The Search for the Lost Riverfront

National Park Service
U.S. Department of the Interior

Historical and Archeological Investigations at the Chalmette Battlefield, Jean Lafitte National Historical Park and Preserve

Part III, Section I

Edited by Ted Birkedal
National Park Service

With Contributions By

John Coverdale, Jerome Greene, Gary DeMarcay,
Kenneth Holmquist, Larry Murphy,
Michael Stanislawski, John Stein,
Larry Trahan, and Jill-Karen Yakubik

A Report Prepared for
The U.S. Army Corps of Engineers
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2009

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To
The Military Engineers
of the
United States
Both Past and Present

In this wet, sucking place it is easy enough to imagine that everything that ever was here still is—that it is all down there somewhere in the dark, pressed layers, that New Orleans is a giant slowly settling palimpsest.

—Frederick Turner, *Remembering Song: Encounters with the New Orleans Jazz Tradition*

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CHAPTER 14

INTRODUCTION TO THE ARCHEOLOGICAL RESEARCH

Ted Birkedal

Previous Archeological Research

The Chalmette Unit of Jean Lafitte National Historical Park and Preserve received no archeological attention until 1957. In that year, Francis H. Elmore of the National Park Service conducted a series of test excavations along the Rodriguez Canal (Elmore 1957). The intent of the work was to gain information for the interpretive development of the park area and to discover artifacts for museum exhibition. The specific objective was to determine the original shape of the Rodriguez Canal and the width of the defensive rampart (Elmore 1957:1).

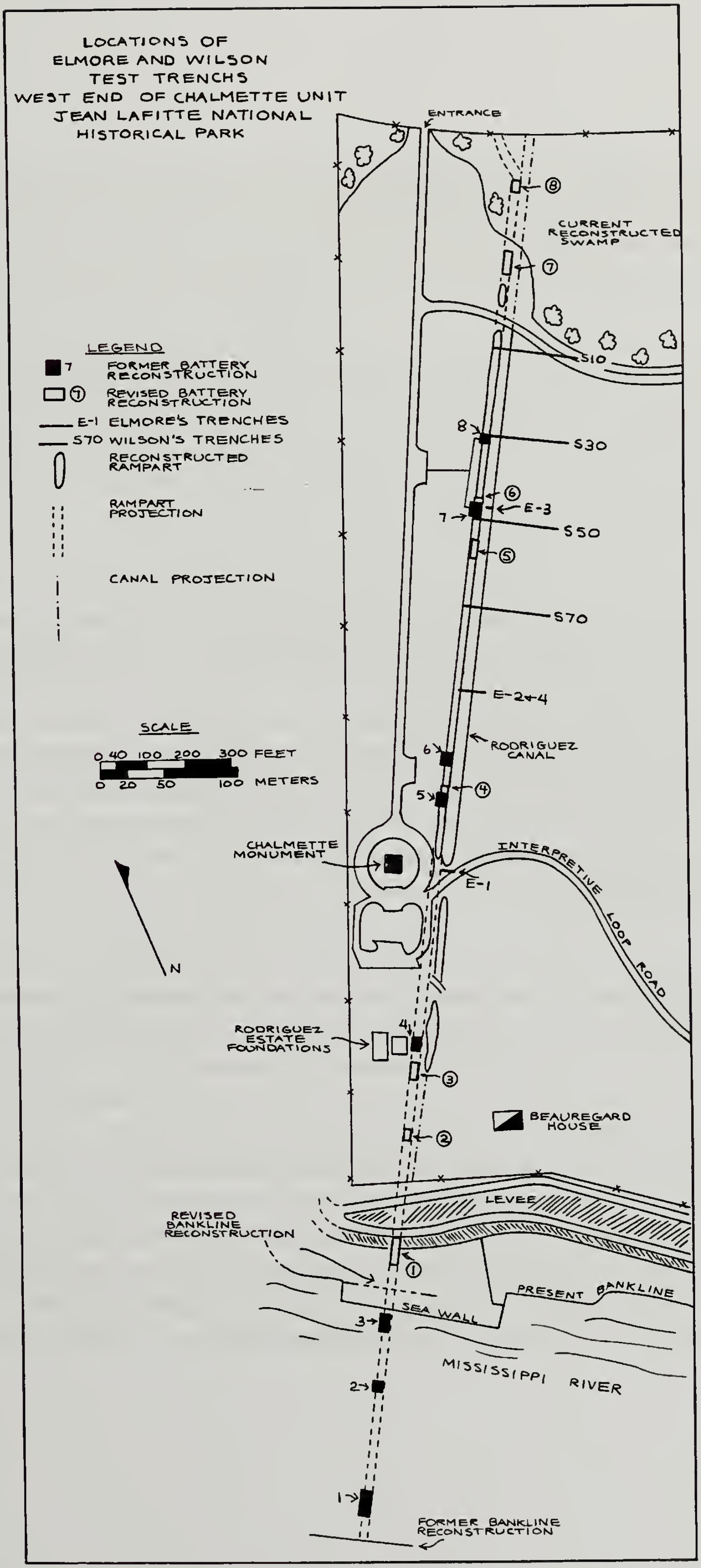
Four test trenches were dug, all perpendicular to the canal alignment. The first trench was placed across the canal at a point nearly opposite the Chalmette Monument (Map III-1). This trench measured 5 ft (1.52 m) in width and 12 ft (3.7 m) in length. It was dug to a depth of 3 ft 2½ in (.98 m). The trench was abandoned soon after water was struck. Elmore (1957:2) reported that "brick, wire, cow bones, etc." were encountered in the first 2 ft (.61 m), but he observed no evidence of the old canal. The exposed profile showed only a light topsoil followed by an undifferentiated subsoil.

The second trench, a combination of Trenches 2 and 4, was dug 416 ft (126.8 m) to the north of the first trench. Once finished, this trench extended 89 ft (27.1 m) in an east-west direction. Its width varied between 3 and 5 ft (.92 and 1.52 m), and its depth between 3 and 7 ft (.92 and 2.1 m). Again, no signs of the old canal sides or rampart were observed (p. 3). The only visible distinctions in the soil profile were a topsoil, an undifferentiated subsoil, and a basal bluish gray muck.

A thin lens of light-colored sandy soil was exposed just below ground surface on the west bank of the present canal remnant, but Elmore's workmen

Map III-1. West end of Chalmette Unit, Jean Lafitte National Historical Park and Preserve, showing locations of previous archeological work in the park unit along with past and present projections of battlefield features located along the Rodriguez Canal.

Drawn by Lyndi Hubbell for the National Park Service.


LOCATIONS OF
ELMORE AND WILSON
TEST TRENCHS
WEST END OF CHALMETTE UNIT
JEAN LAFITTE NATIONAL
HISTORICAL PARK
LEGEND
FORMER BATTERY RECONSTRUCTION
REVISED BATTERY RECONSTRUCTION
E-1 ELMORE'S TRENCHES
S70 WILSON'S TRENCHES
RECONSTRUCTED RAMPART
RAMPART PROJECTION
CANAL PROJECTION
SCALE
0 40 100 200 300 FEET
0 20 50 100 METERS
N
ENTRANCE
CURRENT RECONSTRUCTED SWAMP
S10
S30
E-3
S50
S70
E-2+4
RODRIGUEZ CANAL
CHALMETTE MONUMENT
INTERPRETIVE LOOP ROAD
E-1
RODRIGUEZ ESTATE FOUNDATIONS
BEAUREGARD HOUSE
LEVEE
REVISED BANKLINE RECONSTRUCTION
PRESENT BANKLINE
SEA WALL
MISSISSIPPI RIVER
FORMER BANKLINE RECONSTRUCTION

reported that this soil most likely represented the sand fill which had been used to build up the roadbed between the Chalmette Monument and the main gate (p. 5). One brick was discovered in the blue clay at a depth of 2 ft 9 in (.83 m). The only other object was a cow bone found at 2 ft 9 in (.83 m) below ground surface.

Trench 3 was placed across the canal 434 ft (133.3 m) north of Trench 2. This trench measured 2 ft 4 in (.72 m) in width and 6 ft 6 in (1.98 m) in length. It reached a depth of 7 ft 6 in (2.3 m) and no artifacts were found. As with the other trenches, no apparent evidence of the canal or rampart was exposed. Elmore tried to supplement his test excavations with a mine detector, but he reported that it "did not work satisfactorily" (p. 9).

After Elmore's frustrating and unproductive introduction to Chalmette archeology, no investigations were performed in the park unit until January of 1963. This second set of investigations was also centered on the Rodriguez Canal and the area of the American rampart. Plans for the reconstruction of the American line of defense were now under way as part of the National Park Service's Mission 66 Program, and archeological information was sought to supplement the available historical record. Little time was allotted to the investigations because the proposed restoration and reconstruction work on the battlefield was to be completed in time for the Sesquicentennial Celebration scheduled for 1965.

National Park Service archeologist Rex Wilson was sent to Chalmette in January of 1963 to direct and perform the required archeological investigations. The target of his work was a 900 ft (274.4 m) section of the American line of defense located to the north of the Chalmette Monument. This section had been chosen earlier by the planning team as the site for the restoration of Jackson's rampart (Wilson 1963:3). Wilson began his search for evidence of the rampart with a mine detector and an operator from the Louisiana National Guard. The entire rampart restoration site and several proposed trench locations were covered in the course of this systematic metal detector survey. The survey yielded a number of metal items along the former rampart zone on the west side of the Rodriguez Canal, but only one object could be attributed to the battle. This was a 6-pound cannon ball found 9½ in (24.1 cm) below ground surface (Wilson 1963:6).

After the metal detector survey, Wilson dug a series of four backhoe trenches, designated South 10, South 30, South 50, and South 70, across the Rodriguez Canal and the rampart area at intervals of 200 ft (61 m) (Map III-1). The northernmost of these trenches, South 10 (S-10), was located 100 ft (30.5 m) south of a permanent datum established 445.8 ft (135.9 m) and 2°5′ east of north from the easternmost gatepost of the park entrance. The western ends of the trenches were set against a gridline oriented 29° east of magnetic north. Each trench was 200 ft (61 m) in length, 2 ft (.61 m) in width, and between 2½ to 3 ft (.76 to .91 m) in depth. Examinations of the trench profiles revealed no evidence of the original canal sides or the earthen portion of the rampart (1963:6). However, a large cypress log, lying parallel to the canal, was discovered at a depth of 26 in (66 cm) below ground surface in the western end of the second trench, South 30 (S-30), 300 ft (91.4 m) distant from the datum. This bark-covered log was 10 ft 10 in (3.30 m) in length and 14 in (35.6 cm) in diameter. Further, it appeared to exhibit axe cuts at either end.

Just prior to backfilling, two vertically placed fragments of wood were exposed in the trench wall to the south of the log (p. 6). Both measured roughly 1 by 5 in (2.54 by 12.7 cm) and appeared to be the remains of boards. One was found 8 in (20.3 cm) south of the log; the other was located 6 ft 4 in (1.9 m) beyond the first. Both were set in approximately the same alignment 8 in (20.3 cm) to the west of the log. Wilson (p. 7) interpreted both the log and the board fragments as remnants of rampart construction. He believed the boards were remnants of the vertical palings that once lined the rear of the rampart. On the other hand, he suggested two other possibilities for the log. One supposition was that it was used horizontally with other logs, braced by palings, to line the rear of the rampart (pp. 7, 9). His second idea was that it may have formed part of one of the battery platforms (p. 7).

In 1964, Rex Wilson was again sent to Chalmette, this time to search for the mass grave of British war dead from the Battle of New Orleans (Wilson, personal communication 1984). This search was centered in the northeast sector of the battlefield, primarily in the area just west of the National Cemetery wall and south of the present-day reconstructed "cypress" swamp. Wilson first used a metal detector in the hopes that it would provide a clue to the presence of the mass grave by registering buttons, buckles, and other military accoutrements that might be associated with the buried soldiers. Not one item connected with the battle turned up in the course of the metal detector work.

The next phase of operations involved a series of extensive backhoe trenches that were placed at arbitrary intervals throughout the area chosen for the search. These trenches proved to be totally unproductive, and the work was discontinued. Not a single battle-era artifact was found. Because the results were negative, no formal report on this search for the mass British grave was ever written (Wilson, personal communication 1984).

For a period of nearly fifteen years following Wilson's search for the mass grave, no archeological work was conducted in the park unit. In 1979, however, Chalmette was chosen by Joan Mathien of the Division of Remote Sensing, National Park Service, as the subject of a case study in the application of remote sensing techniques (Mathien and Shenkel 1981). The purpose of the research was to compare the utility of three types of photographic aerial imagery—black and white photography, color infrared photography, and multispectral imagery—in the discrimination of cultural features.

At the conclusion of the remote sensing work in 1980, a field check was performed by Dr. Richard Shenkel in order to ground truth some of the features revealed by the photographic examination. This field check simply consisted of a visual inspection of six selected sections of the park unit; no excavations or soil tests were performed (Mathien and Shenkel 1981:84-86).

From an archeological standpoint, the primary value of the work was the documentation and mapping of the numerous linear features that occur within the Chalmette park boundaries. Most of these linear features were interpreted as remnants of historic drainage ditches that had been associated with the early nineteenth-century sugar- cane plantations of the area (1981:80-82). No previously unknown battle or habitational features were identified in the course of the study.

It was not until 1983 that archeological excavations again took place in the park. In March of that year, the author, together with Barbara Holmes of Jean Lafitte National Historical Park and Preserve, dug two test pits 76 m (249 ft) south of the Chalmette Monument. The location of these test pits, an L-shaped area immediately to the north and east of the present park restroom facility, had been chosen as the proposed site for a new visitors' contact station. Each of the pits measured 2 by 2 m (6.6 by 6.6 ft), and both exposed a layer of unexpected historic trash. This trash level was encountered between 25 cm (9.8 in) and 65 cm (25.6 in) below ground surface, and it yielded a relatively large quantity of red brick, ceramics, glass, and metal artifacts. Subsequent analysis of the recovered materials indicated that the layer contained a mixed assortment of historic artifacts that covered the entire span of the nineteenth century (Goodwin and Yakubik 1983). Despite the mixture of early and late materials, a large proportion of the remains clearly derived from the first half of the nineteenth century. A careful statistical analysis of the recovered historic ceramics demonstrated this fact. This analysis yielded a mean ceramic date of 1826 for Test Pit 1 and a date of 1842 for Test Pit 2 (Goodwin and Yakubik 1983:30).

While still in the field and soon after encountering the trash, I began to try to discover a reasonable source for the material. Larry Trahan of the Soil Conservation Service, who examined one of the test pit profiles at the National Park Service's request, pointed out that the trash rested on a natural topsoil level, and he also indicated that this topsoil could easily be quite old, for no signs of a buried topsoil horizon occurred beneath it. In fact, Trahan joked that if Jackson had fought much below this topsoil layer, the Battle of New Orleans would, by necessity, have been fought in a Pleistocene swamp. These observations contradicted the then popular notion that early historic materials at Chalmette were deeply buried or had been long since "sucked" into the Mississippi, an idea that had gained some credence with the lack of finds associated with previous archeological work. Thus, it was entirely possible that the trash was not simply recent fill that had perhaps been brought in from another location and spread out as a base for the first parking lot at Chalmette (a concrete parking lot dating from the 1930s had once occupied the test location). Four large live oaks situated south of the test area particularly aroused suspicion. These were arranged in an L-shaped pattern, a pattern which is often associated with early historic country estates and plantation houses in the vicinity of New Orleans.

After eliminating the Beauregard estate, the old Chalmette caretaker's residence, and the construction of the Chalmette Monument as satisfactory sources of the trash, I went back to the historical record for a fresh look. My attention was particularly caught by Samuel Wilson, Jr.'s (1965:33-38) account of the Rodriguez House, a house that had stood on the battlefield during the Battle of New Orleans and, after a long abandonment, had been eventually razed in the late nineteenth century. The historical interpretation, then current in the park, had the former site of the house situated in the Mississippi River just beyond the southwest corner of the seawall (Figure III-1). After consulting some of the key historic maps relevant to Chalmette, I found this placement of the Rodriguez House difficult to accept. None of these maps, nor any maps from the late nineteenth century or early twentieth century, indicated a cumulative bank loss of sufficient magnitude to place the site of the house in the river. It was especially difficult to understand how the Rodriguez House could have been lost to the Mississippi when the nearby Beauregard House had survived well inside the levee, for the historic maps clearly showed the latter to have been located closer to the river than the Rodriguez House.

In early April of 1983, I outlined my reasoning in a manuscript report (Birkedal 1983) to the National Park Service and proposed that the Rodriguez House was actually located in the L-shaped grove of live oaks (Birkedal 1983:1-2). This hypothesis was soon given additional support by an independent study of the historical record prepared by Historian Barry Mackintosh (1983) of the Washington Office of the National Park Service. The expertise of Mackintosh had been quickly called upon both to augment and check the archeological findings, for these contradicted a view of the park that had guided park management, public interpretation, and research for nearly fifty years.

In late May of 1983, I was sent back to Chalmette to uncover archeological evidence that would verify the former existence of the Rodriguez House at the historically projected location because, if the house were present, as I had proposed, its discovery would have a major effect on the content and direction of a major National Park Service planning effort that was rapidly reaching conclusion. Verification of the presence or absence of the house was crucial to deciding whether to scrap the plan or stay the course on its completion.

As in the first tests, I was assisted by Barbara Holmes of Jean Lafitte National Historical Park and Preserve. A systematic series of auger lanes were used in the search, and a broad foundation wall of soft red brick was soon encountered in one of the auger tests, 108 m (354 ft) south of the Chalmette Monument (Map III-1). Once this wall was fully exposed, a metal probe was employed to find other sections of the foundation. Samuel Wilson, Jr.'s (1965:33-38) description of the house was used to guide the probing operation.

Eventually, the probing yielded an approximate picture of the size and layout of the house. It also showed the presence of an adjacent outbuilding located to the east of the main house. A stratigraphic test trench was then dug across the midsection of the house foundations. This first trench was followed by a series of shallow test pits that were specifically placed so as to exactly define the plan of the house. These additional exploratory tests were dug no deeper than was necessary to expose key sections of the foundations. This was done to minimize impacts to the structural fabric. Unfortunately, large portions of the foundation were found to have been disturbed by later construction. A sewer trench had been dug diagonally across the house and had resulted in the destruction of the northwest and southeast corners. Further, construction of a turn-of-the-century shell path to the Chalmette Monument had severely disturbed the entire length of the house's east wall.

Despite the above post-occupational disturbances to the house remains and the time limitations imposed on the tests, sufficient data was collected to conclusively demonstrate that the remnant foundations were those of the Rodriguez House (Figures III-2, III-3). Like the house of historical record, the archeological house was long, narrow, and relatively small. The primary foundations, which once formed the base of a raised brick basement or lower story, measured 17.8 m (58.5 ft) in length and 6.7 m (22 ft) in width. As indicated by the historical record, these original foundations had been lengthened by a later northern addition, bringing their total length to 20.7 m (68 ft). The foundation ruins were also oriented correctly, with one narrow end pointing toward the river and the opposite end to the landward. Moreover, the remains of a brick-paved outbuilding were encountered 5.4 m (17.7 ft) to the east of the main house in a position similar to that shown in early artistic renderings of the Rodriguez Estate (Figure III-4). A sizable quantity of structural debris and other artifacts was recovered in the course of the excavations. Perhaps the two most interesting were a .69 caliber musket ball and a British gun flint.

Two separate stratigraphic horizons were associated with the house remains. The lowermost produced a mean ceramic date of 1798; the other yielded a mean date of 1834 (Yakubik 1983:44-55). These dates were also in conformance with the available historical data on the house (see Chapter 11, Part II, this report).

Figure III-1. Oblique aerial view of the southwest corner of the Chalmette Unit taken in January of 1968. The large clump of trees to the south of the Chalmette Monument surrounds the remains of the Rodriguez House. The Rodriguez Canal is clearly visible running through the center of the photograph. On the lower right side of the photograph stands the Beauregard House, a large plantation house dating from the Ante-bellum Era.

Courtesy of the photographer, Betsy Swanson.

Figure III-2. Benson Lossing's 1861 sketch of the Rodriguez Canal in the southwest corner of the Chalmette Unit. The view is to the north-northeast with the partially finished Chalmette Monument in the distance. Sheds and outbuildings associated with the former Rodriguez Estate are in the left foreground. The small house and fence beside the canal border the Villavaso Estate.

From Benson Lossing, *The Pictorial Field-Book of the War of 1812.* New York. Harper and Brothers, 1869.

Figure III-3. Photograph of the southwest corner of the Chalmette Unit in 1984, view to the north-northwest. The oaks enclose the buried foundations of the Rodriguez House. The shallow ditch on the right marks the Rodriguez Canal. Test Area 1 is located just north of the brushy area beside the walkway, Test Area 2 is on the near side of the brushy area, Test Area 3 is marked by the distant piles of dirt under the pecan tree, and Test Area 4 is in the left foreground outside the fence.

Photograph by Ted Birkedal, National Park Service.

Coincident with the Rodriguez House tests, a systematic metal detector and auger survey was conducted in the northwest sector of the park unit. This work was designed to assess the potential impact of a visitor wayside at this location. The focus of the survey was a 200 by 300 ft (61 by 91.4 m) assessment zone situated between the main entrance to the Chalmette Unit and the northwest exit of the interpretive loop road. The investigation produced only a light scatter of historic metal objects. Most of these were nondiagnostic, and none could be identified as military items associated with the Battle of New Orleans.

The last work, prior to the present study, was performed in July of 1983. Barbara Holmes and I conducted a small testing operation along a proposed utility corridor. This corridor, approximately 3 m (9.8 ft) in width, ran just outside the southern boundary fence of the park between the Beauregard House and the St. Bernard Parish Sewage Treatment Plant. The investigation included a linear series of auger holes and two test pits. The only historic features located were a section of brick and shell pavement immediately west of the St. Bernard Parish Sewage Treatment Plant and the terminus of an old carriage road that once linked the property immediately adjacent to the Beauregard House to the Levee Road. The pavement area was constructed of closely laid, irregular chunks of soft and hard brick. This pavement may have formed part of an access road or a paved area near an early twentieth century house at this location. The carriage road, on the other hand, was framed on either side by a soft red brick edging, two bricks in width. The interior was paved with shell. In places, the shell paving exhibited signs of hasty repair by means of coal slag and other hard waste materials (i.e., glass, brick fragments, small chunks of coal).

To conclude, archeological work at Chalmette, for a park unit of its type and significance, had been surprisingly limited in the years preceding this study. Only in the early 1980s did a true picture of its archeological potential finally begin to emerge. Contrary to earlier opinion, much remained to be discovered under the park's misleadingly empty expanse.

Introduction to the Archeological Investigations

Research Orientation

No illusions were held about the role of archeology in the context of the wider study of the Chalmette riverfront; from the start, its primary purpose was simply to serve as a handmaiden to history—to enhance and supplement the historical record. The pursuit of anthropological archeology was not a concern, and rightly so, in view of the exploratory nature of the research. With few concrete expectations as to what might be found, it would have been premature, and perhaps pretentious, to have posed and sought answers to questions about culture process or the dynamics of human behavior in the past. Such research was seen as best left for the future.

For the purposes of the assessment, the archeological research had a more modest and particularistic goal to achieve. This goal was to verify and refine the pattern of resource occurrence and distribution suggested by the historical sources. Recognition was given to the possibility that the natural levee of the current channel of the Mississippi River may have proved attractive to the late prehistoric occupants of St. Bernard Parish (Gagliano et al. 1979:2-7, 3-9). Similarly, consideration was given to the more remote possibility that deeply buried sites associated with the older La Loutre-Mississippi course might also be present (Wicker et al. 1982:78). However, a concerted search for prehistoric sites was not included as a priority in the scope of work issued by the Corps of Engineers; moreover, practical constraints of the project would have precluded the intensive, broad-coverage testing that would have been required to verify the presence or absence of prehistoric sites with any reasonable degree of confidence. Consequently, the design of the archeological reconnaissance effort was largely directed toward the resources of the historic era, and only secondarily toward those of the prehistoric era. In view of the unique cultural resource values that had originally led to the establishment of the Chalmette Unit, this orientation was entirely justifiable.

The Corps' scope of work stated explicitly that archeological attention "will be focused on the American defense line and the positions of Batteries 2 and 3." Of all the threatened resources, these were potentially the most significant archeological features that could be impacted by the levee construction work. Construction Area 1 appeared to lie directly in the path of the projected rampart, and initial estimates based on the known location of the Rodriguez House foundations suggested that the position of Battery 2 might easily fall as far south as the crown of the artificial levee. There was only an outside chance that Battery 3 would be found within or immediately adjacent to the area of effect, but the discovery of the archeological remnant of this gun battery was considered pivotal to the success of the overall assessment. The expectation was that Battery 3 would provide the best opportunity to establish a reliable physical link between the battlefield of the past and that of the present.

The Rodriguez House, although it was portrayed on the contemporary battle maps, did not provide a fixed geographical reference point of sufficient accuracy. Among the available historical sources, its position relative to closely adjacent military features varied as much as 50 m (164 ft). Yet, these same sources all exhibited close agreement when it came to the positioning of the military features alone. This concurrence was particularly evident for the American artillery emplacements along the line of defense. General William Fields of the New Mexico National Guard, a combat engineer of long experience, was asked about this disparity in locational accuracy soon after the discovery of the Rodriguez House (personal communication 1983). In answer, he pointed out that military engineers of the day would have taken great care in the layout of the stationary artillery positions, for heavy smoothbore cannon required exact and calculated placement if they were to provide an effective and coordinated field of fire against the enemy's artillery and avenues of attack. Exact measurements for the location of civilian structures and similar features, on the other hand, would have been superfluous, for such precision would not have met any practical military purpose. Consequently, Fields concluded that the variable placement of the Rodriguez House on the battle maps reflected reliance on simple "eyeball" estimates for the determination of location. There was no need for anything more: "Close" was close enough (General William Fields, personal communication 1983).

Battery 3 was selected over Battery 2 as the best hope for the discovery of a fixed reference point because this battery had been a two-gun emplacement, and as the larger of the two artillery positions, it was assumed to possess the more prominent archeological signature. Further, the historical source information on Battery 3 was more complete. By a fortuitous circumstance, it had been the subject of a highly detailed sketch (Figure III-4). Drawn on the battlefield in 1819 by the famous Washington architect Benjamin Latrobe, the sketch illustrated a wide "pond and a Gap" in the American rampart which had by then formed at the location of the dismantled battery (Latrobe 1951:46). Latrobe's drawing provided an invaluable clue to the probable archeological appearance of the feature. It suggested that the position of Battery 3 would be marked by a broad, shallow depression in the old bank line of the Rodriguez Canal. Although most signs of the depression had in all likelihood been buried, it was anticipated that the unique stratigraphy of the feature would nonetheless betray its present-day location.

Once its position had been established, Battery 3 was to serve as the locational guidepost to the other battlefield landmarks, such as Battery 2 and the American powder magazine. Similarly, the known locations of the Rodriguez House and the Beauregard House would fulfill the same need for the reconstruction of the historical geography of the civilian occupation of the riverfront. Measurements for the projections were to be taken from the more reliable of the archival sources; namely, those maps and accounts that provided the most detail had been prepared from on-site knowledge of the period geography and exhibited the greatest across-the-board agreement in the presentation of locational data. Archeological verifications, predicted by the geographical reconstructions, would then be used to demonstrate the credibility of the indicated patterns of resource occurrence.

Preparatory work, prior to the commencement of field investigations, involved several activities. The major primary and secondary sources then available on the Battle of New Orleans were reviewed along with any historical reports that touched upon the nonmilitary use of the Chalmette Unit lands. Also, a number of early National Park Service administrative documents were consulted for bits and pieces of information that might prove relevant to understanding the extent and nature of recent alterations in the cultural landscape of the area. In addition, a series of the better-known archival maps of the unit were selected for study (Lafon 1808; Latour 1816a, 1816b; Zimpel 1834; d'Hémécourt 1867; Mississippi River Commission charts). These maps, which dated between 1808 and the early twentieth century, were reduced to a common scale to permit overlay with a 1981 aerial photographic overview of the same general land area (Figure *i-3)*. This exercise gave some orientation to the historical geography of the riverfront, but the lack of shared reference points among the maps and their varying degrees of cartographic excellence made the prediction of former

Figure III-4. Benjamin Henry Latrobe's 1819 "View of the New Orleans Battleground" (Sketchbook XIV, February 1819 [Image XIV-14]). The sketch shows the Rodriguez Estate (to the right) with the "pond and a Gap" that mark the location of Battery 3 clearly visible in the foreground. The imposing profile of the Macarty House can be seen on the left behind the surviving remnants of the American earthwork. The view is to the northwest.

Courtesy of The Maryland Historical Society.

Figure III-5. The projected location of Battery 3 from about the same position that Benjamin Henry Latrobe made his historic sketch of the "pond and a Gap" in the American line in 1819. Test Area 3 is just forward of the oaks and marks the present-day location of the battery. The remains of the Rodriguez House are bounded by the large oak trees. The view is to the northwest.

Photograph by Ted Birkedal, National Park Service.

structure and feature locations nearly impossible. It was found that only general zones of possible resource occurrence could be established with any degree of confidence.

In hopes of further limiting the search areas, more detailed aerial imagery at the National Park Service's Branch of Remote Sensing was consulted. This included a black-and-white stereoscopic mosaic (1978 at 1:1920) as well as color infrared transparencies (1977 at 1:1800). With guidance provided by the results of Mathien's (1981) earlier experiments at Chalmette, vegetative and topographic anomalies were traced and attempts were made to correlate these anomalies with historical features portrayed on the archival maps. For the most part, this effort proved fruitless; numerous anomalies were evident, but only a few of the more prominent historic ditch lines emerged as identifiable entities at this stage in the investigation.

Much of the preparatory work was centered around the definition of clues that would help to identify Battery 3. The project's military historian, Jerome Greene (1983), was asked to prepare a hypothetical reconstruction of the battery and its use. He suggested that Battery 3 had probably been built in accordance with at least the minimal rules of military battery architecture. Thus, in his view, its interior had been revetted on its inside by planks, fence palings, and possibly fascines. Greene further posited the use of wooden gun platforms held together by pegs, as opposed to nails, and the presence of earthen traverses and a wide observation banquette that would have lined the interior of the epaulement (the section of parapet that fronts a battery). Much to the disappointment of the archeological team, Greene cautioned that early artillerymen tended to be both careful and frugal in the use of the tools of their trade. Moreover, he noted that artillerymen usually kept their batteries clean and free of debris, as they wanted nothing extra in the battery that could cause inadvertent sparks or obstruct the operation of the gun carriage. If there were any artifact deposits resulting directly from battery use, Greene suggested that these would be found in the Rodriguez Canal within an easy throw's range from the battery.

William Meuse, the Chief Curator at the Springfield Arsenal and the National Park Service's foremost expert on early artillery, was also questioned on battery construction and use. He was intimately familiar with the Battle of New Orleans, for he had once served as a historian at the Chalmette Unit. Meuse (personal communication 1983) concurred with Greene's reconstruction.

He further dampened hopes for the easy identification of the battery. Although Meuse agreed that Battery 3 had most likely been a major target for British artillery fire and that most of the rounds had probably come close to the target, he warned against the expectation that a particularly large accumulation of cannonballs would be found in and around the archeological remnant of the battery. Many rounds, he stated, would have been overflights and many others would have ricocheted off the sloping forward crest of the epaulement. He agreed with the notion that the battery position was probably marked by a distinct "apron" of spent rounds, but he did not believe this accumulation could be easily defined without a great deal of comparative excavation. The total number of discoverable rounds would be relatively small, and the rise and fall in the occurrence of balls would be subtle and gradual. In spite of this expert advice, I and the other archeologists in the investigatory team initially clung to the false hope that a mass of metal would help identify the battery.

If time constraints had allowed, it would have been best to have had the luxury of several months of preparatory time for background research, but ideal conditions are rarely met in the world of compliance archeology, and so the archeological team had to proceed with only a murky sense of the historical geography of the Chalmette Unit and the kinds of data that would identify the historic features. In hindsight, it is obvious that a firm and precise grasp of the archeology only began to emerge after the completion of the formal historical studies. The results of these studies first became available in draft form some seven months into the life of the project, too late to orient the archeological field work, but not too late to give welcome guidance to the archeological interpretation.

Research Methodology and Techniques

The research plan for the field investigations called for the use of a variety of exploratory techniques, but magnetic survey was selected to serve as the centerpiece and workhorse of the effort. Faced with a large expanse of land and the prospect of few surface indications, an emphasis on magnetic survey seemed particularly appropriate. It offered the potential of rapid and broad aerial coverage in exchange for a relatively small commitment of personnel and time. Moreover, this remote sensing technique posed no harm to the archeological remains that might be found. The latter consideration was important, because not all portions of the assessment zone were under immediate threat from the levee setback project. The aim of the magnetic survey was twofold: first, to locate areas of archeological potential in order to establish correlations with features indicated on the historical map sources; second, to serve as a guide to the efficient and effective placement of subsurface archeological tests within the areas of high potential. A master grid system of quadrants (Map III-2), each measuring 25 m (82 ft) on a side, was developed to provide horizontal control for the magnetic survey as well as the project as a whole (see Chapter 15 for a full discussion of the magnetometer methodology and detailed description of the grid system).

Originally, a systematic sweep with a metal detector was to follow each segment of the magnetometer survey. However, the rigorous application of this technique was soon abandoned as unproductive and time consuming. The riverfront proved to contain widespread accumulations of metal trash. Metal "hits" were so common as to be meaningless, and many tantalizing readings resulted in the discovery of such recent objects as pop cans and fencing wire. For the most part, the metal detector was limited to occasional, judgmental use.

Another supplemental tool, known by the popular term "plumber's probe," proved infinitely more productive. No more than a thin steel rod with a point at one end and a handle at the other end, this simple tool helped on numerous occasions to confirm the presence or absence of structural debris at suspicious anomaly locations. It was especially useful in the identification of historic red brick, for the battered tip of the rod would pick up a coating of moist brick dust when it hit this older type of building material.

The research plan targeted subsurface tests for only a few select locales. The locales included Construction Areas 1 and 2 (Map III-2), for these were the most likely to be disturbed by the planned levee work. The west bank of the Rodriguez Canal in the southwest corner of the Chalmette Unit was also chosen as a major test zone because of its potential to reveal the positions of Batteries 2 and 3. The tests were to supply critical stratigraphic clues and confirm the presence of archeological features suggested by the other exploratory techniques. Test pits, auger tests, and shovel tests were all to be used in the subsurface testing effort. This subsurface work was to remain limited, so as to keep disturbance to possible buried resources and the Chalmette Unit's park-like grounds to a minimum. Although trenching with a backhoe would have proved extremely useful from a purely archeological standpoint, it was never seriously considered as an option.

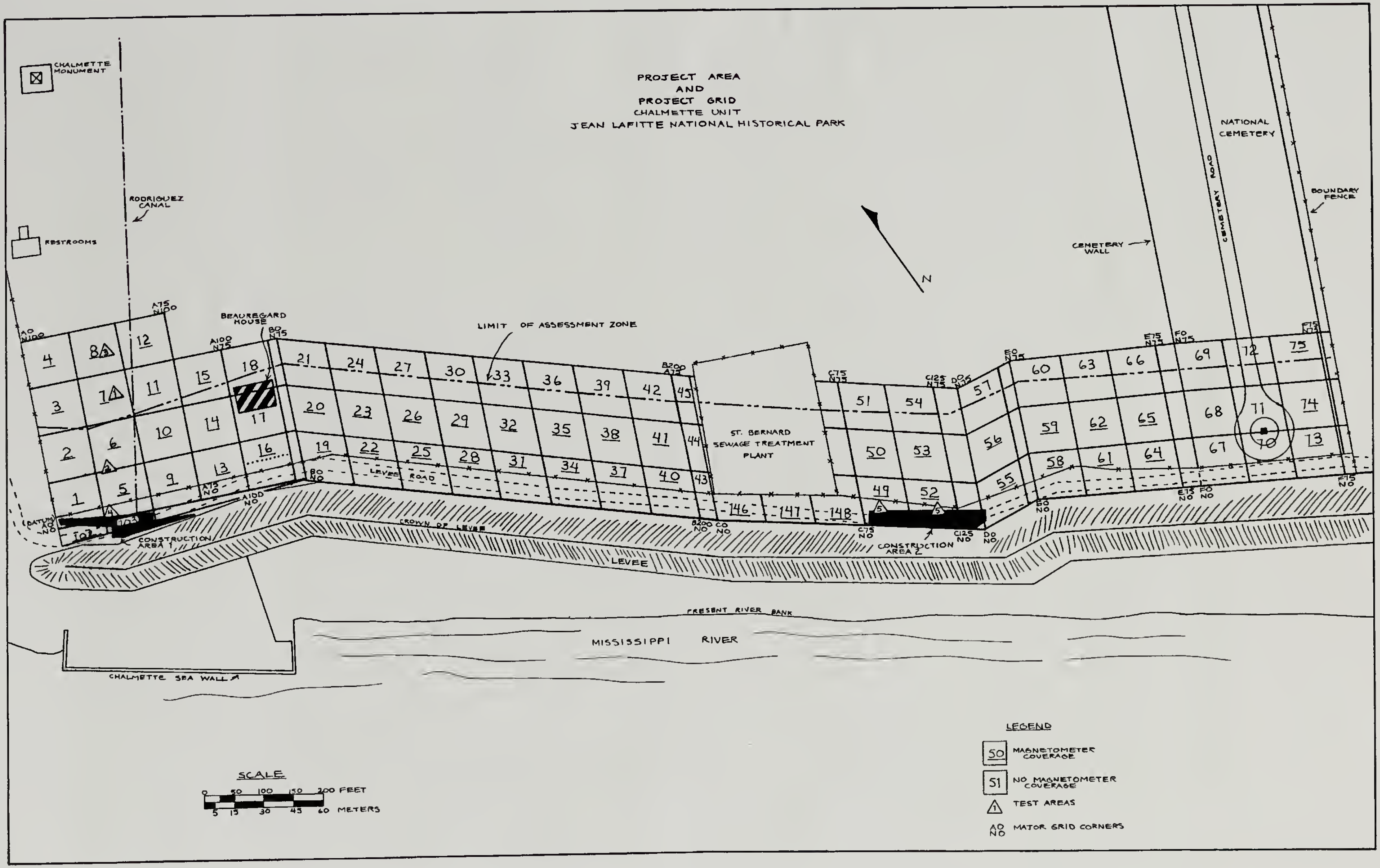
There was a fear that machine-dug trenches would disrupt visitor use; require an excessive amount of reconstructive landscaping on the part of the maintenance staff; and, as "blind tests," pose an unacceptably high threat of premature damage to archeological resources that were not under immediate risk from the proposed levee construction work.

As a supplement to the archeological tests, the cooperation of the Soil Conservation Service was enlisted to conduct a series of specialized soil tests in the southwest corner of the Chalmette Unit. These tests were to supply a comparative baseline for the identification and discrimination of the stratigraphy exposed in the archeological excavations. Initially, this work was to be concurrent with the other field investigations, but scheduling difficulties delayed the conduct of the tests well into spring. Nonetheless, the information gained from these soil auger tests proved invaluable to the final interpretation of the discovered cultural deposits.

In general, the archeological interpretation of the results took a great deal more effort than anticipated at the outset of the project. New and unexpected relationships among the various data sets emerged with each day of study, and a number of critical archival sources were discovered long after the completion of the formal historical reports (Parts I and II, this report). Further, as the analysis proceeded, it became apparent that an accurate placement and understanding of the cultural resources of the assessment zone depended on a reconstruction of the wider historical geography of the battlefield. Thus, the solution to the smaller puzzle rested upon a solution to the larger puzzle—a revision of the historical content and layout of an entire park unit, a task that did not come easy.

Map III-2. Map of the project area and magnetometer grid layout, Chalmette Unit, Jean Lafitte National Historical Park and Preserve.

Drawn by Lyndi Hubbell for the National Park Service.



PROJECT AREA
AND
PROJECT GRID
CHALMETTE UNIT
JEAN LAFITTE NATIONAL HISTORICAL PARK
CHALMETTE MONUMENT
RESTROOMS
RODRIGUEZ CANAL
BEAUREGARD HOUSE
LIMIT OF ASSESSMENT ZONE
ST. BERNARD SEWAGE TREATMENT PLANT
N
CEMETERY WALL
CEMETERY ROAD
NATIONAL CEMETERY
BOUNDARY FENCE
LEVEE ROAD
CROWN OF LEVEE
LEVEE
CONSTRUCTION AREA 1
CONSTRUCTION AREA 2
PRESENT RIVER BANK
MISSISSIPPI RIVER
CHALMETTE SEA WALL
SCALE
0 50 100 150 200 FEET
5 15 30 45 60 METERS
LEGEND
50 MAGNETOMETER COVERAGE
51 NO MAGNETOMETER COVERAGE
TEST AREAS
AO NO MAJOR GRID CORNERS

CHAPTER 15

MAGNETIC SURVEY METHODOLOGY

John Coverdale
Kenneth Holmquist
Larry Murphy

Introduction

Magnetometer survey is a remote-sensing approach that has developed as a major archeological tool in the last four decades. The magnetometer is an electronic instrument that measures and records the earth's magnetic field. The basic unit of measure is the "gamma" (0.00001 oersted); the earth's magnetic field in the United States normally varies between 50,000 and 60,000 gammas.

In archeological applications, the magnetometer is deployed so that small local variations in the earth's ambient magnetic field can be delineated, recorded, and analyzed. These highly localized variations are commonly termed "anomalies." Magnetic anomalies within a search area may have many archeological origins, but the most pronounced usually result from the presence of ferrous metal. Anomalies of archeological interest are not limited to iron artifacts, however, because discernible magnetic anomalies of varying intensities can be produced by any archeological feature possessing a magnetic field different from the surrounding geological matrix. Common cultural processes that can produce magnetic features include construction, refuse deposition, excavation and filling, and compaction. Under certain conditions, excavated and refilled areas can stand out magnetically against a background of intact and more densely packed natural soils. Even compacted roadways and paths can appear as recognizable anomalies if the bordering soils are of a lesser density.

It is important to stress that anomalies may result from either a positive or negative deflection from the surrounding or ambient field. For example, a basalt rock deposited in loose quartz sand would produce a positive anomaly; limestone rock in a magnetite-rich soil would register as a negative anomaly. Ferrous materials normally produce both a negative and positive deflection;

configurations of this type are referred to as dipolar anomalies; that is, both magnetic poles are present.

From the standpoint of magnetic survey, the most significant property of an archeological feature—other than ferrous content—is thermoremanant magnetism. This property occurs in certain objects when they are heated to a temperature high enough to allow some of the constituent particles to become fluid and to align themselves parallel with the earth's magnetic field (Breiner 1973). The net magnetic effect of this realignment process is a thermoremanant magnetism that can be displayed by virtually any material subjected to extreme heat (for example, pottery, hearths, kilns, bricks, and ceramic tiles). The possibility of detecting thermoremanant features by magnetometer was first suggested by J. C. Belshe in 1957 and field tested in 1958 (Aitken, Webster, and Rees 1958). Magnetometer surveys in archeological field work focus on the detection of anomalies produced by thermoremanant and ferrous sources, as well as those from soil disturbances.

The magnetic survey of the river frontage at Chalmette was directed toward the location and delineation of buried historical features exhibiting virtually no observable surface manifestations. Background research suggested that the magnetometer survey would be an efficient and productive investigative tool at Chalmette. According to the historical record, the riverfront assessment zone had once been the scene of intensive occupation and use, yet surface clues of past human activities, both civilian and military, were largely absent. Field investigators faced with nearly one-half mile of archeological *terra incognita* selected magnetometer survey as a logical and necessary aspect of the search. Concentrations of brick and metal structural refuse associated with the civilian historical occupation were expected to produce recognizable magnetic anomalies. Similar expectations were held for features connected with the Battle of New Orleans because military constructions and excavations, as well as lost military ordnance and other debris, usually produce detectable magnetic anomalies.

Factors Relevant to Survey Design

The earth's magnetic field does not remain constant. Temporal fluctuations in the field originate from atmospheric changes and solar activity. These diurnal variations are unpredictable and may result in shifts of 100 gammas or more. When field data are collected over a period of even a few days, such shifts can yield significantly different magnetometer readings at the survey location. If these diurnal fluctuations are not taken into account prior to data reduction, serious errors in interpretation can result. Consequently, diurnal correction is essential to survey accuracy, particularly in high-resolution magnetometer surveys. The typical method used to correct for diurnal changes is the deployment of a second magnetometer to serve as a base station. This base-station magnetometer remains stationary and takes periodic readings during the daily collection of field data. The field readings are adjusted up or down, as necessary, to reflect the diurnal fluctuations recorded by the base-station magnetometer. For the highest possible resolution, base-station readings should be taken concurrently with field readings. Concurrent readings are especially important in situations where the discrimination of subtle nonferrous magnetic features is important.

Field data can also be compromised by the presence of modern ferrous masses or electrical power lines. Iron or steel fences, water or sewer pipes, metal culverts, and overhead or underground electric lines often create areas that preclude collection of valid magnetometer readings. Areas proposed for investigation should be checked for the presence of such interferences prior to the start of actual magnetometer work. Test surveys with the magnetometer can then be easily carried out in a potentially impacted area to determine the degree and extent of interference. Heavily impacted zones may be eliminated from survey coverage. Experience, however, shows that some anomalies can be detected within interference areas. The most practical procedure to estimate the area of impact is to run short transects perpendicular to the interference.

Data Recording and Reduction

Magnetic data must be reduced to a usable format before they can be analyzed or interpreted. A contour map provides the most useful and practical display of magnetic data for archeological interpretation. A magnetometer contour map uses iso-intensity lines to depict the total magnetic field variations in the survey area. Contour lines connect areas of equal magnetic intensities much the same as the lines of a topographic map connect areas of equal elevation.

Magnetic anomalies are highly variable in shape and intensity and can be quite complex when numerous ferrous masses are present. It is assumed that anomaly-contour configurations reflect the characteristics of the feature or grouping of objects that produce the deflections. However, the form of an anomaly can vary if different paths of approach (survey transects with different alignments of the instrument) are employed in a survey.

Some anomaly-contour configurations on the magnetic map represent patterns that can be linked to certain archeological or geological features. These patterns can then become recognizable signatures for similar features located in the area of survey. Ideally, ground-truthing should be carried out during, or as soon as possible after, the magnetometer survey. Early test excavations at selected anomaly locations can greatly enhance the quality and accuracy of overall magnetic data interpretation and lead to the development of signatures for specific archeological features. Unfortunately, few quantitative methods exist to interpret magnetic contours, and the process of evaluation remains primarily subjective.

On-site assessment of magnetometer field data gives researchers an opportunity to check interpretations and to adjust field procedures so as to maximize information recovery. Proper coordination of investigative tasks significantly increases the effectiveness and efficiency of a magnetometer survey. The in-field generation of magnetic contour maps is basic to proper feedback. Maps can be laboriously done by hand or produced at the end of each field day by a computer and plotter. Another alternative is to transmit information by modem to an off-site computer graphics facility that can generate maps and send them back to the field.

Survey Objectives

The purpose of the magnetic survey at Chalmette was twofold. First, the survey provided guidance for accurate placement of test excavations relative to targeted historic features. Second, the magnetometer survey served as a primary data-retrieval technique in its own right. The size of the assessment zone, the potential number of buried historical features, and the limited time available for field investigations precluded using test excavations alone for subsurface exploration. Instead, the survey was designed to utilize both magnetometer and historical data. If anomalies of the appropriate size and intensity occurred at the projected locations of historic features, the spatial correlation of the two data sets would supply a relatively reliable basis for identification of what might otherwise be unobservable archeological resources. Furthermore, the absence of characteristic anomalies at other locations (if in conformance with the historical record) would eliminate the possibility of certain types of resources being present beneath the surface (i.e., brick foundations, concentrations of structural debris, etc.). Compared to actual test excavations, the magnetometer survey was viewed as the next best alternative information source for generating subsurface information.

Survey Methodology

The entire survey zone was divided into standard subdivisions. The basic unit of this areal reference system was a block measuring 25 m (82 ft) on a side. Because the irregular alignment of the levee toe and the length of the Chalmette Unit prevented even subdivision, some of the boundary blocks were smaller or larger than the standard. To permit a hierarchy of reference, blocks were combined in five separate groupings, designated A, B, C, D, and E, from west to east. A transit-and-chain survey was used to fix the location of each block corner, and these corners were staked, labeled, and flagged for easy field reference (Map III-2).

The 25 (82 ft)m block was chosen as a convenient subdivision because it was small enough to permit the accurate use of fiberglass measuring tapes by the magnetometer crew, and it was also large enough to minimize the time-consuming job of locating and staking corners. The tape-positioning system proved to be extremely efficient during magnetometer operations. One tape was extended from north to south along the west edge of the block to be surveyed; a second tape was similarly placed along the east side of the block. Next, a polypropylene rope marked at the desired sampling interval was positioned from east to west across the block. The magnetometer operator then walked the rope, taking readings at the set intervals. When he reached the opposite side of the block, he and his assistant moved the rope to the next interval position on the north-south tapes, and he began collecting the next line of readings while traveling in the opposite direction of the previous pass. This process continued until the block had received full coverage.

Most magnetometer readings were taken at 3 m (9.8 ft) intervals, a spacing considered to be sufficient for locating historic structural remains. However, readings in Blocks 2 through 8, all located in the extreme southwestern corner of the park unit, were made at 2 m (6.6 ft) intervals because the survey here was oriented toward the discovery of more subtle military features associated with the American line of defense. An experimental test of the utility of a 1 m (3.28 ft) coverage was made in the eastern halves of Blocks 6 and 7, but this test produced little additional information from that gained at the 2 m (6.6 ft) sample interval.

Basing survey control on relatively small, contiguous blocks offered a number of clear advantages. First, the system provided flexibility in prioritizing survey coverage. Blocks likely to contain historical remains, or those targeted for immediate subsurface testing, could be surveyed first without significant interruption of the overall survey. Second, the use of discrete blocks reduced the likelihood of data-collection errors being transferred beyond the confines of a single block. Moreover, if errors were noted, the resurvey could easily be limited to the problem block.

Another value of this approach was the early return of information. Since readings from individual blocks could be contoured and studied as independent units, there was no need to defer data analysis until wide-area coverage was achieved. This rapid data turnaround allowed the magnetometer crew to catch and correct instrument and procedural errors early. Such quick feedback also provided the test excavation team with contoured magnetometer data from priority blocks in the first stages of the investigation. In turn, because subsurface tests began very soon after the start of the magnetometer survey, it was similarly possible for the magnetometer crew to benefit from the initial findings produced by excavation. Feedback was, in fact, an essential aspect of the total investigative process. As each contour map was completed, it was added to others to form an incremental mosaic of the magnetometer data. This growing body of data was reviewed at the end of each field day by the excavators and the magnetometer crew in order to develop strategy corrections and to identify signature patterns that could be linked to historic features. These daily interchanges were of great help in collecting and interpreting the magnetometer data. Finally, because the magnetometer survey was tied to a tight locational control system, it was a simple process for the excavators to position themselves precisely in relation to recorded magnetic anomalies. By using the staked corners of the blocks, rapid placement with very high accuracy was effected solely by the use of measuring tapes.

Survey Coverage

In all, 2.94 ha (7.26 acres) of the originally scheduled 4.94 ha (12.20 acres) of land were subjected to magnetometer coverage. Some areas were deleted from the original schedule because interference from recent intrusive features was found to be too great to permit accurate readings. For example, the greater portions of Blocks 17 and 18 were dropped because the existing Beauregard House dominated these units. Similarly, the linear group of blocks located along the levee road between the Beauregard House and the St. Bernard Parish Sewage Treatment Plant was deleted from the survey because the combined effects of an overhead power line, a new underground utility corridor, and the southern boundary fence skewed readings in this area. A second series of blocks was deleted because it was of secondary priority and not essential to the assessment. The greater part of this group included the northern line of blocks extending from the Beauregard House to the National Cemetery; the remainder was in the western two-thirds of the National Cemetery. These reserve units could have been completed in the allotted time frame if problems caused by instrument failure and inclement weather had not interfered with the momentum of the survey.

In spite of the above deletions, the magnetic survey achieved a 76 percent coverage of the 200 ft wide (61 m) (3.86 ha [9.5 acres]) riverfront assessment zone specified by the Corps of Engineers and a 59 percent coverage of the slightly larger project area laid out by the research team (4.94 ha [12.20 acres]). With the exception of eight hours of volunteer help, all work associated with the magnetometer field operation was accomplished by the two-person magnetometer crew with a total field time of twelve days.

Instrumentation

Initially, two different magnetometers were employed on the survey, one serving as a base station and a second portable one collecting field data. Both magnetometers were manufactured by Geometrics Incorporated. Model 806 was used for the base station and Model 856 was deployed as the field unit, the latter being designed to record and store magnetic readings together with time, line, and date information in an internal memory when a simple combination of pressure switches is activated. The magnetometer console was mounted with straps on the surveyor and the sensor was attached to a hand-held, nonferrous staff.

The base-station sensor was secured on a stationary mount about the same distance off the ground as the field sensor. A lightweight cable was used to "slave" the two units together. The base station was linked by cable to a portable Hewlett-Packard Model 85B computer. Whenever a field reading was taken, the base station was also activated, and the base-station reading was recorded and stored on tape by the computer. At the completion of each block unit, the field readings were transferred from the Model 856 memory to the computer and stored on the same tape as the base-station readings.

This magnetometer system, along with the computer software developed by Geometrics, allowed rapid contour generation in the field. The software executed diurnal-variation corrections and also provided an instant statistical analysis of the collected data. It was a relatively simple matter to transform the final readings on the computer tape into hand-drawn magnetic contours for analysis. However, the above instrument procedures required a modification midway through the project. Electronic problems began to plague the Model 806 base-station unit, primarily as a result of the nearly constant rains and cold weather encountered, and a Model 856 magnetometer was substituted for the failing Model 806 with its moisture-sensitive cables. Because of limitations of the Model 856, diurnal readings from this point on had to be taken at programmable intervals rather than in exact concert with the field unit. However, this change had little effect on the overall operation, and other instrument procedures remained the same.

The large number of modern magnetic masses located along the Chalmette riverfront had a definite effect on the instrument readings. As mentioned earlier in this chapter, the interference produced by larger entities was handled by simple block deletion in some cases. However, the abundance of fences, culverts, drains, and buried sewer lines was so great that, if all areas of modern interference had been dropped from the survey, less than half the assessment zone would have been left for magnetometer coverage. The only solution was to record the influence of these factors on the contour maps and to assess their potential effect on neighboring anomalies of interest. In most cases, it was possible to isolate areas under the masking or skewing influence of modern features. Whenever possible, old photographs were consulted or the park maintenance staff was interviewed in order to pinpoint the locations of drains and other buried features that could mislead anomaly interpretation. After some familiarity was gained with the signatures of these smaller, buried features of recent origin, it became clear that most produced distinctive signatures that could be eliminated from consideration.

A serious problem encountered during survey was inclement weather—New Orleans experienced some of the worst winter weather in twenty years while the magnetometer operations were under way. Freezing or near freezing temperatures combined with extremely high rainfall wreaked havoc with much of the electronic equipment. The Beauregard House was used as shelter for the base-station equipment while magnetometer operations were conducted in the vicinity. This worked well because the building was heated and contained internal power sources. Beyond the proximity of the Beauregard House, instrument difficulties increased. Although a tent was used to house the base-station equipment and the Hewlett-Packard field computer, the latter soon began to fail as a consequence of the low temperatures, and it had to be removed from direct field use. Data "dumps" and the generation of data tapes (from that point on) could only be performed in a heated environment at the end of each field day. This adjustment in equipment use slowed data returns and limited the magnetometer crew's ability to catch and correct procedural or equipment errors during field operations, which in turn increased the risk of bulk data losses. All in all, moisture proved to be a larger difficulty than the cold, for it precipitated shorts and other problems with cables and connectors linking various pieces of equipment. The use of several rolls of duct tape reduced—but never fully eliminated—the adverse effects of moisture on these hardware linkages.

Even wind played a role in hampering the magnetometer survey. Toward the end of the survey, a high wind associated with one of the thunderstorms that frequently rolled in between the heavy drizzles completely flattened the base-station tent. No equipment was damaged, but the tent was rendered useless. Fortunately, a small break in the weather, along with further equipment adjustments, allowed completion of the remaining priority blocks.

Computer Mapping Procedures

As mentioned earlier in this chapter, background and field magnetometer readings were recorded on magnetic tape on a Hewlett-Packard (HP) 85B computer. The HP 85B was then returned to the offices of the Tennessee Valley Authority, Mapping Services Branch. The data was there transferred to an HP-1000 computer, and programs were written to perform diurnal data correction. This correction was done by subtracting background readings from field readings on a point-for-point basis. The difference in time between background and field readings, for almost all points, was less than one minute.

The data were then transferred to a Digital Equipment Corporation (DEC) VAX 11/780-based Intergraph Corporation computer-aided mapping system. The Intergraph Digital Terrain Model (DTM) software package was used to automatically generate contour maps of the magnetic data. Output plots of the contours were produced on a Gerber Scientific Instrument Company 4177P plotting system. Three registered overlays were generated and used in producing tri-color magnetic maps (see Chapter 18, Magnetic Contour Maps III-1 through III-6).

Some experimentation was carried out with computer-generated, color-coded shading, but the tri-color contour maps proved to yield the best overall data delineation. Green was used to record positive readings, blue for negative, and red for neutral readings. In order to respond to varying interpretive requirements, plots were produced at 5, 10, and 20 gamma contour intervals.

CHAPTER 16

TEST EXCAVATIONS

Ted Birkedal

General Introduction

This chapter covers the results of auger tests, shovel probes, and excavations in five separate test areas. Three test areas, Test Areas 1, 2, and 3, were created during the search for Battery 2 and Battery 3 (Map III-3; Figures III-3, III-5, III-6, III-7). The remaining areas were established in the course of archeological exploration within the two specific levee construction zones designated by the Corps of Engineers (Map III-2). Test Area 4 incorporates all subsurface tests made in the vicinity of Construction Area 1; Test Area 5 includes all tests centered on Construction Area 2. The auger tests, shovel probes, and the test excavations were tied to the overall grid system described earlier in this report (Chapter 15). Test pits and trenches were named with reference to their northwest corners. For example, if the northwest corner of a test pit was located 15 m east of the westernmost north-south baseline of the grid and 20 m north of the southern baseline, it would be designated A15, N20.

Depths in auger tests and shovel probes were measured from ground surface. On the other hand, with the exception of Test Area 5, depths in the test excavations were measured from arbitrary vertical datums established beside each test unit. These individual datums were tied to Mean Sea Level. Excavation proceeded by means of both arbitrary and natural levels. Arbitrary levels were employed in the initial excavations and in cases where the natural levels were difficult to define or follow. Excavation by natural levels was the preferred technique.

In Test Area 1, all the dirt from the excavations was forced through a ½ in mesh screen in order to maximize artifact recovery. However, the nearly constant rains and the heavy consistency of the soils led to the abandonment of screening in the remaining test units. In these subsequent excavations, screening was used only occasionally to check if significant numbers of artifacts were being missed in the shoveling and troweling process. Actually, the screen checks indicated that an artifact recovery rate of at least 90 percent was achieved without the screens. This recovery rate was obtained because soils in artifact-bearing levels were first removed by trowel before being transferred to buckets or shovels. Artifact assemblages from particular levels or features were assigned field specimen numbers and bagged separately.

A gasoline-powered pump proved to be an essential tool of excavation in any tests that extended more than 30 cm below ground surface. The combination of a high water table with incessant heavy rains required almost continuous pumping and the use of sump pits and sump trenches.

Test Area 1

Introduction

Test Area 1 was chosen for subsurface testing because the area initially appeared promising as a location for Battery 3 (Map III-3). The misleading indicators were as follows:

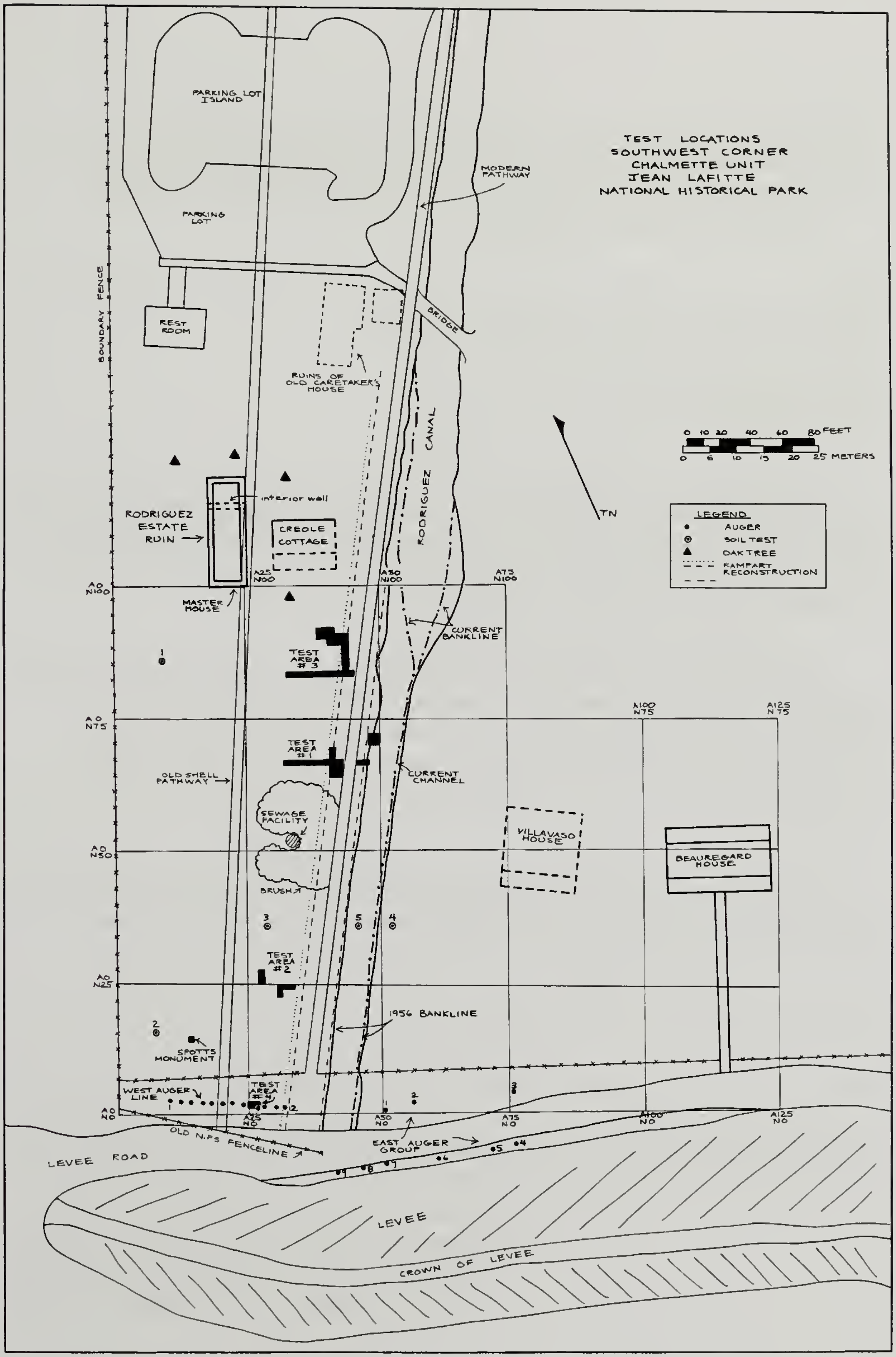
1. The center of the area was marked by a large C-shaped swale or depression. This surface depression opened up toward the Rodriguez Canal and measured 22.5 m in length and 5 m in width. The depression had been prominently visible on aerial imagery of the park and it was equally visible on the ground. Overall, the depression appeared to be exactly what might have been expected if a sizable battery gap had once been present at the position and then had been partially filled by subsequent deposition (Figure III-1).

2. Magnetometer readings at both 2 m and 1 m intervals appeared to reveal a C-shaped anomaly that nearly replicated the form of the surface depression. Smaller, more intense anomalies suggested the presence of a great deal of subsurface metal.

3. Metal detector readings also indicated the presence of a fair amount of subsurface metal.

Map III-3. Test area locations and the positions of selected historic features in the southwest corner of the Chalmette Unit, Jean Lafitte National Historical Park and Preserve.

Drawn by Lyndi Hubbell for the National Park Service.



TEST LOCATIONS
SOUTHWEST CORNER
CHALMETTE UNIT
JEAN LAFITTE
NATIONAL HISTORICAL PARK
PARKING LOT ISLAND
PARKING LOT
MODERN PATHWAY
BRIDGE
REST ROOM
BOUNDARY FENCE
RUINS OF OLD CARETAKER'S HOUSE
RODRIGUEZ CANAL
TN
0 10 20 40 60 80 FEET
0 5 10 15 20 25 METERS
LEGEND
AUGER
SOIL TEST
OAK TREE
RAMPART RECONSTRUCTION
interior wall
RODRIGUEZ ESTATE RUIN
CREOLE COTTAGE
MASTER HOUSE
CURRENT BANKLINE
TEST AREA #3
TEST AREA #1
OLD SHELL PATHWAY
CURRENT CHANNEL
SEWAGE FACILITY
BRUSH
VILLAVASO HOUSE
BEAUREGARD HOUSE
TEST AREA #2
1956 BANKLINE
SPOTTS MONUMENT
WEST AUGER LINE
TEST AREA #4
EAST AUGER GROUP
OLD N.P.S. FENCELINE
LEVEE ROAD
LEVEE
CROWN OF LEVEE
A0 N100
A25 N100
A50 N100
A75 N100
A0 N75
A100 N75
A125 N75
A0 N50
A0 N25
A0 N0
A25 N0
A50 N0
A75 N0
A100 N0
A125 N0

4. The position of the swale relative to the foundations of the Rodriguez master house appeared to approximately replicate the position of the gap illustrated in Latrobe's 1819 sketch of Battery 3 and the Rodriguez Estate (Figure III-4).

Test Excavations

Test Pit A46, N73

This was the first test pit dug in Test Area 1. It was placed on the north shoulder of the surface depression directly over an intense magnetometer anomaly of limited size that had been seconded by an equally pronounced metal detector "hit." The unit was situated on the upper slope of the present west bank of the Rodriguez Canal (Figures III-6, III-8).

This 2 by 2 m unit was excavated in arbitrary 10 cm levels measured from a vertical datum line set 34 cm above ground surface, an elevation equal to the southwest corner of the Rodriguez main house (Figure III-9). When water problems caused by constant rain became excessive, full excavation of the test unit was stopped at 60 cm below datum and restricted to a 50 by 50 cm sump test to a depth of 110 cm.

Beyond 110 cm, further exploration was conducted with two auger holes dug in the east and west halves of the pit to a depth of 155 cm below datum.

Stratigraphy

(Datum: 34 cm above ground surface, 2.4 m above MSL)

1. 34-50 cm below datum - This is a dark brown, silty clay loam topsoil. It dips down toward the east to reach a maximum depth of 68 cm. The stratum was found to contain a relatively large quantity of mixed historic and recent trash, including pieces of tar paper and asbestos. A large wire, nearly

1 m in length, and a sizable bolt were found to be the cause of the strong metal readings picked up by both the magnetometer and the metal detector.

2. 50-62 cm below datum - The next layer consists of sterile tan levee sand that was apparently deposited to provide a base for the adjacent pathway farther to the west. It dips slightly to the east and pinches out roughly 40 cm west of the east wall of the test unit.

3. 62-89 cm below datum - This gradually dipping level is a brown silty clay loam containing soft red brick fragments and a few historic artifacts of mixed origin. It corresponds closely to the A1 horizon in Auger Test 5 identified by the Soil Conservation Service (Appendix A). It probably represents a combined spoil and topsoil level that was at the surface prior to the National Park Service's pathway construction.

4. 89-145 cm below datum - At the top of this level, there is a change to a grayish brown clay. It contains a scatter of nineteenth-century artifacts and small brick fragments. The level closely resembles the B1 horizon identified by the Soil Conservation Service in Auger Test 5 (Appendix A).

5. 145 cm and below - Greenish gray clay or a similar water saturated clay appears at this depth. The identification is not absolute, and it may simply represent the lower gray clay found in Auger Test 5 (Appendix A).

Figure III-6. View to the north-northeast along the Rodriguez Canal toward Test Areas 1 and 3 prior to the start of excavation. Test Area 1 is in the mid-distance beyond the bush on the left. Test Area 3 is located forward of the large oak trees. The small wooden flagpoles in the foreground mark the locations of "hits" recorded by the metal detector.

Photograph by Ted Birkedal, National Park Service.

Figure III-7. View to northwest of the location of Test Area 3 with test excavations under way.

Photograph by Ted Birkedal, National Park Service.

Figure III-8. Test Area 1, plan view of the test excavations.

Drawn by Lyndi Hubbell for the National Park Service.

TEST AREA #1
CHALMETTE UNIT

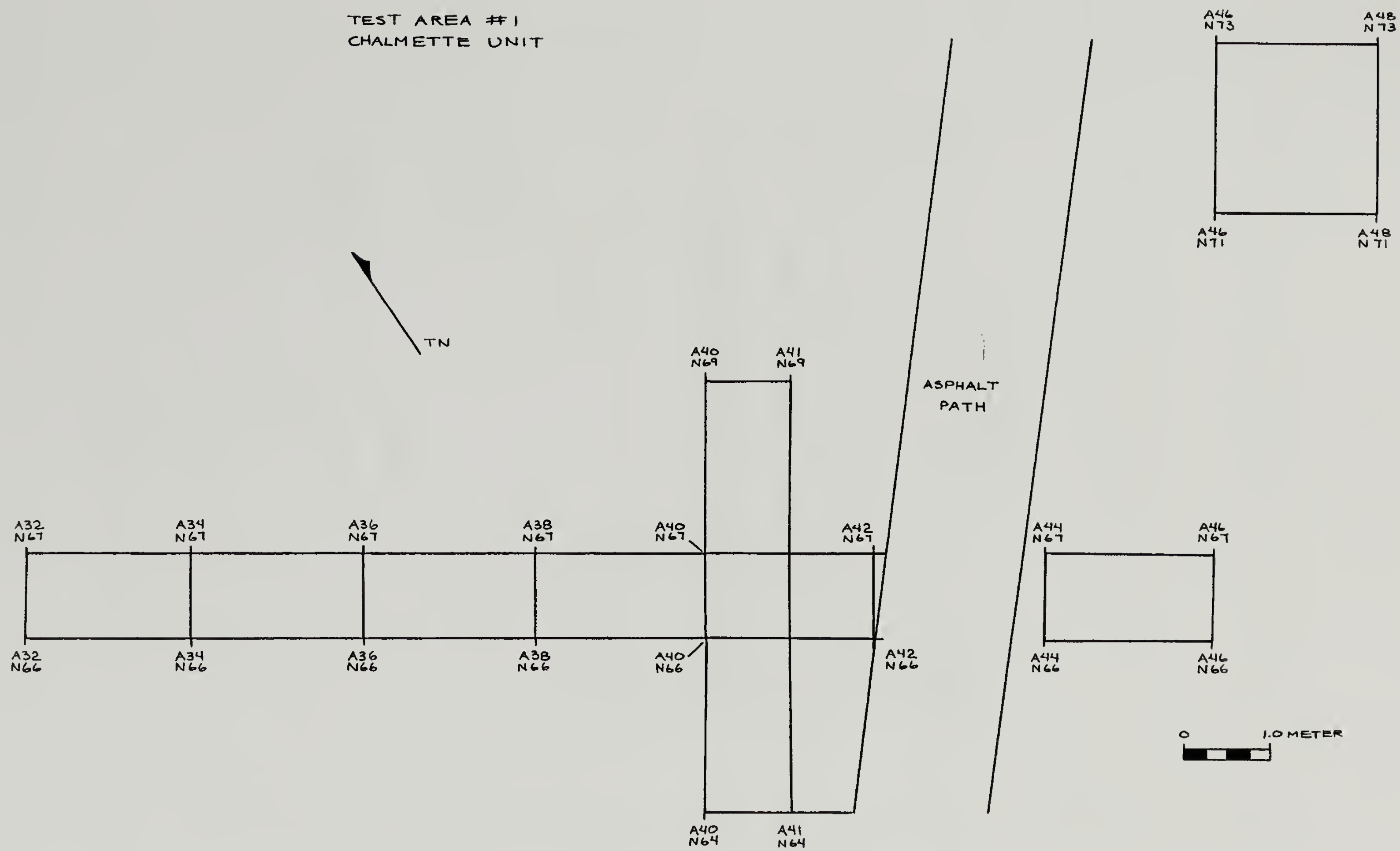
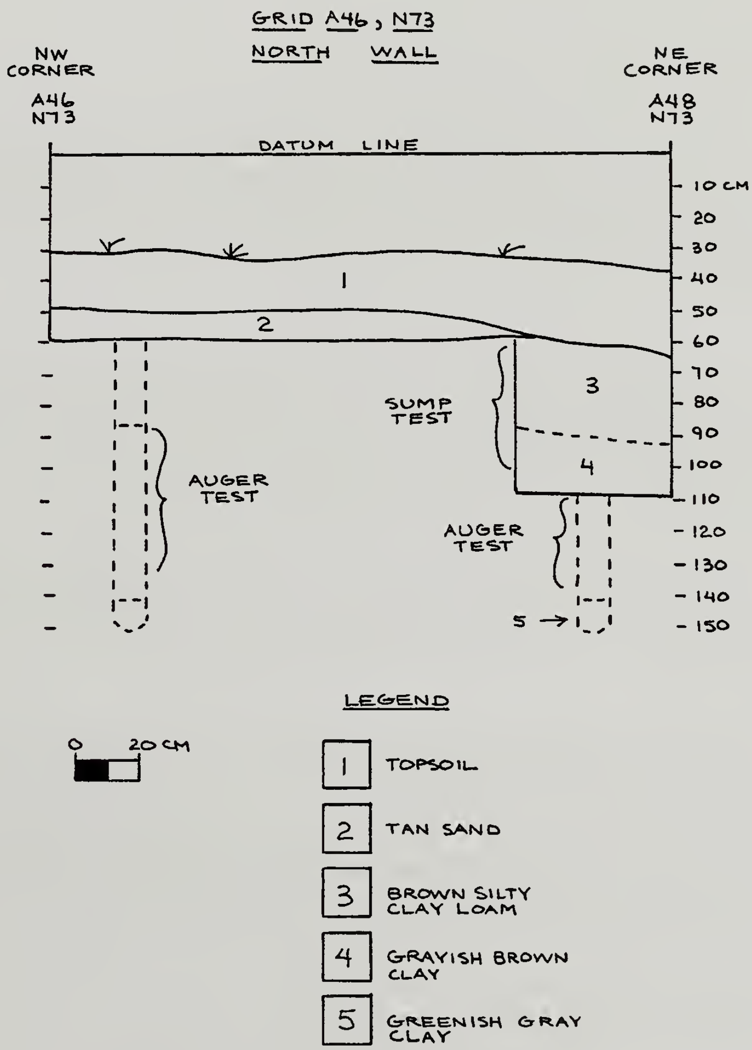


Figure III-9. Test Area 1, profile of Grid A46, N73.

Drawn by Lyndi Hubbell for the National Park Service.

TEST AREA #1, CHALMETTE UNIT



Stratigraphic Observations

This unit exposed the stratigraphy of the west upper bank of the Rodriguez Canal. In many ways, though not exactly, it resembles the sequence identified by the Soil Conservation Service in Auger Test 5 (Appendix A). The top of the grayish brown clay most likely represents the ground surface as it appeared in the middle to late nineteenth century.

Test Trench A32, N67

This shallow 12 m test trench was laid out to bisect the surface depression mentioned earlier (Figure III-8). By approaching from well behind the swale in a west-to-east direction, it was hoped that this trench would lead us into the soil changes that were expected to mark Battery 3. As it turned out, this was a false expectation.

The westernmost units were simply excavated below the present humic zone to an underlying, compact brown-mottled gray clay. The top of this clay continued on a relatively level plane until it reached the eastern half of Unit A38, N67, where it began to noticeably dip toward the Rodriguez Canal. At the base of the slope, and after a drop of 20 cm, was a shallow ditch. This ditch was concave in profile and cut into the clay to a depth of 10 cm. It exhibited a north-northeast alignment and measured 25 cm in width. This ditch was followed 2 m to the south and another 2 m to the north in perpendicular extensions of the main east-west trench.

Because the easternmost units exhibited a more complex stratigraphy and were dug to a slightly deeper depth than the other units, both Unit A40, N67, a 2 by 1 m test segment, and Unit A44, N67, a second 2 by 1 m test segment, will be accorded separate stratigraphic treatment (Figure III-10). A National Park Service pathway separated these last two sections of the test trench.

Stratigraphy of Unit A40, N67

(Datum: 25 cm above ground surface, 2.4 m above MSL)

1. 25-36 cm below datum - The upper soil is a dark grayish brown topsoil of silty clay loam. Its top surface inclines west to east. A 4 cm thick lens of crushed oyster shell occupies the base of the level. This small lens pinches out 36 cm west of the asphalt path margins.

2. 36-44 cm below datum - The humic zone is followed by a sterile tan sand. This sand lens is identical to the one noted in Test Pit A46, N73. The sand pinches out 46 cm to the west of the path edge, on the eastern margin of the concave ditch.

3. 44-48 cm below datum - The next level is a thin trashy level of grayish brown to dark gray clay or clay loam. It exhibits numerous small brick fragments and appears to pinch out before reaching the concave ditch to the west.

4. 48-70 cm below datum - The final level exposed in the unit is dark gray mottled clay soil with fine brick-fragment inclusions.

Stratigraphic Observations

(See section for Test Trench A44, N67)

Stratigraphy of Unit A44, N67

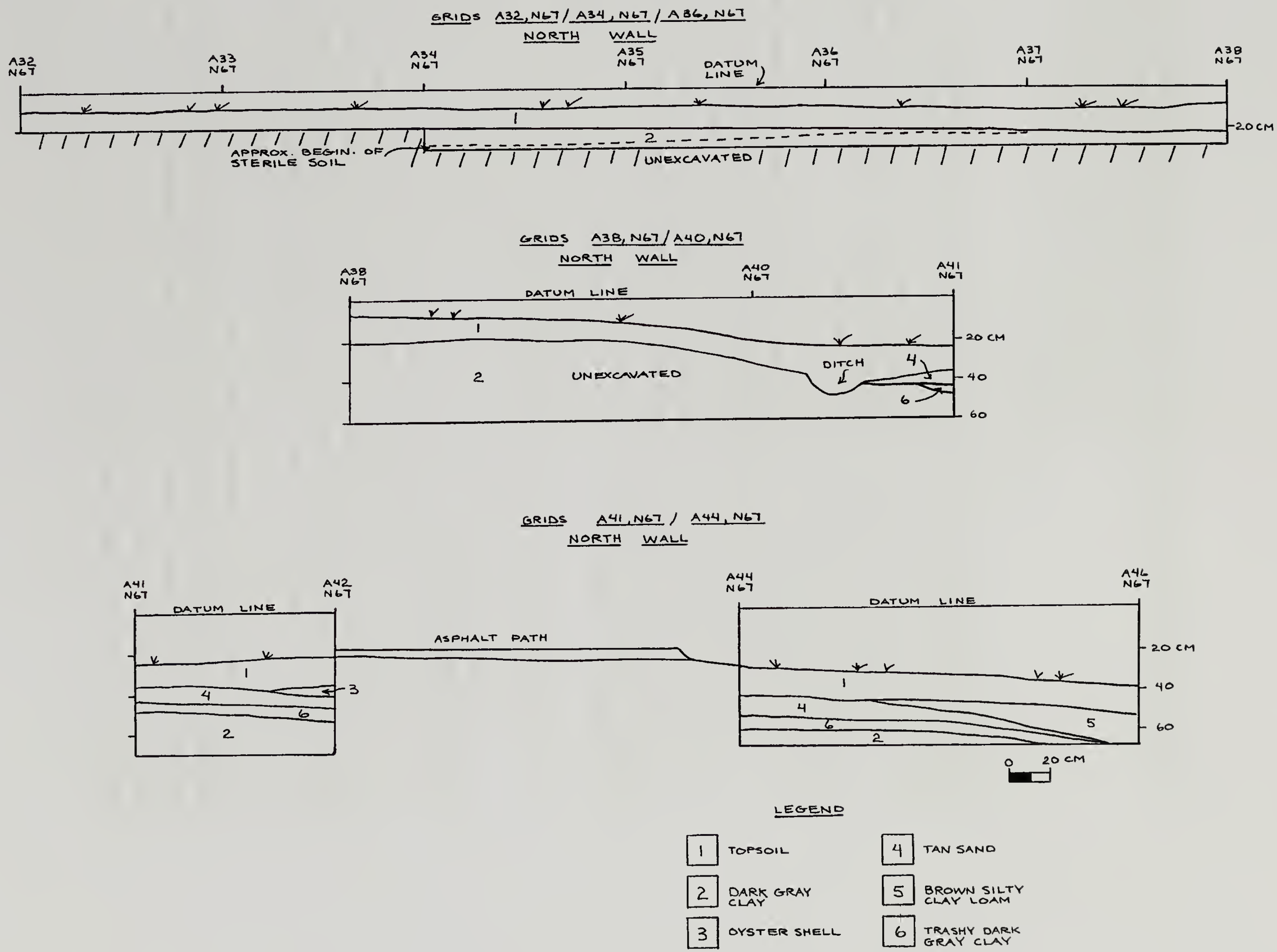
(Datum: 30 cm above ground surface, 2.4 m above MSL)

1. 30-44 cm below datum - The topmost soil is a silty clay loam topsoil that exhibits a dark grayish brown color. It contains a mixed assortment of artifacts and soft red brick fragments.

Figure III-10. Test Area 1, profiles of Grids A32, N67; A34, N67; A36, N67; A38, N67; A40, N67; N41, N67; and A44, N67.

Drawn by Lyndi Hubbell for the National Park Service.

TEST AREA #1, CHALMETTE UNIT



2. 44-54 cm below datum - A tan sterile sand follows the topsoil. It dips toward the Rodriguez Canal and pinches out at the eastern end of the trench to meet the base of the asphalt visitors' path. Brick fragments and artifacts are both common in this horizon.

3. 54-60 cm below datum - A thin, trashy, grayish brown to dark gray clay occurs beneath the sand. It contains numerous small brick fragments together with historic artifacts. This deposit also dips toward the canal.

A brown silty clay loam overlays the eastern half of the sterile sand. It expands in thickness as the sand and the layer below play out. At the far eastern wall of the trench, this layer reaches a depth of 70 cm.

4. 60-70 cm below datum - The lowermost soil exposed in the trench is a dark gray,mottled clay. It contains scattered fine brick fragments.

Stratigraphic Observations

The upper humic zone exhibited in both excavation units—A40, N67 as well as A44, N67—is of recent origin and postdates the asphalt path construction (Figures III-9, III-10). The sterile sand level was obviously laid down to form a base for the path. Similarly, the small shell lens represents another visible section of the path base. In addition, the brown silty clay loam lens in the eastern half of A44, N67 is also viewed as a product of path construction or recent landscaping. It may have been deposited in order to reduce the gradient between the path and the bottom of the Rodriguez Canal. This intrusive soil resembles the A1 horizon in the Soil Conservation Service's Auger Test 5 (Appendix A). The latter is identified as a mixture of spoil and topsoil.

The dark gray level below the sand seems to represent a deposit of sheet trash and original surface soils that have accumulated on the west bank of the Rodriguez Canal.

General Observations

The mottled dark gray clay that follows the topsoil horizon in the trench between A32, N67 and A40, N67 (and represents the lowermost level exposed in Units A40, N67 and A44, N67) corresponds closely to the B1 or subsoil horizon identified by the Soil Conservation Service in Auger Test 1 (Appendix A). Although this soil has probably been subjected to considerable disturbance by the actions of man, erosion, and the natural shrink-swell factor, its development does not appear to postdate the Battle of New Orleans. As support for this view, it is important to note the upper surface of the brick foundations of the nearby Rodriguez master house occur at approximately the same depth below ground surface as the top of this soil. Moreover, Larry Trahan of the Soil Conservation Service, after studying the area west of the Rodriguez Canal, has concluded that soil loss or gain since the period of the Battle of New Orleans has been negligible (Appendix A).

The downward slope that becomes noticeable in the eastern half of Unit A38, N67 most likely marks the beginning of the upper west bank of the Rodriguez Canal (Figure III-10). Sometime in the late 1950s, this slope was interrupted by the construction of the asphalt path. Sand was brought in to provide a level, raised base for the path. Also, some surface spoil may have been added to the bed of the Rodriguez Canal on the east side of the path to reduce the gradient and thereby limit the potentially damaging effect of water erosion upon the path base. In addition, a shallow ditch was cut on the west side of the path to draw run-off away from the path surface.

The trashy, dark gray clay below the basal sand of the path is interpreted as a wash deposit that collected over a long period of time during the nineteenth century, and the ceramics recovered from this horizon support this view (Chapter 19, this report). A dark brown, almost black, cast exhibited in the upper 2 cm of this soil horizon suggests that it once supported a vegetative cover. In 1890, when the canal served as an approach to the Chalmette Monument, a disgusted visitor commented on the weeds and underbrush that grew in profusion in the canal (Huber 1983:26).

The stratigraphic sequence observed in Unit A46, N73 samples the fill that has accumulated against the upper west bank of the Rodriguez Canal. To judge from its artifact content, the brown silty clay loam of this sequence probably dates from the same time span as the trashy dark clay found in Units A40, N67 and A44, N67. Similarly, the grayish brown clay that underlies the loam appears to correspond to the lowermost gray clay exposed in Units A40, N67 and A44, N67, and it is, in all probability, a wash derivative from this latter soil. Both of these lower clays produced ceramic collections that are characteristic of the earliest decades of the nineteenth century.

The shallow swale that first attracted attention to Test Area 1 apparently marks the location of an old, but relatively slight, erosional irregularity in the original bank line of the Rodriguez Canal. However, localized variations in recent landscaping efforts associated with the path construction, the emplacement of a septic tank to the south, regrading, and an adjacent eastward rechannelization of the Rodriguez Canal have also played a part in the creation of this feature (Figure III-1; Map III-3). For instance, the south edge of the swale is coincident with a raised apron of leveled spoil that surrounds the septic tank. Thus, in truth, the swale is not a single feature, but several disparate features that, in combination, produce the illusion of a broad swale in Test Area 1.

Test Area 2

Introduction

Test Area 2 was established 40 m south of Test Area 1 (Map III-3; Figure III-11). Two factors attracted attention to this area. First, the area contains a shallow depression with a roughly subrectangular plan (Figures III-1, III-3). This depression had been initially noted during a scan of false-color aerial imagery of the park unit. It was easily found on the ground, for it measures 9 by 11.4 m and its center lies 5 to 6 cm below the surrounding ground surface. Early magnetometer readings also pointed to this location as a likely candidate for testing. These readings, once contoured, showed a large C-shaped magnetic anomaly at almost the exact same location as the surface depression.

Since the surface depression and the magnetic anomaly both fell at a location that closely coincided with the initial estimated position for Battery 2, further testing was considered mandatory. Testing at this location was concurrent with the work at Test Area 1.

Test Excavations

Test Trench A27, N26

This 1 by 2 m trench was placed at the surface depression's northwest corner, parallel to the west inside edge. The idea was to bisect downward-trending stratigraphy that might betray the presence of a filled hole or swale associated with the suspected battery position. Excavation proceeded by arbitrary 10 cm levels (Figure III-12).

Stratigraphy

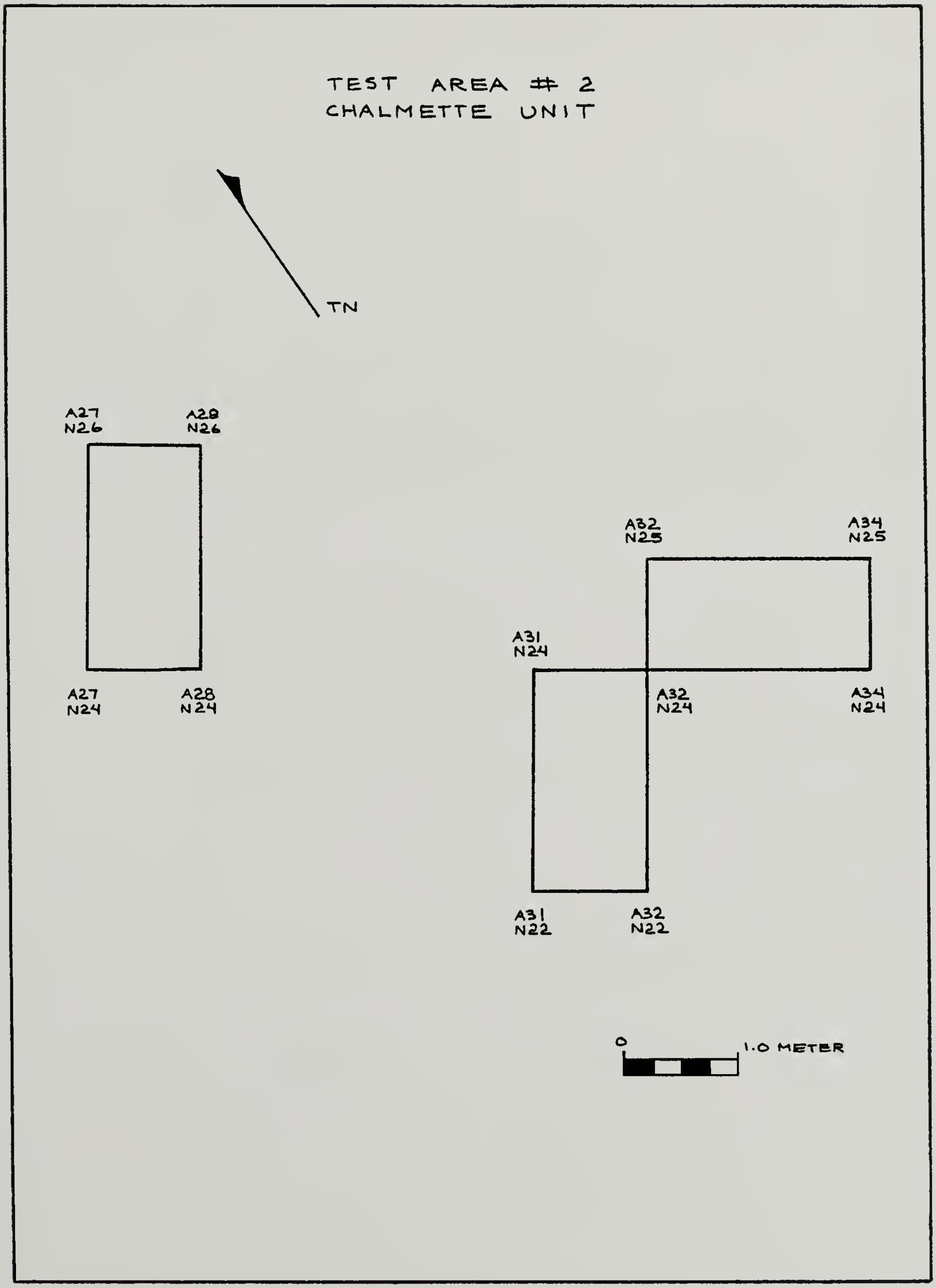
(Datum: 20 cm above ground surface, 2.8 m above MSL)

1. 20-30 cm below datum - The first level is a dark grayish silty clay loam. This topsoil contains grass roots and soft red brick fragments.

2. 30-80 cm below datum - This is a relatively uniform soil horizon. It consists of gray to gray brown silty clay loam. Brown mottles in the soil increase with depth. Old root channels are common and, in the lower portion of the horizon, partially decayed roots are still present. Small brick fragments occur throughout the horizon, but other cultural debris is scattered and infrequent.

Figure III-11. Test Area 2, plan view of the test excavations.

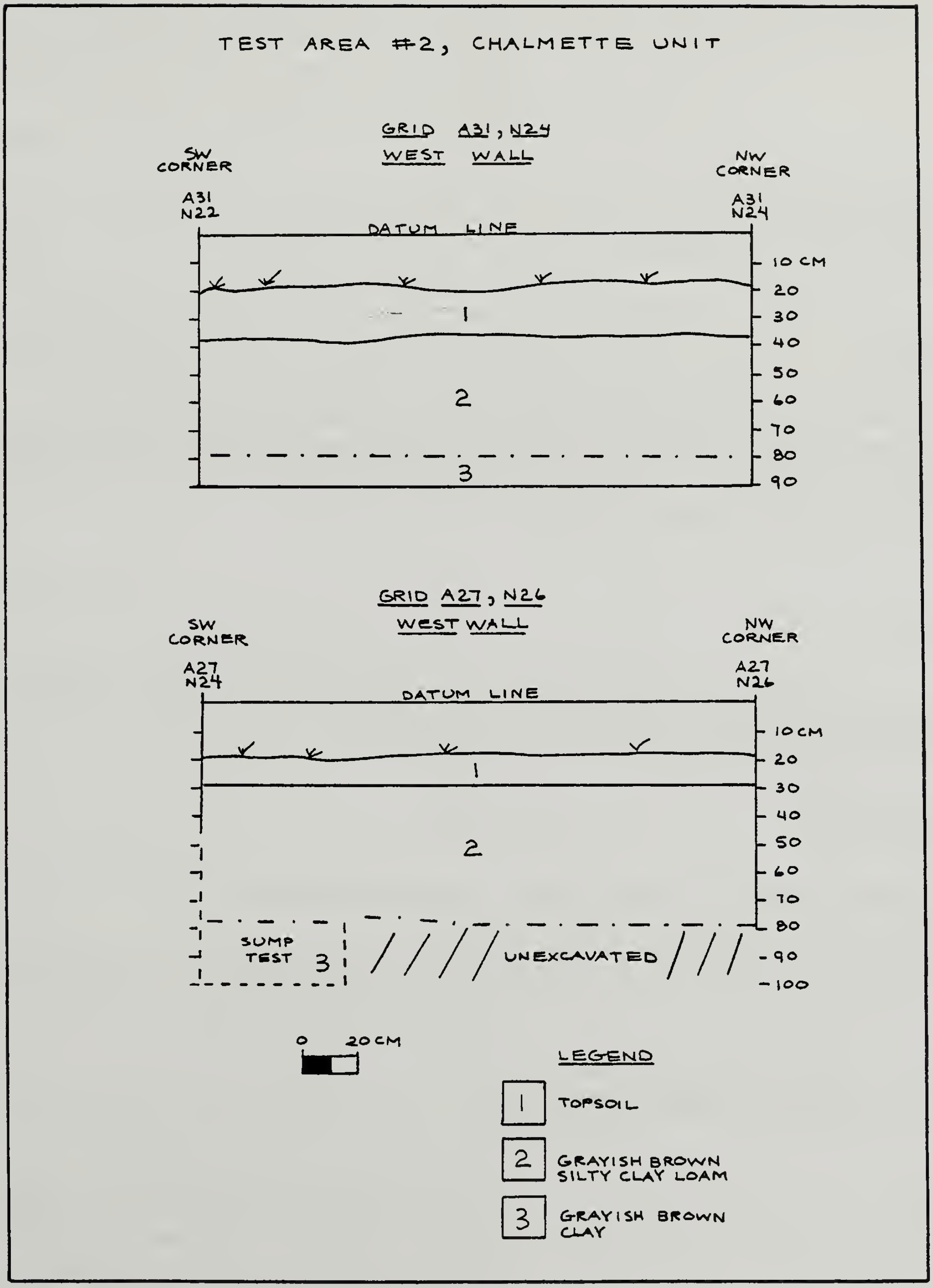
Drawn by Lyndi Hubbell for the National Park Service.



TEST AREA # 2
CHALMETTE UNIT
TN
A27
N26
A28
N26
A27
N24
A28
N24
A32
N25
A34
N25
A31
N24
A32
N24
A34
N24
A31
N22
A32
N22
0
1.0 METER

Figure III-12. Test Area 2, profiles of Grids A31, N24 and A27, N26.

Drawn by Lyndi Hubbell for the National Park Service.


TEST AREA #2, CHALMETTE UNIT
GRID A31, N24
WEST WALL
SW CORNER
NW CORNER
A31 N22
A31 N24
DATUM LINE
10 CM
20
30
40
50
60
70
80
90
1
2
3
GRID A27, N26
WEST WALL
SW CORNER
NW CORNER
A27 N24
A27 N26
DATUM LINE
10 CM
20
30
40
50
60
70
80
90
100
SUMP TEST
UNEXCAVATED
0 20 CM
LEGEND
1 TOPSOIL
2 GRAYISH BROWN SILTY CLAY LOAM
3 GRAYISH BROWN CLAY

3. 80-100 cm below datum - Here the silty clay loam is followed by a grayish brown clay. This horizon appears to be nearly sterile. Only very small brick bits are visible and only near the top of the soil level.

Stratigraphic Observations

The soil sequence within this trench closely resembles the one found in Auger Test 2 (Appendix A). The silty clay loam found between 30 and 80 cm corresponds to the B1 and B2 horizons described for this soil auger test. In turn, the lower clay horizon matches the B3 horizon in Auger Test 2. Other than scattered artifactual material of mixed origin, the trench revealed no archeological features or deposits. No dipping stratigraphy was observed: All layers were characterized by horizontal bedding.

Test Trench A31, N24

Test trench A31, N24 was dug toward the central east end of the surface depression. It also measured 1 by 2 m (Figures III-11, III-12).

Stratigraphy

(Datum: 20 cm above ground surface, 2.8 m above MSL)

1. 20-35 cm below datum - The upper level is a silty clay loam topsoil horizon. It is dark grayish brown and contains small brick fragments and grass roots.

2. 35-70 cm below datum - Below the topsoil is a gray to gray brown silty clay loam horizon. Former root channels and decayed tree roots are prevalent. Brown mottling is visible toward the bottom of the horizon. Small brick fragments are common throughout the level. Artifacts and other cultural materials, however, are infrequent.

3. 70-80 cm below datum - This next level is a grayish brown clay. Except for very small brick bits, the horizon appears sterile.

Stratigraphic Observations

The profile exposed by this trench essentially repeats the one found in Test Trench A27, N26. No signs of historical features were encountered.

Test Trench A32, N25

This trench was placed directly to the northeast and contiguous to Test Trench A31, N24. As with the other two, it measured 1 by 2 m (Figures III-11, III-13).

Stratigraphy

(Datum: 23 cm above ground surface, 2.8 m above MSL)

1. 23-40 cm below datum - The first horizon is a dark grayish brown topsoil. This is penetrated by grass roots and contains the ubiquitous small fragments of soft red brick.

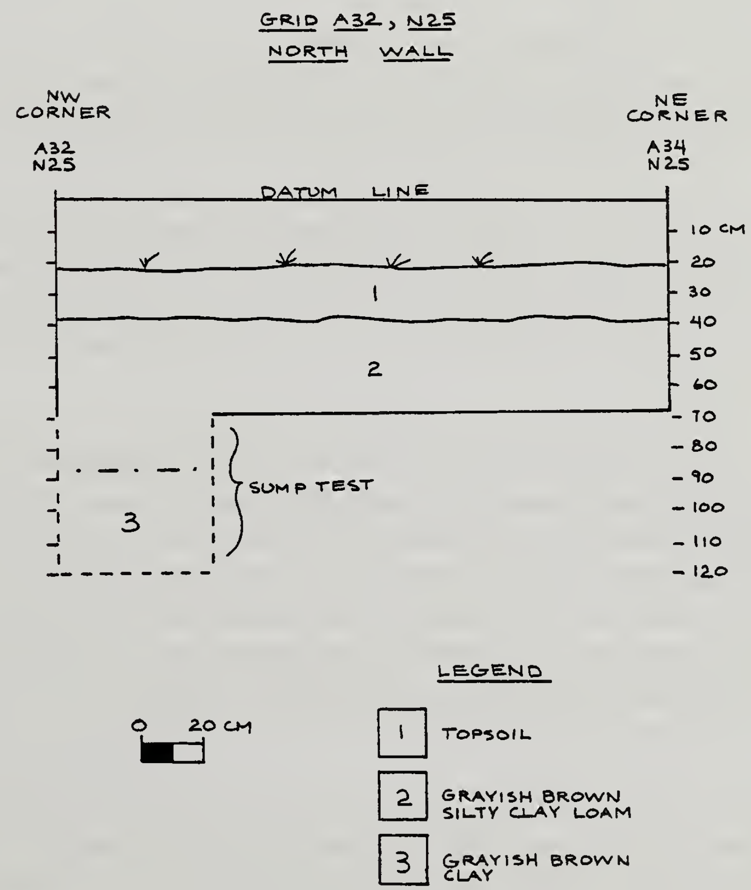
2. 40-90 cm below datum - As in the other test locations in Test Area 2, the topsoil is followed by a gray to gray brown silty clay loam. Root channels and decayed roots are common, especially toward the bottom of the horizon. Brown mottles in the soil also increase with depth. Small scattered brick fragments are the only historical debris evident in the horizon.

3. 90-100 cm below datum - This level is again a grayish brown clay. It is sterile except for the presence of a few fine bits of brick.

Figure III-13. Test Area 2, profile of Grid A32, N25.

Drawn by Lyndi Hubbell for the National Park Service.

TEST AREA #2, CHALMETTE UNIT



Stratigraphic Observations

The stratigraphic profile exposed in this trench is almost identical to the ones found in the other two trenches. Nothing in this profile indicated the presence of archeologically important strata.

General Observations

The test excavations in Test Area 2 yielded no signs of a former battery or any other historic feature. The upper 60 to 70 cm of soil in the tests produced a random scatter of artifacts and brick fragments. Most of these were found in the topsoil, but some were also encountered in the silty clay loam. Many of the lower artifacts probably originated as surface debris that subsequently worked down soil cracks and old root channels.

After excavation of the tests began, it was learned that the initial magnetometer readings for Block 6 were false. The second magnetometer survey of the block produced no C-shaped anomaly in the area of the surface depression. In fact, the vicinity of the surface depression can be best described as magnetically flat.

Subsequent examination of a 1938 photograph (Appleman 1938: Figure 4) of this part of the park unit gave a clue to the origin of the surface depression. The photograph shows a large pecan tree located in what appears to be the present area of the depression, one of a row of pecan trees that once lined the Rodriguez Canal in this sector. It would therefore seem probable that this intriguing depression is little more than an artifact of tree removal. The numerous decayed roots and former root channels encountered in the course of the test excavations tend to support this explanation.

There was no stratigraphic evidence of a former hole for the removal of a tree. Perhaps the hole was small or the stump was simply pulled or pushed out with heavy machinery. The subrectangular plan of the surface depression does bear a resemblance to a short, shallow bulldozer swath.

Test Area 3

Introduction

The group of test pits and test trenches that was dug in Test Area 3 proved to be the most important series in the entire research effort (Map III-3). This area was chosen for investigation after the excavations in Test Area 1 failed to reveal any signs of an archeological feature that would suggest the presence of a former gun-battery position.

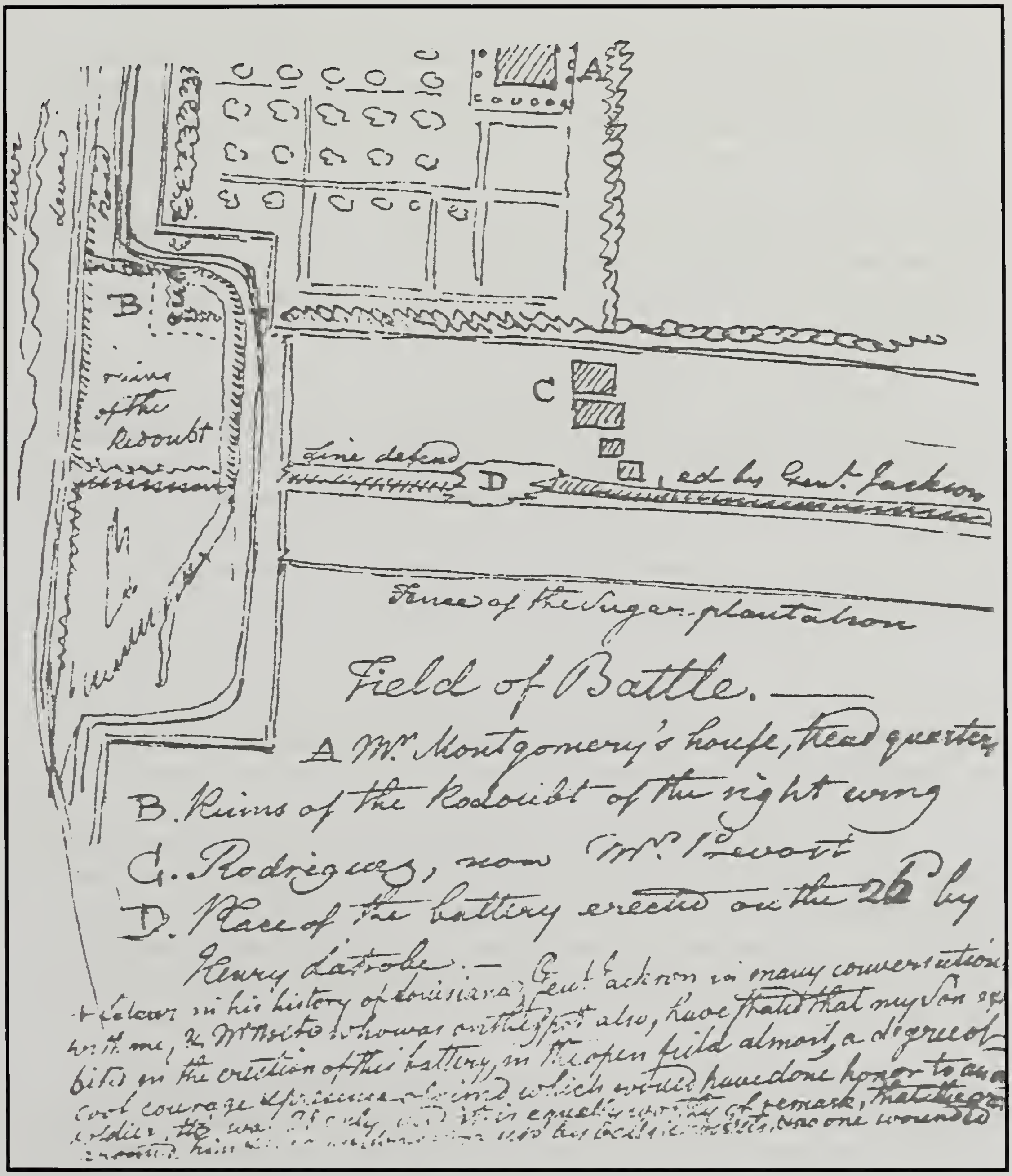
The reasons for testing this particular location were neither complex nor mysterious. The excavation team simply decided to ignore both the magnetic contours and subtle changes in the surface topography as potential clues and place full trust in Benjamin Latrobe's 1819 sketch (Figures III-4, III-5) of the abandoned and dismantled battery, a sketch which Latrobe claimed was a "very accurate" view of this battle feature (Latrobe 1951:74). Latrobe, it must be emphasized, was not just another artist, but a man of uncommon ability who is ranked among the most notable architects and engineers of his age (Carter 1985:9-14).

To replicate Latrobe's perspective more exactly, we placed upright shovels in the southwest and southeast corners of the Rodriguez House foundations. We then crossed the canal and headed in an east-southeast direction in order to closely duplicate the 30°-60° perspective Latrobe had used in his sketch of the house. At a point 30 m (98.5 ft) from the canal we stopped, for we knew from a notation at the top of Latrobe's sketch that he had drawn the view from a fence that had run parallel to and east of the Rodriguez Canal at the time of his visit. Latrobe's sketch map of the southwest portion of the battlefield showed that this fence had been situated 30 (98.5 ft) to 36 m (118.1 ft) from the east bank of the canal (Figure III-14).

In Latrobe's sketch of the Rodriguez House complex and the adjacent pond and gap that marked the abandoned battery, the southwest and southeast corners of the main house were placed at the end of a line of sight that ran through the approximate center of the gap. Thus, we assumed that the archeological remains of Battery 3 must be positioned along this line of sight on the west bank of the present Rodriguez Canal.

Figure III-14. This sketch map from Benjamin Henry Latrobe's *Journals* (IV, February 16-26, 1819, p. 19 [Image MS2009]) shows the southwest corner of the New Orleans Battlefield as it appeared in 1819. The large "D" marks the "pond and a Gap" in the American line that occupies the former position of Battery 3. Note how the levee road makes a jog around the former area of the American redoubt and the south end of the American line.

Courtesy of The Maryland Historical Society.


River
Levee
Road
ruins of the Redoubt
Line defend
ed by Genl. Jackson
Fence of the Sugar plantation
Field of Battle.
A Mr. Montgomery's house, head quarters
B. Ruins of the Redoubt of the right wing
C. Rodriguez, now Mr. Prevost
D. Place of the battery erected on the 26 by
Henry Latrobe.—

At the completion of this exercise in perspective replication, we immediately dug an auger test at the projected location of Battery 3. This auger hole yielded tantalizing results. Beneath the topsoil was a 25 m thick layer of tan, sterile sand. This sand was identical to the sand fill that had been found in association with the asphalt path construction 18 m (59 ft) to the south in Test Area 1. What was striking here, however, was its depth. The sand was 15 cm thicker than any observed occurrence in Test Area 1. It was obvious that the sand had been used to fill some kind of surface depression or swale in the bank that would have altered the relatively level approach of the National Park Service walking path.

Subsequent to the auger test, a series of meter grids running from east to west, from A34, N85 to A44.5, N85, were laid out (Figure III-15). The idea was to approach the target feature from the west by following the top of the dark gray clay layer that was assumed to be a natural soil horizon in this sector. Any continuous and noticeable drop in the elevation of the surface of this layer would indicate that we were approaching the western edge of the filled-in hole we thought would mark Battery 3.

A second series of grids was also opened up 5 m to the north of the first series (Figure III-7). This grouping of six 1 m grids was defined on the northwest by A38, N92 and on the southeast by A41, N90. This grid series was laid out to explore a small, oblong magnetic anomaly that occurred at this location.

Removal of the 10 to 12 cm of topsoil in the southern trench revealed only one feature between Grids A34, N85 and A42, N85. This was a section of the shallow path-side ditch that had already been encountered in the excavations in Test Area 1. It measured 30 cm in width and had been dug 7 cm into the dark gray clay that underlay the topsoil. As in Test Area 1, the tan, clean sand associated with the pathway construction began on the ditch's east side.

This ditch segment contained a dark brown trash fill and produced an expended shotgun shell casing from near its bottom. Its east edge was located at A41, N84, and from the ditch segment's position relative to the one in Test Area 1, it was apparent that this ditch ran roughly parallel to the present pathway. More than likely, the ditch had been cut to drain water away from the path.

A second feature emerged at the base of the topsoil horizon in the northern grid grouping. This consisted of a small concentration of yellow pebbles that measured 30 by 45 cm. The top of the pebble deposit was 17 cm below ground surface. Again, this probably represented a recent feature, perhaps debris from the construction of the nearby path. It was located immediately east of A40, N91.

In the linear grid series to the south, the tan sand level under the topsoil became increasingly thicker east of A41, N85. At the west edge of the pathway, or A43.5, N85, it reached a maximum thickness of 27 cm. Further excavation showed that this sterile sand rested on an eastward-dipping, dark trashy layer of silty clay. Between A43.5 and A44.5, the top of the silty clay exhibited two parallel oblong indentations. Close examination of these depressions soon revealed that these were no more than the impressions of two side-by-side tires, most likely left by a heavy truck with dual rear wheels—perhaps the dump truck that had delivered the sand some twenty-five years earlier.

Excavation was then continued through the trashy silty clay into an underlying gray silty clay loam. Further excavation in this layer soon revealed the tops of several cypress palings. These formed a line with an orientation to the north-northeast.

To follow the palings, a new meter-wide trench was staked out to the north. This ran 6 m from A42.5, N85 to A42.5, N91. As more features came to light, including a second line of palings, this trench was eventually extended westward and connected to the original group of northerly exploratory grids (Figure III-15). With certain exceptions, largely confined to the first 30 cm below ground surface, excavation proceeded by means of natural levels. Most of the fill was removed by careful troweling. Screening was attempted at intervals, but the constant rains combined with the gummy nature of the soils made this a nearly impossible task.

Because the formal excavations extended below the water table to a maximum depth of 75 cm below ground surface, a four-horsepower pump was a constant companion to the work (Figure III-16). A gradually sloping sump trench was dug along the east wall of the north-south trench to facilitate the pumping effort. At its southern end, this sump trench reached a depth of 115 cm below ground surface.

Figure III-15. Test Area 3, plan view of the test excavations.

Drawn by Lyndi Hubbell for the National Park Service.

TEST AREA # 3
CHALMETTE UNIT

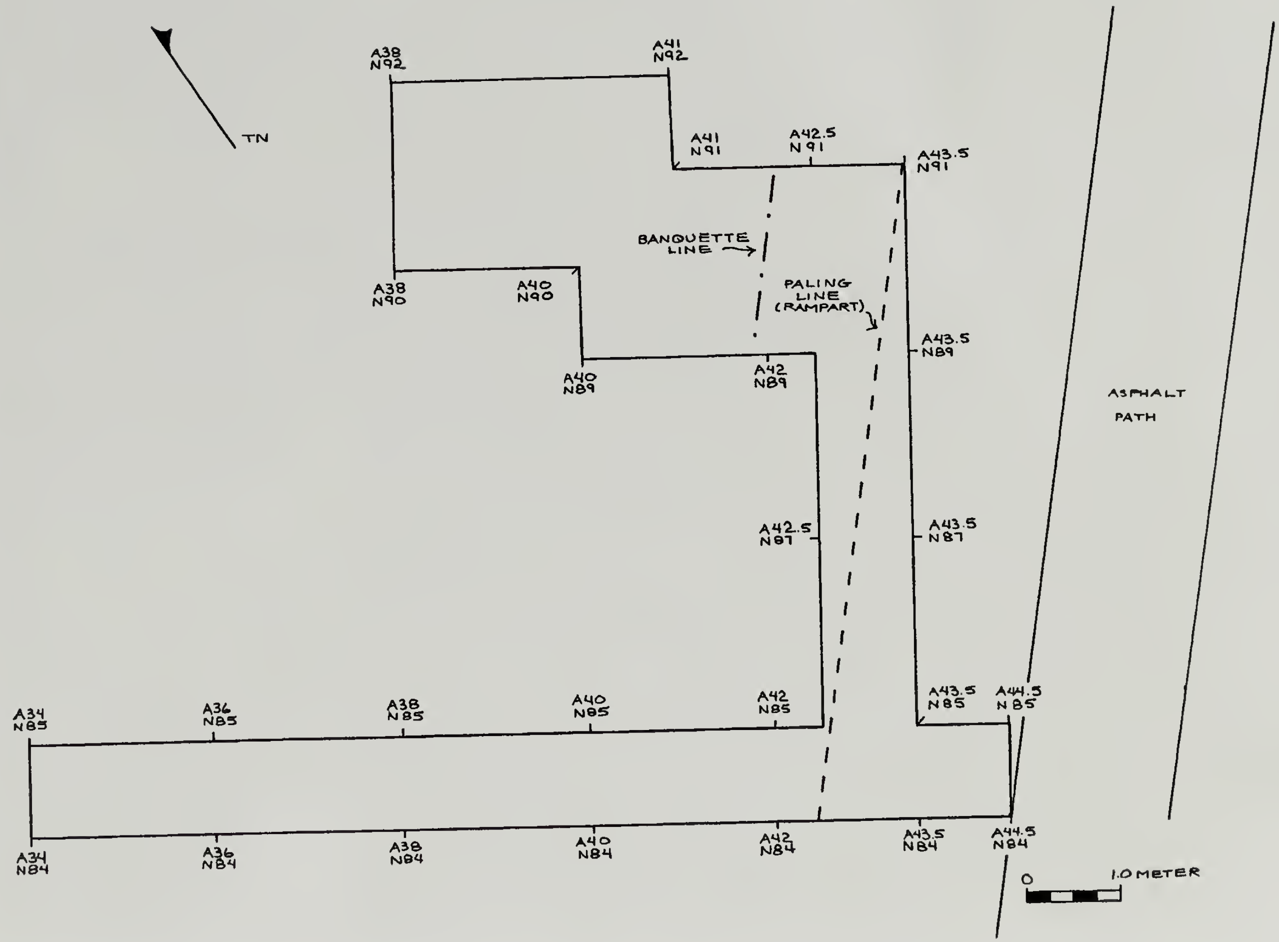


Figure III-16. Mike Comardelle of the Louisiana Archeological Society in the main trench of Test Area 3. Note the hose at his feet leading to the pump. The small wooden flagpoles mark the paling positions along the rear of the American parapet. The view is to the south-southwest.

Photograph by Ted Birkedal, National Park Service.

The pages that follow further document and interpret the findings in Test Area 3. The tests at this location encountered a hole or "gap" in the west bank of the Rodriguez Canal that conformed closely to the type of feature that was expected to mark the former location of Battery 3. Nothing in the surface topography of the area indicated the presence of this feature because the builders of the National Park Service pathway in the late 1950s had viewed the remnant swale as an impasse to the construction of a level walkway. Consequently, they had gone to great efforts to obliterate the telltale swale by filling it with clean levee sand. Their efforts were in vain, however, for it was the depth of this sand fill that provided the first substantive archeological clue in the search for Battery 3.

The Stratigraphy of the South Profile

This section documents the stratigraphy exposed in a 2.5 m section of the south wall of the southern east-west trench, between A41, N84 and A43.5, N84 (Figures III-15, III-17).

Stratigraphic Description

(Datum: 17 cm above ground surface, 2.5 m above MSL)

1. 17-30 cm below datum - This level is a dark grayish brown silty clay loam topsoil. It contains grass roots and soft red brick fragments. It averages 10 cm in thickness.

2. 30-55 cm below datum - This next stratum is a tan sterile levee sand that has been obviously added to the original soil sequence to provide a level base for the National Park Service walkway. It displays a maximum thickness of 27 cm on the eastern end of the profile; on the west, it becomes increasingly thinner and plays out as it approaches A41, N84.

3. 55-60 cm below datum - Stratum 3 is a dark grayish brown to dark gray silty clay (Soil Sample 3 in Appendix B). This level has a high artifact content and has the appearance of a trash deposit. It averages 5 cm in thickness, but in places it reaches a maximum thickness of 8 cm. On the west side of the profile, it is somewhat indistinct and emerges from the top of the underlying dark gray clay. In the first 1.5 m, from west to east, it drops a total of 28 cm before leveling out. The upper 2 cm of the stratum is dark grayish brown, the lower part is dark gray. However, there is no sharp break in color: The shift is gradual.

4. 32-92 cm below datum - Stratum 4 (western two-thirds of profile) is relatively sterile. It is a gray to dark gray clay with fine brown mottles. Its top surface follows a gradual slope toward the cypress paling line. The stratum ends abruptly 4 to 5 cm west of this line.

5. 60-80 cm below datum - This soil horizon (Stratum 5) is a gray silty clay loam with brown mottles. It contains a high number of artifacts and a sizable quantity of soft red brick fragments. It begins as a narrow lens in the west half of the profile where it emerges between Strata 3 and 4.

6. 80-92 cm below datum - Stratum 6 only occurs to the east of the cypress paling line. It consists of a gray silty clay loam that is very similar to that found in Stratum 5. The only clear difference is that this level exhibits light gray pockets and streaks that indicate a higher water content. The break between Stratum 5 and Stratum 6 is somewhat indistinct and appears irregular. Small brick fragments occur in this level, but the overall artifact content is relatively low.

Figure III-17. Test Area 3, south profile.

Drawn by Lyndi Hubbell for the National Park Service.

TEST AREA #3 CHALMETTE UNIT

SOUTH PROFILE

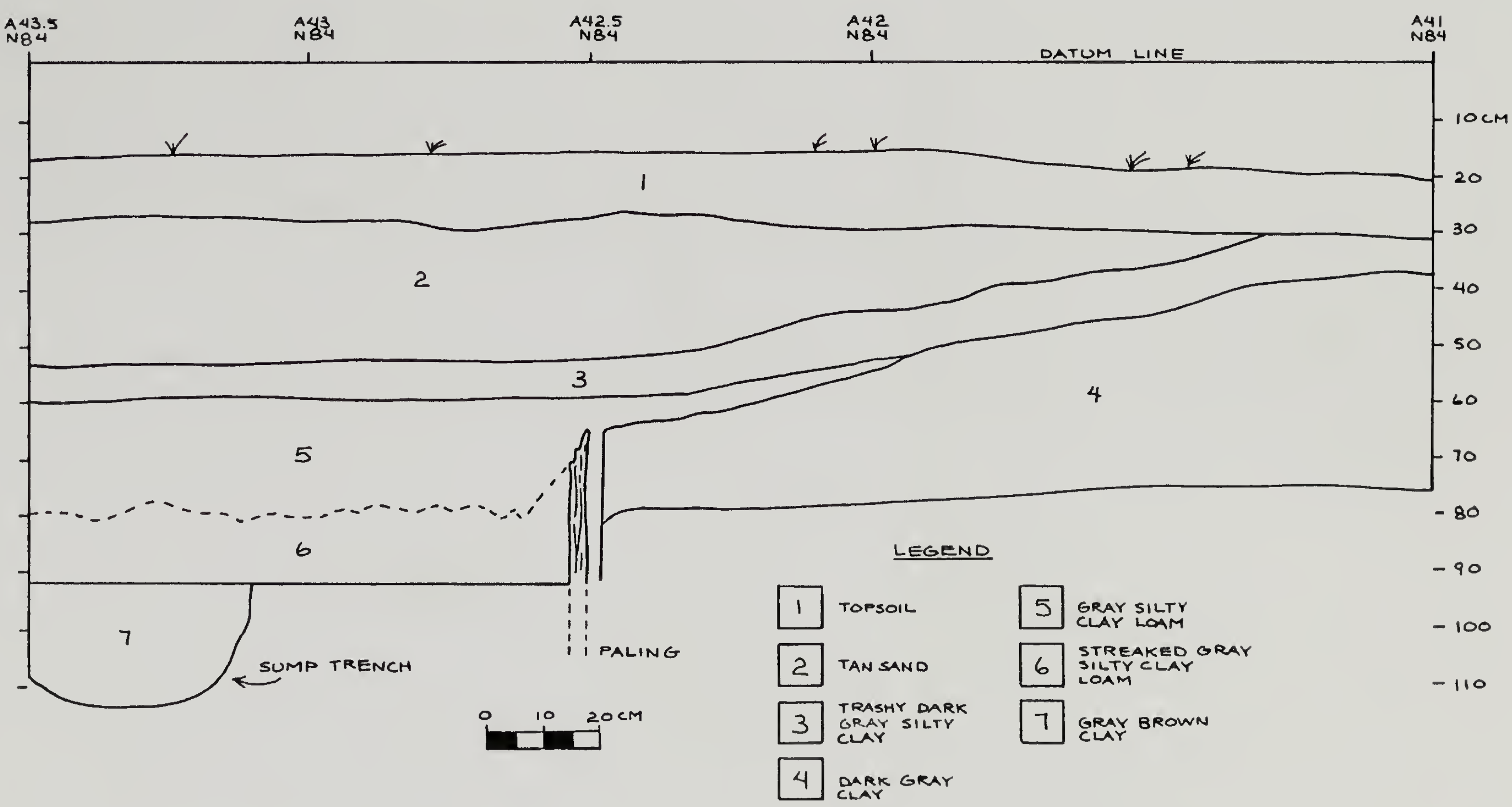
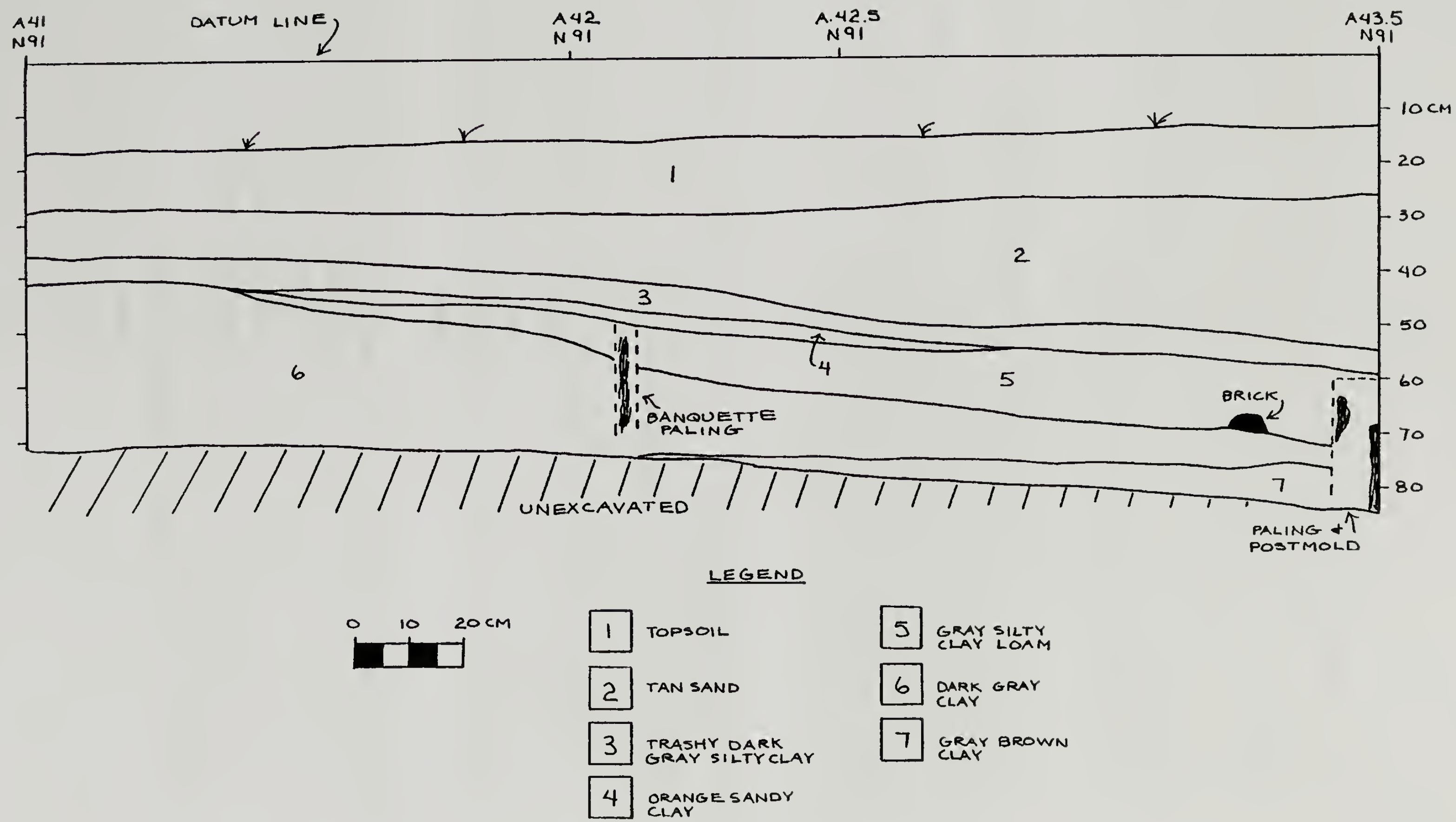


Figure III-18. Test Area 3, north profile.

Drawn by Lyndi Hubbell for the National Park Service.

TEST AREA #3, CHALMETTE UNIT
NORTH PROFILE



7. 92-115 cm below datum - This level was only exposed in the sump trench. The stratum is a gray brown (mottled) clay. It contains a few scattered brick flecks, but is comparatively free of artifacts. The lowest depth given for this horizon represents no more than the lowest depth of excavation.

The Stratigraphy of the North Profile

The north profile in Test Area 3 is very similar to the south profile wall (Figure III-18). There are a few differences, but these are minor. The basic sequence is the same and this is described below. The profile spans the 2.5 m between A41, N91 and A43.5, N91.

Stratigraphic Description

(Datum: 14 cm above ground surface, 2.4 m above MSL)

1. 14-25 cm below datum - The first stratum is a dark grayish brown silty clay loam topsoil. This topsoil displays an average thickness of 13 cm. It contains scattered small brick fragments and grass roots.

2. 25-55 cm below datum - As in the south profile, a thick layer of tan sterile levee sand follows the topsoil. It is less than 10 cm thick on the west and expands to a maximum thickness of 30 cm on the east edge of the profile wall.

3. 55-59 cm below datum - This thin eastward-dipping level is identical to Stratum 3 in the south profile. It never exceeds 6 cm in thickness and is comprised of silty clay. The level grades from dark grayish brown at the top to dark gray at the bottom. Small brick fragments and artifacts are common.

4. 52-55 cm below datum - Stratum 4, an orange sandy clay, only occupies the middle portion of the profile. It is 140 cm in length and pinches out at both ends. The maximum thickness exhibited by the level is 3 cm. The lens's orange color and sandy texture is produced by a high density of small bits of soft red brick.

5. 59-74 cm below datum - This stratum corresponds to Stratum 5 in the south profile. It consists of mottled gray silty clay loam. The layer begins as a thin lens 40 cm east of A41, N91 and slopes gradually to the east. It contains numerous fragments and chunks of soft red brick. The artifact content is also high.

6. 42-75 cm below datum - Stratum 6 appears to be a natural soil horizon of dark gray clay. Its upper surface slopes down toward the east and, at the same time, the stratum narrows from 33 cm in thickness to 4 cm in thickness. The eastern edge of the level abuts with a cypress paling postmold. It contains a few brick flecks and fragments. The lower part of the stratum is essentially sterile.

7. 75-85 cm below datum - The last stratum of the exposed sequence consists of a gray brown clay. It is identical to Stratum 7 found in the south profile. This soil horizon appears to be a naturally occurring soil. Its upper surface is relatively level. With the exception of a few brick fragments, the horizon is sterile.

The Stratigraphy of the West Profile

The west profile wall spans the majority of the distance between the south and north stratigraphic profiles. It starts on the south at A42.5, N85 and ends on the north at A42.5, N89 (Figures III-15, III-19). This 4-meter stratigraphic section cuts perpendicularly across the same strata that have been described earlier. Here the strata are viewed face on, rather than from the side. The resultant profile appears more static, but it is nonetheless informative.

Stratigraphic Description

(Datum: 15 cm above ground surface, 2.4 m above MSL)

1. 15-25 cm below datum - The first stratum is a dark grayish brown silty clay loam topsoil. It contains scattered fragments of soft red brick.

2. 25-52 cm below datum - This is the same tan, sterile levee sand that dominates the south and north profiles. The sand is 27 cm thick on the south end of the profile; on the north end, it decreases to a thickness of 21 cm.

3. 52-63 cm below datum - This trashy, artifact-bearing level correlates with what is designated Stratum 3 in both the north and south profiles. It is a dark grayish brown to dark gray silty clay. The first 2 to 3 cm of the horizon is darker than the lower part. In depth, the stratum rises 9 cm from the south to north on the 4 m profile wall.

4. 63-70 cm below datum - Stratum 4 is a gray mottled silty clay loam. It corresponds to Stratum 5 in the south and north profiles. Artifacts and fragments of soft red brick are common in this level. The base of this level varies between 70 cm below datum on the south to 64 cm below datum on the north.

5. 70-93 cm below datum - This stratum is a dark gray clay. Though it exhibits some artifact content, it appears to be a natural soil and not a cultural deposit. The stratum corresponds to Stratum 4 in the south profile and Stratum 6 in the north profile. The bottom of the stratum rises 19 cm from the south to the north end of the profile wall.

6. 93-105 cm below datum - This level is believed to represent a natural soil stratum. It is a gray brown clay. The upper portion of the stratum contains a few artifacts, but the level is basically sterile. The 105 cm depth does not indicate its true depth, merely the depth of excavation. The stratum correlates with Stratum 7 in the south and north profiles.

The Stratigraphy of Grid A40, N92

Grid A40, N92, a 1 by 2 m grid, was one of the first excavation units dug in Test Area 3 (Figure III-15). The section below documents the stratigraphy exposed in its east wall between A41, N92 and A41, N90 (Figure III-20).

Stratigraphic Description

(Datum: 17 cm above ground surface, 2.4 cm above MSL)

1. 17-38 cm below datum - Stratum 1 is a relatively thick topsoil level. The first 12 cm consist of a dark grayish brown silty clay loam. The remainder of the level is slightly sandy and a little lighter in color, perhaps because it appears to be a mixture of topsoil and the tan levee sand described in the other stratigraphic sections.

Figure III-19. Test Area 3, west profile and rampart paling locations.

Drawn by Lyndi Hubbell for the National Park Service.

TEST AREA #3, CHALMETTE UNIT
WEST WALL

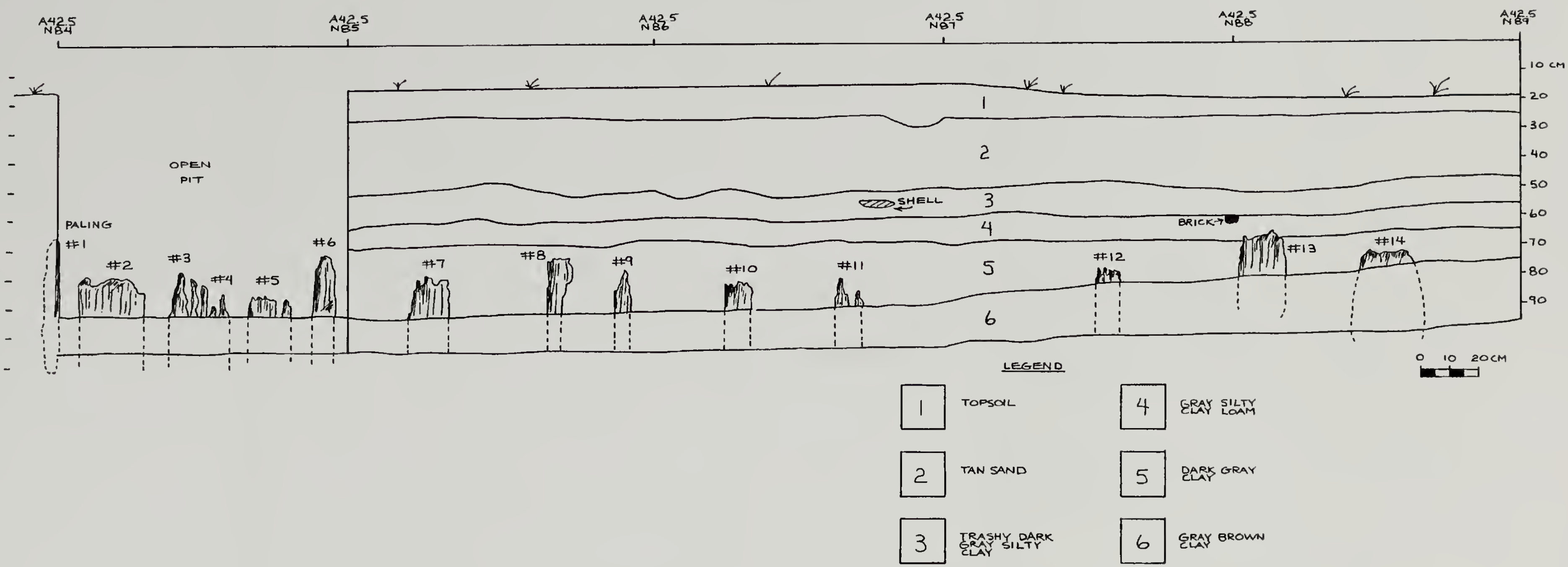


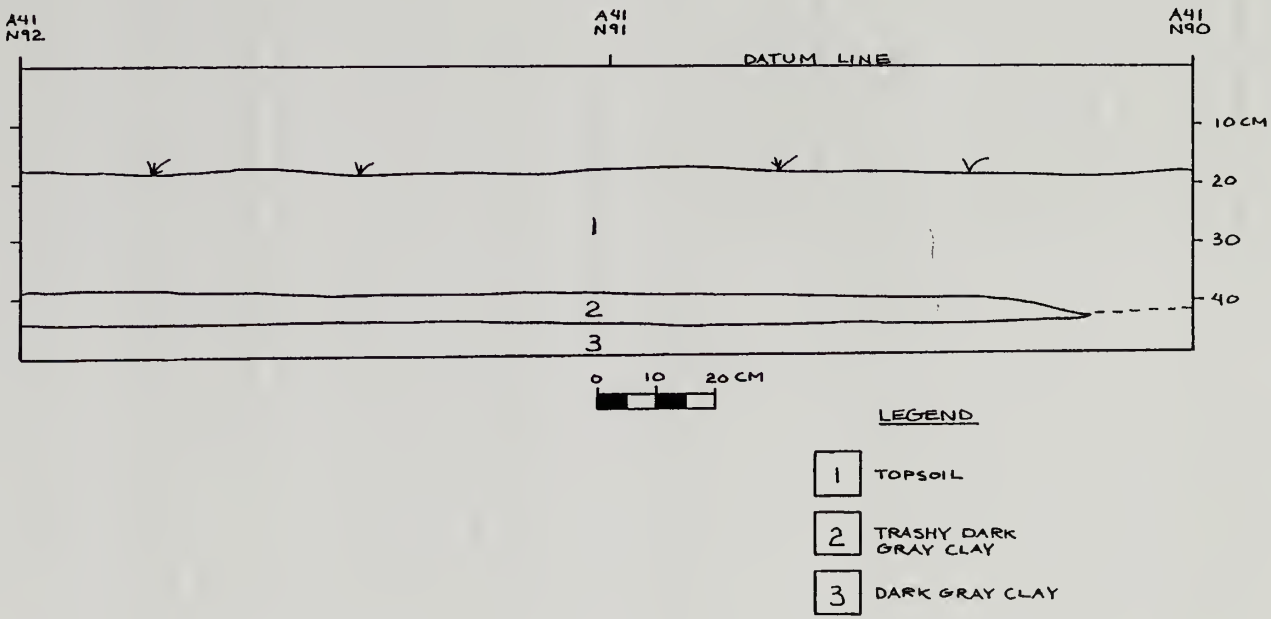
Figure III-20. Test Area 3, profile of the east wall of Grid A40, N92.

Drawn by Lyndi Hubbell for the National Park Service.

TEST AREA # 3, CHALMETTE UNIT

GRID A40, N92

EAST WALL



2. 38-44 cm below datum - This stratum is a thin band of trashy, artifact-bearing, dark gray clay. It represents the western extension of Stratum 3 found in the more easterly profiles. The level is less well defined than that found in the other profiles, however, and it is impossible to follow in the southern portion of the profile. This level also becomes indistinct 50 cm west of the profile wall.

3. 44-50 cm below datum - A dark gray clay follows the trashy layer. It corresponds to the natural soil variously designated Stratum 4, Stratum 5, or Stratum 6 in the other profiles. The 50 cm depth merely indicates the depth of excavation, not the depth of the soil's last occurrence.

Rampart Paling Line

A row of six vertical plank remnants was exposed during the excavation of the silty clay loam layer immediately east of A42, N84 and A42, N85. Continued removal of the layer in a large north-south trench produced a 7 m line of vertical planks. These were arranged in a straight line oriented 34° east of north between A42.5, N84 and A43.5, N91 (Figures III-19, III-21, III-22, III-23, III-24).

Close examination of these plank remnants showed that they were cypress palings. A total of seventeen palings were eventually uncovered. Brown stains suggested that more palings had once made up the line, but these stains were too ephemeral to warrant firm identification. Most were gone within minutes of exposure to the heavy rains that fell during the period of excavation.

The majority of the surviving paling remnants consisted of little more than thin skins of wood fiber that roughly defined the form of the original cypress plank. Others survived in a relatively solid state, and three of these were removed with relative ease from the surrounding soil matrix. The latter were kept moist in plastic bags and rapidly transmitted to the National Park Service's conservation facility at Harpers Ferry, West Virginia, for special preservation treatment and curation. The remainder were partly exposed for recordation, and then covered with plastic prior to backfilling. Detailed descriptions of the individual palings follow.

1. *Paling 1*

Datum to Top: 66 cm
Datum to Base: Unknown
Maximum Width: Unknown (only one edge exposed)
Maximum Thickness: 3 cm
Length: Actual length unknown, exposed length 27 cm
Condition: Solid, but eroded
Distance to Next Paling: 7 cm
Remarks: This southernmost paling was uncovered in the south profile wall. Because only one slight edge of the paling was visible, no further description is possible (Figure III-25).

2. *Paling 2*

Datum to Top: 79 cm
Datum to Base: Unknown
Maximum Width: 22 cm
Maximum Thickness: 2 cm
Length: Actual length unknown, exposed length 13 cm
Condition: Highly eroded, only exterior of wood fiber survived
Distance to Next Paling: 8 cm
Remarks: The broad, concave curve of this paling showed that it had been split from the exterior portion of the original tree trunk. The convex side of the curve faced east (Figure III-25).

3. *Paling 3*

Datum to Top: 78 cm
Datum to Base: Unknown

Figure III-21. Test Area 3, plan of rampart paling locations.

Drawn by Lyndi Hubbell for the National Park Service.

TEST AREA # 3 , CHALMETTE UNIT
PLAN OF RAMPART AND BANQUETTE
PALING LINE

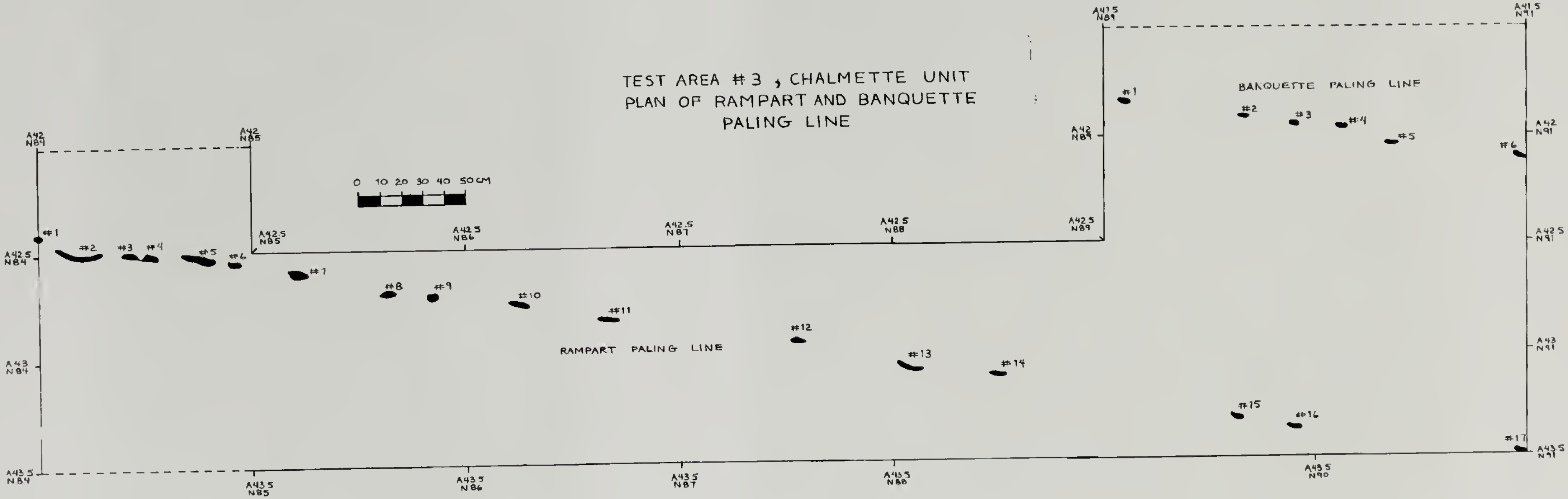


Figure III-22. View to the southwest of the northeast portion of the test excavations at Test Area 3. The small wooden flagpoles mark the locations of the two paling lines that define the outline of the rear of the American rampart in the area of Battery 3. The forward line marks the rear of the parapet; the second line follows the rear of the banquette.

Photograph by Ted Birkedal, National Park Service.

Figure III-23. View to the southwest of the stratigraphy in the northeast portion of the test excavations at Test Area 3. Note the thick sand deposit under the topsoil that signaled the presence of the buried shallow hole that betrayed the location of the "pond and a Gap." The pond formed in the gap that was left in the line after the dismantling and abandonment of Battery 3. The small wooden flagpoles mark the locations of the wooden paling remnants that once lined the rear of the banquette.

Photograph by Ted Birkedal, National Park Service.


CHAL
METTE
RAMPART
&

Figure III-24. View to the north-northeast of the forward test trench in Test Area 3. The wooden palings that define the rear of the American parapet follow a slightly diagonal line down the center of the test trench.

Photograph by Ted Birkedal, National Park Service.


CHAL METTE
RAMPART

Figure III-25. View to the west of Palings 1-6 of the parapet line.

Photograph by Ted Birkedal, National Park Service.

Figure III-26. View to the west of Palings 6 and 7 of the parapet line.

Photograph by Ted Birkedal, National Park Service.


6
7

Maximum Width: 10 cm
Maximum Thickness: 3 cm
Length: Actual length unknown, exposed length 15 cm
Condition: Highly eroded, paper-thin exterior fiber
Distance to Next Paling: 1 cm
Remarks: This paling was marked by only thin columns of wood fiber. It was difficult to determine whether or not this paling was independent or actually part of a larger single paling that included Paling 4 (Figure III-25).

4. *Paling 4*

Datum to Top: 82 cm
Datum to Base: Unknown
Maximum Width: 10 cm
Maximum Thickness: 3 cm
Length: Actual length unknown, exposed length 10 cm
Condition: Highly eroded, paper-thin wood fiber
Distance to Next Paling: 6 cm
Remarks: These three columns of wood fiber may have been part of a single cypress plank in combination with Paling 3 (Figure III-25).

5. *Paling 5*

Datum to Top: 86 cm
Datum to Base: Unknown
Maximum Width: 14 cm
Maximum Thickness: 3 cm
Length: Actual length unknown, exposed length 6 cm
Condition: Highly eroded, paper-thin wood fiber
Distance to Next Paling: 7 cm
Remarks: This paling appeared to represent a relatively straight cypress plank (Figure III-25).

6. *Paling 6*

Datum to Top: 72 cm
Datum to Base: 104 cm
Maximum Width: 7.5 cm
Maximum Thickness: 3 cm
Length: 32 cm
Condition: Partly eroded, but solid wood
Distance to Next Paling: 25 cm
Remarks: This paling was removed for preservation. Although it may represent the surviving core of a once wider paling, it appears to have always been a narrow length of wood (Figures III-26, III-27). It was characterized by a subrectangular cross section.

7. *Paling 7*

Datum to Top: 80 cm
Datum to Base: 109 cm
Maximum Width: 12 cm
Maximum Thickness: 5 cm
Length: 29 cm
Condition: Relatively solid length of wood
Distance to Next Paling: 34 cm
Remarks: This piece of wood was initially examined for possible removal. However, another was selected in its place. The paling was oblong in cross section and comparatively thick (Figure III-26). There was nothing to indicate that this paling had ever been part of a wider segment of wood.

8. *Paling 8*

Datum to Top: 73 cm
Datum to Base: Unknown
Maximum Width: 8 cm
Maximum Thickness: 4 cm
Length: Actual length unknown, exposed length 18 cm
Condition: Partly eroded, but basically solid wood.

Figure III-27. Close-up view of Paling 6 of the parapet line after removal.

Photograph by Ted Birkedal, National Park Service.

Distance to Next Paling: 15 cm
Remarks: Paling 8 resembles Paling 7 in that it appears to have been a relatively thick, narrow length of wood. It had a roughly triangular cross section (Figure III-28).

9. *Paling 9*

Datum to Top: 78 cm
Datum to Base: Unknown
Maximum Width: 5 cm
Maximum Thickness: 4 cm
Length: Actual length unknown, exposed length 13 cm
Condition: Partly eroded, mostly solid wood
Distance to Next Paling: 33 cm
Remarks: This was a thick, narrow section of wood. It exhibited a nearly circular cross section (Figure III-28).

10. *Paling 10*

Datum to Top: 83 cm
Datum to Base: Unknown
Maximum Width: 8 cm
Maximum Thickness: 3 cm
Length: Actual length unknown, exposed length 7 cm
Condition: Eroded, but relatively intact
Distance to Next Paling: 30 cm
Remarks: Though quite narrow, Paling 10 exhibited the straight, linear cross section of a plank (Figure III-29).

11. *Paling 11*

Datum to Top: 81 cm
Datum to Base: Unknown
Maximum Width: 9 cm
Maximum Thickness: 2 cm

Length: Actual length unknown, exposed length 9 cm
Condition: Highly eroded, paper-thin wood fiber
Distance to Next Paling: 81 cm
Remarks: Paling 11 survived only as two narrow columns of wood fiber. It probably had the linear cross section of a narrow plank (Figure III-29).

12. *Paling 12*

Datum to Top: 78 cm
Datum to Base: Unknown
Maximum Width: 7 cm
Maximum Thickness: 3 cm (estimated)
Length: 5 cm
Condition: Highly eroded, only paper-thin skins of wood fiber survived
Distance to Next Paling: 41 cm
Remarks: The original cross section of this paling was impossible to determine; too much of it had been lost.

13. *Paling 13*

Datum to Top: 66 cm
Datum to Base: Unknown
Maximum Width: 12 cm
Maximum Thickness: 2 cm
Length: Actual length unknown, exposed length 15 cm
Condition: Eroded, only thin exterior skin of wood fiber survived
Distance to Next Paling: 29 cm
Remarks: Paling 13 resembled Paling 2 in its concave cross section. Again, the bulge of the curve pointed east. This segment probably derived from the outer portion of the original cypress log (Figure III-30).

14. *Paling 14*

Datum to Top: 72 cm
Datum to Base: 104 cm
Maximum Width: 26 cm

Figure III-28. View to the west of Palings 8 and 9 of the parapet line.

Photograph by Ted Birkedal, National Park Service.

Figure III-29. View to the west of Palings 10 and 11 of the parapet line.

Photograph by Ted Birkedal, National Park Service.


10
11

Figure III-30. Close-up of Paling 14 from the parapet line after removal.

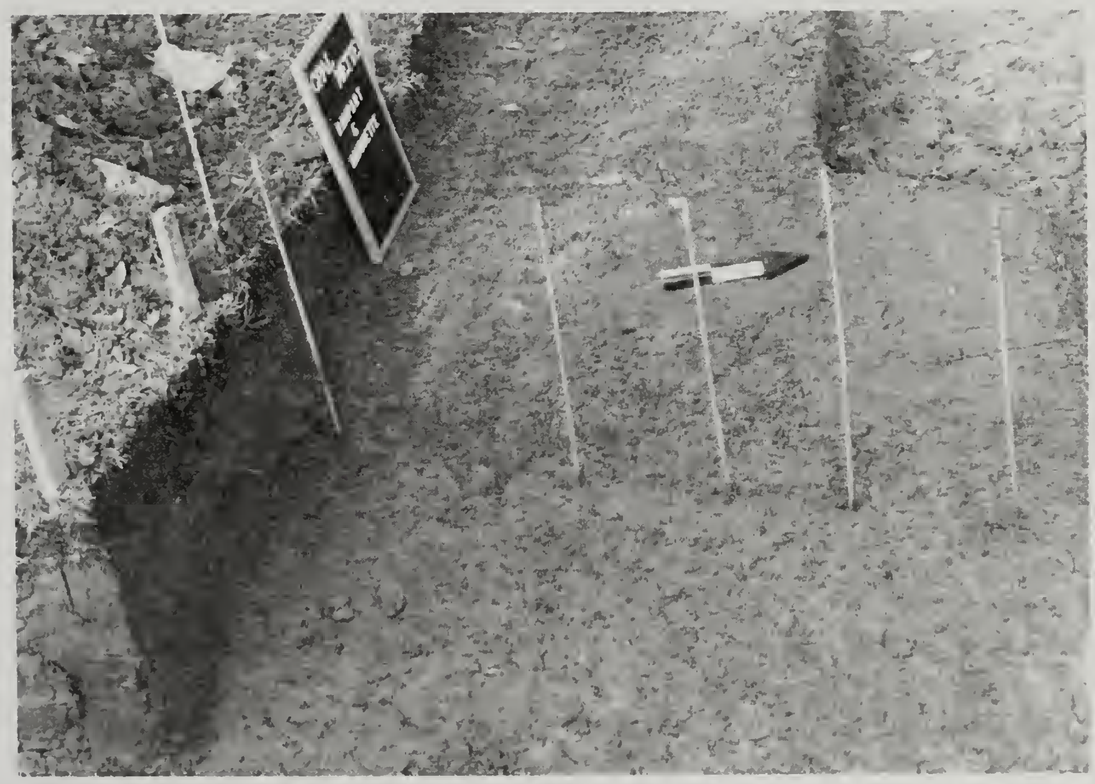
Photograph by Ted Birkedal, National Park Service.

Figure III-31. View to the west of Palings 13 and 14 of the parapet line.

Photograph by Ted Birkedal, National Park Service.

Figure III-32. View to the west of the paling line that defines the rear of the banquette. The wooden flagpoles mark the locations of the palings; these paling positions are darker in color than the surrounding soil.

Photograph by Ted Birkedal, National Park Service.



Maximum Thickness: 4 cm
Length: 32 cm
Condition: Top and bottom eroded, but otherwise solid
Distance to Next Paling: 107 cm
Remarks: Paling 14 was removed for preservation (Figures III-30, III-31). This obviously represented a broad plank. It had lost some of its top width to erosion and it was thought to be a narrow paling until actual removal. It exhibited a linear, oblong cross section.

15. *Paling 15*

Datum to Top: Unknown (paling disturbed during excavation)
Datum to Base: Unknown
Maximum Width: 7.5 cm
Maximum Thickness: 3 cm
Length: 29 cm
Condition: Eroded at top, solid wood
Distance to Next Paling: 21 cm
Remarks: Paling 15 was narrow and resembled Paling 6. It exhibited a slightly concave cross section toward its base. The lower end appeared relatively intact and was somewhat spoon shaped. Examination of the base showed a slight inward curve to the fiber lines. Also, the exterior fiber at the base was crushed, suggesting that the paling had originally been driven into place. This paling was removed for preservation.

16. *Paling 16*

Datum to Top: 76 cm (estimated)
Datum to Base: Unknown
Maximum Width: 7 cm
Maximum Thickness: 2 cm
Length: Unknown
Condition: Highly eroded, simply a few fragments of wood fiber
Distance to Next Paling: 101 cm
Remarks: This paling was little more than a dark stain and some fragments of wood fiber. In addition, it was disturbed during excavation, which precluded some observations.

17. *Paling 17*

Datum to Top: 68 cm
Datum to Base: Unknown
Maximum Width: 7 cm (estimated)
Maximum Thickness: 3 cm
Length: Actual length unknown, exposed length 16 cm
Condition: Eroded wood fragments
Distance to Next Paling: Unknown
Remarks: Paling 17 was exposed in the north profile wall (Figure III-18). A broken fragment of the paling was visible 5 cm behind the main section.

Banquette Paling Line

A second line of cypress palings was discovered close to the end of the exploratory excavations in Test Area 3. It was located 1.37 m west of the first line, and, like the first, it was aligned 34° east of north (Figures III-21, III-32). A total of six paling remnants were uncovered in a 2 m section between A42, N89 and A42, N91. No signs of a continuation of this paling line was found in the southern east-west trench.

All of these paling remnants were highly decayed and consisted of little more than brown stains of soil and bits of wood fiber embedded in the surrounding soil. Despite the palings' poor condition, some measurements and observations were possible. These follow below.

1. *Paling 1*

Datum to Top: 51 cm
Datum to Base: Unknown
Maximum Width: 6 cm
Maximum Thickness: 3 cm
Length: Unknown
Condition: Decayed, paper-thin bits of wood fiber
Distance to Next Paling: 51 cm
Remarks: This paling exhibited an ovoid cross section.

2. *Paling 2*

Datum to Top: 53 cm
Datum to Base: Unknown
Maximum Width: 6 cm
Maximum Thickness: 2 cm
Length: Unknown
Condition: Very poor, decayed bits of wood fiber
Distance to Next Paling: 20 cm
Remarks: Paling 2 exhibited a subrectangular cross section.

3. *Paling 3*

Datum to Top: 53 cm
Datum to Base: Unknown
Maximum Width: 5 cm
Maximum Thickness: 3 cm
Length: Unknown
Condition: Poor, marked by discontinuous bits of wood fiber
Distance to Next Paling: 17 cm
Remarks: This paling displayed an ovoid cross section.

4. *Paling 4*

Datum to Top: 55 cm
Datum to Base: Unknown
Maximum Width: 6 cm
Maximum Thickness: 2 cm
Length: Unknown
Condition: Highly decayed, represented by bits of wood fiber
Distance to Next Paling: 18 cm
Remarks: Paling 4 showed an ovoid cross section.

5. *Paling 5*

Datum to Top: 56 cm
Datum to Base: 76 cm
Maximum Width: 9 cm
Maximum Thickness: 2 cm
Length: 20 cm
Condition: Decayed, represented simply by bits of wood fiber
Distance to Next Paling: 54 cm
Remarks: This paling was originally exposed for its entire length to see if it was suitable for removal. However, it was found to consist only of a brown soil stain that contained small pieces of wood. The paling exhibited a linear, subrectangular cross section.

6. *Paling 6*

Datum to Top: 53 cm
Datum to Base: 70 cm
Maximum Width: 8-9 cm (estimated)
Maximum Thickness: 3 cm
Length: 17 cm
Condition: Highly decayed bits of wood fiber
Distance to Next Paling: Unknown
Remarks: Paling 6 was exposed in the north profile wall (Figure III-18). Like the other palings, it was marked by pieces of wood fiber contained in a brown stain. It exhibited a subrectangular cross section.

Stratigraphic and Feature Observations

The north, south, and west profiles all reveal variations of the same stratigraphic sequence. The lowest layer, a gray brown clay, is a sterile natural soil horizon similar in depth, texture, and color to Level 3 in the Soil Conservation Service's Auger Test 1 (Appendix A). Its upper surface shows no major variations in elevation, but it does rise 19 cm from the south to the north end of the excavation. In fact, all of the strata above this surface, with the exception of the topsoil, tend to exhibit a slight dip from north to south.

The next stratum up in the sequence, a dark gray clay, closely resembles Level 2 in the Soil Conservation Service's Auger Test 1 (Appendix A). Like the underlying stratum, it represents a natural soil horizon and it is essentially sterile with the exception of a light scattering of fine brick bits. These bits of brick most likely penetrated the level through the action of earth worms, roots, and the vertical cracks that form in the local soils.

The top surface of the stratum suggests that the layer was subjected to significant post-depositional modification. After following a nearly horizontal plane for 7 m, the surface of the dark gray clay begins to dip downward gradually, but nonetheless strikingly, at a point 20 to 40 cm east of the line formed by A41, N84 and A41, N91. At first glance, this downward slope toward the east does not appear unusual, for the upper surface of the same soil horizon in Test Area 1, Stratum 2, also dips toward the Rodriguez Canal (Figures III-9, III-10, III-17, III-18). But there is a difference if a relatively straight bank line is assumed for the canal just prior to the pathway construction. The down slope in Test Area 3 begins 1.80 m west of the start of the slope evidenced in Test Area 1 (Figures III-17, III-18). In other words, if the top of the slope in Test Area 3 occupied the same position relative to the Rodriguez Canal as that found in Test Area 1, then it would necessarily begin at about A42.5 rather than just east of A41. This contrast in slopes is even more striking if the relative depth of the top surface of the stratum is compared along the same alignment. In Test Area 1, the top of the level lies only 10 to 12 cm below the surface, whereas in Test Area 3, it is located 48 cm below the surface. The point being made here is that the top of the dark gray clay begins its downward curve prematurely in Test Area 3. This more rearward start of the down slope and its slightly steeper incline suggests that a definite and pronounced indentation in the bank line occurs in this area.

The forward line of vertical cypress palings interrupts the downward progress of the level (Figures III-17, III-18). East of this point the soils change. The palings themselves are surrounded by a 3 to 4 cm light gray collar of structureless, dissolved clay. This type of blended clay is a typical product of clayey soils that have been disturbed, and its presence around the palings is expectable (Appendix B).

Beyond the paling line is an ill-defined soil horizon, designated Stratum 6 on the south profile. Because it is situated forward of the paling line and this line follows a diagonal path relative to the excavation unit, it is not represented in either of the west or north profile walls. This soil horizon rests directly on the lowermost gray brown clay described earlier. It is a gray silty clay loam characterized by light gray streaks and pockets. Except for these streaks and pockets of lighter colored loam, this soil is identical to the level that rests above it (Appendix B). In fact, the break between the levels, if it can be called that, is irregular and indistinct. Very few artifacts were found in this level and most of these occurred in the upper 10 cm of the stratum. Bits of wood fiber of the same type as made up the palings were also scattered about the top part of the horizon.

For reasons which are difficult to exactly specify, this soil gave the excavators who worked closely with it the impression that it had been severely disturbed or churned up. The irregular and indistinct character of the stratum's interface with the overlying level is consistent with this view. The light gray pockets and streaks in the horizon may also indicate disturbance, for these tend to form in soils that have been subjected to higher levels of water saturation (Appendix B). Though speculative, it is possible that the light gray pockets and streaks that mottle this horizon are a by-product of the hypothesized disturbance, the view being that they represent portions of soil that were partially mixed and blended during the disturbing activities. Thus, they formed in much the same way as the dissolved clays around the cypress palings.

The next stratum up is gray silty clay loam. It is designated Stratum 5 in both the north and south profiles (Figures III-17, III-18), but it appears as Stratum 4 in the west profile (Figure III-19). Although this horizon is nearly identical in texture to the underlying clay loam, it lacks the light gray streaks and pockets of the latter. This upper stratum begins as a narrow eastward dipping lens on the lower slope of the dark gray clay horizon and quickly expands to a maximum thickness of 20 cm after passing the forward paling line. According to Larry Trahan of the Soil Conservation Service (Appendix B), this horizon combines the characteristics of both the topsoil and the upper subsoil found in Soil Test 1.

This silty clay loam stratum yielded 55 percent of the artifactual items recovered from Test Area 3. More particularly, it produced 63 percent of the ceramics, 55 percent of the glass, 49 percent of the nails, and 79 percent of the bird and mammal bone. In addition, numerous small to large soft red brick fragments were discovered in the level. Moreover, this upper layer of silty clay loam covered the paling remnants which protruded into it. Only one paling extended above the stratum and this projected no more than 2 cm above the horizon (Figure III-19). In the northern part of the excavation unit, the rearward line of palings was also found to protrude into the silty clay loam, but no higher (Figure III-18).

All or most of these palings probably projected above the ground at the time the silty clay loam was deposited, for the artifact distribution pattern suggests that they served as a partial barrier to artifactual debris flowing downslope. For instance, 74 percent of the ceramics from the silty clay loam were found to the rear of the easternmost paling line. This differential pattern was repeated for most of the artifact categories, and it argues for the deposition of the silty clay loam after the placement of the palings.

The thin, down-sloping lens of orange sandy clay, designated Stratum 3 in the north profile, was only documented in the northern 2 m of the excavation unit (Figure III-18). This lens begins 70 cm behind the second paling line and continues only 70 cm to the east before pinching out. It rests directly on the upper silty clay loam horizon. The sandy texture of this localized lens and its orange color appear to be a direct result of the multitude of fine bits of soft red brick that impregnate the layer. Other than the small particles of brick, however, the level proved sterile. The fine particles that make up the horizon, its thinness, the apparent localization of the lens, and its lack of artifactual debris suggest that it was laid down rather rapidly, most likely in the form of a fluid wash in a single episode of deposition. The next horizon in the sequence is a ubiquitous narrow band of dark silty clay (Appendix B). It is designated as Stratum 3 in all the profiles except the profile exposed between A41, N90 and A41, N92 (Figures III-17, III-18, III-19, III-20). In the latter, it is labeled Stratum 2. Despite the fact that it rarely exceeds 10 cm in thickness, it produced a wide assortment of artifactual material. Thirty-one percent of the artifacts from Test Area 3 came from this level; it was the second highest yielding level in the stratigraphic sequence.

This dark silty clay appears to correspond to a similar thin, trashy level found in Test Area 1 (Stratum 6). The level grades from a dark grayish brown at its top to a dark gray at its bottom. About 50 cm west of A42, N92, it disappears between the underlying dark gray clay and the overlying topsoil.

The top of the silty clay is thought to have formed the surface of the ground in Test Area 3 prior to the construction of the National Park Service pathway in the late 1950s. The overlying tan sand lies directly on this level, and the brownish color of the upper 2 to 3 cm is suggestive of humic development. Also, the impressions from dual-wheel truck tires were exposed on its top surface. The tan, sterile sand layer above the silty clay is clearly a recent introduction (Figure III-23). It was obviously deposited in the area of Test Area 3 to level the ground surface for the walkway. This sand is identical in texture and color to the thinner deposit found in association with the path in Test Area 1, 15 m to the south. The only difference is its thickness. In Test Area 3, it expands to a maximum thickness of 30 cm, whereas in Test Area 1, it barely achieves a thickness of 10 cm. The very presence of this thick sand deposit indicates that there was still a remnant of a bank line indentation in Test Area 3 at the time the National Park Service constructed the present pathway.

The 10 to 15 cm topsoil layer above the sand is the most recent deposit in the sequence. Although this soil may have been artificially placed over the sand, it appears to be a soil of local origin, for it contains a mixed assortment of historic artifactual debris or 13 percent of the total number of artifacts recovered from Test Area 3.

General Observations

The filled-in hole found along the west bank of the Rodriguez Canal during the test excavations in Test Area 3 conforms closely to the kind of archeological feature that would mark Latrobe's "pond and a Gap in the line" after the passage of 165 years (Figures III-4, III-14). This remnant indentation extends 5.5 m west, or behind, the estimated pre-pathway bank line of the Rodriguez Canal. If emptied of its stratigraphic content, it would appear in plain view as a broad, C-shaped swale that opens upon the Rodriguez Canal. The bottom of this swale or hole lies between 60 and 70 cm below present ground surface.

The test excavations only exposed a portion of the filled indentation, so its exact dimensions are not known. However, in order to gain some information, fifteen auger holes were dug at 1 m intervals on a line laid out between A43.5, N84 and A42, N73, an alignment that was roughly parallel with the Rodriguez Canal.

In the first auger hole, the tan sand deposit continued to a depth of 41 cm below ground surface and sterile clay was not reached to a depth of 76 cm below ground surface, a stratigraphic situation similar to that observed in the excavation unit. Within 2 m, a clear upward shift had taken place. At this location, the bottom of the sand was recorded at 34 cm below ground surface and sterile clay was encountered at a depth of only 53 cm. For the next seven auger holes, no significant changes in the depth of the sand or the sterile clay were documented. The base of the sand averaged 32 cm below ground surface; the beginning of sterile clay averaged 53 cm in depth. By Auger Hole 11, however, another upward shift had occurred. The bottom of the sand continued at relatively the same depth (30 cm), but the start of sterile clay had risen 20 cm in the horizontal span of 1 m to a depth of 33 cm below ground surface. In the next four auger holes of the series, the top of the sterile clay stabilized at a depth of 33 cm, essentially the depth of sterile clay found in the excavations in Test Area 1. Farther on, the tan sand deposit continued to decrease; by the last auger, it extended no more than 19 cm below ground surface and was only 8 cm thick.

A single auger series probably does not provide a fully reliable measure of the battery hole's southern limits. Nonetheless, the auger results suggest that the feature quickly loses depth 2 m (6.6 ft) south of the southern limits of the excavations, then levels out or follows an extremely gradual incline for another 7 m (30 ft) before it shifts upward a last time and terminates as a definable entity about 10 m (32.8 ft) south of A43.5, N84.

The northern limits of the feature were not explored, but Benjamin Latrobe's 1819 sketch supplies a clue to the overall size of the battery gap (Figure III-4). This sketch is the product of a skilled architect and careful observer, and therefore, it is drawn in accordance with the rules of perspective (Carter 1985:3-16; Brownell 1985:17-18, 27). These rules can be reversed to obtain some critical though approximate measurements by using the Rodriguez main house as an indirect bridge to the dimensions of the battery gap. In the sketch, the main Rodriguez House is placed in 30-60 perspective relative to the picture plane, one of two standard orientations used in the portrayal of architecture (Giesecke et al. 1974:543-557). What this means is that the angle between the picture plane and the long side of the house is 30° and the angle between the picture plane and the south end of the house is 60°. Further, Latrobe employed the common technique of two-point perspective, for the illustration of the house possesses one set of parallel, vertical lines with no vanishing point, and two other sets of lines, each having proper vanishing points.

Latrobe then, as the observer and artist, would have been located at the end of a line running from the southeast corner of the Rodriguez House at an angle of 120° relative to the long edge of the building (i.e., perpendicular to the picture plane). This reconstruction, of course, assumes that Latrobe had primarily oriented his view to the southeast corner of the house rather than some other point, such as a dormer window or roof intersection. To cross check this assumption, the two vanishing points of his sketch were plotted in plan view. Lines from these two points were then drawn so as to meet in a right angle, for the artist's station or vantage point always lies at the 90° intersection of these lines in any simple perspective drawing. This plot verified the original projection. It also showed that Latrobe's station point would have been located along this line of sight at a distance of about 75 m (246 ft) from the southeast corner of the house.

Because the actual position and dimensions of the Rodriguez main house foundations are known, there is a second route to finding the distance of Latrobe's vantage point that takes its lead from a handwritten note by Latrobe in the upper right-hand corner of his sketch (not visible in Figure III-4). This notation tells us that he drew the sketch from a fence line that ran east of and parallel to the Rodriguez Canal (Latrobe 1951:26). In his map of the south end of the battlefield, he placed this fence approximately 40 m (131 ft) east of the American line (Figure III-14). Apparently, the fence was a replacement for an earlier one that had occupied the same alignment and distance from the line in 1815 (Latour 1816b).

A line drawn perpendicular to the picture plane from the present southeast corner of the Rodriguez House foundations (with a 2.5 m [8 ft] extension added to represent the missing front gallery) to the estimated position of the fence line places Latrobe's station point 64 m (210 ft) from the Rodriguez House. This figure is 11 m (36 ft) short of the 75 m (246 ft) figure projected solely from the vanishing points of the sketch. Nonetheless, the two independently derived distances are as close as can be expected in an exercise of this type. A compromise figure of 70 m (230 ft) is perhaps the best solution, for the chances are high that such a figure falls within 10 m (32.8 ft) of Latrobe's actual vantage point for the sketch.

Using Latrobe's reconstructed vantage point, it becomes possible through the technique of reverse perspective to obtain some approximate measurements of the battery gap in the foreground of his sketch. This can be accomplished by drawing additional lines in plan view from Latrobe's projected station point to secondary points on the ground that correspond to points on the sketch, specifically the southwest and northeast corners of the house. The distances between these angled lines where they cross the west bank of the Rodriguez Canal can be used to build a conversion scale that can in turn be used to measure additional distances at the battery location directly from Latrobe's sketch.

The following results were obtained from this exercise in reverse perspective:

1. The maximum distance between the shoulders of the gap, as measured from the top of slope of each rampart segment (north and south), was roughly 31.7 m (104 ft) in 1819.

2. The distance across the gap at the water line level of the pond was approximately 12.5 m (41 ft).

3. The center of Latrobe's illustrated battery gap would fall at about A43, N85.8 (Figures III-15, III-19).

The above calculations suggest that in 1819 the battery gap ended on the south at a point on the upper rampart shoulder approximately 16 m (52.5 ft) from the feature's center. Today, as suggested by the auger tests, the southern edge of the indentation is located 11.8 m (39 ft) south of the reconstructed center point. At first glance, there may seem to be a discrepancy between these two figures, but this is as it should be. It is important to keep in mind that the higher figure measures the half length of the gap at the height of the rampart, while the smaller figure measures the southern half of the remnant battery gap near present ground surface since the rampart no longer exists. A 4 m (13 ft) discrepancy is expectable and allows for the loss of the rampart's contribution to the width of the original span. In short, the southern limit of the battery hole, as estimated from the auger tests, makes a close fit with the reconstructed measurements obtained from Latrobe's sketch. If this correspondence is not the product of sheer coincidence, then it is reasonable to conclude that the surviving indentation is about 23 (75.4 ft) to 24 m (78.7 ft) in length. In addition, it would appear that the excavations in Test Area 3 fortuitously hit close to the actual center of the feature.

Before proceeding with any interpretive reconstructions of the gun battery, it is first necessary to recount and interpret the depositional history of the battery gap, for this archeological entity does not represent the battery itself, but simply the hole or empty socket that was left in the ground after the battery emplacement was dismantled. A visitor to the battlefield in the late winter or early spring of 1815 would have found pretty much the same thing observed by Latrobe at the position of Battery 3, namely, a "pond and a Gap" in the American rampart line. This scooped-out area would have appeared little different from Latrobe's view of it in 1819, except that the flanking sections of the rampart would have presented crisper, less eroded lines.

In the spring of 1815, the floor of the hole would have largely consisted of the native dark gray clay, and, in the lowest depths of the hole, the underlying gray brown clay. The paling remnants would have protruded at least slightly above these soils. Stratum 6, which was only defined in the south profile, may also have been present in the early part of the depositional history of the hole (Figure III-17). With the exception of its gray streaks and gray pockets, it is essentially identical to the more uniform gray silty clay loam level that lies above (Stratum 5 in the north and south profiles, Stratum 4 in the west profile [Figures III-17, III-18, III-19]). The fact that both of these silty clay loams resemble a grade between the A1 (topsoil) and B1 (upper subsoil) horizons found 30 m (98.5 ft) behind the battery location in the Soil Conservation Service's Auger Test 1 (see Appendices A and B) is extremely interesting in light of American and British contemporary accounts. These sources unequivocally state that the soil for throwing up the parapet was obtained, not from the canal, but from scraping surface soils from the rear of the American line (Latour 1964 [1816]:146; Ritchie 1961:54). This shallow scraping would have combined topsoil and shallow subsoil in a mixture exactly like the silty clay loam levels found in the test excavations. Thus, the probable explanation for these soils is that they originated from the earth of the rampart.

As mentioned before, Stratum 6, although it is very similar in texture to the overlying silty clay loam, does display a few differences. First, it contains light gray streaks and pockets. Second, it shares an indefinite, ragged boundary with the upper horizon of silty clay loam. Third, numerous fragments of wood fiber were found in its upper surface. And, finally, the majority of the artifacts in the level came from its top half.

These three characteristics suggest that the upper part of the horizon may have been subject to considerable disturbance. Its surface appears to have been churned up or mixed. This mixing could have led to the partial blending of its clay content with standing water in the hole and created the light gray pockets and streaks. The irregular upper surface of the layer also points to this kind of disturbance, the type of disturbance that occurs at the bottom of a mud hole when it has been trampled and stepped in many times. The broken wood fiber suggests that the adjacent palings or similar pieces of wood were splintered during this activity and the resultant wood fragments became part of the overall morass. If these observations are correct, then the surface of the streaked silty clay loam was the scene of considerable activity, and a likely source for this activity would have been the dismantling of the battery. The fact that its artifact content is low and that these artifacts are concentrated in the upper part of the layer would indicate that the lower portion of Stratum 6 accumulated rather rapidly and without exposure to much trash deposition.

In view of the above, the following interpretation is advanced:

1. Most, if not all, of Stratum 6 represents rampart earth that tumbled into the battery hole while the battery was being taken apart.

2. The artifacts that do occur in the upper part of the level were the first objects to wash into the open hole from the adjacent Rodriguez Estate. These artifactual materials were captured on the irregular and churned-up surface of the stratum that had been created by the activities of the dismantling crews.

The next, more uniform layer of silty clay loam took longer to accumulate, but it is also thought to represent rampart soil (Stratum 4 in the west profile; Stratum 5 in the south and north profiles [Figures III-17, III-18, III-19]). This level developed as the adjacent flanks of the earthwork melted down in the first few years subsequent to the battle. The battery hole served as a catch basin for this eroding soil, and Latrobe made his sketch of the battery position at the time when this depositional process was under way.

The ceramic dates support this reconstruction. The mean date for these ceramics is 1815, and although some of the types could have been manufactured as late as 1834, 75 percent of the assemblage is a product of the period between

1790 and 1820 (Chapter 19). A large variety of other artifacts accompanied the ceramics. With few exceptions, these are civilian items and most probably derive from the occupation and possible post-battle repair of the Rodriguez residential complex that was located 20 m (66 ft) northwest of the battery gap. The majority of these items apparently just washed into the hole, for their distribution shows no particular concentrations that would indicate discrete depositional episodes. The absence of charcoal and staining in the level also argues for this interpretation.

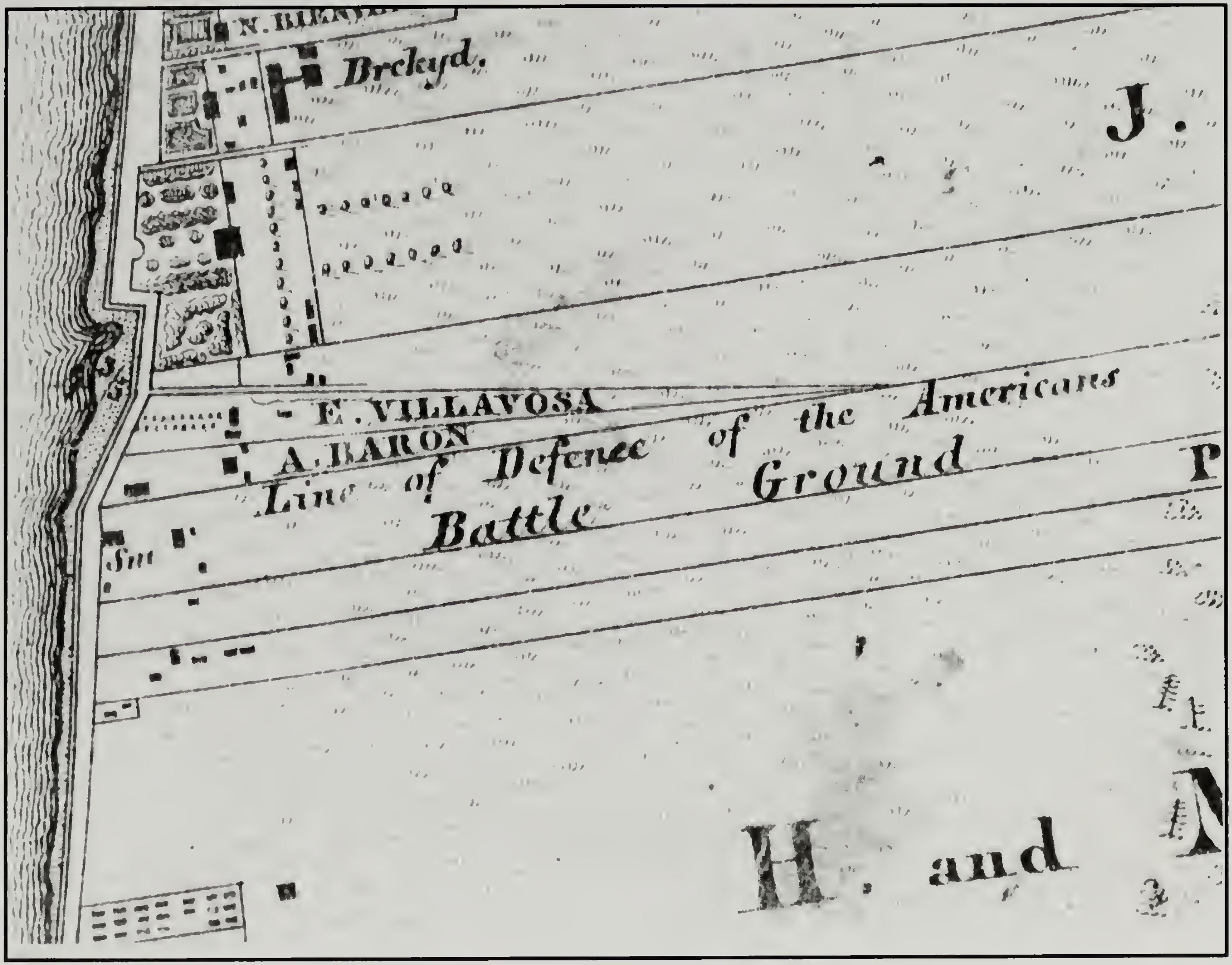
The only two objects that definitely come from the actual period of the battle are two amber gunflints (Chapter 20). Both of these were found in the dissolved clay that forms a distinct subcomponent of the gray silty clay loam, and both were located behind and immediately adjacent to the forward paling line (70-80 cm below datum). The fact that these two items were discovered in stratigraphic association with the silty clay loam adds additional weight to the estimated age of the level.

Further evidence is indirect and comes from a historical source. A visitor to the battlefield in 1834, Joseph Ingraham, followed a lane that ran from the main levee road, beside the canal, and past the Rodriguez Estate without seeing any signs of the eroded rampart until he had gone at least a quarter of a mile (402 m) north of the river (Ingraham 1835:198-199). Evidently, the southern part of the rampart had disappeared by the time of his visit. Beyond erosion, a reasonable explanation for this disappearance could be that it was used for road fill in the country lane that Ingraham mentions (Figure III-2). Zimpel's 1834 map (Figure III-33) shows that this road ran about a quarter of a mile (402 ft) from the levee road, the same distance traveled by Ingraham before the much reduced rampart became visible as a low linear mound 4 ft (1.2 m) in height and 6 ft (1.8 m) in width (1835:201). Ingraham's descriptions suggest that the rampart in the Battery 3 locale had ceased to be a major depositional source by 1834; thus, these observations are consistent with the archeological interpretation of the origin and estimated age of the silty clay loam.

The soil horizon located directly above the silty clay loam is a narrow band of dark silty clay. This trashy stratum (Stratum 3 in Figures III-17, III-18, III-19) yielded a number of artifacts, including a sizable ceramic assemblage. The mean date derived from these ceramics is 1826 (Chapter 19), a date which argues for a long-term deposition spanning much of the post-battle occupation of the Rodriguez residential complex (ca. 1815-1854). This level most likely

Figure III-33. A section of Charles F. Zimpel's 1834 map, "Topographical Map of New Orleans and its Vicinity." This portion of Zimpel's map shows the main area of the battlefield nearly twenty years after the end of the War of 1812. The Rodriguez Estate of the battle era lies immediately west of the piece of land labeled "E. Villavosa;" the large adjacent property immediately to the west was known as the Macarty Estate in 1815, and it served as General Jackson's headquarters. The Rodriguez Canal demarks the east side of the Rodriguez property (Prevost in 1834). Note the large jog in the alignment of the levee road that occupies what was once the southern end of the American line (Approximate Scale: 1 in = 189 yd or 1 cm = 68 m).

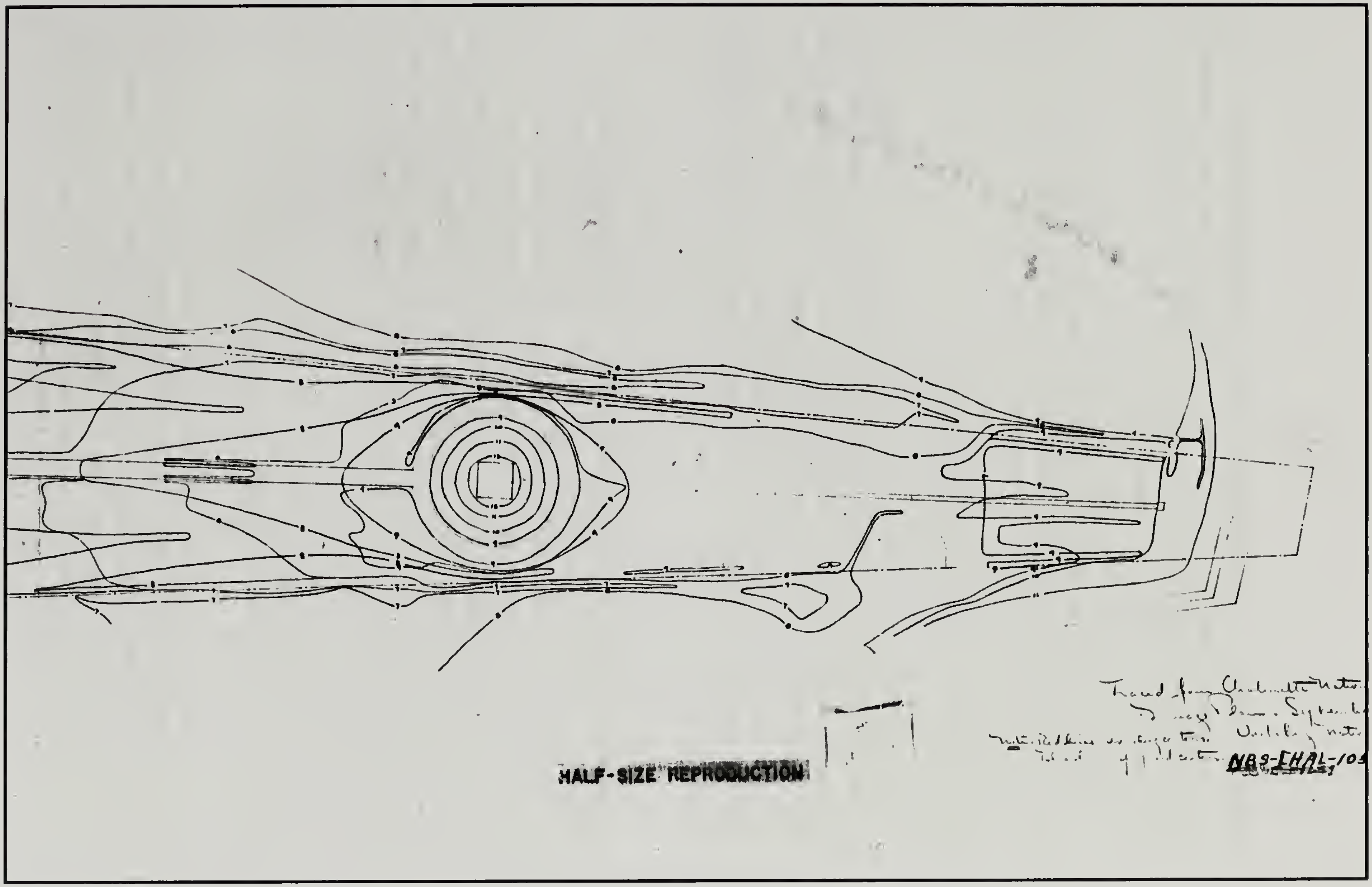
Courtesy of The Historic New Orleans Collection, accession no. 1955.19e.



Drckyd.
J.
E. VILLAVOSA
A. BARON
Line of Defence of the Americans
Battle Ground
P
H. and

Figure III-34. CHAL-1051, a 1934 National Park Service drainage plan for the Chalmette Unit. Note the indentation in the west bank of the Rodriguez Canal at the projected location of Battery 3 (Approximate Scale: 1 in = 200 ft or 1 cm = 24 m).

Denver Service Center, National Park Service.


HALF-SIZE REPRODUCTION

covered the rampart deposits as a slowly accumulating wash from the existing ground surface behind the canal. The fine texture and higher clay content of the level are consistent with this view. By the time this layer was in formation, the rampart no longer existed as a depositional source.

The accumulation of the dark silty clay was the last stratigraphic event in the hole before the remaining cavity was entirely obliterated by the tan levee sand that was brought in for pathway construction in the late 1950s. The dark brown color that marks the top of the silty clay level betrays the period of time it was subject to humic development as a topsoil.

Some three years after the tests reported here, Betsy Swanson (personal communication 1986) came across an early National Park Service landscape planning map which confirmed that a shallow swale or depression had indeed marked the location of Battery 3 prior to the construction of the present-day walkway. This map turned up while she was engaged in a search for archival material in support of her report on the wider geographical setting of the Battle of New Orleans (Swanson 1985).

Completed in 1934 and assigned the number Chal-1051 (National Park Service 1934a), this early National Park Service "working map" shows the presence of a broad and distinct indentation in the west bank of the Rodriguez Canal on the south side of the Chalmette Monument (Figure III-34). The indentation measures approximately 61 m (200 ft) in length and cuts horizontally into the west bank of the Rodriguez Canal at least 6 m (20 ft) and possibly as much as 12 m (40 ft) beyond the standard alignment of the bank in this sector of the battlefield. Roughly defined by the 7 ft and 8 ft contour lines of the map, the illustrated swale appears to be about 30 cm (12 in) in vertical depth. The south boundary of the feature is difficult to pinpoint because this end of the indentation has been clearly altered in the course of what appears to have been a prior attempt to constrict and regularize the channel of the Rodriguez Canal as it approaches the extreme south end of the park area and the levee road (Figure III-34).

If the Test Area 3 excavation were to be placed for reference within Chal-1051, it would fall close to the center of this indentation. The southernmost east-west trench of the test unit (Figure III-15) would cut through the 8 ft contour numeric on Chal-1051, a numeric that occupies the approximate midpoint of the swale in the map (Figure III-34). In turn, the eastern end (A44.5, N85) of this same test trench would extend some 5 m (16.4 ft) forward of the 8 ft contour line that defines the rear or western boundary of the swale. Projected back onto the test excavation units in Test Area 3, this rear midline of the indentation shown in the 1934 planning map would fall in close proximity to the A40 grid line (Figure III-15). This positioning is consistent with the stratigraphic evidence which places the rear upper lip of the buried "hole" well behind the line of banquette palings and in the vicinity of the A41.5 grid line (Figures III-17, III-18).

What is important about Chal-1051 is that it confirms the existence of a large and distinct swale in the west bank line of the Rodriguez Canal prior to the construction of the modern National Park Service pathway that now parallels the canal. The location and size of this indentation is consistent with the conclusions reached independently through stratigraphic interpretation. Thus, there can be little question that a broad swale or indentation occurs exactly where it would be predicted by Latrobe's sketch of the Rodriguez House and the "pond and a Gap" along the 1819 Rodriguez Canal (Figure III-4). In light of this close correspondence between historical, map, and archeological data, there is even more reason to conclude that the present-day "hole" documented in the tests marks the approximate position of Battery 3.

Because surface topography does not necessarily provide an exact mirror of subsurface topography, Chal-1051 cannot be justifiably used to derive a more refined estimate for the position of Battery 3 than can be made available from the test excavations. More to the point, it is evident from the map itself that the southern terminus and contour of the swale had been reshaped by a prior landscaping event at the southern end of the park that pre-dated 1934. The map's importance, however, lies in the fact that it verifies that the general location of Battery 3, as reconstructed from the test results, is not a figment of stratigraphic imagination.

The Reconstruction of the Battery

There has been an erroneous tendency to see Jackson's defensive lines on the Rodriguez Canal as little more than a low, irregular mud embankment that was hastily thrown up along the Rodriguez Canal (Roush 1958:50; Thompson 1961:6; Huber 1983:4). Unfortunately, this view has been reinforced over the past forty years by the National Park Service's physical reconstruction of the

Figure III-35. Side view of the cypress palings that line the rear of the reconstructed rampart at the Chalmette Unit.

Photograph by Ted Birkedal, National Park Service.

Figure III-36. View from above of the cut ends of the cypress palings that line the rear of the reconstructed rampart at the Chalmette Unit.

Photograph by Ted Birkedal, National Park Service.

American rampart at Chalmette. Though it does reach 20 ft (6.1 m) in width, this reconstructed rampart is scarcely 5 ft (1.5 m) in height. The top of the rampart is nearly horizontal and its exterior and interior faces are revetted with short, nearly vertical cypress palings (Figures III-35, III-36). At the foot of the interior face is a token earth banquette less than 12 in (30 cm) in height and no more than 2 ft (61 cm) in width. The exterior face plunges in a steep incline to the Rodriguez Canal. It would have been reconstructed as a more "irregular, ragged work," but the difficulty of reproducing such a rampart was considered impractical (Holland 1963a).

If Pakenham had actually faced a rampart of similar design in 1815, he would have been delighted, for it violates most of the known principles of effective field fortification in the era of Napoleonic warfare (see Mahan 1836). If Jackson and his staff officers had grossly violated these rules, the Battle of New Orleans would certainly have had a different outcome. In an age when artillery caused half the battlefield casualties (Dupuy 1980:158), one could not protect men or gun emplacements behind a 5 ft high rampart, nor could one expect to take more than a few artillery hits to a nearly vertical exterior rampart slope. Against a slope of this kind, all that would be needed would be a small number of well placed shot, and gravity would bring most of the dammed-up earth tumbling. There are many other reasons why a rampart of the popular conception would not have held, even against the most flabby British offensive actions, but the examples given should suffice to illustrate the point. Admittedly, Jackson's field staff did not include renowned masters in the art of fortification, but he had at least four knowledgeable and able engineers at his disposal on the Chalmette Battlefield. These included Major A. Lacarrière Latour, who served as Chief Engineer; Major Howell Tatum, Topographical Engineer; and Assistant Engineers H. S. Bonneval Latrobe and Hyacinthe Laclotte (James 1940:213; Carter 1971:107; Latour 1964 [1816]:120; de Grummond 1961:104). Even the youngest of these men, Bonneval Latrobe, was apparently capable of erecting a credible earthwork. Though only 21, in addition to his work on the main rampart, he directed the construction of Line Dupre, a secondary line of defense three-quarters of a mile behind the forward American position on the Rodriguez Canal (Tatum 1922:119). This rear field fortification favorably impressed Captain H. D. Jones, a British officer in the Royal Engineers who had been taken prisoner during the battle, when nine weeks after the end of hostilities, he had an opportunity to inspect the American defenses (Ritchie 1961:54). Perhaps a certain precociousness should have been expected from young Bonneval Latrobe since he was the son of one of America's greatest architects, Benjamin Latrobe, the very same man who ably sketched the American line of defense and Battery 3 some four years later (Figure III-4).

Barthelemy Lafon, a noted New Orleans architect and fortifications expert, also lent his services to Jackson's command. He had formerly served as Chief Engineer for the 7th Military District under General Wilkinson, who had considered Lafon one of the best military engineers in the United States (Bos 1977:106). Though the majority of Lafon's activities during the Battle of New Orleans were apparently devoted to the defenses in the vicinity of English Turn, it would not be idle speculation to assume that Latour conferred with Lafon on the construction of the rampart along the Rodriguez Canal (Bos 1977:109). Lafon and Latour were long-time associates as well as friends, and they shared an eight-year history of close collaboration on other defensive planning projects in the Delta Region. At about the time of the British landing, the two men were jointly engaged in planning new batteries for the New Orleans area; consequently, there is no reason to suspect an abrupt end to Latour's and Lafon's collaborative relationship in the days and weeks that followed (Brooks 1961:86).

Two additional military engineers, J. A. de Toledo and Lewis Livingstone, were attached to Jackson's forces, but their roles relative to the defenses along the Rodriguez Canal are uncertain. Livingstone is listed as an Assistant Engineer under Latour; thus, it is possible that he helped with the rampart (Reilly 1974:210). On the other hand, it is hard to say much about de Toledo's whereabouts; he is simply listed as an engineer in the Louisiana Militia assigned to Governor Claiborne's military staff (Casey 1963:v).

Besides the military engineers, the potential contribution of Lieutenant Colonel William MacRea cannot be ignored. Colonel MacRea was an experienced artillery officer in the regular United States Army, and he served in the capacity of Jackson's chief artillerist (Casey 1963:46; Jerome Greene, personal communication 1985). Though not a military engineer in the strict sense, he had a strong background in fortifications. In fact, he had assisted General Wilkinson several years prior with the inspection and improvement of the fortifications in the New Orleans area (Tatum 1922:97). Furthermore, since he was a high-ranking officer of some experience, we can probably assume that he was reasonably familiar with standard methods of battery construction and protection. Given the availability of MacRea, together with the potential

Figure III-37. Battery 3 reconstruction: the pre-battle appearance of the battery site.

Drawn by Lyndi Hubbell for the National Park Service.

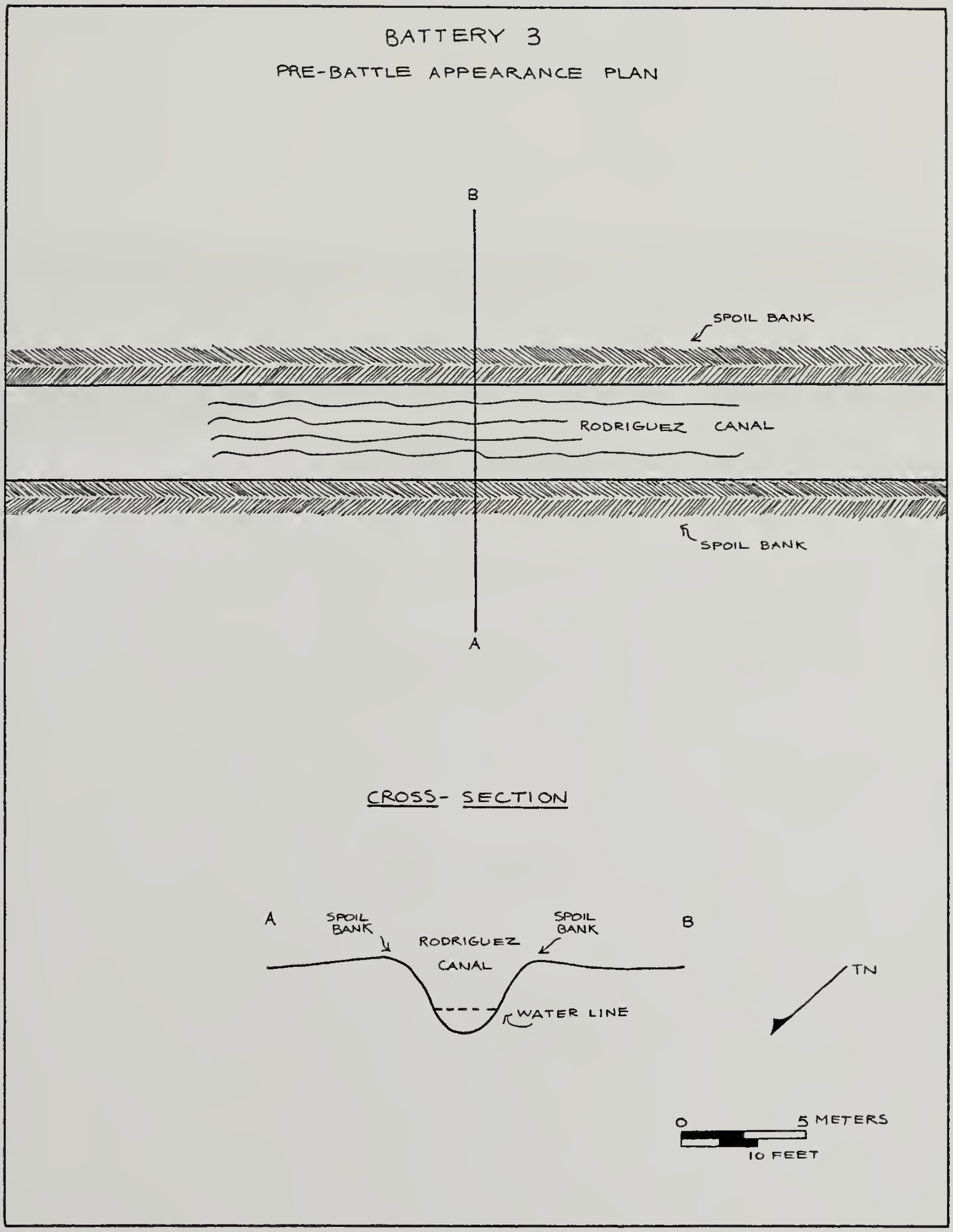

BATTERY 3
PRE-BATTLE APPEARANCE PLAN
B
SPOIL BANK
RODRIGUEZ CANAL
SPOIL BANK
A
CROSS- SECTION
A
SPOIL BANK
RODRIGUEZ CANAL
SPOIL BANK
B
WATER LINE
TN
0
5 METERS
10 FEET

Figure III-38. Battery 3 reconstruction: initial preparation of the battery site.

Drawn by Lyndi Hubbell for the National Park Service.

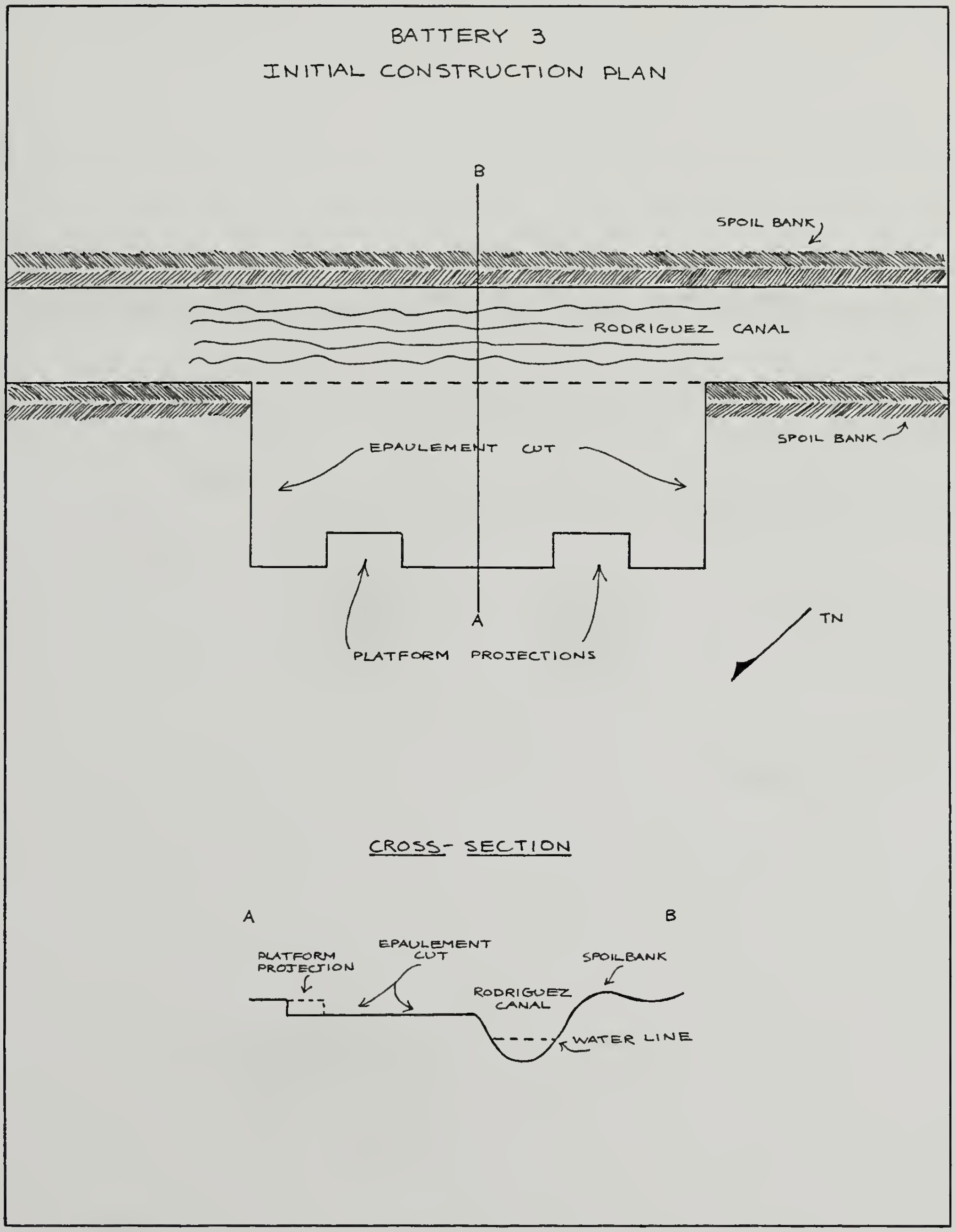

BATTERY 3
INITIAL CONSTRUCTION PLAN
B
SPOIL BANK
RODRIGUEZ CANAL
SPOIL BANK
EPAULEMENT CUT
A
PLATFORM PROJECTIONS
TN
CROSS- SECTION
A
B
PLATFORM PROJECTION
EPAULEMENT CUT
SPOILBANK
RODRIGUEZ CANAL
WATER LINE

Figure III-39. Battery 3 reconstruction: plan of the completed battery emplacement.

Drawn by Lyndi Hubbell for the National Park Service.

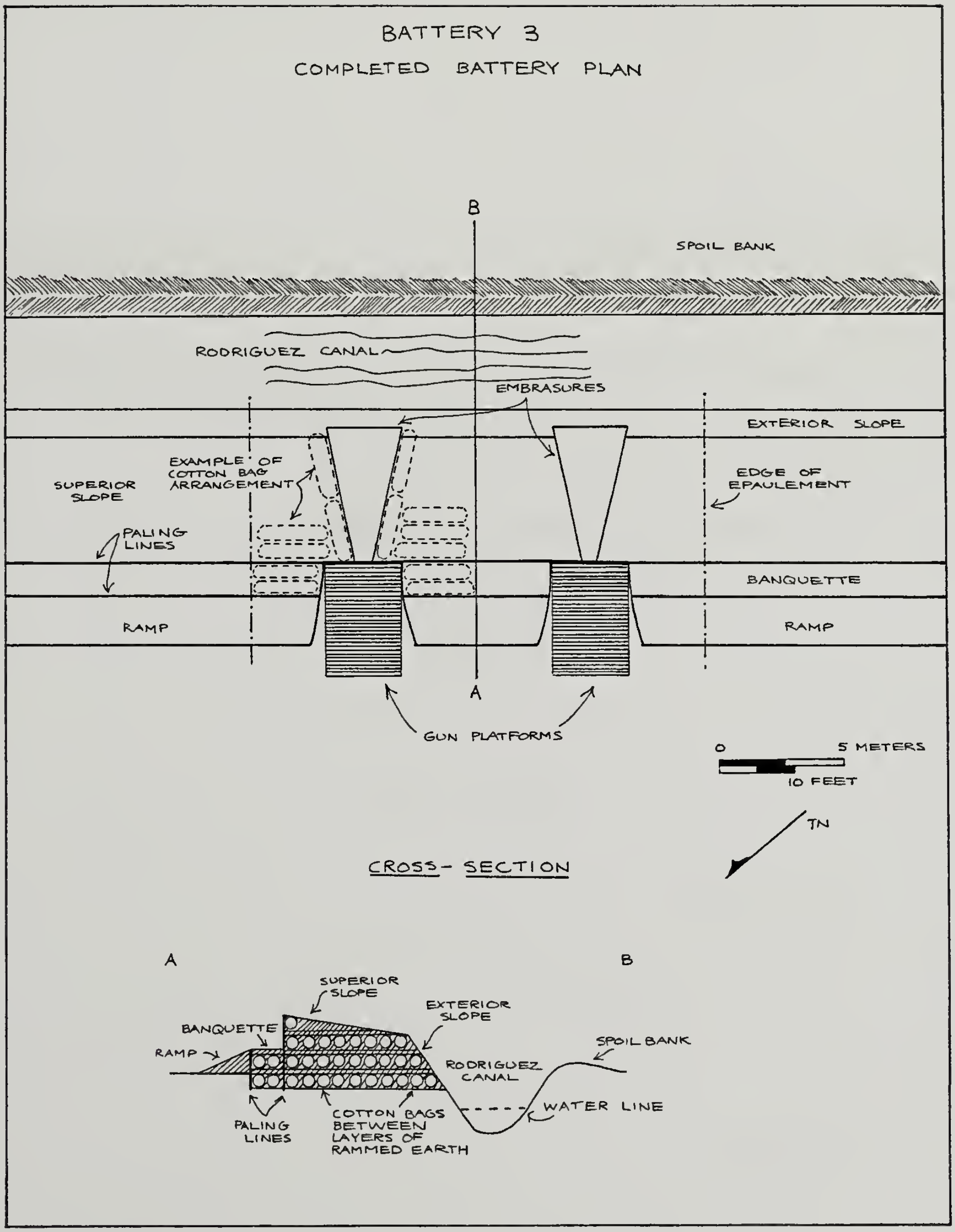
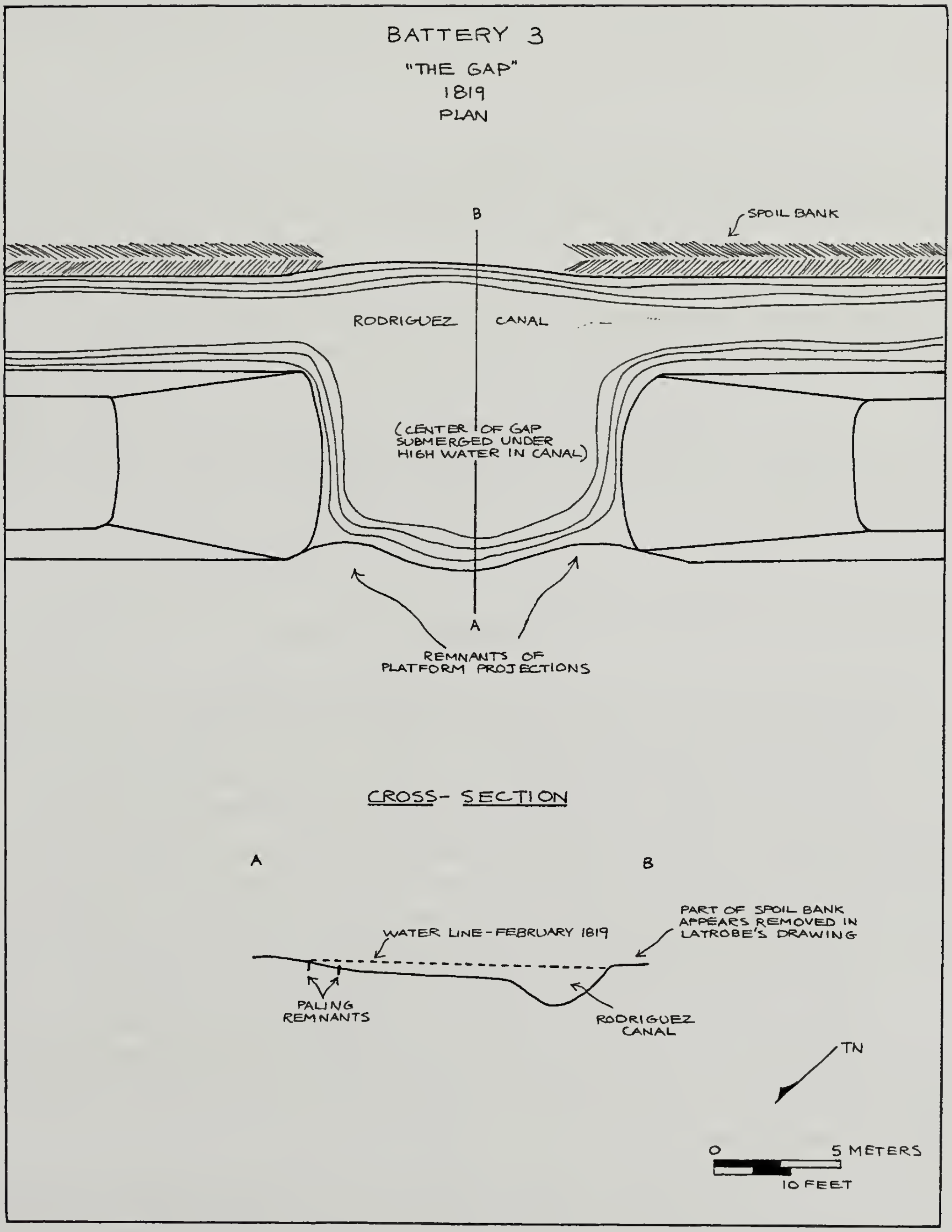

BATTERY 3
COMPLETED BATTERY PLAN
B
SPOIL BANK
RODRIGUEZ CANAL
EMBRASURES
EXTERIOR SLOPE
EXAMPLE OF COTTON BAG ARRANGEMENT
SUPERIOR SLOPE
EDGE OF EPAULEMENT
PALING LINES
BANQUETTE
RAMP
RAMP
A
GUN PLATFORMS
0
5 METERS
10 FEET
TN
CROSS- SECTION
A
B
SUPERIOR SLOPE
EXTERIOR SLOPE
BANQUETTE
RAMP
SPOIL BANK
RODRIGUEZ CANAL
WATER LINE
PALING LINES
COTTON BAGS BETWEEN LAYERS OF RAMMED EARTH

Figure III-40. Battery 3 reconstruction: plan of the "pond and a Gap" in the line that marked the former location of Battery 3 in 1819 when Benjamin Henry Latrobe sketched the battlefield.

Drawn by Lyndi Hubbell for the National Park Service.


BATTERY 3
"THE GAP"
1819
PLAN
B
SPOIL BANK
RODRIGUEZ CANAL
(CENTER OF GAP SUBMERGED UNDER HIGH WATER IN CANAL)
A
REMNANTS OF PLATFORM PROJECTIONS
CROSS- SECTION
A
B
PART OF SPOIL BANK APPEARS REMOVED IN LATROBE'S DRAWING
WATER LINE - FEBRUARY 1819
PALING REMNANTS
RODRIGUEZ CANAL
TN
0
5 METERS
10 FEET

assistance of up to seven military engineers, it is difficult to imagine how the Americans could have managed to erect anything less than a regulation earthwork along the Rodriguez.

As shall be seen, the archeological evidence supports the view that the American officers and men who erected the rampart along the Rodriguez Canal knew what they were doing. The section that follows attempts a reconstruction of Battery 3 and its manner of construction (Figures III-37, III-38, III-39, III-40). This reconstruction is necessarily incomplete and at times speculative. It must be kept in mind that the archeological work at the location of Battery 3 did not expand beyond limited testing. The purpose of this exploratory testing was simply to locate and identify Battery 3 as an archeological entity so that the wider historic geography of the Chalmette Battlefield could be better understood. Many questions remain concerning the construction and appearance of the battery, and the answers to these questions must be sought in additional excavations and future historical research.

The Meaning of the Gap and the Question of Cotton Bales

The question of how, where, and the degree to which cotton bales were used in the American defenses has been hotly debated by historians of the battle for over 150 years. Why passions have run so high on this subject is not altogether clear, but most students of the Battle of New Orleans tend to take almost a religious stance on the subject. One noted historian of Jackson, Buell (1904:407), went so far as to fabricate a quotation from Vincent Nolte, a participant in the battle, in order to make a strong case against the serious use of cotton bales (Holland 1963b:14-17; Peterson 1963:2).

The question of the bales is important to the interpretation of the archeological data and cannot be avoided. However, it is perhaps best to ignore the arguments of the various historians and rather stress what participants and other eyewitnesses had to say on the subject.

1. Latour (1964 [1816]:134), the chief military engineer to Jackson, states in his book that the "cheeks of the embrasures of our batteries were formed of cotton."

2. Alexander Dickson (1961:35), who was in charge of the British artillery, reported in his journal that Jackson's batteries had "the advantage of good embrasures substantially constructed of cotton bags."

3. Captain John Henry Cooke (1835:210) of the British 43rd Light Infantry made forward observations on the American line from a tree and later wrote that "large cotton bags were brought . . . to form epaulements, and to flank the embrasures of the American batteries."

4. General Pakenham's secretary (quoted in Ritchie 1961:53) wrote that the American rampart was "lined and protected" by "heavy bales of cotton."

5. Vincent Nolte (1972 [1854]:215-216) provides one of the most detailed descriptions of the use of cotton on the line. It is important to note that Nolte was a member of the Company of Carabiners in Major Jean Baptiste Plauche's Uniformed Battalion of Orleans Volunteers (Morazan 1979:175). As a member of Plauche's battalion, he would have been stationed on the line just north of Battery 3.

In his book, *Fifty Years in Both Hemispheres or, Reminiscences of the Life of a Former Merchant,* originally published in 1854, he claims that the "hollowed out redoubts" of the batteries were filled with "cotton-bales, laid, to the depths of three or four, one above the other" (1972 [1854]:215). He further states that "the wooden platforms which were to sustain the heavy cannon which had been dragged from the arsenal, could then be placed upon the cotton bales, and there secured, while the crenelated openings on both sides of the redoubt could be constructed with six or eight bales fastened to the main-body of the redoubt by iron rings and covered with adhesive earth" (Nolte 1972 [1854]:215-216).

Nolte (1972 [1854]:216) specifically mentions seeing men "arranging some bales" in Battery 3. He took a strong personal interest in this matter because, of the 245 cotton bales confiscated for use in the lines, approximately 185 were his property (p. 216). These had been taken from a ship that had been held in port as a consequence of the British invasion.

6. Vincent Nolte's narrative is largely corroborated by Benjamin Latrobe. Latrobe visited the battlefield in February of 1819 accompanied by a much younger Vincent Nolte than wrote the book some thirty-five years later (Nolte was only 39 or 40 at the time of this visit). Latrobe had a particular interest in Battery 3, or Battery D as he designated it, for his son, H. S. Bonneval Latrobe, had directed its construction.

Latrobe (1951:73-74) states that Nolte contributed 123 bales out of a total of about 200 used along the line. Latrobe (1951:73) explicitly states in his journal that the "batteries were built of bales of cotton,—perhaps the best material in the World for the purpose." In a more detailed description, he points out that "The Battery D, as well as the others, was strengthened & indeed built, by laying down a mass of Bales of Cotton, covering them with earth, piling others upon them, & thus producing perhaps a much better work than harder materials could have supplied" (pp. 45-46).

Thus, credible eyewitness accounts indicate that cotton bales played an important role in the construction of the batteries. Moreover, Latrobe's 1819 sketch shows a hole in the line in the former position of Battery 3 (Figures III-4, III-40). In the text of his journal, he explains that this gap resulted when the "bales were taken up" after the battle (1951:46). Ritchie (1961:53), although he does not give a source, mentions that the extracted cotton bales were sold at a profit in New Orleans because they were "not much damaged."

The archeological evidence indicates that a gap or hole like that described and illustrated by Latrobe exists at the location of Battery 3. Obviously, something was removed from this portion of the rampart, and whatever it was must have had some value, or else there would have been little reason to expend any effort in its retrieval. Since the preponderance of the historical evidence argues for cotton bales, it would seem only logical to accept this explanation.

"The Hollowed Out Redoubt"

Battery 3 was constructed on the evening of January 27 and mounted with two 24-pounder naval cannons (Latour 1964 [1816]:122, 148; Casey 1963:28). Because the battery contained two gun emplacements, some contemporary sources give separate designations for each of the two gun positions. In this alternative system of designation, the southern half of the battery is listed as Battery 3 and the northern half as Battery 4 (MacRea 1815; Casey 1963:28).

Nolte (1972 [1854]:215), who purportedly observed the construction of the batteries located on the right side of Jackson's line, refers to the batteries as "redoubts." As Peterson (1963:1) correctly points out, Nolte was a merchant and not a professional soldier; consequently, his unfamiliarity with correct military terminology led him to use the wrong term in his descriptions. A redoubt actually is a "closed, independent work, of square or polygonal trace, without bastions" (Hogg 1977:158). Nolte had probably sought a descriptive term that would indicate the special defensive arrangements that were made at the battery emplacements. Being unacquainted with the precise nature of the military terminology of the day, he mistakenly used the term "redoubt" to describe what he saw.

In his American edition, Nolte is translated as saying that the "hollowed out redoubts (battery positions)" were filled with "cotton-bales, laid, to the depth of three or four, one above the other" (1972 [1854]:215). The original German edition contains a similar wording, but a more precise translation according to Peterson (1963:1) would substitute the phrase "excavations of the redoubts" for "hollowed out redoubts."

What then is Nolte telling us about the construction of the batteries, and more specifically about Battery 3? The interpretation offered here is that the position of Battery 3 was not pre-established on December 24 when work on the rampart began. Thus, a section of unfinished earth rampart may have already been in existence in the Battery 3 vicinity by the evening of December 27. This would have required those in charge of the work to dig through the existing, partially built earthwork in order to erect proper protection for the proposed guns and crews. As is argued below, this excavation was most likely continued below ground surface so to provide a solid footing for the battery epaulement.

The Epaulement

The epaulement is the "parapet of a battery" (Mahan 1836:85). In a continuous defensive line, as used by the Americans, the epaulement would have followed the same alignment as the rest of the rampart and resembled it in many aspects of construction. According to Tatum (1922:114), the American line of defense was oriented "30° East of North (variation 9° wt.)," an angle close to the 34° east of north alignment followed by the paling lines found in the excavations.

If it is accepted that the rear of the epaulement in Test Area 3 is represented by the eastern row of palings, it is important to note that the "hole" not only reaches its deepest level forward of this paling line, about 90 cm (35 in) below datum at the approximate interface between the natural gray brown clay and the lower silty clay loam, but its stratigraphic layers also level out noticeably after following a pronounced downward dip (Figures III-17, III-18). This shift in angle suggests that the western edge of the original channel is not close by, for if so, the strata should continue this downward dip toward the old canal bottom.

The Rodriguez Canal, at the time of the battle—although it was no longer an active millrace—nonetheless exhibited a deep channel. Captain H. D. Jones of the Royal Engineers, who made a close inspection of the American works some weeks after the battle, reported that the canal was about 8 ft (2.4 m) deep south of the cypress swamp (quoted in Ritchie 1961:55). Jones's depth estimate is supported by Auger Test 5, which was dug to a depth of 2.6 m (8.5 ft) without reaching the original canal bottom (Appendix A). Today, in the Battery 3 vicinity, the bottom of the canal channel lies less than 1 m (3.28 ft) below the adjacent bank line.

There is another reason to believe that the canal edge was not located near the forward paling line in 1815. Although the present canal channel is shallow in the Battery 3 area, it has become much broader than the earlier channel as a result of bank line collapse and erosion. In the Test Area 3 sector, it now averages 15 m (49.2 ft) in width. In contrast, eyewitness accounts by the British indicate the canal of the battle period was only 10 to 15 ft (3 to 4.6 m) across (General Court Martial 1926:55, 59; Jones quoted in Ritchie 1961:55). Latour (1964 [1816]:146), by means of a general description of Louisiana's millraces, appears to imply that the Rodriguez Canal, like other canals of the same type, may have been as wide as 25 ft (7.6 m), though he never offers specific measurements for the Rodriguez itself.

Whatever the exact dimensions of the Rodriguez Canal in 1815, it is certain from the historical evidence that the west edge of the former channel was located well forward of the paling line discovered in Test Area 3. The stratigraphy suggests that a large step-like cut in the former Rodriguez bank line was made in the intervening space. The rear wall of this cut, which was probably vertical, has lost its former definition, but the floor of the cut is evidenced by the nearly level interface between Stratum 6 and Stratum 7 (Figures III-17, III-18). The ground surface from which this cut originated is thought to have been located between 20 and 30 cm (7.8 and 12 in) below present ground surface, that is, somewhere between the surface of the dark gray clay subsoil and the base of the current topsoil. Thus, the original depth of the cut would have been approximately 55 to 60 cm (21.6 to 23.6 in) deep.

The existence of this step-like cut behind the old west bank of the Rodriguez Canal fits in well with Nolte's and Latrobe's accounts of the use of cotton bales. Nolte (1972 [1854]:215) claims that the "excavation of redoubts" (Peterson translation 1963:1) were filled with cotton bales "laid, to the depth of three or four, one above the other." Further, he specifically reports seeing cotton bales being put in place during the construction of Battery 3 (Nolte 1972 [1854]:216). Similarly, Latrobe (1951:45-46), who got the story directly from Nolte who served as his guide on the battlefield in 1819, relates that "battery D (Battery 3), as well as the others, was strengthened & indeed built, by *laying down a mass of Bales of Cotton, covering them with earth, piling others upon them*" (Italics mine). Though separated by the passage of thirty-five years, these two accounts closely resemble each other and suggest that the purpose of the cut was to serve as a prepared footing to receive the lowermost layer of bales (Figure III-38). The placement of this first layer of bales below ground surface with their ends or sides braced against the rear of the cut would have greatly enhanced the solidity and resiliency of the overall cotton bale construction. It was the eventual removal of this cotton bale core that created the gap in the rampart illustrated by Latrobe (Figures III-4, III-40). This gap corresponds closely to the expected length of the epaulement at Battery 3.

One reason that historians and others have had difficulty accepting the use of cotton bales in the construction of the batteries results from the incorrect assumption that the cotton bales of the War of 1812 period were the same as those of the Civil War period. The large, incompletely wrapped, rectangular bales of the mid-nineteenth century are what typically come to mind for most of us when we read of "cotton bales."

Actually, the bales of the early decades of the nineteenth century were really cotton bags. These bags of cotton were roughly 9 ft (2.7 cm) long, about 2 ft (61 cm) in breadth, and weighed approximately 300 pounds (Lowry 1898:819; Meuse 1963:1-2). Between 1810 and 1840, the cotton in the bags was compressed in a wooden screw press to a density of roughly 8 pounds per cubic foot compared to the average density of 12 pounds per cubic foot achieved later in the century (Lowry 1898:819).

The final result was a long cylindrical bale of cotton, completely enclosed in bagging material and sewn up at both ends. It was this kind of sausage-like bale that Captain John Henry Cooke of the British 43rd Light Infantry observed through his telescope from a vantage point in a tree. Cooke described the bales, some of which were visible in the gun embrasures, as being 9 ft (2.7 m) in length and 2 ft (61 cm) in diameter (Cooke 1835:210), exactly the same size reported for the period in Lowry's (1898:819) historical overview of cotton baling. It is interesting to note here that the estimated depth of the step-like cut for the epaulement was 60 cm or about 2 ft (61 cm), a dimension equal to the diameter of a typical cotton bale of the period.

The reason that epaulements were often separately constructed from the rest of the rampart is because batteries were one of the primary targets of enemy artillery. They usually received more sustained and concentrated fire than other sections of the line; thus, they were specially reinforced and strengthened whenever possible in order to take additional punishment. Gabions or saucissons were the usual devices employed to strengthen epaulements (Mahan 1836:56-59). Gabions were open-ended, wicker-work baskets about 2 ft 9 in (84 cm) in length and 2 ft (61 cm) in diameter. These were filled with earth and then set on end in the parapet. They were usually secured by means of ropes tied to long stakes that were in turn embedded in the surrounding rammed earth of the epaulement (Mahan 1836:58-60).

Saucissons were close-bound bundles of twigs measuring 20 ft (6.1 m) in length and 12 in (30 cm) in diameter (1836:56). Unlike the gabions, these were laid one on top of the other with their sides parallel to the line of the rampart. The saucissons were also anchored with stakes and covered with earth (p. 56). The French engineer whom Nolte (1972 [1854]:215) mentions as having the idea of using cotton bales was probably seeking a convenient substitute for gabions or saucissons since these would have taken considerable time and manpower to manufacture. Perhaps he noticed the resemblance between saucissons and the long, sausage-like cotton bales of the day.

As mentioned earlier, the cotton bales were placed in three or four layers interspersed with coverings of earth. Whether these were laid with their sides perpendicular or parallel to the rampart alignment is unknown. Either arrangement would probably have been possible. The important point is that they would have been covered by earth, and, therefore, the bales in the epaulement would not have been visible after construction (Figure III-39). It may be this earth covering that led certain troops to believe that cotton bales did not play an important role in the defenses (see pp. 106-109, Chapter 5, Part I, this report). One of these scoffers, Henry W. Palfrey (*The Sunday Dispatch* [Philadelphia]:1877), did not know how right he was when he stated that, if cotton bales were used, "they would of necessity have to be thickly covered with earth." This appears to have been exactly the case.

Excluding the intervening earth, the three to four layers of cotton bales mentioned by Nolte (1972 [1854]:215) would have had a combined height of 6 to 8 ft (1.8 to 2.4 m). Even if the smaller number of bales is assumed and allowance is made for the effect of the footing cut, the addition of only 12 in (30 cm) of earth between each bale and another 12 in (30 cm) for the facing results in an epaulement that would have risen at least 7 ft (2.1 m) above the surrounding terrain. With four bale layers, the height projection would have reached 8 ft (2.4 m).

These projections, in fact, are very similar to eyewitness accounts. Lieutenant Knight of the 44th Regiment, who obtained a close but hazardous view of the American parapet from 30 to 40 yards (27 to 36.6 m) out, estimated its height at 8 to 9 ft (2.4 to 2.7 m) (General Court Martial 1926:55). Another British officer, Lieutenant Fontblew of the 21st Regiment, who had the opportunity to examine the parapet first hand, both in close-up action and as a prisoner, gave its height as 8 to 10 ft (2.4 to 3 m) (General Court Martial 1926:59). In his typically oblique language, Latour (1964 [1816]:133) implies a similar height in his statement that the top of the American parapet was 8 to 9 ft (2.4 to 2.7 m) above the level of the British batteries.

Contemporary accounts which describe a much lower parapet muddy the water somewhat. For example, Latour (1964 [1816]:146), in another part of his memoir, mentions that the parapet was "hardly five feet high." He also gives the impression of a low parapet in a following paragraph of his account where he states, "the height of the breastwork above the soil was hardly sufficient to cover the men" (Latour 1964 [1816]:147). However, a careful reading of the context in which he gives height descriptions suggests he is not making blanket statements about the entire defense line. In the first reference, he is simply describing an incomplete section of line in order to illustrate the unfinished state of the defenses on January 1. His second mention of a low parapet height is made during a discussion of the extreme left of the American line. Because this section was in the cypress woods and only vulnerable to musketry fire, it was purposely not given the same mass as the rest of the line. General Coffee's description of a parapet only as "high as a man's shoulders" is also specific to the extreme American left, where he held command (Coffee quoted in Holland 1963b:9).

To continue the argument, it is worth noting that Latour (1964 [1816]:147) clearly stresses that on January 8 the entire defensive line "as far as the wood, was proof against the enemies cannon." The frustrated British also admitted to the strength of the American works (Ritchie 1961:55), and Sir Alexander Dickson, the British officer in charge of artillery, described the American epaulements as providing "good Solid Cover" as early as January 1 (Dickson 1961:38). For the American defenses to have been effective, there must have been adherence to the basic principles of field fortification of the day. These require a minimum parapet height of 8 ft (2.4 m), a figure which, interestingly, matches the British height estimates (Mahan 1836:29). The principles would also indicate that the American parapets, including epaulements, must have been at least 18 to 20 ft (5.5 to 6.1 m) in basal thickness (Mahan 1836:30). This would have been essential at Battery 3, which lay within easy firing range of two powerful British batteries containing 18- and 24-pounders (Meuse 1965:34). Shot from "heavy metal" of this kind regularly penetrated rammed earth to a depth of 11 to 13 ft (3.4 to 4 m) (Mahan 1836:30).

The rear of the epaulement, like the rest of the parapet south of the woods, was revetted with cypress fence palings obtained from the numerous rail fences that abounded in the fields that neighbored the defense line (Latour 1964 [1816]:146). Captain H. D. Jones, the British engineer who had an opportunity to inspect the American works after the battle, specifically described the parapet as "revetted with planks supported by stakes" (quoted in Ritchie 1961:54). This type of parapet reinforcement represents a standard form of construction known as "plank revetment" in the military terminology of the period (Mahan 1836:60). It is made by driving narrow planks approximately 2 ft (61 cm) below the tread of banquette at intervals of about 3 ft (91 cm). Horizontal crosspieces are then nailed to these planks to complete the work and hold back the soil.

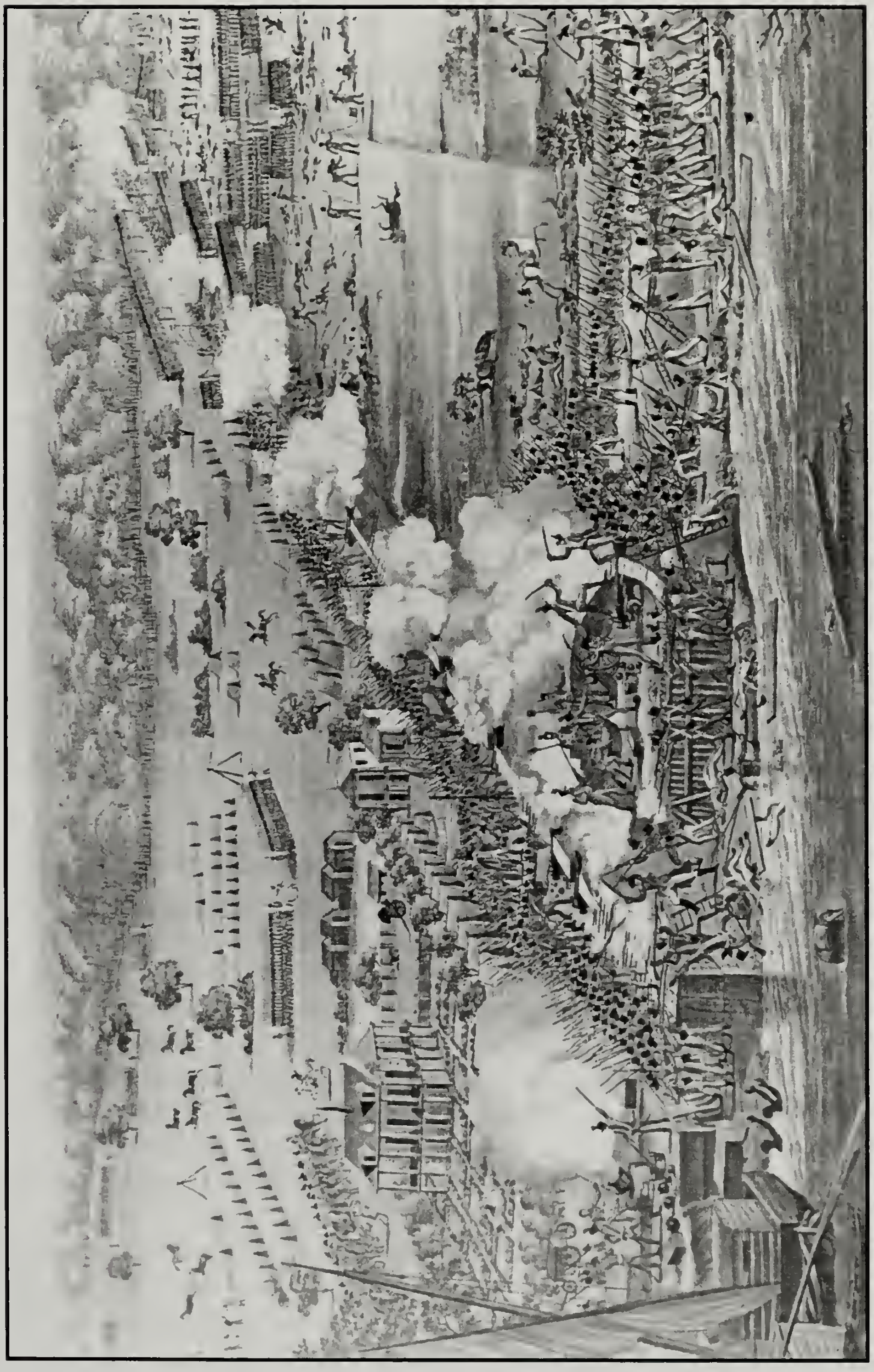
In his famous print of the Battle of New Orleans, Hyacinthe Laclotte, one of Jackson's engineers, illustrates the use of plank revetments on the sides of both the mortar battery and the forward redoubt (Figure III-41). The technique shown is similar to Mahan's (1836:60) recommended treatment, but it emphasizes the vertical rather than the horizontal members of the revetment. Here, the vertical planks appear to be contiguous, or nearly so, and the horizontal planks are widely spaced, with one at the base, middle, and top of the revetment.

The archeological evidence verifies the historical accounts of a plank revetment, but it is somewhat ambiguous on the exact details of construction. The first six palings at the southern end of the exposed forward line (i.e., epaulement line) occur within 10 cm (4 in) of each other (Figures III-19, III-21). Beyond the sixth paling, the distance between paling remnants increases significantly. This increase in spacing is at least partially an artifact of the differential preservation, but there appears to be some regularity that is not easily attributed to coincidences of variable decay. For instance, the distances between the center points of four separate paling pairs—7 and 8, 9 and 10, 10 and 11, and 13 and 14—all fall between 40 and 43 cm (16 to 17 in). Further, the 20 cm (8 in) distance between Palings 8 and 9 is the only one that approaches the close spacing found among the first six palings. This contrast becomes more dramatic when the number of palings per meter is considered. On the south, the first meter contains 6 palings, whereas in the next 6 m, the occurrence rate falls rapidly to only 0.5 palings per meter.

Though perhaps skewed by accidents of preservation, the evidence does point to the existence of two localized spacing patterns among the palings of the epaulement. Close-spacing, 10 cm (4 in) or less, is characteristic of a meter-long section of palings on the south; in contrast, wide spacing, with some palings occurring at regular intervals of about 40 cm (16 in), is the dominant pattern in the remaining 6 m (20 ft). Thus, the rear facing of the epaulement appears to represent a combination of the revetment construction illustrated by Laclotte (Figure III-41) and that described by Mahan (1836:60) in his handbook on field fortification. A possible explanation for this variation is explored later in this chapter.

Figure III-41. A section of "The Defeat of the British Army 12,000 Strong under the Command of Sir Edward Packenham [*sic*] in the Attack of the American Lines Defended by 3,600 Militia Commanded by Major General Andrew Jackson, January 8^{the} 1815, on Chalmette Plain, Five Miles Below New Orleans, on the Left Bank of the Mississipi [*sic*]." This view of the battle is from an aquatint etching by P. L. Dubucourt, Paris, "Defaite de L'Armee Anglais, 1817," after a painting or drawing by Jean Hyacinthe Laclotte. The Rodriguez House occupies the center of the scene, the Macarty House is to the left, and Battery 3 is indicated by the cloud of powder to the east and slightly below the Rodriguez House. General Jackson, adjacent to the waving American flag, stands behind the epaulement of Battery 2, which offered one of the best commanding views of the battlefield.

Courtesy of the Print Collection, Miriam and Ira D. Wallach Division of Art, Prints and Photographs, The New York Public Library, Astor, Lenox, and Tilden Foundations.



The paling remnants bore a surprising resemblance to the split-cypress palings which make up the reconstructed portion of the American line to the north (Figures III-35, III-36). They exhibited a similar mix of broad, curved planks from the outer sections of the trunk and the narrower and slightly thicker planks derived from the trunk interior.

There was no evidence that these palings had been set in a trench or that prior holes had been dug to receive them. These were most likely driven into place as indicated by the crushed and incurved fiber lines observed on the rounded, but somewhat pointed, end of Paling 15. The narrow collars of dissolved clay around each paling were most likely produced when these planks were driven into the soil. Clayey earth beside the paling would have been disturbed by the slight movements and vibrations of the paling as it was driven home. The slight gap that would tend to occur between the paling and the surrounding earth would have permitted rain water to flow down and mix with this soil.

The palings did not extend more than 10 to 20 cm (4 to 8 in) below the projected bottom of the gap or hole prepared for the battery emplacement. This shallow penetration by the palings suggests that the construction crews followed standard military practice and set the palings from the level of the banquette tread after the epaulement was partially raised (Mahan 1836:60).

Wilson (1963:6), in his 1963 excavations located several hundred meters to the north of Test Area 3, found the stub ends of two vertically set, narrow planks in a similar alignment and a similar position to those exposed in Test Area 3. At the time, he suggested that these plank stubs represented the palings mentioned by Latour, and he was undoubtedly correct in this identification. Wilson's illustration of one of these planks shows an irregularly pointed paling 30 cm (12 in) in length, 10 cm (4 in) in width, and 1.25 cm (.5 in) in thickness, almost an exact duplicate of some of the paling remnants found in Test Area 3.

Projecting from Battery 3, Wilson's section of the parapet would have been located between Battery 6 and Battery 7. The discovery of these palings at two widely separate locations strongly suggests that the rear of the American parapet possessed a similar revetment from the river to the cypress swamp. Moreover, this similarity in revetting argues for a general uniformity of construction in the American field fortifications.

Since the excavations did not extend much forward of what would have been the rear of the epaulement, no archeological information was obtained on the exterior forward slope of the work. However, beyond the cotton bale core, this part of the epaulement should have been formed of rammed earth. To survive bombardment, exterior slopes of fortifications were shaped to follow a downward angle no steeper than the earth naturally assumed when thrown to the desired height (Mahan 1836:31). Thus, the angles varied with the type of soil and the local conditions. Had a military engineer of the day been rash enough to ignore soil dynamics and gravity, the results would have been disastrous after only a few artillery hits. For this reason, exterior slopes of the nineteenth century were only rarely revetted, and then only with heavy timbers set at their bases (Mahan 1836:53). There is no clear evidence that the Americans revetted the exterior slopes during the Battle of New Orleans, though the current rampart reconstruction at Chalmette possesses a cypress paling revetment on its forward slope. One British officer noted that there were "a few planks struck down in some places" on the exterior slope of the parapet on January 8, but these planks may simply have represented random construction debris (General Court Martial 1926:59). Latrobe's sketch of the Battery 3 area in 1819 shows no evidence of an exterior revetment (Figure III-4). The exterior slope of the surviving earth parapet appears to plunge directly into the waters of the Rodriguez Canal.

The Banquette

A banquette is a "platform behind the parapet on which the soldier stands to fire, so that he may step down after firing and thus be completely protected by the parapet" (Hogg 1977:155). Banquettes were usually extended into the flanks of the gun battery to permit observations of the enemy positions by the gun crews, particularly in embrasured batteries. In batteries with two or more guns, a banquette might also be run along the rear of the merlon, the section of epaulement between the two embrasures, if this space was not to be occupied by a traverse. Traverses were short sections of earthwork set perpendicular to the epaulement to protect gun crews from enfilading fire (Ripley 1970:249).

Major Howell Tatum (1922:112), Jackson's Topographical Engineer, states in reference to the part of the American earthwork south of the cypress swamp that "proper banquets [*sic*] was erected to every part of the line of defense." Similarly, Latour (1964 [1816]:147) refers to the existence of a banquette along the parapet. In the excavations, the rear of this banquette is marked by the row of six cypress palings located 1.37 m (4.5 ft) behind the forward row of palings (Figure III-21). This spacing interval between the two lines of palings would indicate a substantial banquette, large enough to accommodate two ranks of soldiers (Greene 1976:27). It was obviously revetted in much the same manner as the epaulement. Some regularity was evident in the spacing of the banquette palings. The distance between the centerpoints of three of the surviving paling pairs was exactly 24 cm (9 in).

If the epaulement was about 2.4 m (8 ft) high as estimated earlier, the tread, or top, of this banquette would have been between 1.14 m (3 ft 9 in) and 1.07 m (3 ft 6 in) in height. The tread was always placed between 1.4 m (4 ft 6 in) and 1.3 m (4 ft 3 in) below the interior crest of the parapet in order to allow men of average stature to fire conveniently at the enemy (Mahan 1836:32; Greene 1976:27).

In open field fortifications, access to the top of the banquette was normally made by a gradual ramp of earth. A ramp construction was most likely used at Chalmette because steps were usually reserved for enclosed works with little available space behind the banquette proper (Mahan 1836:32).

As can be seen in the north profile (Figure III-18), the base of the "hole," marked by the top of the dark gray clay, remains fairly deep until it reaches the banquette paling line. This slow ascent suggests that the original battery cut was extended behind the epaulement line in the sections of the battery that were slated to receive a banquette. In light of the previous discussion of cotton bales, it would seem reasonable to conclude that the interior of the banquette was constructed of cotton bags and layers of earth in much the same way as the epaulement (Figure III-39). The reason for using such a unique construction technique can only be speculated upon, but the American engineers may have thought that an additional 1.4 m (4.5 ft) section of cotton "saucissons" was worth the effort, perhaps as a reinforcement of the overall footing of the epaulement. It is possible that they generally viewed the cotton bags, rightly or wrongly, as a good tool for the absorption of the tremendous shock caused by direct hits from enemy shot.

If a relatively vertical earth wall once delineated the edge of the battery cut at the rear of the banquette line, it would have been obliterated by the activity associated with the dismantling of the battery after the battle and subsequent exposure to erosion. The latter would have been a factor in the upper margins of the hole, for this outer perimeter of the "pond and a Gap" in the line would have been the last sector to be covered with protective sediments (Figure III-40).

Arrangement of the Battery

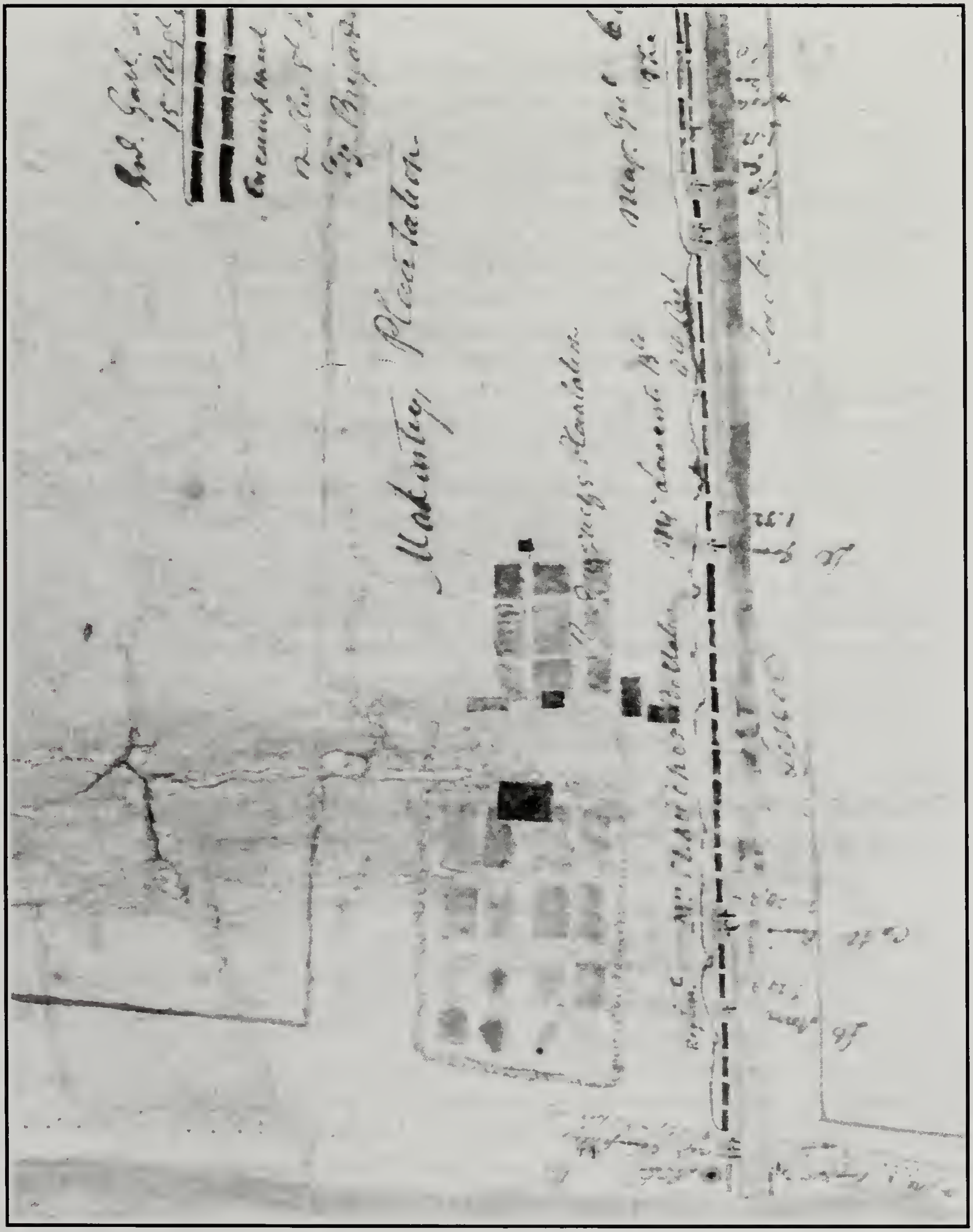
There is insufficient historical and archeological evidence to permit an exact measure of the length of ground occupied by Battery 3, but an approximate measure is possible. Mahan (1836:26, 91), in his classical treatise on field fortification, recommends that at minimum, 5 to 6 yd (4.6 to 5.5 m) should be allotted to each cannon along the line and an additional space about 15 to 20 ft (4.6 to 6.1 m) for the traverse between each gun. Jerome Greene (p. 81, Chapter 4, Part I, this report), who has made a thorough historical study of the subject, believes that each of the 24-pounders at Battery 3 occupied 20 linear ft (6.1 m), and he allows another 20 ft (6.1 m) for traverses and other internal arrangements of the battery. Notably, this estimate of 60 ft (18.3 m) is identical to the length of Battery 3 illustrated in Joyes's detailed contemporary map of the battlefield (Figure III-42).

The estimate of a 60,ft (18.3 m) battery length also fits well with the estimates given for the length of the "gap" at the beginning of this interpretive section. The exercise in reverse perspective suggested that the battery gap observed by Latrobe in 1819 possessed a maximum width of 31.7 m (104 ft) at parapet height. This distance is about what could be expected to result from an original 18.3 m (60 ft) gap in the line after three years of exposure to Louisiana's erosive climate. The loss of about 6 m (20 ft) of earthen parapet on each side of the dismantled epaulement is hardly excessive. In Latrobe's sketch, the inward sloping ends of the parapet and its rounded lines suggest that erosion of the earthwork was already well under way by 1819 (Figure III-4). The estimate obtained from the auger tests also meets expectations. These tests indicated that the present filled-in gap is about 23 to 24 m (75.5 to 78.7 ft) in length. Again, this is a hole that could easily result from an original 18.3 m (60 ft) cut below ground surface.

The excavations did not extend back far enough to find out anything about the construction of the gun platforms. Whether or not the wooden platforms were

Figure III-42. Southwest section of the American line from Thomas Joyes's map "Plan Shewing the Disposition of the American Troops when attacked by the British army on the Morning of the 8th Jany. 1815 at the line Jackson 4 miles below New Orleans (ca. 1815)." Battery 3 is shown with two guns and is located east of the Macarty Estate at the lower east side of the Rodriguez House (Approximate Scale: 1 in = 131 yd or 1 cm = 47 m).

Courtesy of The Filson Historical Society, Louisville, Ky



raised on low mounds of earth or were laid flush with the ground can only be determined with more extensive stripping. However, the fact that the hole ended immediately behind the banquette line tends to argue against Nolte's (1972 [1854]:215) observation that the gun platforms were raised on cotton bales and also set in the "hollowed out redoubts." It is possible that he saw only part of the battery construction process on the night of December 27 and erroneously concluded that cotton bales were also used under the gun platforms. The long cotton bales of the day, compressed to only 8 pounds per square foot, would have made a poor base for a recoiling gun weighing several thousand pounds. The very resilient qualities that would have made cotton bales excellent "shock absorbers" in the epaulement would have made them a poor choice for the support of a gun platform that requires absolute stability for proper performance.

Thus far, nothing has been said about where the two gun positions might have been located along the rear of the epaulement. Some indirect evidence relevant to this question was uncovered, and these clues, when brought together, are convincing and suggest an arrangement of the battery that makes sense. First, it is important to recall that the reverse perspective exercise placed the center of the battery gap at about A42.5, N86. If this is approximately correct, then the guns would have stood on either side of this point. However, there was nothing found in the excavation north of A42.5, N86 that would point to a gun position. Actually, the existence of a banquette in this sector of the excavation argues rather convincingly against a gun position. Because banquettes would interfere with bringing the muzzle of the gun close to the embrasure, they were always terminated once they reached the edge of the platform.

The presence of the banquette might appear to argue that our excavation was actually made at the southern or northern flank of Battery 3. However, it must be stressed that banquettes were often run along the merlon in batteries without central traverses. Ripley (1970: Figures X-22, X-23), in his book on Civil War artillery, presents excellent photographs of two different earthwork batteries with just this arrangement. Both of these illustrated batteries, interestingly, exhibit plank parapet revetting similar to the type that may have been used at Chalmette. In the photographs, the ends of the merlon banquettes are also revetted with narrow planks, and these terminal revetments turn rearward from the epaulement upon reaching the sides of the gun platforms.

Accepting the excavated section of banquette as a segment of the merlon banquette gives potential meaning to some formerly unexplained incongruities in the archeological data. These are as follows:

1. If the banquette line is projected south into the long east-west trench, it should enter Unit A41, N85 between 35 to 40 cm (14 to 16 in) east of the grid's west wall and exit about 15 to 20 cm (6 to 8 in) east of A41, N84. However, careful excavation and close study of the exposed walls of Unit A41, N85 failed to reveal any signs of buried paling remnants. This absence suggests that the banquette paling line terminates at some point in the intervening 4 m (13 ft) long unexcavated section south of A42, N89.

2. The north and south profiles display some striking stratigraphic differences west of the rampart paling line.

    A. The top of the natural dark gray clay in the north profile lies farther below the surface and rises at a more gradual pace than the corresponding surface in the south profile (Figures III-17, III-18). In the north profile, the top of the dark gray clay lies 73 cm (28.7 in) below datum at the rampart paling line and then climbs gradually to a depth below datum of 62 cm (24.4 in) at the banquette paling line. In contrast, on the south profile wall, the top of this level begins 65 cm (25.6 in) below datum at the forward paling line and rises 27 cm (10.6 in) to intersect with the projected banquette line at 38 cm (15 in) below datum. Viewing this elevational change from the perspective of the actual and projected banquette line, we see that the depth of the dark gray clay makes a rise of 24 cm (9.4 in) between the two ends of Test Area 3.

    Whether this rise is incremental or made suddenly is not known. The west profile of the excavation is too far forward of the area of interest to provide any information on this stratigraphic shift. It should also be kept in mind that this profile runs at a diagonal relative to the orientation of the paling lines and the battery "hole." This is why the lower strata in the profile appear to rise 5 to 10 cm (2 in to 4 in) from north to south (Figure III-19). In other words, the north end of this profile is situated farther out of the "hole" than the south end.

B. A fairly thick deposit of silty clay loam, or "melt," from the rampart lies between the forward and rearward paling lines in the north profile (Figure III-18). Furthermore, the paling remnants protrude nearly to the top of this deposit. In contrast, only a thin lens of this same soil deposit continues west of the forward paling line in the south profile, and it extends back only 50 cm (20 in) before pinching out (Figure III-17). Moreover, it largely passes above the surviving paling remnant. What occupies most of the space behind the paling line in the south profile is the natural dark gray clay, and it is a significantly thicker deposit than is found in the corresponding section of the north profile.

These stratigraphic differences suggest that the rearward extension of the "hole" associated with the banquette line on the north edge of the excavation does not occur at the south end of the excavation. At the latter location, the bottom of the "hole," which is defined by the top of the dark gray clay, begins a noticeable climb toward the surface immediately beyond the forward "or epaulement" paling line.

3. The palings in the forward epaulement group exhibit a shift in spacing at about the position where they are intersected by the N85 grid line. South of N85, the palings become closely spaced relative to one another.

The absence of banquette paling remnants in the south end of Test Area 3 and the stratigraphic differences between the north profile and south profile walls argue for the termination of the banquette somewhere around the N86 and the N87 grid lines. If it is assumed that the excavated banquette segment was located behind the merlon of the epaulement, then the interruption of this feature would be expectable and it would roughly mark the north side of the south gun platform of Battery 3.

The apparent shift in the spacing of the epaulement palings at about the same location is also worthy of note, for it may also be related to the nearby presence of the gun position. The closely spaced palings that start south of Grid Line N86 might represent a portion of the genouillere, the section of the epaulement which lies beneath the embrasure (Hogg 1977:157). It would seem possible that this important section of the epaulement might have received a better revetment because it would have been in direct contact with the heurter, and thus subject to punishment each time the heavy gun was run back into position after firing. A heurter was a heavy log or timber that was laid parallel to the genouillere to stop the wheels of the gun.

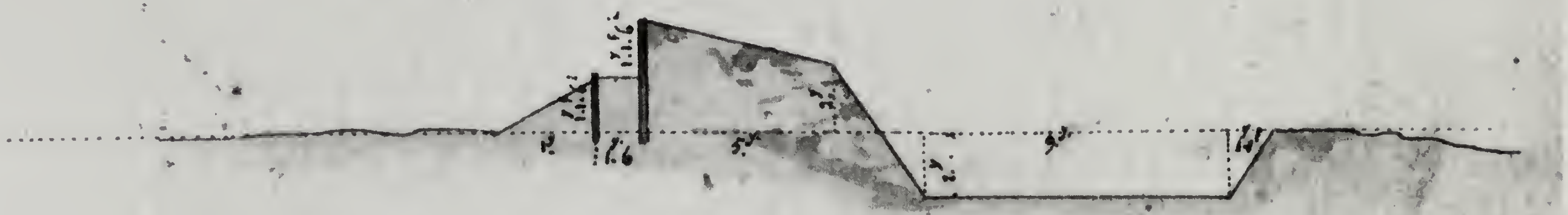
4. Finally, the thick layer of dark gray clay that begins immediately behind the epaulement south of Grid Line N86 may bear witness to more than the termination of the banquette and, by inference, the north edge of the gun platform. It may actually represent evidence of the gun position itself. As was argued previously, the cotton bags of the 1815 era would have provided a poor footing for a gun platform. Consequently, there would have been little reason for the battery construction crew to have included the proposed gun positions in the excavation of the step-like epaulement footing cut. The intact soil at these locations would have supplied a fairly stable natural base for the gun platforms. If the proposed gun locations had been incorporated in the general excavation, the engineer in charge of the construction would have created a difficult problem for himself. He would have had to refill the sections of the cut to be occupied by the guns with a material that would have been able to hold several tons of metal without shifting or sinking. A thick cribwork of heavy beams or a carefully laid mass of true saucissons would have worked for this purpose, but use of these types of materials would have added greatly to the labor and time required to complete the battery. It is, therefore, more likely that the builders of Battery 3 simply cut around the proposed gun positions and left two sections of earth that would have jutted like two stubby, rectangular teeth into the general cut (Figure III-38). These would have probably been made slightly wider than the wooden gun platforms, about 3.1 to 3.7 m (10 to 12 ft) in width, and they would have protruded around 1.5 m (5 ft) beyond the segments of the battery cut that were scooped out for the banquettes. The simplicity of this construction tactic argues for its use, as does the otherwise unexplained thick layer of clay subsoil exposed in the south profile (Figure III-17). Therefore, what is seen in this profile is a cross section of the eroded native earth footing for the southern gun position.

To sum up, the reconstruction of Battery 3 presented above proposes that the construction of this battery was well planned and the result was a fairly

Figure III-43. W. T. Poussin's profile of the west rampart at Fort Leon, drawn in 1817 during a full survey of the fort conducted by General Simon Bernard. Note that both the rear of the parapet and the rear of the banquette are shored up by planks or palings.

Courtesy of the National Archives, Washington, D.C.; Drawer 133, Sheet 13, Cartographic Archives Division.

Profile on the line EF.



sophisticated gun emplacement. Of course, this reconstruction should not be the last word on Battery 3, for the tests have only allowed us to glimpse the battery much as if we had seen it out of the corner of our eye. We were able to focus on some critical bits and pieces of information that suggested a recognizable pattern, a way of doing things that was generally consistent with standard military practice of the day. However, as with an object that has just entered the field of vision, many of the details of Battery 3 cannot be directly observed; they can only be supplied through inference. Direct knowledge of these details must await the finer focus that is made possible by problem-oriented excavation. It must be kept in mind that the tests reported on herein were not specifically intended to gather data for the reconstruction of Battery 3; their primary purpose was merely to find it. An attempt was made at reconstruction because this was essential to demonstrating the veracity of the Battery 3 discovery as well as indicating what portion of this large feature had been found.

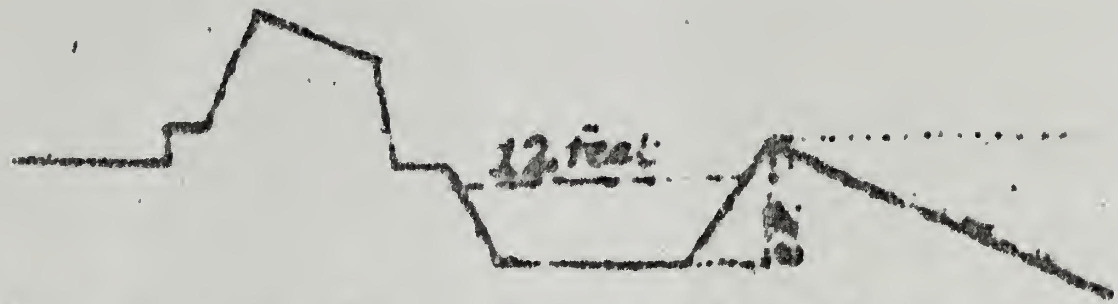
In spite of the qualifiers, there is perhaps good reason to have confidence in the basic pattern of the reconstruction. The archeological evidence suggests a section of rampart, minus gun platforms, that would have been almost identical to the west rampart of nearby Fort Leon. A profile of this rampart was drawn in 1817 by W. T. Poussin during General Simon Bernard's survey of Louisiana's defenses on behalf of the War Department (Figure III-43). The west rampart of the fort shown in the profile was probably built in 1809 or in 1813 (Gilmore and Noble 1983:30-31; Betsy Swanson, personal communication 1984).

What is particularly noteworthy in the St. Leon rampart profile is the use of plank or paling revetments for both the parapet and the banquette in a manner that appears identical to the revetment construction indicated by the archeological data from Test Area 3. This close similarity is probably no accident, for A. Lacarrière Latour, who directed the erection of the American works on the Rodriguez Canal, was certainly familiar with Fort Leon. Moreover, he was a long-time colleague of Barthelemy Lafon, who was recognized for his skill in the effective use of cypress timbers, mud, and rammed earth in the design and construction of local fortifications (Bos 1977:107). In his journal, Major Howell Tatum (1922:97) reports that in the first weeks of December of 1814, Latour was "busily engaged in placing Fort Leon in a state of defense." In addition, Tatum (1922:97) mentions that Latour had previously worked on the improvement of the forts of the Delta under General Wilkinson and Colonel MacRea. This earlier work may have included projects at Fort Leon. In fact, it is possible that Latour was not only familiar with the American defenses at Fort Leon, he may have been involved in their actual design and construction. This connection of Latour to both fortifications lends overall weight to the reconstruction of Battery 3 proposed in this report.

Of further relevance to the view taken here is an official British attempt to reconstruct the American rampart. This reconstruction, apparently based on distant or surreptitious observations, takes the form of a small line sketch that occupies the bottom of a carefully drafted map of the Battle of New Orleans dated March 16, 1815 (Quarter Master General's Office 1815). Entitled "Attack on the American Lines Near New Orleans" and prepared by the Quarter Master General's Office of the Horse Guards, the map illustrates a profile captioned "Supposed Section of the American Lines." This cross section view is of interest because it portrays a formal military earthwork complete with banquette, crest, superior slope, and exterior slope (Figure III-44). All in all, the profile bears a remarkable resemblance to Bernard's profile of the Fort Leon defenses. How much of the reconstructive detail is based on direct observation as opposed to educated guesswork is unknown. What is certain from the profile, however, is that the British came away from the battle convinced that they had encountered a credible American earthwork, a rampart built in accordance with the basic military principles of the day.

Before closing, one final question needs to be addressed, namely, why were no cannon balls found? A partial answer to the question is that much of the expended shot that landed in the battery was probably salvaged when Battery 3 was dismantled after the battle. Another reason is that expended artillery ammunition and other forms of military debris are not all that common on eighteenth- and early nineteenth-century battlefields. Norman Barka (1976:190), who conducted massive stripping operations on the large complex of American and French field fortifications at Yorktown Battlefield, was amazed at the relatively few military items that came to light. Barka's experience is not an isolated case; the same low numbers have been replicated at other pre-Civil War fortifications and battlefields (South 1977:175-176; Ferguson 1977:57-66). For instance, the Fort Moultrie excavations yielded only six military items out of a total of 7,897 artifacts, and Fort Ligonier produced 21,778 artifacts, but only 170 were military in nature (South 1977:176). Military items in early American fortifications consistently make up less than 1 percent of the recovered artifacts (South 1977:176).

Figure III-44. Close-up of "Supposed Section of the American Lines" from the lower right quarter of a larger British map entitled "Attack on the American Lines Near New Orleans, Dec. 1814 and Jan. 1815." The map was prepared by the Quarter Master General's Office, Horse Guards, and dates from March 16, 1815. This profile of the American rampart, based on British reconnaissance, shows that the American line was defended by a proper field fortification built in accordance with the military standards of the day.



Supposed Section of the American Lines.

Figure III-45. Photograph taken by Roy Appleman in 1938 of the southwest corner of the Chalmette Unit. The view is to the northwest and the Chalmette Slip can be seen in the background. Though the photograph falls in the general vicinity of Test Area 4, the present-day park fence line is well to the north of its position in 1938 (see below). The small white feature on the far right side of the photograph is the Spotts Monument.

Figure 11 from Roy Appleman's "Chalmette National Battlefield Site: Inspection Report and Recommendations." Unpublished report on file at the National Park Service, Intermountain Support Office, Santa Fe Library, Santa Fe, New Mexico, 1938.

Figure III-46. Photograph taken in 1984 of the southwest corner of the Chalmette Unit. As with Appleman's photograph (above) the view is to the northwest and the Chalmette Slip can be seen in the background. Test Area 4 is in the mid-distance to the right of the Levee Road. The Spotts Monument, the same white feature captured in Appleman's 1938 photograph, is visible just over the fence in the upper right portion of the photograph.

Photograph by Ted Birkedal, National Park Service.


KAISER ALUMINUM

Cannonballs probably do occur in the immediate area of Battery 3, but it will take more than a small test excavation to locate a respectable number of these and other items of military origin. A number probably lie beneath several feet of fill near the bottom of the Rodriguez Canal. Others are most likely scattered in a wide distribution in the subsoil of the general battery vicinity.

Test Area 4

Introduction

Test Area 4 was established between the rearward toe of the present levee and the southern boundary fence in the extreme southwestern corner of the Chalmette Unit (Map III-3; Figures III-45, III-46). Subsurface tests were conducted in this area because the Corps of Engineers had scheduled the placement of a levee setback at this location. Blading and other preparatory earth movement prior to the actual buildup of the levee setback would remove about 30 cm (1 ft) of the present surface within a triangular zone, designated Construction Area 1, a small area of land approximately .07 acres in extent (Map III-2).

This area of land had experienced considerable disturbance over the years. The shell-paved levee road currently dominates the center of the construction zone. On the west, this road goes up an earth and shell ramp that provides access to the levee crown and the Chalmette Slip. At its south side, the construction zone abuts with and partially overlaps the present landward toe of the levee.

Three different types of historic resources were known to have been located in the general vicinity of Construction Area 1. These may be described as follows:

1. First, the American line of defense, including the Rodriguez Canal, had once passed through the area. Of particular interest was a temporary powder magazine that Latour placed in his 1816 map of the battlefield. This structure is indicated on the map as a small rectangle located immediately behind the rampart, 40 yd (36.6 m) south of Battery 2 (Figure III-47). A projection from the estimated location of Battery 2 suggested

that remains of this magazine would have been bisected by the 1984 boundary fence. Since there was a possibility that such a projection from the historic record might be off by several meters, it was necessary to keep alert to signs of such a structure in the testing process.

2. Second, Laclotte's print of the battlefield shows a line of tents located behind the rampart in the area of Batteries 2 and 3 (Figure III-41). These tents appear to represent part of the American encampment and they are set against the western boundary of the Rodriguez property. This old boundary line matches the current west boundary of the park unit.

3. Third, a shell path dating from 1908 had once terminated in the area. This path ran from the Old Levee Road to the Chalmette Monument (Figure III-34). It was 5 ft (1.5 m) in width, except at its juncture with the levee road where it flared to a width of 10 ft (3 m). In the early years of the century, the path had provided visitors with their main access to the monument.

To initially assess the area, a series of auger tests were dug in a transect line running from west to east toward the Rodriguez Canal (Map III-3). The holes were spaced at 2 m intervals starting from a point 10 m east of the west boundary of the park. Twelve holes were dug in the first series; six supplementary holes were dug to the north, and these extended into Test Area 2. In addition, to better reveal the local stratigraphy, a test pit was placed just west of what was then thought to be the bank line of the Rodriguez Canal.

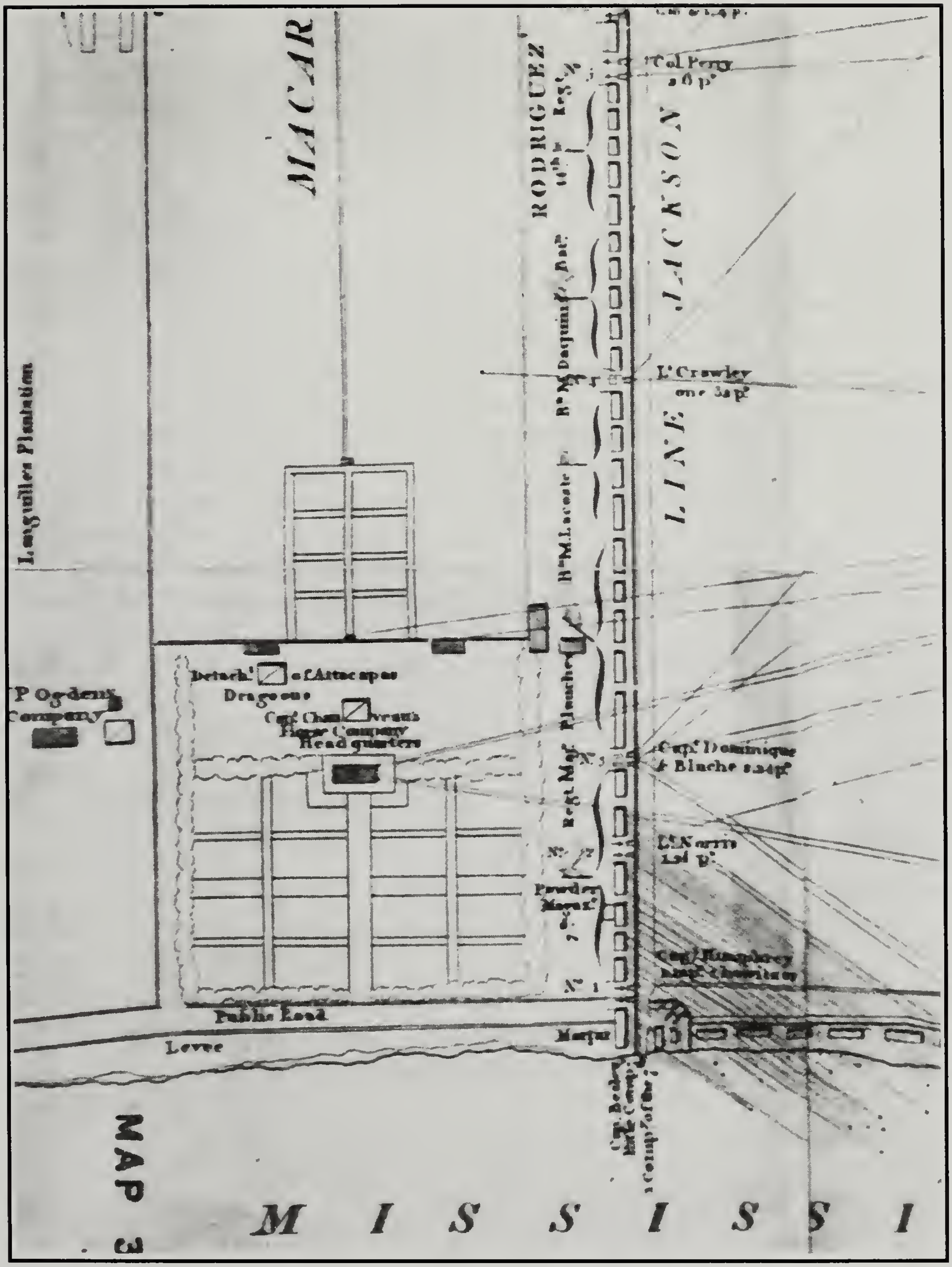
Auger Tests on the West Side of Rodriguez Canal

A total of fifteen auger tests were dug in a linear transect oriented to the east-southeast on the west side of the Rodriguez Canal. The beginning of this transect was tied to a point located 3 m north of project datum (A0, N3 in the block grid system) and aligned toward A50, N0.

The auger line admittedly skirted the north side of Construction Area 1, and there was a practical reason for this positioning. A dense oyster-shell pavement associated with the levee road occupied most of the western portion of Construction Area 1. The minimum 30 cm depth exhibited by the shell pavement

Figure III-47. Close-up of the southwest section of the battlefield as portrayed in A. Lacarrière Latour's "Plan of the Attack and Defence of the American Lines below New Orleans on the 8th January, 1815." This section of the map centers on the Macarty Estate, the Rodriguez Estate, and the batteries and fortifications that occupied the southern end of the American line of defense (Approximate Scale: 1 in = 137 yd or 1 cm = 48 m).

From A. Lacarrière Latour's *Historical Memoir of the War in West Florida and Louisiana in 1814-15.* Orig. pub. 1816. (Reprint, Gainesville, Florida: University of Florida Press, 1964).


MACAR
RODRIGUEZ
LINE JACKSON
Public Road
Levee
Head quarters
Dragoons
Powder Magaz.
M I S S I S S I

MAP 3

made efficient shovel testing or augering nearly impossible. The route of least resistance was taken because the purpose of the auger tests was to assess the general occurrence of cultural remains in the area.

Auger Test 1

Location: 10 m east-southeast of A0, N3

Depth: 130 cm below ground surface

Findings: A brown topsoil horizon continues to a depth of about 20 cm. A dark grayish brown silty clay loam follows the topsoil and reaches a depth of 50 to 60 cm. A soft red brick fragment was noted in this second soil horizon. A grayish brown clay follows and continues to a depth of 100 cm. At the latter depth, the soil becomes a greenish gray clay. Fine brick flecks were observed to a depth of 80 cm.

Auger Test 2

Location: 12 m east-southeast of A0, N3

Depth: 105 cm below ground surface

Findings: Topsoil continues to a depth of 15 to 20 cm. A recent Scotch bottle was found in this upper horizon. Below the topsoil is a dark grayish brown silty clay loam that continues to a depth of 60 cm. Next comes a grayish brown clay, in turn followed by greenish gray clay at a depth of 105 cm. Brick flecks were common in the upper 50 cm of the stratigraphy.

Auger Test 3

Location: 14 m east-southeast of A0, N3

Depth: 100 cm below ground surface

Findings: The stratigraphy revealed in this test is nearly identical to that exposed in Auger Test 2.

Auger Test 4

Location: 16 m east-southeast of A0, N3

Depth: 100 cm below ground surface

Findings: Scattered oyster shell occurs in the 15 cm thick topsoil and in the upper portion of the dark grayish brown silty clay loam that follows. A grayish brown clay begins at 55 to 60 cm below ground surface and is followed by greenish gray clay at 100 cm. Brick flecks were observed throughout the silty clay loam. Several soft red brick fragments were observed between 50 and 80 cm below surface.

Auger Test 5

Location: 18 m east-southeast of A0, N3

Depth: 35 cm below ground surface

Findings: A dense pavement of oyster shell and occasional brick fragments occurs beneath the topsoil horizon. The auger hole was not continued through this layer.

Auger Test 6

Location: 20 m east-southeast of A0, N3

Depth: 100 cm below ground surface

Findings: Scattered oyster shell and brick fragments occur in the upper portion of the dark grayish brown silty clay loam layer at a depth of 30 cm. This silty clay loam gives way to grayish brown clay at 60 cm. Greenish gray clay begins at 100 cm.

Auger Test 7

Location: 22 m east-southeast of A0, N3

Depth: 100 cm below ground surface

Findings: Topsoil here reaches 20 cm below surface. Below the topsoil is a tan lens of sand that continues to a depth of 40 cm. Dark grayish brown silty clay loam, with a scatter of brick flecks follows the sand and it is underlain by a grayish brown clay that begins about 50 cm below surface and meets greenish gray clay at 90 to 100 cm.

Numerous decayed root fragments were observed between 70 and 90 cm below surface. Other than scattered fine brick bits, no other cultural material was found.

Auger Test 8

Location: 24 m east-southeast of A0, N3

Depth: 100 cm below ground surface

Findings: A 15 cm thick topsoil horizon is followed by tan clean sand to a depth of 40 cm. Dark grayish brown silty clay loam comes next to a depth of 60 cm. From 60 to 100 cm is a grayish brown clay. Brick flecks were noted in the silty clay loam and two red brick fragments were found at a depth of 80 cm. Pieces of decayed root emerged at about 70 cm.

Auger Test 9

Location: 26 m east-southeast of A0, N3

Depth: 100 cm below ground surface

Findings: Topsoil continues to 20 cm, next in the sequence is a coarse, dark grayish brown clay silty clay loam to a depth of 60 cm. Grayish brown clay reaches a depth of 100 cm.

Three pieces of ironstone were found at a depth of 40 cm and two spike nail fragments were pulled up at 50 cm below ground surface. Decayed root fragments were numerous between 70 and 100 cm. Some pieces were quite large.

Auger Test 10

Location: 28 m east-southeast of A0, N3

Depth: 100 cm below ground surface

Findings: The sequence is similar to the previous auger test. Again, decayed roots were common, especially between 70 and 100 cm. A large fragment of soft red brick was found between 90 and 100 cm along with a small piece of ironstone ceramic.

Auger Test 11

Location: 30 m east-southeast of A0, N3

Depth: 100 cm below ground surface.

Findings: A 20 cm thick topsoil is followed by a brown silty clay loam mixed with sand. Between 65 and 70 cm, this upper horizon transforms to a grayish brown clay that quickly gives way to a heavy, gray "muck" at 75 cm below ground surface. This muck continues at least to a depth of 100 cm. A piece of olive-colored glass was found at 100 cm. Decayed roots were observed between 70 and 100 cm.

Auger Test 12

Location: 32 m east-southeast of A0, N3

Depth: 100 cm below ground surface.

Findings: The soil sequence at this location is identical to Auger Test 11. However, some small brick flecks were observed in the soil to a depth of 70 cm. A blue gray muck began at a depth of 70 to 75 cm.

Supplemental Auger Tests

Three additional auger tests were dug at the end of the auger line to verify the observed soil sequence. Auger Test 13 was dug midway between Auger Tests 9 and 10. Again, a coarse, silty clay loam or silty sand was underlain by grayish brown clay. Auger Tests 14 and 15 were dug midway between Auger Tests 10 and 11 and Auger Tests 11 and 12, respectively. These augers yielded a silty sand followed by a blue gray muck between 60 and 70 cm below ground surface.

A final series of three auger holes were dug in a line extending north from Auger Test 10 to the southeast corner of Test Trench A32, N25 in Test Area 2. These holes, designated Auger Tests 15, 16, and 17, were dug at 3 m intervals to a depth of 100 cm. All showed a typical sequence of topsoil, silty clay loam, and grayish brown clay. Scattered brick bits were found in the upper 60 cm of each of the holes.

Stratigraphic Observations

The westernmost auger tests revealed a soil sequence that is very similar to that found in the Soil Conservation Service's Auger Test 2 (Appendix A). Except for scattered bits of brick, the soils were sterile. No fragments of charcoal or any other signs that might point to the presence of military encampment refuse were observed.

It should be stressed that small fragments and bits of soft red brick are ubiquitous in the soils of the southwest corner of the park unit, and most probably derive from the Rodriguez Estate. When the master house was razed in the 1890s, house debris was apparently scattered by means of a push board "Fresno" and harrow for hundreds of meters, particularly, to the north and south of the original residential site (Betsy Swanson, personal communication 1984). The smaller particles of debris, such as the brick fragments, have since been drawn deep into the local soils through root action, earthworm activity, and the cracks that form as a consequence of the shrink-swell factor.

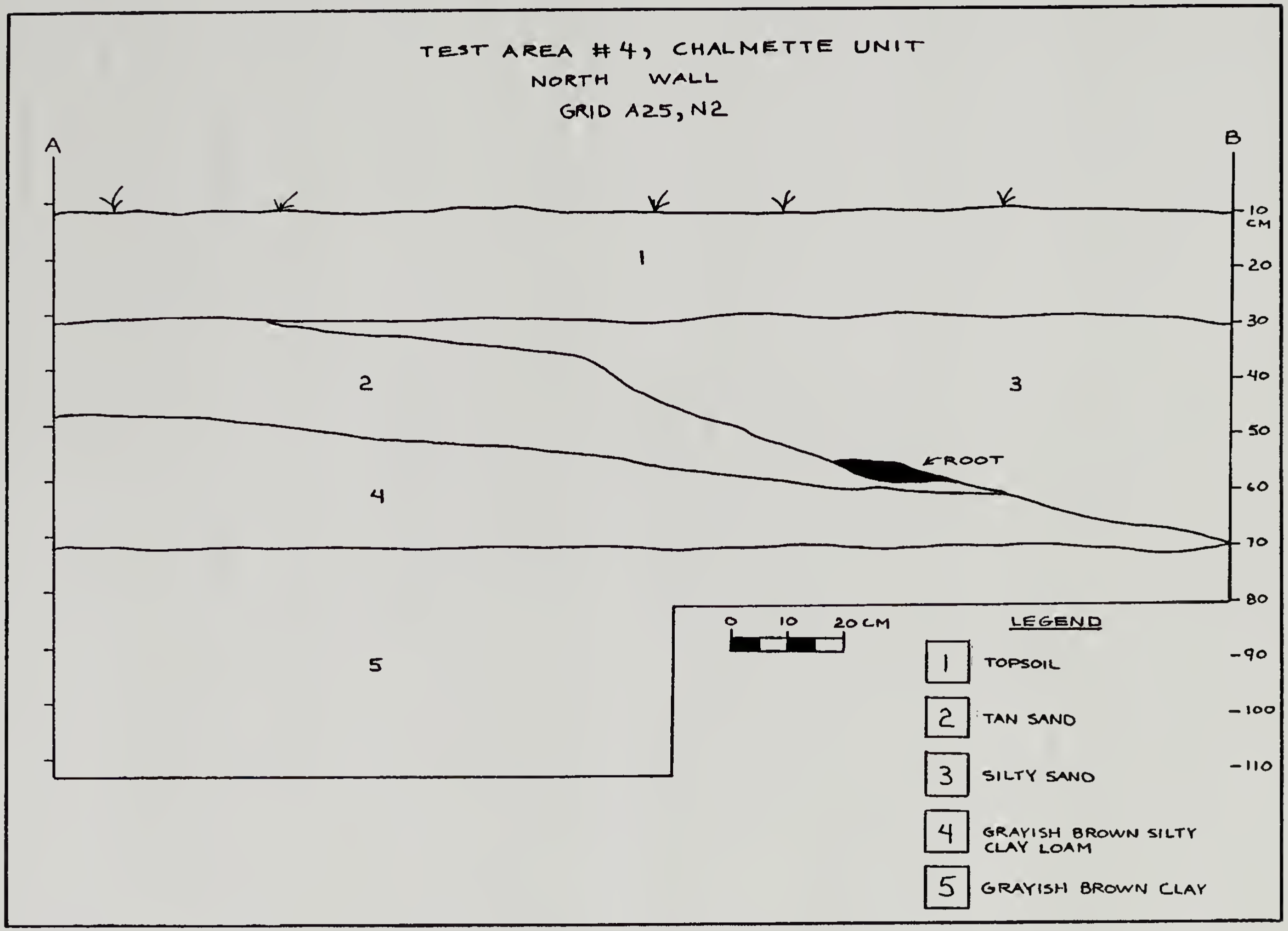
Auger Tests 4, 5, and 6 encountered the remains of the old shell path to the monument. Auger Tests 4 and 6 revealed the scattered oyster shell and brick fragments from the eroded edges of the path; Auger Test 5 exposed the hard packed shell pavement at the path's approximate center. The basal fill of this path incorporates a great deal of structural debris from the Rodriguez Estate. The occurrence of large amounts of this material in the path right-of-way was also revealed by shovel tests in Test Area 2 and by the magnetometer contour maps (Chapter 18).

At Auger Tests 7 and 8, a tan sand lens was found beneath the topsoil. More will be said about this sand, in the section that follows on the test excavation. Between 40 and 50 cm below ground surface, the sand gave way to the typical silty clay loam of the vicinity. Again, the silty clay loam eventually graded to clay. However, here the lower part of the silty clay loam and the upper portion of the clay were impregnated by a profusion of decayed and partially decayed tree roots.

Auger Tests 9 and 10, plus a supplementary later test dug midway between this pair (Auger Test 13), did not encounter the tan sand beneath the topsoil. These showed a coarse, silty clay loam or silty sand soil that was followed by grayish brown clay at about 60 cm below ground surface. Decayed roots were common in the lower clay. The last two holes of the original auger transect, Auger Tests 11 and 12, produced an upper horizon of coarse, silty clay loam or silty sand similar to that found in Auger Tests 9 and 10. Unexpectedly, between 60 and 70 cm below ground surface, a blue gray, unconsolidated muck was encountered. The same muck clay was also found in Auger Tests 14 and 15, two additional auger holes dug between Auger Tests 10 and 12. This muck produced a noticeable odor, one typical of decayed vegetation or other organic

Figure III-48. Test Area 4, north profile of Grid A25, N2.

Drawn by Lyndi Hubbell for the National Park Service.



TEST AREA #4, CHALMETTE UNIT
NORTH WALL
GRID A25, N2
A
B
1
2
3
4
5
ROOT
10 CM
20
30
40
50
60
70
80
90
100
110
0 10 20 CM
LEGEND
1 TOPSOIL
2 TAN SAND
3 SILTY SAND
4 GRAYISH BROWN SILTY CLAY LOAM
5 GRAYISH BROWN CLAY

debris. As Michael Comardelle, a local volunteer with long experience in the delta pointed out when it came out of the auger, "the stuff smells like back swamp."

The final three auger tests that were dug north from Auger Test 10 toward Test Area 2 produced a soil sequence that was very similar to the one found in the test excavations at Test Area 2, namely topsoil followed by dark grayish brown silty clay loam and grayish brown clay.

Test Excavations

Test Pit A25, N2

A test pit, designated A25, N2, was dug 25 m to the east of the west boundary fence (Map III-3). The pit was excavated to better reveal the stratigraphy sampled by Auger Tests 8 and 9.

At first, only a meter unit was opened, but this was later expanded another meter to the east at a width of 50 cm to expose a longer section of stratigraphy. The meter unit was taken to a depth of 100 cm below ground surface; the extension was only dug to a depth of 70 cm below ground surface (Figure III-48).

Stratigraphy

(Datum: 12 cm above ground surface, 2.9 m above MSL)

1. 20-32 cm below datum - This is a dark, silty clay loam topsoil.

2. 32-58 cm below datum - A lens of tan or yellow brown sand follows the topsoil in the western portion of the test pit. This lens is sterile of cultural debris and averages 15 cm in thickness. It dips gradually to the east where it pinches out as an observable layer.

3. 30-70 cm below datum   This deposit lies to the east and partially overlaps the tan sand lens. It is light brownish gray in color, but heavily mottled and streaked with dark brown to dark gray soils. In texture, this soil may be best described as a course, silty clay loam or silty sand. The top of the deposit is level, but its base drops 40 cm from west to east following the dip of the underlying deposits.

4. 58-72 cm below datum - This level conforms to the typical grayish brown silty clay loam of the area. It contains numerous brown mottles. Small bits of red brick and charcoal are scattered throughout the layer. The deposit exhibits a slight slope from west to east. At its eastern end, it narrows and appears to pinch out between the "dirty," overlying silty sand and the underlying clay.

5. 72-110 cm below datum - Beneath the silty clay loam is a grayish brown clay. The top of this clay soil is relatively level and does not appear to dip. It contains numerous decayed roots, but only a few scattered brick flecks.

Stratigraphic Observations

Level 2 in this stratigraphic exposure is identical to the tan sand found in the upper portions of Auger Tests 7 and 8 of the western auger series. In appearance and texture, it closely resembles the clean levee sand found in association with path construction in Test Areas 1 and 3.

The streaked and mottled silty sand or coarse, silty clay loam found in Level 3 is unusual. It appears to be a variable mixture of silty clay loam and sand. The dark streaks and mottles in this soil may result from the incomplete mixture of two or more soil types. A portion of the streaking may be a product of root decay and the chemical action associated with such decay. In this light, it is interesting to note that the eastern end of the tan sand lens also begins to exhibit streaking where it comes in contact with a large section of decayed tree root. The sloping and increasingly narrow eastward margins of the tan sand lens and the underlying silty clay loam suggest that these two strata once formed the west flank of a swale or hole. Level 3 appears to be a secondary deposit that fills this feature. In this sense, it resembles the mixed spoil and topsoil levels (Level 2) found on the east end and west banks of the Rodriguez Canal in the Soil Conservation Service's Auger Tests 3, 4, and 5 (see Appendix A).

The grayish brown silty clay loam is natural soil and it is typical for this extreme southwest corner of the park. Scattered bits of charcoal and soft red brick were observed throughout this level. A set of "buck and ball" from the era of the War of 1812 was found at the base of this level, just west of the extension trench. This set consisted of a .69 caliber musket ball and three smaller .30 caliber balls. All were in contact with each other and a coating of black powder still adhered to the balls. These had evidently been in a paper cartridge lost during the battle and had reached their position in the stratigraphy before the paper of the cartridge had a chance to decay. Exactly how the buck and ball reached the basal portion of the silty clay loam as a group is unclear, but the balls must have been contained in the paper or their positions relative to one another would have been more dispersed.

Other artifacts from the silty clay loam were few. These included a small S-shaped, iron kettle hook and some fragments of iron strapping material. These metal artifacts may also be associated with the period of the battle. Iron kettle hooks were common items in the cooking equipment of contemporary soldiers (Brett-James 1972:116-117). A fragment of mammal long bone was also found, but no glass or ceramics.

The grayish brown clay that follows the silty clay loam produced no artifacts and only a few fine brick flecks were evident in its upper surface.

Auger Tests East Side of Rodriguez Canal

Nine auger tests were dug on the east side of the Rodriguez Canal to gain an adequate coverage of the subsurface stratigraphy both adjacent to and inside the eastern half of Construction Area 1 (Map III-3). These auger tests were placed judgmentally both along the north flank of the levee road and at the rearward toe of the levee. This auger test zone lies forward of the historic Villavaso and Beauregard properties. The findings from these auger tests are detailed below.

Auger Test 1

Location:	North side of levee road, 20 cm east of A50, N0.
Depth:	100 cm below ground surface.
Findings:	The 10 cm thick topsoil is followed by a dark grayish brown silty clay loam that continues to a depth of 80 cm. At 80 cm, the loam is replaced by grayish brown clay. Chunks of coal slag were found at 25 cm.

Auger Test 2

Location:	North side of levee road at A37, N2.
Depth:	100 cm below ground surface.
Findings:	Under a shallow, 10 cm thick topsoil is a dark grayish brown silty clay loam. This grayish brown silty loam follows to a depth of 80 cm. Numerous small bits of soft red brick and brick flecks occurred to a depth of 50 cm.

Auger Test 3

Location:	North side of levee road at A75, N4.
Depth:	100 cm below ground surface.
Findings:	Again, a dark grayish brown silty clay loam follows a 10 cm topsoil layer. By 80 cm, the loam gives way to grayish brown clay. The upper 30 cm of silty clay loam contained scattered coal slag and brick bits.

Auger Test 4

Location: Levee toe ditch, south side of levee road, 10 m south of A78, S10.

Depth: 100 cm below ground surface.

Findings: Dark grayish brown silty clay loam follows a 20 cm topsoil. The loam grades to clay between 60 and 70 cm below ground surface. A small number of asphalt fragments were found in the upper 20 cm of the silty clay loam.

Auger Test 5

Location: Levee toe ditch, south side of levee road, at A70, S10.

Depth: 100 cm below ground surface.

Findings: Topsoil occupies the first 10 cm. Dark grayish brown silty clay loam follows and gives way to grayish brown clay between 70 and 80 cm. A combination of coal slag, *Rangia* shell, and brick bits were found in the upper 20 cm of the loam.

Auger Test 6

Location: Levee-toe ditch, south side of levee road, at A62, S10.

Depth: 100 cm below ground surface.

Findings: A 20 cm thick topsoil lies on dark grayish brown silty clay loam. Between 70 and 80 cm, the loam grades to grayish brown. Coal slag, broken *Rangia* shell, and a recent Coca-Cola bottle were encountered in the upper 20 cm of the loam.

Auger Test 7

Location:	Levee-toe ditch, south side of levee road at A50, S10.
Depth:	100 cm below ground surface.
Findings:	The topsoil layer is 20 cm thick. Next comes a dark grayish brown silty clay loam. Finally, a grayish brown silty clay loam appears by 80 cm. The topsoil contained a mixture of coal slag, *Rangia* shell, and brick fragments.

Auger Test 8

Location:	Levee-toe ditch, south side of levee road, 10 m south of A46, S10.
Depth:	100 cm below ground surface
Findings:	A 5 cm thick topsoil horizon is followed by dark grayish brown silty clay loam. Grayish brown clay becomes evident between 70 and 80 cm below ground surface. The upper 10 cm of loam contained asphalt fragments and *Rangia* shell.

Auger Test 9

Location:	Levee-toe ditch, south side of levee road at A42, S10.
Depth:	100 cm below ground surface.
Findings:	Dark grayish silty clay loam occurs beneath a 5 cm topsoil. Dark grayish brown silty clay loam follows the topsoil and reaches a depth of 70 cm below ground surface. The top 10 cm of loam yielded an assortment of asphalt fragments, *Rangia* shell, and yellow pebbles.

Stratigraphic Observations

The nine auger tests produced no evidence of *in situ* historical features. The asphalt, shell, and pebbles found in the upper sections of some of the auger holes probably derive from various recent episodes of roadwork. The anthracite coal and brick fragments may have a similar origin. Slag and old chunks of waste brick were occasionally employed as fill to patch low spots or holes in roadways, especially in the late nineteenth century.

On the other hand, the slag and brick may simply represent the outer fringe of trash and structural debris from the razed residence and outbuildings of the E. Villavaso Estate located to the north of the levee road. Whatever the origin of these materials, nothing was found in the auger tests to indicate that anything more than scattered road construction and residential debris occurs in the eastern half of Construction Area 1.

General Observations

To understand the testing results, it is necessary to outline the land use history of the small section of land that was the focus of concern in Test Area 4 investigation. After the Battle of New Orleans, the land west of the Rodriguez Canal reverted to civilian use as the front yard of the Rodriguez Estate. By 1819, the American earthwork was already undergoing severe erosion from the "exceedingly heavy rains of the climate" (Latrobe 1951:46). Sometime between 1819 and 1834, a road was constructed along the west bank of the Rodriguez toward the cypress swamp. This road is illustrated in Zimpel's 1834 map as extending just beyond the present area of the monument (Figure III-33). In 1835, a visitor to the battlefield described the road as "a narrow, fenced lane which extended from the river to the forest" (Ingraham 1835:199). It is worthy of note that this same visitor did not observe visible remnants of the American rampart until he had ridden a quarter of a mile north along the road (Ingraham 1835:199). Evidently, little remained of the original rampart embankment near the riverfront.

Lossing (1869), in his *Pictoral Field-Book of the War of 1812*, provides a sketch of the country road and the Rodriguez Canal from a position to the south of the Chalmette Monument (Figure III-2). In this view, the east side of the road extends to the edge of the Rodriguez Canal. No remnant rampart is shown and the grassy-banked canal appears to be no larger than a standard drainage ditch.

From the above historical accounts, it is reasonable to conclude that the rampart was leveled by 1834 in what is now the southwest sector of the park unit. More than likely, the eroded remnants of the rampart observed by Latrobe in 1819 had been incorporated as basal fill in the construction of the road. This convenient source of earth would have been very tempting to the road builders.

After the Civil War, the country lane fell into disuse, and by 1890 visitors to the battlefield typically scrambled up the Rodriguez Canal in order to reach the partly finished Chalmette Monument (Huber 1983:26). In 1908, ready access was again provided, this time by means of a straight shell path that connected the base of the Chalmette Monument to the levee road. Scattered remains of the path were encountered in Auger Tests 4, 5, and 6 in the series of auger holes that were dug on the west side of the Rodriguez Canal. This path had been abandoned and covered with turf about 1935 when the present entrance road from the St. Bernard Highway was constructed.

In about 1909, in conjunction with the construction of the present levee line, the levee road was moved north to the present vicinity of Test Area 4. A 1938 photograph (Appleman 1938: Figure 11) of the southwestern edge of the park shows this road and its relationship to the other features such as the levee (Figure III-45). At that time, the ramp up to the levee crown was not present and the road passed within 2 m (6.6 ft) of the park fence line. It then turned a tight corner around the southwestern corner of the park and headed in a northerly direction beside the Chalmette Slip levee.

In the area just south of the park fence, the road measured at least 9 m (29.5 ft) in width and it was clearly constructed of sand, not shell. Also, the road contained a broad dip where it crossed the Rodriguez Canal. The area between the road and the fence also contained a neatly cut drainage ditch about 1 m (3.28 ft) in width running parallel to the fence line (Appleman 1938: Figure 4).

To accommodate another round of levee work in the 1950s, the levee road was reduced in width and shifted slightly northward. The ramp up the levee was also constructed at this time. As a further adjustment, the original wrought-iron boundary fence was removed and a fence of chain-link construction was erected. This fence, still present at the time of the investigations in 1984, had been set back 15 m (49 ft) on the east and 6 m (20 ft) on the west relative to the position of the earlier fence.

The Rodriguez Canal has also been subject to modification since 1938. In 1938, the Rodriguez Canal survived as little more than a broad dip in the levee road, but road improvements dating from the 1950s completely obliterated any trace of the Rodriguez Canal in the roadway proper. A large metal culvert was placed in the surviving dip that marked the old canal alignment and fill was thrown in to fully level to the roadway. In addition, as discussed in the section on Test Area 2, the visible canal segment immediately north of the present levee was altered at about the same time as the portion in the roadway. Thus, the remnant canal channel that now terminates at the road bears little resemblance to even the 1938 channel, much less the historic canal. The west bank line in 1938 would have begun its downward slope at a distance of approximately 30 m (98 ft) east of the present western park boundary, at about the position of the west side of the visitors' path edge (Map III-3; Figure III-3).

The stratigraphy revealed by the test pit does not show the upper west slope of the original or even the 1938 Rodriguez Canal west bank line. Rather, it exposed the west edge of a inconsequential hole that had been dug between the levee road and the southern boundary fence in the late 1970s. The presence of the hole is evident on 1978 black-and-white aerial stereo pairs. At the time of the aerial photography, the hole was still open, exhibited a roughly oval plan, and measured approximately 8 m (26 ft) in length and 5 m (16.4 ft) in width. Other measurements taken from the photography indicate its west edge would have fallen close to A26, a position consistent with the stratigraphic profile (Figure III-48). The hole was eventually filled, for aerial imagery dating from 1981 shows only a faint scar in the grass where the open hole had once been located. It is not certain why the hole had been dug in the first place, but the most likely explanation is that it had been created during the removal of a stump from a large tree which had once stood at this location (Figure III-45). The high density of root debris found in both the test pit and the most easterly of the auger tests supports this interpretation.

The mixed, silty sand that appears in the eastern half of the test pit profile probably represents the fill that was used to obliterate the hole. Similarly, the blue gray muck encountered in the lower portions of Auger Tests 10 through 12 most likely registers the bottom clays that were churned up and partially liquefied during the process of stump removal. These auger tests would have penetrated the deeper parts of the filled-in hole, closer to its center. The "back-swamp" odor produced by the muck and the highly decomposed state of the numerous and associated root fragments indicate a long exposure to oxygen, a situation which would have allowed agents of decay to act upon the organics contained in the structureless clay. This finding is also consistent with the open hole observable in the aerial photography from 1978.

No signs of a powder magazine were encountered. If Latour's plan of battle is to be believed, this would have been a small, rectangular structure set against the rampart 90 yd (82.3 m) to the south of the center of Battery 3 (Figure III-47). The noted fortification expert, Mahan (1836:89), states that magazines were not necessarily dug partly below ground, especially, in wet soils. Therefore, given the high water table at Chalmette and the fact that rains were a common phenomenon during the battle, it is probable that the American magazine was constructed at ground level. Thus, a filled rectangular hole would not be expected to mark its location. At most, the magazine would have had a raised plank floor to keep ground moisture from the powder. If confiscated palings or boards had been used in its construction, rather than facines, and it had been built to the standards of the day, it would have had a central framework of posts or heavy boards to support a plank roof and hold up slanted walls of plank sheeting (Mahan 1836:89-90). This inner structure, usually only 2 to 4 m (6.5 to 13 ft) in length, would have been covered by a thick layer of earth in order to protect the stored powder and ammunition from the penetration of enemy shot.

The chance that structural evidence of such a simple building survived construction of the country lane and other post-battle human disturbance documented for the vicinity of Test Area 4 is slight. Nevertheless, some clues may survive and it is possible that the feature's exact location will be verified in future excavations. At the time the tests were performed, there was a concern that the remains of the magazine were located within range of levee construction activities on the levee side of the Chalmette Unit boundary fence. A more refined projection, developed after the completion of field work, now places the feature about 5 to 6 m (16.4 to 20 ft) north of the southern boundary fence, well outside the threat zone of Construction Area 1.

Because the initial estimate of the rampart's alignment in Test Area 4 was also off the mark by several meters, the test pit did not bisect the rear of the earthwork as intended; consequently, no direct information on the condition of this feature was obtained. However, the depth of the battle-era silty clay loam exposed in the test suggests that any surviving remnants of the rampart would be buried at least 30 cm, and possibly as many as 50 cm, below ground surface. In addition, because Test Area 4 is located farther up the slope of the natural levee, approximately 50 cm above Test Area 3, the wooden elements of this section of the rampart would have occupied a higher elevation relative to the water table. This elevational difference may have been sufficient to reduce the chances for the preservation of the structural fabric in Test Area 4, since one of the most important factors that favor the survival of buried wood is the constancy of the surrounding moisture environment.

There are at least three possible origins for the tan sand that follows the topsoil in Auger Tests 7 and 8 and in the west half of the test pit (Figure III-48). First, it may simply represent a sand fill that was brought in to raise the grade of the road margins near the Rodriguez Canal when the levee road was moved northward in the 1950s. Alternatively, it may have been added during general landscaping activities funded by the National Park Service in 1935 (Bres 1964:12). On the other hand, the sand could date back to a much earlier period. It may mark a buried portion of the nineteenth-century country lane illustrated by Lossing (Figure III-3). Many early rural roads in the New Orleans area (including segments of the Old Levee Road [Figure III-45]) were paved with sand. The surviving width of the sand layer, between 4 and 5 m (13 and 16 ft), is in keeping with this possibility. However, the narrow width of the existing feature may be misleading, for any eastward extension of the sand layer would have been eliminated by the recent tree hole. Without more definitive evidence, the exact origin of the sand must remain obscure.

Judging from its artifact content, the grayish brown silty clay loam that underlies the tan sand must be an old soil horizon. The "buck and ball" found in this level most likely represents the contents of an unexpended paper cartridge that was lost in the mud by a fumbling trooper during the Battle of New Orleans. Its location, some 6 m (20 ft) to the rear of the projected interior face of the parapet, is an area that would have seen a fair amount of activity over the course of the battle, for troops normally spent most of their time on the low ground behind the banquette when not engaged in firing. This section of the American line was occupied by the Regulars of the 7th Regiment, a unit which helped to repulse Rennie's attack column on January 8, 1815 (see Chapter 7, Part I, this report). Perhaps it was members from this same unit that left behind the kettle hook that was also found in the silty clay loam layer in the test pit. This artifact too suggests a military origin, and one consistent with an encampment area behind the lines, although from a more domestic aspect of military life.

Besides a slight scatter of coal slag and small brick fragments, no historical resources occur in the eastern section of Construction Area 1. This part of the construction zone falls in what was once the lower front yard of the Villavaso Estate, an area that is not known to have contained any outbuildings or other structures (see p. 645, Chapter 17, Part III, this report).

Test Area 5

Introduction

Test Area 5 essentially corresponds to a construction easement and levee setback zone designated Construction Area 2 by the Corps of Engineers (Map III-2). This construction area forms an irregular rectangle in plan and encloses approximately .13 acres of land. The present levee road runs through the center of the tract and occupies much of its surface area. The tract's southern edge is bordered by a drainage ditch and the levee's landward toe. Thus, the area has been subject to considerable prior impact.

The general area between the east side of what is now the St. Bernard Parish Sewage Treatment Plant and the west side of the National Cemetery never became as intensely settled as the west half of the Chalmette Unit. Before the 1830s, this area of land had simply formed part of the upriver fields of the Chalmette Plantation and the later St. Amand Plantation (Chapter 12, Part II, this report). Further, it had never figured importantly in the Battle of New Orleans; concentrated military activity had taken place all around this section of the Chalmette Unit, but not within it (Part I, this report).

The earliest residence in the neighborhood of Construction Area 2 was that of Joaquin Dominguez, who purchased a small lot from Manette and Hilaire St. Amand in 1833 (see p. 294, Chapter 12, Part II, this report). This residence, which is shown with an adjacent outbuilding on Zimpel's 1834 map (Figure III-33), continued in use at least into the late 1860s. Between 1867 and 1882, the property upon which the house stood went through a number of owners. In 1882, the Hagar brothers purchased the property and opened the "Old Battle Ground Store." It is possible that the building used for this store was a converted version of the old Dominguez residence. The arrangement of the two buildings shown for this property on the 1874 Mississippi River Commission's Survey Chart (Figure II-4), which was drafted in the 1890s, is very similar to the arrangement portrayed by Zimpel in 1834 (Figure III-33). In 1896, the property and store were sold, and by 1904 the lot was in the hands of the New Orleans Terminal Company (pp. 249-251, Chapter 12, Part II, this report). Soon thereafter, all known structures on the former Dominguez Estate were destroyed in the course of a major levee setback. If these buildings had survived, they would have been located about 30 m (98 ft) to the southwest of Construction Area 2.

The specific piece of land occupied by Construction Area 2 remained in open-field status until 1869, when the lot was purchased by a Mr. Juan Fernandez. Subsequent to his purchase, Fernandez erected at least two buildings on the property (see p. 252, Chapter 12, Part II, this report). These structures may have survived into the twentieth century, after the New Orleans Terminal Company acquired the tract, for the 1921 issue of Survey Chart 76 of the Mississippi River Commission shows two residences at approximately the same locations as the earlier Fernandez structures (Figure II-12). By the middle of the twentieth century, however, these residences had been razed and the only large structure in the immediate vicinity was a low-slung cow barn (Mississippi River Commission 1953: Sheet 2). This cow barn and a very small accompanying tool shed occupied a section of ground to the southwest of the original Fernandez building locations (National Park Service 1962: Oblique Aerial Photograph NPS 10-10-23). In the 1960s, the National Park Service eradicated all surface evidence of these two more recent structures.

The preliminary documentary evidence available at the time of the work in Test Area 5 suggested that both the remains of the Fernandez-era buildings and the remnants of the twentieth-century structures were located beyond the National Park Service boundary fence, well to the landward of any threat from construction. Nonetheless, Construction Area 2 was subjected to intensive shovel testing to eliminate all doubt concerning the presence or absence of important archeological features. Further, two test units were dug in order to complete the exploration (Map III-4).

Shovel Tests

Because Construction Area 2 was largely covered by the thick oyster shell pavement of the present levee road, the use of an auger was not possible. Rather a pick and shovel were used in lieu of the auger to place subsurface tests. At first, a transect line of shovel tests was laid out from northwest to southeast across the length of the construction area. Departures from this original line were then made on a judgmental basis as the need arose. In all, nineteen shovel tests were dug within and adjacent to the construction area (Map III-4). These averaged 30 cm in diameter. All measurements for the shovel test transect were taken from C75, N12, the starting point. The end of the transect was located at D0, N8. The results of the individual shovel tests are given below:

Shovel Test 1

Location: 9 m southeast of C75, N12 on transect line.

Findings: Soft red brick was encountered at 23 cm below ground surface under a layer of dense oyster shell.

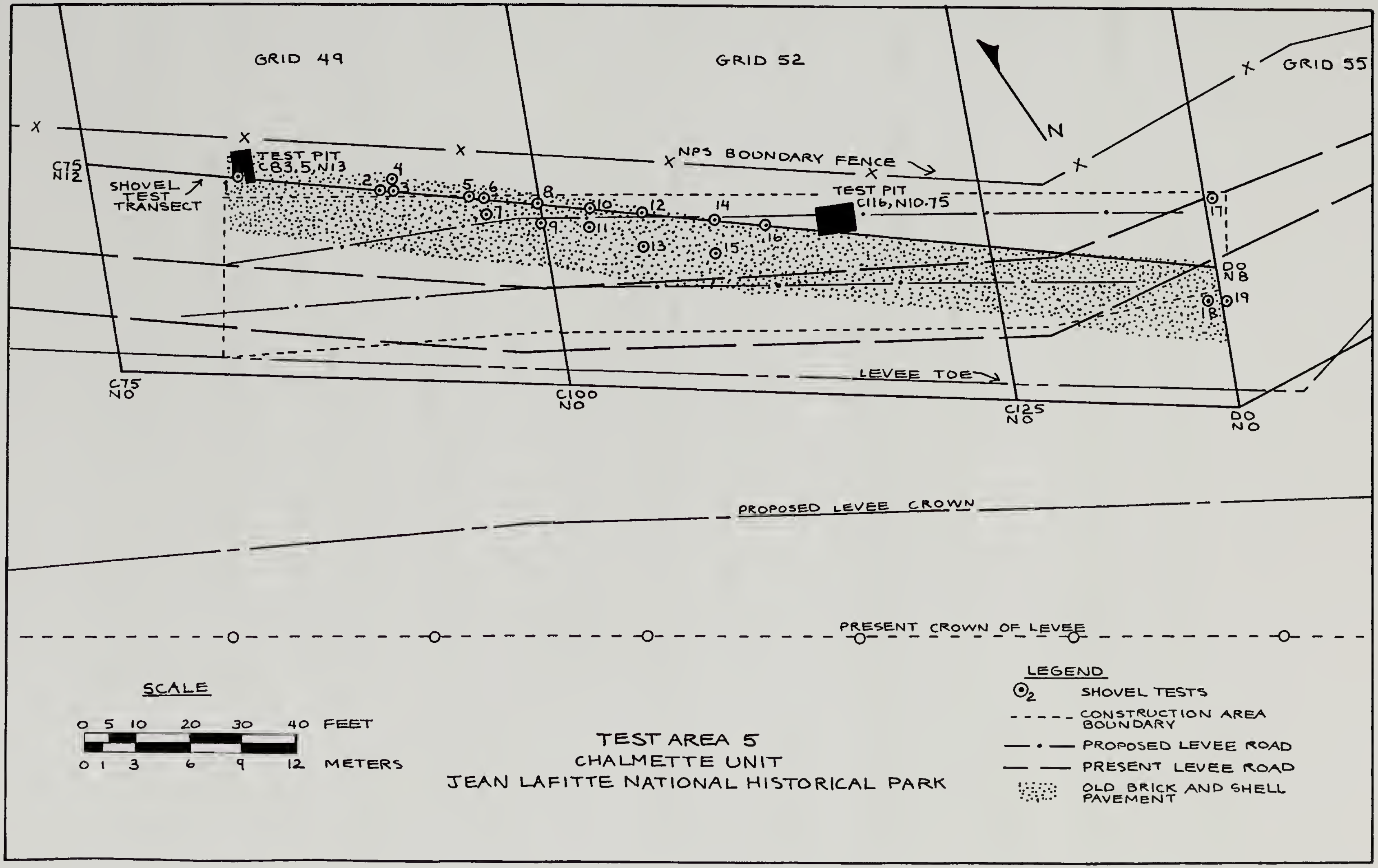
Shovel Test 2

Location: 17 m southeast of C75, N12 on transect line.

Findings: Soft red brick was found at 20 cm below ground surface under a dense oyster shell layer.

Map III-4. Test Area 5, Chalmette Unit, Jean Lafitte National Historical Park and Preserve.

Drawn by Lyndi Hubbell for the National Park Service.


GRID 49
GRID 52
GRID 55
N
NPS BOUNDARY FENCE
TEST PIT C83.5, N13
TEST PIT C116, N10.75
SHOVEL TEST TRANSECT
C75 N12
C75 N0
C100 N0
C125 N0
D0 N8
D0 N0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
LEVEE TOE
PROPOSED LEVEE CROWN
PRESENT CROWN OF LEVEE
SCALE
0 5 10 20 30 40 FEET
0 1 3 6 9 12 METERS
TEST AREA 5
CHALMETTE UNIT
JEAN LAFITTE NATIONAL HISTORICAL PARK
LEGEND
SHOVEL TESTS
CONSTRUCTION AREA BOUNDARY
PROPOSED LEVEE ROAD
PRESENT LEVEE ROAD
OLD BRICK AND SHELL PAVEMENT

Shovel Test 3

Location: 18 m southeast of C75, N12 on transect line.

Findings: Soft red brick was found at a depth of 13 cm under a layer of dense oyster shell.

Shovel Test 4

Location: 1 m north of 18 m point on the transect line from C75, N12.

Findings: Hard orange brick was encountered at a depth of 14 cm under a layer of dense oyster shell.

Shovel Test 5

Location: 22 m beyond C75, N12 on transect line.

Findings: A large, irregular slab of thin, tan mortar was found 10 cm below ground surface under the oyster shell pavement. The mortar slab measured 30 by 65 cm and contained broken shell in its matrix. The slab was quite soft and friable. It was surrounded by fragments of soft red brick.

Shovel Test 6

Location: 23 m beyond C75, N12 on the transect line.

Findings: Soft red brick was discovered under the oyster shell layer at a depth of 23 cm below ground surface.

Shovel Test 7

Location: 1 m south of the transect line at the 23 m point from C75, N12.

Findings: Both hard orange and soft red brick were found beneath a layer of dense oyster shell at a depth of 14 cm below ground surface.

Shovel Test 8

Location: 26 meters from C75, N12 along the transect line.

Findings: Hard orange brick was found under the oyster shell pavement at a depth of 20 cm below ground surface.

Shovel Test 9

Location: 1 m south of the transect line at a point 26 m from C75, N12.

Findings: Soft red brick was discovered 14 cm below ground surface under a dense layer of oyster shell.

Shovel Test 10

Location: 29 m southeast of C75, N12 on the transect line.

Findings: Soft red brick was encountered at 20 cm below ground surface under a dense, oyster shell pavement.

Shovel Test 11

Location: 1 m south of the transect line at the 29 m mark from C75, N12.

Findings: Both hard and soft brick fragments were found below an oyster shell pavement at a depth of 12 cm.

Shovel Test 12

Location: 32 m southeast of C75, N12 on the transect line.

Findings: Hard orange brick was found at a depth of 9 cm below ground surface under a dense layer of oyster shell.

Shovel Test 13

Location: 2 m south of the transect line at a point 32 m from C75, N12.

Findings: Small pieces of soft red brick were encountered at a depth of 25 cm below ground surface, again under a dense oyster shell pavement.

Shovel Test 14

Location: 36 m southeast of C75, N12 on the transect line.

Findings: Only a few pieces of soft red brick were found at the base of a thick, very dark grayish brown, nearly black, humic topsoil. At 50 cm below ground surface, the topsoil was followed by a gray to grayish brown clay. This shovel test was apparently placed in a now filled drainage ditch which once ran along what is now the National Park Service boundary fence.

Shovel Test 15

Location: 2 m south of the transect line at a point 36 m from C75, N12.

Findings: Hard orange brick was encountered at a depth of 20 cm under a dense layer of oyster shell.

Shovel Test 16

Location: 39 m southeast of C75, N12 along the transect line.

Findings: A large chunk of concrete was encountered 20 cm below ground surface. The topsoil above the concrete contained a few *Rangia* shell. The soil exhibited an extremely dark grayish brown color. Again, the test was apparently placed in a filled roadside ditch.

Shovel Test 17

Location: 4 m north of the transect line at a point 65 m from C75, N12.

Findings: A 10 cm dark brown topsoil layer was followed by a sterile gray to grayish brown clay. The clay continued to a depth of at least 50 cm.

Shovel Test 18

Location: 3 m south of the transect line at 65 m southeast of C75, N12.

Findings: Orange and pink brick was found 17 cm below ground surface under a dense oyster-shell pavement.

Shovel Test 19

Location: 3 m south of the transect line at 66 m southeast of C75, N12.

Findings: Orange and pink hard brick was found at 17 cm below surface under a dense pavement of oyster shell. The test was later expanded north to south to a length of 1 m. The brick quickly played out as the excavation approached the current levee ditch. Brick ended 3.2 m south of the transect line and within 80 cm of the edge of the levee ditch.

Test Excavations

Test Pit C83.5, N13

A test pit was placed at the west end of Construction Area 2 in order to gain a better understanding of the brick fragments that were emerging in the shovel tests. The northwest corner of this test pit was set at C83.5, N13 (Map III-4). Initially, a meter by a meter unit was excavated. Later, an extension 50 cm in width and 80 cm long was dug to the south of the original pit to provide more exposure. Lastly, an auger hole was taken down on the north side of the pit in order to check the lower stratigraphy.

Figure III-49. Test Area 5, profile of the west wall of Grid C83.5, N13.

Drawn by Lyndi Hubbell for the National Park Service.

TEST AREA #5, CHALMETTE UNIT
WEST WALL
GRID C83.5, N13

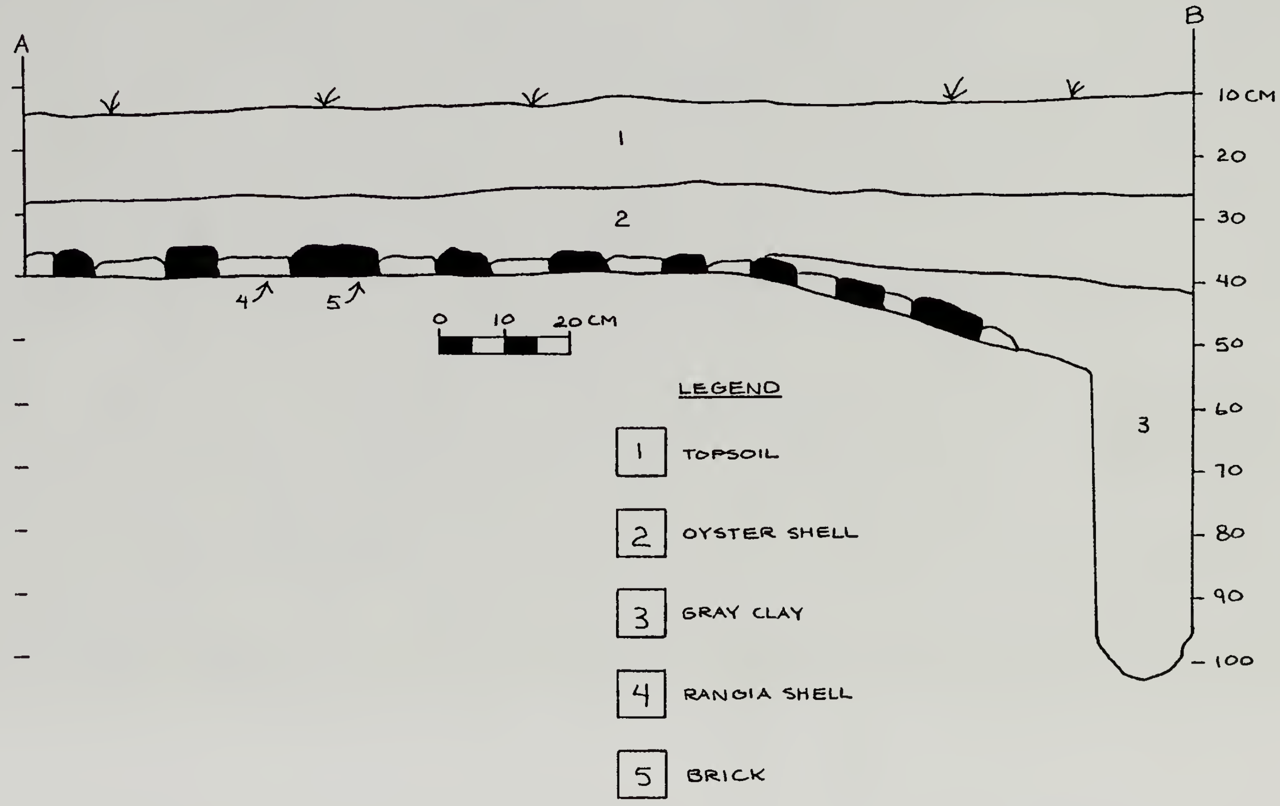


Figure III-50. Brick and shell pavement exposed in Test Area 5, Grid C83.5, N13.

Photograph by Ted Birkedal, National Park Service.


CHAL
METTE
ROAD

Figure III-51. Close-up of brick and shell pavement in Test Area 5, Grid C83.5, N13.

Photograph by Ted Birkedal, National Park Service.

This L-shaped test pit uncovered a brick and shell pavement below a layer of dense oyster shell (Figure III-49). On the south side, this brick and shell pavement was relatively level and averaged 21 cm below ground surface; farther to the north, the pavement began a downward curve and ended at a depth of 35 cm below ground surface. Below the brick was a sterile gray to grayish brown clay.

The pavement was constructed of both whole and fragmented bricks laid in a dense matrix of whole and broken *Rangia* shell (Figures III-50, III-51). The bricks exhibited no identifiable pattern. They apparently had been set at random within the surrounding shell matrix. The spacing between the bricks varied between 2 and 20 cm, but most were separated from their nearest neighbors by an average of 10 cm. No evidence of mortar was found among the bricks or in the intervening shell. Approximately three-quarters of the brick consisted of soft red brick. Most of the edges of this brick had been rounded from either wear or natural erosion. The other brick type had been fired to a much harder composition and exhibited a muted orange to pink color. This hard brick exhibited more sharp edges than the soft brick, and whole bricks of this brick type were more common. Overall, fragmented bricks outnumbered whole bricks roughly 10 to 1.

The few whole bricks averaged 22 cm in length, 10 cm in width, and 7 cm in thickness. The majority of fragments were at about 10 cm in length, 8 cm in width, and 5 to 7 cm in thickness.

Few artifacts were found in this test excavation, and all came from the upper 10 cm of topsoil above the recent oyster shell pavement. The artifacts included a portion of a recent wine jug, a crushed lipstick tube, an iron staple, and a wire nail fragment.

Test Pit C116, N10.75

This test excavation originally started as a single shovel test. The shovel test was expanded to expose a feature that was not initially identifiable. When finished, the pit measured 2.2 m by 1.55 m. The northwest corner of the pit was located at C116, N10.75. This placed the north edge of the pit in close proximity to the National Park Service fence (Map III-4; Figure III-52).

The feature that eventually emerged in the excavation was of recent origin. It was an oblong cluster of fifteen concrete paving fragments. This cluster of broken concrete measured 1.6 m by 1.05 m (Figure III-53).

The fragments had been placed in a group one-layer deep in an abandoned ditch that once ran beside the National Park Service fence. Each of the fragments measured 12 cm in thickness which suggested that all the fragments had a single source. Some fragments had been placed with the rough sides up; others had been positioned with their smooth sides up. The smallest fragment measured 11 cm by 8 cm. The largest of the group measured 50 cm by 25 cm. Sometime after they had been deposited, these fragments of concrete became completely obscured by a humic soil horizon between 10 and 20 cm thick.

Artifact recovery was very low. The few included a petroleum jelly jar, an orange pop can, a wire nail fragment, and an unidentified piece of iron. All came from the topsoil above the concrete fragments.

General Observations

There can be little doubt that the brick and shell pavement defined by the shovel tests and the test pit at C83.5, N13 represents a former road surface. The arguments in favor of this interpretation are as follows:

1. Usually, remnants of mortar are found in structural brick debris. No evidence of brick mortar was encountered in the tests.

2. Artifacts, especially nails, tend to occur in large numbers in structural remains. No artifacts were found in direct association with the brick pavement.

3. The wide spacing and irregular placement of the brick within a shell matrix is not consistent with what is expected for brick floors or foundations. The same is true of the fragmented and variable character of the brick. Much of the brick appears to have been salvaged from elsewhere and the presence of two basic types of brick, hard and soft, suggests at least two separate sources. The single fragmented mortar slab found among the bricks also points to an electric origin for the materials.

Figure III-52. General view to the west-northwest of Test Area 5. The test area occupies the mid-distance just beyond the curve in the Levee Road.

Photograph by Ted Birkedal, National Park Service.

Figure III-53. Concrete feature found in Test Area 5, Grid C116, N10.75.

Photograph by Ted Birkedal, National Park Service.

4. The downward curve exhibited by the pavement's edge conforms closely to similar curves that are often characteristic of roadway shoulders, especially those located on ditch margins.

5. The pavement has an estimated width of 9 m (30 ft), but it has documented length of at least 57.5 m (189 ft). This linear shape and size is consistent with a roadway.

6. The brick and shell pavement displays a northwest to southeast alignment; the same basic alignment held by the current levee road from the Beauregard House to a point 70 m (229.7 ft) east, southeast of the St. Bernard Sewage Treatment Plant. Further, the pavement overlaps the more recent road and its southern side conveniently stops at the edge of the ditch that marks the landward toe of the levee.

It is uncertain whether the brick and *Rangia* shell pavement was a localized phenomenon or a feature common to a major segment of public levee road in the Chalmette vicinity. Given what little is known about road building practices in formerly rural areas such as Chalmette, it is more likely that the pavement represents a fairly localized road paving effort. Rural parishes in the past rarely had the resources to undertake major road improvement projects. Consequently, rural roads were more often maintained or enhanced on a piecemeal basis by the parish, by business concerns that relied on them for transport, or by groups of neighbors (Betsy Swanson, personal communication 1984). It is important to stress that the pavement being discussed here is not a brick pavement in the strict sense of the term, but merely a paving matrix of used bricks and *Rangia.* The salvaged brick probably provided a cheap source of road fill together with the shell. In other words, the choice of materials reflects the kind of opportunism typical of a localized road improvement effort, rather than the careful planning and selective purchasing that is normally associated with a large-scale, publicly financed road construction project.

Accepting that the pavement represents a segment of roadway, the question arises as to the date of this roadway. Here again, the alignment of the pavement gives an important clue. The shovel tests show that the pavement continues in a northwest-southeast direction. It does not turn to the northeast in conformance with the present levee road. In fact, the pavement appears to head directly toward a northeastward jog in the levee. This jog in the levee was constructed in 1928; hence, it would seem reasonable to argue that the use of the brick and shell road segment pre-dates this construction episode. In the early twentieth century, before 1928, the public levee road continued uninterrupted to the southeast, following an outward jog in the levee that was a reverse, mirror image of the present landward jog (see Figures II-12 and II-18, Part II, this report).

A precise construction date is difficult to fix, but the presence of hard-fired brick in the pavement points, at the very earliest, to the second half of the nineteenth century when this kind of brick came into common use in the New Orleans vicinity (Betsy Swanson, personal communication1984). Moreover, based on bricks alone, a construction date no earlier than the fourth quarter of the nineteenth century or possibly as late as the turn of the century appears the most likely since the brick was probably obtained as salvage from one or more previous buildings.

The estimated date range suggested by the bricks fits well with the occupation of the two early twentieth-century residences that were once located just to the north of the documented pavement. If these houses were used by employees of the New Orleans Terminal Company, the firm that purchased the land in 1903 (p. 296, Chapter 12, Part II, this report), there is a good possibility that the company made some local road improvements. It would have been to the company's advantage to maintain the public levee road as an access route to the Chalmette Slip.

In fact, a construction date toward the end of the first decade of the twentieth century is the most plausible. Work on the Chalmette Slip, a large port facility, just west of the park, was initiated in 1907; soon thereafter, a major levee setback was made along the lower two-thirds of the Chalmette Battlefield, perhaps as an adjustment to water current changes created by the port's jutting seawall. This landward adjustment of the levee appears to have been sufficiently great to obliterate all remnants of the nineteenth-century levee roadbed in the Construction Area 2 vicinity.

The cluster of concrete paving fragments most likely dates from the second half of the twentieth century. It is possible that the cluster dates from the use of the cow barn. These chunks of concrete may have been thrown down in a group to provide dry access across the ditch. Although the ditch is filled in today

III-54. Southeast portion of the Chalmette Unit from a section of a larger aerial photograph, dated April 20, 1943. Corps of Engineers, New Orleans District, 1:10,000 (Spot 5A-930, Exp. 55). Fazendeville can be seen hugging the road in the left side of the photograph. On the right is the National Cemetery, and just beyond, are the angled remnants of the Civil War earthworks. A number of the houses and other buildings that flanked the Levee Road in 1943 are also visible (Approximate Scale: 1 in = 400 ft or 1 cm = 48 m).

Chalmette Unit, Jean Lafitte National Historical Park and Preserve.

it was sufficiently substantial in 1943 to require the residents of the two houses in this area to maintain three small bridges or crossings (Figure III-54). The users of the later cow barn may have had similar problems and used the concrete fragments as a make-shift subsidiary ditch crossing. Whatever its origin or purpose, this recent concrete cluster has no obvious value as a cultural resource.

Cemetery Area

The portion of the levee assessment zone to the east of Test Area 5 was only given cursory investigation in the overall testing program. This area, which is dominated by the grounds of the National Cemetery, was not slated for any major earth modification beyond enhancement of the shell fill of the levee road.

In the early twentieth century, the Chalmette National Cemetery had extended south of the present levee road (Greene 1985:279). Today, the southern boundary of this longer cemetery is approximately marked by the toe of the levee (Map III-2). The only surviving remnant of this earlier part of the cemetery is a solitary, broken section of brickwork that lies partly embedded in the sand between the low- and high-water bank lines of the Mississippi River. This large brickwork fragment appears to represent part of the National Cemetery's original flagpole base, for one face of the broken section exhibits a sizable cylindrical socket. This flagpole base had probably stood near the entrance in the days when the road along the levee provided the main access to the levee (Greene 1985:270).

A 1928-1929 levee setback resulted in the destruction of the original riverfront section of the cemetery. The resident superintendent's house and a few associated outbuildings that once occupied the southern end of the cemetery were also destroyed at this time (Figures II-18, II-19). However, the 401 Union troops who were buried in the area of impact were disinterred and reburied in a marked mass grave in the southeastern part of the present cemetery (Greene 1985:279).

Prior to 1864, the area of land enclosed by the cemetery had been part of the St. Amand Plantation, and before 1817, it had formed an equal portion of the famous Chalmette Plantation (Chapter 12, Part II, this report). There is no evidence to suggest that this piece of land was used for occupation before the heyday of the St. Amand Plantation, but by the 1830s, the numerous outbuildings and slave quarters of the St. Amand brothers had begun to spill into the area now occupied by the cemetery.

Auger Tests

Six 1 m deep auger tests were dug at intervals from east to west across the cemetery in order to obtain some idea of the historic trash occurrence in the southeastern part of the levee assessment zone. These tests were originally planned for the current levee road right-of-way between the cemetery wall and the landward toe of the levee, but this intention was frustrated by a 30 cm thick layer of oyster-shell road fill that blanketed this corridor. Consequently, the auger test line was shifted just north of the south cemetery wall where the shell pavement no longer posed an impediment to subsurface testing.

Auger Test 1

The first auger test of the cemetery series, Auger Test 1, was dug at F5, N9.5 in the southwest corner of the cemetery (Map III-2). Topsoil extended to 30 cm below surface. The topsoil was then followed by a dark gray clay to a depth of 60 cm. This clay contained a light scatter of brick flecks. The next soil was a grayish brown sterile clay that continued to the bottom of the hole.

Auger Test 2

The second test, Auger Test 2, was made at F25, N8.8. Here, the 20 cm deep topsoil was followed by dark gray clay to a depth of 70 cm. This clay also exhibited a light scatter of brick flecks. It was followed by a grayish brown sterile clay.

Auger Test 3

Auger Test 3 was dug at F54, N9.5. In this test, a 30 cm topsoil was followed by a thin lens of *Rangia* shell fragments. The next layer was the ubiquitous dark gray clay, and it was in turn followed by the grayish brown clay below 70 cm.

Auger Test 4

Auger Test 4 was placed at F59, N9.5. In this auger test, a thin *Rangia* shell paving followed a 40 cm thick topsoil horizon. Below a 2 to 3 cm thick shell layer was a dark gray clay characterized by a scattering of fine brick flecks. It was in turn followed by sterile grayish brown clay at 80 cm below ground surface.

Auger Test 5

The next auger test of the series, Auger Test 5, was made at F73, N9.5, just inside the southeast corner of the cemetery. Here, a 30 cm topsoil was followed by a 10 cm thick lens of dark gray trashy soil. This lens contained fragments of coal and soft red brick. A small piece of slate and an undiagnostic nail fragment was also found. The dark gray clay, same as that found in the other holes, came after the trashy lens and extended to a depth of 80 cm. Sterile, grayish brown clay was encountered at the bottom of the hole.

Auger Test 6

The last auger test of the series, Auger Test 6 at E76, N9.5, was located between the cemetery wall and the Kaiser Aluminum Plant fence (Map III-2). This narrow corridor had obviously received a recent artificial fill, for the first 60 cm contained a unconsolidated deposit of tan levee sand. A dark gray clay followed the sand. This clay produced a few *Rangia* shell fragments and a few small bits of brick.

General Observations

Nothing was found in these auger tests that could be linked to the slave quarters or outbuildings of the St. Amand Plantation. The small brick fragments and flecks in the upper subsoil could easily have derived from the construction of the cemetery wall or, in part, from the razed caretaker's residential complex. The small amount of material discovered in Auger Test 5 is thought to represent some of the debris from the northern edge of this former residential area. The *Rangia* shell may be from this late nineteenth- and early twentieth-century occupation.

The absence of any signs of the early nineteenth-century St. Amand occupation is understandable for any remains in the southern cemetery area may have been removed or been widely scattered during the construction of the cemetery caretaker's complex or in the course of building the cemetery itself. Moreover, the construction in 1928-1929 of the present levee road would have severely disturbed any archeological remains that may have been located between what is now the levee toe and the south wall of the present-day National Cemetery.

CHAPTER 17

REVISED HISTORICAL GEOGRAPHY

OF THE CHALMETTE BATTLEFIELD

Ted Birkedal

Introduction

The discovery of the brick foundations of the Rodriguez Estate in 1983 provided the first evidence that the National Park Service's reconstruction of the battlefield was in serious error. The subsequent discovery of Battery 3 confirmed the earlier findings and, most importantly, supplied a pivotal physical link between the past and present geography of the battlefield. By benefit of this reference point, a new and more accurate reconstruction of the historical geography of the Chalmette Unit could be established. The pages that follow present and document the revised reconstruction. Treatment is first given to the geography of the Battle of New Orleans; next, attention is devoted to the civilian and post-battle cultural features that fall within the park boundaries. For methodological reasons, the reconstruction extends beyond the confines of the Corps of Engineers' 200 ft (61 m) riverfront assessment zone. This wider geographical framework is essential to the demonstration of the overall veracity and internal unity of the reconstruction; the pattern of evidence would not become entirely clear or meaningful within the context of a more restrictive perspective.

Historiography

To the extent possible, the reconstruction of the battle geography relies on archeological observations and contemporary source material. From the American perspective, two of the most important sources are the accounts of Major A. Lacarrière Latour (1964 [1816]), Principal Engineer in the Seventh Military District, and Major Howell Tatum (1922), Topographical Engineer for the Seventh Military District. Where a discrepancy occurs between these two sources, the greater credence is given to Tatum's account. There are several reasons for favoring Tatum. First, he was a man with a long history of military experience dating back to active service in the Revolutionary War (Bassett 1922:5). Second, Tatum was Jackson's Chief Topographical Engineer and, as such, it was his assigned responsibility to make detailed observations on the nature of the battlefield terrain to assist military planning. Third, Tatum's account represents a working military journal that records daily and firsthand observations on the changing character of the battlefield (Bassett 1922:7).

In contrast, Latour's (1964 [1816]) account was written for a popular audience and published over a year after the battle. In his last entry, Tatum (1922:137) suggests that Latour's map of the Battle of the 8th of January is probably very accurate, but Tatum could only have viewed the original field version of the map, not the engraved copy that was later published in Latour's book (Figure III-55). This map, entitled "Plan of the Attack and Defense of the American Lines below New Orleans on the 8th January, 1815" (1816b), does appear to be relatively accurate for a document of its kind. Nonetheless, it exhibits some obvious errors. For instance, the borders of the Rodriguez property are shown as parallel; yet we know from Lafon's survey map of 1808 (Figure II-1) that the east and west borders of this property actually converged to form a triangle as they approached the Mississippi River.[1] In addition, the bank line of the Mississippi is given too flat an angle and the plantation ditches in front of the American defense line are skewed toward the northeast. Moreover, Latour's map tends to favor symbolic representation over the portrayal of fact. For example, although Latour (1964 [1816]:147) admits in his text that Battery 1 possessed three artillery pieces, his symbol for this battery is the same given for two-gun batteries along the line (Figure III-47). It is identical to these in size, shape, and the number of guns shown. Ritchie (1961:57) is perhaps justified in criticizing Latour, or at least his engraver, for artistic license and overuse of the "set square."

As far as the details of the American Line are concerned, the maps of Abraham Ellery (Figure III-56) and Thomas Joyes (Figure III-57) appear to be more reliable than Latour's published map. Both Joyes's and Ellery's maps focus

1 Oddly enough, Latour's small-scale map of the battlefield entitled "Map Shewing the landing of the British army . . . ." (Latour 1816a) shows the Rodriguez property with the appropriate degree of convergence. The reason for the discrepancy between his two maps is unknown.

exclusively on the immediate vicinity of the rampart and, for the most part, exhibit close attention to detail. Fence lines are shown, the river bank is angled properly, and although symbols are used to represent the artillery positions, the symbols are varied slightly to show the actual number of guns present in each emplacement.

Ellery's and Joyes's maps are strikingly similar in their portrayal of the historic scene. If one were to temporarily ignore the fact that Joyes's map is done in water color and Ellery's is drawn in ink, the two maps would appear almost identical. The hypothesis is offered here that both derive from the same field map finalized sometime after January 8. This late date for the completion of the "original" is evidenced by the fact that the Joyes and Ellery maps both illustrate the direction taken by the main British column on January 8 plus the American mortar battery put in action on the following day. At first glance, Joyes's map would seem to be a candidate for being the "original," for the labeling is rough and the ink occasionally smeared. Ellery's map, in contrast, is characterized by more careful and elegant lettering; in addition, it has a more cleanly appearance. Yet the scale of Joyes's map suggests that it is a copy rather than an original. The scale which is at the extreme north of the Joyes map is erroneously foreshortened. Even though it purports to show a length of 600 yd, the amount of space left after the last correct graduation, the 120 yd mark, is insufficient to accommodate the total scale distance. If the necessary number of 40 yd subdivisions were added, the scale would extend off the top of the map. The first three 40 yd subdivisions are all the same size, the next two become increasingly foreshortened. After the 200 yd mark, no more 40 yd intervals appear on the scale; the only additional subdivision is a 400 yd mark. This 400 yd mark should actually be the 280 yd mark. Similarly, the end of the scale falls at the 360 yd interval, not at the labeled distance of 600 yd. This mislabeling is repeated with toises (6.395 ft or 1.949 m) at the top of the scale.

Judging from this error in scale construction, it would seem likely that the maker of the Joyes map initially laid out his scale only to realize, too late, that the finished scale would extend beyond the sheet of paper chosen for the purpose. The immediate and simplest solution was simply to foreshorten the scale. However, in his apparent haste, the mapmaker failed to alter the labeling in accordance with the revised length of the scale. This oversight is the kind that might occur if the Joyes map had been quickly copied from another map.

The positioning of the scale on Ellery's map is similar to the placement on Joyes's map, but here a sufficient proportion and length of paper was used to allow room for a properly graduated scale. Ellery's map also includes a northerly section of the Rodriguez Canal that is missing on the Joyes map. That it is a copy, rather than a field original, is indicated by its refined hand lettering, tight line control, and neat appearance.

Thus, both the Ellery map (Figure III-56) and the Joyes map (Figure III-57) are viewed as copies of an original map that has either been lost or remains hidden in some unknown archive. The Joyes map probably represents a hasty first-generation copy of the "original." On the other hand, the Ellery map appears to represent the product of a more skilled draftsman who had sufficient time to lay out and label his map with precision and care. It may be that the Ellery map is a second-generation copy, in other words, a copy of a copy. Despite these and other minor differences, the overwhelming similarities exhibited by the two maps argue for derivation from a single, common source.

Though the maps are probably copies, they most likely date from the immediate aftermath of the Battle of New Orleans. Thomas Joyes served as an officer with the Kentucky Militia during the Battle of New Orleans, and a study of the handwriting on his map shows that it is a product of his own hand (Jerome Greene, personal communication 1985). In all probability, the map was already in existence when he returned home to Kentucky in 1815. The name of Abraham Ellery does not appear on any of the better-known troop rosters, but the detailed military observations in his papers strongly suggest that he was an eyewitness, if not a participant (Jerome Greene, personal communication 1985). At the time of the battle, Ellery was a distinguished New Orleans attorney who had among his clients Renato Beluche, the famous Lafitte pirate who commanded one of the 24-pounders at Battery 3. Ellery's map was included among his other papers when he died in 1820, and it is highly likely that it was completed before that date, most probably about the same time as Joyes's map. Because Ellery's crisper lines lend themselves to easier measurement, his is the preferred map in the reconstruction. However, there is no significant difference between the two maps in information content.

Betsy Swanson (personal communication 1986) has made the sensible suggestion that the missing "original" copied by both Joyes and Ellery was none

Figure III-55. A. Lacarrière Latour's complete "Plan of the Attack and Defence of the American Lines below New Orleans on the 8th January, 1815" (Approximate Scale 1 in = 240 yd or 1 cm = 86 m).

From A. Lacarrière Latour's *Historical Memoir of the War in West Florida and Louisiana in 1814-15.* Orig. pub. 1816. (Reprint, Gainesville, Florida: University of Florida Press, 1964).

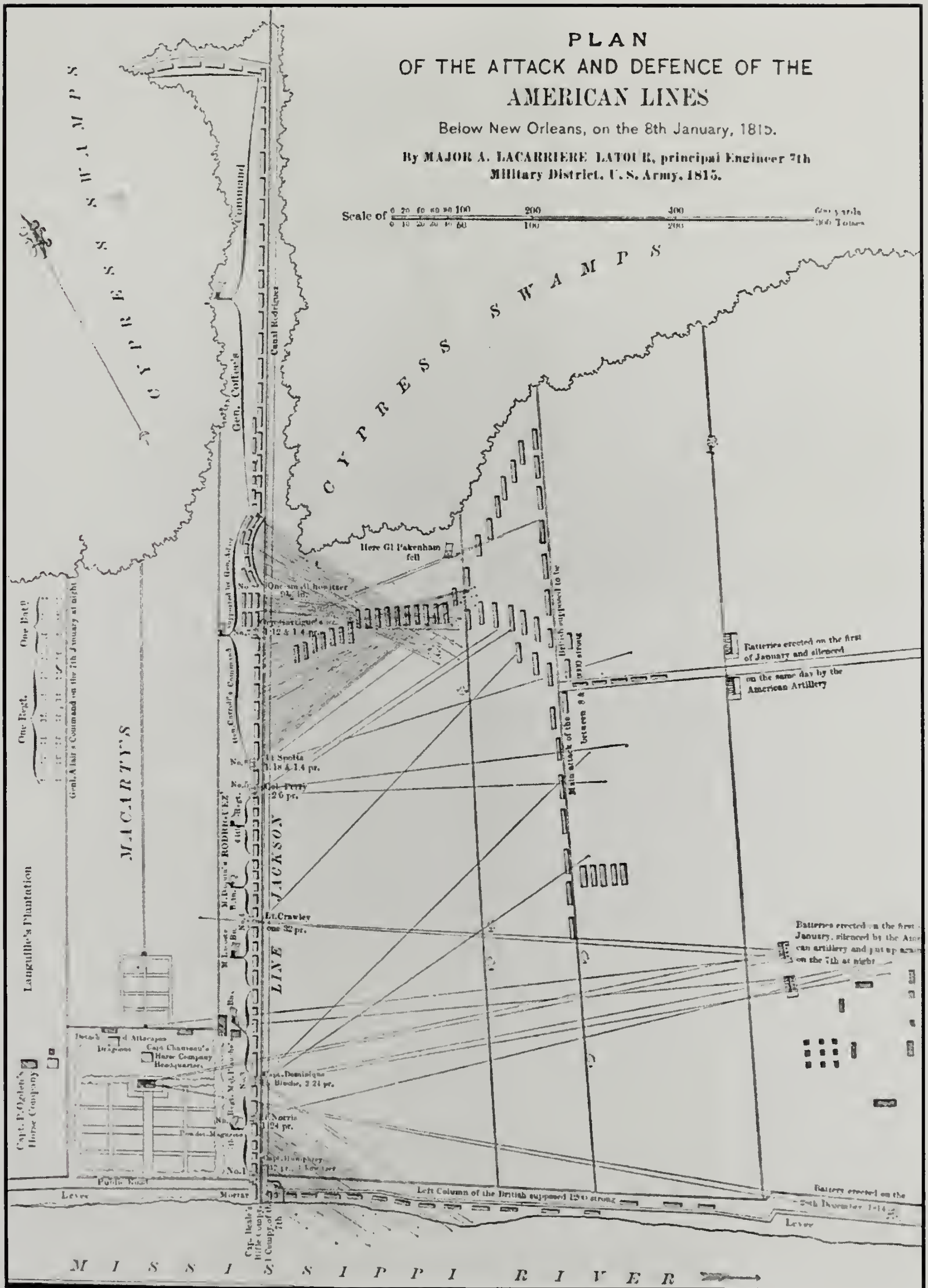

PLAN
OF THE ATTACK AND DEFENCE OF THE
AMERICAN LINES
Below New Orleans, on the 8th January, 1815.
By MAJOR A. LACARRIERE LATOUR, principal Engineer 7th Military District, U. S. Army, 1815.
Scale of
CYPRESS SWAMPS
CYPRESS SWAMPS
Gen. Coffee's Command
Canal Rodriguez
Here Gl Pakenham fell
Batteries erected on the first of January and silenced on the same day by the American Artillery
Main attack of the British supposed to be between 8 & 9000 strong
MACARTY'S
LINE JACKSON
Lt. Crawley one 32 pr.
Langueille's Plantation
Capt. P. Ogden's Horse Company
Capt. Dominique Bluche, 2 24 pr.
Left Column of the British supposed 1200 strong
Levee
Public Road
MISSISSIPPI RIVER

Figure III-56. Abraham R. Ellery's "Plan shewing the disposition of the American Troops when attacked by the British Army, on the morning of the 8th Jany (ca. 1815)." Approximate Scale: 1 in = 240 yd or 1 cm = 86 m.

Courtesy of the Manuscripts and Archives Division, The New York Public Library, Astor, Lenox, and Tilden Foundations.

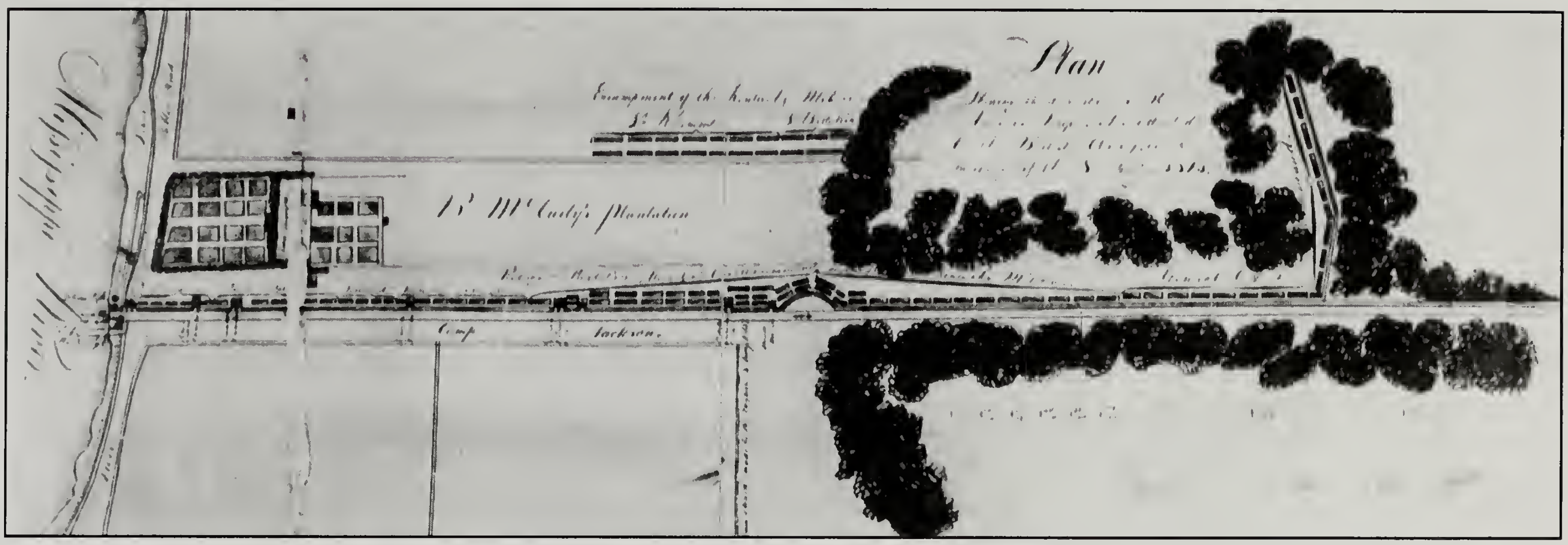
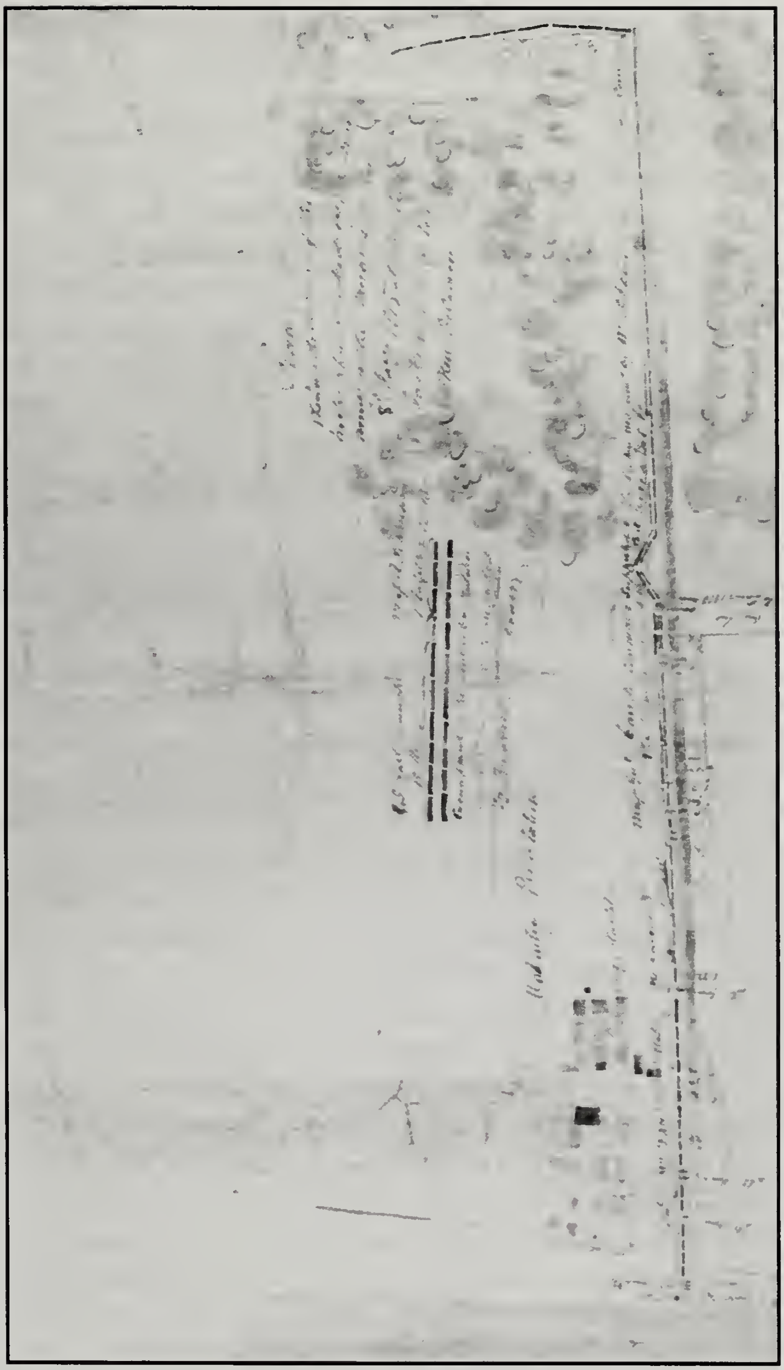

Plan
Camp Jackson

Figure III-57. Thomas Joyes's complete "Plan Shewing the Disposition of the American Troops when attacked by the British army on the Morning of the 8th Jany. 1815 at the line Jackson 4 miles below New Orleans (ca. 1815)." Approximate Scale: 1 in = 260 yd or 1 cm = 94 m.

Courtesy of The Filson Historical Society, Louisville, Ky.



other than Principal Engineer Latour's field map—the same map mentioned by Tatum (1922:137) in his journal. If her hypothesis is correct, the irony is that the Joyes and Ellery maps may be closer facsimiles of Latour's first-generation working map than the one published in his own account of the Battle of New Orleans. Deviations, intentional or otherwise, from the field map could have been introduced at any point in the book production process. Engravers of the period, in particular, often took liberties with their clients' illustrations or simply made outright mistakes. The improper symbol used for Battery 1 in Latour's published map is typical of the kind of error that might be made by a careless engraver. Ritchie's (1961:57) criticism of Latour for artistic license, noted earlier, may be misdirected; the engraver could easily have been the guilty party rather than the author.

Another invaluable American source for the battle geography, particularly for the south end of the American position, is Benjamin Henry Latrobe, the famous architect, artist, and observer of early nineteenth-century life in the United States. A better guide to the battlefield cannot be imagined. Latrobe was the foremost American architect and civil engineer of his time, and, it is pertinent to note here, a particular student of canals, waterways, and the geology of floodplains (Carter 1985:14-15). In testimony to the veracity of Latrobe's sketches and drawings, Carter (1985:9) writes: We "do not have superficial views of a great many subjects made by a dilettante, but careful and precise renderings by a trained artist who had mastered many of the subjects required to draw all he encountered—architecture, engineering, geology, botany, and zoology." Latrobe's son, Henry, had served as a military engineer under Latour during the Battle of New Orleans. In February of 1819, Benjamin Latrobe visited the battlefield in the knowledgeable company of Vincent Nolte, who had fought as a volunteer with Plauche's contingent of Louisiana militia on the American right. Many years later, Nolte (1972 [1854]) published his own eyewitness account of the battle.

While at the battlefield, Latrobe made a number of detailed sketches of almost photographic quality and drew a sketch map of the south end of the defense line (Figures III-4, III-14, III-58). He also recorded what he saw and heard in his diary narrative (Latrobe 1951). Being the careful observer he was, he even had Andrew Jackson edit his sketch map for accuracy.

Among the best of the British sources is the battle journal of Colonel Alexander Dickson (1961). Dickson commanded the British artillery at the Battle of New Orleans and was one of the premier artillerymen of his day (Ritchie 1961:13; Brown 1969:17). His daily journal entries are crammed with observations, order records, and artillery inventories. This journal also includes a detailed sketch map of the British artillery positions for January 1 and a sweeping, more general map of the theater of war for January 8.

Another valuable British source is the testimony from the General Court Martial (1926) of Colonel Thomas Mullins of the ill-fated 44th Regiment. This court martial was held during the summer of 1815, and the proceedings contain the eyewitness accounts of dozens of officers and men. Because much of the testimony focuses on who and what was where during the Battle of the 8th of January, it contains numerous references to the geography of the battleground.

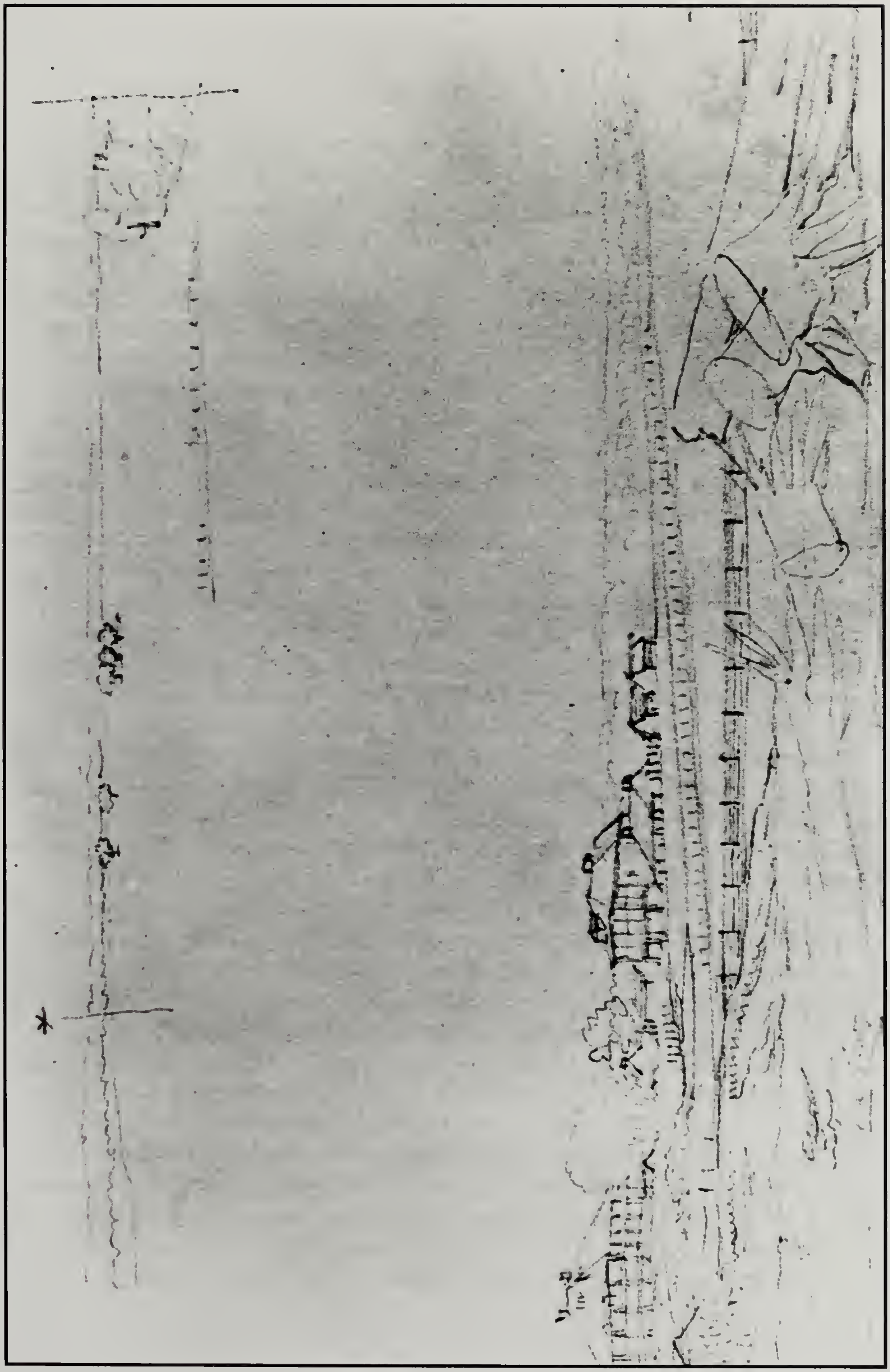
Other useful British sources are the journals of Major C. R. Forrest (1961), Assistant Quartermaster, 34th Regiment, and Major John Michell of the Royal Artillery (1963). Also of some value, though of varying reliability, are the published remembrances of Lieutenant Benson Earle Hill (1836), Royal Artillery; Lieutenant Robert Gleig (1972 [1847]), 85th Regiment; Lieutenant William Surtees (1833), 95th Regiment; and Captain John Henry Cooke (1835), 43rd Regiment.

In evaluating the various accounts, both British and American, several factors were considered: the expertise and background of the observer; the extent to which the observations were direct as opposed to indirect; the length of time that had elapsed between the observations and their commitment to paper; the intended purpose of the written account; and the degree to which the observations fit the pattern indicated by the other contemporary sources as well as the available archeological data. Within the framework of this set of criteria, Tatum, the topographical engineer, was viewed as a more reliable source than Dickson, the British artillerist, on the location of the plantation drainage ditches, especially those located within the sphere of American operations. In a similar vein, Dickson was considered a better source on British battery construction than Lieutenant Gleig of the infantry.

For historic features not associated with the Battle of New Orleans, this chapter draws heavily on the archival studies of Wilson (1965), Yakubik (Part II, this report), and Swanson (1984, 1985). Emphasis is again given to Benjamin Latrobe's (1951) observant sketches and journal entries; these provide a firsthand and exacting portrait of the battlefield in the early postwar years. Highly useful

Figure III-58. Benjamin Henry Latrobe's 1819 "Battleground from the Bank of the Mississippi (Sketchbook XIV, February 1819 [Image XIV-15])." The sketch shows the Rodriguez Estate as seen from the bank of the Mississippi River and looking across the Levee Road. The front and west sides of the Macarty House are shown on the far left. The remnants of the American rampart lie just beyond the fenceline in the mid-distance, and the north end of the line of defense is continued at the top of the sketch. The small pond and gap that is visible between the Macarty House and the Rodriguez House is thought to represent the former location of Battery 2. Given Latrobe's angle of view and vantage point along the bank of the Mississippi, Battery 3 would be located farther to the north and its presence is possibly hinted at by a small diagonal line on the rampart visible above the highest stump on the right-hand side of the sketch.

Courtesy of The Maryland Historical Society.



period maps include those of Lafon (1808), Zimpel (1834), d'Hémécourt (1837), Springbett and Pilié (1839), Palfrey (1864), Pilié (1867), d'Hémécourt (1867), Bell (1872), and the early maps of the U.S. Coast Survey and Mississippi River Commission.

Whenever possible, locational information is taken from the larger scale historical maps, particularly the property survey maps. Unfortunately, these more detailed maps tend to focus on a limited range of data. For example, the d'Hémécourt map of 1867 gives great attention to property boundary alignments and angles within what has become the Chalmette Unit. It also presents much detail on the Mississippi bank line that fronts the properties, but the position of only one residence, the Beauregard House, is shown. On the other hand, the small-scale maps of Zimpel (1834) and the Mississippi River Commission plot the locations of numerous residences and other structural features, but these maps were designed to cover a vast portion of the New Orleans vicinity. For their intended purpose and level of coverage, the Zimpel and Mississippi River Commission maps display an astounding accuracy. Nonetheless, their scales are such that individual residence locations can only be viewed as approximations. To expect more would be a case of misplaced concreteness. Yet these approximations are still useful because they are sometimes all that are available, and the degree of error appears to rarely exceed 30 m (98.4 ft) and often is much less.

Fixed reference points that can effectively link today's landscape to the historic landscapes portrayed in the period maps are difficult to come by at Chalmette. One reason for this problem lies in the relative absence of surface structural evidence. With the exception of the Beauregard House, all the historic residences and buildings, within or adjacent to the park area, have been razed, and their foundations now lie hidden beneath a thick, grass-covered topsoil. Even Fazendeville, an African American community of several hundred people that existed into the early 1960s, is entirely erased from the landscape. There are no obvious surface signs of its presence left; it is as though 250 years, not 45 years, had passed since the community's abandonment. Conversations with Charlie Tippen and R. C. Tippen, both among the more senior maintenance men at the Chalmette Unit in 1984, indicate the houses of Fazendeville were not only razed, they were purposely buried in large, deep holes dug in and around the former settlement.

The few ground-truth reference points that are available (i.e., the Rodriguez foundations, the Beauregard House, the Chalmette Monument, the National Cemetery, etc.) rarely appear together on the maps. Sometimes the culprit was the specialized purpose of the mapmaker—he might have been simply interested in a small section of the battlefield or a limited range of features. In other instances, the source of the problem is time itself and the changes that accompany its passing. For example, after the first half of the nineteenth century, the location of the Rodriguez houses never again appears on a map. The reason is obvious: The mapmakers of the day were interested in active residences and structures, not abandoned estates from previous decades. In other frustrating instances, a map may show the two or more reference points that are necessary for tight locational control, but it may show little else. For unknown reasons, the mapmaker elected to leave out the very features for which locations are now sought.

Two characteristic inaccuracies of the American battle-era maps require special mention. Latour's, Ellery's, Joyes's, and even Latrobe's large-scale maps of the battlefield show the east and west boundaries of the Rodriguez property as parallel. Yet we know from Latour's small-scale map, "Map Shewing the landing of the British army . . . ," (1816a), and from maps produced before and after the Battle of New Orleans (i.e., Lafon [1808] and Zimpel [1834]) that this was not the situation. The east and west boundaries of the property actually converged as they approached the river to form a distinct trapezoidal shape. Similarly, these same battle-era maps, with the exception of Latrobe's, show Rodriguez's two residences somewhat farther back from the riverfront than was actually the case. One can only speculate on the origin of these common errors, but, in the case of the Ellery and Joyes maps, which probably represent variant copies of the same original military field map (Latour's?), the inaccuracies are most likely a product of blind copying. The errors were on the "original," and Joyes and Ellery merely repeated them. If Latour was the author of this primary field "original," then the occurrence of identical mistakes on Latour's published maps of 1816 is also understandable.

The source of both the incorrect boundary configuration and the sloppy placement of the Rodriguez residences may lie with a low emphasis on the details of civilian real estates relative to military features by the battle participants. As mentioned earlier, General William Fields of the New Mexico National Guard (personal communication 1985), a military combat engineer of long experience, remarked that civilian features often tend to receive secondary treatment on military field maps except where these features possess critical strategic or tactical importance. In light of this observation, Latrobe's more accurate portrayal of the locations is expectable. Not only was he a civilian visitor to a peaceful, three-year-old battlefield, he was also one of the United States' foremost architects. His careful perspective drawings, which accompany his sketch map, evidence an architect's keen interest in the placement of structures and architectural detail. Latrobe's faulty treatment of the boundaries is more problematical, but it may simply reflect Latrobe's lack of concern for the subtleties of property configuration in the context of a hastily-drawn, informal map. Property survey was not the purpose of his visit to the battlefield. He had come to remember his dead son, who had received special recognition for this bravery during the construction of Battery 3.

The reconstruction of the historic geography of Chalmette required the construction of numerous "bridges" across gaps of time and spatial coverage, as well as errors of omission and fact, found in the archival map sources. Primary, ground-truth reference points, such as the Beauregard House or Battery 3, were employed to fix the positions of other, less well-documented features. Once established, these other feature locations would be used as secondary or intermediate reference points in the search for the locations of additional features. For instance, one map might show the locations of two primary reference points, A and B, relative to the position of a poorly documented feature location known as C. Once the location of C had been determined by means of A and B, it might be used on another map that only illustrated A and C to discover an additional location called D. In turn, C and D might yield the position of E on yet a third map. For the most part, the locational process became easier with the establishment of each new feature location. Multiple cross checks then became possible, and eventually there were few historic features that could not be tied to the present landscape by reference to previously established points.

Aerial photographic imagery proved to be one of the most helpful tools in linking the present geography of Chalmette to the historic scene portrayed in the archival map sources. For instance, ditch remnants observable on the imagery could often be directly matched with former property boundaries represented on the old maps. In addition, early vertical aerials from the 1930s and 1940s contained a number of historic features that had been subsequently erased from today's landscape. With the aid of these aerials, it was sometimes possible to tie a location given on an archival map to an actual piece of ground within the present Chalmette Unit.

The Bres and Ricketts Reconstruction of the Battle Geography

Up to 1985, visitors to the Chalmette Unit encountered a battlefield reconstruction that was based on a map drafted by D. W. G. Ricketts in 1935 (Figure II-7). In early January of that year, Colonel Edward S. Bres, Chairman of the Historical Memorials Committee of the New Orleans Association of Commerce, applied to the Works Progress Administration (WPA) for assistance in the preparation of an accurate historical map for the Chalmette Battlefield (Bres 1964:11). The WPA agreed to supply salaries, wages, and office space for the project. Other expenses were personally borne by Colonel Bres, an avocational military historian with an intense interest in the Battle of New Orleans.

Colonel Bres served as the director of the project, but he recruited D. W. G. Ricketts, a respected civil surveyor with the Louisiana Geodetic Survey, as his expert assistant in the work. For the next several months these two men scoured the available archival records and performed numerous field investigations in and around the battlefield. The final product was an exquisitely drafted, wall-sized linen map. This map contained numerous historical notations and also reproduced, in an inset format, some of the key archival maps that had been consulted during the investigation.

When planning for the establishment of Chalmette National Historical Park began in earnest in 1936, the Bres and Ricketts Map was quickly adopted as the primary guidepost to interpretive development at the park (Wilshin 1938:7). Its importance was reaffirmed in 1964; at that time, it provided the basis for the official historical base map incorporated in the National Park Service's "Master Plan for Preservation and Use: Chalmette National Historical Park."

With a single exception, no historian publicly questioned the accuracy of the map. Between 1939 and 1983, most simply assumed that this remarkable map must be correct. As a consequence, the National Park Service never committed any additional resources to the study of the battle geography. The only challenge to the map's authority was made by National Park Service Historian Roy Appleman, who had conducted a preliminary feasibility study of the battlefield site in 1938 and had thus acquired some knowledge of the park's resources. In 1950, he reviewed a historical base map that had been prepared by the National Park Service for use at Chalmette. This map was essentially a redrawn excerpt from the original Bres and Ricketts map. In a signed notation on the National Park Service map, Appleman commented negatively on a peculiar distortion that was evident in the portrayal of the eastern boundary of the Macarty Plantation, and he recommended, in cryptic prose, that the map be "documented in usual manner when park historian is available for work." His recommendation was apparently never followed, and ironically, the map, together with Appleman's critical notation, reappeared in 1964 as the official Historical Base Map in the "Master Plan for Preservation and Use: Chalmette National Historical Park."

As implied above, one reason for the uncritical acceptance of the Bres and Ricketts map probably lay in its impressive visual qualities and the formidable historical notations that were directly drafted onto the map. It was not the sort of map that invited critical scrutiny or would be seen to require additional back-up research. Thus, the majority of the National Park Service's research efforts in support of the Chalmette National Historical Park between 1939 and 1983 were devoted to the restoration of the Beauregard House and the details of fortification and weaponry. The most concentrated period of research activity occurred between 1962 and 1964 under the direction of James Holland, Regional Historian for Southeast Region. The purpose of this work was to provide historical documentation in order to guide the physical reconstruction of the American rampart. This reconstruction effort had been specifically mandated by Congress and was scheduled for completion in time for the Sesquicentennial Celebration of the Battle of New Orleans in 1965 (Bres 1964:19-24). Unfortunately, the National Park Service historians who were assigned to the project had to conduct their work under considerable time constraints. They had little enough time or staff to investigate the earthworks, much less critically examine the wider geographical framework of the Battle of New Orleans. As Regional Historian James Holland (1964) remarked in one of his memoranda of the period, the research was not performed under "normal circumstances." These unusual circumstances, coupled with the time constraints, perhaps provide a second reason why the errors in the Ricketts map were overlooked.

By 1963, Colonel Edward Bres, the same man who had directed the preparation of the Ricketts map, had become Major General Edward Bres (retired). He had also been appointed Chairman of the Sesquicentennial Celebration Commission, which included among its membership some extremely powerful United States senators and representatives as well as the Director of the National Park Service (Sesquicentennial Celebration Commission 1965:iv-viii).

Not unexpectedly, Major General Bres maintained a close watch on the activities of the National Park Service and unleashed a barrage of correspondence to both the Service and members of Congress whenever he felt the rampart reconstruction or the other preparations for the Sesquicentennial deviated from his plans or wishes (Bres 1964: Appendix). For instance, Major General Bres became quite incensed when the National Park Service historians refused to accept his argument that the gun platforms along Jackson's line had been set about 9 ft above the ground on several tiers of cotton bales (Bres 1961, 1963a, 1963b, 1964:20, 22). In addition, he did not particularly care for the National Park Service's rejection of his suggestion to reconstruct these elevated platforms with burlap-covered white concrete (Bres 1961, 1963a). As this example illustrates, the National Park Service had enough problems to contend with in regard to Chalmette in the early 1960s. In short, the situation was not conducive to serious research into the veracity of the Bres and Ricketts map. After the Sesquicentennial Celebration of 1965, no scholar, either within or outside the National Park Service, questioned the Bres and Ricketts reconstruction of the battle geography. The once formidable map had now become a formidable physical reality, one that dominated both the battlefield and any future thinking about the site of the Battle of New Orleans.

The Bres and Ricketts reconstruction of the battlefield geography rests on a complex set of historical assumptions and civil surveying computations. The two key sources behind this reconstruction are the survey notes of George Dougherty (1836) and George Grandjean (1873). Dougherty and Grandjean were both professional surveyors who had performed land surveys of the Chalmette vicinity under contract to the Office of the United States Surveyor General. Additional sources used by Bres and Ricketts included the maps of Lafon (1808), Latour (1816b), and d'Hémécourt (1867). Strangely, other major map sources of the period—for example, Zimpel (1834), Springbett and Pilié (1839), and the Mississippi River Commission charts—were never consulted, or least used, for the reconstruction.

Bres's and Ricketts's methodological discussions tend to be clipped and overly terse. As a consequence, the logic of their reconstructive approach is not always made explicit. Nonetheless, the essential thread of Bres's and Ricketts's various arguments is presented below. These arguments are drawn from the notations on the 1935 map as well as from a short descriptive report on the investigation by Ricketts (1936). A critique of the methodology and the results follows.

As a first step, Bres and Ricketts (Ricketts 1936:2) established that both Dougherty's and Grandjean's surveys shared a common point located at the southeast corner of the Bienvenu property, several thousand feet downriver from what is now the park unit. They then observed that Grandjean's bearing and distance from this point to the old southeast corner of the National Cemetery fell within 7.83 ft (2.39 m) of a prolongation of the current east wall of the cemetery. They also noted that this east wall followed the same alignment as an earlier property line documented by Dougherty in 1836. Bres and Ricketts (Ricketts 1935, 1936:2) next measured the distance between the meander point Dougherty shared in common with Grandjean and the point where the pre-cemetery property line intersected with the 1836 levee road. When this same distance and bearing was replicated on the modern landscape, it fell within 8.2 ft (2.5 m) of a prolongation of the present east wall of the cemetery. After the completion of this exercise, Bres and Ricketts (Ricketts 1936:2) concluded that both Grandjean and Dougherty were highly precise surveyors for their time. They also assumed that the measured lines drawn from the common tie-in point on the Bienvenu property had come so close (7.83 and 8.2 ft [2.39 m and 26.5 m], respectively) as to accurately indicate actual points of intersection on a prolongation of the east cemetery wall alignment, an alignment which matched a property line that had existed well before the construction of the National Cemetery.

Bres and Ricketts (Ricketts 1935, 1936:2) believed the Grandjean intersection point fixed the position of the southeast corner of the National Cemetery in 1872 as well as its point of contact with the north edge of the levee road at this time. In a like manner, they interpreted the Dougherty intersection as marking the north edge of the 1836 levee road where it passed through the same property line. Bres and Ricketts then turned to d'Hémécourt's 1867 survey for corroboration. They found, to their delight, that the north edge of d'Hémécourt's levee road would have crossed the east border of the National Cemetery at essentially the same point indicated by Grandjean's survey meander. With these data in hand, they proceeded to calculate the bank-line changes that had taken place along a single north-south plane between 1836 and 1867. Bres and Ricketts found that the Dougherty intersection fell 530 ft (161.6 m) beyond the Grandjean-d'Hémécourt intersection. From this comparative data, Bres and Ricketts (Ricketts 1935) reasoned that the bank line had receded 530 ft (161.6 m) in the thirty-one years between 1836 and 1867, for an average recession rate of 17 ft (5.18 m) per year. Using d'Hémécourt's average width for the levee road, levee, and river bank, they then added 160 ft (48.8 m) to obtain the position of the Mississippi River bank in 1836. To find the bank line in 1808, Bres and Ricketts (1935) assumed the recession rate of 17 ft per year also applied to the 1808 to 1836 period and placed the 1808 bank line 1003 ft (305.8 m) from the Grandjean-d'Hémécourt bank line.

To check the bank-line reconstruction estimated from Dougherty's and Grandjean's survey meanders, Bres and Ricketts turned to Lafon's 1808 survey map of the Chalmette vicinity (1935; 1936:2). This map illustrated a distance of 3175.89 ft (968 m) between a point "A" at the south end of the "canal du moulin" (Rodriguez Canal) and a point "N" near the south end of what was at that time the east border of the Prevost property. When the distance of 3175.89 ft (968 m) was measured at right angles from a prolongation of the current Rodriguez Canal, Bres and Ricketts noticed that one measured line fell surprisingly close to a reconstructed Dougherty meander point (using the 17 ft per year bank recession rate) that marked the river end of the same property line in 1836. From this close correspondence of measures, they concluded that the Dougherty meander point along the old Prevost property line provided a reliable "anchorage" for the Lafon survey (Ricketts 1936:3). However, the resultant 1808 river bank calculated by this method fell about 200 ft (61 m) short of the one calculated solely on the basis of the Dougherty and Grandjean survey meanders, a discrepancy that Bres and Ricketts (1935) viewed as minor and perhaps attributable to a slight miscalculation in the rate of bank recession.

In order to obtain the position of the riverfront in 1815, Bres and Ricketts (Ricketts 1935, 1936:3) took the map they had produced for the 1808 bank line reconstruction and superimposed it over a copy of Latour's map that had been photostatically enlarged to the same scale. They matched the two maps by placing Lafon's levee road alignment over Latour's alignment for the same road. Latour's bank line was then plotted onto the master map in order to provide the position of the Mississippi riverfront at the time of the Battle of New Orleans. In addition, Bres and Ricketts plotted key battle features, again in accordance with Latour.

Bres and Ricketts then conducted a field check and quickly found corroboration for their reconstruction (Ricketts 1935, 1936:3). They not only found some north-south ditch lines that matched Latour's, the two men also "discovered" an east-west feature at a predicted location which they claimed was the Center Road of battle fame. However, what they had actually found was a major ditch line flanked by prominent spoil banks, not a remnant roadway.

Where did Bres and Ricketts go wrong? First, it is important to point out that the Bres and Ricketts reconstruction of the 1867 bank line is relatively accurate and is in keeping with the revised historical reconstruction presented in this report. Bres and Ricketts based the 1867 bank line reconstruction on the survey notes of Grandjean in combination with d'Hémécourt's detailed map. They were fortunate in this enterprise because Grandjean's survey meanders could be closely tied to permanent stone markers and other identifiable reference points that had survived in place into the twentieth century. The first and most critical misstep was taken when they tackled the reconstruction of the 1836 riverfront from Dougherty's survey notes. The measured line they plotted from the Grandjean-Dougherty common meander point to the "cemetery" property line was nearly perpendicular. In such cases, where lines of intersection are more perpendicular than oblique, the chances for error are relatively great if the measurements and bearings are not precise. If the distances involved are several thousand feet, even the slightest variations in angle and distance will result in significant shifts in the points of intersection. An error of hundreds of feet could have resulted from any one or a combination of the following sources.

1. Relative imprecision in Dougherty's measurements. This factor is very possible since nineteenth-century instruments were much better in the determination of bearings than they were in the measurement of distance.

2. An error or a series of minor cumulative errors in Dougherty's survey bearings.

3. An incorrect resolution of Dougherty's bearings with Grandjean's meridian. Bres and Ricketts claim to have performed such a resolution in their map notations (1935).

Whatever the exact cause, Bres's and Ricketts's calculation of Dougherty's meander point along the "cemetery" property line projected the 1836 bank line 530 ft (161.6 m) beyond its 1867 position. In light of this calculation, it is interesting to note that an overlay of the maps actually produced by Grandjean (1873) and Dougherty (1836) demonstrates that their respective bank lines share nearly identical configuration.

Since the difference between the Dougherty and Grandjean bank lines is spurious, so is the average rate of bank-line recession derived from this difference. As a consequence, all of Bres's and Ricketts's other bank-line calculations are equally fallacious. Even their cross check, using Lafon's 1808 survey data, rests on the assumption that their reconstruction of Dougherty's survey meanders is correct. Further, this cross check also involves the intersection of lines that bear a more perpendicular than oblique relation to each other. As mentioned earlier, the confident construction of points from such intersections assumes exacting precision on the part of early nineteenth-century civil surveyors, a precision which instrumentation and techniques of the time could not produce with assurance.

The completed Bres and Ricketts (1935) reconstruction placed the 1815 riverfront, as measured along the line of the Rodriguez Canal, 700 ft (213.5 m) from the Chalmette Seawall and 800 ft (243.9 m) beyond the riverside toe of the levee. If the levee and the width of the levee road are also included in the equation, the total indicated loss to the American line would reach 972 ft (296.46 m). The bank line change on the east end of the park area would reach a total of 725 ft (221 m); with the levee and levee road added, the amount of estimated loss since 1815 would increase to 995 ft (303.48 m).

This reconstruction resulted in some ludicrous implications which are now obvious in hindsight, but were missed by those who put their faith in the Bres and Ricketts map (Figure II-7). A few examples are sufficient to illustrate the point. For one, the Bres and Ricketts reconstruction places the Rodriguez Estate residences on the adjacent Macarty property, some 150 ft (45.75 m) west of the dividing property line that has remained unchanged since at least Lafon's 1808 survey. It is almost as if Bres and Ricketts wanted to avoid calling attention to this fact, for their map stops the eastern boundary of the Macarty property just north of its approach to the position of the Rodriguez buildings. On the other hand, the map shows the western Macarty boundary continuing to the position of the 1815 levee road. National Park Service cartographers tried unsuccessfully to resolve this boundary peculiarity in 1950 during the preparation of the official historical base map that was issued as part of the 1964 "Master Plan for Preservation and Use: Chalmette National Historical Park." What they ended up with is a Macarty boundary line that splays out to the northeast once it passes by the Rodriguez residences. This "adjustment" kept the Rodriguez buildings within the Rodriguez property, but it forced the Macarty property line to eventually enter upon Rodriguez land on the north. As brought up earlier, National Park Service Historian Roy Appleman questioned the resultant boundary distortion in a signed notation placed directly on the historical base map, but his recommendation for an inquiry into the matter was never heeded.

Another impossible boundary situation also becomes “reality” on the Bres and Ricketts map. The converging east and west borders of the Rodriguez property are shown to come together and form an apex at the point where they reach the 1815 levee road. We know from Lafon’s 1808 survey map that this was never the case. These convergent borders were actually 95.9 ft (29.2 m) distant from each other at their point of contact with the early nineteenth-century levee road. The cartographers who drafted the National Park Service historical base map of 1950 again resolved the discrepancy by “boundary adjustment.” They simply moved the west boundary of the Rodriguez property farther to the west and changed its angle. By this action, the possibility of premature convergence was eliminated.

A further oversight is directly related to the placement of the Macarty House, which served as Jackson’s headquarters during the Battle of New Orleans. Bres and Ricketts indicate that this residence was lost to the river before 1867. Yet Chart 76 of the Mississippi River Commission (1874 [Updated and reprinted in 1893-94]) clearly shows that the house continued to stand on dry land into the late nineteenth century. In fact, the Macarty House managed to survive a fire in 1896, and it did not come to a disastrous end until 1907 when the house was razed to make way for the freight sheds of the Chalmette Slip (Wilson 1965:30-32).

The most glaring oversight involves the Beauregard House, which has been restored and stands for all to see in the park area today. A glance at Zimpel’s 1834 map (Figure III-33) should have indicated to anyone who was interested that the Rodriguez residences were located well to the rear of the neighboring Beauregard House. If Bres and Ricketts had been correct in placing the location of the Rodriguez House just inside the southwest corner of the Chalmette Seawall, then the Beauregard House would, by necessity, have been located in the Mississippi River near the southeast corner of the seawall. It is difficult to understand how this problem with the Bres and Ricketts reconstruction could have been overlooked for close to fifty years. It is perhaps symptomatic that there was no attempt to plot the location of the Beauregard House on either the Bres and Ricketts map or on the National Park Service’s historical base map of 1950. The historical reconstruction of the battlefield by Bres and Ricketts can perhaps best be likened to a dazzling “shell game” of angles and intersections where everyone, including Bres and Ricketts, lost sight of the “pea.”

Historical Geography of the Battle of New Orleans

Introduction

The account that follows presents the revised historical geography of the Battle of New Orleans. At first, this may seem like a radical, new perspective, but it is not. It is in fact close to an earlier historical geography of the battlefield, one that held sway before the release of Bres and Ricketts's influential map of 1935. For instance, a map prepared soon after World War I for a proposed national military park at Chalmette places Battery 3 only a few feet north of its presently known archeological position (Corps of Engineers 1919). Also, a 1936 newspaper article (*Times-Picayune*) on the Bres and Ricketts reconstruction points out that the pre-National Park Service interpretive marker for Battery 3 was situated on dry land behind the levee, although a specific location is not given. What is important to note is that the revised reconstruction presented here actually represents a return to an older, more traditional view of the battlefield, one that had its roots in unbroken historical remembrances from the nineteenth century.

The Riverfront

The archeological position of Battery 3 provides a fixed, primary reference point from which to calculate the position of the Mississippi River bank in 1815. Direct and comparative historical evidence (Chapter 16, this report) argues that this battery measured about 60 ft (18.3 m) in length. The archeological evidence, in turn, suggests that what was exposed in the excavations represents the south half of the battery. Thus, if the measurements from Ellery's map (1815) are used, the distance from the estimated center of Battery 3 (A42, N89) to the 1815 bank line—as measured along the line of the Rodriguez Canal—would be 505 ft (154 m). So as not to fall victim to false precision, it is perhaps safer to claim that this old river bank fell somewhere in the vicinity of 500 and 510 ft (152.4 and 155.5 m) from the approximate center of Battery 3. Nonetheless, the distance of 505 ft (154 m) will be employed as a convenient working figure for additional measurement and discussion.

Latour's map measurement for the same span, between the bank line and Battery 3, is 537 ft (163.7 m). However, the combined figures given in his narrative provide a total of only 490 ft (149.3 m), a distance very close to the one obtained from Ellery's map (Latour 1964 [1816]:147-148). The major source of this difference appears to be the distance between the bank line and the center of Battery 1. In his text, Latour (1964 [1816]:147) gives the distance between the bank line and Battery 1 as 70 ft (21.3 m), whereas on his map, this distance increases to 117 ft (35.6 m). Interestingly, the figure from Latour's text agrees most closely with Ellery's positioning of Battery 1 relative to the bank line: the measured distance on Ellery's map is 85 ft (25.9 m).

Ellery's figures imposed on today's landscape indicate that only a small section of the American line has been lost (Map III-5). The 1815 bank line would fall approximately 88 ft (26.8 m) landward of the Chalmette Seawall. Therefore, only about 50 ft (15.2 m) of the defense line lies forward of the front toe of the levee. The levee itself in this sector covers 100 ft (30.5 m) of the line, and the levee road occupies another 30 ft (9.1 m). Consequently, the total loss of the American line of defense to the combined effects of bank erosion, levee construction, and road building adds up to no more than about 180 ft (54.9 m). The portion, then, of the battle line that actually falls south of the park boundary fence calculates to roughly 220 ft (67 m).

The changes in the bank line that took place after 1815 in the vicinity of the Rodriguez Canal are fairly well documented in the historical record. The fortifications and battery positions that had been constructed on the extreme right of the American lines had severely damaged the levee and levee road. The effects of this damage were still in conspicuous evidence in 1819 when Benjamin Latrobe visited the battlefield. In his diary, Latrobe (1951:45) notes that the southeast corner of the Macarty front garden had been destroyed by a rectangular redoubt that had been built behind the American rampart. This particular redoubt had been constructed after January 8 to protect a river-oriented battery. It had been erected to defend the American lines from an anticipated British naval attack (see p. 161, Chapter 7, Part I, this report).

In order to avoid the damaged ground produced by military activities, the levee road had been turned around the redoubt soon after the battle (Latrobe 1951:45). Latrobe's (Figure III-14) sketch of the area shows what appears to be a makeshift detour that makes a series of tortuous right-angle turns to avoid both the ruins of the rear redoubt, just mentioned, and a more forward advance redoubt in front of the Rodriguez Canal. In his narrative, he implies that the 1815 levee had failed, for he points out that the "river has gained considerably upon the shore at the left end of the line, and part of the ground on which the redoubt stood is no longer in existence" (1951:74). This rerouting of the levee and levee road probably led to the rapid destruction of Battery 1 and the adjacent military works in the first few years that followed the battle.

Further river encroachment, however, was apparently stopped by a new levee alignment. Zimpel's map of 1834 shows that little change had occurred since Latrobe's visit in 1819 (Figure III-33). The west half of the levee road detour exhibits the same tortuous right-angle turns that were evident fifteen years earlier. The only visible alteration is in the east half of the original detour route. By 1834, the eastern set of right-angle turns has been replaced by a diagonal right-of-way alignment that would have made carriage travel easier. An identical roadway alignment is also portrayed in Springbett and Pilié's map of 1839.

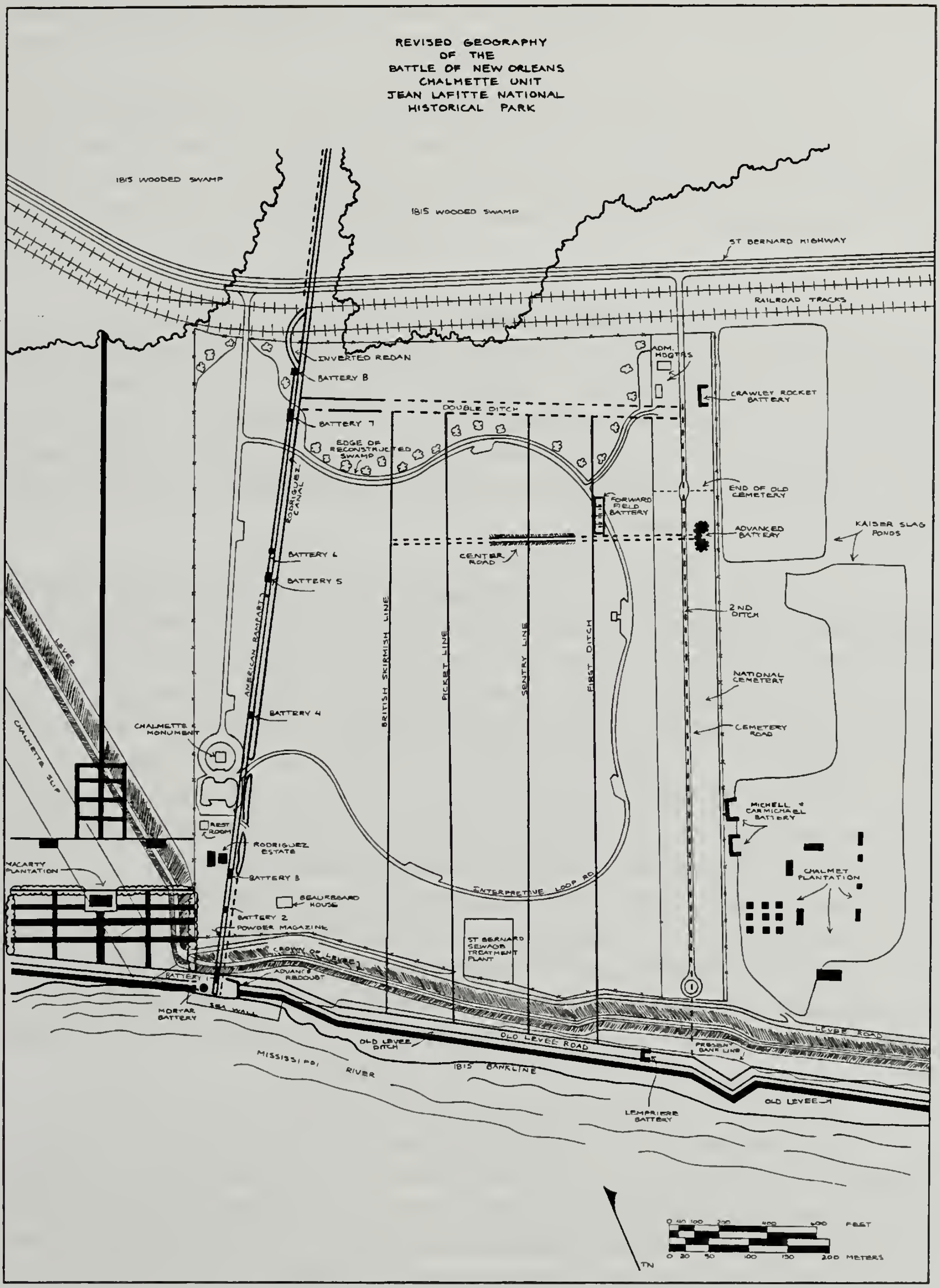
When Alexander Walker (1856:308), the early Jackson historian, visited the battlefield in the first part of the 1850s, he observed that the line of the levee had been only "slightly changed" from the period of the battle. The river, coupled with the levee road improvements, had completely eliminated all signs of Battery 1 and the redoubts of the American right, but little else had been lost.

The same detour pattern illustrated by Zimpel (1834) and Springbett and Pilié (1839) appears unchanged on d'Hémécourt's detailed map of 1867. There is simply no historical evidence to support Bres and Ricketts's (Ricketts 1935, 1936) contention that the riverfront changed radically and continually between 1815 and 1867. The only documented bank loss in the vicinity of the Rodriguez Canal between those dates occurred in the first several years following the battle, and it was related to the rerouting of the levee and the levee road around the limited sector of ground that was damaged by the American military earthworks. Zimpel's and d'Hémécourt's maps indicate that river encroachment was responsible for approximately 60 ft (18.3 m) of the loss, the levee and road detour another 115 ft (35 m). Thus, the largest single impact to the American line of defense probably took place prior to 1834.

The first change in the pre-Civil War pattern of the river bank at the terminus of the river bank of the Rodriguez Canal is registered on the 1874 Mississippi River Commission map (Chart 76). On this map, the right-angle turns that characterized the west half of the detour are finally smoothed out. Nonetheless, the telltale indentation of the river bank at the former location of the

Map III-5. Revised geography of the Battle of New Orleans, Chalmette Unit, Jean Lafitte National Historical Park and Preserve.

Drawn by Lyndi Hubbell for the National Park Service.



REVISED GEOGRAPHY OF THE BATTLE OF NEW ORLEANS CHALMETTE UNIT JEAN LAFITTE NATIONAL HISTORICAL PARK
1815 WOODED SWAMP
1815 WOODED SWAMP
ST BERNARD HIGHWAY
RAILROAD TRACKS
INVERTED REDAN
BATTERY 8
BATTERY 7
DOUBLE DITCH
ADM. HDQTRS
CRAWLEY ROCKET BATTERY
EDGE OF RECONSTRUCTED SWAMP
RODRIGUEZ CANAL
END OF OLD CEMETERY
FORWARD FIELD BATTERY
ADVANCED BATTERY
KAISER SLAG PONDS
BATTERY 6
BATTERY 5
CENTER ROAD
2ND DITCH
AMERICAN RAMPART
BRITISH SKIRMISH LINE
PICKET LINE
SENTRY LINE
FIRST DITCH
NATIONAL CEMETERY
LEVEE
BATTERY 4
CHALMETTE MONUMENT
CEMETERY ROAD
CHALMETTE SLIP
MICHELL & CARMICHAEL BATTERY
REST ROOM
RODRIGUEZ ESTATE
MACARTY PLANTATION
BATTERY 3
CHALMET PLANTATION
BEAUREGARD HOUSE
INTERPRETIVE LOOP RD
BATTERY 2
POWDER MAGAZINE
CROWN OF LEVEE
ST BERNARD SEWAGE TREATMENT PLANT
BATTERY 1
ADVANCE REDOUBT
MORTAR BATTERY
SEA WALL
LEVEE ROAD
OLD LEVEE ROAD
OLD LEVEE DITCH
PRESENT BANK LINE
MISSISSIPPI RIVER
1815 BANKLINE
OLD LEVEE
LEMPRIERE BATTERY
TN
0 40 100 200 400 600 FEET
0 30 50 100 150 200 METERS

detour is still in evidence. Nothing much has happened except that the alignment of the levee and the levee road has been changed.

A significant, additional alteration of the river bank did not take place until the construction of the Chalmette Slip and the Chalmette Seawall in 1908. The seawall actually created an artificial bank line 88 ft (26.8 m) beyond the edge of the 1815 bank line, and more surprisingly, 140 ft (42.7 m) beyond the 1895 bank line.

Over the years, river-sand deposits have accumulated behind the Chalmette Seawall to form a section of dry land that appears whenever the river reaches its lowest yearly ebb. It is important to stress that these sand deposits cover a section of the Mississippi bank that has been intermittently underwater since Latrobe's day and has been repeatedly scoured by the river's currents and waves. No more than a random scatter of military metal probably survives from the battle period in this sandy zone.

Although the Chalmette Seawall altered the bank line, the portion of the levee between the Rodriguez Canal and the west boundary of the park unit did not undergo any radical shifts in position. The substantive levee setbacks occurred in front of the Beauregard House and elsewhere along the park's frontage (Corps of Engineers 1953). Forward of the Rodriguez property, the levee segment was widened and raised in height, but its basic axial alignment and position did not change to any appreciable extent. Similarly, the adjacent levee road also continued to follow the same pathway. Moreover, the angle and position of the south boundary of the Rodriguez property also remained as shown in d'Hémécourt's map of 1867. This lack of change is evidenced by a comparison of d'Hémécourt's map with Theard's map of 1907 and a National Park Service planning map from 1956 (also see Figures II-5, II-6, II-8). The present park boundary fence alignment dates from the early 1960s when it was pivoted 46 ft (14 m) to the northeast in order to accommodate a modification in the levee road, which created a ramp approach to the crown of the levee.

The bank loss on the east end of the park unit has also been significantly less than that indicated by the Bres and Ricketts (1935) reconstruction, and much of it appears to have taken place in the early twentieth century. The construction of the Chalmette Slip and the Chalmette Seawall plus attendant changes in levee positioning substantially altered the character and pattern of the nineteenth-century riverfront. One of the most pronounced changes occurred forward of the Beauregard House, where the levee was set back to form a deep, triangular indentation in the bank line (Mississippi River Commission, Chart 76, 1921). In contrast, the setbacks farther downriver were fairly limited; initially, there was only a small change in the river bank in front of the National Cemetery. To avoid impacting this important burial ground, the Corps of Engineers designed the pre-World War I levee with a prominent outward bulge at the point where it passed by the cemetery (Figure II-18).

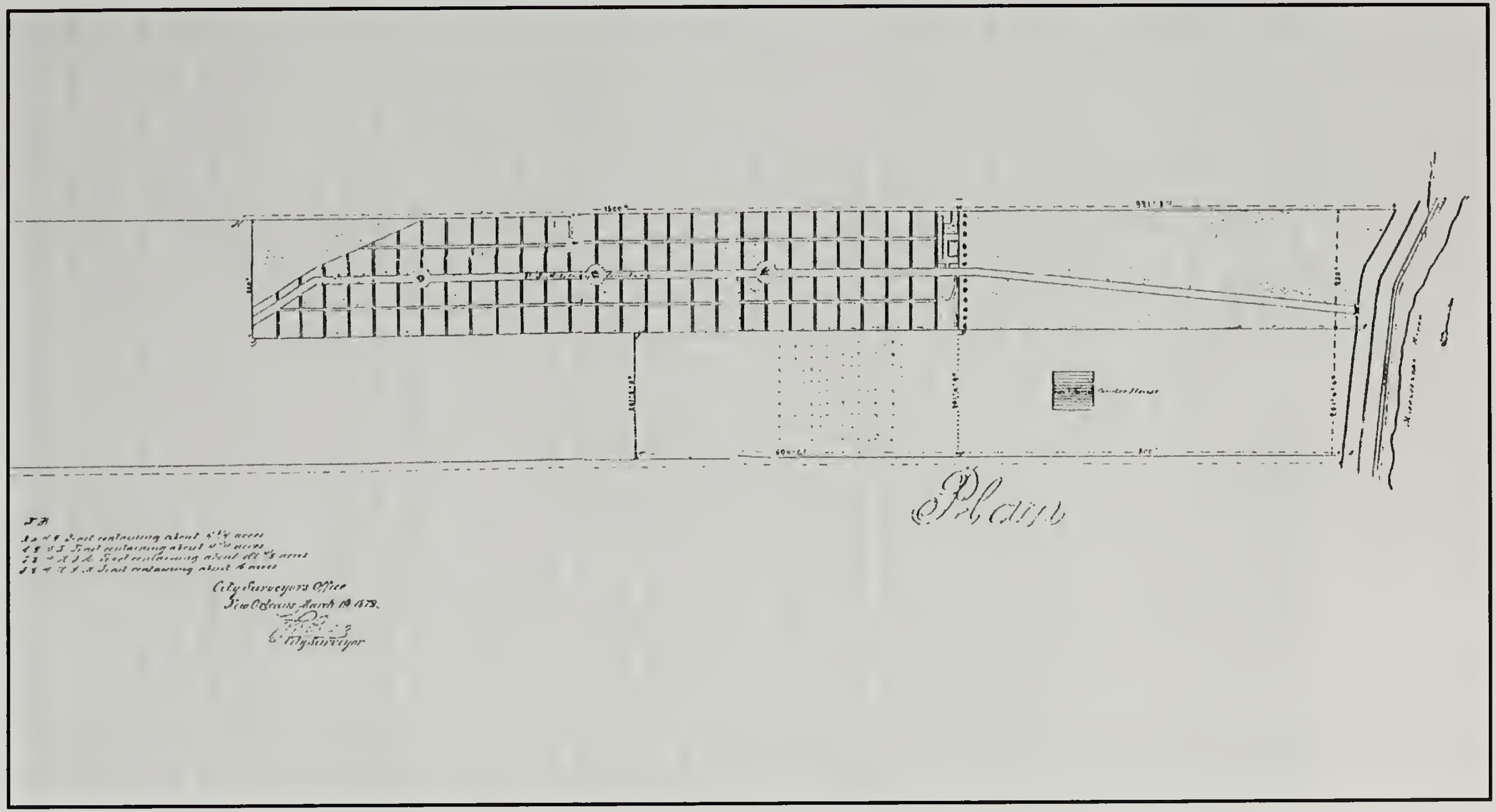
By the mid-1920s, however, this protective bulge in the levee was threatened by erosion, perhaps accelerated by the river-flow changes brought about by the earlier construction of the Chalmette Seawall and other upriver alterations in the Chalmette levee system. Consequently, in 1928, the forward bulge was removed and replaced by a broad U-shaped setback that eliminated the original south end of the National Cemetery (Corps of Engineers 1953).

From 1815 to the late nineteenth century, the bank line changes between the position of the Advanced Redoubt and the property line that became the east boundary of the National Cemetery appear to have been negligible. Latour's map (Figure III-47) shows a V-shaped jog in the levee and road just west of the Chalmette Estate at the river end of this property line. A nearly identical jog appears at the same location on Sheet 6 of the United States Coast Survey Map (1878), a map that illustrates the Mississippi bank line for the 1873-1874 period. The same V-shaped jog is also clearly represented on Pilié's 1867 map of the National Cemetery and on Bell's 1872 map (Figure III-59) of the cemetery vicinity. Moreover, on all these maps, the jog occurs at the end of a southeastward-trending section of levee road. Thus, the historical map evidence argues for bank line stability in the eastern two-thirds of the Chalmette Unit during most of the nineteenth century. In fact, it is very likely that the face of the riverfront survived essentially unchanged up until the early twentieth-century construction of the Chalmette Seawall and the related levee setbacks.

At the eastern end of the park unit, the tie-in between the historical landscape and the present landscape is provided by the rear boundary of the original National Cemetery. This old rear boundary is marked by a broad, open swath between the burial sections in the north end of the modern cemetery. It bisects the northernmost parking turnout along the cemetery road (Figure *i-3*). Because Pilié's 1867 map of the cemetery shows the position of this boundary

Figure III-59. W. H. Bell's 1872 "Plan of Chalmette National Cemetery." (Bell, W. H. City Surveyor's Office], Plan of a Tract of Land situated in Parish St. Bernard. March 19, 1872. Map No. MS180. Map Collection, City Archives, New Orleans Public Library). This plan also shows the Freedmen's Cemetery and the location of the Civil War-era powder magazine (Approximate Scale: 1 in =362 ft or 1 cm = 44 m).

Courtesy of the Map Collection, City Archives, New Orleans Public Library.


Plan
City Surveyors Office
City Surveyor

relative to the various turnings of the adjacent Confederate Earthworks, its location in the expanded, present-day cemetery was easily discovered by means of cross reference on the early aerial photographs of the Chalmette Unit. The Confederate Earthworks, east of the cemetery wall, survived largely intact until mid-century, and they are readily visible on early aerial photographs (Figures III-54).

Bell's map of the cemetery, dated 1872, also shows this old rear boundary of the cemetery (Figure III-59). Measurements taken from this map as well as from Pilié's (1867) finely crafted cemetery map are in close agreement with reference to bank-line features. Therefore, it is possible to fix the position of the bank line for the early post-Civil War Period; more importantly, because this bank line had experienced little recession in the previous fifty years, it is also possible to obtain a reasonably accurate location for the 1815 bank line.

Both Pilié (1867) and Bell (1872) give a measurement of 2421 ft 8 in (738.2 m) for the distance between the northeast corner of the old cemetery and the levee road. Their maps also yield a common measure of 2340 ft (713.2 m) between the northwest corner of the old cemetery and the levee road. The difference between these two figures reflects the influence of the aforementioned sharp jog in the levee road. On the east side of the cemetery, the bank occurs 127 ft (38.7 m) beyond the north edge of the levee road; on the west side, it falls 108 ft (33 m) beyond the north edge of the levee road. Hence, the total distance to the bank line on the east is 2549 ft (776.9 m), whereas the total distance to the bank on the west is 2448 ft (746.2 m).

Today, the distance between the northeast end of the old cemetery and the bank line is 2300 ft (701 m). From the northwest corner, the bank-line distance is 2257 ft (688 m). Thus, the bank loss for the east and west sides of the cemetery since about 1870 calculates to 249 ft (75.9 m) and 191 ft (58.2 m), respectively.

If the bank recession in the first half of the nineteenth century had been minimal, as the evidence suggests, then the 1815 bank line should have occupied approximately the same position as shown by the Pilié and Bell maps. The only area of possible variance might be in the width of the bank between the levee and the Mississippi. Pilié (1867) and Bell (1872) illustrate a narrow bank averaging 30 ft (9 m) in width in the cemetery vicinity. On the other hand, Latour's map (Figure III-55) indicates a broader bank with a mean width of close to 50 ft

(15.2 m). Whatever the exact width, the important point to be made is that the bank loss on the east end of the park unit has been relatively moderate since the period of the Battle of New Orleans, with the average falling somewhere around 200 ft (61 m).

Map III-5 represents an attempt to reconstruct the 1815 riverfront in light of the evidence presented here. This map reconstruction is based on Ellery's (1815) and Latour's (1816b) maps. However, adjustments have been made to reflect the more exact geographical reality portrayed by later cartographers, most importantly d'Hémécourt (1867), Pilié (1867), and Bell (1872).

Information on the levee road, levee ditch, and levee has been derived from Pilié (1867). According to Pilié's map, the levee road occupied a width of 30 ft (9 m), the levee ditch 20 ft (6 m), and the levee proper another 20 ft (6 m). The reconstruction should not be viewed in absolute terms; rather, it should be seen as an approximate reconstruction. The available source material does not permit a claim to exact precision.

As it turns out, there is independent corroboration for this revised bank-line reconstruction. The land claims that were submitted to the U.S. Surveyor General's Office soon after Louisiana became a state are still projected on the United States Geological Survey (USGS) quadrangle maps of the New Orleans area (United States Geological Survey 1937; 1967). These claims are clearly denoted in red by double-dot, dashed lines. If river erosion has cut into the frontage of a property, the lines extend into the river; if the river has retreated since the date of the original claim, the lines stop at the approximate distance landward from the river's edge. As a notation on the 1937 Chalmette, Louisiana, United States Geological Survey quadrangle points out, "Land lines added from General Land Office records adjusted to natural features and control."

Dougherty (1836) and Grandjean (1873), two of Bres's and Ricketts's (Ricketts 1935, 1936) primary sources, number among the several local land surveyors who helped the U.S. Surveyor General's Office keep track of the changing status of these claims throughout the nineteenth century. Yet an examination of the land lines projected on both the 1937 and the 1967 Chalmette, Louisiana, USGS quadrangles evidences no great bank loss as proposed by Bres and Ricketts. The claim lines for the Rodriguez Property fall at the foot of the present levee, essentially where the bank line was projected to be after the completion of the levee road detour around the American redoubt. Similarly, the 1937 map, which includes an actual bank-line reconstruction for the period of the claims, illustrates a bank recession of only around 180 to 200 ft (54.9 to 61 m) at the foot of the National Cemetery, again a bank loss figure in agreement with the 200 ft (61 m) estimate derived herein from an independent study of the sources.

It might seem unbelievable that Bres and Ricketts and other earlier students of the battlefield missed the evidence which was so openly available on the USGS maps. However, it must be admitted that the present author failed to see the same map evidence provided by the United States Geological Survey until its existence was pointed out in 1985 by Betsy Swanson, a noted New Orleans historical researcher. Luckily, this evidence corroborated, rather than discounted, the reconstruction achieved by other means. The obvious is oftentimes the most difficult to see.

American Military Positions Along the Rodriguez Canal

The next few pages present a reconstruction of the American defense positions along the Rodriguez Canal. This reconstruction fixes the locations of the emplacements on January 8, the day of the last major engagement between the British and American forces. As mentioned earlier, Ellery (1815) will serve as the primary source for the positioning. Although Latour (1816b) and Ellery (1815) are basically in agreement, the two sources do disagree slightly on the location of battle features on the extreme right of the American line. Because Ellery's map is considered the most consistently accurate of the two, it is employed here as the "first among sources."

The distances between the gun batteries are measured from center to center to avoid the effect of the varying battery lengths. Since this is the simplest and least confusing method of measurement, it would seem reasonable that this was also the method used by the battle participants.

Battery 1

Battery 1, commanded by Captain Enoch Humphreys, an experienced artilleryman who had once fought for Napoleon, contained three guns—two

12-pounders on field carriages and one 6-inch howitzer (Meuse 1965:29; also see pp. 78-79, Chapter 4, Part I, this report). If the standard distance of 20 ft (6.1 m) is assumed for each gun (p. 48, Chapter 4, Part I, this report), the length of the battery would have been at least 60 ft (18.3 m). With the extension of the epaulement on either flank for added protection, the total length of battery construction may have reached 80 to 100 ft (24.4 to 30.5 m).

Both Ellery's (Figure III-60) and Latour's (Figure III-47) maps indicate the battery was erected on the levee road. However, Ellery's and Latour's maps disagree on the exact distance from the bank to the battery center. On Latour's map, this center point is 117 ft (34.7 m) from the bank, whereas on Ellery's map it is only 85 ft (25.9 m). In his text, Latour (1964 [1816]:147) gives a distance of 70 ft (21.3 m), a figure that more closely matches Ellery's.

In terms of today's geography (ca. 1984), the center of Battery 1 would fall approximately 173 ft (52.7 m) north of the Chalmette Seawall, just south of the crown of the present levee (Map III-5).

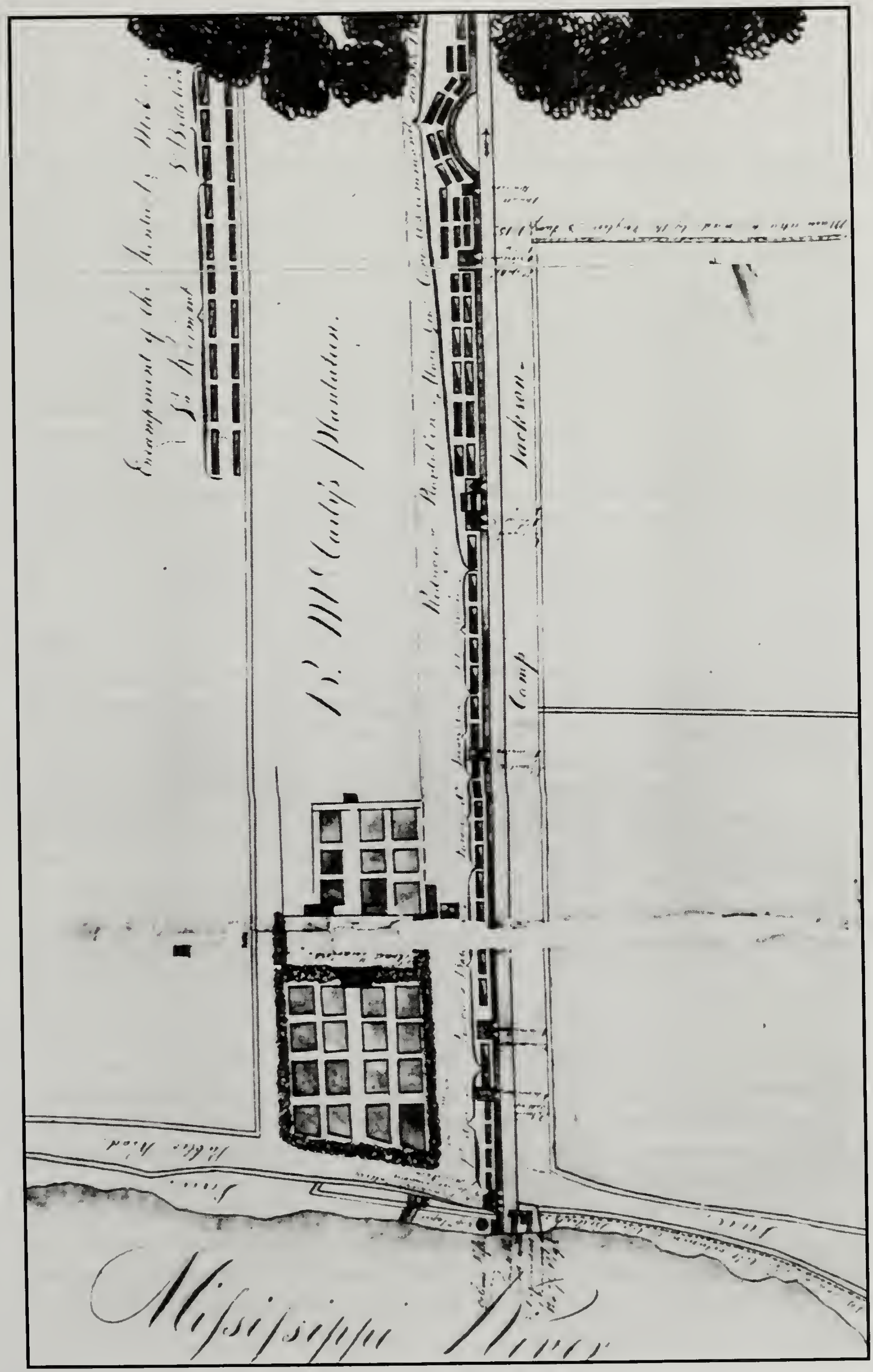
Mortar Battery

Laclotte's engraving (Figure III-41) of the battle of January 8 shows an active mortar battery located to the rear and slightly to the right of Battery 1. There is historical evidence, however, that this mortar emplacement was not ready for service until January 9 (see p. 125, Chapter 6, Part I, this report). Laclotte may simply have taken some artistic license in its portrayal. Meuse (1965:30, 44) indicates the mortar battery was primarily used to harass the enemy from a distance, and perhaps not too effectively, for the mortar rounds tended to penetrate the ground too deeply "where they would eventually explode with a rather subdued belch."

This mortar battery was commanded by Captain Lefevre, another veteran of Napoleon's army, and it contained a single 13- inch mortar. According to Laclotte's engraving (Figure III-41), the mortar was established on a raised rectangular platform framed by cypress fence palings. Ellery's map (Figure III-60) places the mortar battery 25 ft (7.6 m) from the river bank and 35 ft (10.7 m) behind the American rampart. Today its former location would be roughly 113 ft (34.5 m) north of the seawall, south of the riverside toe of the levee (Map III-5).

Figure III-60. The southern half of the American Line of Defense from Abraham R. Ellery's "Plan shewing the disposition of the American Troops when attacked by the British Army, on the morning of the 8th Jany (ca. 1815)." Approximate Scale: 1 in = 184 yd or 1 cm = 70 m).

Courtesy of the Manuscripts and Archives Division, The New York Public Library, Astor, Lenox, and Tilden Foundations.


B. McCarty's Plantation
Camp Jackson
Mississippi River

Advance Redoubt

On January 6, Jackson's engineers constructed an advance redoubt on the extreme right of the American line, just forward of the Rodriguez Canal (see pp. 111-112, Chapter 6, Part I, this report). This earthwork was protected by a small encircling ditch, and according to Laclotte's engraving (Plate III-41), it was at least partially revetted with fence palings. Two 6-pounders, one on a field carriage, the other on a naval carriage, were placed within the redoubt (Meuse 1965:30). These guns were placed under the protection of a company of the 7th Infantry and manned by a detachment of the 44th Infantry under the command of Lieutenant Dauquemeny de Marant (pp. 111-112, Chapter 6, Part I, this report). The redoubt was the scene of hard fighting on January 8, when Rennie's column managed to capture the redoubt for a brief period of time.

Latour's map (Figure III-47) gives the plan of the redoubt as subrectangular; on the other hand, Ellery's map (Figure III-60) presents a trapezoidal plan for the earthwork. Laclotte's engraving (Figure III-41) differs from both of the above sources and shows the redoubt as crescent shaped. Occasional British references to the "crescent battery" provide some support for Laclotte's portrayal (Cooke 1835:229).

According to Ellery's map, the redoubt measured 65 ft by 80 ft (19.8 m by 24.4 m), and its right flank was located at or near the river's edge. The location of this right flank would fall approximately 88 ft (26.8 m) north of the Chalmette Seawall, immediately forward of a prolongation of the line of the Rodriguez Canal (Map III-5).

Powder Magazine

Latour's map (Figure III-47) illustrates a rectangular powder magazine set against the rear of the American rampart 150 ft (45.7 m) north of the center of Battery 1. Unfortunately, no written descriptions of this feature have been found, and Latour's map remains the only contemporary source that locates the structure relative to the other American military positions.

If the building were typical of the era, it was most probably a low, squat edifice, constructed against the thick wall of the parapet so as to give it an added measure of protection from British artillery fire. With the exception of the side formed by the parapet, the walls would have slanted inward toward a flat roof to give the structure a roughly trapezoidal profile (Mahan 1836:89-90). The roof and walls would have been constructed of rough planks covered with a protective outer barrier of earth or turf. Structural support would have been provided by a central system of heavy posts. Many powder magazines of the day had their floors dug below ground surface, but this method of construction is unlikely here in view of the high water table that prevails in the New Orleans vicinity. In size, the building most likely measured no more than about 6 to 12 ft (1.8 to 3.7 m) on a side.

In terms of today's landscape, the location of this feature would fall in the vicinity of the south boundary of the park, approximately 15 to 20 ft (4.6 to 6 m) north of the National Park Service fence as it was positioned in 1985 (Map III-5).

Battery 2

Battery 2 had the most elevated platform of all the American batteries (Latour 1964 [1816]:148), and Walker's (1856:340) biography of Jackson suggests that "Old Hickory" took advantage of this elevated platform to observe the initial part of the British attack on January 8. The contemporary key to Laclotte's (1817) engraving also illustrates Jackson at this vantage point (Figure I-9).

The battery contained a single 24-pounder naval gun under the command of Lieutenant Norris of the Navy (Meuse 1965:28). With only one gun, Battery 2 would have been relatively small and measured only 20 to 30 ft (6 to 9 m) in overall length (p. 80, Chapter 4, Part I, this report). According to Ellery's map (Figure III-60), it was situated 355 ft (108.2 m) from the river bank, or 270 ft (82.3 m) from Battery 1. This distance would place it in the immediate area of the present septic tank facility within the park unit, approximately 439 ft (133.8 m) from the Chalmette Seawall or 144 ft (43.9 m) from the south boundary fence in 1985 (Map III-5). A gap in the American line that appears to correspond to the position of Battery 2 is visible in one of Latrobe's perspective sketches of the battlefield drawn in 1819 (Figure III-58). According to Latrobe's notation on the sketch, he drew the scene from the bank of the Mississippi River (Carter, Van Horne, and Brownell 1985:364-365). Given this vantage point and the relative position of the Rodriguez Estate buildings in the sketch, here drawn in three-quarter perspective, there is only one logical candidate—and that is Battery 2. At the angle of sight employed, the gap that marked Battery 3 would have been all but invisible to the observer (Figure III-4).

Again, the presence of a gap in the rampart in 1819 suggests that cotton bags and earth had been used to construct the epaulement of the battery. As with Battery 3, the epaulement of Battery 2 had probably been dismantled after the battle in order to obtain the wet, but salvageable, cotton.

Battery 3

Battery 3, which was under the command of Dominique Youx and his band of Baratarians, has been thoroughly discussed in previous sections (pp. 459-502, Chapter 16); thus, there is no need to provide another detailed description here. It is perhaps sufficient to recall that the battery contained two 24-pounder naval guns and possessed an epaulement approximately 60 ft (18.3 m) in length constructed of alternating layers of cotton bags and earth. Its center was located about 505 ft (154 m) from the river bank and 150 ft (45.7 m) from Battery 2. This position relative to the 1985 south boundary fence of the park unit would be roughly 268 ft (81.7 m) as measured along the Rodriguez Canal (Map III-5).

Battery 4

Battery 4, which lavished a deadly fire against the British throughout the Battle of New Orleans, was located 660 ft (201.2 m) north of Battery 3 and 1165 ft (355 m) from the river bank (Latour 1964 [1816]:148). Placed on today's landscape, its location would be to the northeast of the Chalmette Monument obelisk, approximately 1226 ft (373.8 m) north of the seawall and adjacent to the present battery exhibit for Battery 5 (ca. 1984). Its projected position falls just south of a lone tree that grows midway between the erroneously reconstructed emplacements for Batteries 5 and 6 (Map III-5).

Battery 4 contained a 32-pounder naval gun, the largest piece of artillery used in the battle by either side (Meuse 1965:29). Control of its fire was under the able command of Lieutenant Crawley of the United States Navy. With a single embrasure, this battery probably measured no more than 20 to 30 ft (6 to 9 m) in length.

Battery 5

The overall command of Battery 5 was held by Lieutenant Colonel Perry; Lieutenant Kerr served as his second in command (Meuse 1965:29). Both men were attached as regulars to the U.S. artillery. According to Greene (p. 125, Chapter 6, Part I, this report), there is some question as to the number and type of artillery pieces used in the battery. It may have contained two 6-pounders, a 12-pounder and a 6-pounder, a 4-pounder and a 6-pounder, or a single 12-pounder. Because the battery had two artillery officers in command and Ellery's map (Figure III-60) illustrates two embrasures at this position, it is probably reasonable to assume it was a two-gun battery. Meuse (1965:29) accepts Latour's (1964 [1816]:148) description and places two 6-pounders on carriages in the emplacement. However, given Tatum's (1922:125) usual credibility, his observation that the battery held a 4-pounder and a 6-pounder should not be discounted out of hand.

With two guns, the battery most likely measured about 60 ft (18.3 m) from end to end. Ellery (Figure III-60) and Latour (1964 [1816]:148; Figure III-47) both locate this battery 570 ft (173.7 m) from Battery 4, approximately 64 ft (19.5 m) south of the current National Park Service reconstruction of Battery 7 (Map III-5).

Battery 6

Situated 108 ft (32.9 m) from Battery 5, Battery 6 was commanded by Brigadier General Garrique Flaujeac, who, like Captain Humphreys, had acquired experience with artillery during Napoleon's campaigns. Some confusion, however, exists in the historical accounts as to the number of guns that occupied the emplacement (Meuse 1965:29). Given the fact that Ellery's map (Figure III-60) shows it with only a single embrasure and Colonel William MacRea's artillery roster lists a small crew of ten men in its service (see Appendix, Part I, this report), the most likely number of guns is one, either a 12-pounder or an 18-pounder. If it were a single-gun position, it would have measured no more than 20 to 30 ft (6 to 9 m) in length. Its position on the present landscape would fall about 44 ft (13.4 m) north of the center of the erroneously reconstructed Battery 7 (Map III-5).

Battery 7

Whether Battery 7 held one or two guns is unclear. Greene (p. 125, Chapter 6, Part I, this report) interprets the evidence as suggesting one piece, a 24-pounder. On the other hand, Meuse (1965:29-30) believes the battery contained two guns, either one 18-pounder and a 6-pounder or one 12-pounder and a 4-pounder. Latour (1964 [1816]:148) lists an 18-pounder culverine and a 6-pounder. The view taken here is that the battery most probably contained two guns. Colonel MacRea's roster (Appendix, Part I, this report) lists a large crew of fifteen men, exclusive of officers, who served the battery. If the men who were killed on January 8 are added, the number rises to a total of seventeen. Also, Ellery's (Figure III-56) usually reliable map portrays two embrasures at Battery 7.

With two guns, Battery 7, including flanking epaulements, would have reached about 60 ft (18.3 m) in length. Latour (1964 [1816]:148) and Ellery (Plate 48) place the battery 570 ft (173.7 m) from Battery 6. This distance would locate its approximate position 112 ft (34.1 m) above the north exit of the Interpretive Loop Road (Map III-5).

On January 8, Battery 7, under the command of Lieutenant Spotts, unleashed a devastating fire on the main British column which advanced practically in the face of its guns (pp. 146-151, Chapter 7, Part I, this report). There can be little doubt that this battery played a significant role in stopping the original momentum of the attack.

Battery 8

The northernmost battery along the line, Battery 8, held either a 9½ in howitzer or a small brass carronade (Latour 1964 [1816]:148; Meuse 1965:30). Lieutenant Harrison of the United States artillery served as the commander of this single-gun battery. Greene (p. 125, Chapter 6, Part I, this report) favors the view that it contained a howitzer. Meuse (1965:30) states that this gun was not a very effective weapon because its carriage was in poor condition.

Battery 8 was located 180 ft (54.9 m) north of Battery 7; today, this location would place the gun position approximately 130 ft (39.6 m) south of the park unit's north boundary fence (Map III-5). It would have measured no more than 20 to 30 ft (6 to 9 m) in length as measured along the line.

Inverted Redan

Just beyond Battery 8, the American rampart was turned inward to form a broad concavity in the otherwise straight defensive line. Latour (1964 [1816]:149) mentions that this inversion of the rampart was necessitated by the existence of large water-filled holes that made continuous progress of the line impossible in this sector. Greene (pp. 76-77, Chapter 4, Part I, this report) suggests that it may have been initially constructed to protect what was originally Jackson's extreme left flank at the edge of the wooded swamp. Guns placed at either wing of the redan would have provided an effective cross fire to deter potential attackers who might have been tempted to skirt the American defenses at this location. Perhaps because the line was extended into the woods after December 25, the plan to emplace the guns was never carried out.

The right flank of the redan began its turn inward roughly 40 ft (12.2 m) from Battery 8 (Figure III-56). At the redan's center, the forward foot of the rampart lay 50 ft (15.2 m) behind the edge of the Rodriguez Canal. The overall length of the redan was about 200 ft (61 m) (Ellery 1815). In all probability, its mode of construction was similar to that of the rest of the rampart between the river and the wooded swamp.

In terms of the present geography, this feature would begin approximately 120 ft (36.6 m) south of the National Park Service boundary fence and extend north across the Mexican Gulf Railroad tracks (Map III-5).

Beyond the inverted redan, the rampart was reduced to a low breastwork constructed of a double row of horizontal logs supported at intervals by vertically set posts (Latour 1964 [1816]:147). The 2 ft (.60 m) space between these logs was filled with earth. This section of fortification was intended as no more than protection against musket fire, because the enclosing cypress swamp would have prevented the British from bringing any artillery to bear against this section of the American line of defense. At its far end, some 4200 to 4500 ft (1280 to 1372 m) from the river bank (Ellery 1815; Casey 1963:73), the breastwork made an L-shaped turn to the west for another 900 ft (274.4 m) in order to defend the extremity of the American line from any British flanking maneuvers (Figure III-56).

The American Encampment

Information about the American encampment behind the Rodriguez Canal is sketchy, at best. If Hyacinthe Laclotte's (Figure III-41) representation of the battle scene is taken as a roughly accurate portrayal of reality, at least a general pattern of the camp arrangements can be worked out. Two groupings of tent rows are shown well behind the west boundary of the Rodriguez property. One of these appears to be located in the fields to the rear of the Macarty House; the other falls farther back and slightly to the northwest, perhaps in the fields of the Languille Plantation. Closer to the line of defense, a neat, single row of white canvas tents extends along the border of the Rodriguez property between the Rodriguez main house and the levee road. These tents open toward the battle line and are backed against the row of orange trees that once marked the east edge of the Macarty property. Assuming that Laclotte's depiction has some validity and the row of tents does not merely represent a creative arrangement for the sake of artistic purpose, the southern end of this linear tent encampment would have begun just north of the present levee and ended about 300 ft (91.5 m) north of the park unit's southwest corner (Map III-5).

Laclotte (Figure III-41) also illustrates another tent complex next to the American line of defense, but this one is located to the north of the Rodriguez buildings. Here, he shows three parallel rows of tents arranged north to south occupying the space between the defense line and the west Rodriguez property line. A second tent group follows, a little farther to the north, this time set in two rows. Just beyond is a third and smaller group, arranged in single file. To judge from Laclotte's engraving, all three of these northerly tent groups next to the line would have fallen between the area defined by the Chalmette Monument and the estimated position of Battery 6 (Map III-5).

At first glance, Lacotte's placement of troop encampments so near the American line of defense might seem suspect as simply a product of artistic license. As positioned by Laclotte at an estimated distance of 25 to 50 m (82 to 164 ft) behind the rampart, these close-in tent groups might appear to have been extremely vulnerable to British artillery fire. However, they may have been much safer than more distant camps behind the line, for they would have enjoyed the benefit of the artillery "shadow" provided by the 8 to 9 ft parapet of the American defensive line (see Chapter 16). Low elevation British shot would have been absorbed and stopped by the thick earth of the rampart; higher-elevation shot that cleared the top of the parapet would have tended to over fly these nearer camps and hit faurther behind the lines and well to the rear (Meuse 1965:34). Only mortar and howitzer fire, lobbed in a high arc, would have posed a significant threat to the off-duty troops in any of the tent camps adjacent to the line. According to Meuse (1965:44), mortar shells (and, perhaps by implication, howitzer rounds) were "all but useless at New Orleans because of the soft nature of the ground," which would bury and muffle the effect of the rounds; plus, in the early nineteenth century, there were difficulties in cutting accurate fuse lengths for long arcing trajectories.

Judging from what can be gleaned from the limited sources on American camp life during the battle of Orleans, Jackson's troops did not stick to a single standard when it came to arranging their temporary living quarters. Like most troops of the time, they proved to be adaptive in looking after themselves. Latour (1964 [1816]:149) mentions that the Tennesseans and part of the Kentuckians, who were assigned the most northerly and less-developed sections of the defense line, placed scattered tents on small, isolated areas of high ground in the wooded swamp. These men dispersed their individual camps in the woods to make full use of rare pieces of drier land and take advantage of the natural screen provided by the encircling trees and thick swamp growth. Like their counterparts who used the shadow of the more substantial southern rampart for protection, they too had little to fear from British artillerists beyond an occasional stray ball.

It has been long known to history that the Macarty Plantation was expropriated to serve as General Jackson's headquarters early on in the battle (Wilson 1965:18-27). This large plantation's main house and outbuildings provided both strategic and convenient shelter for a number of officers and men (p. 104, Chapter 5, Part I, this report). A similar battle-era use has now emerged for the adjacent Rodriguez Estate. Betsy Swanson (1985:45-46) has uncovered a remarkable tract written by Jean Rodriguez that indicates his residence behind the canal was also seized and put to use by the American forces. He claims that his "house became the national house, a military post . . . the headquarters established at the line" (quoted in Swanson 1985:45). Rodriguez's wording suggests his estate was employed as a command post of some sort and possible billet for troops (pp. 83-84, Chapter 4, Part I, this report). This is entirely likely, for it should be kept in mind that Rodriguez's main house was a sturdy, thick-walled structure. Further, the lower part of this main house would have enjoyed the additional protection offered by a substantial free-standing side building which was located between it and the American rampart (Figure III-41).

More exacting research, both historical and archeological, will have to be accomplished before a more definitive picture of the American encampment can be formulated. As it stands now, our understanding of American camp life behind the rampart is minimal in the extreme. We know far more about the British encampments, for these are frequently described in detail in the contemporary journals and accounts that were written by the officers of Great Britain's army. There is no comparable set of accounts for the American side.

Swamp

Major Howell Tatum (1922:112, 115), with his typical eye for detail, informs us that the swamp on the American left actually consisted of two distinct parts. The "brushy part," a transitional apron of swampy ground characterized by a low growth of brushwood and sedge grass, extended to within 600 yd (548.8 m) of the river bank in the immediate vicinity of the American line of defense—roughly the location of Batteries 5 and 6. Although the vegetation in this fringe swamp partly obscured ditches and other battleground features of low relief, general visibility was not affected. Looking across the brushwood and grasses, the Americans had no difficulty observing British strong points to a distance of 4 miles downriver (Tatum 1922:115).

The "thick swamp" began approximately 950 yd (869 m) from the river (Figures III-55, III-56). Dominated by heavy stands of cypress, this portion of the swamp is described as "almost impenetrable" in both British and American accounts (Tatum 1922:114; Dickson 1961:12). Some 500 to 550 yd (457.2 to 503 m) forward of the American line, the cypress swamp swung to the northeast in a "circular direction," thus giving the Americans a wide view of distant enemy positions (Tatum 1922:115).

This circular sweep of the woods was associated with the broad bulge of elevated ground that began to the east of the Rodriguez Canal and gave added depth to the de La Ronde Estate and adjacent plantations (Latour 1964 [1816]:146). This slightly higher ground is still evident on current maps of the Chalmette area (United States Geological Survey 1967). The Americans, in accordance with their defensive posture, avoided this relatively open expanse of elevated land and positioned themselves behind the Rodriguez Canal where the swamp made its closest approach to the river (Latour 1964 [1816]:146). Here, they had the advantage of a narrow defensive front combined with a relatively unobstructed view of enemy movements.

The Rodriguez Canal and the Sawmill

It is one of the quirks of history that the Rodriguez Canal was neither built nor ever owned by Jean (Juan) Rodriguez. Apparently, the canal was given its current name at the time of the battle simply because Rodriguez owned the property that bordered the west edge of the canal. In 1814, the canal belonged to the plantation of de Lino de Chalmet (pp. 274-275, Chapter 12, Part II, this report). Its construction dated to an earlier era, no later than 1802, when the Rodriguez and Chalmet lands were both part of a larger, more encompassing plantation (Swanson 1984:I.2).

The canal had been dug not only to drain the fields, but also to serve a sawmill that had once straddled the canal. This sawmill had either fallen into ruin or been dismantled by 1814, for Latour (1964 [1816]:145) observes that the canal "had long been abandoned, having no longer any mill to turn." However, it was still operational in 1805 when Nicholas Roche sold what was to become the Rodriguez property to Jean Baptiste Drouillard (Swanson 1984:I.4). Its last known mention is in a sale agreement from 1808, the same year that Barthelemy Lafon illustrated the location of the mill in his survey map of the area (Figure II-1). According to Lafon's (1808) map, the mill was located 639.5 ft (194.9 m) back from the river bank. Translated into today's landscape, the location of the mill would be 687.8 ft (209.6 m) from the outside edge of the seawall, about 65.6 ft (20 m) south of the small bridge that crosses the present canal and provides visitor access to the Beauregard House. It is worth noting, in this regard, that the Rodriguez Canal swells to its greatest remnant width immediately south of the bridge (Figure *i-2*; Map III-3) This broad, localized section of the present canal is 32 ft (9.8 m) in width and 191.9 ft (58.5 m) in length. Jake Ivey (personal communication1985), a National Park Service archeologist who worked on the Battery 3 excavations, has suggested that this wide section of the canal may represent the old mill pond.

The millrace canal that protected the Americans in late 1814 and early 1815 had experienced at least several years of neglect prior to the battle. Its bank lines had slumped and it was gradually being filled with sediment (Latour 1964 [1816]:146). A British officer who made a close inspection of the canal noted that the lower end of the canal was about 15 ft (4.6 m) wide and roughly 8 ft (2.4 m) deep, but at its upper end where it approached the swamp, he observed that the canal narrowed to a width of 10 ft (3 m) and its depth reduced to only 4 ft (1.2 m)

(Ritchie 1961:54). According to Latour (1964 [1816]:146), nothing was done to broaden or deepen the canal; it was simply put to use as it was found December 24, 1814. The original spoil bank on the west side of the canal provided a convenient starting point for the erection of the rampart, and the spoil bank on the opposite side supplied a "ready-built" glacis that required no improvement in the eyes of Jackson's engineers (Latour 1964 [1816]:146).

Tatum (1922:114) records that the canal of the battle period ran at a right angle to the river in a direction 30° east of True North. It was not perfectly straight, however, for he also gives a range of variation of 9°.

After the battle, the Rodriguez Canal continued to silt up. This process was probably accelerated by the "melt" of the rampart and the further collapse and retreat of the canal's bank lines. By the twentieth century, the former millrace had become little more than a broad, shallow swale (Appleman 1938: Figures 2, 4, 8; Wilshin 1938: Figure 1; Wilson 1964:3).

Two construction events further modified the remnant canal after 1950. First, the segment south of the Chalmette Monument had its surviving west bank line built up to accommodate a visitor pathway. Second, the section in front of the reconstructed rampart was deepened for interpretive purposes. Because these alterations were separate in time and not coordinated, the alignment of today's canal line shifts slightly eastward south of the Chalmette Monument obelisk (Figures III-3, III-6). Map III-3 shows the bank line of the remnant canal immediately prior to the pathway construction. This early twentieth-century bank line is reconstructed from early photographs and a 1956 National Park Service construction map (Appleman 1938: Figures 2, 4, 11; National Park Service 1956). Its alignment is in close agreement with the angle taken by the battle-era parapet palings found in the Battery 3 excavations.

Little probably survives to mark the canal south of the current National Park Service fence line. Here, years of repetitive levee and road construction have obliterated all signs of the canal near the surface of the ground. If anything survives, it is deeply buried, at least 30 cm (12 in) or more below the present road surface.

Battle-Era Ditches

The British were quick to note the numerous agricultural drainage ditches that crisscrossed the narrow plain between the swamp and the river (Dickson 1961:12; Forrest 1961:115). Like the Americans, they were equally quick to put these to military use. The ditches that attracted the attention of these two opposing forces were not narrow channels, but major drains that bordered the larger land subdivisions. During Colonel Mullins's court martial proceedings (General Court Martial 1926:41), one officer reported that these latter ditches occurred within a "breath of a common field distance from each other." A similar wide spacing is suggested by Dickson's sketch map (Figure I-2) of the battlefield that accompanies his journal entry of January 1, 1815 (1961:36), and Laclotte's contemporary engraving (Figure III-41). Mathien's (1981:81) estimate of 417 ft (127 m) as the average distance between the major battle-era ditches is probably not far off the mark. This estimate would place roughly five major drains between the American lines and the British batteries, a number that corresponds to Dickson's (1961:36) portrayal of five north-south ditches for the same area and Latour's use of the term "several" to describe these ditches (Latour 1964 [1816]:113).

The major ditches were filled with water, 4 or 5 ft (1.2 to 1.5 m) across, and deep enough to cover a soldier's knees—probably about 2 to 3 ft (.60 to .90 m) (General Court Martial 1926:39; Gleig 1972 [1847]:170). Although Lieutenant Debbeigg (General Court Martial 1926:39) claimed that "a man might leap over" the ditches, Sergeant Dennison's (1926:101) testimony suggests that they were sufficiently wide to require officers to seek assistance in crossing them.

The Americans primarily employed the ditches as convenient, protective positions for the deployment of pickets and sentries (Tatum 1922:117). In a more passive sense, the Americans also recognized the value of the ditches as obstacles to rapid British columnar tactics and took full advantage of them as such (Latour 1964 [1816]:113; Cooke 1835:251). In the age of Napoleonic warfare, anything that broke or impaired the momentum or timing of the attacking column was of great importance, for the longer the enemy remained exposed to the effective fire of the defenders, the less chance they had for success (Mahan 1836:9, 11; Fuller 1961:50). Defensive battles of the period were not decided by glorious hand-to-hand combat on the parapet, but by the amount of fire power that could be delivered upon the assaulting forces as they approached the parapet. What happened on the rampart of a defensive work was usually a postscript to victory or loss. Interestingly, Theodore Roosevelt (1910:256) stands alone as the only historian of the Battle of New Orleans who has given proper emphasis to this point in an assessment of the battle outcome.

Although the British may have found the drainage ditches a hindrance to certain offensive actions, they did not neglect to use the ditches to their own full advantage. In fact, these ditches played a varied and major role in British tactical operations. The ditches were used as protective cover for pickets and skirmishers, as places of refuge during retreats and the frequent American artillery bombardments, and as convenient positions for the deployment of reserves and assault forces (Tatum 1922:115, 117, 125; Dickson 1961:39; Gleig 1972 [1847]:170; Nolte 1972 [1854]:222; Greene, pp. 52-53, Chapter 4, Part I, this report). The larger ditches were also employed as defensive obstructions in front of British batteries and, when the need arose, as hiding places for ammunition and spiked cannon (Dickson 1961:40, 49). Further, the post and rail fences that bordered a number of ditches were cleverly put to use to screen troop movements from the Americans (Tatum 1922:115).

It was probably the rare British soldier who did not spend at least some of his combat time crouching or lying in a ditch. With few exceptions, these ditches were the only terrain features on the Plains of Chalmette that offered any sort of protective cover against American small arms and artillery fire. What made them particularly appealing was the heavier vegetation that tended to flourish along their banks. These tall grasses and low bushes, together with an occasional small tree, provided the British troops in the ditches with a welcome additional screen against enemy observation (Tatum 1922:115; Gleig 1972 [1847]:170; also see Figure III-55). Some of the larger ditches of the battlefield may have provided one final service for the British, namely, as places of burial for the dead. From a study of the documentary record, Greene (p. 159, Chapter 7, Part I, this report) believes that at least one section of one of the larger ditches served this purpose.

After the battle, many of the ditches that had seen military use were returned to their original agricultural function. In the post-war years, these same ditches drained the sugar cane fields of de Lino de Chalmet and the St. Amand brothers. By the early 1840s, however, the subdivision of the land into narrow tracts had begun to bring cane cultivation to an end on the former battlefield (pp. 281-285, Chapter 12, Part II, this report). A few additional ditches were dug in the 1830s and 1840s along the borders of tract subdivisions, but the decades to follow saw a close to major drain construction. Because more recent owners did little to further disturb the surface patterning of the land, most of the old ditch lines are still clearly visible on the ground and on aerial photographs of the Chalmette Unit (Mathien 1981).

These ditches are tangible historic resources that are intimately associated with the Battle of New Orleans and the by-gone era of sugar-cane plantations. All those with north-south alignments extend into the 200 ft (61 m) assessment zone, but none continue intact beyond the southern National Park Service fence line (Map III-5). The more significant of the historic ditches are individually identified and discussed below.

Tatum's First Ditch

One of the most prominent landmarks of the battle was a large north-south ditch that Major Howell Tatum (1922:114-115) describes as the "first ditch." Measured from along the levee road, the south end of this ditch was located 520 "paces" (read 520 yd [476 m], for Tatum uses yards and paces interchangeably) from the American line (Tatum 1922:114). However, because the ditch angled toward the American line, its north end terminated only 400 yd (366 m) in advance of the rampart, at a position roughly opposite Battery 7 (1922:114).

Colonel Henderson's party of skirmishers took up a position near this ditch during their ill-fated sortie against the British left on December 28 (1922:116). Whether or not the British actually reached the First Ditch on the twenty-eighth is not clear from the documentary record, but it is possible that some forward troops of the left and right columns advanced to this point before retreat was called (Gleig 1972 [1847]:170). Some British troops may have gained the First Ditch on January 1, but contemporary accounts of the engagement suggest that most of the attacking infantry waited out the artillery exchange in less advanced positions (Tatum 1922:120; Dickson 1961:39).

During the major engagement of January8, the First Ditch became a truly significant feature of the battle landscape. To begin, Latour (1964 [1816]:154-155) claims that the British began their attack in earnest only after initial deployment along a ditch located 400 yd (366 m) from the American lines, a distance that suggests that the ditch in question was none other than Tatum's First Ditch. Also, it was in the sedge grass immediately behind this ditch that the British reserves waited prior to their belated advance in support of General Gibbs (Tatum 1922:125). After their retreat, the British placed sharpshooters in the ditch to "cover the wounded" and prevent the Americans from taking prisoners (Tatum 1922:127). Once hostilities ceased, the First Ditch was designated as the "line of demarcation," or truce line, between the Americans and British (1922:115, 130). It was along this line that the emissaries of the opposing forces met, exchanged formal communications, and arranged for the burial of the dead (p. 130).

We know from Tatum's (pp. 114, 115, 127) careful descriptions that the north-central part of this ditch was located 20 chains, or 440 yd (402.4 m), from the rampart, and its north and south ends, respectively, were located 400 and 520 yd (366 and 476 m) from the American line. Today, a large abandoned ditch is clearly in evidence at very nearly the same distance from the American line of defense. Its north end, opposite the revised position of Battery 7, is 412 yd (376.7 m) from the line; its south end, if projected to the estimated former location of Battery 1, is 517.4 yd (473.1 m) from the defense line (Map III-5). This remnant ditch averages 2.5 m (8.2 ft) in width and 30 cm (12 in) in depth. Although the identification cannot be conclusive, the close spatial correspondence between the historic ditch and the present-day ditch suggests they are one and the same.

Tatum's Second Ditch

Over 100 yd (91.5 m) to the east of the First Ditch was another north-south drain. Tatum (1922:115) refers to this drain as the "second Ditch." It ran roughly parallel to the First Ditch and also spanned the distance between the Levee Road and the wooded swamp.

It was from the cover of this ditch on December 28 that the central column of the British attacking forces engaged and routed a two hundred-man party of skirmishers under the command of Colonel Henderson (Tatum 1922:116). Later, on the night of December 31, the British placed two artillery and two rocket batteries along the Second Ditch (Tatum 1922:120; Dickson 1961:30). One rocket battery and a ten-gun battery were positioned next to each other immediately behind the ditch, near the ditch's extreme northern end; the second rocket battery and a seven-piece artillery battery were placed in a central position between the northern set of batteries and the Levee Road, approximately 45 m (148 ft) behind the ditch line (Dickson 1815:36; Figure I-2). In addition, British troops were placed in this ditch in readiness for the attack to commence on the morning of January 1 (Dickson 1961:39). Many spent the rest of the day in the ditch dodging American cannon balls.

The central battery emplacement behind the ditch was reused on January 8, but the northern battery was never again employed for artillery (Dickson 1961:55). British troops gathered behind the ditch at the abandoned northern battery in preparation for the last engagement, and they most likely used the ditch as a refuge during their retreat (General Court Martial 1926:55, 73; Dickson 1961:69). Following the failed attack, the ditch became a receptacle for British spiked cannon as well as unspent ammunition (Dickson 1961:69).

Tatum (1922:115) states that the southern end of the Second Ditch was located 640 yd (585.2 m) from the American lines and the northern end was situated 550 yd (503 m) to the east of Battery 7. In terms of today's geography, these measurements fall almost exactly on the alignment of the paved road that now runs through the National Cemetery (Map III-5). This road lies 530 yd (484.8 m) opposite Battery 7, and its projected intersection with the reconstructed position of the Old Levee Road lies 645 yd (590 m) from Battery 1. This match with Tatum's measurements (550 yd [503 m] and 640 yd [585.2 m], respectively) is too close to be fortuitous, and it seems highly likely that the present roadway occupies the position and alignment of the battle-era ditch. Interestingly, Casey (1963:105) reports that workers recovered a "short carronade" from the cemetery in the late 1950s or 1960s. Unfortunately, neither the circumstances of this discovery nor the location was ever recorded. Park records, however, do indicate it was a brass 6-pounder, rather than a carronade (Denise Vickers, Unit Historian; personal communication 1985). This piece, which now sits on a reconstructed field carriage at one of the interpretive stops, exhibits flat, striated wear marks near the top of its muzzle and elsewhere along the length of its tube. These worn areas are exactly the kind that would have resulted if the gun had been dragged overland in an inverted position—a technique used by the British to bring their heavy guns several miles across the mud from the barges (Reilly 1974:262).

The Double Ditch

At the time of the battle, two parallel drainage ditches were located immediately south of the cypress swamp. This "double ditch," as Tatum (1922:114-115) described the pair, ran southeastwardly "in a direction nearly perpendicular to the lines of defence [*sic*]," and it roughly demarked the beginning of the more open, brushy portion of the swamp. The First Ditch and Second Ditch, mentioned above, both emptied into the Double Ditch. Tatum's (1922:115) use of the plural term "perpendicular Ditches" at one point in his text clearly indicates that what he was describing was not simply a double-wide ditch, but two adjacent, separate ditches.

A post and rail fence bordered the Double Ditch on its south side. Tatum (p. 115) mentions that this fence began near the American rampart and extended to the junction of the Double Ditch and the Second Ditch, where it then made a right-angle turn to the north toward the cypress swamp. On December 28, the British used the fence to cover their advance on the American left (pp. 91-92, Chapter 5, Part I, this report).

Latour (Figure III-55) does not show either the fence line or the adjacent ditches in his detailed map of the battle, but both Ellery and Joyes (Figures III-56, III-57) illustrate what appears to be a fence line that runs perpendicular to the American line and forms a right angle with another fence line that borders the Rodriguez Canal at a point immediately northeast of Battery 7. The position of this perpendicular fence line closely matches the one described by Tatum in his journal. Notations on Ellery's and Joyes's maps (Figures III-56, III-57, III-61) suggest that this fence line closely flanked the right side of Gibbs's column of attack on January 8. As on December 28, it is possible it was purposely used as a partial screen against American enfilading fire.

Faint traces of two adjacent, parallel ditches are visible on aerial photographs taken by the Corps of Engineers of the Chalmette Unit in 1933 and 1943 (Figures III-54, III-62). The position of these ditches corresponds to the location of the historically described Double Ditch. The two ditch impressions lie approximately 15 m (49.2 ft) apart, display a more southeastward trend than other ditch lines in the same area, and are almost perpendicularly aligned (within 6°) to the Rodriguez Canal (Map III-5). The southern ditch line of this pair is located 6.5 m (21.3 ft) to the northeast of the projected position of Battery 7, exactly the same distance indicated on Ellery's map (Figure III-56).

A brief, ground-level inspection of this area revealed no surface evidence of the Double Ditch. However, there is a distinctive southeastward trending alignment of large trees in the reconstructed cypress swamp that may mark the eroded spoil bank of the southernmost member of the historic ditch pair (Figure *i-3*). This linear alignment of large trees matches the position of the lower ditch impression visible on the early aerials.

American Picket Line

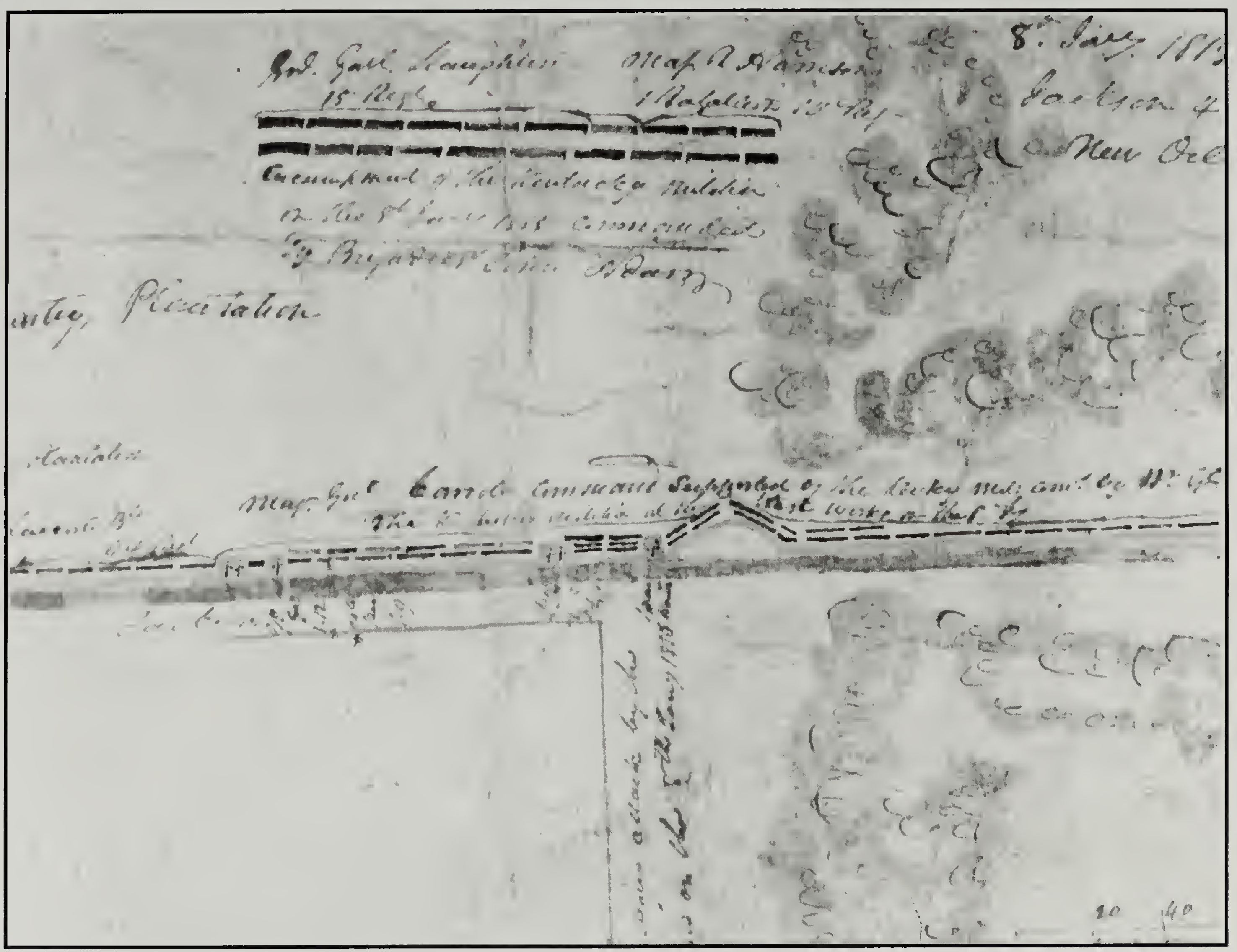
Tatum (1922:117) mentions that the American picket line was established approximately half the distance between the rampart and the First Ditch. The picket guards stationed along this line were grouped into three separate parties, and it is probable that they positioned themselves along a convenient drainage ditch, though Tatum remains mute on this point.

Unfortunately, Tatum's journal (1922) provides no exact distances for the location of the picket line. This poses a problem, for the American line of defense and the First Ditch are not parallel, nor do they form two sides of an equal-sided triangle. Consequently, it is impossible to draw a continuous straight line that consistently falls exactly midway between the First Ditch and the American line. The midway point between the two lines would constantly vary from north to south.

What would be a likely candidate, then, would be a ditch line that runs parallel to the First Ditch (assuming here that it follows the standard ditch alignment rather than the atypical one displayed by the Rodriguez Canal) and lies "roughly" midway between the First Ditch and the American line of defense. Earlier, it was established that Tatum's First Ditch is situated 412 yd (376.7 m) east of the projected location of Battery 7. Half this distance would be 206 yd (188.4 m). Strikingly, a prominent ditch, known as the Fazendeville Ditch, which once fronted the west side of the historic African American community of Fazendeville, now passes exactly through this point (Figures *i-3*, II-15, III-62; Map III-5). The Fazendeville Ditch is parallel to Tatum's First Ditch, and it intersects with the projected 1815 levee road 320.4 yd (293 m) east of the reconstructed position of Battery 1, or 197 yd (180 m) west of the First Ditch. This physical correspondence between the Fazendeville Ditch line and the American Picket Line is strikingly close.

Figure III-61. The area of the main British attack from Thomas Joyes's "Plan Shewing the Disposition of the American Troops when attacked by the British army on the Morning of the 8th Jany. 1815 at the line Jackson 4 miles below New Orleans (ca. 1815)." Approximate Scale: 1 in = 130 yd or 1 cm = 47 m).

Courtesy of The Filson Historical Society, Louisville, Ky.



8th Jany. 181
Jackson
New Orl
15 Regt
Encampment of the Kentucky Militia
Plantation
Maj. Genl. Carroll Command
10 40

Figure III-62. Aerial photograph of the entire Chalmette Unit dated September 3, 1933. U.S. Army Corps of Engineers, New Orleans District, 1:20,000 (National Park Service Photograph A4A-68-71). Fazendeville can be seen hugging the road in the left side of the photograph. On the right is the National Cemetery, and just beyond are the angled remnants of the Civil War earthworks. A number of the houses and other buildings that flanked the Levee Road in 1933 are also visible (Approximate Scale: 1 in = 463 ft or 1 cm = 55 m).

Chalmette Unit, Jean Lafitte National Historical Park and Preserve.

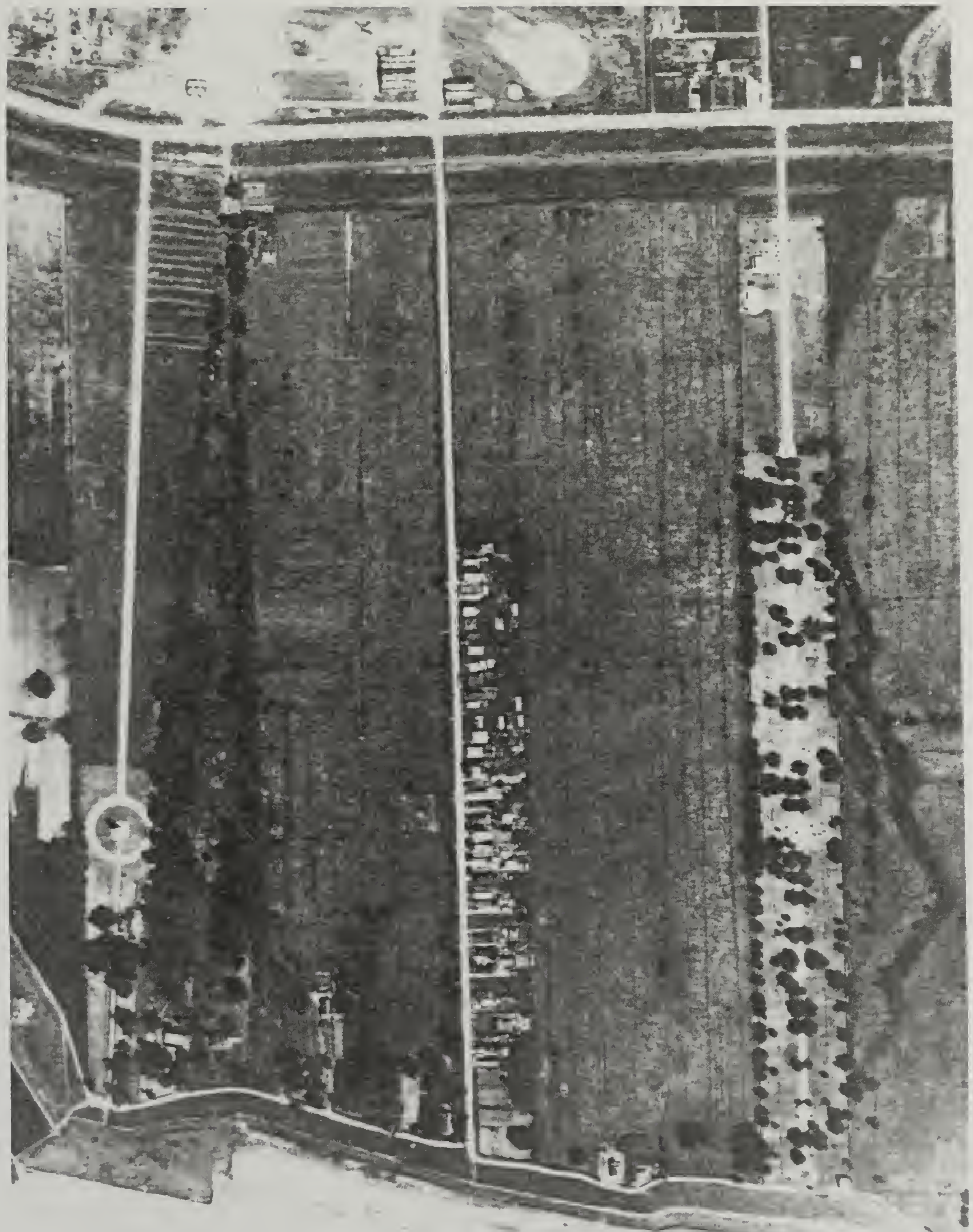
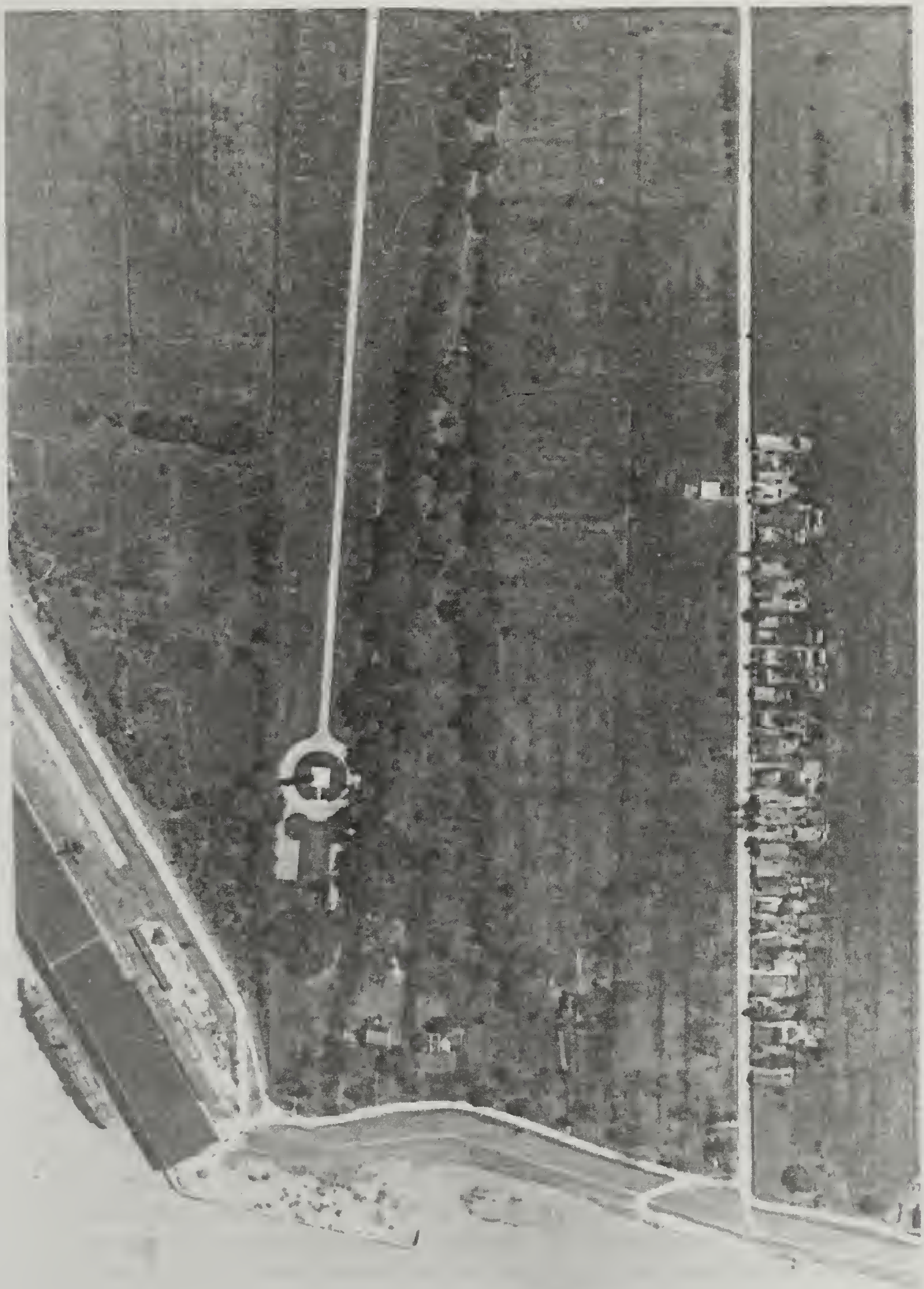


Figure III-63. The western half of the Chalmette Unit from a larger aerial photograph dated April 20, 1943. Corps of Engineers, New Orleans District, 1:10,000 (Spot 5A-930, Exp. 55). Fazendeville is visible on the right. To the lower left of the photograph are the Chalmette Monument, the Beauregard House, and the toe of the Chalmette Slip. The Rodriguez House remains are located in the clump of oak trees to the south of the Chalmette Monument (Approximate Scale: 1 in = 390 ft or 1 cm = 46 m).

Courtesy of the National Archives (Record Group No. 373), Washington, D.C.



Of further note is the fact that the Fazendeville Ditch is clearly an old ditch, for it can be directly traced back to 1834 when Zimpel illustrated it in his map of New Orleans as the boundary between the Peyroux and Delery estates (Figure II-3). The Delery tract later became the property of J. P. Fazende, who subdivided it into small plots to create Fazendeville (pp. 292-294, Chapter 12, Part II, this report).

There is also reason to believe that this same ditch was in existence at the time of the Battle of New Orleans. In his plan of the battle, Latour (Figure III-55) shows a ditch line that nearly matches the Fazendeville Ditch alignment. This ditch line is the one nearest the rampart on Latour's map, and it intersects with the 1815 levee road 340.4 yd (311.3 m) east of Battery 1, a distance which falls within 20 yd (18.3 m) of the same measurement to the present-day Fazendeville Ditch. The alignment of Latour's forward ditch varies slightly from the Fazendeville Ditch, but as pointed out previously, all of Latour's ditch lines tend to angle several degrees more to the east of north than they should. That they, nevertheless, represent the very same ditch is supported by the absence of any other ditch remnants in the immediate vicinity that could possibly mark an alternative location for Latour's ditch. The closest neighboring ditch remnant to the Fazendeville Ditch is 80.5 m (264 ft) distant, too far to be a likely candidate.

Thus, there is good reason to conclude that the American picket line was arrayed along a north-south ditch that eventually became known in the late nineteenth century as the Fazendeville Ditch. Today, the Fazendeville is the largest ditch remnant, other than the Rodriguez Canal, in the park unit. It averages 5 m (16.4 ft) in width and achieves a maximum depth of 60 cm (2 ft). One reason it is probably so noticeable today is that this ditch served as the main frontage drain for Fazendeville until that community's final days in the late 1950s and early 1960s. In other words, it was most likely maintained as an active drainage long after the other ditches on the battlefield had been abandoned.

American Sentry Line

Tatum (1922:117) also states that a line of American sentries was positioned even closer to the enemy, about halfway between the Picket Line and the First Ditch. On January 1, this forward reconnaissance line was manned by mounted troops spaced at 50 yd intervals between the Levee Road and the wooded swamp. One of these sentries, James Bradford, later reported that the British Advanced Battery was situated only 200 yd (183 m) from his own position, which was some 200 to 250 yd (183 to 228.6 m) south of the edge of the wooded swamp (pp. 114-115, Chapter 6, Part I, this report). If we accept the previously established positions of the Picket Line and the First Ditch as correct, the exact halfway point would fall at 98.5 yd (90.1 m) west of the First Ditch. No ditch remnant occurs at this distance, but a large ditch remnant is located slightly more to the east, at a distance of 93.2 yd (85.2 m) from the First Ditch. This variance of only 5.33 yd (4.9 m) from the predicted halfway point is slight and suggests that the mounted sentries, like the pickets, may have arranged themselves on the rearward side of a convenient ditch. Other north-south ditch remnants occur in the general area, but the nearest of these is 21.3 yd (19.5 m) away.

If a surviving ditch remnant marks the former Sentry Line, it is most likely the one that falls closest to Tatum's halfway points. The best match-up is a present-day ditch line that is 422.8 yd (386.6 m) from the projected position of Battery 1 and 322 yd (294 m) east of the projected position of Battery 7 (Map III-5). It averages 30 cm (12 in) in depth and 1 m (3.28 ft) in width.

The British Skirmish Line

At least one additional ditch remnant on the present battlefield may have associations with the Battle of New Orleans. William Surtees (1833:373), who was an officer with the 95th Regiment, reports in his book that the British forward skirmishers on January 8 took up a position within 100 to 150 yd (91.4 to 137.2 m) of the American Line. These men, some four hundred strong from the 95th and 44th Regiments and deployed in extended order, were to maintain a constant fire so as "to keep the enemy down as much as possible" in advance of the main British attack columns (Surtees 1833:373). From his post beside Michell and Carmichael's central battery, Lieutenant John Cooke of the 43rd Regiment observed a party of the 95th Rifles "silently glide past" just before dawn on the morning of January 8 (Cooke 1835:225). Seconding Surtees, Cooke (1835:226-227) also mentions that these men were under orders to establish a set, extended skirmish line within close range of the American rampart. Lieutenant Phelan (General Court Martial 1926:83) of the main body of the 44th Regiment remembered stepping over the skirmishers as he approached the American Line. In his testimony, Phelan (General Court Martial 1926:83) recalled that the skirmishers had opened the first small-arms fire on the British side and had then laid down to obtain some protection from the American return fire.

Today, a prominent ditch remnant lies 138.6 yd (126.7 m) to the east of the projected position of Battery 7 (Map III-5). If this ditch has sufficient antiquity, it would make an excellent candidate for the position of the British skirmish line described by Surtees. Unfortunately, a hard identification cannot be made at this time, although the ditch can be traced back to the second quarter of the nineteenth century when it served as the major boundary for the east side of what was then the Peyroux Property (Figure II-3, Part II, this report). The ditch varies in width from 1 to 2 m (1.28 to 6.6 ft) and reaches an average depth of 60 cm (2 ft). It is clearly visible from the northern part of the battlefield to the present Levee Road (Figures *i-3,* III-63 [prominent ditch located roughly midway between the Fazendeville Road and the Beauregard Plantation]).

The Advanced Battery and the Center Road

Historical Background

The British Advanced Battery and the Center Road were both prominent features of the battle geography. On the night of December 31, the British erected a large forward battery opposite the American left. This was a two-section battery set astride an old east-west plantation road the British named the "Center Road" (Dickson 1961:30, 33). Four 24-pounder carronades were placed in the north section, and six 18-pounder guns were established in the south section (Figure I-2). British accounts variously refer to this battery as the Advanced Battery, the Ten Gun Battery, or the Great Battery (Dickson 1961:30-35; General Court Martial 1926:37).

The Advanced Battery saw brisk and heavy action during the artillery duel of January 1, but it was abandoned that evening and never reestablished as a gun battery (Dickson 1961:39). After abandonment, Dickson (1961:61) refers to this gun position as the "Old 10 Gun Battery."

Although the battery lost its function as an active gun emplacement, it does not fade from the historic scene. In fact, it achieves additional importance as a geographical focus of the battle in the days that follow. Between January 1 and January 8, several small skirmishes took place in its vicinity (Tatum 1922:122). Then, on the morning of the eighth, the Advanced Battery became the assigned rendezvous for Gibbs's attack column (Forrest 1961:41; General Court Martial 1926:55, 91).

Underscoring its historic importance, the battery is mentioned on thirty-five separate occasions in the General Court Martial proceedings of Lieutenant Colonel Thomas Mullins (1926). It is here in the Advanced Battery that Colonel Mullins of the ill-fated 44th Regiment, acting upon misinformation provided by Lieutenant Colonel Johnston, searched in vain for the facines and ladders to be used in the early morning attack. Further, it was through the narrow "gap" between the two battery sections that Lieutenant Debbeig and the rest of the 44th struggled onto the battlefield after they had run back to the rear to collect the facines and ladders from their true location in the Advanced Redoubt (General Court Martial 1926:41, 73, 100). After passing the Gap, the 44th followed the Center Road for a short distance before shifting to the right so as to make a more oblique approach toward the American left (1926:69, 70, 82, 86). Whether the 44th led the attack column or straggled onto the field behind other British units is a matter of historical controversy that cannot be settled here. What is important is that the Center Road served as the initial avenue of attack for the 44th and perhaps for the 4th and 21st regiments as well (Quartermaster General's Office, Horse Guards:1815; General Court Martial 1926:93; also see Figures I-4, I-7, III-55, this report). Following the January 8 battle, a number of the British who passed down the Center Road had a last rendezvous at the Advanced Battery, but this time they did not meet in anticipation of attack. They were now among the dead, and the raised earth of the abandoned battery apparently provided a convenient place of burial (p. 159, Chapter 7, Part I, this report).

The Center Road was a secondary road that ran through the agricultural fields and linked the main plantations of the Chalmette vicinity (Dickson 1961:19-20, 36, 62; Figure I-2). As with the other rural roads of the period, it was unpaved and constructed of "the soil of the Country" (Dickson 1961:116). The material for the raised roadbed simply consisted of adjacent surface soils that were scraped up and then piled and compacted to provide a level surface for cart and carriage traffic. Dickson (1961:116) correctly observes that roads of this type became "bad with very little wet weather."

The Center Road was apparently quite narrow, for Lieutenant Colonel Debbeig of the 44th reported that it could only accommodate three or four men abreast carrying scaling ladders (General Court Martial 1926:39). Therefore, the road probably possessed a span no wider than 4 to 5 m (13.1 to 16.4 ft) or a width of roughly 2 French toises, a toise being a common unit of local measure of the time in the New Orleans area (one toise is equivalent to 1.949 m [6.395 ft]).

Latour's plan (Figure III-55) of the Battle of the 8th of January has the road ending short of the American lines at a distance that corresponds with the American Sentry Line. Dickson's two sketch plans of the battlefield (Figures I-2, I-7) also have the road ending before it reaches the American position. The only difference is that Dickson's sketches continue the road somewhat farther, roughly 200 to 300 yd (183 to 274.3 m) beyond Tatum's First Ditch, and, therefore, forward of the American Sentry Line.

As mentioned earlier, the British erected the Advanced Battery astride the Center Road. The southern section was constructed to hold six 18-pounders, and the northern section was prepared for the emplacement of four 24-pounder carronades (Dickson 1961:30, 36). Dickson (1961:34) personally supervised the work and recorded the method of construction in his journal. Sugar casks, set one barrel high, formed the core of the epaulements. These barrels were filled with earth, not sugar as some have erroneously presumed, and covered with rammed earth. Behind the epaulements, more earth was piled up and leveled to hold the gun platforms. As with Michell and Carmichael's seven-piece battery farther to the south, the earth for construction was probably obtained by shallow paring of the surrounding topsoil because the high water table would have prevented deep excavation (Cooke 1835:225). Dickson (1961:34) remarks that the finished epaulements were insufficient, for these only covered the gun crews up to breast height. This would have made the epaulements about 5 ft (1.5 m) high as measured from the floor of the gun platforms and about 6 to 7 ft (1.8 to 2.1 m) high, measured from ground surface.

The Discovery

In late January of 1984, Archeologist Tommy Ryan of the Corps of Engineers, New Orleans District, noted a low, broad mound in the National Cemetery during a monitor of the National Park Service research effort. A quick glance to the east, beyond the cemetery wall, revealed the existence of an equally intriguing feature—a nearly imperceptible linear, raised-earth alignment that ran toward the American line at a right angle to the mound in the cemetery. The configuration, association, and general location of both these features immediately brought to mind the Advanced Battery and the Center Road. Careful and exhaustive weighing of the available evidence now strongly suggests that these subtle earthen features do indeed represent the physical remnants of the Advanced Battery and the Center Road.

The broad mound in the National Cemetery is located on the east side of the cemetery road 249 m (817 ft) south of the north end of the cemetery (Map III-5). A sign marking Grave Section 143 sits directly on top of the mound. The mound displays a subrectangular plan, and its long axis exhibits roughly the same alignment as the cemetery road.

A slight depression, or swale, penetrates the central portion of the mound. This swale is bell shaped in plan and opens to the east and narrows to the west. The swale's visibility is enhanced by the denser, greener, and slightly higher grass that grows within it. The contrast that is produced is clearly visible in a 1981 National Park Service aerial photograph (Figure *i-3*). It can be seen just southeast of the northernmost parking bulge in the cemetery road. No swale is visible at the cemetery wall, some 4.2 m (13.8 ft) behind and to the east of the mound. Nonetheless, there is indirect evidence that soil density is different here. A broad dip in the old brick wall of the cemetery centers exactly on the projected alignment of the swale (Figure III-64).

The mound's gentle topography frustrates exact definition of its size and internal morphology. Nonetheless, approximate measures are possible, thanks to a follow-up mapping effort that was funded by the National Park Service subsequent to the field phase of this Corps of Engineers' study. The archeological contractor, R. Christopher Goodwin and Associates, Inc., took careful field measurements and prepared a final topographic contour map in 1985 (Map III-6).

The description of the mound that follows is based on the Goodwin and Associates' contour map as well as on direct observations and additional measurements taken on-site by the author in 1984 and 1985. Because a 10 cm contour interval was employed by the map makers, not all the subtle morphological characteristics of this low mound feature are fully evident in the final map product; some finer details are just hinted at by the contour lines, others are simply invisible at the 10 cm interval.

1. Best defined at the 2.1 m contour interval and measured along its north-south axis, the mound remnant of the Advanced Battery reaches a length of about 50 m (164 ft). In width, it measures only 18.75 m (61.7 ft).

Figure III-64. View toward the east of Section 143 in the National Cemetery showing the mound remnant of the British Advanced Battery located in the mid-distance across the cemetery road. The central area of the mound is framed between the two trees.

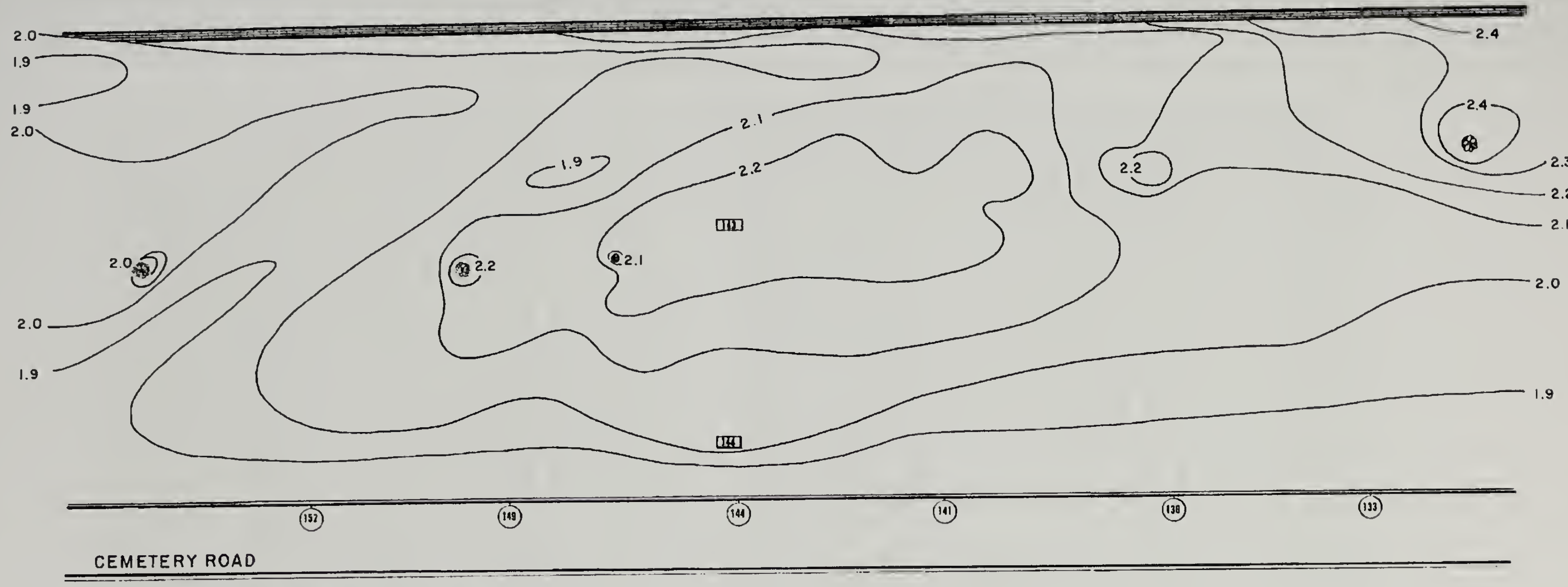
Photograph by Ted Birkedal, National Park Service.

Figure III-65. View toward the west toward the linear remains of the Center Road. The three individuals in the photograph are all standing on the road remnant. The American Line of Defense is in the far distance to the rear.

Photograph by Ted Birkedal, National Park Service.

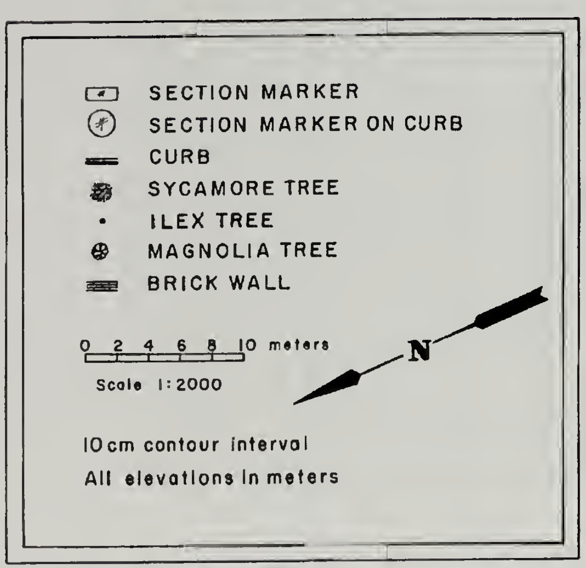
Map III-6. Topographic map of the area of the British Advanced Battery, Chalmette Unit, Jean Lafitte National Historical Park and Preserve.

Prepared and drawn by R. Christopher Goodwin and Associates, Inc.



TOPOGRAPHIC MAP OF THE BRITISH ADVANCED BATTERY AREA

CHALMETTE UNIT, JEAN LAFITTE NATIONAL HISTORICAL PARK, LOUISIANA



PREPARED BY: R.CHRISTOPHER GOODWIN & ASSOCIATES, INC.
NEW ORLEANS, LA — NOVEMBER 31, 1985

As referenced by the National Cemetery's grave section system, the mound falls entirely between the curb markers for Sections 136 and 152. The extreme north end of the mound is delimited by a prominent sycamore tree.

2. A swale, mentioned earlier, divides the mound into two roughly equal lobes. This swale achieves a maximum width of approximately 10 m (32.8 ft) and approaches 10 cm (3.9 in) in depth. Its center falls 8 m (25.2 ft) south of the sign for Grave Section 143. The presence of this swale is evidenced by shallow, broad jogs in the contour lines toward the central section of the mound illustrated in the R. Christopher Goodwin and Associates, Inc., map (Map III-6).

3. The central, or highest portion of the mound, forms a small plateau that measures 31 m (101 ft) in length and 10 m (32.8 ft) in width. With the exception of the interrupting swale, the height of this central area is relatively uniform and averages 2.2 m (7.2 ft) above MSL, about 30 cm (12 in) above the surrounding ground surface (1.9 m [6.23ft] above MSL). A lone magnolia tree marks the north end of the mound's central section; a single ilex tree stands near its south end.

The linear alignment to the west of the mound in the cemetery becomes visible just beyond the Interpretive Loop Road at a distance of 95 m (311.8 ft) from the east cemetery wall. This alignment of raised earth follows a straight path toward the American line of defense at an angle of 113° east of north (Map III-5). It is slightly convex in cross section, and at its center it reaches an average height of 15 cm (6 in) above the surrounding ground surface. The alignment varies between 4 and 4.5 m (13.2 and 14.8 ft) in width. This linear feature's visibility is enhanced along its length by a slightly greener and denser growth of grass (Figure III-65). It can be easily followed on foot to a point 48.8 m (160 ft) east of the Fazendeville Ditch (American Picket Line). Here, it fades from view. In all, the visible segment on the ground is 112.2 m (368 ft) in length. Because it tends to promote different patterns of grass growth than the adjacent land surface, the alignment is clearly visible on recent aerial imagery (Figure *i-3*). It can also be traced on imagery dating from the 1930s and 1940s (Figures III-62, III-63). Mathien (1981) recorded the alignment during her study of the aerial imagery of the Chalmette Unit. Although she attempted no interpretation of the feature, Mathien (1981: Figure 8) recognized that it was not simply a ditch with flanking spoil banks and, thus, defined its edges with two parallel lines.

It shows up most prominently in an oblique aerial photograph dating around 1960 (Figure III-66 [Chalmette Unit Photograph No. 10-10-001]). In this photograph, its edges are more sharply defined and its top surface appears more flattened. Cut at intervals by the north-south ditches, it resembles a series of candy bars laid end-to-end across the landscape, running just to the east-northeast of Fazendeville. Interestingly, in this same photograph, it can be traced beyond the Fazendeville Ditch (American Picket Line), some 73.2 m (240 ft) farther to the west than is possible to track it on the actual ground. The feature's total visible length in this photograph reaches approximately 340 m (1115.5 ft).

The reason that the raised earth alignment in this oblique photograph displays a more distinct form may go beyond the angle of view. In the late 1950s, the area between the cemetery and Fazendeville served as a cow pasture. However, from the date the National Park Service took possession in the first half of the 1960s, the same tract of land has been subjected to repeated mowing by means of a heavy tractor. Normally, the tractor follows a north-south route, roughly perpendicular to the linear alignment. Thus, it is entirely possible that the repeated traffic of the tractor over a two-decade period compressed the soil of the alignment and flattened its edges to give it a more indistinct appearance by the early 1980s.

The Evidence

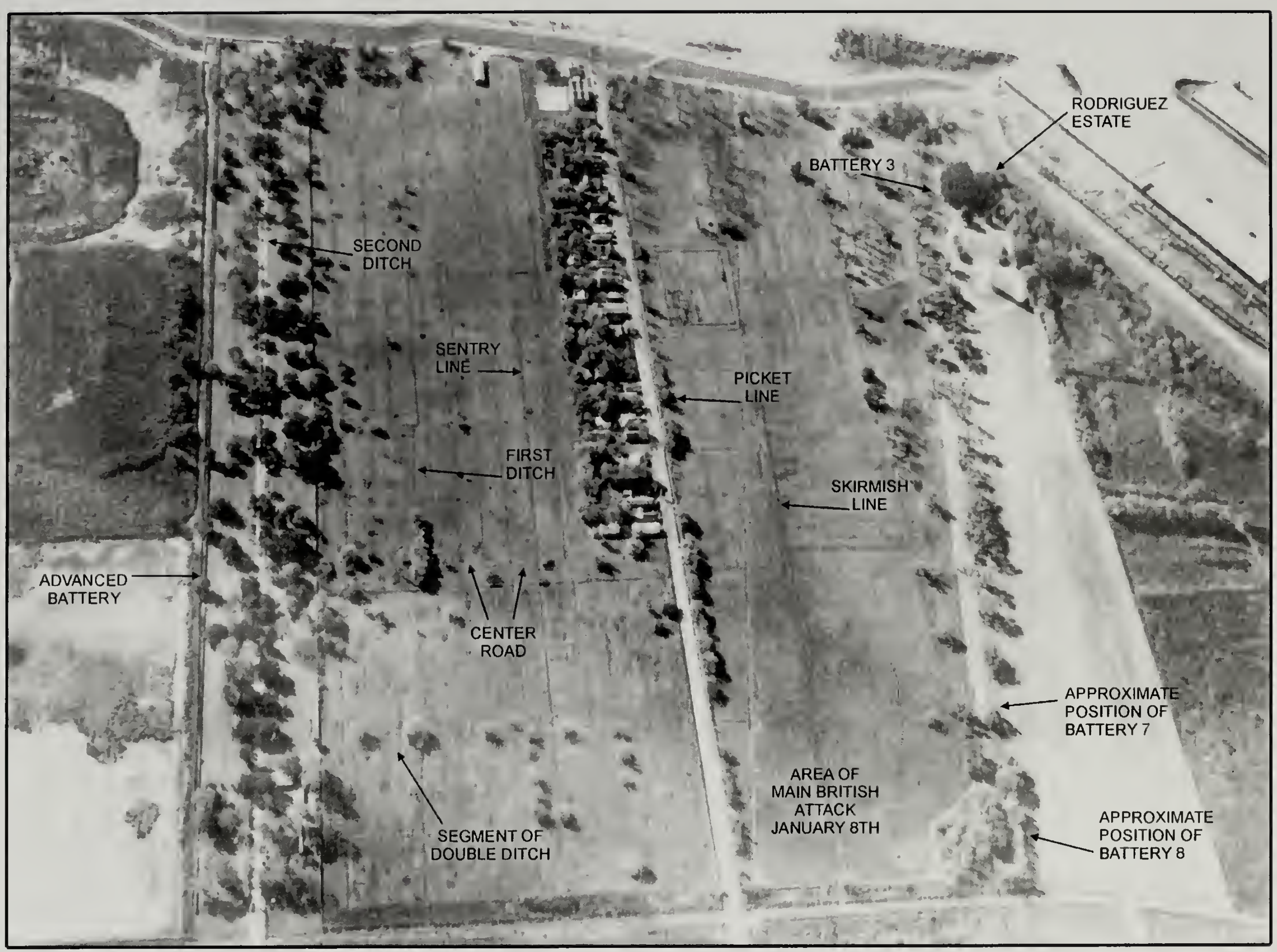
That the linear alignment and the cemetery mound represent the remains of the Center Road and the Advanced Battery is strongly suggested by the available evidence. The association of these two unique features in the landscape must be more than simply historical chance or coincidence. The relevant points of evidence are enumerated below.

The Advanced Battery

1. Despite Dickson's (1961:30) intention to erect the Advanced Battery "about 800 yd distant from the entrenchment of the Enemy," it was actually placed much closer, near the extreme end of Tatum's Second Ditch (Tatum 1922:120). Both Latour's battle map (Figure III-55) and Dickson's sketch map of the British artillery positions for January 1

Figure III-66. Oblique aerial view from ca. 1960 (National Park Service Photograph No. 10-10-001) of the Chalmette Unit from the north (view to the south-southwest) showing the location of the linear alignment of the Center Road to the east-northeast of Fazendeville as well as other features of the battlefield geography.

Chalmette Unit, Jean Lafitte National Historical Park and Preserve. Layout and labeling by Judy Kesler, National Park Service.


RODRIGUEZ ESTATE
BATTERY 3
SECOND DITCH
SENTRY LINE
PICKET LINE
FIRST DITCH
SKIRMISH LINE
ADVANCED BATTERY
CENTER ROAD
APPROXIMATE POSITION OF BATTERY 7
AREA OF MAIN BRITISH ATTACK JANUARY 8TH
APPROXIMATE POSITION OF BATTERY 8
SEGMENT OF DOUBLE DITCH

show placement immediately behind this ditch (Figure I-2). Using Tatum's (1922:115) ditch measurements, the battery would have been located between 550 and 600 yd (503 and 548.6 m) from the American line. This extreme forward position, well within point-blank range of the American artillery, perhaps helps to explain why the battery was permanently abandoned after January 1. Dickson may not have realized that the ditch inclined slightly westward toward Jackson's rampart as it headed northward into the swamp. And indeed his sketch map of the artillery positions does not betray awareness of this northwesterly trend of Tatum's Second Ditch; Dickson shows its alignment as perpendicular to the bank of the Mississippi River (Figure I-2).

The close proximity of the Advanced Battery is supported by James Bradford, who served as a mounted sentry on the morning of January 1 (p. 115, Chapter 6, Part I, this report). Positioned on the far left of the American Sentry Line (Map III-5), nearly opposite the battery, Bradford estimated the Advanced Battery's position at about 200 yd (183 m) from his own sentry post. Today, the actual distance from Bradford's projected position along the Sentry Line to the mound in the cemetery is 229 yd (209.4 m), a distance very close to Bradford's estimate. Measured from the reconstructed position of Battery 6 along the north-central portion of the American line of defense, the distance to the mound is 573 yd (524 m). This distance fits nicely within the distance range suggested by Tatum's ditch measurements from about the same position along the line.

If we measure along Tatum's Second Ditch, it is also worth noting that the mound is situated 760 yd (695 m) north of the reconstructed 1815 bank line, a distance roughly consistent with Tatum's (1922:120) statement that the battery was located toward the upper end of the Second Ditch. Tatum (p. 114) gives the distance to the end of the ditch at 1000 yd (914.4 m). Further, the mound in the cemetery begins its rise within 15 yd (13.7 m) of the west edge of the cemetery road. The cemetery road, it will be recalled, follows the approximate alignment of Tatum's Second Ditch. Moreover, its long axis is approximately parallel with this ditch alignment, as is true of the battery sketched by both Dickson and Latour (Figures I-2, III-55).

What is particularly striking is that a line drawn from Battery 3 on Latour's "Plan of Attack" through the center of the Advanced Battery follows an angle of 79° east of north, the exact angle obtained if the same line is drawn today from the newly discovered position of Battery 3 through the center of the mound found in the cemetery.

2. The morphology of the mound is consistent with the historical description we have of the Advanced Battery.

A. The mound consists of two distinct lobes. Both Dickson's (Figure I-2) sketch and Latour's "Plan of Attack" (Figure III-55) show that the Advanced Battery was divided into two separate sections in order to accommodate the passage of the Center Road between them. The lobes of the present-day mound defined by the shallow swale correspond to the north and south epaulement sections illustrated in these historical maps.

B. The 10 m (32.8 ft) swale between the two lobes of the mound makes a good candidate for the "gap" described earlier. It is wide today because its earthen sides would have fallen back as they eroded and filled the original slot in the battery where the Center Road once passed.

C. An auger test made in the top of the north lobe revealed a 50 cm (19.7 in) layer of brown silty clay loam under a 5 cm (2 in) layer of topsoil. Under the silty clay was the typical gray mottled clay of the area. The silty clay loam resembled the silty clay loam that represented the eroded American epaulements in the Battery 3 excavations. It recalls Cooke's (1835:225) mention of topsoil as the material used for construction.

3. Ideally, the British would have allowed about 20 ft (6 m) for each gun. This spacing would have required the two sections of the battery to total 200 ft (61 m) in length. However, the mound under examination here measures only 164 ft (50 m) in length, less than the length ideally required. One possible reason for this less-than-ideal size may be that only the inner, central part of the mound is visible above present ground surface. Erosion of the original battery remnant would have reduced its

outer edges to a thin apron of earth that would in turn have been covered by more recent topsoil. The auger results argue for this interpretation. At least 20 cm (7.8 in) of the mound's thickness is not reflected in its 30 cm (12 in) surface height.

Another contributing factor may be that the British did not have time in a single night to build the battery in accordance with the ideal. Dickson (1961:34, 38) remarks that the battery was insufficient and specifically states that the platforms were too short. Thus, it is entirely likely that some compromises were made in providing for the spacing of the guns.

4. The question arises as to whether or not the mound is the product of some other historical event. A study of the occupation history of the cemetery tract produced no evidence that structures were ever erected in the immediate area of the mound for which the mound could have served as a raised base (Greene 1985:261-270). It must also be pointed out that the mound cannot have an origin later than 1864. Judging from Louis Pilié's detailed map of the cemetery dated 1867, the southwest corner and the forward third of the mound occupies sections of three early burial plots: Sections 95, 96, and 97. Carl Gaines, who has written a history of the cemetery, has examined the headstones on the mound and identified the plots as those used for the burial of African American Union troops in 1864 (personal communication 1984). Thus, the mound must, at the very least, be 140 years old.

The possibility that the mound is the remnant of the Confederate earthworks has also been considered. Pilié's (1867) early map shows that these earthworks passed over what is now the rear portion of the mound (also see Figures I-12, II-15). In fact, the northeast corner of the mound occupies the spot where the earthen wing to a large sally port in the works joined a section of rampart. Nonetheless, it is difficult to imagine how these angular segments of earthwork could have produced the mound feature under scrutiny here. First, Pilié's map shows both of the Civil War earthwork segments in this area running at what would be a diagonal to the present long axis of the mound. Second, if the earthworks were the source of the mound, it is hard to explain why the mound survives as a discrete, isolated feature of the landscape. It would seem more likely that the earthworks, which were continuous, would have produced a longer and more linear mound remnant. Third, the mound, if it had a Civil War origin, should not decrease in height as it approaches the cemetery wall, for it was in this sector that the Confederate rampart reached its greatest height (Pilié 1867). Finally, it appears odd that the rampart should survive in only one place within the cemetery. Although the Civil War earthworks entered the cemetery tract at several points, no other raised features exist in the National Cemetery that correspond to the illustrated pattern of the defense work (Pilié 1867).

The Center Road

The argument that the linear, raised earth alignment to the east of the National Cemetery represents the physical remnant of the Center Road can be outlined as follows:

1. The feature lines up with the previously described depression in the mound, a depression that is thought to mark the "gap" in the battery.

2. The alignment follows a straight path toward the American line, exactly as shown on Latour's map (Figure III-55). Latour's map shows the road following an angle of 115° east of north; today's linear alignment follows an angle of 113° east of north.

3. If projected up to the American rampart, both Latour's Center Road (Figure III-55) and the linear alignment intersect the line of defense slightly north of Battery 6.

4. The feature is 4 to 5 m (13.1 to 16.4 ft) in width, roughly the width that would be expected for a plantation wagon road of the early nineteenth century (about 2 French toises in width [3.9 m]). This width is in keeping with Lieutenant Debbeig's statement that the road allowed only four men to "pass in front" (General Court Martial 1926:41).

5. In cross section, the alignment exhibits a somewhat flattened convex profile. If it were a remnant of a large single ditch, the feature would display a slightly concave cross section. Mathien's (1981: Figure 8)

independent aerial photographic identification of this feature as one typified by two flanking parallel lines is also supportive of this interpretation. These parallel lines in the aerial photography most likely represent the signature of the lower-elevation outside edges of the Center Road. These road edges would contrast with the higher ground of the road remnant itself. In fact, it is also entirely likely that the road's margins were slightly ditched so as to keep water away from the roadway proper.

6. An auger sample taken in the center of the alignment demonstrated that the feature consists simply of 45 cm of brown silty soil topped by a 5 cm cap of topsoil. No broken shell or other material was noted in this soil. Under the brown soil is the typical gray mottled clay that normally occurs just below the surface in this northern portion of the park unit. The upper layer of soil recalls Dickson's (1961:116) observations that the roads of the battlefield vicinity were unpaved and constructed from the local "rich mould." The soil observed in the auger test resembles the type of soil that might result if the local topsoil had been used to form a raised roadbed. In contrast, soils adjacent to the linear feature grade to the more typical gray mottled clay within only 10 cm of the surface.

7. Latour's map (Figure III-55) illustrates the portion of the Center Road forward of the British Battery as lying 706.7 m (2319 ft) from the 1815 bank line of the Mississippi River at its intersection with the first ditch to the west of the Advanced Battery. At approximately the same east-west position, today's linear alignment lies 675.3 m (2216 ft) north of the reconstructed 1815 bank line. The correspondence is not exact, but it is nonetheless close for a comparison of this type.

8. Today, the visible portion of the linear feature measures 112.2 m (368 ft) in length and occurs between the Interpretive Loop Road and the Fazendeville Ditch—with reference to historical features, roughly between the American Picket Line and Tatum's First Ditch (Map III-5). The oblique photograph taken about 1960 (Chalmette Photograph No. 10-10-001 [Figure III-66]) mentioned earlier shows that it once was visible from the west cemetery wall to a point 73.2 m (240 ft) forward of the Fazendeville Ditch (American Picket Line), a distance of 340 m (1115.5 ft). Thus, it is of interest that neither Latour (Figure III-55) nor Dickson (Figure I-2) show the Center Road extending to the American line of

defense. Latour ends the road at the American Sentry Line, whereas Dickson ends it somewhat forward of this point, about two-thirds the distance between the Advanced Battery and the American rampart. What is important here, however, is not the variance between the two sources, but the concordance: Both Dickson and Latour end the road well in advance of the American line. The raised linear feature that crosses the battlefield today also stops short of the American defensive rampart.

To sum up, the bifurcated mound in the National Cemetery and the line of raised earth that runs toward it are likely candidates for the British Advanced Battery and the Center Road of battle fame. Multiple lines of evidence—historical, geographical, and morphological—support this identification. The available evidence may not allow for absolute certainty in the identification, but it nonetheless falls into a convincing pattern that cannot be easily attributed to mere coincidence.

Other British Battery Positions

Michell and Carmichael Battery

To the left of the Advanced Battery and to the northwest of the Chalmet Plantation, Dickson (1961:30) established a second major battery under the command of Major Michell and Captain Carmichael. It was constructed on the night of December 31 in the same manner as the Advanced Battery with earth-filled sugar casks and rammed earth (Dickson 1961:34; Surtees 1836:364; Cooke 1835:225).

Seven field pieces were set up in the battery: two 9-pounders, three 6-pounders, and two 2½-inch howitzers (Dickson 1961:31). Its purpose on January 1 was to fire at the American artillery and, in addition, to assist the Advanced Battery in breaching the American lines approximately near their center (Dickson 1961:30).

On January 1, this battery received damaging American return fire and it was abandoned (1961:35). However, it was refurbished on the night of January 7 in readiness for the attack on the morning of the eighth (Dickson 1961:55; Cooke

1835:224-225). Four 18-pounders and four 24-pounders under the command of Captain Crawford were placed in the battery (Dickson 1961:55). As before, heavy American artillery fire forced its abandonment.

Dickson's (Figure I-2) sketch of the artillery positions for January 1 situates the Michell and Carmichael Battery near Tatum's First Ditch, but slightly more rearward of this feature than the position occupied by the Advanced Battery. Latour's map (Figure III-55) gives it a similar placement about 45 yd (41.2 m) behind the ditch. In his text, Latour (1964 [1816]:131) states that the battery was situated 350 yd (320 m) from the river bank. This measurement agrees closely with his map distance which has the left flank of the battery 340 yd (310.8 m) from the bank line.

Translated into today's geography, the front center of Michell and Carmichael's Battery would fall just 4.5 m (14.8 ft) beyond the east wall of the National Cemetery, about 209 m (685.7 ft) north-northeast of the southeast corner of the cemetery (Map III-5). A boundary road around one of the Kaiser Aluminum Plant's waste ponds now passes through this area.

Interestingly, the estimate of the battery's position is supported by a projection of Latour's artillery trajectories from the revised locations of American Batteries 2, 3, and 4 (Figure III-5). When these are redrawn, the trajectory angles converge at the reconstructed location of Michell's and Carmichael's Battery in the Kaiser Plant.

Captain Lempriere's Battery

Also on the night of December 31, Dickson (1961:30) constructed a two-gun battery upriver from the Chalmet Plantation and to the southeast of Michell and Carmichael's seven-gun battery. It was set up on the Levee Road to fire on the American right. Dickson's (Figure I-2) sketch map of the artillery arrangement for January 1 shows this battery, assigned to Captain Lempriere, located midway between what has been identified as Tatum's Second Ditch and a more forward ditch that appears to correspond to Tatum's First Ditch.

Lempriere's Battery contained formal platforms and it was probably protected by an earth and cask epaulement (1961:32). Two sea-service

18-pounders were placed in the battery. After the artillery engagement of January 1, the battery was abandoned and never re-used (1961:39). A similar battery was erected on the Levee Road on January 7, but it was placed farther to the rear, directly opposite the Chalmet Plantation (Dickson 1961:52; Figure III-55).

Little, if anything, probably survives of Captain Lempriere's Battery, for its position now lies just beyond the current bank line under the turbulent waters of the Mississippi River.

Forward Field Battery

On the morning of January 8, 1815, Colonel Dickson (1961:59) ordered Captain Carmichael to place a forward complement of artillery in front of the Advanced Battery. This collection of twelve light field pieces was "to open as brisk a fire as possible upon the enemies line on the first fire of musquetry [*sic*] of the attack" (Dickson 1961:59). These guns were all set on highly mobile field carriages and no protective cover was provided for them. Amongst the ordnance of this position were 9-pounders, 6-pounders, 3-pounders, and 5½-inch howitzers (1961:9, 59). As the quoted orders given above indicate, this light field battery was not to open fire until musket range had been achieved. The outside effective range of musket fire is 150 yd (137.2 m), and truly damaging fire does not become possible until the enemy is within 80 yd (73.2 m). Thus, the purpose of Carmichael's battery was to provide flank support for the main British infantry column once it had begun to actively engage the Americans near Batteries 7 and 8. Dickson (1961:60) claims Carmichael followed orders and properly awaited first musketry fire before commencing his own fire; however, other participants report (General Court Martial 1926:73-74, 82-83) that Carmichael opened up just prior to the musket fire.

According to Dickson's sketch map (Figure I-7) of the Battle of the 8th of January, the guns were arranged in a straight line facing the American line just rearward of one of the battlefield ditches. The left, or southern, end of this row of field artillery rested on the Center Road. Because the sketch map is rough and provides little detail, it is difficult to determine exactly which ditch Dickson meant to portray. The best guess is Tatum's First Ditch, described earlier (Map III-5). In testimony given after the Battle of New Orleans, Sergeant Dennison (General Court Martial 1926:100) of the 44th Regiment states that his regiment passed through the gap of the Advanced Battery on the Center Road and then "wheeled to the right in front of the Field Pieces." It may seem peculiar that the troops would have marched directly in front of Carmichael's guns, but, as pointed out earlier, these pieces were to remain silent until the attack column actually closed with the enemy.

Dennison's testimony provides a tantalizing clue as to the position of the British field artillery, for Latour's (Figure III-55) plan of the battle shows a line of British columns making a right oblique movement from the Center Road immediately forward of his middle ditch line, the same ditch which is thought to roughly correspond to Tatum's First Ditch. If this interpretation is correct, the British field artillery on January 8 would have been located just north of the Center Road, about 420 yd (384 m) east of the American rampart. This position would have made good sense from a tactical standpoint because the large size of Tatum's First Ditch would have provided the battery with a measure of effective protection from American counterattack. However,, on the negative side, the large size of Tatum's First Ditch would have hindered further advance of the artillery, and more importantly, precluded rapid retreat from a more forward position in case of necessity.

Understandably, the life of the British Forward Field Battery was short-lived, and the guns were hitched up and brought to the rear after firing only five rounds per piece (Dickson 1961:61). After the battle, Captain Carmichael explained to Colonel Dickson that the battery had sustained heavy and damaging fire; further, masses of disorganized British troops had come between the guns and the American line, making effective return fire impossible (Dickson 1961:61).

Captain Lawrence's Mortar Battery

The British established a 5½-inch mortar battery under Captain Lawrence to participate in the artillery duel of January 1. However, this battery was positioned on the north side of the Chalmet residential complex, well to the rear of Michell and Carmichael's Battery (Dickson 1961:30, 36). Thus, it would now be located under the Kaiser Aluminum Plant's wastewater pond and well outside the geographical purview of this report (Map I-5; also see Swanson 1985:66-72).

Rocket Batteries

In addition to the regular British artillery, two Congreve rocket batteries were established on the night of December 31. Some type of protective cover, again most likely of earth and earth-filled casks, was provided for these batteries (Dickson 1961:33). However, platforms of the usual type were probably not constructed, for Congreve rockets were fired from narrow tubes set on light tripods (Meuse 1965:35-36).

Captain Lane's Rocket Battery was placed a short distance to the left of the Michell and Carmichael Battery, but the exact distance cannot be determined from Dickson's rough sketch map (Figure I-2). Because it appears to have occupied about the same north-south axis as the gun battery, its former position most likely falls within the disturbed acreage of the Kaiser Aluminum Plant.

Lieutenant Crawley's Rocket Battery was located to the right of the Advanced Battery. Again, Dickson's sketch map (Figure I-2) does not allow for measurements, but the map does provide a possible clue. The left edge of the battery is shown resting on a large east-west ditch. If this ditch represents the Double Ditch, then Crawley's battery would have been located immediately behind Tatum's Second Ditch about 172 yd (157.2 m) to the north-northeast of the Advanced Battery, a position at the upper end of the National Cemetery roughly opposite and southwest of the current National Park Service Maintenance Building. It is possible that a careful examination of this general sector of the National Cemetery may reveal its actual location.

Historical Geography of Civilian and Post-Battle Features

Introduction

This section details the geography of the civilian and post-battle use of the land area enclosed by the Chalmette Unit. Located only four miles below the city proper, this area formed part of the immediate hinterland of New Orleans. From the beginning of European settlement to the present, its history has been reflective of the wider history of the city and St. Bernard Parish (Swanson 1985; Part II, this report). Its fields first produced indigo and then sugar as cash crops for the vast plantations of the French and Spanish colonial periods. Early in the American era, these same fields were broken up and subdivided to meet a growing demand for small landed estates among New Orleans's increasingly prosperous merchant and professional classes. Following the Civil War, the land-use pattern shifted again; the handsome riverfront estates of the ante-bellum period gave way to the effects of adjacent industrialization. White industrial workers established homes along the once elite riverfront, and African American workers took up residence along one of the old plantation ditches and founded the community of Fazendeville. Perhaps because it was flanked by memorialized property, the land that was eventually to become the park unit escaped major industrial developments in the late nineteenth and twentieth centuries.

The geography of the eighteenth-century property history remains largely obscure. Over the years, the Chalmette Unit formed part of several different plantations, and at various times the lands of the unit were held under divided ownership (Wilson 1965:4-7, 18-19, 39-40; Swanson 1985; Chapter 12, Part II, this report). As far as is known, none of the associated great plantation owners of the last decade of the eighteenth and the first decade of the nineteenth centuries—de La Ronde, Sigur, and Prevost—ever established residences on this park land.[2] According to the measurements given on Lafon's map of 1808 (Figure II-1), Jean Baptiste Prevost occupied a residential complex just beyond what is now the east wall of the National Cemetery, but this headquarters complex, which previously served Laurent Sigur and in 1813 became the residential hub of Lino de Chalmet's upriver plantation, did not extend into the present park unit (Wilson 1965:42). In fact, today it would fall entirely within the Kaiser Aluminum Plant's southernmost slag pond (Map III-5).

Two wealthy men of color, Hilaire and Louis St. Amand, purchased Chalmet's entire 22-arpent plantation (4219.6 ft [1286.1 m])—a combination of

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2 Special Note: During a routine compliance investigation in March of 1985, the author, together with Archeologist Jake Ivey of the National Park Service, encountered the buried ruins of a large galleried plantation house in the southwest quarter of the park area. Preliminary analysis of the artifacts and other data from limited tests indicates the house was occupied between 1760 and 1790 and suffered a catastrophic end, perhaps during a hurricane. The house is located 440 ft (134.1 m) from the southern fence line, partly under an existing restroom facility (Maps III-3 and III-5 [historic feature not shown]). This positioning is in keeping with Betsy Swanson's (1985:19) recent argument that the early colonial riverfront was landward of the present riverfront. It is also interesting to observe that the house extends over the west boundary of the park unit, thus suggesting that it was associated with a plantation that once incorporated both the Rodriguez property as well as the Macarty property. The owners of this house have not been determined as of this writing.

his upriver and downriver plantations—in 1817 (Wilson 1965:48; p. 230, Chapter 12, Part II, this report). They, too, favored the residential site of their predecessors and built a new headquarters complex close to the ruins of Chalmet's battle-damaged master house (Figure II-3). The St. Amand Plantation, which represented the last of the great sugar plantations to dominate the lands of the Chalmette Unit, extended from the Bienvenu Plantation on the east to the Rodriguez Canal on the west. Its breakup did not start until 1832 when the brothers St. Amand began to sell off portions of their property in order to pay back debts owed to their even wealthier sisters.

The detailed presentation that follows concentrates on the historical geography of the Chalmette Unit after the Louisiana Purchase of 1803. The information available for this period of time is not always ideal, but it is, nevertheless, more complete and less subject to uncertainty than that which is available for the colonial era. So as to give the presentation some order and direction, the reconstruction begins on the west and proceeds to the east until all the separate historic tracts within the Chalmette Unit have received coverage. For the most part, the land subdivisions correspond to those identified by Yakubik in Part II of this report.

Rodriguez Estate

The Rodriguez Estate consisted of a long, narrow property wedged between the Macarty Estate on the west and the Rodriguez Canal on the east. After passing through a series of short-term owners in the first decade of the nineteenth century, the tract was purchased in 1808 by Mr. Jean (Juan) Rodriguez, a distinguished New Orleans attorney and former maritime merchant (Swanson 1984:I.16).

It remains unclear from the available archival documents whether or not Rodriguez constructed the dwelling houses associated with his occupancy. An 1813 newspaper advertisement which offers the property for sale mentions that the master house was of American construction, a description that strongly suggests that the dwelling was built after the Louisiana Purchase of 1803 (Swanson 1984:I.4). However, this reference to the house does not exclude Nicholas Roche as the builder. Roche held the property between 1802 and 1805, and it is possible that he built the house sometime between 1803 and 1805 (1984:I.3). Other owners of the property—there were five between 1805 and 1808—are unlikely candidates, for none possessed the tract for more than a few months. A Mr. John Lynd held the property for only two days!

If Lafon's 1808 land survey map is taken at face value, then Jean Rodriguez must be seen as the probable builder, for Lafon's map illustrates no recognizable dwelling, only the sawmill straddling the Rodriguez Canal (Figure II-1). On the other hand, it could be argued that Lafon simply left out the house, a practice not unknown among nineteenth-century land surveyors.

Whatever their exact date of construction, Rodriguez possessed two dwellings during his period of ownership (Figures III-4, III-41, III-58). One of these, the master house, was a handsome, but not overly large residence built in the French Colonial Style (Swanson 1984:II.24). The main living quarters, most likely of *bousillage* and frame construction, rested on a half-story, raised basement of brick. The roof was hipped and contained dormer windows at each end. The extent of the gallery is uncertain for the period of Rodriguez's ownership, but it minimally fronted the south end of the house. The upper part of the gallery possessed jalousies and thin, colonnette supports; the lower part of the gallery was open and possessed square plastered brick piers. All in all, the house closely resembled the Pitot House, which still stands today beside Bayou St. Johns in New Orleans.

The archeological tests performed in April of 1983 revealed a house foundation 22 ft (6.7 m) in width and 68 ft (20.7 m) in length (Map III-3). However, the occurrence of an inner rear wall keeps open the possibility that the Rodriguez-era house, exclusive of gallery, measured only 58.5 ft (17.8 m) in length. The last ten feet may be a later addition. Unfortunately, the limited test data is ambiguous on this point.

A smaller, secondary residence stood 17.7 ft (5.4 m) to the east of the master house. This structure was built in the Creole Cottage style (Swanson 1984:II.37). It exhibited a gabled roof and a front gallery supported by thick, square columns. The archeological tests conducted in 1983 were insufficient to document the exact dimensions of this building. It is estimated to have measured about 30 by 40 ft (9.1 by 12.2 m).

Rodriguez's war claims also indicate that several other buildings stood on the property. The structures included a stable and coach house, four houses for his African American slaves, a hen and pigeon house, and a kitchen (Swanson 1984:I.11). All were undoubtedly located to the rear of the residences. Rodriguez protested that these outbuildings were completely destroyed during the Battle of New Orleans (1984:I.11). The grounds also contained a *parterre*, a formal eighteenth-century style garden, that most likely contained herbs, flowers, fruit trees, and hedges (1984:II.29). If this garden were located in accordance with custom, it would have been situated near the west or south side of the main house.

In 1817, Jean Rodriguez sold his property to Mrs. Marguerite Verret Prevost. Latrobe's sketches (Figures III-4, III-58) show the appearance of the estate and the buildings two years after her purchase. It is clear from these sketches that Mrs. Prevost added two outbuildings to the northeast of the master house to replace the ones allegedly destroyed during the war.

At Mrs. Prevost's death in 1833, her son, Edouard, inherited the land. In 1849 Etienne Villavaso, who lived on the adjacent property to the east, purchased the estate, most likely as an investment (p. I.20). Villavaso held the property for three years and sold it to Pierre Bachelot, who in turn sold it to the State of Louisiana in 1855. The state desired the property for the construction of the Chalmette Monument.

Although the master house was mistakenly thought to be the headquarters of General Jackson by many nineteenth-century visitors to the battlefield, this and other buildings on the estate were allowed to fall gradually into ruin. A newspaper account from 1896 indicates the main house was still standing in that year (p. I.21). However, it was completely erased from the landscape soon thereafter, probably during a massive clean-up of the Chalmette Monument grounds initiated by the Louisiana Society of the United States Daughters of 1776 and 1812 with funds provided by the State of Louisiana (Bres 1964:4). At the completion of this effort, a caretaker's lodge was built on the approximate site of the Prevost-era outbuildings.

Today, the remains of the Rodriguez master house and its companion cottage sit well back from the river, 302 ft (92 m) from the National Park Service southern fence line. The location is clearly marked by four huge oak trees which form an "L" around the east and north sides of the house foundations (Maps III-3, III-7).

The only civilian historical features to occur forward of the archeological remnants of the Rodriguez Estate are the old shell pathway to the Chalmette Monument and the Spotts Monument. The shell pathway, 5 ft (1.5 m) in width, was constructed down the center of the Rodriguez property in 1908 in order to provide visitor access from the levee road to the newly completed Chalmette Monument (Huber 1983:32). This path now lies covered by grass, and it survives under the turf as little more than a linear concentration of broken clam shell.

As a newly founded group, the Louisiana Society of the United States Daughters of 1776 and 1812 raised the Spotts Monument shortly after 1894. This small stone monument was intended to commemorate Lieutenant Samuel Spotts who, according to legend, fired the first shot, an artillery round from Battery 7, on the morning of January 8, 1815. It consists of three increasingly smaller blocks of marble topped by a marble urn with floral decorations (Figure III-67). On its east face is an inscription honoring Spotts for his role in the Battle of New Orleans (Greene 1985:233). Though slightly weathered, the monument stands intact in the southwestern corner of the park, 25 ft (7.6 m) north of the 1985 south fence line and 45 ft (13.7 m) east of the west boundary of the Chalmette Unit (Figures III-45, III-46; Map III-3).

Villavaso Estate

Located between the Rodriguez Canal and the Beauregard House is a small pie-shaped property. The original owner of this parcel, Theophile Wiltz, sold the property to Etienne Villavaso in January of 1833 after less than a year of ownership (p. 286, Chapter 12, Part II, this report). Etienne Villavaso was closely related, by ties of both marriage and business, to the Cantrelle family, who established the nearby Battle Ground Sawmill in partnership with the Villavaso family. Zimpel's map of 1834 (Figure III-33) shows a main residence and two outbuildings associated with the property. Since Wiltz only held this parcel of land a short time, it is likely that these structures had been erected by Etienne Villavaso, perhaps about the time of his marriage to Lise Cantrelle in 1834.

Eventually, the property passed into the hands of the Cantrelles, who in turn sold it in 1866 to J. A. Fernandez y Lineros, the then current owner of the adjacent Beauregard tract (p. 286, Chapter 12, Part II, this report). The property was sold several more times during the 1870s and 1880s, and in 1888, it ended up under the ownership of Rene T. Beauregard, after whom the Beauregard House is named. In 1904 the Beauregard family sold the property to the New Orleans Terminal Company, and in 1948 it was acquired by the State of Louisiana. Its ownership was transferred to the National Park Service in 1949.

The 1834 Zimpel map (Figure III-3) shows the first structural improvements on the Villavaso property. The main residence was centrally placed between the east and west boundaries of the property, and it was set back so that it was nearly in line with the adjacent Beauregard House, which was then owned by Mrs. Madeleine Pannetier (Wilson 1956:8). A tree-lined or shrub-lined pathway approached the Villavaso House from the Levee Road. Immediately to the east of the residence was a separate outbuilding. Judging from its position, this side building probably served as a stable or carriage house. Some 172 ft (52.4 m) behind the main residence sat another structure, perhaps a kitchen.

A much later map, Sheet 6 of the U.S. Coast Survey (1878), illustrates a main residence at the exact same location indicated by Zimpel. However, this map, which covers the riverfront for the 1873-1874 period, shows a different outbuilding arrangement. The outbuilding to the rear is placed slightly more to the northwest along the bank of the Rodriguez Canal (see Figure III-2); also, two small additional outbuildings are shown one behind the other to the northeast of the main residence. No outbuilding is evident to the east as in Zimpel's map.

Chart 76 of the Mississippi River Commission (1874, as updated and reprinted in 1893-1894), omits any outbuildings, but again shows a main residence in the same location as the earlier maps. This is also true of the 1921 edition of Chart 76 issued by the Mississippi River Commission. A residential structure at the identical location can similarly be found on aerial photographs of Chalmette produced by the Corps of Engineers in 1933 and 1943 (Figures III-62, III-63). In 1938, National Park Service Historian Roy Appleman (p. 5) reported that this building served as the house of one of the section foremen for the Southern Railway Company. The structure was razed sometime after 1948.

Betsy Swanson (1984:II.37), after a study of some of the existing photographs of the section foreman's house, has concluded that this frame house, raised on brick piers, represented a rather substantial structure typical of the larger Creole Cottage-style dwellings that were popular on plantations of the New

Figure III-67. Roy Appleman's 1938 photograph of the Spotts Monument. This commemorative monument is located in the extreme southwest corner of the Chalmette Unit.

Figure 9 from Roy Appleman's "Chalmette National Battlefield Site: Inspection Report and Recommendations." Unpublished report on file at the National Park Service, Intermountain Support Office, Santa Fe Library, Santa Fe, New Mexico, 1938.

Map III-7. Map of civilian and post-battle features, Chalmette Unit, Jean Lafitte National Historical Park and Preserve.

Drawn by Lyndi Hubbell for the National Park Service.

CIVILIAN AND POST-BATTLE FEATURES
CHALMETTE UNIT
JEAN LAFITTE NATIONAL HISTORICAL PARK

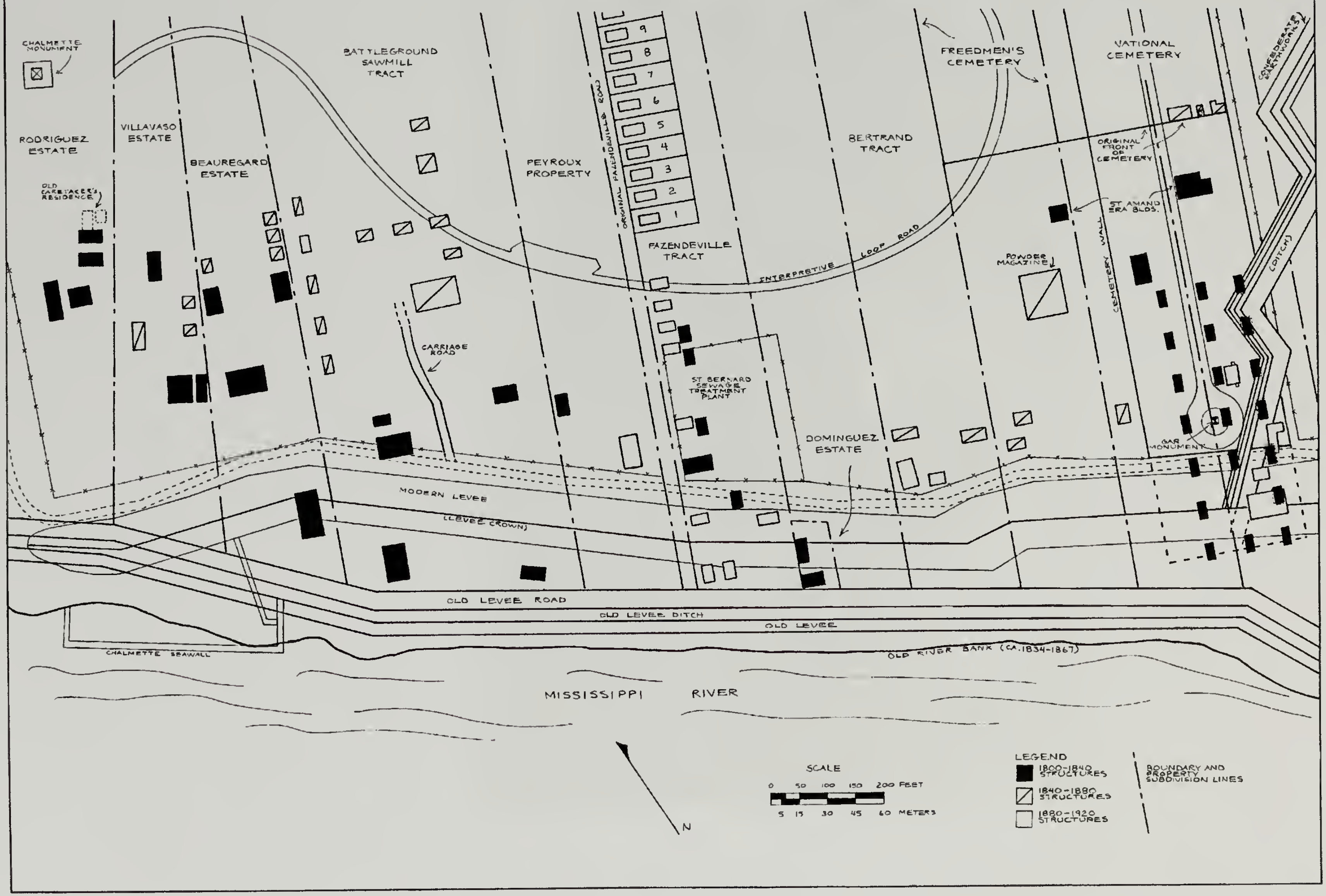


Figure III-68. Roy Appleman's 1938 photograph of the Villavaso House. The house was later razed by the National Park Service. The photograph was taken from the top of the levee; the view is toward the north.

Figure 10 from Roy Appleman's "Chalmette National Battlefield Site: Inspection Report and Recommendations." Unpublished report on file at the National Park Service, Intermountain Support Office, Santa Fe Library, Santa Fe, New Mexico, 1938.

Orleans vicinity in the early nineteenth century. With its thin, finely lathed colonnettes, slightly canted roof, and unusual bay window addition, it was not the type of structure that would have been constructed for the use of a working man in the early twentieth century (Figure III-68). In view of this stylistic assessment and the fact that it occupied the same position relative to the Beauregard House on the residence illustrated by Zimpel, it would seem highly likely that the section foreman's house was none other than the original dwelling built by Villavaso around 1834.

The razed foundational remnants of this house are still in evidence today. These appear as a concentration of low bumps and other irregularities on the otherwise smooth, grassy landscape beside the Beauregard House. Numerous penetrations of the topsoil with a metal probing rod ("plumber's probe") during the January 1984 testing operations revealed that these low mounds hid thick accumulations of soft red brick. The primary concentration measures approximately 60 by 80 ft (18.3 by 24.4 m), and it is located 145 ft (44.2 m) landward from the park unit fence and 80 ft (24.4 m) from the west wall of the Beauregard House (Map III-7). A lone magnolia tree now marks the general location.

Rene Beauregard Estate

The Rene Beauregard House stands as the sole survivor of the era when fine country estates once lined the Chalmette Unit riverfront (Figure *i-2*). The National Park Service has restored the house as it appeared in the ante-bellum period, but it probably began its existence in 1833 as a house built in the French Colonial style (Wilson 1956:16). The property upon which the Beauregard House sits was a triangular subdivision of the St. Amand Plantation sold to Alexander Baron in 1832 (Wilson 1956:8). After purchase, Baron quickly transferred title to the property to his mother-in-law, Mrs. Madeleine Pannetier, the widow of Guillaume Malus. With the death of Widow Malus in 1835, the property remained in the possession of the Malus family and was apparently occupied by Mrs. Pannetier's daughter, Madame Baron, until 1848 (1956:10). After 1848, the property was held by the brothers of Madame Baron, who eventually sold it in 1856 to Caroline Fabre, widow of Michael Bernard Cantrelle (p. 11). It was during the house's ownership by Madame Cantrelle that it was remodeled in the Greek Revival style so popular in the ante-bellum period. Mr. Joseph Fernandez y Lineros (the Marquis of Trava) purchased the house and property in 1866 (p. 13). Ten years later, his wife, Mrs. Carmen Lesseps Fernandez, acquired the estate in a judgment against her husband (Greene 1985:287). In 1880, she sold the property to Rene T. Beauregard, the son of the Confederate General Pierre Gustave Beauregard. He and his family lived in the house until 1904, when it was purchased by the New Orleans Terminal Company (Greene 1985:288). No longer maintained as an active residence, the Beauregard House fell victim to neglect and vandalism. The threatened estate was finally acquired in 1948 by the State of Louisiana and transferred to the National Park Service in 1949 (1985:288).

Unfortunately, none of the notices of sale from the pre-Civil War era describe the structures on the estate. The only source of information from this period is Zimpel's 1834 map (Figure III-33). It shows two small buildings located opposite each other to the rear of the main house, one on the west edge of the property and one on the east edge. The structure on the west was most likely the same brick kitchen mentioned in the 1866 notice of sale (Wilson 1956:13). This kitchen is pictured in a photograph taken around 1890, which shows it to be in the Creole Cottage style; it has the typical canted roof and an east-facing porch supported by square brick columns painted in white (Torres and Lester 1978:33). The building is believed to have been razed sometime during the latter part of the Beauregard ownership (Torres and Lester 1978:99).

Informal subsurface exploration in the 1950s exposed the southeastern corner of the kitchen. A photograph of this exposure shows a rectangular pier from one of the columns and the herring-bone-patterned brick pavement of the porch (Wilson 1956: Photograph No. 20). However, there has never been an attempt to map, fully document, or define the foundational remains of the kitchen. The remnants of this structure are thought to be approximately 110 ft (33.5 m) directly to the rear of the northwest corner of the Beauregard House (Torres and Lester 1978:33, 85).

The small building shown opposite the kitchen in the Zimpel map was most probably a carriage house. The notice of sale from 1866 mentions a carriage house, and a frame building that is obviously a carriage house is illustrated in a ca. 1890 photograph of the Beauregard House (Wilson 1956:13; Torres and Lester 1978:98). The position of the structure in this photograph is similar to the position of the building illustrated in Zimpel's 1834 map (Figure III-33) in that it is situated to the rear and slightly to the northeast of the main house. The building is offset a small distance to the east of a carriage road that runs along the side of the Beauregard Estate, and it appears to at least partly straddle the east boundary ditch. Torres and Lester (1978:86) do not place the carriage house directly opposite the kitchen, but slightly more to the south, about 40 ft (12.2 m) north and 65 ft (19.8 m) east of the northeast corner of the Beauregard House. A re-examination of an enlarged print of the same photograph that Torres and Lester used for evidence, however, suggests that it was actually located as Zimpel originally illustrated it in 1834—directly opposite the kitchen. The photograph shows that the carriage house sits beyond two back-to-back magnolias. Since another photograph of the same general age (Torres and Lester 1978:33) shows the kitchen to the rearward of these same magnolias, it is more likely that the carriage house and the kitchen sat across from each other, at about the same distance from the back of the Beauregard House. Future archeological tests could be used to fix the exact location of this carriage house.

Quarters for the use of African American servants are referenced in the 1866 notice of sale, but these do not appear on Zimpel's 1834 map (Wilson 1956:13). The U.S. Coast Survey Map for the 1873-1874 period (Sheet 6, 1878) does show a series of three small buildings set in a row behind the carriage house. In addition, another small building is shown to the rear of the kitchen. Some or all of the four structures may represent the servant cabins mentioned in the notice of sale.

Further, Zimpel's 1834 map (Figure III-33) illustrates a large building located toward the southeastern frontage of the Beauregard tract. Its long axis is oriented north-south, and it is shown to measure roughly 40 by 80 ft (12.2 by 24.4 m). The purpose and nature of the building are unknown, and it does not appear on the 1878 U.S. Coast Survey Map (Sheet 6) or on photographs from the late nineteenth century. The 1866 notice of sale refers to a stable large enough to house six horses and a hayloft (Wilson 1956:13). It is therefore possible that the building illustrated by Zimpel was a barn that was eventually torn down in the latter half of the nineteenth century.

As measured on Zimpel's map (Figure III-33), the distance between the front of the house and the rear of the "barn" is 258 ft (78.6 m). However, this distance is unlikely, for it would have placed the "barn" at the forward edge of the 1815 bank line. A comparison of Zimpel's small-scale map against d'Hémécourt's (1867) large-scale map reveals the source of the problem: Zimpel's placement of the Beauregard House is simply too far to the landward. If Zimpel's house placement is adjusted to reflect d'Hémécourt's placement, a more reasonable and realistic figure is obtained—approximately 185 ft (56.4 m). Translated to today's landscape, this distance locates the "barn" under the crown and forward toe of the present levee, a positioning that argues against the survival of any recognizable remains of the structure (Map III-7). As far as is known, no other buildings occupied the frontage of the property. By at least the second half of the nineteenth century, a formal flower garden had come to dominate the whole of this area (Greene 1985:305).

Battle Ground Sawmill Tract

The property adjacent and downriver from the Beauregard Estate is most noted as the location of the Battle Ground Sawmill (pp. 287-291, Chapter 12, Part II, this report). This sawmill was established soon after the two-arpent-wide tract (383.6 ft [116.9 m]) was purchased in 1832 by Michel Bernard Cantrelle, and its clientele came to include some of New Orleans's more illustrious architects and builders (Wilson 1956:11). Lumber from the sawmill helped to construct a number of the elegant buildings that were erected along Chartres, Royal, and other well-known downtown streets in New Orleans during the pre-Civil War Era.

Michel Martin Villavaso was Cantrelle's partner in the business, and when the latter died in 1845, Villavaso received ownership of the property (p. 288, Chapter 12, Part II, this report). In 1868, after the death of Villavaso and the subsequent death of his widow, Marie Josephine Cantrelle, the land was purchased by a Mr. Dahlgren, who was the first of a series of short-term owners. The rapid turnover of the property ended in 1885 when Pamela Rentrop, the wife of Dr. John Rhodes, purchased the property (p. 290, Chapter 12, Part II, this report). The Rhodes lived on the tract until 1896; in that year Captain LaFayette Jacks seized the property, which had been put up as collateral for a debt. The New Orleans Terminal Company eventually purchased the property in 1903 from Anna Jacks, the daughter of Captain Jacks.

Other than Zimpel's 1834 map (Figure III-33), no information has been found that describes the improvements that were made in the first half of the nineteenth century. According to Zimpel, a total of five structures occupied the property in 1834: two at the edge of the Levee Road and three in a group some 160 ft (48.8 m) farther to the rear. The larger of the forward pair of structures may have been a warehouse; the smaller, an office. The three at the rear, one large and two small buildings, possibly included the sawmill proper and associated outbuildings (pp. 287-288, Chapter 12, Part II, this report).

In the prosperous years that followed 1834, the structural complex on the property was transformed and expanded. The property inventory made at the occasion of Mrs. Cantrelle's death included a great variety of buildings (Wilson 1956:12). These structures included a steam sawmill, a grist and flour mill, a large stable, a carriage house, a storehouse for corn, a forge, houses for the engineer and clerk as well as other employees, two pigeonnaires, and a henhouse. There was also a richly appointed master house—complete with two salons, a dining room, a pantry, a gallery larder, six bedrooms, and an outlying kitchen.

The U.S. Coast Survey Map (Sheet 6, 1878) shows the arrangement of some of these buildings in the 1873-1874 period. Interestingly, no structures occupy the frontage of the property as in 1834; all are set at least as far back as the adjacent Beauregard House, and many extend farther to the rearward. The west side of the property is entered by a carriage road which runs to the front of a row of five small buildings that line the boundary of the estate. These are most likely employee quarters. To the east is a large, centrally placed rectangular building that probably represents the main house. Off its northeast corner is a small structure, probably the kitchen. Some distance to the rear of the master house is a second row of small buildings, arranged east to west across the property. Still farther to the rear and slightly to the northeast is a single large structure backed by a smaller building. In all probability, the rearward structural group represents the sawmill complex.

This basic layout appears again in Chart 76 of the Mississippi River Commission (1874 [Updated and printed in 1893-94]; Figure II-4) which shows the plan of the property in the early 1890s. The main house stands as before, as does the west row of employee quarters. Also present are two structures that are thought to represent the outlying kitchen and one surviving member of the original row of east-west structures. This is the period of the Rhodes' ownership, and the days of the active sawmill have long since passed.

At least a portion of the buildings survived into the twentieth century. A 1924 photograph of the Beauregard House shows a dilapidated frame building located at what would have been the position of the southernmost structure in the west row of employee houses (Torres and Lester 1976: Illustration 9A). It is a simple linear building, oriented north-south, with a central chimney and pitched roof. A 1927 Corps of Engineers' map (Mississippi River-Lake Borgne Levee District, Map 2) of the Chalmette riverfront illustrates a large rectangular structure with its long side oriented toward the river, occupying a position that corresponds closely to the location of the nineteenth-century master house associated with the Battle Ground Sawmill Tract. This same building is visible on a 1933 aerial photograph (Figure II-62), but, unfortunately, no architectural details can be made out. It last appears on a 1953 Corps of Engineers' map (Mississippi River-Lake Borgne Levee District, Sheet 2). The structure presumably was razed soon after that date.

The brick foundations of this building were discovered with a probing rod in 1983 by National Park Service archeologists. The foundations were encountered at the end of a brick-lined carriage road that had been uncovered during archeological compliance tests along a proposed utility corridor for the park unit (p. 293, Chapter 14). This carriage road closely matched a road evident in both 1933 and 1943 aerial photographs (Figures III-62, III-63). It was probably constructed after 1834, for it bears no relationship to the more westerly carriage road illustrated by Zimpel (Figure III-33).

The house foundations, which undoubtedly represent those of the "Saw Mill" master house, are located at 240 ft (73.2 m) from the National Park Service fence line. According to the 1927 Corps of Engineers' map (Mississippi River-Lake Borgne Levee District, Map 2), these once supported a sizable structure that measured 50 by 80 ft (15.2 by 24.4 m). Assuming this building as a known, the positions of associated structures illustrated in the maps from the second half of the nineteenth century can be roughly, though not exactly, placed on the present landscape. Map III-7 illustrates the results of the reconstruction.

The early set of buildings shown in Zimpel's 1834 map (Figure III-33) poses a more difficult problem, for these were destroyed or pulled down before or soon after the more elaborate sawmill complex was constructed; nonetheless, their positions can be approximately estimated with reference to Zimpel's map and the reconstruction of the early nineteenth-century riverfront presented at the beginning of this chapter.

Placement by this method suggests that the locations of the forward pair of buildings would fall just forward of the toe of the present levee. On the other hand, the larger building of the rear group would fall at the position of the National Park Service fence line. The location of the smaller second building, off the northwest corner of the larger building, would lie about 30 ft (9.1 m) north of the fence. The position of the third, the small outlying structure to the northwest, would fall approximately 100 ft (30.5 m) north of the fence line. These estimated positions are illustrated in Map III-7, but they should only be interpreted as rough approximations. No physical clues as to their occurrence were discovered.

Peyroux Property

The next lot downriver was purchased by Mr. Oscar Peyroux in 1832 (pp. 288-289, Chapter 12, Part II, this report). He sold the parcel in 1835 to Constance Peyroux, who in turn sold the property in 1844 to Mrs. Marie Aimie Peyroux, the wife of Mr. Pierre Oscar Peyroux. Eventually in 1853, the tract was purchased by Mr. Michel Martin Villavaso, one of the partners in the Battle Ground Sawmill, and it ceased to exist as a separate property.

Zimpel's 1834 map (Figure III-33) shows only one small structure on the property. The same lone building appears again on the 1878 U.S. Coast Survey Map (Sheet 6), a map which covers the geography of Chalmette in the 1873-1874 time span. This structure disappears from the scene by 1893-1894, when Chart 76 of the Mississippi River Commission was issued (Figure II-4). After the purchase of the property in 1904 by the New Orleans Terminal company, a small residence was constructed in the extreme southeastern corner of the tract (Figure II-12). This later structure continued in existence until it was razed in the early 1960s coincident with the National Park Service acquisition. In the course of a 1983 utility corridor survey (Chapter 14), National Park Service archeologists found a brick pavement immediately in front of the location of this recent residence. The pavement consisted largely of broken yellow brick and was interpreted as a remnant of an entry drive to the residence.

Judging from Zimpel's map, the earlier building would have measured about 20 by 40 ft (6.1 by 12.2 m). Again using Zimpel, it would have been located approximately 300 ft (91.4 m) north of the 1834 levee road and 20 ft (6.1 m) from the west edge of the Peyroux property line. On the 1878 U.S. Coast Survey Map (Sheet 6), it falls roughly 180 ft (54.9 m) south of a prolongation of the rear wall line of the Beauregard House and near the west Peyroux boundary, a placement very close to that indicated by Zimpel. In reference to today's landscape, this map evidence would locate the structure about 60 ft (18.3 m) to the north of the National Park Service fence line (Map III-7). A dark patch of vegetation occurs in this vicinity on both black-and-white and false-color aerial imagery of the park unit (Appendix C). The center of the patch is located within 20 ft (6.1 m) of the west property line and within 80 ft (24.4 m) of the fence line. It is about 80 ft (24.4 m) in length and 30 ft (9.1 m) in width, and it displays an amorphous linear shape (Figure *i-3*). Though it cannot be demonstrated, this patch may mark the former location of the building.

A concentrated scatter of red brick was located with a probing rod to the northeast of the projected position of the Peyroux structure. This brick concentration is situated 160 ft (48.8 m) north of the fence line and 65 ft (19.8 m) west of the Fazendeville Road. The source or meaning of the brick is unknown, for none of the archival or recent maps indicate a structure in this area. It may simply represent relocated debris from Fazendeville.

Fazendeville Tract

The adjacent downriver property from the Peyroux Tract has been designated the Fazendeville Tract in reference to its close association with the African American community of that same name. This property was originally sold to a Mr. Joseph Sauvinet in 1832, but it quickly returned to the hands of Hilaire St. Amand in 1833 (pp. 280-281, 292-294, Chapter 12, Part II, this report). The next person to purchase the property was Louis Bartholemy Chauvin Delery; it is his estate that is illustrated in Zimpel's 1834 map (Figures II-16, III-33). At the time of Mr. Delery's ownership, the tract contained a large six-room residence and at least four outbuildings. The building that Zimpel shows with its long side facing the river probably represents the residence. It would have been situated about 200 ft (61 m) from the Old Levee Road. If placed on today's landscape, it would stand in the vicinity of the southwest corner of the St. Bernard Sewage Treatment Plant (Map III-7). The forward outbuilding, to the southeast of the residence, would fall under the present levee road. Two of the rearward outbuildings would be within the sewage plant tract, and the third would be situated just outside the northwest corner of the plant, between the plant fence and the Interpretive Loop Road.

Delery only held the property a short time; it then passed to Celeste Destrehan, who sold it to Louis St. Amand in 1834 (p. 281, Chapter 12, Part II, this report). Upon Louis St. Amand's death, the property came into the hands of two of his sisters, Felicite and Manette St. Amand. There is no mention that either of these wealthy sisters lived on the property or made any improvements. Eventually, in 1854, Felicite's daughter's husband, Jean Pierre Fazende, a free man of color, purchased the property and, again, there is no indication of his actual residence on the land (pp. 292-294, Chapter 12, Part II, this report). His son, also named Jean Pierre Fazende, subdivided the property in the late 1860s and began selling small lots in the 1870s. d'Hémécourt's map (Figure II-8) of the Chalmette area from 1867 shows that the first of these lots began approximately 730 ft (222.5 m) north of the riverfront of that time.

For the 1873-1874 period, the U.S. Coast Survey Map (1878) shows no subdivisions as in d'Héméncourt's map; it illustrates only two small side-by-side structures, aligned roughly east to west on the property. According to this map, these were located about 115 ft (35 m) behind the Old Levee Road. The same pair also occurs on Chart 76 of the Mississippi River Commission (1874 [Updated and reprinted in 1893-94]; Figure II-4). Unfortunately, no information has come to light on these buildings, and they appear to have been too far south to have been part of the original Fazendeville subdivision marked out on d'Hémécourt's (1867) map.

The Mississippi River Commission map (Figure II-4) does, however, show a fully blossomed Fazendeville to the north of the unknown pair of structures. Twenty-eight separate buildings lined the middle and northern portion of the Fazendeville Road and ditch by the time this map was issued. Further, the map shows two new closely adjacent structures at the southern extremity of the Fazendeville tract at the juncture of the Fazendeville Road and the Old Levee Road (Map III-7). The nature of this second pair also remains unknown.

After the turn of the century, both pairs of buildings mentioned above were lost to levee construction, and a third set of buildings was erected (Mississippi River Commission Chart 76, 1921). These two buildings were also closely adjacent, but these were located at the new junction of the Old Levee Road and the Fazendeville Road. According to the Mississippi River Commission's Chalmette Cemetery Survey of 1927 (Figure II-12), the westernmost building served as a store, the other structure as a residence. By the time the 1933 aerial photograph of Chalmette (Figure III-62) was taken, the store and the residence were gone and only vacant lots survived. The St. Bernard Sewage Treatment Plant was eventually constructed over these empty lots, but the plant stopped short of the Fazendeville core area. Lot 1 of the originally platted Fazendeville subdivision, illustrated by d'Hémécourt in 1867, would be located north of the Interpretive Loop Road about 220 ft (67 m) landward of the plant fence (Map III-7).

Dominguez Estate

The Dominguez Estate occupied a small lot immediately downriver from the Fazendeville tract. It measured only 60 ft (18.3 m) in width and 120 ft (36.6m) in length. The Dominguez family occupied the property until 1867, when it was purchased by Mrs. Clara Bitterwolf (pp. 295-296, Chapter 12, Part II, this report). In 1871, the tract was sold to a Mr. John Smith who, in turn, sold it to Peter Henry Grun in 1878. Four years later, the property was purchased by Mr. John Hager, who opened up a store which became locally known as the "Old Battle Ground Store." Hager's heirs sold the property in 1896, and it was eventually destroyed by the early twentieth-century levee setback.

Zimpel's map (Figure III-33) shows two structures on the property in 1834. The larger and more forward building probably served as the Dominguez residence; the other, slightly behind and to the northwest of the house, possibly served as a kitchen or similar outbuilding. Sheet 6 of the U.S. Coast Survey Map (1878) does not show any buildings on the property, but the Mississippi River Commission's Chart 76 (1874 [Updated and reprinted in 1893-94]) shows two buildings, one at the front of the tract and one a little to the rear (Figure II-4). However, the rearward structure is shown to the northeast; thus the arrangement varies from the portrayal on the earlier Zimpel (1834) map, which locates the second structure to the northwest of the one closest to the river. This change in the relationship of the buildings suggests two possibilities. First, the absence of any buildings in the U.S. Coast Survey Map (1878) may suggest that the original structures associated with the Dominguez ownership were razed and replaced during the late nineteenth century. A second possibility is that the outbuilding configuration was altered. An advertisement for sale dating from 1896 indicates that the forward structure doubled as both a store and a residence (p. 296, Chapter 12, Part II, this report). Further, it suggests that the residential part of this structure contained an internal kitchen rather than a separate outbuilding for cooking. If the forward building had simply been remodeled to accommodate the store and a new-style kitchen, the old kitchen, which was probably separate, may have been torn down. Hence, the outbuilding illustrated on Chart 76 of the Mississippi River Commission (Figure II-4) could represent a more recent structure, possibly the "fine stable" mentioned in the 1896 advertisement for sale (p. 296, Chapter 12, Part II, this report).

The question of what happened between 1834 and the late nineteenth century is, for the most part, academic, for all known structural remains on the property were destroyed by levee construction in the first part of the twentieth century. The forward buildings would now be located beyond the present bank line of the levee; the rear structures would fall under the levee's riverside slope (Map III-7).

Bertrand Tract

The Bertrand tract, the next one-arpent (191.8 ft [58.47 m]) lot downriver, contained no known structures in the first half of the nineteenth century (pp. 297-298, Chapter 12, Part II, this report; Figure II-3). This parcel was received in 1841 by Felicite Orsol at the death of her brother, Louis St. Amand. Felicite had married a free man of color named Antoine Paillet, and she made her residence in St. Landry Parish. There is no indication that she ever lived on her inherited property in Chalmette.

The lot was sold to Juan Fernandez after Felicite Orsol's death in 1869. Fernandez apparently erected structures on the property, for papers associated with the settlement of his wife's estate in 1893 refer to the existence of unspecified buildings and improvements on the tract. The children of Juan Fernandez inherited the property in 1896, and they quickly put the property up for sale. A resident of Plaquemines Parish, Thomas Leo Bertrand, then purchased the land. He in turn sold it in 1903 to L. L. Stanton. In 1904, the New Orleans Terminal Company acquired the property.

Sheet 6 of the U.S. Coast Survey Map (1878) illustrates two buildings on the property. These were located approximately 250 ft (76.2 m) northeast of the Old Levee Road in the eastern two-thirds of the tract, at the rear of a rectangular ditch feature. One structure was located toward the west side of the feature; the other, on the east side. The eastern structure was situated slightly more forward than its neighbor. The enclosing rectangular feature probably represented a series of subsidiary ditches designed to keep the building locations well drained (Map III-7).

The buildings were most likely those constructed by Juan Fernandez. Oddly enough, these structures do not appear in Chart 76 of the Mississippi River Commission (1874 [Updated and reprinted in 1893-94]; Figure II-4). The reason for this absence is not entirely clear, for two buildings set in a similar pattern to that shown in the 1878 U.S. Coast Survey Map also appear on the 1921 issue of Chart 76 of the Mississippi River Commission. The Chalmette Cemetery New Levee Map from 1927 (Figure II-18) labels both structures as residences. The differences between the nineteenth-century pair of structures and the early twentieth set are minor, but the differences are sufficient to raise the question as to whether they are indeed the same houses. For instance, each of the two structures illustrated in the twentieth-century maps appears to exhibit a squarer plan than the more rectangular houses illustrated in the 1878 U.S. Coast Survey Map. Second, the twentieth-century houses seem to lie slightly nearer the river and in closer mutual proximity than the houses illustrated for the Fernandez era (Map III-7).

There are two possible interpretations that can be derived from the available map sources. One, the early twentieth-century structures on the Bertrand Tract were the same structures originally erected by Fernandez. If this were the case, their failure to appear in the 1893-1894 version of the Mississippi River Commission map could simply have resulted from an oversight by the cartographer. Under this scenario, the differences in house plan and location over time might simply reflect differences in map scale and accuracy. The later map sources are of a significantly larger scale and have a much narrower geographical focus than the U.S. Coast Survey of 1878. The second, or alternative, explanation that could account for the differences between the nineteenth- and twentieth-century house pairs would assume that the Fernandez buildings were damaged or razed prior to 1893-94, the date the Mississippi River Commission Map of 1874 was re-issued. If this were the case, the uncertainties about historical continuity would arise because roughly similar building sites were re-utilized for the construction of the new residences that are illustrated in the twentieth-century maps.

No matter the answer, it is worth noting that the specific piece of land occupied by the Fernandez-era structures has not been lost. A short east-west ditch line that corresponds to the north side of the rectangular ditch feature shown on the 1878 U.S. Coast Survey Map is visible on the ground and on recent aerial photography of the park unit (Figure *i-3*). This ditch feature lies 130 ft (39.6 m) north of the present boundary fence. Thus, the remains of the Fernandez structures could potentially survive somewhere between the National Park Service fence line and the historic ditch feature.

Judging from early twentieth-century aerial imagery of the Bertrand Tract, the two residences pictured in the 1927 Chalmette Cemetery New Levee Map (Figure II-18) may have survived well into the World War II era. Two structures, the larger on the west and the smaller on the east, roughly corresponding to the house locations on the New Levee Map, can still be seen in aerial photographs from both 1933 and 1943 (Figure III-54). By 1953, however, one of these structures, the eastern member of the pair, is gone (Corps of Engineers 1953). Sometime in the later 1950s, the last standing house on the Bertrand Tract also disappears. An oblique aerial photograph taken around 1960 shows no surviving houses in the area of the Bertrand Tract (Figure III-69). At this late date, a large barn or shed occupies the approximate location of the former westernmost residence. The structure in the photograph has a corrugated tin roof and plank sides. A tractor is parked at its eastern side, and several cow trails lead off from the shed toward the open fields to the north. What appears to be a fenced, rectangular animal pen is attached to the west side of the barn and extends to the eastern border of the St. Bernard Sewage Treatment Plant. Also, a small frame tool shed sits adjacent and slightly to the southeast of the larger shed.

No above-grade remnants of any of the various structures that once occupied the Bertrand Tract survive today. Test Area 5, which touches the Bertrand Tract on its eastern end, was the focus of subsurface investigations on the south side of the National Park Service fence line (Map III-4), but the archeological tests in this sector encountered only a makeshift brick pavement possibly associated with the early twentieth-century levee road and a concrete feature of recent origin. As postulated earlier (pp. 545-548, Chapter 16), this second feature, a cluster of concrete paving fragments, may have been used as ditch fill by the owners of the barn or shed in order to improve access from their property to the Levee Road.

Cemetery Tracts

The last three subdivisions of the original St. Amand Plantation to occur within the Chalmette Unit will be designated the Cemetery Tracts for purposes of general reference and convenience. The westernmost of these single-arpent (191.8 ft [58.47 m]) properties was acquired in 1833 by Etienne Villavaso, about the same time he purchased his upriver property on the east side of Rodriguez Canal, but Villavaso never made any improvements on this downriver property (pp. 298-299, Chapter 12, Part II, this report).

The lower two properties remained in the hands of the St. Amand brothers or their heirs, Manette St. Amand and Genevieve Quelquejue, until just before the Civil War (p. 298, Chapter 12, Part II, this report). Because her sister lived overseas, Manette St. Amand exercised actual control over the two properties after the death of the brothers. She also managed the larger downriver parcel, beyond the present east wall of the National Cemetery, which contained the St. Amand Plantation headquarters complex.

In 1859, the two upper lots and two-thirds of the lower lot were combined under the ownership of Charles Rixner. However, Rixner held the properties only two years before transferring ownership to the City of New Orleans. Soon thereafter, the consolidated property was divided into two equal parts, and the City donated the lower half of the pair to the United States government for use as a military cemetery. The upriver half came into the hands of the New Orleans Terminal Company in 1904, and was eventually obtained by the National Park Service from the Kaiser Aluminum Corporation in the early 1960s (p. 300, Chapter 12, Part II, this report). Historical features that are known to be associated with this extreme eastern section of the Chalmette Unit are individually described below.

St. Amand Plantation Slave Quarters and Outbuildings

As far as can be determined, the buildings of the Chalmet Plantation never spilled west of the line that was to become the east boundary of the park unit and the National Cemetery. However, three subsidiary buildings and slave quarters associated with the later St. Amand Plantation were contructed beyond this line.

Figure III-69. Oblique aerial photograph from ca. 1960. The view is to the north, showing Fazendeville, the St. Bernard Parish Sewage Treatment Plant, and the adjacent Bertand Tract. Note the large and the small sheds by the Levee Road that occupy the south end of the Bertrand Tract (National Park Service Photograph No. 10-10-023).

Chalmette Unit, Jean Lafitte National Historical Park and Preserve.

The slave quarters were arranged in three neat rows, with seven cabins in each row, extending back from the Old Levee Road (Figures II-3, II-11). These twenty-one cabins occupied an area that measured approximately 520 ft (158.5 m) by 220 ft (67.1 m). Judging from the riverfront loss that has occurred in the National Cemetery area since the first half of the nineteenth century, somewhere around 6 to 9 former cabin sites have been largely or wholly destroyed by levee setbacks and bank erosion. Nonetheless, the remains of the larger portion of the slave quarters area, about 12 to 15 cabins, could possibly survive beneath the present levee road and the southern end of today's National Cemetery (Map III-7).

Located to the north of the slave quarters and to the northwest of the central master-house complex of the St. Amand brothers was a grouping of three large structures. Only one of these, the most southerly, appears on Zimpel's 1834 map (Figure II-3). In view of its position relative to the slave quarters, this may have served as the overseer's home.

By 1837, two additional and even larger buildings had made their appearance (Figure II-11). The greater of these, possibly the "sugar house," was situated to the northeast of the "overseer's residence." The other structure's position was over 200 ft (61 m) more to the west, and it may be the "plantation house" that Yakubik (pp. 298-299, Chapter 12, Part II, this report) mentions as associated with Lot 4 of the St. Amand land partition. Although this latter structure was perhaps not one of the most important residential buildings in the St. Amand complex, it still has major importance as a physical link to the past.

The detailed map produced by d'Hémécourt in 1837 (Figure II-11) of the western portion of the St. Amand Estate indicates the structure in question was located 483 ft (147.2 m) to the north and 323 ft (98.5 m) to the west of another outbuilding situated on the southwest edge of the main St. Amand residential complex. From a second and later map, d'Hémécourt 1867, the location of the outbuilding in the residential complex relative to the location of the main St. Amand dwelling can be determined. This map "bridge" is important because the various archival maps exhibit little continuity in the buildings they choose to illustrate.

By the time that Chart 76 of the Mississippi River Commission was issued in 1893-1894, most of the original buildings in the St. Amand residential complex had ceased to exist. Only the main house and a neighboring outbuilding are illustrated (Figure II-4). However, an isolated structure is evident to the northwest, along a road that runs parallel to the west wall of the National Cemetery. This structure is located 602 ft (183.5 m) to the west and 344 ft (104.9 m) to the north of the surviving St. Amand main house. These distances correspond almost exactly to those measurements calculated from the earlier maps for the position of the most northwesterly structure in the original St. Amand Estate. This correspondence strongly suggests that the building shown immediately west of the National Cemetery wall in the 1874 Mississippi River Commission map (as updated and reprinted in 1893-94) is the same building. By using the rear boundary of the old cemetery as a known, the location of this structure can be placed on today's landscape. The projected position would be 1570 ft (478.5 m) south of the old north boundary of the National Cemetery and 50 ft (15.2 m) west of the present cemetery wall (Map III-7).

During a search for the remains of a Civil War powder house (see below), the remnants of a brick foundation were encountered with a probing rod at almost exactly this location. At first, prior to the completion of more refined archival map work, these foundational remnants were thought to represent the Civil War Powder House known to occur in the general area, but this interpretation is no longer favored for the origins of this foundation remnant. Constructed of red brick, this foundation is located 1570 ft (478.5 m) south of the National Cemetery's old north boundary and 57.4 ft (17.5 m) west of its present west wall. This degree of correspondence with the projected position of the most northwesterly of the St. Amand buildings appears too great to be coincidental (Figure II-11; Map III-7). The foundation measures 26 by 26 ft (7.9 m by 7.9 m), and its river side is positioned 430 ft (131.1 m) north of the National Park Service fence line. The discovery of this building not only allows for more accurate placement of the northwestern grouping of St. Amand structures, it also lends additional support to the general riverfront reconstruction presented in this report.

The Confederate Earthworks

In 1861, the Confederates began construction on a series of earthworks designed to provide New Orleans with an inner line of defense against Union attack (Greene 1985:155-156). One of these defensive works was erected at the downriver end of the St. Amand Plantation along the future east boundary of the National Cemetery (Figure I-11). This fortification stretched a total distance of

2170 yd (1984.2 m) from the Mississippi River to the wooded swamp. Constructed in accordance with the basic rules of military engineering, it curved in the shape of a great bow across the landscape. Unlike Jackson's straight and continuous line of forty-six years before, the Confederate line was broken by two major sally ports and numerous zigzagging, salient angles (Figures I-12, III-62).

A few hundred men stationed behind the Chalmette earthworks briefly resisted Admiral Farragut's advance up the Mississippi River in the spring of 1862, but they quickly withdrew after their heavy artillery ran out of ammunition (Greene 1985:160-161). The engagement resulted in only two Confederate casualties, and it did little to stop Farragut's ships.

After the capture of New Orleans, Union troops were garrisoned at Chalmette, and elaborate plans were drawn up to improve the existing defensive works. However, these plans were never carried out (1985:162). In 1865, the Confederate entrenchments were abandoned.

The southern sally port and a section of rampart near the river was razed by 1868 to make way for the landscaping of the National Cemetery. The greater bulk of the line, however, survived until the 1950s and 1960s when residential development, together with the digging of the Kaiser Aluminum Plant slag ponds, led to the complete destruction of the line (1985:167).

Only two segments of the Confederate earthworks ever entered the area that was to be designated the National Cemetery (Map III-7). The southern sally port was one of these segments. The apex of the inverted "V" that formed this sally port was located 130 ft (39.6 m) north of the old north rear boundary of the cemetery and about 20 ft (6.1 m) west of its east wall (Palfrey 1864; Pilié 1867). The southern wing of this sally port entered the cemetery 200 ft (61 m) south of the rear border, and the northern wing exited approximately 450 ft (137.2 m) farther to the north. The rampart at the sally ports, including gun platforms, reached a maximum width of 66 ft (20.1 m) and a height of 8 ft (2.4 m) (Palfrey 1864). The fortification ditch associated with the southern sally port was 43 ft (13.1 m) in width and 6 ft (1.8 m) in depth.

The second section of the earthworks to intrude upon the grounds that were to become the National Cemetery entered 220 ft (67 m) south of the old south boundary of the cemetery and, after a quick zigzag, followed a straight diagonal line to within 180 ft (54.9 m) of the Old Levee Road (Palfrey 1864; Pilié 1867; Map III-7). At the very most, only a few feet of the last part of the diagonal would now fall south of the present cemetery fence line.

The rampart in this southern segment of the Confederate earthworks, including banquette, measured 32 ft (9.8 m) in width and 8 ft (2.4 m) in height. The associated ditch was 38 ft (11.6 m) in width and 7 ft (2.1 m) in depth (Palfrey 1864). No visible signs of either the sally port or the southern section of rampart are evident today. Nonetheless, it is possible that the ditch and the extreme lower basal element of the earthworks survive as buried soil anomalies within the confines of the National Cemetery. Because the earthworks barely extended beyond the position now occupied by the southern fence line of the cemetery, the chances of finding preserved archeological remnants beyond this line are extremely low.

Civil War Powder Magazine

The Confederate Army constructed a large fire-proof powder magazine immediately to the rear of the earthworks at Chalmette. The magazine was a substantial structure of brick that received its supplies of heavy ammunition by means of a small railroad track that ran to the bank of the Mississippi River (Greene 1985:157). According to Bell's cemetery map of 1872 (Figure III-59), this structure was located 1716 ft (523 m) south of the rear boundary line of the original National Cemetery and 545 ft (166 m) north of the Old Levee Road. As portrayed by Bell (1872), the powder house measured 80 ft (24.4 m) east to west and 90 ft (27.4 m) from north to south. The east wall of the structure stood 90 ft (27.4 m) to the west of the west wall of the National Cemetery (Map III-7). No detailed description of this building has come to light, but the manner in which Bell (1872) shaded the plan of the structure suggests that it had a pitched roof. Other than Bell (1872), no other map maker of the period chose to illustrate this feature. A cursory search with a "plumber's probe" revealed no verifiable archeological signs of this Civil War era structure.

Chalmette National Cemetery

The Chalmette National Cemetery was initially laid out in 1864 (Greene 1985:262). During the first phase of landscaping, part of the Confederate earthworks was leveled, and the existing buildings on the property, most likely the northwestern group of St. Amand outbuildings, were demolished (Greene 1985:262). This original cemetery was not as long as the one today, and its riverside front was set well back from the river, at a distance of 921 ft 8 in (281 m) from the Old Levee Road as measured along a prolongation of the cemetery's east boundary (Figure III-59). From end to end, the first cemetery measured 1500 ft (457.2 m). Referenced in terms of current features, the south end would fall 592 ft (180.4 m) from southwest corner of the present cemetery (Map III-7).

By 1868, the cemetery contained the burials of 11,309 United States soldiers (1985:265). These burials were arranged in neat square burial sections separated by a grid pattern of shell pathways. At the south end of the cemetery, to the east of a gateway arch, stood the superintendent's residential complex (Figure III-59; Map III-7). It included a handsome brick house, a kitchen, a cistern, and stables (Pilié 1867; Greene 1985:264-270).

Improvements continued with the years. In late 1873, the brick walls of the east and west boundaries of the cemetery were added (Greene 1985:269). Later, in 1882, the Grand Army of the Republic (G.A.R.) erected a large stone monument dedicated to the Union dead. This was originally placed at the center of the main pathway through the cemetery, but in 1956 it was moved to its present location in the turn-around circle at the extreme south end of the cemetery (1985:280).

The 1880s saw the construction of a new superintendent's headquarters near the Old Levee Road at the southeast corner of the cemetery property (1985:273). This headquarters complex consisted of a two-story brick residence measuring 20 by 52 ft (6.1 by 15.8 m), entirely surrounded by a low porch 10 ft (3 m) in width. Just north of the superintendent's lodge was a separate brick building, which housed the dining room and kitchen; to the east of the kitchen stood a combined stable and tool shed of frame construction. Still farther north was a brick rostrum built with Greek-style columns that measured 20 by 30 ft (6.1 by 9.1 m).

The 1890s were also a period of major change (Map III-7). In 1892, the cemetery was expanded 150 ft (45.7 m) beyond what is now its southeast corner (1985:278). The old wrought-iron fence that guarded the original cemetery was removed and reset at the new south end, and the brick flanking walls of the cemetery were lengthened to enclose the expanded grounds. Also, a new brick building was erected in 1897 to replace the frame stable. This structure was to serve as a stable, carriage house, tool room, and water closet (1985:278). It was L-shaped in plan, and the main leg measured 30 by 50 ft (by 9.1 by 16.2 m); the small leg of the "L" measured 16 ft by 19 ft (4.8 m by 5.8 m).

In 1928, a major levee setback cut the cemetery back to its present length (p. 279). As a consequence, 401 Union burials were removed from the southwestern corner, opposite the superintendent's headquarters, and placed in a mass grave located on the east side of the cemetery 640 ft (195.1 m) to the north of the current south corner of the National Cemetery. No burials are known to have been left behind. At the same time, the superintendent's residence and kitchen were razed and destroyed (Figure II-18).

If anything substantial were left of these razed residential buildings, the remnants would be located under the landward toe of the levee, forward of the east side of the cemetery (Map III-7). During periods of low water, scattered brick and a damaged and tumbled section of the circular brick flagpole base that once stood in front of the 1890s residence are visible amongst the tangled vegetation that lines the river bank below the cemetery.

The L-shaped brick stable (minus its south end, which was razed) and the rostrum survived into the 1950s (National Park Service 1953). The stable once stood at what is now the extreme southeastern corner of the cemetery. The rostrum was located to the northeast, 140 ft (42.7 m) behind the south wall. Both structures were apparently demolished in the late 1950s.

Freedmen's Cemetery Tract

During the early part of the Civil War, the tract that eventually emerged as the Chalmette National Cemetery received informal use as a burial place for freed slaves and other African American hospital patients as well as Union and Confederate troops (Greene 1985:262). Scattered civilian internments continued into 1867, when this practice was forbidden. In 1868, the bodies of nearly 7,000 African Americans were exhumed and reburied on the adjacent property to the west (Greene 1985:265). This new cemetery was established by the Freedmen's Bureau (p. 300, Chapter 12, Part II, this report).

The south end of the Freedmen's Cemetery formed a continuous line with the southern limits of the original National Cemetery (Bell 1872). Its far border, however, did not extend the same distance to the north (Figure II-18). The Freedmen's Cemetery measured only 604 ft 6 in (184.3 m) in length, as compared to the 1500 ft (457.3 m) taken up by the National Cemetery. Its south end was situated 800 ft (243.8 m) from the Old Levee Road, and, according to Bell (1872), the graves were concentrated in a grid pattern toward the south-central portion of the cemetery plot. These graves covered an area approximately 250 ft (76.2 m) in length and width.

The Freedmen's Cemetery apparently received little care after 1872, for the 1893-1894 edition of Chart 76 of the Mississippi River Commission made no attempt to illustrate its presence. Today, there are no readily visible signs of the cemetery's presence. In fact, the eastern section of the National Park Service's Interpretive Loop Road runs over it.

The south end of the Freedmen's Cemetery would now be located 576 ft (175.6 m) north of the southwest corner of the National Cemetery. As illustrated by Bell (1872), the main concentration of graves would begin another 145 ft (44.2 m) beyond this point (Figure II-18; Map III-7).

Structures of Unknown Association

The U.S. Coast Survey Map (Sheet 6, 1878) shows three structures situated near the south end of the land parcel that contained the Freedmen's Cemetery. On this map, two of the buildings occur on the west side of the property approximately 190 ft (58 m) from the Old Levee Road. The second building of the pair stands slightly behind and to the northeast of the first. The third structure lies directly opposite, close to the east boundary of the property (Map III-7).

The two buildings on the west side of the tract reappear on Chart 76 of the Mississippi River Commission (1874 [Updated and reprinted in 1893-94]), but the third structure, on the east, drops from the scene. By the time Chart 76 is reissued in 1921, all the buildings are gone.

The origin and nature of these buildings remain a mystery. In the latter part of the nineteenth century, this property was owned by the City of New Orleans rather than by a private citizen (pp. 299-300, Chapter 12, Part II, this report). It is possible that they were associated with the adjacent National Cemetery. The cemetery superintendent complained in 1874 that his house had become unfit for habitation (Greene 1985:272). Temporary quarters may have been erected on this neighboring property while he awaited construction of the new brick residence at the south end of the National Cemetery. This latter residence was not constructed until the 1880s. Another possibility is that these structures were connected with the care and maintenance of the Freedmen's Cemetery located in the same tract to the north.

If these buildings were placed on today's landscape, with the rear of the old National Cemetery as a geographical reference, they would all be located within 100 ft (30.5 m) of the National Park Service fence line (Map III-7).

CHAPTER 18

MAGNETIC SURVEY RESULTS AND INTERPRETATION

Ted Birkedal

Introduction

Although much progress has been made in the last fifty years, the archeological interpretation of magnetic anomalies remains more an art than a science. This situation is largely a product of the complexity of factors that influence the expression (i.e., signatures) of magnetic anomalies. Among the more important of these factors are the geometry of the anomalous source, the depth and size of the source, the magnetic noise level of the soil environment, the orientation of the source relative to the earth's magnetic field, the amount of remnant and/or induced magnetization possessed by the source, the magnetization contrast between the source and the surrounding soil, the precision of instrumentation, the direction and spacing of the survey traverses, and the extraneous effect of such modern features as buildings, roads, fences, pipelines, power lines, etc. (Breiner 1973; von Frese 1984:4-7). All these factors, and more, conspire against the discovery of comparable regularities in signature expression that would aid in the systematic classification, identification, and interpretation of magnetic anomalies. What is particularly frustrating is that seemingly identical sources can produce strikingly divergent signatures, even when methodological variables are held in tight control. Soil artifacts (i.e., hearths, trenches) are especially problematical in this regard, and features of the same type may frequently display extreme intra-site as well as inter-site variability (von Frese 1984:7).

In spite of the above cautionary statements, some commonly valid associations between source types and magnetic anomalies have been established over the years. These associations at least provide a certain degree of general guidance for the archeological interpretation of anomalies, and they are summarized below.

Monopole Anomalies

Anomalies of this general type are characterized by single-peak (high or low) signatures that usually exhibit radically symmetric amplitudes (von Frese 1984:6; von Frese and Noble 1984:42). Monopoles frequently indicate the presence of wells, deep pits, or similar features. Deep wells are most often linked to monopoles with long wavelengths; pits tend to produce smaller wavelength and amplitude monopoles.

Dipole Anomalies

These anomalies are typified by double-peaked signatures, one of high value, the other of low value (von Frese 1984:5-6). One peak is usually smaller than the other. Iron artifacts are typically recognized as sharp dipoles of "large relative amplitude and compact spatial geometry" (Weymouth and Woods 1984:21). In addition, dipoles associated with iron objects tend to have random orientations. Dipoles are also connected with shallower pits and baked clay features: for example,hearths, bricks, roof tiles, etc. (von Frese and Noble 1984:51). However, the dipoles associated with the latter feature types normally exhibit broader spatial geometries and weaker amplitudes. Further, the smaller peak will usually be located to the north of the larger peak (von Frese 1984:8).

Linear Anomalies

Anomalies of this general class are characterized by weak dipolarity; small peaks; and elongated, highly elliptical shapes (von Frese 1984:6; von Frese and Noble 1984:43). They are normally produced by cylinder-like sources with horizontal orientations. Wall trenches, stockade trenches, and ditches are often indicated by linear magnetic anomalies (von Frese 1984:6).

Linear Trends

Ditches and structural trenches are sometimes marked by linear trends of weak, discontiguous anomalies that tend to exhibit relatively short wavelengths (von Frese and Noble 1984:45). Trends of this type appear to be a product of any one, or a combination, of the following factors: high magnetic noise levels adjacent to linear buried features, differential vertical relief along the bottoms of linear features, or magnetic variations in the sediments contained in linear features (von Frese and Noble 1984:45). It should be mentioned here that pipelines also produce linear trends, but in these trends the dipoles are usually sharp and of high amplitude (Breiner 1973:44).

The set of source-anomaly associations listed above provides important clues that can be put to effective use in the archeological interpretation of magnetic data. Nonetheless, it must be emphasized that these associations provide only general guidance; recognition of the various signature types is usually much more difficult in the world of "live data." Archeological sites as subjects of investigation are noted for their degree of magnetic complexity; historical archeological sites, with their diversity and quantity of cultural clutter, usually present a bewildering array of subtle anomaly variations (Breiner 1973:47; von Frese 1984:18). The bottom line is that magnetic surveys do not provide a magic window into the past. As with any remote sensing technique, successful and reliable interpretation ultimately depends on the availability of other data sources. At historical sites, archival data may serve as a very helpful aid to interpretation, for the projected locations of historically known features may show spatial correlation with certain anomaly types. Detailed soil survey information can be similarly useful, but only archeological excavation can supply the critical ground-truth data that is capable of revealing the actual pattern of source-anomaly associations that prevail at a particular study site (von Frese 1984:18). It is a truism that the interpretive value of magnetic data increases with the size of the excavation sample. As a consequence, the ideal application of magnetic reconnaissance is in long-term programs of research where there can be continued and extended feedback between the results of magnetic survey and excavation (von Frese and Noble 1984:51-52). Ideals, however, are seldom realized, and this is the case with the Chalmette reconnaissance.

As brought out in the earlier chapter on methodology (Chapter 15), the objectives of the magnetic survey were twofold: (1) to provide in-field guidance that would optimize the placement of test excavations, and (2) to locate historical features that could not be addressed by excavation through the discovery of geographical match-ups between historical projections and anomalies. Only limited success was achieved in meeting the first objective. Although the field crew devoted many long nights to the rapid generation of hand-drafted contour maps that could be used in daily decision making, the interplay of several factors constrained the immediate utility of the magnetic data. The most important of these was the lack of a sufficiently precise historical geography of the study area. The earlier discovery of the Rodriguez Estate ruins allowed for some degree of orientation, but at the time fieldwork began, the relationship of these structural remains to the locations of other historical features was only generally understood. The hope had been to find Battery 3 as soon as possible and use it as a key reference point that would reduce the search zones for the discovery of additional features. This expectation, of course, was not realized. Other factors that hampered the initial testing effort included the profusion and variety of magnetic anomalies that were encountered, the unexpectedly severe interference caused by modern features and recent debris, and the sheer size of the study areas. The net effect of these factors was to offer the investigators numerous choices, but little clear-cut guidance as to where to profitably put their tests. Not all the possibilities could be pursued, and some that were, turned up little of interest. For example, work on Test Area 1 was begun in order to ground-truth a linear anomaly that tantalizingly matched expectations for the magnetic signature of Battery 3. The actual source of this anomaly was later determined to be a nondescript, lozenge-shaped trash deposit with a relatively high ferrous metal content.

It would be wrong, however, to claim that the magnetometer survey results provided no helpful in-field guidance. Preliminary field data indicated the presence of the ruins of the Villavaso main house and an adjacent outbuilding within a few days of the start of the survey. Further, the early data returns oriented the testing team away from areas of high modern disturbance that were not visible from the surface. Additionally, as experience in reading the signatures was gained, the magnetometer readings helped the crew avoid profitless commitments of labor at locations where low magnetic activity supported expectations predicted by the known historical record. Thus, although the magnetic field data proved a poor guide as to where to dig, it did eventually prove somewhat successful as a guide to where not to dig.

Greater success was met in the achievement of the second goal of the magnetic survey. Support for the physical presence of a number of projected historical features was provided after careful post-field analysis of the acquired data. However, realization of this success did not become possible until a more refined and detailed historical geography of the Chalmette Unit had been laboriously pieced together from independent archival and archeological data. When the magnetic data was again examined at the completion of this more exacting reconstruction, several anomaly configurations became meaningful for the first time and, together with the correlations noted previously for the Villavaso Estate, upheld the overall findings of the riverfront assessment.

Post-field interpretation was almost exclusively based on the computer-generated contour maps produced by the Tennessee Valley Authority's Mapping Services Branch. These plots did not differ in substance from the hand-drafted maps, but their tri-color format and fine line control made them much easier to analyze. To facilitate varying interpretive needs, plots were produced at different scales and contour intervals. The maps that were used are as follows:

(1) Blocks 1-41, including Blocks 102 and 103; 20 gamma contour interval; 1 cm=4 m (Magnetic Contour Map III-1).

(2) Blocks 46-65, including Blocks 73, 74, and 75; 20 gamma contour interval; 1 cm=4 m (Magnetic Contour Map III-2 [exclusive of Blocks 73, 74, and 75]).

(3) Blocks 1-8, including Blocks 102 and 103; 20 gamma contour interval; 1 cm=2 m (combined with Blocks 9-15 in Magnetic Contour Map III-3).

(4) Blocks 49-59; 20 gamma contour interval; 1 cm=2 m (Magnetic Contour Map III-4).

(5) Blocks 9-15; 20 gamma contour interval; 1 cm=2 m (Magnetic Contour Map III-5).

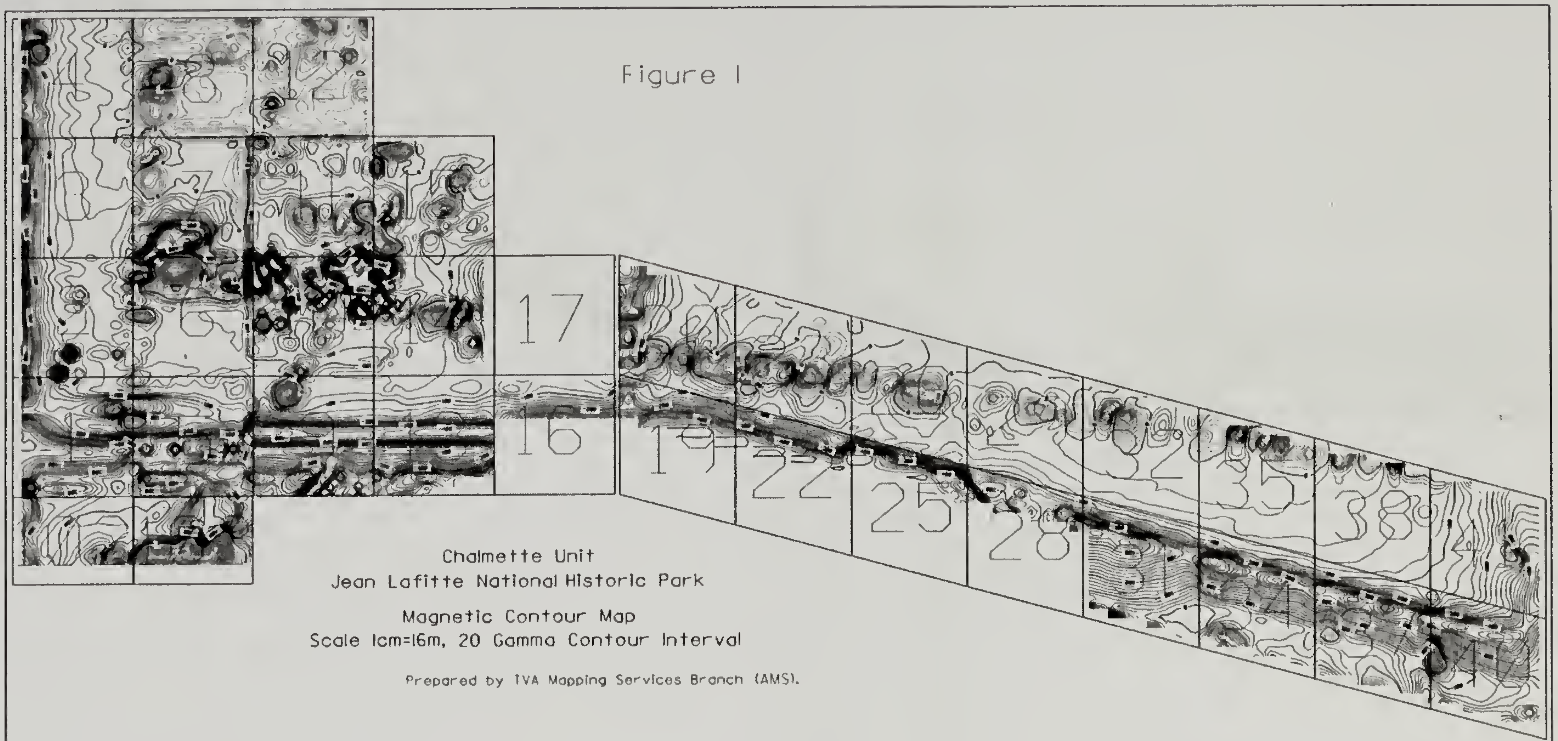
(6) Blocks 1-15, including Blocks 102 and 103; 10 gamma contour interval; 1 cm=2 m (Magnetic Contour Map III-6 [sample only, Block 8]).

(7) Blocks 49-65, including Blocks 73 and 74; 10 gamma contour interval; 1 cm=2 m (not illustrated).

Magnetic Contour Map III-1. General magnetic contour map of Grids 1-41, Chalmette Unit, Jean Lafitte National Historical Park and Preserve.

Prepared under the direction of Kenneth Holmquist by the Tennessee Valley Authority Mapping Services Branch (AMS). Original color map has been converted to an enhanced grayscale format for purposes of illustration.

Figure I



Chalmette Unit
Jean Lafitte National Historic Park

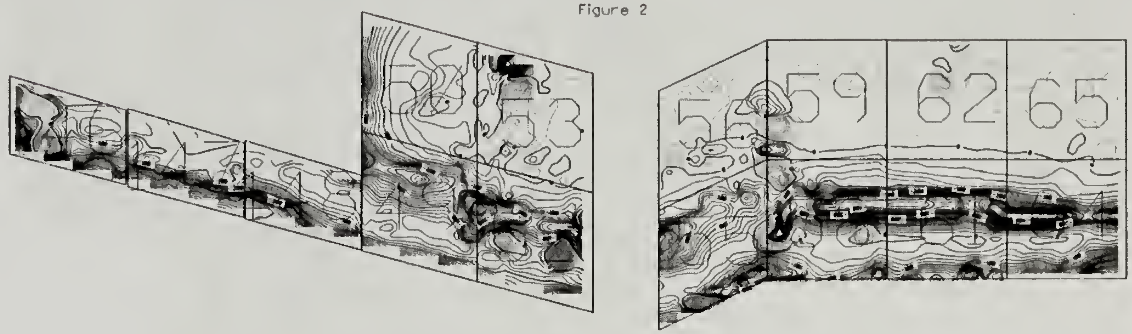
Magnetic Contour Map
Scale 1cm=16m, 20 Gamma Contour Interval

Prepared by TVA Mapping Services Branch (AMS).

Magnetic Contour Map III-2. General magnetic contour map of Grids 47-65, Chalmette Unit, Jean Lafitte National Historical Park and Preserve.

Prepared under the direction of Kenneth Holmquist by the Tennessee Valley Authority Mapping Services Branch (AMS). Original color map has been converted to an enhanced grayscale format for purposes of illustration.

Figure 2



Chalmette Unit
Jean Lafitte National Historic Park

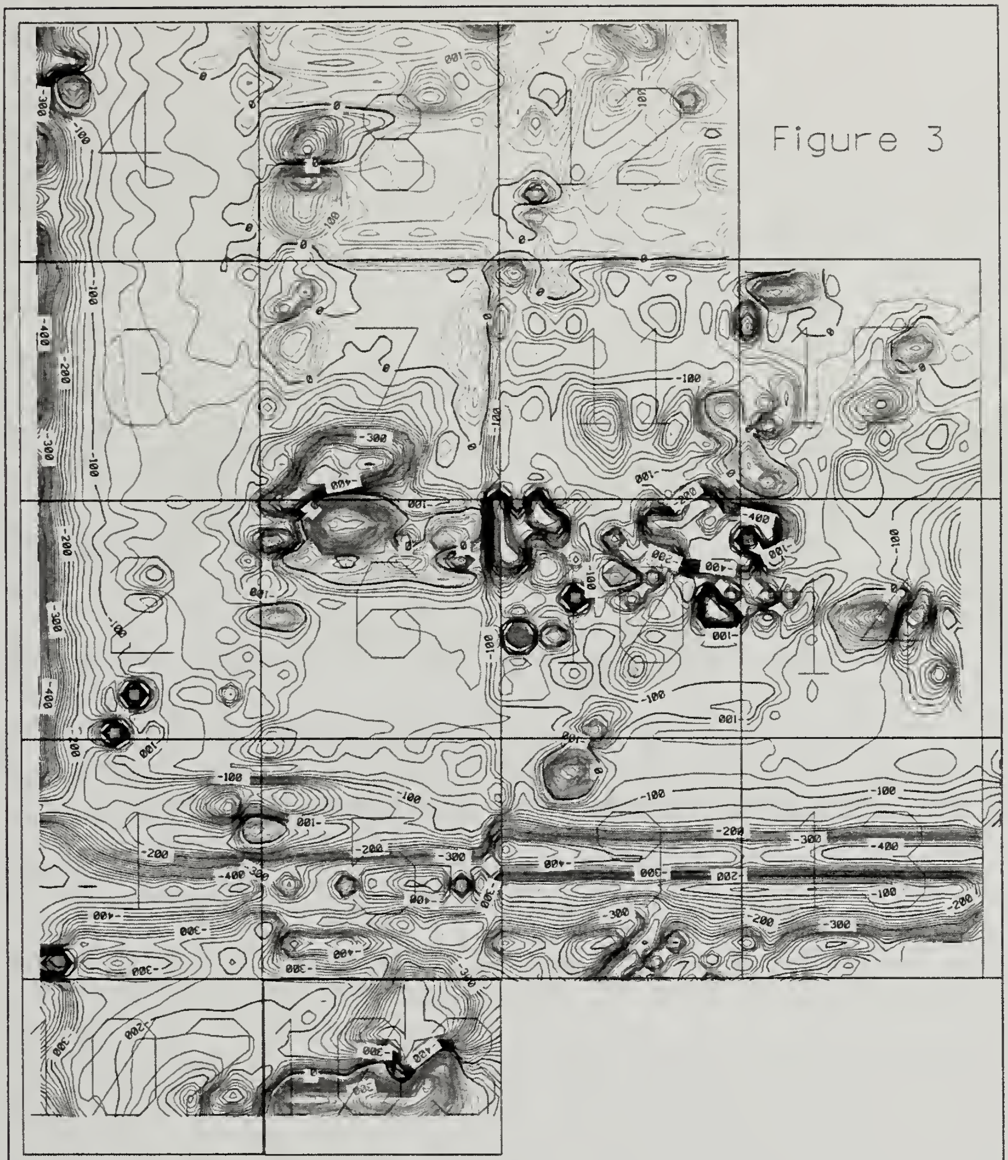
Magnetic Contour Map
Scale 1cm=16m, 20 Gamma Contour Interval

Prepared by TVA Mapping Services Branch (AMS).

Magnetic Contour Map III-3. Detailed magnetic contour map of Grids 4-15 and Grids 102-103, Chalmette Unit, Jean Lafitte National Historical Park and Preserve.

Prepared under the direction of Kenneth Holmquist by the Tennessee Valley Authority Mapping Services Branch (AMS). Original color map has been converted to an enhanced grayscale format for purposes of illustration.

Figure 3



Chalmette Unit
Jean Lafitte National Historic Park

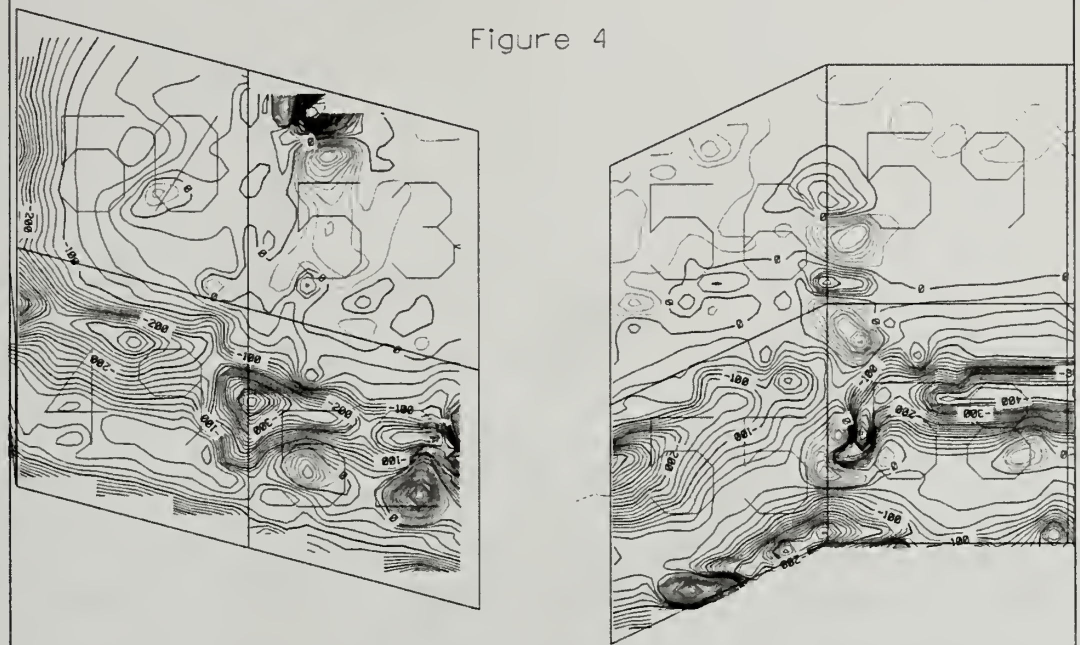
Magnetic Contour Map
Scale 1cm=8m, 20 Gamma Contour Interval

Prepared by TVA Mapping Services Branch (AMS).

Magnetic Contour Map III-4. Detailed magnetic contour map of
Grids 49-59, Chalmette Unit, Jean Lafitte National Historical Park and Preserve.

Prepared under the direction of Kenneth Holmquist by the Tennessee Valley Authority Mapping Services Branch (AMS). Original color map has been converted to an enhanced grayscale format for purposes of illustration.

Figure 4



Chalmette Unit
Jean Lafitte National Historic Park

Magnetic Contour Map
Scale 1cm=8m, 20 Gamma Contour Interval

Prepared by TVA Mapping Services Branch (AMS).

Magnetic Contour Map III-5. Detailed magnetic contour map of Grids 12-15, Chalmette Unit, Jean Lafitte National Historical Park and Preserve.

Prepared under the direction of Kenneth Holmquist by the Tennessee Valley Authority Mapping Services Branch (AMS). Original color map has been converted to an enhanced grayscale format for purposes of illustration.

Figure 5

Chalmette Unit
Jean Lafitte National Historic Park

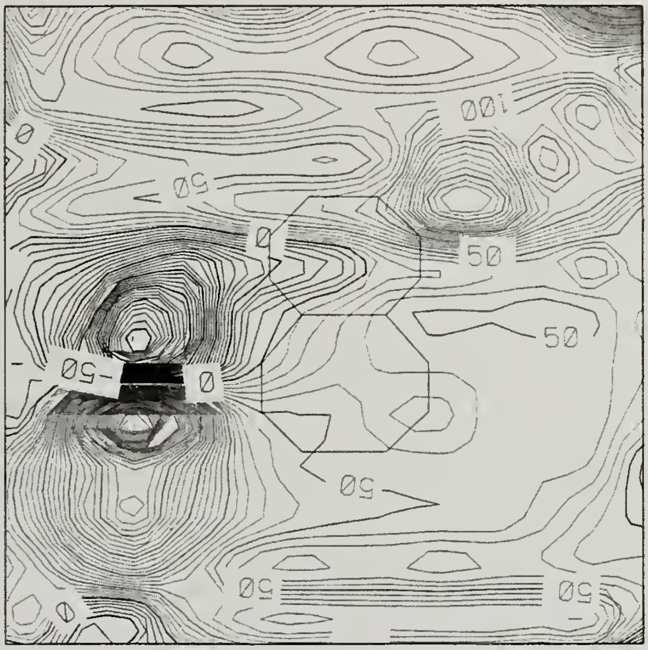
Magnetic Contour Map
Scale 1cm=6m, 20 Gamma Contour Interval

Prepared by TVA Mapping Services Branch (AMS).

Magnetic Contour Map III-6. Detailed magnetic contour map of Grid 8, Chalmette Unit, Jean Lafitte National Historical Park and Preserve.

Prepared under the direction of Kenneth Holmquist by the Tennessee Valley Authority Mapping Services Branch (AMS). Original color map has been converted to an enhanced grayscale format for purposes of illustration.

Figure 6



Chalmette Unit
Jean Lafitte National Historic Park

Magnetic Contour Map
Scale : 1cm=3m, 20 Gamma Contour Interval

Prepared by TVA Mapping Services Branch (AMS).

Comparison of the 10 gamma and 20 gamma plots failed to reveal any striking differences in the portrayal of the basic anomaly patterns.[1] The differences that did manifest themselves were more a matter of degree than kind (e.g., compare Block 8 as it appears in Magnetic Contour Maps III-3 and III-6). Nonetheless, the 10 gamma plots were the preferred interpretive tool, for these provided a clearer resolution of the anomaly configurations, trends, and boundaries. The Tennessee Valley Authority Mapping Services Branch experimented with the production of a few sample plots at 5 gamma contour intervals, but Kenneth Holmquist, who directed the computer mapping effort, dropped further production because these plots were extremely "noisy" and appeared to contribute little in the way of reliable additional information.

Magnetic Survey Results

The results of the magnetic survey are presented in convenient study units from west to east across the assessment zone. Locational reference is provided by means of the grid system described in Chapter 15, "Magnetic Survey Methodology" (Map III-2; Magnetic Contour Maps III-1, III-2). The fundamental unit of the grid system is a numbered block measuring 25 m (82 ft) on a side.

No attempt has been made to address every possible anomaly. The analysis is admittedly selective and concerns itself only with those anomalies that are identifiable or are otherwise of interest. In the original magnetometer contour maps positive magnetic values were indicated by green, negative values by blue, and neutral values by red. In the maps that accompany this chapter these values have been reproduced in a simpler, enhanced grayscale format.

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1 Twenty gamma contour plots were chosen for five of the six maps included in this chapter. Plots with this contour interval were less "busy" and thus remained more readable after reduction than the 10 gamma plots. The only exception is Magnetic Contour Map III-6, which is actually a sample illustration of a 10 gamma plot, although it is labeled on the figure as being a 20 gamma plot. For purposes of illustration, all the magnetic contour maps presented in this report are reproduced in an enhanced grayscale format and at smaller scales than the maps used in the actual magnetic anomaly analysis.

Section A
(Blocks 1-18)

Anomaly A.1

An intense series of linear anomalies, characterized by extremely high negative values, runs along the west boundaries of Blocks 1, 2, 3, and 4 and then turns eastward to form an L shape as it passes across Blocks 5, 9, and 13 (Magnetic Contour Maps III-1, III-3). This anomaly series represents the prominent magnetic influence of the chain-link fence that borders the Chalmette Unit in this sector of the park unit. Although no magnetic readings were taken within 3 m of the features, its magnetic effect is nearly overwhelming.

Anomaly A.2

The contorted, high-intensity dipole located in the northwest corner of Block 4 is most likely produced by a small buried drainage culvert that is no longer operative (Magnetic Contour Map III-3). Culverts of this type provided drainage from a narrow collecting trench that once ran along the extreme west boundary in the first decades after the park unit's establishment.

Anomaly A.3

The intense magnetic effect of a large recent culvert dominates Block 103 (Magnetic Contour Map III-3). The contorted dipole correlates with the partially exposed north end of the culvert. This feature drains the south end of the re-channeled Rodriguez Canal.

Anomaly A.4

A high-amplitude, compact dipole occupies the extreme southwest corner of Block 1 (Magnetic Contour Map III-3). This anomaly appears to be the product of the buried base of a support cable to a telephone/power pole that stands in this area. The raised lines from this pole head east, roughly along what is the south boundary of Blocks 1 and 2.

Anomaly A.5

This is one of a pair of intense, concentrated dipoles that occupies the south-central portion of Block 2 (Magnetic Contour Map III-3). The origin of this anomaly is not known, but in all likelihood, it indicates the presence of an iron object located close to the surface.

Anomaly A.6

Anomaly A.6 is the other member of the pair of dipoles located in the south-central part of Block 2 (Magnetic Contour Map III-3). This anomaly closely resembles Anomaly A.5 in signature and type. Again, an iron object near the surface probably forms the source.

Anomaly A.7

This is a magnetically intense dipole located in the northeast quadrant of Block 1, adjacent to the Spotts Monument (Magnetic Contour Map III-3). A large metal object is suggested by the configuration and high value of the dipole.

Anomaly A.8

This is actually a linear trend of high-intensity dipoles. It runs along the west edges of Blocks 7 and 8 and then turns eastward, following the north boundary of Block 6 before it drops to a slightly more southerly route in Blocks 10 and 14 (Magnetic Contour Maps III-1, III-3). The trend prominently marks a 6 in sewer line and companion electric line situated at a depth of about 60 cm beneath the surface.

Two other features may also play a role here. A 4 in water line lies closely adjacent to, and parallels, the sewer line in its passage through Blocks 7 and 8. However, after an easterly turn in direction in Block 7, it runs about 5 m north of the sewer-line trench for the rest of its route. The fourth modern feature is a 6 in drain which runs from the Beauregard House to the Rodriguez Canal. It lies between the water line and the sewer line and follows a parallel route. The close combination of all these buried linear features may account for the particularly intense and widespread dipoles evident in the north half of Block 10 and the central portion of Block 14.

Anomaly A.9

The particularly large and high amplitude dipole that dominates the boundary between Blocks 6 and 7 marks the position of a large septic tank located along the aforementioned sewer line (Magnetic Contour Map III-3). This septic tank contains a great deal of metal, including a motorized sewage pump.

Anomaly A.10

A weak monopole depression occupies the southeastern quadrant of Block 8. It is of positive value with long wavelengths and has a roughly subrectangular shape (Magnetic Contour Maps III-3, III-6). The approximate outer limits of the anomaly are defined by a 40 gamma contour line which wraps around a 30 gamma low (Magnetic Contour Map III-6). The feature measures about 10 by 10 m (32.8 by 32.8 ft) and is spatially defined by A35, N80/A35, N90/A48, N90/A48, N80. In short, it roughly corresponds to the area occupied by the southern half of the Battery 3 hole. For purposes of orientation, it might be helpful to point out that the line of parapet palings found during excavation would fall immediately west of the 40 gamma contour line that follows an approximate south-southwest track on the east edge of Block 8. Test Trench A34, N85/A44.5, N85—the main east-west test trench in Test Area 3 (Map III-3; Figure III-15)—passes through the approximate center of this monopolar depression, but stops some 3 m (9.8 ft) short of the magnetic feature's projected eastern limits (as defined by the 40 gamma contour line).

The primary source of this anomaly configuration appears to have been the thick layer of sterile tan sand that was discovered over the cultural deposits in Test Area 3. As was explained in Chapter 16 (pp. 372-376), this sand had been used in the late 1950s to fill in the surviving depression, which at that time still marked the location of Battery 3.

A small, linear high defined by a 50 gamma contour line is visible in the northern portion of the broader anomaly. Even though the test excavations cut through the west end of this magnetic feature, nothing was found that could readily explain its presence. It could be a product of a subtle variation in the occurrence of artifactual debris that went unnoticed during excavation. Artifacts of all types were generally more common in this sector of the excavation.

On its north side, the anomaly associated with the southern half of the Battery 3 hole is bordered by a cluster of three monopoles enclosed by a 100 gamma contour line. The source of this anomaly grouping is unknown.

Anomaly A.11

The northern end of Block 8 is dominated by a relatively weak linear anomaly with a constricted middle (Magnetic Contour Map III-6). The configuration of this anomaly suggests the presence of a trench or similar narrow structural feature, perhaps a walkway of some sort. A structurally related feature is possible since the southeast corner of the Rodriguez master house is located just north of the upper junction of Blocks 4 and 8 (Magnetic Contour Map III-3). In fact, the cut-off, v-shaped anomaly at the west end of the large linear anomaly in the northwest corner of Block 8 may represent part of the magnetic effect of a steel rebar set into this corner of the Rodriguez House. A few meters to the eastward of the main house are the brick ruins of the Creole Cottage, also associated with the Rodriguez Estate. The remnants of this flanking structure are situated no farther than 5 m (16.4 ft) from the north side of Block 8 (Map III-3). Both of these buried structures from the Rodriguez era could be expected to have significant influences on the magnetic readings in the vicinity.

A huge oak tree also occurs in the north half of Block 8 (Map III-3), and its location corresponds to the position of the small elliptical anomaly which lies adjacent to and south of the west end of the large linear anomaly (Magnetic Contour Map III-6). The presence of this tree may have had an influence on the wider anomaly pattern in the north half of Block 8 because it is fitted with a thick lightning cable. Perhaps this cable shows its presence through the cluster of three monopoles enclosed by a 100 gamma contour line that occupies the northeast quadrant of Block 8, but this link between this intense monopole anomaly and the lightning cable is uncertain.

Another modern feature that may have had a skewing effect in Block 8 is the passage of the sewer line (Anomaly A.8) through the west half of the block. Tests conducted during the earlier program of search for the Rodriguez Estate indicate that this sewer line breaks through the southeast corner of the Rodriguez main house. The large dipole in the west half of Block 8 appears to be part of a linear trend associated with this line, and it most likely represents the combined effect of the sewer line and its companion electric line (Magnetic Contour Maps III-3, III-6).

Anomaly A.12

A linear series of dipoles and monopoles continues beyond the "elbow" of the sewer line (Anomaly A.8), along the common borders of Blocks 2 and 6 as well as Blocks 1 and 5 (Magnetic Contour Map III-3). This series is thought to represent the magnetic artifact of the old shell pathway that once led from the levee road to the Chalmette Monument (Map III-3). Earlier tests conducted in the vicinity of the Rodriguez main house indicate that considerable artifactual debris, including nails, had been used to build up the base of this shell pathway. To the north of the sewer-line "elbow," the distinguishable magnetic effect of this feature is lost since it essentially follows the same route as the sewer line as it heads to the National Park Service restroom facility to the north of the Rodriguez main house ruins.

Anomaly A.13

At the base of Block 8 are two parallel tube-shaped anomalies (Magnetic Contour Map III-6). These appear to form an associated pair, and they are probably derivative of the same buried feature. The Chief of Maintenance at Chalmette in 1984, Alvin Williams, had once mentioned that a small storm drain occurred in this vicinity, and the linear anomaly pair may mark its location. The orientation and position of this feature relative to the Rodriguez Canal support this interpretation.

Anomaly A.14

The route of the Rodriguez Canal is indicated by a linear progression of dipoles and monopoles. The northern beginning of this linear trend is marked by a dipole in the northwest quadrant of Block 12 that exhibits a small negative peak paired with a more intense positive peak (Magnetic Contour Map III-3). The negative peak is surrounded by a prominent zero gamma contour line.

The linear trend heads south-southwest to the common juncture of Blocks 7, 8, 11, and 12. Once the trend arrives in Block 7, it begins to lose definition as the influence of other magnetic features come to the fore (for example, the sewer line). The only possible hints of its presence beyond Block 7 include a weak L-shaped anomaly in the east-central portion of Block 6 and a weak negative monopole in the extreme northeast corner of Block 5.

The most likely cause of the trend's near obliteration in Blocks 5 and 6 was the bank-line alteration that took place in association with the rechannelization of the Rodriguez Canal in the late 1950s. The extra fill pushed into the west side of the canal was probably sufficient to disrupt the detectability of the trend.

The greatest source of the trend, as it appears in Block 12, is in all likelihood the ferrous trash that has been thrown into the canal and has accumulated over the years. Soil differences would seem to be only secondary contributors to the pattern.

Anomaly A.15

This is a large, elliptical, linear anomaly of positive value located along the east edge of Block 7 (Magnetic Contour Map III-3). When it was first encountered, its shape, size, and weak amplitude appeared to indicate exactly the type of anomaly that might be produced by the filled hole of Battery 3. Test Area 1 was specifically set up to explore this magnetic feature; Grid A46, N73 was placed over its north end, and the longer trench starting at A32, N67 was positioned to approach the approximate center of the anomaly.

The excavation results soon revealed that the anomaly actually registered a displaced soil and trash deposit. This had apparently been dumped into a natural irregularity in the old bank line of the Rodriguez Canal in the course of landscaping and clean-up activities dating from the last one hundred years. The deposit contained a high density of ferrous items, including nails, large bolts, and fencing wire.

Anomaly A.16

An intense, narrow linear anomaly of largely negative value starts along the common border of Blocks 6 and 7 and then proceeds north following the common border of Blocks 7 and 11 (Magnetic Contour Map III-3). It then swings east and passes along the north edge of Block 11. Occasional dipoles also occur at intervals, primarily near the northeast corner of Block 11.

The north-south part of this anomaly is thought to reflect the dismantled sections of an old hog-wire boundary fence that once ran along the bottom of the Rodriguez Canal during the first half of the twentieth century (Appleman 1938: Photographs 7 and 8). Parts of this fence have been found in other parts of the canal. The eastward trending section of the anomaly may indicate a downed and buried metal fence dating from the twentieth-century use of the Villavaso House. Appleman's 1938 report (Photograph 10) shows a post-and-wire fence that entirely surrounds the immediate environs of the house.

Anomaly A.17

Two positive monopoles, oriented to the south-southwest, stand out in the north-central portion of Block 12 (Magnetic Contour Maps III-3, III-5). The position, orientation, and relative size of these associated anomalies all correspond to an outbuilding projected from the archival record. The outbuilding is associated with the Villavaso Estate and dates from the second quarter of the nineteenth century. Figure III-2 shows a sketch of this small frame structure (possibly a small house for servants) from the period of the Civil War. In the illustration, the building in question is the one with the chimney located to the right of the Rodriguez Canal, immediately beside the picket fence.

The area of the anomaly was examined in the field. A slight mound was found to mark the location, and several penetrations of the ground surface with the aid of a "plumber's probe" revealed the presence of a concentration of buried soft red brick. This brick may be from the foundation or from the chimney base of the structure.

Anomaly A.18

This refers to a compact, positive dipole of high amplitude located toward the east side of the northeast quadrant of Block 12 (Magnetic Contour Map III-5). The anomaly most likely indicates a ferrous object situated close to the surface.

Anomaly A.19

The rear part of the razed ruins of the main house of the Villavaso Estate are indicated by the cluster of negative monopoles in the south-central sector of Block 11 (Magnetic Contour Maps III-3, III-5). These occur in close proximity to the projected location of the historic house (Maps III-3, III-7). Other anomalies near the conjunction of Blocks 10, 11, 14, and 15 may also derive from the house ruins, but these are difficult to distinguish as a consequence of the intense magnetic interference produced by the sewer line, electric line, drain, and water line that pass through the area.

A number of tests with a "plumber's probe" at this location produced evidence of a widespread concentration of soft red brick. Although the Villavaso master house was a frame house built in the Creole-cottage style, it was nevertheless raised on a series of brick piers (Figure III-68).

Anomaly A.20

The short series of dipoles that run diagonally from the south half of Block 10 to the northeast quarter of Block 9 may represent an abandoned water line or drain dating from the twentieth-century use of the Villavaso main house (Magnetic Contour Map III-5). A walkway from the house to the Levee Road also once occurred in this general vicinity, and it followed roughly the same angle as the anomaly because the front of the Villavaso House faced to the south-southwest. It would seem questionable, however, whether the remains of the walkway could account for the intensity of the observed anomaly pattern, but perhaps this linear dipole series registers both the presence of buried utilities as well as walkway remnants.

Anomaly A.21

The highly intense and compact negative dipole located near the center of the west border of Block 10 represents the position of a heavy metal cap (242 gm) from a piece of machinery (Magnetic Contour Map III-5). This object was located only centimeters from the surface of the ground (see page 666, Chapter 20).

Anomaly A.22

The prominent, but weak, negative monopole located in the northeast quadrant of Block 11 (Magnetic Contour Map III-5) closely resembles the type of anomaly that is typically associated with deep vertical soil features such as wells or deep pits (von Frese 1984:6; von Frese and Noble 1984:43).

The adjacent Beauregard House historically possessed both a cistern and a well. The cistern was located just behind the northwest corner of the house; the well was farther removed, at a position approximately 30 m (98.4 ft) north of the rear center of the house (Torres and Lester 1978: Illustration 4). A National Park Service photograph from ca. 1938 (National Park Service Photograph 40-20-008) presents a rear view of both the Beauregard and the Villavaso houses, and in this photograph, the cylindrical wooden superstructure of the tall Beauregard cistern is clearly visible, as is a squat cylindrical cistern located immediately adjacent to the center rear of the Villavaso House (Figure III-70). Because cisterns are usually constructed above ground on a stone or brick base, it is unlikely that Anomaly A.22 represents the signature of a former cistern (Barnes 1987). Cisterns in the area usually drew their water from roof run-off.

The best match in terms of both anomaly type and location is between Anomaly A.22 and a small "barrel well" located off the northwest corner of the Villavaso House. Close examination of the above-mentioned photograph (Figure III-70) shows that the well is topped by a short cylindrical wellhead constructed of either concrete or industrial-grade ceramic. The very top of the wellhead cylinder flares out slightly, and what appears to be a small spigot seems to be perched on the rim. "Barrel wells" were popular in the historic past in areas with high water tables and were often used in combination with cisterns so as to ensure more than one source of water (Barnes 1987).

Anomaly A.23

Another weak, negative monopole with a relatively long wavelength occurs in the northwest quadrant of Block 11 (Magnetic Contour Map III-5). A pair of smaller monopoles is situated just to the north. An early National Park Service General Development Plan (1934b) shows a very small structure located immediately to the west of the northwest corner of the Villavaso main house, a location consistent with the position of this anomaly. Figure III-70 shows that the structure is a low, flat-roofed shed constructed of vertical planks.

It should be mentioned in passing that another twentieth-century structure stood beside the Villavaso House. This building, which sat just west of the southwest corner of the main house, was also a simply constructed, low-slung wooden shed, but slightly larger than the one to the rear (National Park Service 1934b). On its east side was a very small attached structure, perhaps a dog house or chicken coop (Figure III-68).

Today, the projected position of this second outbuilding would fall at the approximate location of the intense negative dipole in the northwest corner of Block 10. This dipole is thought to be largely the product of the combined influence of the modern sewer line, drain, water line, and electric line. It is unclear whether or not the remains of the former shed contribute in any significant way to this intense anomaly cluster.

Anomaly A.24

The intense dipole in the northwest corner of Block 15 corresponds to the position of an existing fire hydrant (Magnetic Contour Map III-5). A pair of dipoles on the southern part of the border between Blocks 11 and 15 may indicate the branch water line to this hydrant.

Anomaly A.25

The clustered trend of anomalies, ranging from weak monopoles to a relatively intense dipole, located in the east-central section of Block 15, corresponds to the location of a historic outbuilding of the Villavaso Estate (Magnetic Contour Map III-5). The building stood adjacent to the Villavaso main house and dates from the 1830s (Figure II-3; Map III-7). It probably served as a carriage house, stable, or both.

Anomaly A.26

A relatively weak negative monopole that occupies the far southeastern corner of Block 15 may represent additional remains associated with the historic outbuilding thought to be indicated by Anomaly A.25 (Magnetic Contour Map III-5).

Anomaly A.27

The broad wave pattern emanating from east to west at the east edge of Block 14 represents the adjacent influence of the Beauregard House (Magnetic Contour Map III-5). Block 17 was skipped to avoid this standing structure (Magnetic Contour Map III-1).

Section B
(Blocks 19-48)

Anomaly B.1

The broad front of closely spaced magnetic contours that emerge from the west and occupy the west edge of Block 20 registers the effect of the Beauregard House and a sizable outdoor air conditioning unit associated with the house (Magnetic Contour Map III-1).

Figure III-70. Photograph (National Park Service Photograph No. 40-20-008) dating from the late 1930s of the rear of both the Beauregard House (left) and Villavaso House (right). Note the wooden cistern off the northwest corner of the Beauregard House, the squat cistern adjacent to the center of the Villavaso House, the small cylindrical "barrel well" just off the northwest corner of the Villavaso House, and the low-slung shed on the far right of the photograph.

Chalmette Unit, Jean Lafitte National Historical Park and Preserve.

Anomaly B.2

The string of intense dipoles heading from west to east starting with Block 20 registers the continuation of the sewer line as it makes its way toward the St. Bernard Parish Sewage Treatment Plant (Magnetic Contour Map III-1).

Anomaly B.3

This compact linear anomaly of high negative amplitude runs along the northern edge of Blocks 19 through 40. It registers the position of the Chalmette Unit boundary fence (Magnetic Contour Map III-1).

Anomaly B.4

Two monopolar lows are located north of the sewer line in the northeast quarter of Block 20. The northernmost of the two only extends partially into the block from the north. Together, they appear to form a part of a linear trend. Interestingly, both fall on the approximate alignment of the east boundary ditch to the Beauregard property. It would seem possible that these anomalies have their origin in refuse that has accumulated in the ditch.

This ditch formed the boundary between two intensively occupied properties, the Beauregard Estate and the Battleground Sawmill Tract. Moreover, a row of small employee homes dating from the second quarter of the nineteenth century began just meters to the northeast of Block 20 (Map III-7).

Anomaly B.5

Three monopoles that appear to be unrelated to the sewer line dominate the upper half of Block 23 (Magnetic Contour Map III-1). One is a weak monopolar depression that is discernible in the northwest corner of the block. The other two are located in the northeast quadrant. One of the latter is a weak positive high; the second is stronger and displays a tighter contour grouping.

The actual source of these anomalies is uncertain, but they occur just south of the projected location of a northward-trending row of employee quarters associated with the Battleground Sawmill Tract that apparently dates from the period immediately preceding the Civil War (Map III-7). These small frame houses survived into the twentieth century, and their eventual destruction could have resulted in a scatter of structural debris over a relatively wide area. Alternative or additional contributing sources could include household trash middens or such soil features or refuse pits. Further, it is good to remember that this property was the scene of a large sawmill operation in the first half of the nineteenth century (pp. 287-291, Chapter 12, Part II, this report). Debris and secondary features associated with this commercial operation may also be registered in the anomaly pattern.

Anomaly B.6

Of particular interest is a weak, but sizable, dipole located in the southwest corner of Block 26 (Magnetic Contour Map III-1). This anomaly measures about 10 m (32.8 ft) in length and over 5 m (16.4 ft) in width. What is of interest is that its location corresponds almost exactly to the projected position of a small structure associated with the first phase of construction on the Battleground Saw Mill Tract. This small structure stood immediately to the rear of a larger building that may have housed the actual sawmill (Map III-7). Unfortunately, the area occupied by the larger structure was deleted from the magnetic reconnaissance because interference from modern features was extremely high in Block 25.

Anomaly B.7

There is a noticeable interruption in the usual magnetic effect of the boundary fence at the center top of Block 28 (Magnetic Contour Map III-1). Here, the tight linear pattern typical of the chain link fence is broken by a tight knot of relatively weak dipoles and monopoles. The cause of this interruption is not fully understood, but it occurs just north of the location of a wide utility gate in the fence. However, the gate, which is also of chain link construction, was closed at the time of the survey; thus, it should by all expectations have produced a similar pattern to the regular length of fence. There is also a short overgrown section of a crude asphalt service road at this location, but the presence of this poorly asphalted roadbed would not appear to fully account for the anomaly group.

Another possibility does occur. An old nineteenth-century road that once led to the mid-nineteenth-century master house on the Battleground Sawmill property is located beside the modern utility road (Map III-7). When this buried carriage road was cross sectioned during a 1983 compliance investigation for a utility corridor along the fence, it was found to be lined along both edges by courses of soft red brick. The roadway base between the brick edging contained shell but, more importantly, large numbers of nails and sizable coal clinker deposits that had also apparently been added to firm up and patch the roadbed. Thus, it may well be that this substantial roadway is the primary source of the anomaly group. Additional support for this interpretation is suggested by the three small monopoles located farther to the north in the upper part of the southwest quadrant of Block 29. These adjacent monopoles are located close to the slightly diagonal route known to be taken by the old carriage road. The northward bulge visible in the zero contour line above the sewer line dipole trend also falls on the route of this old roadway. The bulge in question occurs in the upper northwest quadrant of Block 29. Knowledge of the roadway's route is based on early aerial photography and a subsurface exploration that was conducted with a "plumber's probe" (Figure III-62).

From Block 28 to Block 38, there is little apparent magnetic activity except that generated by the sewer line and the boundary fence. This is largely as it should be, for the historical reconstruction of the Chalmette geography predicts no major structures or features for the area lying between the levee and the sewer line (Map III-7).

If its location has been accurately projected, the frontage of the most easterly structure associated with the Battleground Saw Mill Tract would fall at the north juncture of Blocks 32 and 35 (Magnetic Contour Map III-1; Map III-7). No recognizable anomaly that could be attributed to the remains of the southern part of this structure is discernible, but it would be unusual if the magnetic effect of such a building could emerge amongst all the interference produced by the sewer line at the north edges of Blocks 32 and 35.

Anomaly B.8

A symmetrical monopole high occupies the north part of the east border of Block 38 (Magnetic Contour Map III-1). The configuration of the anomaly suggests the presence of a well or a similar deep feature. It is possible that it marks a source associated with a twentieth-century residence that was once located to the south, just east of the northern juncture of Blocks 37 and 40 (Figure III-62; Map III-7).

On the other hand, there is the possibility that it is associated with an earlier occupation; however, the evidence for this latter scenario is somewhat conflicting and obscure. A fairly dense scatter of soft red brick, measuring at least 30 m (98.4 ft) east to west, was found with the aid of a “plumber’s probe” in the southern segments of Blocks 39 and 42, two blocks that did not receive magnetometer coverage. The occurrence of this type of brick suggests the presence of a nineteenth-century structure in the vicinity. The only structure of this age, indicated by the historical record, is a building constructed by the Peyroux family in the 1830s (Map III-7). Unfortunately, the appearance and function of this building remains unknown. To judge from Zimpel’s map (Figure II-3), its location would fall at or close to the north juncture of Blocks 35 and 38, but no clear sign of its presence is apparent against the backdrop of intense sewer-line dipoles that march through this area. Nevertheless, there is a slight increase in magnetic activity that becomes evident in the east half of Block 35 and continues into Block 38. In Magnetic Contour Map III-1, this increase in activity is registered by some distinct bulges in the general pattern of the contour lines as they approach Anomaly B.8. Referral back to the actual magnetic readings on the original hand-drafted maps indicates that these bulges mark low-intensity monopolar depressions.

If these monopoles have an archeological origin and are considered together with the scatter of brick, then a larger and more widespread occupational complex may be indicated for the period of the Peyroux ownership than is suggested by the available historical record. Perhaps the additional structures and features were added after Zimpel conducted his land survey. Only further subsurface exploration can resolve the question.

Anomaly B.9

A large intense dipole occurs along the common border of Blocks 37 and 40 (Magnetic Contour Map III-1). This anomaly may indicate the presence of a water line or other pipeline that served the twentieth-century residence which was once located immediately adjacent to and east of the north juncture of Blocks 37 and 40 (Map III-7; Corps of Engineers 1953). Other than a small monopole high located in the northwestern corner of Block 40 and a barely discernible monopole situated in the west-central portion of Block 41, there are no recognizable magnetic features that might suggest the razed remains of this house unless these remains are actually indicated by Anomaly B.8. However, the combined magnetic effect of the southern boundary fence and the chain-link fence to the east may have played an obscuring role here. Another possibility is that the post-World War II razing effort was very complete and resulted in very little structural debris being left behind.

Anomaly B.10

The intense dipole in the east half of Block 41 probably marks the position of a large ferrous object of possibly recent origin (Magnetic Contour Map III-1). It may date from the twentieth-century occupation of this sector of the Chalmette Unit.

Anomaly B.11

The intense dipoles in the west half of Block 46 correspond to a 12 in pipeline that penetrates the present levee in this area (Magnetic Contour Map III-2).

Anomaly B.12

The linear, compact strings of contour lines that run through the southern parts of Blocks 46, 47, 48, and the other lower blocks in Magnetic Contour Map III-2 register the magnetic effect of materials contained in the present levee, the influence of the overhead power/telephone lines positioned along the rear levee toe, or the combined effect of both these potential sources.

Anomaly B.13

According to the historical reconstruction (pp. 659-660, Chapter 17), the location of the southernmost building associated with the Delery Estate of the 1830s would fall near the east border of Block 146 (Magnetic Contour Map III-2; Map III-7). A broad, relatively weak, long-wavelength monopole occurs at the approximate spot. Whether or not this anomaly relates to the Delery outbuilding or an associated feature is not known, but it remains a possibility. If some remnants of this structure are present, they would be buried under the compacted shell deposits of the levee road.

It should be noted here that the northern sections of Blocks 146, 147, and 148 were deleted from the magnetometer reconnaissance because of the extreme magnetic effect of the high chain-link fence which surrounds the St. Bernard Parish Sewage Treatment Plant.

Section C
(Blocks 49-53)

Anomaly C.1

A broad, relatively weak dipole is located near the approximate center of Block 50 (Magnetic Contour Maps III-2, III-4). The northward orientation of the smaller anomaly peak suggests the presence of a shallow pit or similar feature (von Frese 1984:6).

Interestingly, an oblique aerial photograph of this area from ca. 1960 shows a wide, shallow pit at about the same location as the dipole (National Park Service Photograph 10-10-023). In the photograph, this pit is situated in a fenced enclosure behind a low barn or large shed, and it appears to resemble an animal wallow (Figure III-69). Since cow trails lead off from the shed, this is probably an accurate interpretation.

Anomaly C.2

The west half of Block 53 contains two intense dipoles near the north end of the block together with a cluster of smaller, weaker dipoles concentrated toward the southern end of the block (Magnetic Contour Map III-4). These anomalies occupy the position of the above-mentioned barn or shed (Figure III-69). In the oblique aerial, this shed (which displays a corrugated metal roof) is surrounded by pieces of farm equipment and various odds and ends. Thus, it is likely that the observed concentration of dipoles signifies structural debris from the shed plus a halo of metal trash.

According to the historical reconstruction (pp. 662-664, Chapter 17; Map III-7), two poorly documented buildings on the Bertrand Tract, one dating from the second half of the nineteenth century and one from either the late nineteenth or early twentieth century, would have partially protruded into the northeast corner of Block 53. However, neither the 20 gamma or 10 gamma contour maps show any obvious anomalies that might clearly mark the presence of these buildings (Magnetic Contour Maps III-2, III-4).

A compelling linear trend of neutral value anomalies runs along the western border of Block 53, just to the west of Anomaly C.2. This group is of interest because this type of anomaly pattern often betrays the presence of ditches and similar buried linear features, and the location of the trend follows the approximate alignment and position of the agricultural ditch which marks the western border of the Bertrand Tract.

Anomaly C.3

There is a very intense dipole evident in the southeast corner of Block 52 (Magnetic Contour Map III-4). The source of this dipole appears to fall very close to the position of Grid C116, N10.75, which was excavated in Test Area 5. This test yielded a few metal objects, including scraps of iron can from the topsoil. It also contained a sizable group of concrete paving fragments. Yet none of these appear to be good candidates as the source of the dipole; the actual source is probably a large, yet undiscovered, ferrous object located near the surface.

Section D
(Blocks 55-56)

Anomaly D.1

The western two-thirds of Block 56 is filled by an assorted concentration of dipoles and monopoles of moderate to low value (Magnetic Contour Map III-4). A house dating from the second half of the nineteenth century once stood in the vicinity, the eastern member of a paired set of rectangular structures associated with the Fernandez occupation of the Bertrand Tract (Map III-7). However, projections from the available historical maps place the building more to the east, so that its center would fall along the south part of the boundary between Blocks 56 and 59 (Magnetic Contour Map III-4). The anomaly cluster noted in Block 56 does not match this projected location. Nevertheless, the magnetic data do suggest the presence of a number of subsurface features and objects. What could explain this discrepancy? One possibility is that structural debris and associated trash from the house was pushed slightly to the west after the structure was razed. Alternatively, the historical projection may be slightly off and the house may have actually stood more to the west and thus more in the area of the anomaly concentration.

Anomaly D.2

The origin of the intense dipole in the southern end of Block 55 is unknown (Magnetic Contour Map III-4). Its source would fall near or in the ditch along the present levee; thus, the anomaly probably represents a recent ferrous object located near ground surface, perhaps a metal drain or culvert.

Section E
(Blocks 58-65)

Anomaly E.1

A row of intense dipoles runs up the west side of Block 58 and then stops about two-thirds of the way into Block 59 (Magnetic Contour Maps III-2, III-4). This linear anomaly group suggests that the source might be a large linear metal feature, such as a buried water line or large drain. Interestingly, the anomaly closely matches the path of an old agricultural ditch that separates the Bertrand Tract from the nearby Freedmen's Cemetery Tract. Ferrous trash and other items thrown in the ditch over time by adjacent occupants and travelers on the nearby Levee Road could also have created the magnetic conditions that could have produced this intense linear series. Alternatively, the source of this linear anomaly could simply derive from the convenient placement of a drain or pipeline in the bottom of the property-line ditch.

Anomaly E.2

Block 59 contains a trend of at least three low-intensity anomalies. These occur in the north half of Block 59, and the easternmost anomaly is a fairly broad dipole which extends slightly eastward into the northwestern corner of Block 62 (Magnetic Contour Maps III-2, III-4).

In the late nineteenth century, two structures stood in this general area. The northernmost of these structures was located at roughly the same location as the anomaly trend, and it shared the same east-west orientation (Map III-7). Nothing is definitely known about the ownership or function of this building or the one more to the south (see pp. 674-675, Chapter 17).

No signs of the southern structure are discernible on the magnetic contour maps, but this is not unexpected given the extreme magnetic interference created by the National Park Service's boundary fence in Block 58.

Anomaly E.3

The intense dipole in the north-central portion of Block 62 corresponds closely to a land survey benchmark designated B.M. LB No. 4 (Elevation 11.87 ft). This benchmark is probably physically referenced by a buried metal stake. It was not found, however, during the magnetic reconnaissance field work, but its position was later noted on a detailed 1953 map of the Mississippi River-Lake Borgne Levee District produced by the Corps of Engineers.

Anomaly E.4

The eastern portion of Block 65 contains a few very weak monopoles (Magnetic Contour Map III-2). The greatest area of magnetic activity occurs along the east edge of the block.

According to the historical reconstruction, a late nineteenth-century structure, possibly a house, was located at about the same position as the east boundary of Block 65 (Map III-7). The remains of this structure may provide the source for the anomaly group noted at the same location. Nothing is known of the structure other than its approximate location and relative age. It may have been associated with either the Freedmen's Cemetery to the north or the National Cemetery to the east (pp. 672-675, Chapter 17).

Section F
(Blocks 73-75)

Anomaly F.1

A large curving front of intense dipoles dominates the area around the west juncture of Blocks 73 and 74 in the southeastern corner of the National Cemetery (Blocks 73 and 74 are not illustrated in the Magnetic Contour Map series). These dipoles represent the magnetic effect of the concrete roadway which encircles the Grand Army of the Republic (G.A.R.) Monument (Maps III-2 III-7). The actual source of the magnetic influence is a steel paving mesh which lies at the base of the concrete.

Anomaly F.2

The southwestern quadrant of Block 73 (Map III-2) contains a large negative monopolar depression which measures over 7 m (23 ft) across. The monopole is relatively weak and shows a maximum variation in amplitude of only 30 gammas from its outer edge to its interior. Further, the contour lines that define the anomaly are widely spaced and form a fairly symmetrical pattern. This magnetic feature lies on the former path of the large military ditch that once fronted the rampart of the Confederate earthworks (Map III-7; Figure III-62).

Another weak monopole is situated 9 m (29.5 ft) to the northeast, at the approximate center of Block 73. Unfortunately, its total size and pattern are obscured by the combined magnetic interference of the roadway mesh and the high chain-link fence that marks the boundary of the Kaiser Aluminum Plant. As with the first anomaly, this monopole also lies on the path of the old Confederate military ditch.

The locations of both these monopoles suggest that they derive from the magnetic influence of the buried military ditch. Both fall on the southwestern alignment of the last leg of this feature (Map III-7). Also, their amplitudes and other characteristics are consistent with such a hypothesis.

Anomaly F.3

An intense, compact dipole occupies the extreme northeastern corner of Block 74 (Map III-2). This anomaly appears to simply mark the location of an unknown ferrous object situated near the surface. It is probably of recent origin.

Anomaly F.4

The high chain-link fence of the Kaiser Aluminum Plant located just to the east of the National Cemetery creates a broad, compact wave pattern that dominates the eastern thirds of Blocks 73, 74, and 75. Although evidence of shell paving and a few minor pieces of structural debris were found in shovel tests in the southeastern quarter of Block 73, no magnetic effect is discernible that could be attributed to the remains of the late nineteenth-century brick stable and utility building that once stood here as part of the cemetery caretaker's residential complex (Map III-7). This lack of evidence is not unexpected, however, in view of the extreme interference caused by the Kaiser Aluminum Plant fence.

It might be noted here that the southern brick wall of the cemetery created no magnetic influence although readings were taken within 3 m (9.8 ft) of this feature. The same lack of strong effect was observed along the west brick wall of the cemetery. Both walls are built largely of soft red brick.

Anomaly F.5

Part of what appears to be a large dipole protrudes into the extreme southwest corner of Block 75 from the west (Map III-2, Block 75 is not illustrated in the Magnetic Contour Map series). It measures about 10 m (32.8 ft) across and displays only a moderate intensity. The old rostrum, which was associated with the late nineteenth-century caretaker's residential complex, once stood near the same location, and it is possible that buried remnants of this razed feature form the source of the dipole (Map III-7). With the exception of the magnetic effect produced by the Kaiser Aluminum Plant fence, no other anomalies occur in Block 75.

Interpretive Summary

Most of the anomalies recorded in the course of the magnetic survey mark the locations of modern features or recent ferrous debris. These anomalies have some utility in that they indicate areas of disturbance which may not warrant further investigation, but their main effect is to create a "noisy" magnetic landscape that greatly interferes with archeological interpretation.

A number of other anomalies, however, do appear to betray the presence of historical features, and these generally support the historical reconstruction suggested by the analysis of the archival sources and the archeological data recovered from the subsurface tests. Among the most important are Anomalies A.17, A.19, and A.25; these anomalies (or more properly, anomaly groupings) fall almost exactly on the predicted locations of three structures that once stood on the Villavaso Estate in the first half of the nineteenth century (Magnetic Contour

Maps III-1, III-5). Anomaly A.17, a short, compact trend of moderate intensity monopoles, matches both the position and orientation of a small servant's cottage (Figure III-2). Similarly, A.25, another squat, linear trend (in this instance, made up of moderate monopoles and one dipole), correlates closely with the location and orientation of a known outbuilding that may have served as a stable or carriage house on the Villavaso Estate (Map III-7). The third anomaly, A.19, a collection of large monopoles of moderate intensity, roughly corresponds to the projected location of the Villavaso main residence (Figure III-68). Moreover, a weak monopole of long wavelength, located immediately to the northwest of Anomaly A.19, may suggest the position of an associated "barrel well."

This tight match-up of magnetic and predicted historical features within the narrow confines of the former Villavaso property cannot be easily attributed to coincidence, especially in light of the subsurface probing results, which revealed concentrations of soft red brick at the two anomaly locations that were checked in the field. Rather, the observed concurrences would appear to provide strong reinforcement for the validity of the overall historical reconstruction.

Additional, though slightly less, clear-cut associations also serve to bolster the proposed reconstruction of the Chalmette Unit's nineteenth-century geography. For instance, Anomaly A.10, a weak monopolar depression of positive value, appears to roughly delineate the southern half of Battery 3 (Magnetic Contour Map 6). The source of this anomaly is thought to be the unique content of the Battery 3 hole. Another anomaly of interest, a large weak dipole in Block 26, designated Anomaly B.6, corresponds to the projected position of one of the earliest outbuildings connected with the Battleground Saw Mill Tract (Magnetic Contour Map III-1). Further, a general increase in magnetic activity in the vicinity of this anomaly, and especially to the northwest in Blocks 20 and 23, correlates with a broad area of long-term use—and most likely sheet trash deposition—in the southwest sector of the Battleground Saw Mill Tract.

Another diffuse island of slight to moderate magnetic activity centers around Anomaly B.8, a weak monopole in the northeast corner of Block 38 (Magnetic Contour Map III-1). This area, in turn, is preceded by a magnetically flat region in Blocks 32 and 35 that corresponds to a strip of land which, according to the historical record, saw little intensive use in the nineteenth century (Magnetic Contour Map 1; Map III-7). Anomaly B.8 exhibits the kind of geometry that is normally associated with the signatures of wells, cisterns, or deep pits, but the exact nature of its source is unknown. This anomaly and the diffuse area of magnetic activity that surrounds it may be related to a twentieth-century residence that once stood farther to the south. On the other hand, the widespread occurrence of soft red brick in the vicinity suggests that nineteenth-century remains may also play a major role here. The most likely nineteenth-century source is the Peyroux Estate, which dates back to the 1830s. According to the historical reconstruction (Map III-7), the structural hub of this estate would have been located near the upper juncture of Blocks 35 and 38. Thus, the occupation of the Peyroux Estate could easily have been responsible for much of the increased magnetic activity observed in Block 38.

To the east, in Block 46, a broad monopole (Anomaly B.13) falls very close to the predicted location of the southernmost outbuilding associated with the early Delery Estate (Magnetic Contour Map III-2). Yet this identification must remain tentative in view of the heavy magnetic interference generated by modern features in the area; the concurrence could simply be a matter of coincidence. Unfortunately, the opportunity to discover any other anomalies that might have matched the structural layout of the Delery Estate was precluded by the presence of the St. Bernard Parish Sewage Treatment Plant. This plant covers most of the land area once occupied by the buildings of the old estate.

Some of the magnetic activity in Blocks 53 and 56 may be derived from a late nineteenth-century occupation on the Bertrand Tract by the Fernandez family, but the degree of this contribution is unknown (Magnetic Contour Map III-4). None of the anomalies provide a precise correlation with either of the two structures associated with the use of the property in the nineteenth century (Map III-7). Most of the anomalies appear to be linked to a relatively intense twentieth-century use and occupation of the vicinity.

Two additional structures from the latter half of the nineteenth century may have more definite magnetic associations. The low-intensity anomaly group (E.2) in the northeast corner of Block 59 falls close to the predicted position of the northernmost of a pair of two associated buildings (Magnetic Contour Map III-2; Map III-7). Similarly, a weak area of magnetic activity (Anomaly E.4) in the eastern half of Block 65 matches the position of an isolated structure that was once located just west of the National Cemetery (Magnetic Contour Map III-2; Map III-7). Beyond their locations, little is known about the origin or use of either of these late nineteenth-century buildings.

No discernible signs of the slave quarters of the St. Amand Plantation are evident in the magnetic record from the National Cemetery. Similarly, no anomalies can be tied to the late nineteenth-century residential complex of the cemetery superintendent. A moderate dipole (F.5) falls near the location once occupied by the cemetery's ceremonial rostrum, but the association is best viewed as tentative because the anomaly appears too small to mark such a large structural feature. In considering the results of the magnetic coverage of the cemetery, it is important to emphasize that this area has been subject to a great deal of landscaping and other alteration in the last few decades. Also, the magnetic interference from modern ferrous sources is extremely high.

Strangely, the one historical feature that may actually show up in the magnetic record from the cemetery is the ditch of the Confederate earthworks. A large weak monopolar depression in Block 73 (Anomaly F.2) and a somewhat smaller one to the northeast, fall along the alignment of this former military ditch (Map III-7). This association cannot be said to be certain, but it would be within reason to have a massive buried ditch show up as a linear trend.

The undisturbed portion of the Rodriguez Canal is clearly indicated by a linear trend of monopoles and dipoles designated Anomaly A.14 (Magnetic Contour Maps III-1, III-3, III-5). In a like manner, a linear trend of monopole lows (B.4) appears to mark the route of the west boundary ditch to the Beauregard Estate as it passes through Block 20 (Magnetic Contour Map III-1). A weak linear trend along the west border of Block 53 may also register the presence of a historic ditch; in this case, the western boundary ditch to the Bertrand Tract (Magnetic Contour Maps III-2, III-4). Though an exact identification of the source of Anomaly E.1 remains uncertain, this linear trend may indicate the trash-filled eastern boundary ditch to the same tract. No other ditch features were evident in the recovered anomaly patterns. The reason for this is unclear; however, it may be that the other ditches contain less trash and thus possess much more subtle magnetic signatures—magnetic expressions that would not be easily registered at 10 or 20 gamma contour intervals.

Linear trends also mark two other historical features. The southern end of the old shell pathway to the Chalmette Monument is clearly indicated by a series (Anomaly A.12) of moderate to weak dipoles and monopoles (Magnetic Contour Map III-3). In addition, a partial and somewhat more interrupted trend of dipoles and monopoles in Blocks 28 and 29 (Anomaly B.7) follows the northward route of an old brick-edged carriage road as it passes into the Battleground Saw Mill Tract (Magnetic Contour Map III-1; Map III-7). In both cases, ferrous trash added to the shell bases of these features appears to have enhanced their magnetic expression.

Conclusions

All in all, the findings affirm the worth of the magnetic reconnaissance. Admittedly, the utility of the survey was realized not so much in the field as it was later—when the pattern of anomaly distribution could be spatially linked to,and compared against a detailed historical reconstruction of the Chalmette Unit developed from other data sources. Once this point had been reached, a number of correlations between magnetic anomalies and projected historical features emerged. These data match-ups give general support to the revised geographical history of the nineteenth- and twentieth-century Chalmette riverfront.

From a methodological perspective, the results of this investigation underscore the fact that magnetometer surveys do not supply the archeological version of the free lunch. To be useful, magnetic surveys must be conducted in combination with other investigatory tools. As von Frese (1984:18) has aptly cautioned, "It is the excavation archeologist who ultimately establishes the true scope and utility of the magnetic method in any archeological site investigation." The limited subsurface testing conducted in the context of this study provided a beginning, but full realization of the interpretive potential of the collected magnetic data will be dependent on future excavations.