

hafted bifaces and tubular clay pipes (Gregory and Curry 1978).

Middle Woodland/ Marksville and Troyville

Throughout much of the Eastern Woodlands during the Middle Woodland period, Hopewell culture thrived and culminated in the construction of massive earthen ceremonial centers and the implementation of an extensive trade network throughout much of the South Atlantic Slope and the Southeast. The Middle Woodland period in Louisiana is associated with the Marksville culture, which existed from circa A.D. 1 to 400 (McGimsey 2010), and the Troyville culture, which existed from circa A.D. 300 to 900 (Lee 2010).

Marksville culture has traditionally been viewed as a regional variation of the Hopewell culture due to the presence of large earthen mounds, an elaborate mortuary complex, and intricately designed ceramics with similar iconographic themes to Hopewell ceramics at the earliest Marksville sites discovered and studied. Although contemporaneous with Hopewell, many of the defining traits of this culture are not universally present at Marksville sites in Louisiana, and most sites are relatively small. For example, the evidence of widespread, long-distance trade is not found on Marksville sites, or is at least not as extensive as on Hopewell sites. Only relatively few examples of non-local materials, such as galena or copper have been found in burial contexts at Marksville sites, although abundant extra-local chert seems to have been acquired through trade. The archaeological patterns found among Marksville sites and cemeteries also do not indicate that a hierarchical social organization was embedded in the culture, but rather that it was largely egalitarian (McGimsey 2010).

Troyville culture is usually associated with the Baytown period (A.D. 400–700) (Lee 2010). Although it has been described as a period of cultural decline between the earlier Marksville and later Coles Creek cultures, the Baytown period is presently thought to

represent a time that increased regional differentiation set the stage for the later, more complex societies (Lee 2010). Cultural continuities with earlier cultures include some evidence of long-distance trade and mound construction for public ceremonies and interment, while innovations during this period likely include the introduction of the bow and arrow sometime around A.D. 600–700. Like the preceding Marksville culture, there does not appear to be a great deal of status differentiation among individuals at Troyville sites (Lee 2010).

Subsistence patterns compiled using data from Middle Woodland sites in Louisiana indicate that there is little change from the patterns of the preceding Tchefuncte culture. An emphasis on gathering and hunting of locally available flora and fauna is inferred from the dietary remains at these sites, and there is little indication that Marksville or Troyville populations participated in the cultivation of domesticated seed plants used by Hopewell populations during this period (Lee 2010; McGimsey 2010).

Marksville sites are identified by the presence of incised and zoned rocker-stamped Marksville ceramics (McGimsey 2010), while the later Baytown/Troyville ceramics are recognized by Baytown Plain and newly-introduced bi-chrome and polychrome painted ceramics (Lee 2010). Hafted bifaces are not generally considered diagnostic for the Middle Woodland period due to the long temporal range of points found in contexts dating to this period.

Marksville sites at Fort Polk in west-central Louisiana have been assigned to the Whiskey Chitto phase (Campbell et al. 1987). These sites are typically identified by the presence of Marksville stamped and Marksville incised pottery types, which exhibit rim forms and motifs like those of the Marksville in the Lower Mississippi Valley. Grog temper appears to be predominant in these specimens, though there are hints of bone and/or sandy paste in some. Dooley Branch, Ellis, Gary, Kent, the Williams cluster, and similar points occur at Whiskey

Chitto sites, though as mentioned before they are not diagnostic of this specific time period due to their temporal range (Anderson and Smith 2003). There are no complex ceremonial centers dating to this period known to exist in the vicinity of the project area, but several Marksville sites have been recorded to the east and southeast of Alexandria (Wessel et al. 1993). Marksville ceramics were also present at the Coral Snake Mound along the Sabine River to the west, Bellevue Mound in northwest Louisiana, and the Fredericks site near Natchitoches (Anderson and Smith 2003). Other cultures that potentially influenced developments in northern Louisiana during the Middle Woodland include the Mossy Grove culture from eastern Texas and the Fourche Maline in northwest Louisiana and beyond.

No phases for Troyville culture have been identified in northwestern or central Louisiana, and these components seem to be rare in general. The rarity of Mulberry Creek Cord Marked, which is the primary defining type for this period in the region, has been noted throughout western Louisiana (Anderson and Smith 2003). Several sites dating to the Baytown period have been recorded to the east of Alexandria near Catahoula Lake and in the Black River and Little River watersheds (Wessel et al. 1993).

Late Woodland/Coles Creek

The Late Woodland subperiod (circa A.D. 400–900) experienced a slight fluctuation in climate, with temperatures mildly dropping circa A.D. 400–800, but warming again to a point beneficial for agriculture in the east (Anderson and Smith 2003). At this time, a continuation of the Troyville culture is believed to have occurred along the Red River, with the emergence of the Coles Creek culture at approximately A.D. 700 (Roe and Schilling 2010). In southwest Arkansas and southeast Oklahoma, a similar cultural expression that developed coterminous with Coles Creek is known as Fourche Maline, while in east Texas it has been termed pre-Caddoan.

The Coles Creek period is believed to represent an important shift toward hierarchical social organization from the egalitarian order of earlier periods. This is reflected in the changing role of earthen architecture from primarily serving a mortuary function to providing a platform for structures and ceremonies for community functions or possibly related to a chiefly elite. Although formalization of a mound and plaza ceremonial center appears to have occurred at Coles Creek sites, the differentiation of hierarchical groups is difficult to see through mortuary and other archaeological remains (Roe and Schilling 2010).

Like the preceding Marksville and Troyville cultures, Coles Creek and Fourche Maline populations seem to have relied primarily upon local wild plants and animals for subsistence, although domesticated versions of native grasses including maygrass, chenopod, and knotweed were identified at some Coles Creek sites. Since other sites from which subsistence data have been obtained lack evidence of domesticated cultigens, the use of cultigens is not believed to have been widespread. At the end of the Coles Creek period, the use of starchy seeds seems to have increased, with maize playing a minor role (Roe and Schilling 2010).

A variety of Late Woodland ceramics comprise Coles Creek assemblages and consist primarily of grog-tempered or grog-and-sand-tempered Chevalier Stamped, Coles Creek Incised, Evansville Punctuated, French Fork Incised, Mazique Incised, and Pontchartrain Check Stamped ceramics. Williams Plain is a generic ceramic type similar to Baytown Plain that is frequently recovered from Fourche Maline and Coles Creek sites in the Great Bend region of the Red River (Schambach 1982, cited in Earth Tech, Inc. 2002). Use of the bow and arrow flourished during the Late Woodland, reflected in the abundance of small arrow point types dating to this period. Alba, Catahoula, Hayes, Friley, Scallorn, and possibly Colbert points are associated with the Coles Creek and Caddo cultures (Anderson and Smith 2003).

In northwest Louisiana, a local expression of Coles Creek culture known as Bellevue has been defined based on Bellevue and other mounds in Bossier Parish. Bellevue is a conical, flat-topped mound that is among the earliest known examples of earthen architecture in northwest Louisiana. This mound contained multiple burials and yielded ceramics similar to those of Marksville sites, but with characteristic bone tempering associated with the later Caddo culture (Neuman 1984:217). The Bellevue and contemporary sites in northwest Louisiana are seen as showing more affinities with the Fourche Maline culture as represented in southwest Arkansas (Webb and Gregory 1978). Bellevue and other mound and non-mound sites in northwestern Louisiana have primarily yielded plain ceramics and a few Marksville-Issaquena-Troyville types along with Gary and Ellis points (Webb 1982).

Late Prehistoric (A.D. 900 to 1700)

The end of the Late Woodland period between A.D. 900 and 1100 marked the emergence of Caddo and Mississippian cultures across much of Louisiana (Anderson and Smith 2003). During the early part of this period, from A.D. 800 to 1300, a favorable climate for agriculture is thought to have prevailed, with temperatures approaching near those of the present. At circa A.D. 1300 the Little Ice Age is thought to have reversed these favorable conditions (Anderson and Smith 2003).

Caddo

Although its origins are unsettled, Caddo culture is thought to have developed along the Red River and its tributaries in areas extending into northwest Louisiana at approximately A.D. 900 (Girard 2010). Along the lower Mississippi, Arkansas, and Red River valleys, the Coles Creek and affiliated peoples had previously been the primary cultural systems. Webb saw the Caddo culture as a direct descendant of Coles Creek culture, first emerging in the Great Bend region of the Red River (Webb and McKinney 1975; Webb and

Gregory 1978). Similarly, Anderson and Smith (2003:392) believe that Caddo cultures emerged directly from the preceding Coles Creek culture along the middle course of the Red River and within areas situated between the Red, Sabine, and Trinity Rivers. In contrast, Schambach (1982) has suggested that Caddo culture emerged in the Great Bend region from the Fourche Maline culture of southwest Arkansas.

In Louisiana, the Caddo culture is generally confined to the northwestern portion of the state, extending only as far south as Natchitoches. A refined ceramic tradition developed during the Caddo period, and ceramic styles have been used to divide this period into two major aspects (Gibson and Fulton) that are further divided into several foci (Alto/Alto-Gahagan, Haley, Bossier, and Belcher).

Early Caddoan ceremonial centers have been found along the Red River, namely those at Mounds Plantation, Crenshaw, and Gahagan, though monumental construction at these sites is believed to have occurred after A.D. 1000 (Anderson and Smith 2003). Alto, or Alto-Gahagan, is the earliest Caddo focus and shows a strong Coles Creek influence. A number of innovations in material culture characterize the Alto phase, including the use of carinated bowls and bottle forms with engraved and pigment-filled designs. The ceramic assemblage used to recognize this phase includes Crockett Curvilinear Incised, Pennington Punctuated-Incised, Holly Fine Engraved, Spiro Engraved, Wilkinson Punctuated, Holyknowe Ridge-Pinched, Williams Plain, and LeFlore Plain (Kelley et al. 1988).

During these initial expressions of Caddo culture, there was more extensive use of floodplains along the Red River than during preceding cultures, and large earthen mound complexes were constructed and apparently supported significant populations during ceremonial events. In addition to the mound complexes, these initial Caddoan settlements are assumed to have been similar to later ones, with small villages on tributary streams or

along lakes or possibly scattered villages situated in floodplains (Anderson and Smith 2003).

A shift in mortuary customs is represented during the Alto focus by the addition of shaft burials into mounds as opposed to the pre-mound burials that characterized Coles Creek sites, and burials were more elaborately furnished (Schambach and Early 1982). Mounds Plantation (16CD12) is among the most notable Alto focus mound site investigated in northwest Louisiana and is the basis for its definition. This site contained seven mounds around a central plaza with additional mounds on the peripheries. Burial data suggest that the early Caddo culture was hierarchical, with finely constructed and decorated ceramics in the graves of apparent community leaders (Girard 2010), and mound centers in northwest Louisiana contained residential areas for these leaders who would have held political control over outlying settlements. At one early Caddo mound site in northwest Louisiana, the Gahagan site (16RR1), burial items were manufactured from stone that originated in southwestern Illinois, showing that these early Caddo cultures may have had contact with such far away Mississippian polities as Cahokia near present-day St. Louis, Missouri (Girard 2010).

The Haley focus represents the earlier part of the Middle Caddo period in northwest Louisiana and is followed by the Bossier focus. The Haley focus is better represented in Arkansas, although northwestern Louisiana is within the peripheries of the cultural area. This focus is represented by Haley Engraved, Handy Engraved, Hickory Engraved, Haley Complicated-Incised, Pease Brushed-Incised, and Sinner Linear Punctuated ceramics. Burial customs became more elaborate than the preceding Alto focus, and temple mounds may have first appeared in the Great Bend region during this focus (Schambach and Early 1982). The Bossier focus is recognized by the presence of Pease Brushed-Incised, Belcher Ridged, Dunkin Incised, Sinner Linear Punctuated, and Maddox Engraved ceramics. The Bossier focus may have seen a decline in mound construction, although artifacts

recovered from mound sites indicate extensive trade and continued elaborate ceremonialism (Earth Tech, Inc. 2002).

At the onset of the Middle Caddo period, sometime after approximately A.D. 1200, Caddo communities largely abandoned their ceremonial centers along the Red River and instead occupied upland areas and the banks of smaller tributary streams. Dispersed floodplain villages along these tributaries became the norm, replacing what were likely more compact villages along the Red River during the earlier Caddo period. Jeff Girard has documented a Middle Caddo dispersed floodplain village site in northwest Louisiana. The Willow Chute Bayou locality consists of a series of sites stretching along a 12 km (7 mi) length of the bayou, most of which are small in size and light in density and seem to represent hamlets, although at least three mounds are also present (Girard 2010, 2012).

The late Caddo period began around A.D. 1500 and is represented by the Belcher focus, which is primarily modeled from Webb's (1959) work at the Belcher site in northwest Louisiana. This culture appears to have centered on the Great Bend region in Arkansas, but is well represented in northwest Louisiana. The ceramics that represent this focus include Belcher Engraved, Hodges Engraved, Glassell Engraved, Foster Trilled-Incised, Belcher Ridged, and Karnack Brushed-Incised. A high degree of ceremonialism during the Belcher focus is interpreted from mass burials in shafts within mounds that are believed to represent retainer sacrifice and the inclusion of a wide variety of grave goods within the burials of some children thought to signify ascribed social ranking (Webb and Gregory 1978). Dispersed villages of hamlets and farmsteads continued to occupy the banks of upland tributary streams. There are some indications that trade interaction shifted during this focus from being predominately associated with groups in the Lower Mississippi Valley to groups in the Southern Plains (Earth Tech, Inc. 2002). The Belcher focus represents the final prehistoric manifestation of Caddo culture, and the dispersed villages in northwest Louisiana

would be the same settlement type depicted on a map produced during the 1691–1692 Domingo Teran de los Rios expedition (Girard 2010).

Mississippian and Plaquemine

The Mississippian period comprises the last 500 years of Southeastern prehistory, prior to European contact. The period is generally regarded to have begun in the southern Lower Mississippi Valley at A.D. 1200 and to have lasted until the establishment of European settlements around A.D. 1700, whereas in the broader Southeast, the Mississippian period is generally regarded as the period from A.D. 1000 to 1500 (Rees 2010c). Plaquemine culture is a regionalized expression of Mississippian culture, with sites occurring in southern and eastern areas of Louisiana that are differentiated from Mississippian sites by distinctive ceramic types (Rees 2010c).

Mississippian subsistence patterns were of two varieties: riverine—the use of crop rotation in which plants, especially maize, were cultivated and supplemented by the collection of wild foods; and coastal—farming played a smaller role, while hunting, gathering, and fishing were emphasized (Bense 1994). This dichotomy in subsistence also seems to have characterized Plaquemine groups, with inland communities relying on the use of cultivars and decreased dependence upon aquatic resources in contrast to coastal communities, which were more reliant upon a subsistence economy based on marsh, back swamp, and estuarine resources (Rees 2010c).

The political organization of groups into chiefdoms stands as a defining characteristic of Mississippian culture, along with widespread trade, shared regional iconographic symbols, and the expansion of platform mound centers (Bense 1994). These traits also characterized Plaquemine culture, although many of the regional mound centers found in Louisiana are generally smaller than the immense centers that characterize the Mississippian sphere at sites such as Cahokia and Moundville (Rees 2010c). Such large Mississippian regional centers also seem to be absent in Louisiana, and in general,

Mississippian sites seem less well-represented than in neighboring states, suggesting that they may in fact be invasive cultural elements (Rees 2010c).

Mississippian chiefdoms were either simple or complex in organization. Simple chiefdoms were typically comprised of several communities under the control of a single ruler. Complex chiefdoms consisted of several simple chiefdoms controlled by the ruling elite of a paramount center, having a paramount chief. The main themes in Mississippian society were ancestor worship, war, and fertility. Status differentiation was expressed through the acquisition of ritual items and the ritual use of space (i.e. mound construction), and these served as the major mechanisms for political control (Bense 1994).

Mississippian culture in the greater Southeast seems to have flourished at approximately A.D. 1200, and this was accompanied by increased warfare. The end of this period saw political turmoil and population relocations. Instability and violence encountered in some areas is thought to have resulted from environmental problems, possibly related to the changing climatic conditions known as the Little Ice Age, as well as political problems. Though mound building began to wane in some areas during this interval, it continued in others (Bense 1994).

Historic Native Americans

Beginning with the exploration of the Mississippi and Red River valleys by Europeans in the late seventeenth century, a dynamic interval ensued for Native Americans in Louisiana. Northwest Louisiana was inhabited by a number of historic Caddoan speaking groups that are presumed to have descended from the Caddo period inhabitants of the region. These included the Yatasi, the Petit Caddo, the Isadohadocho, the Natchitoches, and the Adai. To the north, in southern Arkansas, were the Kadohodacho and Ouachita Caddo groups (Swanton 1946). The Yatasi were reportedly 64 km (40 mi) north of Natchitoches in 1690 (Swanton 1946; Fields et al. 1989), but split in the late

seventeenth century due to pressure from Chickasaw groups. Some of the Yatasi joined the Kadohodocho confederacy, which was located in the Great Bend region of the Red River to the north, while the remainder moved south to join the Natchitoches (Swanton 1946). The Kadohodocho were forced southward during the late seventeenth century as a result of attacks from the Osage, and they settled on Caddo Lake with the Petit Caddo northwest of Shreveport (Williams 1974), where the Freeman and Custis expedition up the Red River in 1806 documented them (Flores 1984, cited in Earth Tech, Inc. 2002). The Natchitoches Caddo were on the Red River near the present-day city of Natchitoches in 1690, and had by this time, been joined by a group of Ouachita Caddo (Lange 1974, cited in Earth Tech, Inc. 2002). The Adai were found to the west of the Natchitoches near present-day Robeline along Bayou Pierre and a seasonal lake known historically as Spanish Lake. By the early nineteenth century, both the Natchitoches and Adai were greatly reduced in number (Lange 1974 and Swanton 1946, cited in Earth Tech, Inc. 2002). A treaty with the Caddo by the United States government would eventually lead to the relocation of the remaining groups into Texas in 1835 (Swanton 1946).

In addition to the Caddo, a number of immigrant groups relocated into northern Louisiana during the historic period. A group of Koasati settled north of Shreveport on the Red River, where they were visited by Freeman and Custis in 1806. A Choctaw group moved into the area by 1763 and had formed several villages by 1820. Like the Caddo, these groups were all forced out of the United States in 1835 (Swanton 1946 and Flores 1984, in Earth Tech, Inc. 2002).

French Colonial (A.D. 1682 to 1763)

The beginning of the French Colonial Period in Louisiana is heralded by a journey by René Robert Cavelier, sieur de La Salle, to the mouth of the Mississippi River and the Gulf of Mexico in 1682. A decade earlier in

1672 Joliet and Marquette had explored the headwaters of the Mississippi River from French Canada, documenting its course to the south toward the Gulf of Mexico (Wall 2002:19). La Salle, his lieutenant Henri de Tonti, and a party of French men and Native Americans followed the Mississippi River during a two month journey to chart the new route to the Gulf of Mexico. At the mouth of the Mississippi, La Salle and his men erected a large cross, proclaiming possession of the country by France. After returning to France to report his claim, La Salle organized a second expedition to the Mississippi River with the intention of colonization, but instead overshot the mouth of the river and landed in what is now south Texas. The expedition ended in peril as La Salle's party became mutinous, murdering their leader, and eventually succumbed to starvation, exposure, and hostility, first by native groups and ultimately by the Spanish (Wall 2002).

It would not be until a second voyage to the Basse Louisiane, or South Louisiana territory, in 1699 that French presence would be sufficient to result in archaeologically identifiable manifestations of material culture (Mann 2010). The expedition was led by Pierre Le Moyne d'Iberville, who was accompanied by his younger brother and lieutenant, Jean Baptiste Le Moyne, sieur de Bienville, along with 200 prospective colonists and two companies of royal marines. Iberville and Bienville sailed from La Rochelle, France, first to St. Domingue and then to Mobile Bay, where they erected a temporary encampment near present-day Biloxi. Upon exploring the region, Iberville was informed by native groups of a great river to the west, convincing him that they were near the Mississippi River. A small party was assembled to scout the coast to the west and successfully located the mouth of the Mississippi on Mardi Gras day in 1699. The party navigated upriver as far as the present location of Pointe Coupee and spent several days at a large Houma village before returning to the temporary encampment near Mobile Bay (Wall 2002).

Before returning to France that same year, Iberville established the permanent settlement of Fort Maurepas to defend the mouth of the river, near present-day Biloxi Bay, and left it under the command of Ensign de Sauvole. Shortly thereafter, while on a return journey into the Mississippi River, Bienville and a small contingency encountered a British ship south of present-day New Orleans that was reconnoitering a site for settlement. Bienville informed the English ship's captain that they were in French territory and bluffed them, successfully convincing them that French reinforcements were available to combat the ship if it did not retreat. The site of this encounter is known as the English Turn to this day, and this event is significant in that the British never returned to make a claim on Louisiana (Wall 2002).

The encounter with the English convinced Bienville of the need for a fort on the Mississippi River to properly defend the new French territory. Upon Iberville's return from France in 1700, Fort de Mississippi, later known as Fort de la Boulaye, was constructed about 80 km (50 mi) upriver from the head of passes, in what is now Plaquemines Parish. The site of the fort proved to flood frequently, and it ultimately served primarily as a stopover and staging ground for the French during expeditions against native groups. In 1707, Iberville ordered the abandonment of Fort de Mississippi (Mann 2010).

The French settlement of Fort Louis de Louisiane, or La Mobile as it came to be known, was established on the Mobile River in 1702 and would serve as the headquarters for French activities in the area until 1711. The French also consolidated their claims on interior areas of their territory by establishing Fort Rosalie near present-day Natchez, Mississippi, and Fort St. Jean Baptiste in Natchitoches in 1714 (Mann 2010; Wall 2002). Fort St. Jean Baptiste was established by Louis Juchereau de St. Denis at the site of the Natchitoches Caddo Indians to facilitate trade with the Caddo tribes of northwest Louisiana. Given the interior location of the newly established fort, St. Denis saw great potential for trade with the Spaniards of

Mexico and appealed to the viceroy of Spain, despite Spanish and French laws forbidding trade with foreign nations. Upon realizing the position of the French fort, the Spanish soon after established four forts of their own to form the boundary between their territories. Ironically, St. Denis had managed to marry the daughter of a Spanish commandant, Don Diego Ramón, and was assigned as a co-commander to establish these forts along with Ramón in 1716. This heralded a period of clandestine trade between the French at Natchitoches and the Spanish, which proved profitable for St. Denis (Wall 2002).

New Orleans was founded in 1718 and was named the capital of Louisiana in 1721. The early years of occupation in New Orleans proved difficult for the colonists because of frequent flooding and a hurricane that destroyed two-thirds of the buildings in 1722 (Wall 2002).

Areas upriver and downriver from New Orleans began receiving small farms by the 1730s. Along the Red River there existed two major obstructions to navigation. In central Louisiana, due to a set of large siltstone shoals along the Red River, Frenchmen travelling toward Natchitoches from New Orleans had to portage the rapids. This area, which came to be known as Rapide by the French and eventually contributed to the name of Rapides Parish, remained a wilderness to Europeans during the French Colonial period. Along the Red River near present-day Shreveport, a logjam known as the Great Raft rendered navigation along the river's channel impossible and forced navigation through adjacent tributary streams. The Great Raft also slowed the flow of water in this area of the river and caused widespread flooding, generally preventing habitation of the area by Europeans.

Spanish Rule (A.D. 1763 to 1800)

In 1763, France ceded all of the land of Louisiana west of the Mississippi River to Spanish rule as a result of the Treaty of Paris, drafted at the close of the Seven Years' War.

While news of the transfer caused an immediate reaction among the residents of Louisiana, it would have little effect on the lives of the inhabitants until the arrival of Governor Antonio de Ulloa to Balize at the mouth of the Mississippi River in 1767. As a result of the resentment over Spanish rule and tempered by Spain's poorly funded and understaffed attempt at governance, the residents of New Orleans mounted an insurrection in October of 1768 and demanded that Ulloa depart Louisiana. Less than one year later, General Alejandro O'Reilly returned to New Orleans with a large contingent of soldiers to investigate the insurrection, and he named 13 individuals as leaders of the insurrection and charged them with treason. Six of these individuals were convicted and put to death by a firing squad (Wall 2002).

French lands to the east of the Mississippi River had been ceded to England as a provision of the Treaty of Paris, and the British rapidly began to occupy their new territory. During Spanish rule the population in Louisiana increased more rapidly than it had under French rule, receiving immigrants from French Canada, the Caribbean, and Africa, in addition to Europe. The colonization of the southeastern United States by Europeans and others during the seventeenth and eighteenth centuries had a lasting effect on native tribes. Many groups occupying areas that would become Mississippi, Alabama, and Tennessee moved into unoccupied areas of Louisiana to escape British and French intrusion. The Apalachee came from Florida to the banks of the Red River north of present-day Alexandria in 1763. Other groups, including the Alabama, Pascagoula, Biloxi, Chacato, and some Choctaws, moved into north and central Louisiana. The Koasati also moved into central and north Louisiana along the Red River in the late eighteenth century, which was welcomed by the Spanish, who hoped that the native group would form a buffer with the British to the east (Wall 2002).

Due to the persistence of the logjam that occupied the Red River near Shreveport, broad-scale Anglo occupation of the area would not begin to flourish until the

nineteenth century. Exploration of the area likely began as early as the seventeenth century, but the area would remain unmapped until the nineteenth century.

Antebellum and Late Nineteenth Century (A.D. 1800 to 1899)

The Louisiana territory was retroceded to France by Spain in 1800 and then purchased from France by the United States in 1803. In 1812, the first map of the area near present-day Shreveport showed a number of Native-American trails connecting a Koasati, or Coushatta village, with Lake Bistineau and to the hot springs near the Ouachita River in Arkansas (Southern Publishing Company 1890).

The number of plantations in the South increased during the 1820s as a result of innovations in cotton production and transport. The introduction of the cotton gin and steam engines on boats made the separation of seeds from the cotton fiber more efficient and allowed relatively cheap transport of the ginned cotton. Although navigation along the tributaries to the east of the Red River were sufficient for transporting commodities such as cotton from the plantations established in the 1820s to the north of Minden, the removal of the Great Raft by Captain Henry Miller Shreve between 1833 and 1838 would open the area for habitation by Euro-Americans and would result in a population boom (Wall 2002). The area was also opened by the U.S. Government for homesteading, and prior to the Civil War a number of plantations up to 405 ha (1,000 acres) in size and smaller farms ranging in size from 16–65 ha (40–160 acres) occupied the area.

The introduction of slave labor into the area increased cotton production and sales between 1840 and 1860. As the number of slaves on plantations in Louisiana increased in the nineteenth century, so did fear of the threat of a slave revolt, especially since a large number of slaves were brought from the island of St. Domingue, where a successful revolt

was carried out and formed the nation of Haiti. In 1811, a slave revolt did take place and a group of as many as 500 poorly armed individuals stormed New Orleans only to be defeated by residents and a detachment of U.S. troops. The fear of insurrection continued to plague slaveholders throughout Louisiana, although none as large as the 1811 uprising would occur again (Wall 2002).

In 1861, Louisiana seceded from the Union and joined the Confederate States of America. After the siege of New Orleans in 1862, the only Confederate strongholds remaining along the Mississippi River were at Vicksburg and Port Hudson. In an attempt to divide the Confederacy, Federal forces put their sights on the capture of Shreveport to stop the flow of supplies from Texas. In May 1863, a coordinated attack by a fleet of gunboats and army forces successfully forced the retreat of Confederate troops from Fort De Russy south of Alexandria, but was not, however, successful at capturing Shreveport, so a second attempt was launched in spring of 1864. Confederate troops had been able to remove most of their supplies from Fort De Russy prior to the earlier attack and fought with greater resistance upon the return of Union forces (Wessel et al. 1993). The successful capture of Alexandria, along with Vermillionville and Opelousas to the south, put all of southwestern Louisiana under Federal control (Wall 2002).

Union forces proceeded toward Shreveport after ascending the river from Alexandria, but fell short of capturing the city due to a heated battle with Confederate troops from Mansfield that routed the Union's army positions and resulted in a shortage of support for the Union gunboats. On their retreat downriver, the Union boats were stranded at the shoals near Alexandria due to a low water level in the Red River. A Union engineer put the forces to work constructing a set of dams downriver from the falls that allowed the gunboats to safely pass over the shoals, but during their retreat through Alexandria the city was burned. Although Confederate troops quickly reoccupied the area after Union forces

left, the end of the war soon followed (Wessel et al. 1993).

The Civil War would lead to a restructuring of the system of agricultural production in Louisiana, as farms struggled to meet higher labor costs after the emancipation of slaves. The plantations along the Red River were particularly impoverished as the infrastructure for processing sugar and cotton had been largely demolished during the war. After Reconstruction, tenant farming and sharecropping became the primary forms of agricultural production in the state (Wessel et al. 1993).

Richland Parish was created by the Louisiana Legislature in 1868, with its land area being consolidated out of portions taken from the preexisting Ouachita, Carroll, Franklin, and Morehouse Parishes. The name of the parish derives from the "rich land" of the area, the fertility of which formed the backbone of the region's agricultural livelihood. Initially, the steamboat trade provided the primary means of access to and transport within the parish, with the Boeuf River providing a convenient access point to the interior of the parish. Though an east-west railroad had been chartered as early as 1836, trains did not begin running in the parish until 1861. Following the Civil War, an era of cotton production began anew in the 1880s, with areas near the railroad cleared and cultivated in cotton (Allen 1993).

Twentieth Century (A.D. 1900 to 1999)

With the development of the railroad system in northern Louisiana in the late nineteenth century, new avenues for commerce had been established by the early twentieth century. Like most of Louisiana, however, the area would never regain the wealth of the antebellum years. Small towns in the region would become centers for commerce, and the establishment of sawmills would bring some industry. However, road development was made more difficult by the extensive backswamps found in Richland Parish, and it was not until the widespread

adoption of the automobile in the twentieth century that an improved road network was developed (Allen 1993).

A much improved drainage system was constructed by the Louisiana Department of Public Works beginning in the 1950s, allowing much more land in Richland Parish to be drained for farming. Agriculture remains the dominant land use in the parish in the modern era, with cotton and soybeans serving as the main crops. Though not as important as agriculture, oil and gas production also plays a role in the modern Richland Parish economy (Allen 1993).

Chapter 4. Methods

The project area was systematically investigated by pedestrian survey and shovel testing. High probability zones (HPZs) were defined as those areas within 200 m (656 ft) of a mapped perennial water source; these areas were sampled with shovel tests at 30 m (98 ft) intervals along transects that were also spaced at 30 m (98 ft) intervals. The remainder of the project area was considered to have a low probability for encountering archaeological material and was shovel tested at a 50 m (164 ft) interval along transects also spaced at 50 m (164 ft) intervals. All shovel tests measured 30.0-x-30.0 cm (11.8 x 11.8 in) and extended well into the subsoil. All fill removed from the tests was screened through .64 cm (.25 in) mesh hardware cloth, and the sidewalls and bottoms were examined for cultural material and features.

Surface visibility was generally moderate to good throughout the survey area. The majority of the project area consisted of an open agricultural field cultivated with wheat. Though the field had been planted, the young wheat was only 10–20 cm (4–8 in) in height at the time the tract was surveyed, and surface visibility was generally moderate to good over the entire project area. However, in those small portions of the survey area vegetated with secondary forest, surface visibility was generally poor due to understory vegetation, grass cover, and/or leaf litter.

The survey of the project area was conducted during the period extending from February 18 to April 17, 2015. The tract was surveyed with a total of 40 transects. These included 10 high probability transects spaced 30 m (98 ft) apart with 30 m (98 ft) interval shovel tests, and 30 low probability transects spaced 50 m (164 ft) apart with 50 m (164 ft) interval shovel tests. A total of 586 shovel tests were excavated along transects in the project area. Figure 1.3 shows the distribution and locations of all transects in the survey area. In addition to shovel testing, the entire

project area was visually inspected for cultural material during the excavation of the transects.

Positive transect shovel tests were delineated to define site boundaries and investigate site context. Site boundary recordation began with the assignment of a positive shovel test as the site datum, which was arbitrarily assigned a grid coordinate of N1000 E1000. All other shovel tests excavated for site boundary delineation were also assigned coordinates in relationship to the site datum. Surrounding each positive shovel test, delineation shovel tests were placed at 10 m (33 ft) intervals. Delineation proceeded in cardinal directions until two negative shovel tests were excavated in each cardinal direction. A total of 339 shovel tests were excavated during site delineation. Universal Transverse Mercator (UTM) coordinates were recorded with a Geo XT 3000 series global positioning system (GPS) unit manufactured by Trimble to verify locations within the project area. This unit is capable of accuracy to within 3.0 m (9.8 ft).

All artifacts collected during the fieldwork were washed by CRA laboratory personnel and placed into racks to air-dry prior to further processing and analysis. Artifacts were classified according to regional typologies and were then documented and cataloged following SHPO guidelines. Recovered materials and notes will be curated with the Louisiana Office of Cultural Development, Division of Archaeology.

Chapter 5. Recovered Materials

Historic materials were recovered during the current survey from 6 sites (16RI300–16RI301, 16RI308, and 16RI310–16RI312) and 11 isolated finds (IF 3–IF 7, IF 9–IF 11, and IF 23–IF 25), while prehistoric materials were recovered from 2 sites (16RI309 and 16RI311) and 3 isolated finds (IF 2, IF 8, and IF 23). Recovered prehistoric and historic artifacts are discussed in separate sections in this chapter, and photographs of representative prehistoric and historic artifacts recovered during the project are presented in Figures 5.1–5.3. The assemblage from individual sites is discussed in summary below and in relation to intrasite provenience in the Results in Chapter 6. A complete inventory of all prehistoric artifacts can be found in Appendix A, and a complete inventory of historic artifacts is presented in Appendix B.

Prehistoric Artifacts

Prehistoric artifacts were recovered during the current survey from two archaeological sites (16RI309 and 16RI311) and three isolated finds (IF 2, IF 8, and IF 23). Of the recovered total of 30 artifacts, the majority ($n = 22$; 73.3 percent) were of lithic manufacture, and the remaining ($n = 8$; 26.7 percent) were of ceramic manufacture. The methods used during the laboratory analysis are presented along with the results of the analysis in the following sections.

Lithic Artifacts

Lithic artifacts constitute 73.3 percent of the total prehistoric assemblage, with 22 lithic artifacts recovered. Half of the lithic artifacts fall within the debitage class ($n = 11$), while the remainder of the lithic assemblage consists of 10 bifaces and 1 pitted cobble (see Tables 5.1 and 5.2 and Figure 5.1 for illustrations of diagnostic and representative examples of lithic artifacts in the assemblage). Each of these classes is discussed in more detail below following a presentation of the lithic raw material categories.

Raw Material Categories

Lithic artifacts were sorted into seven raw material categories during artifact analysis, and each raw material was assigned a raw material number (RM-1 through RM-7). Attempts were made to correlate each type with regional stone sources where possible.

Each raw material was initially described by color and texture (very fine to coarse), or groundmass if visible. Fractured surfaces were then examined under a hand loupe that provided 10x magnification to look for any characteristics that may provide data on the origins of each material. When present, cortical surfaces were also described to provide information on possible origins and package size. Evidence for thermal alteration was also documented when present.

RM-1

RM-1 is a light brown to tan chert. It exhibits some opaque areas and has a low to medium luster. Some artifacts of this material type have light or dark colored fossiliferous shapes. Examples exhibit a water-worn cobble cortex. This material seems to represent Citronelle chert gravels that outcrop in Pliocene and Pleistocene aged strata throughout much of northern and western Louisiana. These materials are likely to be locally available and occur in small packages, as is evidenced by the high incidence of cortical surfaces among the raw materials

RM-2

RM-2 is a white siliceous material that also exhibits pink-colored hues. The material is opaque and has a medium luster. There were no cortical surfaces in the assemblage, and therefore little data to assess the material's origin. It appears similar to some grades of novaculite that originate in the Ouachita Mountains of Arkansas (Jackson 2000), although it cannot be ruled out that it may represent a locally sourced gravel chert.

Table 5.1. Debitage Recovered from the Project Area by Raw Material and Stage.

Site	Raw Material	<1/4 inch	Early	Middle	Late	Total
IF 2	RM-2				1	1
IF 23	RM-1				1	1
16RI309	RM-1		2	1	1	4
16RI311	<1/4 inch	2				2
	RM-1		1		2	3
Total		2	3	1	5	11

RM-3

RM-3 is a very fine-grained, homogeneous white novaculite. The material is highly siliceous and waxy and has a medium-high luster. There are no cortical surfaces present on the single example in the assemblage, but there is a yellowed patina on one surface. The nearest known outcrops of novaculite occur in the Ouachita Mountains of Arkansas (Jackson 2000).

RM-4

RM-4 is a red chert that is opaque and exhibits a medium luster. The material has light-colored fossiliferous shapes that indicate that it is a thermally altered variant of RM-1, and reddened areas grade into the tan color that characterizes that material. Like RM-1, this material seems to represent Citronelle chert gravels that outcrop in Pliocene and Pleistocene aged strata throughout much of northern and western Louisiana and is likely to be locally available and occur in small packages.

RM-5

RM-5 is a black, matte chert with a very low luster and a rough fracture texture. The material appears very homogenous in color, with the exception of a few thin, light-colored lines at various angles that appear to represent fracture planes. No cortical surfaces were observed, and the origin of this material is unclear.

RM-6

This is a catch-all group that consists of non-cryptocrystalline, sedimentary materials (sandstones, mudstones, siltstones, and otherwise unidentified coarse-grained materials). The artifacts manufactured from

these materials include non-chipped stone categories, such as pitted stones, hammerstones, nutting stones, and anvils.

RM-7

RM-7 is a finely striated, white and gray flow-banded chert that contains inclusions of dark gray chert suspended in its matrix, giving it a breccia-like appearance. The material has a low luster and is opaque, yet fine-grained. The material exhibits water-worn cortical surfaces and has fossiliferous inclusions, suggesting a possible affinity with the Citronelle chert gravels that outcrop in Pliocene and Pleistocene aged strata throughout much of northern and western Louisiana and are likely to be locally available and occur in small packages.

Debitage

Debitage, or flake debris, is defined here as lithic waste that exhibits evidence of intentional removal from a parent piece but no evidence of further modification. Flake debris is a useful indicator of prehistoric activities because it is ubiquitous on most sites, exhibits evidence of the stage of manufacture during which it was produced, and unlike modified implements, was usually deposited where it was generated. The flake debris analysis provides information concerning prehistoric lithic technology and, in conjunction with other analyses, aids in determining site use.

The manufacture, maintenance, use, and discard of lithic implements are parts of a dynamic process that produces variation within an assemblage. This process begins with raw material acquisition and continues through the manufacture, resharpening, and final discard of the implement (Collins 1975). Numerous approaches have been proposed for



Figure 5.1. Selected Tools and Cores recovered from the project area: a–c) Gary Contracting Stemmed; d) Late Archaic Stemmed; e) Scallorn; f) untyped large dart PP/K fragment; g) untyped arrow PP/K fragment; h–i) untyped PP/K fragments; j) graver or perforator; k) cobble tool.

flake debris analysis. Determining the appropriate method, or methods, to be used depends on the research goals and the questions being asked of the data. The main focus of this analysis was to provide an inventory of the flake debris recovered from the sites and a summary of the portions of the reduction continuum and technologies represented.

While flake typologies are still used in many archaeological investigations, potential problems make the use of these typologies questionable at best. For example:

- 1) Flake types are inconsistently defined.
- 2) Flake types are only reliable for complete flakes.
- 3) Flake types are not always technologically specific and can be produced by several different modes of reduction (Ahler 1989; Bradbury and Carr 1995; Carr and Bradbury 2000; Ingbar et al. 1989; Sullivan and Rozen 1985).

Bradbury and Carr (1995; also see Patterson 1981; Shott 1996) demonstrated that commonly used flake typologies based solely on cortex, such as primary, secondary, and tertiary types, produced results that were not significantly different from a random guess when assessing reduction mode. In addition, comparisons based on these forms of analysis were likely to be inaccurate (Bradbury and Carr 1995; also see Carr and Bradbury 2000 and Carr et al. 2012 for additional critiques).

For the flake debris analysis presented here, the following 11 attribute dimensions were recorded for each flake larger than .64 cm (.25 in): size-grade, weight, portion, platform configuration, platform facet count, dorsal scar count, cortex cover, cortex type, reduction stage, raw material, and thermal alteration. Several attribute states were possible within each dimension. In addition, flakes were assigned to a reduction stage based on the work of Magne (1985; Magne and Pokotylo 1981).

Size-grade was determined by passing flakes through a series of nested wire screens of the following sizes: 2.54 cm (1.00 in), 1.90

cm (.75 in), 1.27 cm (.50 in), .64 cm (.25 in), and .370 cm (.125 in). All flakes were hand manipulated through the screen. If a flake could fit through the mesh in any direction, it was included with the size below. All flakes larger than .64 cm (.25 in) were examined for the above attributes. Flakes smaller than .64 cm (.25 in) were not subjected to detailed analysis because of the difficulty of determining material type and reduction stage for such small flakes. Also, screens with .64 cm (.25 in) mesh were used in the field, so flakes smaller than .64 cm (.25 in) would be underrepresented in the lithic sample. Therefore, these small flakes were examined to confirm that they were actual flakes, then counted and weighed only. Raw material type was not assessed for these flakes, as they often exhibit no diagnostic characteristics that can be used to confidently identify a raw material type.

Flakes larger than .64 cm (.25 in) were assigned to four reduction stages based on the presence of certain attributes. Magne (1985) (also see Magne and Pokotylo 1981), building on the work of Collins (1975), used discriminant function analyses to determine the best variable for separating flakes produced by experimental reduction into four stages. In Magne's (1985) scheme, early stage reduction is viewed as all core reduction, middle stage reduction is viewed as the first part of the manufacture of tools, and late stage reduction is viewed as the completion and maintenance of tools. Biface thinning is considered a special form of late stage reduction. For platform bearing flakes, platform facet count was determined to be the best single attribute. Dorsal scar count was determined to be the best single attribute for non-platform bearing flakes. Magne (1985:120) determined that for platform bearing flakes, zero to one facets indicated early stage, two facets middle stage, and three or more facets late stage. In addition, flakes with lipped platforms and three or more facets were the result of biface thinning. For non-platform bearing flakes, zero to one scar indicated early stage reduction, two scars

middle stage, and three or more scars late stage.

Unlike typological approaches, Magne's stage classes are explicitly defined and mutually exclusive. An independent assessment of Magne's stage classification scheme (Bradbury and Carr 1995) produced results similar to those reported by Magne.

The "blocky debris" category was used for pieces with no discernible ventral or dorsal face (also termed "debris" by Sullivan and Rozen 1985). Such pieces result from lithic reduction, but they lack flake attributes, such as platforms or terminations, that would allow them to be oriented. They often occur when a core or modified implement is struck to remove a flake, but the fracture intersects a previously existing fracture, or fractures, created by either cultural or natural processes. Blocky debris can also be the result of excessive force that creates unintended fractures in addition to the one meant to detach the flake. Blocky debris is distinguished from a truncated core by the lack of an obvious striking platform or negative bulb of percussion. Blocky debris occurs in all stages of lithic reduction, but it is more common in early stage reduction (Bradbury and Carr 1995).

Results of Debitage Analysis

A total of 11 flakes were recovered during the current project. Of these, 9 were larger than .64 cm (.25 in) and 2 were smaller than .64 cm (.25 in). Materials smaller than .64 cm (.25 in) in size were counted and weighed, with no further attributes recorded.

The raw material of manufacture for each piece ofdebitage by site and isolated find is presented in Table 5.1. The represented lithic materials include Citronelle gravel chert (RM-1), and a possible low-grade novaculite or white chert (RM-2). While there were relatively few pieces ofdebitage in the recovered assemblage, in general the dominance of materials equated to Citronelle gravels at least suggests that locally available materials were being acquired and utilized in the area.

Stage data for thedebitage are also presented in Table 5.1. When separated by reduction stage, thedebitage indicate that early stage reduction and late stage reduction debris dominates the assemblage. Of the 11 recovered pieces ofdebitage, 27 percent were Stage 1 early flakes, 9 percent were Stage 2 middle flakes, and 45 percent were Stage 3 late flakes. This sample size is too small to have any definitive meaning, but the presence of early stagedebitage likely relates to the local acquisition and utilization of materials in small packages, which tend to have a higher ratio of larger block-derived materials.

Among the individual sites there are insufficientdebitage counts to derive meaningful information from the stage distributions. From these data it is unclear whether different lithic reduction trajectories may have been employed during different temporal periods among project sites. It is clear that locally available lithic materials appear to have been reduced at all project sites since they all yieldeddebitage manufactured from Citronelle materials.

Tools and Cores

Modified implements are defined as chipped stone artifacts that have evidence of intentional modification or use as tools (i.e., more than byproducts of lithic reduction). Cores are defined as nodules or blocks of lithic raw material that have flake scars (previous flake removals) across at least one face from use as a source of tool stone. Eight attribute dimensions were recorded for all modified implements and cores, and seven additional dimensions and cluster associations were recorded for all hafted bifaces. Metric attributes were recorded for all artifacts that were complete enough to allow it. Modified implement and core classes were formed by the intersection of attribute states (Dunnell 1971). For this analysis, generalized modified classes were defined by the intersection of attributes from dimensions one through three.

In total, 11 tools were recovered during the investigations (Table 5.2). The tools included 10 bifaces and 1 pitted cobble tool. General descriptions of each class, as

described in the preceding paragraph, as well as the results of the current analysis, are provided below.

Table 5.2. Lithic Tools and Cores Recovered from the Project Area by Site/IF and Raw Material.

Site	Raw Material	Biface	Pitted Cobble	Total
IF 8	RM-1	1		1
16RI309	RM-1	1		1
	RM-3	1		1
16RI311	RM-1	4		4
	RM-4	1		1
	RM-5	1		1
	RM-6		1	1
	RM-7	1		1
Total		10	1	11

Bifacial Implements

For this analysis, biface reduction is viewed as a continuous process. A biface may have been taken out of the reduction sequence at any stage and used for a specific task. After use, it may have reentered the continuum and been further reduced. Bifacial reduction usually started with hard hammer percussion followed by soft hammer percussion. Pressure flaking was generally used for final shaping and haft modification (Johnson 1981) and to prepare striking platforms for the removal of large flakes during biface thinning.

The terms hard and soft hammer percussion are used in this analysis to reflect the form of flake scars present and not necessarily to identify the type of percussor used to detach the flake. Hard hammer scars are relatively narrow and deep, and they exhibit prominent negative bulbs of percussion. A biface shaped by hard hammer percussion exhibits high intersecting ridges between flake scars and an irregular bifacial margin. Soft hammer scars are relatively shallow and broad with small negative bulbs of percussion, and they often leave ripple marks in the flake scar. A biface with mostly soft hammer scars usually has a regular bifacial margin, and the ridges between flake scars are not as pronounced as ridges on bifaces with hard hammer scars only. Pressure flake scars are usually small and shallow with small negative bulbs of percussion, and they are often restricted to the edge of the

implement. Hard hammer flakes are associated with early-stage reduction. Soft hammer flakes and pressure flakes are associated with late stage reduction. Note that in some cases, bifaces may have been used as cores (e.g., Kelly 1988).

Results of Analysis

In total, 10 bifaces were recovered over the course of the project, most of which could be further defined as Projectile Point/Knives (PP/K) or fragments thereof. Other bifaces consisted of unidentified fragments. Among the PP/Ks, identified types include Gary Contracting Stemmed, Late Archaic Stemmed, and Scallorn. Each of these types is described briefly below.

Gary Contracting Stemmed PP/K (N = 3)

Three Gary Contracting Stemmed PP/Ks were recovered during the investigations, two of which were from surface contexts at Site 16RI311 and one was from a surface context at Site 16RI309 (Figure 5.1a–c). As is typical for the style, the Gary examples in the assemblage exhibit a range of variation in shapes. Two of these are medium-sized dart points with converging haft margins and broad shoulders, one of which has a rounded base and the other a conical base. On one of these the shoulders have a hanging, or inversely tapered, morphology, while the other has tapered and expanded shoulders, and both have convergent lateral blade margins and a medial blade fracture. Both also have a plano-convex cross section and are manufactured from RM-1, which is a variant of Citronelle gravel. The third example is a small, thick, crudely-made lozenge-shaped PP/K with a rounded base and no discernible shoulders. The cross section is median-ridged and has an almond-shaped appearance. This example is also manufactured from a variant of Citronelle gravel (RM-1) that shows some slight reddening, likely a result of thermal alteration.

The Gary Contracting Stemmed type occurs throughout the lower Mississippi Valley and includes a large variety of shapes and sizes, and is largely defined by the stem morphology. Temporally, the type is thought

to have been in use from the Late Archaic into the Woodland period, possibly as late as the Middle Woodland (Anderson and Smith 2003:264–268). There are several established varieties of the Gary Contracting Stemmed type to account for the variation seen in the type. The Desmuke type was a lozenge-shaped PP/K that was first considered by Webb (2000:8) to be a variety of the Gary type, based on samples found in northwestern Louisiana.

Late Archaic Stemmed PP/K (N = 1)

One PP/K in the assemblage recovered from a surface context at Site 16RI311 could not be placed into a regional type, but exhibits characteristics that make it assignable to a broad temporal grouping (Figure 5.1d). This is a medium-sized dart point with a straight to slightly contracting stem that terminates in a straight base, and one broad, slightly expanded shoulder. The PP/K is fractured just above the haft element, and therefore the opposite shoulder is unavailable for examination. The example has a biconvex cross section and is of fair manufacture from RM-4, which is a reddened, thermally altered variant of Citronelle gravel.

Late Archaic stemmed PP/Ks are ubiquitous throughout the southeastern United States. Local types include Motley, Hale, Delhi, Epps, Macon, and Pontchartrain (Webb 2000). The Delhi, Pontchartrain, and Macon types all have square stem morphology, and the present example could represent any of these types.

Scallorn PP/K (N = 1)

A large arrow point of an unidentified black chert was recovered from a surface context at Site 16RI311 and was typed as a Scallorn PP/K (Figure 5.1e). This example is missing one shoulder and one ear tip but is otherwise complete. It has a triangular blade that is serrated along one margin and a broad distal tip. The shoulder that is present has a hanging morphology created by narrow corner or side notching, and it has an expanded base. The point is thin, apparently manufactured from a flake, and has a flattened cross section.

The material of manufacture is of an unknown origin.

The Scallorn type was first described based on examples from Texas (Kelley 1947; Suhm and Krieger 1954) and is found throughout Louisiana and Texas. The inferred date range for the Scallorn type is approximately 1300 to 800 B.P. (Anderson and Smith 2003; Story 1990; Turner and Hester 1993).

Untyped PP/K fragments (N = 4)

A total of four PP/K fragments were recovered that were too incomplete to determine their overall form and to assign to a type. These include a large dart point fragment from a surface context at Site 16RI309 (Figure 5.1f). This is a very large and thick medial fragment that is well-made from white novaculite. One shoulder is present and suggests a tapered shoulder morphology, but there are too few temporal clues for any inferences regarding affinity. One very small PP/K fragment from a surface context at Site 16RI311 appears to represent a small arrow point distal/medial fragment (Figure 5.1g), and thus likely represents a late prehistoric component. The remaining examples consist of a distal and a medial fragment from surface contexts at Site 16RI311, which offer no temporal clues (Figure 5.1h–i).

Graver or Perforator (N = 1)

One small lithic tool recovered from a surface context at IF 8 consists of a pressure-flaked piece of debitage that retains a cortical proximal end (Figure 5.1j). The artifact has a short, narrow blade that has lightly serrated, backed (dulled) margins that are incurvate and terminate at an elongated/acute distal end from which the very tip has been snapped or worn off. The artifact is manufactured from Citronelle gravel (RM-1) and cortex covers both faces of the proximal end, and it therefore lacks any prepared haft element. Given its very small size, backed margins, and elongated/acute distal end, the inferred use for this artifact is as a graver or a perforator.

Cobble Tools

This class of tools consists of cobbles that exhibit evidence of use but no evidence of intentional shaping. Use-wear on these implements ranges from battering around the edges to pits on one or more faces. These implements can be curated tools, such as quartzite hammerstones, or they can be stones from the immediate environment with no particular qualities other than a convenient size or shape to be of use in a simple task (e.g., anvil stones or grinding slabs). Attributes recorded for cobble tools are similar to attributes for ground stone tools, except that “manufacture technique” is, by definition, “use wear only.” As with ground stone, the cobble tools are classified according to broad functional category and specific functional category, but there is much less variety in the functional classes. The primary attributes used for interpreting function are the type of wear (i.e., pits, battering, grinding), general location of wear, and the number of faces or facets exhibiting wear.

One cobble tool was identified in the assemblage (Figure 5.1k). This is a pitted cobble from a surface context at Site 16RI311. This tool fits easily into the hand and appears to have been used for multiple functions. This was likely a hammerstone and nutting stone or anvil. One face is relatively flat and has a deep, circular pit and is a classic nutting stone in this regard, while the opposite face is convex and has a less well-developed ovoid pit. The implement is fractured, or perhaps made from a fractured stone, and has multiple plow scars. It is made from a sedimentary sandstone (RM-6).

Ceramic Artifacts

Prehistoric ceramic artifacts constitute 26.7 percent of the total prehistoric assemblage and include eight artifacts. All of the ceramic artifacts were ceramic vessel fragments recovered from surface contexts at Site 16RI311, and attempts were made to characterize each according to paste, surface treatment or decoration, and vessel shape,

where data were available. The ceramic artifacts are illustrated in Figure 5.2.

The majority of the recovered ceramic sherds were plain undecorated varieties, most of which were identified as Baytown Plain. Only one ceramic decorative type was identified as Plaquemine Brushed. The majority of the sherds were body sherds ($n = 6$), while two were rim sherds. The ceramic types are discussed individually in the following paragraphs.

Baytown Plain

Baytown Plain describes undecorated, clay-tempered ceramic vessels and fragments of vessels in the Lower Mississippi Valley. There have been several varieties subsumed within this super-type based on the abundance and size of the clay temper and other observable characteristics, as well as geographical distribution of the ceramics (Phillips 1970:47–57). Baytown Plain ceramics are described as a super-type because of the broad variation in description of the established varieties, and the broad temporal range. In Louisiana, Baytown Plain ceramics are found in Early, Middle, and Late Woodland, as well as Mississippian period contexts.

Examples of Baytown Plain in the current assemblage are considered to be Baytown Plain, var. unspecified because they cannot reliably be assigned to any particular variety (Figure 5.2b–h). The examples range from high to low in the estimated quantity of temper, and temper size was described as both fine and coarse. There were a total of five Baytown Plain body sherds and two rim sherds in the current assemblage. One body sherd contained secondary tempering of crushed sandstone. One Baytown Plain rim sherd recorded in the assemblage has a rounded to slightly beveled lip that has very lightly applied, evenly placed nicks or incisions (Figure 5.2b). The rim orientation appears everted. The other rim is a very eroded sherd that has secondary tempering of crushed sandstone, and a tapered lip (Figure 5.2c). This rim has an indeterminate orientation.



Figure 5.2. Selected Ceramic Artifacts: a) Plaquemine Brushed body sherd; b-c) Baytown Plain rim sherds; d-h) Baytown Plain body sherds.

Plaquemine Brushed

The Plaquemine Brushed type describes coarse pottery from the Lower Mississippi Valley that contains brushing on the vessel exterior, intended to provide a decorative element as opposed to the application of a surface texture as was the case with the Salomon Brushed type (Phillips et al. 1954; Phillips 1970:152–153). There were two varieties of Plaquemines Brushed that were identified relatively early in the establishment of the type: var. *Plaquemines*, which describes clay-tempered examples on the equivalent of Baytown Plain, var. *Addis* paste; and var. *Grace*, which was made from a shell-tempered ware that is equivalent to Mississippi Plain, var. *Yazoo*. The Plaquemine Brushed type is the hallmark ceramic for identifying Plaquemine period sites.

The present example of Plaquemine Brushed (Figure 5.2a) is made from a heavily contorted and thick ware tempered with coarse clay that fits the description of Baytown Plain, var. *Addis* (Phillips 1970:48–49). The surface decoration consists of vertically and diagonally oriented lines that appear to have been applied through brushing. The haphazardly applied appearance of the surface decoration makes the example resemble the Salomon Brushed, var. *Salomon* type, although that variety is typically used to describe ceramics from within the Yazoo basin of Mississippi (Williams and Brain 1983).

Historic Artifacts

The historic assemblage includes artifacts classified and grouped according to a scheme originally developed by Stanley South (1977). South believed that his classification scheme would present patterns in historic site artifact assemblages that would provide cultural insights. Questions of historic site function, the cultural background of a site's occupants, and regional behavior patterns were topics to be addressed using this system.

South's system was widely accepted and adopted by historical archaeologists. However, some have criticized South's model on

theoretical and organizational grounds (Orser 1988; Wesler 1984). One criticism is that the organization of artifacts is too simplistic. Swann (2002) observed that South's groups have the potential to be insufficiently detailed. She suggested the use of sub-groups to distinguish between, for example, candleholders used for religious purposes and those used for general lighting. Others, such as Sprague (1981), have criticized South's classification scheme for its limited usefulness on late nineteenth and early twentieth century sites, sites which include an array of material culture—such as automobile parts—not considered by South. Despite its shortcomings, most archaeologists recognize the usefulness of South's classification system to present data.

Stewart-Abernathy (1986), Orser (1988), and Wagner and McCorvie (1992) have subsequently revised this classification scheme. In this report, artifacts were grouped into the following categories: architecture, arms, clothing, communication and education, domestic, faunal/floral, furnishings, maintenance and subsistence, personal, transportation, and unidentified. Not all of these groups were populated. The historic artifacts recovered during this project are summarized in Table 5.3, and a photograph of representative historic artifacts recovered from the project area is presented in Figure 5.3.

Grouping artifacts into these specific categories makes it more efficient to associate artifact assemblages with historic activities or site types. One primary change associated with the refinement of these categories is reassigning artifacts associated with the "Miscellaneous Activities" group under South's (1977) original system. Considering the potential variety of historic occupations and activities within the project area, a refinement of the artifact groupings was considered important to perhaps observe whether the distribution of specific artifact groups would produce interpretable patterns related to activity areas or structure types. Each one of these groups and associated artifacts is discussed in turn.

Usually, an artifact has specific attributes that represent a technological change, an invention in the manufacturing process, or simple stylistic changes in decoration. These attribute changes usually have associated dates derived from historical and archaeological research. For example, bottles may have seams that indicate a specific manufacturing process patented in a certain year. The bottle then can be assigned a “beginning” date for the same year of the patent. New technology may eliminate the need for the same patent and the bottle would no longer be produced. The “ending” date will be the approximate time when the new technology took hold and the older manufacturing processes are no longer in use.

Table 5.3. Historic Artifacts Recovered According to Functional Group.

Site/IF	Architecture	Biological	Domestic	Furniture	Maintenance and Subsistence	Personal	Unidentified	Total
16RI300	11		49		2	1	4	67
16RI301	6		13					19
16RI308	8		18	1	4		8	39
16RI310	13	2	23			1	5	44
16RI311	2		6			1		9
16RI312	15		16				2	33
IF 3			1					1
IF 4	3							3
IF 5	4							4
IF 6	1							1
IF 7	1							1
IF 9	3							3
IF 10	2							2
IF 11	4							4
IF 23	3		2					5
IF 24	5							5
IF 25	5							5
Total	86	2	128	1	6	3	19	245

Specific styles in ceramic decorations are also known to have changed. Archaeological and archival researchers have defined time periods when specific ceramic decorations were manufactured and subsequently went out of favor (e.g., Lofstrom et al. 1982; Majewski and O'Brien 1987). South's (1977) mean ceramic dating technique uses this information. The dates presented here should not be considered absolute, but rather the best estimates of an

artifact's age available at this time. A blank space indicates that the artifact could not be dated or, alternately, that the period of manufacture was so prolonged that the artifact was being manufactured before America was colonized. An open-ended terminal date was assigned for artifacts that may be acquired today. The rationale for presenting dates for the artifacts recovered is to allow a more precise estimate of the time span the site was occupied, rather than the mean occupation date of a site.

A summary of the artifacts recovered follows. Information on the age of artifacts as described in the artifact analysis is derived from a variety of sources cited in the discussion. Beginning and end dates for some artifacts were approximated. A complete inventory of the historic artifacts can be found in Appendix B.

Architecture Group

The architecture group is comprised of artifacts directly related to buildings, as well as those artifacts used to enhance the interior or exterior of buildings. Artifacts from this group recovered during the current project consisted of construction materials, flat glass, and nails (Table 5.4).

Table 5.4. Summary of Architecture Group Artifacts Recovered from the Project Area.

Site /IF	Construction Material			Total
		Flat Glass	Nails	
16RI300		5	6	11
16RI301	3	3		6
16RI308	3	2	3	8
16RI310	6	6	1	13
16RI311	1	1		2
16RI312	10	3	2	15
IF 4	3			3
IF 5	4			4
IF 6	1			1
IF 7	1			1
IF 9	3			3
IF 10	2			2
IF 11	4			4
IF 23		2	1	3
IF 24	5			5
IF 25	5			5
Total	51	22	13	86

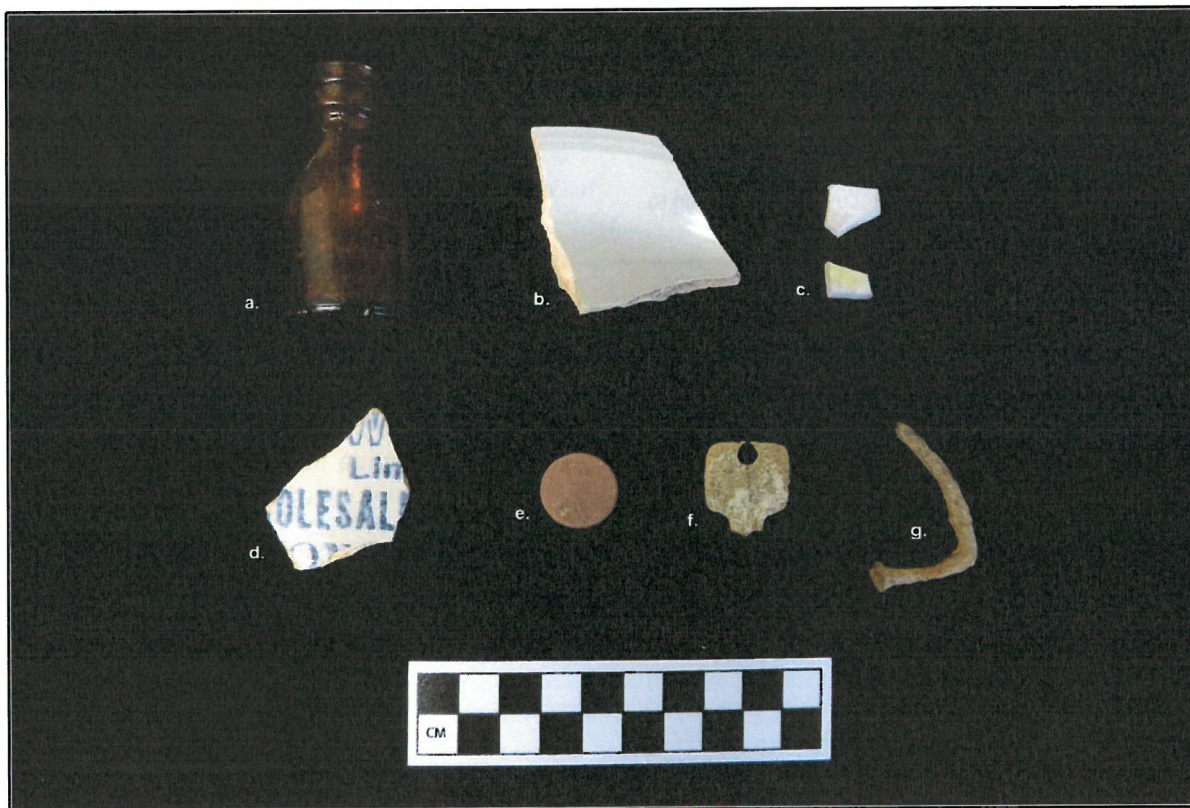


Figure 5.3. Representative historic artifacts recovered from the project area: a) complete amber glass Vicks medicine bottle; b) gray slipped whiteware rim fragment; c) two pink and green decal-decorated porcelain fragments; d) slipped stoneware fragment with blue stenciled exterior lettering; e) 1945 Lincoln cent; f) key fragment; g) wire nail.

Construction Materials

Construction materials refer to all elements of building construction. The assemblage of construction materials collected during this project is comprised entirely of 51 brick fragments, including 3 pieces identified as being machine made and 48 fragments whose method of manufacture could not be determined.

Flat Glass

Cylinder glass was developed in the late eighteenth century to enable the inexpensive production of window glass. With this method, glass was blown into a cylinder and then cut flat (Roenke 1978:7). This method of producing window glass replaced that of crown glass production, which dates back to the medieval period and was capable of fabricating only very small, usually diamond-shaped panes (Roenke 1978:5). Cylinder glass was the primary method of window glass production from the late eighteenth century through the early twentieth century, at which time cylinder glass windows were slowly replaced by plate glass windows. Plate glass window production became mechanized after 1900, but did not become a commercial success in the United States until around 1917 (Roenke 1978:11).

Cylinder window glass has been shown to gradually increase in thickness through time and can be a useful tool for dating historic sites. Several dating schemes and formulas have been devised that use average glass thickness to calculate building construction or modification dates. These formulas include those of Ball (1984), Roenke (1978), and Chance and Chance (1976), to name a few. Like previously derived formulas, Moir (1987) developed a window glass dating formula to estimate the initial construction dates for structures built primarily during the nineteenth century. Although Moir (1987:80) warns that analysis on structures built prior to 1810 or later than 1915 have shown poor results, most research in this area shows the regression line extending back beyond 1810 (Moir 1977; Roenke 1978), hence, dates calculated back to

1785 were considered plausible. Sample size is also a consideration when using the Moir window glass regression formula. According to Moir (1987:78), sample sizes need to be "reasonable" in order to accurately date the construction of a building. For the purposes of this investigation, a "reasonable" sample size is considered to be 25 window glass fragments.

In addition to providing a recommendation for a "reasonable" sample size, Moir also determined that the best results of this dating method were achieved when glass fragments were collected from more than one or two locations at a site, when structural additions were sampled separately from the main building, and when the length of occupation of the site was less than sixty years (Moir 1987). These restrictions were the result of Moir's formula being designed to derive a single manufacturing date from the mean thickness of all recovered window glass fragments. Under these circumstances, sampling a structural addition built significantly later than the primary building or a structure that had been occupied for a long period could be expected to skew the derived date for the assemblage.

A total of 22 pieces of flat glass were recovered from 6 sites and 1 isolated find during the current project (see Table 5.4), all of which were identified as window glass. Each fragment of window glass was measured for thickness and recorded to the nearest hundredth of a millimeter using digital calipers. The differences between cylinder window glass, mirror glass, and plate glass were in part determined by the thickness and wear of each flat glass fragment. Although Moir (1987:80) states that dating window glass after 1915 is not as reliable for dating sites, for the purposes of this study, window glass that measured 2.41 mm in thickness is assumed to date to 1916 and was included in the calculations, because according to Roenke (1978:11), plate glass did not become widely or successfully produced in the United States until 1917.

Six of the twenty-two recovered window glass fragments measured greater than 2.41 mm in thickness, and were therefore not subjected to analysis. Of the remaining pieces, measurements of only 16 fragments were possible. Since the materials were collected from seven separate locations and this total is below the reasonable sample size to accurately date construction of buildings using the Moir formula even as a single assemblage, the result of the formula was therefore not reliable and is not presented here.

Nails

There are three stages recognized in the technological chronology of nails. The first stage is represented by the wrought nail, the primary type of construction fastener in the eighteenth and early nineteenth centuries. This nail type was followed by the machine-cut nail and the wire-drawn nail. The use of wrought nails ended around 1810 with the proliferation of square cut or machine-cut nail use (Genheimer 1987:91; Nelson 1968:8).

Jacob Perkins developed his first nail-cutting machine sometime between 1790 and 1792; however, it was much later when these machines were utilized in the nail industry (Phillips 1996). The cut nail, introduced in approximately 1800, originally had a machine-cut body with a hand-made head. Around 1815, crude machine-made heads replaced hand-made heads on cut nails, and overall, cut nails replaced wrought nails in the construction industry. Early fully machine-cut nails exhibit a "rounded shank under the head," and therefore, often appear pinched below the head of the nail (Nelson 1968:8). By the late 1830s, these "early" fully machine-cut nails were replaced with "late" fully, or modern, machine-cut nails.

The first wire-drawn nails were introduced into the United States from Europe by the mid-nineteenth century. These early wire nails were primarily used for box construction and were not well adapted for the building industry until the 1870s. Wire nails required the use of Bessemer steel, and until 1879, when an American firm began fabricating this steel type, the steel was imported from Norway. By

1886, the wire nail industry was able to produce a wide variety of pennyweights to compete with the cut nail companies (Davidson 2006:116). Although the cut nail can still be purchased today, the wire nail nearly universally replaced it by the turn of the twentieth century (Nelson 1968:8). Wire nails suitable for the construction of buildings were not present in North America until circa 1880. By the end of the nineteenth century, the production of wire nails in the United States greatly exceeded that of cut nails (Priess 1973). By the 1890s, the cut nail had been virtually replaced by the wire nail in the building construction industry (Davidson 2006:118).

Thirteen nails were recovered during the project from five different locations. Of these, three were wire nails and ten were indeterminate nails or nail fragments that were heavily corroded and were of indeterminate manufacturing method. The nails recovered suggest activity in the area took place in the nineteenth to twentieth centuries with the latter end best represented, but with so many indeterminate fragments a specific period of activity is unclear.

Biological Group

Faunal and floral remains were assigned to this group. Only two biological group artifacts were recovered during the current project, both of which were small unidentified faunal bone fragments from Site 16RI310. No specialized analyses were performed to determine the species of origin for the faunal bone fragments, and the artifacts could not be assigned a specific date.

Domestic Group

Recovered artifacts included in the domestic group consisted of ceramics, container glass, and glass tableware (Table 5.5).

Table 5.5. Summary of Domestic Group Artifacts Recovered from the Project Area.

Site/IF	Ceramics	Container Glass	Glass Tableware	Total
16RI300	8	39	2	49
16RI301	7	5	1	13
16RI308	5	13		18
16RI310	7	16		23
16RI311	2	4		6
16RI312	4	12		16
IF 3		1		1
IF 23		2		2
Total	33	92	3	128

Ceramics

The ceramic inventory consisted of a variety of refined and utilitarian wares dating from the nineteenth century through the twentieth century. A total of 33 ceramic sherds were recovered during the current project. The recovered ceramics were grouped into four major ware types: whiteware, ironstone, porcelain, and stoneware. Ceramics within each of these ware groups were separated into decorative types that have temporal significance. Each of these ware groups is reviewed below, followed by discussions of associated decorative types.

Whiteware

As a ware type, whiteware includes all refined earthenware that possesses a relatively nonvitreous, white to grayish white clay body. Undecorated areas on dishes exhibit a nearly pure white finish under clear glaze. This glaze is usually a variant combination of feldspar, borax, sand, nitre, soda, and china clay (Wetherbee 1980:32). Small amounts of cobalt were added to some glazes, particularly during the period of transition from the earlier pearlware to whiteware and during early ironstone manufacture. Some areas of thick glaze on whiteware may, therefore, exhibit bluish or greenish blue tinting. Weathered paste surfaces are often buff or off-white and vary considerably in color from freshly exposed paste (Majewski and O'Brien 1987).

Most whiteware produced before 1840 had some type of colored decoration. These decorations are often used to designate ware groups (i.e., edgeware, polychrome, and colored transfer print). Most of the decorative types are not, however, confined to whiteware. Therefore, decoration alone is not a particularly accurate temporal indicator or actual ware group designator (Price 1981).

The most frequently used name for undecorated whiteware is the generic "ironstone," which derives from "Ironstone China" patented by Charles Mason in 1813 (Mankowitz and Haggard 1957). For purposes of clarification, ironstone will not be used when referring to whiteware. Ironstone is theoretically harder and denser than whiteware produced prior to circa 1840. Manufacturer variability is, however, considerable and precludes using paste as a definite ironstone identifier or as a temporal indicator. Consequently, without independent temporal control, whiteware that is not ironstone is difficult to identify, as is early versus later ironstone. For this analysis, the primary determining factor in classification of a sherd as whiteware was the hardness and porosity of the ceramic paste.

Whiteware sherds represented the majority of the recovered ceramic assemblage, with 25 examples being collected. Decorative types observed on the whiteware sherds in this assemblage are summarized and defined in the following discussions.

Plain

This type includes vessels with no decoration. While some researchers, such as Lofstrom et al. (1982:10) and Wetherbee (1980), include molded designs with "plain" whiteware, for this analysis Majewski and O'Brien's (1987:153) recommendations are followed, meaning that molded vessels should be grouped on their own. Plain whiteware vessels became very popular following the Civil War and continued to increase in popularity throughout the late nineteenth and early twentieth centuries (Faulkner 2000). Bacteriological research emerged after the Civil War, and it was not long before it

became widely known that there is a link between bacteria and disease (Duffy 1978:395). Since bacteria could not be seen with the naked eye, it was commonly thought that plain, undecorated wares were best suited for maintaining and serving clean, bacteria-free food. Hence, bacteriological research helped spur the rise in popularity of undecorated vessels, which resulted in increasing competition between whiteware and ironstone manufacturers.

Purity crusades also indirectly helped increase the popularity of plain white vessels in the late nineteenth and early twentieth centuries, as social reformers—many of whom were white and middle class—focused on cleaning up city streets, improving sanitation, and ridding cities of disease epidemics. Part of this crusade was the public promotion of purity at the dinner table. Unfortunately, many of these white public health reformers were also motivated by Social Darwinist ideas, and sanitation problems and disease epidemics were often blamed on African Americans and East-European immigrants, who were stereotyped as being the harbingers of disease and social decay (Friedman 1970:123).

Plain whiteware sherds date from 1830 to the present (Majewski and O'Brien 1987:119). While many of these sherds may have come from plain vessels, it should be noted that many of these sherds may also be undecorated parts of decorated vessels. Of the whiteware fragments collected during the current project, 19 were plain whiteware.

Embossed/Molded Design

As transfer printing became popular on pearlware, molded designs had been simplified. Molded designs were revived with the introduction of whiteware in the late 1830s, but they did not attain the elaborateness of previous forms. Specialized moldings for whiteware were common in the 1840s, when the ware had a more limited and generally more affluent market (Wetherbee 1980).

During the 1860s, embossing tended to become softer in relief than the angular and sculpted forms of the 1840s and 1850s

(Wetherbee 1980). During the 1870s and 1880s, molded decorations occupied smaller areas on dishes, and elaboration was confined to handles and lids. British stylistic trends dominated the embossed and molded whiteware industry throughout most of the nineteenth century (Wetherbee 1980). Since a distinction between mold types was not made, the date for embossed/molded design wares recovered was defined as 1860 to the present. One embossed/molded whiteware sherd displaying a molded rim and molded line decoration was recovered.

Slip decorated

Slip decorating, variously termed dipped, annular, or banded, refers to a technique used to apply bands or stripes horizontally to hollow vessel forms such as mugs, bowls, cups, and covered dishes (Majewski and O'Brien 1984:163). The bands or stripes applied to the particular vessel, unlike hand-painted flat decorations, will have slight relief. Various colors can be found on slip-decorated wares. Over time, the bands became wide, and the colors changed from earthen browns, greens, yellows, blues, and black to bolder colors, such as bright blues, yellows, and white. Very narrow bands of white or black were often found on the later, brightly colored vessels. Slip-decorated vessels may be further enhanced with one or more of the following decorative types: rouletted or engine-turned decoration, hand-painted swirls, marbled motifs, and mocha designs.

Rouletted decoration is produced when a shaped instrument is pressed onto a still damp slipped vessel as it is turned on a potter's wheel, thereby exposing the contrasting paste color beneath (Godden 1963:105). Hand-painted decorations were often used on annular wares as accents between bands. These designs were often swirled, resembling finger painting or black-and-white "cat's eyes." In addition to these hand-painted motifs, zigzag and other abstract-shaped concentric lines were often applied between bands (Majewski and O'Brien 1984:163). Mocha decoration is produced when an acidic mixture (usually consisting of various