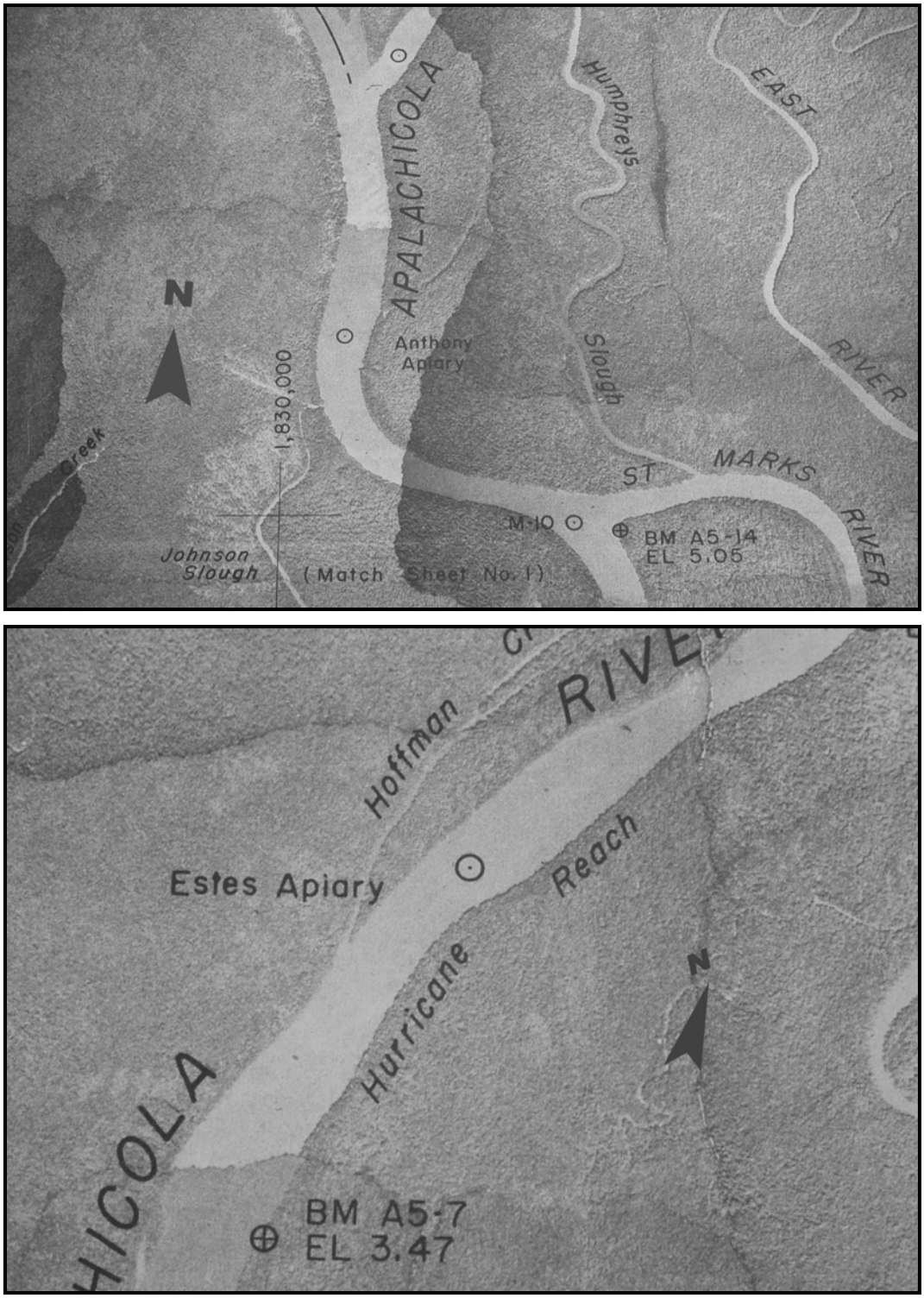


Table 1. Known apiaries of the Apalachicola River Valley.

Name/ Owner	Location on River (river mile)	USGS Quadrangle	Estimate time of operation	Source
Apiary (no name)	25.3	*Forbes Island, FL* 1982*	1940s-1970s	War Department1943; USACOE 1978
Apiary (no name)	26	*Kennedy Creek, FL* 1945	1940s-1970s	War Department 1943; USACOE 1978
Apiary (no name)	38	*Wewahitchka, FL* 1945	1940-1970s	War Department 1943; USACOE 1978
Apiary (no name)	13	*Jackson River, FL* 1943	1970s	USACOE 1978
Acords Apiary	27.3	*Kennedy Creek, FL* 1945	1940s-1970s	War Department 1943; USACOE 1978
Anthony Apiary Joe Anthony	11.3	*Jackson River, FL* 1943	1920s-1970s	War Department 1943; USACOE 1978; Core 2002
Clark Creek shell mound 8Gu60 Beneki?		*Jackson River, FL* 1943	1920s-1930s	Henefield and White 1986; White 1994 Core 2002
Connell's Apiary	32.5	*Wewahitchka, FL* 1945*	1940s-1970s	War Department 1943; USACOE 1978
Depot Creek shell mound 8Gu56 Nightingale		*Lake Wimico, FL* 1945	1920s-1930s	Henefield and White 1986;White 1994; Core 2002; Laniers 2003
Estes Apiary	8	*Jackson River, FL* 1943	1940s-1970s	War Department 1943;USACOE 1978
Hensler Apiary Gus Hensler	3.5 (on the Chipola River)	*Wewahitchka, FL 1945**	1920s-1940s	Core 2002
Hoffman Apiary Lieut. Humphrey	8.5	*Jackson River, FL* 1943*	1920-1940s	Core 2002
Lanier Apiary	2.3 (on the Chipola River)	*Kennedy Creek, FL* 1943	1920s-1950s	War Department 1943; Laniers 2003
Lanier Apiary	39.7	*Wewahitchka, FL* 1943	1920s-1970s	War Department 1943; USACOE 1978; Laniers 2003
Lower Chipola Apiary 8Gu104	5	*Wewahitchka, FL 1943*	1930s-1940s	White 1999
Marks Apiary	6.2	*Jackson River, FL 1943**	1920s-1940s	Core 2002
Marks Apiary	10.2	*Jackson River, FL 1943**	1920s-1940s	Core 2002; Wakins 2003
Mark Apiary	12	*Jackson River, FL 1943**	1920s-1940s	Core 2002
Myrtles Apiary	29.5	*Kennedy Creek, FL* 1945	1940s-1970s	War Department 1943; USACOE 1978
Nesbit Apiary	21.5	*Fort Gadsden, FL 1973**	1930s-1940s	Core 2002
Whitfield Apiary Joe Whitefield	?		1920s-1960s	Core 2002 and Laniers 2003

*Quadrangle map does not have the apiary labeled or marked with a square for a building.

Both Depot Creek and Clark Creek shell mound apiaries are distinctive from other apiaries along the Apalachicola and Chipola River due to their isolation in the swamp. Most apiaries were placed right on the riverbanks to make for easy access, and tupelo trees grow more profusely along the edges of the rivers. However, Depot Creek and Clark Creek do not fit the land settlement pattern and maybe evocative of an earlier time when existing high ground (prehistoric middens) was sought as opposed to the later practice of building a platform. They also may have been chosen deliberately for their remoteness for moonshine production. The third site investigated in this project, Lower Chipola Apiary (8Gu104) does match the settlement pattern. It is located right on the bank of the Chipola River.

Social Dimensions

The bee camp is the focal point of social information about the tupelo honey frontier. The social interactions that take place at the bee camp are expressed in the morphology and the activity of settlements. Small, short-lived camps are most likely to be invisible in the usual documentary sources of demographic information, such as the federal population census, tax assessment rolls, and city directories (Hardesty 1988). Furthermore, if some of the apiaries were cover operations for moonshine ventures knowledge of the site would be kept to a minimum. Many possibilities exist for the use of the shell mound apiaries.

Documentary records and oral history accounts suggest that families, and small single-sex (all male groups) lived and worked at the bee camps/apiaries. The

archaeological record at the three historical apiaries I investigated suggests the presence of women and children, as discussed in the next chapter

Nevertheless, the bee camps along the Apalachicola and Chipola Rivers fell out of use after the late 1940s as processing centers for tupelo honey. Many of the structures at the camps were dismantled. The original and subsequent occupation or use of these camps is not only documented by historical records but also by archaeological remains. Thus surface remains and excavated artifacts, such as building materials and domestic refuse, have great potential for adding to the knowledge of historical bee camps and tupelo honey production along the banks of the Apalachicola and Chipola Rivers. The next chapter discusses artifact classifications and attributes to examine possible functional patterns and time of occupation.

Chapter Eight: Classification Systems and Patterns for the Historic Artifact Assemblages at Depot Creek and Clark Creek Shell Mound Apiaries

Artifact classification systems for historic cultural material range from a few simple categories and subcategories to sometimes an all-embracing hierarchical system. Some systems are related to established artifact patterns, others are not. Some of this variation can be accounted for by differences in time period, culture, and setting (e.g., urban versus rural). Functional systems are usually preferred over technological ones based on raw materials. Functional systems offer the archaeologist behavioral characterizations of artifacts assemblages and comparisons between sites, between social/economic classes, and other possibilities, allowing more meaningful interpretation of material culture (Walker 1999:172). "The functional typology and others like it are based, in part, on the idea that the items in use today are enough like those used in America's past to ensure that a commonality of function can be assumed" (Orser 1988:232).

Historic artifact assemblage classifications such as Stanley South's (1977) and Charles Orser's (1988) are intended to assist in characterizing and comparing sites in terms of function. In South's classification (1977) and Orser's modified version (1988), for example, assemblages in which architecture-related artifacts are prominently represented are interpreted as reflecting short-term habitations located far from the source of material goods, while those with ample kitchen-related artifacts are thought to reflect

longer-term occupations located close to the source of goods. The former pattern South named the "Frontier Pattern" and the latter the "Carolina Pattern."

Orser's Millwood Classification

I chose Orser's Millwood classification system for the historic artifacts from Depot Creek and Clark Creek shell mounds, because it was based on nineteenth century and of the twentieth-century rural settings. The Millwood Typology has five categories and 19 subcategories (Table 2). I added a sixth category "Unidentified Functionally" (UF). This category is useful, since there are plenty of unidentified historic objects from Depot Creek and Clark Creek shell mound apiaries. Orser's typology is a modification of Stanley South's (1977:95-96) artifact Group and Class system (Table 3) used to define his Carolina and Frontier Patterns, typically used for pre-nineteenth-century contexts.

Table 2. Orser's 1988 Millwood Typology with Artifact Examples.

Category	Subcategory	Artifact Example
1. Foodways	a. Procurement	ammunition
	b. Preparation	cooking vessels
	c. Service	ceramic tableware, flatware
	d. Storage	stoneware, glass bottles, canning jars
	e. Remains	faunal, floral
2. Clothing	a. Fasteners	buttons, buckles, rivets
	b. Manufacture	scissors, thimbles
	c. Other	shoe leather, metal shoes shanks, clothes hanger
3. Household	a. Architectural/Construction	nails, flat glass, spikes, mortar, bricks, slate
	b. Hardware	hinges, tacks, nuts, bolts, staples, hooks
	c. Furnishings/Accessories	stove parts, lamp parts, furniture pieces
4. Personal	a. Medicinal	medicine bottles
	b. Cosmetic	hairbrushes, hair combs, jars
	c. Recreational	smoking pipes, toys, musical instruments
	d. Monetary	coins
	e. Decorative	jewelry, hairpins, beads
	f. Other	pocketknives, fountain pens, inkwells
5. Labor	a. Agricultural	barbed wire, fence wire, fence staples, harness buckle, hoes, plow
	b. Industrial	tools

Table 3. South's 1977 Artifact Groups and Related Classes.

Groups	Related Artifact Classes
Kitchen	ceramics, wine bottles, case bottles, tumbler, pharmaceutical type bottles, glassware, tableware, and kitchenware
Bone	bone remains
Architectural	window glass, nails, spikes, construction hardware, and door lock parts
Furniture	furniture hardware
Arms	musket balls, shot, spruce, gunflints, guns palls, gun parts, and bullet molds
Clothing	buckles, thimbles, buttons, scissors, straight pins, hook and eye fasteners, bale seals, and glass beads
Personal	coins, keys, personal items
Tobacco Pipe	tobacco pipes
Activities	construction tools, farm tools, toys, fishing gear, stub-stemmed pipes, ethnobotannical, stable and barn, miscellaneous hardware, other, and military objects

Depot Creek Shell Mound, 8Gu56

Depot Creek Shell Mound collection is small, consisting of 115 objects, of which 99 are functionally identified. Table 4 presents a summary of objects by functional category, from surface collection, shovel test, and arbitrary Levels 1 (0-15 cm) and 2 (15-30 cm) of Test Units A, B, C, and D (see Figure 18). The greatest number of historic artifacts (n=80) came from the surface.

The Foodways category comprises the largest percentage, 51.4 percent of the collection. Following in order of decreasing abundance are the categories Household/Structural, 23.5 percent, Unidentified Functionally (UF), 13.9 percent, Labor, 6.1 percent, and Personal 5.3 percent; no artifacts were recovered belonging to Clothing category. These percentages include unidentified objects. In the following discussion, the percentages of artifacts in each category are presented without including in the calculation of unidentified artifacts.

Foodways

The functional category with the greatest representation, 59.4 percent of the assemblage, is that of the Foodways category. Artifacts relating to the Foodways category include: a .38-40-caliber Winchester cartridge and a 10 gauge shot gun cap head in the Procurement subcategory (2.0 percent); whiteware and other tablewares and spoons in the Service subcategory (9.0 percent); and stoneware and bottles in the Storage subcategory (48.4 percent). The high percentage in the storage subcategory is to be expected if beekeepers were camping at the apiaries. The Preparation and Remains subcategories were not represented in the collection.

Household/Structural

Comprising 27.1 percent of the assemblage, artifacts relating to Household/Structural category include early machine-cut, modern machine-cut, and wire nails in the subcategory Architectural/ Construction (17.1 percent). Other artifacts in the subcategory Architectural/Construction included flat glass, roofing slate, and mortar (6.0 percent). The subcategory Hardware includes an iron hinge (1.0 percent), and the subcategory Furnishings/Accessories includes cast iron stove fragments and shelf glass fragment (3.0 percent).

Personal

Two medicine bottle finishes for a cork closure, an opaque glass rim of a cosmetic jar, a porcelain doll leg, a harmonica reed, and a possible snuff tin fragment comprise the Personal category (6.0 percent). The cosmetic jar might suggest the presence of women,

whereas the doll leg implies the company of children, although this is not necessarily the case. These artifacts evoke real individual lives.

Labor

An iron buckle, machine pin, turpentine pot (Herty Cup), and graphite battery cores, make up the Labor category (7.0 percent). The iron buckle, pin, and battery cores were from machinery. Generators and old automobile batteries were most likely used to run machinery, since electricity was not available in this remote area. The Herty Cup is well known as representative of the turpentine industry in northwest Florida though its use in the swamp, far from pine trees, is unknown.

Unidentified Functionally

Three fragments of unidentified glass (two of which are melted), 12 unidentified metal artifacts, mostly iron, and 1 clear thin plastic fragment make up this category (13.9 percent). It is not uncommon for historical sites to have a large number of unidentified artifacts.

Table 4. Summary of Depot Creek shell mound's historic artifacts by functional category/subcategory* and provenience.

		Surface	Shovel Test (0-36 cm)	TUA Level 1 (0-15 cm)	TUA Level 2 (15-30 cm)	TUA Wall Clean up (0-30 cm)	TUB Level 1 (0-15 cm)	TUC Level 1 (0-15 cm)	TUD Level 1 (0-15 cm)	TUD Level 2 (15-30 cm)	Total	Percent w/UID	Percent wo/UID
1. Foodways	a. Procurement:												
	.38 caliber cartridge	1									1	0.9	1.0
	10 gauge shotgun cap head	1									1	0.9	1.0
	b. Preparation												
	c. Service												
	UID partial whiteware bowl	1									1	0.9	1.0
	UID whiteware	3									3	2.6	3.0
	whiteware sherds, gray/white	3									3	2.6	3.0
	metal spoon	1									1	0.9	1.0
	metal spoon bowl	1									1	0.9	1.0
	d. Storage												
	stoneware (B=burned)	17	1(B)								18	15.7	18.2
	UID clear bottle glass	2		2	1	2	10				17	14.8	17.2
	UID solarized bottle glass	2									2	1.7	2.0
	UID amber bottle glass	2							1		3	2.6	3.0
	UID green bottle glass (B=burned)	4 (2B)							1		5	4.3	5.0
	metal crown bottle cap fragments	1					2				3	2.6	3.0
	e. Remains												
	Total Foodways Artifacts	**39**	**1**	**2**	**1**	**2**	**12**		**2**		**59**	**51.4**	**59.4**
2. Clothing	a. Fasteners												

Table 4. Continued on the next page.

Table 4. (Continued)

		Surface	Shovel Test (0-36 cm)	TUA Level 1 (0-15 cm)	TUA Level 2 (15-30 cm)	TUA Wall Clean up (0-30 cm)	TUB Level 1 (0-15 cm)	TUC Level 1 (0-15 cm)	TUD Level 1 (0-15 cm)	TUD Level 2 (15-30 cm)	Total	Percent w/UID	Percent wo/UID
2. Clothing (continued)	b. Manufacture												
	c. Other												
	Total Clothing Artifacts												**0**
3. Household/ Structural	a. Architectural/Construction												
	flat glass (window glass)	3					1				4	3.4	4.0
	Slate	1									1	0.9	1.0
	Mortar	1									1	0.9	1.0
	early machine-cut nail		1								1	0.9	1.0
	machine-cut nail	1	1								2	1.7	2.0
	wire nail	8			2		2	1			13	11.3	13.1
	UID nail fragment						1				1	0.9	1.0
	b. Hardware												
	iron hinge	1									1	0.9	1.0
	c. Furnishings/Accessories												
	stove parts	2									2	1.7	2.0
	shelf glass	1									1	0.9	1.0
	Total Household/Architectural Artifacts	**18**	**2**		**2**		**4**	**1**			**27**	**23.5**	**27.1**
4. Personal	a. Medicinal												
	patented medicine bottle finish and neck, solarized glass	2									2	1.7	2.0
	b. Cosmetic												
	opaque glass rim of jar	1									1	0.9	1.0
	c. Recreational												
	porcelain doll leg	1									1	0.9	1.0
	harmonica reed	1									1	0.9	1.0

Table 4. Continued on the next page.

Table 4. (Continued)

4. Personal (continued)		Surface	Shovel Test (0-36 cm)	TUA Level 1 (0-15 cm)	TUA Level 2 (15-30 cm)	TUA Wall Clean up (0-30 cm)	TUB Level 1 (0-15 cm)	TUC Level 1 (0-15 cm)	TUD Level 1 (0-15 cm)	TUD Level 2 (15-30 cm)	Total	Percent w/UID	Percent wo/UID
	snuff tin fragment ?	1									1	0.9	1.0
	d. Monetary												
	e. Decorative												
	f. Other												
	Total Personal Artifacts	**6**									**6**	**5.3**	**6.0**
5. Labor	a. Agricultural												
	iron buckle	1									1	0.9	1.0
	machine pin	1									1	0.9	1.0
	b. Industrial												
	turpentine pot (Herty Cup)	2									2	1.7	2.0
	battery cores (automobile?) graphite	2									2	1.7	2.0
	Steel drum plug	1									1	0.9	1.0
	Total Labor Artifacts	**7**									**7**	**6.1**	**7.0**
6. Unidentified Functionally	a. Glass	2(1B)					1(B)				3	2.6	
	b. Metal	8		2				1		1	12	10.4	
	c. Plastic	1									1	0.9	
	d. Other												
	Total UF Artifacts	**11**		**2**			**1**	**1**		**1**	**16**	**13.9**	
Total with UF Artifacts		**81**	**3**	**4**	**3**	**2**	**17**	**2**	**2**	**1**	**115**	**100.2****	
Total without UF Artifacts		**70**	**3**	**2**	**3**	**2**	**16**	**1**	**2**		**99**		**99.5**

*Orser (1988) presents this classification system, with the exception of Category 6.

**Total percentage more than 100 due to rounding up.

Clark Creek Shell Mound, 8Gu60

Similar to Depot Creek's collection of historic artifacts, the Clark Creek shell mound collection has a small amount of historic artifacts, consisting of 209 objects, of which 169 are functionally identified. Table 5 presents a summary of objects by functional category, from surface collection, shovel test, and arbitrary Levels 1, 2, and 3 of Test Units A, B, and C.

Unlike at Depot Creek shell mound, the Household/Structural category comprises the largest percentage, 43.8 percent of the collection at Clark Creek. Figure 36 shows the differences among artifact functional category percentages from the two shell mound apiaries. At Clark Creek, following in order of decreasing abundance, are the categories Foodways, 16.3 percent; Unidentified functionally (UF), 22.2 percent; Labor, 13.2 percent; Clothing, 3.0 percent; and Personal, 1.9 percent. These percentage include unidentified objects. In the following discussion, percentages of categories are presented without unidentified artifacts included in calculation of percentages.

Foodways

The functional category with the second-greatest representation, 20.4 percent of the assemblage, is that of Foodways. Artifacts relating to the Foodways category include a .22-caliber copper cartridge in the Procurement subcategory (0.6 percent); an enamelware pot in the Preparation subcategory (0.6 percent); whiteware and porcelain in the Service subcategory (14.4 percent); and machine-made bottle finishes, a pitcher base, glass fruit jars, a metal jar lid, and a Budweiser beer can in the Storage

subcategory (4.8 percent). The Remains subcategory was not represented in the collection, though some of the oyster shell and fish bone was probably historic.

Clothing

Six buttons making up 3.6 percent of the artifact assemblage represent the Clothing functional category. Buttons are a common find at historical sites, since they can be easily lost.

Household/Structural

The functional category with the greatest representation, 56.9 percent of the assemblage, is that of the Household/Structural category. The majority of this category includes modern machine-cut, wire nails, and indeterminate nail fragments (45.4 percent). Other artifacts in the Architectural/Construction subcategory are bricks, cement fragments, roofing slate, and mortar fragments (8.5 percent). An iron staple, pipe, and "S" hook make up the Hardware subcategory (1.8 percent). The Furnishing/Accessories subcategory includes an amber glass Clorox bottle base (0.6 percent).

Personal

Only two black glass faceted beads, an enamelware washbasin, and a possible cosmetic jar base make up the Personal category (2.4 percent). The beads and cosmetic jar could suggest the presence of women at Clark Creek shell mound.

Labor

Wire fragments, large and small metal springs, and a machine bolt comprise the Labor category (16.9 percent). However, steel drums and a honey extractor tub were on

the slope of the mound toward the edge of the swamp. They are not included in these percentages.

Unidentified Functionally

Fragments of unidentified glass and metal artifacts, mostly iron, make up this category (22.2. percent).

Table 5. Summary of Clark Creek shell mound's artifacts by functional category/subcategory* and provenience.

		Surface	Shovel Test (0-50 cm)	TUA Level 1 (0-15 cm)	TUA Level 2 (15-30 cm)	TUA Level 3 (30-45 cm)	TUA Level 4 (45-60 cm)	TUB Level 2 (15-30 cm)	TUC Level 1 (0-15 cm)	TUC Level 2 (15-30 cm)	TUC Level 3 (30-45 cm)	Total	Percent w/UID	Percent wo/UID
1.Foodways	a. Procurement													
	.22 caliber cartridge (brass)									1		1	0.5	0.6
	b. Preparation													
	green enamelware pot	1										1	0.5	0.6
	c. Service													
	UID whiteware, blue floral design			1					1			2	0.9	1.2
	UID whiteware			3	1				3	1		8	3.7	4.8
	whiteware teacup rim sherd, blue floral design	1										1	0.5	0.6
	whiteware teacup, molded floral design	1										1	0.5	0.6
	whiteware plate rim sherds, molded relief shell edges (not decorated)	4										4	1.9	2.4
	whiteware saucer plate rim sherd , molded shell edges not decorated	1										1	0.5	0.6
	whiteware teacup base sherd	1										1	0.5	0.6
	ironstone serving bowl, pink and gold design, decal	3										3	1.4	1.8
	ironstone serving bowl, multicolored floral decal, Homer Laughlin China Co. East Liverpool, OH 1926+	3										3	1.4	1.8

Table 5. Continued on the next page.

Table 5. (Continued)

		Surface	Shovel Test (0-50 cm)	TUA Level 1 (0-15 cm)	TUA Level 2 (15-30 cm)	TUA Level 3 (30-45 cm)	TUA Level 4 (45-60 cm)	TUB Level 2 (15-30 cm)	TUC Level 1 (0-15 cm)	TUC Level 2 (15-30 cm)	TUC Level 3 (30-45 cm)	Total	Percent w/UID	Percent wo/UID
1. Foodways (continued)	d. Storage													
	amber bottle [beer?] finish,	1										1	0.5	0.6
	clear bottle glass rim	1										1	0.5	0.6
	clear bottle glass finish	1										1	0.5	0.6
	purple glass [pitcher?] base	1										1	0.5	0.6
	clear glass [fruit] jar	1										1	0.5	0.6
	clear glass [fruit] jar rim	1										1	0.5	0.6
	metal jar lid	1										1	0.5	0.6
	Budweiser beer can, flat top and pull tab tear- shape opening	1										1	0.5	0.6
	e. Remains													
	Total Foodways Artifacts	**23**		**4**	**1**				**4**	**2**		**34**	**16.3**	**20.4**
2. Clothing	a. Fasteners													
	Prosser four hole button									1		1	0.5	0.6
	shell four hole button									1		1	0.5	0.6
	2 piece metal button stamped with the words Panama (top) and Mobile (bottom)								1			1	0.5	0.6
	metal button with grain design									1		1	0.5	0.6
	black domed shoe button with attached metal eyelet									1		1	0.5	0.6

Table 5. Continued on the next page

Table 5. (Continued)

		Surface	Shovel Test (0-50 cm)	TUA Level 1 (0-15 cm)	TUA Level 2 (15-30 cm)	TUA Level 3 (30-45 cm)	TUA Level 4 (45-60 cm)	TUB Level 2 (15-30 cm)	TUC Level 1 (0-15 cm)	TUC Level 2 (15-30 cm)	TUC Level 3 (30-45 cm)	Total	Percent w/UID	Percent wo/UID
2. Clothing (continued)	plastic two hole button									1		1	0.5	0.6
	b. Manufacture													
	c. Other													
	Total Clothing Artifacts								**1**	**5**		**6**	**3.0**	**3.6**
3. Household/ Structural	a. Architectural/Construction													
	brick	5	4									9	4.2	5.5
	cement fragments	1				1						2	0.9	1.2
	slate	2										2	0.9	1.2
	mortar								1			1	0.5	0.6
	machine cut nails	1		3	3	3	1		18	7	2	38	17.9	23.0
	wire nails	1		3		5			26			35	16.5	21.2
	indeterminate nail fragments							1		1		2	0.9	1.2
	b. Hardware													
	iron staple					1						1	0.5	0.6
	pipe, ferrous	1										1	0.5	0.6
	hook, ferrous								1			1	0.5	0.6
	c. Furnishing/Accessories													
	amber glass Clorox bottle base	1										1	0.5	0.6
	Total Household/Structural Artifacts	**13**	**4**	**6**	**3**	**10**	**1**	**1**	**46**	**8**	**2**	**93**	**43.8**	**56.4**
4. Personal	a. Medicinal													
	b. Cosmetic													
	opaque white glass jar base	1										1	0.5	0.6
	enamelware wash basin, white with red stripe around rim	1										1	0.5	0.6
	c. Recreational													

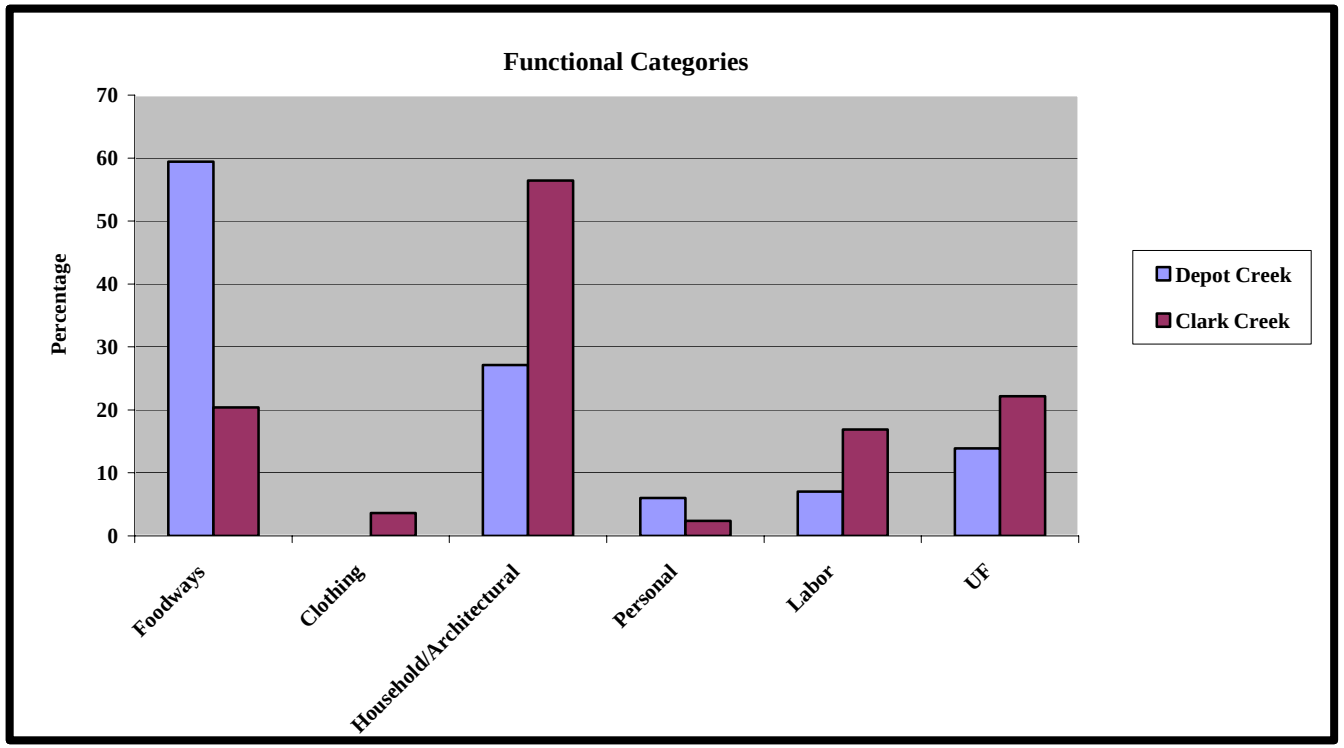
Table 5. Continued on the next page.

Table 5. (Continued)

		Surface	Shovel Test (0-50 cm)	TUA Level 1 (0-15 cm)	TUA Level 2 (15-30 cm)	TUA Level 3 (30-45 cm)	TUA Level 4 (45-60 cm)	TUB Level 2 (15-30 cm)	TUC Level 1 (0-15 cm)	TUC Level 2 (15-30 cm)	TUC Level 3 (30-45 cm)	Total	Percent w/UID	Percent wo/UID
	d. Monetary													
	e. Decorative													
	black faceted beads								1	1		2	0.9	1.2
	f. Other													
	Total Personal Artifacts	**2**							**1**	**1**		**4**	**1.9**	**2.4**
5. Labor	a. Agricultural													
	wire fragments from a hive frame								20			20	9.4	12.1
	b. Industrial													
	large ferrous springs	5										5	2.4	3.0
	small ferrous springs								2			2	0.9	1.2
	Machine bolt with nut attached	1										1	0.5	0.6
	Total Labor Artifacts	**5**							**22**			**28**	**13.2**	**16.9**
6. Unidentified functionally	a. Glass													
	amber bottle glass	1										1	0.5	0.6
	cobalt blue glass string rim fragment.	1										1	0.5	0.6
	clear glass fragments								11	3		14	6.6	8.5
	solarized glass fragment	1										1	0.5	0.6
	b. Metal													
	iron objects	2							21	5		28	13.2	17.0
	galvanized fragments					2						2	0.9	1.2
	c. Plastic													
	d. Other													
	Total UF Artifacts	**5**				**2**			**32**	**8**		**47**	**22.2**	
Total with UF Artifacts		**48**		**10**	**4**	**12**	**1**	**1**	**107**	**24**	**2**	**212**	**100.4****	
Total without UF Artifacts		**43**	**4**	**10**	**4**	**10**	**1**	**1**	**75**	**16**	**2**	**165**		**99.7**

*Orser (1988) presents this classification system, with the exception of Category 6. **Total percentage more than 100 due to rounding up.

Figure 36. Graph depicting differences between Depot Creek and Clark Creek shell mound apiaries in artifact functional category percentages.



These artifact categories represent trends in consumer behavior at both Depot Creek and Clark Creek shell mounds. The ratios of categories and types of artifacts can reveal preferences concerning choice of products used by the beekeepers/honeymakers. At Depot Creek and Clark Creek shell mounds, surface deposits and excavated material represents foodways, household/architectural, clothing, personal, and labor artifacts, all of which emphasize a dependence on consumable goods purchased from an outside market. The foodways category (specifically the storage subcategory) seems to have been the focus of consumer activity in the Depot Creek artifact collection. Glass containers used to store food products include bottles and jars. Glass fragments from bottles were recovered from the site along with sherds of stoneware vessels, which could also be used to store food products. Stoneware was the most common type of ceramic found.

The other subcategory of foodways represented in this collection is service. Tableware, such as whiteware, was used in serving of food at the apiary. Whiteware may have been used due to its relatively lower cost and ease of replacement. Ceramic and glass objects included within the foodways category are easily broken, preserve well in most soils, and were generally used in larger quantities than other objects (Orser 1988:234). Overall, the high percentage of cultural material grouped into the foodways category suggests that Depot Creek shell mound was indeed a domestic site, and that the beekeepers/honeymakers participated in the larger regional economy.

In contrast, at Clark Creek shell mound the beekeepers' consumer activities were focused on the household/architectural category. Artifacts such as nails and bricks

suggest construction and/or destruction occurred at the apiary. The labor category was also well represented at this site and shows the importance of labor related to beekeeping and honey production. However, the foodways category along with the subcategories of storage and service suggest a domestic site as well, and a connection with the regional economy.

Pattern Recognition

Table 6 presents a comparison of Depot Creek and Clark Creek historical assemblages organized by South's (1977) eight artifact groups and by Orser's five categories (1988). British colonial Carolina and Frontier patterns, South's "Groups" are broadly comparable to Orser's "Categories." The Depot Creek and Clark Creek percentages exclude the unidentified artifacts.

Table 6. Comparison of South's (1977) Carolina and Frontier artifact patterns with Depot Creek and Clark Creek shell mound apiaries.

South's Groups					Orser's Categories		
	Carolina Range	**Frontier Range**	**Depot Creek**	**Clark Creek**		**Depot Creek**	**Clark Creek**
Kitchen	51.8-69.2	22.7-34.5	57.8	20.4	Foodways	59.4	20.4
Architecture	19.7-31.4	43.0-57.5	24.8	55.5	Household/ Structural	27.1	56.3
Furniture	0.1-0.6	0.1-0.3					
Arms	0.1-1.2	1.4-8.4	1.9	0.6			
Clothing	0.6-5.4	0.3-3.8		5.6	Clothing		3.6
Personal	0.1-0.5	0.1-0.4	0.9	1.2	Personal	6.0	2.4
Tobacco	1.8-13.9	1.9-14.0					
Activities	0.9-2.7	0.7-6.4	13.7	16.6	Labor	7.0	16.9

Significant differences exist between the South and Orser systems. The most important one is that Orser includes arms-related artifacts under his Foodways category in the Procurement subcategory, an addendum appropriate for the rural south. Orser also

added South's Furniture group to his Houshold/Structural category and Tobacco to his Personal category. Orser's Personal category also includes toys (Recreational subcategory) and medicinal bottles (Medicinal subcategory), whereas the former would be in South's Activities group and the latter in the Kitchen group.

The Depot Creek shell mound historic artifact collection, can be organized by South's or Orser's classifications for comparison. Either way it manifests South's Carolina Pattern in that the Kitchen/Foodways percentages are dominant, with 57.8 percent (as organized by South's criteria) and 59.4 percent by Orser's, and the Architecture/Household-Structural category secondary in importance with 24.8 (South) and 27.1 percent (Orser). However the Furniture, Clothing, and Tobacco categories are not represented in these historic artifact collections. More noteworthy, is how the Personal percentages (0.9/6.0) dramatically exceed the Carolina range (0.1-0.5). The Activities/Labor percentages (13.7/7.0) also exceed the Carolina range (0.9-2.7).

The "enhanced" Carolina Pattern demonstrated by the historic artifact collection from Depot Creek shell mound is explained by the special function of the site, as an apiary, hence the enhanced Activities/Labor percentages. The enhanced Personal category percentages are due to artifacts that fall into the medicinal and recreational subcategories. Oral history, the archaeological record, and artifact patterns show that the site was not just a place of work. People may have lived in a house on the mound beyond the tupelo honey season. George Core did remember staying in a house at Depot Creek shell mound. Still, until further study and excavation produce more information

including an increased artifact sample, it remains the best estimation that the apiary was seasonality reoccupied during the tupelo honey flow.

The historic artifact collection from Clark Creek shell mound apiary is unlike that from Depot Creek's apiary; it is more similar to South's Frontier Pattern. The Architecture group (55.5 percent) or Household/Structural category (56.3 percent) is the prominent category, with the Kitchen group (20.4 percent) or Foodways (20.4 percent) category being secondary. However, the Activities group (16.6 percent) and Labor category (16.9 percent) noticeably exceed the Frontier range (0.7-6.4 percent).

The "enhanced" Frontier pattern demonstrated by the historic artifact collection from Clark Creek shell mound is also because it had a special function as an apiary. However, unlike the apiary at Depot Creek, there are no structures at Clark Creek, except the dock and walkway ruins to indicate a house or a lengthy occupation. The artifact collection suggests the apiary was solely a place of work. In George Core's interview he remembered working very hard during the day at his employer's apiary along the Apalachicola River. He did not mention people camping or staying at the apiary over night. The workers either stayed on the workboat or returned to town for the night.

Looking at the two apiary collections separately shows noticeable differences in patterns. However, it might be more appropriate to look at the two apiary collections as a whole to distinguish a pattern and account for variability among the sites. Joined together there are a total of 264 historic artifacts from both shell mound apiaries; this number excludes unidentified artifacts. The two apiaries together illustrate South's Frontier pattern, Household-Structural category (45.5 percent) is prominent with

Foodways category (35.2 percent) being secondary. It is not surprising that, when combined, the sites fit well in to South's Frontier pattern, because they are in a remote area where consumer goods are less. The high Labor percentage (13.3) represents the industrial-activity taking place at the apiaries.

At this point, the distribution of artifacts at Depot Creek and Clark Creek can be associated with beekeepers/honeymakers. Whether these distributions relate to all apiaries and tupelo honey production sites is far from being even preliminarily established. A typology and pattern for frontier agricultural practices such as beekeeping could be created, however, that is beyond the scope of this thesis. My hope is this work will be useful for further research and analysis.

Chapter Nine: Cultural Material

This chapter examines in detail the considerable body of artifacts relating to late nineteenth- to early twentieth-centuries occupation and beekeeping at the sites investigated. Recovered artifacts included nails, glass, ceramics, buttons, metal, and other miscellaneous objects. Historical cultural material from previous field surveys of the sites were reanalyzed and compared with recent surface-collected artifacts.

Nails

Nails are one of the most abundant artifacts found at Depot Creek and Clark Creek apiaries. No nails were recovered from the Lower Chipola Apiary, though they were certainly present holding the structure together. Of the recovered artifacts, nails accounted for 15 percent of Depot Creek's collection and 35.9 percent of Clark Creek's collection. The value of nails as chronological indicators for the two shell mound apiaries is debatable. Yet, nails are among the most commonly-occurring artifacts found at sites dating to late nineteenth to early twentieth centuries, and, as such, they should be an important data source since there are no written records showing exact dates when these sites were occupied. Nails have generally been used to provide *terminus ante quem* and *terminus post quem* dates for sites. For example, the presence of modern machine-cut nails on a site suggests it must have been occupied in the 1830s or later.

Another dating technique is seriation, in which artifacts are ordered on basis of an attribute with chronological value. Given that wrought nails preceded cut nails, and both preceded wire nails, seriation should be a valid technique on nineteenth-century sites (Adams 2002:67).

Nails, like all artifacts, tell a story about the people who utilized, made, shipped, and sold them. Nails in at least five measures can yield valuable information: (1) size and style, which often imply the specific use within a structure, (2) renovation of structures, (3) technology in manufacture, (4) technological and marketing lag in acquisition by user, and (5) chronology (Adams 2002:66). Size and style, technology in manufacture, and chronology aspects of nails recovered from Depot Creek and Clark Creek shell mounds are discussed in this thesis.

For the purpose of this discussion, nails from Depot Creek and Clark Creek shell mounds have been divided into four classes: Early Machine-Cut Nails, Modern Machine-Cut Nails, Wire Nails, and Indeterminate (see Tables 7 and 8).

Table 7. Summary of nails from Depot Creek shell mound apiary (8Gu56).

Depot Creek (8Gu56)	Surface		Shovel Test (0-36 cm)		TUA Level 2 (15-30 cm)		TUB Level 1 (0-15 cm)		TUC Level 1 (0-15 cm)		Total	
	N	WT	N	WT	N	WT	N	WT	N	WT	N	WT (grams)
Early machine-cut			1	36.9							**1**	**36.9**
Machine-Cut	1	1.9	1	5.7							**2**	**7.6**
Wire	8	94.2			2	31.8	2	12.3	1	6.7	**13**	**145**
Indeterminate							1	0.4			**1**	**0.4**
Total Artifact Count and Weight	**9**	**96.1**	**2**	**42.6**	**2**	**31.8**	**3**	**12.7**	**1**	**6.7**	**17**	**189.9**

Table 8. Summary of nails from Clark Creek shell mound apiary (8Gu60).

Clark Creek (8Gu60)	Surface		TUA Level 1 (0-15 cm)		TUA Level 2 (15-30 cm)		TUA Level 3 (30-45 cm)		TUA Level 4 (45-60 cm)		TUB Level 2 (15-30 cm)		TUC Level 1 (0-15 cm)		TUC Level 2 (15-30 cm)		TUC Level 3 (30-45 cm)		Total	
	N	WT	N	WT	N	WT	N	WT	N	WT	N	WT	N	WT	N	WT	N	WT	N	WT (grams)
Machine-Cut	1	3.8	3	3.4	3	3.3	3	3.6	1	1.5			18	20.5	7	13.3	2	15.2	**38**	**64.6**
Wire	1	4.8	3	3.4			5	16.1					26	22.6					**35**	**46.9**
Indeterminate											1	2.1			2	1.3			**3**	**3.4**
Total Artifact Count and Weight	**2**	**8.6**	**6**	**6.8**	**3**	**3.3**	**8**	**19.7**	**1**	**1.5**	**1**	**2.1**	**44**	**43.1**	**9**	**14.6**	**2**	**15.2**	**76**	**114.9**

Early Machine-Cut Nails

Machine-cut nails are best identified by the presence of two parallel then converging shank surfaces, ending in a stub (blunt) point. Jeremiah Wilkinson of Cumberland, Rhode Island, in 1775 devised a way of producing nails from iron plates (Adams 2002; Fontana and Greenleaf 1962:52). Adams (2002:68) suggests a new date range of post 1790 to ca. 1820 for the early machine cut nails, although the archaeological literature generally uses a date of ca. 1815 for the introduction of cut nail technology. These early nails were first made in a cutting machine and then taken to a separate machine for heading. The nail heads continued to be hand-wrought until 1807, when Jesse Reed of Boston received a patent for a nail-cutting and -heading machine. The heads of earlier machine-cut nails therefore resemble those of wrought nails. These early cut nails were made until the late 1830s and are distinguished by the tapering near the head and the irregular shape of the head (Nelson 1968).

One early machine-cut nail (Figure 37) was recovered from many years of survey at the two shell mound apiaries. This nail was recovered from a shovel test excavated to 36 cm in depth at Depot Creek shell mound in 1985 (Table 7; Henefield and White 1986:67). This nail has a hand-wrought (rose) head, but the shaft is uniform. The nail is bent in a 90 degree angle near the point, suggesting that is was definitely utilized. This nail has a pennyweight of 60d. In sizes from 16d to 60d heads are thicker and have a raised platform of metal on top. This is because heavier and more repeated blows are required to drive heavier nails and the heads must be heavier to withstand the punishment. Such heads are rarely found in archaeological specimens because the driving

of these nails flattens the heads completely. Only on nails that were driven partially or not at all would the thicker heads remain (Fontana and Greenleaf 1962: 56). The early machine-cut nail from Depot Creek suggests that the builder drove it into some type of hard wood part way until it was accidentally bent. Nails that are 20d or larger were used for framing a house, construction, or similar activities. No early machine-cut nails were recovered from Clark Creek shell mound or lower Chipola Apiary.

Figure 37. Early machine-cut nail from Depot Creek shell mound/apiary (8Gu56).

Modern Machine-Cut Nails

Examples of modern machine-cut nails have the characteristic uniform flathead. After ca. 1840, cut nails were generally made with the iron fiber running lengthwise. Cut nails remained the dominant form until they were surpassed in production by wire nails in

the late nineteenth century. Past this time, cut nails were produced in very limited quantities (Rempel 1980). However, there was a rise after 1920, due to the increased use of concrete construction, since machine-cut nails are used in joining wood to concrete (Adams 2002:72).

Modern cut-nails were found at both Depot Creek and Clark Creek shell mounds (Figure 38). The Depot Creek shell mound collection has a total of two modern machine-cut nails (Table 7). One was recovered from a general surface survey of the mound in 1985. The other was recovered in the same shovel test as the early machine-cut nail. On the other hand, the Clark Creek shell mound collection has a total of thirty-eight modern machine-cut nails (Table 8). One was surface-collected, and the other thirty-seven were excavated from Test Units A and C. Most of the nails came from Test Unit C, and this in not surprising since this unit "was close to a concentration of modern artifacts left from the time of the apiary" (White 1994:121). The first three levels of Test Unit C (0-45 cm) contained nails and glass fragments that were mixed in with sherds from both prehistoric components (White 1994).

Figure 38. Modern machine-cut nails from Depot Creek shell mound apiary (8Gu56).

Wire Nails

Since about 1890, wire nails have become the standard type, recognized by their round heads, sharp points, and round, untapered shanks. "The first American production of wire nails was from machines either imported or adapted from existing European models" (Nelson 1968:9). The earliest wire nails were not made for building construction, but rather in the smaller sizes for pocket book frames, cigar boxes, etc. (Adams 2002:69; Nelson 1968:10). "The machine-cut nail was generally a superior nail for building purposes, depending upon the woods being used. Many farmers still prefer building barns with them" (Adams 2002:69). Larger size (for architectural construction) would not be present until the 1850s. "From circa 1851-1883, wire nails may begin to accumulate in sites in small numbers, but were probably not used in building structures simply because so few were produced" (Adams 2002:70).

Eight wire nails were recovered from the surface of Depot Creek shell mound (Figure 32). Three of them were excavated from the first two levels of Test Units A, B, and C (15-30 cm) (Table 8). One wire nail was surface-collected during a general surface survey of Clark Creek shell mound, and thirty-four wire nails were excavated from the first three levels (0-45 cm) of Test Units A and C (Table 8). One of the wire nails from Test Unit A level 2 (15-30 cm) was burned and deliberately cut. Most of the wire nails were excavated from Test Unit C (the unit closest to a concentration of modern artifacts). The morphology of the wire nails from Depot Creek hint that the builder often miss-hit the nail during construction and/or they were using a very hard wood, as many were bent.

Figure 39. Wire nails found at Depot Creek shell mound/apiary (8Gu56).

Indeterminate Nails

One indeterminate nail was excavated from the first level (0-15 cm) of Test Unit B at Depot Creek shell mound (Table 7). Two indeterminate nails were recovered from the second level (15-30 cm) of both Tests Unit B and C at Clark Creek Shell Mound. These nails are poorly preserved, being heavily corroded and fragmentary, and analysis of them was not possible.

Nail Analysis

The length of each nail was measured and assigned a pennyweight (Table 9). The pennyweight system is applied to both machine-cut and wire nails. The term penny, as it refers to nails, originated in medieval England to describe nail sizes according to their price per hundred. The letter "d" was the designation for the English penny, and then the same abbreviation was used to indicate a pound in weight. Nails slowly became standardized by size rather than price. For example, a 2d nail is 1 inch long. Each higher number represents an increase in length of 1/4 inch, up to 12d (3 1/4 inch long; Nelson

1968). After 12d, the penny system becomes more irregular. Small construction nails are defined as 2d-5d and are used in the final stages of carpentry. Nails from 6d-16d are called medium construction and are used for most purposes. Large construction nails are those which are 20d or larger and are used for framing and other similar activities (Fontana and Greenleaf 1962). The shapes of the head (rose, round or rectangular), the shank (rectangular or round), and point (blunt, broken, or sharp) were also noted for this analysis (Tables 10 and 11).

Table 9. Pennyweight system for measuring nails (Fontana and Greenleaf 1962:56).

1”	= 2d	3"	= 10d
1 ¼"	= 3d	3 ¼"	= 12d
1 ½"	= 4 d	3 ½"	= 16d
1 ¾"	= 5d	4"	= 20d
2"	= 6d	4 ½"	= 30d
2 ¼'	= 7d	5"	= 40d
2 ½"	= 8d	5 ½"	= 50d
2 ¾'	= 9d	6"	= 60d

Table 10. Description of nails from Depot Creek shell mound apiary (8Gu56).

Catalog no.	Provenience	Length (mm)	Head	Shank	Point	Penny Weight	Comments
8Gu56-1	shovel test	132	rose, T-head	rectangular tapered	blunt	60 d	early machine-cut nail, bent 90 degrees near point
8Gu56-1	shovel test	63	rectangular	rectangular	blunt	8d	
8Gu56-8	Surface	124	round	round	sharp	40d	
8Gu56-8	Surface	103	round	round	sharp	20d	
8Gu56-8	Surface	65	round	round	blunt	8d	
8Gu56-8	Surface	128	round	round	sharp	40d	
8Gu56-8	Surface	103	round	round	blunt	30d	
8Gu56-8	Surface	69	round	round	blunt	9d	
8Gu56-8	Surface	72	round	round	sharp	9d	bent 90 degrees near point
8Gu56-17	TUA Level 2	88*	round	round	?	?	end deliberately cut? Burned
8Gu56-17	TUA Level 2	89	round	round	sharp	16d	bent near middle
8Gu56-62	TUB Level 1	64	round	round	sharp	8d	
8Gu56-62	TUB Level 1	77	round	round	sharp	10d	
8Gu56-83	TUC Level 1	72	round	round	sharp	9d	bent near point
8Gu56-02-01	Surface	79	round	round	sharp	10d	
8Gu56-97-3	Surface	37	rectangular	rectangular	blunt	4d	

*Indicates the present length of the nail.

Table 11. Description of nails from Clark Creek shell mound apiary (8Gu56).

Catalog no.	Provenience	Length (mm)	Head	Shank	Point	Penny Weight	Comments
8Gu60-12	TUA surface	66	round	round	sharp	8d	
8Gu60-13	TUA level 1	44*	round	round	?	5d	badly corroded at point
8Gu60-13	TUA level 1	43	round	round	sharp	5d	
8Gu60-13	TUA level 1	20	round	round	broken	2d	
8Gu60-13	TUA level 1	38	rectangular	rectangular	blunt	4d	
8Gu60-13	TUA level 1	39	rectangular	rectangular	blunt	4d	
8Gu60-14	TUA level 2	29	rectangular	rectangular	blunt	2d	
8Gu60-14	TUA level 2	41	rectangular	rectangular	blunt	4d	bent 90 degrees near point
8Gu60-15	TUA level 2	33*	?	rectangular	?	?	badly corroded
8Gu60-16	TUA level 3	78	round	round	sharp	4d	bent near point
8Gu60-17	TUA level 3	41	rectangular	rectangular	blunt	4d	partial head
8Gu60-17	TUA level 3	19*	?	rectangular	?	?	badly corroded
8Gu60-17	TUA level 3	38	rectangular	rectangular	blunt	4d	badly corroded near the point
8Gu60-17	TUA level 3	41	round	round	sharp	4d	
8Gu60-17	TUA level 3	36	round	round	sharp	4d	bent near middle
8Gu60-17	TUA level 3	52	round	round	sharp	6d	bent 90 degrees near point
8Gu60-17	TUA level 3	63	round	round	sharp	8d	bent 90 degrees near head
8Gu60-18	TUA level 4	39	rectangular	rectangular	blunt	4d	
8Gu60-86	TUC surface	36	rectangular	rectangular	broken	4d	
8Gu60-87	TUC Level 1	20*	?	rectangular	broken	2d	
8Gu60-89	TUC Level 2	23	rectangular	rectangular	broken	2d	badly corroded
8Gu60-89	TUC Level 2	31	?	rectangular	broken	2d	badly corroded
8Gu60-89	TUC Level 2	21*	?	rectangular	broken	?	badly corroded and split
8Gu60-93	TUC Level 3	83	rectangular	rectangular	blunt	12d	badly corroded
8Gu60-93	TUC Level 3	51	rectangular	rectangular	broken	2d	badly corroded, from flotation sample A fraction
8Gu60-109	TUA Level 1	22*	?	rectangular	?	?	badly corroded

Table 11. Continued on the next page.

Table 11. (Continued)

8Gu60-150	TUC Level 1	27	rectangular	rectangular	Broken	2d	badly corroded, from flotation sample A fraction
8Gu60-150	TUC Level 1	31	rectangular	rectangular	Broken	3d	badly corroded, from flotation sample A fraction
8Gu60-150	TUC Level 1	40	rectangular	rectangular	blunt	4d	From flotation sample A fraction
8Gu60-150	TUC Level 1	26	rectangular	rectangular	blunt	2d	From flotation sample A fraction
8Gu60-150	TUC Level 1	23*	?	rectangular	?	?	badly corroded, from flotation sample A fraction
8Gu60-150	TUC Level 1	27*	?	rectangular	?	?	badly corroded, from flotation sample A fraction
8Gu60-150	TUC Level 1	38*	?	rectangular	?	?	badly corroded, from flotation sample A fraction
8Gu60-150	TUC Level 1	14*	?	rectangular	?	?	badly corroded, from flotation sample A fraction
8Gu60-150	TUC Level 1	10*	rectangular	rectangular	?	?	head and small amount of shank, from flotation sample A fraction
8Gu60-150	TUC Level 1	16*	rectangular	rectangular	?	?	head and small amount of shank, from flotation sample A fraction
8Gu60-150	TUC Level 1	4*	rectangular	?	?	?	head only, from flotation sample B fraction
8Gu60-150	TUC Level 1	37	?	rectangular	blunt	4d	From flotation sample B fraction
8Gu60-150	TUC Level 1	19*	rectangular	rectangular	broken	2d	From flotation sample B fraction
8Gu60-150	TUC Level 1	10*	rectangular	rectangular	broken	2d	head and small amount of shank, from flotation sample B
8Gu60-150	TUC Level 1	13*	broken	rectangular	broken	2d	From flotation sample B fraction
8Gu60-150	TUC Level 1	11*	broken	rectangular	broken	2d	From flotation sample B fraction
8Gu60-150	TUC Level 1	30*	?	rectangular	broken	3d	Bent 90 degrees near point, from flotation sample B fraction
8Gu60-150	TUC Level 1	18	round	round	sharp	2d	From flotation sample B fraction
8Gu60-150	TUC Level 1	52	round	round	sharp	6d	Bent 90 degrees near point, from flotation sample A fraction
8Gu60-150	TUC Level 1	51	round	round	sharp	6d	From flotation sample A fraction
8Gu60-150	TUC Level 1	87	round	round	?	16d	badly corroded near point, from flotation sample A fraction
8Gu60-150	TUC Level 1	29	?	round	Sharp	2d	from flotation sample A fraction
8Gu60-150	TUC Level 1	69	round	round	Sharp	8d	bent near head from flotation sample A fraction
8Gu60-150	TUC Level 1	40	round	round	Sharp	4d	from flotation sample A fraction

Table 11. Continued on the next page.

Table 11. (Continued)

8Gu60-150	TUC Level 1	51	round	round	sharp	6d	badly corroded and bent near head, from flotation sample A fraction
8Gu60-150	TUC Level 1	16	?	round	sharp	2d	badly corroded, from flotation sample A fraction
8Gu60-150	TUC Level 1	25	?	round	sharp	2d	bent near head from flotation sample A fraction
8Gu60-150	TUC Level 1	26	round	round	?	?	from flotation sample A fraction
8Gu60-150	TUC Level 1	16	?	round	sharp	2d	badly corroded, from flotation sample A fraction
8Gu60-150	TUC Level 1	32	round	round	sharp	3d	from flotation sample B fraction
8Gu60-150	TUC Level 1	20	round	round	sharp	2d	bent near point, from flotation sample B fraction
8Gu60-150	TUC Level 1	26	round	round	sharp	2d	from flotation sample B fraction
8Gu60-150	TUC Level 1	19*	round	round	broken	?	badly corroded, from flotation sample B fraction
8Gu60-150	TUC Level 1	26	round	round	sharp	2d	part of head is broken, from flotation sample B fraction
8Gu60-150	TUC Level 1	16	round	round	sharp	2d	from flotation sample B fraction
8Gu60-150	TUC Level 1	39	round	round	sharp	4d	badly corroded, from flotation sample B fraction
8Gu60-150	TUC Level 1	6*	round	round	?	?	head and small amount of shank, from flotation sample B fraction
8Gu60-150	TUC Level 1	6*	round	round	?	?	head and small amount of shank, from flotation sample B fraction
8Gu60-150	TUC Level 1	15	?	round	sharp	2d	badly corroded and missing head, from flotation sample B fraction
8Gu60-150	TUC Level 1	7*	?	round	?	?	partial head and some shank, from flotation sample B fraction
8Gu60-150	TUC Level 1	18*	?	round	?	?	from flotation sample B fraction
8Gu60-150	TUC Level 1	18*	?	?	?	?	from flotation sample B fraction
8Gu60-150	TUC Level 1	12*	?	round	?	?	from flotation sample B fraction
8Gu60-152	TUC Level 2	51	?	rectangular	blunt	6d	badly corroded, from flotation sample A fraction
8Gu60-152	TUC Level 2	24*	?	rectangular	broken	2d	from flotation sample A fraction
8Gu60-152	TUC Level 2	29	rectangular	rectangular	blunt	2d	badly corroded, from flotation sample A fraction

*Indicates the present length of the nail.

I tried William Hampton Adams' model for dating these sites of the late nineteenth to early twentieth centuries by examining production figures for wire nails to

obtain date ranges for the apiaries at Depot Creek and Clark Creek shell mounds. This model was generated for dating sites built of machine-cut nails (Adams 2002:66). Adams believes using this model of comparing frequencies of cut vs. wire nails will work best with well-documented, short-term occupations, and with sites that were occupied by people poor in material culture. The apiaries at both Depot and Clark Creeks were short occupation sites (presumably only three weeks out of the year) and in a very remote part of the country, but not well documented. Using this model may provide some notion of the construction date for the sites and socioeconomic indicators for the beekeepers.

The frequency of nail types at Depot Creek is 18.8 percent machine-cut nails and 81.2 percent wire nails (Table 12). These percentages were then compared to the American nail production for 1886-1954 (Adams 2002: 73). The American nail production figures suggest a construction date circa 1897 as nail production for that year was 19.0 percent cut and 81.0 percent wire (Table 15). At Clark Creek the percentages were 52 percent machine-cut and 48 percent wire (Table 14), suggesting a construction date circa 1891; American nail production for that year was 54.9 percent cut and 45.1% percent (Table 15). The high frequency of modern machine-cut nails at Clark Creek shell mound may be due to recycling activities and lack of access to wire nails, or perhaps cut nails were preferred over wire nails in building and repairing honey houses, box hives, and other beekeeping and honey production equipment. Time lag, reuse, acceptance of material culture, other artifacts, and socioeconomics of the region all need to be considered.

Table 12. Frequencies and percentages of nail types from Depot Creek shell mound apiary (8Gu56).

Nail Types	Number (%)	Classifiable Number (%)
Early machine-cut	1 (5.9)	3 (18.8)*
Machine-cut	2 (11.8)	
Wire	13 (76.4)	13 (81.2)
Indeterminate	1(.5.9)	N/A
Totals	**17 (88.32)**	**16 (100)**

*Classifiable numbers are combined because both are machine-cut nails .

Table 13. Frequencies and percentages of nail types from Clark Creek shell mound apiary (8Gu60).

Nail Types	Number (%)	Classifiable Number (%)
Modern machine cut	38 (50.0)	38 (52.0)
Wire	35 (46.0)	35 (48.0)
Indeterminate	3 (4.0)	N/A
Totals	**76 (100)**	**73 (100)**

Table 14. American nail production, 1886-1954 (adapted from Adams 2002:73).

Year	Cut Nails	Wire Nails	Total	% Cut	% Wire
1880	5,056,600	------	5,056,600	----	----
1886	8,160,973	600,000	8,760,973	93.2	6.8
1887	6,908,870	1,250,000	8,158,870	84.70	15.3
1888	6,493,591	1,500,000	7,993,591	81.20	18.8
1889	5,810,758	2,435,000	8,245,758	70.50	29.5
1890	5,640,946	3,134,911	8,776,857	64.30	35.7
1891	5,002,176	4,114,385	9,117,011	54.90	45.1
1892	4,507,819	4,719,524	9,227,343	48.80	51.2
1893	3,048,933	5,095,945	8,144,878	37.40	62.6
1894	2,425,060	5,681,801	8,206,861	30.40	69.6
1895	2,129,894	5,841,403	7,971,297	26.70	73.3
1896	1,612,870	4,719,860	6,332,730	25.40	74.6
1897	2,106,799	8,997,245	11,104,044	19.00	81.0
1898	1,572,221	7,418,475	10,562,917	14.90	85.1
1899	1,904,340	7,599,522	11,408,202	16.70	83.4
1900	1,573,000	7,234,000	8,807,000	17.10	82.9
1901	1,542,240	9,803,822	11,346,062	13.60	86.4
1902	1,633,762	10,982,246	12.616,008	12.90	87.1
1903	1,435,893	9,631,661	11,067,554	13.00	87.0
1904	1,283,362	11,926,661	13,210,023	9.70	90.3
1905	1,357,549	10,854,892	12,212,441	11.10	88.9
1906	1,189,239	11,486,647	12,675,886	9.40	90.6
1907	1,109,138	11,731,044	12,840,182	8.60	91.4
1908	956,182	10,662,072	11,619,154	8.20	91.8
1909	1,207,507	13,016,053	15,123,650	8.00	92.0
1910	1,005,233	12,704,902	13,710,135	7.30	92.7

Table 14. Continued on the next page.

Table 14. (Continued)

Year	Cut Nails	Wire Nails	Total	% Cut	% Wire
1911	967,636	13,437,778	14,405,414	6.70	93.3
1912	978,415	14,659,700	15,638,115	6.20	93.8
1913	842,038	13,559,727	14,401,765	5.80	94.2
1914	769,665	13,132,814	13,002,470	5.90	94.1
1915	775,327	14,583,026	15,358,353	5.00	95.0
1916	764,835	17,147,665	17,912,500	4.30	95.7
1919	263,896	12,429,195	12,693,091	2.10	97.9
1921	318,008	11,297,861	11,615,869	2.70	97.3
1923	460,061	17,375,606	17,835,667	2.60	97.4
1927	------	14,819,159	-------	----	----
1929	------	-------	-------	----	-----
1931	457,962	8,177,139	8,635,101	5.30	94.7
1947	567,260	16,154,020	16,721,280	3.30	96.7
1954	1,569,000	11,870,020	13,439,020	11.70	88.3

*This table is adapted from Adams's American Nail Production Table (2002:73).

Glass

Container glass manufacturing technique is not easy to determine unless basal and lip sherds are present. A majority of the glass fragments recovered during surface survey and excavation at the apiaries were small fragments; thus form and function could not be ascertained. The most reliable indicator for dating container glass manufactured after the Civil War is the treatment of the lip, if the vessel is a bottle. Bottle lips were laid on by hand until the mid-1870s, when the lipping tool was introduced (Jones and Sullivan 1985:43). Fully mold-formed lips appear in the 1880s, although they were not common until the 1890s. With the invention of the fully automatic Owens machine for bottle and jar manufacture in 1903, machine-made containers became ubiquitous (Jones and Sullivan 1985).

Glass color can also be used as a very relative dating tool. Color was the main attribute for evaluating the bottle glass from Depot Creek and Clark Creek shell mound apiaries (Tables 16 and 17). Colored bottle glass recovered from the two sites included amber, clear, cobalt blue, green, milk (opaque), and light purple (solarized) glass. The most common bottle glass at both sites was clear. However, there is less variety at Clark Creek than at Depot Creek.

Table 15. Frequency and percentage of glass by color from Depot Creek shell mound apiary (8Gu56).

Color	Frequency (%)	Frequency of Classifiable Types
Amber	3 (8.0)	33 (100)*
Clear	20 (52.6)	
Lime green	5 (13.2)	
Milk	1 (2.6)	
Solarized	4 (10.5)	
Flat Glass	4(10.5)	N/A
Indeterminate	1(2.6)	N/A
Totals	**38 (100)**	**33 (100)**

*Classifiable numbers are combined.

Table 16. Frequency and percentage of glass by color from Clark Creek shell mound apiary (8Gu60).

Color	Frequency (%)	Frequency of Classifiable Types
Amber	3 (12.0)	25 (100)*
Clear	18 (72.0)	
Cobalt	1 (4.0)	
Solarized	1 (4.0)	
Purple	1 (4.0)	
Milk	1(4.0)	
Totals	**25(100)**	**25 (100)**

*Classifiable numbers are combined.

After 1880, clear glass was desired by the food-processing industry, so customers could see the product (Colwill 1974; Jones and Sullivan 1985). Decolorizing agents, such as manganese dioxide and selenium, had to be added to the glass mixture to produce clear glass. Manganese-treated glass is initially clear, but changes to an amethyst (light purple) color, when exposed to ultraviolet rays or sunlight. The use of manganese continued until 1914, when WW I cut off trade with the primary source of manganese, Germany (Jones and Sullivan 1985). After circa 1890, colors including blue and white milk glass were also being produced. Lime green glass was introduced in the 1940s (Berge 1980).

At Depot Creek shell mound no whole bottles were recovered, only parts of bottles (lip, neck, and base) and fragments. A clear glass bottle finish (lip) and neck were recovered from the surface of the mound. Not much can be said about this bottle finish, because it is melted. Other glass fragments were also found in a melted state, indicating some fire activity perhaps from the fireplace on the mound. One melted glass fragment was recovered from the first level of Test Unit B, and this test unit is closest to the fireplace. Other clear bottle glass fragments consisted of two solarized bottle finishes with square banded lips and cork closure dating to ca. 1890 (Figure 40). These could be from patented medicine bottles. The beekeepers probably brought with them self-administered medicines, possibly due to the unavailability of a physician. One solarized bottle base with a valve mark was recovered from the site. This mark is a non-symmetrical indented groove on the base, found on wide-mouthed containers and milk bottles from 1930s into 1950s (Toulouse 1969:583). A valve mark is made using a valve

that ejects the parison (part–size mold to give initial shape to the hot glass) out of the mold so that it can be transferred to the blow mold for completion (Miller and Sullivan 1991:99).

Figure 40. Solarized bottle finishes from Depot Creek shell mound/ apiary (8Gu56).

Three fragments of amber bottle glass were collected from Depot Creek shell mound. Amber glass has general application, including for alcoholic beverages, because it is able to protect its contents from light. A lime green bottle base and fragments, and one string rim milk glass fragment were recovered from general surface survey and test unit excavations. Lime green glass has a versatile use, but most commonly it was utilized for soda bottles. Milk glass had numerous uses for medicine, cosmetics, toiletry, food

and specialty items. Other glass found at Depot Creek shell mound included fragments of clear pressed shelf glass and window (flat)glass.

At Clark Creek shell mound an amber (Figure 41) and a clear bottle finish were recovered from the surface. A milk glass jar base and a solarized base of a pitcher (or some thing that held liquid) were also recovered. The types of glass fragments found at Clark Creek shell mound differs from those of Depot Creek shell mound. A small fragment of cobalt blue glass was recovered from the surface. Cobalt blue glass was used for medicine, cosmetics, and specialty use containers. One whole glass fruit jar and a fragment of a fruit jar rim was surface-collected. The whole fruit jar had a number 6 on the base. These fruit jars had no embossing, but were probably used by the beekeepers to hold honey or other liquids (moonshine). Clear glass jars with fancy labels were preferred over tin cans by consumers, because of the visibility of the product (Grout 1949).

A base of an amber-colored Clorox bottle was also found (Figure 41). Initially, liquid bleach was manufactured for industrial purposes. However, to save the Electro-Alkaline Company from foreclosure, they expanded into the individual household market by manufacturing 15-ounce amber glass pint containers. This new household version quickly gained popularity and the company distributed their product throughout the country. In 1928, Electro-Alkaline Company went public and became the Clorox Chemical Company. The Clorox diamond trademark on the bottom of the base was placed on bottles from 1929-1930 (Sandelin 1998). Clorox may have been used to disinfect beekeeping equipment and prevent the bees from getting diseases.

Figure 41. An amber bottle finish and a base of a Clorox bottle with a diamond trademark from Clark Creek shell mound apiary (8Gu60).

Ceramics

Ceramics are usually the most important class of artifact commonly found on historic sites because vessel form, paste, glaze and decoration changes have been well documented through time. Ceramics are classified according to the firing temperature of the clay. Ceramics are also broadly grouped into two major categories, refined and coarse, based on the amount of refining undergone by the clay in the process of manufacture. Wares fired at the lowest temperature are called earthenware and are not vitrified. Earthenwares are porous and will not hold water unless glazed. Most tablewares are a refined type of earthenware, such as whiteware. Unrefined earthenwares such as the yellowwares, redwares, and terracotta are often used for coarse utility vessels,

such as flowerpots. The next higher- firing temperature wares are the stonewares, which are partially vitrified and will hold water without a glaze. Ironstone and semi-porcelain are refined stonewares, while coarse stonewares include salt-glazed, Bristol-glazed, and Albany slip-glazed crockery. The ceramics fired at the highest temperature are porcelains.

Refined ceramic types recovered from Depot Creek shell mound and Clark Creek shell mound include whiteware and ironstone. Coarse ceramic types recovered included salt-glazed, Bristol glazed, Albany slip-glazed stoneware, and Herty Cup sherds (Tables 18 and 19). Whiteware, or earthernware, was the most common type of ceramic found. This may possibly be due to the relatively lower cost and ease of replacing earthenware compared to porcelain (Adams 1977:64).

Table 17. Frequencies, percentages, and function of historic ceramics at Depot Creek shell mound apiary (8Gu56).

Ceramic Types	Number (%)	Function
White earthenware	7 (25.9)	Tableware
Stoneware	18 (66.7)	Utility (crockery?)
Herty Cup	2 (7.4)	Turpentine
Totals	27 (100)	

Table 18. Frequencies, percentages, and function of historic ceramics at Clark Creek shell mound apiary (8Gu60).

Ceramic Types	Frequency of Types (%)	Function
White earthenware	15 (71.4)	Tableware
Ironstone	6 (28.6))	Fine tableware
Totals	21 (100)	

Refined Ceramics

Whiteware recovered from Depot Creek include sherds from tableware (bowls, plates, and saucers). One molded partial bowl with the term "Made in USA" on the base, a whiteware plate base with a footring, and platter body sherds were recovered from the surface of the mound. Three thick sherds with a gray and white swirled glaze were also found, and could be from a washbasin.

Whiteware sherds from the surface of Clark Creek shell mound included a rim with a blue floral transfer-print design, molded plate rim sherds, molded saucer rim, teacup base, teacup with molded floral design, and undecorated bowl rim sherds (Figures 42 and 43). The base of the teacup and interior were burnt (post depositional), showing that the teacup was used a great deal. Undecorated whiteware sherds and one sherd with a blue floral transfer print design were recovered from Level 1 (0-15 cm) of Test Unit C. Plain, undecorated whiteware, often with a molded rim, is common after 1820. It was the cheapest form of table service and was found in most households by 1840. It enjoyed a long production and is recovered from contexts that postdate 1930 (Esary 1982:186).

Figure 42. A whiteware rim sherd (8Gu60-87) with blue floral design from Clark Creek shell mound apiary (8Gu60).

Figure 43. Top, a whiteware teacup with a molded floral design (8Gu60-1), from Clark Creek shell mound apiary (8Gu60). The base of the teacup is slightly burnt. Bottom, whiteware plate with a molded rim (8Gu60-03-01), from Clark Creek shell mound apiary (8Gu60).

No ironstone tableware was recovered from Depot Creek shell mound, where other evidence suggests more domestic activity. Ironstone sherds were found at Clark Creek shell mound. One ironstone (semi porcelain) bowl base with the maker's mark "Homer Lauglin Virginia Rose Made in USA H 42 N 8" was recovered from the surface of the mound (Figure 44).

Figure 44. Left, interior center of an ironstone (semi porcelain) bowl (8Gu60-1) showing the Virginia Rose decal, from Clark Creek shell mound/apiary (8Gu60). Right, Homer Laughlin maker's mark on the base of same porcelain bowl.

The interior center of the bowl has a decal (colored glaze) rose pattern (Virginia Rose). This design (decal) dates from 1926 to circa 1970 (Kovel 1986: 178, 241). Decalomania (decals over glaze) was introduced in the 1860s but these ceramics were not widely manufactured until the 1890s. In the late-1930s, colored glazes were introduced by Homer Laughlin and several California potteries. Colored glazes were popular during the time from 1930 to the 1960s. The other ironstone sherds are fragments of a bowl rim

with pink and gold design (Figure 45). Rim and body sherds from this bowl were found on the mound over three different years from general surface survey. Interestingly, the sherds were dispersed over the mound, and not in one location. The ironstone sherds were later refitted in the lab.

Figure 45. Rim sherds (8Gu60-1 and 8Gu60-99-1) of an ironstone serving bowl, recovered from the surface of Clark Creek shell mound apiary (8Gu60).

Ironstone was heavier and harder than earthenware, and as a result was more durable and expensive. From 1870s to the 1920s ironstone was the most common type of tableware. Mail-order catalogues at the turn of the twentieth century, such as these of Sears Roebuck and Co. and Montgomery Ward, made it more readily accessible to the general public.

Coarse Ceramics

Salt-glazed, the earliest form of stoneware, was invented in the fifteenth century in Germany, and is produced by throwing common salt (sodium chloride) into a kiln full of white-hot stoneware. The salt vaporizes and the sodium combines with the silica in the clay to produce a hard, heat resistant-film of sodium silicate glass on all exposed surfaces of the vessel (Franklin and Longmire 2001: 35). After the Civil War and Reconstruction era, local potters had access to store-bought glaze in the form of Albany slip, a brown silicious clay from the Hudson River near Albany, New York, which vitrifies at stoneware firing temperatures. Another store-bought glaze was Bristol glaze, an opaque white felspathic/zinc oxide slip that was invented in Bristol, England, during the 1860s (Zilmer 1987). Bristol glaze and Albany slip often appear together on factory-made stonewares dating from 1890-1930, in the form of the familiar brown and white crockery, which fills antique stores

There were a substantial number of manufactories producing stoneware in the South, and coarse utilitarian ceramics were usually of local manufacture. However, there are few known potters in Florida during the late nineteenth –early twentieth centuries. Alabama, Georgia, and Tennessee were rich in stoneware potters.

The majority of historic ceramics from Depot Creek are the combined Albany slipped (interior) and Bristol glazed (exterior) stoneware sherds (Figure 46). A jug rim, handle, and base were surface-collected. Other stoneware consisted of body sherds. All stoneware sherds from Depot Creek are salt-glazed, and come from utility vessel forms (Figure 46). The stoneware sherds could represent mineral water jugs, ink bottles,

crockery, moonshine jars, or pickle jars. One stoneware sherd from Depot Creek was badly burnt.

Figure 46. Top, Albany slipped and salt-glazed stoneware sherds from Depot Creek shell mound/apiary (8Gu56). Bottom, Bristol and salt-glazed stoneware sherds from Depot Creek shell mound/apiary (8Gu56).

Surprisingly, no stoneware was recovered from Clark Creek shell mound. Perhaps there was no need to store food at Clark Creek shell mound apiary, and no overnight stays at the site. However, ironstone and whiteware tableware was brought from the beekeeper's home to Clark Creek, so meals may have been prepared at the apiary, suggesting a domestic use of the site. Yet, the presence of stoneware at Depot Creek shell mound hints that there was a lengthy stay at this apiary, and the beekeepers/honeymakers needed vessels for storage. The ceramics used by the beekeepers indicates further participation in the wider consumer market of popular American culture.

Herty Cup sherds are a common artifact found in the Apalachicola River valley and all over Florida, and date to the turpentine industry from 1900-1930s. In 1902, Dr. Charles H. Herty introduced his patented "Herty Cup" at the meeting of the Turpentine Operations Association in Jacksonville, FL (Smith 2003). Several naval stores merged to form the Consolidated Naval Stores Company, which created the Chattanooga Pottery Company. In 1904, the new company manufactured and made the red clay cups (Forney 1985). The flowerpot-like collector was used to gather valuable gum from pine trees. Naval stores production (turpentine industry) in Florida was at its peak from 1910-1942 (Forney 1985:277).

Fragments of a Herty cup were surface-collected from Depot Creek (Figure 47). However, pine trees are scarce in the swamp, which is usually not a place for collecting the necessary sap for turpentine. People who kept bees and made honey might have made their regular living in the logging and turpentine industry. Perhaps Herty Cups

were used for storage, by the beekeepers like stoneware crockery. No Herty cup sherds were found at Clark Creek Shell Mound.

Figure 47. Herty Cup sherds recovered from Depot Creek shell mound/ apiary (8Gu56).

Buttons

Buttons can be made of shell, bone, porcelain, plant material, hard rubber, metal, plastic, and other synthetics as well as numerous other materials. Roderick Sprague (2002:111) suggests that the button is one of the most ubiquitous historic artifacts found at archaeological sites. The most obvious functions of buttons is to keep clothing in place, closed, or decorated. The form of the button can provide a clue as to what its exact use may have been. Buttons can also be used to infer clothing, occupation, sex, and age.

Shell, Prosser, metal, and plastic buttons were recovered from Clark Creek shell mound (Figure 48). The diameter, material type, number of holes, and type of center were recorded for all buttons (Table 20). No buttons were recovered from Depot Creek Shell Mound.

Figure 48. Buttons recovered from excavations at Clark Creek shell mound apiary (8Gu60). Top row, black Prosser domed shoe button and brass button with grain design. Bottom row, shell button, brass work button, and Prosser (porcelain) button.

Table 19. Summary of buttons from Clark Creek shell mound apiary (8Gu60).

Material	Diameter (mm)	# of holes	Type of Center	Comments
Shell	11.48	4	depressed	
Prosser	14.47	4	depressed	
Prosser	10.24		domed	domed shoe button (black color), metal shank
metal (brass?)	13.94		depressed	grain design on the front
Metal (brass?)	16.21		flat	stamped on the front, two pieces
Plastic	13.81	2	depressed	

Shell Buttons

In the United States, freshwater shells are used for utilitarian buttons. It is difficult to date shell buttons with certainty because of the long history of shell as a button material. All types of holes, shanks, shapes, decorations, and sizes are used for shell buttons (Luscomb 1967:177-180). Commercially-made shell buttons were introduced into the United States from France in 1855 (Fontana and Greenleaf 1962:98). One four-hole shirt shell button was recovered from Test Unit C Level two (15-30 cm) at Clark Creek shell mound.

Prosser Buttons

Prosser buttons or small chinas are easily identified by the following characteristics; the smooth topside, the underside with an "orange peel" surface, and a noticeable seam around the edge (Sprague 2002). Sprague considers the introduction of Prosser buttons as one of the more precisely dateable events in the area of common personal items and gives an excellent *terminus post quem* of 1840 (2002:111). The Prosser process of button manufacture involved the preparation of fine clay with the addition of quartz or finely ground ceramic wasters, a small amount of moisture, and then pressing this mixture into cast-iron molds. After being turned out of the mold, the buttons were fired in a muffle furnace at a temperature sufficient to transform the clay into a highly fired ceramic button, approaching or even achieving the level of porcelain (Sprague 2002:111-12). One white Prosser dish button and a black domed shoe button were recovered from Test Unit C Level 2 (15-30 cm) at Clark Creek shell mound.

Small metal or Prosser domed buttons were used on shoes until about 1930. Black and white were the most popular colors. The 1927 Sears catalog shows this button in use only on ladies T-strap shoes and infants' shoes (Gillio et al. 1980:27). The black domed button from Clark Creek shell mound most likely came from a lady's shoe, because its size would be too big for that of an infant shoe.

Metal Buttons

Probably the most common metal button material was brass, and it has been used in the United States since the 1800s for men's clothing and uniforms. From 1800 to about 1860, one-piece buttons were made; after about 1860 two-piece buttons were made (Gillio et al. 1980:23). A two-piece (brass?) button with a cord design around the edge and a grain design in the center was recovered from Clark Creek shell mound. This type of button is commonly referred to as automatic or bachelor buttons, and could be attached and removed from a garment without sewing. These buttons were advertised by Sears, Roebuck & Company. This decorative button was probably from a piece of lady's clothing. Another possible brass, two-piece, men's work-clothes button was recovered from Test Unit C, Level 2, (15-30 cm), at Clark Creek. The front of the button is stamped with the names of two cities, Mobile (Alabama) and Panama (Florida). Work-clothes buttons were two-piece metal buttons used on men's jackets, coats, and overalls. The face of the button was usually made of brass and was embossed with the name of the clothing manufacture. The backs had Sander's type wire shanks. In the late nineteenth century, this type of button was widely used (Gillio et al. 1980:27).

Plastic Buttons

The manufacture of synthetic plastic buttons expanded after 1930. One plastic shirt button was recovered from Clark Creek Test Unit C Level two (15-30 cm).

Metal

Many metal artifacts were recovered from both shell mound apiaries, including wire, hooks, cast iron stove parts, hinges, buckles, spoons, crown bottle caps, buttons, harmonica reed, shotgun cap heads, barrel hoop fragments, and an enamelware washbasin and pot (Figures 49 and 50). Much of the metal is badly corroded and unidentifiable. Unexpectedly, no food tin cans were recovered from the apiaries. However a Budweiser beer can, dating to about the1960s, was recovered from the surface of Clark Creek shell mound.

Figure 49. Left, a metal spoon and a spoon bowl, from Depot Creek shell mound/apiary (8Gu56). Right, cast iron stove parts from Depot Creek shell mound apiary (8Gu56).

Harmonicas were inexpensive and a popular musical instrument that crossed social, ethnic and economic boundaries throughout the nineteenth and twentieth centuries. Historically, this small instrument has been associated mainly with children,

low-income groups and African-Americans. The harmonica is also associated with leisurely activities.

Figure 50. Top, harmonica reed recovered from the surface of Depot Creek shell mound apiary (8Gu56). Bottom, hinge and buckle fragments from Depot Creek shell mound apiary (8Gu56).

Miscellaneous

Artifacts specific to beekeeping and honey-making activities included beehive parts, a metal hive cover, wooden frames, a queen bee cage, and a honey extractor tub (Figure 51). The parts of a beehive (hive body part), metal beehive cover and honey

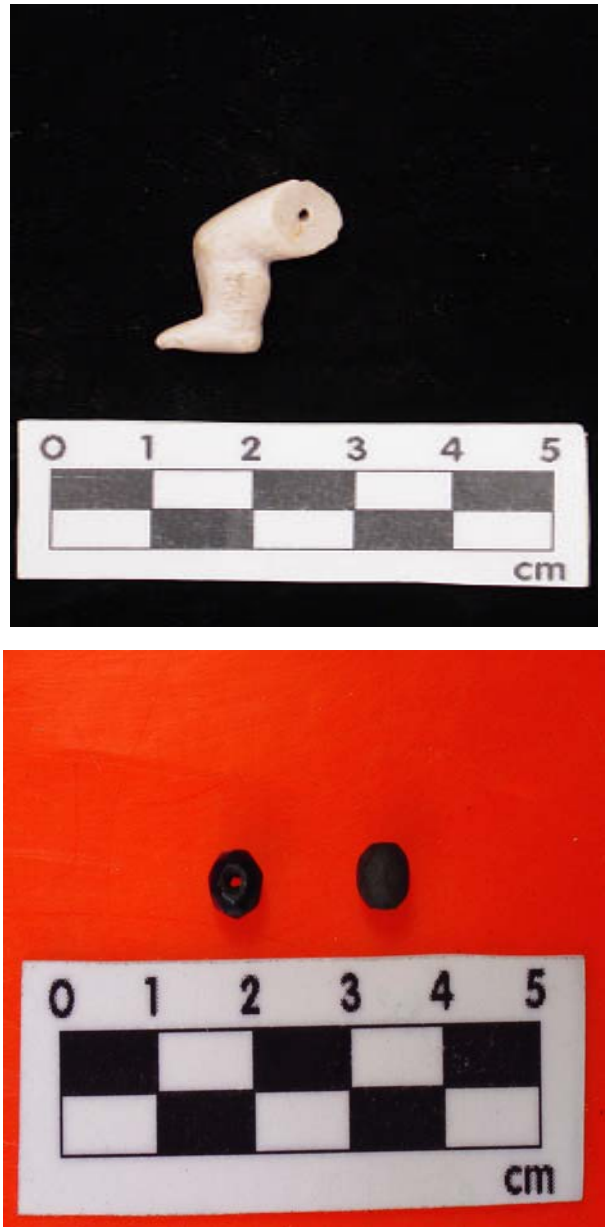
trough were not removed from the site, due to their size; they were too heavy and bulky to carry on the long walk through the ankle-deep swamp. The dimensions of the beehive box are approximately 18 ¼" in length, 14 ⅝" in width, and 9 ½" depth. The queen bee cage (Figure 28) was the only artifact recovered from Lower Chipola Apiary. Screens and other wooden artifacts were noted and photographed at the Lower Chipola Apiary. These artifacts attest to the agricultural aspect of life at the apiary/ bee camps

Figure 51. Top, hive body (part of a beehive) at Clark Creek shell mound apiary (8Gu60). Bottom, a metal beehive cover, placed over the top of hives for moving on a barge, from Clark Creek shell mound apiary (8Gu60).

Other miscellaneous items recovered from Depot and Clark Creek shell mound apiaries included a porcelain doll leg, black faceted beads, slate, mortar, cement, and bricks (Figure 52). Porcelain dolls are objects, which are supposed to be carefully cared for by children. However, in the event of breakage of arms, legs, and even heads, parts maybe replaced. Sears, Roebuck & Company and Montgomery Ward advertised in their catalogs many spare parts for dolls to replace damaged ones (Wilkie 2000103). The shell mound apiaries are situated in a rural area, where the labor of children was vital to the economic survival of families (Wilkie 2000). The potential contribution of children must be acknowledged at both Depot Creek and Clark Creek shell mound apiaries.

A wide variety of women's jewelry was made during the time from 1920s to 1950s. An exact date range and type of jewelry for the two black glass faceted beads is not available. The presence of ladies' items (jewelry, a T-strap shoe button, and cosmetic jar fragments) found in the archaeological record at Clark Creek shell mound apiary may imply that women took part in beekeeping and honey production activities at the shell mound. Indeed, we do have the story from two informants about the beekeeper Mrs. Nightingale.

Figure 52. Top, a porcelain doll leg recovered from the surface of Depot Creek shell mound apiary (8Gu56). Bottom, two black glass faceted beads dating from 1920s to 1950s, from Clark Creek shell mound apiary (8Gu60).



Contexts for Artifact Deposition

Artifacts recovered from Depot and Clark Creek shell mound apiaries indicate a usage of the mounds as apiaries starting in the late nineteenth- early twentieth centuries, and ending in the late 1940s (Table 21). The best date range of occupation is 1878-1943, and a median date of 1911. This date range is very consistent with the historic documents and oral history data. It was not until June 24, 1878, when the first homestead patents were granted west of the Apalachicola River (Vickrey 1998). Artifact manufacture initial and terminal date averages were used to determine the median date ranges of the apiaries at the shell mounds. However, one must keep in mind that these sites were rural and very remote. Therefore, time lag and reuse are considered major factors when arriving at a date range for the shell mound apiaries from recovered artifacts. Certain artifact types may have been favored for reuse over others. Durable artifacts, such as glass, ceramics, and nails may have remained in use for storing other materials long past their original purchase. Northwest Florida, for the most part, was still a frontier in the 1930s. Yet, the beekeepers of the Apalachicola River valley were buying merchandise that was part of popular culture in America. Rural families could purchase the items directly from a local merchant or have the items ordered specifically for them. The beekeepers, their families, and other workers were not bringing with them their most expensive possessions to the apiaries. The beekeepers were not spending a lengthy amount of time at the mounds; rather it was more like a camp situation, similar to hunting or fishing camp.

Second consideration of deposited artifacts may be from production of illegal alcohol. But no artifacts have a specific connection with moonshine, so we might need more oral history or other information to document this activity at the apiaries.

A third group of deposited artifacts, such as the beer can, may come from visitors to the mounds after the beekeepers (post 1940), for example hunters and looters. Depot Creek shell mound has several looters' holes present. Furthermore, the mounds would be an excellent place for hunters to rest and keep dry in the swamp. The shell mound apiaries may have been hunting camps before and after the honey season. But no Vienna sausage cans or recent oysters, which are best indicators of hunters from 1960s-1990s, were recovered from either shell mound.

Overall, surface-collected and excavated historic material can tell us more about the people, possibly families, who carried out beekeeping and tupelo honey production at Depot Creek and Clark Creek shell mounds. The artifacts played an important part in the lives of the people who worked and camped at the apiaries. Using artifact data combined with historical documents and oral history, we can to begin to understand the relationship between the swamp and beekeepers.

Table 20. Artifacts usable for dating apiaries at Depot Creek and Clark Creek shell mounds (8Gu56) and (8Gu60).

Artifact types	Median date	Date range	Source
Ironstone			
Virginia Rose (Homer Laughlin China Company)	1948	1926-1970	Kovel and Kovel 1986:178
Stoneware			
natural slip exterior and interior	1888	1875-1940	Greer 1981:264
Bristol glazed exterior, Albany slip interior	1908	1890-1925	Greer 1981:264
Bristol glazed exterior and interior	1915	1890-1940	Greer 1981:264
Whiteware			
undecorated	1900	1820-1980	South 1977:212
molded/embossed	1870	1840-1900	Lewis and Haskell 1981:203
Bottle/Container Glass			
solarized	1898	1880-1915	Colwill 1974:4;IMACS 1992:472
milk	1925	1890-1960	IMACS 1992:472
light green	1925	1860-1990+	IMACS 1992:471
amber	1925	1860-1990+	IMACS 1992:472
amber Clorox bottle with diamond trademark	1929.5	1929-1930	Sandelin 1998:1
cobalt	1925	1890-1960	IMACS 1992:472
clear	1932.5	1875-1990+	IMACS 1992:472
Nails			
early machine-cut	1822.5	1815-1830	Adams 2002:72, Nelson 1968
modern machine-cut	1860	1830-1890	Adams 2002:72, Nelson 1968
wire	1940	1890-1990+	Adams 2002:72, Nelson 1968
Beer Cans			
Budweiser flattop pull ring	1973.5	1964-1983	Maxwell 1993:96
Buttons			
Prosser	1885	1850-1920	IMACS 2001:475
shell	1887.5	1855-1920	Fontana and Greenleaf 1962:98; IMACS 2001:475
plastic-synthetic		post 1930	IMACS 2001:475
Best Date Range of Occupation	**1911**	**1878-1943**	

Chapter Ten: Summary, Conclusions, and Future Research

This study of beekeeping and tupelo honey production during the late nineteenth to early twentieth centuries in the lower Apalachicola River valley was initiated in order to document data on this important agricultural practice and industry. Scholars have traditionally neglected comprehensive research on historic industries and agriculture in northwest Florida, and especially in the swamps. Many may view these late apiaries as lacking antiquity, and beekeepers as ordinary agriculturalists trying to make a living off the land during the last century. However, exploration of beekeeping and honey production in the river valley has offered significant data on a once notable industry and way of life in northwest Florida. This way of life remains as only memories to a small number of locals of Gulf County, Florida. Though it was romanticized by the Hollywood movie, it is a shrinking industry. The Annual Tupelo Honey Festival is held at Wewahitchka in May, and it is here that few remaining Gulf County beekeepers come to sell their honey to the locals.

A great amount of information has been accumulated about beekeepers and tupelo honey producers of the lower Apalachicola River valley as a result of this study. This knowledge presents archaeologists with a glimpse of these pioneering beekeepers' lives. Settlement patterns of apiaries along the Lower Apalachicola and Chipola Rivers reflect how the natural features of the river system attracted the honey industry. Early

beekeepers interacted with existing landscape features (shell mounds) because they offered high ground in the low-lying swamp. Later beekeepers built platforms and honey houses along the two rivers so they could process the honey on site, and not have to go so deep in the forest. Having the platforms located on the riverbanks made it easy for loading honey onto steamboats and larger barges. Many northern beekeepers migrated to the river valley to take advantage of the tupelo honey flow. Due to the short season and migratory beekeepers, they did not build their homesteads in the swamps. Beekeepers camped at the apiaries during the honey flow. The apiaries were many miles from town and only accessible by boat. Settlement patterns and oral history information on beekeeping and tupelo honey production reveal a successful agricultural endeavor connected with the abundance of tupelo trees along the Lower Apalachicola and Chipola Rivers.

It is hypothesized that the apiaries were not occupied for lengthy period of time, due to the lack of structures and small amount of recovered artifacts. The abandoned beekeeping equipment at the shell mounds and at the Lower Chipola Apiary provides information on the technology and manufacturing behind tupelo honey production. Some bias in the record is present due to post-depositional processes, which include looting. Organic matter, metal fragments, and other vulnerable artifacts were subject to poor preservation in the swampy northwest Florida environment. The artifacts also represent consumer choices. Domestic refuse, such as ceramics and glass, were recovered from both shell mound apiaries. Artifacts such as the doll leg and harmonica suggest that the entire family worked together at the apiaries. The archaeological record

provides meaningful data on beekeeping and tupelo honey production in the late nineteenth to early twentieth centuries. Further research on migratory agricultural practices in Apalachicola River valley is needed in order for comparison to be made to other specialized industries and agriculture in Florida.

Archaeological Significance

Regionally, the apiary sites of the lower Apalachicola River Valley are significant because they are representative of distinctive early modern river swamp adaptation that can be compared to other industries, such as lumber, naval stores, and citrus, of the same time period in northwest Florida. Finally, these sites have national significance as they represent the exploitation of a lesser-known area of the United States. Florida's exceptional tupelo honey industry must be acknowledged as part of the economic growth of the state and the counties involved. Therefore, the people who contributed to this prized honey industry must be studied if history of agriculture from late nineteenth to early twentieth centuries is to be well understood.

Most important, overlapping site analysis with oral histories and historical documents does tell of a former way of life in the Apalachicola River Valley and offers significant data and patterns on a once notable industry and way of life in northwest Florida. The recognition of patterns can serve as a basis for comparisons to other contemporaneous historic activities or industries in Florida.

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APPENDICES

Appendix A: Excerpts Concerning the Honey Industry from an Interview with George Core, June 17, 2002.

(Transcript of full interview included as part of Archaeology and History of the St. Joseph Buffer Preserve, report in preparation by Nancy White, USF Anthropology Department)

White: Kelly is doing her research, especially on the material evidence of the apiaries. We went up to Depot Creek, that shell mound, the other day. There is a nice chimney in there that we took pictures of, and I know you mentioned that they had a still.

Core: Most of the bee apiaries way back, the ones I knew about, were blinds for whiskey making. Now they did sell a little bit, but there was only one I knew was real commercial, and that was Laniers. You had to have something sweet to make moonshine. Do you know about how you make it?

Hockersmith: No, I am not sure.

Core: Well you use a grain, some kind of grain, and that's the base of it. Then you have to ferment the grain after you put your water in it. Then your grain and water, and something to make it ferment. Sugar is the best and easiest to get, but back then you couldn't get any sugar, so they used honey and syrup. In our area, moonshine was the number one money crop, number two was the cattle and hogs, and number three was the timber.

White: Back then would be an era starting when, ending when?

Core: The era I'm talking about is from 1920 on up through WWII, and the early 1940s. During WWII, prohibition ended, then you could buy legal. The term here was not legal, it was store-bought. So, you could get store-bought whiskey. It was cheaper to buy store-bought whiskey than what the sugar cost at one time, so they slowed down the moonshine business.

Let me tell you about Anthony and Marks, and the reason I know more about them, than any other apiary, is because I worked with them one summer. They had five apiary stands, not equipment, but you know the stands up on stilts. Not at all of them, some of them had a little building at one end or the other or in the center somewhere to keep some little tubes, one thing or the other out of the rain. Then they had a houseboat that would sleep about fifteen. I lived on that houseboat that summer, and in the houseboat they had all the equipment they needed to take the raw honey, I mean the honey from the hives and the combs they were in, extracted it, and put it into barrels. Then they had enough room on there to store, I'd say maybe thirty barrels. Then all along, as you were getting close to filling up your storage space, they had a boat, a workboat that would come along. It could take about three barrels at a time, and they would pick up and take the barrels to

Apalachicola, where they had a warehouse. The warehouse was upstairs on the second floor of the "Grady Market"[old historic building in downtown Apalachicola]. Have you all been by the "Grady Market?" My daughter owns that. Upstairs at that time was vacant, and they used that to store the barrels. Then from the barrels they would put it into mostly cans, later they would put it into glass jugs. So on the barge we had a full time cook; that's all he did is cook. We had a drunken foreman; he stayed drunk all the time. You could see the bumps two or three places in his hand where beestings had poisoned him.

White: Maybe that's why he was drunk all the time.

Core: Yeah, I think it was. You know, people would not believe this unless they actually saw it. He had a moonshiner who delivered to him one gallon, in an old vinegar-like jug, every afternoon just about sundown. The bootlegger was in a small boat, and he was taking it [moonshine] to Apalachicola where it would be sold up there. He would pick up Mr. Anthony's empty jug and put a full one back, and never say a word to anybody. That was every day. Then we had two people out on the walkways that took the honey out of the hives. We had two people who had special-made wheelbarrows and they had a flat body with a little edge around it, just a little edge to keep the hive from sliding off. You could put only two of those, see the hives were in sections, and some of them went up five, six, way up. They had another man, and he had this steam knife, which was a special-made thing with a blade with steam running inside of it. There was an engine and it shook all the time.

Hockersmith: Was he cutting honey off the combs?

Core: Yeah, you take your comb, and just ease it down near the bottom. Honey would come off and get in a vat and slide over there in a tremendous big vat. Then he would take the frames of honey that he put across here and put it in the big barrel container. It had sections in it. It had a pin in the middle and had sections coming at him. You put frames in each section. My job was to turn the engine on and watch it. We had little numbers on the engine, but I don't remember what they were. I turned it to number two, and it would go slow for maybe, I forget the number of minutes, but we had it timed. I couldn't remember that for a long time so I had it written down and tacked up there so I would see it. You run the first one then you speed it up a little bit. When you get the last honey out, the reason you didn't do it fast is because you sling the whole thing out, you see, 'cause it was so heavy. I mean it was really whirling when you finish it. Now that honey went down in the second story, see we were up in the first story, they were down there. Down there it fell in a big tremendous vat, homemade wood vat, and it fell on a frame with, I call it hardware wire, you know the little wire. I am not sure if that's what it was, but it looked like that. Then they had rows of cotton, big rows of it that just fit the frame. So, they roll out that fresh cotton and put it there. The honey would come down

on that screen. The screen and cotton would catch all the little fragments of wax, old dead bees, whatever's there.

White: Dirt?

Core: Yeah, and when it came through there it was just as pretty as water. You could just eat it. From there we had a man that rolled and kept the barrels in the right place. We could usually finish one of those apiaries by 3:30 or 4:00 in the afternoon, and then we would tow the houseboat to the next one.

White: They were always on the water?

Core: Yeah, and most of the others had a house at each apiary. Mr. Anthony alone, a different Anthony, Mr. Joe Anthony, had an apiary on the Apalachicola River. I know where all these are, and I can give you the names if you need them. On the Apalachicola River, after I quit working for the other Anthony, he gave me a key, well he didn't give me a key, but he told me where he had a key hidden, in fact he had several hidden. He had one of these big tremendous platforms, one of the largest we had. Right in the center off the platform was a big house, a big building, and that's where they slept and had a warehouse with all kinds of equipment. Then they had two other houses on each end, and that was for equipment. I didn't know what was in one of those houses; I could only go into the big house.

White: Now did he own the land also?

Core: No.

White: Then who owned the land?

Core: I think at that time the Texas Company owned it.

White: So did he have to pay a rental fee or something?

Core: I suspect he did.

White: Well there are two prehistoric shell mounds that we know of that have the apiaries on them at Depot Creek and Clark Creek.

Core: Yeah, now Clark, there is a story on that one it might be too long for you. Clark's Creek is where Mr. Beneki, I am not sure how to spell it right B-E-N-E-K-I is what I have seen a number of times, and I don't know why I can't spell it. Mr. Beneki had the Clark's Creek apiary, Mrs. Nightingale had the Depot Creek apiary, and they were one of

the first, I don't know what you call it today when a boy and girl live together not married, what do you call that? They had a home in Apalachicola, and the title was in Mrs. Nightingale's name, but they stayed most of the time at Mrs. Nightingale's home on Depot Creek. Now both of those places catered to moonshiners. They were both Germans. Mr. Beneki was a little bald-headed fellow, and he was not outgoing at all. But, Mrs. Nightingale, the church anything, now I don't know if she went to church or not, but the church was always wanting somebody to make cakes and pie, sitting people at funerals, and she was always doing that kind of thing. They lived up there and they were in cahoots some how; I don't know what it was. I have some records, and I have written a little Rotary program on a murder that took place at Mrs. Nightingale's bee apiary. I won't go into that, but it was almost like a movie.

It was real fun thing for me to get these old records from the courthouse. I found them in the coroner's jury records. I found the cases, according to the witness that came before the jury, he said he found a man very sick and about to die at Mrs. Nightingale's bee apiary. He didn't say why the man was hurt. It came out that the Nightingale and Beneki operation of whiskey was supposed to have been distributed in Apalachicola by a man named Humphrey. Humphrey was kingpin, no he was a Lieutenant, and he was the one who kept everybody in the same organization. So, the banker, they had bankers in moonshine, they put you in business. They'll furnish everything, they see you get your sugar, whatever you need, but you have to sell your whiskey through them, and then they distributed to their outlets. Now, St. Joe had an outlet and St. Joe had something happen to their stills. They paid, the ones that operated the stills for Mrs. Nightingale and Beneki, a little more per gallon than Mr. Humphrey's bunch was paying. Well you can't do that, can't. It's like Al Capone, so that's what happened in there.

White: Do you know what year the murder was?

Core: I have all the records in there.

White: But, it would have been probably in the early thirties, or something like that?

Core: It was in the thirties, yes. That's happened in several cases around the area. Another one in Wewa [Wewahitchka] I found.

White: So that was Mrs. Nightingale's chimney that we photographed on that Depot Creek shell mound?

Core: Oh the Depot Creek one, yeah that was Nightingale's.

Hockersmith and White: They actually had a house?

Core: Oh yeah, they had a nice place.

White: Before prohibition was there still a tupelo honey industry going on? There must have been.

Core: Yes.

White: But, just it maybe took off more [afterwards].

Core: It really took off more. They didn't have as many people in the apiary business back then. Now, I have five for Anthony and Marks, Nightingale, and Beneki. Now Humphrey, there's a big story on him, and I know first hand about some of his work. He's the one who had the man killed, his men did. Humphrey was the Lieutenant for the Apalachicola Inn. He had his operations on Ingram Island, a beautiful place. He had a big warehouse, a home, and several little outbuildings, a nice little compound.

Hockersmith: We found some old Corps of Engineer maps from 1943 that had several apiaries marked off, and one of them was Anthony.

White: You have a lot of them listed.

Core: Lets see, the Hensler. H-E-N-S-L-E-R. He made the best whiskey; this is according to everybody that drank whiskey back then, including my daddy. He had the best, they called it honey rum, he made it all from honey, didn't use sugar.

White: The whiskey that they made was all for local consumption in these two counties?

Core: He had one outlet in Apalachicola, and that was Harley's Drug Store. It was not a drug store it was a whiskey things, this was before prohibition. I had been in there so many times with my daddy. Out front when you go in it look just like a drug store. Had the prettiest mirror.

White: Did it go beyond say, Franklin County? Any of the whiskey?

Core: No, he sold all of his whiskey right there.

White: So the market locally was good enough to make money doing that, and the other ways people made money were the usual cattle and some cotton?

Core: In Apalachicola they were doing seafood pretty good. Not much farming, hardly any farming.

White: You have a whole list of apiaries?

Core: Well yeah. Anthony and Marks they had one on the St. Marks River, Saul's Creek, Apalachicola River across from Hidden Johnson. Then they had one on Bellman Creek and one on the Brothers River. So they had five there, then the two from Nightingale and Beneki, Humphrey had the two. Humphrey's main honey place was at Hoffman Creek. Then Mr. Hensler's at Howard Creek. There was one way up named Acords, and that was up around the brickyard. Then the Laniers in Wewa. There were two Lanier brothers and they both had apiaries. Joe Whitfield had one; he may have had two apiaries. Now he was the banker of the Wewahitchka operation, and they made their moonshine anywhere out in the woods. Another German, Nesbit had an apiary up around the brickyard. Those Lanier boys can tell you more about the operations up there then I know about.

White: They're still going strong.

Core: Oh yes. As far as I knew they were never in the whiskey business. I think they made some of the better honey. They were pros at it.