Archaeological Investigations at
St. Anthony's Garden (16OR443), New Orleans, Louisiana

Volume I: Fieldwork and Botanical Results of 2008 Season

by: Shannon Lee Dawdy, Kristen Gremillion, Sue Mulholland, and Jason Ramsey

(with contributions by: Adela Amaral, Tian Tian Cai, Zachary Chase, Megan Edwards, Jennifer Ganze, Christopher Grant, D. Ryan Gray, Stacy Hackner, Julia Haines, Katherine Jacobsen, Petra Johnson, Sarah Kautz, David Pacifico, and Sarah Sticha)

report prepared by: Shannon Lee Dawdy
University of Chicago, Department of Anthropology

for: Cathedral of St. Louis King of France and The Getty Foundation

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Abstract

This report presents the results of archaeological research conducted at the Antoine Garden Site (16OR443, also known as St. Anthony's Garden), located in the back of St. Louis Cathedral in the French Quarter of New Orleans, Louisiana. The site, which presently is used as a formal garden for the Cathedral, is bounded by Royal Street to the northwest (lakeside) and by Pirate's Alley and Pere Antoine Alley to the sides. It is a multi-component site that contains extraordinarily well-preserved and artifact-rich deposits from the French colonial (ca. 1717-1768), Spanish colonial (ca. 1769-1804), and antebellum (ca. 1804-1860) periods. Although maps suggested that the site had no permanent or major structures present in the eighteenth century, several unexpected features were encountered, including what is estimated to be the oldest known European structure identified in New Orleans (ca. 1717-1726). From June 15 to July 10, 2008, Shannon Lee Dawdy of the University of Chicago's Department of Anthropology headed the fieldwork, a project developed in collaboration with The St. Louis Cathedral, New Orleans Archdiocese. Eight Chicago students and over 15 local volunteers assisted. This archaeological investigation is one component of the planning phase for the restoration of the historic landscape of the garden, which was badly damaged by Hurricane Katrina. The Getty Foundation is supporting an interdisciplinary and international effort to study and redesign the garden. The purpose of this volume is to satisfy those aims of the research design relevant to garden restoration and landscape planning, with a focus on a description of the fieldwork and features identified on-site, as well as the results of archaeobotanical analyses (macrobotanical and phytolith). A later volume will expand upon the non-garden aspects of site's history, and include a complete cultural artifact inventory.
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At the University of Chicago, the list of students contributing to laboratory processing and analysis (most as unpaid volunteers) continues to grow, but presently their names (in addition to those above) are: Tian Tian Cai, Stacy Hackner, Julia Haines, Petra Johnson, and Sarah Sticha. These dedicated undergraduates have shared their research on select artifacts from the project, presented in Appendix B.

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-- Shannon Lee Dawdy
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Chapter One

Introduction

Background and Overview

This report describes the archaeological field methods and summer 2008 results for the Antoine Garden site (16OR443), located in the back of St. Louis Cathedral in the French Quarter of New Orleans, Louisiana. The site is presently used as a formal garden for the Cathedral, bounded by Royal Street to the northwest (lakeside) and by Pirate's Alley and Pere Antoine Alley to the sides (Figures 1.1 and 1.2, Plate 1.1). Also known as "St. Anthony's Garden," the lot measures 31 meters wide by 43 meters long (NE/SW). It has been recorded with the Louisiana Division of Archaeology as "Antoine Garden" and given the site number 16OR443. The property is owned by the Archdiocese of New Orleans.

This archaeological investigation is one component of the planning phase for the restoration of the historic landscape of the garden, which was badly damaged by Hurricane Katrina. The Getty Foundation is supporting an interdisciplinary and international effort to study and redesign the garden. The planning study overseen by The New Orleans Archdiocesan Catholic Cultural Heritage Center includes archival research on the garden components of the site performed by historians Sally Reeves and Gilles Langlois. Thus, the archaeological report will not provide a historical overview, as this is provided by other components of the comprehensive report of which this is one part. However, the findings of the archive search shaped the research design and were instrumental in several archaeological interpretations (see Chapter 5).

The purpose this report (Volume I of the 2008-09 season) is to satisfy those aims of the research design relevant to garden restoration, with a focus on a description of the fieldwork and features identified on-site, as well as the results of archaeobotanical analyses (macrobotanical and phytolith). Volume II will address the non-garden aspects of the site's history, and include a complete cultural artifact inventory.

The chance to excavate before the deposits are damaged by the landscape redesign represents a rare opportunity, and one of critical research value. Although there have been a handful of scientific excavations undertaken in the French Quarter (most of quite modest scale), these have been at the sites of private residences, businesses, and government buildings such as a soldiers' barracks and the Cabildo prison. None have focused on the more public spaces of city life such as markets, parks, or the church.

This excavation represents one of only a handful of scientifically controlled excavations ever conducted on colonial-era archaeological deposits in the French Quarter. Among these, it ranks as one of the most extensive in terms of the diversity of historic strata, as well as artifact yield, producing three times the number of artifacts as other colonial sites (Dawdy et al. 2008). At present, it is estimated that the 2008 excavations have produced approximately 32,000 artifacts, exclusive of botanical remains.
Field and Lab Work

From June 15 to July 10, 2008, Shannon Lee Dawdy of the University of Chicago's Department of Anthropology headed the fieldwork with the assistance of eight University of Chicago students and over 15 local volunteers (Plate 1.2). Project members recorded features, recovered artifacts, and collected soil samples to aid in the reconstruction of planting practices in the space from the French colonial period through to the mid-20th century. Public interpretation of the site was on-going, as the open fencing allowed passersby to observe and ask questions. On July 1, the archaeology team and the rectory staff hosted a press-day and a two-hour open house for the public during which time an estimated 300 visitors came through the site to learn about the archaeological project and the garden restoration. At the end of the fieldwork, in mid-July, the artifacts and soil samples were transported to the University of Chicago for processing.

Fieldwork consisted of: mapping, surface collecting, shovel testing, and four large excavation units (three 1x2 m units and one 2x2 m unit) placed in each quadrant of the site. All soils were screened through 1/4" mesh unless collected for flotation samples, which were run through 1/16" mesh. Three units were excavated to sterile soil (encountered between 120 and 160 cm below surface), although subsided timbers associated with an early French colonial structure were left in tact in EU 1 in order to facilitate exposure upon a hoped-for return to the site to clarify the dimensions and character of this structure.

The stratigraphy at the site is quite complex and deep, as is not uncommon on urban sites, and especially in New Orleans' French Quarter. Using the Harris Matrix system of stratigraphic recording, 61 different contexts were identified and divided into 10-cm arbitrary levels, yielding 149 different proveniences. All features and levels were mapped, photographed, and recorded using detailed observational forms, and daily fieldnotes were maintained.

A total of 41 flotation samples (mostly 10 liter samples) were taken from unique contexts. After excavation was completed, bucket floating was performed on the University of New Orleans campus. Approximately 70% of the samples were processed there, with the remainder taken back to the lab at University of Chicago, where flotation and sorting were completed. All identified macrobotanical remains (both carbonized and non-carbonized) were sent to Kristen Gremillion of The Ohio State University for identification and analysis. In the field, 25 50-gram soil samples were also taken from natural strata in the unit walls for phytolith analysis and shipped to Sue Mulholland at the Duluth Archaeology Center for processing.

Research Design

The archaeological component of the garden planning project was designed to serve two main aims. The first was to investigate the landscape history of the garden spaces by exposing anticipated parterre features and other architectural elements (such as fences, sculptures, walls, fountains, etc.) and to identify, through archaeobotanical analysis, the species planted on the site during different time periods. The second aim of the archaeological component was to recover significant archaeological data that may be destroyed through landscape modifications of the implementation phase.
Research Questions

The following research questions drove the original archaeological research design.

1. **What is the garden heritage of this site as reflected in the archaeological record?** What were the plants and architectural elements present in the 1720s Capuchin garden, the 1850s design, and the 1941 redesign? Where were they located and do they confirm or contradict expectations from the archival record? Can parterre designs be reconstructed? Was there also a garden extant during the more poorly documented Spanish colonial period (ca. 1770-1803)? What changes and continuities can be observed between the three known gardens located on or adjacent to the site during the last three centuries?

2. **How did city residents use this public space in the past and how does artifactual evidence reflect the role of the church in market and social life?** In the colonial period, did the space behind the cathedral serve as a formal or informal market area, as it did in many early modern French towns (Davis 1984), and as suggested by the antebellum flower mart and ice cream pavilion? Were these continuations of an older pattern? Is there evidence for other economic or social activities in the form of consumption artifacts (disposable containers, food remains, multiples of the same item offered for sale)? Does market use appear to be light or heavy in nature (according to the density of deposits and whether they appear to derive from gradual under-foot accumulation or more short-term trash deposits)? Does marketing appear to be of a restricted nature that might relate to devotional activities, to social interactions following church services, and/or to public recreational use of the area? Does the public and commercial use of the site appear to cease after the ca. 1850 cathedral expansion and garden design? Is there evidence for changes in public site use prior to 1850 that could be related to other political, social, or economic factors? Is there evidence of devotional activity at the site (candle wax, rosaries, votary artifacts, etc.) and if so, how does it relate spatially and temporally to market and social activities? What are the dimensions and functions of the several small structures built in the shadow of the church in different periods and how do they relate to the history of the site as a religious, public, and commercial space?

3. **For those small sections of the site outside the old Orleans streetbed (strips paralleling Pirate's Alley and Pere Antoine Alley), that may possess remains of French colonial structures and their household contents: do consumption artifacts (food remains, furnishings, clothing items, etc.) and architectural features support the following propositions about French New Orleans (after Dawdy 2008)?**

   a. Wealthy households and those of high social standing concentrated along the riverfront and social status predictable graded downward toward the lake. The residents of the block including the site should represent upper-middle bureaucrats and merchants.

   b. Smuggling was a significant economic factor in French New Orleans, particularly for liquor, cloth, flour and some household goods (ceramics, glass, furniture). There should be evidence of banned goods from Spanish colonial, Dutch, and/or English sources. The economic wealth of residents is also expected to be higher than that represented in official correspondence.
Food consumption in French colonial New Orleans embraced native foods, with a reliance on corn and a great diversity of wild game. Additionally, agronomical influences from Africa, Mexico and the Caribbean were as important as efforts to transplant European foodways, such as French dairy and cattle complexes.

The first two sets of research questions inform the garden restoration, and thus this volume. Pertinent findings are summarized in Chapter 4. Findings relating to the third set of questions, and new ones which arose in response to on-site discoveries, will be addressed in Volume II.

Scope of Archaeological Work

Historical documentation available at the time the research design was originally drafted had suggested that use of the plot has been relatively stable over time. It was assumed that relatively few episodes of demolition and rebuilding had occurred on the site as compared to nearby residential urban lots. As a result, the research design presumed relatively simple stratigraphy and the feasibility of opening relatively large areas in the short field season (several 4 square meter units). It was estimated that from 12 to 20 square meters total would be excavated at five loci across the site.

The actual conditions at the site were soon revealed to be quite different. Early 20th-century use of the site was quite intense (a pet cemetery, feasting areas and pits, and a temporary chapel dating to 1915). Further, substantial residential buildings occupied portions of the lot when Orleans Street cut through it between the 1790s and 1820s, and along one side an earlier generation of buildings fronted the street prior to the 1788 fire. Numerous features associated with these buildings and the Orleans street bed were encountered and, below these levels, two very early French period structures. Nearly all strata were also characterized by extremely dense artifact deposits indicative both of on-site use and of disposal on the lot by surrounding residents.

The contemporary garden space overlaps or encompasses at least four historic gardens: a colonial food garden cultivated by the French Capuchins, the kitchen garden of Pere Antoine dating ca. 17890-1890, a landscaped public park dating to the antebellum period (1830-1870) that featured an ice cream pavilion and flower mart, and the cathedral’s formal garden in the space which dates back to Reconstruction. Deposits and features likely associated with each of these garden episodes prioritized in the research design were identified during the excavations.

As a result of this complexity and the overall depth of deposits (110-150 cm below ground surface), some horizontal exposure was sacrificed for vertical control and five extra days were added to the field season. In the end, 10 square meters were exposed in the excavation units and another 5 meters in the shovel tests, for a total of 15.

Highlights of the 2008 field season include:

- The earliest architectural structure ever identified in New Orleans, a ca. 1717-1726 simple hut, which predates the streetgrid and appears to be a structure associated with the pioneer land-clearing days. A second very early, and well preserved, wood poteaux-en-terre structure dating to the early French period was also found (ca. 1726-1750s).
• The highest percentage of Native American material culture ever found on a colonial era site in New Orleans. Particularly noteworthy is a red-painted pottery newly nicknamed “New Orleans Red.” These ceramics as well as hide scrapers and wild animal food remains suggest that Indians were much more involved in the founding of New Orleans than the archival record allows.

• The original street surface, ditch, and banquette of Orleans Street (ca. 1726-1830s) which cut through the space before it was converted to a public garden. This is the first time the old ditch and banquette architecture has been exposed and investigated archaeologically. The ditch was full of the debris and lost items of early New Orleanians, with great potential to inform us about the conditions of daily life in the city, from clothing habits to health and diet.

• Numerous small items associated with religious, recreational, and educational activities that took place on the site, the highest concentration of any known site in New Orleans. A silver crucifix possibly associated with Pere Antoine is the most spectacular small artifact found at the site, but others such as votive statuary, children’s toys, coins, and evidence of past barbeques and picnics speak to the special place this garden area had in the lives of New Orleanians.

Report Organization

The remainder of this volume consists of four additional chapters and one appendix. Chapter 2 provides a background of the environmental setting, regional prehistory, and summary of relevant previous archaeological investigations in New Orleans. Chapter 3 presents the field methodology and results of excavations, and interprets the stratigraphy of the site in detail. Chapter 4 presents the laboratory methodologies and results of archaeobotanical analyses (macrobotanical and phytolith). Chapter 5 interprets the technical results of the fieldwork and archaeobotanical analyses in light of historical research, and offers conclusions and recommendations pertinent to garden restoration. Appendix A presents the Louisiana Site Form for the property. Appendix B is a set of undergraduate student research reports on select artifacts from the site, a preview of the full artifact analysis to come.
Figure 1.1. Areal map of Antoine's Garden site (16OR443) (highlighted in yellow). USGS 7.5' Quadrangle Orleans East.

Figure 1.2. Location of Antoine's Garden site (16OR443) in city square (highlighted in yellow). 1906 Sanborn basemap.
Plate 1.1. Street view of site (from Royal, facing south).

Plate 1.2. Overview of site, showing excavations in progress (EUs 1 & 2), facing east.
Chapter Two

Setting and Previous Archaeological Investigations

This chapter describes the environmental and prehistoric setting of the Antoine Garden Site in order to place the site within a regional, chronological context. A brief review of previous archaeological investigations on Vieux Carré sites and sites with comparable data is provided in order to situate the present study within a body of ongoing archaeological research.

The Environment

Geomorphology and Soils

The terrestrial surface of Orleans Parish is geologically quite young, having been formed by the deposit of sediments from the Mississippi River over the course of the last 4,800 years. Through a process of sedimentary buildup and changes in the river’s course, the land New Orleans is built upon was transformed from open gulf waters to marsh, then swamp, and finally, a narrow strip of dry hardwood forest along the high natural levee of the river. Sediments are still in the process of settling and compacting following their recent deposition, and as a result subsidence (or sinking) of ground surfaces is characteristic of the landscape and a problem for modern development. The river has been in its current channel only for the last 1,000 years, so that the land that forms most of the older neighborhoods of New Orleans is about the same age. The margins of Lake Pontchartrain are older, however, dating back 2,000-2,500 years. In recent times, additional dry land has been created by the introduction of imported fills into the “backswamp” portions of the city lying midway between the natural levees of the river and Lake Pontchartrain (Yakubik et al. 1996:15-18).

St. Antoine's Garden is located on urban land where buildings, roads, and development cover more than 85% of the land surface and soil survey information is unavailable (U.S.D.A. 1989:23). One common characteristic of urban land areas is the widespread presence of miscellaneous and artificial fill. The site is located on relatively high ground, at 10 feet above mean sea level. It also sits approximately 400 feet inland from an accreting point bar of the Mississippi River (meaning that if not controlled by the artificial levee, the batture in this area would naturally be growing in thickness and width).

Similarly situated land in adjacent, surveyable areas of New Orleans consist of soils in the Commerce and Sharkey series (U.S.D.A. 1989). Natural soil profiles recorded at the site location (see Chapter Four) strongly resemble the description for Commerce silty clay loam (U.S.D.A. 1989:21-22, 48-49). Commerce soils occur on high to intermediate positions on the Mississippi’s natural levee and consist of dark gray to grayish brown silt loams and silty clay loams with a substratum of clay (U.S.D.A. 1989:7). Slope is less than 1%. These soils have relatively high fertility, but are poorly to somewhat poorly drained (U.S.D.A. 1989:15, 22, 52-53).
Climate

New Orleans is in the sub-tropical zone with a long hot season characterized by high temperatures (mean high in July is 84 degrees Fahrenheit), high humidity (greater than 70%), and heavy rainfall. The hot season extends from late May to September. A cool season follows, characterized by lower humidity and a mean temperature of 64 degrees Fahrenheit (Saucier 1963:6). Occasional freezes do occur in the coldest months (December and January), which prevents the area from being a true tropical climate. The annual mean temperature is 70 degrees Fahrenheit; the average mean rainfall is 64 inches annually (Saucier 1963:6). The climate is heavily influenced by conditions in the nearby Gulf of Mexico, with hurricanes posing a threat in the late summer and early fall.

Flora and Fauna

The floral and faunal species extant in New Orleans are almost exclusively the result of recent human activities (Castille et al. 1986:3-2). Fauna such as the Norwegian rat, pigeons, squirrels, dogs, and cats share the area with small populations of native songbirds, water fowl, opossums, rabbits, snakes, and insects. A greater variety of faunal species (including white-tail deer, fox, alligator, raccoon, and a wide range of riverine fish) was present in the prehistoric and early colonial periods. Vegetation is largely the result of horticulture. The tree population is a mixture of native species such as live oak, Southern magnolia, and bald cypress, with introduced species such as fruit trees, crepe myrtle, Chinese tallow, and sweet olive. Garden flowers and shrubbery consist largely of introduced species appropriate to the sub-tropical climate, with the occasional native palmetto, swamp iris, or coneflower. Prior to historic settlement, vegetation would have been dominated by bottomland hardwoods such as sweet gum, hickory, cottonwood, magnolia, red maple, hackberry, pecan, and a variety of oak species (Saucier 1963:20, 100).

Aboriginal Occupation

Native American peoples have lived in the vicinity of New Orleans for at least 2500 years. Prehistoric occupations from the major cultural periods of Louisiana are represented from Poverty Point through historic times.

The Linsley Site (16OR40), located northeast of the city, is probably the oldest site in Orleans Parish, dating as early as 1400 B.C. (Gagliano et al. 1975:44-47). The Linsley site helped define an early local phase of Poverty Point culture. A pre-ceramic and pre-agricultural society, Poverty Point (circa 1500-500 B.C.) is named for the complex, large-scale earthworks found in West Carroll Parish, Louisiana. The site appears to have served as a major trading center for people living in small villages (such as the Linsley site) in the late archaic period. In addition to earthworks, Poverty Point material culture is distinguished by figurative and decorated clay cooking balls, soapstone (steatite) vessels, and a highly developed industry involving the manufacture of tools, beads, and ornaments from a variety of imported stone (Yakubik and Franks 1997:27).

Progressing forward in time, sites become more common in later cultural periods as the geology and ecosystem of the New Orleans area stabilized. Thus, a few scattered sites dating to the Tehula Period (500 B.C. - 0 A.D.) are found in Orleans Parish, most notably Big Oak and Little Oak Islands (16OR6, 16OR7). The local culture during that period is identified as Tchefuncte. It was the
Tchefuncte people who began making simple ceramic vessels for the first time in Louisiana. Marksville Sites (0-300 A.D.), with their Hopewellian characteristics, such as conical burial mounds and highly decorated ceramics, are concentrated north of Orleans Parish and in the Barataria Basin, just south of the city.

In the Delta area, the Baytown (also called Troyville) Period (300-700 A.D.) is difficult to distinguish diagnostically from the subsequent Coles Creek Period (700-1000 A.D.), but it was during Baytown that human settlement in the area south of Lake Pontchartrain began to expand. Prehistoric population peaked during subsequent Coles Creek times (Yakubik and Franks 1997:29). Hundreds of small campsites and villages surrounding flat-topped ceremonial mound centers have been identified, many within the boundaries of Jean Lafitte National Park, Barataria Unit. Others may have existed on the east bank of the river, but have been destroyed or obscured by historic development. It appears likely that an increasing development of, and dependence upon, agriculture spurred this growth, although this is a question which continues to fuel research and debate (Neuman 1984:213). A complex social organization with an aristocratic ruling class and powerful religious leaders is indicated by the architectural and burial traditions uncovered through archaeology.

“Plaquemine Culture” is the name given to the people and material culture of the southern delta during the Mississippi Period (1000-1700 A.D.). Plaquemine culture is distinct from the Mississippian cultural complex that dominated much of the southeast during this period. Although they share a common maize-based agriculture, a class-ranked society, and the prominence of multi-mound ceremonial centers, Plaquemine is distinguished from the Mississippian sphere by the lack of “death cult” religious motifs and shell-tempered pottery which characterize the latter. Interestingly, very few European artifacts are found on late Plaquemine sites in comparison with contemporaneous late Mississippian sites, suggesting that geographic isolation affected the local population well into the contact period (Neuman 1984:268). However, the cultural geography of the Gulf Coast region during this time is complex and the New Orleans area appears to have experienced some influence or native migration from a Pensacola variant of Mississippian culture in pre-contact times (Yakubik et al. 1996:45).

Archaeologists often have difficulty relating protohistoric archaeological cultures to known historic tribes, but it is likely that most of the groups encountered in the New Orleans area when the French arrived at the end of the 17th century were the immediate descendants of Plaquemine peoples. European diseases, however, certainly preceded the French establishment of Louisiana in 1699 and had a profound effect upon the local populace. Internecine warfare partly resulting from the distant westward push of European colonial settlement and competition in the fur trade also disrupted and displaced Native American groups during this time (Yakubik and Franks 1997:29; Giardino 1984).

In the 18th and early 19th century, the dominant local group was the Ouacha, who moved about in the area between Bayou Lafourche and the Mississippi River. A closely related but smaller group, the Tchouachas, appear to have occupied the northern reaches of this territory, moving up and down the west bank of the Mississippi River (Kniffen et al. 1987:55-56). A group of Tchouachas lived near English Turn in the early 18th century and in the vicinity of Westwego in 1758. In 1706, a group of Ouma (Houma) fled their native territory due to an attack by the Tunica and had temporarily settled in a village along the banks of Bayou St. John when the first European settlers staked their claims in the area (Yakubik and Franks 1997:29).
In the colonial period, many native people made a living as professional hunters for European settlers. In the 19th century, displaced Choctaws also made their way to the street markets of New Orleans, where they sold herbs, roots, baskets, and (archaeology suggests) perhaps their pottery. Evidence for local and imported Native American pottery in historic European households has been found at many 18th- and early 19th-century sites in the New Orleans area, including the Hermann-Grima House, Chalmette Battlefield, the 1730 New Orleans military barracks, the Cabildo prison, Bienville’s concession on the west bank, Madame John’s Legacy, and the St. Augustine site (Yakubik 1990; Yakubik et al. n.d.; Yakubik and Franks 1997; Franks et al. 1990; Dawdy 1998; Matthews 2002; see also below). A comprehensive study of colonial Native American, African, and European interactions at the household level has yet to be done for the New Orleans area. Nor is the pre-colonial Indian occupation within the present-day boundaries of the city well known beyond the Big Oak/Little Oak Island sites in New Orleans East. In 2005, however, a likely 17th-century precolonial Indian encampment was identified at the Rising Sun Hotel site (16OR225), three blocks from the study area (Dawdy et al. 2008).

**Previous Archaeological Investigations in the French Quarter**

To date, approximately 100 archaeological investigations have been conducted within New Orleans’ city limits. The majority of these have been minor studies conducted to monitor Federal construction projects or survey small, low-probability parcels on batture lands. Because so few excavations have been completed on colonial-period (ca. 1699-1805) urban sites in New Orleans, little exists in the way of reliable comparative data for the early components of the present study. Fairly exhaustive summaries of previous investigations conducted within the city limits can be found in Dawdy and Maygarden (1996) and Pendley (1992). It is unnecessary to reiterate most of that information here. What is offered instead are brief characterizations of projects located in the French Quarter and major projects in the area comparable in their chronology or function.

**Public/Government Sites**

**U.S. Mint (16OR52).** Located on the downriver edge of the quarter, mitigation excavations near the base of the 1835 standing building included an unsuccessful search for the Spanish colonial Fort Carlos (circa 1792) and an earlier rampart system (circa 1760) that were located on this spot before being dismantled between 1816 and 1821. In 1978, the Louisiana Division of Archaeology excavated three test units totaling approximately 5 square meters in area to depths ranging from 30 cm to 145 cm below surface. One unit found soils disturbed by a sewer line, another was placed within the builder’s trench of the U.S. Mint building and limited to that feature, and the third was set 1.2 m from the building’s northeast wall. The last uncovered evidence for a demolition and construction sequence as well as a paved floor, with possible late-18th century association (Castille 1978). This indication warranted archaeological monitoring of mechanical excavations for new utility lines. Monitoring uncovered brick footings for a small structure (probably a coal shed), a central set of privies, a cistern base, and a smokestack foundation. All were features related in date and function to the 19th-century use of the U.S. Mint building (Gibbens 1978).
Congo Square. In 1977-78, Dr. Richard Shenkel directed an excavation team from the University of New Orleans at this site on the edge of the historic Tremé neighborhood (Shenkel et al. 1979). Although federal agencies were involved in the redevelopment of Beauregard Square (as it was then known) into Louis Armstrong Park and Jazz Complex, the archaeological potential of the site was not considered until demolition and landscaping were well underway (Pendley 1992:78). Despite damage to the site, several artifact-rich features associated with demolished 19th-century residences were excavated, including several privies. The most significant find, however, was an intact portion of the moat and a foot-bridge associated with colonial Fort San Fernando. Along with Fort San Carlos located in the vicinity of the Mint, San Fernando was one of five forts located at pentagonal intersections of the rampart. The wooden floor of the bridge was remarkably well preserved. After the fort was torn down in 1803, the area became a public square best known as a meeting-place for slaves on Sunday afternoons. Excavations were accomplished through a combination of backhoe trenching and 5x5 foot pits hand-excavated in ½ foot arbitrary levels (Shenkel et al. 1979).

Royal Military Barracks (16OR136). This project became one of the most interesting excavations to have been done in New Orleans’ French Quarter. In 1991, Earth Search, Inc. excavated six contiguous 1x1 meter units beneath the floor of a raised Creole cottage at 726-728 Toulouse Street, owned by the Historic New Orleans Collection. In addition to levels clearly associated with the 19th-century occupation of the cottage, an earlier structure (probably a kitchen) was discovered with clear evidence of damage from a severe fire. Associated ceramics indicate this was probably the fire of 1788 (Yakubik and Franks 1997). Most remarkable, however, were the well-preserved remains of an even earlier structure encountered at 66-70 cm below datum (Yakubik et al., n.d.). Upright planks, a post, a sill trench, and a thin oyster-shell floor were clearly identifiable and datable to the French colonial period. According to historic maps and stratigraphic association, these appear to be the remains of the French colonial barracks built ca. 1731. This project marked a watershed in the archaeology of French Quarter sites, demonstrating that a meticulous approach to the area’s complex urban stratigraphy combined with local preservation conditions can result in identification of single events, such as the great fire of 1788, and an elucidation of daily life during New Orleans’ earliest days. It was arguably the first archaeological study to make a significant contribution to our understanding of the French colonial period (ca. 1699-1762).

Cabildo (16OR129). Since 1721, the lot flanking the upriver side of St. Louis Cathedral on the central town square (called Place d’Armes originally, now Jackson Square) has been set aside for government use. Now owned by the Louisiana State Museum, over the course of its history the site has housed a police station, a civil prison, a military prison, the Superior Council chamber, the Cabildo (town hall or colonial capital building), jailers’ quarters, a firehouse, and an arsenal (Yakubik and Franks 1997:32). These functions were contained in a complex of buildings and small courtyards that underwent an evolution of building, demolition, fire damage, and remodeling over 200 years. Excavations conducted by Earth Search, Inc. in 1990 helped establish the building sequence at the site. Six test units were excavated in the rear courtyard area coinciding with the location of the former civil prison in order to mitigate trenching for new utility lines. Below-ground architectural features consisted of the lower walls and foundation of the 1730 prison, a 1790 brick floor, a late 19th-century foundation of a small shed structure, and the remains of a corridor addition. The richest artifact-bearing feature was a midden deposit dating to circa 1800-1840 that had accumulated on the prison floor. This deposit full of rat bones vividly confirmed historical accounts describing the fetid condition of the prison, and even suggests the accounts were understated.
Another finding was that the prisoners were involved in the manufacture of bone buttons, evidenced by the discovery of numerous bone button blanks in the prison yard. Perhaps one of the most important findings for this study was that the investigation included the analysis of faunal material from the midden deposits which provided an important baseline for the archaeological study of diet in early New Orleans (Yakubik and Franks 1997).

**Ursuline Convent.** The first archaeological study of this site was instigated by a 1978 request from the Archdiocese to demolish the remaining walls of a building used for St. Mary’s School. Examination of a trench, the brick walls, and foundation confirmed that a significant portion of the remaining structure belonged to the original Almonaster Chapel and dated to 1786 (Shenkel and Beavers 1978). Although demolition was not permitted at the time, the building was not stabilized and eventually crumbled away. In 1995, Earth Search, Inc. conducted limited shovel testing in the courtyard garden area of the convent, which included the area of the old school (Dawdy and Yakubik 1995). Testing was designed to mitigate any damage from planned tree-planting and landscape activities, so units were excavated only to estimated impact depths, or 20-50 cm below surface. Because of infilling (much of it resulting from the dispersal of rubble from the St. Mary’s school building), this was sufficient only to reveal 19th-century deposits at the site. However, good preservation was indicated and intact colonial deposits associated with the French colonial convent presumably lay below this level.

**St. Peter Street Cemetery.** In 1984, construction workers uncovered coffins and human bones on the site of a new condominium complex located on the edge of the French Quarter in the square bounded by St. Peter, Burgundy, North Rampart, and Toulouse Streets. Historic maps and archival records demonstrate that this was the site of the city’s first official cemetery, established in the early 1720s. It remained in use until the St. Louis I Cemetery was opened in 1789 and the site was eventually built over and developed. No federal or state laws at the time protected archaeological sites on private property or unmarked burials, so construction was allowed to continue (Pendley 1992:86-87). Archaeologists Doug Owsley and Charles Orser from Louisiana State University were permitted to salvage what they could during construction. Twenty-nine skeletons were removed and eventually taken to the Smithsonian for study. Their analysis gives a fascinating picture of the racial make-up, diet, and physical conditions of New Orleans’ population during the French colonial period (Owsley et al. 1986).

**French Quarter Residences and Historic Businesses**

**Gallier House Complex (16OR46).** Located in the French Quarter on Royal Street, this lot was part of the Ursuline Convent’s grounds until 1825 when it was sold off by the church. In 1832, a large two-story service structure was built on the site and used variously as a mineral water storehouse, a livery stable, and a furniture dealer’s warehouse. In 1857, a large and elegant townhouse was built adjacent to the warehouse and is now open to the public as a house museum. Mitigation excavations in 1970 revealed midden and trash deposits dating mainly to the mid-19th century occupation of the site. Unfortunately, no artifact-rich deposits clearly associated with the colonial convent period were identified (Hudson n.d.).

**Hermann-Grima House (16OR45).** Archaeological investigations at this house museum site began in the 1970s under the direction of Richard Shenkel of the University of New Orleans (Shenkel
1977) and have continued to the present (Davis and Giardino 1983; Lamb and Beavers 1983; Beavers n.d.). Excavations of the well-preserved courtyard of this residential complex have demonstrated the typical “layer-cake” nature of French Quarter yards, with four to five pavements and intervening midden build-ups having raised the elevation of the yard over the generations. Most of the recovered material dates to occupation of the standing complex, the main house having been built in 1831. However, deposits associated with an earlier 18th-century occupation and one of the great fires (1788 and 1794) were intact at the site before extensive excavations. Unfortunately, little effort has been made to fill out the archival history of the site to aid interpretation of these 18th-century deposits. Idiosyncracies of the researchers’ field methods and artifact analyses further limit the utility of this site for comparative purposes (Yakubik and Franks 1997: 10-12).

Madame Johns Legacy (16OR51). A National Historic Landmark, the standing structure is a well-known stop on today’s walking tours of New Orleans. Located on Dumaine Street in the French Quarter, this "French Indies" style house is a rare representative of the architecture that typified the town in the French colonial period. For the entire French period, the site was owned by a French woman named Elizabeth Real who operated an inn there with the help of her two ship-captain husbands. In the Spanish period, the site was occupied by a well-known smuggler’s family, followed by the captain of the Spanish regiment and his daughters. In the early American period, it passed into the family of Louisiana's first American governor (Dawdy 1998). Excavations at the site by Richard Shenkel in 1971 (Shenkel n.d.) and by Shannon Dawdy in 1997 (Dawdy 1998) uncovered evidence of the largest disaster to hit New Orleans prior to Hurricane Katrina -- the 1788 fire that destroyed three-quarters of the town. Archaeology has confirmed that surviving walls of the house were used in its reconstruction that same year. Dawdy's excavations in the rear courtyard included a spectacularly well-preserved trash pit dating to the fire. It contained the household's burned contents, a much larger and more representative sample of material possessions than archaeologists usually collect, as well as the food preparation remains dating to some months prior to the fire. Below and above this trash pit were deposits associated with the French colonial and early American occupations. The site has been particularly useful for establishing a baseline regarding diet, trade, and the Native American presence in 18th-century New Orleans.

410 Chartres Street. In 1995, Earth Search, Inc. was asked by the Historic New Orleans Collection to monitor mechanical excavations for two large elevator shafts in their newly acquired building at 410 Chartres Street (Jones et al., n.d.). The standing structure, which now houses the Williams Research Center, was built in the early 20th century and served as a courthouse and police station until fairly recently -- the same courthouse and police station which the garage on Conti Street served. The Williams Research Center occupies a lot which formerly contained an early 19th-century townhouse complex. Residences, stores, a restaurant, and a Chinese laundry occupied the space in the late 19th century. An artifact-rich, backfilled well associated with this building was sheared off and profiled in one of the mechanically excavated elevator pits. A large footing and builder’s trench for the 19th-century building were revealed in the second elevator pit. The Widow Mandeville’s French colonial period house (similar in appearance to Madame John’s Legacy) covered a portion of the lot in the 18th century, although only a few early colonial artifacts (majolica and salt-glazed stoneware) were found. Without hand-excavation, it was difficult to ascertain the stratigraphic integrity of these early deposits that may remain in between the foundations and excavated features of the later buildings.
**Rionda-Nelson Cottage (16OR140).** In the summer of 1996, the College of Urban and Public Affairs undertook excavations at the city-owned Rionda-Nelson cottage as part of a planning study paid for by the Louisiana Department of Culture, Recreation, and Tourism to explore the feasibility of a public archaeology program in New Orleans (Dawdy 1996). Approximately 350 teenagers enrolled in a summer camp operated by the New Orleans Recreation Department assisted as part of their educational curriculum. The project was instigated in anticipation of renovations to the property planned for the fall of 1996. The standing structure is a classic Creole cottage built circa 1811. Lying in the north corner of the French Quarter, archival records indicate this is probably the first substantial structure ever to be built on the site, although the area was probably under cultivation throughout the colonial period. Nine excavation units were opened in the rear courtyard between the cottage and the service building, but only two were taken to sterile soil due to the time constraints of the project and the limited impact of the renovation plans. The stratigraphy of the courtyard was surprisingly “clean” in comparison to other courtyards in the French Quarter and lacked the distinctive layering of courtyard and midden levels. As a result, the artifact assemblage recovered was not useful for the interpretation of historic New Orleans’ households. On the other hand, analysis of the thick, artifact-poor loam found at the site led to a better understanding of Creole gardening traditions and ethnic distinctions in New Orleans’ urban landscape (Dawdy 2000).

**417-419 Rue Decatur Street.** The National Park Service renovated a group of buildings at 417-419 Decatur Street in New Orleans’ Vieux Carré in 1998 (Hardy et al. 2002). The Southeast Archaeological Center (SEAC) of the National Park Service conducted archaeological monitoring of the removal of a small, unstable building in the interior (referred to as Building IV) and construction-related excavations followed. Monitoring determined that significant archaeological resources were present on the site. Ten test units were excavated and revealed evidence of substantial 18th- and 19th-century building episodes and trash deposits associated with a domestic residence. Unfortunately, no historical contextualization of the site has thus far been offered to interpret the archaeological findings in this highly significant area of the French Quarter.

**Rising Sun Hotel (16OR225).** Located at 535-537 Conti Street in the French Quarter, this multi-component site (now destroyed) contained well-preserved deposits associated with a protohistoric encampment, a French colonial garden, a Spanish colonial dwelling, a late Spanish/early antebellum boarding house, a coffeehouse/tavern/hotel combination (last known as the Rising Sun Hotel), an upscale 19th-century hotel, and late 19th/early 20th-century commercial establishments. Materials dating to the city’s disastrous 1794 fire, and the 1822 fire that destroyed the Rising Sun Hotel, are particularly well preserved. Fieldwork was completed through a collaboration between Dr. Shannon Lee Dawdy of the University of Chicago, Department of Anthropology, and Earth Search, Inc. (Ryan Gray, Project Manager, Jill-Karen Yakubik, P.I.) under the sponsorship and partial financial support of the property owner, The Historic New Orleans Collection.

**Colonial Plantations**

**Orange Grove Plantation (16JE141).** Although this site lies a few miles outside the city of New Orleans, it is summarized here because annual excavations at this site for more than a decade have provided some of the best-controlled artifactual deposits from a colonial-period domestic occupation in southeastern Louisiana. Cytect Industries, the present owner of the site, engaged Earth Search, Inc to conduct the research as part of their public outreach programs. The plantation was first
granted to a Frenchman around 1723 and appears to have been intermittently settled by both Europeans and a wandering group of Tchouacha Indians during the French colonial period (circa 1699-1762). It did not become intensively developed, however, until the 1780s, when Eugene Fortier was given the land by his father (Yakubik 1990:98). Dozens of square meters of excavation units opened across the site have revealed well-preserved architectural features and midden deposits associated with the great house, kitchen, former hospital (and possible pre-1780s structure), yard area, and an early slave cabin (Yakubik et al. n.d.). Early Fortier levels provide useful data for the Spanish colonial period in particular.

Maginnis Cotton Mill Site / Duplessis Plantation (16OR144). Now lying in New Orleans’ Warehouse District, the Duplessis Plantation lay on the outskirts of the city when it was established in 1765. The site was occupied by a series of well-known Creole families up until the area’s urbanization in the 1820s. In 1997, the Greater New Orleans Archaeology Program of the College of Urban and Public Affairs at U.N.O. undertook excavations at the Maginnis Cotton Mill, which now straddles the former site of the Duplessis plantation (Dawdy and Ibáñez 1997). The majority of archaeological effort concentrated on 12 contiguous 1x1 meter units placed in a corner of the cotton mill complex that revealed the well-preserved walls and floor of the Duplessis Plantation great house. Units placed along the back wall of the house encompassed well-defined midden deposits that can be assigned periods of occupation from the early Spanish colonial period through the late 19th century. Like Orange Grove, the data from the Duplessis plantation’s early levels may be useful for interpreting the similarities and differences between urban and rural households in the Spanish colonial period.

The St. Augustine Site (16OR148). The St. Augustine site is located in the Tremé neighborhood within the yard and property of historic St. Augustine Church. In 1998, Christopher N. Matthews of the Greater New Orleans Archaeology Program of the University of New Orleans conducted archaeological testing at the site (Matthews 2002). Between 1720 and 1810, this location was the center of a brickyard and tile-making operation that supplied most of the bricks for large buildings in early New Orleans. First established by the Company of Indies (1717 - 1731), the brickyard was later obtained by the works supervisor, Charles Antoine de Morand. He continued its operation until his death in 1756. The property then passed through marriage to Claude Tremé, for whom the surrounding faubourg is named. The site's stratified deposits represent several different occupation periods stretching from the site’s first use in the 1720s through to a mid-19th century occupation associated with an occupation by the Sisters of the Presentation and, later, the Sisters of Mount Carmel, who ran a school for free girls of color. This archaeological project produced one of the largest and most varied collections of Native American pottery found in colonial era deposits in New Orleans.
Chapter Three

Fieldwork Methods and Results

Overview

This chapter describes the conditions, methods, and results of field investigations, including unit by unit descriptions and analysis of stratigraphy across the site. Fieldwork consisted of mapping, surface collection, shovel testing, unit excavation, and special sample collection and processing. Fieldwork took place between June 15 and July 10, 2008.

Site and Field Conditions

As throughout New Orleans, the site is located on a level lot of urban fill and natural alluvial soils. Elevations across the site varied by no more than 30 centimeters (hereafter cms), with most of the variation due to treefalls or other recent disturbance. The sod was loose and undulating, probably due to relatively recent introduction of clean topsoil and sprinkler installation or repairs. The center of the site (approximately 70% of ground surface) is lawn while the remainder of the site is composed of paved pathways and planting beds along the fence, with a variety of trees and bushes (for identifications, see surveyor's map in the comprehensive garden planning report). The site is enclosed by three sides by a secure 10-foot tall iron fence, and on the fourth side by the rear wall of the church. Access to the site was provided to the field crew by the Rectory of St. Louis Cathedral, which also supplied storage space for equipment and access to water and other amenities.

Portions of the site are covered by a brick and cement walkway that traces the perimeter of the garden and creates a narrow patio to the rear of the church (Figure 3.1). The site has three notable architectural features: four (empty) marble tomb vaults, a statue of Jesus Christ (in the Sacred Heart Blessing, or "touchdown" Jesus pose, which casts a shadow at night on the church and is an important local landmark, Plate 3.1), and a monument near the Royal Street gate with an obelisk and dedication to French sailors who perished off the coast in the 19th century (Plate 3.2). A modern PVC underground sprinkler system grids the site and a shallow electric line servicing outdoor lights is also present, although most of the high-voltage line is laid beneath a brick walkway, which was left intact. Termite-treatment stations and a gasline were well-marked. Water and sewer lines were also presumed to cut through the site, but a map of these features could not be located (though one early 20th-century sewer line was later identified during excavation).

Field days commenced most days at 6:30 a.m. and ended around 4:30 p.m., Monday through Saturday. The weather was warm and humid most days, with highs in the 80s (F). Rain showers interrupted work occasionally and ended some field days early, in which case the crew returned to the fieldhouse to wash artifacts. But generally these interruptions were fewer than expected. The site, which is slightly elevated compared to the adjacent streets, remained well drained and despite the heavy clay soils and deep depths of some of the units, the water table was not encountered during excavation.
Figure 3.1. Map of 2008 testing and excavations, St. Antoine's Garden (16OR443).
Plate 3.1. Mapping in progress, facing southwest.

Plate 3.2. Site overview showing location of Excavation Unit [EU] 3 (hidden by plams on left) and EU 4 to the right, facing north.
As the site is open and viewable on three sites through the iron fence, pedestrians often stopped to observe the work in progress and ask questions (Plate 3.3). Public interpretation was an ongoing effort, a responsibility shared by all the regular field crew.

Mapping

In the first phase of fieldwork, a grid was established at the site using the rear, upriver corner of the cathedral building as datum (0,0). Royal Street was designated site north (magnetic north lines 48 degrees east of site north) (Figure 3.1, Plate 3.1). A sketch map was created using a recently created professional surveyors' plan as a base. This map was oriented with the top to the south (towards the church and river) which, though non-standard, was also followed for our site map for the sake of consistency. A laser total station was also used to shoot in key reference points, grid corners, unit locations and topographic features. Elevation measurements at these same points were taken and tied into a USGS survey marker located in Jackson Square.

Surface Collection

A 10x10 meter (hereafter m) grid was projected over the 31x43 meter lot (Figure 3.1). The corresponding 12 squares and a single 2x30 m strip on the north edge of the site were designated surface collection units. Beginning with these collection units, all unique proveniences were assigned a lot number in the field for tracking throughout the field, lab, and curation phases and the number noted on the bags along with other pertinent identifying information. The collection units were thus assigned the lot numbers 1-13. A walk-over survey with 100% collection was performed within these squares, yielding many artifacts related to contemporary tourism and recent uses of the site. All artifacts were bagged and labeled by collection unit. The purpose of the surface collection was to provide artifactual evidence of use of the garden up to the present,
and also to identify areas where there may be disturbance as evidenced by up-turning of historic artifacts.

The results indicated that, as expected, there is disturbance in the areas of recent treefalls, especially along the site's east-central border (adjacent to Pere Antoine Alley) and along the fence near the southwest corner (adjacent to Pirate's Alley). However, there was little evidence of significant recent disturbance elsewhere.

Artifacts from the collection units consisted primarily of street trash (bottle glass, food wrappers, etc.) but also those indicative of the site's location at the center of New Orleans' tourism trade (Mardi Gras beads, cigar wrappers, Hurricane drink cups). Debris associated with the street life of the French Quarter was also found (hypodermic needles, and a homeless person's abandoned stash of belongings, including a solicitation sign).

**Shovel Testing**

The same 10 m grid was used to guide the placement of 30-cm round shovel tests, with rows offset by 5 meters (Figure 3.1, Plate 3.4). Some judgmental offsets were also made to avoid the sprinkler lines or other obstructions such as trees, monuments or pavement. A total of 17 shovel tests were excavated and all soils screened through 1/4" mesh. The depth of the shovel tests varied from 50 to 100 cm below surface, at which point testing became infeasible. The purpose of the shovel testing was to identify which areas to avoid or target in full testing, depending upon preservation, features, and artifact density.

Plate 3.4. Shovel testing in progress.
All shovel tests were positive for historic artifacts and only two tests indicated significant modern disturbance, one from a utility line (STP 6) and the other from a Katrina-related major tree fall (STP 14). The rest of the tests had good integrity and preservation below late-20th-century levels, or below approximately the top 30 cms of soil, which was a consistent black (10YR2/1) sandy loam of clean garden fill, probably introduced to the site during landscaping efforts between the 1970s and the present.

Table 3.1 summarizes the results. Overall, the results indicated well preserved and complex deposits across the site, with some narrow linear areas disturbed by modern utility lines.

Table 3.1. Results of Shovel Tests.

<table>
<thead>
<tr>
<th>Shovel Test Pit (STP)</th>
<th>Location</th>
<th>Notes</th>
<th>Lot</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 N5 E0</td>
<td></td>
<td>Strat I: 0-35 cmbs black (10YR2/1) loam with flower pot fragments and rubble; Strat II: 25-90 cmbs: dark grayish brown (2.5Y4/2) silt loam with late 18th-mid 19th-c artifacts, transition at 90 cmbs</td>
<td>14</td>
</tr>
<tr>
<td>2 N15 E0</td>
<td></td>
<td>Strat I: 0-25 cmbs black (10YR2/1) sandy loam; Strat II: 25-61 cmbs 2.5Y4/2 dark grayish brown loamy sand; Strat III: (61-72 cmbs) 10YR3/2 very dark grayish brown sand; moderate to dense 18th-mid 19th-c artifacts after 20 cmbs</td>
<td>15</td>
</tr>
<tr>
<td>3 N25 E0</td>
<td></td>
<td>Strat I: 0-32 cmbs black (10YR2/1) silty loam with light rubble; Strat II: 32-84 cmbs 10YR4/2 (mottled gray) silty clay, heavy brick concentration at top with 19th century artifacts; then red painted abo and chert near the bottom becoming more clayey</td>
<td>16</td>
</tr>
<tr>
<td>4 N35 E0</td>
<td></td>
<td>Strat I: 0-21 cmbs very dark brown (10YR2/2) historic brick, ceramic; Strat II: 21-50 cmbs dark grayish brown (10YR4/2) historic glass, ceramics, slate, chert; Strat III: 50- cmbs terminated on soft colonial brick feature</td>
<td>17</td>
</tr>
<tr>
<td>5 N10 E10</td>
<td></td>
<td>Strat I: 0-30 cmbs black (10YR2/1) black sandy silt, encountered utility lines and extensive disturbance; test abandoned</td>
<td>18</td>
</tr>
<tr>
<td>6 N20 E10</td>
<td></td>
<td>Strat I: 0-10 cmbs black sandy silt (10YR2/1); Strat II: 10-17 cmbs light grayish brown sand (10YR5/3) v. light artifact density, Rangia; Strat III: 17-30 cmbs dark gray clayey silt (10YR4/1) with brick and Rangia frags; Strat IV 30-85 cmbs dark grayish brown (2.5Y4/2) mottled, then dense brick rubble at 78-85 cmbs</td>
<td>N/A</td>
</tr>
<tr>
<td>7 N30 E10</td>
<td></td>
<td>Strat I: 0-30 cmbs black (10YR2/1) clayey loam with light artifact density of creamware, whiteware, glass; Strat II: 30- cmbs ended on brick and mortar feature</td>
<td>19</td>
</tr>
<tr>
<td>8 N40 E10</td>
<td></td>
<td>Strat I: 0-35 cmbs black (10YR2/1) sandy loam with some rubble, historic and modern artifacts mixed; Strat II: 35-45 cmbs brown (2.5Y4/2) silty loam with 19th cent artifacts; Strat III: 45-55 cmbs brown (10YR4/3) extremely compact loamy silt with brick rubble, gravel and 19th-c artifacts; Strat IV: 55-72 cmbs: dark grayish brown (10YR4/2) silty loam with early 19th-c. artifacts; Strat V: 72-75 cmbs: brick level</td>
<td>20</td>
</tr>
<tr>
<td>9 N5 E20</td>
<td></td>
<td>Strat I: 0-30 cmbs black (10YR2/1) silty loam with late 18th- mid 19th cent. artifacts and rubble; Strat II: 30-50 cmbs dark gray (10YR4/1) silt with late</td>
<td>21</td>
</tr>
<tr>
<td>10 N15 E20</td>
<td></td>
<td></td>
<td>22</td>
</tr>
</tbody>
</table>
18th-early 19th c. ceramics, glass candy dish, rangia; ends on brick and mortar pavement, possibly mid-19th century
Strat I: 0-28 cmbs black (10YR2/1) clay loam with light artifact density of bone, glass, wrought nails; Strat II: 28-61 cmbs grayish brown (2.5Y4/2) silty clay, mottled with light artifacts as above, plus carbon; Strat III: at 61 cmbs ended on historic brick paving

11  N25 E20
Strat I: 0-28 cmbs black (10YR2/1) clayey loam with moderate rubble; Strat II: 28-61 cmbs gray 10YR4/2 silty clay with transfer whiteware, rubble, bone, buttons, glass frag; Strat III: ended at 61 cmbs brick level

12  N35 E20
Strat I: 0-40 cmbs black (10YR2/1) clay loam with rangia, glass, metal; Strat II: 40-85 dark gray (10YR3/2) sandy silt with large clay inclusions, mixture of rubble and dense with historic artifacts, some burned

13  N10 E30
Strat I: 0-25 cmbs black (10YR2/1) sandy loam; Strat II: 25-75 cmbs black sandy loam with mottling and root disturbance; Strat III: 75-95 cmbs: dark gray (10YR4/1) very dark gray (10YR3/1) silty clay mixture of modern and historic material, probably disturbed

14  N20 E30
Strat I: 0-31 cmbs dark black (10YR2/1) clayey loam; Strat II: 31-81 cmbs gray (10YR3/2) silty clay with early 18th-early 19th c. artifacts; Strat III: 81-107 cmbs gray clay

15  N30 E30
Strat I: 0-28 cmbs dark black (10YR2/1) clay loam with small amount of bone, brick, flat glass; Strat II: 28-44 cmbs dark grayish brown (2.5Y4/2) sandy clay with low artifact density; Strat III: 44-74 cmbs light olive brown (2.5Y5/3) mottled sandy silt with small amount of bone, brick mortar, carbon, glass; Strat IV: 74-91 cmbs dark grayish brown (2.5Y4/2) dark grayish brown sterile clay

16  N40 E30
Strat I: 0-8 cmbs black (10YR2/1) sandy loam; Strat II: 8-15 cmbs grayish brown (10YR5/2) sand; Strat III: 15-30 cmbs black (10YR2/1) loamy silt; Strat IV: 30-55 cmbs dark grayish brown (2.5Y4/2) silty loam, rangia, brick, gravel; Strat V: 55-60 cmbs compact brick rubble layer; Strat VI: 60-66 cmbs dark grayish brown, mortar and charcoal flecks; Strat VII: 66-74 cmbs brick rubble, large mortar frags; Strat VIII dark gray (10YR4/1) silty clay with charcoal/coal frags; Strat IX: 79-85 cmbs: transition to dark gray (10YR4/1) clay with oxidation [most artifacts from IV, VI & VIII, late 18th -early 19th century]

17  N25 E16
It is interesting to compare the results of the shovel tests to overlays with colonial-era maps of the lot (Figure 3.2). The overlays would predict that the west-center shovel test transect would hit the edge of the old Orleans street bed, while the east-center shovel test transect would hit the middle of the roadbed itself, for the length of the site (for better resolution of site map, see Figure 3.1, rotating map 180 degrees for proper orientation). In fact, all but two of these shovel tests did indeed encounter a solid brick floor or dense brick rubble between 50 and 78 cmbs (STPs 5, 7, 9, 10, 11, 12), a depth difference that could be accounted for by the undulating topsoil surface, potholes in the old roadbed, as well as the probability that some of the tests may have hit the bordering banquette or ditch rather than the adjacent roadbed. The differences between the 1731 and 1732 maps put the west-center transect either in the ditch or just inside of it. The only two central area tests which did not hit the road were STP 6, which was abandoned due to extensive utility line disturbance, and STP 8 near the north fence on the west-central transect which hit a substantial brick and mortar feature of more recent vintage at 30 cmbs. The latter is likely a remnant chain wall fragment or staircase footing belonging to the temporary chapel occupying the site between 1916 and 1918 (see Excavation Unit 4, below).
Figure 3.2. 1731 Gonichon and 1732 Broutin maps with archaeological site overlay.
Excavation Units: Methods and Overview

The placement of controlled rectangular excavation units was based upon the results of the shovel tests, to avoid known disturbances, to target promising deposits, and also to sample each quadrant of the site (Plate 3.5). The four excavation units ranged in size from 1x2 to 2x2 meters square. The initial design was for four 1x2 meter excavation units placed judgmentally in each of the four quadrants of the site, adjacent to artifact-rich shovel tests with undisturbed strata.

At each unit, a wooden datum stake was established at the southwest corner of the unit to mirror the southwest placement of the site datum at this corner of the lot. A datum string line was established at 10 cm above ground surface and all beginning elevations were shot in with the transit.

Excavation proceeded by 10 cm arbitrary levels within natural contexts, which were recorded with level and context forms designed to organize the stratigraphic data according to the Harris Matrix method (Harris et al. 1993). The Harris Matrix is a system of carefully recording each archaeological feature and deposit understood as an event and graphically represented on a flow chart in order to produce a refined temporal sequence of a site. It aids in interpreting complex stratigraphy, particularly on urban sites. While the Principle of Stratigraphy states that archaeological strata or layers will range from youngest to oldest with increasing depth, when historic features have been dug into yet older levels (for ditches, burials, or construction) or when features lie side-by-side, it requires systematic observations and recording to ascertain their exact temporal relationship.

Both sharpened flat shovels and hand trowels were used in excavation (Plate 3.6). All soils were dry-screened on site through 1/4" mesh (Plate 3.7), except for collected flotation samples, the heavy fraction of which was wet-screened through 1/16" mesh to provide a sample of small artifacts such as beads, shot, and fishbone. Excavation Units (hereafter, EU) 1-3 units were excavated to sterile soil (encountered between 120 and 160 cm below surface), although subsided timbers associated with an early French colonial structure were left intact in EU 1 in order to facilitate exposure upon a hoped-for return to the site to clarify the dimensions and character of this structure.

The stratigraphy at the site is quite complex and deep, as is not uncommon in urban New Orleans. Using the Harris Matrix system, 61 different contexts were identified and divided into 10-cm arbitrary levels, yielding 149 different proveniences. Brief summaries of these contexts are presented in tables presented in each unit description below. These also serve as keys to the matrix charts representing the relationships between contexts in each unit. All features and levels were mapped, photographed, and recorded using detailed observational forms, and daily fieldnotes were maintained. In the field, detailed soil profiles of a minimum of two walls were drawn and photographed for each excavation unit. The stratigraphic complexity and dense clay soils at the site meant that broad horizontal exposure was restricted in favor of tight vertical
Plate 3.5. Work in progress, EUs 1 and 2, facing east.

Plate 3.6. Trowel excavating in progress, EU 1.
control and careful screening. Still, this project represents one of the most intensive excavations in the French Quarter to date, with over 16 cubic meters of soil excavated and screened.

A total of 41 flotation samples (mostly 10 liter samples) were taken from unique contexts. After excavation was completed, bucket floating was performed at the University of New Orleans campus. Approximately 70% of the samples were processed there, with the remainder taken back to the lab at University of Chicago, where flotation was completed by the end of August.

As phytolith sampling is not standard on North American projects, the sampling method is detailed here. Small 50-gram soil samples were taken from natural strata in the walls within a 10-20 cm column. The depth and horizontal distance from unit datum at which each sampling point was located and then recorded with a line-level and folding rule. Using a clean trowel between each sample (rinsed with tap water and wiped with a synthetic cloth), samples were collected from lower to higher strata to avoid cross-contamination. Each sample was placed in a labeled bag and stored in a cool, dry place out of direct sunlight before being shipped for processing. A total of 25 samples were judgmentally sampled from EUs 1-3 for control sampling (modern topsoil), garden features (presumed plantings and former garden loams), and for sensitive early colonial deposits.

After excavation was completed, the units were lined carefully with heavy construction plastic (dated with a 2008 penny in place), and backfilled. Backfilling was completed by July 10, 2008.
Excavation Unit Descriptions and Stratigraphic Interpretations

Excavation Unit 1

Excavation Unit 1 (hereafter EU) in the southwest quadrant began as a 1x1 meter unit placed in proximity to STP 5 to investigate the soft brick floor encountered at 50 cmbs, which was eventually revealed to be the banquette for old Orleans Street. However, before this level was reached a delicate pet burial along the unit's east wall (an adult cat), caused the unit to be extended into a 2x2 m unit. Table 3.2 presents a summary of the contexts excavated and observed in the unit, while Figure 3.7 represents their temporal relationships, with the topmost contexts being the most recent. These sources should be referred to for a complete breakdown of all archaeological strata and features encountered, but below brief narrative summaries of the most significant features are offered

Pet Burials

After the unit was opened into a 2x2 to expose the cat burial (Context 3), another pet burial was encountered along the expanded unit's new east wall, approximately half exposed. This was a small dog (Context 16). Both pet burials were pedestaled in an effort to preserve them in place and excavate around them, but the cat burial in the center of the large unit became fragile, so it was removed for later reburial after careful recordation (Plate 3.8). Stratigraphic placement indicates that the pet burials date sometime between the early to mid twentieth century (circa 1920s-1960s). They were in place before re-landscaping and utility work dating to the 1987 visit of Pope John Paul II was performed. Oral interviews with Rectory staff and local residents indicate that at least one priest resident at the Rectory in the 1950s was said to have had buried his German Shepherd named "Rex" in the garden. This suggests at least a third pet is present somewhere on site (the dog encountered being a small lapdog breed) and that overall the garden has had an interesting and under-reported use as a pet cemetery. The dog burial was further distinguished by the curious placement of an inverted whole wine bottle that appeared to be purposely buried above the dog's head. The proximity of the burials to the Sacred Heart statue suggests that they post-date its installation in the garden (1920s) and that this locale was meaningful for the pet owners. No pet burials were encountered in any other loci. It should also be noted that some local residents are under the mistaken impression that the statue depicts St. Francis of Assisi (a visitor to the site described it as such to her children), the patron saint of animals, probably because of the outstretched arms.
Flower Mart and Glass House Strata

Below the pet burials were two strata (uniform layers) of rich organic soil with a mixture of historic artifacts and architectural debris dominated by late 19th century and antebellum types, respectively. The lower antebellum garden level was distinguished by a very high concentration of flat window glass and flowerpot fragments (see Appendix B for a report on flowerpots found on the site). Below this was a crushed brick surface interpreted to have been a floor or adjacent walkway associated with the 1830s-1850s glass house and flower mart that lessees operated on the site during the garden's period as a public pleasure garden. Although the archival documents were ambiguous whether the planned glass house had ever been built (see Reeves in the comprehensive report), the archaeological evidence is unequivocal. The glass house (which plans indicated was, indeed, intended for this southwest quadrant of the site) was built and used as a flower mart, then torn down sometime in the middle of the 19th century. Further, artifacts such as ice cream and candy dishes (see Appendix B), as well as numerous furniture brads probably belonging to small folding lawn chairs (such as those used in Parisian public parks) were also found throughout the site, with some concentration in the northwest quadrant closer to EU 3. Thus, the ice cream pavilion was probably located in front of the greenhouse.

Orleans Streetbed, Ditch, and Banquette

Below these levels a complex series of strata and features began to emerge, with flat laid brick appearing along and parallel to the west wall of the unit and an extremely compact, dry clay and crushed brick level to the east across the rest of the unit floor. Within a short time it became clear that the unit had opened upon the western edge of Old Orleans street which ran through the site from the early French period (at least 1731) until approximately 1831. The unit caught the
banquette (or sidewalk, the laid brick feature) and the compacted road surface. As excavations
continued, different episodes of in filling, repair and resurfacing appeared (Figures 3.4 and 3.5).
Each of these layers of the roadbed contained progressively earlier historic materials lost or
discarded in the roadway and crushed underfoot into small fragments. Each strata thus provides
an artifactual cross-section of a different generation of New Orleanians in the colonial and
antebellum eras. One of these levels clearly represented the devastation of the 1788 fire, when
large amounts of burned debris were strewn across the city, and swept into its streets and drains.

While in the 19th century the road had been raised enough through in filling to become flush with
the banquette, in the colonial period the originally planned ditch between the banquette and
roadsurface was well maintained. This ditch was full of the lost artifacts from colonial
pedestrians and the trash of early New Orleans residents. Also interesting was the discovery that
the very earliest banquette was made of flat cypress planks that were periodically replaced. The
early banquette was more of a boardwalk floating over the saturated soils of the frequented
flooded town. Extensive brick paving did not occur until the Spanish period (after 1768). Some
upright timbers placed in and besides the ditch may be supports for the little "footbridges" that
visitors to 18th-century New Orleans described as crisscrossing the ditch and banquette system,
and may also explain the gap in the banquette (Figure 3.5). A multi-layered "dip" running
parallel to the ditch but in the eastern third of the unit probably represents a wagon rut (Figure
3.3).

**Early French Structure**

It was expected that upon reaching the base of the road and ditch levels that sterile, natural soil
would be found with no more evidence of human activity, unless a prehistoric occupation was
present. However, towards the bottom of the ditch excavation, several substantial cypress
timbers laid both upright and running parallel to the ditch were discovered at about 120 cms
below ground surface (Figure 3.6, Plate 3.9). Their placement suggests the early French
architectural method of poteaux-en-terre, or post in ground, in which horizontal sills and the
bases of upright support beams were laid in ditches and buried to anchor expeditiously built
structures (Maygarden 2006). These buildings were probably meant to last a few decades, but in
the damp climate of South Louisiana they became incommodious within a few years. This is one
of the reasons the Company of the Indies started up a brick-making concern in the late 1720s, to
replace the rapidly deteriorating poteaux-en-terre buildings with those having brick foundations.
Although too little of this architectural feature was exposed in the 2008 excavation to state with
confidence its date, type, and cardinal orientation, it is provisionally identified as an early (circa
1717-1731) structure that may be related to the occupation episode represented by a more
securely identified structure in EU2.
Figure 3.3. Profile of Excavation Unit 1, North wall at end of excavations.
Figure 3.4. Excavation Unit 1, west wall profile.
Figure 3.5. Excavation Unit 1, plan view at 130-136 cmbd.
Figure 3.6. Excavation Unit 1, sectional plan view at 136-140 cmbd.
Plate 3.9. Excavation Unit 1, base of excavations, showing timbers of early French structure.

Table 3.2. Excavation Unit 1 context descriptions.

<table>
<thead>
<tr>
<th>Context</th>
<th>Level</th>
<th>Depth cmbd</th>
<th>Lots</th>
<th>Matrix Description</th>
<th>Type</th>
<th>Occupational affiliation/ Function</th>
<th>Cultural Contents</th>
<th>TPOs, other dates</th>
<th>Harris Matrix Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>10-20</td>
<td>29</td>
<td>Black (10YR 2/1) topsoil with small brick fragments</td>
<td>topsoil strat</td>
<td>Mid 20th c. to present cathedral garden</td>
<td>Debris from church renovations, 2 Mexican pesos (1963/64), 2 pennies, glass, ceramic, bone</td>
<td>1964</td>
<td>1-6-2</td>
</tr>
<tr>
<td>2</td>
<td>1, 2</td>
<td>32.5-57.5</td>
<td>31, 65</td>
<td>Silty clay loam (10YR 4/2) with heavy to moderate architectural debris mottling in level 1 (about 50-70% of matrix); less so in level 2 (25-40%).</td>
<td>historic topsoil</td>
<td>Late 19th c. garden</td>
<td>Construction debris, half-marble in wall, 'worm' annularware, faience, rouge pot, PW, CW. Some disturbance.</td>
<td>Early 20th c. termination</td>
<td>1-6-2-19</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>35.5-48.5</td>
<td>34, 66</td>
<td>Same as 1, 6</td>
<td>infill</td>
<td>Cat burial</td>
<td>Higher proportion of rangia shell</td>
<td>Early-mid 20th c.</td>
<td>6-3,7,16-2</td>
</tr>
<tr>
<td>6</td>
<td>1, 2</td>
<td>19-41</td>
<td>30, 41</td>
<td>Dark (10YR 3/1) soil, similar to context 1 but increasingly mottled with brick and architectural debris as we approach context 2</td>
<td>historic topsoil</td>
<td>Garden layer cut into with PVC pipe trench</td>
<td>Painted plaster, renovation debris</td>
<td>early-mid 20th c.</td>
<td>1-6-2</td>
</tr>
<tr>
<td>7</td>
<td>1,2,3,4, 5</td>
<td>21-73</td>
<td>42</td>
<td>Mostly same as context 2 (10YR 4/2) until darker silty loam (10YR 3/1) encountered at 39cmbd. Continued downward until clay substrate of roadbed (context 36).</td>
<td>infill</td>
<td>mid- to late-20th c. posthole</td>
<td>Wooden 2X4, 19th &amp; 20th c. artifacts, Early-Mid Late 20th c.</td>
<td></td>
<td>6-7-36</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>21.5-35</td>
<td>57</td>
<td>Organic topsoil; mix of contexts 1 &amp; 6 (10YR 2/1) with architectural debris.</td>
<td>infill</td>
<td>Late 20th c. pipe trench</td>
<td>PVC pipes, 18th-20th c. artifacts, architectural debris</td>
<td>Late 20th c.</td>
<td>6-10-2</td>
</tr>
<tr>
<td>-----</td>
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<td>---------------------------------------------------------------------------------</td>
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<td>-----------------------------------------------------</td>
<td>--------------</td>
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</tr>
<tr>
<td>15</td>
<td>1</td>
<td>48-54.5</td>
<td>53</td>
<td>Darker silty clay loam (10YR 3/1) under context 6 soil in SW corner. All removed as flotation sample.</td>
<td>infill</td>
<td>Possible planting. Botanical</td>
<td>Dog Burial</td>
<td>Dog Burial</td>
<td>Early-mid 20th c.</td>
</tr>
<tr>
<td>16</td>
<td>N/A</td>
<td>26.5-45</td>
<td>N/A</td>
<td>Silty clay loam (10YR 3/2), similar to context 6. Pedestalled; excavation not undertaken.</td>
<td>infill</td>
<td>Dog Burial</td>
<td>Dog Burial</td>
<td>Early-mid 20th c.</td>
<td>6-16-2</td>
</tr>
<tr>
<td>26</td>
<td>1,2</td>
<td>41-53</td>
<td>64</td>
<td>Silty clay loam (10YR 3/1) similar to context 6</td>
<td>infill</td>
<td>Posthole</td>
<td>Late 19th &amp; 20th c. artifacts and architectural debris</td>
<td>Late 20th c.</td>
<td>6-26-19</td>
</tr>
<tr>
<td>29</td>
<td>1</td>
<td>55-60</td>
<td>71</td>
<td>Loose silty clay loam (10YR 4/2), mottled with finely crushed shell.</td>
<td>lens</td>
<td>Garden planting</td>
<td>Late 18th, early 19th c. ceramic, architectural debris</td>
<td>Late 20th c.</td>
<td>2-29-19</td>
</tr>
<tr>
<td>19</td>
<td>1</td>
<td>49.5-62</td>
<td>84</td>
<td>Red crushed brick stratum (2.5YR 4/8)</td>
<td>Landscape surface</td>
<td>Garden/Greenhouse surface</td>
<td>3 different colors of brick discerned along with PW, CW, flat glass and nails</td>
<td>Late 19th c.</td>
<td>2,15,26,29-19-36</td>
</tr>
<tr>
<td>32</td>
<td>1</td>
<td>49-53</td>
<td>83</td>
<td>Debris of various colors</td>
<td>Architectural debris</td>
<td>Brick, nail, PW, flatglass</td>
<td>Late 20th c.</td>
<td>2-32-19,2,29</td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>1,2,3,4</td>
<td>63-100</td>
<td>86,9 8,10 6,11 2,12 2</td>
<td>Densely packed clay (5YR 4/1) mottled with silty clay loam (10YR 4/2)</td>
<td>roadbed</td>
<td>Orleans St.</td>
<td>Glazed brick, 18th &amp; 19th c. ceramic, glass, nails</td>
<td>Late 19th c.</td>
<td>19-36-37,41</td>
</tr>
<tr>
<td>37</td>
<td>1</td>
<td>71.5-78</td>
<td>87</td>
<td>Red (2.5 YR 4/8) brick sidewalk left as baulk in W wall</td>
<td>sidewalk</td>
<td>Late 18th/early 19th c. brick Orleans banquette</td>
<td>N/A</td>
<td>Early/ Mid-19th c.</td>
<td>36-37-41</td>
</tr>
<tr>
<td>41</td>
<td>1,2,3</td>
<td>70-93</td>
<td>113, 118, 121</td>
<td>Very dense packed silt (10YR 4/2) which becomes increasingly mottled with silty clay (10YR 4/1) going downward. Lens of crushed shell encountered in southern portion of level 1.</td>
<td>roadbed</td>
<td>Orleans St.</td>
<td>Very small (&lt;2cm) fragments of 18th &amp; early 19th c. ceramic, with larger ones (5-10cm) appearing as one moves down), bone, brick debris. Lots of CW. Context 49 timber emerges in bottom of context 41.</td>
<td>Late 18th/Early 19th c.</td>
<td>36-41-51</td>
</tr>
<tr>
<td>42</td>
<td>N/A</td>
<td>100</td>
<td>107</td>
<td>Clean up from weekend storm</td>
<td>N/A</td>
<td>Misc. 19th, 20th c. material</td>
<td>N/A</td>
<td>36-42-41,36</td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>N/A</td>
<td>98-108</td>
<td>124</td>
<td>Wooden timber in ditch. Emerged in Context 41 Level 3 and Context 36, Level 5). Materials removed from within 5cm or less of matrix surrounding timber bagged in Lot 124.</td>
<td>possible post</td>
<td>Architectural feature</td>
<td>CW base directly below timber. Small PW sherd, fishbone.</td>
<td>Late 18th c.</td>
<td>36,41-49-36,41</td>
</tr>
<tr>
<td>Context</td>
<td>Depth</td>
<td>Posthole Depth(s)</td>
<td>Color</td>
<td>Texture</td>
<td>Feature</td>
<td>Material(s)</td>
<td>Date</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>50</td>
<td>N/A</td>
<td>100-123</td>
<td>123</td>
<td>Gray</td>
<td>post</td>
<td>Architectural feature</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>51</td>
<td>1, 2</td>
<td>100-120, 122, 131</td>
<td>122, 131</td>
<td>Brown</td>
<td>Fire debris</td>
<td>Debris from city-wide 1788 fire</td>
<td>Late 18th c.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>52</td>
<td>N/A</td>
<td>100</td>
<td>125</td>
<td>Gray</td>
<td>N/A</td>
<td>Light artifact</td>
<td>Late 18th c.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>53</td>
<td>1, 2</td>
<td>113-133, 134, 137, 140</td>
<td>134, 137, 140</td>
<td>Brown</td>
<td>infill</td>
<td>possible mid-18th c. occupation level</td>
<td>Mid-Late 18th c.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>58</td>
<td>1, 2</td>
<td>128-150</td>
<td>144</td>
<td>Brown</td>
<td>infill</td>
<td>Builder's trench associated with 18th c. structure</td>
<td>early-18th c.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>59</td>
<td>1, 2</td>
<td>130-150</td>
<td>145</td>
<td>Brown</td>
<td>infill</td>
<td>Builder's trench associated with 18th c. structure</td>
<td>early-18th c.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>1</td>
<td>130-150</td>
<td>147</td>
<td>Brown</td>
<td>clay subsoil</td>
<td>inorganic clay subsoil</td>
<td>Early 18th c.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 3.7. Harris Matrix of EU 1 stratigraphy.
Excavation Unit 2

EU 2 was an east-west 1x2 m unit placed near the downriver fence in the southeast quadrant of the site in the vicinity of artifact-rich STP 13 (Plate 3.10). This local was also of interest since historic map overlays indicated that this edge of the site had the best chance of encountering deposits associated with the French colonial garden of the Capuchins (see Figure 3.2). It produced rich and complex deposits as well, including trash pits, a large granite slab retaining wall, and, at the base, a very well preserved temporary wooden structure that appears to date to the earliest period of French settlement. Table 3.3 presents a summary of the contexts excavated and observed in the unit, while Figure 3.10 represents their temporal relationship.

Trash and Feasting Pits

Early into the excavations of this unit, the strata and deposits yielded particularly dense artifact concentrations, characterized especially by faunal (dietary animal bone) and bottle glass remains (some fragments of near-whole bottles). One pit (Context 8) contained burned bone (including the whole limbs of a calf) and blackened, greasy soil, consistent with a barbeque pit. Associated artifacts suggest this may be related to religious feasting activities in the early-mid 20th century, such as those associated with St. Joseph's celebrations. Two other dense pits or trash deposits have late 19th-early 20th century debris (Contexts 9 and 12) may represent dumping by nearby residences. Why the trash was deposited on the site is not clear, although there is a possibility of infilling of an unrecorded shallow privy vault, bordered by the granite slab (below).

Plate 3.10. Excavations in progress, EU 2.
Granite Retaining Wall and Antebellum Garden Levels

One of the most mysterious features found at the site was a substantial, circa 10-cm thick slab of grey granite laid on its long vertical side (Figure 3.8, Plate 3.11). It cuts the western third of the unit, ending just before the north wall, but extends for an unknown length southward towards the church. The strata on either side of this 'retaining wall' were quite distinct down to about 70 cm below surface. As stated above, it could be related to a privy vault (suggested by the trash infill on its east side), or it could be a low retaining wall or curbstone for raised flower beds that once lined the perimeter of the garden. In either case, the choice of material is odd as it is expensive and unwieldy, although it could be a recovered flagstone or other recycled architectural element from the church or other structures. This former would make sense in that it appears to have been laid around the 1850s (although it subsequently sunk into early strata due to its own weight), when the present church building was completed and the garden redone. Fellow archaeologists and architectural historians who visited the site were also puzzled by this feature. It represents some considerable labor and effort for a purpose that is not clear from the clues remaining.

Below and beside the granite slab were surfaces that appear to be soils prepared for the garden's first development in the 1830s, with shell introduced into the soil to improve drainage, and high organic content, followed by a gradual build up of garden soils through the 1850s with occasional artifacts. Small toys such as marbles and doll parts (see Appendix B) were especially abundant in this these levels, indicating that the antebellum public park was a popular spot for local children.

Colonial living surfaces and early French structure

Below the antebellum garden soils, approximately 35 centimeters of relatively uniform sheet midden was encountered (Context 33) which appears to be a gradual build-up of living surfaces associated with the church yard area and Capuchin garden. The top levels possessed scattered small ceramic sherds and other artifacts dating to the late eighteenth century and included the silver crucifix (see Appendix B), which is presumed to have been accidentally lost in the yard area. One dark, thin lens of organic staining most likely represents the 1788 fire (Figure 3.8) and it is possible the crucifix was lost by its owner in this catastrophe. With depth, the artifacts range progressively earlier, with the presence or absence of creamware ceramics (introduced 1762) providing a convenient marker for the colonial transition from the French to the Spanish in 1768. The lower levels contained only French faience and Native American ceramics dating to the 1740s and earlier. These are interpreted as the use of the Capuchin garden between the late 1720s and 1750s.

At the depths where sterile natural soil is usually encountered (100+ cms), excavators were surprised to see the shadow of a modest architectural structure emerge in the clayey soils. Further excavation revealed a narrow-walled rectangular hut-like building with a square corner post (Figure 3.9, Plate 3.11). The walls between the posts could be thin planks, or palmetto thatch constructed in the Native American fashion, such as the "tents" shown in a famous historic view of the early Biloxi settlement (Newberry Library). Although the early date of this structure suggested at first that it may be related to the Capuchin garden, the hut is built "off" the
orthogonal grid laid down by the engineer dePauger, which the garden respected. Further, as shown in the historic map overlays (Figure 3.2, above), no structures are recorded in this area, although the unit definitely lays within the fenceline of the garden. As of this writing, the hut is believed to predate the layout of the street grid in 1726 and is probably a pioneer-era temporary structure built to shelter those who arrived in 1717 and 1718 to begin landclearing. The mixture of Native American material in the sheet midden levels surrounding the structure suggest that, despite their absence in the written historical record, Native Americans were important partners in the early founding years of the city.

Figure 3.8. EU 2, South wall profile.
Figure 3.9. Excavation Unit 2, plan view of Contexts 45 and 48, early French colonial structure, 126-141 cmbd.
Plate 3.11. Plan view showing circa 1850s "retaining wall" and shadow of circa 1717-1726 hut below.

Table 3.3. Excavation Unit 2 context descriptions.

<table>
<thead>
<tr>
<th>Context</th>
<th>Level</th>
<th>Depth cmbd</th>
<th>Lots</th>
<th>Matrix Description</th>
<th>Type</th>
<th>Occupational affiliation/ Function</th>
<th>Cultural Contents</th>
<th>TPQs, other dates</th>
<th>Harris Matrix Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1,2</td>
<td>11-31</td>
<td>33,35</td>
<td>Loose black (10YR 2/1) sandy loam with much root intrusion.</td>
<td>organic topsoil</td>
<td>Early 20th c. to present church garden</td>
<td>Glass, animal bone, marbles, possible turbaned figurine head, nails, PW, WW, Ironstone, cigarillo filter.</td>
<td>21st c.</td>
<td>N/A-4-5</td>
</tr>
<tr>
<td>5</td>
<td>1,2</td>
<td>21-41</td>
<td>36,37</td>
<td>Very dark grayish brown (2.5YR 3/2) silty loam with 5-10% rubble inclusions, especially brick &amp; plaster fragments. Primary matrix into which Contexts 8, 9 and 11 penetrate.</td>
<td>stratum</td>
<td>Early 20th c. to present church garden</td>
<td>Complete bottle, bottle glass, ferrous metal, rubble, milk glass, WW, olive jar, buttons.</td>
<td>Early-/Mid-20th c.</td>
<td>4-5-12,13</td>
</tr>
<tr>
<td>----</td>
<td>-------</td>
<td>--------</td>
<td>--------</td>
<td>---------------------------------------------------------------------------------</td>
<td>--------</td>
<td>--------------------------------------</td>
<td>-------------------------------------------------</td>
<td>-----------------</td>
<td>-------------</td>
</tr>
<tr>
<td>8</td>
<td>1,2</td>
<td>31-49</td>
<td>38,43</td>
<td>Black (10YR 2/1) loose, sandy loam</td>
<td>infill</td>
<td>20th c. barbeque pit feature</td>
<td>Limbs of a single juvenile cow, metal, glass, burned material.</td>
<td>early-mid 20th c.</td>
<td>4-8-12,13</td>
</tr>
<tr>
<td>9</td>
<td>1,2,3</td>
<td>31-57</td>
<td>39,44,45</td>
<td>Black (10YR 2/1) loose, silty loam</td>
<td>infill</td>
<td>20th c. pit feature</td>
<td>A few large animal bone fragments, glass bottle fragments, ferrous metal. Very few ceramics.</td>
<td>early-mid 20th c.</td>
<td>4-9-13</td>
</tr>
<tr>
<td>11</td>
<td>1</td>
<td>31-51</td>
<td>46</td>
<td>Dark gray (10YR 4/1) clay core surrounded by very dark gray (10YR 3/1) silty loam</td>
<td>infill</td>
<td>Possible planting</td>
<td>Minimal</td>
<td>20th c.</td>
<td>4-11-13</td>
</tr>
<tr>
<td>12</td>
<td>1,2,3</td>
<td>41-76</td>
<td>45,49,6,1,76</td>
<td>Very dark gray brown (10YR 3/2) silty loam with brick rubble and slate.</td>
<td>stratum/infill</td>
<td>historic fill, trash deposit</td>
<td>Complete bottle, bottle glass, ferrous metal, animal bone, rubble, tin handle, ceramic</td>
<td>early 20th c.</td>
<td>5-12-31</td>
</tr>
<tr>
<td>13</td>
<td>1,2</td>
<td>41-61</td>
<td>47,50</td>
<td>Grayish brown (2.5YR 5/2) loamy silt with 10-20% brick rubble and painted plaster. Downwards, plaster diminishes as rangia increases.</td>
<td>surface</td>
<td>Mid-19th c. public square/garden surface</td>
<td>Olive bottle glass, nails, pipe bowl, animal bone, costume jewelry, PW, WW.</td>
<td>Late 19th c.</td>
<td>5-13-20,25</td>
</tr>
<tr>
<td>17</td>
<td>N/A</td>
<td>35-81</td>
<td>N/A</td>
<td>Mottled clayey loam and silty loam; mixture of black (10YR 2/1) and dark gray brown (2.5YR 4/2).</td>
<td>N/A</td>
<td>Granite wall/curb. Possible 1850s alterations to garden. Context 12 may represent associated trench.</td>
<td>N/A</td>
<td>Mid-19th c.</td>
<td>5-8-17-31,33</td>
</tr>
<tr>
<td>20</td>
<td>1,2</td>
<td>30-71</td>
<td>56,62</td>
<td>Mottled mixture of compact reddish-brown (5YR 4/4) slightly sandy silt with patches of dark grayish brown (2.5YR 4/2) silt and dark gray (10YR 4/1) clayey silt. Mixture may be result of later disturbance.</td>
<td>infill</td>
<td>20th c. utility trench for gas pipe.</td>
<td>Ferrous gas pipe at 64.5 cmbd, possibly dating to the 20th c.</td>
<td>20th c.</td>
<td>5,12-20-31</td>
</tr>
<tr>
<td>25</td>
<td>1,2,3</td>
<td>59-86</td>
<td>63,70,79</td>
<td>Mottled mixture of compact reddish-brown (5YR 4/4) slightly sandy silt with patches of dark grayish brown (2.5YR 4/2) silt and dark gray (10YR 4/1) clayey silt. Mixture may be result of later disturbance.</td>
<td>stratum</td>
<td>Mid-19th c. public square/garden surface</td>
<td>Heat altered bottle glass, faience, CW, PW, nails, brick, oyster, rangia.</td>
<td>19th c.</td>
<td>13-25-33</td>
</tr>
<tr>
<td>No.</td>
<td>1</td>
<td>28</td>
<td>71-75</td>
<td>71-75</td>
<td>Reddish brown (5YR 4/4 - 5/4) loamy silt with about 40% rangia, 10% brick rubble. Small pockets of charcoal and black (10YR 2/1) loam.</td>
<td>Possible prepared garden/square surface</td>
<td>PW, glass, ferrous metal.</td>
<td>19th c.</td>
<td>25-28-31</td>
</tr>
<tr>
<td>-----</td>
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<td>-------</td>
<td>-------------------------------------------------</td>
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<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>31</td>
<td>70.5-79</td>
<td>75.76</td>
<td>Clayey silt with some patches of higher clay content.</td>
<td>Fill overlying late colonial period ground surface</td>
<td>Olive glass, PW, animal bone, ferrous metal, slate, brick, oyster shell.</td>
<td>Late 18th/early 19th c.</td>
<td>28,17,12,20-31-33</td>
</tr>
<tr>
<td>33</td>
<td>1,2,3,4</td>
<td>81-115</td>
<td>88,90, 93,99,103,108,109,110</td>
<td>Very dark gray (10YR 3/1 - 3/2) loamy clay with some oxide staining. Changes to more dark gray (10YR 4/1) silty clay with yellowish red (5YR 4/6) as one goes downward.</td>
<td>Colonial period ground surface</td>
<td>Crucifix, animal bone, glass, beads, lead shot, fish bone, faience, CW, polychrome mayolica, stoneware, aboriginal pottery, gun fins</td>
<td>Mid-Late 18th c.</td>
<td>25/31-33-44</td>
<td></td>
</tr>
<tr>
<td>44</td>
<td>N/A</td>
<td>115-N/A</td>
<td>N/A</td>
<td>Dark gray (10YR 3/1) silty clay with root intrusions and oxide staining.</td>
<td>sterile subsoil</td>
<td>N/A</td>
<td>?</td>
<td>33,45,48-44-N/A</td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>1</td>
<td>110-130</td>
<td>114</td>
<td>Very dark gray (10YR 3/1) silty clay with small amounts of brick and charcoal.</td>
<td>Colonial construction trench</td>
<td>Faience, aboriginal, bousillage, olive glass bottle neck, ferrous metal, animal bone.</td>
<td>Early-Mid 18th c.</td>
<td>33,45-46-44</td>
<td></td>
</tr>
<tr>
<td>46</td>
<td>N/A</td>
<td>100-120</td>
<td>115</td>
<td>Decomposing wood (10YR 2/2)</td>
<td>wood</td>
<td>Early colonial architecture</td>
<td>N/A</td>
<td>Early-Mid 18th c.</td>
<td>33,45-46-44</td>
</tr>
<tr>
<td>48</td>
<td>1</td>
<td>115-141</td>
<td>120</td>
<td>Very dark gray (10YR 3/1) loosely consolidated silty clay with organic loamy clay inclusions (10YR 2/2) from decomposing wood.</td>
<td>Post mold</td>
<td>Early colonial architecture</td>
<td>Faience, animal bone, glazed redware, bousillage, brick</td>
<td>Early-Mid 18th c.</td>
<td>33-48-44</td>
</tr>
</tbody>
</table>
Figure 3.10. Harris matrix of EU 2 stratigraphy.
Excavation Unit 3

EU 3 was a north/south unit placed in the northwest quadrant near the fence close to STP 4, which had yielded aboriginal pottery and chert debitage. This unit was also characterized by complex pit features (Plate 3.12) and the floor of a henhouse associated with the nearby domestic residences of three free women of color (ca. 1788-1820). Although the northern third of the unit ended up being disturbed by a turn-of-the-century sewer pipe, lower deposits in the southern two-thirds yielded a very high number (approximately 50%) of Native American artifacts mixed with early French material, as well as a trench or ditch feature. Table 3.4 presents a summary of the contexts excavated and observed in the unit, while Figure 3.13 represents their temporal relationship. These sources should be referred to for a complete breakdown of all archaeological strata and features encountered, but below brief narrative summaries of the most significant features are offered.

Trash deposits and feasting pits

As in EU 2, this unit had a series of complex, overlapping trash pits (Figures 3.11 and 3.12), at least one of which appears to have the remains of a feasting event with a roasted lamb. A fragment of a religious figurine with a lamb circled at the feet was found nearby (depicting either St. John or Jesus as a shepherd). These date from the late 19th through mid 20th centuries. Earlier deposits are full of demolition debris and mid-19th century deposits, probably associated with the house owned by Antoine Bienvenue (see Reeves in the comprehensive report) which was torn down when this small section of Orleans Street was redeveloped to create Place Antoine in 1831.

Henhouse

Below these levels, a clean clay cap was followed by the distinctive floor of a henhouse with organic green and white staining, a strong odor, and numerous tiny ceramic fragments (Figure 3.12, Plate 3.13). The latter were ground up and prepared by residents for the chickens to use as gizzard stones (necessary for digestion), since in south Louisiana there is no natural gravel or stone. The lowermost level of the henhouse was prepared with a Rangia shell floor. The artifacts mixed into the henhouse level indicate that the henhouse was in use from the 1790s to 1820s. Most likely, it belonged to one of three free women of color who maintained modest residences along the west side of the site, lining Orleans Street at the time. The historic record suggests that these women may have been affiliated with Pere Antoine and that he protected their settlement there after the 1788 fire. They were likely the "poor people" whom city officials complained of and consequently removed after the death of Pere Antoine in order to develop the site as a public garden. Only an edge of the henhouse was caught. The rest of it extends below Pirate's Alley. The henhouse probably provided a means of livelihood for one of these women.

Early Colonial Living Surface and Native American Encampment

Below the henhouse lay a thick gradual build-up of colonial living surfaces and artifact accumulations from the French and early Spanish colonial periods (Context 40), similar to that found in EU 2 (Figure 3.11). The lowermost levels of this sheet midden produced a startlingly
high percentage of Native American pottery (predominated by a redpainted type), a chert scraper, chert, and several fragments from a hand-built Native American style pipe with an incised decoration (see Appendix B). These artifacts, as well as the density of ashy deposits and charcoal, strongly suggest that the site was at least on occasion used as a campsite by Native Americans coming to New Orleans to visit for trade and diplomacy. Since in the French period this side of the Orleans street appears to have been undeveloped but under the jurisdiction of the colonial administration, this archaeological interpretation seems historically plausible although documents fail to mention such an encampment. Another possibility is that these levels are related to the same use of the site represented by the early structure in EU 2. In other words, it may be that the Native American material is simply evidence of a joint Indian-French labor force that performed landclearing and established the first phase of settlement.

Figure 3.11. EU 3, South wall profile.
Figure 3.12. EU 3, west wall profile.

CMBD = centimeters below datum
CTX = context

Saint Antoine’s Garden
16OR443
Excavation Unit 3
West wall profile
Plate 3.12. EU 3 showing complex pit features.

Plate 3.13. EU 3 showing remnants of henhouse levels.
### Table 3.4. Excavation Unit 3 context descriptions.

<table>
<thead>
<tr>
<th>Context</th>
<th>Level</th>
<th>Depth cmbd</th>
<th>Lots</th>
<th>Matrix Description</th>
<th>Type</th>
<th>Occupational affiliation/Function</th>
<th>Cultural Contents</th>
<th>TPQs, other dates</th>
<th>Harris Matrix Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1</td>
<td>9-17</td>
<td>40</td>
<td>Black (10YR 2/1) sandy silty loam with moderate density of roots, shell, brick. Yellowish brown (10YR 5/4) mottled interface at bottom interface</td>
<td>organic topsoil</td>
<td>Early to mid-20th c. to present cathedral garden</td>
<td>Flat and bottle glass, PW, brick, mortar, nails.</td>
<td>Late 20th c.</td>
<td>N/A-4-14</td>
</tr>
<tr>
<td>14</td>
<td>1.2</td>
<td>16-28</td>
<td>48, 54</td>
<td>Very dark brown (10YR 3/2) sandy clay loam, mottled with clay, brick and mortar.</td>
<td>stratum</td>
<td>20th c. sheet midden, disturbed antebellum fill</td>
<td>1907 Liberty Head nickel, porcelain doll head, majolica, WW, glass, construction debris, slate pencil.</td>
<td>20th c.; 1907</td>
<td>4-14-18</td>
</tr>
<tr>
<td>18</td>
<td>1</td>
<td>22-37</td>
<td>55</td>
<td>Dark gray brown (2.5Y 4/2) clayey silt at top. Grayish brown clayey silt</td>
<td>infill</td>
<td>circa 1900 sewer pipe trench</td>
<td>Glass, WW, metal, slate pencil, 1840 dime.</td>
<td>1840</td>
<td>14-18-27</td>
</tr>
<tr>
<td>21</td>
<td>N/A</td>
<td>33-43</td>
<td>59</td>
<td>Black (12.5Y 2.5/1) charcoal and silty clay loam</td>
<td>infill</td>
<td>19th/20th c. planting</td>
<td>unknown; in float</td>
<td>19th c.</td>
<td>14-21-24</td>
</tr>
<tr>
<td>22</td>
<td>N/A</td>
<td>28-45</td>
<td>60</td>
<td>Black (2.5Y 2/1) clay loam.</td>
<td>infill</td>
<td>19th/20th c. planting</td>
<td>unknown; in float</td>
<td>19th c.</td>
<td>14-22-24</td>
</tr>
<tr>
<td>23</td>
<td>1</td>
<td>33.5-50</td>
<td>69</td>
<td>Very dark gray (5YR 3/1) fine clayey silt loam with large pieces of dense rubble.</td>
<td>trash pit fill</td>
<td>Construction/destruction episode</td>
<td>80% rubble, flat glass, WW, copper finial.</td>
<td>late 19th c.</td>
<td>14-23-34</td>
</tr>
<tr>
<td>24</td>
<td>1,2,3</td>
<td>34-73</td>
<td>73, 79</td>
<td>Clayey silt loam (10YR 2/3), gritty with crushed shell, rubble.</td>
<td>stratum</td>
<td>Antebellum garden surface</td>
<td>WW, mocha, PW, animal bone, glass, nails</td>
<td>Early-Mid-19th c.</td>
<td>14-24-27</td>
</tr>
<tr>
<td>27</td>
<td>1,2,3</td>
<td>50-77</td>
<td>81, 100, 105</td>
<td>Grayish brown (2.5Y 5/2) silty loam with small fragments of dense rubble.</td>
<td>sheet midden</td>
<td>Late 18th/early 19th c. hen house</td>
<td>Faience, CW, PW, gizzard stones, glass</td>
<td>Late 18th/early 19th c.</td>
<td>24,30-27-39</td>
</tr>
<tr>
<td>30</td>
<td>1</td>
<td>42-59</td>
<td>72</td>
<td>Very dark brown (10YR 2/2) homogenous clayey silt loam</td>
<td>infill</td>
<td>19th/20th c. planting</td>
<td>Small amount of glass and ceramic; St. John &amp; Lamb figurine</td>
<td>19th c.</td>
<td>14-30-27</td>
</tr>
<tr>
<td>34</td>
<td>1,2</td>
<td>50-63</td>
<td>85, 9</td>
<td>Very dark brown (10YR 3/2) loose, wet clay loam with charcoal and rubble.</td>
<td>trash pit infill</td>
<td>Possible barbeque pit</td>
<td>Bullet shell casing, animal bone, bottle, rubble</td>
<td>late 19th c.</td>
<td>24-34-24</td>
</tr>
<tr>
<td>35</td>
<td>1,2</td>
<td>50-73</td>
<td>92, 96</td>
<td>Dark brown (10YR 3/3) mottled silt with crushed rubble.</td>
<td>mixed</td>
<td>Late 19th c. sewer pipe trench</td>
<td>Flat glass, WW, CW, faience, green bottle glass, bone</td>
<td>Late 19th c.</td>
<td>24(18)-35-43</td>
</tr>
<tr>
<td>39</td>
<td>1</td>
<td>65-70</td>
<td>101</td>
<td>Dark grayish brown (2.5Y 4/2) clean silt with few inclusions</td>
<td>silt lens</td>
<td>Clean cap for hen house</td>
<td>Brick, CW, flat glass</td>
<td>Late 18th/early 19th c.</td>
<td>27-39-40</td>
</tr>
<tr>
<td>40</td>
<td>1,2,3, 5, 6</td>
<td>70-118</td>
<td>102, 116, 133, 135, 136, 138</td>
<td>Brown (10YR 4/3) highly mottled ashly silt with a lot of mortar and charcoal</td>
<td>midden</td>
<td>Colonial living surface, early construction debris</td>
<td>Gun flint, faience, aboriginal pottery, flint, green-brown glass, Native American pipe bowl</td>
<td>early-mid 18th c.</td>
<td>27-40-55,56</td>
</tr>
<tr>
<td>43</td>
<td>1</td>
<td>79-82</td>
<td>111</td>
<td>Dark brown (10YR 3/3) mottled silt with crushed rubble.</td>
<td>trench cut and fill</td>
<td>Sewer pipe trench</td>
<td>Flat glass</td>
<td>ca. 1900</td>
<td>27-43-N/A</td>
</tr>
<tr>
<td>47</td>
<td>1</td>
<td>68-78</td>
<td>117</td>
<td>Dark grayish brown (10YR 4/2) clayey silt loam, blocky with dense inclusions of rangia and construction debris</td>
<td>sheet midden</td>
<td>construction debris, base of henhouse</td>
<td>Rangia, brick, faience, CW, PW</td>
<td>late 18th/early 19th</td>
<td>40-47-40</td>
</tr>
<tr>
<td>55</td>
<td>1</td>
<td>100-7</td>
<td>139</td>
<td>Very dark gray (2.5Y 4/2) plastic, dense clay with subsided artifacts</td>
<td>subsoil</td>
<td>Inorganic subsoil</td>
<td>Brick fragments</td>
<td>18th c.</td>
<td>40-55-N/A</td>
</tr>
<tr>
<td>56</td>
<td>N/A</td>
<td>120-124</td>
<td>N/A</td>
<td>Dark grayish brown (10YR 4/2) clayey silt.</td>
<td>subsoil</td>
<td>sterile alluvium</td>
<td>N/A</td>
<td>N/A</td>
<td>40,54-56-57</td>
</tr>
<tr>
<td>57</td>
<td>N/A</td>
<td>110</td>
<td>N/A</td>
<td>Very dark gray (2.5Y 4/2) dense sterile clay.</td>
<td>subsoil</td>
<td>sterile alluvium</td>
<td>N/A</td>
<td>N/A</td>
<td>55-57-N/A</td>
</tr>
</tbody>
</table>
Figure 3.13. Harris matrix of EU 3's stratigraphy.
Excavation Unit 4

EU 4 was placed in the NE quadrant, where soon after the removal of the topsoil, a substantial brick feature was found running north-south through the center of the unit (Figure 3.14), making further excavation impossible. This was later identified as a brick wall foundation belonging to a 1916 "Hurricane Chapel." This substantial single-story building was erected after St. Louis Cathedral was badly damaged in an unnamed hurricane of 1915. A photograph from the archives of the Archdiocese shows this chapel built flush with the sailors' obelisk monument and extending back for most of the length of the lot. The archaeology shows that it was constructed on a one-brick wide chain wall rather than brick piers. It was torn down as soon as repairs were completed. No Harris Matrix is necessary due to the simplicity of the stratigraphy (Table 3.5).

Figure 3.14. EU 4, Plan view at 30 cmbd.

Table 3.5. Excavation Unit 4 context descriptions.

<table>
<thead>
<tr>
<th>Context</th>
<th>Level</th>
<th>Depth cmbd</th>
<th>Lots</th>
<th>Matrix Description</th>
<th>Type</th>
<th>Occupational affiliation/ Function</th>
<th>Cultural Contents</th>
<th>TPQs, other dates</th>
<th>Harris Matrix Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1,2</td>
<td>15-35</td>
<td>129,132</td>
<td>Black (10YR 2/1) sandy loam</td>
<td>organic topsoil</td>
<td>Early to mid-20th century to present cathedral garden</td>
<td>Plastic, glass</td>
<td>Late 20th century</td>
<td>N/A</td>
</tr>
<tr>
<td>61</td>
<td>N/A</td>
<td>20-30</td>
<td>N/A</td>
<td>N/A</td>
<td>20th century brick chain wall</td>
<td>N/A</td>
<td>1916</td>
<td>4-61</td>
<td></td>
</tr>
</tbody>
</table>
Chapter Four

Archaeobotanical Analyses

The archaeological research design for the garden components encompassed standard macrobotanical analyses of carbonized plant remains recovered from archaeological contexts, as well as the recovery and analysis of phytolith samples (collection methods were described in the previous chapter). This project represents the first time that phytolith analysis has been applied to an urban historic garden in the Gulf South. This chapter presents the results of technical analyses by Kristen Gremillion, the lead archaeobotanist on the project, and by Susan Mulholland, an expert in phytolith analysis. Their reports are reproduced here as Part I and Part II of this chapter. These results will be further interpreted in light of fieldwork observations and historical research in Chapter Five in order to offer summations and conclusions regarding garden archaeology at the site.

Part I. Plant Remains from the 2008 Excavations at 16OR443

prepared by:
Kristen J. Gremillion
Department of Anthropology
The Ohio State University

This report presents results of the analysis of plant remains recovered from the Antoine Garden site (16OR443) during June and July of 2008. Two types of plant remains were targeted: macroremains, such as seeds, stem and root fragments, and other plant parts identifiable at low magnification; and phytoliths, minute silica bodies that form in plant cells and accumulate in archaeological soils. Macroremains were recovered by flotation in the field and then sent to Gremillion for analysis; soil samples for phytolith recovery were taken during fieldwork and sent to Mulholland for extraction and analysis (see Methods, below, for details and Mulholland, this report). The primary goal of this first round of archaeobotanical research was to identify specific garden plants and to begin to build an ecological history of this heavily utilized space from initial European colonization to the present day.

Methods

Plant Macroremains

Plant macroremains were recovered from archaeological sediments using a process called flotation in which standard quantities of soil (generally 10 l per sample) are poured into water and gently agitated. During this process, plant material, including charcoal, tends to float near the surface of the water and can be poured easily into a piece of fabric fine enough to catch even the smallest seeds. Mechanized systems have become common in archaeological research, but
do not always provide superior recovery of botanical remains (Wagner 1982). For the present project, a simple manual flotation method was used in which soil samples were poured gradually into a water-filled bucket and agitated to cause more buoyant material, including most of the charcoal, to float and be poured off into a piece of fine fabric. The flotation procedure continued until the overflow no longer contained visible plant material. The heavier fraction was retained and rinsed in a screen with mesh of 1.6 mm (1/16 in windowscreen). Both light and heavy fractions were air dried. The intact light fractions were sent to Gremillion along with any additional visible plant material removed from the heavy fractions by project staff. A summary of flotation samples analyzed and their contexts appears in Table 1.

Light fractions and heavy fraction charcoal from each sample were combined for analysis. The material was weighed and then sifted through a series of USGS graded geological sieves to facilitate sorting. Material retained in sieves with 2.0 mm and larger mesh was sorted into general categories. Material smaller than 2 mm in diameter but greater than .5 mm was scanned for seeds and items not noted in the larger size category. Sorting was carried out using a Leica stereozoom microscope with magnification from 10 to 80 X. Seeds and wood were identified using the reference collection housed in the Department of Anthropology at OSU and a set of standard reference manuals (Delorit 1970; Martin and Barkley 1961; Montgomery 1977; Panshin and de Zeeuw 1970; United States Department of Agriculture 1974). Table 2 presents a summary of components greater than 2 mm in size; Tables 3 and 4 itemize remains of seeds and fruits recovered from all size categories.

It is standard practice in analysis of macrobotanical remains to disregard any uncharred material from open sites in temperate regions as modern contamination, on the grounds that it is unlikely to have survived long periods of exposure to weather and soil organisms (Lopinot and Brussell 1982; Yarnell 1982). However, organic materials stand a better chance of surviving over time periods measured in the hundreds, rather than thousands, of years. Because the deposits of the Antoine Garden site are relatively recent, uncharred plant materials were not automatically disregarded. Rootlets and small stem fragments that are abundant in many of the light fractions are probably intrusive and have been categorized as such. All seeds and wood fragments have been reported regardless of their condition, but separated into two classes: fully carbonized (Table 3) and uncarbonized or partially carbonized (Table 4). Classifications by this criterion were conservative and placed questionable material in the latter category.

Besides the flotation samples, several additional lots of plant material recovered during excavation were examined. Most of these were wood fragments that were saturated with water and too soft to break or section as is normally done with fresh wood and wood charcoal. These materials require special handling for accurate identification and were set aside for later examination. Other material was identified and is discussed in the results section.

**Phytoliths**

Soil samples for recovery of phytoliths were taken from a variety of contexts. Normally samples were taken from a vertical wall of an excavation unit within an identifiable stratum at a specific depth, following procedures described in Pearsall (2000). The samples were then sent to
Phytoliths ("plant stones") are microscopic silica bodies that form in plant cells. The majority of phytolith forms occur widely across many taxonomic groups, whereas others can be securely attributed to a specific family, genus, species, or even cultivar. Phytoliths can also sometimes be classified according to the type of plant tissue or cell they typically occur in. Because they are composed of silicon dioxide, phytoliths often resist decay even under environmental conditions that cause organic material, including charcoal, to deteriorate rapidly. Phytoliths are vulnerable only in extremely alkaline environments (with a pH of about 9 or higher) (Piperno 2006). Consequently, despite the need for specialized laboratory procedures to extract silica from archaeological sediments, phytolith analysis is often a worthwhile investment for the archaeologist. Used in conjunction, plant macroremains and phytoliths together can provide a more detailed picture of land use, diet, and subsistence than either alone could offer.

Results
Plant Macroremains

Major components of the 16 flotation samples analyzed are presented in Table 2. All but one of the samples contained wood charcoal. Also present in many of the samples was vitrified wood, which has a glassy appearance due to having been subjected to high temperatures. This is probably the same material labeled as “coal/resin” by Gayle Fritz in her report on plant remains from three New Orleans sites (Fritz 2002). Anthracite (hard coal) is an extreme form of vitrified wood. The material found in the flotation samples from the Antoine Garden may be fuel remnants, but some of the fragments are only partially vitrified, suggesting some variation in temperature and oxygen content of the fires that affected them. The small fragments of wood charcoal and uncharred wood from flotation samples do retain features necessary for taxonomic identification and this work will be part of the next phase of research.

One of the flotation samples yielded large fragments of wood from a timber post that was placed just after the 1788 fire. The wood appears to be baldcypress (Taxodium distichum (L.) Rich.). The characters required to rule out eastern redcedar (Juniperus virginiana L.) were difficult to observe, but all other features of the wood are consistent with baldcypress. Both woods are valued as construction materials because of their ability to withstand decay. Both are native to south Louisiana, although they tend to occupy different habitats (baldcypress prefers wet soils, whereas eastern redcedar is more commonly found in uplands, especially on alkaline soils) (USDA Natural Resource Conservation Service 2002). Baldcypress is mentioned as a construction material used in the early plans of the garden by Gonichon and Broutin made in 1731 and 1732 (Langlois 2008).

Additional wood samples recovered from Context 6 and Context 14 and originally thought to be roots were identified as wood of a holly (Ilex spp.). There are several candidate native species that might account for this wood, among them yaupon holly (Ilex vomitoria Aiton), possumhaw (Ilex decidua Walter), and dahoon (Ilex cassine L.). However, American holly (Ilex opaca Ait.) is generally preferred for landscaping (USDA Natural Resource Conservation Service 2002). This seems the most likely attribution for these large pieces of wood from early 20th century
contexts. Holly seeds from the Madame John’s Legacy site (16OR51) have also been attributed to ornamental planting (Fritz 2002).

Other carbonized plant parts include fragments of woody and herbaceous stems and rhizomes (underground stems). These are not generally identifiable to species or genus. However, both of the major divisions of flowering plants were represented. Monocots (the group including grasses, sedges, lilies, and onions, among others) are represented in a 20th century pit feature (FS 6). Dicot twigs were recovered from FS 1, a pipe trench cut into a late nineteenth-early 20th century garden layer. Rhizome fragments from FS 11 may be associated with a 19th century planting. Uncarbonized twigs were noted in many of the samples and assumed to be recent contaminants; some of these show the stem morphology characteristic of vines (Esau 1977).

Parenchyma, a plant tissue composed of relatively undifferentiated cells, was identified in several samples but was particularly abundant in FS 3, a sample taken from 20th century church garden deposits. Parenchyma usually makes up the bulk of underground storage organs, such as tubers and rhizomes. Unfortunately, parenchyma alone is of limited diagnostic value, but can be useful in conjunction with other botanical features (Hather 2000). Best results are obtained using scanning electron microscopy along with a reference collection. These are options that might be pursued in future stages of the project.

Seeds and fruits, both whole and fragmentary, were recovered from the Antoine Garden site in both carbonized and uncarbonized form (Tables 3 and 4). In light of the good condition of water-saturated wood from the site, at least some of the uncarbonized seeds are probably associated with the deposits in which they were found, rather than being recent intrusions.

A small fragment of uncarbonized bottle gourd (Lagenaria siceraria L.) rind was recovered from a 20th century pit (FS 6). The bottle gourd fruit is used today primarily as a utility plant to make such items as dippers, rattles, and birdhouses. However, M. Lasisse of New Orleans sent a specimen of a “calbasse douce” to the Jardin du Roi in 1788 that he described as being “excellente en fricaseé comme comcombre” (Langlois 2008).

Food crops represented include maize (both kernel and cob fragments), common or garden bean, and an Old World cereal grain (possibly wheat). Peach pit fragments were recovered in FS 22, taken from a mid to late 18th century colonial ground surface having a dark lens of burning assumed to represent the 1788 fire. A whole peach pit was recovered from Context 60 (Lot 147), which was associated with the early 18th-century structure in EU 1. Peach (Prunus persica L.) originated in the Old World, probably in central Asia, and was first brought to North America by Spanish colonists. Although it was an orchard crop, the peach naturalized rapidly in the Southeast due to its habit of spontaneous germination from discarded pits. Native people were quick to adopt this fruit and incorporated peach trees in their managed groves. By the mid-18th century, peach trees had become well established components of the southeastern landscape (Gremillion 1993, 1995; Ruhl 1993).

A carbonized plum or cherry (Prunus) pit was found in FS 24, also from the late French/early Spanish colonial ground surface levels in EU 2. Like the other burned food remains, this item may have been discarded as hearth or kitchen sweeping, or originate in the French Capuchin
A number of *Prunus* species are native to the area, and there are several cultivars used as ornamentals or fruit producers. The species most likely to have occurred naturally in south Louisiana are the black cherry (*Prunus serotina* Ehrh.), Carolina laurelcherry (*Prunus caroliniana* Aiton), and chickasaw plum (*Prunus angustifolia* Marsh.) (USDA Natural Resource Conservation Service 2002)

Most of the remaining seed types are those of weedy plants native to south Louisiana. Bramble (raspberry and blackberry, *Rubus*), purslane (*Portulaca oleracea* L.), and clasping coneflower [*Dracopis amplexicaulis* (Vahl.) Cass.] were especially abundant in deposits dating to around the time of the 1788 fire. Except for the clasping coneflower, none of these seeds showed signs of having been charred. These are all native plants that colonize disturbed habitats, which suggests that the space occupied by the present garden was somewhat neglected during this period. Clasping coneflower does have somewhat showy flowers with orange petals and is planted today as an ornamental. It favors moist sites and requires full sun to prosper (USDA Natural Resource Conservation Service 2002). The raspberry seeds from 16OR443 are similar in appearance (that is, showing no signs of age and often adhering to clumps of fine organic material) to examples found in privy deposits in Covington, Kentucky dating to the mid 19th century (report on file, Paleoethnobotany Laboratory, The Ohio State University). Thus it is possible that the raspberry seeds were dietary and associated with the houses situated nearby during the Spanish period. The Madame John’s Legacy site also yielded uncharred *Rubus* seeds, which Fritz (2002) suggests may have been utilized as a food source.

Pokeweed, spurge, knotweed, sawgrass, bulrush, and amaranth were all associated with 19th century and early 20th century activity. The presence of these weedy plants indicates soil disturbance, perhaps from pedestrian traffic in the garden and public square. Knotweed (*Polygonum*) and bulrush (*Scirpus*) are good indicators of wet soils, although for both genera there is much variation in habitat requirements. Jamaican swamp sawgrass [*Cladium mariscus* (L.) Pohl ssp. *jamaicense* (Crantz) Küch.] is an obligate wetland plant usually found in brackish and fresh marshes. It grows spontaneously in south Louisiana but is sometimes cultivated by native plant enthusiasts (USDA Natural Resource Conservation Service 2002).

**Phytoliths**

Of the samples submitted for study, only three were found to have a sufficient quantity of phytoliths to merit quantitative analysis (in this case, a minimum of 200). Only these results are discussed here; additional details can be found in Mulholland (below). Most of the phytolith types recognized by specialists, including those identified in the present project, have limited diagnostic value because they occur widely across taxonomic groups, and will not be further discussed here. More useful are the silica cells characteristic of grasses (family Poaceae) (Mulholland’s Type 7), which is the most abundant type in all three samples. Some of these phytolith types are characteristic of particular anatomical structures, and many can be traced to one or more grass subfamilies that have distinctive ecological profiles. The subtypes of grass silica cells are discussed here along with others that are taxonomically diagnostic (Mulholland’s “Other” category).
Sample 6, from 19th century fill, was dominated by rondels, a phytolith type usually associated with the grass subfamily Pooidae, although they also occur widely in the Poaceae in inflorescences (flower clusters). The presence of at least some Pooidae is indicated by the sinuate rectangle type, which makes up a small percentage of the total grass silica cell count. Pooid grasses grow primarily in temperate or high elevation tropical environments, and they include wheat, barley, and other domesticated cereals of Near Eastern origin (Piperno 2006:28-29). The Sample 6 assemblage also included an elongated cell type with sharp projections (the rootle) that is common in grass inflorescences. The abundance of probable inflorescence structures is consistent with waste products from threshing of grain, although a number of other grass subfamilies in addition to the Pooidae might be represented by the rondels. The presence of saddle-shaped phytoliths demonstrates the presence of one of these, the Chloridoideae. Chloridoid grasses are ecologically diverse, and while many are drought-adapted, the taxon also includes wetland species (USDA 2008).

Sample 6 also contained a spherical type that can be attributed to the palm family (Palmae, also known as the Areaceae). This tropical family includes numerous economically important species as well as ornamentals. A likely candidate for a New Orleans site would be the cabbage palmetto [Sabal palmetto (Walt.) Lodd. ex J.A. & J.H. Schultes], a native species that has found wide use as an ornamental in the southern United States. Dwarf palmetto [Sabal minor (Jacq.) Persh.] is sometimes used in landscaping as well (USDA Natural Resource Conservation Service 2002). Le Page du Pratz described and sketched what may be a palmetto, which he labeled “latanier”, fan palm (Langlois 2008). The plant he had in mind was probably a European fan palm, Chamaerops humilis L., which his drawing resembles closely. Unless it was a cultivar on one of the plantations he visited, the plant Le Page saw was probably a native palmetto, which have fan-like leaves (although the stem of the plant he described does not resemble either species). Palmettos still grow in the Antoine Garden today.

Sample 11 is associated with debris from the 1788 fire. The grass silica-cell assemblage is dominated by rondels, indicating grass inflorescence material. It is also especially rich in phytoliths from palms and chloridoid grasses. Macrobotanical remains recovered from Context 51 include seeds of weedy plants as well as charred remains of maize and common bean.

Sample 26 has a particularly high percentage of rootles, the spiny rods associated with grass inflorescences. In other respects it is similar in phytolith composition to the other two analyzed samples. This sample may be associated with a possible 20th century barbeque pit.

Summary

Macrobotanical and microbotanical remains from the St. Antoine Garden site provide information on past vegetation and plant use from the early 18th century founding of New Orleans up to the present day. Highlights of these findings can be summarized as follows:

- Vitrified wood indicates high temperatures, most likely from the use of coal as a fuel; in situ burning events seem unlikely given that the debris from the 1788 fire is one of the few contexts that lacks this material.
• Baldcypress was used as a construction material in the late 18th century.

• Tissue probably from underground storage organs, such as tubers and rhizomes, is abundant in 20th century garden deposits and may represent plantings of ornamentals or other economic plants; further study of this material might yield more specific identifications.

• Maize, peach, plum or cherry, and possibly wheat, all associated with the colonial midden of Context 33, were among the plant foods used by mid-18th century colonists.

• Possible ornamental plants associated with the garden include cabbage palmetto, clasping coneflower, Jamaican swamp sawgrass, and American holly.

• Throughout its period of use, the St. Antoine Garden site was home to weeds as well as garden plants, which may indicate periods of relative neglect or soil disturbance due to pedestrian traffic, particularly during the late 19th and early 20th centuries.

• Several types of grasses grew on the site; phytolith assemblages are rich in types that occur frequently in inflorescences, but usually not in the grains themselves, a pattern often seen in threshing and storage contexts.

Table 1. List of analyzed flotation samples with provenience information.

<table>
<thead>
<tr>
<th>Location</th>
<th>Temporal placement</th>
<th>FS</th>
<th>Lot</th>
<th>E.U.</th>
<th>CTX</th>
<th>LVL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pit feature</td>
<td>20th c.</td>
<td>6</td>
<td>44</td>
<td>2</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>Church garden</td>
<td>Early 20th c. to present</td>
<td>3</td>
<td>37</td>
<td>2</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Garden layer cut into with PVC pipe trench</td>
<td>19th to early 20th c.</td>
<td>1</td>
<td>30</td>
<td>1</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Sheet midden</td>
<td>20th c.</td>
<td>8</td>
<td>48</td>
<td>3</td>
<td>14</td>
<td>1</td>
</tr>
<tr>
<td>Planting</td>
<td>19th to 20th c.</td>
<td>10</td>
<td>59</td>
<td>3</td>
<td>21</td>
<td>1</td>
</tr>
<tr>
<td>Planting</td>
<td>19th to 20th c.</td>
<td>11</td>
<td>60</td>
<td>3</td>
<td>22</td>
<td>1</td>
</tr>
<tr>
<td>Public square/garden surface</td>
<td>Mid-19th c.</td>
<td>14</td>
<td>2</td>
<td>25</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Fill overlying ground surface</td>
<td>Late 18th to early 19th c.</td>
<td>20</td>
<td>76</td>
<td>2</td>
<td>31</td>
<td>1</td>
</tr>
<tr>
<td>Colonial period ground surface</td>
<td>Mid to late 18th c.</td>
<td>22</td>
<td>90</td>
<td>2</td>
<td>33</td>
<td>1</td>
</tr>
<tr>
<td>Colonial period ground surface</td>
<td>Mid to late 18th c.</td>
<td>24</td>
<td>93</td>
<td>2</td>
<td>33</td>
<td>2</td>
</tr>
<tr>
<td>Architectural feature</td>
<td>Late 18th c.</td>
<td>34</td>
<td>123</td>
<td>1</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Architectural feature</td>
<td>Late 18th c.</td>
<td>35</td>
<td>124</td>
<td>49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Debris from city-wide 1788 fire</td>
<td>Late 18th c.</td>
<td>37</td>
<td>131</td>
<td>1</td>
<td>51</td>
<td>2</td>
</tr>
<tr>
<td>Builder's trench associated with house</td>
<td>Mid-18th c.</td>
<td>40</td>
<td>143</td>
<td>1</td>
<td>59</td>
<td>1</td>
</tr>
</tbody>
</table>

FS=Flotiation Sample; E.U. = Excavation Unit; CTX = Context; LVL = Level
Table 2. Flotation sample components (weights in grams).

<table>
<thead>
<tr>
<th>FS</th>
<th>Lot</th>
<th>E.U.</th>
<th>CTX</th>
<th>LVL</th>
<th>Wood charcoal</th>
<th>Vitrified wood</th>
<th>Uncharred wood</th>
<th>Monocot stem</th>
<th>Dicot stem</th>
<th>Rhizome fragments</th>
<th>Parenchyma</th>
<th>Seeds</th>
<th>Unknown</th>
<th>Soil/Intrusive plant material</th>
<th>Faunal</th>
<th>Residue &lt; 2 mm</th>
<th>Total</th>
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<tr>
<td>6</td>
<td>44</td>
<td>2</td>
<td>9</td>
<td>2</td>
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<td>0.75</td>
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<td></td>
<td>0.15</td>
<td>1.37</td>
<td>8.84</td>
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<tr>
<td>3</td>
<td>37</td>
<td>2</td>
<td>5</td>
<td>2</td>
<td>3.36</td>
<td>10.14</td>
<td></td>
<td></td>
<td></td>
<td>20.01</td>
<td>0.01</td>
<td>0.01</td>
<td>6.33</td>
<td>8.18</td>
<td>70.22</td>
<td>52.48</td>
<td>165.03</td>
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<tr>
<td>1</td>
<td>30</td>
<td>1</td>
<td>6</td>
<td>1</td>
<td>4.70</td>
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<td>75.68</td>
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<tr>
<td>8</td>
<td>48</td>
<td>3</td>
<td>14</td>
<td>1</td>
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<td>4.83</td>
<td>0.11</td>
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<td>0.20</td>
<td>7.23</td>
<td>16.01</td>
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<tr>
<td>10</td>
<td>59</td>
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<td>0.34</td>
<td>0.01</td>
<td>tr</td>
<td></td>
<td></td>
<td></td>
<td>tr</td>
<td>0.11</td>
<td>0.73</td>
<td>14.79</td>
<td>15.98</td>
<td></td>
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</tr>
<tr>
<td>11</td>
<td>60</td>
<td>3</td>
<td>22</td>
<td>1</td>
<td>0.76</td>
<td>0.01</td>
<td>0.02</td>
<td></td>
<td></td>
<td></td>
<td>0.05</td>
<td>0.01</td>
<td>0.44</td>
<td>0.62</td>
<td>0.09</td>
<td>11.63</td>
<td>13.63</td>
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<tr>
<td>14</td>
<td>2</td>
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<td>11.29</td>
<td></td>
<td></td>
<td></td>
<td>11.29</td>
<td>0.02</td>
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<td>2.04</td>
<td>38.32</td>
<td>56.99</td>
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<tr>
<td>20</td>
<td>76</td>
<td>2</td>
<td>31</td>
<td>1</td>
<td>0.11</td>
<td>0.01</td>
<td>0.52</td>
<td></td>
<td></td>
<td></td>
<td>0.07</td>
<td>2.43</td>
<td>8.26</td>
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<td>22</td>
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Total: 52.97  17.04  16.82  0.08  0.00  0.05  31.36  0.52  5.87  39.59  85.15  262.38  511.83

FS=Flotation Sample; E.U. = Excavation Unit; CTX = Context; LVL = Level; tr = trace (<0.005 g)
Table 3. Uncarbonized seeds and fruits.

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FS=Flotation Sample; E.U. = Excavation Unit; CTX = Context; LVL = Level
Table 4. Carbonized seeds and fruits.

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FS=Flotation Sample; E.U. = Excavation Unit; CTX = Context; LVL = Level
References

Delorit, R. J.

Esau, Katherine

Fritz, Gayle J.

Gremillion, Kristen J.

Hather, J. G.

Langlois, Gilles-Antoine

Lopinot, Neal H. and David Eric Brussell

Martin, Alexander c. and William D. Barkley

Montgomery, F. H.

Panshin, A. J. and Carl de Zeeuw

Pearsall, Deborah M.

Piperno, Dolores R.

Ruhl, Donna L.

United States Department of Agriculture

USDA, ARS, National Genetic Resources Program

USDA Natural Resource Conservation Service

Wagner, Gail E.

Yarnell, Richard A.
Part II. Basic Scan Phytolith Analysis of Sediment Samples at St. Antoine's Garden (16OR443), New Orleans, Louisiana

prepared by:
Susan C. Mulholland
Duluth Archaeology Center
Duluth MN 55812
218/624-5489
suemulholland@aol.com
Phytolith Report Number 08-01

ABSTRACT

Twenty-six sediment samples from various contexts at site 16OR443 in New Orleans (St. Antoine’s Garden) were analyzed for silica phytolith content; quick scan indicated a range of phytolith abundances. Most samples have few phytoliths or poor preservation or both. Three samples were scanned for 200 identifiable phytoliths. Grasses contributed to all samples but most strongly in the sample of 1788 fire debris (#11). This sample also had the strongest indication of Chloridoid grasses and significant amounts of Palmae. In contrast, the sample of early 19th century fill (6) has more Pooids and less Chloridoids while Palmae is very low. A trash pit sample (26) has less grass than the other two samples but greater Pooid indications, as well as strong indications of grass inflorescence material. Palmae was present but at lower amounts. These three samples differ considerably in the types of silica-producing plants contributing to the sediments. The remaining samples ranged from very low phytolith content to fair content with poor preservation. Some samples might yield a basic count with extended count times, which were not possible during this time frame.

INTRODUCTION

Phytoliths, mineral deposits that form in and between plant cells, are botanical microfossils that can provide information not available from analysis of other types of fossil material (Rovner 1983). Although many other minerals may form deposits, this analysis has focused on opaline silica since it generally exhibits good preservation in sediments. In addition, relatively well-known comparative collections of silica phytoliths are available. Known silica-rich families include the Gramineae (grasses), Cyperaceae (sedges), and Equisetaceae (horsetails). Other families vary in amount of silicification from rare (Labiatae-mint) to abundant (Ulmaceae-elm); even families with relatively abundant production often contain species with low to absent phytolith production (Piperno 1985, 1988). All plant parts may produce phytoliths: leaf, stem, and root as well as inflorescence. Most parts used by humans therefore have the potential to be recorded in sediments, although roots fluctuate greatly in amount of phytolith production.
Silica can be preserved under sediment conditions that destroy organic microfossils. Phytoliths tend to be deposited at the site of production (Dimbleby 1978:129; Rovner 1988:158). Deposition normally occurs through surface or near-surface decomposition of plants; thus phytoliths are incorporated directly into sediments. Fire or strong wind erosion, however, can and do expose phytoliths to wind transport. Phytoliths have been recorded in atmospheric dust (Folger et al. 1967; Twiss et al. 1969), indicating transport over considerable distances. The question of water transport has not yet been addressed.

Phytolith studies have been applied to various archaeological and paleoecological problems (Piperno 1988). Identification of crops in sediments has been attempted for maize (Pearsall 1978; Piperno 1984; Bozarth 1993), rice (Fujiwara 1982), and various Old World cereals (Helbaek 1961; Rosen 1987). Study of farming practices includes identification of field surfaces (Pearsall and Trimble 1984), canals (Turner and Harrison 1981), and use of irrigation (Rosen 1987). Food residues (charred organics on ceramics) also often contain phytoliths (Thompson 1986; Jones 1993; Thompson and Mulholland 1994).

Environmental reconstruction has also been attempted using phytoliths. Carbone (1977) interpreted past environments, mostly forests, by comparison to modern soil A horizons; Lewis (1981, 1987) and MacDonald (1974) investigated changing types of prairie from Paleoindian to recent times. Studies comparing phytolith and pollen data indicate that phytolith data complement those obtained from pollen grains; in some cases (i.e., grasslands), more information is available from phytoliths (Kurmann 1985). Pollen grains are much more diverse for forests (Piperno 1985); however, even in such environments phytoliths provide independent support for environmental interpretation (Schreve-Brinkman 1978; Bozarth 1992).

Most phytolith research to date has focused on identification of the original plant source by particle morphology. The ultimate goal is to identify plant taxa in order to reconstruct plant use and/or vegetation at sites (Piperno 1988; Rovner 1988). Recently, chemical and physical techniques have been applied to obtain other types of information from phytoliths. Dating of occluded carbon was first accomplished on sediments from a river terrace in Ohio (Wilding 1967). The process started with 45 kg of sediment and yielded 0.75 g of carbon; the date obtained was 13,300 ±450 BP. AMS dating has greatly reduced the amount of phytolith material needed (Mulholland and Prior 1993). Another application involves thermoluminescence dating of phytoliths from hearths in Ecuadorian sites (Rowlett and Pearsall 1993). Environmental reconstruction has made use of oxygen, hydrogen, and carbon stable isotope ratios for a direct indication of paleotemperature (Bombin and Muehlenbachs 1980; Kelly et al. 1991; Fredlund 1993).

METHODS AND MATERIALS

Twenty-six sediment samples from various features at site 16OR443 were processed to extract phytoliths (Table 1). The objective of quick scan analysis is to qualitatively assess phytolith abundance and degree of preservation within the samples. Samples with sufficient phytoliths may receive basic scan analysis of 200 identifiable phytoliths. Identifiable phytoliths are those that can be identified to established phytolith types, usually a reflection of plant anatomical elements. Some types are identifiable to various plant taxa, such as grass silica-bodies (to family
and subfamily). Others are not yet related to specific plant taxa. However, differences in amounts of phytolith types between samples can be interpreted in terms of patterns of plant or vegetation types. Comparative samples from natural or nonfeature proveniences are essential.

Table 1. Sediment Samples, 16OR443.

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<td>unit 3, N120-130 N wall 58-63</td>
<td>27</td>
</tr>
<tr>
<td>3</td>
<td>unit 3, N120-130 N wall 50-55</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>unit 3, N120-130 N wall 30-35</td>
<td>14</td>
</tr>
<tr>
<td>3</td>
<td>unit 3, N120-130 N wall 10-16</td>
<td>4 topsoil</td>
</tr>
<tr>
<td>3</td>
<td>unit 3, N90-100 E wall 63-69</td>
<td>34 trash pit east wall</td>
</tr>
</tbody>
</table>
Separation of phytoliths from the sediment matrix is based on both particle size and specific gravity. Sands were removed by screening at 90 microns; clays were removed by settling for 1 hour (separation at 5-10 microns). Particles with a specific gravity between 2.3 and 1.5 were then extracted using a heavy liquid solution of zinc bromide and water. To increase phytolith recovery, the extraction step was repeated. Slides for light microscopic examination are prepared with Permount (index of refraction = 1.54) and examined with a Zeiss Universal petrographic microscope equipped with a Nomarski Differential Interference Contrast (DIC) condenser system. The Nomarski DIC increases contrast in transparent particles, including phytoliths, by introducing a shadow effect.

The objective of quick-scan analysis is to quickly assess phytolith abundance and preservation. Quick-scan analysis provides qualitative information from a scan at 400X magnification. Abundance is assessed on the amount of recognizable phytoliths seen in a haphazard scan of a slide. “Abundant” refers to many phytoliths in good preservation. “Frequent” is a significant amount of identifiable phytoliths. “Common” is a lesser amount of phytoliths. “Scattered” is identifiable phytoliths that are not very numerous. “Rare” is occasional phytolith found in an otherwise empty slide.

Basic scan is designed to quantitatively assess the phytolith assemblage at 400X magnification. Approximately 200 phytoliths are identified to type in transects across the slide. Relatively few phytolith types are unique to a plant taxon; interpretation of plant contributors usually relies on comparison of phytolith assemblages from the unknown samples to those from reference plant specimens. The relative amounts of various phytolith types is often the best indicator of plant contributor. In sediments, the likelihood of several (or numerous) plants mixing together complicates plant identification enormously.

**PHYTOLITH CLASSIFICATION**

Classification of individual phytoliths is initially to shape type. Without a regional comparative collection, only some phytolith types can be confidently assigned to a plant taxon. However, differences in phytolith assemblages between closely spaced samples can be interpreted in terms of patterns of plant groups or vegetation types. The classification scheme is based on the type of cell that becomes silicified (Mulholland 1987; Mulholland and Rapp 1992). Table 2 lists the most common types observed to date; most cannot be assigned to a specific plant taxon. Category 7, however, is definitely an indicator of grasses. Grasses contain specialized silica-cells that function to collect silica (Esau 1977:85), as well as other anatomical elements that may become silicified. Every grass species examined to date has phytoliths from grass silica cells; no other plant taxon produces phytoliths with these shapes. Distinctive silica-bodies have been the subject of much taxonomic research (Metcalfe 1960; Twiss et al. 1969; Brown 1984; Mulholland 1989). This study uses general morphological subdivisions of grass silica-body types (Table 3).

Grass silica-bodies exhibit both multiplicity and redundancy (Rovner 1971). Multiplicity is the production of many types by a taxon; redundancy is the occurrence of one type in many taxa. These factors complicate identification of grasses by phytoliths. Most efforts to correlate grass
silica-bodies to grass taxa either focus on identification of certain important species by unique morphological characteristics (Pearsall 1978; Piperno 1984) or correlate general shape types to subfamilies and tribes (Twiss et al. 1969; Brown 1984; Mulholland 1989). The unique species identifiers are as yet few in number; correlations of more general shapes to grass subfamilies are more widely applicable, although not without exceptions (Mulholland 1989). While extensive studies of local taxa are necessary to verify hypotheses of phytolith patterns developed in other regions, analysis of sediments can be based on some general correlations.

Based on North American reference material (Mulholland 1989), grass silica-bodies are identified to Gramineae subfamilies as follows. Sinuates and rectangles (Figure 1a) indicate the tribes Poeae, Triticeae, Aveneae, and Phalarideae of the Pooideae. Rondels (Figure 1b) are found in most of the subfamilies, particularly from inflorescence material. Although most abundant in the Pooideae, rondels cannot be used as indicators of these taxa without consideration of other subfamilies. Saddles (Figure 1c) indicate Chloridoideae, although they also occur in some species of the Arundinoideae (Ollendorf et al. 1988) and Pooideae (low amounts). Dumbbells (Figure 1d) are produced by the Panicoideae, Aristideae (Arundinoideae), Chloridoideae, and Stipeae (Pooideae). Some tentative distinctions may be made between dumbbells from these taxa. Stipeae tend to produce dumbbells with tops smaller than the base; dumbbells with saddle-like tops are characteristic of the Chloridoideae. The Aristideae produce large quantities of dumbbells with long shafts. In the absence of these special types, dumbbells may generally be taken to indicate the Panicoideae.

### Table 2. Phytolith Categories (Mulholland and Rapp 1992)

1. **Trichomes** - Hairs and papillae. Spherical to ovoid with a conical top.
2. **Stomata** - Guard and/or subsidiary cells. The entire complex is ovoid in shape. Guard cells are shaped like a telephone receiver. Subsidiary cells are ovoid to trianguloid.
4. **Epidermal groundmass cells** - Unspecialized epidermal cells. Various thin rectangular box shapes with interlocking edges.
5. **Rods** - Fibers, sclereids, xylem cells, and other cylindrical shaped cells.
7. **Silica-bodies** - Phytoliths from specialized silica accumulating cells. Truncated to beveled pyramids, cones, rectangular boxes, and cylinders. At least one broad face (base) is present. Note that although silica-bodies are equated with short cells in botanical texts, some very long bodies are included here with the shorter ones. The long bodies are consistently silicified and resemble the other silica-bodies in surface texture (unlike groundmass cells that become silicified). For these reasons, the longer cells are included here.
Table 3. Major Shape Types of Grass Silica-Bodies (Mulholland and Rapp 1992)

I. Body is a rectangular box to truncated or beveled pyramid; cross section of base approximately rectangular to square or other polygon (base may have lobes but general outline is a polygon); top is a flat to slightly concave or convex face or elevated ridge(s).

A. Nonlobate: sides of base lack definite lobes
   1. Base has 3 sides
   2. Base has 4 sides
   3. Base has 5 sides

B. Lobate: sides of base have definite lobes
   1. Minimal base diameters approx. equal
   2. Minimal base diameters unequal
      a. Bilobate: Maximum of 2 lobes per side
         1. Shaft/lobe ratio > 2/3
         2. Shaft/lobe ratio < 2/3
      b. Polylobate: More than 2 lobes per side
         1. Shaft/lobe ratio > 2/3
         2. Shaft/lobe ratio < 2/3

II. Body is a short cylinder to truncated or beveled cone; cross section of base approximately oval to circular or other curved shape (base may have concave or flat segments but general outline is curved shape); top is a flat to slightly concave or convex face or elevated ridge(s).

A. Entire: edges of base all convex
B. Flattened: some edges of base straight
C. Indented: some edges of base concave

III. Body is saddle-like; cross section of top (or both top and base) has two opposite convex edges that flare outward from the face surface and two opposite lower edges that are usually concave; top is concave.

A. Tabular: top and base same size and shape
B. Plateau: top smaller than or different shape
C. Ridge: top is a ridge
Figure 1. Types of grass silica-bodies.


Bar is 10 micrometers.

Other phytolth types are generally not as well identified to specific plant taxa. Silicified bulliform cells are considered indicative of the Gramineae. The other phytolith types (#1, 2, 4-6 from Table 2) may be produced by both grasses and other plant taxa (forbs, shrubs, and trees). Subdivisions of these types need to be identified based on morphological differences between taxa. Trichomes in particular are silicified in numerous taxa, exhibiting considerable morphological variation. A study of some North Dakota species indicates differences in size and shape of trichomes and trichome bases (Mulholland 1987). Piperno (1988) identifies some shapes (trichomes and other types) that may be unique to particular species in tropical regions. Patterns of phytolith production in plant families (Piperno 1988:21-37) provide information on possible contributors that must be checked against local reference material.

**PHYTOLITH ABUNDANCE**

The abundance of silica phytoliths varied considerably between the samples, although all contained at least some phytoliths (Table 4). Most samples either had low phytolith amounts or poor preservation or both. Several were dominated by minerals (12, 13, 20) or black (carbon?) particles (10, 16, 23). Only three sediments (6, 11, 26) were considered for basic scans, although five others (1, 4, 8, 15, 17) might be counted with extended scans.
Table 4. Phytolith Abundance (qualitative)

<table>
<thead>
<tr>
<th>#</th>
<th>abundance</th>
<th>preservation</th>
<th>comments</th>
<th>Basic scan?</th>
<th>Acid reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>scattered patches</td>
<td>fair</td>
<td>grass infl.</td>
<td>Maybe</td>
<td>mild</td>
</tr>
<tr>
<td>2</td>
<td>common</td>
<td>poor</td>
<td>plates of cells</td>
<td>no</td>
<td>mild</td>
</tr>
<tr>
<td>3</td>
<td>scattered/frequent</td>
<td>poor</td>
<td>most fragmented</td>
<td>no</td>
<td>none</td>
</tr>
<tr>
<td>4</td>
<td>frequent</td>
<td>fair to poor</td>
<td>non-grass types</td>
<td>maybe</td>
<td>very mild</td>
</tr>
<tr>
<td>5</td>
<td>frequent</td>
<td>poor</td>
<td>bulliform cells</td>
<td>no</td>
<td>strong</td>
</tr>
<tr>
<td>6</td>
<td>abundant</td>
<td>fair</td>
<td>many thin cells</td>
<td>okay</td>
<td>mild</td>
</tr>
<tr>
<td>7</td>
<td>scattered</td>
<td>poor</td>
<td>many chunks</td>
<td>no</td>
<td>mild</td>
</tr>
<tr>
<td>8</td>
<td>common</td>
<td>fair</td>
<td>bulliform cells</td>
<td>maybe</td>
<td>mild</td>
</tr>
<tr>
<td>9</td>
<td>frequent/common</td>
<td>poor</td>
<td>large types</td>
<td>no</td>
<td>medium</td>
</tr>
<tr>
<td>10</td>
<td>common</td>
<td>good</td>
<td>black with sponge &amp; diatoms</td>
<td>no</td>
<td>none</td>
</tr>
<tr>
<td>11</td>
<td>frequent/common</td>
<td>good</td>
<td>small types</td>
<td>okay</td>
<td>strong</td>
</tr>
<tr>
<td>12</td>
<td>scattered</td>
<td>poor</td>
<td>minerals</td>
<td>no</td>
<td>strong</td>
</tr>
<tr>
<td>13</td>
<td>frequent/common</td>
<td>poor</td>
<td>minerals</td>
<td>no</td>
<td>medium</td>
</tr>
<tr>
<td>14</td>
<td>scattered/rare</td>
<td>poor</td>
<td>Very few</td>
<td>no</td>
<td>medium</td>
</tr>
<tr>
<td>15</td>
<td>common/abundant</td>
<td>poor</td>
<td>grass infl. types</td>
<td>maybe</td>
<td>mild</td>
</tr>
<tr>
<td>16</td>
<td>scattered?</td>
<td>poor</td>
<td>black obscures</td>
<td>no</td>
<td>none</td>
</tr>
<tr>
<td>17</td>
<td>abundant</td>
<td>poor</td>
<td>grass infl. types</td>
<td>maybe</td>
<td>none</td>
</tr>
<tr>
<td>18</td>
<td>scattered/frequent</td>
<td>poor</td>
<td>large types</td>
<td>no</td>
<td>strong</td>
</tr>
<tr>
<td>19</td>
<td>scattered/frequent</td>
<td>poor</td>
<td>sedge?</td>
<td>no</td>
<td>strong</td>
</tr>
<tr>
<td>20</td>
<td>frequent/common</td>
<td>poor</td>
<td>minerals</td>
<td>no</td>
<td>strong</td>
</tr>
<tr>
<td>21</td>
<td>rare/scattered</td>
<td>poor</td>
<td>few</td>
<td>no</td>
<td>medium</td>
</tr>
<tr>
<td>22</td>
<td>scattered</td>
<td>poor</td>
<td>large types</td>
<td>no</td>
<td>strong</td>
</tr>
<tr>
<td>23</td>
<td>scattered</td>
<td>poor</td>
<td>small black</td>
<td>no</td>
<td>none</td>
</tr>
<tr>
<td>24</td>
<td>scattered</td>
<td>poor</td>
<td>bits/pieces</td>
<td>no</td>
<td>medium</td>
</tr>
<tr>
<td>25</td>
<td>frequent/common</td>
<td>poor</td>
<td>mixture of types</td>
<td>no</td>
<td>medium</td>
</tr>
<tr>
<td>26</td>
<td>frequent/common</td>
<td>fair</td>
<td>grasses</td>
<td>okay</td>
<td>strong</td>
</tr>
</tbody>
</table>

Differences in phytolith abundance between samples can reflect either the plant material (amounts and types) deposited during occupation of the site or the post-depositional processes that affect phytolith assemblages. Most often, a combination of both factors affects the phytolith assemblage although one or the other may be dominant. The major depositional factor is the amount of plant material containing phytoliths that is discarded and decays in the sediments. Determining the types of plants originally deposited is the objective of phytolith analysis.

The major post-depositional process that may affect phytoliths is basic pH (>8.5), a condition conducive to chemical dissolution of silica. Such dissolution can cause complete dissolution and/or extreme scarring of individual phytoliths. No data are available for pH values of the sediments. However, most samples reacted with the acidic heavy liquid to some extent during processing; these samples probably had a somewhat basic pH. Only samples 3, 10, 16, 17, and 23 did not react. However, the acid reaction does not correlate with phytolith abundance and suggests that original plant content may be the major factor affecting phytolith abundance.
BASIC SCANS
Basic scans for 200 identifiable phytoliths were done on three samples (Table 5). The phytolith assemblages varied somewhat between the samples. Grasses (category 7) comprise about most of the assemblages in the three samples, varying from about one-third to over half. Rectangles/squares (category 6) and rods (category 5) are generally second in abundance; however other types are greater in sample 11. Trichomes (category 1), thin groundmass cells (category 4) and bulliform cells (category 3) are much lower in abundance. Stomata were absent in the scans.

Table 5. Phytolith Assemblages

<table>
<thead>
<tr>
<th>#</th>
<th>1*</th>
<th>2*</th>
<th>3*</th>
<th>4*</th>
<th>5*</th>
<th>6*</th>
<th>7*</th>
<th>Other@</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>13</td>
<td>0</td>
<td>5</td>
<td>2</td>
<td>40</td>
<td>59</td>
<td>90</td>
<td>3</td>
<td>212</td>
</tr>
<tr>
<td>3.4%</td>
<td>2.4%</td>
<td>0.9%</td>
<td>18.9%</td>
<td>27.8%</td>
<td>42.4%</td>
<td>1.4%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>7</td>
<td>0</td>
<td>7</td>
<td>6</td>
<td>16</td>
<td>26</td>
<td>114</td>
<td>29</td>
<td>205</td>
</tr>
<tr>
<td>3.4%</td>
<td>3.4%</td>
<td>2.9%</td>
<td>7.8%</td>
<td>12.7%</td>
<td>55.6%</td>
<td>14.1%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>10</td>
<td>0</td>
<td>14</td>
<td>19</td>
<td>48</td>
<td>36</td>
<td>83</td>
<td>12</td>
<td>222</td>
</tr>
<tr>
<td>4.5%</td>
<td>6.3%</td>
<td>8.6%</td>
<td>21.6%</td>
<td>16.2%</td>
<td>37.4%</td>
<td>5.4%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
* refers to types in Table 2, page 7 @special types described below

The types of grass silica-cells also varied between the samples (Table 6). In general, there are high amounts of rondels and saddles; dumbbell/crosses and sinuate/rectangles are lower. However, sinuate/rectangles are relatively more abundant in sample 26 at about one-quarter of the assemblage. Dumbbells (including crosses) are uniformly low in amount. Note that these data are based on the planar view of the phytoliths only.

Table 6. Grass Silica Cell Phytoliths (planar view only)

<table>
<thead>
<tr>
<th>#</th>
<th>Sinuate/Rectangle</th>
<th>Rondel</th>
<th>Saddle</th>
<th>Dumbbell/Cross</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>7</td>
<td>30</td>
<td>15</td>
<td>4</td>
<td>56 (26.4%)</td>
</tr>
<tr>
<td></td>
<td>12.5%</td>
<td>53.4%</td>
<td>15%</td>
<td>7.1%</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>7</td>
<td>26</td>
<td>38</td>
<td>5</td>
<td>76 (37.1%)</td>
</tr>
<tr>
<td></td>
<td>9.2%</td>
<td>34.2%</td>
<td>50%</td>
<td>6.6%</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>15</td>
<td>31</td>
<td>7</td>
<td>3</td>
<td>56 (25.2%)</td>
</tr>
<tr>
<td></td>
<td>26.8%</td>
<td>55.4%</td>
<td>12.5%</td>
<td>5.4%</td>
<td></td>
</tr>
</tbody>
</table>

When the tilted grass silica-cells are added to the planar counts, rondels are even more dominant. Saddles decrease in abundance, although side views of rondels and saddles may be confused for
each other. Note that dumbbells, although still low, exhibit a reverse pattern. These counts are closer to representing the true proportions of types.

Table 7. Grass Phytolith Types (tilted forms added)

<table>
<thead>
<tr>
<th>#</th>
<th>Sinuate/Rectangle</th>
<th>Rondel</th>
<th>Saddle</th>
<th>Dumbbell</th>
<th>Total*</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>7 + 3 = 10</td>
<td>30 + 28 = 58</td>
<td>15 + 2 = 17</td>
<td>4 + 1 = 5</td>
<td>90 (42.4%)</td>
</tr>
<tr>
<td>11</td>
<td>7 + 1 = 8</td>
<td>26 + 34 = 60</td>
<td>38 + 0 = 38</td>
<td>5 + 3 = 8</td>
<td>114 (55.6%)</td>
</tr>
<tr>
<td>26</td>
<td>15 + 0 = 15</td>
<td>31 + 23 = 54</td>
<td>7 + 0 = 7</td>
<td>3 + 4 = 7</td>
<td>83 (37.4%)</td>
</tr>
</tbody>
</table>

* equals column 7 in Table 5

Special phytolith types were noted as well (Table 8). One common type is a rod with sharp spiny to dendritic projections (“rootle”). This type is found most commonly in grass inflorescence material (Mulholland 1979:61-65). The spheres with spiny protrusions are from the Palmae family (Cummings 1992:186).

Table 8: Special Phytolith Types

<table>
<thead>
<tr>
<th>#</th>
<th>Spiny sphere</th>
<th>Stellate sphere</th>
<th>rootle</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>28</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>26</td>
<td>10</td>
<td>0</td>
<td>52</td>
</tr>
</tbody>
</table>

CONCLUSIONS

Twenty-six samples were processed for silica phytoliths; only three contained relatively high amounts of phytoliths with the others containing much less. The pattern of abundance does not correlate to unit, depth, or type of soil. Several samples identified as topsoil (10, 15, 16, 25) and one as ground surface (8) might have greater amounts but preservation is not very good.

Three samples (6,11,26) had significantly higher amounts of silica particles, with better preservation. Basic scans of these samples provide some data on previous vegetation. Sample 6 (early 19th century fill) is dominated by grass silica-cells with non-grass phytoliths also abundant. The grass types are mostly rondels (over 50%) with significant saddles (over 25%) in planar view; the rondels are over 60% with tilted added. Saddles indicate Chloridoid grasses while
rondels may indicate either Pooids or a concentration of inflorescence material. However, sample 26 (trash pit) contains a large amount of the rod specific to inflorescence while sample 6 does not. The rod with dendritic projections (“rootle”) was identified in inflorescence material of grasses (Mulholland 1979:61-65) and is considered indicative of grass inflorescence. [While the grain itself often lacks any phytoliths, the chaff and stalk from the fruiting parts are usually heavily silicified.] This phytolith type is commonly found in threshing and storage areas.

Sample 11, 1788 fire debris, contained somewhat similar phytolith assemblage. Grasses dominate with rondels most abundant. Saddles are somewhat more common than in the other samples, indicating more Chloridoids. However, the Palmae are strongly represented as well. Some occur in sample 26 as well but at a much lower proportion.

The qualitative data from the quick scan provide some information on plant contributors. Basic scan of the samples provides more data on phytolith content. Rondels can be indicative of grass inflorescence material (Mulholland 1989). However, phytoliths indicative of all three grass subfamilies are present as well. Saddles (indicating Chloridoids) are in quite abundant, as are sinuate/rectangles (indicating Pooids). Dumbbell/crosses (indicating Panicoids) are the least abundant type.

Grass silica-cells are definitely produced in grasses. The other general types of phytoliths cannot be uniquely associated with specific plant taxa. In general, most plant taxa contain the types of cells represented by general phytolith types: hairs (trichomes), linear cells (rods), blocky cells (rectangles/squares). Rods and rectangles/squares generally represent silica deposition in non-specialized plant cells, from both grass and non-grass taxa. Bulliform cells are found in grasses and some other types of herbaceous plants such as sedges.

Summary

The presence of grass silica-cells in all samples indicates contribution of grasses to the sediments represented by these samples. In addition, the presence of larger phytolith types suggests that other plant taxa are also contributing to the sediments. Although grasses do produce these other types, other plants do as well. A ratio of grass silica-cells to other types can indicate relative contributions of grasses and non-grasses. However, a special type indicative of the Palmae family was present in two samples and quite abundant in one. The other specific phytolith type observed is the rod with dendritic projections; this type is specific to grass inflorescence and could represent storage of grains in the features.

The sediment samples from features at site 16OR443 yielded abundant to scattered phytoliths; quick scan of the phytolith assemblages suggests differences between the features in terms of total phytolith abundance and possibly types of phytoliths but abundance and preservation factors precluded more counts. Basic scans of the samples indicate a strong grass component in all three samples counted. The grass silica-cell types are dominated by rondels in all samples, further suggesting grass inflorescence contributions. The presence of the rods with sharply pointed projections in one sample also strengthens this interpretation. However, the presence of sinuate/rectangles indicates Pooid grasses are definitely present. Saddles indicate varying
amounts of Chloridoid grasses. Only Panicoids appear to be relatively and uniformly low in abundance.

Non-grass types also contributed to the samples. Palmae is most strongly represented in sample 11 with lower amounts in 26. Other types may be identifiable with a broader reference material for comparison. Additional data including both archaeological/architectural context and cultural materials as well as other paleoethnobotanical and sedimentological information, should be integrated to provide a more complete and accurate sense of the human and natural activities.

REFERENCES CITED


Chapter Five

Garden Archaeology: Interpretations and Conclusions

This chapter interprets the results of the fieldwork and archaeobotanical analyses in light of the historical research conducted by other members of the St. Anthony's Garden restoration team, and in light of the garden planning mandate to conduct research leading to a determination of the site's period of historic significance and elements to be considered in the re-design. It should be noted that the "period of significance" appropriate for the restoration of the garden is a quite different criterion that those used for National Register of Historic Places compliance (NHPA Section 106). In conventional landscape renovation projects, a single historic period is selected as the most significant and provides a target for accurately recreating the features and plantings of a given time and place. In evaluating for National Register criteria, a site can be seen as historically significant for multiple time periods. In most cases there would be no need to prioritize one time period over another if they are both significant and possess preservation integrity.

In no way should the summary that follows be taken as a statement of the archaeological site's overall historic significance, which is extraordinary, but not necessarily related to the phases of its history in which the site, or portions of it, was actively cultivated as a garden.

French Capuchin Garden, ca. 1724-1789

As both the historic map overlays (Figure 3.2), and the archaeological results indicate, the site that today comprises St. Anthony's Garden intersects with only a narrow eastward (downriver) edge of the expansive Capuchin garden. Nevertheless, rich loamy soils with crushed shell were present at depths, and with datable artifacts, which indicate a small but well-preserved stratum of this garden buried well below the current ground surface. In their upper levels, these soils contained a noticeable burn lens associated with the 1788 fire. The signature crushed shell mixture appears to have been a colonial Louisiana gardening practice developed to improve drainage and provide calcium to plants which became depleted by growing too fast in the subtropical environment. The crushed clam shell admixture was also noticed during excavations on a French colonial garden belonging to the Widow Mandeville (later Madame Broutin) on Conti Street (Dawdy et al. 2008).

Archaeobotanically, the most significant findings were the peach pits and a cherry or plum pit in the French colonial levels. Most of these concentrated in Excavation Unit (EU) 2, within the Capuchin garden walls, while another peach pit was thrown into the builder's trench for the second early French structure discovered at the base of EU 1. The cherry/plum was found in the 1788 fire level. While these botanical artifacts could have originated from foods brought in or deposited on the site by residents or passers-by, the number and close dating strongly suggests that a peach orchard comprised a significant component of the Capuchin garden. These fruits do not travel well, nor are they usually preserved pit-in, so the deposits suggest a quick snack from nearby trees, or fruit dropping to the ground. During excavation at another early French site in
New Orleans, a peach pit was also found in a builder's trench for a soldier's barracks nearby on Royal Street (Yakubik et al. n.d.). Another possible cultigen present in these levels may have been grown on site for food or medicine; there are Rubus seeds of the blackberry/raspberry genus.

Archaeobotanical analysis of seeds and phytoliths also indicate that the Capuchin garden had been abandoned for a while prior to the 1788 fire, as these deposits were full of weedy grasses, native palmettos, purslane (*Portulaca oleracea* L.), and the colorful clasping coneflower (*Dracopis amplexicaulis*). These suggest that the end-date of a well-tended Capuchin garden and orchard may have been closer to 1760, although it was probably a colorful, verdant space in the middle of the well-developed town of the 1750s and 1760s.

No architectural features such as a fence or parterre pavement were found that could be identified with the Capuchin garden. The early hut found in the garden area of EU 2 is at this writing presumed to pre-date the garden, although subsequent investigations may alter this interpretation. In sum, while extensive and well preserved archaeological deposits associated with the Capuchin garden would be significant as research resources, these are more likely to lie beneath the Rectory and Presbytere buildings than in St. Anthony's Garden.

**Pere Antoine's Garden, ca. 1789-1829**

Historic documents and narratives make fleeting references to "Pere Antoine's Garden," which in the beginning seems to have referred to the neglected Capuchin garden that Pere Antoine controlled as rector of St. Louis. The archaeological strata suggest that, indeed, garden soils continued to be tended in this area after the 1788 fire when Pere Antoine moved to the site and permitted homeless residents to camp out in the garden and eventually pay rents for the modest structures they built there. The physical only trace of this short-term occupation was in scattered late 18th-century artifacts and trash. The 'refugee camp' probably began to disappear after the 1794 fire when the Presbytere and adjacent lots were rapidly and substantially developed. It is likely that the narrow strip extending from Pere Antoine's hut at the back of the church (including what is now Pere Antoine Alley) continued to be cultivated and overseen by Pere Antoine as a kitchen garden. However, from the quantity of weedy grasses in the phytolith samples, it appears to have been relatively unkempt (as was the ascetic priest himself, it is said). Map projections indicate that if his hut was attached to the northeast corner of the site (lakeside, downriver) as suggested by historical descriptions, then it now lays entirely beneath the footprint of the present 1851 church building.

Other evidence for what was being cultivated in the garden during Pere Antoine's probable tenure is lacking, nor were there any architectural features noted that would date to this time and use. No evidence was found for the mythically long-lived date palm that folk tradition says Pere Antoine planted in the northeast corner of the site (though admittedly this may be a needle, or rather a datepit, in the haystack). Overall, the Pere Antoine period is the most poorly preserved or understood of the historic garden components, although other features and deposits from this time period are well represented.
It should be noted that throughout this period and the one that preceded it, the dominating feature of the lot that was to become St. Anthony's Garden was the Orleans streetbed and its associated ditch and banquette, not the narrow strips of land on either side which were cultivated by Pere Antoine on one side, and used as a yard space with a henhouse on the other.

Public Pleasure Garden, ca. 1830-1870

As has been written about elsewhere in the comprehensive report (Reeves), the city and church collaborated after Pere Antoine died to close off this dead end of Orleans Street and transform it into a public park around 1831. The chain of title is hazy, but at least one resident (probably on the upriver side of Orleans) had a building on site that needed to be torn down before the redevelopment. Otherwise, the space appears to have been relatively open.

The antebellum plans involved the planting of an ornamental garden with walkways, a fountain, and an arbor, as well as public amenities such as a flower mart with a glass house and an ice cream pavilion. Although the documents were silent on whether these dreams were actually executed, the archaeological evidence says quite emphatically that they were. The antebellum-era strata across the site are full of pressed-glass ice cream and candy dishes, as well as flower pots in a wide variety of decorated and undecorated types (see Appendix B for brief summaries of both artifact types).

Further, in the southwest corner of the site, a concentration of window glass and flowerpots makes it clear that the ambitious glasshouse planned for the site did get built and used. Furniture brads of the type used for folding wooden chairs were found throughout these levels as well, but concentrate towards the Royal Street frontage, suggesting that the ice cream pavilion may have been located there. Another remarkable characteristic of these levels at the site is a very high concentration of children's toys in the form of marbles, dolls, and even a domino (see Appendix B). The archaeological deposits thus indicate that the site was quite intensively used and enjoyed by New Orleans families up until the time of the Civil War, after which it slipped into decline.

Despite this strong artifactual evidence of "pleasure garden" activities, there was a remarkable absence of parterre features, the fountain, or other small architectural features, such as those shown in the 1880s lithographs (the first known images of the space after its development as a garden, shown in Reeves, this report). The only exception was the crushed brick floor of the glass house and ephemeral lenses of Rangia shell (local freshwater clam) and gravel at the appropriate depths and locales for the central curvilinear pathways shown in the garden. As for the other features, these were removed during later alterations to the garden, or incorporated into its redesign. For example, the fountain's location may have served as the base for the later Sacred Heart statue -- if the fountain ever existed. Its absence both archaeologically and in the more realistic Law/Lilienthal lithograph, suggests this may have been a fanciful ornament added by the second artist (dates to 1885, reproduced in Vieux Carré Survey).

The Law/Lilienthal lithograph is also more realistic in another respect -- showing a relatively natural, unmanicured garden. The archaeobotanical evidence indicates a mixture of native plants and introduced tropicaals, and frequent periods of weedy intrusion that intensified during a period of abandonment during and after the Civil War. This lithograph and the archaeology also agree
that larger shrubs and trees ringed the perimeter of the garden while the center was planted with low-growing specimens. This may have been a factor of necessity rather than design as young trees and other deep-rooted plants would probably have had a difficult time penetrating the hard compacted soil and brick rubble of buried Orleans Street down the center of the site (a factor that may still be a consideration for roots that need to push deeper than 50 cm below ground surface).

In sum, the era of the site as an antebellum public pleasure garden represents the first time the landscape took its contemporary form as a rectangular, cultivated lot overlying Orleans Street. The archaeological evidence suggests this was a period of intensive use of the site by New Orleans residents. The garden was a prominent feature of the Vieux Carré landscape and a part of everyday life for those who shopped in the flower mart, enjoyed an ice cream, strolled the paths with a suitor, or played among the plants after school or catechism.

**Cathedral Formal Garden, ca. 1870-present**

After the Civil War and a period of neglect, the Church took the garden over from city government (which had been leasing it to private interests). What landscaping changes the church made at this time is unknown from the documents, but the archaeology indicates that the glass house was torn down in the late 19th century, and several new bushes and trees were planted (indicated by root balls and pits in the strata). Over the next few decades, memorials and religious statues were added (the Obelisk and the Sacred Jesus statue), and the garden was transformed utterly into a religious space when it became the building site for the temporary "Hurricane Chapel" of 1916-1918. After the chapel was torn down the central space of the garden was left more open than it had been formerly, allowing a clear view of the rear of the church, echoing the former open space of Orleans Street.

The religious character of the space is expressed archaeologically in several surprising ways during this period. In addition to the well-preserved shadow of the Hurricane Chapel's chain wall (which may have inspired the later Koch and Wilson brick walkway), deposits from the late 19th century through the mid-20th century are rich with evidence of periodic religious feasting or celebrations. In the small areas uncovered, two roasting pits were found, both containing near-whole animals (a calf and a lamb) as well as fragments of religious statuary. How many more may be scattered through the site is unknown, but it may be worthwhile to add an oral history component to the garden's restoration plans in order to learn more about the ways in which the garden was used by parishioners in this time period.

Secondly, the presence of an informal pet cemetery in use from the early to mid 20th century was discovered (having at minimum two dogs and one cat). While local oral history says that one of the dogs belonged to a priest who lived at the rectory, the owners of the others are unknown. The burial of an upside-down bottle above the small dog, though, suggests folk traditions followed by lay parishioners who may have not had permission to use the garden in this way (in voodoo practices, bottles are buried upside down in graveyards to neutralize a spell). Oral interviews with visitors to the site indicate that many residents believe the garden to be a graveyard. They either assume that it was used this way in the early French period due to its proximity to the church, or they observe the contemporary marble vaults and assume these are in
use, or reflect the general character of the garden as a specialized burial ground for priests or city elites.

A third possible indication of the religious significance of the site for local residents was the unusual number, and distribution, of coins on the site. While there was a small number of colonial and antebellum coins found in contexts where they had simply been lost by past pedestrians, the pattern of coins from the 20th century suggest instead that individuals have been throwing coins into the garden from the side fence. The focus seems to be the statue of Jesus. Because he is in a "blessing" pose, it may be a folk catholic tradition to make a prayer and an offering in this way (a similar practice lies at the root of the now generalized practice of "wishing wells," which began as votive offerings made into baptismal fonts).

In 1941, the garden underwent what appears to have been a major landscape renovation undertaken by the respected local architect Richard Koch with a landscape architect named William S. Wiedorn. Their basic scheme of an open central area (echoing the open area of former Orleans Street) surrounded by a densely planted perimeter has been preserved since that time, through several replantings and repairs. The brick walkway now in place may also date from that time, at least in form.

In terms of plantings, their design was a pastiche of perceived tradition that does not have any clear references to the garden's earlier history. Archaeologically, the mid-century plantings were American holly and boxwood mixed with native palmetto, temperate European bulb flowers, and exotic tropical palms and bananas (although the 1885 lithographs show that banana trees have been on the site since at least since that time). The Koch design botanically represents the maturation of a Southern gardening tradition of acclimatized ornamentals, and well-developed ideas about what makes a "proper" New Orleans garden. The inspiration was more likely the miniature estates of the uptown Garden Street than the small intimate courtyards of the French Quarter.

Conclusions and Recommendations

Clearly many considerations will go into deciding the garden's period of greatest historic significance and its 21st-century redesign. The site's complex history provides many possibilities. Some possible suggestions are made here based on the archaeology.

- There is no evidence that the garden, or any portion of it, ever had the aspect of a formal French parterre garden. Even under the Capuchins, the garden was first and foremost intended for food production (for peaches, maize, beans, and cherries/plums, among other items). Archaeologically, there is no evidence that any significant redesign was made at the time of the current church building's construction by dePouilly (ca. 1851).

- The most consistent characteristic of all the garden components is how dominated they were by native plants (especially grasses) and by a natural, relaxed aesthetic. This fact, combined with the fascination early French colonists had with Louisiana's native plants as evidenced in the specimens sent back to France in the early 18th century and recently
rediscovered by Gilles Langlois (this report), argues that a garden dedicated to south Louisiana's native plants would be a highly appropriate choice.

- The second most consistent aspect of the garden space is the presence, or the shadow, of Orleans Street, which ran through the center of the site for its first 100 years.

- The antebellum pleasure garden was a significant historic and cultural period for the garden, and it was during this time that it was most intensively used and enjoyed by a wide range of New Orleans residents, both adults and children. The flower mart, ice cream pavilion, and play area were important amenities to Vieux Carré residents and visitors.

- St. Anthony's life as a formal religious garden has been the longest (over 130 years), and by this measure it may be the period of greatest historic significance. Despite this duration, the religious features of the site have evolved and changed over time, with the Hurricane Chapel, the obelisk, the Sacred Heart statue, saints' day feasting, votive offerings, pet cemetery, priests' tombs, and a setting for Pope John Paul II's visit. Some of these functions have been sponsored by the church, others reflect lay practices. A garden redesign could formalize the latter, perhaps adding statues or elements for St. Francis of Assisi (to honor the pet cemetery) and for St. Anthony, for whom the garden is named and who is the saint of lost objects. Because it is an archaeological site full of lost objects (from earrings and coins to the delicate silver crucifix), this would seem doubly meaningful, and would honor the folk catholic traditions that have shaped the garden. Less conventionally, but with archaeological precedent, a fixed barbecue pit could be installed to bring people back to the garden for the types of celebrations once held there.

- Finally as reflected in the folklore about the garden being a graveyard, a dueling ground, or the home of Pere Antoine's date palm, the garden holds a special place in New Orleans storytelling. This folklore could be used creatively in the garden's redesign. One could argue that its greatest historic significance lies not in the archives nor in the archaeological deposits, but in the imagination.


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Maygarden, Benjamin G.


Archival Sources and Abbreviations

HNOC: The Historic New Orleans Collection
LHQ: Louisiana Historical Quarterly
LSM: Louisiana State Museum, U.S. Mint Archives
MPA: Mississippi Provincial Archives series (Rowland et al.)
NONA: New Orleans Notarial Archives (name following “NONA” refers to notary)
NOPLA: New Orleans Public Library, Louisiana Collection
VCS: Vieux Carre Survey, Tulane University
St. Antoine's Garden (16OR443)

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Appendix B: Student Artifact Reports
Flowerpots of St. Anthony’s Garden

Among the ceramics uncovered in the St. Anthony’s Garden excavations, many redware sherds of unknown typology appeared. A conclusion was reached: since this was a garden, these must have been flowerpots. Previously unstudied, these flowerpots may give us insight into local potting methods as well as trading and influence during the colonial period. This paper will explore the place of these flowerpots in history as well as in the garden.

I. Flowerpots: A History

Flowerpots have been used in gardening for many centuries. The earliest reference I found for their use was Abercrombie’s *Every Man His Own Gardener*, first published in the mid-18th century; it advocates planting flowerpots in the beds to keep plants warm (3), and that certain plants such as melons, cucumbers, beans, and pot herbs (that is, non-aromatic herbs) thrive better in pots than in the ground (83). Clearly flowerpots must have been in use long before this for Abercrombie to know such information. Besides their use for those certain plants, flowerpots were also used for transportation of plants and short-term growth in greenhouses before replanting in a bed. Additionally, ornamental flowers could be placed in a small pot permanently and never transferred; square pots were popular in Paris (possibly due to the prevalence of window boxes), and another style known as “classic pots” were larger, only for plants not meant to be moved (Loudon 1830: 540).

Later manuals give more exact advice on the construction and use of flowerpots. A flowerpot is any “cylindrical tapering vessel of burnt clay, with a perforated bottom” (ibid). Pots should be four to eighteen inches deep, with the diameter of the base 2/3 that of the top. There should be a hole in the bottom for drainage no larger than a half-dollar. The hole should then be covered by an oyster shell or potsherd to prevent the soil from falling out, and the pot should be placed in a pan two inches deep with the same diameter as the rim of the pot (Cobbett 1846: 56-58). There are two primary styles of hole placement. The British style – remarked upon by Cobbett – features one hole in the center. The French style has multiple small holes (1/8 in or 3 mm) around the circumference. Apparently the latter method prevents earthworms from entering the pots (Loudon 1830: 540).

There is some disagreement over the type of clay and glazing. Cobbett states that “plain earthen pots are best as well as cheapest” (Cobbett 1846: 56). Loudon prefers “the stoneware pot, [which is] made of clay, mixed with powdered stone of a certain quality … is much more durable.” He admits that the needs of the plant and the desires of human viewers are sometimes at odds:

Porous earthenware is most congenial to the plants; but, by admitting transpiration by the sides, dries the earth within sooner. Pots made of washed clay are less porous … and, having the advantage of being more

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1 As of 1846, this would have been 3.6 cm/1.4 in. (www.coinlink.com)
easily moulded, they are consequently more beautiful in their form, and
more exact in their proportions. (Loudon 1830: 541)

It is easy to assume that Loudon and Cobbett used the terms earthenware, stoneware, and
washed clay (redware?) in the same way we do today, although one must be aware that
this may not be the case. As I do not know to what else they are referring, I will keep
using their terminology.

Glazed pots are acceptable “for ornament … [these are] generally glazed green,
but, for superior occasions, are sculptured and painted, or incrusted, &c … Glazed or
stoneware pots are not congenial to plants, but they retain moisture for a long time”
(Loudon 1830: 540-541). For this reason (pots with high water retention grow mold
quicker), Cobbett feels that pots should never be glazed.

II. St. Anthony’s Garden: Decoration and Use

The style of gardening we think of as typically French arose during the
Enlightenment. They feature symmetry and geometry and focus on orderly arrangement
of flowers, trees, and shrubs. This style was copied in the US during the colonial era
(Sarudy: 1998). New Orleans, colonized by the French, was particularly influenced, and
many homes had elaborate French-style gardens with elaborate walkways, arbors, and
pruned trees; These gardens were often laid out in diagonal lines, circles, lozenges, or
other ways that seem lovely to look at but rather inconvenient for growing vegetables.
Many neighborhoods had public gardens (for people to grow their own vegetables) or
market gardens (for people to buy and sell vegetables), each of which also had
ornamental features (Lelièvre 1838: 82-84). There is no reason to assume St. Anthony’s
Garden, first used by the Capuchins to grow vegetables and the Ursulines to grow herbs
(probably in pots), would not have any ornamental arbors or flowers in large pots; the
garden of the Intendant “had extra size and a water feature” (Reeves 2008: 6). Dumont de
Montigny’s drawing of the garden plan in 1753 shows four quadrants around a central
lozenge (ibid: 13).

In 1845 - after the residential period of the garden - the garden was rehabilitated
into a place of public recreation with a fountain and an ice cream stand. The garden
featured cypress terraces, possibly for use in the flower market, and flowerbeds and a
greenhouse nearby (ibid: 33). By 1867, the garden had a mixture of flowers and “plants
and evergreens” (ibid: 45). Photographs of the garden from the late 19th and early 20th
century, the time when the garden became private, show large ornamental pots, probably
made of cement, holding non-flowering plants.

III. The Artifacts

There are many flowerpot sherds in each lot; the ones I have selected are by no
means a representative sample, merely the ones that happened to be near the top of each
of a few boxes. However, I attempted to choose some that are particularly interesting but
also some that are typical of the rest of the flowerpot sherds. It is difficult to identify
which part of the garden each came from, as the map reconciling the excavation units
with the historical garden plan is still being made. All of the pots are handmade and
either bisque or glazed redware. They are usually quite thick (1 cm or more), but are
occasionally thinner.

1. A sherd from a large pot with a 1-cm hole close to the outer rim, perhaps indicative of
a French-style pot. The hole is blocked by a piece of charcoal and a shell. This pot’s base
was approximately 22.4 cm in diameter (70.371 cm circumference); using Cobbett’s
recommendations, we can guess that the diameter of the rim was 33.6 cm (105.55 cm circumference).  

2. A collection of glazed sherds (red and brown) and bisque rims, showing two different styles. [Lot 31: late 19th/early 20th c.]

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2 I would like to thank Noah Schweber for his help in reminding me how to do geometry.
3. A small flowerpot base and side, 6 cm in diameter (18.84 cm circumference) showing a 1-cm hole in the British style. By Cobbett’s recommendations, this would have a rim 9 cm in diameter (28.27 cm circumference). [Lot 30: early 20th c.]

4. A collection of rims, showing four different styles, and a small sherd with a wash. [Lot 30]

IV. Questions, Assumptions, and Conclusions
There are a number of questions. Although there were clearly flowerpots used before the late 19th century (I just did not photograph them), why should so many appear in the period when the garden was private and apparently used for mostly leafy plants in concrete planters? Also, why is the French-style pot there? Or, if that was the norm, why the British-style pot? Perhaps the style also has to do with the size, or maybe one is indigenous and the other imported, or one is actually an antique. It seems more likely that smaller flowerpots would get lost or break, whereas a larger one would stick around in the garden for years; maybe it is much older than the rest and thus represents a connection with France lost in the 19th century.

I can find many reasons for the prevalence of flowerpots in St. Anthony’s Garden. First, the Ursuline pharmaceutical garden, contemporary with the Capuchin ownership. Pharmaceuticals of the day were herbal, and thus many of these would have to be grown in pots (even today herbs are planted in pots rather than beds). Likewise, the Capuchins probably grew some of their vegetables in pots. Second, the people residing in the garden in the late 18th-mid 19th century may have grown small potted plants bought at a market, as they did not have their own home gardens. After the residential era, flowers were sold at the market, possibly on the cypress terraces. As flowers today are sold in little plastic tubs, flowers then were sold in pots to take home and plant. Perhaps the variety of rim shapes suggests that people brought their own pots and filled them with flowers and soil from a vendor’s larger pot, or exchanged them for an already-filled pot. The rims could be evidence that some plants were suspended from hanging planters (maybe also connected to the terraces?). Sheet glass found at the site is evidence for the actual presence of the greenhouse, where plants would definitely be kept in pots and possibly hanging. Finally, in the private garden era, even if plants were kept in beds, it is likely that they were at first kept in pots as seedlings. In addition to these sherds from actual broken pots, occasionally sherds were strewn about and hoed into the ground to prevent weeds from growing in areas where trees or shrubs were planted, and these could complicate the set as they may have come from older, broken pots (Abercrombie 1786: 32). Further, more careful analysis should be done, especially concerning the rims and any bases with holes in them, as these could help us identify the primary style used and its history in New Orleans as well as identifying the types of plants grown or sold in the vicinity of each excavation unit.

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Ice Cream, Lemonade, (Liquor?) and Society in 1940’s New Orleans

Hot and humid New Orleans in the middle of the 19th century may have been an ideal place to enjoy a bowl of ice cream however it was not the best place to produce it. Ice was particularly hard to come by and proper serving dishes were mostly produced in the farther northern states. However, in 1841 one could take a stroll in Saint Antoine’s Garden and sit to enjoy a glass of ice cream. Four glass artifacts found on the site of Saint Antoine’s Garden symbolize significant changes in the way New Orleanians interacted with each other and the kind of trade networks that were in place during the beginning of the 19th century.

On the site of Saint Antoine’s Garden there are two distinct accounts of ice cream being served within the garden starting in the 1840’s. Prior to this the garden space was most likely used to grow fruits vegetables and herbs, as was typical of gardens in New Orleans during this period. The garden was organized in rows of plants and a basse cour or poultry yard and any flowers were supplementary. (Reeves 2008) In 1831 the wardens of the cathedral sold the land behind the cathedral, including the space that became Saint Antoine’s garden and throughout the 1830’s it was most likely a simple city square. (Reeves 2008) It was not until the 1840’s that the space was landscaped and facilities were added to attract visitors. (Reeves 2008) Claude Francis Gonhot, leased in April 1841, a fifty-foot diameter space to install a fountain and in July of the same year also leased a building across from the park where he established a confectionary store. Gonhot set up an “ice cream pavilion under a tent, with tables and chairs, clogs and glassware, shrubbery, and a supply faucet from the water works that served the jet d’eau (fountain)” (Reeves 2008, 31)

He sold his establishment to Auguste Courvoisier in 1842. Courvoisier most likely built a more permanent establishment within the garden. At this point more landscaping was done and a flower market opened as well. (Langlois 2008) A local paper called the Jeffersonian advertised for the opening of the garden and “un salon champetre de messeurs Courvoisier et Cie” that would serve ice creams, sherbets, confectionary and refreshments. (Reeves 2008, 34)

With the invention and popularizing of ice cream, new types of tableware and equipment were needed to serve and produce the ice cream, especially during the hot summer when refrigeration was not yet invented (Powell 2006). Jones and Sullivan in The Parks Canada Glass Glossary for the Description of Containers, Tableware, Flat Glass and Closures describes dessert dishes as follows:

Specialized forms include small shallow dishes, small handled cups with feet, footed glassed with tall slender bowls (sometimes with one or two handles) and a rudimentary stem or no stem at all, and footed glasses with stems resembling those on stemmed drinking glasses. Sometimes the rims are flared or decorated. (Jones et al. 1985, 134)
Under these guidelines, there are seven glass artifacts that may be associated with the ice cream parlor including a cross mending decorative clear glass bowl (figure 1), a white frosted chard with circular facet pattern (figure 2), a purple tinted glass shard with panel pattern on the exterior (figure 3) and lastly the stem of a goblet (figure 4). Although from different lots, the artifacts come from approximately the same depth: between 16 and 30 centimeters below depth.

The clear glass stem (found in unit 3, lot 48, context 14, level 1 at 16-26 centimeters below depth) is the artifact that is most easily associated with the service of ice cream for it resembles some of the types of cone shaped metal goblets that we are most familiar with today as being used for ice cream. The stem has what appears to be a plain conical base with an annular knop, ball knop resting on top and a bell or conical shaped bowl. (Jones and Sullivan 1985) There are no molding lines indicating that the stem might be blown glass. Though there does not appear to be a pontil mark, there are air bubbles in the bottom center of the base and it appears to have a ground resting point because it is smooth and flat (figure 4b).

The cross mending glass bowl is also a significant find from unit 1, lot 30, context 6, level 1, 19-29 cmbd. It is the most elaborately decorative tableware among all the potential dessert dishes. It features quarter starburst patterns alternating with hobnails and notches. The rim of the bowl is scalloped with smaller notches. The patterns are almost identical to cut glass patterns. For example, the quarter starburst and notches forming a cross appear on many of the decorative glasses produced by Bakewell, Page & Bakewell from Pittsburgh around this period (McKearin and McKearin 1941, plate 50-51). However, there is a mold line evident on the exterior near the break line on the right of the artifact and the edges of the cut design are relatively rounded rather than smooth. This bowl was most likely made by press molding. The rough edge of the base (figure 1b) indicates that there was a stem attached to the bowl.

The last two artifacts have fewer diagnostic features (from unit 1, lot 30, context 6, level 1, 19-29 cmbd.) The white frosted chard with circular facet pattern (figure 2), may also have been made by press molding because the edges of the pattern are smooth, however not enough of the original object is available. The circular facet appears to have been repeated around the vessel. The purple tinted glass shard with panel pattern on the exterior appears to be a cut glass vessel because the edges of the panels are relatively crisp. This shard resembles the paneling used on tumblers however, Glanville and Young show a small stemmed cup with a handle whose bowl has panels indicating that paneling was also used on more decorative dishes (Glanville and Young 2002).

Most American Glass houses of the early 19\textsuperscript{th} century were for bottle and pane glass for windows rather than tableware and to help boost American production, in 1824 a tariff was passed to tax imported glass. McKearin and McKearin site that in 1820 there were 40 glass houses in the United States but by 1840, 68 new factories had emerged most of which were centered in New England, the Midwest, only as far south as Virginia and as far west as Ohio. Tableware was made by free-blown or blown into molds until 1830 when pressing glass became common, speeding up production and making glassware cheaper (McKearin and McKearin 1941). Press molded table ware became common during the 1920 in American glass production and by the early 1930’s it was mass produced in New England and Pennsylvania (Jones and Sullivan 2002). The steamboat actually had an impact on the circulation of glass in the United States. New Orleans
became the hub port where products from New England were shipped via steamboats on the rivers leading into New Orleans and then transported by ocean ships to other areas along the coast (McKearin and McKearin 1941). One factory owner in 1826 wrote, “the glass of Pittsburg and the parts adjacent, is know and sold from Maine to New Orleans” (McKearin and McKearin 1941, 136). Therefore, it is likely that Gohont or Courvoisier could have bought cheap press molded glasswares produced in the north for their ice cream.

Though ceramic dishes were first invented for serving ice cream, glass became the preferred material for ice cream dishes. For example, decorative ceramic cups were used by the French royal household for their dessert. In 1760, Louis XV’s Sévres factory famously designed a porcelain ice cream serving set including an insulated pail, single serving dishes similar to a tea cup, trays and scoops. This set was reproduced more cheaply in faience. In the 18th century “for eating frozen food, a small cup with a handle was soon devised. Glass, which was cheap, imitated the appearance of ice and also showed its highly coloured contents at its best advantage” (Glanville and Young 2002, 86). English Piggins and cups made of cut and molded glass dating from around 1810 are known to have been used for serving ice cream (Glanville and Young 2002). Ice cream was served in these cups with handles because it tended to be more liquid than ice cream today due to the problem of refrigeration—in these cups the dessert could be sipped rather than spooned (Fugndenberg 1995).

Ice cream itself was not cheap to produce considering the three main ingredients: ice, sugar and cream. In many households during the 19th century, molasses was used instead of sugar because the unrefined product was cheaper (Fundenberg 1995). There were no methods to artificially produce ice until Alexander Twining invented a commercially successful vapor-compression refrigeration system in 1848 and it was not until 1917 when electric refrigerators were manufactured. Instead, ice had to be harvested either during the winter or from colder climates and stored in insulated rooms, caves or in the ground, packed often with sawdust or hay. For example, in England ice was harvested from Iceland and Norway and shipped to the island (Powell 2006). In America, New England was one of the main sources for ice because their winters were so cold. Flavoring ice cream was often done with fruits and sometimes extracts like vanilla. New Orleans did not have a particularly good climate for growing fruit. “It was not cold enough for fruit that required cold dormancy, and too susceptible to occasional below-freezing weather for tropicales like the sweet orange” (Reeves, 5). This means that flavoring of the fruit ice creams would have been expensive as well and most likely seasonal based on imports rather than local produce. Ice and fruits therefore may have been brought down to New Orleans from the North along with the glassware.

A new conception of public space emerged at the very end of the 18th century in the form of “pleasure gardens,” the first American ones again, from the north in New York. They were gardens not landscaped for vegetables or herbs but rather for ornamentation with flowers, trees, and meandering walkways. They also differed from the public squares, a more open bustling space, often filled with various vendors and located in the center of town from which all other streets branched off. Pleasure gardens provided a cool, shady place for city dwellers to relax. It seems clear from the written records that by the time ice cream was served in Saint Antoine’s Garden, the landscape had been transformed into a pleasure garden, especially indicated by the presence of a
fountain, an installation whose only purpose is ornamentation. The actual selling of flowers in this space rather than vegetables or other necessities also shows that the people’s perceptions of what constituted a garden were changing.

Pleasure gardens played an important role in popularizing ice cream because “the working class could not afford to buy ice cream from a fancy confectioners shop, but a man did not have to be rich to escort a young lady to a pleasure garden.” (Fundenberg 1995, 8) Perhaps more significantly, pleasure gardens also signaled a shift in the way antebellum American’s interacted with one another. They provided a place for all the classes to mingle in the same venue. A stroll in the gardens was free and products were cheap enough to appeal to the laborers and “gentile” enough for the wealthy. (Fundenberg 1995) The space was also significant for women who normally did not dine in restaurants; the gardens were “a liberating influence for women, whose social life was largely confined to church and private homes.” (Fundenberg 1995, 9) It was socially acceptable for women to be in public in these gardens for entertainment and to have a treat.

Where ice cream was served, other delicacies were most likely available such as lemonade, cakes, and sometimes alcohol. An ice cream establishment in New York run by John Contoit which had no bar “would ensure a moderate supply of cognac to be poured over the lemon ice, which gentlemen almost always preferred to the more luscious vanilla” if one slipped the waiter a quarter (Fugdenberg 1995, 11). This possibility seems to be validated by the artifact remains for some of the dishes, particularly the panel glass closely resembles cups or tumblers used during this period for beverages. Therefore if the paneled shard of glass were a tumbler, it is still possible that it was used at the ice cream tent to serve lemonade or other sodas or beverages.

The glass artifacts therefore represent changes in glass production, change trade and over land travel within the United States, and a change in social understandings of outdoor public space, which made gender roles and class divisions more egalitarian in public. The service of alcohol in these open public spaces that were socially acceptable for women and the fact that ice cream ingredients and glassware were not locally produced, shows shifts in food consumption and diet.
Bibliography


Langlois 2008


Reeves 2008
Artifacts of Childhood and Amusement from St. Antoine’s Garden

by Tian Tian Cai

The artifacts found in St. Antoine’s Garden, behind the St. Louis Cathedral in the New Orleans French Quarter include the following: two pieces (one base and one rim) from a child-sized earthenware plate, one soft-paste porcelain foot, one china doll head, one possible bisque doll shard, one base piece from a miniature glazed hard-paste porcelain dish, one curved shard of hard-paste porcelain, and one piece from a miniature porcelain chamber pot. These artifacts represent the only ceramic toy- or doll-related pieces recovered by the St. Antoine’s Garden archaeologists. However, I can only expound on the first three artifacts, although I will do my best to describe the other pieces.

There is little to be said about the bisque doll shard, since its extremely small size and lack of identifying features make it incredibly difficult to conjecture anything about the shard or the larger item from which it came. Along the same lines, the base shard from the porcelain dish is also too small to tell us anything about what shape or even kind of dish it once made up. The hard-paste porcelain shard is similarly hard to identify and contextualize, for although the bisque interior and glazed exterior suggests some sort of figurine, it is impossible to tell what that figurine looked like. Finally, although the porcelain chamber pot would have made an extremely interesting artifact to research and write about, I was unable to find the artifact after it had been re-bagged. Although I cannot recall exactly the specifics about the chamber pot, I did find out that although miniature chamber pots, which were made of many types of ceramic, not just porcelain, were very often found in doll’s houses, although that might not have been their intended purpose. In the nineteenth century, many were actually “amusing fits for adults…with a well-printed eye on the bottom” or phrases (such as “For me and my girl” and “Morning Exercise”) gilded on the side.3

The rim and base pieces, identified as a type of English refined earthenware called whiteware, are parts from a children’s play dish manufactured sometime after 1810, when factories first introduced whiteware. The majority of play dishes in the United States before the 1880s were imports from Germany, France, and especially England.4 From the size of the two pieces, the plate itself was likely about nine centimeters in diameter, from rim to rim, or about three-and-a-half inches. The diameter of the base, from base rim to base rim, is about four centimeters across. A compass or some simple algebraic calculations involving $\pi$ could provide a more accurate estimation of the plate’s size. Children’s play plates from England were usually four to five inches in diameter, as opposed to the bigger play plates from Germany. Play plates were scaled-down replicas of adult plate sets, designed for a child’s use, while doll’s plates generally ran smaller, at under three inches, for the doll’s “use.”5 The pieces are unmarked, except for a small, likely accidental blue comma on the base.

3 King, Collector’s History, 425
4 Punchard, Playtime Pottery and Porcelain, 160.
5 Ibid., 10.
Both shards have flowers with blue petals and green stems hand-painted over the glaze. The decorations are simple, indicating that the plate was part of an early set or simply a cheap one. However, because we cannot see the entire plate, these decorations could be (but are likely not) accents that accompanied a central, more intricate floral design commonly found on English play plates. The exact shape and use of the plate is unknown, although it seems likely that the plate was part of children’s tea set, rather than a dinner set. Having no rim to fit the base of a cup, the dish is probably a serving plate, not a saucer. Both pieces were recovered on June 19, 2008, in lot 35, in context 4, level 2 of unit 2.

The bagged doll’s foot was labeled porcelain, but lacks the vitreous appearance that usually helps identify hard-paste porcelain. It is possible that the foot is made of glazed, soft-paste porcelain, but the paste appears quite chalky and uneven. In any event, the foot is solid ceramic, probably made from a poured mold. If I had to guess, I would say that it is the left foot of a doll. The foot probably broke off the doll’s leg, judging from the lack of holes, hallows, or other features that facilitate connecting the foot to the rest of the body. The foot is a little more than two centimeters high, thick and inelegant, almost one centimeter wide. The fact that the foot, from which the toes have broken off, is bare, flat, and not significantly smaller than the calf indicates that the foot belongs to a baby doll or child doll. Most adult dolls had unnaturally small feet, especially in comparison to their curvy calves, and the more stylish female dolls had molded heels for feet, painted to resemble shoes. The foot was bagged on June 21, 2008, found in lot 41, in context 6, level 2 of unit 2, at around 29-39 centimeters below depth.

The china doll’s head was the item that I found most intriguing. First made around 1750, china head dolls only became widely popular in the 1840s. This particular head is the most intact artifact that I investigated and the china doll’s hairstyle and features should have made identification and dating relatively easy. However, many of the details that should have helped narrow down the age, origin, and use of this doll head seemed to contradict each other and further obfuscate the doll’s history. The doll head is almost definitely a product of a German factory, as the majority of china doll heads at that time, especially the more affordable mass-produced ones, originated from Germany. The exact manufacturer and time period is very hard to pinpoint, but some specific physical features can provide some clues. The head appears to be completely solid, with a small hollow from the neck to the shoulders.

The china doll’s head shard is only about two centimeters wide from shoulder to shoulder, and about three centimeters or 1.2 inches tall. At first, the small size had me thinking that the doll head belonged to either a “Frozen Charlotte,” a china doll that was usually less than a foot high with heads measuring an inch or less, or a special porcelain figurine. Upon closely examining the interior of the china doll’s head found in St. Antoine’s, I discovered that the doll’s right shoulder ended smoothly, not in a break. Therefore, the doll must have simply ended at the shoulders. She could not have been a Frozen Charlottes because those dolls were completely made of china. The doll’s head

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6 Fawcett, *Dolls*, 62.
7 Coleman, *Collector’s Encyclopedia of Dolls*, 118.
8 Fawcett, *Dolls*, 58.
resembled the popular molded china doll shoulder-heads that were attached to cloth or leather bodies.

The uniformity and smoothness of the doll’s interior suggests a poured mold rather than a pressed mold. Pressed molds, especially common in earlier china head dolls, would usually result in a much thinner and hollower china head, often uneven on the interior. 9 Unlike the majority of shoulder-heads, the St. Antoine doll was very short and narrow-shouldered, uncharacteristically thick and solid, even for a poured mold. Although most china dolls had glazed exteriors only, 10 this doll was glazed inside and out, although this was not particularly unusual. The china doll’s hairstyle, like her every other feature, is part of the mold; in this case, the style seems to be a variation on the “flat-top” look, with center-parted hair combed straight on the head, flaring out to create the “flat-top,” and ending in short, tight, corkscrew curls the forehead to chin, with no bangs and ears hidden. 11 The doll head from St. Antoine’s has around 14 individual curls. Unfortunately for dating purposes, factories often reused popular molds (and the hairstyles represented by them) for several generations after the hairstyle was introduced and popularized. 12

The color of the hair and the details of the face were usually painted on over the glaze, with most dolls having blue eyes and black hair until the late nineteenth century, when blonde hair and bangs became popular. 13 This doll may have been an unpainted raw model, or else simply had her painted features erased by the years. Her hair would have likely been black, and her eyes blue, the most popular colorings of the day. The short hair, curls, and short neck of this doll may mean that she was a child-type, not a lady doll. 14 By the late 1800s, the bisque porcelain doll, which was unglazed and often flesh-colored, and thus looked more realistic, had exceeded china heads in popularity. Although china dolls were no longer in style, they would continue to be manufactured into the early twentieth century. 15

In all the photographs and drawings that I examined, I did not find a very close match to the exact specifications of this particular doll head. The closest I found was an inexact drawing of a pre-Civil War china head that came with arms and legs with flat-soled shoes. 16 Since St. Antoine’s Garden was a public area frequented by children and families until the Civil War shut it down, 17 it seems plausible that the doll would date to sometime before the 1860s. In fact, it is quite likely that all of these artifacts date to before this period.

I imagine that in those days of flower markets and ice cream parlors before the war, some child must have lost his or her china head doll while playing in the garden. Or,

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10 Ibid.
11 Krombholz, *German Porcelain Dolls*, 41.
13 Ibid., 118, 218.
14 Ibid., 118.
15 Ibid.
16 Fawcett, *Dolls*, 59.
17 Reeves, “Many Lives of St. Anthony’s Garden,” 43.
perhaps one of the many imperfect dolls (four out of every five created, in Germany)\textsuperscript{18} that had been churned out by the factories was sold, exported, and eventually ended up in the hands of a street-vendor in St. Antoine’s Garden, who tried to sell this little china head doll to passing mothers and their children. Perhaps that same street-vendor sold baby dolls with ceramic feet, children’s play plates, and whimsical miniature chamber pots. All of these scenarios indicate that the reporters of the nineteenth century were correct in their description of St. Antoine’s Garden, where “upon every pleasant summer evening it was the resort of beautiful women and merry children”\textsuperscript{19}

\textsuperscript{18} Coleman, \textit{Collector’s Encyclopedia of Dolls}, 409.

\textsuperscript{19} Reeves, “Many Lives of St. Anthony’s Garden,” 43.
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Gambling for both Young and Old: Marbles and Dominos

The artifacts that I have chosen found at the St Antoine’s Garden site are dominoes and marbles, which are important because they relate to gaming and tell how people spent their leisure time at the site. The domino, measuring about 3cm by 1.5 cm appears to be made of wood and then glazed was found in E.U. 1, context 51, lot 122, level 1. The yellow marble seems to be plastic in composition and was found in E.U. 1, lot 29, context 1, level 1. The blue marble appears to be made of glass and was found in E.U. 2, lot 35, context 4, level 2 where two clay marbles shooters were also found. The red, half-marble comes from E.U. 2, lot 33, context 4, level 1. I am not certain of the categories in which the colored marbles lie, but based on the variation of their pontils, they both seem to be machine-made (Pontil Variations). Three marble shooters of similar size, shape, and composition come from E.U. 3, lot 54, context 14, level 2. Another marble shooter comes from E.U. 1, lot 30, context 6, level 1. A half-marble shooter was also found in lot 69, context 23, level 1 and another still in lot 86, context 36, level 1. Small, gray common marbles called “commies” were not much valued, which may account for the many found. By analyzing the composition and type of marble or type of domino, we are able to extrapolate how they were meaningfully constituted in the archaeological record.

Marbles have a long history and can be traced back to 3,000 years (Whittaker 2001: 26). Marbles made from round stones, nuts, and pottery have been found in Egyptian pyramids and in Native American burial mounds (Whittaker 2001: 26). This small, spherical toy is usually made from glass, clay, or agate in varying sizes. They were usually fashioned from common stone, though some were made from real marble (Whittaker 2001: 26). China and pottery marbles were introduced around the 1800 (Whittaker 2001: 26). Marbles made of pure ground marble are highly prized and regarded as being the most accurate for shooting (Whittaker 2001: 27). Clay marbles, which were once the most common marble, were generally cheap and but tended to be irregular dull in appearance but lack of demand has now made them hard to find (Whittaker 2001: 27). Marble games for children continued to be a popular form of entertainment well through the Middle Ages though youngsters playing marble games came to be seen as delinquents, and efforts were made to restrict their marble-playing activities. Though marbles to-day are made from different kinds of materials, glass is the most popular because its machine production imbues it with an appeal to the eye and touch (Whittaker 2001: 27)

The first glass marbles manufactured for the toy market were hand-made in 1859 by Elias Greiner of Lauscha with a tool used by his brother called “marbelshears” invented by his step-brother to make artificial animal eyes and glass buttons (Marble Production). Diagnostically, these marbles were typically onyx in style, referred to as “artificial agates and precious balls,” colored “marbled, agate, amber, lapis lazuli, topaz, etc.” and had other features such as swirls of tails wrapped around them (Marble
The first glass marbles manufactured in the United States were produced at the S.C. Dyke & Co. in Akron, Ohio in 1890 by James Harvey Leighton who received a patent for the hand-tool process he invented in 1891 that made marbles three times faster than Greiner’s (Marble Production). His marbles were manufactured in the United States until 1908 and in the onyx style came to be called “immies” or imitation agates in the historic record (Marble Production). The first machine-made glass marbles, however, were manufactured by Martin F. Christensen in 1902 at the M.F. Christensen & Son Company from 1905-1917. “Diagnostic traits of these marbles, usually in the onyx style are, colored design features which resemble number ‘nines, ‘sixes,’ tails which wrap around the marble in various directions, commas, ‘S’s’ and occasionally elongated shear-marks” (Marble Production). In the machine age of marble making, manufactures vied with each other to produce more unique designs and even more colorful marbles, but the Great Depression took away the shine, as manufactures became more cost-conscious and brightly colored marbles began to disappear (Whittaker 2001: 27). All glass toy marbles manufactured after 1930 are the result of automatic gob feeders and marble-forming machines using twin helically grooved cylinders first pioneered and introduced at The Christensen Agate Company late in 1927 or early 1928 (Marble Production). On a whole, most marbles were made and still are used for industrial purposes, with only a small percentage of manufactured for the children’s toy market (Marble Production).

Certainly, the ubiquity of marble playing is centered on the toy’s variability and flexibility. The general objective is to knock more marbles outside if the ring than the opposing player, but in variations of the game, marbles may be aimed at holes and dimples, through arches or at a “jack” (Whittaker 2001: 27-28). Children could set up a game of marbles on virtually hard surface, big enough to hold a six foot in diameter circle, where there was a drain cover or a hole in the ground to aim at (Whittaker 2001: 28). Hence, marble-playing is different from typical childhood games in its use of the industrial, built environment rather than a domestic setting. Any adults whom played marbles generally “played fair” and returned all the marbles to their original owners, but children, however, generally played “for keeps,” adding their opponent’s marbles to their collection (Whittaker 2001: 28). Some children even had pouches tailored specifically for collecting large amounts of marbles. Just like most games, marbles also comes with a vocabulary of its own and rules that vary according to the region where they are played.

The modern game of dominoes as we know it, appear to be of Chinese origin and are essentially gambling games in Asian countries (Asian Dominoes). Asian dominoes are usually larger (6.9cm long x 2.5cm wide x .9cm thick) than Western dominoes and traditionally have carved cup-like painted depressions and no bar across the middle separating the two sides (Asian Dominoes). Modern dominoes are rectangular and made of a whole host of materials including wood, plastic, bone, ivory, and silver but historically, they were carved out of ivory or animal bone with round pits of inset ebony (Dominoes). Dominoes games and sets, however, varied from culture to culture (Dominoes). Most importantly, however, domino games were also played in pubs where people could bet on the games.

Toys are imbued with meanings that depend on their social context. Marbles and other toys helped to “[establish] and [reinforce] social roles for children during childhood and later in their gendered roles as adults” (Baxter 2005: 39). Furthermore, according to Sutton-Smith, toys are designed to facilitate the ability of children to mimic adult actions.
without real-world consequences (Baxter 2005: 42). Because of the nature of the game of marbles involves skill as well as luck, every game of marbles can be considered a gamble, as with the wrong flick of the wrist, all one one’s marbles could be lost. Hence, in this way, children playing marbles is a miniaturized form of adult gambling. Toys tend to be defined by adults in opposition to tools, with tools having clear cut and practical uses, and toys have none (Baxter 2005: 42). With this definition in mind, one would think that dominos and marbles are in the same category. However, it is how adults have taken the game of dominos and given it some kind of use, by incorporating gambling, that transforms it into some kind of utility. Marbles, on the other hand, are played and collected for their own sake. Since toys represent a category of material culture that is linked exclusively to children dominos should not be seen as toys, but as pieces of a game (Baxter 2005: 62).

Adults tend to see toys as a means of defining age, gender, and social class and as a mechanism for delegating particular tasks, behaviors, and attitudes. Though marbles can be stratified by social classes in that children better off economically than others tend to have more precious marbles or ornamented marble bags, it is unique because children can transcend these social categories based on their own skill at the game alone by winning more precious marbles. Thus by “playing fair” adults reinforce these social roles whereas with children these social roles are less rigid. Though marbles and dominos represent two different kinds of gaming, one for traditionally for children and the other for adults, it is significant how the functions of these games change based on whether a child or an adult is playing them.
Bibliography


Object Report: Incised Native American Pipe Fragments

The artifact I chose to research is a collection of four hand built ceramic fragments, all approximately two centimeters long and from one to two centimeters wide. (See attached photo). They all have the same dark brown body, and are either tempered with sand particles or were built with a low quality of clay with many small inclusions. There was no glaze or slip applied to them prior to firing, so they have a dull matte surface and are decorated only by a series of two incised vertical lines in the center of each piece. (Note: the two larger fragments also have two horizontal lines at the top and bottom of the vertical lines). These incised designs appear on the outside of the fragments, creating a crude quadrant design when placed together. The insides of the fragments have what appears to be black soot or staining on them. The slight curvature of the fragments, the unglazed exteriors and interiors, and the black staining all suggest that the fragments were at one time a pipe bowl. It is impossible to say if the stem was a separate ceramic piece that was fitted into the bowl or was at one time permanently connected to the pipe but for some reason not found when it was excavated.

Based on the location the pipe bowl was discovered (i.e., in the French Quarter of New Orleans behind St, Louis Cathedral), and the fact that it is hand built with purposeful or accidental inclusions, it would be reasonable to guess that it was produced by a Mississippian tribe. However, after researching the ceramics produced by Mississippian peoples living in Louisiana at the approximate time the bowl was manufactured (the early to mid eighteenth century based on context\textsuperscript{20}), I have determined that the designs do not match any known typology\textsuperscript{21}. As a general rule, Mississippian decorations consist of more curved lines and whorls, as well as small dots and circles. If the design does include straight line elements, they are generally neater and denser than the lines on the pipe. Moreover, while Mississippian people certainly made smoking an important part of their culture, in general they produced either elbow or shelf pipes, not the stem and bowl variety\textsuperscript{22}. These pipes were beautifully decorated and served important ceremonial and commerce functions as well as being owned by individuals for private use. After learning this through my research, I questioned whether the pipe in question was perhaps a practice piece made by an apprentice, but if this was so, why

\textsuperscript{20} Email correspondence with Shannon Dawdy, Nov. 10\textsuperscript{th} 2008.
\textsuperscript{21} I came to this conclusion after checking \textit{Archaeology and Bioarchaeology of the Lower Mississippian Valley, An Introduction to Louisana, Tunica Archaeology} and looking at several websites including http://www.mississippian-artifacts.com/html/pipes.html, http://www.ramshornstudio.com/pipe.htm, and a few sites like artefacthound.com and relicshack.com that are not appropriate to site in a paper but nonetheless provided clear photos with which to compare my fragments.
\textsuperscript{22} For examples of elbow and shelf pipes, see gentt.sasktelwebsite.net/Catlinites/ctapr08.pdf
would it appear to have been used? There were a few other options available: it was actually manufactured by African American slaves living in Louisiana at the time, or it was a crude colonist-produced piece.

The pipe bowl, if colonistic in origin, was probably built in New Orleans and not imported from France or Spain. For a short period of time it became popular for colonists to try and produce their own ceramics, including smoking pieces\(^{23}\). Nearly all European-produced pipes are made of kaolin, a high-grade white clay, and are obviously molded, not hand built. The American-produced pieces vary greatly in form, clay type, and method of production (hand built versus molded, for example). However, even the hand built pipes were rarely decorated with such simple and sloppy incisions since European pipe makers did not do this to their wares. Finally, European-made pipes almost always included a stamped maker’s mark on the bowl\(^{24}\). It is therefore very likely that, if the pipe in question had been created by a European colonist, it would have at least an incised maker’s mark- much like how today, fake Coach handbags have a cruder, but still recognizable, “C” logo on them.

I next explored the possibility of the pipe being manufactured by African slaves living in New Orleans. These people produced a specific type of ceramic known as Colonoware, which according to some researchers is patterned after traditional African designs\(^{25}\). However, again, the incised design on the pipe is not nearly as complex as the examples of Colonoware pipes I have seen\(^{26}\). It is still possible that the pipe was produced by an African artisan as opposed to a Native American artisan; however, the exclusion of Colonoware makes this possibility less likely. How the pipe made its way behind a white church from slave quarters would also need to be addressed.

There is a fourth option. The pipe’s incised decorations do not definitively match any typology I have seen during my research, but the quadrant design and bowl and stem, as opposed to elbow or shelf, formation suggest either Great Lakes or East Coast tribal craftsmanship\(^{27}\). If the pipe was a trade item from one of these two areas, it will open the door to new theories about trade networks and the complexity of tribal relationships nationwide. I feel this possibility is real enough to merit further analysis of these fragments if there is available funding. If it turns out the pipe was indeed manufactured by either a Great Lakes or East coast tribe, the next question is, how did the pipe end up behind St. Louis Cathedral? Was the pipe a trade item? Were the colonists trading with

\(^{24}\) Note: I have never read this anywhere, it is simply something I noticed after looking at photos of different pipes for the last three weeks.
\(^{26}\) www.histarch.uiuc.edu/plymouth/images/colpbwl.gif, etext.virginia.edu/flowerdew/pipe.html, I, Too, Am America
\(^{27}\) The quadrant was and is a very common depiction of the worldview of Great Lakes and East Coast tribes. Due to time constraints- I spent most of the allotted time for this project looking at pipe typologies native to New Orleans- I have not been able to narrow down other tribes that could have possibly produced the pipe. As noted by Ilene Grossman-Bailey, who responded to my Histarch posting, the pipe bears a passing resemblance to some of the earlier Chesapeake pipes manufactured on the East coast from the early seventeenth to the mid-eighteenth centuries.
Natives more extensively than previously thought? And if so, what were they trading? Is it possible that the colonists traded for the pipe from another tribe themselves and then traded or sold it to local Native people? If the pipe was not a trade item, was it created for secular (private) or religious (public) use? Who created this pipe- a novice, as the simple design seems to suggest, or a more skilled artisan that deliberately made the design simple and rather sloppy? Are the incisions on the bowl symbolic somehow, or do they merely represent the fancy of the pipe’s maker?

It is also possible, though not as likely as any other option, that the pipe is simply much older than I think it is. The designs would not match any known Mississippian typology because I only researched ceramic typologies about 50 years before the historical period and beyond. If the funding were available, it would be a relatively simple task to carbon date the pipe and determine when it was manufactured. Perhaps there are other tests that could narrow down the clay used to a particular part of the country, or what was smoked in the pipe. Answers to these questions would go a long way to deciding which tribe, if any, is responsible for the pipe’s creation.

Bibliography

etext.virginia.edu/flowerdew/lpipe-md.html
gentt.sasktelwebsite.net/Catlinites/ctappr08.pdf

www.histarch.uiuc.edu/plymouth/images/colpbwl.gif,


Crucifix

This artifact is a silver crucifix, approximately two inches in height and one inch in width. There is a small hole near the top, and also the letters I N R I are written downward underneath the hole. Jesus is portrayed as he was dying on the cross, with his hands and feet nailed to the cross, a small stand under his feet, and he is wearing cloth around his waist and a crown of thorns (see Appendix A).

The letters on the top of the crucifix, I N R I, stand for the Latin phrase, “Iesvs Nazarenvs Rex Ivdaeorvm,” which means “Jesus of Nazareth, the King of the Jews.” This was actually written above Jesus at the time of his crucifixion at the orders of Pontius Pilate, in several languages: Latin (the official language of the Roman Empire), Hebrew, and Greek (The Holy Bible, King James Version, John 19:19-22). This was done in an attempt to mock Jesus as he was being crucified, similar to the crown of thorns that was placed on his head.

The hole near the top would suggest that this crucifix was attached to a chain of some kind and thus was part of some type of jewelry, most likely a necklace judging by its size. The next logical guess would be that it was the crucifix of a rosary. Considering that it was excavated from a site directly behind St. Louis Cathedral, where Catholic priests presumably would have been in or around quite frequently, this seems to make sense. Also, taking into account the very similar overall size and details (the body of Christ, the same letters at the top) of this crucifix and a modern day rosary crucifix (see Appendix B), it seems likely that this crucifix could have come from a rosary.

However if is assumed that this crucifix was from a rosary, it means it is not going to be easily dated; there do not appear to be many sources concerning styles of crucifixes or rosaries for the last few centuries, and the simplistic design of this one makes it rather hard to place in a specific time period, especially considering the fact that rosaries have been used by the Catholics for a long time. And if it is not assumed that this crucifix is from a rosary, the time period it could be from increases even more, to about a millennium, when crucifixes start being seen in various forms of art.

The body of Christ does not first start to appear on the Cross until the late fourth century. The reason for this which is usually proposed is that crucifixion was, until Emperor Constantine abolished it as such after become Christian some time before the year 312, a form of public execution. It seems reasonable then that Christians did not want to use such a symbol for their Savior; it was not until this was not widely seen as a punishment and execution that the image of Jesus' Crucifixion would not be seen as the execution of a criminal but the act of salvation of God instead. (Harries 2004:12)

The first known example of the body of Christ on the Cross is on an ivory plaque made in the Roman West about 420 AD (Harries 2004:10-13). Even in this plaque there is written above Jesus' head “REX IVD,” with the “IVD” standing for Ivdaeorvm, as above, therefore meaning “King of the Jews.” Most other features of this crucifix (Jesus
wearing cloth and a crown of thorns, his hands and feet pierced on the cross) are the same as the crucifix found at the site and also the example of a modern day crucifix on a rosary.

There is one major difference, however; this first example of Christ on the Cross and all of the other early depictions show Christ alive on the Cross, usually in a Passion scene. It was not until the end of the seventh century that we start to find depictions of Christ dead on the Cross. The earliest surviving example of this is on a portable icon in the monastery of St. Catherine on Mount Sinai. One difference in this depiction of Christ on the Cross is that he is wearing a colobium, fully covering his body. In Eastern art, Christ is seen in both ways (fully covered and covered only from the waist down in cloth), whereas in Western art, until an eleventh century mosaic from the monastery of Hosios Loukas in Greece, Christ was only seen not fully clothed in a colobium if he was also portrayed as still being alive (Harries 2004:28-31). This seems to have been the result of the conflict of the Church and theologians as to what should be emphasized more, Christ's humanity or godliness. This shift seems to represent the shift in theological discussion that if Christ was part of the Holy triumvirate, and if he had become truly human, that meant he underwent a true human death, just as we all must; the difference and importance is that Christ beat death and still lives on, to give redemption to all who follow him (Harries 2004:31).

These two styles of the crucifix definitely had crossing-over period where they were both produced, however the earlier style where Christ is generally alive and usually covered in a colobium is generally only seen from the beginning of when Christ is seen on depicted on the Cross around the sixth century up through the twelfth century. From the twelfth century on, it seems there is very little variation in style (at least concerning Christ and the elements concerning him), and this style has persevered until today, where it is still the most common and accepted way of portraying Christ on the Cross (Marucchi 1908).

This then being the case, it seems then that it would make dating a lone found crucifix difficult to narrow down to a specific time period, especially considering the simplistic design of this one; a crucifix could date anywhere from the late twelfth century onwards. Of course since the crucifix is a Christian symbol, and presumably the Natives in the New Orleans area were not exposed to Christianity before the colonial period, it can be assumed that this crucifix is probably not older than the seventeenth century. However there is always the possibility that this could have been an heirloom or an item that was passed down in the priesthood (if it was on a rosary, or perhaps even if it was not), and not something that was manufactured specifically for the person or people who used it in Louisiana. Also, although the crucifix is silver and thus most likely would not have belonged to an average citizen, it is possible it belonged to an ordinary person and not a priest. Therefore it seems that, without any kind of scientific testing (if any could be done), this crucifix cannot be dated to a usefully small period of time.

If, however, the crucifix is or could be determined to be from a rosary, the time period could be limited somewhat (though not terribly much). The use of rosary beads in prayer is seen in archaeological records that show prayer beads in the tomb of the holy abbess Gertrude of Nivelles (d. 659), and also in the tombs of St. Norbert and St. Rosalia of the twelfth century. The common practice of saying sets or set numbers of certain prayers, which was well established in Catholicism by those times, would imply that the
use of prayer beads in Christianity (in the form of rosary beads) was definitely existent. The practice seems to originally have come from monks who used to use pebbles to count the number of prayers said, which then evolved into using knots tied into cord at intervals upon which they recited their prayers (Volz 1907).

The number of beads on a rosary depends on the number of prayers making up each particular form of devotion, and thus was different for lay people who wore or used them and ones that members of religious orders owned, however since all that was found here was the crucifix, this is not going to help determine how this crucifix was used. Therefore finding information on the crucifixes on rosaries would be the only helpful identifier here. However, besides finding that the crucifix upon which all the beads on a Rosary converge is used to open and close the unfolding sequence of prayer, which represents the belief that life is centered upon Christ and that everything begins, ends and leads to him, there was little information to be found on trends or styles of crucifixes on rosary beads throughout time (Thurston and Shipman 1912).

To summarize, this silver crucifix really could date from anywhere in the twelfth century onwards (taking the preservation length of silver into account). The similarity in style from that point onwards in all of Europe and its simple design and lack of frills also does not help to pinpoint a specific time range or origin. It seems possible it was part of a Rosary or some type of necklace, however there does not really seem like any way of proving this, nor does it help to refine the date or origin of the crucifix.

Works Cited


STATE OF LOUISIANA
SITE RECORD FORM

Site Name: Antoine Garden
Other Site Designations: St. Anthony's Garden
Parish: Orleans

Instructions for Reaching the Site: Portion of New Orleans city block to the rear of St. Louis Cathedral. Located at the intersection of Royal Street and Orleans Street, with Royal Street forming its northwest boundary. Bounded by alleys to the northeast and southwest (currently known as Pere Antoine Alley and Pirate’s Alley, respectively.

7.5° USGS Quadrangle (name, date): New Orleans East, Louisiana, 7.5 min (1992)

¼ of the ¼ of the ¼ of Section: Irreg. Township: 12S Range: 11E
UTM Coordinates: Zone: 15 Easting: 783334 Northing: 3317783 NAD: 83
Geographical Coordinates: Latitude: 29.9558225159204 Longitude: -90.06417989730

Physical Setting

Landform: Natural levee
Geologic Processes: Subsidence
Elevation: 10 ft
Slope: Less than 1%

Distance and Direction to Nearest Water: 300 m southeast to Mississippi River
Drainage Basin: Mississippi River
Flooding: Unlikely
Soil Series: Commerce/Sharkey
Other Potential Resources: Urbanized
Nearest Known Site: Cabildo (16OR129)

Past Environmental Information, if known: Urbanized

Site Description

Site Size: 1333 square meters (31 m x 43 m)
Plan: Rectangular
Orientation: Longer axis runs northwest/southeast
Representative Stratigraphy: Unknown
Depth of Deposit: Unknown
Artifact Density: Unknown
Artifact Distribution: Unknown
Cultural Features: Unknown
Cultural Affiliation: French Colonial (ca. 1720s) to present
Presumed Function: French Capuchin garden (ca. 1720s), subsequently public garden and market space and ca. 1850 garden designed for St. Louis Cathedral; 1941 replanting of garden; possibility of French Colonial domestic structures predating garden

Collections

Survey Method: Shovel tests and excavation units planned
Ground Visibility/Collecting Conditions: Visibility good
Description of Material: n/a
Site Name: Antoine Garden

Site Condition

Present Use: Garden

Erosion or Disturbance: Little erosion expected

Disturbance Degree: Unknown; some disturbance from urban utilities/construction possible

Probable Future Destruction: Will be affected by planned landscaping and improvements; part of goal of current investigations is to document landscape history to inform development plans

Site Evaluation

Research Potential: Unknown, presumed good

National Register Eligibility: Unknown

Recommendations: Testing and excavations will determine recommendations

Other Remarks: _____

Records

Owner and Address: Archdiocese of New Orleans, 7887 Walmsley Avenue, New Orleans, LA 70125

Tenant and Address: _____

Informants: _____

Previous Investigations: None

References: None

Previous Collections and Availability: None

Disposition of Current Collection: _____

Photographs and Maps: _____

Recorded by: Dr. Shannon Dawdy and Ryan Gray, University of Chicago

Date: 5/20/08
Note: Antoine Garden site area is highlighted in yellow.
Site Name: Antoine Garden

Note: Antoine Garden site shown highlighted in yellow in relation to 1908 Sanborn Fire Insurance Map. Site map showing locations of excavations and features in relation to lot will be submitted after completion of investigations.

Scale: ½'' = approx. 10 m

Drawn by: n/a

Date: 5/21/08