Cultural Resources Series
Report Number: COELMN/PD-91/02

(1)

US Army Corps
of Engineers
New Orleans District

CULTURAL RESOURCES SURVEY OF FOUR CONSTRUCTION ITEMS BELOW NEW ORLEANS

Final Report

March 1994

MUSEUM OF GEOSCIENCE
Louisiana State University
Baton Rouge

Prepared for

U.S. Army Corps of Engineers
New Orleans District
P.O. Box 60267
New Orleans, LA 70160-0267

SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

Form Approved OMB No. 0704-0188

1a. REPORT SECURITY CLASSIFICATION: Unclassified	1b. RESTRICTIVE MARKINGS
2a. SECURITY CLASSIFICATION AUTHORITY	3. DISTRIBUTION/AVAILABILITY OF REPORT: Unlimited
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE	
4. PERFORMING ORGANIZATION REPORT NUMBER(S)	5. MONITORING ORGANIZATION REPORT NUMBER(S): COELMN/PD-91/02
6a. NAME OF PERFORMING ORGANIZATION: Louisiana State University; 6b. OFFICE SYMBOL (If applicable)	7a. NAME OF MONITORING ORGANIZATION: New Orleans District, Corps of Engineers, Department of the Army
6c. ADDRESS (City, State, and ZIP Code): Baton Rouge, LA 70803	7b. ADDRESS (City, State, and ZIP Code): P. O. Box 60267, New Orleans, LA 70160-0267
8a. NAME OF FUNDING/SPONSORING ORGANIZATION; 8b. OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER: DACW29-88-D-0123, Delivery Order 002
8c. ADDRESS (City, State, and ZIP Code)	10. SOURCE OF FUNDING NUMBERS: PROGRAM ELEMENT NO. N/A; PROJECT NO. Civil Works Funding; TASK NO.; WORK UNIT ACCESSION NO.

11. TITLE (Include Security Classification)

Cultural Resources Survey of Four Construction Items Below New Orleans

12. PERSONAL AUTHOR(S) Herschel A. Franks and Jill-Karen Yakubik (with contributions by Joann Mossa, Diane Silvia, and Todd Smith)

13a. TYPE OF REPORT	13b. TIME COVERED	14. DATE OF REPORT (Year, Month, Day)	15. PAGE COUNT
Final	FROM 1988 TO 1994	1994	314

16. SUPPLEMENTARY NOTATION

Prepared under the supervision of Malcolm K. Shuman, Principal Investigator

17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
FIELD	GROUP	SUB-GROUP	
05	06		Algiers Point, Archeology, Batture, Beka Plantation, Bienville, Colonial Period, Colono-Indian wares, European-aboriginal contact, (cont.)

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

This report presents the results of field, archival, and laboratory investigations of four levee and revetment construction rights-of-way located roughly between river miles 93.8 and 81.8 along the right descending bank of the Mississippi River in Orleans Parish, Louisiana. Nine sites were located during archeological survey. Eight of these are ineligible for inclusion on the National Register of Historic Places, and no further work is recommended. However, early eighteenth century European and aboriginal ceramics were recovered from a narrow beach at 16OR125. This site is located on what was formerly Bienville's west bank concession. Further archeological investigations are recommended at 16OR125 to determine if in situ deposits dating to the early eighteenth century exist. A research design for such investigation is presented.

20. DISTRIBUTION/AVAILABILITY OF ABSTRACT	21. ABSTRACT SECURITY CLASSIFICATION
☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT. ☐ DTIC USERS	Unclassified
22a. NAME OF RESPONSIBLE INDIVIDUAL: Carroll Kleinhans	22b. TELEPHONE (Include Area Code): (504) 862-2548; 22c. OFFICE SYMBOL: CELMN-PD-RN

DD Form 1473, JUN 86 — Previous editions are obsolete. — SECURITY CLASSIFICATION OF THIS PAGE

18. SUBJECT TERMS. (cont.)

Geomorphology, Historic Archeology, History, Louisiana, Mississippi River, Orleans Parish, Railroads, River Commerce, Southern Pacific Railroad

DEPARTMENT OF THE ARMY
NEW ORLEANS DISTRICT CORPS OF ENGINEERS
P.O BOX 60267
NEW ORLEANS, LOUISIANA 70160-0267

REPLY TO
ATTENTION OF

March 23, 1994

Planning Division
Environmental Analysis Branch

To The Reader,

This cultural resources effort was funded and guided by the U.S. Army Corps of Engineers, New Orleans District as part of our cultural resources management program. The work documented in this report was a cultural resources survey of four construction items along the west (right descending) bank of the Mississippi River immediately below New Orleans.

We concur with the recommendations contained in this report. We agree that further archeological research would be required to determine if buried, in situ deposits dating to the eighteenth century exist at site 16OR125. However, no Corps project which will involve significant ground disturbance is planned in the vicinity of this site. Therefore, no further archeological work is planned.

Michael E. Stout
Authorized Representative
of the Contracting Officer

R. H. Schroeder, Jr.
Chief, Planning Division

MANAGEMENT SUMMARY

Field, laboratory and archival investigations of cultural resources reported in this volume were undertaken by the Museum of Geoscience, Louisiana State University, pursuant to Delivery Order 02 under Contract DACW29-88-D-0123, issued by the U.S. Army Corps of Engineers, New Orleans District. Field work was conducted between October 11, 1988 and December 5, 1988.

The project reach was defined by the Scope of Services as "...the Mississippi River batture, extending from the riverside toe of the Mississippi River Levee to the low water line of the river bank between miles 93.8 and 81.8, right descending bank." Three subportions (M-91.0 to 86.8, M-88.2 to 86.8, and M-89.0 to 88.1) of the larger project area had been previously surveyed, and pursuant to the present delivery order, no archeological field work was conducted within those areas. Also, M-90.4 to 85.7 had already been revetted. Recommendations concerning sites located during survey are presented below.

Sites within the Twelve Mile Point Revetment Item

16OR119. The beach scatter from 16OR119 appears to represent the remains of a late eighteenth/early nineteenth century residence at Beka Plantation. However, no cultural materials were recovered in the course of excavations at 16OR119, and no cultural material was observed in bench faces associated with the beach. Cultural material was confined entirely to the beach at this locale. Results of site assessment indicate that the cultural material lies entirely in the river and is washing ashore at present.

16OR119, then, lacks integrity and does not exhibit potential for furthering our understanding of the historic period it represents. The site is not eligible for inclusion on the National Register of Historic Places. No further archeological work is recommended for this site.

16OR120. Investigations at 16OR120 indicate that the majority of the material derives from beach deposits and/or recent dumping. No in situ cultural deposits were recovered at 16OR120. This, and paucity of artifactual remains, indicates that further excavations

at this site will not further our understanding of history. This site is not recommended for inclusion on the National Register of Historic Places, and no further work is recommended here.

16OR121. Results of site assessment, in association with archival map data, indicate that this site represents a road to the Beka Plantation river landing. However, the site exhibits no further research potential. No artifacts were recovered, and additional excavations in a roadbed are unlikely to yield artifacts. Therefore, the locale does not exhibit qualities necessary for inclusion on the National Register of Historic Places. No further work is recommended.

16OR122. 16OR122 appears to represent the remains of a late eighteenth century occupation on what would become Delacroix Plantation. Geomorphological evidence indicates that the bankline at 16OR122 is eroding. This, and the failure to recover in situ deposits despite extensive excavation, indicate that further excavation at the site will not yield information important to history. Therefore, this site does not appear to be potentially significant in terms of National Register criteria. No further work is recommended.

Twelve Mile Revetment Locale No. 5 (No State Survey Number Assigned). The artifact assemblage suggests that Twelve Mile Revetment Locale No. 5 is the result of relatively recent (post World War II) refuse disposal. No evidence of in situ cultural deposits were recorded at this site. Thus, Twelve Mile Revetment Locale No. 5 does not exhibit qualities that would make it potentially eligible for inclusion on the National Register of Historic Places. No further work is recommended here.

Sites Within the Cutoff Revetment Item

Algiers Locale No. 1 (No State Survey Number Assigned). Material from this site suggests relatively recent refuse disposal by local residents. The limited number and range of artifacts recovered here indicate that further excavations at this site will not yield information important to understanding history. Therefore, the site should not be considered potentially significant in terms of National Register criteria. No further archeological work is recommended at Algiers Locale No. 1.

16OR123. 16OR123 appears to represent the remains of a late nineteenth/early twentieth century occupation. Despite the rich surface scatter of ceramics at the site, few artifacts were recovered from shovel tests. The majority of sherds and other material lie within surficial, bulldozed soils. An extensive regimen of shovel tests at this site failed to yield evidence of in situ cultural deposits or features. Further, only a small percentage of artifacts recovered at the site were derived from these shovel tests. Thus, further excavations at the site would not contribute to our understanding of history. The site should not be considered potentially eligible for inclusion on the National Register of Historic Places. No further work is recommended.

16OR124. The site appears to be associated with a late nineteenth/early twentieth century occupation. No in situ cultural deposits were observed at this site, nor were any historic features uncovered. The site does not, therefore, exhibit research potential that would warrant further excavations or consideration for inclusion on the National Register of Historic Places. No further work is recommended at 16OR124.

Sites Within the Algiers Point Revetment Item

16OR125. Eighteenth century European and aboriginal ceramics were recovered from a narrow beach at 16OR125. These may be associated with early eighteenth century occupation of the site, which is located on Bienville's west bank concession. Geomorphological evidence suggests that the bankline in this area has been stable at least since the 1870s. If a buried component representing this period is preserved, 16OR125 would be highly significant in terms of National Register criteria, and would provide us with data to describe aspects of lifeways in the early colonial period which are otherwise not documented. Further archeological excavations are necessary to determine whether such a component exists.

Archeological remains at 16OR125 also include remnants of a wharf infrastructure and construction designed for bank stabilization on a portion of a larger Southern Pacific Railroad facility. However, wharf features uncovered exhibit no further research potential. The sheds, warehouses and machinery supported by these wharves have been destroyed or removed. Further, modes, materials, and methods for

construction of infrastructures such as the one reported here are well-documented. Thus, infrastructure remains do not exhibit qualities of significance that would warrant HABS and HAER documentation. Therefore, the nineteenth century commercial component of 16OR125 should not be a primary focus of further excavations.

TABLE OF CONTENTS

Table of Contents, Continued.

Table of Contents, Continued.

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1
INTRODUCTION

Field, laboratory and archival investigations of cultural resources reported in this volume were undertaken by the Museum of Geoscience, Louisiana State University, pursuant to Delivery Order 02 under Contract DACW29-88-D-0123, issued by the U.S. Army Corps of Engineers, New Orleans District. Field work was conducted between October 11, 1988 and December 5, 1988.

Personnel

Museum personnel participating in this effort were Dr. Malcolm K. Shuman, Principal Investigator; Dr. Herschel A. Franks and Dr. Jill-Karen Yakubik, Co-Project Managers; Mr. Kenneth Jones and Mr. Stuart Speaker, Field Archeologists; Mr. Dennis Jones, Project Surveyor; Ms. Joanna Mossa, Geomorphologist; Mr. Todd Smith, Historian; and Mr. Jeffrey Treffinger, Architectural Historian. Mr. Stuart Speaker also served as Graphic Artist and Illustrator. Dr. Jill-Karen Yakubik analyzed Euro-American historic period artifacts, while Ms. Diane Silvia was responsible for analysis of aboriginal artifacts. Ms. Carroll Kleinhans served as the Contracting Officer's Technical Representative for the New Orleans District.

Project Area Description

The project reach (Figure 1) was defined by the Scope of Services as "...the Mississippi River batture, extending from the riverside toe of the Mississippi River Levee to the low water line of the river bank between miles 93.8 and 81.8, right descending bank." Specific reaches in which intensive pedestrian survey and site assessment were conducted are presented in Table 1.

Three subportions (M-91.0 to 86.8, M-88.2 to 86.8, and M-89.0 to 88.1) of the larger project area had been previously surveyed (Chapter 4), and pursuant to the present delivery order, no archeological field work was conducted within those areas. Also, M-90.4 to 85.7 had already been revetted. However, the previously surveyed areas were included in the historic overview presented in Chapter 6, and were also included in the general literature, map and records review.

Table 1. Items Surveyed within the Project Reach.

ITEM	RIVER MILES	RANGES	LEVEE STATIONS
Algiers Point Revetment	93.8 to 92.2	D40 to D122	76+78 to 157+85
Cutoff Revetment	92.2 to 90.4	U-203 to U-100	157+85 to 260+98
	(and)		
	85.7 to 84.9	D-144 to D-184	541+11 to 580+08
Naval Res. Enlargement	93.1 to 89.1	N/A	111+00 to 328+00
Twelve Mile Point Revetment	84.9 to 81.8	U-68 to D-68	580+08 to 715+08

Figure 1 - front (oversize)

Figure 1 - back (oversize)

CHAPTER 2
GEOMORPHOLOGY OF THE LOWER MISSISSIPPI RIVER FROM ALGIERS TO ENGLISH TURN, LOUISIANA
(by Joann Mossa)

Introduction

Bank stabilization of the lower Mississippi River has been an important mission of the U.S. Army Corps of Engineers, particularly since improvements of artificial levees in response to the flood of 1927 and since the introduction of a number of human-induced cutoffs in the 1930s. These projects necessitated a program of bank protection to prevent the recession of caving banks to the artificial levees and to maintain the newly-created favorable alignment of the river. This chapter concerns geomorphic aspects of a segment of the river downstream of New Orleans, from mile 94 to mile 82 AHP (above the Head of Passes), part of which is scheduled for bank stabilization. This review of the geomorphology of this river segment was undertaken as part of a more detailed study of the archeology and cultural resources of the area, as reported in other chapters of this volume.

The lower Mississippi River basin in southeastern Louisiana is bounded to the west and the east by artificial levees except in the delta region. The basin is generally narrow in width, but expands on the downstream end because flow in the Mississippi delta is largely unconfined. The Pontchartrain basin to the east, a marginal basin between the Mississippi River deltaic distributaries and the Pleistocene uplands of the Florida Parishes, and the Barataria basin to the west, a large interdistributary basin, flank the modern Mississippi River. Notable cities, towns, and reference points along the river include Talbert Landing (mile 306.3), St. Francisville (mile 266.0), Baton Rouge (mile 233.8), New Orleans (mile 106.2), Carrollton (mile 102.8), Chalmette (mile 91.0), Belle Chase (mile 76.0), and the Head of Passes (mile 0.0).

The project area is located in the Mississippi River delta plain, which extends from the Mississippi alluvial valley at an arbitrary position south of the Atchafalaya distributary seaward to the Gulf of Mexico in southeastern Louisiana. The Mississippi River delta plain consists of deposits of abandoned and active deltas and channels of the Mississippi River. These partially-overlapping delta complexes and lobes were produced by shifting of the Mississippi River during the Holocene. The Mississippi River alluvial valley

contains distinctive meander belts that correspond to the delta complexes.

The delta plain is characterized by elevations near sea level, by lakes and lake systems, by active and ancient distributary channels of the river, by numerous tidal bayous, and by numerous islands. Some islands are evidence of the deterioration of broad marsh areas into isolated remnants, and others are transgressive sandy barrier islands located at the seaward edge of the delta plain and in the Gulf of Mexico.

Geologic environments in the Mississippi River delta plain and in the project area that were recognized by Fisk (1947) are meander belt deposits including point bar environments, topstratum and slough, abandoned channel environments including chute cut-offs and neck cut-offs, natural levee deposits, and backswamp deposits. Environments mapped by Kolb (1962) include natural levee, inland swamp, fresh water marsh, fresh to brackish water marsh, saline to brackish water marsh, floating marsh or flotant, abandoned course or distributary, recent point bar consisting of predominantly sandy deposits, and ancient point bar consisting of predominantly silty deposits. The Geologic Map of Louisiana at the 1:500,000 scale recognizes four Holocene geologic environments in the Mississippi River delta plain. These are natural levee, alluvium, delta plain-fresh marsh, and delta plain-salt marsh (Snead and McCulloh 1984).

Geology and Geomorphology of the Project Area

The proposed construction project is a series of intermittent revetment segments for bank protection between Algiers and English Turn, from river mile 94 to 82 on the west or right descending bank of the Mississippi River in Orleans Parish, Louisiana. The project corridor is the batture, between the artificial levee and the Mississippi River. Within and in the vicinity of the project area, elevations range from over 20 ft (6 m) on the crests of artificial levees to below sea level on land exposed only during extreme low water stages along the Mississippi River.

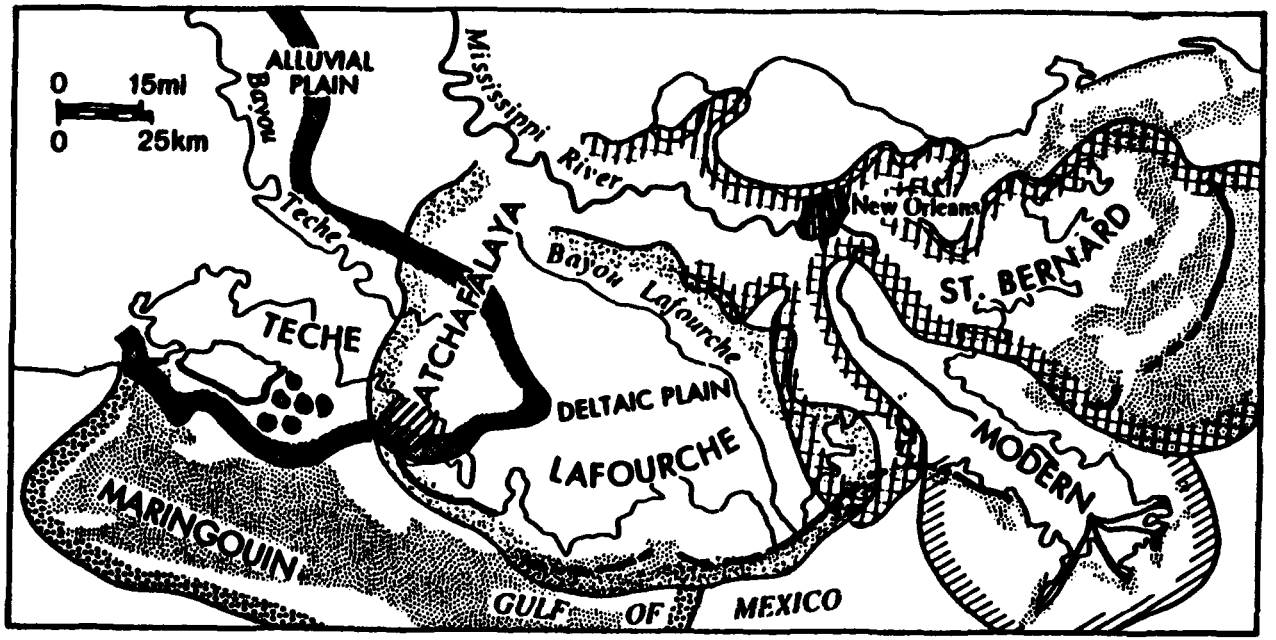
The geologic history of the project area has been strongly influenced by sea level fluctuations in the Gulf of Mexico and by the shifting of the Mississippi River and its distributaries. About 35,000 to 40,000 years ago, the environment of the project area was similar to that now found a few miles offshore of the

modern Louisiana shoreline in the Gulf of Mexico, and thus was characterized as nearshore marine. During the Wisconsinan or latest Pleistocene deglaciation, when sea level was approximately 300 ft (90 m) below present, the Mississippi valley became deeply incised within the coastal plain sediments (Fisk 1944). The mid-Wisconsinan nearshore zone and seafloor were exposed to subaerial weathering and developed well-oxidized and consolidated soils. Sea level began to rise after the glacial maximum, between 20,000 and 17,000 years before present.

Deltaic development of the Holocene Mississippi River began when the rise in sea level began to slow. The delta plain consists of six major Holocene delta complexes, each of which first experiences a constructive phase and then undergoes a destructive phase. Some evidence exists that older complexes and lobes are also buried by these six younger delta complexes. Four of these complexes, namely, the Maringouin, Teche, St. Bernard, and Lafourche, are in various stages of deterioration, while two of these, the Modern and Atchafalaya, are actively prograding or outbuilding (Figure 2). Each major course or belt of the Mississippi River, which shifted to a channel with a steeper gradient every 1000 to 1500 years during the Holocene, is associated with a delta complex. The individual lobes within each complex are the products of distributary networks (Frazier 1967). Subdeltas are important components of the delta lobes, which in turn are the components of delta complexes. Subdelta deposits vary in areal extent from small splays, to minor subdeltas, to major subdeltas.

Near-surficial deposits in the project area are a product of the St. Bernard and Plaquemines-Balize or Modern delta complexes and the corresponding meander belts of the Mississippi River (Figure 2). The St. Bernard complex ranges in age from 4500 years B.P. to about 650 years B.P. The Plaquemines-Balize delta complex initiated approximately 950 years B.P., and is actively prograding at present.

Although much of the St. Bernard and Plaquemines-Balize delta complexes and the modern Mississippi delta have been deposited in a subdelta environment, the project area has principally been influenced by deposition adjacent to the Mississippi River channel. The segment of the Mississippi River under consideration here consists of point bar deposits from mile 94 to mile 90, natural levee deposits from mile 90 to mile 85.8,



KEY

- Shell Reef
- Barrier Shoreline
- Sand

DELTA COMPLEX	AGE (YEARS BP)
Maringouin	7250-6200
Teche	5700-3900
St. Bernard	4600-1800
Lafourche	3500-400
Modern	Active
Atchafalaya	Active

Figure 2. Holocene delta complexes of the Mississippi River delta plain (after Frazier 1967).

and point bar deposits from mile 85.8 to mile 82 (Kolb 1962). Abandoned distributaries occur in the vicinity of mile 93 on the right bank, and in the vicinity of mile 89.5, mile 85.8, and mile 82.0 on the left bank (Figure 3). The distributary at mile 82.0 is associated with one of the more prominent delta lobes of the St. Bernard delta complex (Saucier 1963).

A transect perpendicular to the river (Section U; Figure 4) along the Intracoastal Waterway in the vicinity of the project area shows natural levee deposits as thick as 15 ft (4.5 m) that thin with increasing distance from the river (Figure 4). Beneath natural levee deposits are interdistributary deposits that are more than 30 ft (9 m) thick, followed by prodelta and nearshore gulf deposits, each with a thickness of about 15 ft (4.5 m) adjacent to the Mississippi River. Depths of the Pleistocene near the river at this transect are about -80 ft or -70 ft m.s.l. (24 m or 21 m below m.s.l.), and are in excess of 150 ft (45 m) in some places within the project area. The river thalweg has depths of 70 to 200 ft below m.s.l. (20 to 60 m below m.s.l.) in the project area, and the river is well-entrenched into the highly erosion-resistant Pleistocene deposits (Kolb 1962).

Radiocarbon (C-14) dates of peat and organic deposits collected in the vicinity of the project area are considered by Saucier (1963) to be indicative of the age of this final course of the river (Figure 5). Four dates associated with the bases of the natural levees (hence maximum dates) or with wood fragments from within the levee itself (sample no. 28) have produced the following dates:

Location	Carbon-14 Date	Sample Type and Depth	No.
New Orleans	1000 ± 100	Peat -6 ft m.s.l.	14
New Orleans	1100 ± 105	Peat -4 ft m.s.l.	16
New Orleans	1200 ± 100	Wood -10 ft m.s.l.	28
New Orleans	1450 ± 105	Peat -4.5 ft m.s.l.	12

The average of these dates, approximately 1200 years B.P., is believed to date the establishment of the modern river course.

In the vicinity of the project area, natural levees, which are created by near-channel deposition of suspended sediment during overbank flow, are approximately 5 to 10 ft in elevation and 1 mile in width (Kolb and van Lopik 1958, Kolb 1962, Saucier 1963). Geologic cross-sections show that the base of

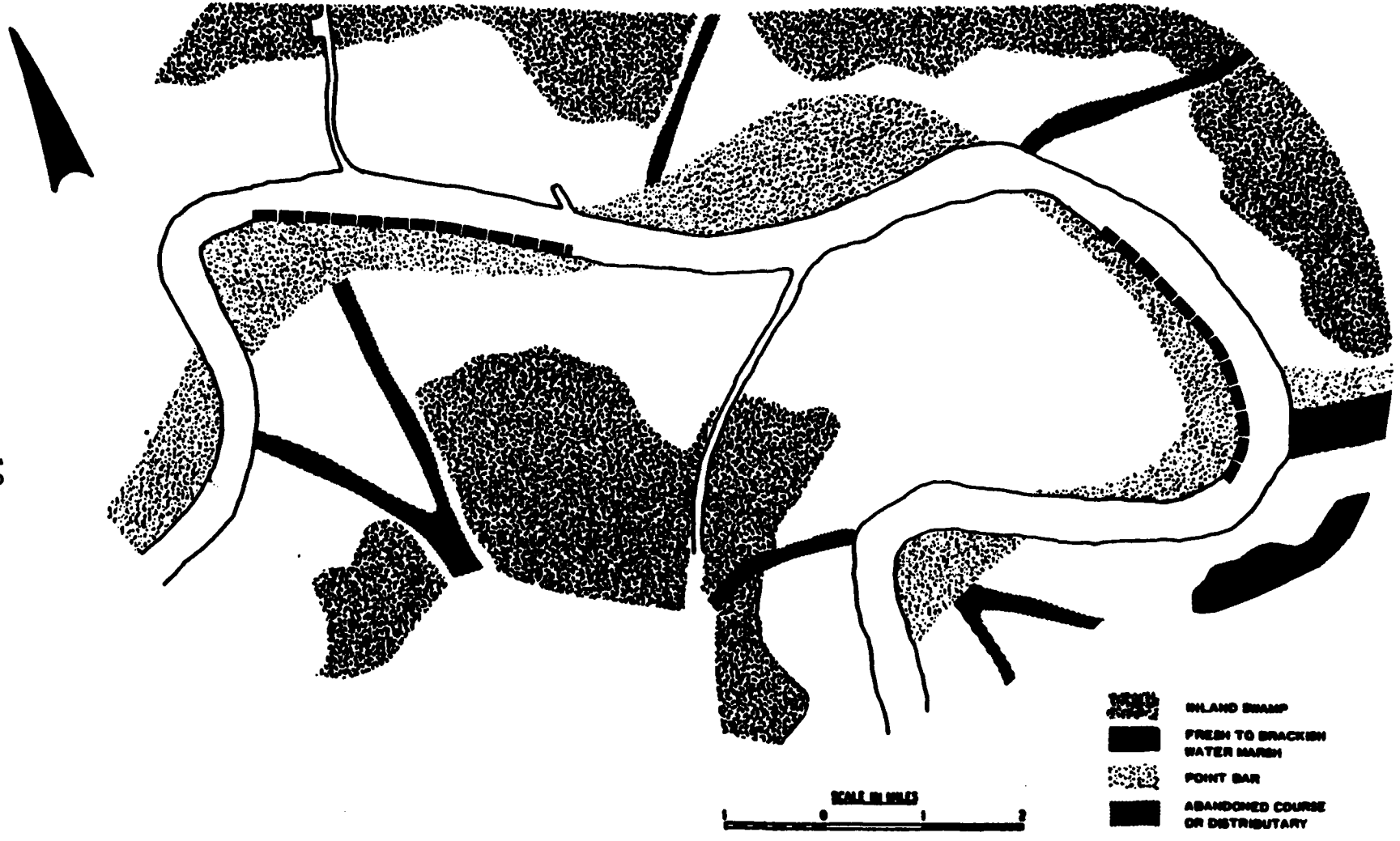


Figure 3. Geomorphic environments of the Mississippi River in the vicinity of the project area (after Kolb 1962). The dotted lines indicate the project area.

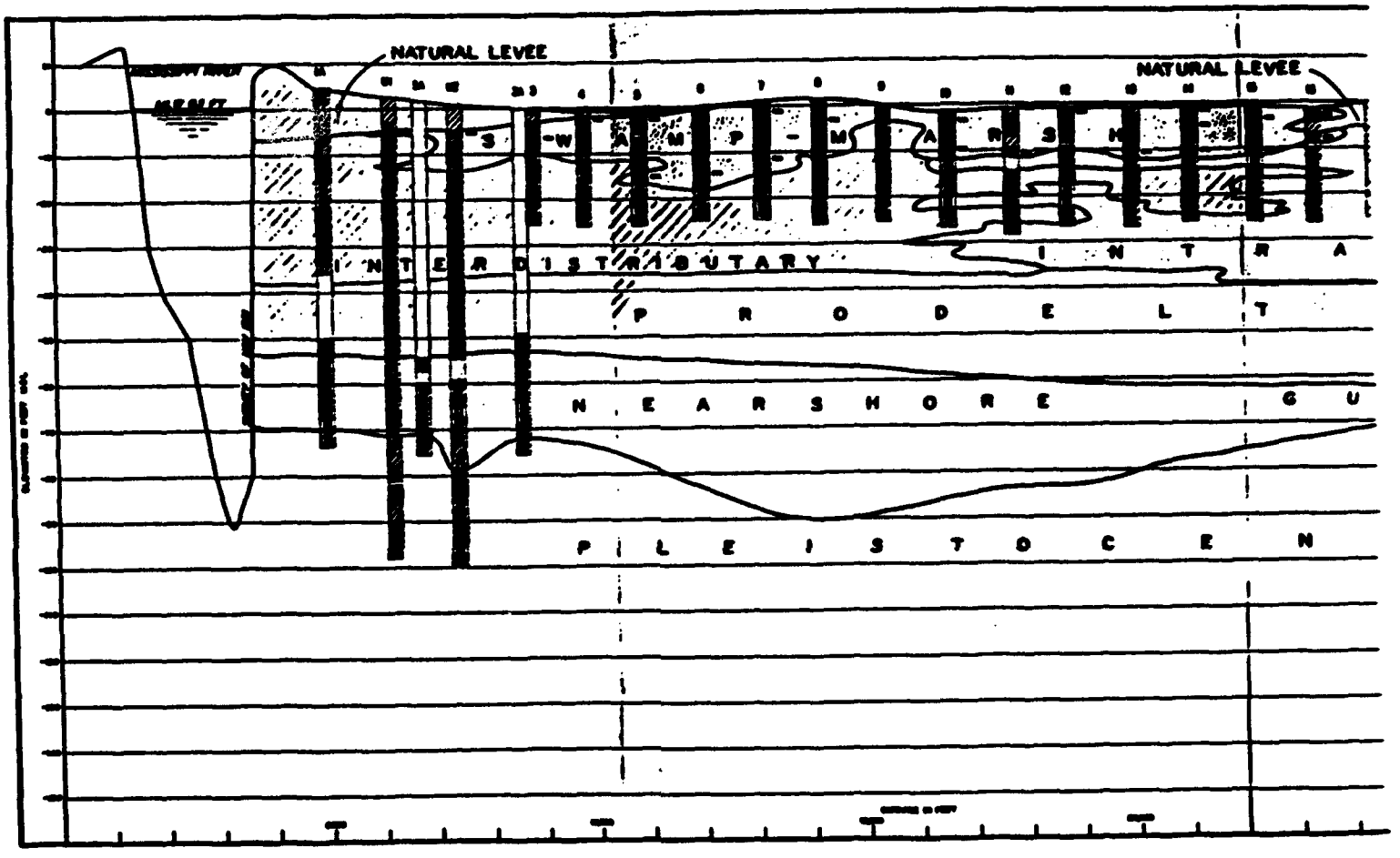


Figure 4. A geologic cross-section of environments along the Mississippi River in the vicinity of the project area (from Kolb 1962).

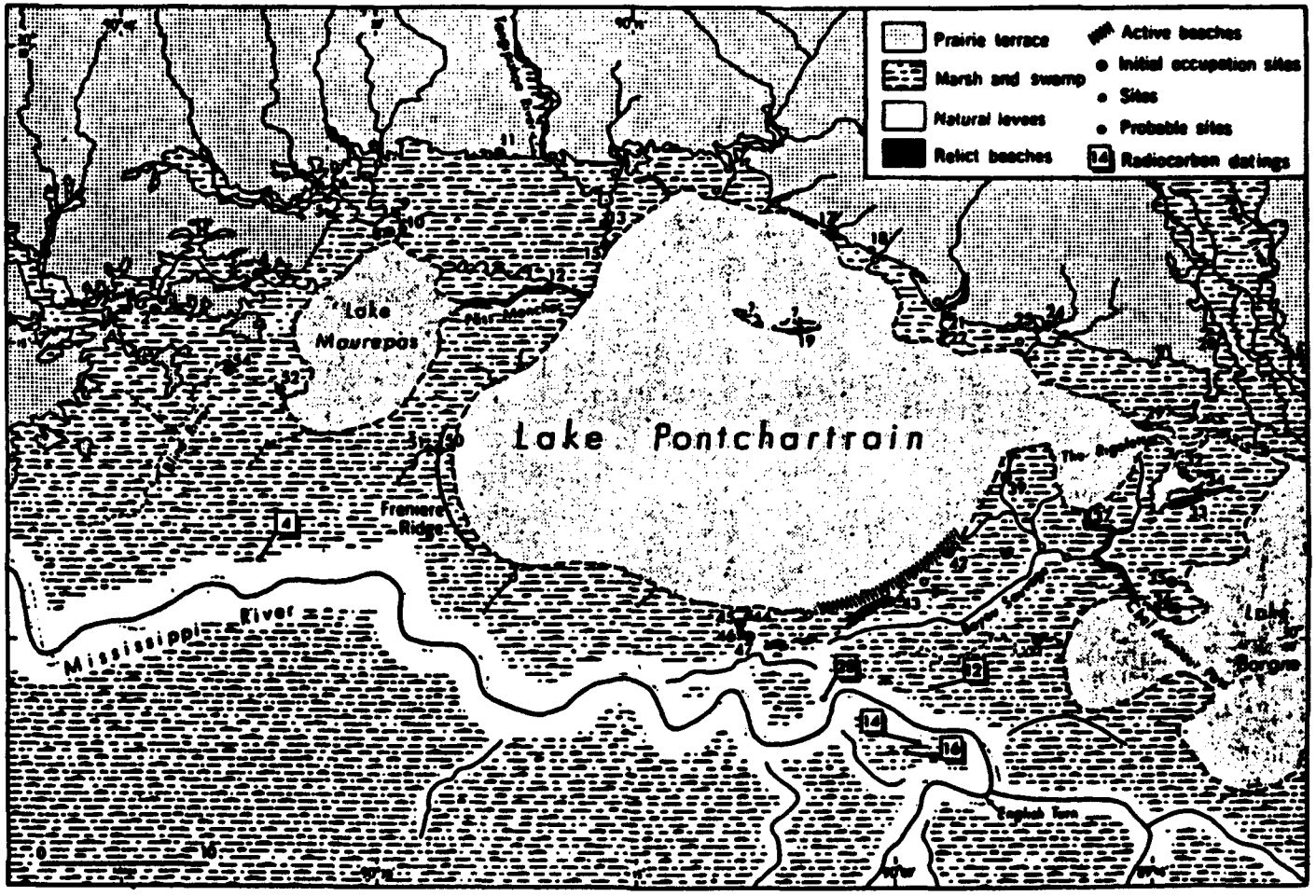


Figure 5. Geomorphic environments and locations of C-14 samples associated with the establishment of the modern river course that were collected in the vicinity of the project area (from Saucier 1963).

the natural levee adjacent to the river in the vicinity of the project area is about -7 ft m.s.l. (Section U; Figure 4) to -10 ft (Section T; Figure 6) (Kolb 1962). Sediments at these depths should thus be about 1200 years B.P. and decrease in age with decreasing depth. Since the crest elevation of the natural levees at these locations are about 10 ft (Section U) and 4 ft (Section T), if sedimentation throughout this period were uniform, deposition in places where levee thickness was a maximum would average between 1 and 1.5 ft per century. However, sedimentation rates were probably high during the early stages of levee development, subsequently decreased as the elevation grew higher, and then increased again once these areas were confined by artificial levees. Away from the crests of the natural levees, sedimentation rates would be lower, and would be proportional to the thickness of levee deposits at that location.

Channel discharge and stage in the lower Mississippi River are markedly seasonal, with low flood occurring in the summer and fall, and high flow during the winter and spring. In the vicinity of the project area, the maximum discharge of record (1872 to present) at Carrollton (mile 102.8) is 1,557,000 cfs (May 18, 1927) with a corresponding stage of 20.5 ft (6.7 m). Mean discharge over this period is 425,000 cfs, and minimum discharge is 49,200 cfs (November 1, 1939) (Keown 1977, USACE 1985) (Figure 7). The effect of tides increases downstream and is notable as far upstream as 35 mi (56km) above Baton Rouge during extreme low water (Kolb 1962).

From upstream to downstream, the banks of the lower Mississippi River are composed of progressively finer deposits; meanders decrease in number; and the channel becomes narrower, straighter, and deeper. The straightening of the river has been attributed to the increase in the amount of backswamp clay in the delta plain. The river thalweg shows a series of alternating riffles and pools that range from 15 to over 100 ft (5 to 30 m) in relief (Figure 7). The pools and riffles exhibit progressively lower elevations downstream to New Orleans. Some evidence shows that the bed of the lower Mississippi River has been aggrading in recent years (Watson 1982).

The principal soil map unit in the project area is the Sharkey-Commerce association (USDA, in press). These soils are developed on natural levees adjacent to the lower Mississippi River in the delta plain. The

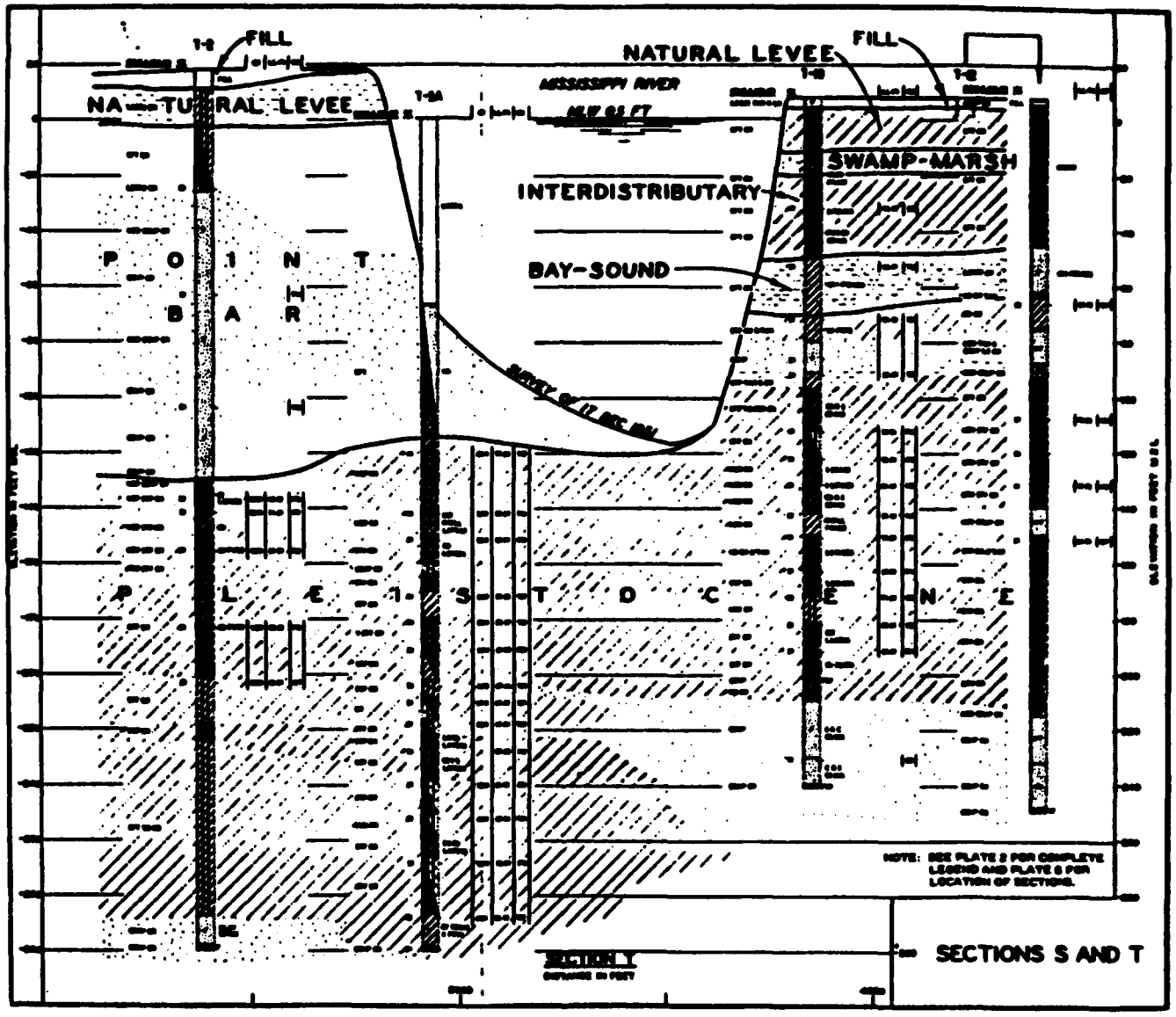


Figure 6. A geologic cross-section of environments along the Mississippi River in the vicinity of the project area (after Kolb 1962).

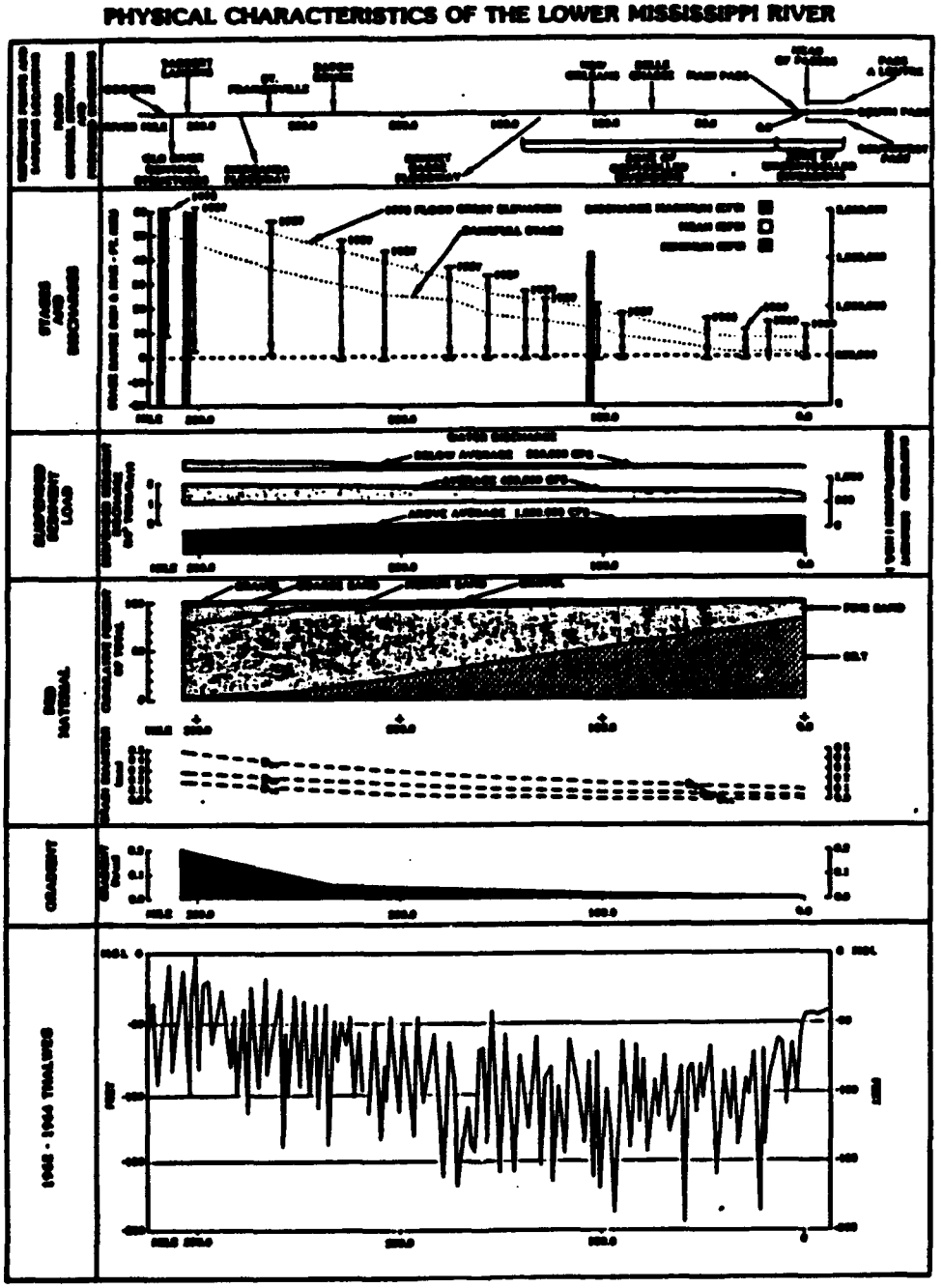


Figure 7. Physical characteristics of the lower Mississippi River. Data sources on miles and structures include Keown et al. (1977), USACE (1984 a, b); stages and discharges from USACE (1985), where dates indicate year of peak stage; suspended-sediment discharge from Everett (1971), Wells (1980), and Meade (1987); bed material from Keown et al. (1986); and, thalweg elevations (Mossa 1988).

Sharkey series consist of poorly-drained soils formed in clayey alluvium on low and intermediate positions on natural levees. The Commerce series consist of somewhat poorly-drained soils that formed in loamy alluvial sediments developed on intermediate and high positions on natural levees. The Sharkey soils are Vertic Haplaquepts with very fine textures (>60% clay) and montmorillonitic mineralogy, with more than half of the clay fraction by weight being made up of expanding-lattice clays. The Commerce series are Aeric Fluvaquents with fine-silty textures (<35% clay and <15% sand), and mixed mineralogy, where no one clay mineral dominates the clay-size fraction. In Orleans Parish, the Sharkey-Commerce map unit consists of about 70% Sharkey soils, 21% Commerce soils, and 9% soils of minor extent. The soils in the project area, which are between the Mississippi River and the protection levees, are frequently flooded.

Engineering Modification in the Vicinity of the Project Area

The history of man-made structures in the Mississippi River valley dates back several centuries, beginning with artificial levee construction. According to Elliot (1932), New Orleans was the location of the first artificial levee on the Lower Mississippi River. The city was founded in 1717 by Bienville who selected the site despite the objections of his engineer, De La Tour, who predicted periodic inundation during floods. De La Tour undertook construction of the first levee and completed the project in 1727. The levee was 5400 ft long, 3 ft high, and 18 ft wide at the top with a roadway on its crown.

By 1735, as settlements developed, the levee lines on both sides of the river extended from about 30 miles upstream of New Orleans to about 12 miles downstream of the city. By 1812, the levee system on both sides of the river had been extended to Baton Rouge on the left bank, and to the vicinity of Morganza on the right. Crevasses through these levees were a common occurrence during these earlier years. With the completion of more and larger levees, flood stages reached new heights. New Orleans was inundated several times, and there was considerable concern that the river bed was being silted in between the levees. It was soon recognized, however, that these new flood heights were a natural result of confining the river between levees. Where the river had formerly been allowed to spread out across the

floodplain, thereby lowering stages, it was now confined to a narrow zone between the artificial levees.

By 1851, the west bank was protected almost continuously with levees from New Orleans to the Arkansas River and the east bank was protected as far north as Memphis (Elliott 1932). The levees have been raised repeatedly with successive floods. The present levee system in the vicinity of New Orleans is in some places 25 feet high and close to 5000 feet in cross-sectional area. It has been quite effective during the twentieth century in preventing flooding and eliminating overbank deposition beyond the batture.

Despite human intervention to maintain channel stability and the integrity of the artificial levee, the Mississippi River has migrated significantly in some sections of the project area. The section from mile 94 to mile 89.5 (Figures 8 and 9) has shown very little migration, in contrast with the section between mile 89.5 and mile 82.0 (Figure 10) which has shown appreciably greater migration, between the 1879-94 and the 1973-75 hydrographic surveys. The highest rates of channel migration were about 1000 feet during this period in the vicinity of mile 88.5 to mile 86 (Figure 9).

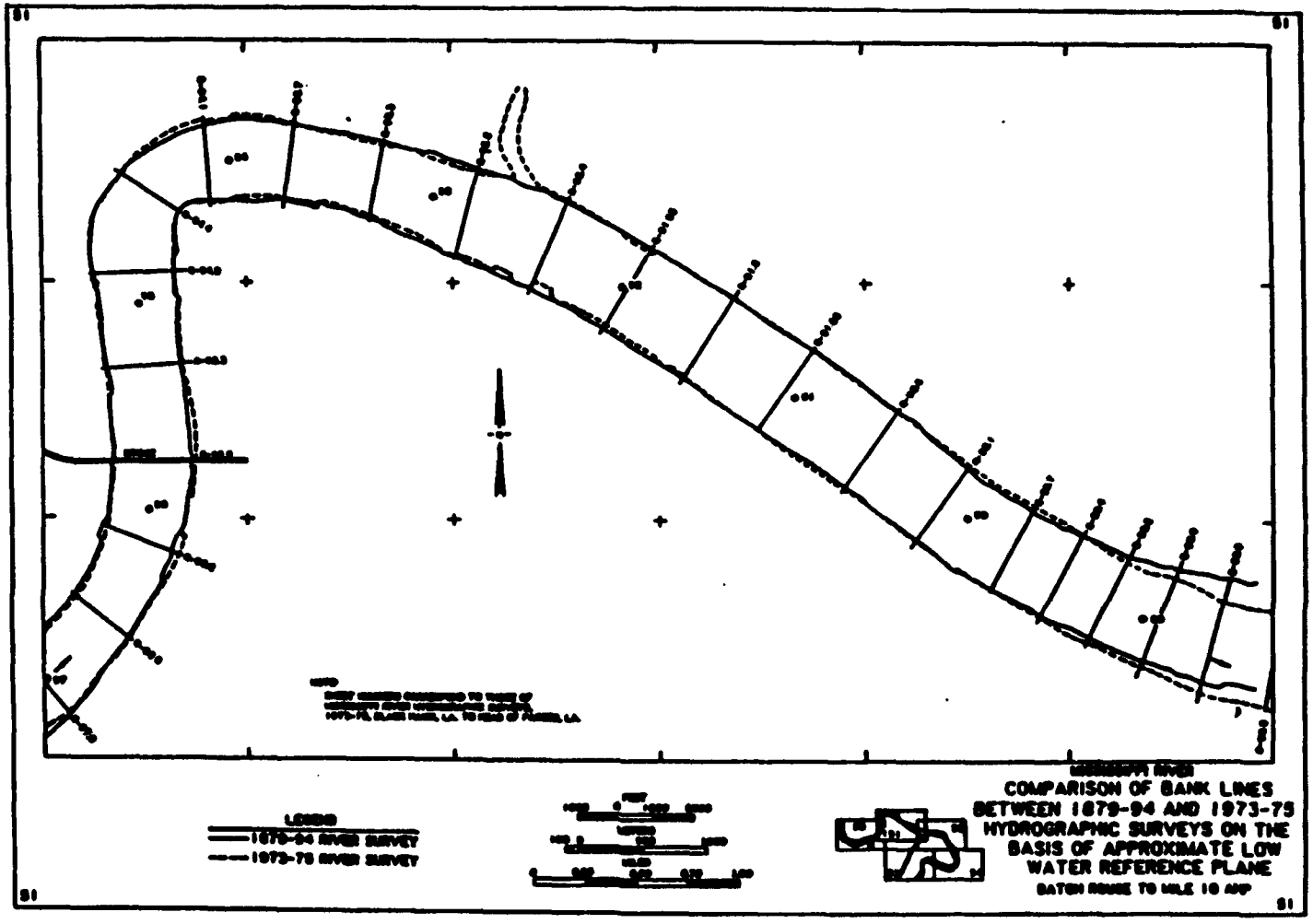


Figure 8. Comparison of bank lines between the 1879-94 and the 1973-75 hydrographic surveys on the basis of approximate low water reference plane between miles 97 and 89.5 AHP (from Torrey 1988).

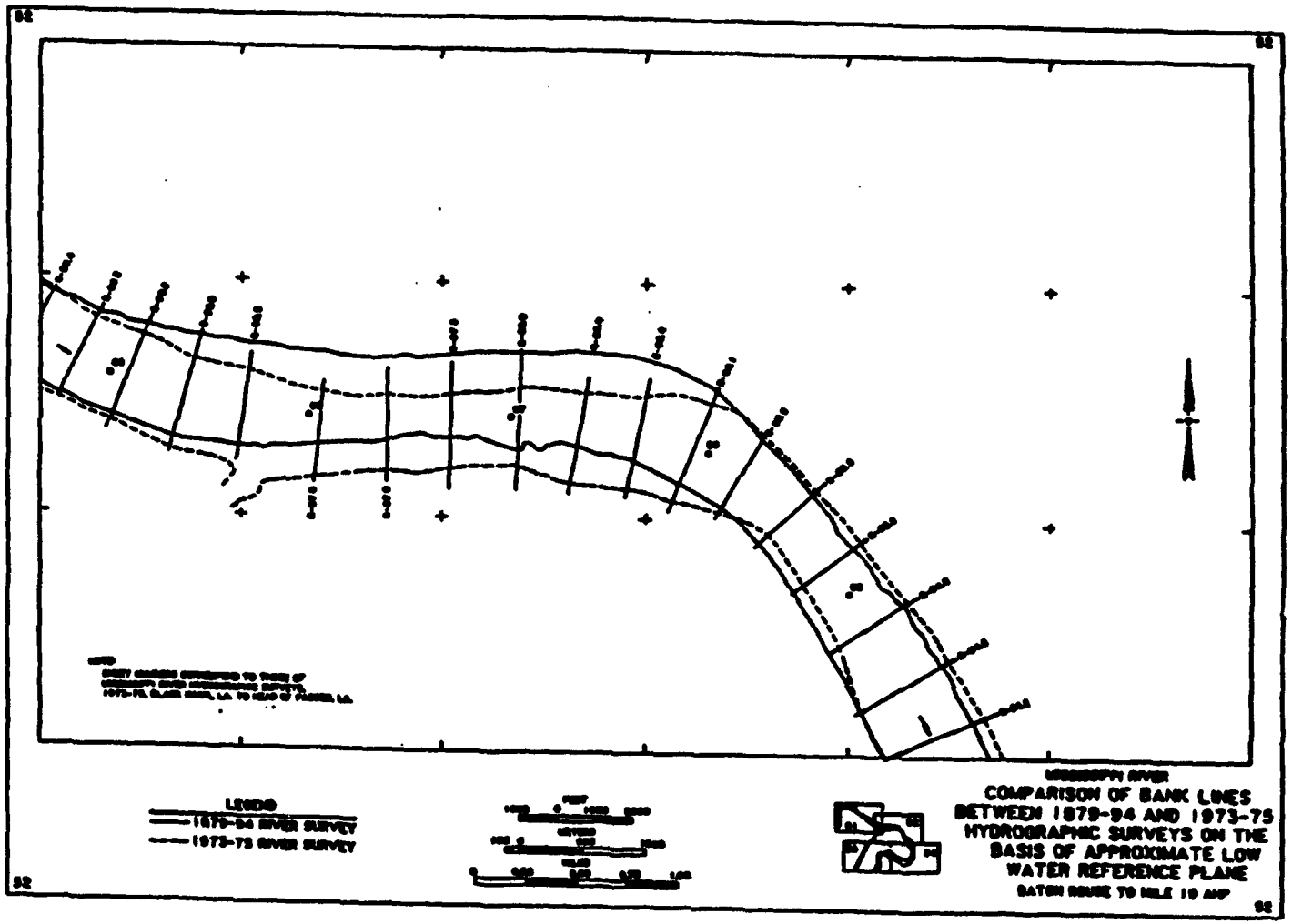


Figure 9. Comparison of bank lines between the 1879-94 and the 1973-75 hydrographic surveys on the basis of approximate low water reference plane between miles 89.5 and 84.1 AHP (from Torrey 1988).

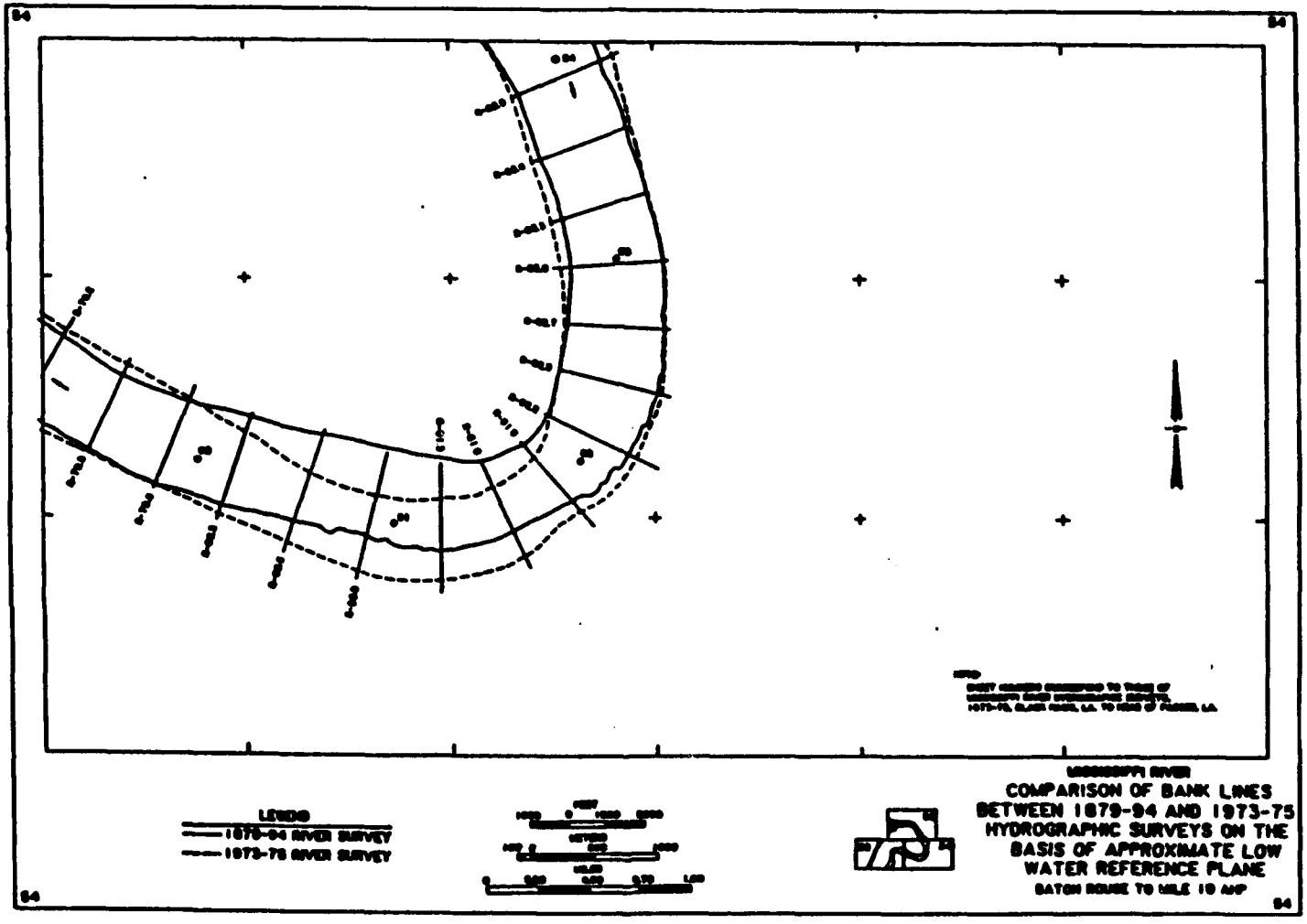


Figure 10. Comparison of bank lines between the 1879-94 and the 1973-75 hydrographic surveys on the basis of approximate low water reference plane between miles 84.1 and 79.2 AHP (from Torrey 1988).

CHAPTER 3
ENVIRONMENTAL SETTING

Biological Setting

The Mississippi River delta region is characterized by a set of ecological parameters which are integrated into a dynamic ecosystem with enormous biological productivity. The prime integrating feature of this ecosystem is water. Primary units of the system are forests, fresh water marshes, brackish marshes, saline marshes and the offshore area (Bahr and Hebrard 1976:1-3; Bahr et al. 1983).

Climate

The study area is located within the subtropics, and weather is strongly influenced by the nearby Gulf of Mexico. Rainfall exceeds 160 cm (64 inches) annually. Periods of greatest rainfall generally occur in August and September. October is, on average, the driest month. The mean annual temperature is about 21 degrees Centigrade (70 degrees Fahrenheit), with a mean low in January averaging 11 degrees Centigrade (52 degrees Fahrenheit) and a mean high in July of about 29 degrees Centigrade (84 degrees Fahrenheit). The growing season exceeds 260 days (White et al. 1983:103).

Hurricanes and storm surges occur intermittently, and these have profound effects on floral, faunal and human communities. Although these storms are natural calamities, they also produce beneficial effects. Large amounts of sediments and nutrients are deposited into coastal estuaries, resulting in both short and long term increases in primary productivity (Bahr et al. 1983:22).

Hurricanes and tropical storms are characterized by low barometric pressure. This causes a significant rise in sea level. In combination with winds up to 200 or more km/hr, storm surges as great as 7 m (23 ft) can drive ocean water a considerable distance inland. The flooding problem is aggravated by accompanying tropical rains (Bahr et al. 1983:23).

Plant Communities

Prior to cultivation and urbanization of the Mississippi delta region, upland forests would have occupied most of the natural levee. Upland forest habitat would have graded to bottomland hardwood as elevation declined and flooding frequency thereby

increased. Similar plant communities remain present on the Pleistocene terrace north of Lake Pontchartrain. Natural climax vegetation in such forests is dominated by mixed deciduous and evergreen trees that are less tolerant of flooding than are bottomwood hardwood species. Woody species in a natural levee forest would have included oaks (*Quercus virginiana, Q. Alba, Q. nigra*), shagbark hickory (*Carya ovata*), hackberry (*Celtis laevigata*), sweetgum (*Liquidambar styaciflua*), pecan (*Carya illinoiensis*), magnolia (*Magnolia spp.*), and various pines (Bahr et al. 1983:82).

As elevation declines at the edges of the natural levee, distinctively different plant communities occur. One of these is a "hardwood bottoms" community. The "cypress-tupelo" forests are located at slightly lower elevations. An intermediate swamp is sometimes located between these two communities. Large tracts of marsh occur in surrounding areas. Elevation of the land dramatically affects distribution and composition of plant communities within the area. Differences of only a few centimeters of elevation are associated with striking changes in vegetation. This is largely the result of the effects of soil saturation (White et al. 1983:102-103; Bahr et al. 1983:43-45).

Hardwood bottom forests in the area are dominated by the water oak (*Quercus nigra*). Subdominants include the sweet gum (*Liquidambar stryaciflua*), hackberry (*Celtis laevigata*), and live oak (*Quercus virginiana*). Other forest species include the box-elder (*Acer negundo*), honey-locust (*Gleditsia triacanthos*), American elm (*Ulmus americana*) and the Nuttall oak (*Quercus nuttallii*). The most common shrub species are palmetto (*Sabal minor*) and green haw (*Crataegus viridis*), but thickets of possum-haw (*Ilex decidua*) also occur. Within forest gaps, elderberry (Sambucus canadensis) and French-mulberry (*Callicarpa americana*) occur. Introduced species such as the camphor tree (*Cinnamon camphora*) are also present (White et al. 1983:103-104).

Vines are found throughout the bottomland forest, and few trees are observed without them. The most common of these include poison-ivy (*Rhus toxicodendron* var. *vulgaris*), Virginia creeper (*Parthenocissus quinquefolia*), supple-jack (*Berchemia scandens*), pepper-vine (*Vitis rotundifolia*), muscadine (*Vitis rotundifolia*) and hemp-weed (*Mikania scandens*) (White et al. 1983:104). Herbaceous ground cover is generally absent.

The cypress-tupelo swamps, located at lower elevations, are dominated by bald cypress (*Taxodium distichum*). Water tupelo (*Nyssa aquatica*) is often either a sub- or co-dominant species. Red maple (*Acer rubrum* var. *drummondii*) and ash trees (*Fraxinus spp.*) represent the other sub-dominants in this community. Shrubs include wax-myrtle (*Myrica cerifera*) and button-bush (*Cephalanthus occidentalis*), while vines are cat-briar (*Smilax* spp.), trumpet-creeper (*Campsis radicans*) and poison ivy. Herbaceous ground cover, absent in the bottomland community, includes smart-weed (*Persicaria punctata*), alligator-weed (*Alternanthera philoxeroides*), swamp potato (*Sagittaria lancifolia*), and water hyacinth (*Eichhornia crassipes*) (White et al. 1983:105).

Between the hardwood bottom forest and the swamp forests, an intermediate swamp forest sometimes occurs. It can be extensive due to gradual slope of the land. Swamp red maple, American elms, and water oaks are common here. Palmettos create a dense understory, which is nearly impenetrable in some locations (White et al. 1983:105).

The other predominant plant community within the vicinity of the project area occurs in the marsh areas. Marshes are categorized according to their degree of salinity, and the areas covered by the various marsh communities have certainly changed through the period of prehistoric occupation due to variation in fresh water influx compared to salt water intrusion.

The ecological distinction between a swamp and a marsh is the absence of trees in the latter. Marsh soils are peat and muck, and elevation of these is less than one meter above mean sea level in the vicinity of the study area. This elevation is comparable to that of Lake Salvador on which the marshes border. In the brackish or intermediate marsh, cord grass (*Spartina patens*) is dominant, while swamp-potato (*Sagittaria lancifolia*) predominates in freshwater marsh. Numerous other species co-occur with these (White et al. 1983:106-107).

Ethnobotany

A floristic inventory of the Coquilles site (16JE37) within Barataria Basin recorded 65 different plant species, all of which are endemic to North America. There is documentary evidence for utilization of 57 of these species (87.7%) by Southeastern Indian tribes. These plants can be categorized according to

their uses: (1) food and beverage plants; (2) curative and medicinal plants; (3) plants used for construction and utilitarian items; and (4) plants used for textiles, dyes and paints. Some plants had multiple uses. Although there is no evidence that all of these plants were actually used by occupants at Coquilles and at other prehistoric sites in the region, their availability indicates that the floral resource base in the area was both rich and diverse (Dunn 1983:351,356). In addition to these plant resources found along the natural levee, other species endemic to nearby marsh and lakeshore environments were undoubtedly utilized.

Fish

Although the Mississippi River supports various species of freshwater fish, it is relatively unproductive because of high turbidities and strong currents. Freshwater sport species presently exploited in the vicinity of the project area include largemouth bass, spotted bass, yellow bass, black and white crappie, bluegill, spotted sunfish, and redear sunfish, as well as warmouth, channel, flathead and blue catfish. Commercially exploited fish include catfish, bowfin, carp, gars and buffaloes (U.S. Army Corps of Engineers 1984c:16-17).

Waters in the vicinity of the project area, such as those in Barataria Basin, host a diverse assemblage of species of fish. They are highly mobile, and seasonal movements of fish populations are widespread. The result is that marine fish penetrate inland to fresh water habitats, while fresh water species are sometimes found in more saline environments. Also, the lower reaches of freshwater streams probably serve as nursery areas for the young of some marine species (Bahr and Hebrard 1976:69).

Birds

At least 216 species of birds are known to occur in the Barataria Basin, just west of the present project area. Approximately 43% of these are passerines. Some species of this group are permanent residents, while others are only present seasonally. The remainder of the 216 species are predominantly waterfowl, many of which are migratory. Because the Basin sits at the terminus of the Mississippi flyway, which is the largest waterfowl migratory route in North America, birds represent a potentially abundant source of food,

feathers, and bone for tools (Bahr and Hebrard 1976:6-7,78-115).

Mammals

Important fur-bearing species present in the vicinity of the project area include the muskrat (*Ondatra zibethicus*), raccoon (*Procyon lotor*), mink (*Mustella vison*), and otter (*Lutra canadensis*). Other mammals known to occur in the area include the Virginia opossum (*Didelphis virginiana*), the nine-banded armadillo (*Dasypus novemcinctus*), the swamp rabbit (*Sylvilagus aquaticus*), the fox squirrel (*Scirus niger*), the fox (*Vulpes fulva*), the bobcat (*Lynx rufus*), the beaver (*Castor canadensis*), the civet cat or spotted skunk (*Spilogale putoris*), and the white-tailed deer (*Odocoileus virginianus*). In addition, several species of terrestrial rodents and of bats are endemic (Bahr and Hebrard 1983:118-126). The mammalian faunal inventory would have been even more extensive during the prehistoric period (Speaker et al. 1986:26-29). An inventory of mammals and game birds present in the area in about 1725, and the estimated abundance of various species, is presented in Table 2.

Rangia cuneata

Most prehistoric sites in the vicinity of the project area, although generally located some distance from the present river channel, are associated with *Rangia cuneata* shells. This association characterizes prehistoric period sites throughout southern Louisiana. This brackish water mollusc represented an important resource for pre-European occupants of the region.

Byrd (1976) examined the nutritional and caloric value of the *Rangia* in order to determine its relative importance to prehistoric diet. She notes that a 100 pound deer might be expected to contribute 50 pounds of edible meat. In order to provide the equivalent 50 pounds of *Rangia*, it would be necessary to harvest 25,300 clams. That would produce 50,600 clam shells which, based on clam size at the Morton shell midden, would represent a volume of 11.8 cubic feet. Thus, clams provide only relatively small amounts of meat per volume of discarded shell (Byrd 1976:25).

In addition to providing only a small amount of meat, *Rangia* have relatively low nutritional values compared to other food items utilized during the prehistoric period. This is dramatically illustrated by

Table 2. Game Types and Relative Abundance in 1725 (from St. Amant 1959:322-35).

SPECIES	ABUNDANCE 1725
Elk (*Cervus cancdensis*)	Moderate
White Tailed Deer (*Odocoileus virginianus*)	Very abundant
Black Bear (*Eurarctos luteolus*)	Numerous in winter
Cougar (*Felis concolor coryi*)	Occasional
Bobcat (*Lynx rufus floridanus*)	Seen occasionally
Wolf (*Canis niger gregoryi*)	Plentiful
Raccoon (*Procyon lotor varius*)	Numerous
Opossum (*Didelphis virginiana*)	Numerous
Muskrat (*Ondatra zibethicus rivalicius*)	Not reported
Beaver (*Castor canadensis carolinensis*)	Moderate
Otter (*Lutra canadensis texensis*)	Reported few seen
Mink (*Mustela vision vulgivaga*)	Abundant?
Skunk (*Mephitis mephitis*)	Abundant?
Squirrel (*Sciurus spp.*)	Very Abundant
Rabbit (*Sylvilagus spp.*)	Plentiful
Quail (*Colinus virginanus virginanus*)	Rare, few seen
Passenger Pigeon (*Ectopistes Migratorius*)	Extremely Abundant
Swans (*Cygninae*)	Common
Cranes (*Gruidae*)	Common
Geese (*Anserinae*)	Abundant
Duck (*Anatidae* and *Fuligulinae*)	Very Abundant
Wood Ducks (*Aix spousa*)	Very Abundant
Spoonbill (*Ajaia ajaja*)	Common

Table 3 which compares the protein, fat, carbohydrate and caloric content contained in 100 grams of various food items (Byrd 1976:27):

As the table demonstrates, other kinds of meat yield greater amounts of protein than does *Rangia*. Its fat content is lower than the other food items presented with the exception of grapes, persimmons and pumpkin. Carbohydrate yield is somewhat higher than other meats, but it is low compared to plant foods. And finally, only oyster, grape and pumpkin have a lower caloric value. The caloric equivalent of a 100-pound deer would be about 42,000 clams, representing 19.6 cubic feet of clam shells. The volume of *Rangia* shells in a prehistoric midden is, therefore, disproportionate when the contribution of this food is compared to that of other food types that leave fewer and more compact remains (Byrd 1976:27-28).

Despite the fact that *Rangia* are relatively low in food value, they were exploited throughout the prehistoric period in coastal Louisiana. This exploitation may be due to the fact that little risk or expenditure of energy is involved in obtaining *Rangia*. In some brackish waters, these clams are relatively abundant. They can be gathered by hand in shallow waters and by rake in deeper waters. So long as large, dense clam beds are available, little energy expenditure is necessary to obtain them (Byrd 1976:28).

In addition, there are other possible reasons for the apparently heavy exploitation of *Rangia* by prehistoric peoples. Contributions this clam might have made to trace element intake and other aspects of diet remain undetermined. Also, the large volume of clam shells that result from clam harvests represent an important source of "fill" in low-lying areas subject to flooding. All of southern Louisiana represents such an area. It is possible that Indians were deliberately using *Rangia* shells to provide greater topographic relief on portions of the natural levee and in the marsh.

Prehistoric Human Ecology

The subtle changes in elevation discussed above, and their profound effects on floral communities and associated faunal communities, probably influenced foraging strategies of prehistoric occupants of the area. A transect drawn parallel to the levee ridge

Table 3. Nutritional and Caloric Values Per 100 Grams (From Byrd 1976:27).

	Protein	Fat	Carbo-hydrate	Calories
Clam (raw, meat only)	12.6	1.6	2.0	76
Oyster (raw)	8.4	1.8	3.4	66
Deer (raw, lean meat)	21.0	4.0	0	126
Raccoon (roasted)	29.2	14.5	0	255
Duck (raw)	21.3	5.2	0	138
Catfish (raw)	17.6	3.1	0	103
Grape (raw)	1.3	1.0	15.7	69
Persimmon (raw)	0.8	0.4	33.5	127
Hickory (nut)	13.2	68.7	12.8	673
Pumpkin (raw)	1.0	0.1	6.5	26
Corn (modern, field, raw)	8.9	3.9	72.2	348

encompasses a relatively unchanging ecological zone. However, a transect drawn perpendicular to the natural levee crosses a series of ecological zones in a relatively short distance. Thus, utilization of a relatively narrow corridor perpendicular to the natural levee would have allowed efficient exploitation of a series of floral and faunal communities (Beavers et al. 1982:105-106).

CHAPTER 4
PREVIOUS ARCHEOLOGICAL INVESTIGATIONS IN THE VICINITY OF THE PROJECT AREA

Data Recovery at Algiers Point

Archeological data recovery of several city blocks scheduled for impact by a levee setback was conducted at Algiers Point, a short distance upriver from the present project corridor. Prior to field work, an archival overview (Fritz and Reeves 1983) was prepared. Data recovery was undertaken pursuant to a Memorandum of Agreement between the Corps of Engineers, New Orleans District, the Louisiana State Historic Preservation Officer, and the Advisory Council on Historic Preservation (Goodwin et al. 1984a:12).

Field methods applied at Algiers Point were primarily excavation of backhoe trenches of variable length and depth supplemented by hand excavations of features. Excavations were located within squares which, on the basis of archival research, were considered to be high probability locations for intact historic period archeological deposits (Goodwin et al. 1984a:137-139).

Fifteen features and three refuse deposits were uncovered in Square 21. One of these was a ferrous zone associated with Johnson Iron Works, the location of which is shown on a 1909 Sanborn map. Wooden planking above an L-shaped brick foundation was also excavated. Excavations within Square 21 also yielded cultural material associated with residential occupations (Goodwin et al. 1984a:137-139).

Features within Square 13 were primarily brick walls and smaller brick foundations. Some of these were associated with a slate-roofed residence which was standing during the 1880s. Others were associated with Johnson Iron Works and included foundations to support machinery. Two refuse lens associated with antebellum and postbellum residential activity were also uncovered. Square 10 contained the remains of a blacksmith concern as well as three tenant residences shown on the 1903 Sanborn map (Goodwin et al. 1984a:139-140).

Analysis of cultural material included calculation of mean ceramic dates and bracketed glass dates for all excavated proveniences. All of the obtained dates were within the nineteenth century, and were primarily post-1850. Earlier dates were generally associated with

smaller sample sizes, many of which were so small that they may be unreliable (Goodwin et al. 1984a:169-172).

Archeological Testing at Fort St. Leon

Fort St. Leon was a French fort established in 1749 on the right descending bank of the Mississippi River at English Turn. It was abandoned sometime after 1768. An American fort with the same name, and at or near the same location, was begun in 1809 and abandoned in about 1815-1817 (Gilmore and Noble 1983:15-33).

Field work supplemented by considerable archival and map research was conducted at the site of Fort St. Leon (16PL35) between 1976 and 1983. Investigations were aimed at determining locations, integrity, and research potential of the French and American forts that stood at or near the site. Portions of brick walls presumably associated with the American fort were present and visible in the river during periods of low water.

Limited hand excavations were utilized to test the site in 1976. In 1981, twenty-two backhoe trenches were excavated as well as four 3 m squares and six 1 x 2 m units. Early-nineteenth-century artifacts were recovered in some trenches at an average depth of approximately 1.5 m below surface. They lay atop a dense clay stratum which Saucier (1983:119) identified on the basis of lithology and elevation as the buried natural levee surface on which the forts would have been constructed. Evidence for a high rate of recent deposition at the site included recovery of modern plywood at 60 cm below surface and a Vienna sausage can at approximately 70 cm (Gilmore and Noble 1983:65-67, 70-71).

One 3 x 3 m hand excavation unit yielded over 650 brick fragments and three whole bricks. These were within the stratum that had been identified as a buried ground surface. Associated with the bricks were two sherds of annular-decorated earthenware (1795-1815) and green glass sherds typical of the eighteenth and early nineteenth centuries. Two cut lead bars and two lead particles may indicate bullet casting. Also, a cast brass scabbard clip, similar to one found at the eighteenth-century Fort Michilimackinac, was recovered. Field investigations terminated prior to complete excavation of this unit (Gilmore and Noble 1983:83-85).

Almost every deep excavation in 1981 uncovered the dense layer of dark clay interpreted as a former ground surface. In most places, this stratum contained cinder fragments and other cultural materials, including brick and mortar. Depth of this stratum below surface ranged from .55 m to 2.2 m, and its position in each excavation suggested that its contour conformed to that of the present surface. Generally, its depth was the same as that of water table at the site (Gilmore and Noble 1983:91).

Results of the 1981 testing regimen at Fort St. Leon failed to demonstrate whether relatively undisturbed archeological deposits related to the two military occupations were present. Two hand excavations, one of which was discussed above, did yield large amounts of brick and artifacts possibly indicating early-nineteenth-century activity. However, the number of associated diagnostic artifacts was too small to enable a conclusion that these remains derived from the American fort (Gilmore and Noble 1983:91-92).

Further, only one artifact was recovered that might date from the period of the French fort. This was a rim sherd from a brown, lead-glazed redware identified as part of a bowl from Liguria, Italy. Finally, efforts to recover cultural material from the vicinity of a former navigation light were unsuccessful (Gilmore and Noble 1983:68, 93).

Pedestrian Survey: Mile 88.2 to 86.8

Pedestrian survey of the batture from Mile 88.2 to 86.8 was conducted in 1982. A General Land Office survey map that included the study area was compared to the current USGS map. The comparison indicated that erosion had resulted in a loss of between 700 and 1200 feet of bankline within the corridor. Archival and map research indicated that concessions had been granted in the area as early as 1723. The majority of the study area was later part of Stanton Plantation (Iroquois 1982a:3, 11, 15, 50-52).

Transects were spaced at 35 m intervals. Transects were usually oriented parallel to the river and the levee but when vegetation was dense, transects were perpendicular to the river. Subsurface testing consisted of placement of 30 x 30 x 30 cm shovel tests and 3-inch diameter auger borings in selected locations. Zones for subsurface testing were chosen on the basis of past disturbance, geomorphology, topographic relief and

vegetation. Extensive evidence of trash dumping was noted. This trash had generally been bulldozed into the batture forest to keep the toe of the levee clear. At sites or potential sites, 30 x 30 x 30 cm shovel tests were used to determine the presence and extent of subsurface remains. Only one site, 16OR68, was recovered in the project corridor (Iroquois 1982a:75-80, 87).

16OR68 (A Kiln or Sugar House Site)

This site consisted of the remains of a vine-covered structure standing in a relatively clear area on the batture. The southern wall was inaccessible due to an accumulation of modern debris and a tree fall. Because the structure was located in an area that has experienced considerable bankline erosion, it was considered unlikely that the "rather massive structure" was originally built on the batture. Rather, it probably had been left there during a levee setback (Iroquois 1982a:87-88).

The structure was interpreted as a brick or a lime kiln. Its furnace was constructed of brick and had three parts: a brick-lined pit near the riverbank, a main structure, and an adjacent narrow brick structure. The brick-lined pit was 1.3 x 1.6 m, and was filled with modern debris. The narrow brick structure was one meter from the southwest wall of the main structure. It was 2.7 x 23 m at ground surface. It was almost two meters high, and tapered towards the top so that the upper dimension was 1.8 x 6.5 m (Iroquois 1982a:88).

Dimensions of the main structure were 8.2 x 12.1 m, and it was 1.9 m in height. Two flue openings measuring 60 x 60 cm were present. The main structure included three recesses, protruding iron posts, and a deposit of ash and mica on top of the furnace (Iroquois 1982a:88). Similar features have been interpreted as the remains of sugar houses at other sites (e.g., 16OR90) in the region (Earth Search, Inc.:1992).

The structure was mapped and photographed, and 18 shovel tests at 5 m intervals were excavated around it. Also, one auger core was obtained. Some ash and bricks were collected. Industrial ceramics and tableware, as well as two cut nails, were recovered. Tableware came from the surface, while industrial-type ceramics came from shovel tests. The latter, because of their nature and their subsurface provenience, were considered more closely related to the function of the site. Because

there was no evidence of a residential structure, it was considered likely that the tableware was brought to the site from elsewhere (Iroquois 1982a:88-90).

Industrial ceramics included two sherds of transparent glazed semi-porcelain, possibly insulator, from the brick-lined pit. Also, two sherds of red-colored earthenware were recovered. One had an opaque glaze and, although small, appeared to have been part of a drainage pipe. The other was unglazed and somewhat vitrified with the surface appearance of stoneware. Finally, one white-colored earthenware sherd with an opaque white tin glaze appeared to be a fragment of modern tile (Iroquois 1982a:88-90).

Nine sherds of white-colored earthenware with a transparent glaze were found on the surface. One cup sherd and one saucer sherd were undecorated. One cup fragment, four plate fragments, and two other sherds had a blue transfer printed willow pattern decoration. These nine sherds appeared to date to between 1825 and the early twentieth century (Iroquois 1982a:90).

Pedestrian Survey: Mile 91.0 to 86.8 and 89.0 to 88.1

On May 19, 1976, a "comprehensive on-ground survey" was conducted at the site of a proposed revetment at Cutoff in Orleans Parish (Mile 91.0 to 86.8). Dr. J. Richard Shenkel of the University of New Orleans was accompanied by Ms. Melanie Sternberg of the U.S. Army Corps of Engineers. Methodology consisted of "walking the banks and levee along the right descending bank of the Mississippi River for a distance of 14,485 feet in the vicinity of River Mile 88.5 near Cutoff, Louisiana" (Shenkel and Troxler 1976).

Prior to survey, the prediction was made that nothing of cultural significance would be found because the project corridor had been extensively modified in the past by levee construction. This prediction was met because "On close examination, the area did not yield any surface evidence of cultural materials." A suggestion was made that construction workers should exercise appropriate precautions and take appropriate action should cultural materials be unearthed during construction (Shenkel and Troxler 1976).

Finally, an in-house reconnaissance was conducted of the Algiers Lock Forebay (Mile 89.0 to 88.1) by Mr. Bert Rader of the Army Corps of Engineers, New Orleans District. No sites were reported (Scope of Services).

CHAPTER 5
ABORIGINAL OCCUPATIONS IN SOUTHEASTERN LOUISIANA

This discussion of prehistoric culture begins with the Tchula Period, for it is likely that this is when an adaptive strategy allowing full exploitation of the Mississippi River delta and the coastal plain was developed. That adaptive strategy, of which the harvesting of *Rangia cuneata* was an integral part, was maintained through subsequent occupations. The general location of prehistoric sites discussed in this chapter are shown on the map in Figure 11.

Cultural and Chronological Terminology

Cultural and chronological terms used in this chapter are based on the framework for the Lower Mississippi Valley as outlined by Phillips (1970) and as modified and expanded by Gagliano et al. (1979) and Wiseman et al. (1981). "Periods" in Table 4 represent the basic Lower Mississippi Valley chronology. "Cultures" appear in the archeological record as new features, new assemblages, and new styles. They represent "major continuities" in the framework. "Phases" are geographically specific expressions of a cultural tradition, and ideally they have chronological significance within the larger period to which they belong. Table 4 presents this framework in schematic form. The table presents phases for the eastern (Pontchartrain) province of the Mississippi River delta.

The Tchula Period (250 B.C. to A.D. 0)

Tchula period occupations in the Lower Mississippi Valley are associated with the Tchefuncte culture. The period has been called "the early ceramic period" because, with the exception of fiber-tempered pottery, it was the interval during which initial pottery complexes appeared in the Lower Mississippi Valley. Sites are few and scattered, and there are no universal markers. However, within subareas such as South Louisiana, regional markers, primarily Tchefuncte type ceramics, have been identified (Phillips 1970:7, 8, 15, 76).

Peoples of the Tchefuncte culture were the first to engage extensively in the manufacture of ceramics. Fiber-tempered and some grog-tempered or temperless sherds have been recovered from earlier Poverty Point contexts. These may represent primarily trade goods

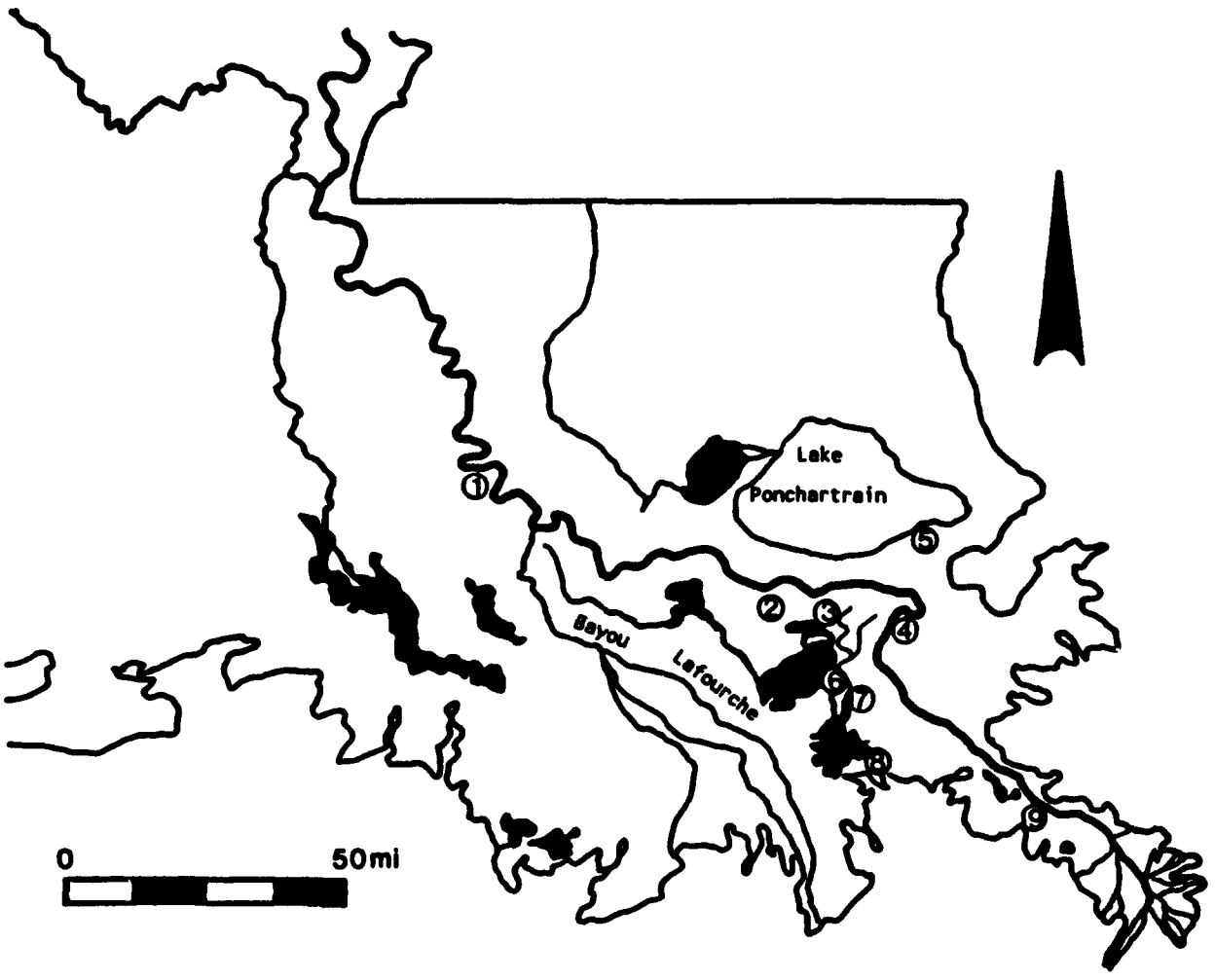


Figure 11. Map of Southeastern Louisiana showing locations of major archeological sites. Key: 1) Bayou Goula; 2) Sims; 3) Coquilles; 4) Scarsdale; 5) Big Oak and Little Oak Islands; 6) Fleming, Isle Bonne, and Bayou Villars; 7) Bayou Du Pont; 8) Bayou Cutler; and 9) Buras Mounds.

Table 4. Coastal Louisiana Culture Sequence and Chronology (adapted from Gagliano et al. 1979).

Time Interval	Period	Culture	Phase
Present	Historic	Various Cultures	Various Tribes
A.D. 1700	Mississippi	Natchezan ↑	Delta Natchezan
		Mississippian ↑	Bayou Petre
A.D. 1300		Plaquemine	Medora
A.D. 1000	Coles Creek	Coles Creek	Bayou Ramos
A.D. 850			Bayou Cutler
A.D. 700	Baytown	Baytown	Whitehall
A.D. 300	Marksville	Hopewellian-Marksville	Coquilles Magnolia
A.D. 200			Smithfield Labranche
A.D. 0	Tchula	Tchefuncte	Beau Mire
250 B.C.			Pontchartrain

from the earliest pottery-making cultures to the east. The basic Tchefuncte ware is temperless or grog-tempered, with accidental inclusions of small quantities of sand and vegetable fiber. Sand-tempered wares represent a minority constituent of Tchefuncte site assemblages (Shenkel 1984:47-48).

Four phases of the Tchula period have been identified in South Louisiana. The Pontchartrain phase is defined on the basis of sites around the edges of Lake Pontchartrain and Lake Maurepas. On the prairie terrace surface just to the west, evidence is found for a Beau Mire phase, which is believed to postdate the Pontchartrain phase. The Lafayette phase is defined on the basis of sites associated with the old Teche-Mississippi course. In Southwest Louisiana, Tchefuncte sites are attributed to a Grand Lake Phase (Gagliano et al. 1979:4/2 - 4/3).

Although both inland and coastal plain Tchefuncte sites have been identified within Louisiana, only adaptations associated with the latter are well understood. The closest sites to the present project area which have been extensively excavated are Big Oak and Little Oak Islands, along the southeastern shore of Lake Pontchartrain.

Big Oak is a stratified site with two distinct Tchefuncte components. The lowest occupation had a high artifact content but no shell refuse. Its radiocarbon date is 520 B.C. Above it is a *Rangia cuneata* shell midden, also containing numerous artifacts. Artifacts are primarily Tchefuncte, and the radiocarbon date is 300 to 200 B.C. The Little Oak Island site is 2000 meters east of Big Oak. It is a thin earth midden lying atop a natural shell beach, and has been dated to 215 B.C. Thus, the Little Oak occupation and the shell midden occupation at Big Oak are contemporaneous (Shenkel 1984:44-46).

The relationship between Tchefuncte components at Big Oak and Little Oak provides considerable insight into activity patterning related to subsistence and to settlement. The ceramic assemblage (based on pottery types, vessel size, and vessel shape) for the basal Big Oak occupation is most similar to that at Little Oak. Although they are not contemporaneous, both assemblages are derived directly from an earth rather than a shell midden.

These earth midden occupations by Tchefuncte peoples are interpreted as residential. Associated vessels were utilized for cooking and for storage. The shell midden occupation at Big Oak yielded a higher proportion of undecorated vessels than did the contemporaneous earth midden at Little Oak, and the vessels were generally smaller. These utilitarian ceramics were associated with gathering and with transport back to the village site (Shenkel 1984:49-51).

Faunal analysis confirmed the differential function of these sites. Fresh water drum predominated in both the Big Oak shell midden and the contemporaneous Little Oak earth midden. However, remains of these fish were primarily bony mouth parts at Big Oak, while interneural and dorsal spines predominated at Little Oak. Thus, fish heads were mixed with shells at Big Oak, while fish bones were mixed with other earth midden debris at Little Oak. Apparently fish were obtained near Big Oak and at least initial cleaning occurred here. Big Oak appears to represent a large-scale faunal processing activity area. Cooking and consumption of these fish then took place at the Little Oak residential center. For the contemporaneous occupations at Big Oak and Little Oak, the three most important dietary constituents, in terms of estimated weight, were fresh water drum (40%), *Rangia* meat (37%) and deer (8%) (Shenkel 1984:60-61).

Interestingly, Tchefuncte occupations at Big and Little Oak are associated with a well-developed lithic technology. Over 100 projectile points have been recovered, as well as unifaces and bifaces, some of which have been worked into special-function tools such as picks and burins. Some ground-stone tools have also been recovered. The source of raw materials for stone-tool manufacture is streams flowing into northern Lake Pontchartrain. These are 30 to 40 kilometers from the sites. At Little Oak, primary, secondary, and bifacial thinning flakes are found. This indicates that all stages of lithic reduction were occurring. Occupants must have obtained raw materials either by travelling to streambed quarry sites to the north or by trading. Some exotic stones and some of the bifaces may have been collected from Archaic and Poverty Point sites north of the lake.

Tchefuncte occupations around Lake Pontchartrain and at Weeks Island to the west may represent the beginnings of exploitation of the Mississippi River delta and coastal plain. The adaptive strategy

developed by Tchula period occupants of the region was then maintained by subsequent populations in coastal Louisiana. Collection of *Rangia cuneata* was a key part of this adaptation (Shenkel 1984:67).

Virtually all of the post-Tchefuncte sites found in South Louisiana are associated with a *Rangia* midden. This clam is most abundant on muddy bottoms which receive occasional influxes of either fresh or salt water that promote spawning. Spring floods and storm surges provide these influxes. In addition to *Rangia*, its predators and other aquatic species are represented on these sites.

Big Oak and Little Oak were abandoned at about the time Lake Pontchartrain changed from a brackish to a fresh water environment. This ecological change made the waters an unsuitable *Rangia* habitat. Rather than adapt to a new environment, the Indians simply moved. Similar prehistoric cycles of occupation, abandonment, and in some areas, reoccupation, may be related to environmental shifts associated with the evolving Mississippi River delta (Shenkel 1984:65-67).

The Marksville Period (A.D. 0 to A.D. 300)

The Marksville period is associated with a Hopewellian culture and tradition manifested throughout the Lower Mississippi Valley (Phillips 1970:7, 17-18, 886). The phase designation for sites in southern Louisiana from the earlier part of this period, and associated with Lake Pontchartrain occupations, is LaBranche. Sites to the east of the present course of the Mississippi River, including the Scarsdale site at English Turn and the Magnolia Mound site in St. Bernard Parish, are assigned to the somewhat later Magnolia phase (Phillips 1970:898-899; Gagliano 1979:4-19). Late period Marksville occupations in the Barataria Basin are assigned to the Coquilles phase (Beavers 1982:20-21).

The Hopewell culture's two major centers of development were in Ohio and Illinois, and date to between 200 B.C. and A.D. 400. Diffusion of aspects of the culture may have resulted from the activity of traders who established a wide-ranging network, sometimes termed the "Hopewellian Interaction Sphere." In addition to diagnostic pottery types of the Marksville period, conical burial mounds were characteristic of the culture. Interments are generally associated with grave goods. Some of these were

manufactured from exotic raw materials (Neuman 1984:142-168).

Excavations at the Coquilles site (16JE37) on Bayou des Familles provide the most complete picture of Marksville occupations in southeast Louisiana below New Orleans. The site is multi-component, and excavations there have yielded data concerning the relationship between Marksville occupations and those of the subsequent Baytown period. Ceramic assemblages from upper and lower levels of these excavations exhibit differences in the ratio of decorated to plain ceramics and the ratio of stamped to incised designs. From the upper levels, only 9% to 19% of the pottery was decorated, while 30% of the pottery from lower levels was decorated. Also, upper levels showed a higher number of incised designs while lower levels contained more stamped designs (Giardino 1984a:46-47).

These differences parallel those recorded by Beavers (1982:23-25) for earlier excavations at the same site. Within some of Beavers' excavation units, a sterile, sandy stratum was interposed between upper and lower components. Absence of this sterile stratum in other parts of the site suggests it may be a result of cultural rather than natural deposition. Nevertheless, the ceramic frequency differences suggest that there was an "earlier" and a "later" occupation of the Coquilles site (Giardino 1984a:55).

Interestingly, ceramic artifact analyses by Beavers (1982) and by Giardino (1984a) indicated that despite the differences discussed above, the majority of excavated pottery should be assigned to a Marksville period occupation. However, carbon dates indicate that the upper component assemblage actually belongs to the subsequent chronological interval represented by the Baytown Period (below). Although ceramic type frequencies change, they do not exhibit sufficient change to indicate the presence of a new cultural tradition. This apparent continuity in ceramic assemblages suggests that at least within the Barataria Basin, late Marksville culture extends into the subsequent Baytown period with few apparent changes in the archeological record. Similar difficulty in distinguishing late Marksville and Baytown occupations has been encountered elsewhere in the Lower Mississippi Valley (see Phillips 1970).

A radiocarbon date of A.D. 115 was obtained at the base of the mound at Coquilles. Other dates from this

feature cluster around A.D. 200. Unlike more "typical" mounds of the Marksville period, the Coquilles mound has yielded no evidence of interments, prepared floors, or burial platforms. This negative evidence has led to the suggestion that the mound was constructed to improve habitation and refuge conditions in times of tidal surges or heavy floods (Giardino n.d.:13-14). However, some elderly informants remember the discovery of human burials during the course of previous shell removal episodes (Giardino n.d.:13-14). Thus, function of the mound at the Coquilles site remains undetermined.

A house floor within the village portion of the Coquilles site yielded carbon dates of A.D. 280-320, consistent with a late Marksville period occupation. The associated structure was circular, with timbers averaging six to eight centimeters in diameter. Large quantities of daub are evidence of the nature of construction materials. A hall-like entrance was oriented towards the southwest. Two infant burials were found almost directly below the wall. This structure represents the only Marksville period house discovered in southeastern Louisiana (Giardino n.d.:15-17).

The Baytown Period (A.D. 300 to A.D. 700)

The Baytown period has been defined as the interval between the end of Hopewellian/Marksville culture and the emergence of Coles Creek culture. In the southern half of the Lower Mississippi Valley, there are no area-wide horizon or period markers (Phillips 1970:901).

The Baytown period is often referred to as the "Troyville period" by Delta archeologists. Because of the lack of diagnostic markers for the period in southeastern Louisiana, it is often assimilated with the subsequent Coles Creek period, and the two are together referred to and discussed as "Troyville/Coles Creek cultures" (e.g. Neuman 1984). Gagliano et al. (1979:4/20) note that the entire eastern coastal zone of Louisiana is subsumed within a single phase, called Whitehall. He considers it likely that work in the Barataria Basin will allow a separate phase designation for that area.

The upper component of the Coquilles site (16JE37) is now attributed to the Baytown period (see above). As discussed previously, almost 35% of all sherds from the lower (Marksville) components of the Coquilles site are decorated, whereas only 7% to 16% of sherds from the upper (Baytown) levels are decorated. This difference

may be due to the fact that Baytown period peoples usually decorated only the necks of vessels, a practice which results in representation of a greater proportion of "plain body sherds" in archeological remains. Other explanations have, however, been proposed. One other difference between Marksville and Baytown period pottery at the Coquilles site is that incised designs predominate in the later period, while stamped designs predominate in the earlier (Beavers 1982:22-25; Giardino n.d.:18-22).

A circular house structure at Coquilles was carbon dated to A.D. 410-450, thereby placing it within the Baytown period occupation. It is similar to the Marksville period house discussed above, but one major difference has been noted. The Baytown house was constructed with poles that average six to ten centimeters more in diameter than those of the earlier house. Daub, however, was used in the construction of both (Giardino n.d.:24-25).

Recovery of houses from both Marksville and Baytown periods, and carbon dates ranging from about A.D. 200 to A.D. 570, suggest that a stable village-type occupation was located at the confluence of Bayous des Familles and Coquilles for about 400 years. Although some changes in proportions of ceramic types have been noted, there is continuity between the two assemblages. This continuity appears to reflect long-term and possibly continuous occupation of the site.

The Coles Creek Period (A.D. 700 to A.D. 1000)

The Coles Creek period is the interval that begins with the emergence of Coles Creek culture in the southern part of the Lower Mississippi Valley and ends with the establishment of "full-blown" Mississippian culture in the northern part of the Valley (Phillips 1970:18). Although it appears to represent a population zenith in the eastern delta province, many sites tentatively classified as Coles Creek may actually be from the Baytown period (Wiseman et al. 1981:3/5).

Coles Creek culture was characterized by small ceremonial centers with mounds. These were surrounded by villages of varying size. The culture developed in the area between the mouth of the Red River and the southern part of the Yazoo Basin. Its influence filtered into the delta region of southeastern Louisiana (Brown 1984:95).

Mounds associated with the Coles Creek culture generally are larger and exhibit more construction stages than those associated with the earlier Marksville culture. A more significant difference is that Coles Creek mounds are pyramidal and flat-topped, and they were used as substructures for religious and/or civic buildings. In contrast, Marksville peoples generally built conical burial mounds (Neuman 1984:167).

In southern Louisiana generally, the early phase for the Coles Creek period is Bayou Cutler, and the late phase is Bayou Ramos (Brown 1984:97-99). However, in southeast Louisiana, only the Bayou Cutler phase is recognizable. The type site for the Bayou Cutler phase is Bayou Cutler I (16JE3), located within Barataria Basin (Gagliano et al. 1979:4/27-4/30). The Bayou Cutler phase, as defined by Kniffen, is identified by an absence of shell-tempering in pottery, presence of lugs or ears on vessel rims, incised lines on rims, absence of handles on vessels, and a large percentage of check-stamped decoration. Phillips (1970:921) identified types and varieties that exhibit these characteristics (Wiseman et al. 1981:4/3, 4/9).

Pontchartrain Check Stamped pottery is the most typical Coles Creek period ceramic of the delta region. Check stamping probably was a utilitarian technique that produced desired results during the manufacture of pottery. Thus, it may not have been solely a decorative style (Brown 1984:115,123). Pontchartrain Check Stamped pottery was contemporaneous with similar types being produced in northwest and eastern Florida. This similarity, as well as similarity of rim modes from the three areas during this period, suggests contact between Coles Creek peoples of the Louisiana delta and Gulf Coast occupants to the east (Brown 1984:115-122). However, ceramic designs also show influence from the Mississippi River alluvial valley (Wiseman et al. 1981:3/5).

The Mississippi Period (A.D. 1000 to A.D. 1700)

The beginning of the Mississippi period is marked by the emergence of Mississippian culture in the northern part of the Lower Mississippi Valley and Plaquemine culture in the southern part (Phillips 1970:18-19). The Barataria phase is associated with early Mississippi period occupations within the Barataria Basin (Holley and DeMarcay 1982). It is the equivalent of the Medora phase as defined by Quimby for the Baton Rouge area.

During the Barataria phase, the "Barataria Complex," as defined by the neighboring sites Fleming (16JE36), Bayou Villars (16JE68), and Isle Bonne (16JE60), probably reached the height of its importance. Shell middens, shell mounds, earth and shell mounds, and probable extensive habitation areas are represented in this complex. Some sites along the des Familles-Barataria trunk represent small habitation locales and/or special activity areas (Gagliano et al. 1979:4/45; Franks and Yakubik 1990).

The Bayou Petre phase follows the Barataria phase. It is most strongly expressed in St. Bernard Parish to the east. The final phase of the Mississippi period within the area is termed "Delta Natchezan". It is best represented at the Bayou Goula site (16IV11) to the north and at sites along Bayou Lafourche to the east. Many sites in the Barataria Basin exhibit a mix of Bayou Petre and Delta Natchezan traits so that assignment to either phase is problematic (Gagliano et al. 1979:4/41).

The Bayou Petre phase, as defined by Kniffen, is identified by a high percentage of shell-tempered sherds, handles on vessels, simple nodes or lugs on rims, undecorated rims, gritty-textured ware, greater use of curvilinear lines and coarser wares than during the Bayou Cutler phase of Coles Creek, and an absence of check-stamped pottery. This list of traits is still applicable, although check-stamped pottery is at least a minority ware in many Mississippi period sites in Louisiana. Type assignments for Bayou Petre wares from the eastern delta are generally the same as those for the eastern Gulf coast, evidence for contact between the two areas (Wiseman et al. 1981:4/3-4/4).

The Plaquemine culture itself is sometimes considered to be the classic development of temple mound construction in the lower portion of the Lower Mississippi Valley. However, archeological excavations demonstrate that it actually represents a late prehistoric development of the preceding Coles Creek culture. Multi-mound construction and artifact assemblages are evidence that link the two. Absence of European trade goods indicates that the Plaquemine culture reached its zenith prior to contact (Neuman 1984:258-259).

The Medora Site, the type site for Plaquemine culture, is located in West Baton Rouge Parish adjacent to Bayou Bourbe, a distributary of the Mississippi

River. It consisted of two mounds separated by a 400-ft long plaza. One of the mounds was fully excavated with the exception of two small blocks. About one-third of the second mound was completely excavated, and test trenches were dug into its other parts. Also, a network of test trenches was excavated in other parts of the site (Quimby 1951:88-92).

Excavation of a pre-mound level at Medora uncovered numerous postholes and two rings, one inside the other, comprised of wall trenches and post molds. These were 45 and 25 feet in diameter. Fire pits and a "clay altar" were located within the smaller ring. Some post molds suggested square structures as well. Wattle-and-daub was apparently the technique of house construction. The larger mound showed evidence of episodic construction, with pits and/or structures on the upper surface of each successive modification. Atop the smaller mound, either one or two structures was located, and these were marked by postmolds and a wall trench (Quimby 1951:94-101).

Excavations at Medora recovered 18,508 sherds, of which only 44 were shell-tempered. Paste characteristics in the Plaquemine sherds were uniform. The paste was soft, clay-tempered and poorly fired. Color was variable but grays and tans predominated. Surface finish was smooth, and had a soft and chalky feel. About ten percent of the collection was decorated. Brushing and incising were the most common decorative techniques, but engraved and punctated sherds did occur. Although this was a single component site, some Coles Creek types occurred, including Pontchartrain Check Stamped. These types exhibited the same or nearly the same paste characteristics as the Plaquemine types, and were considered an integral part of the Plaquemine complex. Further, Plaquemine pottery appeared to be "...an outgrowth of Coles Creek pottery" (Quimby 1951:123-124, 129).

The Bayou Goula site also yielded data concerning the nature of a Plaquemine occupation in south Louisiana. The site is located on the west bank of the Mississippi River about 25 miles downstream from Baton Rouge. At the time of excavations, two badly eroded mounds were present, separated by a plaza about 600 feet long. The river was about 500 feet from the site (Quimby 1957:98-99).

The Plaquemine component was represented by two mounds and by artifacts in a thin midden deposit within

an old humus level that was lying atop a bed of silt. The midden was beneath four to five feet of more recent alluvium. The mound rested on the humus layer. The excavated mound showed evidence of three construction phases (Quimby 1957:104-105, 114-117).

Plaquemine component pottery types from non-mound portions of the site were dominated by Addis Plain, as was the case at Medora. Surprisingly, Pontchartrain Check Stamped was the most frequently occurring decorated type. One shallow depression about three feet in diameter was lined with canes, grass and leaves. Also, a small deposit of fragmentary, burned corncobs was uncovered (Quimby 1957:105).

Lying above the four to five feet of relatively sterile alluvium was evidence of the historic period occupation of the site by Bayogoulas and other groups. The village had been visited in the late-seventeenth and early-eighteenth centuries by Iberville and other Europeans, some of whom left descriptions of material culture and of ceremonial activity associated with the mounds. Unlike the Plaquemine component here or at Medora, European goods were found in association with aboriginal wares in this late component which was termed Delta Natchezan (Quimby 1957:97-103, 134-141, 147-161).

Features associated with the Delta-Natchezan occupation were primarily burials, of which eleven were found in the larger mound. Both European and aboriginal artifacts were recovered in association with these interments (Quimby 1957:118-119).

European material included trade beads, glass bottle fragments, kaolin pipe fragments, copper and brass ornaments, and various metal items. European ceramics were found, but have been described only in a summary fashion as "crockery" and "earthenware." Although Addis Plain dominated ceramic types from the Delta Natchezan occupation, a number of shell-tempered types were recovered. Sherds of the shell-tempered plainware Mississippi Plain *var. Fatherland* were the second most frequently occurring, while no sherds of this type were recovered from non-mound portions of the Plaquemine component. This innovation in techniques of pottery manufacture was considered one of the markers for the Delta-Natchezan culture (Quimby 1957:134-144).

The Buras Mound site in Plaquemines Parish, based on ceramic analysis, also represents a late Mississippi period occupation. It is one of southernmost aboriginal

sites in the Mississippi River delta region. Although it is subsiding rapidly, four mounds arranged around a central plaza were observed in 1981. Buried shell middens are also present (Gagliano and Weinstein n.d.).

Faunal remains from the site include two species of *Rangia* as well as other shellfish, fish, reptile and mammal bones. Floral remains included hackberry, greenbriar, walnuts, and charred cobs of maize. The latter were found in a concentrated area. Ceramic analysis indicates influence both from the eastern Gulf area and from the Mississippi River alluvial valley. A relatively high percentage of sherds were shell tempered. Although no European trade goods have been reported, the Buras Mounds site may represent a very late prehistoric or early protohistoric occupation in the delta. DeSoto's men reported the presence of hostile Indians who still used the atlatl in this vicinity (Gagliano and Weinstein n.d.).

Aboriginal Occupation during the Colonial Period

Identities and locations of Indian tribes in Louisiana cannot be determined for any period prior to about 1700. At about that time, literate French settlers and visitors began to record their observations regarding aboriginal occupants of the area. Even so, it remains difficult to sort pre- and post-contact culture traits. This is especially true for the lesser tribes living along the Mississippi River and other areas within southeastern Louisiana (Kniffen et al. 1987:45).

The primary Houma village in 1700 was located near present-day Angola. Iberville reported 140 cabins here, arranged in a circle, and estimated the population to include 350 warriors. The Bayogoula settlement (above), with a population of 400 to 500, clustered around a village near the modern town of Bayou Goula. The Acolapissa lived in six towns along the Pearl River and other streams flowing into Lake Pontchartrain. Their settlement pattern may have been diffuse. After 1700, they moved closer to Lake Pontchartrain, and in 1718 established a village on the Mississippi River above New Orleans (Kniffen et al. 1987:49-51).

The Quinapisa, who may have derived from the Acolapissa, lived at a village on the right bank of the Mississippi River near Hahnville in 1682. Prior to that, they lived in several villages nearer the mouth of the Mississippi. By 1700 their numbers had diminished, and they merged with the Mugulasha and moved to the

Bayogoula village. In an unexplained bout of internecine hostility, numbers of them and the Mugulasha were slaughtered by the Bayogoula. Little is known of the latter tribe who disappeared from the historic record after the 1700 massacre (Kniffen et al. 1987:51-52).

The Tangipahoa may have lived at one time near the Acolapissa on the Pearl River. However, by 1682 some of them had moved to the Mississippi River and established a village two leagues below that of the Quinapisa. That town was destroyed by the Houma and Okelousa, and its survivors fled back to the Pearl River. The tribe may ultimately have settled along the river that bears their name (Kniffen et al. 1987:52).

Little was recorded concerning the Okelousa. They are thought to have lived on lakes to the west of and above Pointe Coupee. Described as the 'wandering people west of the Mississippi,' they formed an alliance with the Houma to destroy the Tangipahoa village. In 1699, the combined population of the Okelousa, Chawasha and Washa was estimated at 700, of whom 200 were warriors (Kniffen et al. 1987:52-53).

The Chitimacha population in 1650 has been estimated as 4,000. Their tradition indicates a former home in the Natchez area, and the Natchez claimed kinship ties with the Chitimacha. They had settlements on the Mississippi River and Bayou Plaquemine. After the appearance of the French, two divisions of the tribe may have occupied lower Bayou Teche and upper Bayou Lafourche. The Chitimacha are among the lower Mississippi tribes that displayed the highest cultural attainments in the southeast (Kniffen et al. 1987:53-55).

In 1699, the Washa lived around a central village on upper Bayou Lafourche. However, they ranged widely and shared the resources peculiar to the lower Mississippi and the Gulf coast. After the arrival of the French, the Washa moved frequently. Sibley reported that they originally lived in the Barataria area. By 1718 they had established a village on the Mississippi near the Cote des Allemands post. The Chawasha were said by the French to have the same character as the Washa. They also lived on Bayou Lafourche, near the principal Washa village. In 1718, that village was visited by a party of Natchez, Yazoo, and Chiksaw who attacked the Chawasha, killed the chief and members of his family, and carried away eleven slaves, one of whom

was the chief's wife. After New Orleans was established, the group settled on the Mississippi River at a downstream location. In 1730, that village was attacked by a group of black slaves directed by Governor Perrier (Kniffen et al. 1987:55-56).

The protohistoric and early historic periods were traumatic for aboriginal society in southeastern Louisiana. The effects of disease and of the ever-increasing European population are reflected in the declining aboriginal population and in the migrations by remnants of various tribes. Internecine warfare typified relations between the various groups (Giardino 1984b).

Louisiana Indians feared and detested slavery more than any other European institution. One Tunica woman was reported to have hanged herself to have avoided it. However, Europeans held slaves from a number of tribes. These slaves derived primarily from tribes that had traditionally exhibited hostility toward the Europeans. However, Indians from larger and more militant tribes such as the Caddo, Chickasaw and Choctaw were usually not enslaved (Kniffen et al. 1987:65).

CHAPTER 6
HISTORY OF THE PROJECT AREA
by Todd Smith

Introduction

This chapter presents the history of an area located on the right bank of the Mississippi River, from Vallette Street in Algiers downstream to the Orleans-Plaquemines Parish line. The overall theme encapsulating historic period land use of this area is urban encroachment upon the agricultural economy that first developed there. Therefore, this chapter has been divided into two major sections, one concerned with agriculture and the other with urbanization. Preceding these is a discussion of initial exploration of the area by Europeans.

The section on agriculture will trace the development of the area, from initial settlement through indigo production and the rise and decline of sugar cane cultivation. It will also summarize west bank activity related to the Battle of New Orleans. The section on urbanization will trace the growth of the dry dock and railroad industries which transformed parts of the west bank into a city during the early nineteenth century. This urban growth occurred at the expense of agriculture in upriver parts of project area, and, with time, it continued to encroach on downstream portions. Following World War II, the entire area has almost entirely ceased to produce either industrial or agricultural goods and has become almost exclusively a residential district.

Initial Exploration

Europeans first learned of the existence of the great river that would be called the Mississippi in 1527. Cabeza de Vaca, a Spaniard and a member of the ill-fated Panfilo de Narvaez expedition to Florida, tasted the river's fresh water a few miles out to sea in the Gulf of Mexico. In 1541, Hernando de Soto reached the Mississippi at a point somewhat south of present-day Memphis, Tennessee. For nearly a century and a half following the de Soto expedition, Spain left North America untouched with the exception of the Florida peninsula.

France, the rising European power in the seventeenth century, later rediscovered and occupied the region drained by the Mississippi River. Two French Canadians, Louis Joliet and Father Jacques Marquette,

descended the river to the mouth of the Arkansas in 1672. Rene-Robert Cavalier, Sieur de La Salle, another Frenchman living in Canada, descended the river to its mouth a decade later. On April 9, 1682, in a solemn ceremony on a spot of dry land near the mouth, La Salle claimed "Louisane" for France and King Louis XIV.

La Salle's attempt to establish a settlement ended in failure. The next French colonization effort was in 1699 under the direction of Pierre le Moyne, Sieur de Iberville. From their base at Ship Island, Iberville and his brother, Jean-Baptiste Le Moyne, Sieur de Bienville, led an expedition up the Mississippi. However, Iberville chose the eastern shore of Biloxi Bay as the site of the first settlement.

Later that year, Iberville sent Bienville back to the Mississippi for further exploration. On September 15, 1699, Bienville, with his party of five men in two bark canoes, came across an English corvette of ten guns, commanded by William Lewis Bond. The English ship was anchored in a bend of the river, about 25 leagues above its mouth, awaiting favorable winds to go further upstream. Although heavily outnumbered, Bienville "sent two men to tell him [Bond] to immediately leave the country, which was in the possession of the king [Louis XIV], and that, if he did not leave, he would force him to, by calling up nonexistent reinforcements located downstream. The English captain believed Bienville's bluff and abandoned the river (McWilliams 1981:107).

The bend in the river where this incident took place has been known ever since as English Turn, or, as the French called it, "Detour aux Anglais." It is located at the lower end of the project area, and the present-day Orleans-Plaquemines Parish line lies within the bend.

Although there was much French activity along the Mississippi during the next few years, permanent settlement did not occur until 1718. In that year, Bienville established New Orleans on the east bank at the portage between the Mississippi and Bayou St. John, which flowed into Lake Pontchartrain. As part of the greater settlement, Bienville included the right, or west bank lands. Thus, initial development of the upriver portion of the project area dates from the founding of New Orleans.

Between La Salle's voyage in 1682 and the founding of New Orleans in 1718, there is no documentary evidence

for aboriginal occupation within the project area. However, the Tchouachas, a Muskhogean tribe whose name means either "raccoon" or "opossum," lived on both sides of the Mississippi below English Turn. De la Tour's undated map, The Course of the Mississippi River from the Bayagoulas to the Sea, shows the approximate location of this Tchouacha settlement (Figure 12).

By 1722, the Tchouachas had moved further south to a location near present-day Bertrandville, on the east bank of the river. This settlement was abandoned by 1765. According to Giardino (1984b), the last clear evidence of Tchouacha habitation in the New Orleans area is in 1758. Sometime later, they amalgamated with Chitimachan tribes in south-central Louisiana (Giardino 1984b: 251-252).

Agriculture in the Project Area

Initial Settlement of the Study Area. In 1717, one year before the founding of New Orleans, John Law's Company of the West acquired Louisiana from the French Crown. The Company of the West intended to develop the agricultural potential of Louisiana by granting liberal land concessions to wealthy French citizens who were willing to establish plantations. These concessions generally took the form of large, rectilinear lots that ran from the riverfront to unusable swamp land. Between 1717 and 1731, when the Company of the West retroceded the colony to the crown, the company granted most of its larger concessions on both banks of the river in the vicinity of New Orleans. Thus, agriculture played a large role in the earliest history of the Algiers area (Scrattish 198 4).

Directly across the river from the present-day Vieux Carre was a tract of land owned by the Crown. Called the King's Plantation, it formed "a triangle at a point on the river," which became known as Algiers Point. This plantation was supervised by Le Page du Pratz, the earliest historian of Louisiana. Bienville was granted a concession measuring 133 arpents, 7 perches front, adjacent to the downriver boundary of the King's Plantation (Cruzat 1927:372-374). Bienville's grant extended for nearly half the distance to English Turn, and included much of the present study area. A map from 1723, entitled Carte Particuliere du Fleuve St. Louis, Nouvelle Orleans (Figure 13), shows Bienville's concession, on which structural improvements are figured. The grant was subdivided by the mid-1730s, at which time the various resulting tracts were owned by

Figure 12. Excerpt from De la Tour's (undated) The Course of the Mississippi River from the Bayagoulas to the Sea (Map Division, Library of Congress).

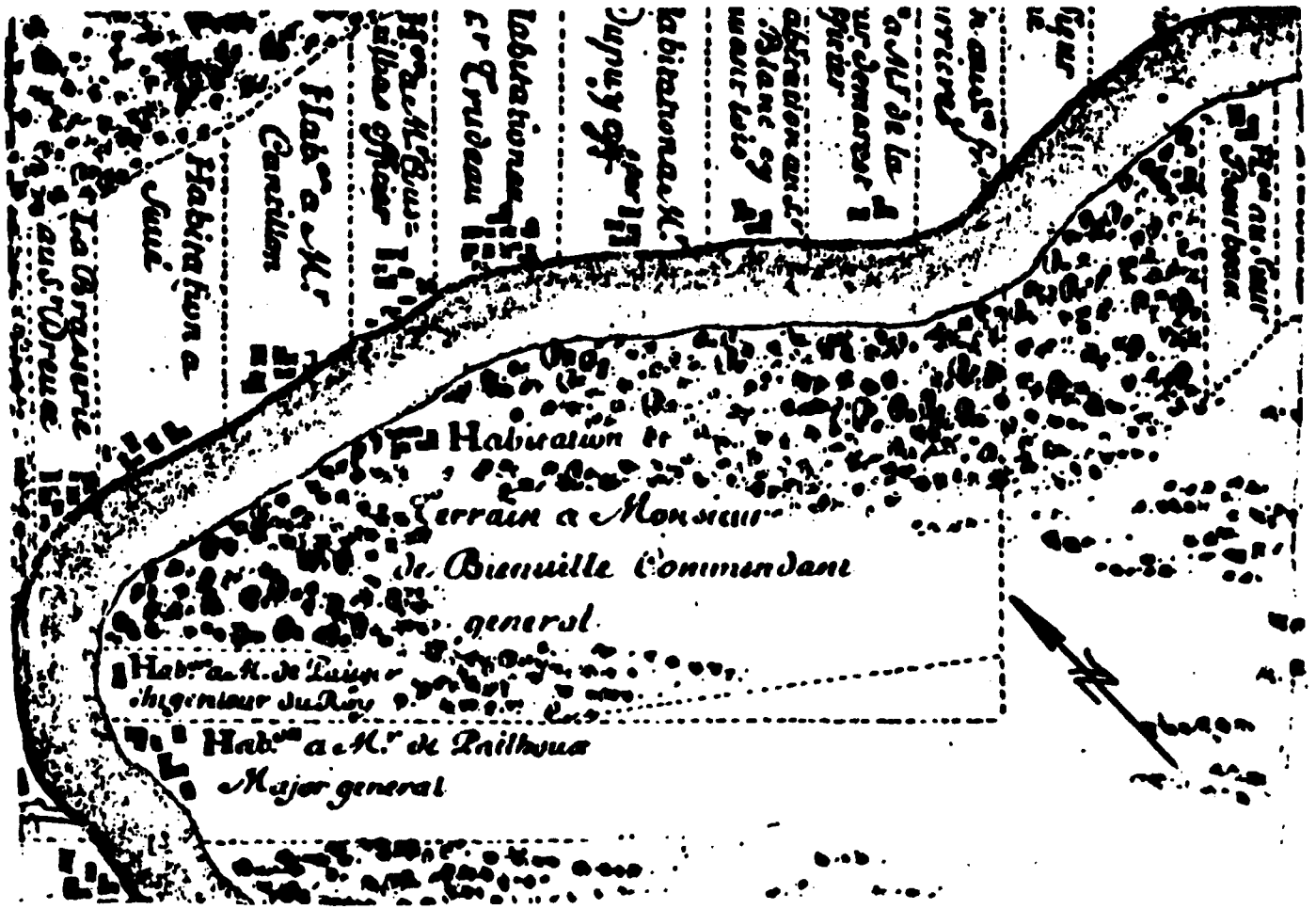


Figure 13. Detail of the Carte Particuliere du Fleuve St. Louis (ca. 1723) showing Bienville's concession (Edward E. Ayer Collection, Newberry Library, Chicago). No scale available.

eleven different men. Bienville himself retained one parcel (Maduell 1972:144).

A man named Raguet acquired a portion of Bienville's concession. This parcel was the third farthest downriver of the subdivided tracts (Figure 14). The site of this particular tract can be pinpointed with accuracy. A sawmill canal called the Raguet Canal was located on the property. It is possible that surviving traces of the canal can be seen on the downriver side of present-day Westchester Street (Swanson 1985:130-131 and personal communication 1988).

The Carte Particuliere (Figure 15) also shows that nine separate concessions were located downstream from Bienville's original west bank grant. These concessions make up the greater portion of three of the great plantations on the Lower Coast--Stanton, Delacroix, and Beka.

Five of the tracts on the 1723 map were located on what became Stanton Plantation, the farthest upstream of the three plantations. Sieur Bourbeau owned the uppermost tract, where he had erected structural improvements (Figure 15). He also owned an unimproved tract further downstream. Between his two parcels were the plantations of Messrs. Plaisance and La Violette. Sieur Massy's concession was located below Bourbeau's downstream property. The Carte Particuliere shows structural improvements on the concessions of Massy, Plaisance and La Violette (Figure 15).

The next three downstream tracts were located on what would become the Delacroix Plantation. Structural improvements are shown only on the lowest section, owned by Sieur Caussy (Figure 15). The other two were owned by Messrs. Jean Hebert and Bonneau. Bonneau may be the individual of the same name who is referred to in a census of 1721 as the captain of the Company's ship (Maduell 1972:21). The tract furthest downstream of the nine, owned by Sieur Bigot, was located on the uppermost reaches of what would become Beka plantation. No structural improvements are shown for this parcel on the Carte Particuliere (Figure 15).

By the mid-1730s, most of these tracts had already changed hands. Only Plaisance and Caussy retained possession of their lands. Bourbot's upper tract had been purchased by Trudot and Dalcourt, while his lower tract had been bought by Demoriere. La Violette's section was divided between Baulne and Fazende. Massy's

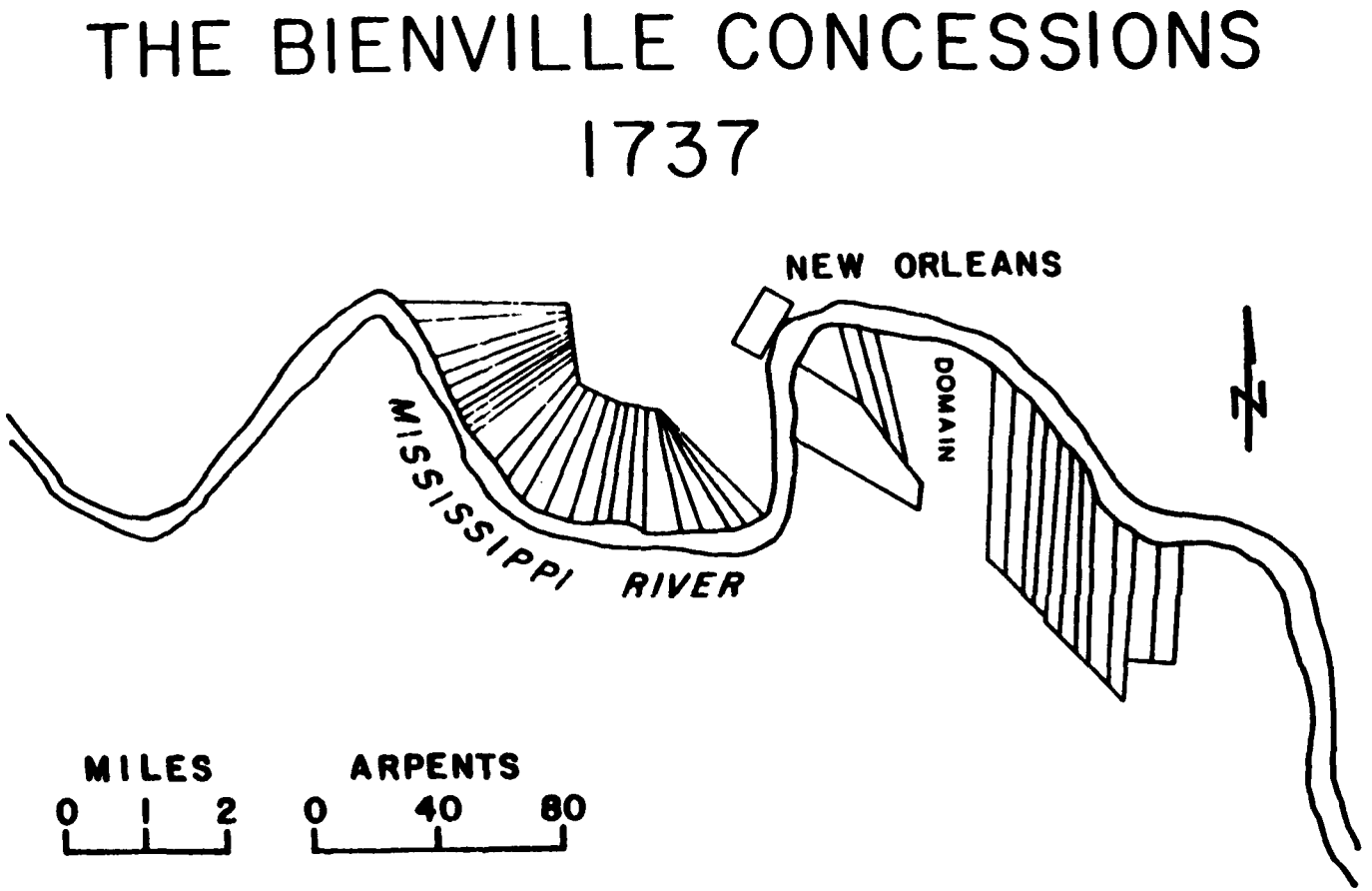


Figure 14. Map showing Bienville's concessions in 1737 (redrawn from Cruzat 1927:8).

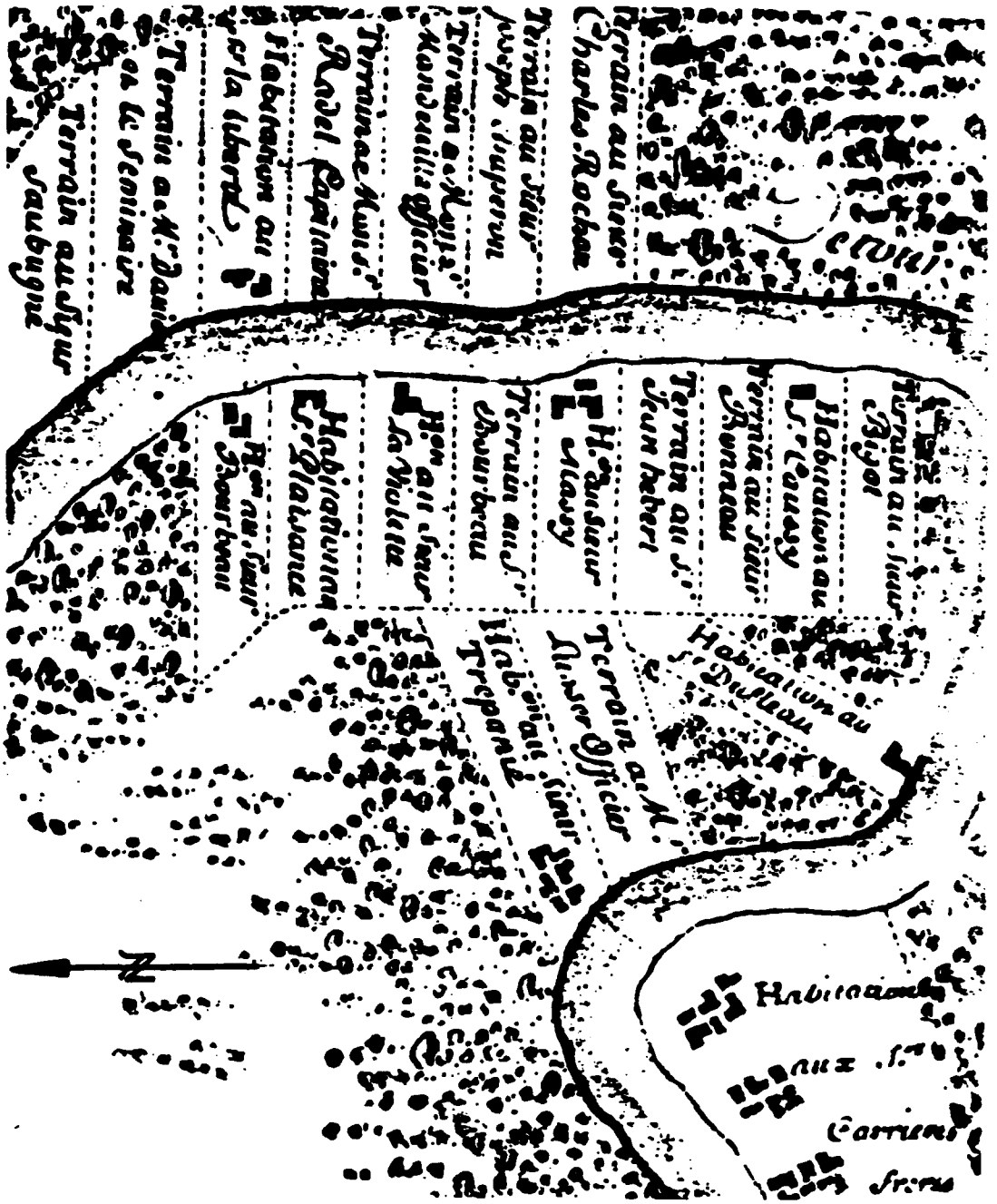


Figure 15. Detail of the Carte Particuliere du Fleuve St. Louis (ca. 1723) showing concession on the Lower Coast (Edward E. Ayer Collection, Newberry Library, Chicago). No scale available.

land was purchased by Pellerin. Hebert's tract had been obtained by Chaperon, Bonneau's by Barre, and Bigot's by Fleurie. These divisions, and the division of Bienville's original west bank concession, resulted in 21 separate tracts on the right bank within the study area by the mid-1730s (Maduell 1972:142).

The Production of Indigo. Since the above-discussed lands were located so close to New Orleans, many of them were used for food and cattle production for sale in the city markets. Tobacco was also grown in an attempt to find a cash crop, but, for the most part, this proved to be a failure. However, it was soon discovered that the cultivation of indigo was profitable. Used as a blue dye, wild indigo had been gathered as early as 1709 in Louisiana and on the Gulf Coast, but cultivation did not begin until the 1720s. One of the first concessionaires to raise indigo was Sieur Massy, who owned the lowest tract of land on what would become Stanton Plantation. On September 10, 1723, M. de la Chaise informed the directors of the Company of the West that he was prepared to send a box of excellent indigo samples, which had been produced by Sieur Massy (Holmes 1972:331-332).

The cultivation of indigo is labor-intensive. The shortage of black slaves in the early years of Louisiana hindered indigo production. As early as 1723, the colony's council was informing the Company that the only way to "hasten its [indigo] production [is] by the prompt dispatch of negroes" (Holmes 1972:331). In October 1726, 134 colonists, including Messrs. Massy, Plaisance, and Chaperon, petitioned the Company for black slaves (Maduell 1972:77-79).

The Company responded, and by 1731 slaves outnumbered whites three to one on the banks of the Mississippi. According to the census of that year there were 1095 whites, 3348 negro slaves, and 47 Indian slaves (Maduell 1972:113). It is possible that the influx of slaves and the switch to indigo production caused the high rate of turnover of land in the study area during the early French Colonial Period.

The production of indigo boomed with a sufficient number of slaves in the colony. By 1738, fifteen planters near New Orleans produced about 70,000 pounds of indigo. By 1746, Louisiana was producing more than 200,000 pounds annually (Holmes 1972:334-335). The cultivation of indigo continued after the transfer of

Louisiana to Spain in 1763, and it lasted until the acquisition of Louisiana by the United States in 1803.

A 1770 list of farms below New Orleans on both sides of the Mississippi shows that 18,500 units of undefined size of indigo were being produced annually. It was the major crop of the region, for only 1909 units of rice, 2068 of corn, and 3000 of sugar were produced. The population of the area stood at 429 whites, 22 freed mulattoes, 36 freedmen, and 1605 slaves at this date. Between 20 and 23 individual farms stood on the right bank within the study area, and nearly all of them possessed slaves. It should be noted that few of the families who owned land in the area during the French Colonial Period (1699-1763) persisted into the Spanish Colonial Period. Raguet and Barre are the only names that show up on both the 1770 census and the one taken in the 1730s (Voorhies 1973:250).

Land in the study area was being used to raise livestock as well as indigo. The 1770 list shows that there were 2125 young heifers and bulls, 934 milk cows, 188 oxen, 466 hogs, 1660 sheep, and 305 horses. Obviously, much of this livestock production was to supply the New Orleans market (Voorhies 1973:250).

By the 1790s, indigo production in Louisiana had declined for several reasons. One cause for decline was competition from other sources, such as Asia, Mexico, and Guatemala. This competition dramatically lowered the price of indigo. Other reasons were soil exhaustion, insects, and blights. By 1800, only a single ship left New Orleans to carry indigo to a market beyond Louisiana (Holmes 1972:347-49).

The Rise of Sugar Agriculture and Land Ownership During the Early Nineteenth Century. By the 1790s, the indigo planters of Louisiana were in need of a new cash crop. In 1795, Etienne de Bore imported a skilled sugar maker from Santo Domingo and built a modern sugar mill, possibly located on the site of the present-day campus of Tulane University. He sold his crop for twelve thousand dollars, realizing a five thousand dollar profit. De Bore proved that Louisiana planters could successfully cultivate sugar for commercial purposes. The 1793 slave rebellion in the French colony of Saint Domingue (Haiti) had destroyed the economy of the world's largest sugar producing island and opened up the market to other locales including Louisiana, Brazil, and Cuba. Throughout southern Louisiana, including the west

bank south of New Orleans, the result was a switch from indigo cultivation to sugar cane (Boles 1984:62).

Even more than indigo, sugar is a labor-intensive crop. A large capital outlay is necessary to begin operations. In 1795, the cost of a single-horse driven mill was between two and three thousand dollars. A boiler cost three hundred dollars, and a skilled sugar maker demanded at least fifteen hundred dollars a year salary. A large slave population was also necessary (Sitterson 1953:10). Within the sugar-producing region, small farmers who could not afford the transition to sugar sold out to the larger interests. In this way, much of the property below New Orleans was consolidated into huge sugar plantations.

The transition from indigo to sugar, however, was a gradual one. A.L. Latour's 1815 Map Shewing (sic) the Landing of the British Army (Figure 16), shows that by 1815 there were only 15 farms located within the study area. Close examination of the evidence, however, demonstrates that all had not yet become sugar plantations.

The uppermost plantation in the study area, formerly part of Bienville's concession, now was owned by Jean-Baptise Bienvenu. Bienvenu had acquired this plantation from Jacques Voisin in 1776 ("Furcy Verret," Sidney Louis Villere Papers, The Historic New Orleans Collection). His daughter, Alix, was married to the "Father of Algiers," Barthelemy Duverje (see below).

Latour's map shows a canal located on Bienvenu's property (Figure 16). This is the Verret Canal. Family papers suggest that Duverje's nephew, Furcy Verret, began the canal in 1814. They state that in 1817, in conjunction with his uncle, Verret had purchased the property from Bienvenu, Duverje's father-in-law. Prior to 1819, the Verret Canal was only an irrigation ditch, used to drain water f om the fields and thereby facilitate the cultivation of sugar. After 1819, it was deepened to facilitate travel from the Mississippi River to Bayou Barataria. By the 1820's, a square brick redoubt containing a small powder magazine and a 24-pound cannon stood at the head of the canal ("Furcy Verret," Sidney Louis Villere Papers, The Historic New Orleans Collection). The family account that provides this information is contradicted by map evidence which illustrates the canal excavated to Bayou Barataria at least as early as 1809 (Hugh Pedesclaux, April 8, 1834, New Orleans Notarial Archives, hereafter NONA).

Figure 16. Excerpt from La Tour's (1815) Map Shewing (sic) the Landing of the British Army (Louisiana Collection, Tulane University Library).

The Macarty Plantation was located downriver from Bienvenu's holdings (Figure 16). It is unclear whether the Macartys produced sugar on the property at this date. However, the size of the property and the wealth of the Macarty family suggest that they probably were doing so.

Jacques Hubert Boisgervais owned a parcel with eight arpents front, downriver from the Macarty Plantation (Figure 16). Its boundaries were from present-day Tita Street to Wiltz Lane. Claims for damages suffered during the Battle of New Orleans shed light on the activities of Boisgervais and other landowners during this period. During the battle, a fortified line was built on Boisgervais' sawmill canal by the Americans, who found it necessary to burn his mill. In Boisgervais' petition to the United States government for damages totalling $5,254, he only mentions his sawmill, and makes no claim for damages done to his sugar crop. Thus, it seems that Boisgervais was involved in the cypress lumber industry (Swanson 1985:141).

The production of cypress lumber in Louisiana had increased slowly during the colonial period. By the late 1730s, cypress boards were being sent to the French West Indies for the assembly of houses. Needing water to power the sawmills, as well as to provide an easy method of transporting the lumber, the French dug canals from the swamp to their mills (Mancil 1972:71-72).

The health of this industry fluctuated during the eighteenth century. With the transfer of Louisiana to Spain in 1762, the lumber producers lost their French West Indies market. In 1770, however, all of Spanish America was opened to trade with Louisiana. The 1770 census mentions that there were 4000 planks of wood within the census area. A short while thereafter, the French West Indies were re-opened to trade. The lumber boom came in the 1790s, when Louisiana was granted a monopoly by Spain for the making of sugar boxes. This led to an increase in lumbering activities, and there were at least 30 sawmills producing lumber for sugar boxes in 1800. Thus, it seems that for a time, there was an option for small landholders like Boisgervais, who might otherwise have been squeezed out by the sugar producers (Mancil 1972:71-72).

Map evidence indicates that by 1815, Jean Pierre Cazelar owned a large plantation just below Boisgervais

(Figure 16). It had 21 arpents frontage and stretched from present-day Wiltz Lane to River Oaks Drive. The Cazelars were listed in the 1770 census. In that year, their farm consisted of 18 arpents front on the river, and they owned 33 slaves, 61 head of cattle, 49 sheep, and 13 hogs. The Cazelar holdings in 1770 were among the largest in the area (Voorhies 1973:250).

Cazelar's sawmill and bridge over his canal, valued at $6,000, were burned by the Americans during the War of 1812. It is unclear whether he was producing sugar at that date, but again, the size of his holding suggests that he was. When Cazelar died in 1836, he left his heirs a sugar house with two sets of boilers, a purgery, a steam engine, Negro huts, and two hundred arpents planted in sugar cane (Swanson 1985:139).

Below the Cazelar Plantation was the eleven arpent front parcel of Dr. William Flood (Figure 17). It was located approximately between the present-day streets of River Oaks Drive and Ellen Park Place. Flood, like Boisgervais, seems to have engaged solely in the cypress lumber business. His house and sawmill were burned by both the Americans and the British. Flood's sawmill canal was probably located in the vicinity of present-day Huntlee Drive (Swanson 1985:138).

Below Flood's property, the Jourdan Plantation stretched for 25 arpents, 17 toises front between present-day Ellen Park Place and Simpson Place (Figure 17). Raguet's Canal was located at the lower end of the property, while the Jourdan Canal was at the upper extreme. It was already a sugar plantation when Barthelemy Jourdan purchased it in 1809, along with 30 slaves. He bought the property for the verbally-formed association of Jourdan Freres, consisting of himself, his brother Pierre, and Rosailie Jourdan, wife of Manuel de Hoa (Swanson 1985:128).

Production on the Jourdan Plantation was diversified. The Jourdan claim stated that they had lost, in addition to their house, "a sugar house mill, a saw mill, a sugar refinery, a rice mill...two fowl houses, two pigeon houses, [and] ten double negro houses." Total property loss was valued at $26,789. Also destroyed were "a crop of sugar and molasses in store when burnt, farming utensils, etc." valued at $8,979. Following the war, they rebuilt their house, the Aurora Mansion (Swanson 1985:129).

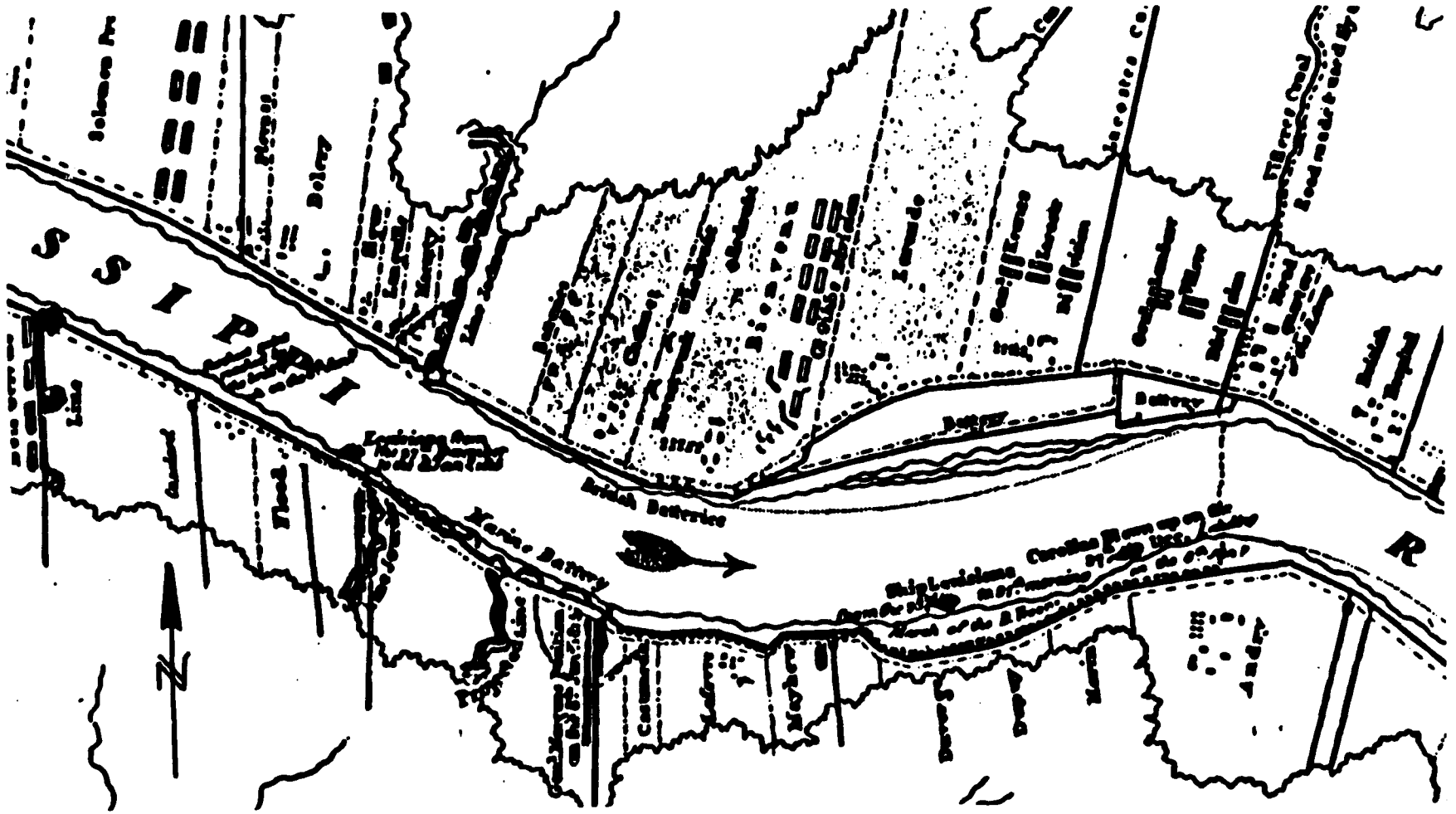


Figure 17. Detail of La Tour's (1815) Map Shewing (sic) the Landing of the British Army (Louisiana Collection, Tulane University Library). No scale available.

Below the Jourdan Plantations were two relatively small truck farms (Figure 17). John Castanedo owned a two arpent farm between Simpson and Casmire streets. Castanedo applied to the government for the cost of a fence, "damage done to his house used as a hospital," as well as "garden stuff, hay, wood, etc." to the total amount of $2,924. The Lefevre holding was below the Castanedo farm between present-day Casmire and Bennett streets, and had a frontage of about 11 arpents. Monsieur Lefevere, a gardener, petitioned the United States government for $1,657 worth of "garden stuff, poultry, etc." consumed by American troops (Swanson 1985:127).

Downstream from Lefevre was another lumber plantation, owned by Thaddeus Mayhew (Figure 17). It had a frontage of 10 arpents, 22 toises, 3 feet and was bounded by present-day Bennett and Edwards streets. Included in Mayhew's claim was his sawmill, bridge and lumber. One of the first encounters between the British and American forces took place on his sawmill canal (Swanson 1985:126).

The next three tracts were owned respectively by Barthelemy Duverje, Dupuy, and Morin. These parcels were very narrow and seem to have been uninhabited (Figure 17).

Below these, stood three of the great sugar plantations of the Lower Coast. The uprivermost of these belonged to Manuel Andry (Figure 17). In 1811, Andry had purchased "une habitation dans sucre," consisting of thirty-five and a half arpents front on the river from Jean Macarty (Pierre Pedesclaux, April 3, 1811, NONA). Eventually this plantation would become known as the Stanton Plantation.

Below Andry's property stood the huge plantation of Le Chevalier Dusuau Delacroix, consisting of fifty-six arpents front on the river. Extensive structural improvements shown on the Latour map (Figure 16) include a large quarters complex, which suggests a substantial slave population. This, as well as the large size of the plantation, indicates that sugar cultivation was well under way by 1815.

The third great plantation of the Lower Coast, Beka, was immediately downstream from the Delacroix Plantation (Figure 16). In 1815, it was one of the many holdings of Barthelemy Duverje. As noted above, Duverje was known as "the father of Algiers." In 1805, he had

acquired the triangle of land known as the King's Plantation. This triangle eventually became the heart of present-day Algiers (Dixon 1971:1-2).

Beka Plantation stretched around English Bend for thirty-seven arpents fourteen toises. Its lower boundary was the Orleans-Plaquemines Parish line. The name "Beka," was an abbreviation of the French word, "beccasine," whose English translation means "snipe," a bird which thrived in the marshes near Beka.

Although Duverje maintained his home at Algiers Point, sugar was probably being cultivated at Beka on an absentee basis prior to the War of 1812. Upon his death in 1820, structural improvements at Beka included a two-story, eight room brick house. A wooden kitchen, thirty feet by fifteen feet, stood near the house, and ten "negro cabins" housed thirty slaves. In addition to a sugar refinery and storehouses, there were also thirty-one horses, six ponies, sixty horned cattle, nine mules, and five pair of oxen (Hugues LaVergne, January 12, 1821, NONA).

Thus, by 1815, the transition to sugar was still taking place within the study area. Only seven of fifteen farms in this portion of the west bank were raising sugar. Three men engaged solely in the cypress lumber industry, while two of the sugar planters also had lumber mills. Truck farming was the pursuit of two of the landowners, and three of the tracts seem to have been empty. It was during the period following the War of 1812 that the transition to sugar was made complete.

The Battle of New Orleans. The Battle of New Orleans, in which General Andrew Jackson and the Americans defeated the British invading force under General Henry Pakenham, was the last action of the War of 1812. In addition to the engagement that occurred in Chalmette on January 8, 1815, fighting also took place on the west bank within parts of the study area. The results of the west bank engagements were almost the exact opposite of those on the east bank.

In preparing his defense of New Orleans, General Jackson had sent military units to practically all adjoining areas in an attempt to ring the city with troops. On December 26, 1814, General David B. Morgan, a native of Massachusetts who had come to Louisiana in 1803, was ordered to take up a position on the west bank directly opposite Jackson's line behind the Rodriguez Canal (Dixon 1971:39).

Deciding the suggested ground was too narrow, the general chose to establish the Morgan Line near the lower boundary of the Jourdan Plantation, on the old Raguet Canal (Figure 17). The canal stretched for 6000 feet over an open plain before entering the backswamp. Morgan's breastwork was erected January 2-7, and extended only 600 feet along the canal. Thus, about 1800 yards of Morgan's right flank was without any other defense than the Raguet Canal (Swanson 1985:130-131).

In addition to General Morgan, Commander Daniel T. Patterson had positioned a marine battery in an old lime kiln on the west bank, slightly downstream from Jackson's lines on the east bank. It had six 12-pounder cannons and three 24-pounder cannons, and was designed to fire upon the left flank of the British east bank forces. Two ships, the Carolina and the Louisiana also fired from the river onto the British encampment on the east bank. From December 23-27, the Louisiana anchored in the river near the Duverje and Dupuy holdings (Figure 17). After the Carolina was sunk by the British on December 27, Patterson had the Louisiana moved upstream to a position near the Jourdan Canal (Dixon 1971:39).

Because the Americans maintained a flanking position on the west bank, British General Pakenham ordered it to be taken in conjunction with his attack on Jackson's forces on the east bank, scheduled for January 8. Lieutenant Colonel William B. Thornton was ordered to lead 1200 men across the river on the night of January 7. The plans called for Thornton's forces to land before midnight on the opposite shore, to storm Morgan's and Patterson's lines during the night, and then to train the captured guns on the flank of Jackson's army. When he saw Pakenham's rocket signalling the beginning of the attack the next morning, Thornton was to open fire on the Americans (Brown 1969:152).

Thornton's departure was delayed for seven or eight hours because of a collapse of the Villere Canal, which was being deepened to allow the transport of men and supplies from the British fleet in Lake Borgne to the Mississippi River. Only a third of the requisite number of boats reached Thornton, so he set off across the river with a total strength of only about 560 men. The current of the river carried Thornton's boats a considerable distance downstream from the landing point he had selected. At dawn, just as his forces were

getting ashore, he saw Pakenham's rocket (Brown 1969:152).

The British came ashore on the Andry Plantation, downstream from the house and other buildings (Figure 17). They marched back upriver past the complex, leaving it undisturbed. Three boats carrying carronades and cannons kept abreast of Thornton in the stream. After a half-hour's progress, the British met an advance party of Americans, commanded by Major Jean Arnaud (Brown 1969:152).

Morgan had a total strength of about 888 men on the west bank, including 250 Kentuckians under Colonel John Davis, who had joined him the previous night. Morgan had sent about 120 Louisiana militia, under Major Felix Arnaud, forward during the afternoon of January 7, to prevent any British landing. Of these, 15 were unarmed and the rest had only fowling pieces. They took up a line along a canal about 3 miles below Morgan's main position (Brown 1969:152-154). This was located on the Morin property, just upstream from Andry's holdings (Swanson 1985:126).

Arnaud's men had fallen asleep, leaving only one sentinel on guard. Thornton's force awoke the Louisiana militia with a shower of grape shot from one of their cannons. Immediately, Arnaud's force retreated (Dixon 1971:40). They were met by the Kentuckians, who, although exhausted from their night march, had been ordered by Morgan to reinforce Arnaud immediately. The two detachments took up a new outpost along a sawmill canal on the Mayhew Plantation (Figure 17), with the Kentuckians positioned on the left toward the river (Brown 1969 154).

There was a language barrier between the Kentuckians and the Louisiana creoles. Compounding that problem, neither Davis nor Arnaud was clearly in command. At the approach of the British, the Kentuckians opened fire and delivered several effective volleys. At that moment, however, one of Morgan's staff officers arrived and ordered a retreat to the Morgan line. The order was given in English to the Kentuckians and translated for the creoles as "sauve qui peut" (save yourselves). At that, Arnaud's detachment disappeared from the battlefield completely. Morgan later said that the only man from that battalion whom he ever saw again was its executive officer, who did put in an appearance late that afternoon (Brown 1969:154).

The Kentuckians fell back as ordered and were posted on the right of the Morgan Line, in the open space where the breastwork had not reached. They were deployed at intervals of 2 yards, but even then their right flank was exposed because there were not enough men to extend the line into the swamp. Morgan, with about 350 men, was behind the breastwork (Brown 1969:154).

The British followed the Americans up through the Mayhew Plantation and halted about 700 yards from Morgan's Line, at the "house in the Orange Grove," probably the Lefevre mansion. Between the British and the Americans stood the plantation of John Castanedo (Figure 17).

Upon the arrival of the British on his front, Morgan's three cannons opened fire. However, Patterson's battery, located half a mile upstream, continued its attack on the enemy's east bank position and did not turn and fire upon Thornton. The British commander quickly perceived that the American right was completely vulnerable, and deployed his regular troops, with fixed bayonets, against the exposed flank of the line held by the few Kentuckians. Simultaneously, Thornton's naval battalion charged Morgan's breastworks, while his marines were held in reserve (Brown 1969:155).

The result was a complete rout of the Americans. The Kentuckians broke and fled before the British regulars had closed to within 100 yards of them (Brown 1969:155). Morgan, hoping to stop the wild retreat, shouted "Kentuckians! Remember your valor--your patriotism! Kentuckians! Your country has confidence in you! Is this how you requite it! Shame on you! Shame on you! You're not Kentuckians! You dastards! Shame on you! Kentuckians...Shame!" By this time, the Louisiana troops had joined the retreat. Morgan drew his sabre and rode out in front of his lines yelling, "follow me." No one responded, and as he turned to see if his men were following, he saw the Louisiana and Kentucky troops retreating even further. Realizing that his appeal was futile, he turned about and joined his forces as they moved back (Dixon 1971:41).

Even though Thornton was wounded in the engagement, the British continued to pursue the Americans under the command of Colonel Gubbins. Patterson, seeing the Americans pass him by in their retreat, ordered all his guns to be spiked before his naval gunners went aboard the Louisiana, stationed in the river (Brown 1969:155).

The Americans briefly rallied at the Jourdan Canal, which lay along present-day Ellen Park Place, but fled at the sight of the British. The British burned the Jourdan Plantation as they pursued the Americans and since some of the damage was caused by the U.S. troops, the Jourdan brothers were eventually awarded $28,043 for damages. Soon after the war, the Jourdans rebuilt their great house, and the plantation eventually came to be known as Aurora Plantation (Swanson 1985:128).

Morgan attempted to halt the retreat at the Flood Canal (Figure 17), which lay along the lower side of present-day River Oaks Drive. Dr. William Flood's house, sawmill and other outbuildings were burned, some by the Americans, some by the British (Swanson 1985:138).

The Cazelar Plantation was the next one upstream (Figure 17), and Cazelar's mill was burned, while his house was left untouched. The Americans continued their full-scale retreat until they reached the plantation of Jacques Hubert Boisgervais. A fortified line had been built here, at Jackson's orders, by Engineer Latour before the battle began. It was built over a sawmill canal near Boisgervais' downriver property line and was thus named the Boisgervais Line, between present-day Wiltz Lane and Michael Street. The earthworks stretched along the length of the canal and were erected by 150 black slaves in six days. It was formidable enough to cause the fleeing Americans to halt and form behind it (Swanson 1985:142).

The British pursued the Americans to the Boisgervais Line, but were ordered to halt when word reached them of the British disaster on the left bank. A short time later, Colonel Alexander Dickson, who had been sent to inspect the British situation on the right bank, ordered the troops to retire to their boats. After conferring with General John Lambert, who had taken command after the death of General Pakenham, the British troops were withdrawn (Brown 1969:156).

Luckily for the Americans, the disaster on the west bank had not been large enough to compensate for the full-scale defeat that General Jackson had inflicted upon the British at Chalmette. On January 18, 1815, the British wholly abandoned their futile attempt to capture New Orleans.

The Antebellum Era. It was in the years following the War of 1812 that the sugar planters consolidated their hold on the right bank below the Vieux Carre. With the price of sugar high and platoons of slaves available for labor, this would prove to be the most profitable period of all for the local agriculturalists.

On March 2, 1822, Dame Alix Bienvenu, Barthelemy Duverje's widow, sold one-sixth interest in Beka to her daughter Marie-Elizabeth's husband, Caliste Villere (Hugues LaVergne, March 2, 1822, NONA). Caliste Villere was the son of the first native-born governor of Louisiana, Jacques Phillipe Villere. The Villere family owned the Conseil Plantation on the east bank of the Mississippi River, which had served as the headquarters for the invading British Army in 1814. Caliste had been captured by the British, but was released to his father following their defeat. In a series of legal arrangements, Caliste was finally able to obtain full ownership of Beka on May 25, 1839 (COB 25, Folio 345, Orleans Parish). By this date, there were seventy-one slaves living on the plantation.

At the same time that Caliste was in the process of consolidating his hold on Beka, his brother Jules founded Magnolia Plantation immediately downriver. In turn, another brother, Felix, gained ownership of the Fort St. Leon Plantation just below Magnolia. Thus, the Villeres controlled three contiguous sugar plantations on the west bank of the Mississippi River at English Turn (Villere 1981:111-112).

The adjoining upriver plantation, Delacroix, also was held by a single family during the antebellum period. On November 29, 1831, in Paris, Le Chevalier Francois Dusuau Delacroix turned over his property to his children. The Delacroix Plantation hereafter was managed by two brothers, Gustave and Hypolite (COB 71, Folio 338, Orleans Parish).

Manuel Andry turned his property, located upriver from Delacroix, over to his son Michel in 1822. The property at this date included a house, sugar mill, and forty slaves (Pierre Pedesclaux, April 26, 1822, NONA). Michel Andry died in 1836, and the plantation was bequeathed to his brother, Hortaire (Octave de Armas, February 27, 1836, NONA). Hortaire immediately sold an interest in the plantation to Jean Baptiste Lepretre. Five years later, Lepretre acquired full control of the plantation. Included in his purchase were eighty-two slaves, one hundred head of cattle, horses, mules,

sheep, pigs, goats, and all the tools and utensils needed for the cultivation of sugar (Octave de Armas, February 27, 1836, NONA; Thomas Seghers, August 31, 1841, NONA).

Charles F. Zimpel's 1834 Topographical Map of New Orleans and its Vicinity best demonstrates the takeover by the sugar planters (viz. Goodwin et al. 1985: Vol. III). The number of farms in the study area had been reduced to fourteen. Soon after this, the number was reduced to twelve through the consolidation of the Fazende and Lacoste holdings. The latter became the Orleans Plantation, one of the five great plantations of the Lower Coast. The properties of Verret, Marigny, Cazelar, Jourdan, Fazende, Lacoste, Stanton, Delacroix, and Beka were clearly cultivating sugar. Only the farms owned by Ramos, Bernoudy, and Bosque appear to be too small for profitable cane cultivation.

As will be discussed in the following section, the upriver plantations of Verret, Marigny, and Cazelar each succumbed to the rapid urbanization which occurred during the 1840s. They were either purchased for the use of capitalists, or were subdivided into truck farms to supply the growing city.

The thirty years prior to the Civil War were the boom years for those plantations which continued sugar production: Aurora, Orleans, Fazende, Stanton, Delacroix, and Beka. Whereas Louisiana had only produced 9671 hogsheads of sugar in 1810 (each hogshead weighing 1000 pounds), by 1830 that figure had grown to 75,000 hogsheads. Throughout the 1850s, Louisiana averaged around 300,000 hogsheads per year. The banner year of antebellum sugar production was 1853. In that year, Louisiana produced 449,324 hogsheads of sugar, almost one fourth of the entire world's sugar harvest (Table 5). For the most part, prices remained high during the period, making sugar cane cultivation very profitable for the planters of Louisiana (Sitterson 1953:29-30).

By 1860, five large sugar plantations dominated the agriculture of the Lower Coast. They accounted for 62% of the improved acres of Orleans Parish, 80% of the value of farm implements, as well as 45% of the farm value of the parish. In addition, the five owners accounted for half the total number of slaveholders possessing more than 50 slaves in the parish. Aurora's owner, Gustave Bouligny, possessed 63 slaves. Thomas McGee, who owned Orleans, claimed 74 slaves. Lepretre

Table 5. Sugar Production (in Hogsheads) within the Study Area, 1849-1862 (Champomier 1849-1862).

	Aur*	Sta*	Del*	Bek*	OWB*	LA*
1849-50	190	151	225	390	1315	247,923
1850-51	190	204	113	280	996	211,203
1851-52	103	280	237	325	1080	236,547
1852-53	33	110	133	206	572	321,934
1853-54	370	410	378	700	2452	449,324
1854-55	225	330	280	338	1563	346,635
1855-56	387	270	300	170	1487	231,427
1856-57	96	35	60	80	401	73,976
1857-58	247	190	144	165	1061	279,697
1858-59	---	11	100	200	311	362,296
1859-60	260	225	182	330	1217	221,840
1860-61	480	287	146	135	1413	228,753
1861-62	350	440	300	250	1790	459,410

*Aurora (Aur), Stanton (Sta), Delacroix (Del), and Beka (Bek) Plantations plus totals for Orleans Parish West Bank (OWB) and the State of Louisiana (LA)

owned 106 slaves, Delacroix 94, and Villere 74 (Menn 1964:17, 303-304).

In the 1860 census, Lepretre's real and personal property is listed as being 400,000 dollars, Delacroix's as 200,000 dollars, and Villere's as 165,000 dollars. Obviously, sugar cultivation had proved to be very profitable for all three. In addition to raising sugar, each plantation also grew corn, peas, and potatoes to feed their slaves. The three plantations contained on the average, nine horses, thirty-six mules, 29 oxen, 17 milch cows, 68 sheep, and 29 pigs (Menn 1964:303-304).

The Impact of the Civil War on Sugar Plantations. By the time the Civil War broke out in April 1861, the sugar crop for that year had already been planted. Ironically, it turned out to be one of the best harvests ever for Louisiana sugar producers. Lepretre had his record yield for the year 1861-1862, producing 440 hogsheads of sugar. Delacroix and Aurora also had good years (Table 5). Unfortunately for the planters, by June 1861, the Union Navy had successfully effected a blockade of the mouth of the Mississippi River, and none of the sugar grown that year could be sold (Roland 1957:45-47).

The inability to sell their crop was only the first of a number of disasters which struck the sugar planters of Louisiana during the Civil War. In the spring of 1862, the Federal troops moved north from the mouth of the Mississippi and successfully captured New Orleans. On their way, they laid ruin to all the plantations they came across, stealing livestock and food, destroying fences, and ransacking the sugar mills.

The entire Mississippi River region lay in ruin. A Northern Army chaplain wrote in 1863 that "there is not a single planter in the department who has not personally suffered through this war." Historian Charles P. Roland described the region as containing "mansions empty and pillaged with idle sugarhouses falling rapidly into ruin. Cane fields were littered with rottenness. Desolation brooded over the plantation country" (Roland 1957:55-58).

As the Union troops moved through the area, slaves abandoned the plantations in large numbers. In the summer of 1862, it was reported that the slaves below New Orleans were growing increasingly restive and were wandering almost at will into the city. Both New Orleans and Algiers became the homes to tens of

thousands of African-American refugees (Roland 1957:93-96).

It was estimated in 1861, that the value of the Louisiana sugar industry stood at 200 million dollars. Four years later, the slaves were free, the sugarhouses were ruined or severely damaged, the livestock had been confiscated, and land prices were depreciated. The Louisiana sugar industry was worth hardly more than one-eighth of its pre-war value (Roland 1957:200).

Each owner of the five great plantations on the Lower Coast suffered the same fate during the Civil War. They were financially ruined and eventually lost their property. In 1865, when Gustave Delacroix died, he and his brother were fifty thousand dollars in debt. On March 9, 1866, Eugene Rochereau and Co., the brothers' sugar factors in Paris, arranged to take control of the plantation for five years in an attempt to keep the property in the Delacroix family. An inventory was taken of the property at that time, and it showed that the plantation great house was a two-story residence with a shingle roof and a gallery around the first and second floors. Almost everything else was found in "bad order," including the sugar house, the steam engine, the cotton gin, the stables, and the "negro cabins." The only animals left on the plantation were five oxen and ten mules (Succession of Gustave Dusuau Delacroix, March 9, 1866, Civil District Court, Orleans Parish, #26,688). Unfortunately, Rochereau and Company was not able to save the plantation for the Delacroix family, and in 1872, the company acquired full title to the land (A.D. Dinocourt, March 27, 1872, NONA).

The same fate befell Jean Baptiste Lepretre. Deprived of his slave labor, Lepretre found it hard to continue to operate the plantation. In 1869, Lepretre sold his plantation for 60,000 dollars, less than half its worth in 1860. The purchaser, Thomas P. Stanton, was the man who gave the plantation its ultimate name (Felix Grima, June 1, 1869, NONA).

Like others, the Villere family lost control of Beka. In addition to being deprived of his slave labor and stripped of livestock, Caliste saw three of his sons enter the war on the side of the Confederacy. Before the war was over, Caliste moved to New Orleans, where he died on December 24, 1865 (Sidney Louis Villere Papers, The Historic New Orleans Collection). Two years later, the Villere heirs sold the property to the firm of Blanchard and Giraud (J. Cuvillier, November 22, 1867,

NONA). The following year, a relative of Antoine Giraud, Pierre Victor Reaud, was sold a one-third interest in the property and entrusted with its management (COB 95, Folio 366, Orleans Parish).

Similarly, by 1870, McGee had lost Aurora Plantation to P.H. Morgan. Meanwhile, John Flathers obtained Orleans Plantation from Bouligny (Bouchereau 1870). The Civil War thus caused the wholesale destruction of the prosperous antebellum sugar industry of the Lower Coast. Within a few years following the end of the war, all five Lower Coast plantation owners--McGee, Bouligny, Lepretre, Delacroix, and Villere--had been forced to sell their plantations.

The Postbellum Era. Although the Civil War wreaked havoc on the Louisiana sugar industry, the Lower Coast continued to produce sugar for another half century, albeit with dramatic differences. The Mississippi River Commission Maps of 1873/74 (drafted in 1893/94) shows that Aurora, Orleans, Stanton, Delacroix, and Beka Plantations remained intact, while the land upriver from these five consisted of approximately twenty-five small farms (Figures 18-22).

At first, the sugar plantations were operated much as they had been before the Civil War. Although the planters attempted to utilize recent immigrants, including Chinese and Italians, as field hands, the labor force was largely composed of free blacks, who were now working for wages. The sugar plantations remained intact and, unlike cotton plantations to the north and east, were not farmed by the tenancy system. Each plantation also continued to operate its own sugar mill. Recovery was almost complete by 1878, when the 1000 sugar mills in Louisiana produced 213,221 hogsheads of sugar (Sitterson 1953:251).

The figures for four of the Lower Coast plantations reflect the resurgence in sugar cultivation (Table 6). By 1873, under new management, all four plantations had reached figures close to antebellum standards. Aurora produced 215 hogsheads of sugar, Stanton produced 300, Delacroix produced 176, and Beka produced 163. But despite improved yields, all four continued to lose money.

In 1875-76, Rochereau and Company gave up the cultivation of sugar on the Delacroix Plantation and began to grow rice. This reflected a trend that was occurring throughout much of south Louisiana. For

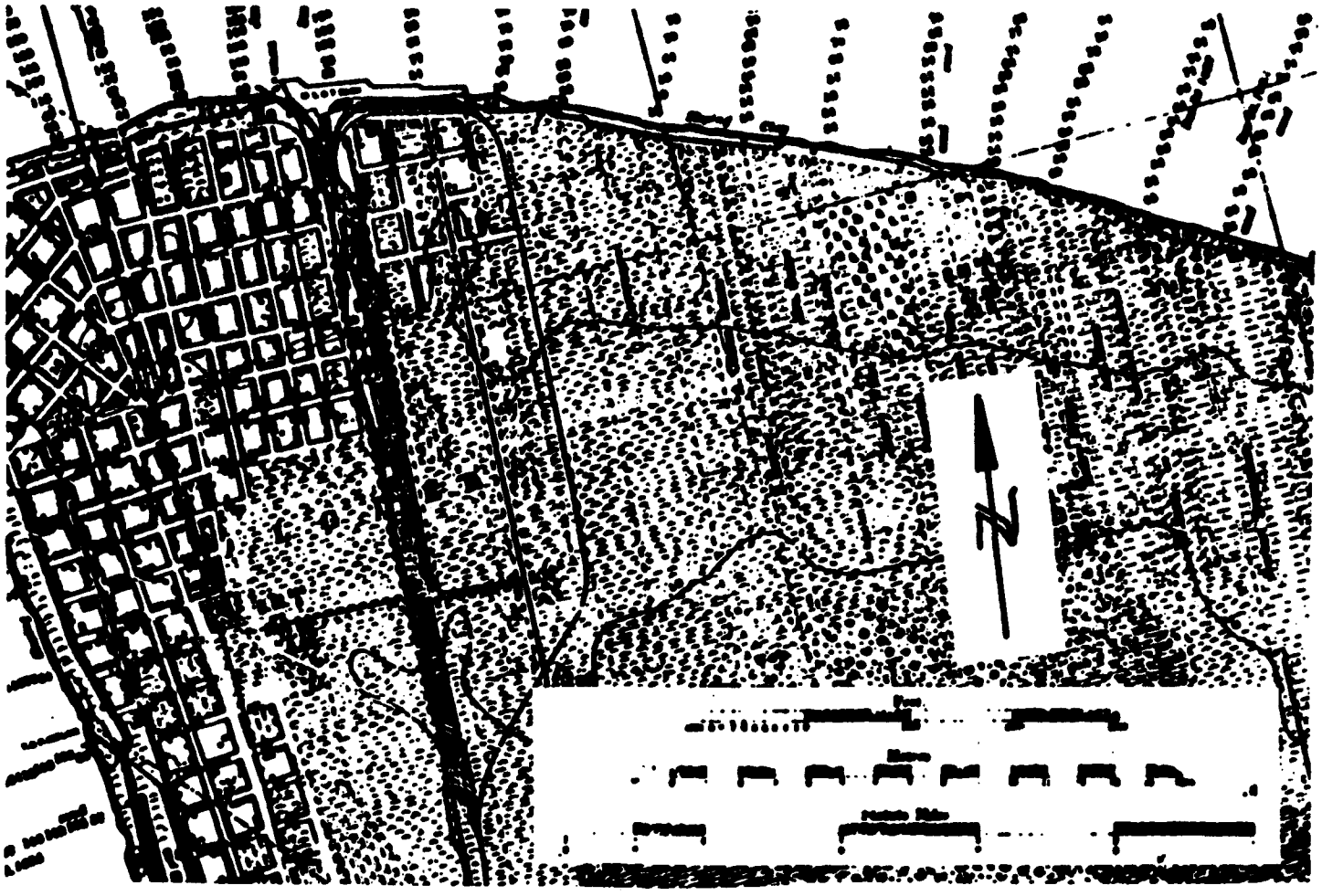


Figure 18. Excerpt from the 1874 Mississippi River Commission Map, Chart No. 76 (drafted in 1893).

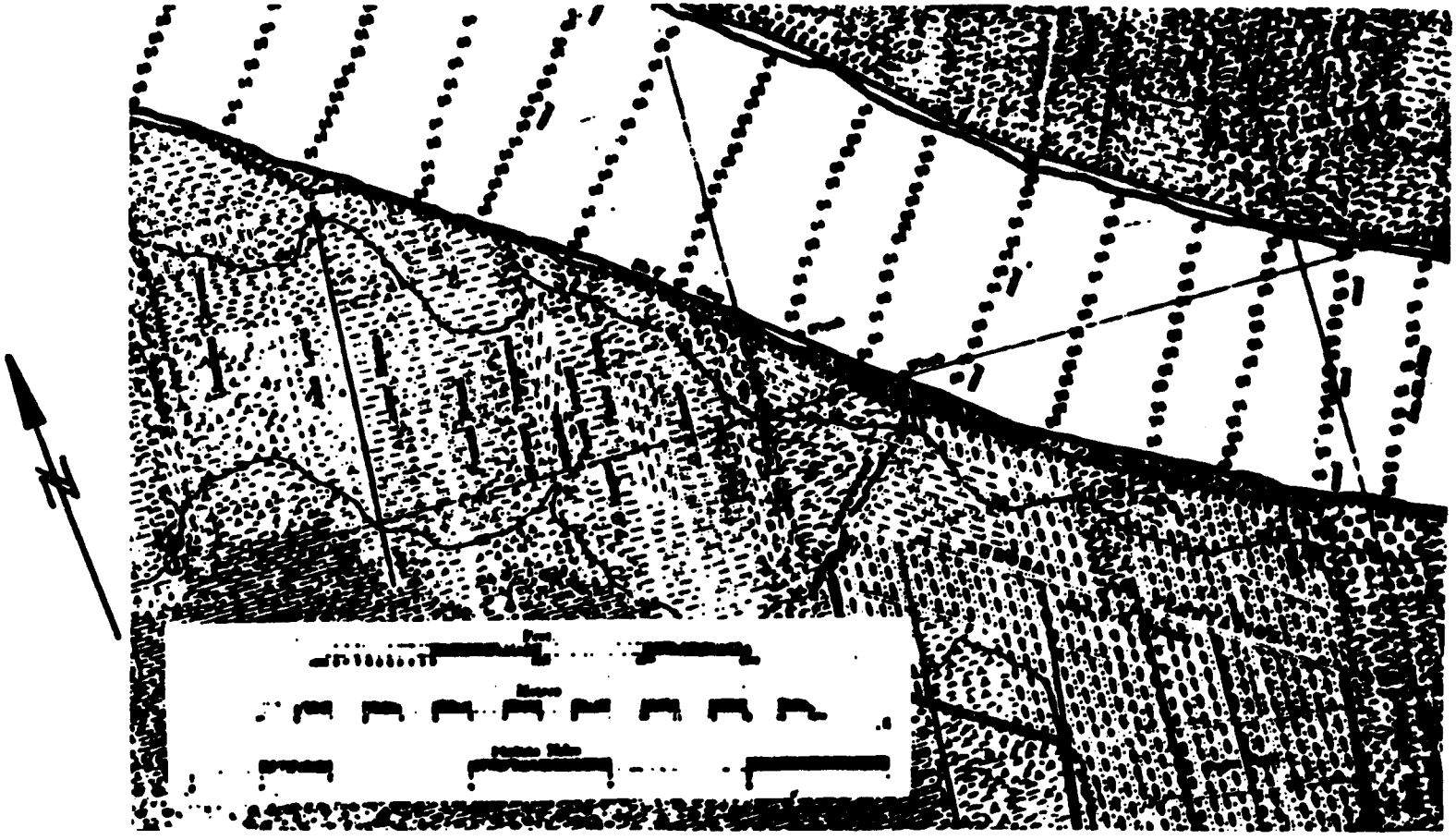


Figure 19. Excerpt from the 1874 Mississippi River Commission Map, Chart No. 76 (drafted in 1893).

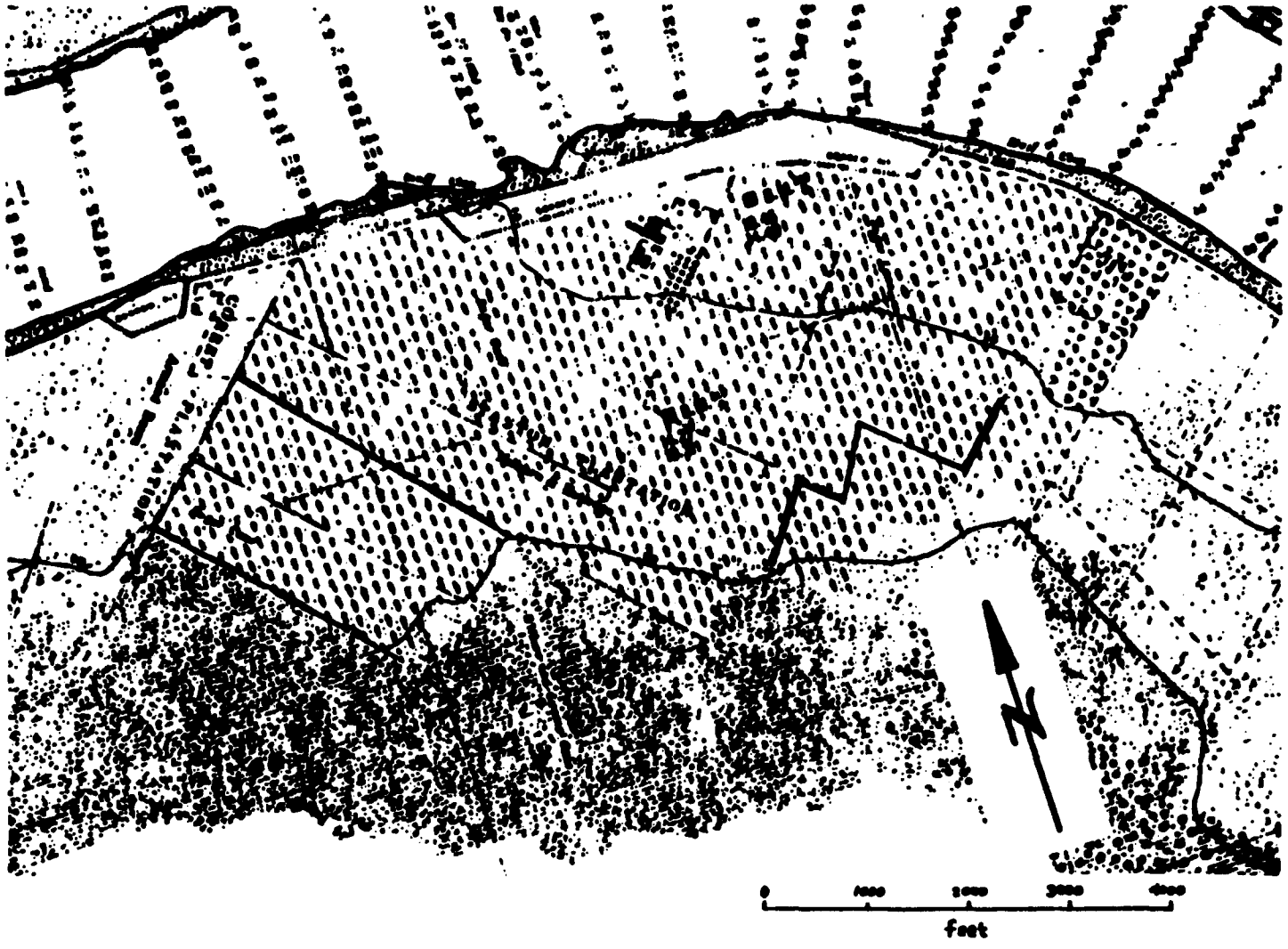


Figure 20. Excerpt from the 1873 Mississippi River Commission Map, Chart No. 77 (drafted in 1894).

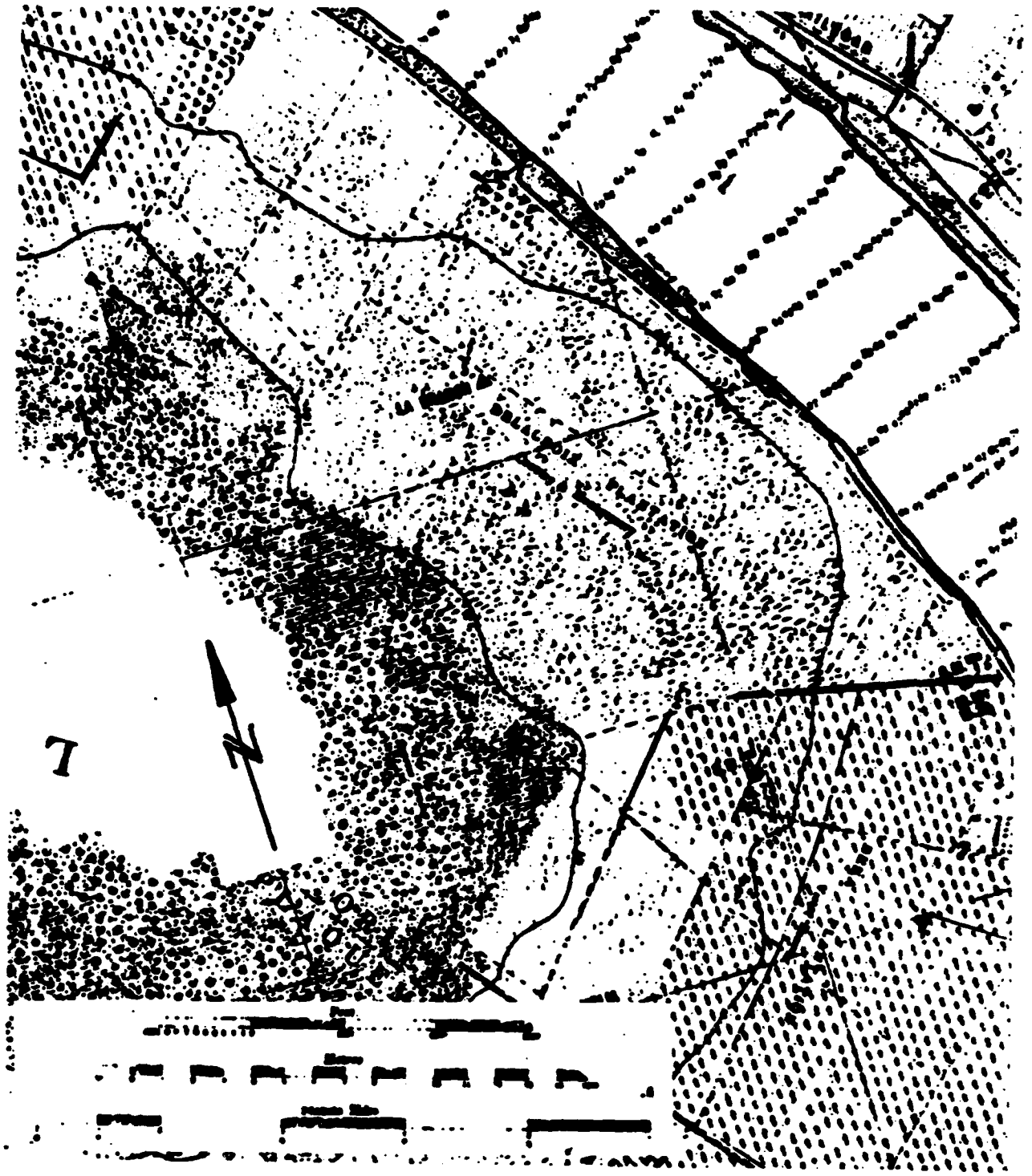


Figure 21. Excerpt from the 1873 Mississippi River Commission Map, Chart No. 77 (drafted in 1894).

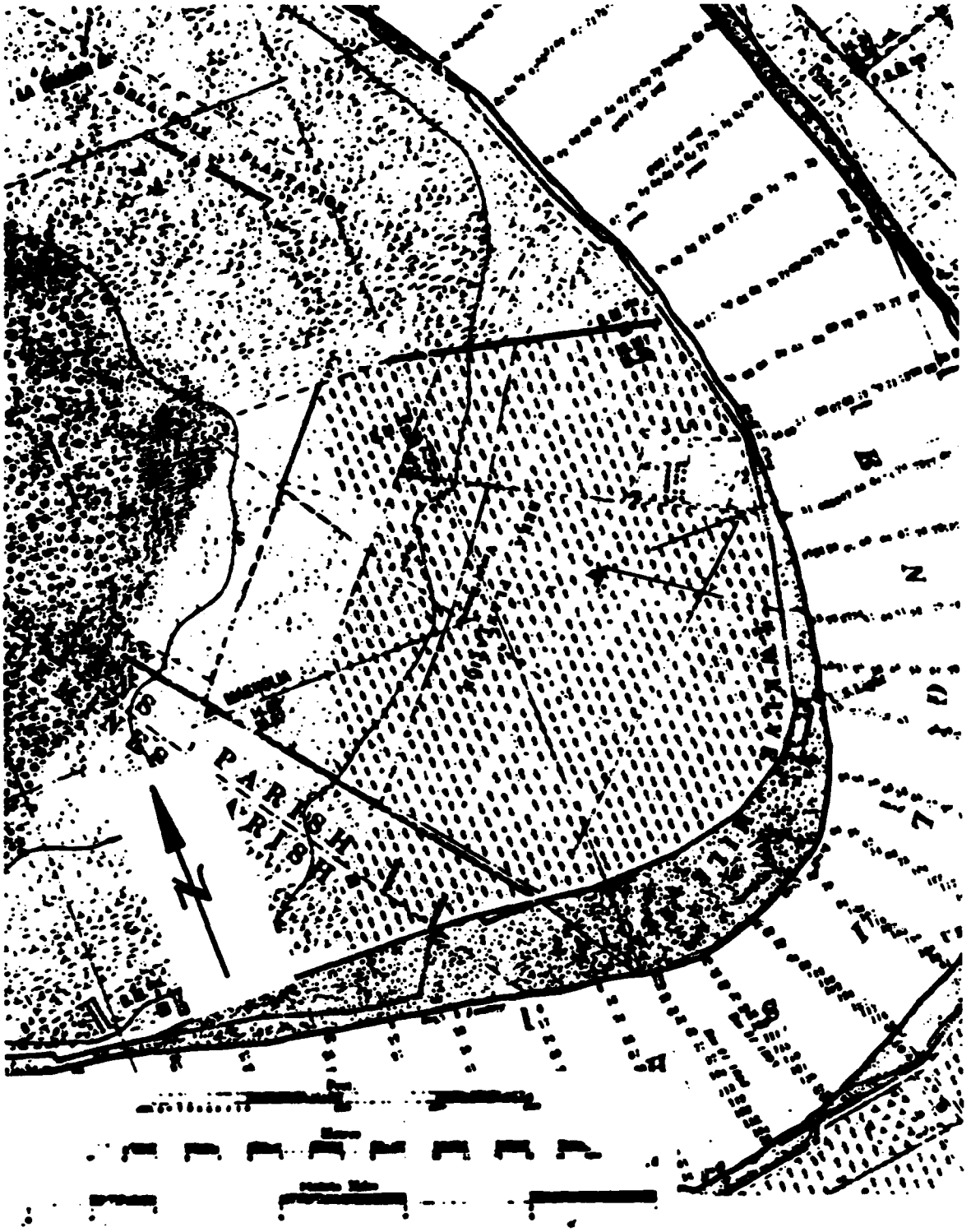


Figure 22. Excerpt from the 1873 Mississippi River Commission Map, Chart No. 77 (drafted in 1894).

Table 6. Sugar (in Hogsheads) and Rice (in Barrels) Production within the Study Area, 1868-1890 (Bouchereau 1868-1890).

	Aur*	Sta*	Del*	Bek*	OWB*	LA*
1868-69						
Sugar	209	---	233	128	711	84,256
Rice	---	---	---	---	1025	68,915
1869-1870						
Sugar	96	---	111	277	671	87,090
Rice	---	---	---	---	750	100,748
1870-71						
Sugar	107	100	288	373	n.a.	144,881
Rice	---	---	---	---	n.a.	49,971
1871-72						
Sugar	167	220	190	221	1056	128,461
Rice	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1872-73						
Sugar	215	300	176	163	1047	108,520
Rice	---	---	---	---	12	n.a.
1873-74						
Sugar	12	125	---	80	341	89,498
Rice	---	---	---	---	---	97,123
1874-75						
Sugar	92	250	---	228	867	116,867
Rice	---	---	---	---	130	104,963
1875-76						
Sugar	147	307	---	290	1024	144,146
Rice	---	---	3786	---	3949	169,264
1876-77						
Sugar	141	355	---	276	1112	169,851
Rice	---	---	2558	---	3119	176,826
1877-78						
Sugar	---	225	---	170	615	127,753
Rice	---	---	3000	---	3515	152,524
1878-79						
Sugar	---	306	---	328	859	213,221
Rice	---	---	3200	---	4651	159,097
1879-80						
Sugar	---	275	---	280	755	169,972
Rice	---	---	1687	---	4887	90,124
1880-81						
Sugar	---	305	---	250	780	218,314
Rice	---	---	2248	652	7225	266,658
1881-82						
Sugar	80	110	---	160	475	122,982
Rice	---	---	6193	739	9344	240,966
1882-83						
Sugar	150	355	---	469	1204	241,220
Rice	---	---	1530	---	2110	478,444

Table 6 (continued). Sugar (in Hogsheads) and Rice (in Barrels) Production within the Study Area, 1868-1890 (Bouchereau 1868-1890).

	Aur*	Sta*	Del*	Bek*	OWB*	LA*
1883-84						
Sugar	---	330	---	328	883	221,515
Rice	---	---	---	---	1300	408,138
1884-85						
Sugar	---	126	---	394	520	179,431
Rice	250	---	---	---	250	410,276
1885-86						
Sugar	---	---	---	312	312	231,290
Rice	---	3300	1100	1435	11,790	1,075,016
1886-87						
Sugar	---	275	---	208	483	145,968
Rice	1200	---	---	1800	10,375	981,177
1887-88						
Sugar	256	709	---	440	1396	285,158
Rice	---	---	85	1800	4465	672,875
1888-89						
Sugar	250	412	---	301	967	267,881
Rice	---	---	1650	1430	6930	761,079
1889-90						
Sugar	243	640	---	230	1113	n.a.
Rice	---	---	---	3500	3500	n.a.

*Aurora (Aur), Stanton (Sta), Delacroix (Del), and Beka (Bek) Plantations plus totals for Orleans Parish West Bank (OWB) and the State of Louisiana (LA)

example, nine farms above Aurora had turned from truck farming to rice cultivation in 1881-1882 (Bouchereau 1882). Rice continued to be grown on Delacroix until 1890.

In 1877, the sugar industry underwent a revolution in its organization and method of production. With the aim of developing new methods of cultivating sugar, a group of planters, including Richard Milliken, formed the Louisiana Sugar Planters Association. Time had proved that sugar cultivation could not continue to be profitable using antebellum methods. The shortages of capital and labor, along with low sugar prices, urged the establishment of a central factory system as opposed to individual mills. This development marked the end of the family-operated plantation (Sitterson 1953:258).

Throughout the last decades of the nineteenth century and early into the twentieth century, the fortunes of Louisiana sugar were obviously declining. However, technical improvements increased crop yields throughout the period. In 1880, Louisiana produced 136,491 tons of sugar and in 1910, 325,000 tons were harvested. Production costs decreased due to the concentration of mills, down from 1144 in 1880 to 214 in 1910. Still, competition from Cuba, the Philippines, Hawaii, and Puerto Rico--all of which received preferential status in the U.S. market--kept sugar prices drastically low (Sitterson 1953:342-348).

By the 1890s, all the sugar plantations of the Lower Coast were forced to sell their property and to succumb to the new centralization of the sugar industry. In 1881, Morgan sold Aurora to the Trudeau family, who were able to keep the plantation producing sugar until 1912 (Table 7).

In 1878, Thomas Stanton died and his half of the property was bequeathed to his son, William. The day after acquiring his share, William sold it to his uncle, Charles (COB 115, Folio 954, Orleans Parish). An inventory revealed that, in addition to the seven-bedroom house, there were "negro cabins," a stable, a corn house, two storehouses, a carpenter and blacksmith's shop, an overseers house, and a brick sugar house. There were also forty-nine mules, five oxen, one horse, and two milch cows (Succession of Thomas P. Stanton, December 28,1881, Civil District Court, Orleans Parish, #4819). The 1873 Mississippi River Commission Map illustrates the huge industrial and quarters

Table 7. Sugar Production (in Pounds) within the Study Area, 1890-1917 (Bouchereau 1890-1917).

	Aur*	Sta*	Bek*	OWB*	LA*
1890-91[1]	545,000	1,600,000	850,000	2,995,000	483,489,856
1891-92	---	---	583,914	583,914	360,499,307
1892-93	140,000	1,800,000	656,000	2,596,000	452,068,627
1893-94	415,595	1,637,192	555,627	2,608,414	595,473,374
1894-95	643,540	1,430,038	795,592	2,869,170	710,827,438
1895-96	395,000	1,797,105	449,800	2,641,905	532,494,652
1896-97	---	2,066,670	712,602	2,779,272	631,699,561
1897-98	665,000	2,790,000	1,150,000	4,605,000	695,401,878
1898-99	750,000	2,560,000	880,000	4,190,000	549,947,417
1899-1900	446,250	2,000,000	525,000	2,971,950	329,647,746
1900-01[2]	400,000	2,996,910	813,960	4,210,870	605,557,690
1901-02	---	3,678,056	1,013,400	4,691,456	720,554,948
1902-03	---	3,862,959	---	3,862,959	737,467,510
1903-04	---	3,600,000	---	3,600,000	511,787,559
1904-05	---	5,831,000	---	5,831,000	796,388,827
1905-06	600,000	4,726,034	---	5,326,034	754,324,230
1906-07	956,000	2,300,000	---	3,265,000	422,401,074
1907-08	1,325,000	2,200,000	---	3,525,000	687,509,742
1908-10	n.a.	n.a.	n.a.	n.a.	n.a.
1911-12	900,000	2,025,000	---	2,925,000	712,674,283
1912-13	---	2,015,000	---	2,015,000	n.a.
1913-14	---	2,921,524	---	2,921,524	602,565,501
1914-15	---	---	---	---	499,585,300
1915-16	---	---	---	---	286,532,192
1916-17	---	---	---	---	599,153,626

*Aurora (Aur), Stanton (Sta), Delacroix (Del), and Beka (Bek) Plantations plus totals for Orleans Parish West Bank (OWB) and the State of Louisiana (LA)

[1]Indicates that since 1890-91, Stanton's totals included Orleans Plantation.

[2]Indicates that since 1900-01, Stanton's totals included Delacroix Plantation.

complexes that were standing on the plantation in the late nineteenth century (Figure 20).

In 1884, Charles Stanton went bankrupt. He was forced to sell the plantation two years later to Richard Milliken, who was president of the Louisiana Sugar Planters Association at the time (COB, 121, Folio 410, Orleans Parish). Milliken was also a partner in the firm of Milliken and Rutledge. The firm was the largest sugar company in the area due to its acquisition of distressed sugar properties. By 1891, Milliken and Rutledge had also acquired Orleans Plantation (Bouchereau 1891).

Delacroix shared the same fate as the Stanton Plantation. In 1890, the property was divided into fifty-one plots. On April 26, 1890, plots 1-6 were sold by Rochereau to Dr. Gustavus Devron (Joseph Fahey, April 26, 1890, NONA). Four years later, Devron sold his lots to Milliken and Rutledge (Edgar Grima, July 16, 1894, NONA). On February 12, 1891, Rochereau sold lots 7-51 to Charles H. Crowley and Albert Montgomery (Joseph Fahey, February 12, 1891, NONA). Eight years later, on January 2, 1899, Milliken and Rutledge acquired lots 7-51, consolidating the entire Delacroix plantation property as well as the Orleans and Stanton plantations (Edgar Grima, January 2, 1899, NONA).

Milliken and Rutledge returned the entire operation back to the sole production of sugar (Table 7). On March 29, 1912, Orleans, Stanton and Delacroix were sold to the Stanton Planting and Manufacturing Company Limited, a sugar firm that maintained a huge mill on the Stanton Plantation (Edgar Grima, March 29, 1912, NONA). The 1873 Mississippi River Commission Map illustrates that by the end of the nineteenth century, only a few structures were standing on Delacroix Plantation (Figure 21).

Although Beka did not fall to the Milliken and Rutledge conglomerate, it was not successful either. In 1875, Beka was seized by the State of Louisiana for Blanchin and Giraud's failure to pay taxes, and in 1879 Victor Reaud obtained the full title to Beka (COB 110, Folio 117, Orleans Parish). Two years later, though, Reaud sold one-half interest in Beka back to Antoine Giraud (M.T. Ducros, October 21, 1879, NONA).

Reaud continued to manage Beka. In 1886, he added rice to the plantation's production of sugar. For four years, Reaud produced a healthy rice crop while

maintaining high yields of sugar cane. This proved insufficient to save the plantation, for in 1892, Reaud went bankrupt and Beka was sold to the Citizen's Bank for thirty thousand dollars (COB 145, Folio 286, Orleans Parish). The 1873 Mississippi River Commission Map, drafted in 1894, shows the residential, quarters, and industrial complexes of the plantation at about this date. Interestingly, the location of the great house is illustrated, although the structure had burned in 1880 (Figure 22).

On February 13, 1893, another president of the Louisiana Sugar Planters Association, J.B. Levert, purchased Beka from the Citizen's Bank for twenty-two thousand dollars. Along with two partners, first Jules D'Acquin, and later John Mathew Harrell, Levert discontinued rice production and kept Beka in sugar until 1902 (Boucherau 1902). In 1905, Levert's son, Robert, sold Beka to Narcisse Phillippe Meraux of St. Bernard Parish for thirty thousand dollars. Mentioned in the sale are "machinery, boilers, and engines," thus suggesting that a sugar mill was still in use on the plantation (Edgar Grima, December 30, 1905, NONA).

The final blow for Louisiana's cane industry came in 1916, when the Underwood-Simmons Tariff ended all duties on imported sugar. Whereas in 1911, 300,000 acres had been cultivated in sugar, only 73,000 acres were planted in cane in 1927 (Sitterson 1953:342-348). Sugar production in Orleans Parish ceased with the lifting of the protective tariff. Following World War I, Algiers continued to grow in population, and many of the farms and former plantations on the right bank were subdivided for residential development. For example, the Stanton Company sold its property to Russell Clark in 1930 (COB 455, Folio 470, Orleans Parish). It is unclear whether Clark cultivated the land, but in 1943 he sold it to Harvey Peltier, who immediately divided the property into small parcels to be sold as residences (COB 532, Folio 1, Orleans Parish).

Beka remained in the hands of the Meraux family at least until 1926, for twice, between 1917 and 1926, the land was leased for use by others (COB 297, Folio 113, Orleans Parish; COB 409, Folio 390, Orleans Parish). By 1930, the property had passed from the Merauxs to Adrian Renneck and then to John Finney. On April 20, 1942, Beka was obtained by the United States government and was turned into a Coast Guard Station.

Thus, after nearly two centuries of successful exploitation, profitable agricultural development on the west bank of the Mississippi River in the study area finally came to an end in the early 1900s. The changed pattern of land use, from cash-crop agriculture to an urban and residential district, is but one example of a long-term trend characterizing the United States: the change from status as a primary producer to that of consumer.

Urban Development

The City of Docks. The right bank below Algiers Point remained wholly agricultural until after the War of 1812. Nouvelle Orleans, a map published by Charles Del Vecchio of New York and P. Maspero of New Orleans in 1817 (Figure 23), shows that the Duverje, Gosselin, and Bienvenu plantations were still engaged in agriculture at that time, and had not yet succumbed to urbanization.

However, in 1819, Andre Seguin, a native of the French port of Le Havre, purchased a site near Algiers Point from Barthelomy Duverje for the purpose of establishing a shipyard. Seguin was responsible for promoting the shipbuilding industry in Algiers, and this provided the impetus for a transformation from agriculture to industry in the upper reaches of the study area. Due to the abundance of shipyards which sprang up before the Civil War, Algiers became known as the "city of docks" (Scrattish 1982:10).

Between the time of Seguin's 1819 purchase and the publication of Charles F. Zimpel's Topographical Map of New Orleans and its Vicinity in 1834 (Figure 24) Algiers Point became urbanized. The Duverje plantation was subdivided, streets were laid out, houses built, and the town of Duverje was established. Verret Street was the lower boundary of the town.

As the map shows, the lands below Duverje remained agricultural (Figure 24). The Verret plantation, the uppermost landholding in the study area, was co-owned by Barthelemy Duverje's widow and Furcy Verret. In 1834, this parcel was still planted in sugar cane. The Zimpel map shows that a brickyard had been established on the batture of the Verret property. This brickyard was located between the heads of present-day Elmira and Atlantic streets.

The shipbuilding industry continued to expand following 1834. By 1842, the Paducah, Suffolk, and

Figure 23. Excerpt from the (1817) Del Vecchio and Maspero map, Nouvelle Orleans (Louisiana Collection, Tulane University Library). No scale available.

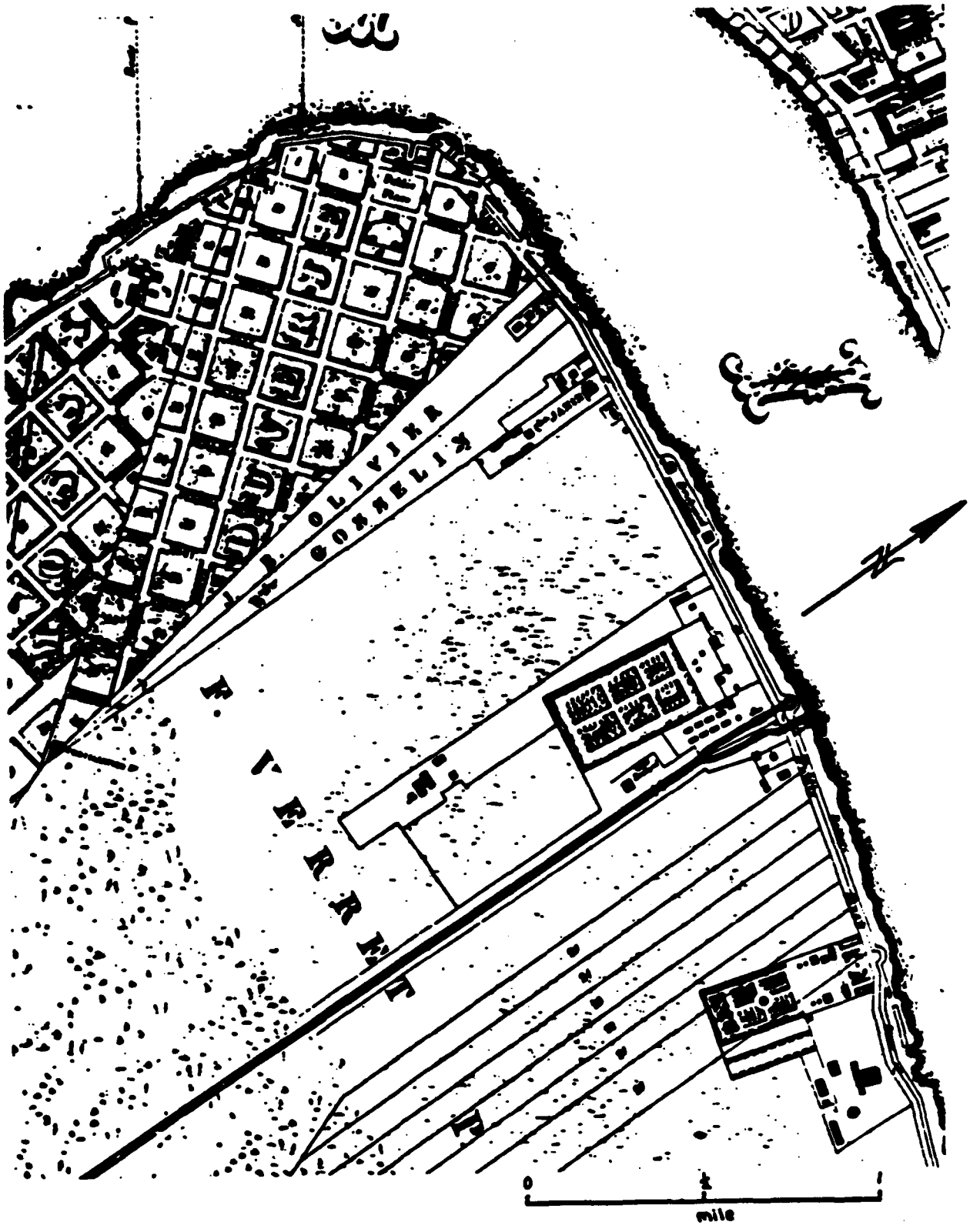


Figure 24. Excerpt from Zimpel's (1834) Topographical Map of New Orleans and its Vicinity (Map Division,] Library of Congress).

Marcy dry docks had been established at the bend of the Mississippi near Seguin's shipyard. The latter had by this date been converted to a sawmill (Coleman 1885:290).

Industrialization was accompanied by population growth, and it was recognized that the right bank needed its own governing body. In 1840, the state Legislature created a separate police jury for the right bank of Orleans Parish. The members of the first police jury were appointed by the governor, and their names represent the elite of the right bank: Furcy Verret, Casimer Lacoste, Jean B. Olivier, Edward Fazende, and Caliste Villere (Seymour 1896:31).

Although population and industry were growing on the right bank, the areal extent of residential/ commercial lands had not expanded by 1841. J. Manouvier's lithograph of New Orleans, dated 1841 (Figure 25), shows that the area of urbanization remained where it had been in 1834, and had yet to expand downstream past Verret Street.

The 1840s, however, saw a period of great urban expansion. The Gosselin Plantation (Figure 24), which had been divided in 1834, was developed by businessmen. Jean B. Olivier, Barthelemy Duverje's son-in-law, had acquired the upper portion located between present-day Verret and Olivier streets. The lower half, between Olivier and Vallette, had been purchased by a group of capitalists, including Francois Vallette (Coleman 1885:88).

Upon the death of the Widow Duverje in 1839, the Verret Plantation was divided. Furcy Verret received the central portion, and the Duverje heirs received the upper and lower ends. Vallette and Mark Thomas obtained the small section adjoining the Gosselin property from the Duverje heirs. This parcel was located between present-day Vallette and Belleville streets. The Belleville Iron Works Company, whose owners were Messrs. Vallette and Thomas, along with J.P. Whitney and John Hughes, purchased the adjoining downriver section from the Duverje heirs. This tract was located between present-day Belleville and Elmira streets (Coleman 1885:288).

B.F. Norman's 1849 Plan of New Orleans (Figure 26) is the first map to document this downstream expansion. This shows that streets and blocks had been laid out on the Olivier, Gosselin, and Ferret plantations, and the

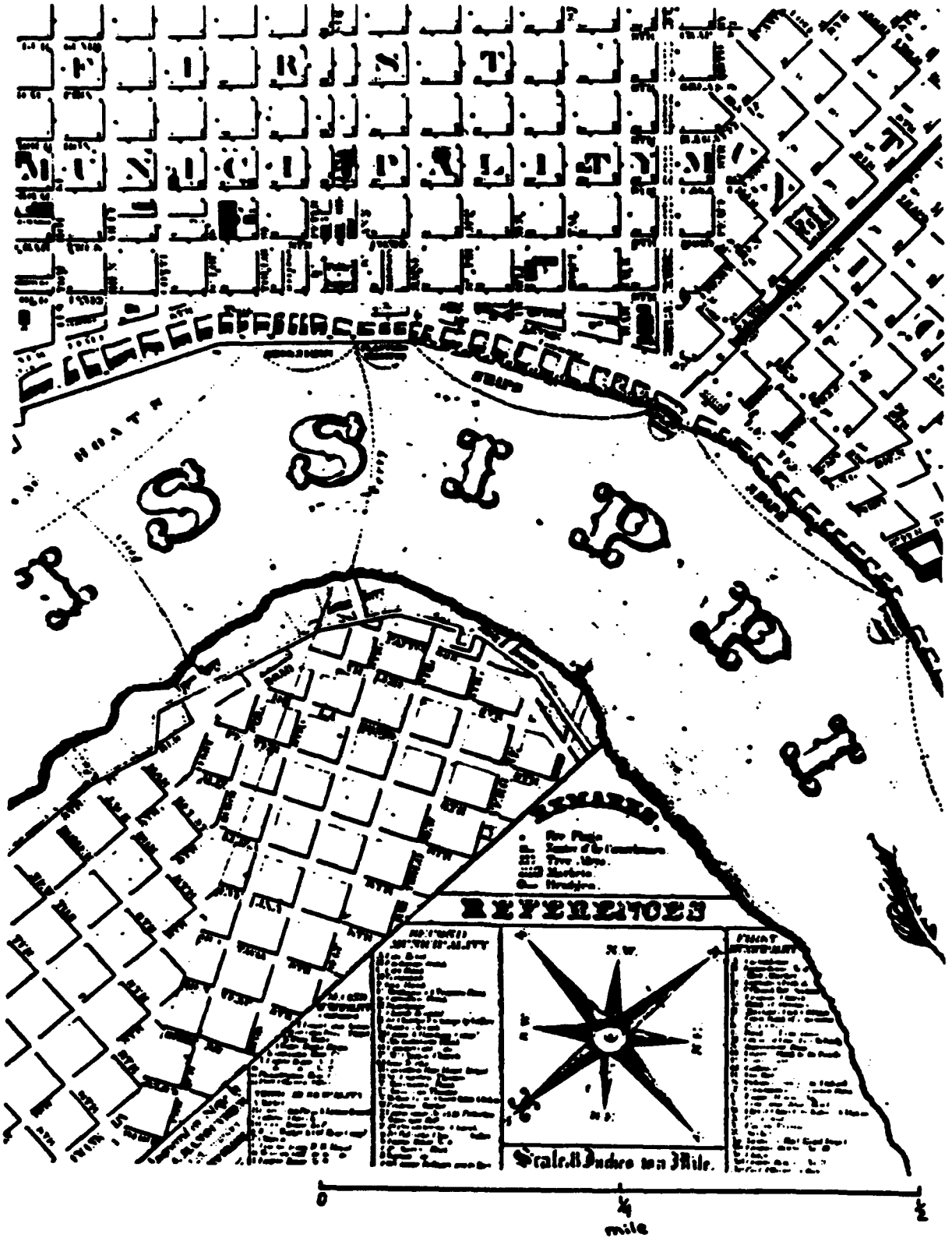


Figure 25. Excerpt from Manrouvier's (1841) lithograph of New Orleans (Scrattish 1982).

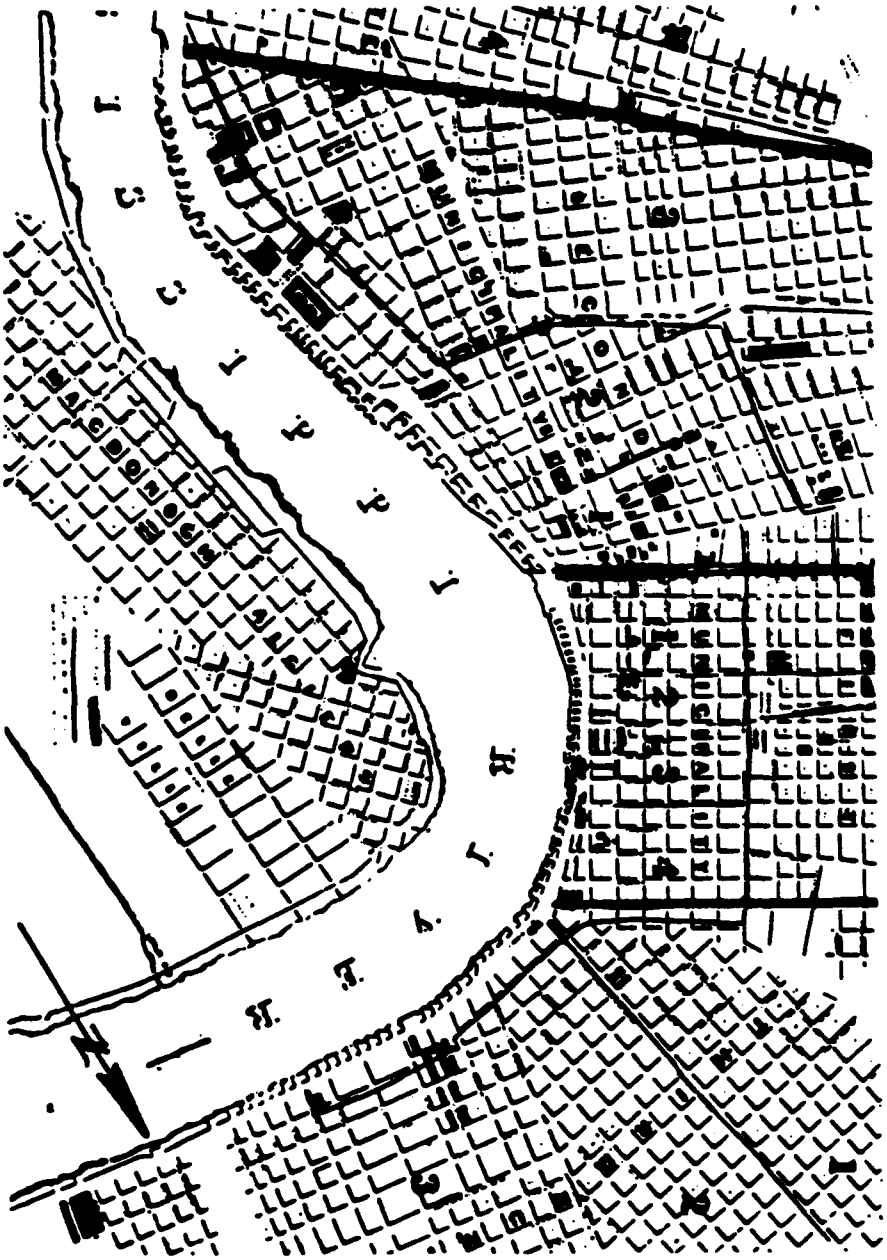


Figure 26. Excerpt from Norman's (1849) Plan of New Orleans (Louisiana Collection, Tulane University Library). No scale available.

entire area was named Belleville. The Belleville Foundry, which was constructed beginning in 1846, is shown at the intersection of Elmira and Patterson streets.

In 1846, Louisiana dry-dock No. 1 was placed on the river in front of the foundry. It was owned by the Louisiana Dry Dock Company, which had the same owners as the Belleville Iron Works Company. It was the largest dry dock constructed before the Civil War, and was accidentally sunk in 1849. In its place, the company built the Louisiana docks Nos. 2 and 3 in 1849 and 1852 (Coleman 1885:290).

The parcel below Elmira Street was owned by Furcy Verret. Verret sold this tract for $80,000 to the same group of capitalists who had bought the Gosselin property. They erected warehouses along the entire river front, principally for the storage of salt. This area was called Brooklyn, and the warehouses were known as the Brooklyn warehouses (Kendall 1922:745). Pesson and Simon's 1858 Plan of New Orleans (Figure 27) is the first to show this extension south of Elmira Street. During this period, Verret also sold to this same company the Verret Canal further downstream. By this time the canal was dry and had fallen into disuse (Coleman 1885:288).

A railroad was added to the shipyards in the 1850s. This increased the importance of the west bank as a transportation center. In 1852, the New Orleans, Opelousas and Great Western Railroad was organized to connect New Orleans with Texas (Prichard 1947:1067). In two separate transactions, the remaining Verret property below Brooklyn, consisting of about 800 feet frontage, was sold to the railroad company (Coleman 1885:288).

A rail passenger depot, built in 1853 below present-day Verret Avenue, is shown for the first time on B.M. Norman's 1854 Plan of New Orleans (Figure 28). The first train left the terminal on December 3, 1853. It only went a distance of 24 miles to Boutte. By 1857, service was extended to Brashear City (renamed Morgan City in 1876) on the Atchafalaya River (Dixon 1971:65).

In addition, there was also a dock attached to the riverfront of the New Orleans, Opelousas and Great Western property. In 1860, the company purchased the ferry Ceres, to transfer railroad passengers across the river to New Orleans (Dixon 1971:53). This is

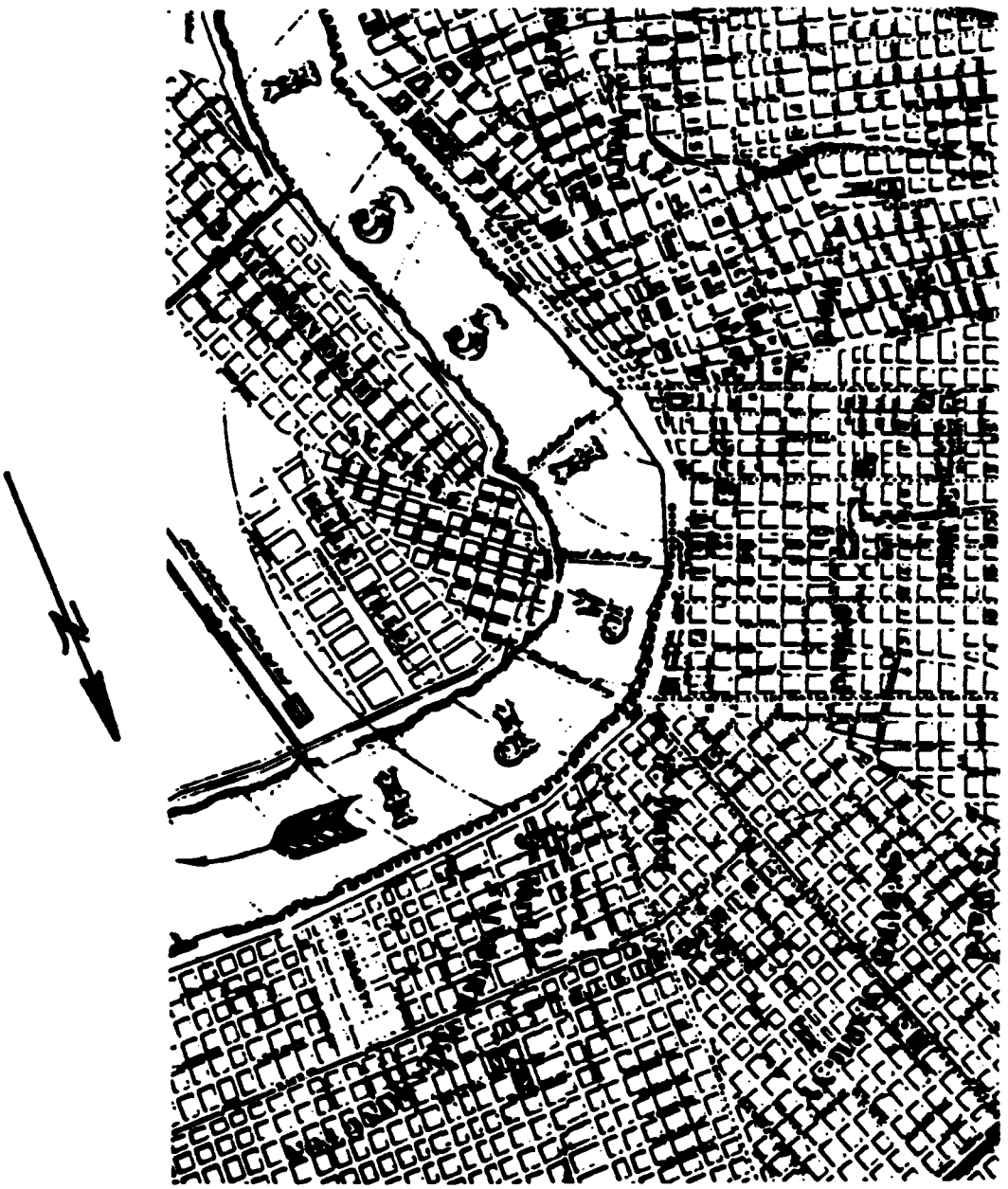


Figure 27. Excerpt from Pesson and Simon's (1858) Plan of New Orleans (Louisiana Collection, Tulane University Library). No scale available.

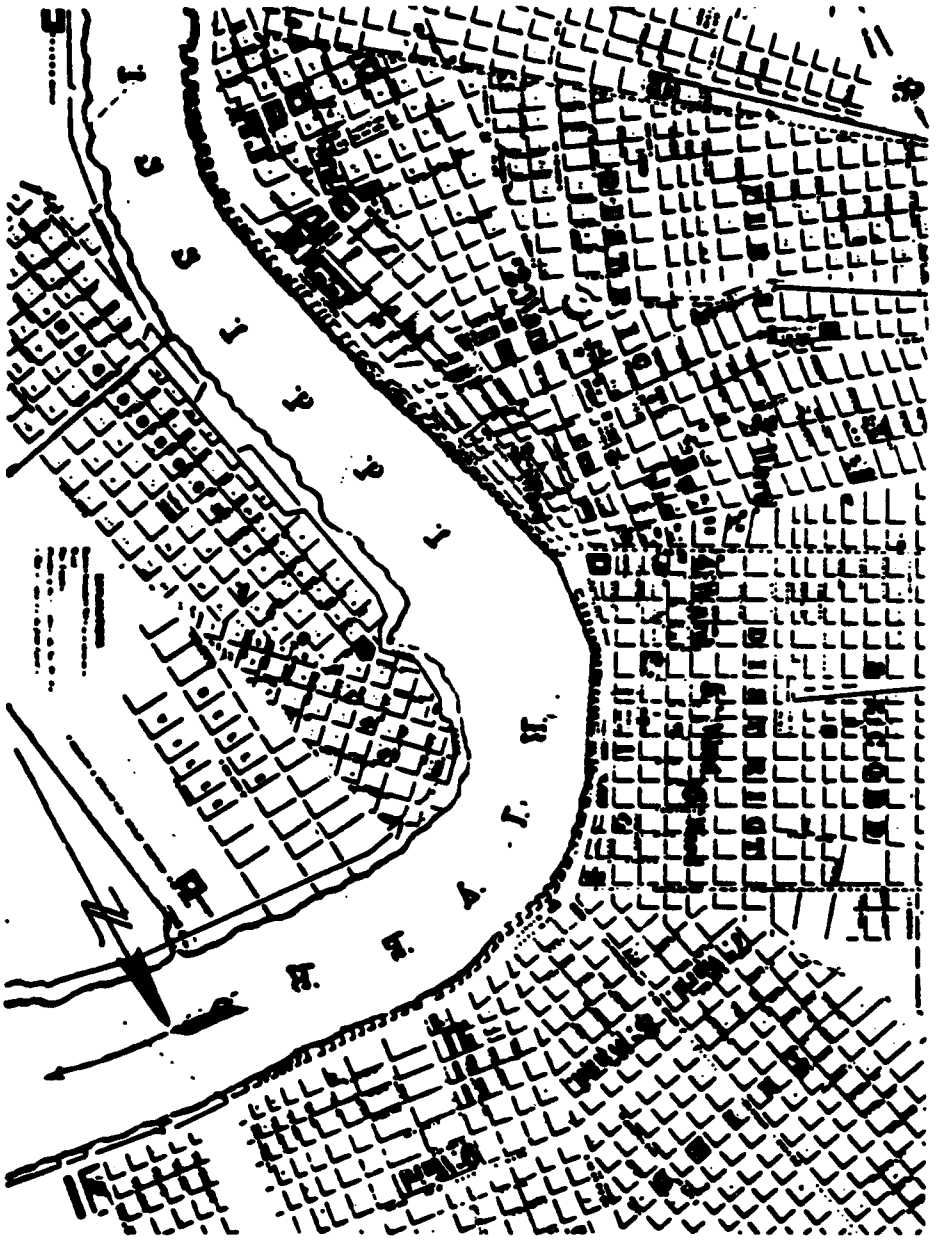


Figure 28. Excerpt from Norman's (1854) Plan of New Orleans (Louisiana Collection, Tulane University Library). No scale available.

illustrated in Charles Gardner's 1861 Map of the City of New Orleans and the Adjacent Towns (Figure 29).

Gardner's map also shows, for the first time, urbanization below the Verret Canal, extending all the way to Sumner Avenue. About a mile downstream from Sumner was the town of Tunisburg, as shown on J.B. Braun's 1889 Topographical Map for Commerce of New Orleans (Figure 30). It was in this section that Jefferson Davis, then senator from Mississippi, bought a "picturesque cottage" from his father-in-law, W.B. Howell. Eventually the property was confiscated by the Federal Army and sold in 1865. In 1892 it was returned to the Davis family (Seymour 1896:11).

The Civil War in Algiers. In addition to the Louisiana docks, five other dry docks existed on the right bank at the beginning of the Civil War. These were the Crescent, the Gulf Line, the Atlantic, the Pelican, and the New Orleans docks. The latter was located near the site of the Seguin shipyards and thus outside of the study area. Although the location of the other four cannot be pinpointed, it seems that only the Crescent was located within the study area. The Confederate government purchased the Gulf Line and the Atlantic docks and converted them into floating batteries in 1861 (Coleman 1885:291).

It was at the Crescent docks that two of the most famous Confederate vessels were built at the beginning of the war. A small merchant steamer, the Havana, was rebuilt into the Confederate commerce destroyer, Sumter. The Confederacy's daring naval hero, Raphael Semmes, assumed command of the Sumter on April 22, 1861. On June 3, the vessel was formally commissioned and, when the vessel was in mid-stream, the Confederate colors were hoisted for the first time. Also built in the Crescent yards was the tug boat Enoch Train, which was transformed into a ram and renamed the Manassas (Dixon 1971:50).

Because of its dry docks and railroad facilities, Algiers was obviously a strategic point. Union Major General George B. McClellan realized this, and on February 23, 1862, he directed Major General Benjamin F. Butler, head of operations designed to capture New Orleans, "to occupy Algiers with the mass of your troops" (Dixon 1971:53).

On April 23, 1862, with the Federal fleet approaching New Orleans, the decision was made to sink

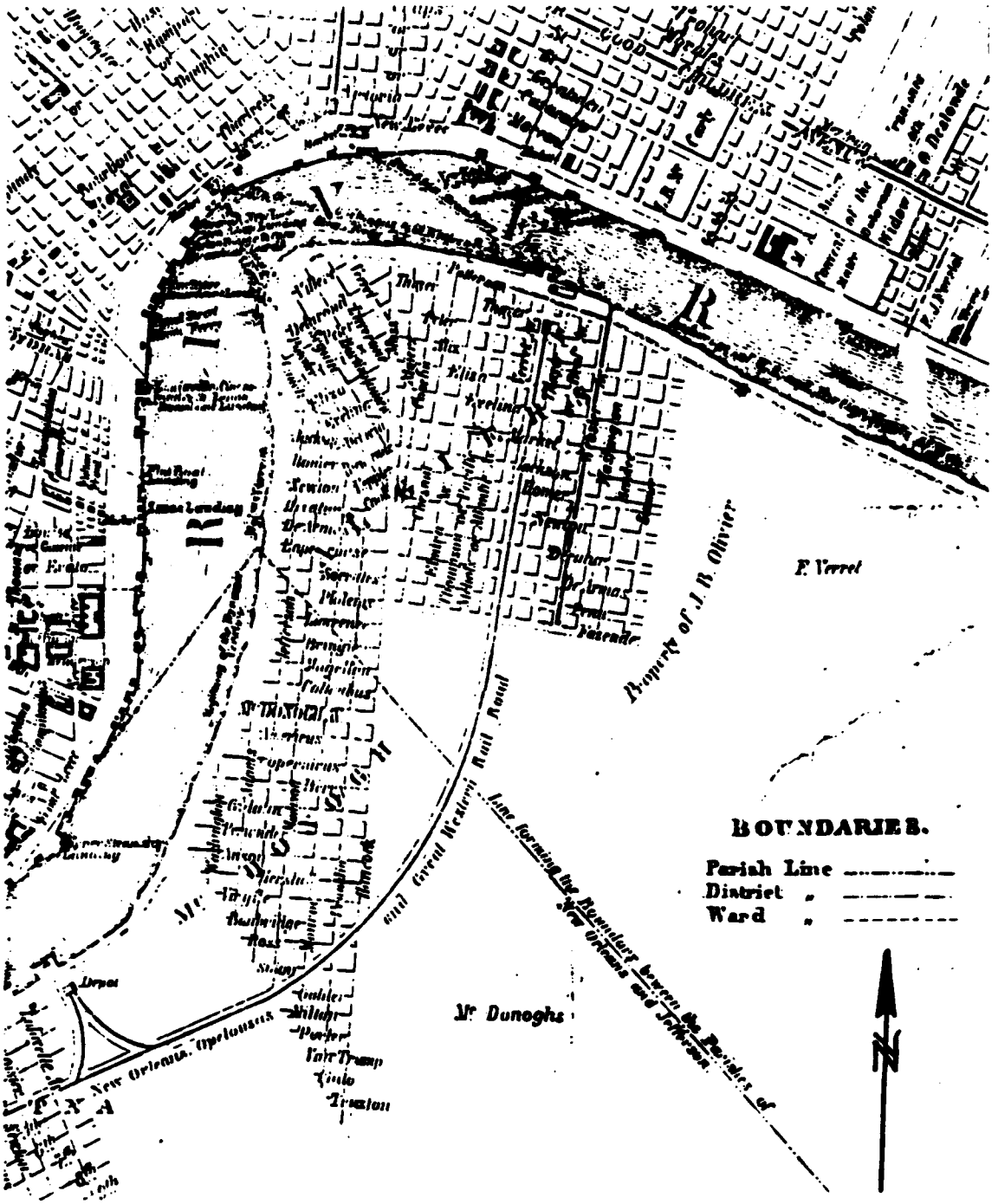


Figure 29. Excerpt from Gardner's (1861) Map of the City of New Orleans and Adjacent Towns (Louisiana Collection, Tulane University Library). No scale available.

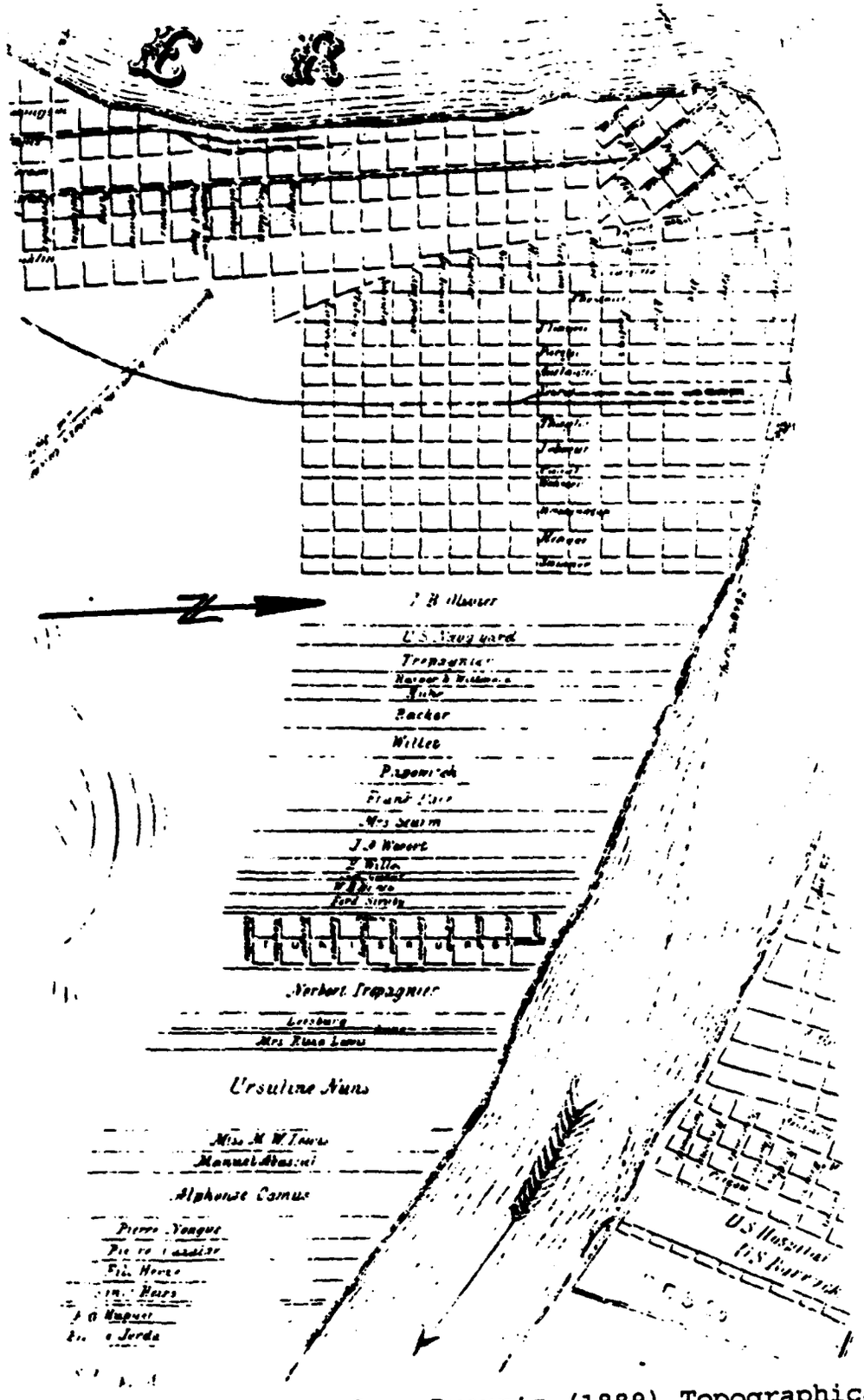


Figure 30. Excerpt from Braun's (1889) Topographical Map for Commerce of New Orleans (Louisiana Collection, Tulane University Library). No scale available.

the remaining dry docks to prevent them from being captured intact. The Louisiana docks were located the farthest downstream, and they were sunk first. The other three were sunk in succession as they proceeded upstream: first the Crescent, then the Pelican, and then the New Orleans. The Historical Sketch Book and Guide to New Orleans and Environs, published in 1885, mentions that attempts were made to raise the Louisiana and Crescent docks after the Civil War. The book claims that the wrecks "still lie beneath the water along the shore all the way from below the Third district ferry landing [head of Olivier Street] to the vicinity of the Planter's Oil Works," which replaced the Belleville foundry at Elmira and Patterson Streets. Thus, it seems likely that the Crescent dock formerly lay within the upper reaches of the study area (Coleman 1885:291).

Having passed Forts Jackson and St. Philip in Plaquemines Parish, the Federal fleet commanded by David G. Farragut pushed on towards New Orleans. The Confederates had built mud fortifications at Chalmette and on the right bank at the "McGee Line." M.A. McGee owned Aurora Plantation, and the name of the line suggests that it was located on his property. Nine guns were stationed on the right bank, but they were helpless to stop the invaders who passed them on April 25, and captured New Orleans and Algiers (Dixon 1971:53).

The 21st Indiana Regiment occupied Algiers. On May 1, 1862, the troops took over the New Orleans, Opelousas and Great Western Railroad and operated it as a military road during the remainder of the war (Pritchard 1947:1069). The Belleville Foundry, whose walls had been designed to emulate Penrhynn Castle in Wales, was transformed into a prison for Confederate troops (Dixon 1971:52-53).

The property of Jean B. Olivier, which lay just below Algiers, (Figure 30), was confiscated by the Federal army, and the mansion was used as a hospital for African-Americans. The land in the rear of the house was used as a cemetery. When the remains of the Civil War dead were transferred to the National Cemetery at Chalmette after the war, it was found that 1500 blacks had been buried there. When the property was returned to the owners after the war, all moveables had been stolen and the grounds and out buildings were completely ruined (Coleman 1885:288).

Railroads and the Postbellum Recovery of Algiers. Like the Olivier Plantation, much of the economy of the

right bank had been left in shambles by the Civil War. However, recovery attempts were made, and they proved to be successful for a time.

The dry docks, which were the key to the antebellum success of the right bank, renewed operations immediately following the war. The Vallette dry dock, owned and built by the Vallette Dry Dock Company, was put into operation in 1866. The dock was located at the head of Vallette Street, not far from the wrecks of the Crescent and the Louisiana dry docks. Seymour (1896:57) mentions that the Vallette dock sank several years before 1896. Four other docks were built following the Civil War: Good Intent, Ocean, Marine and Louisiana. All of these were located upriver from the study area.

However, the late nineteenth century was the Age of Railroads and they, not shipbuilding, would prove to be the key to rejuvenation of the right bank. On February 1, 1866, the New Orleans, Opelousas and Great Western Railroad was returned to its antebellum owners. The road, suffering from problems incurred during the war, went bankrupt. In May 1869, it was sold to Charles H. Morgan and renamed Morgan's Louisiana and Texas Railroad. It was to be a link in Morgan's Louisiana and Texas Railroad and Steamship Line. By having Morgan's sea-going steamers bring goods from Texas to the rail depot at Morgan City, as opposed to steaming up the Mississippi, the railroad cut the travel time and distance in half (Prichard 1947:1078).

In the 1870s, the track was laid all the way to the Pacific Ocean, and Morgan's Louisiana and Texas Railroad became a part of the Southern Pacific Company. Since Algiers was the eastern terminus for this great railroad, a huge plant grew up, by far the largest and most important in the history of the right bank. In 1896 Seymour described it as follows:

> Few people have an idea of the magnitude of the plant of the Southern Pacific Company in the corporate limits of Algiers. Standing on the river front, one notices extensive sheds and wharfs with ships lined up in front, and looking back into the rear a series of buildings loom up into view. This casual glance but faintly pictures the extent of the plant and the variety of industries which flourish within the lines of the company. Once within the great wharf, which stretches along the river front for a distance of nearly

> half a mile, one begins to wonder at its vastness; walking over to the depot and then to the many shops, each a separate plant in itself, the realization gradually dawns upon you that the square mile of territory covered by them contains enough to form a village of handsome proportions, ...it is the largest of its kind in the South [Seymour 1896:35-39].

The railroad tracks from the west took up the wide expanse of land between Atlantic and Thayer Avenues, which is now empty. Robinson's (1883) Atlas Of New Orleans (Figure 31) shows that the riverfront property owned by the company extended from Belleville Street down to Wagner Avenue. The Brooklyn Warehouses, between Elmira and Pacific Avenues, stood as late as 1885, but seemed to have been abandoned, for, according to the Historical Sketch Book, they "were relics of the past" (Coleman 1885:288). A cotton shed was located at the head of Le Boeuf Avenue, and the Algiers Warehouse stood between Webster (present-day Whitney) and Wagner Avenues, partially extending out over the river.

By 1896, the plant had been extended upstream to about Olivier Street. Between Patterson and the levee, Seymour (1896:39) found lumber sheds and yards. Seymour noted that at the head of Belleville Street there were "several barn-like structures in which are stored yawls, anchors, rope and tackle and other shipping paraphernalia" (Figure 32). On the other side of the levee was the Southern Pacific Ferry Incline, "where the transfer boats run in to discharge their bulky portable cargoes of freight cars, loaded or unloaded" (Seymour 1896:39). According to the ML&TRR&SS Co. (1906) Station Plan of Algiers (Figure 33), the rest of the tracks above Atlantic Avenue were a part of the "incline yard."

Seymour (1896:43) described the point where the network of tracks from the west met the riverfront as being "the great joint which connects the two systems of the Southern Pacific Company--the railroad which extends from New Orleans to the state of Oregon in the northwest, and the steamship lines, which run to New York and Central American ports and Havana."

On the river side of Patterson at the head of the tracks, Seymour noted three large buildings made of brick and iron between Patterson and the actual wharf. One was the "storehouse where supplies, rope and tackles and other such articles are kept to supply immediate demands. Just adjoining is the steamship blacksmith and

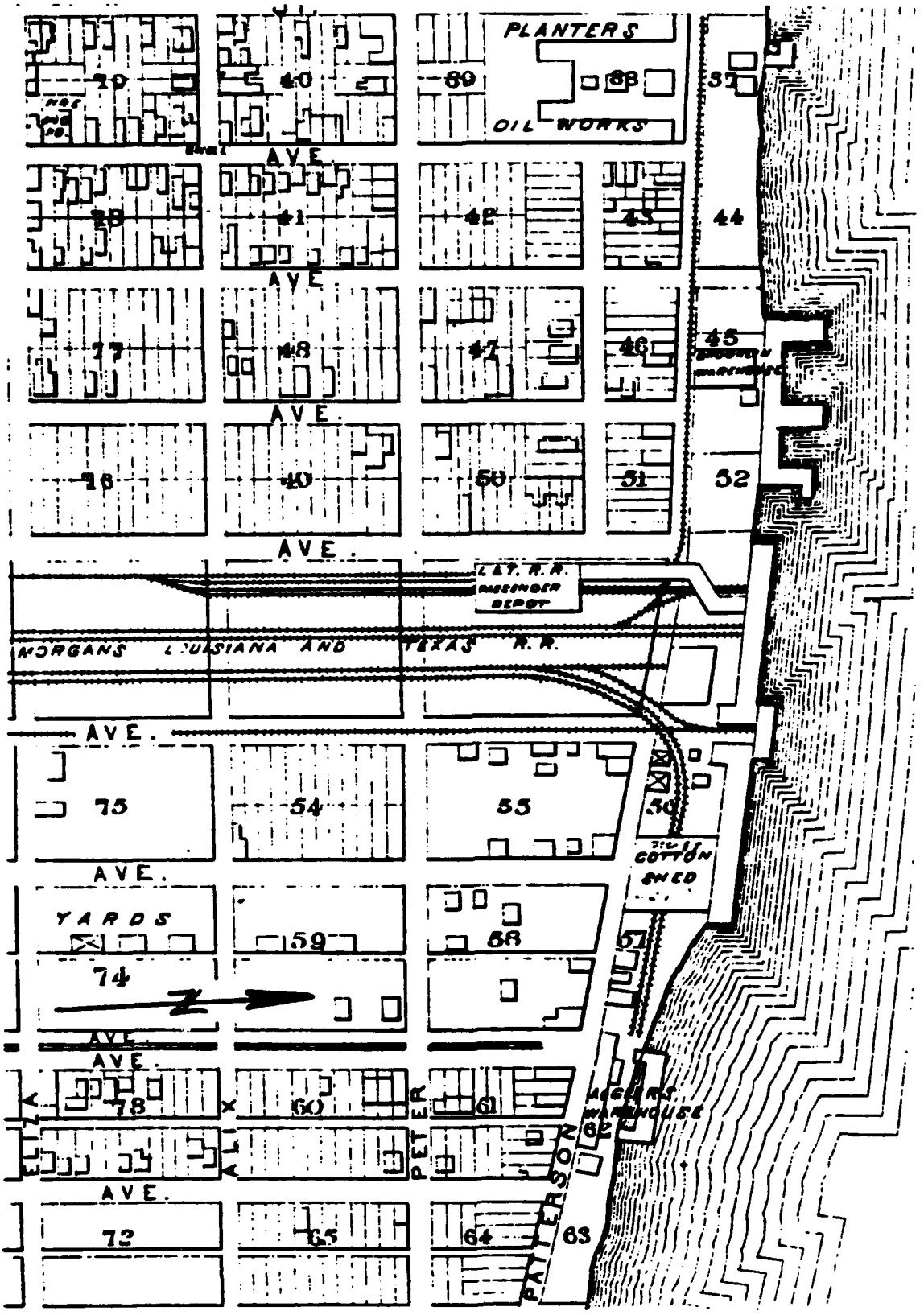


Figure 31. Excerpt from Robinson's (1883) Atlas of New Orleans (Louisiana Collection, Tulane University Library).

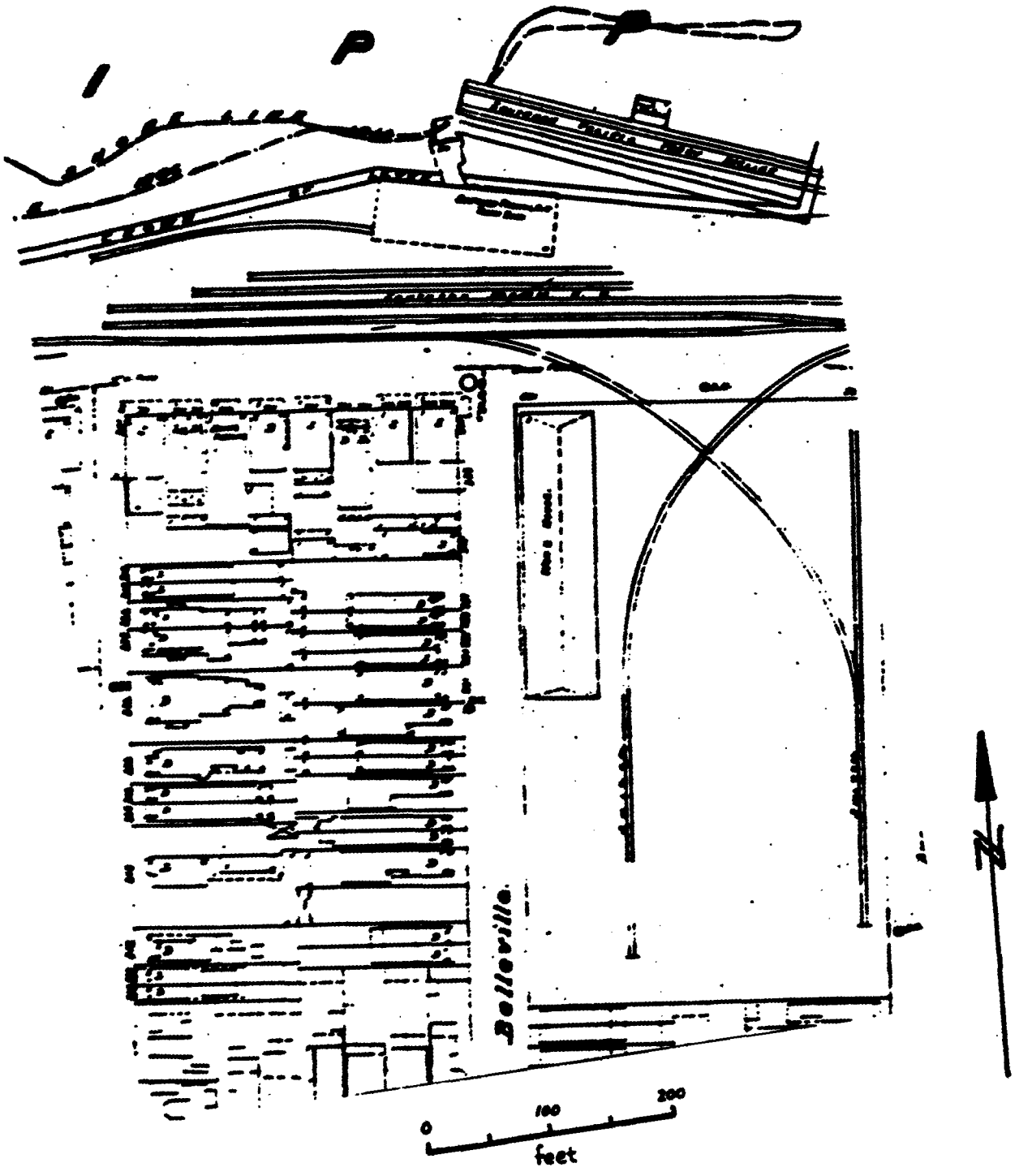


Figure 32. Excerpt from the Orleans Parish Levee Board's (1916) Map of the Commercial Front, 5th District (Office of Public Works, Baton Rouge).

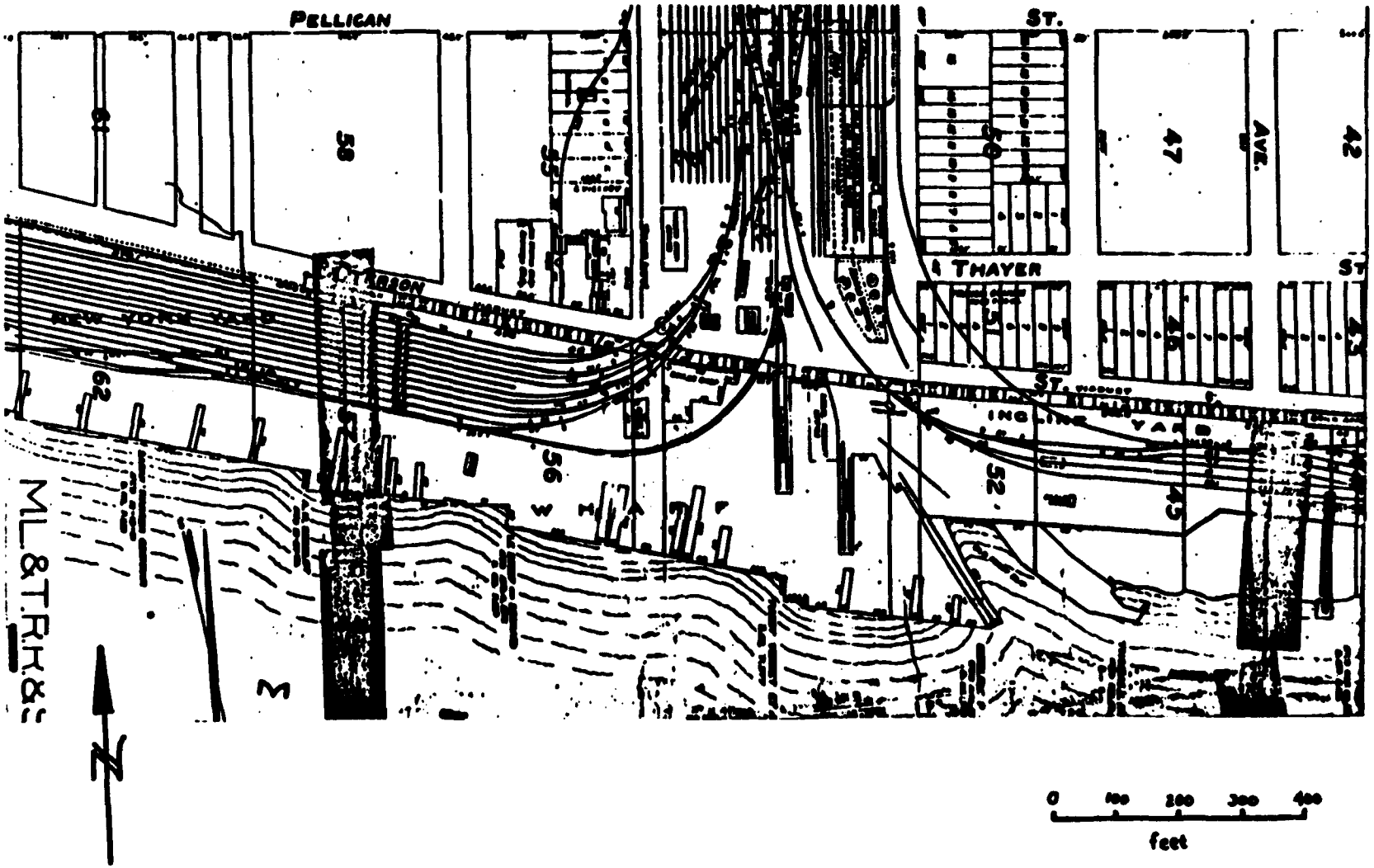


Figure 33. Excerpt from Morgan's Louisiana and Texas Railroad and Steamship Company's (1906) Station Plan of New Orleans (Office of Public Works, Baton Rouge).

boiler shops and carpenter shed, and then is the boiler house, which supplies the steam for the various purposes needed on the wharf" (Seymour 1896:49). The boiler house and the storehouse are visible on the 1906 and the 1916 maps (Figures 33 and 34).

Seymour states that the "wharf shed," which extended downstream for almost half a mile, was covered and was about one hundred feet wide. At the upper end of the wharf was the "sugar shed, where the vessels from Havana tie up and unload their cargoes of Cuban sweetness." Further down was the New York shed, and the tracks in front of it were designated as the "New York Yard" on the 1906 map (Figure 33). Below the New York Yard was the Havana forwarding and receiving section, and beyond this was the Central American section (Seymour 1896:49).

Seymour (1896:51) states that "further down the wharf, near the lower end, there is a sort of storehouse during the summer season, and still further space is utilized as a carpenter shop...Beyond the wharf is the shipyard". None of this appears on the 1906 or the 1916 maps. It is possible that these structures comprised the Algiers Warehouse of Robinson's 1883 map (Figure 31). The 1906 map shows that the tracks had been extended downstream all the way to Hendee Avenue. The entire riverfront was covered with wharfs, with a coal pier standing at the farthest end downstream (Figure 35).

By 1916, a huge "freight warehouse" had been built at the head of Thayer Avenue and extended all the way down to Whitney Avenue. At the far end were cattle pens, where the Texas beef were kept until they could be ferried across the river to be slaughtered (Figure 35).

During the peak years of its existence in the late nineteenth and early twentieth centuries, the Southern Pacific Plant provided full employment for 3500 men. Seymour (1896:51) summed it up by asking, "with such an institution in their midst, and giving the majority of her population bread and butter, is it any wonder that the people of Algiers appreciate the Southern Pacific Road?"

With the railroad booming in its midst, the right bank continued to grow following the Civil War. In 1870, Algiers was annexed to the city of New Orleans and became the Fifth Municipal District (Dixon 1971:1). Robinson's 1883 map, as well as Braun's 1889 map, show

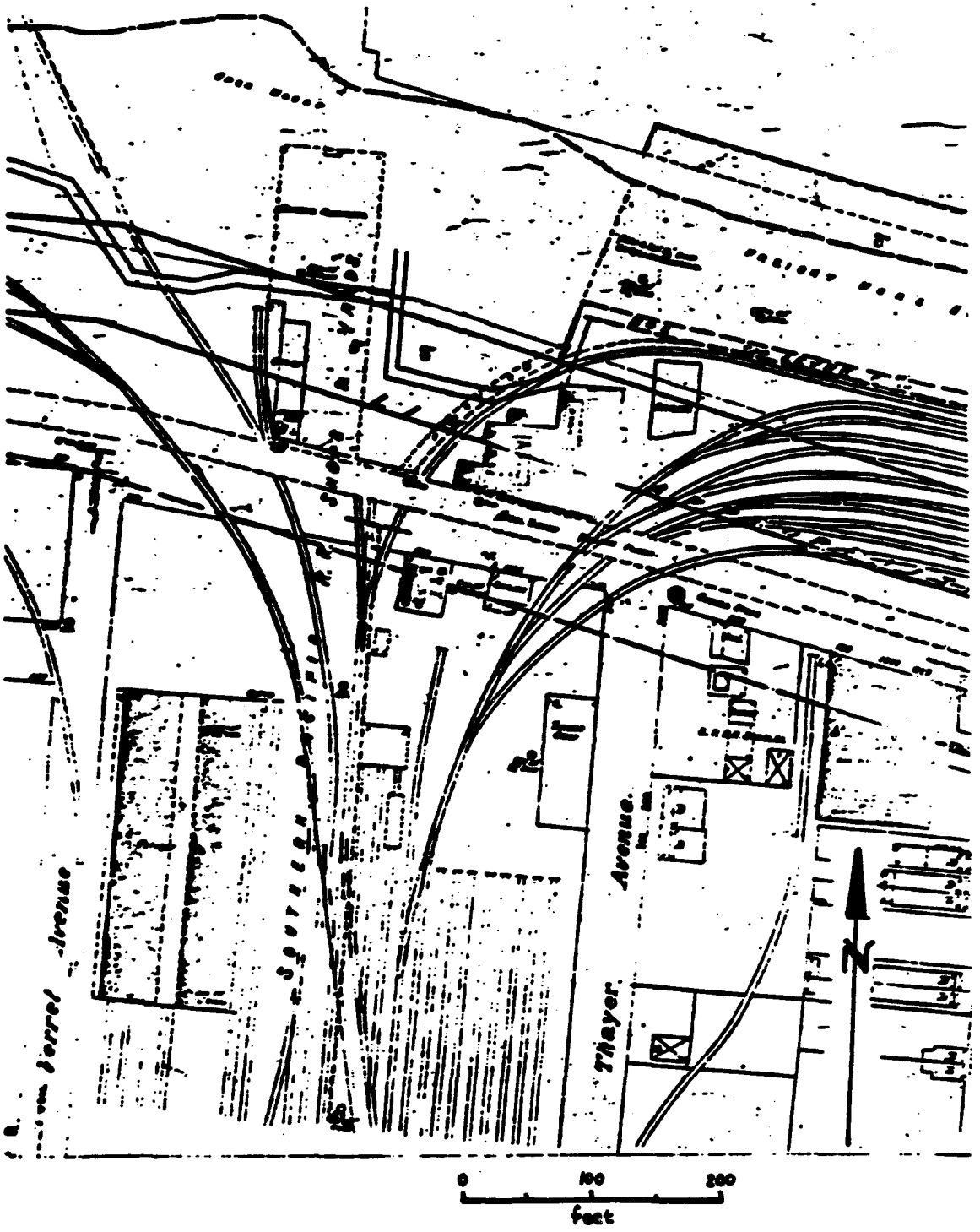


Figure 34. Excerpt from the Orleans Parish Levee Board's (1916) Map of the Commercial Front, 5th District (Office of Public Works, Baton Rouge).

front of Figure 35 (oversize)

back of Figure 35 (oversize)

that the urban section of Algiers extended downstream all the way to the Olivier property just below Sumner Avenue (Figures 30 and 31).

The U.S. Naval Station. The United States Naval Station bounded Olivier's property downstream. Furcy Verret had bought the property from Pierre Marigny in 1836, and he built a mansion on it for his daughter, Elmira, and her husband Martial Le Beouf. It was acquired by Jean B. Dupiere, who then sold it to the Navy on February 17, 1849. Not much was done with the property until the 1890s, when General Adolph Meyer, U.S. Congressman for the area, pushed for development. In 1894, the bounding Olivier and Trepagnier plantations were purchased by the government to be included as a part of the Naval Station. In 1901, President Theodore Roosevelt was on hand for the dedication of a floating dry dock which had recently arrived. His daughter, Alice, admired the mansion which stood there so much that she fought attempts to tear it down, and eventually it became the quarters of the commander of the Naval Station ("History of Quarters A," Sidney Louis Villere Papers, Historic New Orleans Collection).

The Naval Station has been discontinuously operated. In 1911 the station was closed, but it was reopened during World War I, when it operated as an Industrial Navy Yard. A Navy Hospital was located on the grounds following the war, but was discontinued in 1924 with the opening of a Veteran's Hospital on the east bank. The Naval Station was once again closed in 1933, due to the Great Depression. During the 1930s, the dry dock was unused except for periodic leases to private shipping concerns. The Station was also used by the National Youth Administration as a training school for young people during the Depression (Dixon 1971:89).

World War II forced the Naval Station to be opened once more. Until the Beka Plantation was acquired by the government in late 1942, the Coast Guard used the Naval Station as a base. During the War, the Station became an Armed Guard Center, Naval section base, and a landing craft launching facility. Its civilian employees increased from nine to 1678, while enlisted personnel increased to more than 6000. The station supplied and serviced nearly 5000 vessels and has outfitted 605 ("History of U.S. Naval Station," Sidney Louis Villere Papers, The Historic New Orleans Collection).

Since the end of World War II, the Naval Station, like the rest of the study area, has been in decline. In August 1966, 78 acres of the Station's surplus land was transferred to local educational and health institutions (Dixon 1971:89).

Development After World War I. The urban environment of Algiers continued to expand in a downstream direction following World War I. In 1928, Todd New Orleans Dry Docks, Inc. built a ship repair yard between the Algiers Naval Station and the Immigration Station. This can be seen on the 1932 Orleans Levee Board map Mississippi River Bank, Section No. 2 (Figure 36). In 1936, it merged with the Johnson Iron Works, located upstream, and became known as the Todd-Johnson Dry Docks, Inc. During World War II, over 4000 employees worked around the clock preparing military craft for service and repairing those damaged by submarines and other enemy action. Activity decreased at the dock following the war, and it employed about 500 workers prior to acquisition by Avondale Shipyards (Dixon 1971:95).

The Levee Board Map Section 3 from 1932 (Figure 37) shows further urbanization downstream. Just below the Todd dry dock is the U.S Immigration Station. Further downstream stands the U.S. Public Health Service Station. In addition, the Levee Board Map Section 5, dated 1926 (Figure 38) shows that the Orleans Plantation, located just below Aurora, had been divided for the development of the Riverside Subdivision. This proved to be the wave of the future, as the unprofitable downstream plantations gave way to primarily residential areas. Following World War II, the transformation of the right bank from an agricultural area to a suburb of New Orleans had become complete.

Ever since the end of World War II, the industry of the entire study area has been in great decline. Along with the weakening of the railroad industry throughout the United States during the mid-twentieth century came the decline of the Southern Pacific. Gradually, operations in the complex decreased and the yard was dismantled. The final blow came on September 23, 1966, when the entire wharf was destroyed by fire. It was not rebuilt (Dixon 1971:65).

The plight of the Southern Pacific represents a microcosm of what happened to the other industries of the right bank. Most of the dry docks were dismantled, and the riverfront lay relatively silent when compared

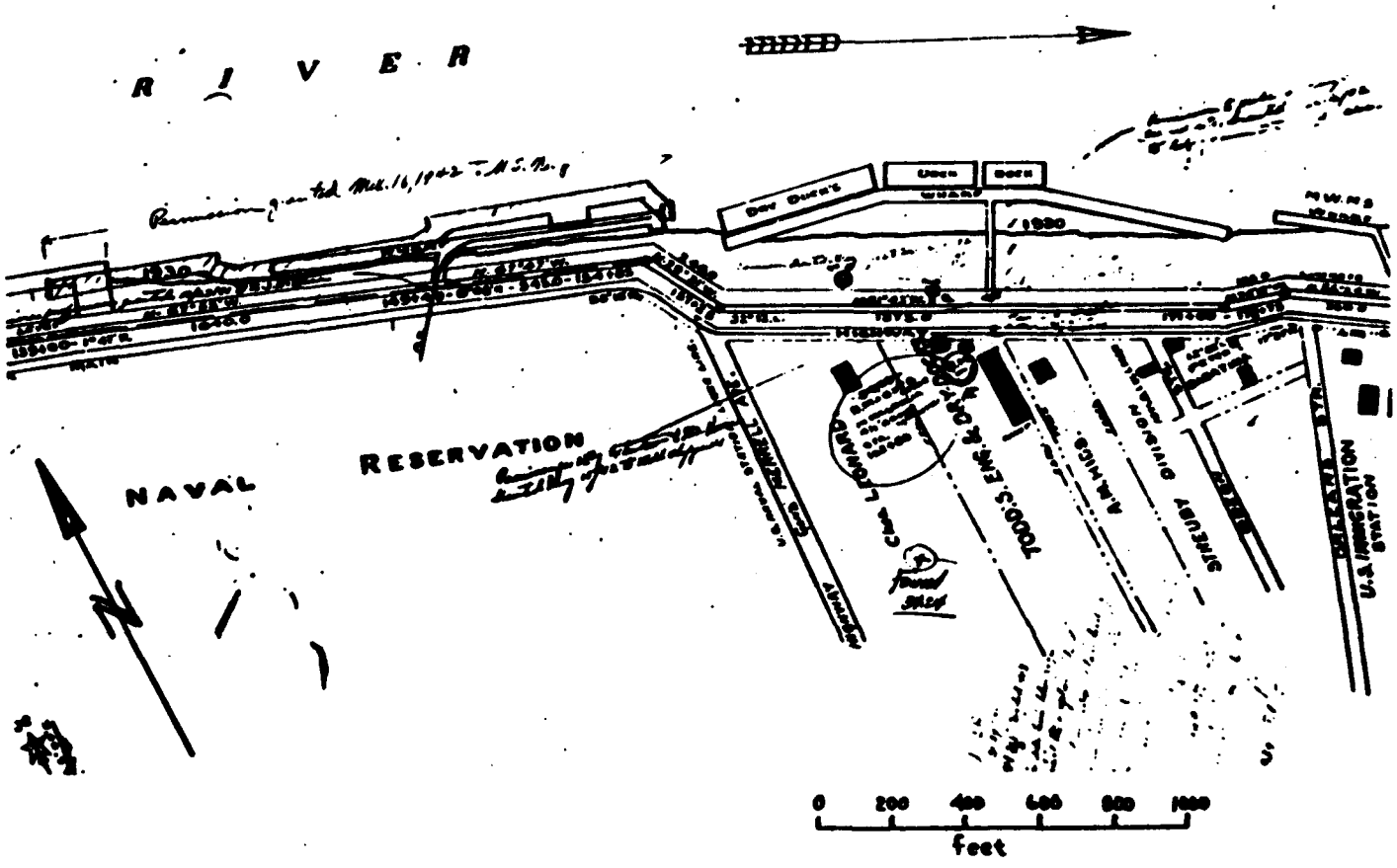


Figure 36. Excerpt from the Orleans Parish Levee Board's (1932) Mississppi River Bank, Section No. 2 (Office of Public Works, Baton Rouge).

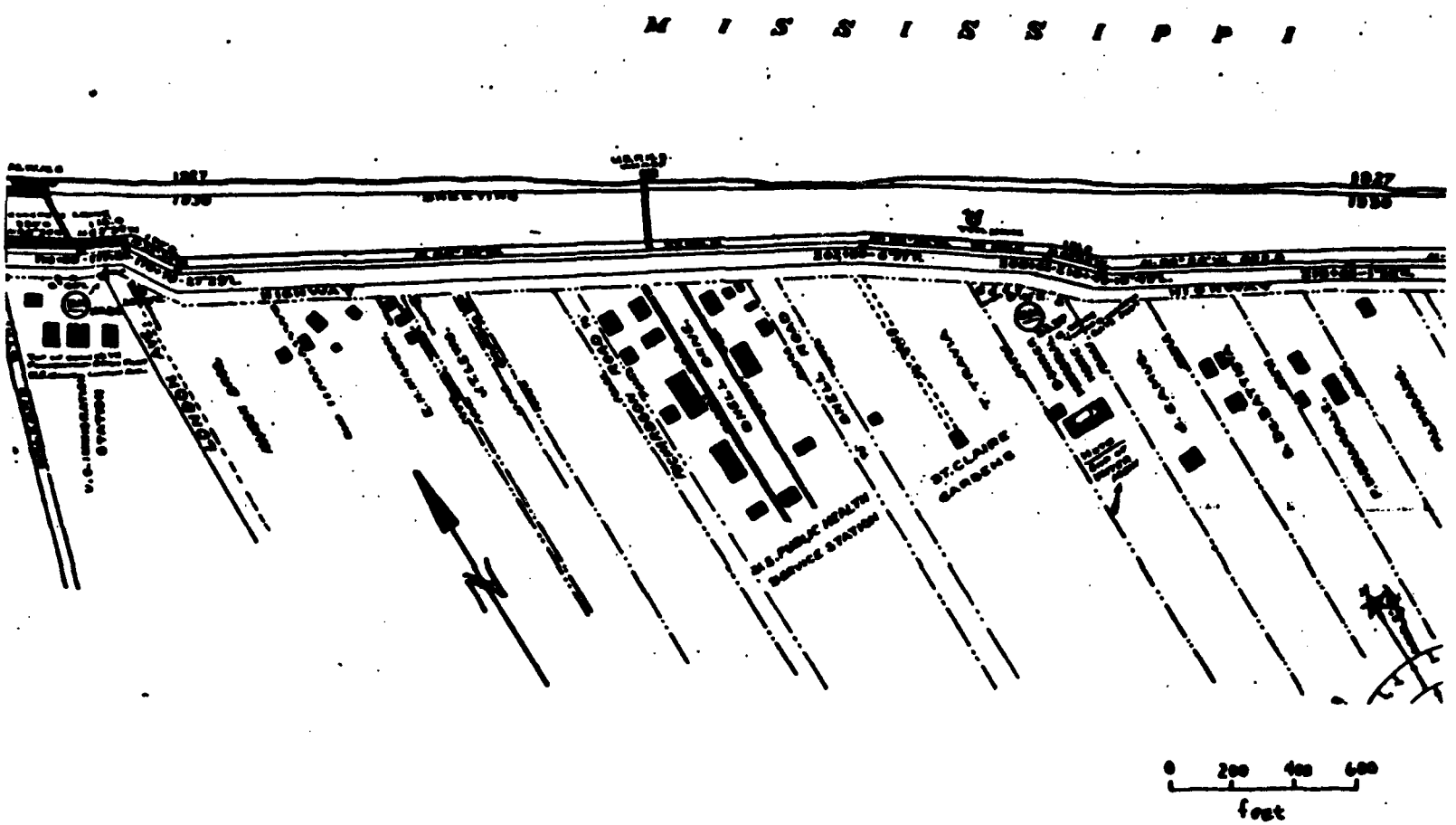


Figure 37. Excerpt from the Orleans Parish Levee Board's (1932) Mississippi River Bank, Section No. 3 (Office of Public Works, Baton Rouge).

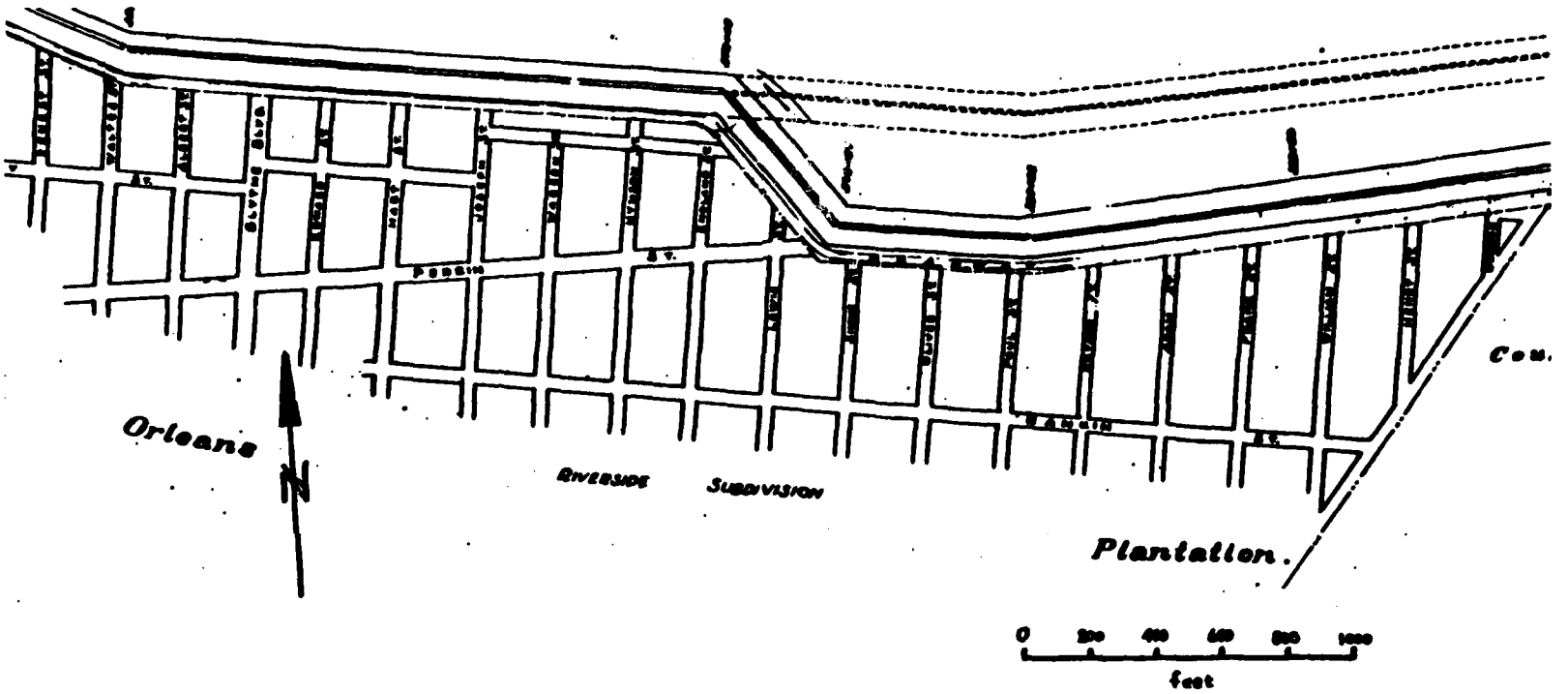


Figure 38. Excerpt from the Orleans Parish Levee Board's (1926) Mississippi River Bank, Section No. 5 (Office of Public Works, Baton Rouge).

to the hustle and bustle of activity that was taking place in the early twentieth century. For the most part, Algiers and the rest of the right bank have become a residential district, a huge suburb of New Orleans. Unlike other suburbs such as Metarie and Kenner, the right bank has a rich and vital history of agricultural and industrial production that was linked by railroads and shipping to national and international markets.

CHAPTER 7
FIELD METHODS

Reconnaissance Survey

A reconnaissance of the study area was performed by Drs. Shuman and Franks, Ms. Yakubik, and Mr. Dennis Jones of the Museum of Geoscience prior to commencement of field work. Access to various segments and vegetative cover of those segments were the primary focus of this effort. This brief reconnaissance provided an accurate assessment of field conditions within the project reach.

Intensive Pedestrian Survey

Fieldwork initially consisted of an intensive, pedestrian survey designed to provide thorough on-the-ground coverage of the study area with the goal of locating and inventorying previously unreported cultural resources. A check of the Louisiana State Site Files revealed that no cultural resources had been previously reported within the area designated for survey.

Each crew member was assigned a transect, and transects were spaced at twenty meter intervals. In most areas within the study corridor, three parallel transects provided full coverage for the area from the toe of the levee to waterline. Shovel tests measuring at minimum 30 x 30 x 30 cm were excavated at fifty meter intervals along each transect. Fill from shovel tests was examined carefully by troweling through it. Within the areas between shovel tests, crew members observed the ground wherever it was visible in order to locate surface cultural materials and/or features.

When cultural materials were recovered in a shovel test excavated during intensive pedestrian survey, the artifacts were placed in zip-lock plastic bags. Each bag was labelled with the location of the shovel test within the area being surveyed, the name of the crew member who excavated the test, and the date.

Tentative site designations were not assigned until a preliminary assessment of the nature of the cultural material had been made in the laboratory. However, locations of productive shovel tests were flagged immediately to facilitate relocation and systematic investigation of the (possible) site. Surface collections were not made at the time of pedestrian survey. Rather, the location of the scatter was flagged

so that more systematic investigation could be conducted subsequently. Only one or two diagnostic artifacts were collected from such surface scatters at the time of survey. This was done in order to obtain temporal information that might be important during initial stages of site assessment.

During pedestrian survey, all exposed beaches and bench faces were carefully examined. Even in revetted areas, small beaches form as a result of wave-wash erosion, and artifacts may be deposited from shallow depths within the river (Mossa, Chapter 2, this report; Saucier 1983). Bench faces were examined to determine whether in situ cultural material had been exposed by erosion. Attention was also given to areas of the batture that had been bulldozed or borrowed because of the possibility that buried resources might be uncovered by such activity.

Cultural material obtained from productive shovel tests or from surface proveniences were initially cleaned to the extent necessary to determine the nature of materials present. When bags contained aboriginal or Euro-American artifacts, the location from which the material derived was assigned a temporary site designation.

Site Assessment

A program of site definition was executed at all locations yielding historic or aboriginal artifacts. This program was designed to (1) determine the cultural and/or temporal affiliation of sites, (2) define the horizontal and vertical extent of sites, and (3) obtain the necessary data for an assessment of site significance and project impacts.

A site grid was established, and a site map was prepared using compass and tape. The map depicted the location of the river and the levee, of excavations, and of important natural or cultural features at the site. Shovel tests were excavated at 10 m intervals through the site in at least one direction. When warranted, a second line of shovel tests perpendicular to the first was excavated. Shovel tests used for site assessment were at least 30 x 30 x 30 cm. However, larger and/or deeper tests were excavated in most instances. Fill from these shovel tests was screened through 1/4-inch mesh in order to maximize recovery of artifacts. Cultural materials recovered in this manner were placed in plastic zip-lock bags labelled with the site

designation, the shovel test designation, the excavator's initials, and the date. Strata within selected shovel tests was characterized according to soil type (e.g. sandy clay) and Munsell hue, value, and chroma.

At some sites, auger tests rather than shovel tests were utilized during assessment activity. Generally this was done near beach scatters that exhibited no surface manifestations on the natural levee and no eroding material in bench faces. Auger tests were considered more useful because cultural material on such beaches generally dated to the eighteenth or early nineteenth century so that in situ deposits, if present, would be deeply buried. Auger tests were excavated to a depth of either 115 or 200 cm.

Whenever cultural material was present at the surface of a site, a provenienced collection was made. Emphasis was on ceramics, datable glass, and diagnostic architectural material. Where structural debris consisted only of brick fragments, a one hundred percent surface collection of ceramics and datable glass was made.

For some sites, this regimen of assessment was sufficient to evaluate the resource according to the National Register of Historic Places criteria of significance (36 CFR 60.4). It also enabled an assessment of project impact on the resource. However, at some sites where there was a possibility of deeply buried resources, additional excavations were made. Bench face profiles were cleaned at locations that would provide maximum vertical coverage of exposed strata. Stratigraphy of these profiles was recorded in detail.

Also, 1 x 1 m or larger test units were excavated by hand. Because of high rates of deposition, excavation proceeded either by arbitrary 20 cm levels or by natural levels. Fill from these units was screened through one-quarter inch mesh. Profiles were executed for all units, and plan drawings were executed when subsurface features were encountered.

CHAPTER 8
LABORATORY METHODS

All artifacts were washed, sorted, and catalogued according to standards of the Louisiana Division of Archeology. Ceramics, glass, and nails were described using formal archeological classifications presented below. Detailed consideration of the materials recovered from individual sites is presented with the results of field investigations in Chapters 9 and 10.

Aboriginal Ceramics

Aboriginal ceramics are classified following the Phillips' type-variety system for the Lower Mississippi Valley, together with the typologies developed by others in coastal areas to the east (Phillips 1970; Sheldon and Cottier 1983; Fuller and Stowe 1982). Where type assignments are unclear due to paste or decorative inconsistencies, sherds are fully described. All decorated sherds and the majority of rim sherds are illustrated in Chapter 10. This, and the full descriptions, are intended to facilitate comparisons by other researchers.

Historic Ceramics

Methodology. A paradigmatic classification (Dunnell 1971:84) which is the product of the combination of unweighted classes of paste, glaze, and of decorative type (Yakubik 1980) was utilized to describe historic Euro-American ceramics. The advantage to this method is that it provides a more complete and flexible definition of these ceramics by its ability to handle ambiguous and transitional ceramic types. This ultimately facilitates tighter chronological control. Because decorative type is treated as an equal class relative to paste and glaze, it permits the examination of socio-economic issues concerning ceramic use (Worthy 1982; Miller 1980). This classificatory framework has proven useful during previous research both at eighteenth- and nineteenth-century sites in rural and urban settings.

Tin glazed earthenware. Tin glazed earthenwares manufactured in the Mediterranean and Mexico are generically referred to as majolica. Those from France commonly are called faience, and those from Great Britain and Holland are called delft. Where the country of origin of a particular sherd is in question, these ethnic distinctions should be avoided. Although

manufacture of tin glazed earthenware in Great Britain began in the second half of the sixteenth century, the ware had been produced in Continental Europe since the Middle Ages. Use of tin glazed earthenwares declined during the late eighteenth century as inexpensive, clear glazed cream colored earthenwares gained in popularity. The ceramic paste of this type ranges from buff to pink or red. The color depends on the impurities in the clay as well as the firing time and temperature. Brain (1979:44) has suggested that faience paste color may have chronological significance, and that the earlier wares tend to have a buff earthenware paste. Examination of collections from the Chalmette Battlefield in St. Bernard Parish, from the Hermann-Grima House site in New Orleans, from Elmwood Plantation in Jefferson Parish, and from the Barataria Unit of Jean Lafitte National Historical Park have yielded ambiguous results concerning the temporal significance of paste color (Yakubik 1990).

Vessels are formed by throwing, jiggering, or stamping. The ceramic body is covered with a lead glaze which contains tin oxide. The result is an opaque, milky white glaze referred to as a tin glaze or a tin enamel. The glaze is sometimes tinted by the addition of other metal oxides. For example, cobalt oxide produces a blue glaze. Tin glazed earthenwares are commonly decorated with overglaze hand-painting.

The vast majority of tin glazed earthenwares found on sites in southeastern Louisiana are faience, i.e. of French manufacture. The ware is commonly recovered from eighteenth-century contexts. French faience production was at its height in the early eighteenth century. One distinctive type, brown faience (faience brune, Rouen ware), was introduced at this time. Paul Caussy claims to have invented the type, and he requested authorization to build a kiln in 1707. By 1788, 12 of 15 factories in Rouen were producing brown faience (Blanchette 1981:23-24).

Brown faience usually has a brick red paste, although pink and buff examples have been recovered in southeastern Louisiana (Yakubik 1990). The vessel exteriors have an opaque brown manganese glaze. The interiors have a tin glaze which often runs over the rim of the vessel. Decoration, if any, is almost always monochrome blue. Polychrome decoration is rare. Faience was replaced by creamware during the late eighteenth century in southeastern Louisiana.

Coarse earthenwares. This category includes red to buff colored earthenwares with a wide variety of surface treatments. Individual types are defined on the basis of paste color, glaze, and decorative treatment. The majority are wheel thrown, and they were produced for utilitarian purposes. Paste color results from the presence of iron compounds and other impurities in the clay, and from variability in firing temperature and atmosphere. These wares are fired at low temperatures. Earthenware becomes hard fired at 950-1100 degrees (Rhodes 1973:22). Because pure earthenware clays cannot be fired to complete vitrification, red colored earthenware tends to be more fragile than porcelains and stonewares (Rhodes 1973:47).

Because they can be hard fired at relatively low temperatures, and because red colored earthenware clays are readily available in many locales, coarse earthenwares generally are not as indicative of tightly defined temporal periods as some other types. In general, however, coarse redwares and buff earthenwares are commonly found in eighteenth-century contexts in southeastern Louisiana. Usage of these types decreased during the nineteenth century.

Similarly, it is often difficult to determine the place of manufacture. It is likely that some coarse earthenwares were manufactured locally in Louisiana. However, some of the coarse earthenwares recovered during the present investigations appear to be European in origin, and resemble types from the Fortress of Louisbourg, Nova Scotia (Barton 1981), from the wreck of the Machault in New Brunswick, Canada (Barton 1977), from the Cahokia Wedge Site in Illinois (Walthall and Gums 1988), and from the Trudeau Site in West Feliciana Parish (Brain 1979). Similar coarse earthenware types have been recovered from a number of southeastern Louisiana sites (below).

Coarse earthenwares are usually glazed to render them impermeable to liquids. The most common surface treatment on redwares is a lead glaze covering the entire vessel, or confined to the interior or exterior vessel walls. Sherds of this type are rarely diagnostic in terms of place of manufacture, particularly when vessel form cannot be determined. However, Barton (1981:35) describes a group of French lead glazed redwares as having a pink or red paste with a yellow to brown glaze. The glaze is flecked brown as a result of iron in the vessel fabric. This category of ceramics corresponds to Lead Glazed Earthenware Type B from the

Trudeau Site (Brain 1979:50-56) and to Charente Plain as defined by Walthall (Walthall and Gums 1988:149). Sherds fitting this description were recovered during the present investigation at sites 16OR119, 16OR122, and 16OR125. Similar sherds have been collected at Elmwood Plantation (Goodwin et al. 1984), at sites on Golden Ranch Plantation (Hunter et al. 1988), in the Barataria unit of Jean Lafitte National Historical Park (Yakubik 1989), at the Chalmette Battlefield, and at Fortier Plantation (Yakubik 1990). It is likely that all of these examples are of French origin.

A few of the sherds recovered during this investigation were white-slipped prior to the application of a lead glaze. Again, such surface treatment is common, and it is difficult to assign a place of manufacture without information on vessel form. However, Barton (1981:23-27) describes a group of Southern French white slipped and glazed redwares recovered from the Fortress of Louisbourg. Some of these ceramics have either sgraffito or trailed slip decoration. While none of the sherds recovered during the present investigation are decorated, they could be representatives of this type.

Sherds of redware with an interior white slip covered with a green glaze were recovered from 16OR122 and 16OR125. Similar redwares with a "thick white (interior) slip... over which a copper-stained lead glaze is applied" have been recovered from the Fortress of Louisbourg (Barton 1981:10). The type appears to correspond to Walthall's Saintonge Slip Plain (Walthall and Gums 1988:149) and Lead Glazed Earthenware Types C and F (Brain 1979:57-65,72-73). It is referred to here as "Saintonge Slipped Green Glazed." Barton (1981:10) attributes theses wares to La Chappelle-des-Pots, near Saintes, Charente Maritime, France. Possibly related to this type is one unusual coarse redware sherd recovered from 16OR125 that has a white interior slip covered with a lead glaze that has been mottled green with the addition of copper oxide.

Several of the red to pink coarse earthenware sherds from sites in the present study area are also covered with a white to buff slip but are unglazed. It is possible that in some cases the slip has eroded, and at least one sherd may show evidence that it was formerly lead glazed. However, slipped but unglazed redwares have been recovered in Louisiana from Elmwood Plantation (Goodwin et al. 1984), from sites on Golden Ranch Plantation (Hunter et al. 1988), and from the

Barataria Unit of Jean Lafitte National Historical Park (Yakubik 1989). Thus, it is likely that this represents a distinct type.

Only three redware sherds recovered during this investigation exhibited evidence of trailed slip decoration. The first of these has a white trailed slip covered by a lead glaze. This is a common surface treatment. It may be French, although the French slipwares recovered from the Fortress of Louisbourg and from the wreck of the Machault tend to have colored slips on a white ground (Barton 1981, 1977). Alternatively, white trailed slip decoration is very common on Anglo-American coarse redwares. It should be noted, however, that one sherd from the Cahokia Wedge Site having the paste and glaze characteristics of Charente Plain exhibited white trailed slip decoration (Walthall and Gums 1988:149). Similar sherds have been recovered from a number of eighteenth-century contexts in Louisiana (Yakubik 1990).

The second sherd has a brown lead glaze and black trailed slip decoration. This type, Albisola Slipped, was produced in the Albisola pottery center west of Genoa in Italian Liguria. Samples have been recovered from the Fortress of Louisbourg, Fort Beausejour, and the wreck of the Machault. The type has been assigned a late eighteenth century date in southern France and Italy, but it may have been produced as early as the mid-eighteenth century (Barton 1981:46-47). The ware has been found at eighteenth-century sites in Louisiana in both the Chalmette Unit and the Barataria Unit of Jean Lafitte National Historical Park (Yakubik 1989,1990), at sites on Golden Ranch Plantation (Hunter et al. 1988), and at Fort St. Leon (Gilmore and Noble 1983:68).

The third slip trailed sherd has a redware paste covered with an interior white slip on which green slip decoration has been applied. The interior of the vessel is covered with a lead glaze. This appears to correspond to a group of Southern French wares described by Barton (1981:23-27) from the Fortress of Louisbourg. Ceramics from this group include redwares with green whorled decoration on a white slip ground. It should be noted, however, that the sherd from 16OR125 is too small to determine the pattern of the green slip decoration.

One sherd of buff colored earthenware with an interior brownish-yellow lead glaze was recovered from 16OR125. The sherd is similar to the description given

by Barton (1981:31-33) for a group of buff colored coarse earthenwares with lead glazed interiors from the Fortress of Louisbourg. This type often has red and green trailed slip decoration, while coarser examples are undecorated or have only copper or crushed hematite sprinkled onto the glaze. Copper gives the glaze a golden yellow color with green and brown mottling, while crushed hematite stains the glaze brown to black. Barton (1981:33) indicates that this type was made in or near Beauvais in Northern France, possibly at Martincamp near Sorrus.

Green glazed buff earthenware is another common type on Louisiana sites dated to the eighteenth century. Referred to here as "Saintonge Green Glazed," the ware generally has a chalky paste with an interior apple-green glaze, although the paste can range in color to pink. The type was one of the two principal wares produced at La Chappelle-des-Pots in southwestern France in the eighteenth century. The type is represented in the collections from the Trudeau Site (Lead Glazed Earthenware Type A), from the Cahokia Wedge Site (Saintonge Plain), from the Fortress of Louisbourg, from the wreck of the Machault, and from Fort Michilimakinac (Brain 1979:45-50; Walthall and Gums 1988:147-148; Barton 1977, 1981:13,16-20; Miller and Stone 1970).

Cream colored earthenware. In 1759, Josiah Wedgwood and Thomas Whieldon perfected the manufacture of a cream colored earthenware body. By about 1762, Wedgwood had developed creamware, a type of cream colored earthenware, which contributed to England's increasing control of the world ceramic market (Miller 1980). Creamware has a thin, refined cream colored earthenware body covered with a clear lead glaze tinted with copper oxide. Importation to the American colonies began at least as early as the 1760s, and the ware continued in popularity through the first two decades of the nineteenth century. Recent investigations in the Barataria Unit of Jean Lafitte National Historical Park suggest that creamware was not widely available in southeastern Louisiana until after 1780 (Yakubik 1989, 1990).

Wedgwood developed pearlware from creamware by 1779. Noel Hume (1969:390; 1970:128) notes that although the pearlware paste contains more flint than that of creamware, the cream colored earthenware bodies of the two are virtually identical. The primary distinction between the types is that while the creamware glaze is tinted with copper oxide, the

pearlware glaze is tinted with cobalt oxide. As a result, creamware has a yellowish appearance, but the cobalt has the effect of whitening the cream colored earthenware body of pearlware.

Unlike creamware, which is often undecorated or decorated with only molded relief patterns, pearlware received a wide variety of decorative treatments. The treatment is often hand-painted underglaze, either in blue (usually oriental motifs) or in polychrome floral and geometric patterns. Transfer-printing is also common. The technique involved engraving a plate with the desired pattern and printing it on tissue paper. The paper was laid on the vessel, transferring the pattern to the piece. Blue transfer-printed pearlware is common from the late eighteenth into the second quarter of the nineteenth century. Shades such as red, brown and green were introduced during the nineteenth century. A variation on transfer-printing is Flow Blue. This decoration is produced by the deliberate introduction of a chlorinated vapor into the kiln, which blurred the transfer-print. Patterns on later examples tend to be more distinct than those on earlier pieces. Introduced ca. 1825, Flow Blue was utilized on whiteware and ironstone (below) into the early twentieth century. Flow Purple and Flow Brown were also produced in lesser quantities (Ray 1974:69).

Annular decoration is also common on pearlware. It consists of horizontal bands of colored slips on the vessel that often are found in conjunction with engine-turned pattern. Variants of annular decoration are mocha (brown fern-like motifs) and finger-painting (zones of swirled multi-colored slips). Blue and green shell-edged pearlware also are frequently recovered. These have a molded, shell-like rim that is decorated with either blue or green hand-painting. Eighteenth century examples tend to be finely cast with individual brush strokes evident on the rim, while later sherds are less finely molded and painted. Not infrequently, the edge painting consists of only a broad band of blue or green. Nineteenth century examples also sometimes exhibit a variety of fronds, garlands, and floral devices molded on the edge (Sussman 1977).

White colored earthenware. White colored earthenware was the result of the introduction of increasing amounts of cobalt into the ceramic paste during the early nineteenth century. The bodies of these ceramic vessels became thicker and coarser over time; the net effect of whitening the ceramic paste was

a reduction in its plasticity. The result of all these changes distinguishes white colored earthenware from cream colored earthenware. During the first quarter and into the second quarter of the nineteenth century, this white colored earthenware body frequently was covered with a cobalt tinted glaze typical of pearlware. Ultimately, the use of cobalt additives in the glaze was reduced, and by the end of the first quarter of the nineteenth century, a white colored earthenware paste with a clear alkaline glaze was being produced. This type commonly is referred to as whiteware. Whiteware is found with all of the decorative types common to pearlware, discussed above. After ca. 1900, decaled decoration is often found on whiteware.

A similar ware popularized during the mid-nineteenth century in America and England was variously referred to as ironstone, stone china, and granite ware. This type also has a refined white colored earthenware paste. Worthy (1982:335-337) classifies it as a white stoneware, yet states that the body is "almost vitreous." Since stonewares by definition are vitrified, this precludes the classification of ironstone as a stoneware.

It should be noted that Worthy (1982) is correct in stating that whitewares are easily distinguished from later ironstones. Unfortunately, distinctions between the two types at mid-century are less clear. While it seems clear that sufficient differences exist between whiteware and ironstone in terms of paste composition, permeability, body thickness, decoration, and surface color to justify their segregation, it is equally clear that these differences form a continuum between the two types, just as pearlware gradually grades into whiteware. Barber (1902:19) states that the formula for ironstone is similar to that used in all white ceramic wares, namely flint, feldspar, kaolin, and ball clay. For the purposes of this study, the classificatory unit of "whiteware/ironstone" is used for intermediate/ indeterminate sherds.

As stated above, ironstone was developed in England ca. 1850, and was produced in the United States at a slightly later date (Ramsey 1947:153). It has a hard white, and often thick and heavy ceramic body. Although not completely vitrified, it is more vitrified than whiteware. Ironstone fractures evenly and smoothly. Surface appearance is hard and smooth, usually with an opaque-looking glaze with a blue-gray cast. It is frequently undecorated, or decorated with only molded

relief. However, transfer-printing is not uncommon, particularly in the late nineteenth and early twentieth centuries. Decorative motifs usually consist of floral patterns, unlike the primarily scenic transfer-prints found to ca. 1840 on pearlware and whiteware. Decalcomania is also common after ca. 1900. Like whiteware, ironstone continued in production into the twentieth century.

White colored earthenware produced during the twentieth century received a variety of surface treatments. One such treatment was the use of brightly colored opaque glazes. The two best known brand names of this type are "Fiesta," and the less expensive "Harlequin." Both types were produced by the Homer Laughlin Co. of West Virginia from the late 1930s to the 1960s. In the absence of a maker's mark, this type should not be attributed to a specific manufacturer.

Yellow colored earthenware. This is an American coarse utilitarian body type. The paste in fact consists of stoneware, not earthenware clays, but the ware is classified as an earthenware because it is not fired to vitrification. The paste ranges from soft and porous in low-fired examples to nearly vitrified pieces which have been fired at high temperatures. The paste color is buff to brownish yellow, and varies with the amounts and types of impurities in the clays and with the firing temperature. Surface treatment of the vessels varied with function. The variant known as yellowware is covered with a clear alkaline glaze. It was molded into a variety of utilitarian forms such as bowls, jelly-molds, pitchers and mugs. After 1840, it is frequently found with annular bands in white, brown and blue, as well as mocha decoration in blue or brown (Ramsey 1947:148-150). Yellowware was produced into the twentieth century.

Yellow colored earthenware also is found with a tortoiseshell brown glaze produced by mixing manganese and iron oxides into the alkaline glaze. Known as rockinghamware, the type was molded into a variety of decorative and utilitarian shapes. Manufactured between ca. 1830-1900, the height of rockinghamware's popularity was the mid nineteenth century.

Yellow colored earthenware sometimes was covered with an Albany slip, or a similar dense, brown-to-black matte slip glaze. This variant was more commonly known as brownware, and was most often utilized for straight-sided crocks and storage vessels. Generally wheel-

thrown, brownware was produced between ca. 1830 and 1900. Brownware is occasionally unglazed. This variant was manufactured ca. 1840-1875. Brownwares with alkaline and salt glazes also were produced in the south after 1860 (Ramsey 1947:144). Bristol glazes, which utilize zinc oxide as their primary fluxing agent, also are found on brownware. The Bristol glaze is opaque, off-white, and frequently exhibits pits and pinholes (Rhodes 1973:180).

Stoneware. Stoneware paste ranges in color from white-gray or buff to deep gray and brown. Stoneware is fired at between 1200-1300 degrees, and it has a smooth and stoney appearance (Rhodes 1973:22). Stoneware was first commercially produced in the United States ca. 1775. Use of these heavy, wheel thrown utilitarian vessels became widespread during the nineteenth century. Just as coarse earthenwares were the primary utilitarian ceramic of the eighteenth century, so were stonewares the principal utilitarian wares of the nineteenth century.

The most common surface treatment of stoneware is salt glazing. The raw ceramic is fired until the clay matures, at which point salt is added to the firebox. The vaporized salt is then deposited on the ware, producing a thin, bright, hard glaze with an orange-peel texture (Rhodes 1973:285). Because the salt vapor usually does not adequately penetrate the interior of vessels, an Albany slip, developed ca. 1810, usually coats the interior of American stonewares. Salt glazed stoneware is often undecorated, or decorated with cobalt hand-painting.

Stonewares are also treated with alkaline glazes. The application of an engobe, or slip to change the surface color of a vessel is also common, both with and without subsequent glazing. The fact that stonewares were often produced in small local potteries contributes to the large amount of variation in surface treatment.

Porcelaneous stoneware. This is a classificatory type suggested by Worthy (1982) to describe a type that embodies the traits of both stoneware and porcelain. Also known as semi-porcelain and hotel china, it was developed in the United States after 1880 for table use. It contains both kaolin and ball clay, and is fired between 1200-1400 degrees (Worthy 1982:337). It is very white, dense and completely vitrified, but unlike porcelain, is opaque. Although it exhibits a variety of

decorative treatments, the most common is monochrome rim banding.

Porcelain. Hard paste porcelain was first manufactured by the Chinese in the eighth century A.D. (T'ang Dynasty). Chinese porcelain came into such demand that, by the eighteenth century, Oriental potters were manufacturing porcelain exclusively for export to western markets. Underglaze blue hand-painted porcelain was first available in the American Colonies during the second half of the seventeenth century. By the early nineteenth century, the quality of the hand-painting declined dramatically. By the later nineteenth century, inexpensive porcelains were being mass produced for the American market by manufacturers such as Haviland and Company. Undecorated French porcelains provided competition for American and British ironstones during this period. Commercially successful hard paste porcelains were not manufactured in the United States until ca. 1880.

Hard paste porcelain is completely vitrified and translucent. It is made from kaolin and petunse (feldspar, or potassium aluminum silicate), and it approaches a glass in composition because of the high firing temperature (1300-1450° C.). The paste tends to fuse with the feldspathic glaze during firing. The ware fractures conchoidally. Surface appearance is hard and smooth, and surface color ranges from very white to white with a gray, blue, or green cast (Miller and Stone 1970:81: Noel Hume 1970:257-263). Porcelain can receive a variety of surface treatments, although only cobalt decoration may be applied underglaze due to the heat necessary to fire the ceramic. Hand-painting, transfer-printing, and decalcomania all are common on porcelain.

Glass

Datable manufacturing techniques. Prior to the nineteenth century, the majority of glassware was hand-blown. Characteristics of hand-blown glass include the absence of mold seams and an asymmetrical vessel shape. Alternately, bottles were blown into a one piece dip-mold to form the vessel body, while the neck and shoulders were hand finished. This technique came into use during the later eighteenth century and continued to be utilized until the mid-nineteenth century.

Both hand-blown and molded bottles were held by pontil during finishing. Attached to the vessel base, pontils left characteristic scars. One variant is the

blow pipe pontil. The blow pipe pontil exhibits a rough ring of glass; it is produced by utilizing the blow pipe as the pontil rod. Thus, the molten glass from the neck creates the characteristic scar on the base (Jones 1971).

Molds to shape the shoulders and the necks of vessels as well as the body came into use during the first two decades of the nineteenth century. These included the three-piece hinged mold, which had a dip body and a hinged, two-piece upper section to form the shoulders and the neck. The two-piece hinged mold came into use during the same time period. These molds were hinged at the base, and the resultant bottle had mold seams running across the base and up the sides of the vessel. Frequently, the base seam was obliterated by the scar from the pontil used to hold the vessel while the mouth and neck were finished (Baugher-Perlin 1982:263)

Two-piece molds began to replace three-piece molds by the mid-1840s, and by the following decade the former was improved by the addition of cup bottoms and post bottoms to form the base (Haskell 1981:62; Lorraine 1968:40). Cup bottoms are characterized by a mold seam which encircles the bottom of the vessel body. A post bottom has a circular seam on the base itself, and the side seams extend over the base edge to meet it.

During the eighteenth and nineteenth centuries, bottle lips were cut off with shears while the glass was still soft. These sheared lips are characterized by an abraded plain cylindrical top. Frequently a bead of glass was laid on the neck beneath the lip of the vessel. By the mid-nineteenth century, bottle lip finishing techniques had been improved. The tooled lip was one such method. The lipping tool consisted of a central piece placed within the bottle neck and an external arm, which, when rotated, shaped an even lip from the soft glass applied to the mouth of the vessel. Use of this technique tended to obliterate the neck seams of the vessel as a consequence of reheating and finishing.

Michael Owens patented a fully automatic bottle machine in 1903. This eliminated all hand labor from bottle manufacture. Suction was used to draw the molten glass into the mold, and the resulting bottles have ring seams around the base and side seams which extend over the lip. By the third decade of the nineteenth century,

the vast majority of bottles were produced by this method.

Datable glass colors. In addition to manufacturing techniques which produce datable attributes, certain glass colors provide some chronological information. For example, "opaque black" glass, which was utilized primarily for liquor bottles, was common throughout the eighteenth century and until the late nineteenth century. The glass is actually dark green, but the thickness of the vessel gives the impression that the glass is opaque black in reflecting light (Jones 1971:11).

Also, most clear glass prior to the Civil War was lead crystal. The introduction of improved lime glass in 1864 provided an inexpensive alternative (Haskell 1981:28). Consequently, clear glass is more common from the second half of the nineteenth century onward.

Finally, manganese oxide came into wider use as a decolorizing agent in the final third of the nineteenth century. Use of this oxide to clarify glass continued through World War I. Glass treated with manganese oxide tends to become amethyst colored when exposed to sunlight (Toulouse 1969:534).

Nails

Generally, nails are only broadly datable. Prior to 1790, all nails were hand wrought. A variety of different wrought nails were manufactured. These can be defined by the shape of their heads (i.e. rose-headed, t-headed, l-headed, and headless).

Between 1790 and the 1830s, early machine cut square nails came into general use. Machine cut square nails with wrought heads were manufactured between about 1790 and 1815, after which square cut nails with machine made heads appeared. This type, which continued to be manufactured until the 1830s, had somewhat irregular heads and a "wasted," rounded shank under the head. Square cut nails with machined heads that lacked the "wasting" characteristic of the above appeared ca. 1820 (Nelson 1963; Noel Hume 1970:252-254).

Additional nail attributes which provide chronological information include cut marks and the direction of the metal fibers in the nail shaft. Prior to 1820, the cutting of the nail shafts produced burrs on diagonal corners of the nail shaft. After this date,

the burrs appear on adjacent nail corners. In addition, prior to ca. 1830, the metal fibers of the nail run horizontally to the shaft, later, they run vertically to the shaft. Wire nails were introduced ca. 1850, and they began to replace square cut nails by the third quarter of the nineteenth century (Nelson 1963; Noel Hume 1970:252-254).

Classification of nails was hampered by extreme corrosion. Ambiguous square nails were classified as such. Wrought, cut, and wire nails were identified whenever possible.

CHAPTER 9
RESULTS OF SITE ASSESSMENT

Standing Structure Inventory

During pedestrian survey, presence of standing structures was noted on the batture. Mr. Jeffrey Treffinger, architectural historian, returned to those structures to assess their potential significance according to National Register criteria. He noted that none of the structures is of sufficient age to warrant completion of the Louisiana Historic Structures Inventory form. Further, he noted that none of the structures were designed by a master craftsman, nor did they possess high artistic value. Thus, proposed construction will not result in impact on significant standing structures.

One structure lay within the U.S. Naval Reservation. It was a one-story, steel frame "L" shaped building of utilitarian function. The structure rests on wooden piers and a supporting dock, and is presently used as a ferry landing facility. The exterior is made of raised panel steel and corrugated fiberglass. The roof was gabled and of corrugated steel. Vents were present. Also situated on the dock was a covered shed which served as a connecting walkway.

At the Cooper T. Smith stevedoring facility, two metal sheds were present. These were windowless, and were constructed with corrugated metal and gable roofs. Finally, at the Compass Dockside Facility, a dock on wooden piers supported a standing seem steel shed with a gabled roof. Portable utility sheds were also present here.

16OR119

Introduction. During pedestrian survey, a beach scatter of creamware and pearlware was observed at this locale. Site assessment included a series of surface collections of the beach, which was gridded into 10 m collection proveniences. Also, a site map was prepared using compass and tape. Thirteen auger tests were excavated to a depth of 115 cm, and eleven auger tests were excavated to 200 cm. In addition, three profiles were cleaned. One of these was located at water's edge, while the other two were located on benches that border the beach. These profiles were examined by Ms. Joann Mossa (Geomorphologist) during her field visit, and she observed no evidence of a former ground surface.

Finally, a 1 x 1 m unit was excavated to a depth of one meter on one of the benches, and two auger tests were excavated in the floor of the unit to provide coverage to a depth of two meters.

Site Map and General Site Description. The site map for 16OR119 is shown in Figure 39. A site datum was established on a bench directly above the artifact-laden beach. Surface elevation at datum was 10.636 ft (3.24 m) NGVD. Both (magnetic) N/S and E/W baselines were marked at 10 m intervals in the field. In addition, a line oriented at 156° was marked by stakes and flags at 10 m intervals along the beach in order to facilitate provenienced surface collections.

The beach itself measured 40 m in N/S extent. A smaller beach, approximately 10 m in N/S extent, is located a short distance to the north of the larger. These beaches were apparently created by wave-wash erosion. The northern and southern boundaries were marked by rip-rap, suggesting that the beach and associated cove formed as a result of failure of a portion of that rip-rap. The site map also shows the complex series of eroding benches situated between the beach and the cleared and bulldozed corridor associated with the riverside toe of levee.

Surface Collections. Surface collections of the larger beach were made in 10 m proveniences: 10-20S, 0-10S, 0-10N, 10-20N. The collection provenience for the smaller beach was 30-35N. On the first day of site assessment, a 100% surface collection of all cultural material was made for the various beach proveniences. The goal of this collection was to assess the relative proportions of historic and modern materials. Subsequently, additional surface collections were made of ceramic artifacts, diagnostic glass, and diagnostic architectural materials. These latter collections were designed to provide additional information regarding the nature of the historic period occupation at the site as well as information regarding the degree to which cultural material was being newly deposited or reworked in the sandy beach matrix.

Auger Tests. Two series of auger tests were excavated at this site in order to determine whether buried ground surfaces and/or historic artifacts could be detected. Thirteen auger tests were excavated to a depth of 115 cm, and eleven auger tests were excavated to 200 cm. Locations of these tests are shown on the site map in Figure 39, while auger test stratigraphy is

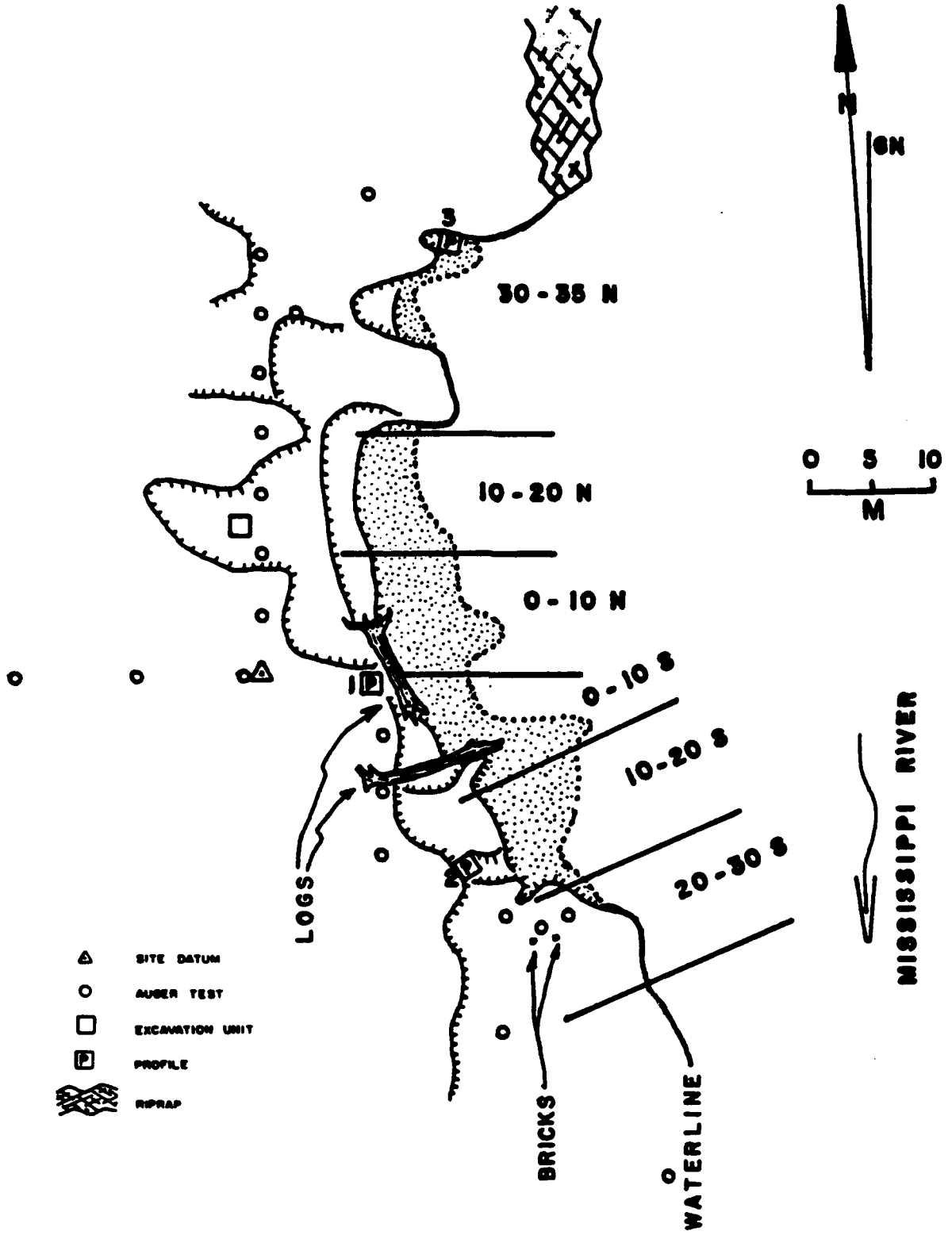


Figure 39. Site Map of 16OR119.

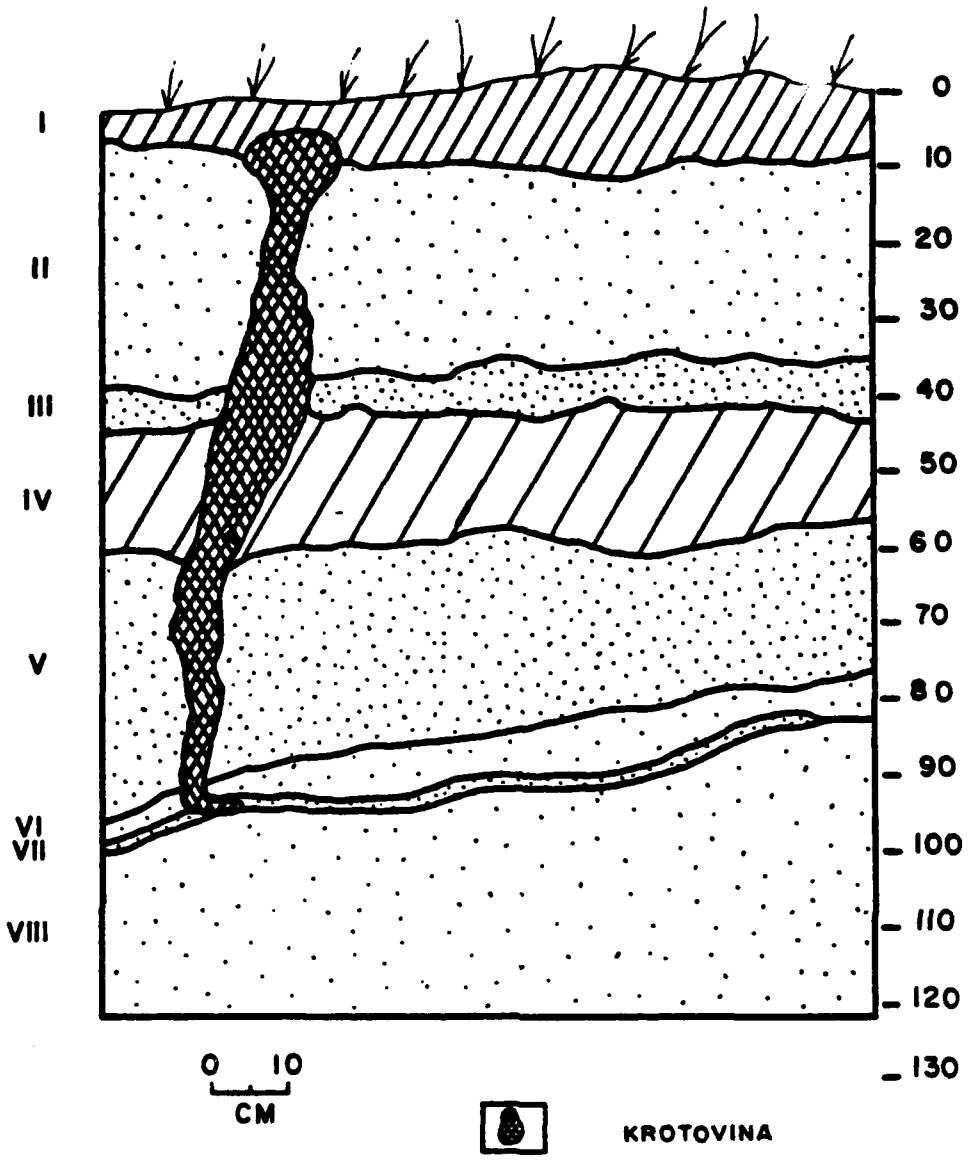
presented in Appendix I. Clays, with varying silt and sand content, predominated at the site. No artifacts were recovered, and no evidence of an historically occupied ground surface could be discerned.

Bench Face Profiles. Three profiles were cleaned on bench faces associated with the beaches yielding artifacts. Two of these were located on the first bench arising from the larger beach, and one was located at the smaller beach to the north. Soils observed in these profiles are shown in Figures 40, 41 and 42. These profiles provided 120 cm, 200 cm and 80 cm of vertical coverage respectively.

The profile in Figure 42 shows a wooden beam emerging for a distance of 136 cm from the bench face. It lies within Stratum V which is a silty clay. Above this beam are approximately 50 cm of sands and clayey sands. These overlying strata indicate that the deposition regimen is different here than at Profiles 1 and 2 (Figures 40 and 41), which are capped by hard, dry, Sharkey clays. Profile 3 (Figure 42) is located only 8 m west (landward) of an intact segment of rip-rap, whereas Profiles 1 and 2 are considerably inland from this modern, stabilized river's edge.

Based on the presence of circular saw blade marks, the beam itself appears to be of relatively recent origin. Its dimensions were 9 cm (3-1/4 in) x 11.5 cm (4-1/2 in). No nails or hardware were present on the exposed surfaces. The circular saw blade marks indicate that the beam was cut at a later date than is indicated by the ceramic beach scatter (below), and it apparently is unrelated to the historic period occupation at the site. It may have drifted onto an earlier surface, after which it was buried by 50 cm of sandy alluvium and embedded in the bank. Subsequently, then, erosion has re-exposed it.

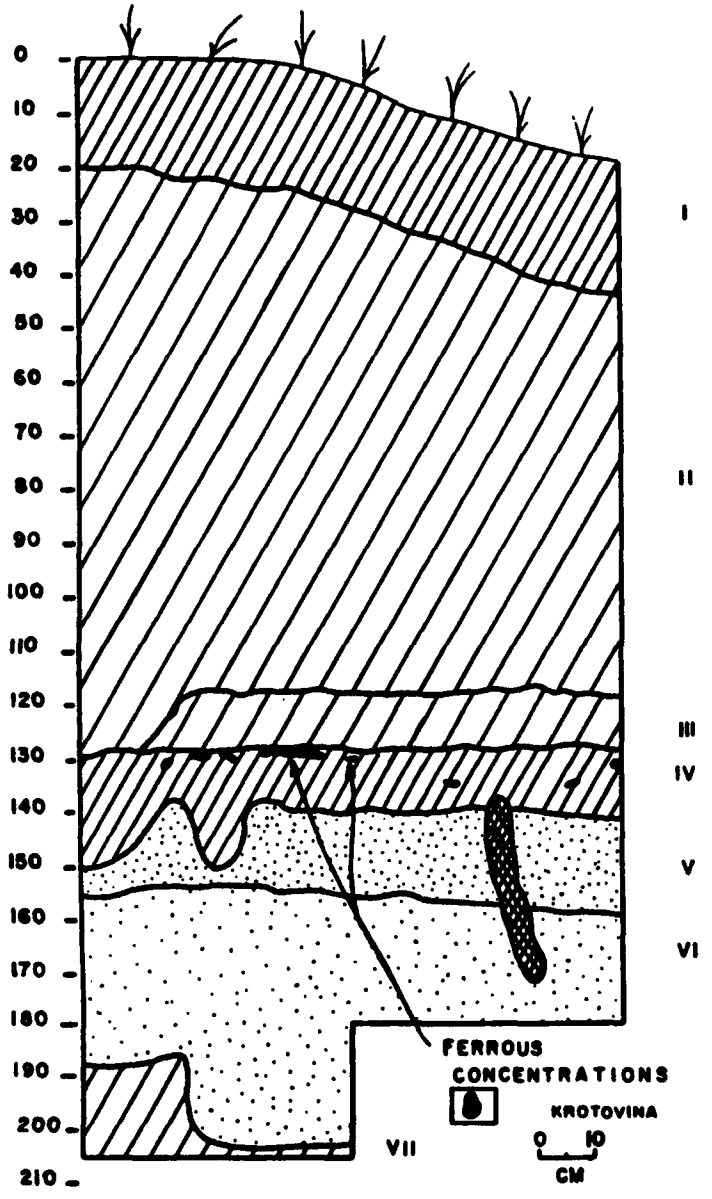
Excavation Unit. A 1 x 1 m excavation unit was placed on one of the benches at this site. Excavation proceeded by 20 cm arbitrary levels to a depth of one meter, and all fill was screened through 1/4-inch mesh. However, no cultural materials were recovered from the unit. Two auger tests were excavated in the floor of the unit in order to obtain coverage to a depth of 215 cm. However, these auger tests yielded neither artifacts nor evidence of a deeply buried ground surface. A profile of the west wall of this unit is shown in Figure 43. The key for that figure details



Key to Strata:

I. 10YR 4/4 (dark yellowish brown) clay
II. 10YR 5/3 (brown) silty sand
III. 10YR 5/3 (brown) silty sand with increased clay content
IV. 10YR 5/2 (grayish brown) clayey sand loam
V. 10YR 5/3 (brown) sandy loam
VI. 10YR 4/3 (brown/dark brown) moist clayey sand
VII. 7.5YR 4/4 (brown/dark brown) moist clayey sand
VIII. 10YR 4/3 (dark brown) moist clayey sand

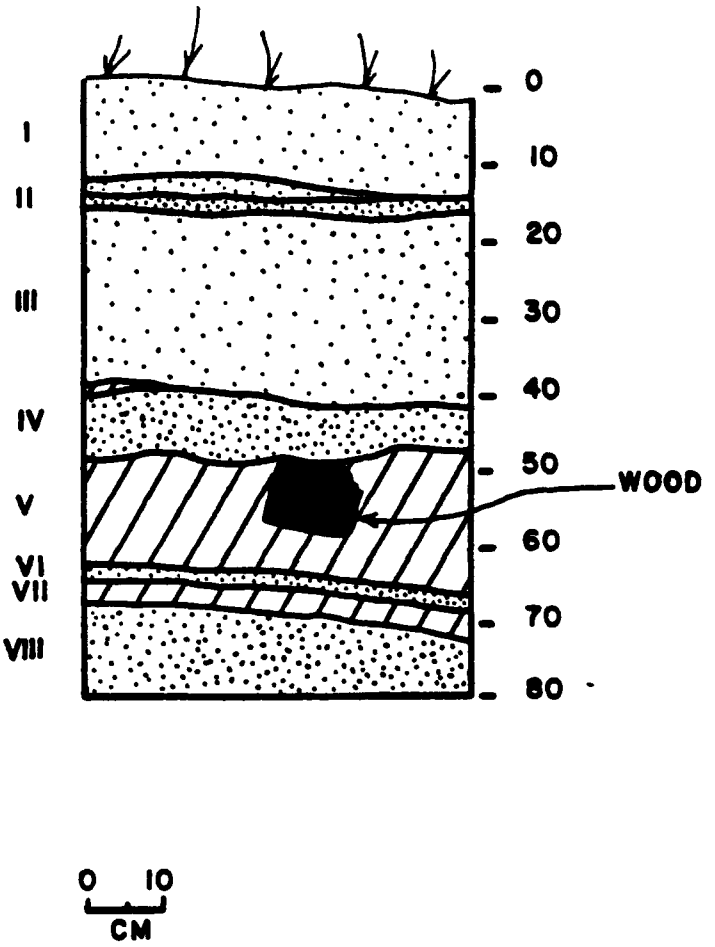
Figure 40. Stratigraphy in Bench Profile No. 1, 16OR119.



Key to Strata:

I. 10YR 5/3 (brown) mottled clay
II. 2.5Y 4/2 (dark grayish brown) silty clay with mottling
III. 2.5Y 4/4 (olive brown) very silty clay with mottling
IV. 5Y 5/2 (olive gray) silty clay with naturally occurring ferrous nodules
V. 2.5Y 5/2 (grayish brown) clayey sand
VI. 2.5Y 4/2 (dark grayish brown) banded clays and sands
VIII. Silty clay, very soft and plastic; color is grey, indicating near-constant water saturating

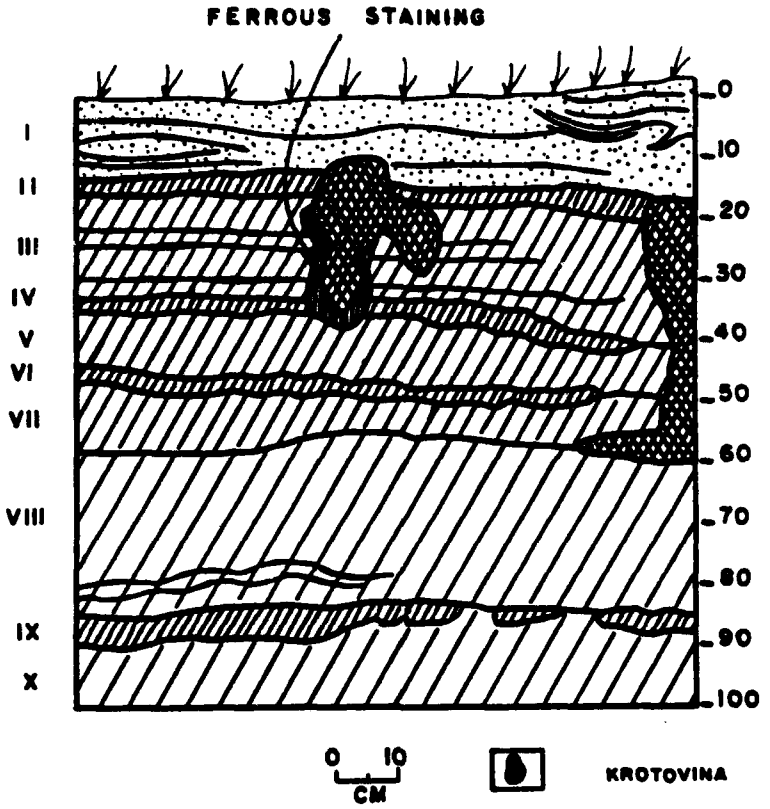
Figure 41. Stratigraphy in Bench Profile No. 2, 16OR119.



Key to Strata:

I. 10YR 4/3 (dark brown) clayey sand with mottling
II. 10YR 5/4 (yellowish brown) fine sand
III. 10YR 4/3 (brown/dark brown) clayey sand
IV. 10YR 3/3 (dark brown) clayey sand
V. 5Y 4/2 (olive gray) silty clay
VI. 5Y 4/2 (olive gray) clayey sand
VII. 5Y 4/2 (olive gray) plastic clay
VIII. 5Y 4/2 (olive gray) moist, clayey sand

Figure 42. Stratigraphy in Bench Profile No. 3, 16OR119.



Key to Strata:

I. Bands of 10YR 4/1 (dark gray), 10YR 5/3 (brown) and 10YR 5/4 (yellowish brown) clays, silts and sands with clays predominating
II. 10YR 4/4 (dark yellowish brown) very plastic clay
III. Bands of 10YR 5/2 (grayish brown) clayey silt, 10YR 5/3 (brown) clayey silt, and 2.5 (olive brown) silty clay
IV. 10YR 4/3 (brown/dark brown) plastic clay
V. 10YR 5/2 (grayish brown) clay
VI. 5YR 4/4 (reddish brown) clay
VII. 10YR 5/3 (brown) silty clay
VIII. 10YR 5/3 (brown) silty clay with mottling and banding
IX. 10YR 4/3 (brown/dark brown) clay
X. 10YR 5/3 (brown) silty clay

Strata in Auger Tests in Floor of Unit:

X. 10YR 5/3 (brown silty clay [100-148 cm]
XI. 5YR 4/4 (reddish brown) silty clay [148-150 cm]
XII. 10YR 5/2 (grayish brown) plastic clay [150-160 cm]
XIII. 2.5Y 5/2 (grayish brown) wet, plastic, silty clay [160-215 cm]
[Water table at 200 cm]

Figure 43. Profile of the West Wall of the 1 x 1 m Excavation Unit at 16OR119.

strata observed in the unit and in the two auger tests in its floor.

Artifact Analysis. A total of 147 ceramic sherds were collected from the beach at 16OR119 (Table 8). With the exception of one sherd of late nineteenth century brownware, all of the ceramics dated to the late eighteenth/early nineteenth century. Approximately 50% (74 sherds) of the collection was undecorated creamware. Mocha creamware and annular creamware also were collected. Thirty-one percent (46 sherds) of the collection was pearlware. Decorative treatments found on pearlware included blue and green shell-edging, finger-painting, mocha, monochrome blue, polychrome hand-painting, and blue transfer-printing. One sherd of polychrome hand-painted whiteware also was collected; this piece dates to the second quarter of the nineteenth century.

Three sherds of red paste faience were collected. In addition, five redware sherds were recovered that may have formerly been tin glazed. Fourteen sherds of lead glazed redware were found; six were glazed on both the interior and exterior of the vessel, seven only on the interior, and one was glazed only on the exterior. The glazes on these sherds were badly eroded as the result of water wear. However, the majority had a brown cast. These sherds probably correspond to French ceramics identified by Barton (1981:35) from the Fortress of Louisbourg, to Lead Glazed Earthenware Type B from the Trudeau site (Brain 1979:50-56), and to Charente Plain from the Cahokia Wedge site (Walthall and Gums 1988:149). Two of the sherds with interior glazes had an orange cast to the glaze; similar sherds have been recovered from the Barataria Unit of Jean Lafitte National Historical Park from sites dating ca. 1779-1800 (Yakubik 1989). Finally, one sherd of redware with an eroded exterior glaze and a brown interior slip was recovered from 16OR119.

Unfortunately, the majority of the ceramics were too small to consider vessel form. However, the majority of the identifiable cream colored earthenwares appear to have been plates; bowls and cups were represented in smaller quantities.

Two dark, olive green bottle kickup fragments were recovered, and one of these exhibited a blowpipe pontil scar. In addition, 42 sherds of dark, olive green glass were collected; this was more than was found at any other site located during survey. Some of these

Table 8. Materials from 16OR119.

	10-20S	0-10S	0-10N	10-20N	30-35N	Gen. Surf.	Total
CERAMICS							
Faience	1	1		1			3
Redware, eroded tin glaze?	1	1	2			1	5
Lead glazed redware		2	2	2			6
Redware, lead glazed interior			1	6			7
Redware, lead glazed exterior				1			1
Redware, eroded exterior glaze, brown interior slip			1				1
Creamware	4	11	29	22	4	4	74
Annular creamware		1					1
Mocha creamware				1			1
Pearlware		5	9	3		2	19
Mocha pearlware		1	1		1		3
Finger-painted pearlware			1				1
Blue shell-edged pearlware			4	1	1		6
Green shell-edged pearlware			3	1			4
Blue hand-painted pearlware			1				1
Polychrome hand-painted pearlware	1		2	3	1		7
Blue transfer-printed pearlware		1	2	2			5
Polychrome hand-painted whiteware						1	1
Brownware	1						1

Table 8, cont.

	10-20S	0-10S	0-10N	10-20N	30-35N	Gen. Surf.	Total
GLASS							
Brown glass				1			1
Clear glass	4	2	2	3			11
Clear threaed bottle neck				1			1
Clear bottle neck, automatic bottle machine			1				1
Clear bottle base, automatic bottle machine		1	1	6			8
Dark green glass		6	12	21	3		42
Dark green bottle base, kickup, blow pipe pontil				1			1
Dark green bottle base, kickup, no seams	1						1
Grey glass				1			1
Light green pane glass				2			2
METAL							
Spike	1		2	3			6
Wire nail		1		8			9
Wire nail shaft		1	2	1			4
Square cut nail				1			1
Misc. square nail			1	6			7
Square nail shaft		3		6			9
Wrought nail				1			1
Misc. nail		1					1
Hinge strap			1				1
Metal tag				1			1
Screw and nut				1			1
Barbed wire			6	9			15

Table 8, cont.

	10-20S	0-10S	0-10N	10-20N	30-35N	Gen. Surf.	Total
Wire				1			1
Horseshoe				1			1
Washer				1			1
Strap metal				1			1
Misc metal	1	2	2	3			8
MISCELLANEOUS							
Pipestem			3	2			5
Gunflint			1				1
Shank-type button				1			1
Button jewel				1			1
Brick fragment	7	8	20	21			56
Stone	2		1	1			4
Gravel				2			6
Chert		1			1		2
Coal				3			3
Slag			1				1

fragments exhibit irregularities which may suggest that they were hand blown.

Other materials collected which are likely contemporaneous with the ceramic assemblage include a wrought nail, square cut and unidentifiable square nail fragments, and five pipestem fragments. One French honey-colored gunflint was collected, as well as a fragment of chert. Both gunflints and chert debitage were recovered from two sites in the Barataria Unit of Jean Lafitte National Historical Park, and it was suggested that the sites' inhabitants were manufacturing their own gunflints (Yakubik 1989). Finally, 56 fragments of soft orange brick were collected.

Because a 100% surface collection was made of the beach at 16OR119, a substantial amount of recent material was collected. This included modern bottle fragments and metal hardware. Gravel, coal, and slag also were recovered.

A Mean Ceramic Date of 1796.7 (n=127) was calculated for the ceramic assemblage from 16OR119. Mean Ceramic Dates were then calculated for each of the five collection areas. The results were fairly uniform despite variations in sample sizes between the areas:

Area	MCD	n
10-20 South	1797.7	7
0-10 South	1794.9	20
0-10 North	1797.7	52
10-20 North	1794.9	34
30-35 North	1797.0	7

Site Interpretation. 16OR119 is located riverward and approximately 100 m upriver from 16OR90, the site of the Beka Plantation great house and quarters complex illustrated on the 1890s MRC map. Surficial examination of the latter site at the time of fieldwork reported in this volume suggested that it was largely intact. The site of the great house, which burned in 1880, was identifiable on the basis of an extensive scatter of bricks and artifacts. Interestingly, the earliest ceramics noted on the surface at 16OR90 were ca. 1820 pearlware, and the majority of the ceramics were later whitewares and ironstones. Rockinghamware and yellowware, both of which postdate 1830 and were absent from the 16OR119 beach, also were noted at 16OR90. No creamware, faience, or coarse earthenwares were observed

at 16OR90. Thus, the ceramic assemblage from 16OR90 appears to postdate the assemblage from 16OR119 with little overlap.

It was hypothesized that the beach scatter from 16OR119 represents the remains of an earlier residence at Beka Plantation. Ceramic tableware, bottle glass, and architectural remains all were collected from 16OR119. In addition, pipe fragments, a gunflint, and possible flint debitage were recovered. These items all were included in the domestic refuse of a series of late eighteenth century sites in the Barataria Unit of Jean Lafitte National Historical Park (Yakubik 1989).

This earlier residence probably was established during the Spanish Colonial Period. By 1815, the property was owned by Barthelemy Duverje, who resided in Algiers Point. As noted in Chapter 6, there was a two story, eight room brick house located on the plantation at the time of Duverje's death in 1820. The property was held in division among Duverje's heirs until the estate was consolidated by Duverje's son-in-law, Caliste Villere, in 1839. Caliste Villere resided on Toulouse Street until sometime between 1840 and 1843 (L. T. Caire, February 27, 1840, and July 31, 1843, NONA). It is hypothesized that subsequent to his consolidation of the plantation, Villere constructed a new residence to replace the house that was standing in 1820. Subsequently, archeological investigations were conducted at 16OR90. Results of artifact analysis indicated that cultural materials at that site were in fact more recent than those at 16OR119 (Earth Search, Inc., 1992).

Assessment of Significance. As noted above, 16OR90 appears to have maintained its integrity. Two brick lined wells flank either side of the great house site. Several large oaks are located riverward of the house site, and a lane or drive appears to lead to the house site. Similarly, the quarters areas are identifiable on the basis of surface scatters of brick and artifacts. A third brick lined well is located near the quarters area. Also, what appears to be the remains of two infilled privies are located riverward of the great house site. Late-nineteenth and early-twentieth-century bottles and ceramics associated with these suggest that they may have been excavated and utilized by plantation laborers subsequent to the destruction of the great house. Finally, the field drainage system also is quite visible in the vicinity of the residential complex. Although the site of the sugar house was not

visited, it is likely that it is similarly undisturbed. Again, these 1988 observations were subsequently confirmed by excavations at 16OR90 reported by Earth Search, Inc. (1992).

However, no cultural materials were recovered in the course of any of these excavations at 16OR119, and no cultural material was observed in bench faces associated with the beach. Rather, cultural material was confined entirely to the beach at this locale. Results of site assessment indicate that the cultural material lies entirely in the river and is washing ashore at present. This suggestion is substantiated by the bankline comparison presented in Chapter 2 and Figure 10.

16OR119, then, lacks integrity and does not exhibit potential for furthering our understanding of the historic period it represents. The site is not eligible for inclusion on the National Register of Historic Places. No further archeological work is recommended for this site.

16OR120

During pedestrian survey, two early-twentieth century bottles and one green banded milk glass plate fragment were recovered on a beach at this locale. Both bottles are clear glass, were produced by an automatic bottle machine, and have stopper closures. One was a pharmaceutical bottle, and the other was a liquor bottle. Also, two late-nineteenth-century bottles were recovered from a nearby bench. The latter two bottles were partially covered by alluvium. Both of these bottles were produced by two-piece molds and have tooled lips. The first of these is a light green soda bottle, and the second is a brown beer bottle. The site is at or near the location where the 1890s MRC map shows a U.S. Light facility and a fenced yard.

The site map for 16OR120 is shown in Figure 44. The beach yielding bottles during pedestrian survey is labelled "Beach 1." The locations of the other two historic bottles are depicted near the site datum. A metal probe was used in the vicinity of this datum in order to determine whether additional artifacts might lie near the surface of the site. Probing indicated that a *Rangia* shell lens was present.

A 50 x 50 cm excavation unit was dug in 10 cm levels within the area that included the shell lens in

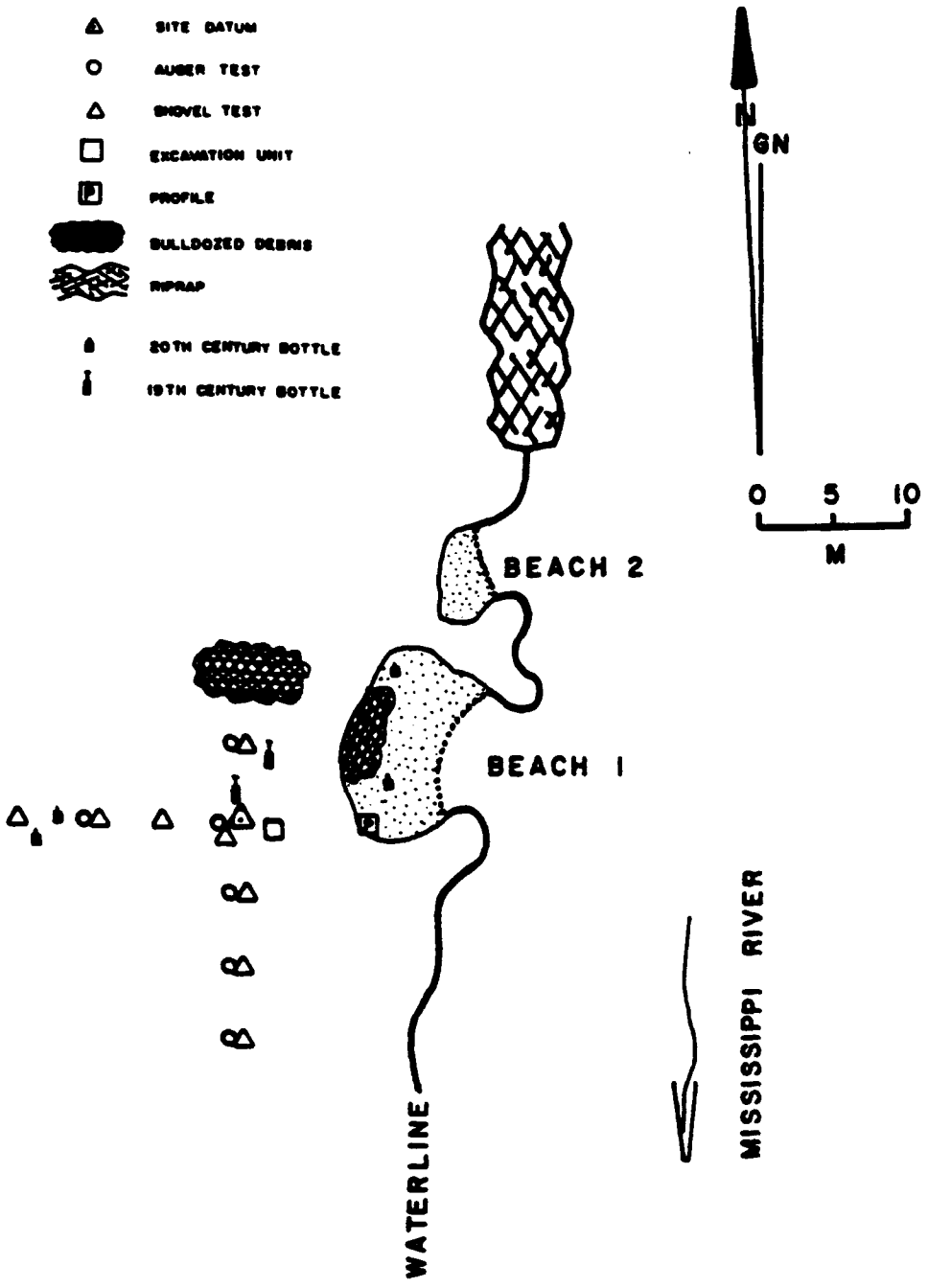
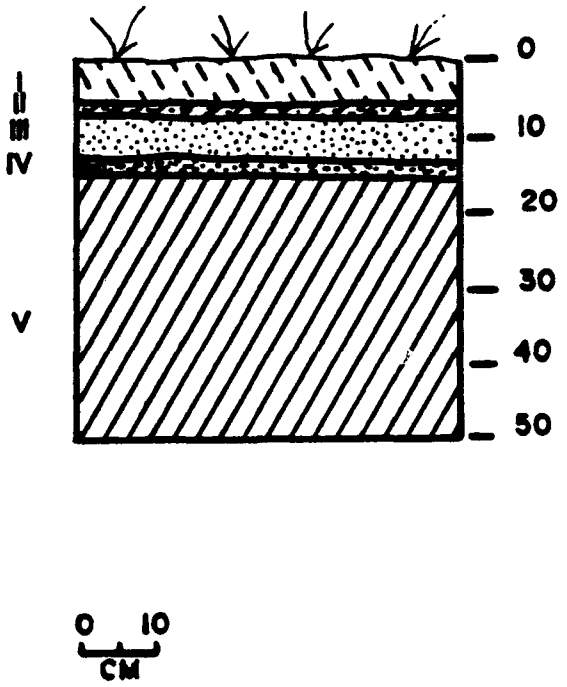


Figure 44. Site Map of 16OR120.

order to determine the nature of this shallow, subsurface feature. All fill from this unit was screened through 1/4-inch mesh. Strata to the excavated depth of 50 cm are depicted in Figure 45. Stratum II, extending from approximately 5 to 7 cm below surface, was a heavy clay with some *Rangia* shell fragments. One sherd of clear glass and a plastic fragment were collected from this stratum. Stratum IV, between 13 and 15 cm below surface, was composed of sand with *Rangia* shell fragments. Cultural material within Stratum IV included architectural debris such as wire nails and wire nail fragments, an asbestos tile fragment, wood fragments, and a plaster fragment. Fourteen bottle glass sherds also were collected; these were generally modern in appearance. They included ten sherds of clear glass, a bright green sherd which may be a 7-Up bottle fragment, and a brown fragment which may have derived from a beer bottle. Other materials collected included unidentifiable metal, oyster shell fragments, and gravel (Table 9). The presence of sand, *Rangia* and modern cultural material indicates that the "feature" is itself a recent beach deposit, now buried. A soil probe in the floor of this unit provided additional coverage to a depth of 100 cm below surface. Strata within this auger test are included in the key to Figure 45.

Eight shovel tests were excavated to a depth of 50 cm, and fill from these tests was screened through 1/4-inch mesh. Materials recovered from the shovel tests were consistent with remains collected from the excavation unit (Table 9). These included wire nails, one of which was embedded in a wood fragment, plastic fragments, clear glass, and a glass syringe plunger fragment. Five of these shovel tests were supplemented by auger tests to a depth of 115 cm. Locations of the shovel and auger tests are shown on the site map (Figure 44). Auger test stratigraphy is presented in Appendix I. Auger excavations failed to yield either artifacts or clear evidence of a buried ground surface.

Finally, a stepped profile was cleaned on the bench face associated with Beach 1 (Figure 44). The profile provided 110 cm of vertical exposure. Strata within this profile are depicted in Figure 46, and the key to that figure provides soil descriptions. Interestingly, the basal stratum in this profile was the same as the basal stratum for the auger test excavated in the floor of the 50 x 50 cm unit. This is evidence for a uniform substratum throughout the site.

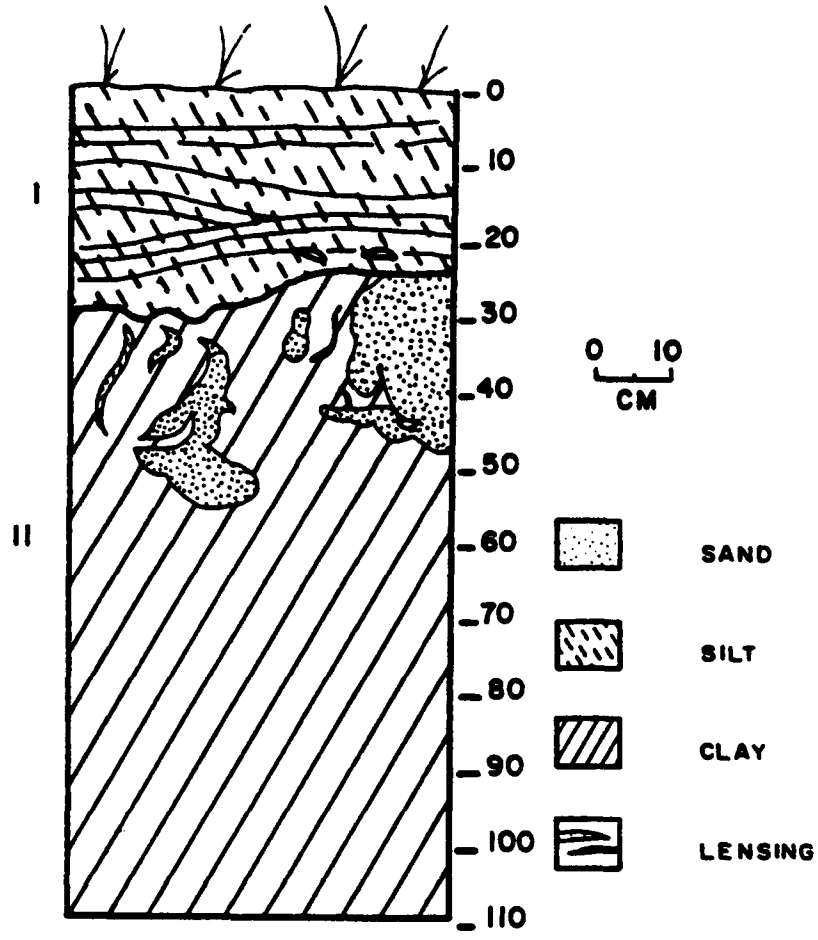


Key to Strata:

I. 10YR 5/4 (yellowish brown) clayey silt loam
II. 10YR 3/1 (very dark gray) clay with Rangia shell fragments
III. 10YR 5/3 (brown) clayey sand
IV. 10YR 6/8 (light brownish yellow) sand with Rangia shell fragments and modern cultural material
V. 10YR 5/2 (grayish brown) laminated plastic clay

Note: Stratum V continued to a depth of 69 cm below surface within the push probe test. Stratum VI, a 7.5YR 4/0 (dark gray) plastic silty clay then continued from 69 cm to 100 cm below surface. Stratum VI is the equivalent of Stratum II in the bench profile depicted in Figure F8.

Figure 45. North Wall Profile of the 50 x 50 cm Excavation Unit at 16OR120.



Key to Strata:

I. 10YR 4/3 (brown/dark brown) finely banded silt, clay and sand with some Rangia shell

II. 7.5YR 4/0 (dark gray) plastic silty clay; silt content decreases with depth; sands within this stratum are 10YR 4/4 (dark yellowish brown)

Figure 46. Stepped profile on the bench at 16OR120.

Table 9. Materials from 16OR120.

	Surface	Shovel Tests	EU1	Total
Brown glass			1	1
Brown beer bottle, 2 piece mold, tooled lip	1			1
Clear glass		2	11	13
Clear liquor bottle, automatic bottle machine	1			1
Clear pharmaceutical bottle, automatic bottle machine	1			1
Green glass			2	2
Light green glass			1	1
Light green soda bottle, 2 piece mold, tooled lip	1			1
Green banded milk glass plate	1			1
Wire Nail		3	8	11
Wire nail shaft			4	4
Wire			3	3
Misc metal			2	2
Plaster fragment			1	1
Asbestos tile			1	1
Glass syringe plunger		1		1
Plastic		3	2	5
Wood			4	4
Rangia			23	23
Oyster			4	4
Gravel			11	11

As noted above, the 1873 series Mississippi River Commission Map (drafted in 1893) indicates that a U.S. Light and a fenced yard with one structure formerly were located in the vicinity of 16OR120. The latter may have been a residence for the caretaker of the light. Alternatively, the light was unmanned, and the yard may have been a barn and corral for Beka Plantation. These improvements are not depicted on the 1921 Mississippi River Commission Map, which suggests that they were removed prior to this date.

Overlays of the MRC maps with current USGS quads suggest that the site of the U.S. Light may be in the river, while the fenced yard and associated structure may be under the present levee. Nonetheless, it was anticipated that remains of one or both might be recovered during survey. However, it is unlikely that the material from 16OR120 represents the remains of either the fenced yard or the U.S. Light. Although architectural debris was collected from the site, relatively little was found. This, as well as the small size of the collected architectural material suggests that this represents refuse rather than the remains of a former structure at this locale. In addition, only wire nails were collected from 16OR120. Square cut nails should also be expected from late nineteenth century structures such as these. Finally, the asbestos tile undoubtedly postdates these structures.

The absence of ceramics at 16OR120 suggests that this was not a habitation locale. The one milk glass plate sherd was the only tableware recovered during site definition. The occurrence of both modern glass and plastic fragments suggests that the majority of the material derives from beach deposits and/or recent dumping.

The four late-nineteenth/early-twentieth-century bottles are somewhat problematic because they are inconsistent with the other material collected from the site. During the late-nineteenth/early-twentieth centuries, Twelve Mile Point was a popular recreational area for Algiers residents, and the bottles may have been abandoned by individuals who had picnics on the site. Alternatively, the bottles may have washed in from the river. This seems less likely, since no other whole bottles of this age were recovered elsewhere during survey.

No in situ cultural deposits were recovered at 16OR120. This, and paucity of artifactual remains,

indicates that further excavations at this site will not further our understanding of history. This site should not be recommended for inclusion on the National Register of Historic Places, and no further work is recommended here.

16OR121

One brick and numerous pieces of coal were observed on the surface at this site during pedestrian survey. The site lies at the location where the 1890s MRC map depicts a road to the Beka Plantation river landing. A comparison of the 1890s MRC map and current USGS quad indicates that the landing itself has been lost to the river.

A site datum was established. Surface elevation at datum was 9.351 ft (2.85 m) NGVD. Eleven auger tests were excavated to a depth of 115 cm along a (magnetic) N/S baseline. Locations of these tests, which were spaced at five meter intervals, are shown on the site map in Figure 47. Stratigraphic information was derived from the auger test at the site datum (Appendix I).

Several of the tests yielded *Rangia* shell at depths of 10 to 20 cm below surface. These shells were probably deposited fairly recently and subsequently buried at this shallow depth. However, three of the auger tests also yielded *Rangia* shell fragments at depths of 69 to 80 cm, and a fourth yielded coal at 70 cm. These auger tests were located between 20N and 5S (Appendix I and Figure 47). No artifacts were recovered.

Based on results of this auger test regimen, a field hypothesis was developed that this site did, in fact, represent a portion of a Beka Plantation road. Subsequently, this hypothesis was verified by examining an area directly landward of the modern levee. The former plantation road was clearly visible, and it was lined with a still extant ditch on both sides. No evidence of deposition on this portion of the road was observed. The 1890s MRC map indicates that the road went from the river to the Beka sugar house. That facility continued in use until the early 1900s (Chapter 6). It would appear, then, that since about 1900 approximately 60 to 80 cm of sediment has been deposited on that part of the road located on the batture.

Results of this assessment regimen, in association with archival map data, indicate that this site does

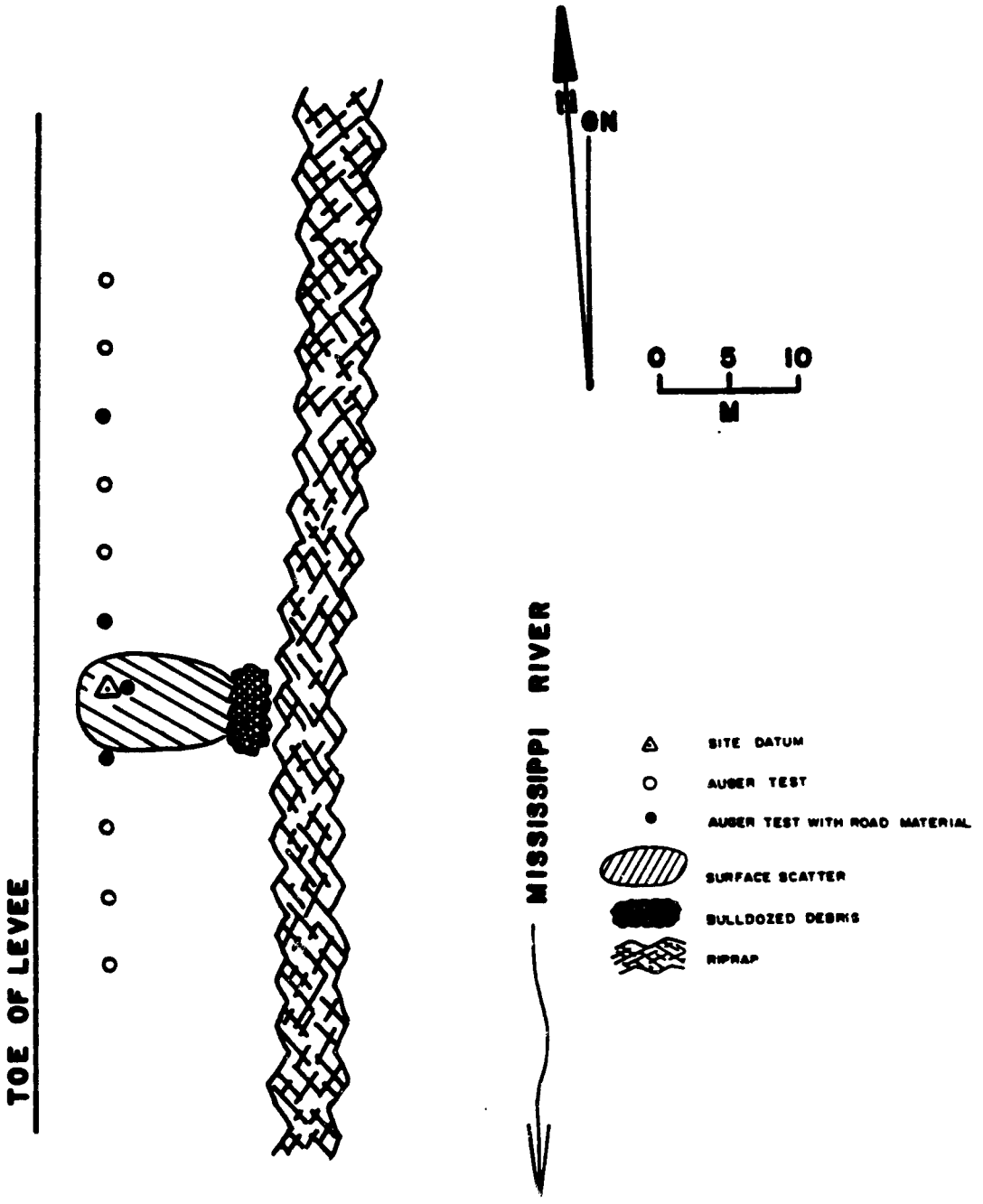


Figure 47. Site Map of 16OR121.

represent a road to the Beka Plantation river landing. However, the locale exhibits no further research potential. No artifacts were recovered, and additional excavations in a roadbed are unlikely to yield artifacts. Therefore, the locale does not exhibit qualities necessary for inclusion on the National Register of Historic Places. No further work is recommended.

16OR122

Introduction. This site was first noted during pedestrian survey when an eighteenth century (European) coarse earthenware sherd was collected from a beach. Site assessment included additional beach collections which yielded 13 European sherds dating to the eighteenth and/or nineteenth centuries, as well as two aboriginal body sherds and one aboriginal rim sherd.

During field work at this site, daily river level fluctuations were noted. During the early morning, both beaches were largely inundated. However, throughout the remainder of the day, water level tended to drop, thus re-exposing the beaches. Daily surface collections indicated that either new material was washed ashore during each of these cycles, or that the cultural material was reworked within the beach sands so that new sherds were exposed. Lateral wave action as a result of river traffic, and particularly barge traffic, was dramatic during both high and low water periods. Waves were high enough to develop whitecaps and break as they moved onshore.

Site Map. The site map shown in Figure 48 was prepared with compass and tape. A site datum was established; surface elevation at datum was 8.606 ft (2.62 m) NGVD. Beach One is the location where sherds were collected from the surface. The site map demonstrates that, as was the case for 16OR119 (the Beka beach scatter), a complex series of eroding benches rise above the beaches at this locale. Also, riprap is extant to the north and south of the two beaches shown in Figure 48. Thus, these beach coves have apparently been formed as a result of wave wash erosion which has caused failure of the bankline stabilization here.

Bench Face Profiles. One profile (Profile One, Figure 49) was cleaned on the bench face associated with the beach that yielded historic period sherds. It provided approximately 155 cm of vertical exposure. A second profile (Profile Two, Figure 50) was cleaned on

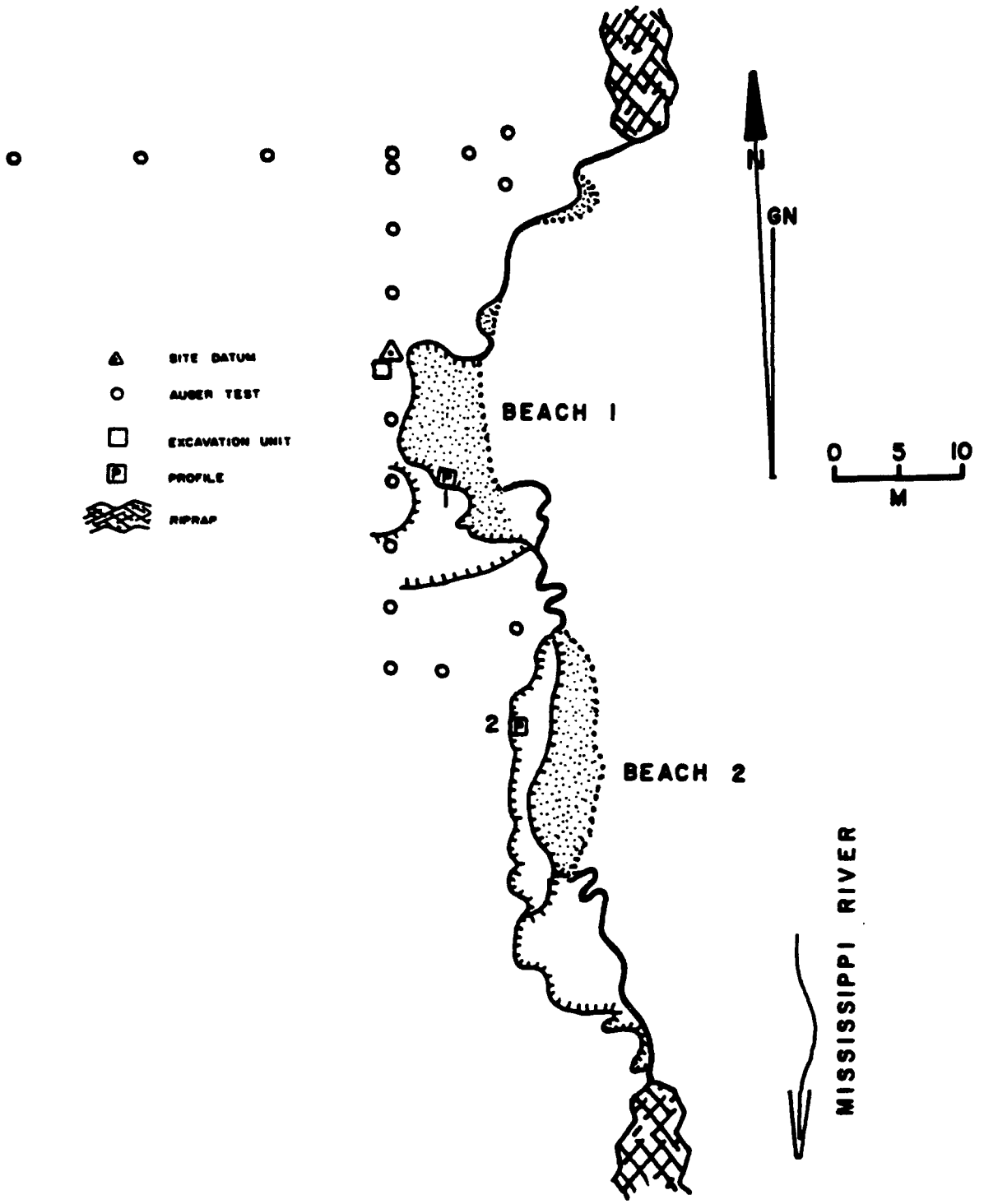
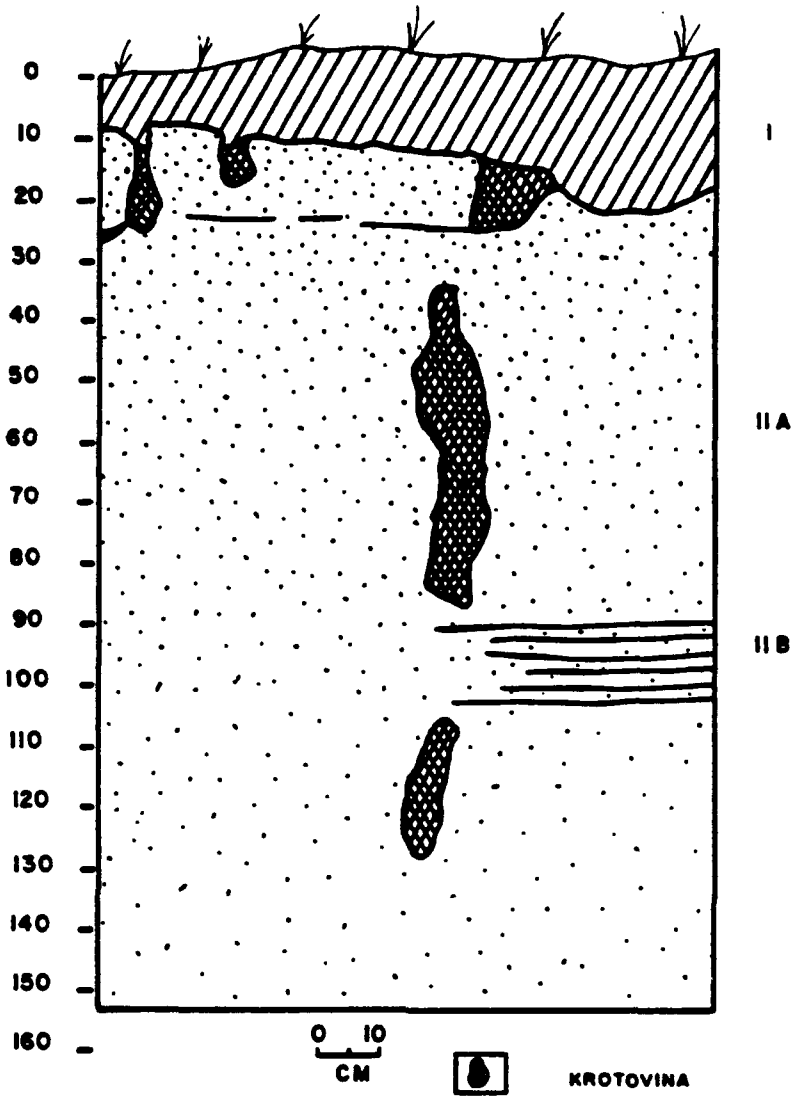


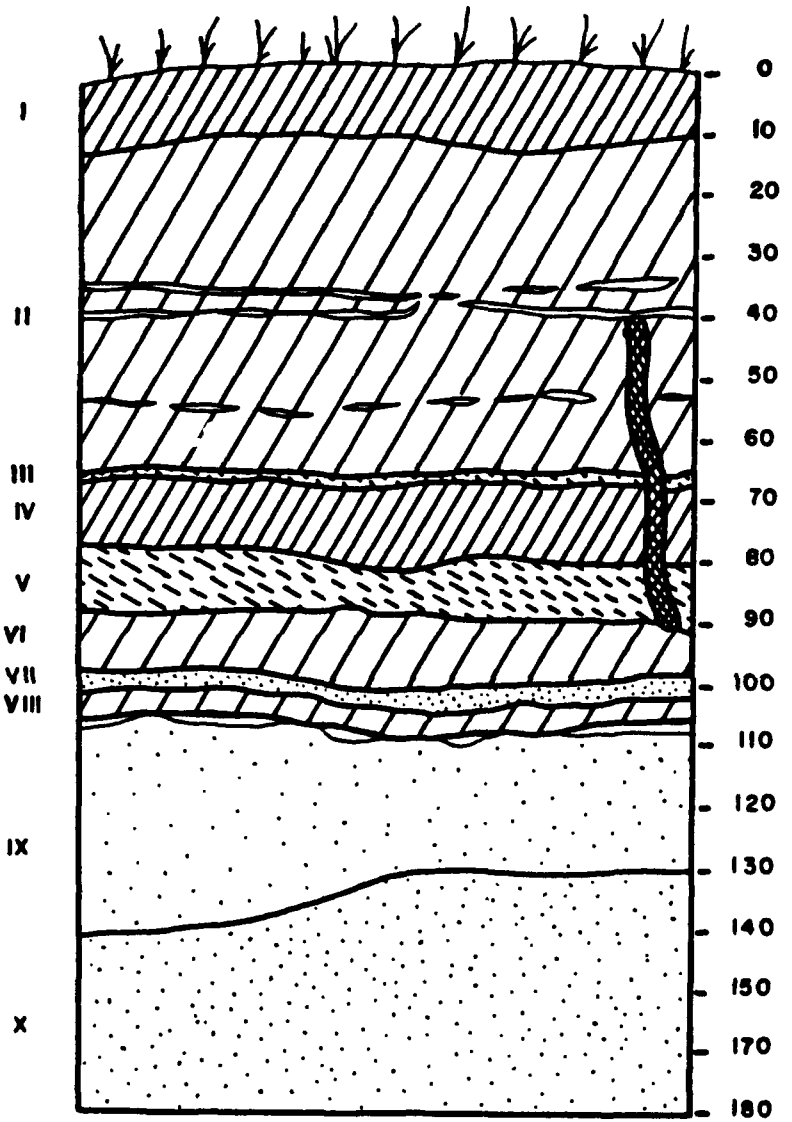
Figure 48. Site Map of 16OR122.



Key to Strata:

Ia. 10YR 4/2 (dark grayish brown) hard clay
Ib. 2.5Y 5/2 (grayish brown) plastic clay [krotavina]
IIa. 10YR 5/3 (brown) clayey sand loam with mottling; clay content increases with increased depth
IIb. Light orange banding below which Stratum IIa becomes semi-plastic and water-saturated

Figure 49. Profile One from 16OR122.



Key to Strata:

I.	10YR 4/1 (dark gray) hard, stiff clay
IIa.	10YR 3/3 (dark brown) hard clay with 5YR 4/3 (reddish brown) banding
IIb.	Krotavina: 2.5Y 5/2 (grayish brown) plastic clay
III.	2.5Y 7/2 (light gray) loose silt
IV.	10YR 3/3 (dark brown) plastic clay with mottling
V.	10YR 5/3 (brown) soft clayey silt
VI.	2.5Y 4/2 (dark grayish brown) plastic silty clay
VII.	10YR 5/3 (brown) loose clayey sand
VIII.	2.5Y 5/2 (grayish brown) plastic silty clay with mottling
IX.	10YR 5/3 (brown) silty sand
X.	10YR 5/3 (brown) clayey sand

Figure 50. Profile Two from 16OR122.

the adjacent beach in order to determine whether stratigraphy was uniform at the site. Vertical exposure in this profile was approximately 180 cm.

Keys to Figures 49 and 50 summarize the observed stratigraphy. Both profiles were capped by a hard, stiff clay. The substratum in Profile One (Figure 49) was a relatively uniform clayey sand loam in which clay and moisture content increased with depth. Substrata in Profile Two (Figure 50) were similar, but banding was more evident here. Characterization of this banding resulted in a more complex profile. These profiles, which were examined by Ms. Joann Mossa, Geomorphologist, yielded no cultural material and no evidence of a discernable, buried ground surface.

Excavation Unit. A 1 x 1 m excavation unit was placed near the edge of the bench overlooking the beach that yielded historic ceramics (Figure 48). Fill from the unit was screened through 1/4-inch mesh. Profile One indicated that the uppermost stratum in the unit would consist of stiff clay. This was removed as a natural level to a depth of 39 cm.

Evidence of a burned board was noted in the south wall of the unit at 39 cm. A trowel was used to clean, pedestal and cross-section this feature. The plan view at 50 cm below surface and the cross-section are shown in Figure 51. The burned board lay within the lowermost part of the upper stratum of dark gray clay. The board was originally large and flat, but it was relatively thin, approximately 3.5 cm. Smaller sections of the board had broken off. One of these emerged from the south wall and a second rested near the center of the unit (Figure 51). Other smaller chunks of the burned board had broken off and settled at varying depths between 39 and 47 cm below surface.

The clay surrounding this burned feature exhibited no evidence of having been fired. This probably indicates that the board was burned at some other location and secondarily deposited here. The location of the board at the interface between two strata (South Wall Profile, Figure 52) indicates that this interface was a former ground surface. However, deposition occurred too frequently to allow buildup of organic material that would actually appear as a buried A-horizon.

No other cultural material was recovered from this excavation unit. Figure 52 shows the south and west

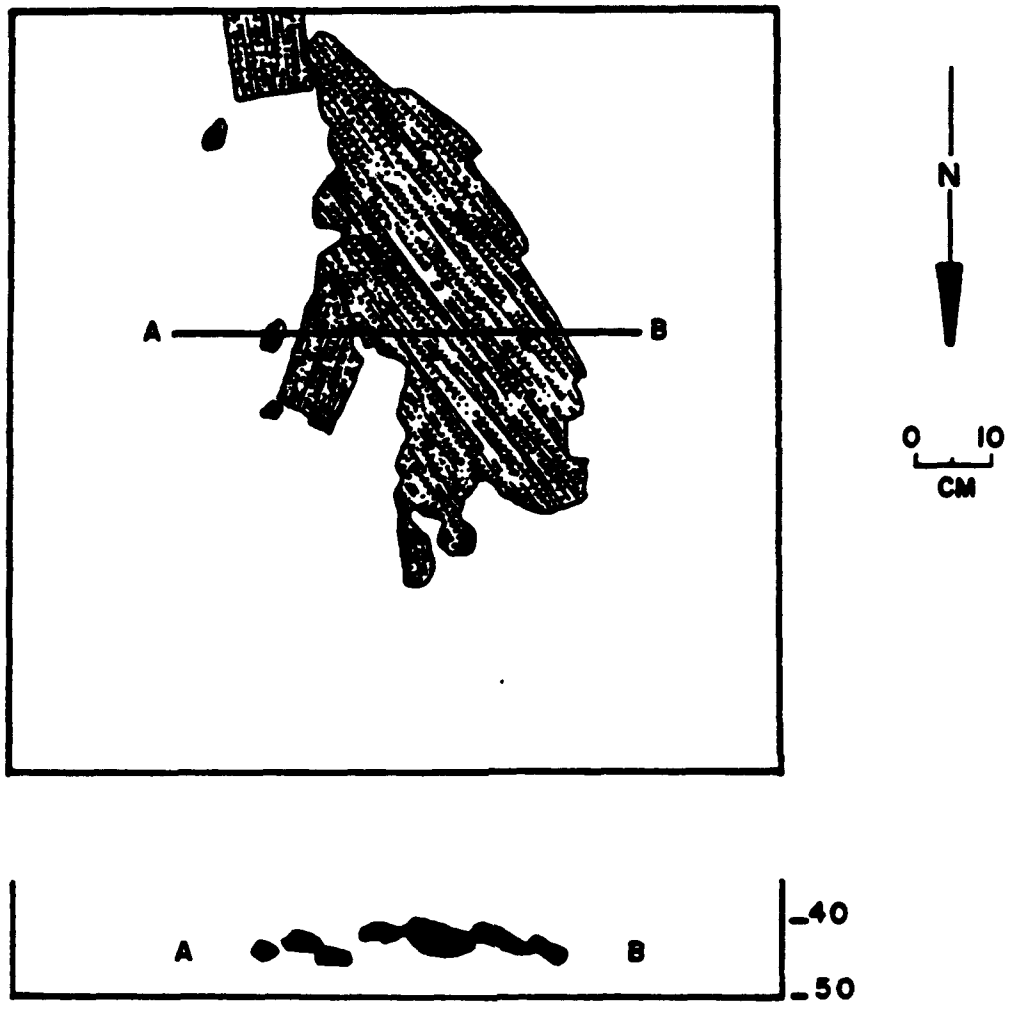
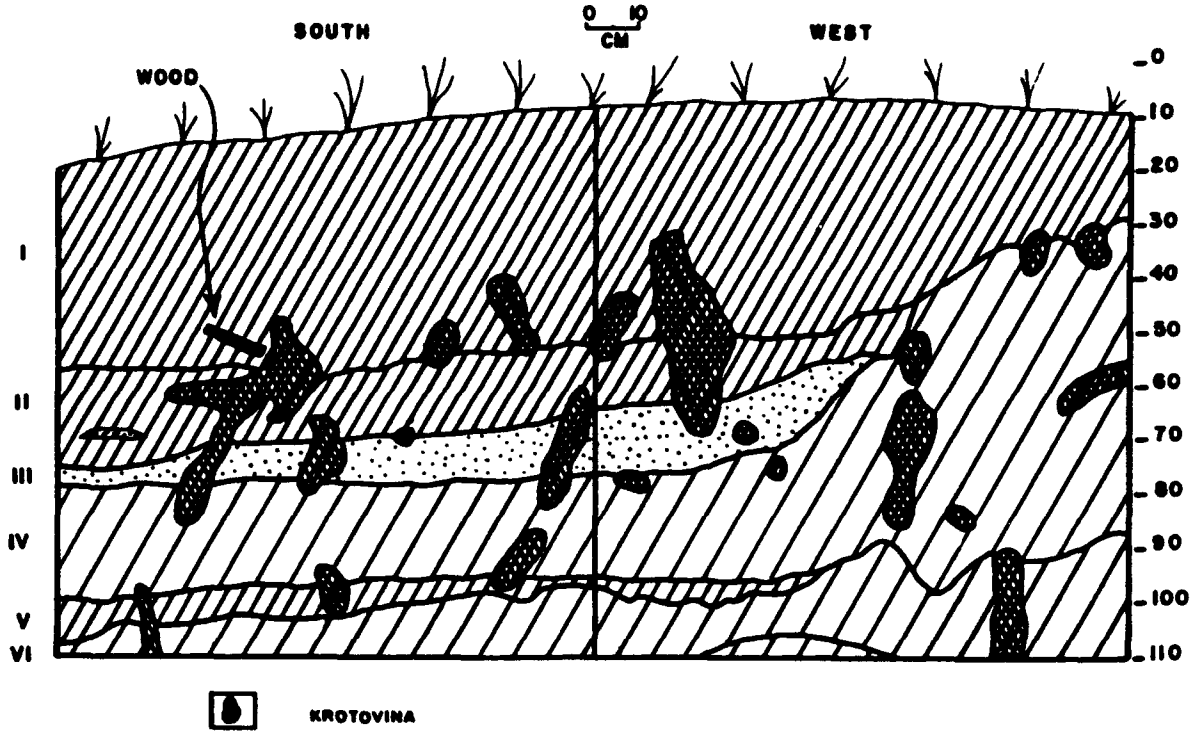


Figure 51. Burned Feature within Excavation Unit at 16OR122, shown in plan view and in cross-section at 50 cm below surface.



Key to Strata:

I. 10YR 4/1 (dark gray) stiff clay
II. 10YR 5/2 (grayish brown) plastic silty clay
III. 10YR 5/3 (brown) finely banded silts and sands
IV. 10YR 5/3 (brown) banded silty clay
V. 2.5Y 5/2 (grayish brown) plastic silty clay with organic matter and ferrous mottling
VI. 2.5Y 4/2 (dark grayish brown) sandy clay
VII. 2.5Y 5/2 (grayish brown) silty clay

Auger Test in Floor of Unit to 200 cm Below Surface

VII. (Above) Seen at the bottom of the west wall profile continues to a depth of 148 cm
VIII. 10YR 5/2 (grayish brown) sandy clay [148 to 182 cm below surface]
IX. 10YR 5/1 (gray) sticky, plastic clay

Figure 52. Profiles of the South and West Wall of the Excavation Unit at 16OR122.

wall profiles to the excavated depth of one meter. The key to that figure summarizes observed stratigraphy. That key also provides stratigraphic data derived from two auger tests excavated in the floor of this unit to provide coverage to a total depth of 200 cm.

Auger Tests. Ten auger tests were excavated to a depth of 115 cm, and seven to a depth of 200 cm. Locations of these tests are shown on the site map in Figure 48. No cultural materials were recovered, and the tests yielded no discernable evidence of a former ground surface. Stratigraphy observed in those auger tests excavated to 200 cm is presented in Appendix I.

Artifacts. Thirteen ceramic sherds were collected from Beach One at 16OR122. Two sherds were mid-to-late nineteenth century ironstone. A third sherd is a fragment of a blue shell-edged pearlware plate. This piece probably dates to the early nineteenth century since it is neither finely cast nor well painted. However, it lacks the concave rim often characteristic of nineteenth century examples.

The remaining ten sherds are eighteenth century faience and coarse earthenwares. Unfortunately, all of these sherds are to small to determine vessel form. Two sherds of faience were recovered. One of these, a small rim sherd of a possible plate, had a buff paste and a single blue hand-painted band. This corresponds to Walthall's Style A rim border represented at the Cahokia Wedge site (Walthall and Gums 1988:136). The second sherd had a pink paste and the glaze on the exterior surface had eroded off. In addition, two other possible faience sherds were collected. Both of these have a pink paste and no glaze, and it is likely that the fragile tin glaze has eroded.

One sherd of Saintonge slipped green glazed earthenware also was recovered. It had a pink paste covered with an interior white slip over which a green glaze was applied. Similar sherds have been recovered from the Fortress of Louisbourg (Barton 1981:10), from the Cahokia Wedge site which yielded Saintonge Slip Plain (Walthall and Gums 1988:149), and from the Trudeau site which yielded Lead Glazed Earthenware Type C (Brain 1979:57-65).

One small fragment of redware with a dark green interior glaze was collected. This may correspond to vessels recovered from the Fortress of Louisbourg, which Barton (1981:29) believes to be Southern French in

origin. It also may be similar to Lead Glazed Earthenware Type F from the Trudeau site, although the present example lacks the white underslip characteristic of this type (Brain 1979:72).

One sherd of white slipped, unglazed redware was found at 16OR122. As noted in Chapter 8, sherds of this description have been collected at several Louisiana sites, and thus, this may represent a distinct ceramic type.

Two sherds of plain lead glazed redware were recovered. The first has a brownish glaze flecked with brown. As noted in Chapter 8, this category is common on eighteenth century Louisiana sites, and has been recovered from the Fortress of Louisbourg (Barton 1981:35), from the Cahokia Wedge site (Walthall and Gums 1988:149), and from Fort Michilimackinac (Miller and Stone 1970:51). The second sherd is highly refined and finely cast with a brownish lead glaze. This is an Astbury-type ware, and ceramics such as these were produced in England during the second quarter of the eighteenth century. This type is only rarely seen on southeastern Louisiana sites (Yakubik in prep a).

One sherd of Albisola slipped was recovered from the site. This mid-to-late eighteenth century type has been recovered from the Chalmette and Barataria Units of Jean Lafitte National Historical Park (Yakubik 1989), from Fort St. Leon (Gilmore and Noble 1983:68), from Golden Ranch Plantation (Hunter et al. 1988), from the Fortress of Louisbourg, from Fort Beausejour, and from the wreck of the Machault (Barton 1981:46-47).

Three aboriginal sherds were also recovered from the beach. One of these represented the shell tempered plainware Bell Plain *var. unspecified*. Two sherds were Baytown Plain, *var. unspecified*, and one of these was an incurved rim with wide straight collar and round lip.

Other artifacts collected from Beach One included two square cut nails, brick fragments, and dark green and purple glass fragments. All artifacts recovered from 16OR122 are listed in Table 10.

Site Interpretation. It was not possible to calculate a Mean Ceramic Date for this assemblage because of the paucity of ceramics collected and because the majority of coarse earthenwares lack well-established manufacture dates. However, with the exceptions of the ironstone and pearlware sherds, the

Table 10. Materials from 16OR122.

	Beach Surface
Faience	1
Blue hand-painted faience	1
Lead glazed redware	1
Lead glazed refined redware	1
Redware, dark green glazed interior	1
Redware, Albisola slipped	1
Pink earthenware (eroded glaze?)	2
Pink earthenware, white slip	1
Saintonge slipped and green glazed pink earthenware	1
Blue shell edged pearlware	1
Ironstone	2
Dark green glass	1
Purple glass	1
Square cut nail	2
Brick fragments	7

collection suggests a mid-to-late eighteenth century date for the site. The absence of creamware in the assemblage may indicate that the site pre-dates 1780. Co-occurrence of these coarse earthenware types with late period aboriginal ceramics has been documented on sites in the Barataria Basin and on Bayou Lafourche (Yakubik 1989; Hunter et al. 1988).

16OR122 is located on the former Delacroix Plantation. Examination of the 1890s Mississippi River Commission Map indicates that no structural improvements were located in this vicinity in the late nineteenth century, and that the main plantation complex was upriver from 16OR122. La Tour's 1815 map of the area suggests that the plantation complex had been established at this upriver locale prior to this date. Thus, the site appears to represent the remains of an earlier occupation on what would become Delacroix. The relative paucity of material is consistent with a Colonial occupation; examination of collections from the Hermann-Grima House and the Barataria and Chalmette Units of Jean Lafitte National Historical Park suggests that ceramic assemblages in the area tend to be small prior to the introduction of creamware. In addition, the soft, red brick fragments collected may derive from a structure formerly located at the site.

The pearlware, ironstone, and square nails obviously post-date this hypothesized Colonial occupation of 16OR122. Unlike the coarse earthenwares and the faience, they do not form a coherent assemblage. Similarly, they do not suggest continued occupation of the site; there is simply too little material to represent an early-to-late nineteenth century component. Therefore these materials may represent random refuse disposal.

Assessment. Chapter 2 of this report and Figure 10 demonstrate that the bankline at 16OR122 is eroding. This, and the failure to recover in situ deposits despite extensive excavation indicate that further excavation at the site will not yield information important to history. Therefore, this site does not appear to be potentially significant in terms of National Register criteria. No further work is recommended.

Twelve Mile Revetment Locale No. 5 (No State Survey Number Assigned)

One sherd of ironstone and one of brownware were recovered from the surface of this site during intensive pedestrian survey. During subsequent site assessment, the site map shown in Figure 53 was prepared using compass and tape. The eastern boundary of the site was marked by a borrow pit, and the western boundary was marked by the riverside toe of the modern levee. Ceramic sherds were observed on the surface within the bulldozed corridor between the levee and the borrow pit. This surface scatter of sherds extended from approximately 25 m north of the site datum to approximately 30 m south of the datum. In addition to these sherds, clear glass, plastic, concrete rubble, *Rangia* shell, slag, and brick fragments were observed on the surface. No whole bricks were present.

A 100% surface collection of ceramic artifacts was made. Proveniences were at 10 m intervals along the site N/S baseline, and extended from the toe of the levee to the borrow pit. In addition, seven screened shovel tests were excavated to a depth of 50 cm. These were placed at 10 m intervals along the baseline, and their locations are shown in Figure 53. All cultural material from these shovel tests was collected for analysis.

Artifacts collected from the surface and from shovel tests are listed in Table 11. With the exception of the ironstone and brownware sherds originally collected at the site, and one sherd each of whiteware/ironstone and manganese glazed stoneware, the ceramics all appear to be of recent manufacture. Specifically, the ceramics included fragments of ca. 1950 decaled ironstone, recent transfer-printed ironstones, a fragment of a Fiesta-type ware plate, and contemporary porcelaneous stoneware.

Interestingly, no ceramics other than a single sherd of industrial porcelain were found in the shovel tests. Artifacts recovered from the shovel tests consisted primarily of modern clear bottle glass and small brick fragments. In addition, styrofoam and asbestos tile were collected. Other cultural materials such as coal, slag, and *Rangia* also were common in the shovel tests.

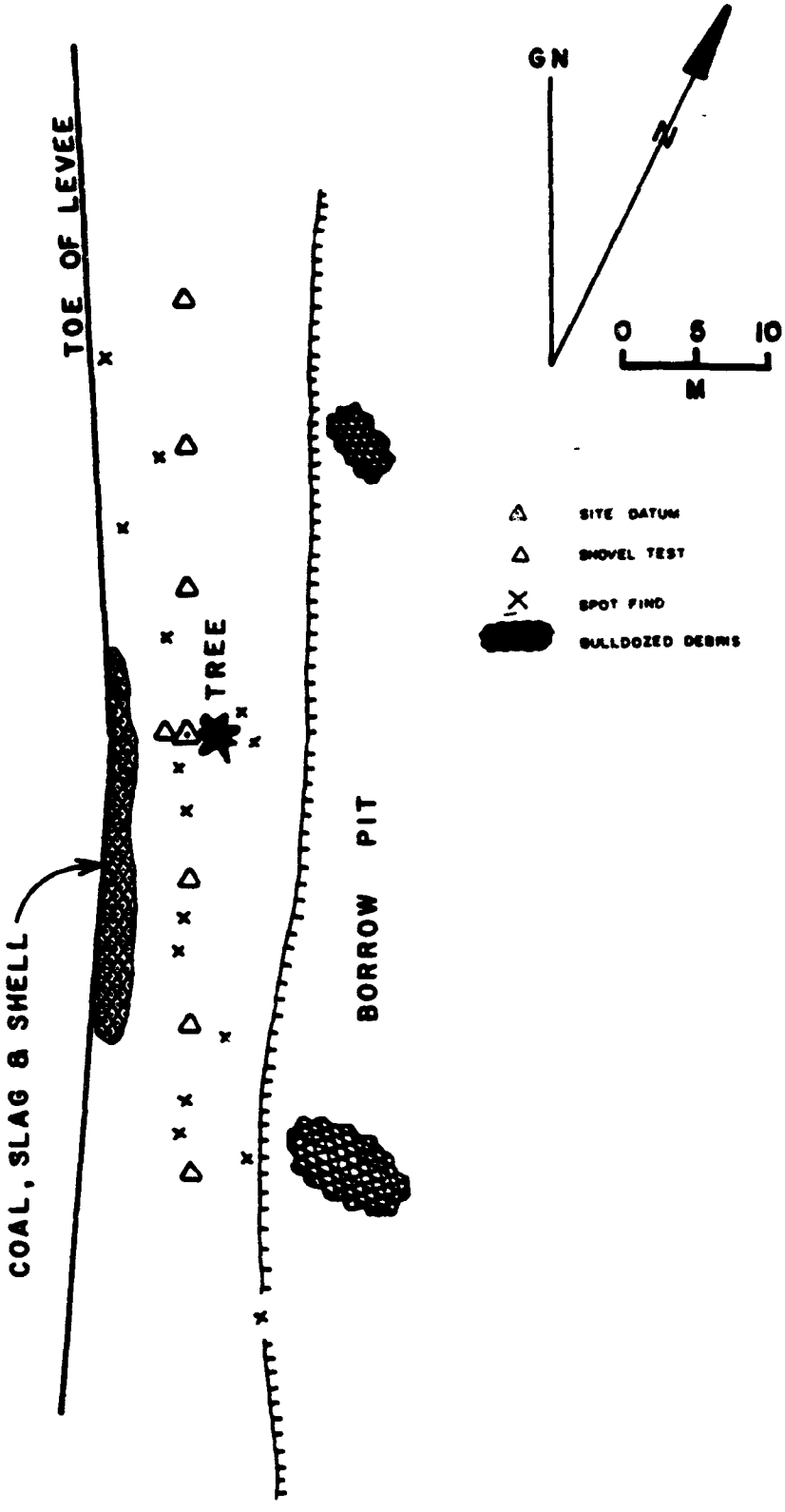


Figure 53. Site Map of Twelve Mile Revetment Locale No. 5.

Table 11. Materials from 12 Mile Revetment #5.

	Surface	Shovel Tests	Total
Whiteware/ironstone	1		1
Ironstone	2		2
Brown transfer-printed ironstone	1		1
Decaled ironstone	2		2
Black tranfer-printed buff earthenware	1		1
Brownware	1		1
Buff earthenware, pink opaque glaze	1		1
Blue Fiesta-type ware	1		1
Buff stoneware, Bristol glazed interior	1		1
Black and green banded porcelaineous stoneware	1		1
Brown stoneware, manganese glaze	1		1
Sanitary porcelain	3		3
Industrial porcelain		1	1
Brown glass		4	4
Clear glass	1	17	18
Clear bottle glass, screw top		3	3
Clear bottle base, automatic bottle machine		1	1
Clear pane glass		1	1
Milk glass cold cream jar, Screw top	1		1
Wire nail shaft		1	1
Misc. metal		2	2
Brick fragment		11	11
Asbestos tile		3	3
Slag		18	18
Coal		11	11
Gravel		1	1
Plastic	1		1
Styrofoam		1	1
Rangia	1	9	10

Twelve Mile Revetment Locale No. 5 is located directly riverward of what was formerly the Delacroix Plantation residential complex. Examination of the 1921 MRC map indicates that plantation structures were extant landward of the levee at least until that date. However, the artifact assemblage suggests that Twelve Mile Revetment Locale No. 5 is the result of relatively recent (post World War II) refuse disposal. It is possible that earlier deposits were destroyed during borrow pit excavation in the area. No evidence of in situ cultural deposits were recorded at this site. Thus, Twelve Mile Revetment Locale No. 5 does not exhibit qualities that would make it potentially eligible for inclusion on the National Register of Historic Places. Therefore, no further work is recommended here.

Algiers Locale No. 1 (No State Survey Number Assigned)

During pedestrian survey, a shovel test at this site yielded both round and square (machine-cut) nails. During site assessment, a datum was established at the location of the survey shovel test. The site map shown in Figure 54 was prepared using compass and tape. The map shows locations of eleven screened shovel tests that were excavated at five meter intervals along (site) N/S and E/W lines.

Three shovel tests yielded evidence of *Rangia* in a sand matrix at a depth of approximately 20 cm. The three tests were located at S5, E0; S10, E0; and N0, W5. In the first of these tests, the stratum with *Rangia* was at 21 to 29 cm below surface; in the second, at 20 to 29 cm; and in the third, at 15 to 18 cm. The only artifacts associated with this stratum were clear glass.

Stratigraphy from one of these shovel tests is presented in Appendix I. The *Rangia* "lens" was overlain by a series of thin strata of loam and sand. This, and the co-occurrence of the shell with clear glass, indicates that this feature is of recent origin and that it has been buried by recent deposition episodes.

Artifacts collected from shovel tests are listed in Table 12. These consisted primarily of glass fragments, the majority of which appear to be modern. Most of these are modern clear bottle glass, but brown beer bottle fragments and green soda bottle fragments also were common. One exception to the generally recent glass collected at the site was a light green paneled

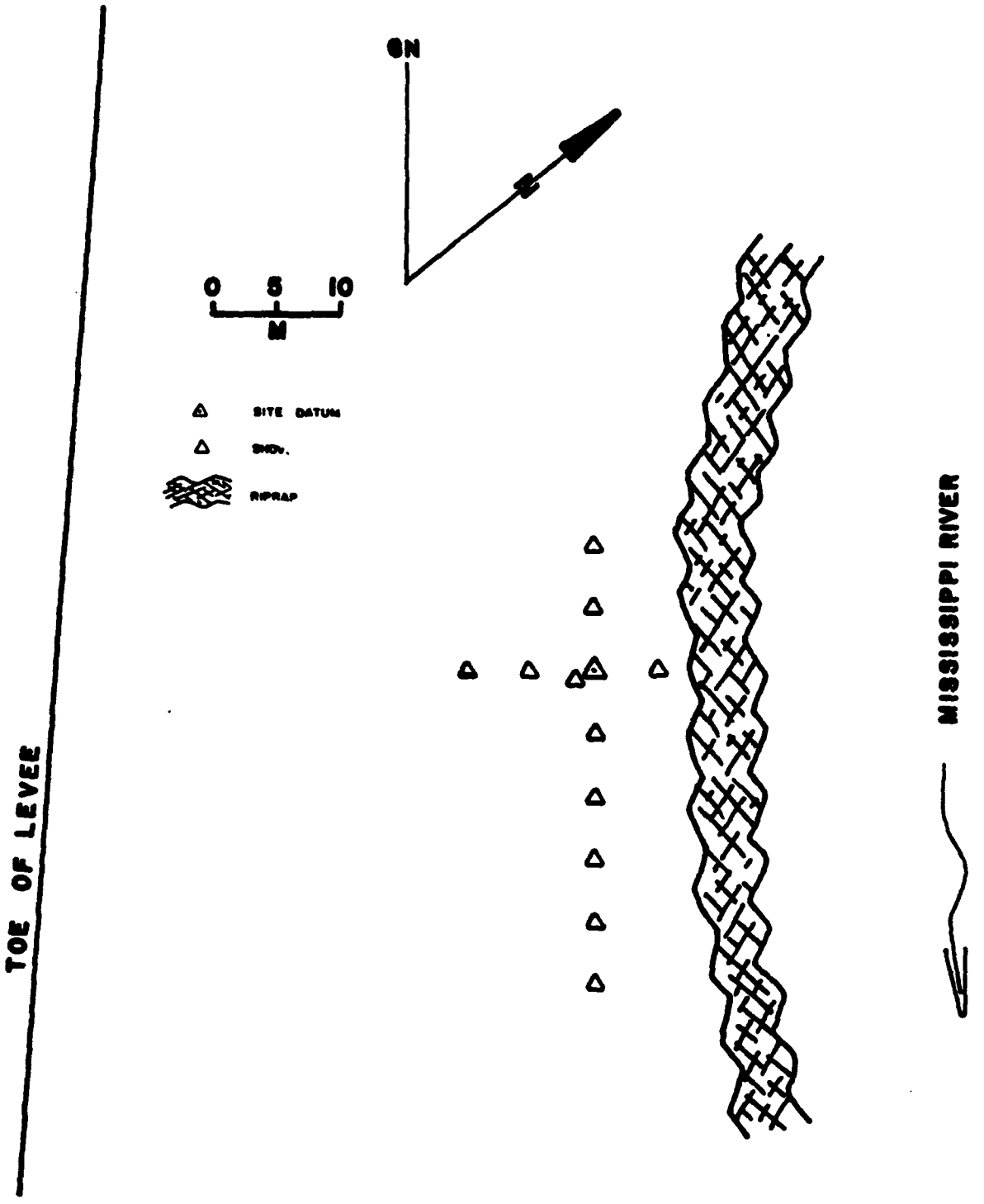


Figure 54. Site Map of Algiers Locale No. 1.

Table 12. Materials from Algiers Revetment #1

	Shovel Tests
Pink bathroom tile	1
Brown glass	17
Clear glass	33
Green glass	5
Light green paneled flask glass	1
Light green glass	3
Square spike	2
Wire spike	1
Square nail	1
Wire nail	5
Wire	6
Threaded O-ring	1
Metal disc	1
Jewelry chain	1
Misc. metal	5
Brick fragment	3
Slag	1
Coal	4
Stone	2
Wood	1
Plastic	1
Plastic wrap	1
Aluminum foil	1
Rangia	44

flask bottle fragment which could date to the late nineteenth/early twentieth century.

Other modern debris included a jewelry chain, plastic, plastic wrap, and aluminum foil. Metal, primarily unidentifiable, was collected. Architectural debris such as both square cut and wire nails and spikes were recovered, as well as a pink glazed bathroom tile and brick fragments. Only one of the bricks was sufficiently intact to measure its thickness, which was 8 cm.

The total absence of ceramic or glass tableware in this assemblage is striking. It suggests that despite small amounts of architectural debris, this was not a former residential locale, and that the refuse probably was dumped in the area by local residents. Use of the batture as a dump for domestic and other debris is commonplace in the area even today.

The limited number and range of artifacts recovered here indicate that further excavations at this site will not yield information important to understanding prehistory or history. Therefore, the site should not be considered potentially significant in terms of National Register criteria. *No* further archeological work is recommended at Algiers Locale No. 1.

16OR123

Ceramics typical of the late nineteenth and/or early twentieth century were recovered here during pedestrian survey. The extent of surface scatter at that time was limited. Between the time of survey and the time of site assessment, the site was bulldozed to a shallow depth by the Orleans Parish Levee Board. The result was a surface scatter approximately 200 meters in extent, as is shown on the site map in Figure 55.

During site assessment, screened shovel tests were excavated at 10 m intervals on lines placed along the extent of the surface scatter (Figure 55). Few artifacts were recovered from shovel tests. However, surface collection of all ceramics and diagnostic, historic glass within ten meter long proveniences yielded 181 sherds. Very little architectural debris was noted on the surface or in shovel tests.

Artifact Analysis. A total of 149 ceramic sherds were collected from 16OR123 (Table 13). Of these, 141 sherds, or 95% were collected from the surface. The

assemblage is impressive both in terms of the variety of types in the collection as well as the date range represented by those types. The earliest ceramic type is a sherd of early nineteenth century blue transfer-printed pearlware, while the latest is a sherd of mid-twentieth century Fiesta-type ware. The majority of the ceramics consist of late nineteenth/early twentieth century ironstones and whiteware/ironstones, however.

Nearly 93% (138 sherds) of the ceramic assemblage consisted of tableware. These included pearlware, whiteware, whiteware/ironstone, ironstone, porcelaineous stoneware, porcelain, rockinghamware, English majolica, and Fiesta-type ware. Although only 27 sherds (20%) of the tableware was decorated, this represented 14 distinct ceramic types. Of the decorated sherds, only four (15%) had minimal decoration such as banding or edge decoration, while the vast majority were decorated with either transfer-printing or hand-painting (Table 13).

Whiteware from 16OR123 had blue transfer-printed, flow blue, and blue edged decoration. Ironstone was recovered with red, pink, and gilt edging, as well as flow blue, blue transfer-printed, and decaled decoration. Porcelaineous stoneware was recovered, all of which appears to be of recent manufacture (post World War II). One sherd exhibited banding and a second sherd had a yellow tinted glaze. Porcelain was collected with decaled, blue transfer-printed, and blue hand-painted decoration. The latter two categories included sherds of Blue Willow and Blue Onion porcelain, respectively.

Utilitarian ceramics, which totaled 11 sherds, included yellowware, three brownware variants, and both grey and brown salt glazed stoneware. Non-kitchen ceramics collected from 16OR123 included redware tile, redware flowerpot, white tile, sanitary porcelain, and insulator fragments.

The majority of the glass collected derived from bottles, and most of the glass was clear (Table 13). Only 7 of the 73 glass sherds collected were diagnostic for dating purposes. Six of these were produced by an automatic bottle machine, and five of these had stopper closures. These appear to date to the early twentieth century. The sixth example was a light green bottle neck with a crown cap closure, which appears to be a fragment of a modern soda bottle. The seventh diagnostic fragment was a dark green wine bottle neck fragment which exhibited a sheared lip and a laid on

Figure 55 oversize

back of figure 55

Table 13. Material from 16OR123.

	0-20N	0-20S	20-40S	40-60S	60-80S	80-100S	100-120S
CERAMICS							
Blue transfer-printed pearlware						1	
Blue transfer-printed whiteware							
Flow blue whiteware							4
Blue edged whiteware							1
Whiteware/ironstone		1	4			2	25
Ironstone	2	2		3	2	5	10
Red edged ironstone							
Gilt edged ironstone							2
Pink edged ironstone				1			
Blue transfer-printed ironstone	1						
Blue Willow ironstone					2		
Flow blue ironstone							
Decaled ironstone		1					
Yellow Fiesta-type ware							
Porcelaineous stoneware					4	1	7
Banded porcelaineous stoneware							
Yellow-tinted porcelaineous stoneware					2		1
Porcelain						2	4
Blue Onion porcelain							1
Blue Willow porcelain							3
Blue hand-painted porcelain							1
Blue transfer-printed porcelain							
Decaled porcelain							2

Table 13, cont.

	0-20N	0-20S	20-40S	40-60S	60-80S	80-100S	100-120S
Redware tile							1
English majolica							1
Green glazed buff earthenware							2
Yellowware						1	
Rockinghamware				1			
Brownware							3
Brownware, albany slipped interior only							
Brownware, bristol glaze						1	
Grey salt glazed stoneware				1			
Brown slipped and salt glazed stoneware					1		
Modern flower pot					1		
White tile		1		2	1		1
Sanitary porcelain		1					
Insulator fragment					1		
GLASS							
Blue glass	1						
Brown glass							
Brown bottle neck, automatic bottle machine			1				
Clear glass					1		
Clear pane glass							
Clear paneled flask glass							1

Table 13, cont.

	0-20N	0-20S	20-40S	40-60S	60-80S	80-100S	100-120S
Clear vial neck, automatic bottle machine							
Clear milk bottle neck	1						
Clear bottle neck, automatic bottle machine				1	1		
Clear jar base, automatic bottle machine							
Dark green wine bottle top, sheared lip, laid on bead		1					
Green glass							
Light green glass	1						
Light green pane glass							
Light green bottle neck, automatic bottle machine, crown cap				1			
Milk glass	1	1	2	1	1	3	
Milk glass plate			1				
Pink glass							1
Pink pressed glass		1					
METAL							
Wire nail							
Wire							
Misc. metal							
Slag							
Ice tea spoon				1			
Copper nozzel							1

Table 13, cont.

	0-20N	0-20S	20-40S	40-60S	60-80S	80-100S	100-120S
MISCELLANEOUS							
Glass marble							1
Jet button fragment							1
Brick fragment	1						
Slate							
Coal							
Rangia							
Oyster							
Seed							

Table 13, cont.

	120-140S	140-160S	160-180S	180-200S	STs	Total
CERAMICS						
Blue transfer-printed pearlware						1
Blue transfer-printed whiteware		1			1	1
Flow blue whiteware						4
Blue edged whiteware						1
Whiteware/ironstone	11	4	7	1	1	56
Ironstone	4	1	4		4	27
Red edged ironstone			1			1
Gilt edged ironstone						2
Pink edged ironstone						1
Blue transfer-printed ironstone						1
Blue Willow ironstone						2
Flow blue ironstone		1				1
Decaled ironstone	1					2
Yellow Fiesta-type ware	1					1
Porcelaineous stoneware						12
Banded porcelaineous stoneware		1				1
Yellow-tinted porcelaineous stoneware						3
Porcelain	1		2			9
Blue Onion porcelain						1
Blue Willow porcelain						3
Blue hand-painted porcelain						1
Blue transfer-printed porcelain			1			1
Decaled porcelain		1				3

Table 13, cont.

	120-140S	140-160S	160-180S	180-200S	STs	Total
Redware tile						1
English majolica						1
Green glazed buff earthenware						2
Yellowware						1
Rockinghamware			1			2
Brownware						3
Brownware, albany slipped interior only	1					1
Brownware, bristol glaze			2			3
Grey salt glazed stoneware						1
Brown slipped and salt glazed stoneware						1
Modern flower pot						1
White tile					2	7
Sanitary porcelain						1
Insulator fragment						1
GLASS						
Blue glass						1
Brown glass	1				11	12
Brown bottle neck, automatic bottle machine						1
Clear glass					20	21
Clear pane glass					2	2
Clear paneled flask glass						1

Table 13, cont.

	120-140S	140-160S	160-180S	180-200S	STs	Total
Clear vial neck, automatic bottle machine			1			1
Clear milk bottle neck						1
Clear bottle neck, automatic bottle machine						2
Clear jar base, automatic bottle machine					1	1
Dark green wine bottle top, sheared lip, laid on bead						1
Green glass		1			7	8
Light green glass					1	2
Light green pane glass					6	6
Light green bottle neck, automatic bottle machine, crown cap						1
Milk glass						9
Milk glass plate		1				1
Pink glass						1
Pink pressed glass						1
METAL						
Wire nail					12	12
Wire					2	2
Misc. metal					7	7
Slag					1	1
Ice tea spoon						1
Copper nozzel						1

Table 13, cont.

	120-140S	140-160S	160-180S	180-200S	STs	Total
MISCELLANEOUS						
Glass marble						1
Jet button fragment						1
Brick fragment					2	3
Slate					2	2
Gravel					1	1
Coal					1	1
Rangia					8	8
Oyster					2	2
Seed					2	2

bead. This fragment probably dates to the first half of the nineteenth century. Other glass collected included both light green and clear pane glass, and glass tableware, such as a milk glass plate fragment and a sherd of pink pressed glass (Table 13).

Architectural materials included wire nails, brick, and slate. Other artifacts collected included wire, unidentifiable metal, an ice tea spoon, a glass marble, and a jet button fragment. Coal, *Rangia*, and oyster also were collected from the shovel tests.

A Mean Ceramic Date of 1888.4 (n=131) was calculated for the ceramic assemblage from 16OR123. While the sample size is sufficiently large to produce a reliable date, it is likely that this date is somewhat early for the midpoint of occupation of the site. First, none of the recovered ceramics bore makers' marks, which, when utilized, increase the reliability of the resulting date. Second, Mean Dates become increasingly too early as the sites themselves become temporally later. This is the result of inherent limitations in the method. For example, if a site were occupied between 1880 and 1920, its actual mean occupation date would be 1900. However, if all of the ceramics from the site were manufactured between 1840 and 1920, and therefore had a median date of 1880, the Mean Ceramic Date for the site could never be later than 1880. Thus, there would be a difference of 20 years between the Mean Ceramic Date and the mean occupation date. Similarly, if the site was occupied between 1900 and 1920, the actual mean occupation date would be 1910, or 30 years later than the Mean Ceramic Date.

In addition, other artifacts in the assemblage suggest a somewhat later date for the site. First, the majority of diagnostic glass was manufactured by an automatic bottle machine, and post-dates 1903. Also, only wire nails were recovered from the site. This suggests that former structural improvements at the site probably were erected no earlier than the final quarter of the nineteenth century. In general, however, the assemblage conforms well to a late nineteenth/early twentieth century date range.

Site Interpretation. The ceramic scatter discussed above is apparently associated with a structure shown on the 1890s MRC map at the location of this site. The map indicates that the parcel, which appears to be about an arpent front, was owned by F.G. Huguet. The 1921 MRC map indicates that by this date

the land was owned by the Senac Realty Co. Comparison of the map with the current USGS quad for the area suggests that the levee was approximately in its present position by 1921, and that Huguet's residence had been removed. However, a number of structures were located landward of the levee in the vicinity of 16OR123. It is likely that individuals who resided here contributed to the later refuse recovered at the site.

Despite the rich surface scatter of ceramics at the site, few artifacts were recovered from shovel tests. The majority of sherds and other material lie within surficial, bulldozed soils. Also, relatively small amounts of architectural material were observed. The former habitation may now lie under the modern levee, or construction materials may have been salvaged at the time of its abandonment.

Assessment of Significance. An extensive regimen of shovel tests at this site failed to yield evidence of in situ cultural deposits or features. Further, only a small percentage of artifacts recovered at the site were derived from these shovel tests. Thus, further excavations at the site would not contribute to our understanding of history. Therefore, the site should not be considered potentially eligible for inclusion on the National Register of Historic Places. No further work is recommended.

16OR124

One sherd of ironstone was recovered from a shovel test at this site during pedestrian survey. The site map (Figure 56) shows that nine additional screened shovel tests were excavated during site assessment at 10 m intervals along a line drawn through the surface scatter. The surface scatter is approximately 35 m x 15 m at its greatest extent. Relatively few artifacts were recovered from shovel tests.

One shovel test at N0, E10 did uncover four creosote-treated beams, one of which contained a steel bolt. Two of the beams lay side-by-side, and the two additional beams lay beneath these. A large plastic bag lay beneath the beams, indicating that the feature was either of recent origin or had washed onto the batture. The steel bolt also suggests recent origin. The configuration of the beams suggests a simple mooring facility, many of which are extant in the vicinity. This "feature," then, is not related to the ceramic assemblage discussed below.

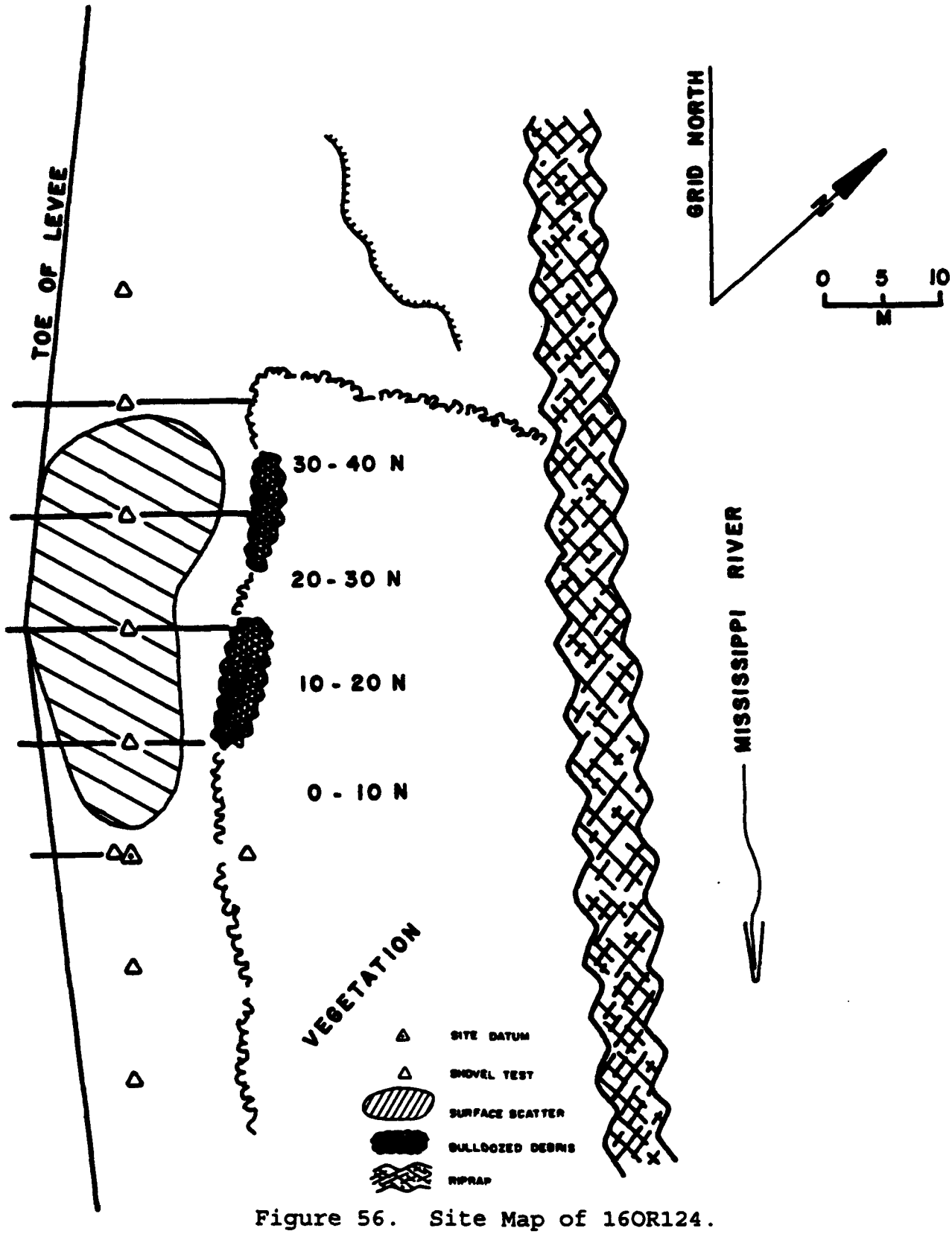


Figure 56. Site Map of 16OR124.

A systematic surface collection of ceramic artifacts was made within ten-meter collection proveniences shown in Figure 56. Artifacts collected from the surface and from shovel tests are presented in Table 14. Twenty-four ceramic sherds were collected; all but one of these were recovered from the surface. Whiteware/ironstone, ironstone, porcelaineous stoneware, and porcelain were all represented in the ceramic assemblage. One sherd each of decaled and overglaze banded porcelain were collected; the remainder of the ceramics were undecorated.

Twenty sherds of glass were collected, and nine of these were recovered from the surface. One sherd was a recent clear soda bottle neck with a crown cap closure. A fragment of a late nineteenth century crimped gaslamp top also was recovered. Five sherds of milk glass were collected from the surface; these included a cosmetic jar fragment and two tableware fragments. Seven of the nine sherds of brown glass collected from shovel tests derived from modern beer bottles.

Other material recovered from shovel tests included architectural material including wire nails, unidentifiable nails, mortar, fiber board, and brick. Modern materials such as a crown cap, styrofoam, and plastic also were collected during shovel testing.

A Mean Ceramic Date of 1888.3 (n=15) was calculated for 16OR124. Because of the small sample size, this date should not be considered reliable. However, the ceramics do suggest a late nineteenth/early twentieth century date for the site. More recent debris is also present at the site, such as the beer bottle fragments and other modern material recovered from the shovel tests.

Site Interpretation. The site appears to be associated with a structure on the A. Camus Estate indicated on the 1890s MRC map. This parcel, which was probably a small farm, was approximately three and one-half arpents front. As was the case with 16OR123, the structure had been removed by the time the 1921 MRC map was drafted, but structures landward of the levee were still extant. Recent materials collected from the site were probably deposited by local residents dumping refuse on the batture.

Site Assessment. In summary, no in situ cultural deposits were observed at this site, nor were any historic features uncovered. The site does not,

Table 14. Material Recovered from 16OR124.

	Shovel Tests	Surf 0-10	Surf 10-20	Surf 20-30	Surf 30-40	Total
CERAMICS						
Whiteware/ironstone	1			6		7
Ironstone		2	4			6
Porcelaneous stoneware				1		1
Porcelain		1	1	3	3	8
Decaled porcelain			1			1
Overglaze banded porcelain				1		1
GLASS						
Brown glass	9					9
Clear glass	2	1				3
Clear bottle neck, automatic bottle machine, crown cap					1	1
Clear crimped gaslamp top				1		1
Dark green glass				1		1
Milk glass			3	1	1	5
METAL						
Wire nail	1					1
Wire nail shaft	1					1
Misc nail	1					1
Crown cap	1					1

Table 14, cont.

	Shovel Tests	Surf 0-10	Surf 10-20	Surf 20-30	Surf 30-40	Total
MISCELLANEOUS						
Brick fragment	3		4	14	2	23
Mortar	2					2
Styrofoam	1					1
Asphalt	1					1
Fiber board	2					2
Plastic	2					2
Rangia	8					8
Gravel	1					1
Chert	1					1
Stone	1					1

therefore, exhibit research potential that would warrant further excavations or consideration for inclusion on the National Register of Historic Places. No further work is recommended at 16OR124.

CHAPTER 10
EXCAVATIONS AT 16OR125
(with contributons by Diane Silvia and Joann Mossa)

Introduction

Site 16OR125 yielded artifacts and features suggestive of multiple occupations. Aboriginal and European sherds from the surface of the beach may derive from the early eighteenth century occupation at the site of Bienville's west bank concession. Structural features uncovered are probably associated with middle to late nineteenth century wharf, railroad, and warehouse activity at the site. Because of the complexity of the site, and because of its potential significance, this chapter begins with a more detailed history of the property than was provided in Chapter 6.

Detailed History of 16OR125

On March 27, 1719, Bienville and Hubert, the Directors of the Company of the Indies, granted Bienville a parcel on the east bank of the Mississippi River, extending from the upriver limits of the Vieux Carre to approximately the present-day Orleans/Jefferson Parish boundary. Although no copy is available, a second grant was apparently made the same day to Bienville for a concession on the west bank of the river below the Vieux Carre (Cruzat 1927:11). This second grant was confirmed February 7, 1724, and was described as:

> ...on the east side of Point St. Antoine [present-day Algiers point]... a flooded country to serve as a pasture ground for cattle, running in depth to the lake on the south side, about a league in distance... [Cruzat 1927:12].

Bienville's residence was located on his east bank concession, upriver from the Vieux Carre. This property was sold to the Jesuits in 1726, one year after Bienville was recalled to France. Bienville returned to New Orleans in 1733, after which date he resided in the Governor's House located at St. Anne and Chartres Streets (Samuel Wilson, Jr., personal communication 1988; Dart 1927:364-366). Thus, there is no evidence that Bienville ever lived on his west bank concession.

The 1721 Census of Louisiana records that at that date, Bienville possessed three French servants, 27

Negro slaves, 7 Indian slaves, and 24 head of cattle. Thus, Bienville owned nearly 14 percent of the 51 Indian slaves held by a total of 293 male colonists. Only one individual listed in the census had more Indian slaves than Bienville, and only five had more African slaves. Four individuals possessed more cattle than Bienville (Ditchy 1930:214-220). Unfortunately, it is unclear how these servants, slaves, and cattle were apportioned between Bienville's east bank concession and his west bank holdings.

The Edict of the King's Council of 1728 stipulated that large free grants of land such as Bienville's were contrary to the provisional orders given to the Company of the Indies. Large concessions were not to have been made in the vicinity of New Orleans, and these lands were supposed to have been reserved for ex-soldiers and settlers who would be required to serve in defense of New Orleans (Dart 1927:162-165). The net effect of the Edict was to revoke all existing grants in the territory.

Between 1733-1737, during his service as Royal Governor of Louisiana, Bienville tried to obtain ratification of his east and west bank grants by arguing that prior to the 1728 Edict, he had settled both of his concessions with farmers (Dart 1927:165-166). He submitted a plan of both concessions with a list of settlers that had been established thereon (Figure 14). It should be noted that on this plan, the land which includes 16OR125 was still retained by Bienville as his personal domain. The entire west bank concession was described in 1733:

> ...about two leagues front descending, was established for the most part by Canadians whom Monsieur de Bienville had placed there before his departure for France and to whom he made some advances for which he has not been reimbursed. The Chevalier de Noyan, his nephew, has since placed there some Frenchmen (and) all these settlers are well established and have built permanently, even having two sawmills in one place [Cruzat 1927:374].

Bienville was ordered to supply documentation of the condition of his east and west bank concessions prior and subsequent to the Edict of 1728. The documents show that Bienville retained ownership of the concessions as "Seigneur et proprietaire," and the settlers on his lands, who were actually Bienville's tenants, supplied

him with a yearly rent of money, capons, and forced labor (Dart 1927:538-539; Cruzat 1927:540-561). As noted above, Bienville retained the parcel which includes 16OR125 "as his domain" (Cruzat 1928:209). The process-verbal of the survey made in 1737 of this "domain" described it as:

> a tract forty-nine arpents front on the River Saint Louis by a league in depth, situated below New Orleans and on the opposite side, having four hundred and sixty superficial arpents cleared, on which land we found two buildings on the ground, a barn measuring sixty feet in length of brickwork, a dove-cote of upright joists and twenty negro quarters, belonging to Sieur de Bienville... [Cruzat 1928:209].

There is some confusion about the actual size of Bienville's west bank "domain." Although it is described in the process-verbal as forty-nine arpents front, the frontage is given as forty arpents in the key to the survey of 1737 (Cruzat 1927:9).

The "barn" noted in the process-verbal also deserves mention. The fact that it was constructed of brick suggests that it was a relatively elaborate structure. This may indicate that the building also functioned as a warehouse.

Although the final disposition of Bienville's petition is apparently undocumented, Dart (1927:368) concludes that new grants were probably issued to Bienville's former tenants, and Bienville was probably placed in possession of the unoccupied portions of his original concessions. This supposition contradicts the evidence given in the process-verbal that Bienville's domain was both improved and occupied. Nevertheless, Bienville evidently received title to the "domain" since he later sold it to Joseph Desdomaine Hugon in 1746. The sale was made by de Noyan for Bienville, and consisted of:

> ...a plantation in this colony situated on the bank of the River St. Louis a half a league descending the river on the opposite side of New Orleans owned by Sieur de Bienville adjoining above the land of Sr. Louis Blanc, deceased, called Sr. Louis and below that of Sieur Provenche, comprising forty arpents front by ordinary depth... (with a) old main

> house, a brick barn ___ feet front by ___ feet (sic) in length covered with tile, two colombage pigeonniers covered with shingles and stocked with pigeons and other old buildings as well as farm animals thereon consisting of oxen, milch cows, bulls, heifers, calves, sheep, pigs, and poultry... [Louisiana State Museum, Louisiana Historical Center, Colonial Documents, 24 November 1746; Dart 1927:368].

A 1750 map of the area appears to show the tract at about the time of Hugon's purchase (Figure 57). Four structures are shown on a property in approximately the location of 16OR125. The improvements are shown relatively far back from the river front.

It is uncertain how long Hugon held the land. He apparently sold two seven-arpent front tracts to Jean Baptiste Destrehan in 1755 and in 1760 (H. Pedesclaux, April 8, 1834, NONA). These documents, which are in a very poor state of preservation, were not examined in detail for the present study, so it is unclear whether these conveyances included 16OR125.

The next clear evidence of ownership of the property that includes 16OR125 is the Carlos Trudeau map of 1785. At this date, the property was held by Jean Baptiste Bienvenu, who owned a total of eight arpents front on the river. The map indicates that the rear of the parcel, which was wider than the river frontage, extended to the upper boundary of Bienville's concession. Bienvenu had acquired six arpents front of this property from M. Voisin (H. Pedesclaux, April 8, 1834, NONA). A large folio of documents in the Louisiana Historical Center, Louisiana State Museum (Colonial Documents, September 11, 1790) evidently includes record of this sale, but again, time constraints prevented location of this act of sale. The Trudeau map indicates that the upriver bounding parcel was the eight arpent front tract of Pedro St. Marin. Luis Cavalle de Macarty held the twelve arpent front parcel downriver from Bienvenu, which the former purchased from the latter in 1785 (H. Pedesclaux, April 8, 1834, NONA).

Bienvenu died prior to 1808, for in that year Lafon executed a map showing the Widow Bienvenu (Helene Betet or Bellot) in possession of both her late husband's parcel and the bounding upriver eight arpent front parcel that had belonged to St. Marin (H. Pedesclaux,

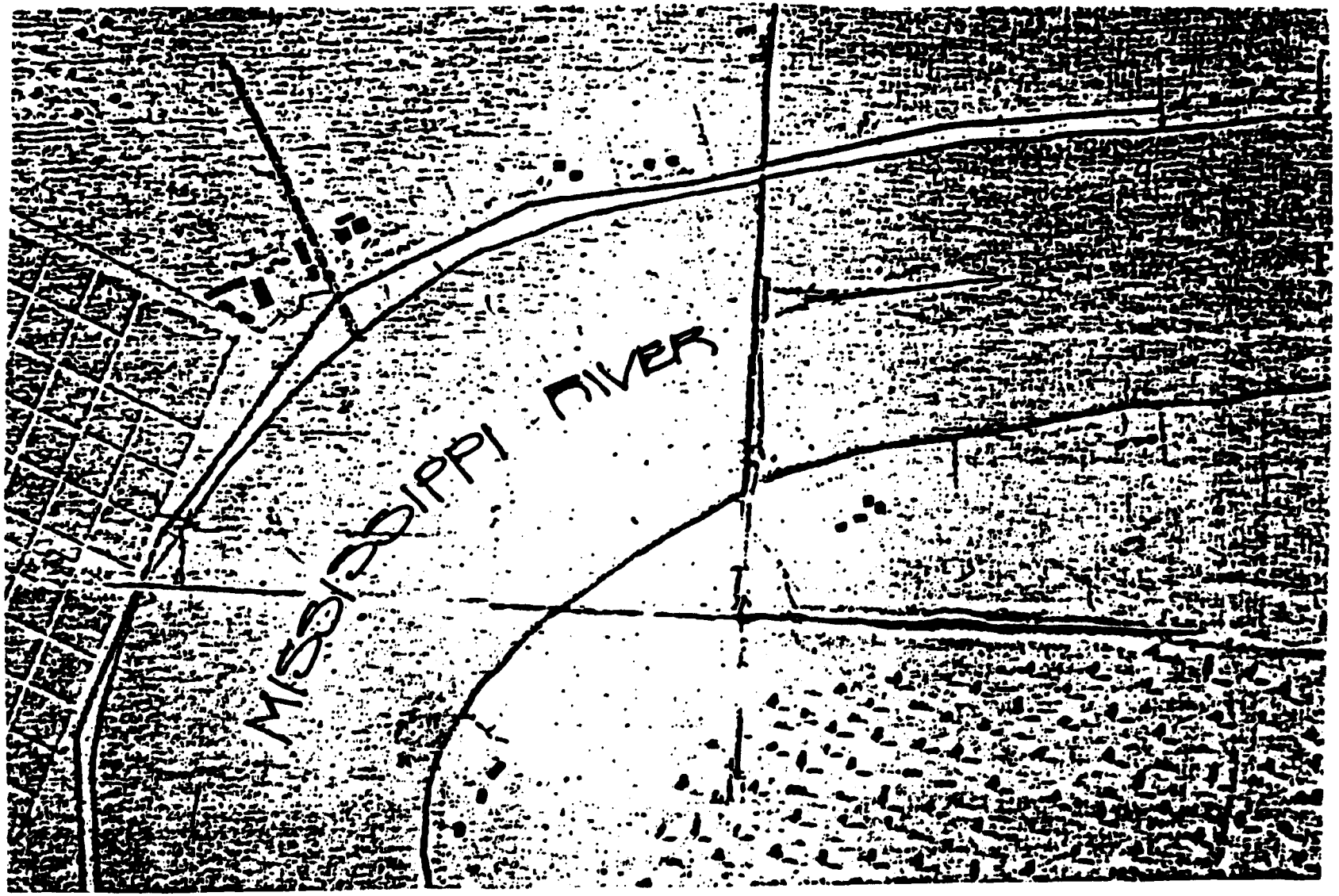


Figure 57. 1750 map of New Orleans (Fritz and Reeves 1983).

April 8, 1834, NONA). Interestingly, what would become the Verret Canal is illustrated on this map. The plan suggests that the canal extended back to Bayou Barataria even at this date.

The Widow Bienvenu subsequently submitted a claim to the United States government for a tract of land 16 arpents front on the river extending back to Bayou Barataria. Her claim stated that this parcel was part of a larger tract of land 46 and one-sixth arpents front by 160 arpents depth "surveyed in 1737 by Francois Brutin (sic) in favor of Chevalier Bienville." She contended that the parcel had been occupied and cultivated since that date (Lowrie and Franklin 1834:330).

According to the family's papers, Furcy Verret and Barthelemy Duverje each purchased one-half interest in the Bienvenu property in 1817 (Furcy Verret, Sidney Louis Villere Papers, The Historic New Orleans Collection). Title research undertaken to date neither confirms nor disproves this claim. However, it is known that prior to her death, Alix Bienvenu, Jean Baptiste Bienvenu's daughter and Duverje's wife, held this parcel in equal partnership with Furcy Verret. What is unclear is whether she received her one-half interest as an heir of her father or of her husband. In either case, her five daughters petitioned in 1840 to have their interest in the property partitioned from Verret's. The property at this date was described as a sugar plantation of twenty arpents front on the river. Duverje's widow evidently had constructed a house and dependent structures on the plantation prior to her death, for these are mentioned in the partition. The plantation was divided into two portions of equal value. The Duverje daughters received the upper portion of the property, which included the improvements built by their mother. Interestingly, the parties agreed that the canal, even then known as the Verret Canal, would be retained as the common and undivided property of all (L. T. Caire, February 27, 1840, NONA).

Three years later the five Duverje daughters decided to partition their portion among themselves. The parcel was divided into six lots. Each received a tract of approximately one arpent front. The sixth lot included their mother's "country cottage, kitchens, stable, outbuildings and dependencies," and was reserved and held in common between the sisters (L. T. Caire, July 31, 1843, NONA).

In the 1850s, the property which includes 16OR125 was purchased by investors. In a series of acts of sale between 1851 and 1856, Edward Creshore of Boston, Edmund P. Tileston of Dorchester, Massachusets, and Asa F. Cochran of New Orleans obtained control of the Verret Canal and 580 feet (French measure, slightly over 618 feet American measure) front extending downriver from the canal. By this time, the commercial potential of the batture had been realized. The act of sale granted the owners not only rights to the buildings and improvements on the property, but:

> ...more especially the right to the Batture in front thereof, the privileges, ways, servitudes, customs uses and appurtenances thereunto belonging in anywise appertaining, together with all wharves, and right of warfage and dockage belonging to [J. Graham, June 5, 1858, NONA, sic throughout].

The owners decided to subdivide the property in 1858. A plan of the subdivision was drawn by D'Hemecourt. The plan shows a wharf, extending from present-day LeBoeuf Avenue to below Hendee Avenue, on the batture. The wharf had eleven piers extending into the river, and six sheds or warehouses were located on the wharf (J. Graham, June 5, 1858, NONA). An 1866 plan of the vicinity shows the landside subdivision as the property of the "Boston Co." (Plan Book 41, No. 22, NONA).

The batture property which included 16OR125 was purchased in the 1870s by Charles Morgan. In 1878, Morgan turned over to Morgan's Louisiana and Texas Railroad and Steamship Company this parcel and the numerous other tracts that he had acquired for his railroad. The property descriptions of some of these parcels indicate the extensive river commerce on the batture at this date. For example, a bulkhead and two wharves were situated between Atlantic and Thayer Avenues. Between this and 16OR125 was a wharf, a shed, and a cotton press (COB 109, Folio 466, Orleans Parish).

As noted in Chapter 6, the Algiers warehouse had been constructed between Whitney and Wagner Avenues by 1883 (Figure 31). Three warehouses or sheds were located between Patterson Avenue and the river, and a wharf extended out over the water. By 1893, these relatively modest structures had been replaced by the Morgan's Louisiana and Texas Railroad and Steamship Company's wharf, which extended from Atlantic Avenue to

Wagner Avenue (Figures 18 and 33). It is likely that the extensive complex of bulkheads and pilings discovered during archeological investigations at 16OR125 (below) represent the remains of these structures built by Morgan's Louisiana and Texas Railroad Company. However, the possibility that structural members of earlier wharf facilities were incorporated into the railroad's complex cannot be discounted.

The 1916 Orleans Parish Levee Board Map (Figure 35) provides a more detailed view of the railroad wharf facility. A freight warehouse was located upriver from Whitney Avenue. This, and the adjacent cattle pens located at the foot of Whitney Avenue, were fronted by a loading platform. Between Whitney and Wagner Avenues was a wharf with a large shed of unspecified function on it. Below Wagner Avenue was a coal pier. The map also indicates that the wharf was built immediately adjacent to the levee, about 250 feet from the landside edge of Patterson Avenue. Between the landside toe of the levee and Patterson Avenue was the Southern Pacific rail yard. This map is consistent with the memories of Mrs. Joseph Sinatra (personal communication 1988), an elderly resident of the area, who recalls the cattle pens located on the wharf riverward of Whitney Avenue. Her memory is that the warehouse was destroyed during a hurricane in the 1910s, and that it was never rebuilt.

Results of Site Assessment

During pedestrian survey, coal was observed on the surface of this site, and a complex series of piers was observed in the Mississippi River. Also, a system of wooden bulkheads was noted at water's edge. At the time of site assessment, the river level had decreased, uncovering a long but narrow beach between the bulkheads and the river. A relatively large number (41) of shell-tempered, aboriginal ceramics were collected from this beach. Surface collections of the beach also yielded eighteenth century European ceramic artifacts.

The site map in Figure 58 shows a series of pilings near river's edge. Additional pilings were present in the river, but these could not be mapped. The majority of the pilings are in parallel rows oriented perpendicular to and extending into the river. These would have supported the wharf facility shown in Figure 35. That figure indicates that additional pilings must have been present, extending riverward from the toe of the box levee. Evidence for these was obtained in

front of Figure 58 (oversize)

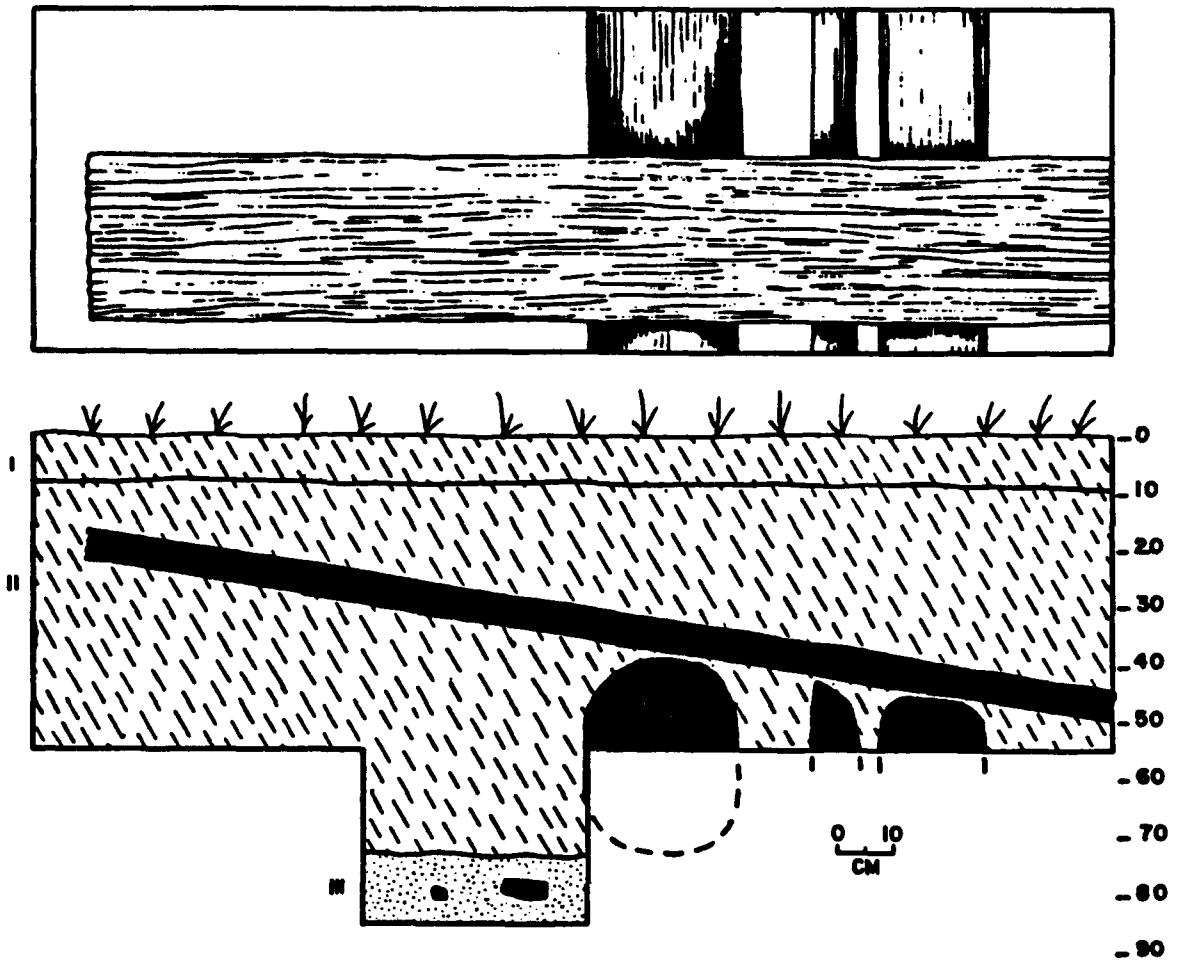
back of Figure 58 (oversize)

Excavation Unit One (discussed below) and in three auger tests located near the beach datum. In these three tests, impenetrable wood occurred at 24 cm, 64 cm, and 64 cm below surface. The wood at the shallowest depth was long leaf yellow pine. This species was commonly used for wharf construction during the nineteenth century. By 1917, however, quality of the wood had declined and cost had escalated, and spruce and fir were the recommended construction material (Greene 1917). Occurrence of large planks of long leaf yellow pine, then, suggest a nineteenth century origin for structures and features with which it is associated.

A wooden feature was uncovered in a shovel test at the site datum (surface elevation at datum was 7.59 ft [2.31 m] NGVD). The shovel test was expanded into a 190 x 60 cm feature excavation unit, shown in plan and profile in Figure 59. Both views demonstrate that this feature consisted of a plank (29 cm across) that was resting on three supporting beams. No hardware was attaching the plank to the beams. The plank was not parallel to present-day ground surface, nor was it parallel to the borders between subsurface strata. The long axis of the plank was, however, oriented perpendicular to the river. Figure 59 shows that a portion of the unit was excavated to a depth of 85 cm below surface. At 75 cm, a silty sand loam was uncovered. The three parallel beams may lie on the upper boundary of this stratum, from which two much smaller pieces of board were recovered. Coal and brick fragments were recovered from throughout Stratum II, in which the feature lies. This mottled sandy silt, then, was deposited during the period when the feature was in use, and/or subsequently.

A second shovel test five meters east of the site datum also uncovered a wood feature. This shovel test was expanded into the feature excavation unit shown in plan view in Figure 60. The excavation provided three meters of exposure along what appeared to be the approximate long axis of the feature. Initially, overburden was removed from the buried planks that lay parallel to and approximately 20 cm below ground surface.

The two planks running the length of this excavation were long leaf yellow pine, measuring 12 x 3-1/2 in (Figure 60). Approximately 10 cm (4 in) separated the two planks. Depth below surface of the planks ranged from 24 to 31 cm.



Key to Strata:

I. 10YR 3/1 (very dark gray) sandy silt
II. 7.5YR 5/4 (brown) mottled sandy silt with coal fragments, brick fragments, and small ferrous concretions
III. 2.5Y 5/2 (grayish brown) silty sandy loam

Figure 59. Plan and Profile of expanded Shovel Test at N0, E0, 16OR125.

front of Figure 60 (oversize)

back of Figure 60 (oversize)

A squarish board, of a different but unidentified species, was attached to the upper surface of the two planks with four bolts (Figure 60). Depth below surface was 20 cm. The sides of this board were flush with the sides of the planks, indicating that it had been dressed to fit atop the planks precisely. Other dimensions of the board were 27 x 2 in.

An additional board, partially broken, extended from the western side of the squarish board to the west wall of the unit. It was attached to the top of the larger parallel planks with bolts, and covered the gap between them. Like the underlying planks, it was 12 x 3-1/2 in. Depth below surface ranged from 21 to 22 cm. Finally, a smaller board fragment was attached to the top of the broken board by two bolts (Figure 60). Depth below surface of this upppermost board fragment was 15 cm.

Figure 60 also shows an upright piling with dimensions of 12 x 9 in. The piling was directly beside, but not contiguous with, the above-described feature. This plan view shows a concentration of cinders at 25 cm below surface. These cinders appeared to have been deposited at the same level as, or just below, the base of the plank feature. Coal, brick fragments and gravel were also present at the level of, and just beneath the feature.

The plank feature was sawed and then removed from the westernmost 1 x 1 m portion of the feature excavation. This 1 x 1 m section was then excavated in 20 cm levels to a depth of 80 cm. Figure 61 shows a plan view of this section at 50 cm below surface. The northwest quarter of the upper surface of the piling was unmodified, while the remaining surface had been notched, apparently to create a supporting surface. As noted above, the plank feature was directly beside but not contiguous with the piling. However, one side may once have rested within the notch. If so, it was subsequently displaced.

Figure 61 also shows a 12-in diameter rounded beam oriented approximately parallel to the plank feature. One nail and one nail hole were observed on the upper surface of this partially dressed beam. The beam was separated from the plank feature by 13 cm of sandy silt. The beam exhibited a 3-in deep notch at its western end. Part of a board was seen in the NW wall of the unit at this level, and an apparently displaced board fragment lay parallel to the beam (Figure 61).

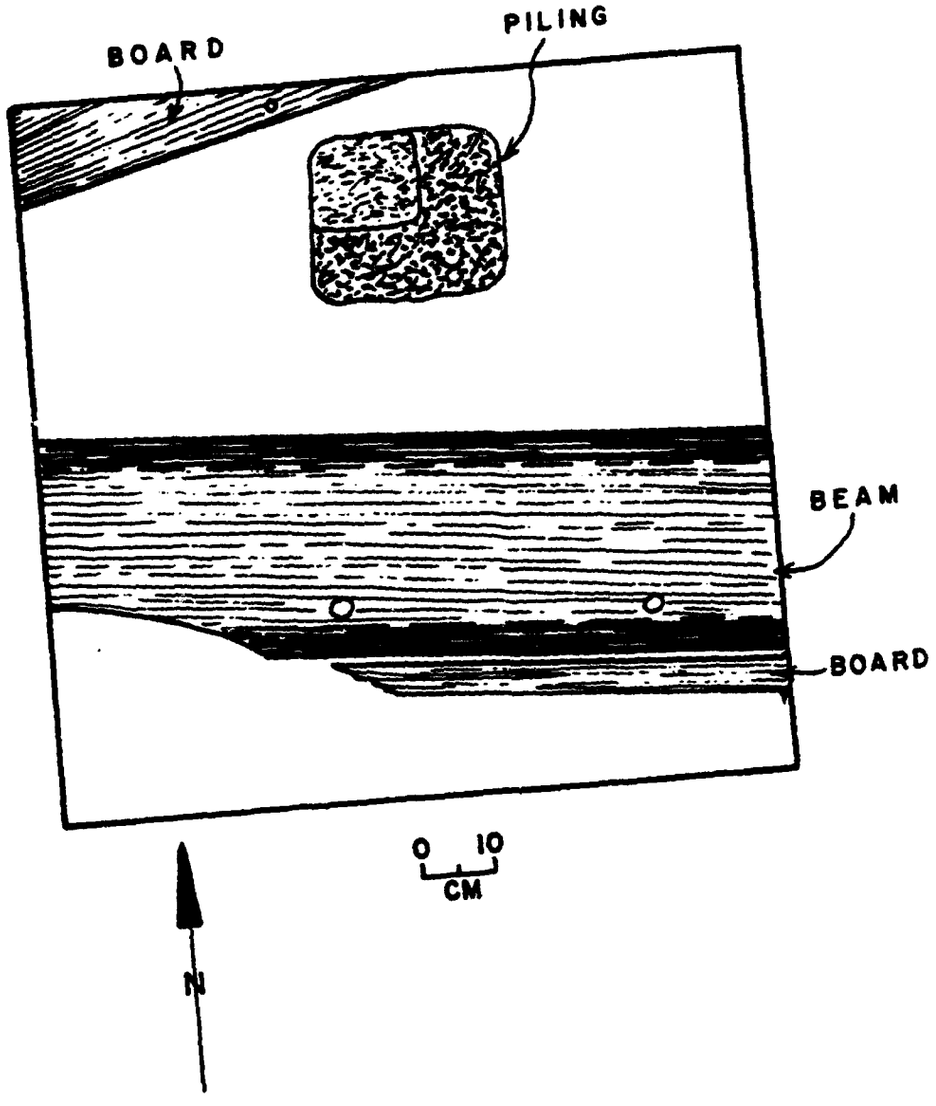


Figure 61. Plan view of Excavation Unit One, western portion, 16OR125, at 50 cm below surface.

The northern one-half of this 1 x 1 m unit was excavated to a depth of 80 cm below surface. The southern portion of the unit, which contained the large wooden beam, was left unexcavated. A plan view at 80 cm is shown in Figure 62. The key to that figure differentiates the two soil types observed in the floor of the unit. At this depth, dimensions of the piling were 9 x 10 in.

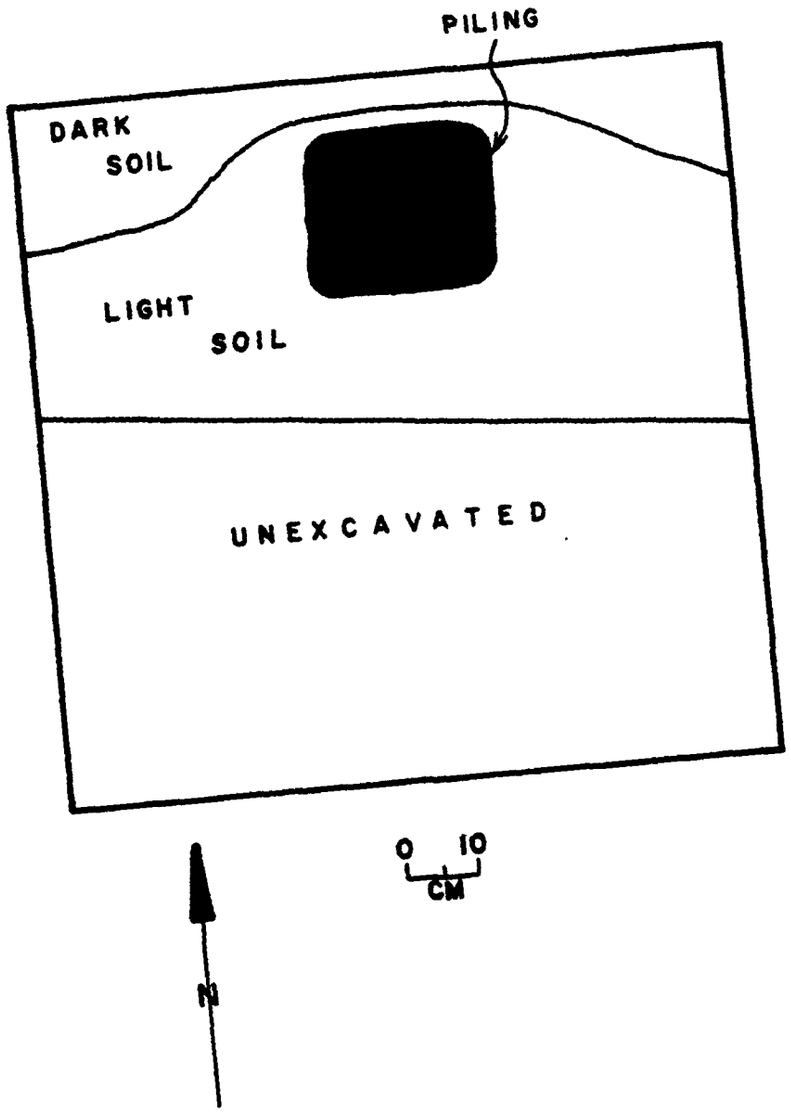
Figure 63 shows the north and west wall profiles of this feature excavation. The key to that figure provides stratigraphic information. Strata I through IV appear to represent recent alluvium overlying the excavated feature. Stratum Va lies beneath these, and part of it overlies the uppermost surface of the board feature. This stratum was a sandy loam with large amounts of gravel and cinders. Its position indicates it was deposited subsequent to abandonment of the feature. However, the density of gravel and cinders indicate that the batture may still have been in use as part of the railroad/wharf complex. Stratum Vb overlies the remainder of the board feature.

Stratum VIa was a silt loam with some cinders. Stratum VIb was a small pocket of mottled silt loam directly atop part of the board feature. Stratum VIc was an apparently intrusive deposit, lying below and partially filled by material from Va. Soil within VIc was a silt loam with gravel and small concretions.

Stratum VII was an alluvial deposit of sandy loam. A board in the northwest corner of the unit (Figure 63) lay within this stratum. Stratum VIc (above) was intrusive into stratum VII. Stratum VIIIa was landward of the horizontal beam within the unit. It was a sandy silt with coal, wood fragments and boards. It may represent fill located behind, and held in place by, the beam.

Stratum VIIIb was the basal alluvial stratum within the unit. It was a clayey silt yielding a few wood fragments, presumably representing drifted material. Stratum IX was a sandy silt overlying the riverward half of the beam. Beneath it, stratum X was a sandy silt lying riverward of and extending below the beam.

The board feature appears to rest on strata VIIIa and VIIIb (Figure 63). However, the feature may represent part of a wharf or the infrastructure of a wharf. If so, it was elevated above ground surface at



Key:

Dark Soil: 2.5Y 5/2 (grayish brown) heavily mottled clay loam, with inclusions of shell gravel and wood.

Light Soil: 10YR 5/1 (gray) silt loam

Figure 62. Plan View of Excavation Unit One, western portion, 16OR125, at 80 cm below surface.

front of Figure 63 (oversize)

back of Figure 63 (oversize)

the time of construction. This suggestion is supported by the presence of an upright piling in the unit. Thus, all of the soils observed in this unit may have been deposited subsequent to construction. The strata shown in Figure 63 would, therefore, represent infilling beneath the formerly raised feature followed by deposition on top of the feature subsequent to abandonment.

The site map (Figure 58) shows the location of a 1 x 1 m excavation unit placed closer to the beach scatter. The location for Excavation Unit 2 was determined during a site visit by project geomorphologist Ms. Joann Mossa. Placement was landward of an actively slumping bench and landward of a portion of the beach where aboriginal and European ceramics were concentrated. Excavation proceeded by 20 cm arbitrary levels, and all fill from this unit was screened through 1/4-in mesh.

The 0-20 cm level yielded one chert cobble, one piece of gravel, one piece of plastic, one clear glass sherd and a tin can. The 20-40 cm level was sterile with the exception of a board in the NW corner of the unit. Metal fragments, coal and gravel were recovered from the 40-60 cm level. A strand of copper wire emerged from the north wall at 71 cm. The 60-80 cm level yielded relatively larger amounts of coal and gravel. Co-occurrence of sand and gravel in the level suggested a former fill episode that was subsequently disturbed. Additional boards were recovered from this level. One of these boards was long-leaf yellow pine. There was less coal and gravel within the 80-100 cm level compared to the level above. One large board with a wire nail was recovered. Also, there was a concentration of boards on the west side of the unit at 90 to 100 cm. Recovery of the board and wire nail within the 80-100 cm level suggests that deposition to a depth of approximately one meter occurred sometime during the last one hundred years.

One-half of this unit was excavated to a depth of 160 cm. Water began to enter the unit at 130 cm, and the presence of a root was noted at that depth. No cultural material was recovered from 100 to 160 cm. However, an auger test in the floor of this portion of the unit recovered slag at 170 to 176 cm, as well as coal and slag at 190 to 200 cm.

While coal is most frequently associated with nineteenth century or later activity, archival evidence

exists for the utilization of coal during the Colonial Period. The entrepreneur Claude Joseph Villars Dubreuil requested that the French Crown send him "from 7 to 8000 pounds of coal" in 1741 (Dart 1935:284). Dubreuil at that time was improving the canal he had constructed to connect the Mississippi River with Bayou Barataria, and he needed supplies for that effort. Similarly, 127 "quarts" of coal were auctioned from Dubreuil's estate after his death (Dart 1935:325). In fact, use of coal was so prevalent during the French Colonial Period that Pittman noted in 1760s:

> Great pieces of coal are constantly found on the sand-banks, from where it may be concluded, that there are coal mines in the upper parts of the Mississippi [Pittman 1906:37].

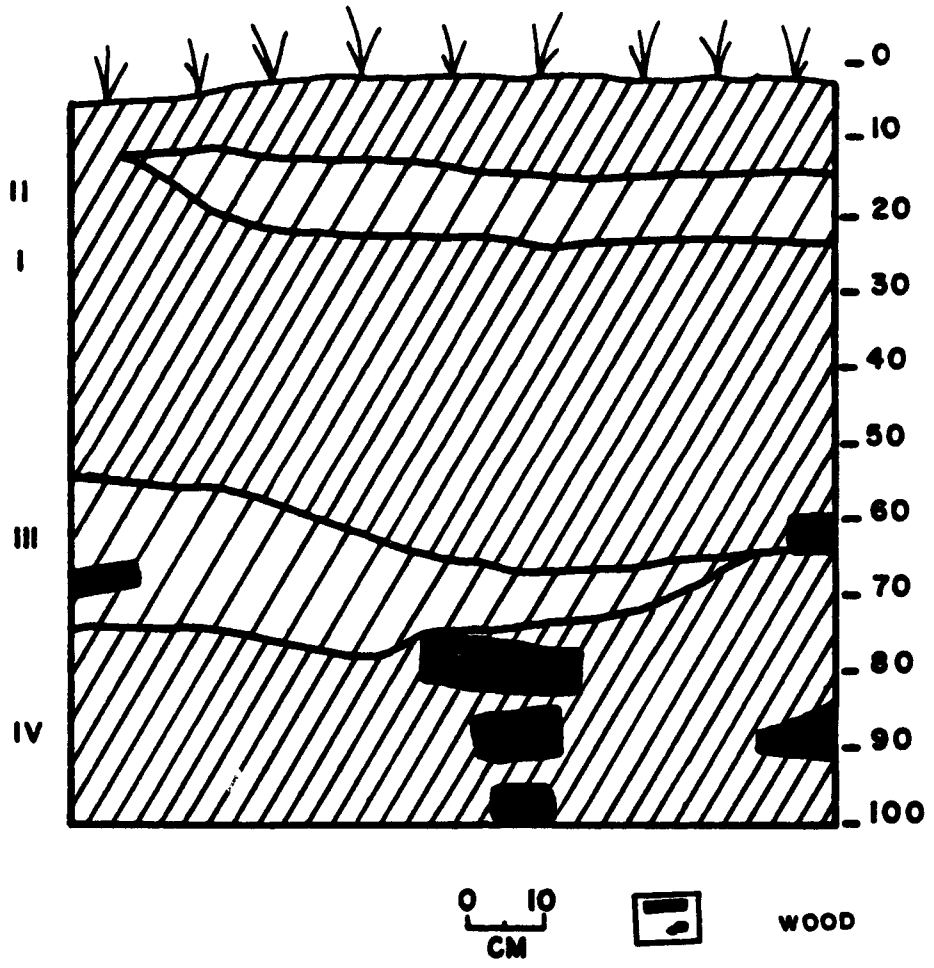
Thus, coal recovered at depths of a meter or more at 16OR125 may be associated with either the eighteenth or nineteenth century occupations of the site.

The west wall profile for this unit is shown in Figure 64, and the key to that figure provides stratigraphic information. The profile shows six boards in the west wall between 60 and 100 cm.

Eleven auger tests to varying depths, some to 200 cm, were excavated at the site. Locations are shown in Figure 58. Strata observed in auger tests as well as recovered manuports are reported in Appendix I.

The bulkheads shown on the site map in Figure 58 were examined in detail at 40 to 50 m E along the beach. Square, vertical pilings were present on the river side of the feature, and these were located seven feet apart. Behind these were rows of horizontal boards, and each row was associated with a set of vertical boards. One, two, or three rows were present, and the rows were approximately parallel. The inconsistent number of rows may be due to the fact that parts of the bulkhead(s) were buried.

Horizontal boards associated with the bulkheads were 30 x 4.5 cm (12 x 2 in), but were too decayed and broken to allow a determination of length. The upper surfaces of the vertical pilings were 30 x 30 cm (12 x 12 in). Upper surfaces of the upright boards were 30 x 4.5 cm (12 x 2 in). A second set of pilings, with the same dimensions as the first, was present directly behind the feature.



Key to Strata:

I. 10YR 4/3 (brown/dark brown) silty clay with 7.5YR 4/6 (strong brown) mottling

II. 10YR 5/2 (grayish brown) clay loam with 10YR 4/6 (dark yellowish brown) mottling

III. 5Y 5/1 (gray) clay loam mottled with 10YR 5/6 (yellowish brown) and with coal and gravel inclusions

IV. 5Y 4/1 (dark gray) mottled clay loam

Figure 64. South Wall Profile, Excavation Unit Two, 16OR125.

These bulkhead features appear to represent the remains of retaining walls placed at 16OR125 to prevent caving of the banks. Docking of boats and barges at the wharf that formerly stood here would have created considerable lateral wave wash which, without preventive measures, could have destabilized the bank.

A comparable feature was recorded by Iroquois Research Institute (1982a) at 16SJ31. The feature was described as a low wall of buried or broken wooden planks. The wall paralleled the existing levee for about 110 m. It was 35 m inland from the riverbank and 60 m from the existing levee. The wall was located immediately riverward of a steep erosional cutbank separating the batture forest from the grassy area along the riverside toe of the levee (Iroquois 1982b:41).

Individual planks in the wall at 16SJ31 were 2 to 3 cm thick and up to 30 cm wide, dimensions that are almost identical to those recorded at 16OR125. The planks at 16SJ31 rarely extended more than 30 cm above the present ground surface, and were angled slightly towards the levee. At an earlier time, the planks may have extended higher above the ground but now are largely buried by recent alluvium. At regular intervals the wall was buttressed by low vertical beams and reinforced by short diagonal braces (Iroquois 1982b:41).

Wire nails had been used in construction of the wall at 16SJ31. Its alignment and location suggested that it represented the remains of a wooden retaining wall designed to control erosion during high water stages. No archival data were obtained on the age of the feature, but the wire nails suggest a twentieth century date (Iroquois 1982b:42).

The similarity of bulkhead features at 16OR125 and 16SJ31 suggests that these walls represent a formerly common type of bankline stabilization. Interestingly, construction of this nature was recommended at Algiers Point in 1892 after a severe bank cave-in destroyed much of the ferry building a short distance upriver from 16OR125. Chief Engineer Brown of the Orleans Levee Board stated at a meeting that:

> I have already recommended that piles be driven as close against the bank of cave as possible to prevent further caving... With a view of holding this point from further caving for a period of four or five years or until

> mattresses or other appliances can be put in position to permanently maintain this bank, I would recommend that a bulkhead be driven on the alignment shown on plan, the piles to be eighty-five to ninety feet long and five feet apart. I would recommend the driving of bulkheads on the curve shown in order to form an easier curve for the flow of water around this point, which [would] materially aid in preventing forming of eddies to cut and scour the bank [Times-Democrat, August 20, 1892, p.3, c.1-2].

Analysis of Historic Artifacts

Historic artifacts collected from the narrow beach at 16OR125 are presented in Table 15. A total of 68 ceramic sherds were recovered. Forty-nine of these (72%) are eighteenth century faience and coarse earthenwares. The remaining 19 sherds are later eighteenth, nineteenth, and twentieth century types.

Two sherds of faience with a pink earthenware paste were collected. One of these was a rim sherd, possibly from a small bowl. In addition, one sherd of redware and six sherds of buff colored earthenware may have formerly been tin glazed, but the glazes have eroded off. Most of the sherds are too small to determine vessel form, but the majority appear to represent hollowware. One of the buff paste sherds is a rim sherd from a small, shallow bowl, while a second is a a body sherd from a straight sided crock or jar. The latter exhibits horizontal ribbing on the exterior surface.

Eight sherds of redware with lead glazed interiors were collected. The glazes on all of these were brownish and flecked with brown as a result of iron in the vessel fabric. Thus, they appear to correspond to French lead glazed earthenwares recovered from the Fortress of Louisbourg (Barton 1981:35), from the Cahokia Wedge site (Walthall and Gums 1988:149), from the Trudeau site (Brain 1979:50-56), from sites at Golden Ranch Plantation (Hunter et al. 1988), and from sites in the Chalmette and Barataria Units of Jean Lafitte National Historical Park (Yakubik 1990). All appear to be hollowware fragments, although they are too small to discuss precise vessel form. One sherd is a foot fragment from a bowl. The vessel was knife-cut from the wheel, but the base was left untrimmed. Two other sherds exhibit marked interior rilling, as do examples of this type from the Fortress

Table 15. Surface Collection from 160R125.

	0-10	10-20	30-40	40-50	50-60	60-70	70-80	Total
EUROPEAN CERAMICS								
Faience, pink earthenware body				2				2
Redware, lead glazed interior	2	1	2	3				8
Redware, white slip decoration, lead glazed interior		1						1
Redware, white interior slip, green slipped and lead glazed			1					1
Redware, white interior slip, clear lead glaze mottled with green					1			1
Saintonge slipped green glazed redware			1					1
Redware, white slip and lead glaze	2							2
Redware, eroded tin glaze?			1					1
Redware, brown exterior glaze	1							1
Redware, lead glazed interior, trailed glaze exterior		1						1
Redware (roofing?) tile		1						1

Table 15, cont.

	0-10	10-20	30-40	40-50	50-60	60-70	70-80	Total
Very coarse redware (tile?)					2			2
Lead glazed redware tile		1						1
Tin glazed redware tile, purple and blue hand-painted					1			1
Redware, buff exterior slip				1				1
Redware, burnt				2				2
Unglazed redware					1			1
Tin glazed buff earthenware tile			1					1
Buff earthenware, eroded tin glaze?	2		1	3				6
Buff earthenware, lead glazed interior	1							1
Unglazed buff earthenware	1				1			2
Pink earthenware, copper, iron, and manganese stained interior glaze			1					1
Pink earthenware tile, eroded tin glaze?				1				1
Unglazed pink earthenware	1			1	1			3
Very coarse pink earthenware	4							4
Very coarse pink earthenware (tile?), white enamel glaze		1						1
Creamware	1			1				2

Table 15, cont.

	0-10	10-20	30-40	40-50	50-60	60-70	70-80	Total
Pearlware			1			1		2
Blue transfer-printed pearlware	1							1
Cream colored earthenware eroded glaze	1							1
Whiteware				2				2
Annular whiteware	1							1
Ironstone			2	1			1	4
Decaled ironstone			1					1
Burnt refined white earthenware					1		1	2
Stoneware ginger beer bottle	1			1				2
Decaled porcelain			1					1
GLASS								
Dark green glass					1	1		2
Grey glass							1	1
METAL								
Misc. square nail	3	1		2				6
Square cut spike					1			1
Misc. metal	1							1
MISCELLANEOUS								
Brick fragment	1		1	1		1		4
Shell			1					1
Chert	12				1			13
Green slate				1				1
Grey slate				1				1
Stone				1	1			2
Hematite				1				1

of Louisbourg (Barton 1981:Figure 24) and from the Trudeau site (Brain 1979:53). Two of the sherds are fire blackened on their exterior surfaces.

One sherd of lead glazed interior redware with white trailed slip decoration was collected. A sherd of similar description was recovered from the Cahokia Wedge site (Walthall and Gums 1988:149). The origin of these ceramics is unknown. As noted in Chapter 8, most French slipwares tend to utilize colored slips, while white trailed slip is typical of Anglo-American coarse earthenwares. Similar sherds have been recovered from other eighteenth century southeastern Louisiana sites (Yakubik 1990).

One sherd of redware had a white interior slip over which a green slip had been applied. This sherd has an interior lead glaze. It is similar to the description given by Barton (1981:23-27) to a group of Southern French slipwares. Unfortunately, the sherd is too small to determine the pattern of the green slip decoration. The sherd appears to be the foot of a bowl or a plate. It was cut from the wheel and the foot was subsequently trimmed.

In addition, the site yielded two sherds covered with a white slip and a lead glaze on both the interior and exterior surfaces. While Barton (1981:23-27) describes a group of Southern French ceramics from the Fortress of Louisbourg as white slipped and glazed, the treatment of these wares is on the interior vessel surfaces only.

One sherd of redware with an interior slip covered with a green glaze was recovered. This type, Saintonge slipped green glazed, corresponds to Barton's (1981:10) Saintonge Slipwares from the Fortress of Louisbourg, to Walthall's Saintonge Slip Plain from the Cahokia Wedge site (Walthall and Gums 1988:149), and Lead Glazed Earthenware Types C and F from the Trudeau site (Brain 1979:10). Similar sherds have been recovered from the Barataria Unit of Jean Lafitte National Historical Park (Yakubik 1989), from Elmwood Plantation (Goodwin et al. 1984b), and from sites on Golden Ranch Plantation (Hunter et al. 1988). One sherd of a possibly related type was also collected. This unusual redware sherd had a white interior slip with a clear lead glaze mottled with green. It is a sherd of a deep bowl with a thick, folded rim.

One sherd of buff slipped redware was collected. It appears to be some sort of vessel leg. It is 12 cm in height, 5.6 cm in diameter at the top, and 3.7 cm in diameter at the base. The sherd exhibits pronounced rilling. As noted in Chapter 8, slipped and unglazed redwares have been recovered from a number of southeastern Louisiana sites, including 16OR122, and this may represent a distinct type.

One sherd of buff colored earthenware with an interior brownish-yellow lead glaze was collected. This type has been recovered from the Fortress of Louisbourg, and Barton (1981:33) attributes it to Beauvais in Northern France. The sherd appears to derive from a hollowware vessel.

One sherd of redware with a very badly eroded exterior brown glaze was recovered. It possibly has a lead glaze, but the glaze is too poorly preserved to be certain. It is a rim sherd of a slightly incurving rimmed, hollowware vessel.

Another unusual rim sherd of a incurving rimmed, globular vessel has a brownish interior lead glaze. Lead glaze is trailed over the exterior of this redware vessel. The exterior surface is fire blackened in areas not covered by the trailed glaze.

One sherd of pink earthenware was collected that has an interior glaze that appears to be mottled brown, black, and green, probably produced by sprinkling copper, iron, and manganese oxides onto the glaze. It is a fragment of a hollowware vessel, and it exhibits pronounced interior rilling.

The remainder of the coarse earthenwares collected were unglazed. These included redware (3), buff earthenware (2), and pink earthenware (8). Three of the pink earthenware sherds were fine paste examples, and two of them appear to be plate fragments. The remainder of the unglazed coarse earthenwares were very thick and coarse, and may represent fragments of storage vessels and/or tiles. Unglazed tiles were manufactured in Louisiana during the Colonial Period, and ceramic flooring tiles were noted during the restoration of the Ursuline Convent (Samuel Wilson, Jr., personal communication 1988). In addition to these, fragments clearly identifiable as tiles were recovered. These include a possible redware roofing tile, a lead glazed redware tile, and two tin glazed tiles, one of which had purple and blue hand-painted decoration.

Late eighteenth/early nineteenth century ceramics recovered from 16OR125 include creamware (2), pearlware (2), blue transfer-printed pearlware (1), and a sherd of cream colored earthenware which had a glaze too eroded to permit precise identification. Early nineteenth century ceramics recovered consisted of whiteware (2) and annular whiteware (1). Ironstone (4), decaled ironstone (1), decaled porcelain (1), and a stoneware ginger beer fragment were collected; these date to the late nineteenth/early twentieth century. Finally, two sherds of burnt refined white earthenware were found.

Other material collected from 16OR125 included dark green and gray glass, square nails and spikes, brick fragments, shell, chert, green and grey slate, and a hematite fragment. Much of this material, particularly the nails and the slate, is probably associated with the Southern Pacific wharf facility. Green slate, which was also recovered from subsurface proveniences, was a common roofing material during the late nineteenth century (Samuel Wilson, Jr., personal communication 1988).

As noted above, 72% of the ceramics collected are eighteenth century coarse earthenwares and faience. Many of the coarse earthenwares are unlike types frequently found on sites dating to the second half of the eighteenth century in southeastern Louisiana. Also, the mid-to-late eighteenth century type, Albisola slipped, which frequently appears in collections of this size, is notably absent. This may suggest that the majority of the ceramic collection is associated with an occupation which dates to the first half of the eighteenth century. The large collection of aboriginal ceramics collected on the beach at 16OR125 (below), also tends to support this hypothesis.

Aboriginal Ceramics (by Diane Silvia)

The surface collection from the beach at 16OR125 yielded a total of 146 aboriginal sherds (Table 16). These represent approximately 70% of the entire collection of both aboriginal and European ceramics. The ceramics are classified following Phillips' type-variety system for the Lower Mississippi Valley, together with the typologies developed by others in coastal areas to the east (Phillips 1970; Sheldon and Cottier 1983; Fuller and Stowe 1982). In the sections which follow, the aboriginal sherds recovered within each collection provenience are described.

Table 16. Aboriginal Ceramics from 16OR125.

	0-10	10-20	30-40	40-50	50-60	Total
ABORIGINAL CERAMICS						
Chickachae Combed, *var. U.*	1					1
Maddox Engraved, *var. U.* (interier)	1					1
Unclassified Red Filmed on Shell Tempered Plain	1					1
Unclassified Black Filmed on Sand Tempered Plain	1					1
Unclassified Combed on Shell and Sand Tempered Plain		1		1		2
Unclassified Incised on Clay and Sand Tempered Plain (parallel incisions)	2					2
Unclassified Incised on Fine Sand Tempered Plain (parallel incisions)	8	1	3	1	1	14
Unclassified Incised on Fine Sand Tempered Plain (curvilinear incisions)	1					1
Unclassified Incised on Shell and Sand Tempered Plain (parallel incisions)	4	1				5
Baytown Plain, *var. U.*			4	1		5
Bell Plain, *var. U.*	5		1			6
Unclassified Clay and Sand Tempered Plain	2					2
Unclassified Grit Tempered Plain	3			1		4
Unclassified Coarse Sand Tempered Plain	7	1	2	1		11
Unclassified Fine Sand Tempered Plain	32	5	2	10		49
Unclassified Fine Shell and Sand Tempered Plain	16	4	3	7	2	32
Unclassified Shell Tempered Plain			9			9

0-10 M East. A total of 84 sherds was recovered from this provenience. Of these, 19 are decorated and are herein described. Perhaps the most interesting piece in the assemblage was a ring-foot base fragment with an interior engraved scroll motif which resembles Maddox Engraved. The ware is black filmed Bell Plain, *var. unspecified*. The piece may be classified as Colono-Indian (Figure 65a). A single sherd with a sandy paste and occasional shell inclusions was identified as Chickachae Combed, *var. unspecified*. A single red filmed sherd on fine shell tempered ware was also noted and may be tentatively classified as Old Town Red, *var. Grand Village* or *Beaverdam*. The only other filmed sherd was black filmed on fine sand tempered plain.

Fourteen sherds with parallel, horizontal incisions were observed. Of these, two are on clay and sand tempered ware, and have wide overhanging incisions. Four are on fine shell and sand tempered ware. Two of these have closely spaced incisions (Figure 65b and c), and two have wide overhanging incisions (Figure 65d ane e). The remaining eight are fine sand tempered. One of these has closely spaced incisions, one has smoothed incisions (Figure 65f), one has interior incisions (Figure 65g), and five have very wide incisions (Figure 65h-k). Only a single curvilinear incised sherd was recovered and may be tentatively identified as Leland Incised, *var. Deep Bayou* (Figure 66a).

The remaining 65 sherds from this provenience are undecorated. Five of these were identified as Bell Plain, *var. unspecified*, and 16 others as unclassified fine shell and sand tempered plain. One of the fine shell and sand tempered sherds is a thick rolled rim with an exterior bevel. Two sherds are clay and sand tempered plain, three are grit tempered plain, 32 are fine sand tempered, and seven are coarse sand tempered plain.

10-20 M East. A total of 13 sherds was recovered from this provenience. Of these, three were decorated, but could not be classified as diagnostics. These included: a single sherd of unclassified combed on fine shell and sand tempered plain (Figure 66b); a sherd of unclassified incised on fine sand tempered with wide overhanging, horizontal, parallel incisions (Figure 66c); and an unclassified incised example on fine shell and sand tempered plain with faint, horizontal, parallel incisions.

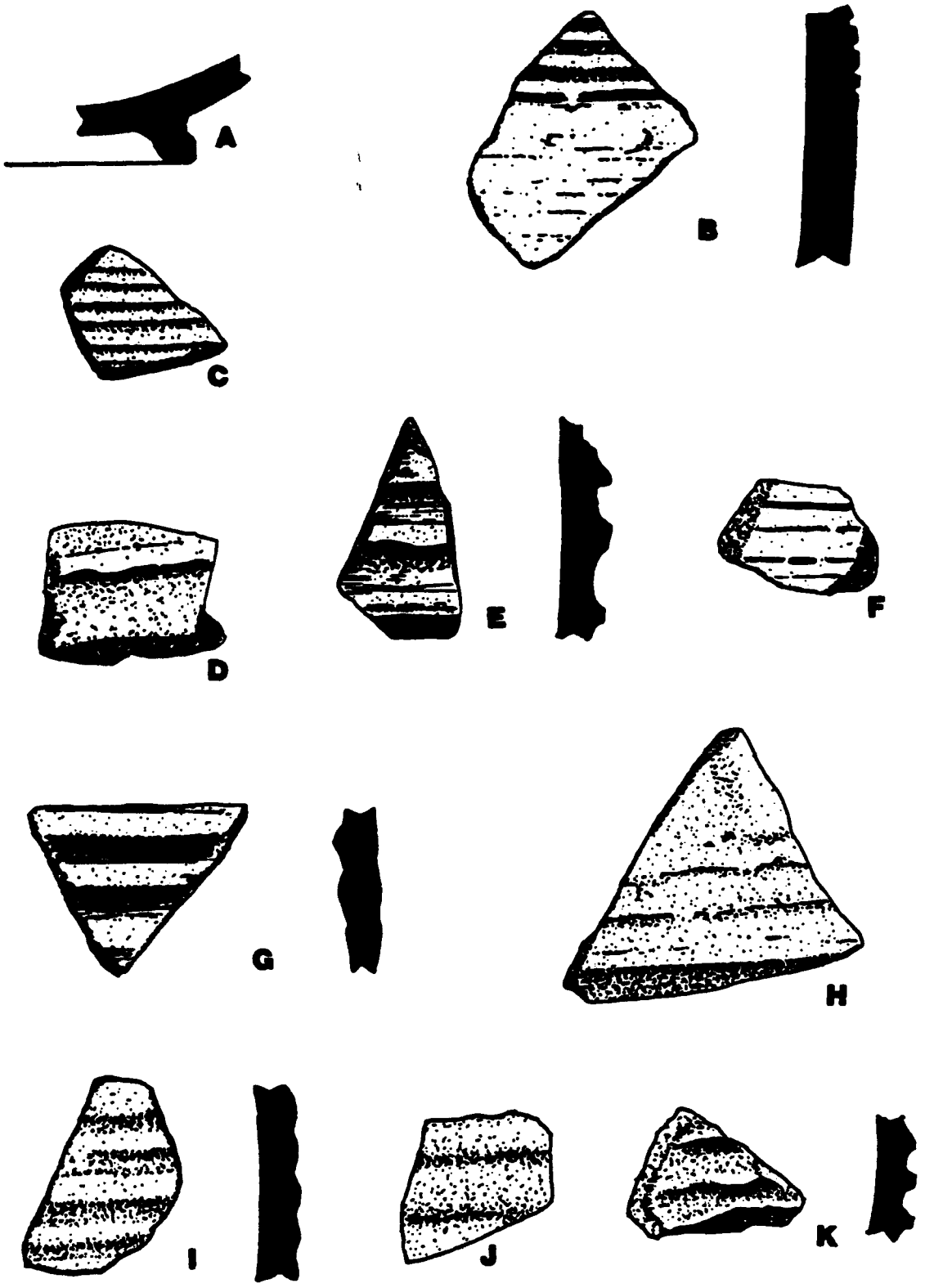


Figure 65. Aboriginal ceramics from 16OR125. Key: a) Bell Plain, *var. unspecified*; b-e) Unclassified Incised on Shell and Sand Tempered Plain; f-k) Unclassified Incised on Fine Sand Tempered Plain.

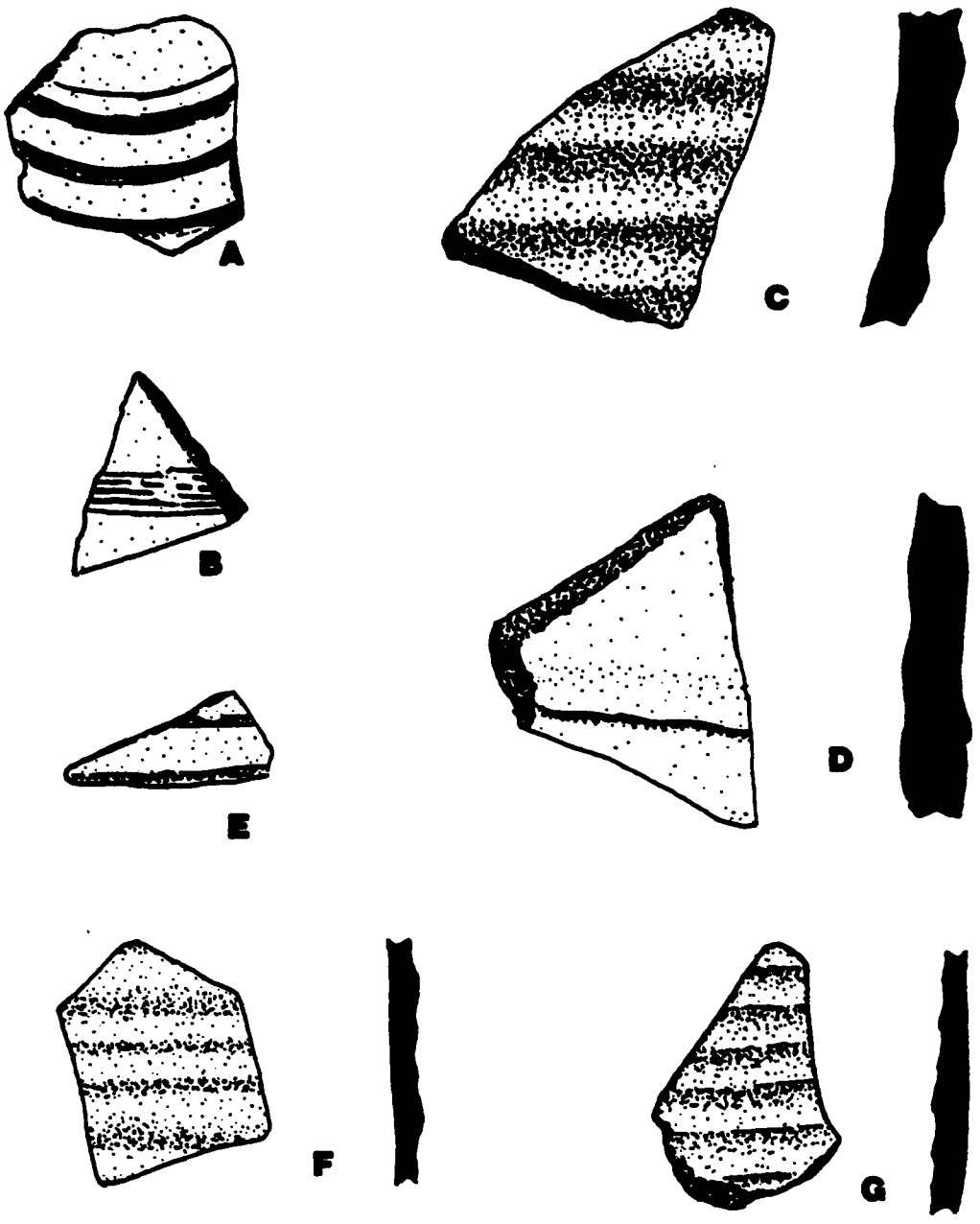


Figure 66. Aboriginal ceramics from 16OR125. Key: a) Leland Incised *var. Deep Bayou*; b) Unclassified Combed on Shell and Sand Tempered Plain; c) Unclassified Incised on Fine Sand Tempered Plain; d) Unclassified Fine Sand Tempered Plain; e-g) Unclassified Incised on Fine Sand Tempered Plain.

Undecorated ceramics include a sherd of unclassified coarse sand tempered plain, four sherds of unclassified fine shell and sand tempered plain, and five sherds of unclassified fine sand tempered plain. The latter included a fragment of a folded rim (Figure 66d).

30-40 M East. This collection unit yielded 24 aboriginal sherds. Only three of these were decorated. The decorated ceramics are all unclassified incised on fine sand tempered plain. Two have wide horizontal, parallel incisions and one has narrow horizontal, parallel incisions (Figure 66e-g).

Plain ceramics include one sherd of Bell Plain, *var. unspecified* and nine of unclassified fine shell tempered plain. One of the latter is a pointed rim with an exterior fold (Figure 67a). Another is a thickened vessel shoulder fragment (Figure 67b). Also collected were two sherds of unclassified fine sand tempered plain, two sherds of coarse sand tempered plain, four sherds of Baytown Plain, *var. unspecified* with a sandy paste, and three unclassified fine shell and sand tempered plain. One of the latter is an excurved and slightly pointed rim (Figure 67c).

40-50 M East. This collection unit yielded 22 sherds, only two of which were decorated. One of these is unclassified incised on fine sand tempered plain. The sherd is very thick and the incisions are wide spaced and overhanging (Figure 68a). A large unclassified combed sherd on shell and sand tempered plain was recovered and may tentatively be called Colono-Indian ware. Combing treatment is narrow spaced and covers the entire surface. The sherd has a large, thick, rounded loop handle, and resembles those found on early European earthenware crocks and jugs. No signs of interior wheel markings are present (Figure 68b).

Plain ceramics include ten sherds of unclassified fine sand tempered plain. One of these is a flat, thickened rim which represents a plate form (Figure 68c). Also collected were a grit tempered loop handle fragment and a third large loop handle fragment of coarse sand tempered plain. Seven sherds of unclassified fine shell tempered plain were recovered, and one of these has black material adhering to the exterior surface. Finally one sherd of unclassified clay and sand tempered plain was recovered.

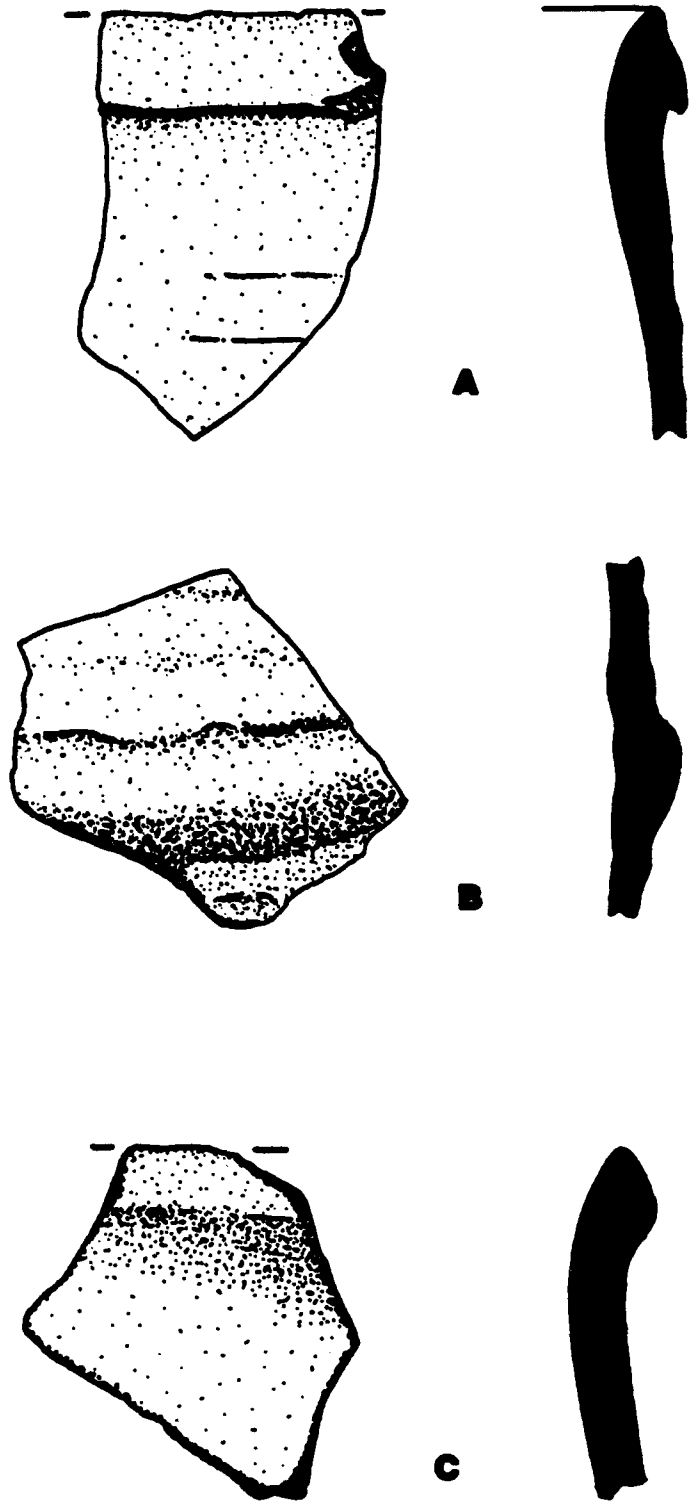


Figure 67. Aboriginal ceramics from 16OR125. Key: a-b) Unclassified Shell Tempered Plain; c) Unclassified Fine Shell and Sand Tempered Plain.

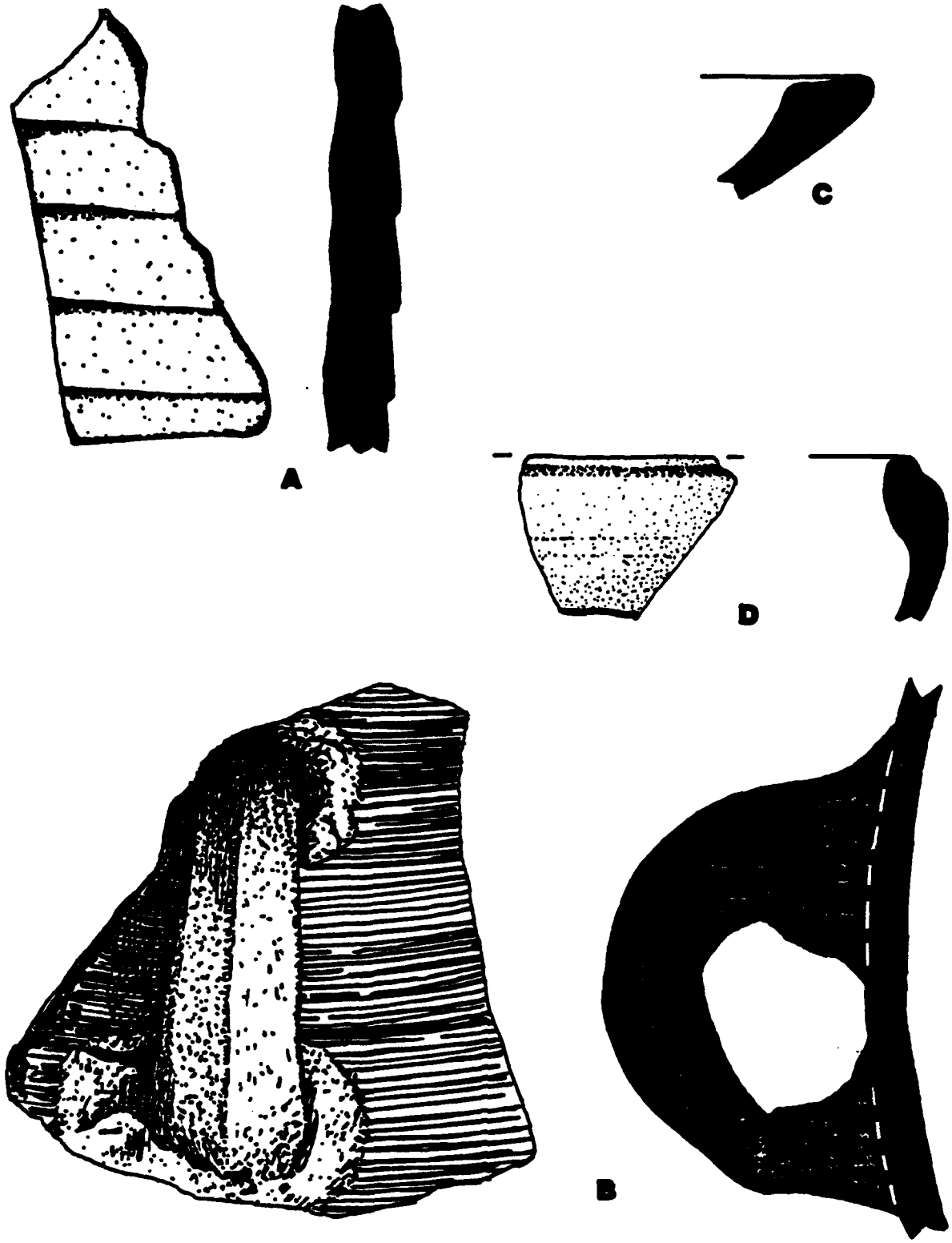


Figure 68. Aboriginal Ceramics from 16OR125. Key: a) Unclassified Incised on Fine Sand Tempered Plain; b) Unclassified Combed on Shell and Sand Tempered Plain; c) Unclassified Fine Sand Tempered Plain; d) Unclassified Incised on Fine Sand Tempered Plain.

50-60 M East. A total of three sherds were recovered from the surface of this unit. One of these is unclassified incised on fine sand tempered plain. The piece is an incurved rim with exterior thickening and a rounded lip (Figure 68d). The visible motif consist of two faint parallel incisions. The vessel form suggests a small bowl. The remaining two sherds are of unclassified fine shell and sand tempered plain. One of these is a simple rim with a flat lip.

Discussion. Of the 146 aboriginal sherds collected at 16OR125, only 28 (19%) were decorated. Unfortunately, many of these were not diagnostic, having little decorated surface or an atypical design/paste combination. The most troublesome category, and that comprising the majority of decorated sherds, consisted of 21 sherds with incisions parallel to the rim. These do not seem to fit either the established types Coles Creek Incised or Mound Place Incised. The motifs range from narrow and close-spaced incisions to very wide and shallow incisions. Tempering also varies from fine sand, clay and fine sand, and fine shell and sand.

Other sherds in the collection were more diagnostic. These include examples of Chickachae Combed, *var. unspecified*, Red Filmed on fine shell tempered plain, Black Filmed on fine sand tempered plain, and Unclassified Combed on fine shell and sand tempered plain.

The most diagnostic piece in the collection is the Maddox Engraved-like ring-foot base fragment. This example may be classified as Colono-Indian ware, i.e. an aboriginal ceramic which incorporates European ceramic traits. Similar ring base vessel fragments have been recovered on other French/Indian sites such as the Mobile Courthouse Annex Site (Sheldon and Cottier 1983), and the Bienville Square Site (Fuller and Silvia 1985; Silvia in press). The three large loop handle fragments also may be Colono-Indian ware. Similar examples of strap or loop handles were reported by Sheldon and Cottier (1983) for the Mobile Courthouse Site and by Brain (1979) for the Trudeau site.

The plain ceramics comprised 81% of the assemblage. These were varied and difficult to classify. Very few examples appear to be good Bell Plain or Baytown Plain. Most were described above and conservatively labelled as unclassified. The ceramics are all quite hard fired, and many have fine sand included in the paste.

The diagnostic ceramics noted suggest an eighteenth century date for at least a portion of the aboriginal assemblage, and appear to be contemporaneous with the early European materials recovered. The presence of additional (prehistoric) components is unconfirmed at present, and may be better determined with further work.

Assessment of Archeological Significance of the Nineteenth Century Commercial Component at 16OR125

Railroad and shipping were critical factors that in part stimulated urbanization on the west bank at Algiers (Chapter 6). Further, they represent important themes in the history of the Greater New Orleans Region. The history and importance of Southern Pacific and related facilities in Algiers have not been examined in depth to date. Background research for this volume indicates that large amounts of archival data are available for such a study. These data include daily reports of incoming and outgoing goods, by steamer, by barge, and by rail. Similarly, documentary records are available for a study of the social significance of such facilities, and these records could still be supplemented by oral interviews.

Archeological remains of a portion of the larger Southern Pacific facility are reported in this chapter and in Appendix I. Remains apparently include remnants of a wharf infrastructure and of construction designed for bank stabilization. They also include manuports such as coal, cinders, and chaff, reflecting the commercial activity at 16OR125. However, wharf features uncovered exhibit no further research potential. The sheds, warehouses and machinery supported by these wharves have been destroyed or removed. Further, modes, materials, and methods for construction of infrastructures such as the one reported here are well documented (e.g. Greene 1917).

Thus, infrastructure remains do not exhibit qualities of significance that would warrant HABS and HAER documentation. Further, additional archeological investigations of manuports reported here would do little to advance our understanding of history because daily records were maintained concerning those goods. Those records are easily available for a detailed historic study (e.g. microfilm copies of the commercial sections of the Times-Democrat and other newspapers, Howard-Tilton Memorial Library). Therefore, the nineteenth century commercial component of 16OR125 should not be a primary focus of further excavations.

Assessment of Archeological Significance of the (Possible) Eighteenth Century Component at 16OR125

Very few sites with eighteenth century components have been investigated in southern Louisiana. Two of these, Elmwood Plantation and the Chalmette Unit of the Jean Lafitte National Historical Park, were sites continuously occupied well into the nineteenth century. This continuous occupation results in ambiguities concerning temporal assignment of recovered artifacts. One other site, the Hermann-Grima house within the Vieux Carre, has been partially excavated. However, similar problems exist there (Goodwin et al. 1984b; Yakubik 1989, 1990).

More recently, limited excavations at a set of sites within the Barataria Unit of the Jean Lafitte National Historical Park have been conducted. These sites were occupied only from ca. 1779 to 1800. Thus, they represent single component occupations for the very late colonial period (Yakubik 1989). Similarly, a set of sites tentatively assigned to the period from ca. 1740 to 1800 have been investigated at the Golden Ranch Plantation on Bayou Lafourche (Hunter et al. 1988).

The limited number of reported sites from the colonial period, and the limited excavations to date, have resulted in formulation of some important research issues concerning eighteenth century Louisiana. At four of the locales listed above, aboriginal ceramics have been recovered in direct association with European material. At the Barataria sites, the context is clearly a European rather than aboriginal occupation. Similar data from Golden Ranch, Chalmette, and Hermann-Grima indicate that extensive interchange was occurring between Europeans and Indians. Further, the nature of the aboriginal ceramics appears to support archival evidence concerning extensive movements of native groups in this period.

In addition, little is known about the availability of European ceramics goods prior to the introduction of creamware to Southeastern Louisiana (ca. 1780). Only single component occupations will provide data necessary to address this and related issues concerning trade patterns for the period. Artifact analysis reported here suggests that 16OR125 may represent such a site, and that the component may represent the earliest period of European occupation in the vicinity of New Orleans.

Thus, 16OR125, if a buried component representing this period is preserved, would be highly significant, and would provide us with data to describe aspects of lifeways in the early colonial period which are otherwise not documented. Further excavations are necessary to determine whether such a component exists. A research design for those excavations is presented in Chapter 11.

Geomorphological Aspects of Field Reconnaissance at 16OR125 (by Joann Mossa)

Geomorphic reconnaissance was conducted on the batture in the vicinity of Algiers (mile 93.5) in coordination with the findings of the field archeologists. Several aspects of the geomorphology and sedimentology that pertain to the occurrence of and approach for determining locations of historic land surfaces and cultural material at the site were questioned by field archeologists. These included: (1) the rates of overbank sedimentation and the probable depths and elevations of buried surfaces; (2) the rates of channel and bank migration in relation to site occurrence and preservation; (3) the occurrence of both cobble-sized grey chert and shells at the site; and (4) modern processes that influence the reworking of subaqueous and subaerial sediments in the project area.

There are several lines of evidence that indicate that overbank sedimentation at this site during the 20th century, and probably earlier as well, has been extremely rapid. Buried wood structures of probable twentieth century origin occurred in several of the auger tests at depths in excess of two ft (60 cm). Coal, probably associated with human activities in the nineteenth or twentieth century, was also present in other borings at similar and greater depths.

Overbank sedimentation in unconfined reaches of the Mississippi River (i.e., that without artificial levees which would confine floodwaters) is appreciable during high discharge years. In the flood of 1973, sedimentation averaged 86 cm on point bars, 53 cm on natural levees, and 1.1 cm in backswamp (Kesel et al. 1974). Sedimentation in confined reaches could possibly exceed that of unconfined reaches because they are subject to flooding on a more frequent basis.

In the vicinity of English Turn at Fort St. Leon, located on the north or right descending bank of the Mississippi River, mile 82 to 78, Saucier (1983 and

personal communication) found that the difference between the elevations of natural levees and the surface upon which the middle eighteenth and early nineteenth century structures were built was 2.7 to 3.4 ft (0.9 to 1.1 m). Saucier (1983) cites the higher elevations of the batture, some 3.7 to 4.6 ft (1.2 to 1.5 m) higher than the area immediately adjacent which is protected by the levee, as evidence of the increased rates of sedimentation since the eighteenth century because of confinement by the artificial levees. For much of this period, from before 1817 to past 1894, artificial levees protected these structures (Saucier 1983). Consequently, the amount of sedimentation at Fort St. Leon could be less than that which has occurred upstream at 16OR125.

The historic land surface, or the natural levee surface on which the eighteenth century structures were built, in the vicinity of Fort St. Leon near English Turn, was found at elevations ranging from 2.7 to 6.1 ft above m.s.l. (0.9 to 2.0 m above m.s.l.) (Saucier 1983). This land surface was equated with a persistent zone of blue, grey, or mottled clay or silty clay found in backhoe trenches and excavations at these elevations (Saucier 1983). The historic land surface in the vicinity of 16OR125 should be found at similar elevations. However, because the sediments in the project area were initially deposited in a point bar environment, as opposed to a natural levee, this surface may be located at slightly lower elevations.

During historic times, the Mississippi River has approached the crest of the artificial levee on several occasions. In the current hydrologic regime, the project site is inundated by the Mississippi River annually for a period of several months, during which sediment may be deposited and field work would be impossible. Stage elevations in the project area at Chalmette (mile 91.0) exceed 7 ft (2.1 m) on an annual basis, and the highest recorded stages were 17.58 ft (5.4 m) during the flood of 1927 on April 25 and 26 (Figure 69). Since construction of the levees, the batture has experienced the deposition of coarser-grained sediments to higher elevations, and at more rapid rates than previously (Saucier 1983).

Using the estimated average rates of sedimentation discussed in the description of the project area, the eighteenth century surface might be located at depths of 3 to 4.5 ft below the surface. If rates of sedimentation have accelerated during the nineteenth and

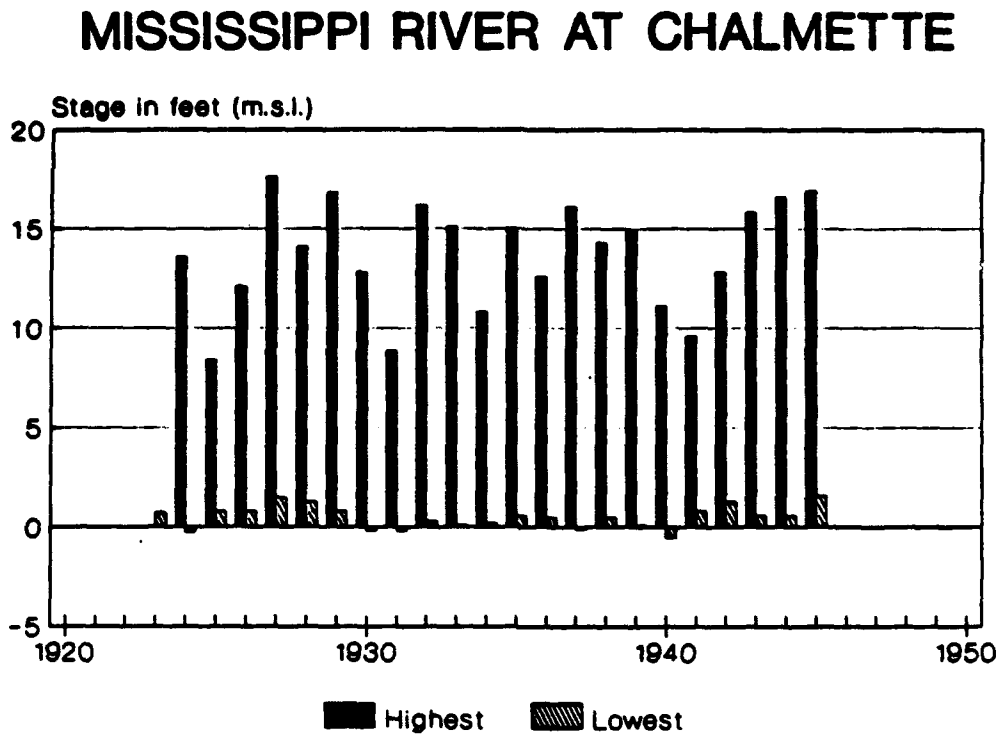


Figure 69. Highest and lowest stages on the Mississippi River at Chalmette: 1922 to 1945 (data source: Mississippi River Commission, 1946).

twentieth centuries as speculated, the historic land surface would be located at depths greater than 3 to 4.5 ft.

Channel migration is an important factor in relation to site preservation. The site 16OR125 is in a reach that has experienced very little channel migration during the twentieth century (Figure 8). The site (mile 93.5) was along a section where the mean low water line on the 1973-75 hydrographic survey was riverward of the 1879-94 mean low water line.

Cobble-sized grey chert, one of the unusual features found at the site, and clam and oyster shells, which were typical throughout the study area, are considered to be anthropogenic in origin. Kolb (1962) and Saucier (1983) stated that all sediments in the vicinity of the site are fine-grained in that no particle sizes coarser than sand are present. The numerous borings of Holocene sediments in alluvium that lack sediments coarser than sand confirm this statement. It is difficult, however, to ascertain when the chert was brought to the area, and it is quite possibly associated with twentieth century construction activities. Clam and oyster shells dredged from Lake Pontchartrain were the primary sources of fill for many years in the New Orleans area (Kolb and Saucier 1982) and thus should be common in the project area.

Wave wash and water-level surges caused by ship traffic are processes responsible for local bank recession (Saucier 1983) and reworking of subaqueous and subaerial sediments proximal to the river's edge. Cultural materials in these deposits that have been reworked by wave wash are typically found on pocket beaches or crenulations along the river edge. The water depths from which these materials have been reworked are estimated to be less than twenty feet in depth.

The artifacts found in the project area have been probably locally reworked because the materials are not severely worn by wave wash and abrasion, and would be if they were transported for an appreciable distance. Also, since much smaller geologic materials, such as beach sands and shell-detritus associated with buried beach ridges are only transported within two bend areas (Kolb and van Lopik 1958:26), it is likely that larger and heavier materials, including the sherds and other artifacts, are locally-derived from the project area and are not from appreciable distances upstream.

These findings show that further attempts should be made to determine the local elevations of the buried land surface, and the specific depths and rates of overbank sedimentation at the site. Because the surface findings have been reworked by the river, it is probable that older structures and artifacts could be found in conjunction with further stratigraphic and geomorphic investigations. It is recommended that such field investigations be attempted during the lowest river stages possible, since coring of beaches should be conducted.

CHAPTER 11
RESEARCH DESIGN FOR FURTHER EXCAVATIONS AT 16OR125

Possibility of an Early Colonial Component at 16OR125

Aboriginal and European sherds from 16OR125 are almost certainly derived from an early colonial period occupation. Although the nature of the sherds does not allow calculation of a Mean Ceramic Date, the European types suggest a pre-1750 date. Some of the aboriginal sherds are types represented from sites in Mobile dated to the early eighteenth century. The co-occurrence of European types with protohistoric and historic aboriginal types has been reported from a number of contexts in Texas, Florida, Alabama, and South Carolina. Colono-Indian wares, European in form but aboriginal in paste and temper and presumably manufactured by Native Americans, have been recovered from early colonial sites in all of those states. Sherds from 16OR125 represent such wares. They have been reported previously from Louisiana at only a few sites (e.g., Brain 1979).

Sherds from 16OR125 were collected from an 80 m long beach. The horizontal association between the early European and the aboriginal ceramics was strong. Although later European materials were collected between 60 and 80 m along the beach, no aboriginal ceramics, European coarse earthenwares, or faience were collected in this area (Tables 15 and 16). Successive collections and on-site observation demonstrated that the sherds were being deposited on the beach by lateral wave-wash produced by boats. As discussed in the previous chapter, beach deposits of sherds of this size derive from a near shore context at or close to the beach. Extensive movement and the deposit of these sherds in a downriver direction is unlikely because river flow velocity is inadequate to produce such movement.

Archival research indicates that 16OR125 lies within Bienville's west bank concession, in the vicinity of structural improvements present as early as 1723. Structures, including a residence, a barn/warehouse, and 20 slave cabins were standing on that concession in 1737. Similar, and possibly the same structures were inventoried again in 1746. This evidence, in combination with ceramic analysis and the nature of fluvial dynamics, indicate that an early colonial-period occupation was located at or very near 16OR125.

Possibility of In Situ Colonial Deposits

Early colonial material from 16OR125 may lie entirely within the present river channel. However, the bankline at the site has apparently been stable or slightly accreting since the 1870s (Mossa, Chapter 2 and Figure 8, this report). Depiction of bankline on earlier maps is not accurate enough to determine whether that stability characterized the site from 1720 to 1870. If accretion and deposition rather than erosion was the predominant mode during that period, then in situ buried cultural deposits may still be present.

Chapter 6 and the more detailed overview of land use at 16OR125 (Chapter 10) have outlined a number of construction episodes that may have impacted the earlier component. During the eighteenth and early nineteenth centuries, construction materials from earlier buildings may have been salvaged for reuse. Also, by 1808, the Verret Canal had been excavated through the site. Canal construction may have displaced and redeposited artifacts now washing ashore. It may also have impacted structural remains.

Wharf, warehouse, and railroad construction on the batture during the middle and late nineteenth century may also have impacted buried deposits, if present. However, deep excavations probably were not necessary for construction of the riverside facilities. Deep pilings for support of the wharves and bulkheads, though, would have been driven through any buried archeological deposits. Nevertheless, such deposits could remain relatively undisturbed in areas between pilings.

Archeological Expectations: Architecture

Although little information is currently available from archival sources concerning the structures erected on Bienville's west bank concession, the neighboring king's plantation is well described. A series of drawings of structures dated January 1732 were executed by De Batz. The manager of the plantation at that time was Le Page du Pratz (Wilson 1987:263).

The largest building on the plantation was a two story warehouse. The construction mode was brick-between-posts on a brick foundation. De Batz' drawings figure a low-pitched gable roof of the same type as that on the original Ursuline Convent. Such roofs were usually covered with round tiles. Also like the

Ursuline Convent, small squarish windows were present in the upper story. De Batz drew the elevation and cross section of the building as well as the two floor plans. The building measured approximately 18 x 6 toises (35.1 x 11.7 m), and it was intended for the storage of rice (Wilson 1987:13, 263). Archival evidence indicates that a similar but possibly smaller warehouse (or "barn") stood at Bienville's west bank concession.

Also present on the king's plantation in 1732 was a pestle and tunnel mill. It had been erected over a small canal into which water could be admitted from the Mississippi to operate the mill wheel. Governor Perier wrote concerning this structure in 1728: "...we are having work done at present on a pestle-mill to hull rice, but it can be of use only so long as the river is high" (Wilson 1987:263-264).

The mill housing was of brick-between-posts construction. It had a steep gabled roof over the main portion and a low-pitched roof over the mill wheel. A lean-to, representing the miller's quarters, was present along one side. Du Batz' drawing of the structure indicates that the canal was about 3.5 toises (6.8 m) wide. Maximum length of the housing for the mill was 11 toises (21.4 m), while maximum width including the miller's quarters and the roofed portion over the canal was about 9 toises (17.5 m). Although the plantation lands containing 18-2/3 arpents front were valued at 4,000 livres in 1731, the estimated value of the pestle mill was almost 20,000 livres. A 1731 inventory of the plantation described the mill as 70 feet in length and 30 in width (French measure, 74.6 x 32.0 ft American) (Wilson 1987:263-264, 14). Archival evidence concerning Bienville's west bank domain makes no mention of such a facility. However, two sawmills were present on some undefined portion of the concession, and these would have been associated with such a canal.

The manager's house at the king's plantation served as du Pratz' residence at the time De Batz made his series of drawings. Construction methods and materials were the same as those for other structures. De Batz' plan is the earliest extant for a Louisiana plantation house. The plan, with two exceptions, is little different from that used in Louisiana through the colonial period and into the nineteenth century. These exceptions were the absence of galleries and the presence of a kitchen within the house. De Batz' drawings indicate that dimensions of the manager's house were about 7 x 3 toises (13.6 x 5.8 m), with two

stories. Two chimneys were present, and these provided fireplaces on both floors (Wilson 1987:264, 15). Bienville did not reside at his west bank domain, but he undoubtedly maintained a manager's residence there. An "old house" is mentioned in the 1746 Act of Sale. Like that at the king's plantation, it probably was constructed of brick-between-posts.

Le Page du Pratz himself designed the slave quarters in use on the king's plantation in 1731. He described it as:

> ...composed of a square in the center, and of three wide streets where I laid out their cabins, between which I left an adequate space. I left only one gate which was the only place where they could come out. Moreover, on the outside of the gate I had two cabins built, one of which was for the white commander, and the other for locking up the medical supplies and dressing wounds. A young Negro who attended the surgeon, slept and lived in this latter cabin... [du Pratz in Wilson 1987:263].

These slave cabins were constructed with stakes driven into the ground to form walls, and they were roofed with bark. De Batz' 1732 drawing of this quarters area shows 32 cabins within the compound. Nearby was a small hospital building for the slaves. There were two wards, possibly for sexual segregation, and these were separated by a central hallway open at both ends. The hospital was of brick-between-posts on a brick foundation, and had a steep hipped roof that probably was covered with shingles (Wilson 1987:263-264, 12).

Presence of a few other cabins was noted in the 1731 inventory of the king's plantation. Also noted was "a cabin of stakes in the ground, 24 feet by 15 [25.6 x 16.0 ft American], serving as a kitchen with its old brick oven" (Wilson 1987:264). It is possible that, since the manager's residence had an internal kitchen, this relatively crude kitchen structure was a central preparation site for cooking the slaves' meals. At the time of an alleged conspiracy among slaves on the plantation, a blacksmith's facility was present.

Drawings of buildings erected in New Orleans in 1722 show that <u>colombage sur solle</u>, also used by the French in Canada, was the type of construction

Colombage consisted of a heavy wood framework of squared timbers which were morticed and tenoned and pegged together. Each wall or section of wall was assembled on the ground before being erected as a unit. Walls stood on a base of timbers laid directly on the ground. Buildings were covered on the outside with wide boards. When local brickyards began production, the system was modified by the use of brick foundations and the placement of bricks to fill the spaces between wall timbers. Brick gave weight and stability to the walls. To prevent deterioration through exposure to the elements, boards were still used to cover the exterior. With the exception of the slave cabins and some outbuildings, structures on the king's plantation were brick-between-posts. The durability of the construction technique is illustrated by the fact that the majority of these structures, described and drawn in 1732, remained standing at the time of a 1767 inventory. Some modifications had been made, such as addition of galleries to the four sides of the manager's residence (Wilson 1987:262-263).

The above discussion of structures present on the king's plantation, in combination with direct archival evidence concerning structures at Bienville's adjacent habitation, allows predictions concerning the nature of architectural remains that might be present at 16OR125. Substantial structures such as the barn/warehouse and the manager's residence probably were brick-between-posts. Slave cabins were more likely to have been crudely made, with stakes in the ground and roofs of bark. Exterior kitchens may have been similarly built.

Spatial patterning between various structures on early Louisiana concessions is unknown. Although some maps are available showing structural improvements, archeological investigations have not been conducted to determine the accuracy of patterning figured on such maps. It is anticipated that, should intact deposits from a concession such as those that might be present at 16OR125 be uncovered, they would allow a study of this question because of the distinct functions of the various structures. Thus, artifact patterning, in combination with archeological structural remains, should allow reconstruction of activity areas.

Archeological Expectations: Locations of Structures Relative to the River

Structures were present on Bienville's west bank concession as early as 1723 (Figure 13). Whether a

levee stood in front at that date is unknown. However, the entire west bank to English Turn was leveed within a few years. These early levees were only about three feet high and stood at river's edge. Maintenance of a relatively wide batture corridor had not yet begun, so that structures may have been located closer to the river than was the case at later dates.

The current USGS quad shows that within the Vieux Carre and at 16OR125, the 10 ft contour line is a short distance from the landside toe of levee. Within the Vieux Carre, the distance from the 5 ft contour line to the river ranges from about 500 to 750 m. At 16OR125, that distance is approximately 800 m. It is possible that early structures at both locations were built quite close to the river, both for convenient access and because of the naturally higher elevation.

Pierre Leblond de la Tour's 1723 plan of New Orleans shows a cluster of buildings at the foot of Conti where the present-day 10 ft contour line is slightly further from the river than is the case for the rest of the Vieux Carre. A 1721 plan shows proposed structures at the same location, and it was one of the earliest portions of New Orleans that was cleared (Wilson 1987:6-7). Although archival documents do not mention the reason for this location, it is possible that it was selected because of a relatively higher location. In any case, according to the 1723 plan, early residential and commercial activity in the Vieux Carre was centered within about 75 toises (146.2 m) of the river's edge. By 1731, development all was located within about 600 m of water's edge, and only a small portion of this area lay beyond the present-day 5 ft contour line.

Structures on Bienville's west bank concession, as well as on other concessions of the period, were probably located at least as close to the river as was the early cluster of buildings at the foot of Conti Street in the Vieux Carre. The fact that structures present on the adjacent king's plantation in 1731 were still standing in 1767 suggests that chosen locations remained adequate through much of the eighteenth century. As technology related to flood control improved, thereby increasing river stages and the danger of flooding along the lowermost Mississippi, locations closer to water's edge probably were abandoned. Plans of nineteenth century plantations, compared to those of the earliest concessions and of the Vieux Carre appear to support this suggestion. Results of investigations

at 16OR119, compared with surface material at 16OR90 (Chapter 9), indicate such abandonment and movement away from the river.

Archeological Expectations: The Artifacts

As noted above, there were "two buildings on the ground," a barn, a pigeonierre, and twenty quarters for African slaves on Bienville's west bank concession by 1737 (Cruzat 1928:209). One of the unspecified buildings probably was the main residence noted in the 1746 Act of Sale. It may be possible to distinguish these different activity areas on the concession on the basis of artifact distribution.

It is expected that European ceramics and glassware will be concentrated in the vicinity of the site of the residence and/or the kitchen, if this was a separate structure. Faunal materials also would be expected in these areas, as well as metal cooking paraphernalia. Personal items, such as buttons, buckles, jewelry, armaments, pipes, and other smoking equipment may also be found. Finally, because the residence was probably the most elaborate structure on the concession, it is likely that the majority of the architectural remains, such as nails, hinges, locks, flooring tiles, and roofing tiles will be recovered from the area of the main residence.

It is hypothesized that tools and items associated with animal husbandry will be associated with a barn/warehouse. These would include axes, hoes, spades, and the like, as well as tack hardware such as harness parts and horseshoes. Because the barn was brick and covered with tile, a substantial amount of architectural debris may also be expected.

It is hypothesized that the quarters were the least substantial structures located on the concession. Thus, it is likely that few architectural materials will be recovered in this area. Similarly, it is hypothesized that the slave population had an impoverished material culture. It is expected that few European items will be recovered from within the quarters. However, aboriginal ceramics may appear in greater concentrations than in the vicinity of the main residence. Similarly, because it is expected that most of the slaves were imported directly from Africa at this early period, items exhibiting African influence may be recovered. Aboriginal ceramics also may be more abundant in the quarters area. Finally, the quarters may have had its

own separate, centralized, kitchen. If this were the case, it is likely that ceramics, cooking paraphernalia, and faunal materials will be concentrated. Finally, it is hypothesized that feral, rather than domestic species will predominate in the faunal material from both the residence and the quarters area, but that more domestic animals will be represented in the residence assemblage.

Geomorphological Aspects of Proposed Excavations

During the 1930s, 1940s, and 1950s, geomorphologists and archeologists used archeological data to develop chronologies for changes in the Mississippi River delta and in associated cultures. Those issues are now reasonably well understood (Chapters 2 and 10, this report). Unfortunately, with some exceptions (e.g. Weinstein and Gagliano n.d.), a close working relationship between the two disciplines has not been maintained. Although it has become axiomatic that early archeological sites close to the Mississippi River are probably deeply buried, deposition rates and the relative elevations of buried sites are not well understood.

To begin to understand these issues, both geomorphological and archeological approaches are necessary, and these should be applied on a site-specific basis. One focus must be the relative position of archeological remains within natural levee deposits. In order to obtain such data, deep cores are needed. Such cores should be obtained in the course of further excavations at 16OR125.

Mechanical and Hand Excavation

Mechanical excavations are necessary at 16OR125 because of predicted large amounts of sediment overlying the possible colonial component. Surface stripping and trench excavations should be used in a complementary fashion to provide adequate subsurface exposure. Stratigraphy within trenches should be documented while a geomorphologist is on-site, so that data complementary to that obtained from deep cores will result.

Should features or undisturbed cultural deposits from the eighteenth century be uncovered within mechanically excavated units, hand excavation will be necessary to maintain adequate vertical and horizontal control.

The nineteenth century wharf component at 16OR125 should not be a focus of further investigations. However, if additional pilings or other features are encountered in the course of further work, some of these should be excavated on a selected basis. Such excavations could provide data on the nineteenth century ground surfaces, deposition rates, and the stratigraphic appearance of well-documented flood events. If a colonial component is uncovered, data for the nineteenth century would allow a comparison of relative deposition rates during the entire historic period. Comparative information of this nature is, at present, lacking for the current river channel within the delta region.

Limited excavations on the landward side of the levee at 16OR125 should also be undertaken. It is likely that a number of structures, each with a particular function, were present at the site during the 1700s (above). Spatial patterning of such a site has not yet been examined anywhere in the delta region. Also, such excavations would allow delineation of the relative depth of cultural material on the batture as compared to the protected portions of the natural levee. These data would be useful in the course of future investigations along the Mississippi River.

CHAPTER 12
RECOMMENDATIONS

Sites within the Twelve Mile Point Revetment Item

16OR119. The beach scatter from 16OR119 appears to represent the remains of a late eighteenth/early nineteenth century residence at Beka Plantation. However, no cultural materials were recovered in the course of excavations at 16OR119, and no cultural material was observed in bench faces associated with the beach. Cultural material was confined entirely to the beach at this locale. Results of site assessment indicate that the cultural material lies entirely in the river and is washing ashore at present.

16OR119, then, lacks integrity and does not exhibit potential for furthering our understanding of the historic period it represents. The site is not eligible for inclusion on the National Register of Historic Places. No further archeological work is recommended for this site.

16OR120. Investigations at 16OR120 indicate that the majority of the material derives from beach deposits and/or recent dumping. No in situ cultural deposits were recovered at 16OR120. This, and paucity of artifactual remains, indicates that further excavations at this site will not further our understanding of history. This site should not be recommended for inclusion on the National Register of Historic Places, and no further work is recommended here.

16OR121. Results of site assessment, in association with archival map data, indicate that this site represents a road to the Beka Plantation river landing. However, the site exhibits no further research potential. No artifacts were recovered, and additional excavations in a roadbed are unlikely to yield artifacts. Therefore, the locale does not exhibit qualities necessary for inclusion on the National Register of Historic Places. No further work is recommended.

16OR122. 16OR122 appears to represent the remains of a late eighteenth century occupation on what would become Delacroix Plantation. Geomorphological evidence indicates that the bankline at 16OR122 is eroding. This, and the failure to recover in situ deposits despite extensive excavation, indicate that further excavation at the site will not yield information

important to history. Therefore, this site does not appear to be potentially significant in terms of National Register criteria. No further work is recommended.

Twelve Mile Revetment Locale No. 5 (No State Survey Number Assigned). The artifact assemblage suggests that Twelve Mile Revetment Locale No. 5 is the result of relatively recent (post World War II) refuse disposal. No evidence of in situ cultural deposits were recorded at this site. Thus, Twelve Mile Revetment Locale No. 5 does not exhibit qualities that would make it potentially eligible for inclusion on the National Register of Historic Places. No further work is recommended here.

Sites Within the Cutoff Revetment Item

Algiers Locale No. 1 (No State Survey Number Assigned). Material from this site suggests relatively recent refuse disposal by local residents. The limited number and range of artifacts recovered here indicate that further excavations at this site will not yield information important to understanding history. Therefore, the site should not be considered potentially significant in terms of National Register criteria. No further archeological work is recommended at Algiers Locale No. 1.

16OR123. 16OR123 appears to represent the remains of a late nineteenth/early twentieth century occupation. Despite the rich surface scatter of ceramics at the site, few artifacts were recovered from shovel tests. The majority of sherds and other material lie within surficial, bulldozed soils. An extensive regimen of shovel tests at this site failed to yield evidence of in situ cultural deposits or features. Further, only a small percentage of artifacts recovered at the site were derived from these shovel tests. Thus, further excavations at the site would not contribute to our understanding of history. The site should not be considered potentially eligible for inclusion on the National Register of Historic Places. No further work is recommended.

16OR124. The site appears to be associated with a late nineteenth/early twentieth century occupation. No in situ cultural deposits were observed at this site, nor were any historic features uncovered. The site does not, therefore, exhibit research potential that would warrant further excavations or consideration for

inclusion on the National Register of Historic Places. No further work is recommended at 16OR124.

Sites Within the Algiers Point Revetment Item

16OR125. Eighteenth century European and aboriginal ceramics were recovered from a narrow beach at 16OR125. These may be associated with early eighteenth century occupation of the site, which is located on Bienville's west bank concession. Geomorphological evidence suggests that the bankline in this area has been stable at least since the 1870s. If a buried component representing this period is preserved, 16OR125 would be highly significant in terms of National Register criteria, and would provide us with data to describe aspects of lifeways in the early colonial period which are otherwise not documented. Further archeological excavations are necessary to determine whether such a component exists.

Archeological remains at 16OR125 also include remnants of a wharf infrastructure and construction designed for bank stabilization on a portion of a larger Southern Pacific Railroad facility. However, wharf features uncovered exhibit no further research potential. The sheds, warehouses and machinery supported by these wharves have been destroyed or removed. Further, modes, materials, and methods for construction of infrastructures such as the one reported here are well documented. Thus, infrastructure remains do not exhibit qualities of significance that would warrant HABS and HAER documentation. Therefore, the nineteenth century commercial component of 16OR125 should not be a primary focus of further excavations.

REFERENCES CITED

Bahr, Leonard M., Jr., R. Costanza, J.W. Day, Jr., S.E. Bayley, C. Neill, S.G. Leibowitz, and J. Fruci
1983 Ecological Characterization of the Mississippi Deltaic Plain Region: A Narrative with Management Recommendations. U.S. Fish and Wildlife Service, Division of Biological Services, Washington, D.C. FWS/OBS - 82/69, 189 pp.

Bahr, L.M. and J.J. Hebrard
1976 Barataria Basin: Biological Characterization. Center for Wetland Resources, Louisiana State University: Baton Rouge.

Barber, Edwin Atlee
1902 Pottery and Porcelain of the United States. G. P. Putnam, New York.

Barton, Kenneth Jones
1977 The Western European Coarse Earthenwares from the Wreck of the Machault. Canadian Historic Sites, Occasional Papers in Archaeology and History 16:45-71.

1981 Coarse Earthenware from the Fortress of Louisbourg. Parcs Canada, History and Archeology 55:3-74.

Baugher-Perlin, Sherene
1982 Analyzing Glass Bottles for Chronology, Function, and Trade Networks. In Archeology of Urban America: The Search for Pattern and Process, edited by Roy S. Dickens, Jr. pp. 259-290. Academic Press, New York.

Beavers, Richard C. (contributions by T.R. Lamb, G.B. DeMarcay, and K.J. Johnson)
1982 Archaeological Site Inventory, Barataria Basin Marsh Unit - Core Area, Jean Lafitte National Historical Park, Jefferson Parish, Louisiana. Report submitted to the National Park Service, Jean Lafitte National Historical Park, New Orleans.

Blanchette, Jean Francois
1981 The Role of Artifacts in the Study of Floodways in New France, 1720-60. Parcs Canada, History and Archeology 52.

Boles, John B.
1984 Black Southerners. University of Kentucky Press, Lexington.

Bouchereau, Alcee and Louis
1868-1917 Statement of the Sugar and Rice Crops Made in Louisiana. Pelican Steam Book and Job Printing, New Orleans.

Brain, Jeffery P.
1979 Tunica Treasure. Papers of the Peabody Museum of Archaeology and Ethnology 71, Cambridge.

Brown, Ian W.
1984 Late Prehistory in Coastal Louisiana: The Coles Creek Period. In Perspectives on Gulf Coast Prehistory, Dave D. Davis (ed), University of Florida Press, Gainesville.

Brown, Wilburt S.
1969 The Amphibious Campaign for West Florida and Louisiana, 1814-1815: A Critical Review of Strategy and Tactics at New Orleans. University of Alabama Press, Tuscaloosa.

Byrd, Kathleen Mary
1976 The Brackish Water Clam (*Rangia cuneata*): A Prehistoric "Staff of Life" or a Minor Food Resource. Louisiana Archaeology 3:23-30.

Champomier, P.A.
1849-1862 Statment of the Sugar Crop Made in Louisiana. Magner and Wesson, New Orleans.

Coleman, Will H., ed.
1885 Historical Sketchbook and Guide to New Orleans and Environs. Will H. Coleman Publishing, New York.

Cruzat, Heloise
1927 Documents Concerning Bienville's Lands in Louisiana, 1719-1737. Louisiana Historical Quarterly 10:8-24, 166-184, 371-380, 540-561.

1928 Documents Concerning Bienville's Lands in Louisiana, 1719-1737. Louisiana Historical Quarterly 11:85-110, 209-232, 463-465.

Dart, Henry P.
1927 Introduction to Documents Concerning Bienville's Lands in Louisiana, 1719-1737. Louisiana Historical Quarterly 10:6-7, 161-166, 364-370, 538-539.

1935 The Career of Dubreuil in French Louisiana. Louisiana Historical Quarterly 18:267-331.

Davis, Dave D.
1984a Protohistoric Cultural Interaction along the Northern Gulf Coast. In Perspectives on Gulf Coast Prehistory, D.D. Davis (ed.), University of Florida Press, Gainesville.

Ditchy, Jay K.
1930 Early Census Tables of Louisiana. Louisiana Historical Quarterly 13:203-229.

Dixon, Richard R.
1971 This is Algiers. Upton Printing Co., New Orleans.

Dunn, Mary Eubanks
1983 Coquille Flora (Louisiana): An Ethnobotanical Reconstruction. Economic Botany 37(3):349-359.

Dunnell, Robert
1971 Systematics in Prehistory. Free Press, New York

Earth Search, Inc.
1992 Archeological Investigations within the Freeport-McMoRan Audubon Species Survival and Research Center and Wilderness Park, Orleans Parish, Louisiana, Including Beka Plantation (19OR90). Report submitted to the Audubon Institute, New Orleans, LA.

Elliott, D.O.
1932 The Improvement of the Lower Mississippi River for Flood Control and Navigation. U.S. Army Waterways Experiment Station, Vicksburg, Mississippi, 3 vols.

Everett, D.E.
1971 Hydrologic and Quality Characteristics of the Lower Mississippi River. Louisiana Department of Public Works Technical Report 5, 48 pp.

Fisk, H.N.
1944 Geological Investigation of the Alluvial Valley of the Lower Mississippi River. Mississippi River Commission, U.S. Army Corps of Engineers, Vicksburg, Mississippi, 78 pp.

Fisk, H.N.
1947 Fine-grained Alluvial Deposits and Their Effects on Mississippi River Activity. Mississippi River Commission, War Department, U.S. Army Corps of Engineers, Vicksburg, Mississippi, 82 pp.

Franks, H.A. and J.-K. Yakubik
1990 Archeological Survey on 65 Acres of Land Adjacent to Bayou des Familles. National Park Service Southwest Cultural Resources Center Professional Paper No. 28. Santa Fe, New Mexico

Frazier, D.E.
1967 Recent Deltaic Deposits of the Mississippi River: Their Chronology and Development. Transactions of the Gulf Coast Association of Geological Societies 17:287-315.

Fritz, David L. and Sally K. Reeves
1983 Algiers Point: Historical Ambience and Property Analysis of Squares Ten, Thirteen and Twenty, with a View Toward Their Archaeological Potential. Department of Interior, National Park Service, Denver.

Fuller, Richard S. and Diane Silvia Fuller
1985 Archaeological Test Excavations in Bienville Square: An Interim Report. Unpubished report submitted to the City of Mobile and the Mobile City Museum.

Fuller, Richard S. and Noel R. Stowe
1982 A Proposed Typology for Late Shell Tempered Ceramics in the Mobile Bay/Mobile-Tensaw Delta Region, in Archaeology in Southwestern Alabama. The Alabama Tombigbee Regional Commission, Camden, Alabama.

Gagliano, Sherwood M. and R.A. Weinstein
n.d. The Buras Mounds: A Lower Mississippi River Delta Mound Group, Plaquemines Parish, Louisiana. Appendix A in A Cultural Resources Survey of the Empire to the Gulf of Mexico Waterway, Sherwood M. Gagliano (ed.). Report submitted to the U.S. Army Corps of Engineers, New Orleans District.

Gagliano, Sherwood M., R.A. Weinstein, E.K. Burden, K.L. Brooks, and W.P. Glander
1979 Cultural Resources Survey of the Barataria, Segnette, and Rigaud Waterways, Jefferson Parish, Louisiana. Prepared for the New Orleans District, U.S. Army Corps of Engineers.

Giardino, Marco J.
n.d. Overview of the Archaeology of the Coquilles Site, Barataria Unit, Jean Lafitte National Historical Park, Louisiana. Submitted to the National Park Service, Jean Lafitte National Historical Park, New Orleans.

Giardino, Marco J.
1984a Report on the Ceramic Materials from the Coquille Site (16JE37), Barataria Unit, Jean Lafitte National Historical Park. Submitted to the National Park Service, Jean Lafitte National Historical Park, New Orleans.

Giardino, Marco
1984b Documentary Evidence for the Location of Historic Indian Villages in the Mississippi Delta. In Perspectives on Gulf Coast Prehistory, Dave Davis, editor, pp. 232-257. University of Florida Press, Gainesville.

Gilmore, Kathleen and V. Noble
1983 Archeological Testing at Fort St. Leon, Plaquemines Parish, Louisiana. Contributions in Archaeology No. 2, Institute of Applied Sciences, North Texas State University, Denton.

Goodwin, R. Christopher, J.-K. Yakubik and P. Gendel
1984a Archeological Data Recovery at Algiers Point. Report submitted to the U.S. Army Corps of Engineers, New Orleans District.

Goodwin, R. Christopher, Jill-Karen Yakubik, and Cyd H. Goodwin
1984b Elmwood: The Historic Archeology of a Southeastern Louisiana Plantation. Jefferson Historical Commission, Jefferson, Louisiana.

Greene, Carlton
1917 Wharves and Pierce: Their Design, Construction, and Equipment. McGraw-Hill, New York.

Haskell, Helen Woolford
1981 The Middleton Place Privy House: An Archeological View of 19th Century Plantation Life. Popular Series No. 1 Institute of Archeology and Anthropology, University of South Carolina, Columbia.

Holley, G.R. and G.B. DeMarcay
1982 Preliminary report on the prehistory of Barataria. Unpublished paper presented at the 3rd annual meeting of the Louisiana Archeological Society, New Orleans.

Holmes, Jack D. L.
1972 Indigo in Colonial Louisiana and the Floridas. Louisiana History 8:329-349.

Hunter, Donald G., Charles E. Pearson, and Sally K. Reeves
1988 An Archaeological Survey of Golden Ranch Plantation, Lafourche Parish, Louisiana. Submitted to the Division of Archaeology, Department of Culture Recreation and Tourism, Baton Rouge.

Iroquois Research Institute
1982a Cultural Resources Survey of Fourteen Mississippi River Levee and Revetment Items. Submitted to the U.S. Army Corps of Engineers, New Orleans District.

Iroquois Research Institute
1982b Cultural Resources Survey of Six Revetment and Levee Items above New Orleans. Submitted to the U.S. Army Corps of Engineers, New Orleans District.

Jones, Olive
1971 Some Comments on the Newman Dating Key. Society for Historical Archeology Newsletter 4(3):7-13.

Kendall, John Smith
1922 History of New Orleans. Lewis Publishing, New York.

Keown, M.P., E.A. Dardeau, Jr., and J.G. Kennedy
1977 Inventory of Sediment Sample Stations in the Mississippi Basin. U.S. Army Waterways Experiment Station, Technical Report H-77-1, Vicksburg, Mississippi, 430 pp.

Keown, M.P., E.A. Dardeau, Jr. and E.M. Causey
1986 Historic Trends in the Sediment Flow Regime of the Mississippi River. Water Resources Research 22:1555-1564.

Kesel, R.H., K. Dunne, R.C. McDonald, K.R. Allison, and B.E. Spicer
1974 Lateral Erosion and Overbank Deposition on the Mississippi River in Louisiana Caused by 1973 Flooding. Geology 2:461-464.

Kniffen, Fred B., H.F. Gregory and G.A. Stokes
1987 The Historic Indian Tribes of Louisiana From 1542 to Present. Louisiana State University Press, Baton Rouge.

Kolb, C.R.
1962 Distribution and Engineering Significance of Sediments Bordering the Mississippi River from Donaldsonville to the Gulf. Unpublished Ph.D. Dissertation, Louisiana State University, Baton Rouge.

Kolb, C.R. and R.T. Saucier
1982 Engineering Geology of New Orleans. Review in Engineering Geology (Geological Society of America) 5:75-93.

Kolb, C.R. and J.R. van Lopik
1958 Geology of the Mississippi River Deltaic Plain, Southeastern Louisiana. U.S. Army Engineer Waterways Experiment Station, Tech. Report No. 3-483, Vicksburg, Mississippi, v.1, 120 pp.

Lorraine, Dessamae
1968 An Archeologist's Guide to 19th Century American Glass. Historical Archaeology 2:35-44.

Lowrie, Walter and Walter Franklin
1834 American State Papers, Vol. II. Gales and Seaton, Washington, D.C.

Maduell, Charles R.
1972 The Census Tables for the French Colony of Louisiana from 1699 through 1732. Genealogical Publishing Co, Baltimore.

Mancil, Ervin
1972 A Historical Geography of Industrial Cypress Lumbering in Louisiana. Unpublished Ph.D. Dissertation, Department of Geography and Anthropology, Louisiana State University.

McWilliams, Richebourg Gaillard, ed.
1981 Iberville's Gulf Journals. University of Alabama Press, Tuscaloosa

Meade, R.H.
1987 Sediment-Transported Pollutants in the Mississippi River. U.S. Geological Survey, unpublished project description, 15 pp.

Menn, Joseph Marc
1964 The Large Slaveholders of Louisiana, 1860. Pelican Publishing, New Orleans.

Miller, George L.
1980 Classification and Economic Scaling of Nineteenth Century Ceramics. Historical Archeology 14:1-40.

Miller, J.J. and L.M. Stone
1970 Eighteenth Century Ceramics from Fort Michilimackinac: A Study in Historical Archeology. Smithsonian Institution Press, Washington, D.C.

Mississippi River Commission
1946 Highest and Lowest Annual Stages on the Mississippi River and Its Outlets and Tributaries to 1945. War Dept., U.S. Army Corps of Engineers, Vicksburg.

Mossa, J.
1988 Discharge-Sediment Dynamics of the Lower Mississippi River. Transactions of the Gulf Coast Association of Geological Societies 38:303-314.

Nelson, Lee H.
1963 Nail Chronology as an Aid to Dating Old Buildings. History News 19(2).

Neuman, Robert W.
1984 An Introduction to Louisiana Archaeology. Louisiana State University Press, Baton Rouge.

Nicholson, Desmond V.
1979 The Dating of West Indian Historic Sites by the Analysis of Ceramic Sherds. Journal of the Virgin Islands Archeological Society 7:52-74.

Noel Hume, Ivor
1969 Pearlware: Forgotten Milestones of English Ceramic History. Antiques 95:390-397.

1970 A Guide to Artifacts of Colonial America. Alfred A. Knopf, New York.

Phillips, Philip
1970 Archaeological Survey in the Lower Yazoo Basin, Mississippi, 1949-1955. Papers of the Peabody Museum, Vol. 60. Harvard University, Cambridge.

Pittman, Philip
1906 The Present State of the European Settlements on the Mississippi. Reprint of the 1770 edition. Arthur H. Clark Co., Cleveland.

Prichard, Walter, ed.
1947 A Forgotten Louisiana Engineer: G.W.R. Bayley. Louisiana Historical Quarterly 30:1065-1325.

Quimby, George I.
1951 The Medora Site, West Baton Rouge Parish, Louisiana. Anthropological Series, Field Museum of Natural History 24:81-155.

1957 The Bayou Goula Site, Iberville Parish, Louisiana. Fieldiana: Anthropology 47:91-170.

Ramsey, John
1947 American Potters and Pottery. Tudor Publishing Company, New York.

Ray, Marcia
1974 Collectible Ceramics. Crown Publishers, New York.

Rhodes, Daniel
1973 Clay and Glass for the Potter. Revised Edition. Chilton Book Company, Radnor.

Roland, Charles P.
1957 Louisiana Sugar Plantations during the American Civil War. E.J. Brill and Co., Baton Rouge.

St. Amant, Lyle S.
1959 Louisiana Wildlife Inventory and Management Plan. Louisiana Wildlife and Fisheries Commission, Baton Rouge.

Saucier, R.T.
1963 Recent Geomorphic History of the Pontchartrain Basin. Louisiana State University, Coastal Studies Series No. 9, 114 pp.

Saucier, R.T.
1983 Geomorphological and Sedimentological Factors Involved in the Investigations at English Turn, Mississippi River, Louisiana. In Gilmore, K. and V. Noble (eds), Archaeological Testing at Ft. St. Leon, Plaquemines Parish, Louisiana. Institute of Applied Sciences, North Texas State University, Contribution to Archaeology No. 2, pp. 115-126.

Scrattish, Nick
1982 Algiers Point Historical Resources Assessment. Submitted to the New Orleans District, Army Corps of Engineers.

Seymour, William H.
1896 The Story of Algiers, now Fifth District of New Orleans. Algiers Democrat Publishing Co., New Orleans.

Sheldon, Craig T. Jr. and J.W. Cottier
1983 Origins of Mobile, Archaeological Excavations at the Courthouse Site, Mobile, Alabama. Auburn University, Alabama.

Shenkel, Richard
1984 Early Woodland in Coastal Louisiana. In Perspectives on Gulf Coast Prehistory, D.D. Davis (ed.). University of Florida Press, Gainesville.

Shenkel, J. Richard and C. Troxler
1976 Cultural Resource Survey of the Proposed Cutoff Revetment, Orleans Parish, Louisiana. Letter on file at the Department of Culture, Recreation, and Tourism, Division of Archaeology, Baton Rouge.

Silvia, Diane E.
n.d. Archaeological Test Excavations at Bienville Square, A Public Park in Downtown Mobile, Alabama. In Journal of Alabama Archaeology, in press, Moundville, Alabama.

Sitterson, J. Carlyle
1953 Sugar Country: Cane Sugar Industry in the South, 1753-1950. University of Kentucky Press, Lexington.

Snead, J.I. and R.P. McCulloh (comps.)
1984 Geologic Map of Louisiana, Louisiana Geological Survey, scale 1:500,000.

South, Stanley
1974 Palmetto Parapets: Exploratory Archeology at Fort Moultrie, South Carolina, 38 CH 50. Anthropological Studies No. 1, Institute of Archeology and Anthropology, University of South Carolina, Columbia.

1977 Method and Theory in Historical Archeology. Academic Press, New York.

Speaker, John Stuart, J. Chase, C. Poplin, H.A. Franks, and R.C. Goodwin
1986 Archaeological Assessment of the Barataria Unit, Jean Lafitte National Historical Park. Submitted to the Southwest Region, National Park Service, Santa Fe.

Sussman, Lynn
1977 Changes in Pearlware Dinnerware 1780-1830. Historical Archeology 11:105-111.

Swanson, Betsy
1985 A Study of the Military Topography and Sites Associated with the 1814-15 New Orleans Campaign. Manuscript on file, Louisiana Collection, Howard Tilton Library, Tulane University, New Orleans.

Torrey, V.H. III
1988 Retrogressive Failures in Sand Deposits of the Mississippi River, Report 2: Empirical Evidence in Support of the Hypothesized Failure Mechanism and Development of the Levee Safety Flow Slide Monitoring System. Technical Report GL-88-9, U.S. Army Waterways Experiment Station, 102 pp.

Toulouse, Julian H.
1969 Fruit Jars. Thomas Nelson and Sons, Camden, New Jersey.

U.S. Army Corps of Engineers, New Orleans District (USACE)
1984a Louisiana Coastal Area, Louisiana, Freshwater Diversion to Barataria and Breton Sound Basins, Feasibility Study, vol. I. Environmental Impact Statement, U.S. Army Corps of Engineers, New Orleans District.

1984b Louisiana Coastal Area, Louisiana, Land Loss and Marsh Creation. Initial Evaluation Study, U.S. Army Corps of Engineers, New Orleans District.

1984c Mississippi and Louisiana Estuarine Areas: Freshwater Diversion to Lake Pontchartrain Basin and Mississippi Sound. Environmental Impact Statement.

U.S. Army Engineer District, New Orleans Corps of Engineers
1985 Stages and Discharges of the Mississippi River and Tributaries and Other Watersheds in the New Orleans District for 1984.

U.S. Department of Agriculture
in press Soil Survey of Orleans Parish, Louisiana. Fort Worth, Texas.

Villere, Sidney Louis
1981 Jacques Phillipe Villere, First Native-Born Governor of Louisiana, 1816-1820. The Historic New Orleans Collection, New Orleans.

Voorhies, Jacqueline K.
1973 Some Late 18th-Century Louisianians: Census Records of the Colony, 1758-1796. University of Southwestern Louisiana Press, Lafayette.

Walthall, John and Bonnie L. Gums
1988 Historic Ceramics. In Archeology at French Cahokia, by Bonnie L. Gums, pp. 134-158. Studies in Illinois Archaeology No. 3, Springfield.

Watson, C.C.
1982 An Assessment of the Lower Mississippi River Below Natchez, Mississippi. Ph.D. Dissertation, Colorado State University, Fort Collins, Colorado, 162 pp.

Wells, F.C.
1980 Hydrology and Water Quality of the Lower Mississippi River. Louisiana Office of Public Works, Technical Report 21, 83 pp.

White, David A., S.P. Darwin, and L.B. Thien
1983 Plants and Plant Communities of Jean Lafitte National Historical Park, Louisiana. Tulane Studies in Zoology and Botany 24:101-129.

Wilson, Samuel Jr.
1987 The Architecture of Colonial Louisiana. Essays compiled and edited by J.M. Farnsworth and A.M. Masson. The Center for Louisiana Studies, University of Southwestern Louisiana, Lafayette.

Wiseman, Diane E., R.A. Weinstein, and K.G. McCloskey
1981 Cultural Resources Survey of the Mississippi River - Gulf Outlet, Orleans and St. Bernard Parishes, La. Report submitted to the U.S. Army Corps, New Orleans District.

Worthy, Linda H.
1982 Classification and Interpretation of Late Nineteenth and Early Twentieth Century Ceramics. In Archeology of Urban America: The Search for Pattern and Process, edited by Roy S. Dickens, Jr., pp. 329-360. Academic Press, New York.

Yakubik, Jill-Karen
1980 A Suggested Approach to the Archeological Classification of Nineteenth Century Ceramics. Human Mosaic 14:25-35.

1989 Archeological Investigations at Six Colonial Period Sites. Earth Search, Inc. National Park Service, Southwest Cultural Resources Center Professional Papers No. 22, Santa Fe.

1990 Ceramic Use in Late-Eighteenth-Century and Early-Nineteenth-Century Southeastern Louisiana. Unpublished Ph.D. Dissertation, Department of Anthropology, Tulane University, New Orleans.

Yakubik, Jill-Karen and Herschel A. Franks
1988 Archeological Investigations of Four Spanish Colonial Period Sites, Jefferson Parish, Louisiana. Paper presented at the 50th meeting of the Southeastern Archeological Conference, New Orleans.

ARCHIVAL SOURCES

The Historic New Orleans Collection
Sidney Louis Villere Papers

Howard-Tilton Memorial Library, Tulane University
Louisiana Collection

Louisiana Historical Collection, Louisiana State Museum

Newberry Library, Chicago
Edward E. Ayer Collection,

New Orleans District Corps of Engineers
Mississippi River Commission Maps

Office of Public Works, Baton Rouge
Orleans Parish Levee Board Map Collection

Orleans Parish Records
Civil District Court Records
Conveyance Office Books (COB)
New Orleans Notarial Archives (NONA)

NEWSPAPER SOURCE

Times-Democrat, New Orleans, August 20, 1892, page 3, columns 1 and 2.

APPENDIX I
AUGER TEST STRATIGRAPHY

16OR119 AUGER TESTS

I. Auger Tests to One Meter Below Surface

Depth Below Surface (cm)	Soil Description
	N0, E0
0-19	10YR 5/3 (brown) silt
19-40	10YR 3/1 (very dark gray) silty clay with 5YR 3/3 (dark reddish brown) mottling
40-62	10YR 3/2 (very dark grayish brown) silty clay
62-72	10YR 3/2 (very dark grayish brown) silty clay with 7.5YR 4/4 (brown/dark brown) mottling
72-98	10YR 3/2 (very dark grayish brown) silty clay (increased clay content)
98-110	10YR 4/1 (dark gray) silty clay with 10YR 4/3 (brown/dark brown) mottling
	N5, E0
0-16	10YR 5/3 (brown) sand
16-49	10YR 3/1 (very dark gray) silty clay with 7.5YR 4/4 (brown/dark brown) mottling
49-60	10YR 3/2 (very dark grayish brown) silty clay
60-88	10YR 3/2 (very dark grayish brown) silty clay with increased clay content
88-110	10YR 4/1 (dark gray) silty clay with 10YR 4/3 (brown/dark brown) mottling
	N10, E0
0-19	10YR 4/1 (dark gray) silty clay
19-78	10YR 5/1 (gray) silty clay
78-110	10YR 5/1 (gray) clayey silt

N15, E0

0-20	10YR 4/2 (dark grayish brown) silty clay
20-41	10YR 4/2 (dark grayish brown) silty clay with 10YR 4/4 (dark yellowish brown) mottling
41-50	10YR 4/1 (dark gray) silty clay with 10YR 4/4 (dark yellowish brown) mottling
50-68	10YR 5/1 (gray) silty clay with 10YR 4/6 (dark yellowish brown) mottling
68-98	10YR 5/1 (gray) clayey silty sand
98-115	10YR 4/1 (dark gray) silty sandy clay with 10YR 3/6 (dark yellowish brown) mottling

N20, E0

0-30	10YR 4/2 (dark grayish brown) silty clay
30-55	10YR 4/2 (dark grayish brown) silty clay with increased clay content and with 5YR 4/4 (reddish brown) mottling
55-82	10YR 4/2 (dark grayish brown) clayey sand
82-115	10YR 4/2 (dark grayish brown) clayey sand with 10YR 4/4 (dark yellowish brown) mottling; increasing clay content with depth

N25, E0

0-23	10YR 4/3 (brown/dark brown) sand
23-41	10YR 4/1 (dark gray) silty clay with 10YR 3/4 (dark yellowish brown) mottling
41-59	10YR 4/2 (dark grayish brown) silty clay with 7.5YR 3/4 (dark brown) mottling
59-73	10YR 4/1 (dark gray) silty clay with 7.5YR 3/4 (dark brown) mottling
73-80	10YR 4/2 (dark grayish brown) silty clay with 5YR 4/4 (reddish brown) banding
80-90	10YR 4/2 (dark grayish brown) silty clay with 5YR 4/4 (reddish brown) banding; same as 73-80 cm but with decreased banding
90-110	10YR 4/1 (dark gray) silty clay with 5YR 3/4 (dark reddish brown) mottling
110-115	10YR 4/2 (dark grayish brown) clayey sand

N30, E0

0-13	10YR 4/3 (brown/dark brown) silty sand
13-34	10YR 4/3 (brown/dark brown) silty sand with some clay content
34-44	10YR 4/1 (dark gray) silty clay with 10YR 3/4 (dark yellowish brown) mottling
44-50	10YR 4/2 (dark grayish brown) silty clay with 5YR 4/4 (reddish brown) banding
50-65	10YR 4/2 (dark grayish brown) silty clay with 5YR 4/4 (reddish brown) banding; same as 44-50 cm but with decreased banding
65-99	10YR 4/2 (dark grayish brown) silty clay
99-115	10YR 4/1 (dark gray) silty clay with 7.5YR 3/4 (dark brown) mottling

N35, E0

0-19	10YR 4/3 (brown/dark brown) sand
19-29	10YR 4/2 (dark grayish brown) clayey sand
29-40	10YR 4/1 (dark gray) silty clay with 10YR 4/4 (dark yellowish brown) mottling
40-55	10YR 4/2 (dark grayish brown) silty clay with 5YR 4/4 (reddish brown) banding
55-82	10YR 4/2 (dark grayish brown) silty clay
82-115	10YR 4/1 (dark gray) silty clay with 7.5YR 3/4 (dark brown) mottling

S5, E10

0-30	10YR 3/2 (very dark grayish brown) silty clay interbedded with thin lenses of 10YR 6/3 (pale brown) sand
30-41	10YR 5/3 (brown) silty sand
41-98	10YR 5/3 (brown) silty sandy clay
98-115	10YR 4/2 (dark grayish brown) silty sandy clay

S10, E10

0-5	10YR 5/3 (brown) sand
5-18	10YR 3/2 (very dark grayish brown) silty clay
18-40	10YR 3/2 (very dark grayish brown) clay
40-58	10YR 5/1 (gray) very silty clay with 10YR 5/6 (yellowish brown) mottling
58-115	10YR 5/1 (gray) silty sandy clay with 10YR 5/6 (yellowish brown) mottling

S15, E10

0-10	10YR 3/3 (dark brown) clay loam
10-28	10YR 3/2 (very dark grayish brown) silty sandy clay
28-40	10YR 3/3 (dark brown) silty clay with 10YR 3/4 (dark yellowish brown) mottling
40-48	10YR 3/3 (dark brown) clayey silt
48-53	10YR 3/2 (very dark grayish brown) silty clay
53-115	10YR 4/1 (dark gray) silty clay with 7.5YR 4/4 (brown/dark brown) mottling; decreased silt content with increased depth

S20, E20

0-5	10YR 5/2 (grayish brown) silt
5-15	10YR 4/1 (dark gray) silty clay
15-21	10YR 5/3 (brown) clayey silt
21-115	10YR 5/1 (gray) silty clay with 10YR 3/6 (dark yellowish brown) mottling and lenses of 10YR 5/3 (brown) sand; increased sand content with increased depth

S20, E25

0-16	10YR 5/3 (brown) sand interbedded with 10YR 5/8 (yellowish brown) sand
16-21	10YR 5/3 (brown) silty clay with 10YR 5/4 (yellowish brown) mottling
21-55	10YR 5/2 (grayish brown) silty clay with 7.5YR 4/4 (brown/dark brown) mottling
55-98	10YR 5/1 (gray) clay with 10YR 5/3 (brown) mottling; increased silt content with increased depth
98-115	10YR 5/1 (gray) clayey sand with 10YR 5/3 (brown) mottling

II. Auger Tests to Two Meters Below Surface

N0, E0

0-20	10YR 6/3 (pale brown) silt
20-81	10YR 4/2 (dark grayish brown) stiff clay with 10YR 4/4 (dark yellowish brown) mottling; some bands of 10YR 5/3 (brown) silt
81-132	10YR 4/1 (dark gray) clay with 7.5YR 4/4 (brown/dark brown) mottling
132-208	10YR 5/2 (grayish brown) sandy silt with 10YR 5/6 (yellowish brown) mottling; soils become progressively wetter below 147 cm; increased clay content below 173 cm

N0, W10

0-81	10YR 6/3 (pale brown) silt with pockets of 10YR 4/2 (dark grayish brown) clay below 25 cm; increased silt content with increased depth; roots at 51 to 89 cm; increased amounts of 10YR 5/6 (yellowish brown) mottling with increased depth
81-122	10YR 4/2 (dark grayish brown) stiff clay with 10YR 4/4 (dark yellowish brown) mottling
122-157	10YR 4/1 (dark gray) clay with 7.5YR 4/4 (brown/dark brown) mottling; occasional rootlets; a few pockets of 10YR 7/2 (light gray) sand
157-173	10YR 5/2 (grayish brown) wet sandy silt with 10YR 5/6 (yellowish brown) mottling; increased clay content with increased depth
173-200	10YR 5/2 (grayish brown) silty clay with 10YR 5/6 (yellowish brown) mottling

N0, W20

0-25	10YR 6/3 (pale brown) silt
25-46	10YR 4/2 (dark grayish brown) stiff clay with 10YR 4/4 (dark yellowish brown) mottling; two *Rangia* shell fragments at 25 cm
25-64	10YR 6/3 (pale brown) silt
64-102	7.5YR 3/2 (dark brown) clay; high organic content at 64 to 71 cm; rootlets and decomposing wood throughout the stratum
102-152	10YR 4/1 (dark gray) clay with 7.5YR 4/4 (brown/dark brown) mottling; rootlets at 114 cm
152-157	10YR 5/2 (grayish brown) silty clay with 10YR 6/6 (brownish yellow) mottling
157-203	10YR 5/2 (grayish brown) clayey silt with pockets of 10YR 6/6 (brownish yellow) clay below 188 cm

N0, W30

0-15	10YR 6/3 (pale brown) silt
15-74	10YR 4/2 (dark grayish brown) stiff clay with 10YR 4/4 (dark yellowish brown) mottling; one *Rangia* fragment at 38 cm; additional *Rangia* fragments and organic material at 43 to 48 cm
74-81	10YR 6/3 (pale brown) silt
81-107	10YR 4/1 (dark gray) clay with 10YR 4/4 (dark yellowish brown) mottling
107-178	10YR 5/2 (grayish brown) clay with 10YR 6/6 (brownish yellow) mottling; increased silt content below 114 cm
178-203	10YR 5/2 (grayish brown) clayey silt with 10YR 6/6 (brownish yellow) mottling; some organic flecks at 191 to 203 cm; soil is very moist

J1 (Judgmentally placed at 10.5 m and 164° from N40)

0-38	10YR 6/3 (pale brown) sandy silt with pockets of 10YR 4/1 (dark gray) clay at 23 to 28 cm; increased sand content with increased depth
38-58	5Y 4/1 (dark gray) clay loam; increased clay content with increased depth; high organic content; many rootlets present
58-170	5Y 4/1 (dark gray) silt loam; very wet; fewer rootlets than at 38-58; increased clay content with increased depth from 58 to 97 cm; increased sand content from 97 to 102 cm; increased clay content below 102 cm when soil texture changes gradually from a silt loam to a clay loam; increased moisture content below 122 cm
170-203	5Y 4/1 (dark gray) clay; relatively dry

N40, E9

0-46	10YR 6/3 (pale brown) silty sand with 10YR 6.5/8 (yellow/brownish yellow) mottling; increased mottling with increased depth; increased rootlets with increased depth
46-102	10YR 5/2 (grayish brown) clay loam with 10YR 5/6 (yellowish brown) mottling; increased mottling and bands of sand and silt at 58 to 71 cm; rootlets still present to 71 cm; increased sand content and decreased mottling at 89 to 102 cm
102-200	5Y 4/1 (dark gray) clay loam; mixed with coarse sand at 127 cm; wet; rootlets at 122 cm; 5Y 4/4 (olive) mottling at 127 to 140 and with fewer rootlets; soil is semi-liquid muck below 140 cm with a few rootlets still occurring

J2 (Judgmentally placed at 9m and 20° from S30, E20)

0-18	10YR 6/3 (pale brown) sand
18-46	10YR 5/2 (grayish brown) clay with 10YR 5/6 (yellowish brown) mottling; silt content is greatest at 18 to 30 cm; rootlets present throughout
46-76	10YR 4/1 (dark gray) stiff clay with 10YR 5/4 (yellowish brown) mottling; some rootlets present throughout
76-81	10YR 5/2 (grayish brown) clay loam with 10YR 6/6 (brownish yellow) mottling
81-107	10YR 4/1 (dark gray) stiff clay with 10YR 4/4 (dark yellowish brown) mottling; becomes wet at 102 cm
107-140	10YR 5/2 (grayish brown) wet clay loam with 10YR 4/6 (dark yellowish brown) mottling; bands of siltier and of sandier soil occur throughout
140-200	5Y 4/1 (dark gray) wet clay loam with 7.5YR 4/4 (brown/dark brown) mottling; becomes mucky below 175 cm

S30, E20

0-132	10YR 5/2 (grayish brown) clay with 10YR 5/6 (yellowish brown) mottling; some rootlets; some wet bands of sand at 56 to 81 cm
132-157	10YR 4/1 (dark gray) clay with 10YR 5/4 (yellowish brown) mottling
157-175	10YR 5/2 (grayish brown) wet sand with 10YR 5/4 (yellowish brown) mottling
175-200	5Y 4/1 (dark gray) wet clay loam with 7.5YR 4/4 (brown/dark brown) mottling

J3 (Judgmentally placed at 18 m and 132° from S30, E20)

0-13	10YR 6/3 (pale brown) sand with 10YR 6/6 (brownish yellow) mottling
13-127	10YR 5/2 (grayish brown) clay loam with 10YR 5/6 (yellowish brown) mottling; bands of a softer, sandier clay loam are interspersed throughout
127-200	5Y4/1 (dark gray)wet clay loam with 7.5YR 4/4 (brown/dark brown) mottling; some rootlets occur at 127 to 152 cm; decomposed organic matter at 175 cm

16OR120 AUGER TESTS

Depth Below Surface (cm)	Soil Descriptions
	N0, E0
0-15	10YR 5/2 (grayish brown) silty sand
15-30	10YR 5/1 (gray) clay loam with 10YR 5/3 (brown) mottling
30-90	10YR 5/1 (gray) clay loam with 10YR 5/6 (yellowish brown) mottling
90-115	7.5YR 4/0 (dark gray) clay loam with 7.5YR 4/4 (brown/dark brown) mottling
	N5, E0
0-18	10YR 5/2 (grayish brown) silty sand
18-32	10YR 5/1 (gray) clay loam with 10YR 5/3 (brown) mottling
32-85	10YR 5/1 (gray) clay loam with 10YR 5/6 (yellowish brown) mottling
85-115	7.5YR 4/0 (dark gray) clay loam with 7.5YR 4/4 (brown/dark brown) mottling; also some 10YR 5/6 (yellowish brown) mottling and 10YR 5/6 (yellowish brown) sand lenses
	S5, E0
0-20	10YR 5/2 (grayish brown) sand
20-39	10YR 5/1 (gray) clay loam with 10YR 5/3 (brown) mottling
39-78	10YR 5/1 (gray) clay loam with 10YR 5/6 (yellowish brown) mottling
78-115	7.5YR 4/0 (dark gray) clay loam with 7.5YR 4/4 (brown/dark brown) mottling; also some 10YR 5/6 (yellowish brown) mottling and 10YR 5/6 (yellowish brown) sand lenses

S10, E0

0-29	10YR 5/1 (gray) and 10YR 5/4 (yellowish brown) slightly clayey sands interbedded
29-48	10YR 5/2 (grayish brown) sand
48-80	10YR 5/1 (gray) clayey sand with 10YR 4/4 (dark yellowish brown) mottling
80-115	7.5R 4/0 (dark gray) silty clay interbedded with sands of the same color

S15, E0

0-10	10YR 5/1 (gray) and 10YR 5/4 (yellowish brown) slightly clayey sands interbedded
10-50	10YR 5/1 (gray) silty clay with 10YR 4/4 (dark yellowish brown) mottling; occasional lens of 10YR 5/2 (grayish brown) sand
50-78	10YR 5/1 (gray) silty clay with 10YR 4/4 (dark yellowish brown) mottling; increased number of 10YR 5/2 (gra sh brown) sand lenses
78-103	10YR 5/1 (gray) sand
103-115	7.5R 4/0 (dark gray) silty clay interbedded with sands of the same color

N0, W10

0-5	10YR 4/2 (dark grayish brown) silt loam
5-115	10YR 4/1 (dark gray) silty clay with 10YR 4/4 (dark yellowish brown) mottling; sand content increases to 100 cm; clay content increases at 110 to 115 cm

16OR121 AUGER TESTS

Note: Detailed stratigraphy was recorded for only one auger test (at datum); cultural material is listed for the other auger tests.

Depth Below Surface (cm)	Soil Descriptions
	N0, E0
0-8	10YR 5/1 (gray) and 10YR 5/4 (yellowish brown) sands interbedded; *Rangia* at 8 cm
8-60	10YR 4/1 (dark gray) clay loam with 10YR 4/6 (dark yellowish brown) mottling
60-75	10YR 5/1 (gray) silty clay with 10YR 5/4 (yellowish brown) mottling; *Rangia* fragments at 65 cm
75-100	10YR 4/1 (dark gray) silty clay interbedded with 10YR 4/6 (dark yellowish brown) sand lenses
	N5, E0
13	*Rangia* fragments
17	*Rangia* fragments
70	Coal
	N10, E0
No cultural materials recovered	
	N15, E0
No cultural materials recovered	
	N20, E0
69	*Rangia* fragments
	N25, E0
18	*Rangia* fragments
	N30, E0
20	*Rangia* fragments

S5, E0

10-20	Dense *Rangia* with some pebble-sized concrete
80	*Rangia* fragments

S10, E0

No cultural materials recovered

S15, E0

No cultural materials recovered

S20, E0

No cultural materials recovered

16OR122 AUGER TESTS

Note: Detailed stratigraphy was not recorded auger tests to a depth of 115 cm at the following locations: S5 E0, S10 E0, S15 E0, S20 E0, S25 E0, N5 E0, N10 E0, and N15 E0. The same is true for two auger tests at the north end of the site close to the river (shown on the site map). All of the above-listed auger tests were excavated in order to determine whether artifacts or buried ground surfaces were present. The tests were negative.

Depth Below Surface (cm)	Soil Descriptions
	N16 E6
0-18	10YR 6/3 (pale brown) silt with bands of 10YR 4/2 (dark grayish brown) clay; bands of clay increase in number with increased depth; four *Rangia* shells recovered
18-43	10YR 4/2 (dark grayish brown) clay with 7.5YR 4/4 (brown/dark brown) mottling; thin bands of 10YR 6/3 (pale brown) silt and sand; bands increase in number with increased depth
43-89	10YR 4/2 (dark grayish brown) clay loam with 10YR 5/4 (yellowish brown) and 10YR 4/6 (dark yellowish brown) mottling; mottling is 5YR 3/4 (dark reddish brown) below 71 cm
89-200	5Y 4/1 (dark gray) clay loam with 5YR 3/4 (dark reddish brown) mottling; mottling is absent below 94 cm; high root and organic matter content near the top of this stratum; 10YR 6/6 (brownish yellow) mottling below 127 cm; soils are wet and become super-saturated below 175 cm

N16 0E

0-30	10YR 6/3 (pale brown) silt with pockets of 10YR 4/2 (dark grayish brown) clay
30-36	10YR 4/2 (dark grayish brown) clay with 7.5 YR 4/4 (brown/dark brown) mottling; bands of 10YR 6/3 (pale brown) silts and sands; rootlets present
36-46	10YR 6/6 (brownish yellow) silt
46-132	10YR 4/2 (dark grayish brown) clay with 7.5YR 4/4 (brown/dark brown) mottling; bands of 10YR 6/3 (pale brown) silt and sand to 89 cm; mottling is 5YR 3/4 (dark reddish brown) below 89 cm; organic material present at 89 to 102 cm
132-173	10YR 4/2 (dark grayish brown) wet clay loam with 7.5YR 4/4 (brown/dark brown) mottling to 152 cm; grades into a clay with same color and same mottling below 152 cm
173-200	5Y 4/1 (dark gray) clay with 5YR 3/4 (dark reddish brown) mottling; rootlets and organic material present; dry until 191 cm; generally drier than above-described test at N16 E6

N16 W10

0-51	10YR 6/3 (pale brown) silt with a few pockets of 10YR 4/2 (dark grayish brown) clay
51-71	10YR 4/2 (dark grayish brown) clay with 5YR 3/4 (dark reddish brown) mottling and bands of 10YR 6/3 (pale brown) and 10YR 6/6 (brownish yellow) silts and sands
71-76	10YR 6/3 (pale brown) silt with pockets of 10YR 4/2 (dark grayish brown) clay
76-200	10YR 4/2 (dark grayish brown) clay with 5YR 3/4 (dark reddish brown) mottling; rootlets and organic matter present at upper levels; mottling becomes 7.5YR 4/6 (strong brown) with increased depth; below 160 cm stratum intergrades with a clay loam exhibiting identical color and mottling as the clay

N16 W20

0-33	10YR 6/3 (pale brown) silt
33-41	10YR 4/2 (dark grayish brown) clay with 5YR 3/4 (dark reddish brown) mottling and with bands of 10YR 6/3 (pale brown) silt
41-48	10YR 6/3 (pale brown) silt
48-107	10YR 4/2 (dark grayish brown) clay with 5YR 3/4 (dark reddish brown) mottling and with bands of 10YR 6/3 (pale brown) silt
107-117	10YR 6/3 (pale brown) silt
117-200	10YR 4/2 (dark grayish brown) clay/clay loam with 10YR 5/6 (yellowish brown) mottling; mottling becomes 10YR 5/2 (grayish brown) at greater depths

N16 W30 (edge of woods; bulldozed area; soil appears disturbed)

0-13	10YR 6/3 (pale brown) silt with pockets of 10YR 4/2 (dark grayish brown) clay
13-51	10YR 4/2 (dark grayish brown) stiff, dry clay with 5YR 3/4 (dark reddish brown) mottling; rootlets present
51-69	10YR 6/3 (pale brown) silt with pockets of 10YR 4/1 (dark gray) clay; small amounts of pea gravel, coal and brick smears at 64 cm; one *Rangia* fragment and four brick fragments (smaller than 2 mm) at 64 cm
69-200	10YR 4/1 (dark gray) clay with a few brick smears; one *Rangia* fragment at 89 cm; stratum grades into a 10YR 4/2 (dark grayish brown) clay loam at 94 cm; grades back into a 10YR 4/1 (dark gray) clay with 10YR 6/6 (brownish yellow) mottling at 114; some rootlets at 152 cm; clay loam lightens to a 10YR 5/2 (grayish brown) below 178 cm

J1 (Judgmentally placed at 6.5 m and 142° from S20 E0)

0-25	10YR 6/3 (pale brown) silt; roots and bark at 23 cm
25-91	10YR 4/2 (dark grayish brown) clay with 7.5YR 4/4 (dark yellowish brown) mottling; small silt pockets present at 56 to 68 cm; mottling is 10YR 5/6 (yellowish brown) and clay is stiff and resistant below 68 cm
91-200	10YR 5/2 (grayish brown) moist clay loam with 10YR 5/6 (yellowish brown) mottling; increased clay content with increased depth; organic inclusions at 147 cm; grades into a clay at 178 cm; increased sand and silt content below 193 cm; soil becomes a watery muck below 193 cm

J2 (Judgmentally placed at 10 m and 100° from S20 E0)

0-86	10YR 4/2 (dark grayish brown) clay with 7.5YR 4/4 (brown/dark brown) mottling and a few pockets of 10YR 6/3 (pale brown) silt; clay becomes moister, siltier and more plastic with increased depth
86-200	10YR 5/2 (grayish brown) clay loam with 10YR 6/6 (brownish yellow) mottling; clay content increases at 127 cm but then becomes siltier; clay content again increases at 152 cm; organic material and rootlets at 172 cm; soil becomes wet and mucky below 172 cm

Algiers Locale No. 1 Shovel Test

Depth Below Surface (cm)	Soil Descriptions
	5S, 0E
0-3	10YR 4/2 (dark grayish brown) silty sandy clay
3-3.5	10YR 5/4 (yellowish brown) sand
3.5-7	10YR 4/2 (dark grayish brown) silty sandy clay
7-7.5	10YR 5/4 (yellowish brown) sand
7.5-14	10YR 4/2 (dark grayish brown) silty sandy clay with 7.5YR 4/4 (brown/dark brown) mottling
14-21	10YR 5/3 (brown) sand
21-29	*Rangia* lens in 10YR 4/2 (dark grayish brown) sand matrix
29-41	10YR 4/2 (dark grayish brown) silty clay

16OR125 SHOVEL AND AUGER TESTS

Depth Below Surface (cm)	Soil Descriptions
	Shovel Test at S5, E0
0-38	10YR 5/1 (gray) clayey silty sand with coal and metal; soil stained by metal and coal in some portions of the test
38-50	Lens of coal and gravel
50-55	10YR 5/1.5 (gray/grayish brown) silty clay
	Shovel Test at N5, E0
0-23	10YR 4/3 (brown/dark brown) and 10YR 5/2 (grayish brown) clayey silty sand
23-26	10YR 6/2 (light brownish gray) fine sand
26-45	10YR 5/1 (gray) silty clay with 7.5YR 4/6 (strong brown) mottling
	Shovel Test at N10, E0
0-31	10YR 4/3 (brown/dark brown) clayey silty sand with 7.5YR 4/4 (brown/dark brown) mottling
31-35	10YR 5/3 (brown) coarse sand with gravel and *Rangia*
35-46	10YR 4/3 (brown/dark brown) clayey silty sand with 10YR 5/2 (grayish brown) mottling
	First Auger Test at Beach Datum
0-14	10YR 3/3 (dark brown) silty clay with 7.5YR 3/4 (dark brown) mottling
14-24	10YR 3/1 (very dark gray) clay with 10YR 4/4 (dark yellowish brown) mottling
24	Impenetrable wood (long-leaf yellow heart pine)

Second Auger Test at Beach Datum

0-14	10YR 3/3 (dark brown) silty clay with 10YR 4/1 (dark gray) and 7.5YR 3/4 (dark brown) mottling
14-37	10YR 3/1 (very dark gray) clay with 10YR 4/4 (dark yellowish brown) mottling
37	Decomposed wood
37-45	10YR 3/1 (very dark gray) clay [same as 14 to 37 cm but with no mottling]
45-52	10YR 3/1 (very dark gray) silt loam with gravel, sand, coal and decomposed wood
52-64	5Y 3/1 (very dark gray) silt loam with decomposed wood at 64 cm
64	Impenetrable wood

Auger Test 2 (2 m South of Beach Datum)

0-10	10YR 3/3 (dark brown) silty clay with 7.5YR 3/4 (dark brown) mottling
10-30	10YR 4.5/3 (brown) silty clay with 10YR 4/1 (dark gray) and 7.5YR 4/4 (brown/dark brown) mottling)
30-50	5Y 4/1 (dark gray) silty clay with 5YR 3/4 (dark reddish brown) mottling
50-64	5Y 3/1 (very dark gray) silty clay loam
64	Impenetrable wood

Auger Test 3 (2 m South of Feature Excavation)

0-21	2.5Y 6/4 (light yellowish brown) sand [possible fill ?]
21-23	Naturally occurring ironstone nodule
23-28	10YR 3/1 (very dark gray) silty clay
23-37	10YR 5/6 (yellowish brown) fine sandy loam; one piece of rubber present in stratum
37-42	5Y 4/1 (dark gray) sandy clay loam
42-50	10YR 5/3 (brown) fine sandy loam
50-60	5Y 4/1 (dark gray) sandy clay loam
60-65	10YR 4/4 (dark yellowish brown) sandy loam
65-100	5Y 4/1 (dark gray) fine sandy loam; uniformity of color increases with depth
100-115	5Y 4/1 (dark gray) fine sandy loam [same as above but also containing coal]

Auger Test at E15, N0

[Note: Coal, gravel, brick and ferrous material on surface at auger test location]

0-11	10YR 4/3 (brown/dark brown) sand with pea gravel and coal
11-18	10YR 4/1 (dark gray) clay with 10YR 6/2 (light brownish gray) and 10YR 5/6 (yellowish brown) mottling; one brick fragment at 16 cm below surface
18-27	Coal
27-37	5Y 5/1 (gray) silty clay with 10YR 5/6 (yellowish brown) mottling; mottling content increases with depth
37-52	5Y 5/1 (gray) clayey silt with 10YR 5/6 (yellowish brown) mottling
52-68	5Y 4/1 (dark gray) silty clay with 7.5YR 4/6 (strong brown) mottling; tree bark at 66 cm below surface
68-78	5Y 4/1 (dark gray) silty clay with pockets of 7.5YR 6/4 (light brown) sand containing pea gravel, cinders and slag
78-90	5YR 4/1 (dark gray) clayey silt with cinders at 78-80 cm below surface
90-98	5YR 4/1 (dark gray) clayey silt [wetter than 78 to 90 cm] with coarse sand, pea gravel, gravel (up to 2 cm diameter), cement fragments and brick fragments
98-105	5YR 4/1 (dark gray) coarse wet sand with pea gravel and gravel (up to 3 cm diameter), cement fragments and brick fragments
105-109	5YR 4/1 (dark gray) coarse, wet silty sand with gravel (up to 1 cm diameter) and coal; water in auger bucket
109-118	5Y 4/1 (dark gray) river sand with mortar, gravel (1 to 3 cm diameter), and slate
118-120	5YR 4/1 (dark gray) clay with mortar; water in auger bucket
120-200	5YR 4/1 (dark gray) silty clay with wood from a board; water in auger bucket

Auger Test at N10, E75

0-33	10YR 5/2 (grayish brown) clay with 10YR 4/3 (brown/dark brown) mottling; organic debris 30 cm; gravel with brick smear at 33 cm below surface
33-69	Same soil as 0 to 33 cm but drier and with higher silt content and decreased mottling; mottling becomes 7.5YR 4/4 (brown/dark brown) by 51 cm; wood fragments at 43 to 48 cm; coal and brick fragments to 51 cm; wood and rootlets at 64 cm
33-200	5Y 4/1 (dark gray) silty clay with 7.5YR 7/4 (pink) mottling; [cultural material in this stratum consisted of (1) coal, pulverized coal and pea gravel at 89 to 94 cm; (2) one mortar fragment, brick fragments and pulverized coal at 94 cm; (3) one square nail at 121 cm; (4) pea gravel, one brick fragment and some coal and cinders at 121 to 123 cm; (5) one pea gravel and rootlets at 123 cm to 140 cm; (6) pea gravel, one large coal chunk and one possible bone fragment at 140 to 145 cm; (7) brick fragments, pea gravel, wood fragments and coal at 145 to 165 cm; (8) wood, pea gravel and large chunks of coal at 165 to 183 cm; (9) coal at 183 to 200 cm]

Auger Test at N10, E60

[Note: This auger test was terminated at 117 cm below surface because of the presence of a liquified petroleum product at that depth. Upon penetration, the unidentified substance released a strong, noxious odor into the atmosphere.]

0-51	10YR 5/2 (grayish brown) clay with 10YR 4/3 (brown/dark brown) mottling; mottling decreases with greater depth
51-84	10YR 5/2 (grayish brown) clay with 10YR 4/3 (brown/dark brown) mottling; differentiated from 0 to 51 cm by an increase in silt content; water in auger bucket at 76 cm; increased root content at 76 to 84 cm
84-91	10YR 4/1 (dark gray) clay with 10YR 6/6 (brownish yellow) mottling; rootlets present
91-117	10YR 4/1 (dark gray) clay with 7.5YR 2/0 (black) mottling; strong smell of petroleum and very oily soil; coal and brick fragments at 91 to 102 cm below surface

Auger Test at W15, N0
[located on 51 cm high bench]

0-31	10YR 3/3 (dark brown) clay
31-36	10YR 4/1 (dark gray) silty clay with 7.5YR 4/4 (brown/dark brown) mottling
36-41	10YR 5/2 (grayish brown) silty clay with 10YR 6/8 (brownish yellow) mottling; coal present
41-51	10YR 4/2 (dark grayish brown) silty clay with 7.5YR 4/4 (brown/dark brown) mottling; coal and gravel (.5 cm diameter) present
51-64	7.5YR 3/0 (very dark gray) silty clay with pulverized coal
64-71	5Y 4/1 (dark gray) silty clay (high silt content) with coal
71-88	5Y 4/1 (dark gray) clayey silt with coal; at 76 cm coal predominates relative to soil matrix; wood at 81 cm
88-97	5Y 4/1 (dark gray) silty clay with 10YR 6/4 (light yellowish brown) mottling; coal present
97-140	5Y 4/1 (dark gray) silty clay with 7.5YR 2/0 (black) mottling beginning at 114 cm; black mottling may be due to a high organic content; soil becomes wetter below 124 cm
140-145	7.5YR 2/0 (black) mucky clay with wood
145-160	5Y 4/1 (dark gray) clay loam
160-188	5Y 4/1 (dark gray) silty clay with 7.5YR 2/0 (black) and 5Y 7/1 (light gray) mottling; coal, brick and gravel present
188-191	7.5YR 2/0 (black) mucky clay with walnut-sized gravel and with green slate
191-213	5Y 4/1 (dark gray) clayey silt

Auger Test judgmentally placed south of datum

0-8	10YR 6/3 (pale brown) sand with gravel up to 1 cm in diameter
8-13	10YR 3/1 (very dark gray) clay with pulverized coal and gravel
13	Impenetrable bed of gravel

Second Auger Test judgmentally placed south of datum

0-5	10YR 6/3 (pale brown) sand
5-10	10YR 6/3 (pale brown) sand with gravel
10-23	7.5YR 3/2 (dark brown) coarse sand matrix with coal, cinders and gravel up to walnut-sized predominating
23-48	10YR 3/2 (very dark grayish brown) coarse sand matrix with coal, cinders and gravel up to walnut-sized predominating [Note: 0 to 48 cm below surface may represent an old railroad bed.]
48-56	10YR 5/3 (brown) clay
56-66	2.5Y 6/4 (light yellowish brown) silt and fine sand
66-97	10YR 4/1 (dark gray) silty clay with 10YR 6/6 (brownish yellow) and 7.5YR 4/4 (brown/dark brown) mottling; cinders present
97-117	5Y 4/1 (dark gray) silty clay with 10YR 6/6 (brownish yellow) and 7.5YR 4/4 (brown/dark brown) mottling; roots present
117-175	5Y 4/1 (dark gray) silty clay with roots; higher silt content than 97 to 117 cm and mottling is not present; wood at 147 to 150 cm; green slate at 168 to 175 cm
175-191	2.5Y 4/0 (dark gray) clay containing some fine sand
191-216	5Y 4/1 (dark gray) sandy clay

AUGER TEST AT W30, N0

0-13	10YR 4/3 (brown/dark brown) clay
13-28	10YR 4/3 (brown/dark brown) silty clay with pockets of 10YR 6/6 (brownish yellow) silty clay
28-51	10YR 6/6 (brownish yellow) silty clay with 10YR 5/2 grayish brown) mottling; organic inclusions; soil very dry
51-66	10YR 5/2 (grayish brown) clay with 7.5YR 4/4 (brown/dark brown) mottling; organic inclusions; wood fibers running horizontally in auger bucket at 64 cm
66-76	10YR 4/1 (dark gray) silty clay with 10YR 6/6 (brownish yellow) mottling; one oyster shell fragment
76-163	5Y 4/1 (dark gray) clay with 7.5YR 2/0 (black) mottling, apparently due to high organic content; occasional pea gravel; wood fibers running horizontally in auger bucket at 107 to 114 cm; pulverized coal and coal at 147 cm; bed of small chunks of coal at 152 to 155 cm and then within soil matrix at 155 to 163 cm; water in auger bucket at 163 cm
163-208	5Y 4/1 (dark gray) silty clay with 7.5YR 2/0 (black) mottling, apparently due to high organic content

Auger Test at E30, N0

0-33	10YR 3/3 (dark brown) clay with organic inclusions
33-58	10YR 4/2 (dark grayish brown) silty clay with 7.5YR 3/4 (dark brown) mottling; coal, cinders, slag and decayed wood present; increased amounts of these cultural materials with increased depth
58-74	10YR 4/1 (dark gray) clay with relatively large quantities of cinders, coal and gravel; pockets of 7.5YR 4/6 (strong brown) oxidized material present
74-79	7/5YR 3/0 (very dark gray) clay with 7.5YR 4/4 (brown/dark brown) mottling; amount of mottling decreases with depth
79-94	5Y 4/1 (dark gray) silty clay with slag and bark
94-99	5Y 4/1 (dark gray) silty clay [same as above] with brick fragments, cinders and coal
99-104	5Y 4/1 (dark gray) silty clay [same as above but silt content increases with depth]
104-114	5Y 4/1 (dark gray) silty clay with increased silt content
114-132	5Y 4/1 (dark gray) clayey silt
132-175	5YR 4/1 (dark gray) silty clay; soil gets wetter with increased depth
175	Impenetrable, unidentified object or stratum; sound of the auger suggests metal but this is uncertain

Auger Test at E0, N0

0-13	10YR 4/3 (brown/dark brown) clay
13-20	10YR 4/1 (dark gray) clay with cinders and pea gravel
20-28	2.5Y 5/2 (grayish brown) clayey silt with gravel 1 cm in diameter
28-33	2.5Y 6/4 (light yellowish brown) clayey silt with 10YR 5/2 (grayish brown) mottling
33-64	10YR 5/2 (grayish brown) silty clay with 10YR 6/8 (brownish yellow) mottling; large pieces of coal (up to 3 cm diameter) and wood present at 51 cm; brick fragment at 56 cm
64-71	Wood
71	Wood becomes impenetrable

Auger Test No. 1 Landside of Levee

0-10	10YR 3/2 (very dark grayish brown) humus and loam
10-20	10YR 5/3 (brown) silty sand; gravel (up to walnut-sized) at 13 cm; *Rangia* shell fragments at 13 to 20 cm; high root content
20-30	10YR 3/2 (very dark grayish brown) compacted clay loam; with clear glass, *Rangia* shell fragments, brick fragments, and asphalt fragments [all of which may represent a roadbed riverward of the present-day location of Patterson Drive]
30-48	10YR 5/3 (brown) compacted sandy clay loam; gravel at 30 cm; pockets of sand
48-132	10YR 5/2 (grayish brown) compacted silty clay loam with 10YR 5/3 (brown) and 7.5YR 5/6 (strong brown) mottling; clay content increases with increased depth; occasional small pockets of silt beginning at 99 cm; matchstick-sized piece of wood at 127 cm; "chaff" at 130 cm; a few rootlets
157-173	5Y 5/1 (gray) clay with 10YR 5/2 (grayish brown) and 7.5YR 4/4 (brown/strong brown) mottling; small pockets of silt; some organic debris represented by black particles up to 1 mm in diameter; one 3 mm long wood fragment at 152 cm; clay becomes wetter and more plastic with increased depth; increased silt content and naturally occurring iron concretions at 165 to 173 cm
173-191	5Y 4/1 (gray) clay with 7.5YR 4/4 (brown/strong brown) mottling; naturally occurring iron concretions present at top of this level
191-200	5Y 4/1 (gray) very plastic clay without mottling

Auger Test No. 2 Landside of Levee

0-10	10YR 3/2 (very dark grayish brown) humus and loam
10-20	10YR 5/3 (brown) silty sand with gravel and *Rangia* shell fragments
20-33	10YR 3/2 (very dark grayish brown) compacted clay loam; with clear glass, *Rangia* shell fragments and oyster shell fragments [all of which may represent a roadbed riverward of the present-day location of Patterson Drive]
33-48	10YR 5/3 (brown) compacted sandy clay loam; some gravel and pockets of sand
48-132	10YR 5/2 (grayish brown) compacted silty clay loam with 10YR 5/3 (brown) and 7.5YR 5/6 (strong brown) mottling; rootlets at 97 cm and increasing in number to 109 cm; one 3 mm x 3 mm wood fragment at 130 cm
132-137	5Y 5/1 (gray) clay with 10YR 5/2 (grayish brown) and 7.5YR 4/4 (brown/strong brown) mottling; small pockets of silt; rootlets present

Auger Test No. 3 Landside of Levee

0-13	10YR 5/3 (brown) silty sand
13-28	10YR 5/3 (brown) silty sand with gravel, *Rangia* shell fragments and asphalt fragments
28-38	10YR 5/3 (brown) silty sand with pockets of 10YR 4/1 (dark gray) clay containing 7.5YR 4/4 (brown/strong brown) mottling; wood fibers approximately 1 cm long at 38 cm
38-46	10YR 5/3 (brown) silty clay containing green 7-Up bottle glass, one strip of metal and miscellaneous concretions of corroded metal
46-137	10YR 5/2 (grayish brown) compacted silty clay with 7.5YR 4/4 (brown/strong brown) mottling; pockets of silt; mottling absent from 64 to 76 cm; below 76 cm mottling is 10YR 4/6 (dark yellowish brown); increased moisture content and increased clay content below 114 cm; mottling becomes 7.5YR 4/4 (brown/strong brown) below 114 cm; decomposed wood measuring 1 mm x 1 mm at 127 cm; rootlets and organic staining at 127 to 138 cm
137-200	5Y 5/1 (gray) clay with 10YR 5/4 (yellowish brown) mottling; rootlets and organic staining to 142 cm; soil is wetter, more plastic and less consolidated with increased depth; increased silty content below 173 cm

APPENDIX II
REVISED SCOPE OF SERVICES

REVISED
SCOPE OF SERVICES
CULTURAL RESOURCES SURVEY OF FOUR
CONSTRUCTION ITEMS BELOW NEW ORLEANS

DELIVERY ORDER 02
CONTRACT DACW29-88-D-0123

1. **Introduction.** This delivery order calls for a cultural resource investigation of four levee and revetment construction rights of way located roughly between river miles 93.8 and 81.8 along the right descending bank of the Mississippi River in Orleans Parish, Louisiana (Enclosure 1, Hydrographic Survey Charts 51, 52 and 54). The items of work are Algiers Point Revetment, Cutoff Revetment, Naval Reservation Levee Enlargement, and Twelve Mile Point Revetment. The specific segments of the reach requiring survey are given in Table 1. The Contractor is responsible for: a) surveying approximately 7.1 miles of Mississippi River batture (Table 1); b) inventorying all sites within the project reach; c) testing and unequivocally establishing the significance of all discovered sites; d) predicting the locations of subsurface prehistoric and historic sites within the project reach; and e) preparing comprehensive draft and final reports of investigation for the study. The contract period for this delivery order is 238 days.

NOTE: Avondale Shipyard, located in the Algiers Point Revetment reach, will not be revetted and is excluded from the survey corridor but should be considered in the literature review.

2. **Description of the Study Area.** The project reach is defined as the Mississippi River batture, extending from the riverside toe of the Mississippi River Levee to the low water line of the river bank between miles 93.8 and 81.8, right descending bank. A 4.7 mile portion of Cutoff Revetment (M-90.4 to 85.7) has already been revetted. The M-91.0 to 86.8 segment was surveyed at the reconnaissance level by Richard Shenkel and Carolyn Troxler (1976) and reported in a brief work entitled: Cultural Resource Survey of the Proposed Cutoff Revetment, Orleans Parish, Louisiana. No sites were recorded. An in-house reconnaissance was conducted of the Algiers Lock Forebay (M-89.0 to 88.1) by Bert Rader (n.d.). No sites were reported. The M-88.2 to 86.8 segment was surveyed by Iroquois Research Institute (1982) and reported in a volume entitled: Cultural Resources Survey of Fourteen Mississippi River Levee and Revetment Items. One site, 16OR68, was recorded and subsequently avoided during construction.

3. **Project Impact.** The three revetment segments will impact the batture. These reaches will be stabilized with continuous, articulated concrete mattress which is mechanically laid from the low water line to a point several hundred feet into the river channel. To prepare for revetting, a 200 to 300

foot wide corridor adjacent to the bank line will be cleared of all vegetation and graded to a standard slope. Where the batture is very narrow, the entire batture will be prepared for construction. Slope grading will remove the upper bank line. Any cultural resource within the clearing zone and within 5 vertical feet of the ground surface has a high potential for being destroyed. Surficial resources further than 300 feet from the bank line may be subject to disturbance from the movement of heavy equipment, but buried sites will remain intact. The Naval Reservation Levee Enlargement Item will bring the existing levee up to design grade for this reach of the river. The final design and borrow area have not yet been selected.

4. Study Requirements. The work to be performed by the Contractor will be divided into three phases: Literature Search and Records Review; Intensive Survey and Site Assessment; and Data Analysis and Report Preparation.

a. Phase 1: Literature Search and Records Review. The Contractor shall commence, upon work item award, with a literature, map, and records review specific to the project reach (M-93.8 to 81.8-R). This phase shall include but not be limited to review of historic maps, the State Archeologist's site and standing structure files, the National Register of Historic Places, geological and geomorphological data, archeological reports, ethnohistoric records, historic archives, and public records.

At a minimum, the literature and records review will familiarize the reader with the specific geomorphology (point bars, cutbanks, crevasses, relict channels, etc.) of the study reach; establish the distribution of prehistoric and historic sites in the region and their proximity to the study area; identify previously recorded sites, standing structures, National Register of Historic Places properties and National Landmarks in or in close proximity to the project reach; provide national, regional and local context for assessing the historical, architectural and archeological significance of all sites and structures located in the project reach; and predict resources which can be expected to be located within the project reach. Economic and social trends, channel migration, major natural events, and all previous construction affecting land use patterns and the state of preservation of predicted resources will be analyzed and presented. The literature search will place this contract effort within the context of similar work conducted previously along the Mississippi River. Historic and geomorphological data relevant to these segments are to be analyzed to determine whether buried resources were ever present and whether they would have been damaged by previous construction. The focus of this literature search will be on man's use of this reach of the Mississippi River and its natural levee through time. Specific land use information is needed to facilitate prediction of site locations in these and future construction items.

b. Phase 2: Intensive Survey and Site Assessment. Fieldwork shall commence within 30 days of delivery order award. All survey will be conducted between the riverside toe of the Mississippi River Levee and the low water line of the Mississippi River. The contractor will verbally report the

results of survey and testing in each of these segments to the Technical Representative as each is finished, but no later than November 1, 1988. The Technical Representative will be informed ahead of time of the testing schedule of all sites.

An intensive survey is a comprehensive, systematic, and detailed physical examination of a project item for the purpose of locating and inventorying all cultural resources within the impact zone. The survey will be performed within the context of an explicit research design, formulated in recognition of all prior investigations in the study area and surrounding region, and will include subsurface testing and evaluation of identified resources against the National Register of Historic Places criteria of significance (36 CFR 60.4). The survey will provide adequate information to seek determinations of eligibility from the Keeper of the National Register, and will innumerate project effects on each resource located within the study area. The evaluation will be conducted utilizing current professional standards and guidelines including, but not limited to:

the National Park Service's draft standards entitled, "How to Apply the National Register Criteria for Evaluation", dated June 1, 1982;

the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation as published in the Federal Register on September 29, 1983;

Louisiana's Comprehensive Archaeological Plan, dated October 1, 1983;

the Advisory Council on Historic Preservation's Section 106 Update/3 entitled, "Manual of Mitigation Measures (MOMM)", dated October 12, 1982.

The survey shall be an intensive pedestrian investigation augmented by systematic subsurface testing. Maximum transect width will not exceed 20 meters. The Contractor will include sample augering in the investigation methodology to locate buried sites where appropriate.

The areas surveyed and all sites located within project boundaries will be recorded (in ink) to scale on the appropriate 7.5 minute quadrangle and aerial mosaic project maps. The quadrangle maps will be used to illustrate site forms (see below). The project maps will be returned to the Technical Representative by 1 December 1988. All sites will be sufficiently tested using shovel, auger or other excavation techniques to determine and record site size, depth of deposit, stratigraphy, cultural association, function, approximate date of occupation, and condition. Site boundaries, test excavation units at sites (including test pits, shovel tests, auger intervals, backhoe trenches, etc.) and activity areas will be measured and mapped to scale. All scaled field maps will accurately reference grid locations in terms of levee stations or range markers in close proximity to the illustrated work area. The actual elevation (NGVD) of all sites, the top of bank, and top and bottom of cultural strata will be determined and mapped.

The Contractor will fill out and file state site forms with the Office of the Louisiana State Archeologist and cite the resulting state-assigned site

numbers in all draft and final reports of this investigation. The Contractor will submit updated state site forms to the State Archeologist for all previously discovered sites which are within the survey segments listed in Table 1. These forms will correct previously filed information and summarize what is known of each resource as a result of this investigation. One unbound copy of each site or standing structure form will be submitted to the COR with the draft report.

All standing structures located in the survey area will be identified by function, dated and described using standard terminology of formal and/or vernacular architecture, as appropriate to each structure. Each standing structure will be recorded (using a simplified, standardized format selected by the Division of Archaeology and Historic Preservation), accompanied by a minimum of three, clear, black and white photographs showing front, back and side views of the structure. The Contractor will determine whether subsurface features are present. If present, the structure and all features shall be treated as a site, which shall be mapped and recorded on State of Louisiana site forms. The Contractor shall assess the significance of all standing structures using information collected during the survey and literature search phases of this work item.

If sites exist in the project right-of-way which require mechanized testing or extensive hand excavation to determine their condition, data producing potential or significance, the need for further work will be discussed with the Technical Representative prior to the completion of all field work.

c. Phase 3: Data Analyses and Report Preparation. All survey and testing data will be analyzed using currently acceptable scientific methods. The Contractor shall catalog all artifacts, samples, specimens, photographs, drawings, etc., utilizing the format currently employed by the office of the Louisiana State Archeologist. The catalog system will include site and provenience designations.

All literature, map search, field and laboratory data will be integrated to produce a single, graphically illustrated, scientifically acceptable draft report discussing the project reach as a whole. All sites located within the reach will be related in text and tabular form to the appropriate construction item(s) for accurate future reference. Project impacts on all cultural resources located and/or tested by this study will be assessed. The Contractor shall provide justification of the rationale used and a detailed explanation of why each resource does or does not meet the National Register significance criteria (36 CFR 60.4). For each resource recommended as eligible to the National Register and assessed to be impacted by construction, the Contractor shall recommend specific mitigation alternatives. Inferential statements and conclusions will be supported by field, map or archival data. It will not be sufficient to make significance recommendations based solely upon the basis of assumed site condition, artifact content, or the presence or absence of features. All significance assessments of sites and structures will be stated in terms of the context of the body of Mississippi River floodplain/batture sites and the specific scientific contribution further investigation would garner.

5. **Reports.**

a. Monthly Progress Reports. One copy of a brief and concise statement of progress shall be submitted with and for the same period as the monthly billing voucher throughout the duration of the delivery order. These reports, which may be in letter form, should summarize all work performed, information gained, or problems encountered during the preceding month. A concise statement and graphic presentation of the Contractor's assessment of the monthly and cumulative percentage of total work completed by task shall be included each month. The monthly report should also note difficulties, if any, in meeting the contract schedule.

b. Draft and Final Reports (Phases 1, 2, and 3). Five copies of a draft report integrating all phases of this investigation will be submitted to the COR for review and comment 103 days after the date of the order.

An estimate of the acreage surveyed for this project will be given in the report introduction.

The draft and final reports shall include all data and documentation required by 36 CFR 60-63 to prepare requests for Determination of Eligibility to the National Register of Historic Places for those sites recommended by the Contractor as significant. The Contractor shall recommend appropriate mitigation procedures for each significant cultural resource which are appropriate to the site or structure, its physical setting and condition.

These written reports shall follow the format set forth in MIL-STD-847A with the following exceptions: 1) separate, soft, durable, wrap-around covers will be used instead of self covers; 2) page size shall be 8-1/2 x 11 inches with a 1-1/2-inch binding margin and 1-inch margins on all other edges; 3) the text reference and Reference Cited formats of the Society for American Archaeology will be used. Spelling shall be in accordance with the U.S. Government Printing Office Style Manual, dated January 1973.

The body of each report shall include the following: 1) introduction to the study and study area; 2) environmental setting; 3) review and evaluation of previous archeological investigations; 4) distribution of prehistoric and historic settlement in the study area; 5) research design; 6) description of field and laboratory methodology, statement of project objectives, and analysis of the effectiveness of the methods; 7) data analyses and cultural material inventories; 8) data interpretation; 9) integration of archeological and historical data; 11) conclusion; 12) data recovery recommendations; 13) references cited; and 14) appendices, as appropriate.

The COR will provide all review comments to the Contractor within 60 days after receipt of the draft reports (163 days after the date of the order). Upon receipt of the review comments, the Contractor shall incorporate or resolve all comments with the approval of the COR and submit one copy of the final draft for final review within 193 days of the date of the order. Upon approval, the Contractor will submit one reproducible master copy and 40 bound copies of each report of investigation, and all separate appendices to the COR within 238 days after the date of the order.

In order to preclude vandalism, the draft and final reports shall not contain specific locations of archeological sites.

6. **Disposal of Records and Artifacts.** All records, photographs, artifacts, and other material data recovered under the terms of this delivery order shall be recorded and catalogued in a manner compatible with those systems utilized by the Louisiana SHPO and by State and Federal agencies which store archeological data. They shall be held and maintained by the Contractor until completion of the delivery order. Final disposition of the artifacts and records will be in accord with applicable Federal and State laws. Unless otherwise specified, artifacts will be returned to the landowner or permanently housed with the Louisiana Division of Archaeology and Historic Preservation or in a repository selected by the State Archeologist. The Principal Investigator shall inform the COR in writing when the transfer of data has been completed and shall forward to the COR a catalog of items entered into curation. The location of any notes, photographs or artifacts which are separated from the main collections will also be documented. Presently existing private archeological collections from the project area which are used in data analyses will remain in private ownership. The Contractor shall be responsible for delivery of the analyzed archeological materials to the individual landowners, the Louisiana SHPO's office, or any other repository designated by the Government following acceptance of the final report. All artifacts to be permanently curated will be cleaned, stabilized, labeled, catalogued on typed State curation forms, and placed in sturdy bags and boxes which are labeled with site, excavation unit or survey collection unit provenience.

7. **Payments.** Partial payment will be made up to sixty percent (60%) upon submission of proper invoices and acceptance of the draft report by the COR. The draft report will be accepted when the COR determines that it substantially meets all the requirements of the scope of service. The balance of the delivery order amount will be paid upon receipt of proper invoices and the Government's acceptance of all final products.

TABLE 1

ITEMS TO BE SURVEYED WITHIN THE PROJECT REACH

ITEM	RIVER MILES	RANGES	LEVEE STATIONS	DESIGN DRAWINGS	ENCL
Algiers Point Revetment	93.8 to 92.2-R	D-40 D-122	76+78 to 157+85	File 1-127 Sheets 44,45	2

NOTE: Avondale Shipyard is excluded from the survey corridor but should be considered in the literature review.

Cutoff Revetment	92.2 to 90.4-R 85.7 to 84.9-R	U-203 to U-100 D-144 to D-184	157+85 to 260+98 541+11 to 580+08	File 1-127 Sheets 44,45	2
Naval Reservation Enlargement	93.1 to 89.1-R	N/A	111+00 to 328+00	H-8-27735 Sheets 2-5	3

NOTE: The Naval Reservation Levee Enlargement Item overlaps with the easements of the Algiers Point and Cutoff Revetments. No additional survey is required at this time. If sites are fou within this shared easement, indicate the relationship of the resource to the Naval Reservatio Item.

Twelve Mile Point Revetment	84.9 to 81.8-R	U-68 to D-68	580+08 to 715+08	File 1-127 Sheets 45, 46	4

NOTE: Survey between M-82.0 and 81.8-R is not recommended because of extensive point bar deposition since 1876.