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Analysis of the Fly Creek Kiln Site (1BA226) Ceramic Assemblage

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Senior Thesis
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University of South Alabama
Spring 2006

Approved by the Committee of




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Date 1 May 06



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Date 1 May 06



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Date 1 May 06

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Introduction

This thesis is an investigation of the ceramic assemblage recovered from the Fly Creek Kiln site (1BA226) in Fairhope, Alabama. This large assemblage was recovered from limited excavations in a waster pile and provides insight into the range of vessel forms manufactured at the site, as well as the technological process of salt-glaze ceramic manufacture in the nineteenth century along the Eastern Shore of Mobile Bay. In order to place the site in context, the history of designs and firing methods used by nineteenth-century potters in the southeastern United States are reviewed. The Fly Creek Kiln site is compared with nearby potteries of the same time period, such as the LaCoste-McAdam Kiln site (1BA276) and the Beasley Kiln sites (1BA412 and 1BA413), both located in Montrose, Alabama. In addition, a comparison is made with the Weaver Pottery site at Knoxville, Tennessee (40KN63) to reveal similarities and differences in methods of creation, design, and materials used.

Overview

Historic research shows that Baldwin County was home to a number of potters during the nineteenth-century (Figure 1).

“The presence of kiln fired earthenware and stoneware in Alabama is documented from the

earliest historical period. Ethnic and regional variety is a characteristic of any port area

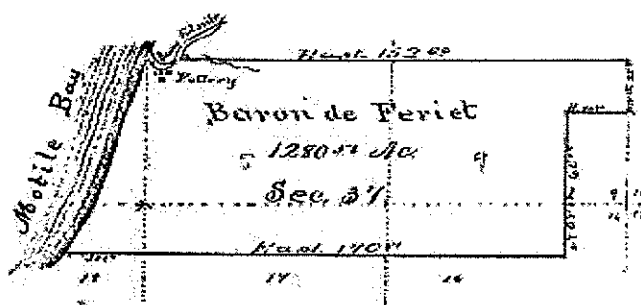


Figure 1. An 1845 plat showing a pottery located at Bayou Volante, which is now known as Fly Creek (Baldwin County Courthouse, Bay Minette, AL; Gums 2001:15).

and this is clearly evidenced in the nineteenth-century stoneware from the Mobile Bay area” (Willett and Brackner 1983:27). Potters chose locations along the Eastern Shore to build their kilns due to the soil content of the area and prevailing winds. Often they extracted clay directly from the bluffs overlooking Mobile Bay. Along this stretch of the bay, several bluffs could be found, such as *Ecor Rouge*, also called Red Bluff and Sea Cliff. Red Bluff and its environs have a great deal of potter’s clay that was first mined by Native Americans and later by European and American potters (Gums 2001:3).

In 1973 the Fly Creek Kiln site (Figure 2) was identified by Dan Jenkins, who discovered historic ceramic sherds the surface of property owned by the Fly Creek Yacht Club (Gums 2001:15). The area was given the site number 1BA226, but no excavations were

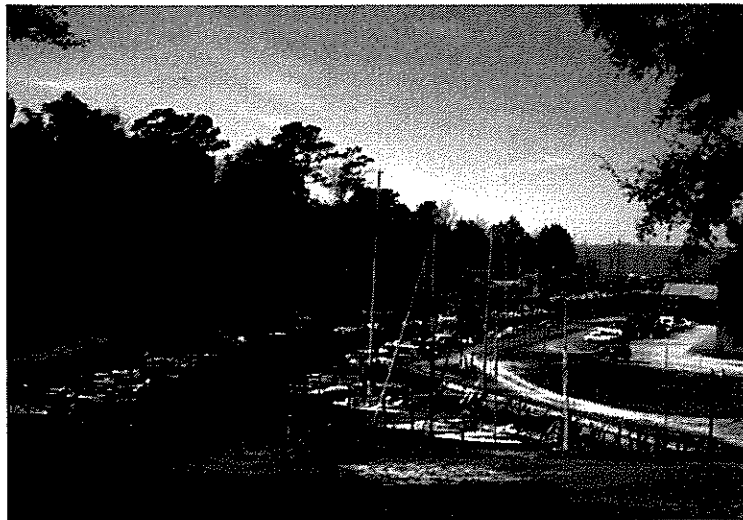


Figure 2. Photograph of the present day Fly Creek Yacht Club, which sits atop a major portion of the original Fly Creek kiln site (photograph by Bonnie Gums).

performed until 2002. While the construction of houses, roads, and the Fly Creek Yacht Club has destroyed much of the original kiln site, a great deal can still be learned about the potters and products of this kiln by examining the waster pile.

It is believed that the Fly Creek Kiln site pottery was first operated by a French-born potter named Augustin Mareschal, who later Americanized his name to Marshall. The Mareschal family was one of the three Franco-American families that first

introduced stoneware to the Eastern Shore of Mobile Bay in the 1840s. The running of a pottery kiln was often a family business and skills were passed from generation to generation. Families with their roots in European ceramic traditions would often create pottery that still retained traces their of family's heritage. Some of the vessel shapes seen in the assemblage, such as the large lead glazed, Biot-style, storage jars, have French origins. Census data shows that by 1840 Mareschal was already living on the Eastern Shore and was probably already involved in pottery production. A census taken in 1850 indicates that Mareschal was living with his wife Catrine and their son Sawyer, along with two other men, William Campbell and James Bull, who may have assisted in the pottery making. Another son, John Marshall listed his occupation as "Jug Maker" in a census taken in 1860. Later a grandson, Sylvester Marshall, also joined the family business. Augustin Mareschal eventually abandoned the Fly Creek Kiln pottery site and moved to another location now known as Lot 6. The family remained there producing pottery until the time that land was sold to James Beasley in the late 1880s (Gums 2001:25).

It is possible that by the 1850s Mareschal had already moved his operation from Fly Creek to Lot 6 in Montrose, Alabama, abandoning Fly Creek (Gums 2001:15). No evidence has been found to indicate why Mareschal wanted to relocate his operation. It is possible that the site was still use after the development of Lot 6 either by Mareschal or an unknown potter.

The 2002 archaeological excavation of the Fly Creek Kiln site was limited to a two-day weekend dig by the University of South Alabama Center for Archaeological Studies



Figure 3. Volunteers open a unit along Volante Street at the Fly Creek Yacht Club in the fall of 2002 (photograph by Bonnie Gums).

(Figure 3). A surface collection identified a heavy concentration of waster sherds in the area along Volanta Street. After gridding the site and shovel testing, the distribution of artifacts was mapped and excavation units were placed in areas of highest artifact density. One unit, 19E 95N, was placed directly in a large waster pile.

Waster piles acted as a special type of garbage dump for potters, where unwanted wares and unusable kiln furniture were discarded. Broken or improperly fired items would also be tossed onto the waster pile. This makes a waster site very important to archaeologists because they can get an understanding of the scope of the different designs of pottery and kiln furniture that the potter used over a period of time. The ceramic vessels represented by wasters (ie: sherds from vessels broken during manufacture) from the Fly Creek Kiln site are of simple styles typical of nineteenth-century utilitarian potters.

As the excavation progressed, thousands of pottery sherds and pieces of kiln furniture began to appear out of the soil. Dozens of five-gallon buckets were filled to the

brim and brought back to the lab for processing and analysis. Since the excavation of the Fly Creek Kiln site was limited, the size of the waster pile is unknown. Sherds are located over hundreds of meters, stretching out towards the water's edge. It is not possible to say that the sample analyzed in the lab is representative of the entire site since so much of the site was not excavated. However, the assemblage provides a glimpse into the early days of pottery production at the Fly Creek Kiln site.

Stoneware Manufacture and Technology

Creating a viable piece of stoneware during the nineteenth century was a very complex operation. The first step was to acquire the raw materials essential in the production of stoneware. A nineteenth century potter would generally live within six miles of a clay source, due to the restrictions involved in transporting the large amounts of clay needed for pottery production (Sinopoli 1991:15). Since transportation in the nineteenth century relied mainly on horse or mule drawn wagons with limited carrying capacities, it would have been uneconomical for potters to import the large amounts of clay required for the manufacture of stoneware. For this reason, the bluffs along Mobile Bay became a hub for potters. A potter would dig below the topsoil to the more elastic clay beneath. After the clay was dug out of the ground, it had to be prepared before it could be used in pottery production. When clay was removed from the pit, it would often be left in the shop yard to break down until the potter was ready to work with it.

The next step was to soften the clay in water and grind it in a beam mill pulled by a mule or oxen (Sweezy 1984:22). William Miller, a potter trained in the nineteenth century described the grinding process: "We just build about [gesturing] that far across,

about that deep, and... have a post go down and put wooden knives in that post and then they'd cut the clay up, [we'd] have a mule run way out yonder you know and make it easier to pull around ... You know just like a molasses mill... it would take three or four hours behind a mule; ... it would go slow." Often times children would be given the tedious task of tending to the mule while it ground the clay. Nell Brasher, the daughter of a nineteenth century potter remembers, "Grinding clay was another one of the banes of our lives. There was nothing to it except to sit by the mill and make the mule go around and around, but for some reason this generated an unbearable tedium" (Brackner 2006:53).

After the clay is milled, it is formed into large blocks and taken into the shop. In the early days of pottery production, a moist cloth would be placed over it to keep the clay from drying out (Brackner 2006:55). All visible foreign objects are then picked out of the clay, including roots, sticks, and rocks. Since utilitarian potters were working with clay that had been mined out of the ground, there were numerous impurities that had to be removed before the clay could be used. If these impurities were not removed they would cause problems in the finished vessel such as holes and misshapen bodies. In addition, while the vessel was being turned on the potter's wheel, foreign objects could potentially cut the potter's hands as they worked. After being ground the clay was removed from the mill and taken out in weighed chunks to be wedged. Wedging involved the repeated throwing of a lump of clay across a taut wire, such as a banjo string, hung at about a 45-degree angle in order to slice the clay in half. The wedging board was usually slanted downward away from the potter, a few inches from the shop's wall. This allowed for easier kneading, and anything that was picked out of the clay could easily be disposed

of on the ground (Sweezy 1984:35). This process would be repeated over and over again a dozen or so times. It served to separate any remaining impurities as well as to remove air bubbles that may be in the clay. Air bubbles in the clay would lead to holes in the finished vessel making it important that the clay be well compacted. The prepared clay could then be stored in blocks or balls until the time that the potter was ready to turn it.

“*Turning* is the traditional southern term for forming pottery by hand on a potter’s wheel” (Brackner 2006:56). Southern potters during the nineteenth century used a form of the potters’ wheel called the treadle wheel. This was a simple piece of machinery that used a crankshaft to convert the motion of the potter’s foot pushing a treadle bar out and back, into rotary motion and a flywheel to store this energy and deliver it smoothly to the wheel head, which holds the clay. This wheel is made up of a wooden frame with a box surrounding the head. The crankshaft is vertically mounted in this frame by two or more bearings and fitted with a flywheel at the bottom. Originally, many treadle wheel shafts were pointed and rotated in a hole cut out in a piece of rock such as flint. The crib would catch debris such as water and clay slip that was slung off by the centrifugal force of the wheel turning. It also gave the potter a place to keep tools, water bucket or extra clay at hand as they worked with clay on the wheel (Sweezy 1984:50). Eric Miller recalled, “They would work all day long on a kick wheel, and you continuously had to pump it, pump it, and keep the wheel turning so that they was kicking with one leg all day long while they were turning” (Brackner 2006:57). Traditionally southern potters used standing kick wheels as opposed to the sitting varieties. Standing placed the potter’s body at a better slant to use the whole upper torso above the wheel head, making it easier

to reach into large pots or to scoop smaller pots off of the spinning wheel (Sweezy 1984:30).

There are several steps involved in creating a wheel thrown or turned vessel. First a ball of clay is placed on the throwing platform, also called the head of the potter's wheel. Pressure is exerted on this ball of clay with both hands in order to center it on the wheel. Since the clay must be kept moist throughout the throwing process, a potter often keeps a bucket of water sitting on the edge of the crib of the wheel in order to moisten their hands they work, keeping the clay moving freely through their hands. Next, the clay ball is opened up, by forcing the thumbs into the center as the wheel rotates. Placing one hand inside the vessel and one outside and exerting even pressure in an upward direction then lifts the walls of the vessel. This acts to slowly thin and raise the walls of the vessel. Shaping is achieved by applying pressure to the interior or exterior of the vessel (Sinopoli 1991:22).

In addition there are tools that are commonly used by a potter to create the rims and mouths of vessels. These tools will often leave scars near the top or shoulder of the vessel where the edge of the tool rested during the vessels rotation on the wheel. These tools greatly reduce the amount of time needed to complete a jug, jar or other piece of stoneware. As the vessel rotates on the wheel, the potter can simply hold a precut tool to the soft clay. The clay will be cut and molded into the form such as a jug mouth or flowerpot rim. Scars from this type of throwing can be seen on several pieces of pottery recovered from the Fly Creek Kiln site.

Once the desired shape is achieved any excess clay at the top of the vessel will be trimmed off using a taut wire. Before the piece is lifted from the wheel, the potter will

bevel the base. It is at this stage in the turning process that the potter will add any inscribed decoration, using a tool such as a coggle wheel or a fork to decorate the vessel as the wheel is gently turned. Often at this point a nineteenth-century potter would add cobalt lines around the vessel body using a small brush (Brackner 2006:58).

Next the vessel must be carefully removed from the wheel. This was traditionally achieved by running a wire, held tautly between the thumbs, beneath the vessel to cut it loose from the potter's wheel (Rhodes 1959:167). The vessel would then be carefully lifted from the wheel. Many early potters employed lifters to aid in removing the soft clay bodies from the wheel head. Lifters come in a variety of sizes to accommodate the different base diameters of the vessels being produced and were placed beneath the base of the vessel to aid in lifting. Next the vessel is dried. Sometimes a potter will use a "bat board" to transport the vessel to the drying shelf to prevent damaging the newly thrown ware. The pottery is allowed to dry to a leathery texture. At this point it can be finished, any rough areas on the edges of rims can be trimmed away using a knife. Handles are then added and capacity stamps can be applied, if desired. Handle attachment is one of the most delicate steps in stoneware production. Softer clay is used to create a handle so that it will adhere to the clay body off the vessel (Brackner 2006:58). After the vessel form was complete, it was set out to finish drying. For nineteenth century potters, it could take several days before a vessel was sufficiently dry to be placed in a kiln. Any moisture still held inside the vessel would expand during firing and potentially cause the vessel to explode in the kiln.

Any slips on the vessel are added prior to its being placed in the kiln. A slip is simply a mixture of clay and water thinned to a creamy consistency (Greer 1981:197).

The next step in the pottery making process is the most tedious for the potter. It involves actually firing the vessel in the kiln. Most nineteenth-century Alabama potters used the rectangular, tunnel like groundhog kiln (Brackner 2006:62). A potter would build a kiln so that the air currents would be able to carry the heated air through the ware bed. A “small but profound innovation that mitigates problems of weather and climate involves utilizing a firing location that maximizes environmental factors like wind to help ensure a successful firing” (Arnold 1985:218). The air current between the firebox and the chimney would create a draft in the kiln. It can be inferred that the kiln from the Fly Creek kiln site was designed in this way. The air current rising from the bluffs would have passed smoothly through this design. In addition, the remains from various kilns that have been identified on the Eastern Shore of Mobile Bay have been of the two-chambered variety.

Most early kilns had three basic structures (Figure 4). There was a firebox, closed off from the rest of the kiln, so as not to char any of the vessels during the firing process.

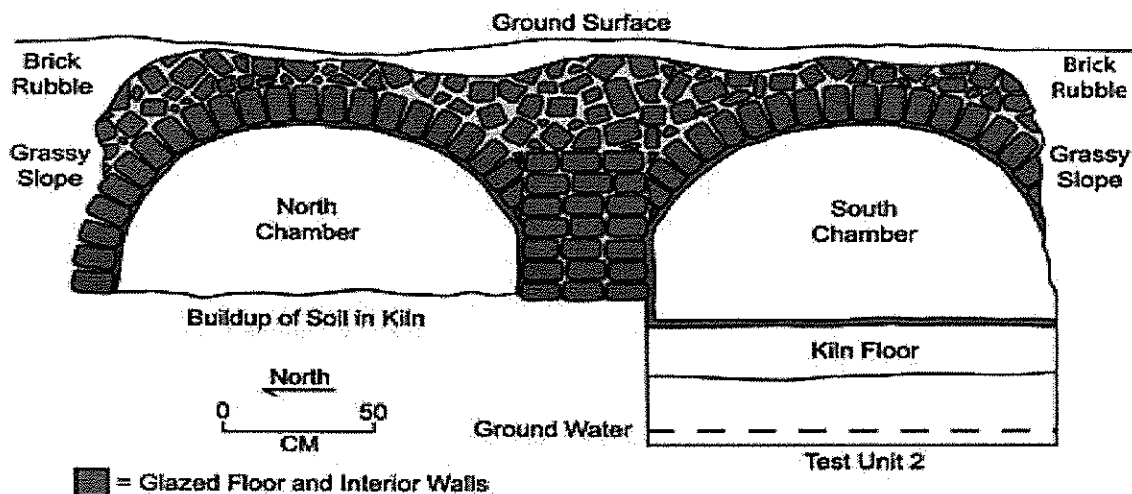


Figure 4. A typical nineteenth century rectangular two-chambered kiln (image created by Sarah Mattics).

Also, there was the ware bed, where the unfired pots were placed during firing. There might be a chimney for air to exit the kiln during firing.

Kiln furniture is used to aid in stacking the wares in the kiln. Vessels are stacked atop one another to maximize the amount of pottery that can be fired at one time. Once the kiln is loaded it is time to fire the vessels. Nineteenth-century utilitarian potters used wood burring kilns to heat their wares. It is during this “burning” process that glazing occurs. Glazes play an important role in the production of an efficient stoneware vessel. They form a glass-like watertight seal on the vessel. Nearly all of the glazed pottery recovered from the Fly Creek Kiln site is of the salt glazed variety. To create salt-glazed ware, unglazed pots would be placed into the kiln and heated until the stoneware vitrified, at 1225 to 1260 degrees Celsius, at which point salt is introduced into the kiln and vaporizes instantly (Sweezy 1994:52). Early potters did not have the technological advantages available to potters today. There were no automatic kiln temperature controls, so a potter had to load the kiln and heat it starting slowly and gradually increasing the temperature. A fire too large or intense would cause vessels to heat to the breaking point. If a pot exploded in the kiln, flying debris would often destroy other vessels near it. Even if a vessel assaulted by projectile pot sherds did not break, pieces of the errant vessel would often adhere to it. High temperatures would also have a marked effect on the glazes.

As the salt vaporizes it adheres to the vessels. In a good firing, a vessel will be evenly coated by an “orange peel” textured glaze. The salt creates a clear glass like glaze, so that the color of the clay body represents the color of the finished vessel. The silica content of the clay is also important in creating a salt-glazed vessel because silica adheres

to the salt and holds the glaze to the vessel. If the potter has previously slipped a vessel in brown-clay slip, and then places it in a salt glazing it will produce a greenish frog skin textured glaze (Brackner 2006:47).

One of the problems with the salt glazing process is that the interiors of the vessels do not get coated with the glaze (Rhodes 1957:185). Stacking the pots one upon the other in the kiln or, in the case of jugs from the very small opening left in the pot, causes the interior of the vessel to receive little or no glazing. The salt vapor is unable to reach these partially blocked areas, so little if any glaze is formed. But if the pot completely vitrifies, the pot is sealed well enough for sale (Greer 1981:192).

Salt glazing was well established on the Eastern Shore of Mobile Bay by the 1840s. It was most likely introduced there by three families: the Mareschals, the LaCostes, and the Lefeveres (Brackner 2006:48). Salt glazing was popular because of the ease in which Eastern Shore potters could attain the material needed. Kenneth Miller remembers salt firing at his fathers kiln, "You get these people that salted down meat in the fall and had there salt left over after they got there meat out of the salt, and they'd just give it to us and that would glaze that stuff" (Brackner 2006:49). Because of Baldwin County's proximity to the Gulf of Mexico, salt is plentiful and inexpensive in the region, making it unsurprising that salt-glazed pottery became prevalent during the nineteenth century. Salt glazing "was a simple and inexpensive means of rendering clay products waterproof and achieving a glassy surface" (Schwartz 1994:13).

Lead-glaze is another type found on a small number of wasters from the Fly Creek Kiln site. Lead glazing can be identified by the color, often appearing cream, yellow, or green as the lead mixed with copper found in the clay. Lead-glazed sherds

appear smoother on the outside and more glass-like than the “orange peel” looking salt glazed sherds.

The most popular brown clay slips, known as Albany slips, are said to have originated in Albany, New York during the 1870s, when a potter named Paul Cushman discovered a type of clay with the ability to melt over the surface of a stoneware pot like a glaze (Greer 1981:194). However, a type of brown clay slip was being used in the interior of vessels glazed on the Gulf Coast years before Cushman made Albany slip famous. Many potters began to try and copy Cushman’s slip form and soon stoneware with “Albany slip” was showing up all around the country. Albany slip gets its normal deep brown color from the amounts of iron that are in the glaze, as the pot is fired.

Colors of Albany slips ranging from yellow to brown to green were identified on some of the sherds recovered from the Fly Creek Kiln site assemblage. To achieve an Albany slipped surface the pottery would simply be dipped into a special suspension clay and water. Potters had previously discovered that certain clays melted at a lower temperature than most stoneware and could be used to create a glassy, watertight finish on vessels (Rhodes 1957:186).

The quality of clay plays an important part in the glazing. In stoneware, whatever impurities exist in the clay that forms the body is likely to have a strong influence on the glaze. Any additional material that is added to give textural interest, such as spots and flakes, will also produce spots in the glaze (Rhodes 1959:55). Since the potters were working with natural clays that they quite literally dug out of the ground themselves, the clays often had many impurities. Iron deposits in the clay will create black spots on the glaze of the vessel as the iron melts during the firing process. If the clay has too much

lime, areas of the vessel can actually pop off when fired. Heated lime expands and can break away from the rest of the vessel leaving a small divot in the finished product (Greer 1981:227). Other problems caused by high firing temperatures include “slumping,” when the walls of the vessel weaken and the pot melts in on itself, collapsing where the pot supported the most weight. In addition, excessive heat could cause the glaze to bubble up into lumps on the vessel. This “bloating” happens when gases produced within the vessel during firing cannot escape through the vessel’s airtight glaze. If the gases do escape, another problem known as “pin holing” occurs, where tiny holes are formed in the glaze as the air escapes.

After the firing had been completed the vessel was ready to be cooled and removed from the kiln. It could at this time be sold. Pottery-makers along the Eastern Shore of Mobile Bay would often ship their merchandise to distant cities for sale. Flatboats, schooners and steamers would carry pottery across Mobile Bay to more distant markets such as New Orleans (Gums 2001:5). Because of their weight, bulky size and breakable nature, transportation of large numbers of stoneware vessels over large distances is not very common. “Typically the distance is far less than the 150 mile range, though there are archaeologically documented cases for much greater movement as well” (Sinopoli 1991:104). Because early potters had to transport their wares across land on horse or mule drawn wagons there was a greater chance that the vessels would get damaged during the transportation period. However, since the Fly Creek Kiln site was located near one of the largest port cities on the Gulf Coast, Mobile, Alabama, pottery from that kiln could be shipped out via the port to more distant cities.

Other Kiln Sites

Previous historical archaeological research has been conducted on other kiln sites on the Eastern Shore. Even though much of the Fly Creek Kiln site has been destroyed, by taking the knowledge gained from studying similar potteries in the area, we can develop an idea as to the basic design of the kiln. Based on comparisons with other kilns, it is suspected that the kiln at the Fly Creek Kiln site was rectangular in shape.

One of these sites is the Beasley Kiln in Montrose, Alabama (Figure 5). Not much is known about James Beasley and his family. In 1862 he purchased 160 acres of land and by 1880 had set up a small pottery with one employee and \$300 worth of equipment. He later purchased land from E.L. and Julia Mareschal for \$150 in 1882; This area, also known as Lot 6, was previously home to Augustin Mareschal and his family and was where Mareschal built his second kiln after leaving the Fly Creek site (Gums 2001:30).

Fieldwork was performed at the Beasley site on Halloween weekend, 1998, following hurricane George. The volunteer excavation uncovered parts of a waster pile, as well as a portion of the two-chambered kiln used by Beasley (Gums 2001:31).

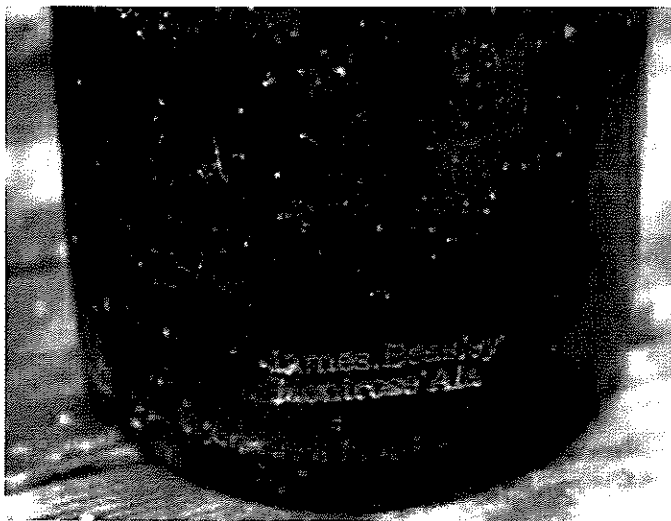


Figure 5. The base of a vessel created at the Beasley pottery (photograph by Bonnie Gums).

About half of the vessels

recovered from the Beasley site have Albany slipped exteriors and interiors, with a

predominance of one-gallon jugs and a few examples of larger capacity jugs and churns and one small jar (Gums 2001:32). Many of the jugs found at the Beasley Kiln site were stamped with the potter's name. The jugs recovered from the Beasley site exhibited a more straight walled vessel form than those recovered from the Fly Creek Kiln site. In addition, the prevalence of Albany slip and the lack of jars and pans suggest that the Beasley pottery is from a slightly later time period than the Fly Creek Kiln site.

Another site that can be compared to the Fly Creek Kiln site is the LaCoste-McAdam Kiln site. This site is interesting because of the amount of time it served as an active kiln, producing stoneware as well as other ceramics. The LaCoste family first owned the site and Francis LaCoste, born in France in 1816, was well known as one of the most prolific potters on the Eastern Shore. His pottery was active from about 1850 to the 1870s. During this time, he employed two men and one woman. After the death of Francis LaCoste, his land was divided between his children. By 1877, James McAdam was residing on the site of the "Coste Pottery." Brothers, John and Peter McAdam operated the LaCoste pottery in the 1880s and 1890s. Over the years several kilns had to be rebuilt and moved due to the wear caused by pottery production (Gums 2001:21).

The excavation of the LaCoste-McAdam site progressed much like that of the Fly Creek site, with the bulk of the field work conducted during a weekend salvage excavation in 1995, prior to the site's destruction by house construction. The waster sherds showed that there was a prevalence of jugs, churns, and crocks with a few bowls, preserve jars, and one pitcher, with approximately 60% of the vessels having Albany-slipped exteriors (Gums 2001:22). The shapes and designs of the vessels recovered from the LaCoste-McAdam Kiln site are much more varied than those recovered from the Fly

Creek Kiln site. One of the McAdam sons, Peter McAdam became known for making art pottery and whimsical ceramics, such as a *faux* wood picture frames. A glazed face jug inscribed “McAdam Montrose pottery” is in the collection of the Oakleigh House Museum of Mobile (Gums 2001:18). The LaCoste-McAdam Kiln site was in use well beyond the time of the Fly Creek Kiln site, as is evidenced by the more varied forms of ceramic designs that the potters produced, and the abundance of brown clay slipped exteriors.

Another more distant pottery site to compare to Fly Creek Kiln site is that of the Weaver Pottery in Knoxville, Tennessee. The site is a late nineteenth-century industrial stoneware pottery. Two brothers, David and William Weaver, originally owned the pottery. Many of the sherds recovered from the site bear the stamp “Weaver and Bro.” (Faulkner 1981). However in 1882, William sold his half of the business to his brother for \$1400. After this time, the name stamp seems to have disappeared from the pottery produced at the site. The Weaver pottery, much like the Fly Creek Kiln site, specialized in salt-glazed stoneware. However, it was a much larger pottery producer, as is evidenced by the presence of several large circular kilns. Vessels recovered from the site include bowls, crocks, milk pots, jars, and churns. It also seems that later in the life of the business the merchandise had to change from traditional pottery to sewer pipes in order for the potters to stay in business. Shortly after this shift to sewer pipes, David Weaver closed his kiln between 1887 and 1888 (Faulkner 1981:41).

Most of the utilitarian vessels along the Eastern Shore of Mobile Bay in the nineteenth and early twentieth centuries were being created in order to store and cook foods. Regionally, there were some exceptions to this rule, such as potter George Ohr.

Ohr grew up in Biloxi Mississippi in the late 1800s, and made some of the most astonishing and artistic salt glazed pottery ever produced. Unlike many of his peers, Ohr strove to break out of the regional perspective (Hecht 1994:3). When the pottery from the Fly Creek Kiln site is compared to more aesthetically pleasing art pieces, such as those created by George Ohr, it can be seen that the Fly Creek pottery was not created to dazzle the mind, but rather to be used by people for practical means.

Methods and Analysis

The diverse assemblage recovered from the waster pile at the Fly Creek Kiln site can provide insight into pottery manufacture. Further, researchers can determine social conditions by looking at the types of wares that a potter was producing. In studying such ceramic assemblages, composition, style, firing and glazing techniques are examined in order to determine the types of pottery produced. Examining the pieces of kiln furniture found with the sherds helps illustrate the types of technology the potters were employing. Any obvious pieces of kiln furniture were sorted and cataloged. Analysis of kiln furniture included examining the stilts and shelves. Kiln furniture was then compared to other sites with known kiln types. Archaeological evidence as well as the memories of older residents tells us that rectangular and downdraft beehive kilns were seen on the Eastern Shore (Gums 2001:10). Rectangular kilns were found during earlier time periods and were used by small potteries, while downdraft style kilns were found at larger potteries in Daphne.

There are several ways to estimate the date of production for a piece of stoneware. To try and approximate the time-span that the Fly Creek kiln was in use for pottery

production, the sherds from one provenience (FS 18) from the waster pile were analyzed (Figure 6). While the types of pottery created during the nineteenth century was quite diverse, there are some guidelines that may be referenced to determine an average production date for a vessel. Both body shape and glaze preferences changed over time.

During the early nineteenth century, more ovoid shaped vessels were the norm (Brackner 2006:14). These vessels seem to bloat from their interior. Of the vessels identified and cataloged from the Fly Creek Kiln site, a minimum of seven had definite ovoid vessel bodies (see jug displayed in Figure 1). However in addition to the ovoid vessels there were also five straight walled vessels

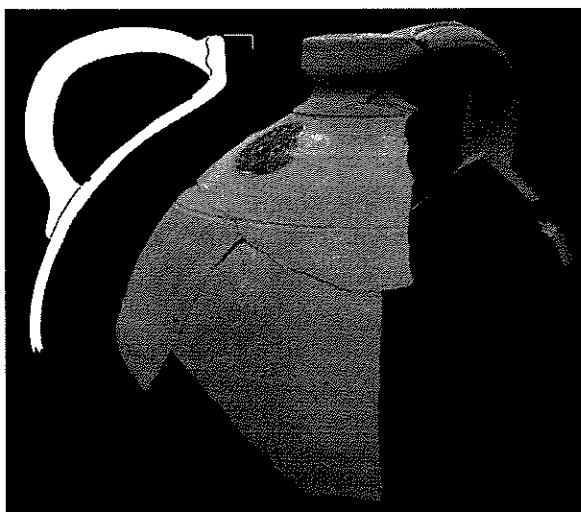


Figure 6. Partial ovoid jug with a strap handle and blue stamp design reconstructed from sherds from the Fly Creek Kiln site (photograph by Sarah Mattics).

identified. There were also five uniquely shaped vessels, shallow pans, possibly used for storing milk. These vessels averaged 12.5 cm tall and had an interior orifice diameter of 24-28 cm, making them much more shallow vessels than those commonly seen in early American pottery. More common vessels from the Fly Creek Kiln site include jugs and small jars, which displayed a distinct ovoid shape, common in the early 1800s.

In addition, the thickness of the vessel can be used as an indicator of age in some circumstance. During the time when a wagon was used to transport stoneware to and from the market, thinner walled vessels were preferred in order to reduce the amount of weight being pulled by the animal. The sherds recovered from the Fly Creek Kiln site

display a thickness of less than half a centimeter (the large Biot style storage jars being an exception). One of the best indicators of the site's age is the types of glazing identified. The absence of lime and ash-based slip glazes, along with the presence of a small amount of brown-clay glazing in the interior of some vessels, suggest the pottery was probably active until the mid-1800s (Brackner 2006:49).

Artifacts from the Fly Creek Kiln site were examined in the Center for Archaeological Studies lab during the spring 2005 semester under the direction of Bonnie Gums, staff archaeologist. The first step was to determine whether an artifact was the remnant of a vessel, a piece of kiln furniture, or something else. Next, each artifact type was examined in more detail, as was appropriate to that type.

The ceramic wasters were carefully sorted in the lab. Identifying features, such as stamps, incising, slip and clay color were noted as a way to differentiate one vessel from another (Figure 7). Sherds with similar characteristics that may have come from the same vessel were placed together. This analysis was completed for just one excavation area



Figure 7. A close-up photograph of an eagle stamp from the shoulder of a jug recovered from the Fly Creek Kiln site (photograph by Sarah Mattics).

(provenience FS 18), due to the massive number of sherds recovered from the two-day dig at the large waster site. The container of sherds that was examined for FS 18 contained 2,389 sherds of various sizes.

One of the first steps in the pottery analysis was determining the color of clay used in the manufacture for identification purposes. Colors ranged from dull grays and yellows to vibrant reds, depending on the amount of iron in the clay and the firing process. More iron creates a redder hue in the vessel. In the initial lab analysis, the sherds were separated by visual inspection into four clay colors: red, orange, yellow, and gray. Each color was further sorted into two classes: glazed and unglazed, resulting in eight categories. Finer color distinctions were subsequently made, including red-gray and yellow-gray mixtures. A Munsell color chart was used to make accurate and consistent judgements about the clay colors. The following shows the ranges of some of the most common colors identified in the Fly Creek waster sherds: browns (7.5yr 5/4, 6/4, 5/3, 5/2, and 6/3), red/oranges (7.5yr 8/4, 6/4, 6/6 10yr: 8/4, 6/4), and grays (10yr 6/1, 6/2, and 6/3). There were two purposes to separating the sherds in this way. First, it shows which color of clay was the most prominent in the potter's work. The bluff of *Ecor Rouge* was so named because of the deep red pigmentation found in the clay there. The colors of clay represented in the Fly Creek Kiln site assemblage support the claim that clay from this bluff was used there in the production of pottery. Color also acts as an aid in determining if the sherds come from the same vessel, which can be tested by seeing if any of the broken sherds fit together. Next, the interior of the sherds were carefully examined. Marks left by the potter's hands as the vessel spun on the wheel can leave telling signs that the sherds came from the same vessel.

It is fairly easy to determine if a waster sherd has any glazing present based on a hard glass-like exterior surface. A ceramic vessel that has been fired with no glazing, known as bisque, will appear almost chalk-like in texture. Bisque vessels would not do well for storage or cooking because of their porous nature and were not common at the Fly Creek Kiln site. Those that were identified look to have been broken prior to the firing stage, and were not intended to be marketed as such. Common firing problems can affect glazes, including over-firing, which can be determined by examining the glazing that is left on the sherd. Over-fired glazes will often appear to have a cracked surface treatment. Severe over-firing can cause the glaze to completely melt off parts of the vessel, revealing the chalky clay underneath.

Many of the waster sherds from the Fly Creek Kiln site show glazing only on the exterior, a sign that the pots were stacked one atop another during firing. It is also important to look at the quality of the glazing. It has to be taken into account that these ceramics were recovered from a waster dump and do not represent the epitome of the potter's skill as represented by marketable vessels. However, the sherds give insight into the basic styles and quality of pottery being produced by the potter. The glazing on a piece of pottery can tell researchers if the piece was over or under-fired. An under-fired piece may show evidence of the glaze not sticking to the vessel because the heat never melted the glaze properly. If the vessel was over-fired then one might expect to see bubbling or cracking in the glaze caused by the higher temperatures.

Another problem, blebbing, is caused by "air pockets, which lie just below the surface of the clay. These air pockets at the height of firing "may swell like small balloons, leaving a raised place or bump in the finished ware" (Rhodes 1957:158). There

are examples of all of these firing problems found on the wasters from the Fly Creek Kiln site. Sometimes a potter would still be able to sell, as seconds, vessels with slight firing problems or pieces of exploded pots adhered to it. Customers who purchased utilitarian vessels were not necessarily looking for aesthetic qualities so much as usability. After determining clay color and types of glaze, distinguishing features or designs on the sherd, such as incising, stamps, or other marks or scars that set the piece apart are recorded. If the piece appears to be a rim, base, handle, or lid, this information is noted on the analysis sheet. This diagnostic information is useful in identifying the types of vessels produced. Capacity stamps are also useful in identifying the volume in gallons of vessels. Name stamps are one of the most valuable pieces of information that can be found on a piece of pottery because they identify the potter who created the ware and also often provide the time frame or period in which the vessel was produced. In addition rims and handles are obvious signs of separate vessels and can help determine the minimum number of vessels in an assemblage.

The next step in this study was the time-consuming process of trying to piece together matching sherds to reconstruct portions of vessels. Sorting by clay color and glazing gives an idea as to where to begin this process. After spending a great deal of time meticulously piecing the pottery back together, it was time to record information about individual vessels. Matching pieces composing a single vessel are separated and any sherds that could be mended are glued together using non-acidic polymer glue. Rim diameters and vessel heights were measured, if possible and these measurements aid in determining vessel capacities. If a capacity stamp was found on the vessel, it is recorded, and sketches are made of notable pieces. The pieces of each vessel are counted and

weighed and put into separate bags or boxes with a label indicating the vessel number and excavation provenience.

Kiln remains and kiln furniture can offer an important glimpse at how the potter's kiln was set up and maintained. Waster sherds and reconstructed vessels can help determine the cultural influences on the potter at the time of production. Even though most utilitarian wares were not very decorative, a style is still evident. Though it would be difficult to take a single sherd and determine the potter who created it, it is possible to look at style and decorations on a vessel and determine what time period and region that they came from, even if the individual potter cannot be identified.

Results

By examining the waster sherds from the Fly Creek Kiln site, it was determined that most of the pottery has the porous glazed texture of salt-glazed stoneware. Preliminary analyses indicate that jars, pans, and jugs were the most common vessel types produced at the kiln. The majority of the wasters excavated from the Fly Creek Kiln site are salt-glazed

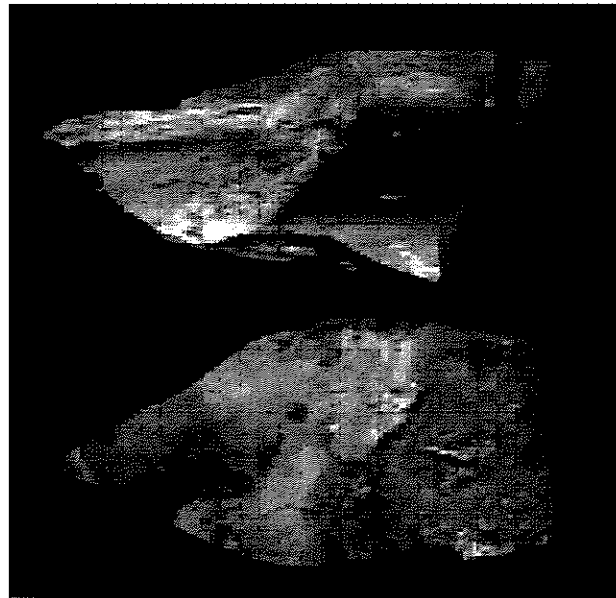


Figure 8. Lead-glazed sherds from a French-style Biot storage jar from the Fly Creek Kiln site (from Brackner 2006:78).

stonewares. Other artifacts found at the Fly Creek Kiln site include a few lead-glazed coarse earthenware wasters (Figure 8), kiln brick, and kiln furniture (Gums 2001:15).

Gray, red, tan, and orange salt-glazed sherds are abundant in the assemblage. Surface alterations include but are not limited to incised markings, blue stamps, and brown-clay (Albany like) slip glazes and capacity stamps. The waster sherds also represented several different handle types. Strap handles were found and some are still attached to the mouths of jugs or pitchers. In addition, there were several opposing lug handles and looped jug handles identified. Many different types of kiln furniture, including pads, wads, cross shelves, stilts (both glazed and unglazed), and amorphous clumps of clay, were recovered from the Fly Creek Kiln site.

A few large French styled lead glazed storage jars were identified. It is currently uncertain if Mareschal actually made these lead-glazed vessels at his pottery, or purchased them from Europe. Some lead-glazed sherds collected in 1973 are possibly wasters and not imports. Whatever the case, there are some lead-glazed examples of pottery found in the waster dump. The lead-glazed wasters found at the site are very similar to large Biot-style French storage jars. (Gums 2001:15). These storage jars were created in a form commonly seen in Biot in southeast France. It is possible that the French Mareschals were using some of these imported vessels as templates for their own designs. These pieces were much less prominent at the Fly Creek Kiln site than salt-glazed pottery.

By comparing the pottery sherds recovered from the Fly creek kiln site to those recovered from other sites along the Eastern Shore it becomes evident that the assemblage is much less diverse than the other sites (Table 1). The primary items being produced were jugs and jars, lending credibility to the idea that the potters at the Fly Creek Kiln site were creating pottery for food storage.

Vessel Type	Bluff Kiln ca. 1862-1882 1BA524	Beasley Kiln ca. 1882-1891 1BA412	LaCoste-McAdam Kiln ca. 1850-1910 1BA276	Fly Creek Kiln ca. 1840-1850 1BA266
JAR	13	1	4	17
PRESERVE JAR	3	X	7	1
CHURN	5	5	27	X
CROCK	3	X	13	X
BOWL	2	X	8	X
FLOWER POT	1	32	X	X
MILK PAN	X	X	X	5
JUG	39	41	60	20
PITCHER	X	X	1	X
PIPKIN	X	X	1	X
VASE	X	2	2	X
URN	X	1	X	X
CHIMNEY FLUE	X	2	X	X
UNKNOWN	19	12	15	7
Total	85	96	138	50

Table 1. A comparison chart showing the reconstructed vessel forms found at several Eastern Shore kiln sites (data from LaCoste-McAdam, Beasley and Bluff kilns from Gums 2001:22-25).

Much of the pottery found at the Fly Creek Kiln site is of a style fairly typical for utilitarian potters along the Eastern Shore. However, the salt-glazed vessel in Figure 9 is likely a shallow milk pan. Shape, size, handle design, and rim shape are all taken into account when

determining a cultural influence for a potter's work. The shapes of some of the vessels, including storage jars, recovered from the Fly Creek Kiln site show some European influence, probably as a



Figure 9. The upper rim and lug handle of a salt-glazed vessel (most likely a shallow milk pan) excavated from the Fly Creek kiln site and reconstructed in the lab (photograph by Sarah Mattics).

result of the Mareschal family's French background. A vessel form resembling a shallow milk pan seems to be unique to the site. When compared to other sites from the same area, no like vessels could be identified. The handle designs found at the Fly Creek Kiln site were not overly elaborate. Handles consisted of lug and strap handles with their only decoration being thin ridges and occasional finger marks left by the potter's hands as the handle was applied. This supports the idea that the Mareschals were producing utilitarian wares. If a potter was making wares for everyday use, then one probably will not find a lot of whimsical artistic ceramic works. Instead they will find ceramic vessels designed to hold up to the burdens of day-to-day use.

A good deal of kiln furniture has been recovered from the Fly Creek Kiln site (Figure 10). In addition to traditional types of kiln furniture such as spacers, wads, and saggars, cone shaped stilts, most likely used as pillars, and ceramic shelves were found at many potteries along Mobile Bay's Eastern Shore. The use of these odd pieces of kiln furniture most likely has strong European origins. The Fly Creek kiln site had an



Figure 10. A stilt recovered from the Fly Creek Kiln site inscribed with the initials A.M., most likely Augustin Mareschal (photograph by Bonnie Gums).

abundance of these cross shelves and stilts. One of the stilts was inscribed the letters 'AM' probably Augustin Mareschal (Gums 2001:7).

Conclusion

This research provides an understanding of historic potters in Baldwin County Alabama. Nineteenth-century utilitarian potters were producing large amounts of practical and affordable ceramics for their consumers to use on a daily basis. The Eastern Shore of Mobile Bay became an axis for pottery production in the north-central Gulf coast region during the nineteenth-century due to easy access to clay. By examining the shapes, glazing, and other characteristics of the vessels it has been determined that the stoneware sherds from the Fly Creek Kiln site were produced during the early to mid-nineteenth century. The vessel shapes along with the absence of ash and lime glazes help to date the Fly Creek Kiln site as one of the earliest potteries along the Eastern Shore (ca. 1840-1850). In addition, the sizes and shapes of the vessel bodies suggest that they were created for utilitarian purposes, such as cooking and storage. The size and location of the site suggest that the pottery was a small, family-owned kiln not a large industrial one. The potters were making utilitarian wares for daily use and that the clay used in the pottery production was mined from the bluffs overlooking Mobile Bay. Vessel forms from the Fly Creek Kiln site have been compared to those found at other sites both in the area as well as the Weaver pottery in Tennessee. The ovoid vessel shapes and plain decorations from Fly Creek were found to be similar to other potteries of the same time period. Unusual vessel shapes such as the shallow pans that were found at the Fly Creek kiln site were mentioned in order to compare vessel shapes and technological methods. In addition, the technological methods employed by the potters of this time period and at

Fly Creek were discussed. Kiln shapes and furniture have been examined as well as the types of wheels and clay that were used by potters of the same time period. The intricate stilts and cross-shelves used by the potters was probably European in origin. The sherds of large Biot-style storage jars also support the idea that the pottery was influenced by the Mareschal family's French ancestry.

Technology and social conditions kept salt-glazed stoneware popular in the American Southeast into the early 1900s. However, as the twentieth century progressed it brought the decline of the small utilitarian potter. Large industrial potteries replaced the small family owned businesses. At the same time, glass and metal containers gained popularity with consumers. Prohibition also had an effect on the stoneware business, decreasing the demand for stoneware vessels. Some of the Eastern Shore potters were able to stay in business by shifting their styles of pottery toward designs such as flower pots, vases, urns, charcoal braziers, birdhouses, turpentine pots, and ceramic novelties (Gums 2001:47). Over the years, nearly all of the traditional potteries along the Eastern Shore of Mobile bay have disappeared. By studying the products and methods of early potters, the past can be preserved and shared with future generations.

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