

**THE PROPERTY NOBODY WANTED:  
ARCHAEOLOGICAL AND HISTORICAL  
INVESTIGATIONS AT FORT JOHNSON, S.C.**



**CHICORA FOUNDATION RESEARCH SERIES 43**

THE PROPERTY NOBODY WANTED:  
ARCHAEOLOGICAL AND HISTORICAL  
INVESTIGATIONS AT FORT JOHNSON, S.C.

Research Series 43

Michael Trnkley  
Natalie Adams  
Debi Hacker

Chicora Foundation, Inc.  
PO Box 8664 ■ 861 Arbutus Drive  
Columbia, South Carolina 29202  
803/787-6910

Prepared For  
Calcara Duffendack Foss Manlove, Inc.  
Kansas City, Missouri 64105

June 1994

ISSN 0882-2041

LIBRARY OF CONGRESS CATALOGING-IN-PUBLICATION DATA

Trinkley, Michael.

The property nobody wanted archaeological and historical investigations at Fort Johnson, S.C. / Michael Trinkley , Natalie Adams, Debi Hacker.

p. cm. -- (Research series, ISSN 0882-2041 , 43)

Includes bibliographical reference

1. Fort Johnson (S.C.) I. Adams, Natalie, 1963 - II. Hacker, Debi. III. Title. IV Series: Research series (Chicora Foundation) , 43.

F279.F65T75 1994

975 7 ' 91--dc20

94-27306

CIP

The paper used in this publication meets the minimum requirements of American National Standard for Information Sciences - Permanence of Paper for Printed Library Materials, ANSI Z39 48 - 1984. ∞

Irrationally held truths may be more harmful than reasoned errors.  
-- Aldous Huxley

## ABSTRACT

This study reports on an intensive archaeological and historical survey of the Fort Johnson facility on James Island in Charleston County, South Carolina. Jointly owned and managed by the S.C. Department of Wildlife and Marine Resources, the College of Charleston, and the Medical University of South Carolina, the 90 acre tract incorporates a wide range of historical and archaeological sites spanning the period from about 1000 B.C. to at least A.D. 1940. The current study was undertaken to inventory these resources and explore long-term management options for the property's unique resources.

The entirety of Fort Johnson's 90 acres were placed on the National Register of Historic Places in 1972, largely because of the site's military history which spans Queen Anne's War, the American Revolution, the War of 1812, and the Civil War. In addition to these historic resources the current study has also identified likely plantation sites, additional Native American encampments, and the extensive development of the tract during the late nineteenth and early twentieth centuries as a quarantine station. In order to facilitate management of the resources, the current archaeological site number, 38CH69/71 has been extended to cover the entire facility, with 10 areas of specific occupation or historic significance identified by this investigation.

This study found that while the site has suffered noticeable losses through development activities, construction, and everyday use, many of the resources remain intact and are clearly of

exceptional significance. In fact there is only one area of the tract, amounting to less than 6 acres, on which no resources have been found. Elsewhere the historic and archaeological resources are abundant. More importantly, these resources are likely to be severely damaged or destroyed by continued development of the facility. Some, such as standing structures and archaeological sites within heavily used areas, are likely to be damaged or destroyed by even continued routine operations. It is essential that Fort Johnson develop a preservation plan to ensure that these historic resources are protected. To assist, this study offers some preliminary recommendations regarding daily operation and use of the facility, short and long-term growth options, integration of historic resources into facility management, and interpretation of the site to the public and staff.

With the heavy involvement of federal funding, which invokes the National Historic Preservation Act, as well as the recently adopted Protection of State Owned or Leased Historic Properties (S.C. Code of Laws § 60-12-10 through 60-12-90), it is essential that a clearly defined plan for management of these resources be developed and implemented. Further losses of archaeological and historical resources at Fort Johnson would be inconsistent with not only these legislative acts, but also the commonly perceived need to safeguard South Carolina's dwindling resources. Sites under the jurisdiction of state agencies offer rare opportunities to ensure that future generations of South Carolinians are able to understand their heritage.

## TABLE OF CONTENTS

List of Tables	vii
List of Figures	vii
Acknowledgements	ix
Introduction	1
Background	1
Goals	2
Curation	5
Natural Setting	6
Physiography	6
Geology and Soils	8
Climate	10
Floristics	12
Prehistoric and Historic Overview	14
Previous Research at Fort Johnson	14
Previously Identified Archaeological Sites on Fort Johnson	22
Prehistoric Archaeology	23
Early Woodland	
Middle Woodland	
Late Woodland	
A Historical Synopsis of Fort Johnson	30
Eighteenth Century Activities at Fort Johnson	
Fort Johnson in the Nineteenth Century	
Fort Johnson and the Civil War	
Postbellum Use of Fort Johnson as a Quarantine Station	
The Modern Period	
The Need for Further Research	65
Implications	65
Research Strategy and Methods	75
Introduction	75
Archival Research	75
Field Survey Methodology	75
Limitations of the Survey Methodology	78
Laboratory and Analysis Methods	85
Identified Archaeological Sites	86
Area 1	88
Area 2	88
Area 3	89
Area 4	90
Area 5	92

Area 6	93	
Area 7	95	
Area 8	95	
Area 9	96	
Area 10	102	
Identified Architectural Sites		103
Standing Architectural Sites	103	
Marshlands House		
Powder Magazine		
Quarantine Officer's House		
Other Quarantine Station Structures		
Post-Quarantine Structures		
Safeguarding Historic Sites	112	
Maintenance		
Disaster Planning and Recovery		
Landscape Features	115	
Earthworks		
Maintenance and Disaster Recovery Considerations		
Conclusions and Recommendations		118
Historical Findings	118	
Archaeological Findings	119	
Architectural Findings	121	
Identification of Significant Areas	121	
Re-evaluation of Goals	123	
Essential Management Actions	123	
Sources		127

## LIST OF TABLES

### Table

1.	Major hurricanes	12
2.	Areas of subsurface cultural material	86
3.	Artifacts recovered from Area 1	88
4.	Artifacts recovered from Area 2	89
5.	Mean ceramic date for Area 2	90
6.	Artifacts recovered from Area 4	90
7.	Artifacts recovered from Area 5	92
8.	List of artifacts recovered from Area 6	94
9.	Mean ceramic date for Area 6	95
10.	Artifact pattern for Area 6	96
11.	Artifacts recovered from Area 7	96
12.	Artifacts recovered from Area 9	97
13.	Mean ceramic date for Area 9	97

## LIST OF FIGURES

### Figure

1.	Vicinity of Fort Johnson on James Island, S.C.	2
2.	Vicinity of Fort Johnson on James Island in the Charleston Harbor	7
3.	Sea level changes for South Carolina	9
4.	Ceramic assemblages	24
5.	Windmill Point in 1697	30
6.	Mouzon's 1776 map	31
7.	Artist's reconstruction of first Fort Johnson	34
8.	Drawing of 1737 fort	36
9.	DeBrahm's plan for Fort Johnson	38
10.	1780 DesBarres map showing Fort Johnson	39
11.	Late eighteenth century map of outer fortifications	42
12.	1775 survey of Fort Johnson	43
13.	Clinton's 1780 siege map of Charleston	43
14.	1787 plan of Fort Johnson	45
15.	1800 plan of Fort Johnson	46
16.	1821 plan of Fort Johnson	48
17.	1833 plan of Fort Johnson	49
18.	A portion of Johnsonville in 1842	50
19.	Seymour's drawing of Fort Johnson in 1861	52
20.	Charleston's defenses	53
21.	Delafield's 1865 survey of Fort Johnson	54



22.	Boutelle's 1865 survey of Fort Johnson	55
23.	Photograph of Fort Johnson after the Civil War	57
24.	Fort Johnson and Johnsonville	57
25.	1880 plat of Quarantine Station	59
26.	View of maritime sanitation buildings	60
27.	View of sterilization cylinder	60
28.	Interior of maritime sanitation building	61
29.	View of Quarantine Officer's house	61
30.	1919 topographic map of Fort Johnson	63
31.	1943 topographic map of Fort Johnson	64
32.	Projected eighteenth century site locations	66
33.	Projected antebellum site locations	68
34.	Projected Civil War site locations	70
35.	Projected postbellum site locations	72
36.	Location of survey transects	77
37.	Artifact density at Fort Johnson	79
38.	Distribution of historic artifacts	80
39.	Distribution of historic architectural artifacts	81
40.	Distribution of historic kitchen artifacts	82
41.	Distribution of prehistoric artifacts	83
42.	Distribution of shell	84
43.	Areas of identified sub-surface remains	87
44.	Area of martello tower	91
45.	Erosion at Area 2	91
46.	Exterior of tabby structure at Area 6	98
47.	Interior of tabby structure at Area 6	98
48.	Brick powder magazine at Area 9	99
49.	Cistern at Area 9	99
50.	Bastionete exposed at low tide	100
51.	Tabby and brick sea wall	100
52.	View of waste treatment plant on Confederate battery	101
53.	Construction on Confederate earthworks	101
54.	North facade of the Marshlands House	104
55.	South facade of the Marshlands House	104
56.	Quarantine Officer's House	109
57.	Kitchen associated with the Quarantine Officer's House	109
58.	Radical alteration and loss of historic fabric and context	110
59.	Pump House	110
60.	Portion of Civil War earthworks	111
61.	Civil War earthworks	111
62.	Areas of anticipated high, moderate, and low cultural significance	122

## ACKNOWLEDGEMENTS

This study was funded by the National Oceanic and Atmospheric Administration (NOAA) through the architectural firm of Calcara Duffendack Foss Manlove, Inc. We especially wish to thank Mr. Steven D. Evans, AIA for his professionalism and support of our efforts, as well as those involved in the contracting office of NOAA, especially the Contracting Officer's Technical Representative, Mr. Dail R. Hobbs. In addition, we appreciate the assistance of those at Fort Johnson who have coordinated the study, including Dr. Pat Fair with the National Marine Fisheries Service, Southeast Fisheries Center and Mr. Foster Folsom with the S.C. Department of Wildlife and Marine Resources. Mr. Willis Keith was, as always, of exceptional assistance in helping us to more fully understand the historic resources of Fort Johnson and also locate a variety of obscure references. Without his cooperation our study, while reaching the same conclusion, would be less complete and certainly less rich.

We also want to thank those who assisted us with the historical and background research, including Mr. Keith Derting and Ms. Sharon Peckrul at the S.C. Institute of Archaeology and Anthropology, Mr. Steve Tuttle and Dr. Tracy Powers of the S.C. Department of Archives and History, and Ms. Sharon Bennett and Ms. Martha Zierden of The Charleston Museum. The staffs of the City of Charleston Archives, National Archives Cartographic and Architectural Branch, National Archives Still Pictures Branch, the South Caroliniana Library, and the Thomas Cooper Map Repository as usual offered their excellent assistance during the project.

The fieldwork was conducted by Ms. Lynn Roberts, Mr. Jason Smith, and Mr. Chris Nichols -- we appreciate their dedication and good humor during the long transects through dense undergrowth.

Finally, we want to thank Mr. Niels Taylor, Staff Archaeologist with the South Carolina State

Historic Preservation Office (S.C. Department of Archives and History) for his review and comments on the study. In addition, we have received technical review comments from one additional, anonymous, peer reviewer selected specifically for historical and military history expertise. This additional insight has significantly improved the usefulness of the study, identifying several inconsistencies. As always, however, the ultimate responsibility for the study lies with us.

## INTRODUCTION

### Background

The architectural firm of Calcara Duffendack Foss Manlove, Inc., under contract to the Department of Commerce/National Oceanic and Atmospheric Administration as an indefinite delivery contractor for architecture/engineering services, requested on March 25, 1993 that Chicora Foundation prepare a proposal for an intensive archaeological and historical survey of the 90 acre Fort Johnson facility. While not especially detailed and calling at one point for only a "reconnaissance" level survey, the scope of work specified that the investigations were being conducted in anticipation of a proposed Marine and Environmental Health Laboratory, suggesting that an "intensive" survey was actually needed. Further, the scope noted that:

the survey shall include subsurface sampling technique based upon random placement of test cores throughout the sites [Fort Johnson] as described in Research Manuscript No. 93 of the Institute of Archeology [sic] and Anthropology or an equivalent sampling design ("Statement of Work to Identify Specific Requirements and Develop Design Criteria and Schematic Plans for Proposed Marine and Environmental Health Laboratory at Charleston, S.C.," dated February 5, 1994, revised February 23, 1994).

And finally, the document also correctly noted that the entire 90 acre facility had previously been placed on the National Register of Historic Places -- an indication that its archaeological and historical potential was recognized and that the survey would need to attempt to delimit areas of concern.

Chicora Foundation submitted a proposal

on April 4 and it was verbally accepted by Calcara Duffendack Foss Manlove, Inc. about a week later, with an agreement prepared and signed by both parties on April 28. While presumably the proposal, or at least the sampling design, was reviewed by the DOC/NOAA Contracting Officer, the S.C. Department of Archives and History, and the S.C. Institute of Archaeology and Anthropology (as stipulated by the Scope of Work), no comments were received. Historical research for the project was initiated on May 2 and continued intermittently through May 20 by Dr. Michael Trunkley and Ms. Debi Hacker. The field investigations were conducted between May 3 and 10, 1994 with Ms. Natalie Adams serving as field director. Assistant Archaeologists included Ms. Lynn Roberts, Mr. Jason Smith, and Mr. Chris Nichols. A total of 256 person hours were spent in the field, with an additional 48 person hours spent on historical and background research.

A management summary was provided to Calcara Duffendack Foss Manlove, Inc. on May 6, with additional follow-up conversations held on May 12 and May 16. The initial letter summarizing the research and the subsequent conversations emphasized the unique nature of the Fort Johnson site and the heavy density of archaeological and historic remains found during the survey.

The report production, including cataloging and analysis of recovered collections, synthesis of historic documents, and preparation of this technical report, was conducted at Chicora's Columbia, South Carolina office during the latter half of May 1994.

The proposed activities at Fort Johnson would initially consist of at least a 3600 square foot building and a 1000 square yard parking facility (letter from Ms. Donna H. Gibson to Mr. Steven Smith, dated February 17, 1993). The work would likely involve clearing, grubbing, filling, and grading of roadways; the placement of water and sewer lines, underground utilities, and perhaps

additional facilities such as salt-water lines for tanks; clearing, grubbing, and grading of the building and parking foot prints; construction damage associated with supply stockpiles, mobile offices, and associated staging areas; and finally considerable disturbance associated with landscaping and contouring the surrounding grounds. These activities will result in considerable land alteration with potential damage to archaeological and historical resources which may exist in the project area.

The project area is situated on approximately 90 acres on the eastern edge of James Island across the harbor from the City of Charleston (Figure 1). The study tract incorporates maritime forest, cleared areas, and sections of extensive previous development. In fact, today there are 18 buildings on the parcel, most of which have been built since about 1973. While some previous archaeological research has been conducted on the property, these past investigations have explored limited areas and have been keyed to specific expansion plans. No

February 25, 1993).

**Goals**

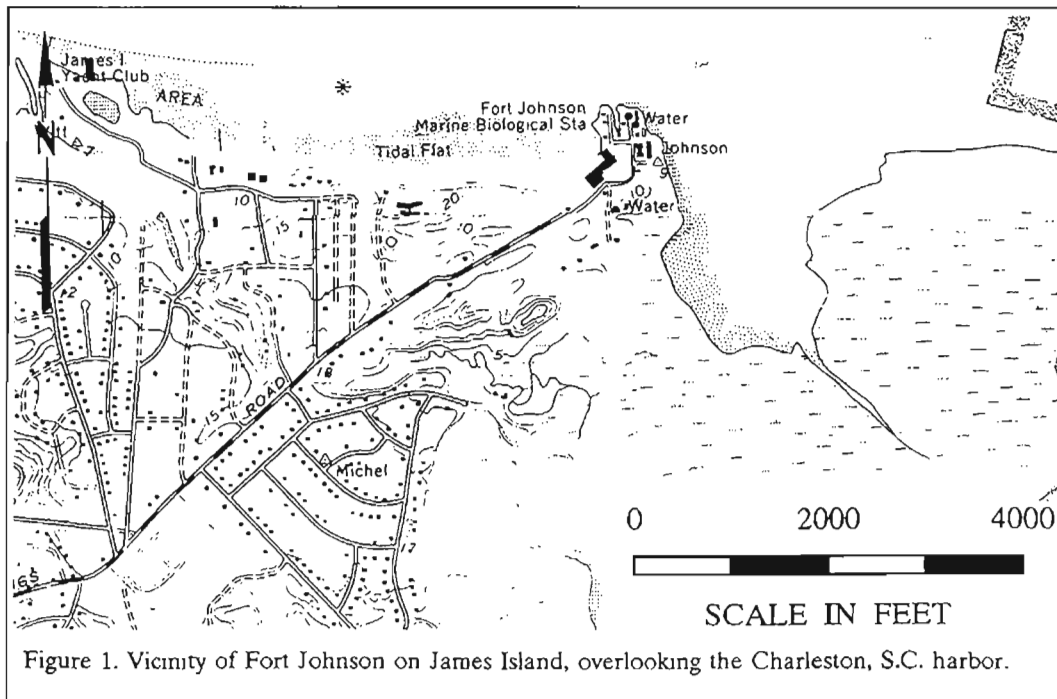
The primary goals of the Fort Johnson survey were, first, to identify the archaeological resources on the undeveloped portions of the facility; second, to gauge the extent of historic resource loss on the tract; and third, to assess the ability of the remaining resources or sites to contribute significant archaeological, historical, or anthropological data. The second goal essentially involves the sites' eligibility for inclusion on the National Register of Historic Sites, although Chicora Foundation only provides an opinion of National Register eligibility and the final determination is made by the SC State Historic Preservation Officer at the South Carolina Department of Archives and History.

These goals were obviously tied to compliance with the requirements of the National Historic Preservation Act (P.L. 89-665, as amended), the Advisory Council on Historic

Preservation's regulations (36CFR800), and the State of South Carolina's Protection of State Owned or Leased Historic Properties Act (S.C. Code of Laws § 60-12-10 through 60-12-90).

Secondary goals were, first, to examine the development and importance of Fort

Johnson's military sites through time; second, to determine if very early eighteenth century plantation sites could be identified on the tract;



comprehensive survey of Fort Johnson, capable of providing a detailed inventory of the historic resources, has been conducted (see letter by Mr. Keith Derting to Ms. Donna Gibson, dated

and third, to examine Native American settlement on this small section of James Island. Previous work by Stanley South (1974, 1975) clearly revealed the intense military use of Fort Johnson, although he did not have the opportunity to fully explore the site either temporally or spatially. These investigations, therefore, would build on South's earlier work, offering a more complete historical and archaeological understanding of Fort Johnson. It was also clear from the early historical research that the Fort Johnson tract, prior to its military use, was a plantation settlement in the last decade of the seventeenth century and the first decade of the eighteenth century. If sites could be identified from this very early period of South Carolina's history they would help us better understand not only life at this period, but also the establishment of plantations on the Carolina frontier. This is an area of extraordinarily limited previous research. While the survey tract is limited, it incorporates both estuarine and sound areas, offering the opportunity to examine the diversity of Native American settlement options. While it is unlikely that sites would be found at the edge of the sound, there is little information about this specific environmental zone. In addition, this research would again seek to expand, refine, or perhaps only confirm South's earlier study (see South and Widmer 1976) which found shell middens on dune ridges, but occupation areas on the intervening troughs.

Normally, once identified, all of the sites in the survey area would be evaluated for their potential eligibility for inclusion on the National Register of Historic Sites. In this case, however, Fort Johnson has already been placed on the National Register. In addition, we chose to define only one site covering the entire tract. Instead of defining clusters of artifacts as sites, they were defined as loci or areas of occupation within the previously identified Fort Johnson site. These loci were then evaluated in much the same way as a "site" would be.

It is generally accepted that "the significance of an archaeological site is based on the potential of the site to contribute to the scientific or humanistic understanding of the past" (Bense et al. 1986:60). Loci significance in this survey was evaluated using the recently published process of Townsend et al. (1993).

This evaluative process typically involves five steps, forming a clearly defined, explicit rationale for either the loci's eligibility or lack of eligibility. Briefly, these steps were:

- identification of the site's data sets or categories of archaeological information such as ceramics, lithics, subsistence remains, architectural remains, or sub-surface features;
- identification of the historic context applicable to the site, providing a framework for the evaluative process;
- identification of the important research questions the site *might* be able to address, given the data sets and the context;
- evaluation of the site's archaeological integrity to ensure that the data sets were sufficiently well preserved to address the research questions; and
- identification of "important" research questions among all of those which might be asked and answered at the site.

This approach, of course, has been developed for use documenting eligibility of sites being nominated to the National Register of Historic Places where the evaluation process must stand alone, with relatively little reference to other documentation and where only, typically, one site is being considered.

Some components of the Fort Johnson site, such as those associated with the U.S. Public Health Department operation of the quarantine station from 1906 through the Second World War, may seem relatively recent. The remains from this period, however, are over 50 years old. It is important to point out that even if they were not, they would likely still be eligible given their unusual contribution to the development of both local and national history (Sherfy and Luce n.d..1).

The quarantine station represents a continuation of medical efforts to control (successfully) the introduction of contagious disease. The transfer of the station from city/state control to federal control represents an exceptional step in the broadening of federal powers during the first quarter of the twentieth century. The use of the facility during the Second World War as a Coast Guard facility, training facility, anti-aircraft gun training station, and even listening post for German U-boat activity, emphasizes and documents the effect of the war on the local population. As such it is likely that these twentieth century activities would be eligible for inclusion on the National Register under Criteria A and D, that is through both linkage to important events and also for their information potential. Contributing resources would include both the archaeological remains and also those structures still standing which date from this period, such as the quarantine officer's house.

The Civil War components at the Fort Johnson site should likely be evaluated in their context as encampments, fortifications and battlefields (see Andrus 1992). As encampments and fortifications they are likely eligible for their information content under National Register Criterion D, although their role in firing the first shots of the Civil War and defending Charleston from the Union blockade indicate equal importance under Criterion A, their linkage to events of exceptional importance. As a battlefield, Fort Johnson may also be considered an eligible property under Criteria C, as well as previously mentioned Criteria A and D. The earthwork design, construction of the various batteries, and modifications of existing facilities represent important engineering features characteristic of Confederate fortifications, many of which in the Charleston area have been destroyed.

In the case of a survey which identifies multiple sites, or multiple areas, the process outlined by Townsend et al. (1993) can become burdensome. Consequently this study has elected to combine some of the steps, making the process more streamlined, without substantively altering the clear goal -- to ensure that loci capable of providing significant information are provided the protection afforded in the historic preservation process. The development of a historic context was not undertaken for each loci, but is found briefly

outlined in the following sections of this study, which provide an overview of the prehistoric and historic archaeology and research for the region. The identification of "important" research goals was achieved by incorporating research goals and questions, again outlining significant questions to the discipline and the public.

Otherwise, the evaluative process was essentially the same as outlined by Townsend et al. (1993). For each loci or area the data sets identified during the survey, such as the presence of pottery or the likelihood of architectural features, were discussed. At times the absence of data sets dominates the discussions, such as when the identified area had been thoroughly mixed by previous development or when it consisted of fill material. Reference was made back to the historic context and the research questions a particular area might be able to address, while at the same time the loci's integrity was clearly defined. We opted to use the integrity areas developed by Townsend et al. (1993:17-23) since they are more commonly used with National Register sites than the archaeological properties developed by Glassow (1977). Those most important for archaeological sites being evaluated for eligibility under Criterion D (sites that have yielded, or may be likely to yield, information important in prehistory or history) are locational integrity, design integrity, integrity of materials, and associative integrity

Locational integrity means that discernable patterning is present. If a site lacks patterning, if the artifacts are displaced, if activity areas are no longer recognizable, then it likely lacks locational integrity. Integrity of design is most often addressed as intra-site artifact and feature patterning. Integrity of materials is typically seen as the completeness of the artifact/feature assemblage or the quality of feature or artifact preservation. Finally, associative integrity is often examined in the context of how strongly associated the data set is with important research questions. Clearly the evaluation of integrity is somewhat subjective, but this research found that most site areas either clearly exhibited integrity, or clearly lacked integrity. There were relatively few over which there could be any real debate.

The topic of research questions is perhaps

more controversial, since every archaeologist can develop research topics which may, or may not, be of interest to his or her colleagues. What makes a research topic important can be debated -- is it something that particularly interests the public? is it something that can offer methodological advancement? is it something that can assist in better management of archaeological resources? It seems, frankly, that all of these are must be considered valid if we wish to preserve as real sense of the past. Of even greater controversy is when a research issue is settled and how much testing a conclusion should have before it is accepted. After all, it is never possible to "prove" theories; they can only be disproved. Most of the research areas evidenced by Fort Johnson have received little previous investigation so there was rarely any real concern over redundancy of data.

It is important to at least briefly review the Fort Johnson National Register nomination as it currently exists, especially since some may wonder why we didn't simply evaluate the loci as either "contributing" or "non-contributing" resources to the existing nomination. Regrettably the Fort Johnson nomination, prepared over 20 years ago, offers little in the way of substantive guidance regarding what might be viewed as contributing. Although the nomination is titled "Fort Johnson/Powder Magazine," both the boundary description ("90 acres" with four inclusive latitude and longitude coordinates) and the category ("site") clearly reveal the intent to include the entire tract as a something approaching a historic district. Specifically mentioned as "Areas of Significance" are the site's military and archaeological heritage. The nomination, while including a number of factual errors, concentrates on the property's long military use, clearly including all of the various periods from initial construction through the Civil War. We do not believe, however, that the nomination is sufficiently clear to *a priori* consider either the Native American, late seventeenth century plantation, or late nineteenth and early twentieth century quarantine station remains as not contributing to the significance of the site. Quite to the contrary, these additional periods of occupation make Fort Johnson an even more exceptional historic resource, tracing the development of Charleston over the past 3000 years.

### Curation

The archaeological site forms at the South Carolina Institute of Archaeology and Anthropology have been updated to reflect the loci numbering system employed in this study.

The field notes, photographic materials, and artifacts resulting from Chicora Foundation's investigations at Fort Johnson have been curated at the South Carolina Institute of Archaeology and Anthropology. The artifacts have been cleaned and/or conserved as necessary. Further information on conservation practices may be found in the section of this study dealing with Research Strategy and Methods. All original records and duplicate copies were provided to the curatorial facilities on pH neutral, alkaline buffered paper and the photographic materials were processed to archival permanence. Copies of the field records have been provided to Calcara Duffendack Foss Manlove, Inc. as stipulated by the scope of work.

## NATURAL SETTING

### Physiography

Charleston County is located in the lower Atlantic Coastal Plain of South Carolina and is bounded to the east by the Atlantic Ocean and a series of marsh, barrier (such as Folly), and sea (such as James) islands (Mathews et al. 1980:133). Elevations in the County range from sea level to about 70 feet above mean sea level (MSL). The mainland topography, which consists of subtle ridge and bay undulations, is characteristic of beach ridge plains. Seven major drainages are found in Charleston County. Four of these, the Wando, Ashley, Stono, and North Edisto, are dominated by tidal flows and are saline. The three with significant freshwater flow are the Santee, forming the northern boundary of the County, the South Edisto, forming the southern boundary, and the Cooper, which bisects the County. Because of the low topography, many broad, low-gradient interior drains are present as either extensions of the tidal rivers or as flooded bays and swales.

Coastal islands are generally placed into three major groupings, based on geomorphology, area, sediment composition, and environment of deposition. The classic sea islands such as Daufuskie, Hilton Head, and James islands, are erosional remnants of coastal sand bodies deposited during the Pleistocene. Some, such as Hilton Head, also have a ocean fringe of beach dune ridges developed during the more recent Holocene period. Barrier islands, in contrast, are composed of alternating beach ridges and low troughs or lagoons oriented roughly parallel to the present shoreline, deposited during Holocene high sea level stands. Marsh islands, such as Raccoon Key and Morris Island, are composed of isolated or widely spaced Holocene sand ridges surrounded by recent salt marsh. They are typically situated in the filled lagoons behind the barrier islands, although they are also found fronting the Atlantic Ocean where erosion has removed the protecting barrier islands.

James is classified as a sea island. It is situated between Folly Island to the south and Charleston to the north. James Island is separated from Folly by the Folly River and from the mainland by the Wappoo Creek, Elliott's Cut, and the Charleston Harbor. It is separated from Johns Island to the west by an expanse of marsh and the Stono River (see Figure 2).

The island lacks beach access and therefore have limited erosion, largely confined to creek banks. A notable exception, of course, is the erosion which characterizes the harbor exposure, which has historically lost over 200 feet. The island is 7 miles long and about 7 miles in width, encompassing about 11,000 acres of high ground and 4,800 acres of marsh -- making it the third largest South Carolina sea island, following Hilton Head and St. Helena.

Elevations on the island range from sea level to 30 feet MSL while on Fort Johnson elevations average about 10 feet, but range from 5 to nearly 27 feet MSL. The tract is basically a "peninsula," bordered to the north and northeast by the Charleston Harbor, and to the southeast and south by marsh and tidal creeks. The western boundary is artificial, reflecting historic property lines. The property is bisected east-west by a paved road which only very approximately follows the historic location of the Fort Johnson Road. To the south of this road, in the southwestern corner of the tract, the topography is dominated by several sand ridges paralleling the creek and marsh. To the east and north the property becomes more level, although local rises are still present and tend to dominate the landscape (this topography is even more noticeable, and spectacular, when the tract is cleared of understory vegetation). The northeastern corner of Fort Johnson has been extensively developed, with a portion of the peninsula being formed from recent ballast deposits.

The mean tidal range for James Island is



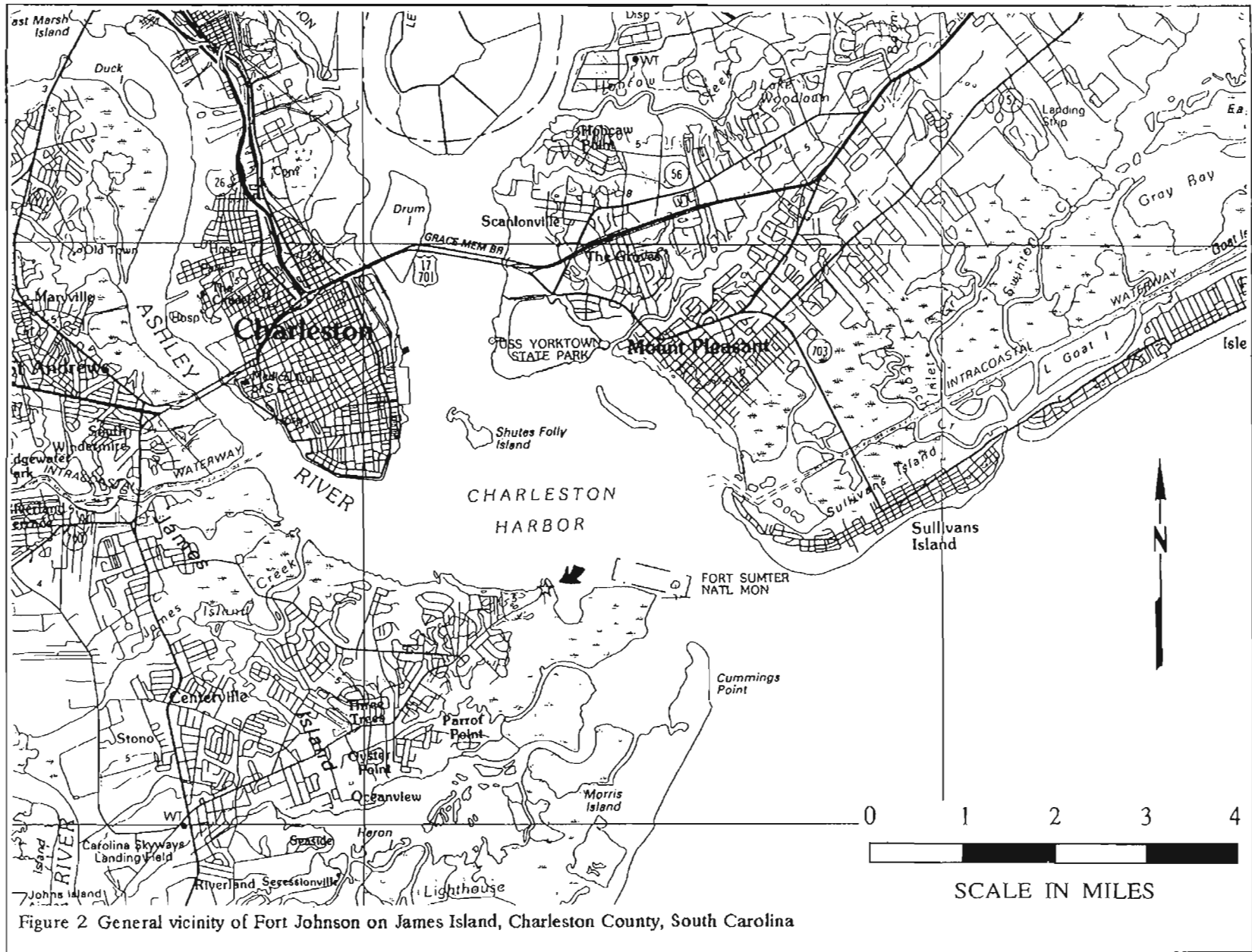


Figure 2 General vicinity of Fort Johnson on James Island, Charleston County, South Carolina

approximately 5.2 feet, with a Spring tidal range of approximately 5.9 feet. These tides generate strong currents in the tidal inlets and major tidal channels.

### Geology and Soils

Coastal Plain geological formations are unconsolidated sedimentary deposits of very recent age (Pleistocene and Holocene) lying unconformable on ancient crystalline rocks (Cooke 1936; Miller 1971:74). The Pleistocene sediments are organized into topographically distinct, but lithologically similar, geomorphic units, or terraces, parallel to the coast. Kiawah Island is classified by Cooke (1936) as part of the Pamlico terrace, which includes the land between the recent shore and an abandoned shore line 25 feet above present sea level. He notes that the fine sandy soils are typically underlain by a blue or gray somewhat sandy clay.

On an island such as James, water appears to be plentiful, yet sources of fresh water are scarce. The principal deep water aquifers are the limestone of Eocene age known as the Santee Formation and the sands of Cretaceous age, known as the Pee Dee and Black Creek formations, although these are at depths of 400 to 500 feet and 1600 to 2000 feet respectively. The Santee Formation has been pumped so heavily that there is now a "cone of depression" with the result that chloride levels exceed 400 mg/l in some areas (S.C. Water Resources Commission 1973:100).

Lynch et al. note that colonial wells rarely exceeded 20 feet into the sands which were "everywhere saturated with the water which it received from a rainfall averaging 43.78 inches each year" (Lynch et al. 1882:258). Consequently, wells 12 to 15 feet deep provided "an unfailing supply of water of the very best quality" (Lynch et al. 1882:259). Water quality gradually declined as the population increased and antebellum wells became deeper, although they rarely exceeded 60 feet in downtown Charleston. One antebellum brick-lined well on Daniels Island, about 5.5 miles northeast of Charleston, was only 10.7 feet in depth (Zierden et al. 1986:4-44). Cisterns, in common use throughout Charleston, could provide very safe, potable water, although Lynch et al. (1882:292-293) also found many of the cisterns in

Charleston "foul," evidencing high levels of ammonia.

There is extensive documentation of wells being dug on the sea and barrier islands by Union troops during the Civil War. Copp noted:

in our camp at Hilton Head, every company had its well, by digging through the sand to a depth of from four to six feet, empty barrels would be inserted, and the well as complete, with plenty of water: although brackish to the taste it was not as bad as we were frequently obliged to use in our later campaigns (Copp 1911:94).

On nearby Folly Island Barlow remarked:

all the water used on the island was obtained by digging below tide-mark and curbing with barrels. The finest and best protected well in camp was made by cutting into a sand dune and making a winding passage to the water, thus placing the water continually in the shade and protecting it from dust and dirt blowing around the camp (Barlow 1899:158).

It is therefore clear that during the historic period wells were in common use, although shallow wells probably tended to be less healthy and more saline.

Another significant aspect of coastal geology to be considered in these discussions is the fluctuation of sea level during the late Pleistocene and Holocene epochs. Prior to 15,000 B.C. there is evidence that a warming trend resulted in the gradual increase in Pleistocene sea levels (DePratter and Howard 1980). Work by Brooks et al. (1989) clearly indicates that there were a number of fluctuations during the Holocene. Their data suggest that as the first Stallings phase sites along the South Carolina coast were occupied about 2100 B.C. the sea level was about 4.2 feet lower than present. Following that period there was a gradual fall in the sea level to about 11.0

feet below current levels by 1850 B.C. Sea levels gradually increased during the Thom's Creek phase to a level within about 2.0 feet of the current stands by 1650 B.C. Following this was a second lowering about 1250 B.C., to a level of 9.7 feet below that of today. The sea level increased

formation of soils in the study area is affected by this parent material (primarily sands and clays), the temperate climate (to be discussed later in this section), the various soil organisms, topography, and time.

The mainland soils are Pleistocene in age and tend to have more distinct horizon development and diversity than the younger soils of the sea and barrier islands. Sandy to loamy soils predominate in the level to gently sloping mainland areas. The island soils are less diverse and less well developed, frequently lacking a well-defined B horizon. Organic matter is low and the soils tend to be acidic. The Holocene deposits typical of barrier islands and found as a fringe on some sea islands, consist almost entirely of quartz sand which

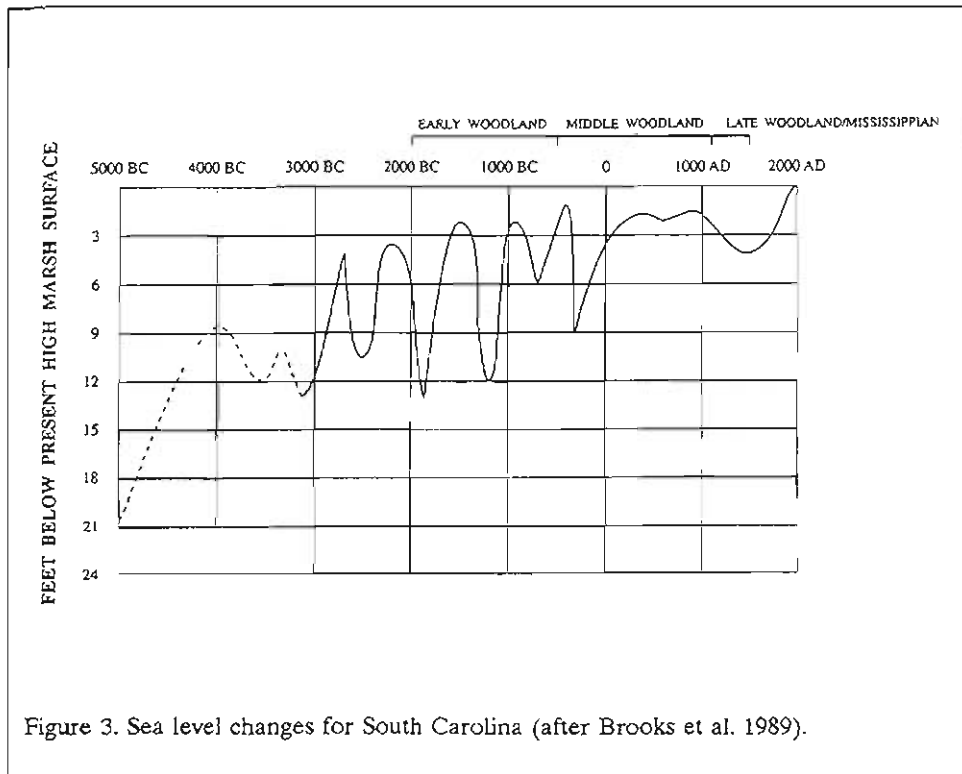


Figure 3. Sea level changes for South Carolina (after Brooks et al. 1989).

through the late Thom's Creek phase to a high about 2.8 feet below modern levels by 1050 B.C. Another low, about 9.7 feet, occurred at 350 B.C. after which the sea levels tend to maintain a gradual rise to their modern levels (see Figure 3).

Data from the nineteenth and twentieth centuries suggest that the level is continuing to rise. Kurtz and Wagner (1957:8) report a 0.8 foot rise in Charleston, South Carolina sea levels from 1833 to 1903. Between 1940 and 1950 a sea level rise of 0.34 foot was again recorded at Charleston. These data, however, do not distinguish between sea level rise and land surface submergence.

Within the coastal zone the soils are Holocene and Pleistocene in age and were formed from materials that were deposited during the various stages of coastal submergence. The

exhibits little organic matter. Tidal marsh soils are Holocene in age and consist of fine sands, clay, and organic matter deposited over older Pleistocene sands. The soils are frequently covered by up to 2 feet of saltwater during high tides. Historically, marsh soils have been used as compost or fertilizer for a variety of crops, including cotton (Hammond 1884:510) and Allston mentions that the sandy soil of the coastal region, "bears well the admixture of salt and marsh mud with the compost" (Allston 1854:13).

While a range of soil series occur on James Island, only one is found within the Fort Johnson tract. The Wando loamy fine sands are found throughout the survey area and are characterized as deep, excessively drained to well drained soil that is sandy throughout. The Ap horizon, about 0.7 foot in depth, is a dark-brown

loamy sand overlying a C1 horizon of brown loamy sand up to 2.8 foot in depth (Miller 1971:30-31). The season high water table is 5 or more feet below the surface (Miller 1971:Table 7).

Soil drainage may reasonably be expected to impact prehistoric and historic settlement patterns, as well as cultivation (and hence plantation wealth) during the antebellum period. Plants such as indigo and cotton require well drained soils, while rice requires flooding (and therefore soils capable of holding the water) (Hammond 1884; Hilliard 1975; Huneycutt 1949). A number of period accounts discuss the importance of soil drainage. Seabrook explained:

subsoil so close as to be impervious to water; so that the excess of the rains of winter cannot sink. Nor can it flow off, because of the level surface The land thereby is kept thoroughly water-soaked until late in the spring. The long continued wetness is favorable only to the growth of coarse and sour grasses and broom sedge acid and antiseptic qualities of the soil sponge-like power to absorb and retain water is barren, (for useful crops) from two causes - excessive wetness and great acidity. The remedies required are also two; and neither alone will be of the least useful effect, with the other also. Draining must remove the wetness - calcareous manures the acidity (Seabrook 1848:37).

Hammond expanded on this, mentioning:

drainage has of necessity always been practiced to some extent. The remarkably high beds on which cotton is planted here, being from 18 inches to 2 feet high, subserve this purpose. The best planters have long had open drains through their fields. These were generally made by running two furrows with a plow and

afterwards hauling out the loose dirt with a hoe, thus leaving an open ditch, if it may be so termed, a foot or more in depth (Hammond 1884:509).

### Climate

John Lawson described South Carolina, in 1700, as having "a sweet Air, moderate Climate, and fertile Soil" (Lefler 1967:86), although he tended to romanticize Carolina. In December 1740 Robert Pringle remarked that Charleston was having "hard frosts & Snow" characterized as "a great Detriment to the Negroes" (Edgar 1972:282), while in May 1744 Pringle states, "the weather having already Come in very hott" (Edgar 1972:685).

The major climatic controls of the area are latitude, elevation, distance from the ocean, and location with respect to the average tracks of migratory cyclones. Fort Johnson's latitude of 32°37'N places it on the edge of the balmy subtropical climate typical of Florida, further south. As a result, there are relatively short, mild winters and long, warm, humid summers. The large amount of nearby warm ocean water surface produces a marine climate, which tends to moderate both the cold and hot weather. The Appalachian Mountains, about 220 miles to the northwest, block the shallow cold air masses from the northwest, moderating them before they reach the sea islands (Mathews et al. 1980:46).

The average high temperature on James Island in July is 81°F, although temperatures are frequently in the 90s during much of July (Kjerfve 1975:C-4). Mills noted:

in the months of June, July, and August, 1752, the weather in Charleston was warmer than any of the inhabitants before had ever experienced. The mercury in the shade often rose above 90°, and for nearly twenty successive days varied between that an 101° (Mills 1972 [1825]:444).

Much of coastal Charleston normally experiences a high relative humidity, adding greatly to the

discomfort. Kjerfve (1975:C-5) found an annual mean value of 73.5% RH, with the highest levels occurring during the summer. Pringle remarked in 1742 that guns "sufferr'd with the Rust by Lying so Long here, & which affects any Kind of Iron Ware, much more in this Climate than in Europe" (Edgar 1972:465).

The annual rainfall on James Island is 49 inches, fairly evenly spaced over the year. While adequate for most crops, there may be periods of both excessive rain and drought. Kjerfve (1975:C-8) notes that the Charleston area has recorded up to 20 inches of rain in a single month and the rainfall over a three month period has exceeded 30 inches no less than 9 times in the past 37 years. Likewise, periods of drought can occur and cause considerable damage to crops and livestock. Mills remarks that the "Summer of 1728 was uncommonly hot; the face of the earth was completely parched; the pools of standing water dried up, and the field reduced to the greatest distress" (Mills 1972 [1825]:447-448). In 1818 the streams went dry. Another significant historical drought occurred in 1845, affecting both the Low and Up Country. The drought of 1848 caused such low river flows in the Low Country that a tidal salinity invasion severely damaged rice crops.

The annual growing season is 295 days, one of the longest in South Carolina. This mild climate, adequate rainfall, and long growing season, as Hilliard (1984:13) notes, is largely responsible for the presence of many southern crops, such as cotton and sugar cane.

Hilliard also points out that "any description of climate in the South, however brief, would be incomplete without reference" to a meteorological event frequently identified with the region -- the tropical hurricane. Hurricanes occur in the late summer and early fall, the period critical to antebellum cane, cotton, and rice growers. These storms, however, are capricious in occurrence:

in such a case between the dread of pestilence in the city, of common fever in the country, and of an unexpected hurricane on the island, the inhabitants are at the close of every warm season

in a painful state of anxiety, not knowing what course to pursue, not knowing what is to be done (Ramsay, quoted in Calhoun 1983:2).

The coastal area is a moderately high risk zone for tropical storms, with 169 hurricanes being documented from 1686 to 1972 (about one every two years) (Mathews et al. 1980:56). Table 1 lists the major storms of the seventeenth, eighteenth, and nineteenth centuries.

The climate of the Charleston area, regardless of storms, temperature, humidity, or rainfall, was often viewed as harsh and unhealthy, especially for the white population. Mills states:

the numerous swamps, bays, and low grounds which indent the low country, retain the waters that fall in rains; and in consequence of these, occasion thick fogs throughout the night, during the summer months. Under such circumstances it is a matter of little surprise that fevers prevail.

The two fevers most dreaded here, are, what are commonly termed the country and yellow fever. The first is peculiar to the country, and to avoid it, the planters are in the habit either of residing in Charleston during the sickly season, or returning to the Sea Islands or Sand hills. The second belongs exclusively to the city, and is generally fatal to strangers only, who have not, as it is termed, become climatized (Mills 1972 [1825]:140-144).

Expounding on the evil of the swamps, Mills also explained:

that to the extensive swamps and stagnant pools, which cover its surface, are we to attribute the cause of our epidemical diseases. The rank luxuriance of vegetation on these waste lands, their perpetual moisture, and the

operation of a powerful sun, produce at certain seasons of the year, in a degree indeed extensive, the rapid de-composition of this vegetable matter: the miasma arising from this

thickets). Of these the Oak-Pine forests are most common, constituting over half of the forest communities in the area. In some areas palmetto becomes an important sub-dominant. Typically these forests are dominated by the laurel oak with pine (primarily loblolly with minor amounts of longleaf pine) as the major canopy co-dominant. Hickory is present, although uncommon. Other trees found are the sweet gum and magnolia, with sassafras, red bay, American holly, and wax myrtle found in the understory.

Table 1.  
Major Hurricanes Through the Seventeenth, Eighteenth and Nineteenth Centuries

Date	Location	Classification	Damage
August 25, 1686	Charleston	Major	Flooding, wind damage
September 14/16, 1700	Charleston	Great	Flooding, at least 97 deaths
September 5/6, 1713	Charleston	Major	Flooding, perhaps 70 deaths
September 13/14, 1728	Charleston	Major	23 ships damaged or lost, forests leveled
September 15, 1752	Charleston	Extreme	Extensive flooding, damage, death
September 1784	Charleston	Major (?)	Flooding, extensive property loss
September 7/8, 1804	Savannah	Great	7 foot storm tide, 500 deaths in SC
August 27, 1813	Charleston	Great	Severe winds, tides, much crop loss
September 27, 1822	Charleston	Major	Extensive crop losses, 300 deaths
September, 7/9 1854	Savannah	Major	90 mile/hour winds
August 27, 1881	Savannah	Major	16 foot tide, 700 deaths in Georgia and SC
August 25, 1885	Beaufort	Extreme	21 deaths in Charleston, 125 mile/hour winds
August 27, 1893	Charleston	Extreme	17 to 19 foot storm tide, up to 2000 deaths
October 13, 1893	Charleston	Major	Flooding, several deaths
September 28/29, 1896	Savannah	Major	12 deaths, winds of 75 miles/hour
August 31, 1898	Savannah	Hurricane	100 mile/hour winds
October 2, 1898	Savannah	Hurricane	12 foot storm tide
October 31, 1899	Myrtle Beach	Major	58 miles/hour winds in Charleston

In the Mixed Oak Hardwood forests pine is reduced in importance and the laurel oak is replaced by the live oak. Yaupon holly and red bay or magnolia are found in the understory. The Palmetto forests are characterized by open palmetto stands with an understory of wax myrtle, red cedar, Yaupon

decomposition contaminates the surrounding air, which afterwards is wafted by the winds over the country, and poisons, more or less, the whole atmosphere (Mills 1972 [1825]:462).

holly, and magnolia. The Low Oak woods or thickets are found as a band behind the high dunes. This association is continuous with the Oak-Pine-Palmetto forests. The miscellaneous wooded areas include wax myrtle thickets found in low areas behind the dune fields.

### Floristics

James Island exhibits three major ecosystems: the maritime forest ecosystem which consists of the upland forest areas of the island, the estuarine ecosystem of deep water tidal habitats, and the palustrine ecosystems which consist of essentially fresh water, non-tidal wetlands (Sandifer et al. 1980:7-9).

The maritime forest ecosystem has been found to consist of five principal forest types, including the Oak-Pine forests, the Mixed Oak Hardwood forests, the Palmetto forests, the Oak thickets, and other miscellaneous wooded areas (such as salt marsh thickets and wax myrtle

Mills, in the early nineteenth century, remarked that:

South Carolina is rich in native and exotic productions; the varieties of its soil, climate, and geological positions, afford plants of rare, valuable, and medicinal qualities; fruits of a luscious, refreshing, and nourishing nature; vines and shrubs of exquisite beauty, fragrance, and luxuriance, and forest trees of noble growth, in great variety (Mills 1972 [1825]:66).

The loblolly pine was called the "pitch or Frankincense Pine" and was used to produce tar and turpentine; the longleaf pine was "much used in building and for all other domestic purposes;" trees such as the red bay and red cedar were often used in furniture making and cedar was a favorite for posts; and live oaks were recognized as yielding "the best of timber for ship building;" (Mills 1972 [1825]:66-85). Mills also observed that:

in former years cypress was much used in building, but the difficulty of obtaining it now, compared with the pine, occasions little of it to be cut for sale, except in the shape of shingles; the cypress is a most valuable wood for durability and lightness. Besides the two names we have cedar, poplar, beech, oak, and locust, which are or may be also used in building (Mills 1972 [1825]:460).

The "Oak and hickory high lands" according to Mills were, "well suited for corn and provisions, also for indigo and cotton" (Mills 1972 [1825]:443). The value of these lands in the mid-1820s was from \$10 to \$20 per acre, less expensive than the tidal swamp or inland swamp lands (where rice and, with drainage, cotton could be grown).

The estuarine ecosystem in the vicinity includes those areas of deep-water tidal habitats and adjacent tidal wetlands. Salinity may range from 0.5 ppt at the head of an estuary to 30 ppt where it comes in contact with the ocean or the open harbor. Estuarine systems are influenced by ocean tides, precipitation, fresh water runoff from the upland areas, evaporation, and wind. The mean tidal range for James Island is 5.2 feet, indicative of an area swept by moderately strong tidal currents. The system may be subdivided into two major components: subtidal and intertidal (Sandifer et al. 1980:158-159). These estuarine systems are extremely important to our understanding of both prehistoric and historic occupations because they naturally contain a high biomass (Thompson 1972:9). The estuarine area contributes vascular flora used for basket making, as well as mammals, birds, fish (over 107 species), and shellfish.

While shellfish are only briefly itemized by Mills in the context of a food source, he elaborates in his discussion of building material, observing that:

lime is obtained from burning oyster shells. It makes a very good mortar, where good sharp sand is used, though it is not equal to the stone lime (Mills 1972 [1825]:460).

While the primary historic use of shellfish may have been for the production of lime, the large numbers of shell middens in coastal area clearly indicate the importance of shellfish in the aboriginal diet (see Trunkley 1991:214-215).

The last environment to be briefly discussed is the freshwater palustrine ecosystem, which includes all wetland ecosystems, such as the swamps, bays, savannas, pocosins, and creeks, where the salinities measure less than 0.5 ppt. These palustrine ecosystems tend to be diverse, although not well studied (Sandifer et al. 1980:295). It is likely, however, that small freshwater ponds will be found in various troughs scattered across the island. Others may represent remnant freshwater sloughs which filled and became inactive as the sea levels rose and their gradients decreased. A number of forest types may be found in the palustrine areas which would attract a variety of terrestrial mammals. The typical vegetation might consist of red maple, swamp tupelo, sweet gum, red bay, cypress, and various hollies. Also found would be wading birds and reptiles. It seems likely that these freshwater environs were of particular importance to the prehistoric occupants.

## PREHISTORIC AND HISTORIC OVERVIEW

### Previous Research At Fort Johnson

In late 1972 the S.C. Institute of Archaeology and Anthropology (SCIAA) entered into discussions with the College of Charleston and the S.C. Department of Wildlife and Marine Resources (SCDWMR) regarding the continuing development of Fort Johnson. In a November 16, 1972 letter then State Archaeologist Dr. Robert Stephenson remarked that:

the entire area of Fort Johnson is now on the National Register for Historic Places. If there is any danger to historic resources . . . we should have an opportunity to evaluate the potential loss and see if there isn't a way to avoid such as loss (letter from Dr. Robert Stephenson to Mr. W.J. Keith, dated November 16, 1972).

By that time the ca. 1759 sea wall (forming part of one of the early forts) had already sustained extensive damage from the construction of a large laboratory complex and placement of modern drain pipe. Plans were being developed for the construction of additional facilities by the College of Charleston and the SCDWMR ("New Building is Planned for Fort Johnson Center, *Charleston Evening Post*, October 27, 1972). Perhaps these plans stirred local interest as well, since Robert Stockton shortly afterwards also wrote an article discussing the difficulty dating the various structures at Fort Johnson and the need for more historical and archaeological research ("Pinpointing Fort's Date Tough," *News and Courier*, October 30, 1972).

SCIAA eventually entered into a memorandum of agreement with the College of Charleston (as well as presumably with SCDWMR, although no copy of that agreement could be immediately located) to conduct about a month of

research on the site of the proposed construction. A proposal for the research with the College of Charleston and the SCDWMR specified that the work was intended to be "testing and exploratory," although it might also incorporate "major salvage" to allow the area to be "entirely cleared for the planned construction at no further inconvenience" (Anonymous n.d.:1). While the procedures may be unusual by today's standards of "compliance archaeology," twenty years ago such agreements by a wide range of archaeologists were all too common. The proposal is perhaps more important since it conveys information on the state of knowledge regarding Fort Johnson at the time. It is quoted at length for the historical perspective it provides:

the sea wall is still to be seen on the east and west sides of the peninsula. It also extended through the yacht basin where the wall was found during the excavation for that feature. Judging from this, it would be expected that the wall may be found beneath the yard of the Medical University property in the area of the huge cistern . . .

It was not possible to see inside the "powder magazine" structure, but several important observations were made regarding the exterior of this structure. The structure is of brick, rectangular in shape, with three [there are actually only two] buttresses on the north and south sides. The roof is of brick that has been cemented over, but this has cracked and allowed water and soil to enter, and grass is now growing there. Large cracks are to be seen in several places, where



the pressure on the roof is forcing the walls outward. This building is in serious need of repair to save it from rapid deterioration. Since this is the oldest and most complete above-ground structure still standing from the earlier historic period of the site, it is imperative that steps be taken toward saving this structure.

The interior of the original brick structure has had a thick liner of brick added to strengthen and thicken the walls. This may have been done at the time of the Civil War when the entire building was beneath a sand embankment added to protect the contents of the structure, during the time it served as a magazine. The buttresses on the exterior of the structure were added at a time after the original building was built. In order to do this and to insure a tight fit between the added buttresses and the standing brick wall, the bricks were chiseled out of the wall to allow the buttresses to be tied into the wall. In doing this it was necessary to cut through the bricks in the wall, and this evidence is clearly revealed in the area where the buttresses join the brick wall.

The question arises as to what function the brick building served originally, and since it was known as a "powder magazine" during the Civil War, this name has tended to influence interpretations regarding its original use. The narrow slit for ventilation on the side, and the single window at the end might indicate that it served originally as a magazine, but it could also have served as a jail, which would need no more than a slit for ventilation

and a single window, provided the window is original (a point which remains to be checked).<sup>1</sup>

No rectangular structure such as this is shown on the Moultrie Fort map of 1800, through there is a possibility that the structure is the prison or the magazine shown on this map, structures that stood about twenty or so feet apart. The fact that the structure we now see is rectangular and the map shows square buildings is not necessarily an indication that the present building is not one of these structures, but it surely points to it not being one of the Moultrie Fort buildings. This question is significant in interpreting the early fort maps, particularly the 1800 map, in relationship to the present site. Archaeology here in the area of this structure, to the east, south, west, and north, should help toward interpreting this structure in relation to the remains of other structures in the area. It is suspected that this Civil War "powder magazine" is a structure built in the period of construction on the site after the 1800 map was made. The buttresses may have been added at the time of the Civil War, before the covering of soil was added. Such buttresses would have insured that the brick walls were strong enough to support the weight of the soil being used to cover the building (Anonymous n.d.:1-4).

The proposal also specifies the work which was to

---

<sup>1</sup> Subsequent historical research has documented that this structure was a powder magazine, although it was always plagued by dampness. Only in the Second World War was it known to be temporarily used as a military jail.

be undertaken by SCIAA.

1. To reveal any architectural features in the area to the east and south of the "H" shaped building between that building and the road.

2. To cut profile trenches to the west, east, and north of the "powder magazine" to locate archaeological features and to provide an interpreted date for construction of this building.

3. To cut an exploratory trench to the north of the "H" shaped building to determine if a tabby fort wall can be seen in the area where ruins in the marsh to the east indicate that it might be.

4. To cut exploratory trenches to locate the tabby wall found during recent installation of a telephone line.

5. To photograph all features located and to plot these on the master map of the site for use in future correlation of the site with the historic documents (Anonymous n.d.:7).

The proposal, pared down from a month to two weeks, was apparently accepted since the work was conducted by SCIAA from May 21 through June 1, 1973. The project conducted for the College of Charleston was completed with a five page publication a year later, in June 1974 (South 1974). South observed that the historic maps "did not reveal any structures other than a tabby wall to the west of the area under consideration" and that a 1865 watercolor of the site area showed the project area to be low and marshy (South 1974:1-2). A series of trenches were excavated, along with at least one backhoe cut. South found only scattered artifacts and the remains of several drainage ditches. He concluded that, "with this extensive testing of this site carried out it appeared that there was no evidence that would indicate any extensive occupation had

occurred in this section of the site, and that construction of a building here would not damage archaeological ruins" (South 1974:4). In addition to the research in the vicinity of the laboratory building, South also briefly mentions that some additional testing was conducted "across the road toward to the east to the west of the water tank tower" where houses were proposed, and "near the entrance gate to the property, on the south side of the road" where a Food and Technology Building was planned. While South found some evidence of the Civil War fortifications in the former area, he advised that construction "should pose no major damage to the configuration of the works unless considerable bulldozing was carried out" and that "no major historic ruin" would be damaged (South 1975b:4). The latter area was "probed" and, finding nothing, "there appeared to be no reason why construction could not proceed" (South 1975b:5).

The results of the testing conducted for the SCDWMR was published in October 1975 (South 1975b). This study provided a synopsis of Fort Johnson's history beginning with its inception in 1708 and stopping just short of its extensive involvement in the Civil War. South detailed his investigations at the site and also worked extensively to correlate the various maps, commenting that his work was hindered by the absence of an accurate map of the project area (South 1975b:52). A number of research conclusions and speculations can be scattered throughout the study, including:

- South found a TPQ date of 1798.5 for the construction of the powder magazine.<sup>2</sup> Based on period maps and additional stratigraphic clues, he very reasonably suggested that the magazine was built during the War of 1812 (South 1975b:32-35).
- South recovered the architectural and archaeological remains of the barracks built at

---

<sup>2</sup> The *terminus post quem*, or TPQ, is the date after which the building had to be built, in this case about 1798.

Fort Johnson perhaps as early as 1790 which continued to be used through the Civil War, at which time they were "Officer's Quarters" (South 1975b:42). He attributes the cisterns to this use of the building.

▪ South suspected that the land face of the 1759 tabby fort was never constructed since no attack by land was anticipated, although he cautions that "the question cannot be answered without knowing more about what is going on beneath the ground relative to the massive tabby wall remaining from this fort" (South 1975b:52).

▪ South found that by overlaying the 1800, 1821, and 1849 maps using the structure respectively known as the "U.S. Barracks," "Quarters," and "16 rooms" on the three maps as the focal point, he was able to predict or interrelate the location of a number of additional architectural features, including:

- Governor William Moultrie's 1793 fort,
- the U.S. Battery of 1794,
- the ruins of the 1759 fort (as shown on the 1800 map),
- the "Bake House" (as shown on the 1800 map),
- the "Hospital" (as shown on the 1800 map),
- the "Store House" (as shown on the 1821 map) and the "8 room structure" (as shown on the 1849 map) are suggested to the remains of the west end of the row of the "U.S. Barracks built in 1796,"
- the "Hospital" (as shown on the 1800 map) is suggested to be the same structure as that shown in the same area on the 1849 map,

- the "Bake House" (as shown on the 1800 map) is suggested to be the same structure as that shown in the same area on the 1849 map, and
- the hurricane tide line of October 1 and 2, 1803 is at virtually the same location as the present tide line.

South also suggested that based on this map research, the cisterns on the site likely dated to the construction of the U.S. Barracks in 1796 and were placed at the corner of a porch to collect rain water from the roof (South 1975b:46).

▪ South was also able to demonstrate that a series of contours on the 1821 map are positioned "directly in the area of the surviving tabby sea wall and caponier bastionette," suggesting that the bastionette was built as early as the War of 1812, but by 1821 was in ruins, just as it is today (South 1975b:49).

While all of these observations are of exceptional importance and will be referenced again in latter sections of this study, it is also important to understand South's recommendations regarding construction. His observations are reproduced below:

If the site were primeval wilderness today, having been abandoned after the Civil War, it would be a site so rich in potential for historical development and interpretation that any impact on such a setting by modern construction would be a serious violation of the site. However, the recently constructed buildings by the three present owners, agencies of the State of South Carolina, has [sic] so damaged the historical

development potential of the site that the environmental, historical impact of yet another building takes on quite a different perspective than would be the case were the hypothetical primeval state outlined above still existing. This does not mean that we should ignore the possibility that further construction will likely damage historical-archaeological values on the contrary. It does mean that the owners have a more intense responsibility toward the meager data that remains, for the recovery of this information is not for the purpose of public interpretation through the development of an historical park, but rather for the contribution to knowledge that further excavation beneath the Fort Johnson soil may add to that we already know from the written documents that have survived in some abundance (South 1975b:53).

In 1975 the SCDWMR and the General Services Administration contacted SCIAA regarding plans to construct the "Southeastern Utilization Research Center"<sup>3</sup> on a sandy ridge on the southwestern edge of Fort Johnson. South (1975c) conducted a brief reconnaissance on September 30, 1975, at the same time examining a proposed waste treatment plant. At the waste treatment plant he observed a:

Civil War embankment containing a sally port in the immediate vicinity of the proposed plant. This proposed location is directly in front of, and but 20 feet from, the sally port. It is directly upon the spot where federal forces attacked the fort. A waste treatment plant in this location would irreparably damage the historic value of the

Civil War defenses and would be a serious violation of the historic integrity of the site (South 1975c:2).

This waste treatment facility was constructed in spite of South's comments and without any further archaeological or historical investigation.

Also of concern was site 38CH16, originally recorded by The Charleston Museum in the 1930s. South also recorded another nearby shell midden, 38CH275. In addition to the prehistoric sherds, South also found a small collection of eighteenth and nineteenth century material, probably associated with the various military occupations at Fort Johnson. He noted that to the southeast of 38CH275 and east of 38CH16 was an "artillery emplacement . . . constructed by the Confederates during the Civil War" (South 1975b:3). He suggested that barracks might be nearby, supported by the occurrence of ceramics, bricks, and other refuse.

As a result of the initial examination of 38CH275, South proposed a somewhat more detailed investigation:

a sampling of both the ridges [containing 38CH16 and 38CH275] and the low-lying areas around them is needed in order to determine which components area present, their time frame, and the extent of these remains within the area of site CH275 to be destroyed by the construction activity. If such remains are found to be extensive and important to understanding the cultural past of the site, mitigation measures must be undertaken relevant to these cultural resources (South 1975b:4).

Specifically, South noted that it was important to investigate both ridges to allow a "comparison between these ridges," although it was equally important to investigate the low-ground area to understand how perhaps earlier groups had used the environment (South 1975b:5-6). An additional goal of the study would be:

---

<sup>3</sup> Now usually known as the NOAA building.

the testing of sampling methods for locating sub-surface sites. The sampling of sites using soil sampling augers and posthole diggers will be explored, and the degree of reliability of such a method will be tested against five foot squares dug in the same location (South 1975b:7).

South also recommended that a "thorough topographical, and archaeological, and historical survey" be made of Fort Johnson to allow the development of a master plan rather than exploring "one site at a time as is now the case" (South 1975c:5). No such survey of Fort Johnson was conducted prior to the current work by Chicora Foundation, nearly two decades later. In addition, as previously mentioned, the waste treatment facility was constructed over the objections by South.

A study outlined by South for 38CH275, however, was apparently approved by the SCDWMR and the U.S. General Services Administration, and was conducted in February and March 1976 (South and Widmer 1976). It should be realized that this study was unique for its time, asking basic methodological issues, exploring survey approaches and results, and examining a site type about which very little was known. The intensity of the survey matches or exceeds surveys being conducted today, nearly 20 years later. Consequently, their study has tremendous validity even today.

Considering the methodological issues South and Widmer were unable to determine whether a random-aligned or interval-aligned sampling strategy was better. They did, however, suggest that for density studies the important variable was likely not the alignment approach but rather the number of samples, with larger samples understandably providing vastly superior results over smaller samples (South and Widmer 1976:20). They also found that posthole diggers outperformed pod and gate augers, although shovel testing and power augering would eventually outdistance even posthole diggers. Their comparison of posthole samples to 3-foot test units was limited to testing "the variability in confidence we can have in SYMAP interpolations of the

various artifact classes" (South and Widmer 1976:24). Quite reasonably they found that the classes which produce larger samples provide better data than those classes for which there are few samples. In other words, nail distributions are better at predicting historic site locations than the distributions of musket balls and oyster shell seemed better at predicting prehistoric occupation than pot sherds.

The dispersion of historic remains suggested to South and Widmer (1976:35) that a "mid-nineteenth century military occupation" was concentrated on the second ridge (lying between 38CH16 and 38CH275). This correlated with the presence of several "craters" thought to represent wells associated with the Civil War encampment. The distribution of prehistoric remains revealed a pattern suggesting that the densest portion of the site was not on the ridge itself, but just back from the ridge away from the tidal marsh. The researchers suggested that "this location just over the crest of the ridges is a more sheltered one for consuming oysters in winter when cold winds blow from the tidal marshes" (South and Widmer 1976:36, 38). Even the presence of small sherd concentrations suggested "small campsites in these low lying areas behind the higher ridges" (South and Widmer 1976:38). The sampling program also allowed South and Widmer to identify what was initially thought to represent a single component Hanover "oyster roasting area or dwelling site" (South and Widmer 1976:40).

Additional excavations in this area revealed a dense concentration of shell midden about 18 feet in diameter and about a foot in depth. At the center was a circular pit 5 feet in diameter and 2.4 feet deep. Radiocarbon dates obtained from the associated oyster shell yielded dates of 180 B.C. and 150 B.C. (South and Widmer 1976:45). While no post holes or other structural evidence was encountered this feature has often been interpreted as a Hanover [Wilmington] house.

The artifacts produced several intriguing theories. One involved the use of clam shells as possible tools, an idea which to this date has still not been adequately tested. At least one clam shell was identified which appeared to have a ground surface, while a number of additional shells

appeared to the authors to have been intentionally altered (South and Widmer 1976:46-56). Another involved the presence of specific activity areas at the site. South and Widmer suggested that:

two distinct activity areas apart from the shell midden are located at the site: a presumed butchering/food processing area encircling the midden with an associated fire burned area, and an occupational or activity area in the proveniences north of the midden, yet adjacent to the fire scorched area as well. The types of activities associated with this area are unknown (South and Widmer 1976:59).

In spite of these findings, South and Widmer remarked that: "because of the nature of the data already revealed, no major mitigation is recommended" (South and Widmer 1976:63). They also remarked that on the southern edge of their research frame, perhaps just outside the area of direct construction impact, there were:

a number of brick chimney-base remains. These are from the occupation of the site by Confederates and Federal forces during the Civil War. Such ruins are the remains of chimneys made of bricks salvaged from other ruins, probably combined with wooded barrels or clay-lined stick chimneys of the type illustrated by Edwin Forbes who saw such chimneys in military quarters during the Civil War (Dawson 1957). A dozen such chimney rubble piles were located within the research frame at Fort Johnson. Historians of the Civil War period may be extremely interested in these ruins in the years to come.

Three of these chimney bases are within the construction area and will be destroyed by the

construction of the building. Others are outside the construction area, but some are so close that they may well be damaged by construction activity unless care is taken to protect these ruins. These ruins should also be protected from damage by landscaping and maintenance crews, as well as from vandals searching for Civil War relics.

In the same area as these chimney bases are several craters" (about 20 feet across and 3-4 feet deep) that appear to have been surface wells that have subsequently collapsed. It is urged that these too, be preserved and not filled in as they are part of the story of the garrisons of Fort Johnson in the Civil War Period.

Since these features are, for the most part, out of the actual construction area the effects on them might be considered "secondary impact." They are located in such relation to the construction area that they can be preserved, without conflict with the construction. If construction activities cannot be done without damage to these features or if landscaping and maintenance must destroy them then additional archaeological work will be required to mitigate the adverse effect on these cultural resources (South and Widmer 1976:63).

Additional concern regarding these Civil War features was expressed by South, who remarked that it was difficult for him to believe that the construction would not cause damage (letter from Mr. Stanley South to Dr. Robert Stephenson, dated February 5, 1976). A letter to the SCDWMR specifically called attention to these remains:

I do call your attention to the

comments regarding nearby brick chimneys and "craters". While, mainly, these are not in the designated construction area caution must be used to avoid damage to them as a secondary effect of the construction" (letter from Dr. Robert Stephenson to Dr. Edwin Joseph, dated February 9, 1976).

As will be discussed in greater detail in a subsequent section of this study these features were not avoided by construction and few, if any, could be relocated. It is likely that most were destroyed by either the construction or subsequent ground modification.

In addition, during construction of the facility a cemetery was discovered on one of the ridges (although the exact spot cannot today be identified). The cemetery was likely missed by the archaeological investigations because of the low density of associated artifacts, the similarity of the associated artifacts to the dispersion of Civil War remains, and the absence of human bone in the relatively shallow testing. In fact, discovery of such abandoned cemeteries is very difficult and was clearly outside the scope of the conducted survey. Apparently no effort was made to either investigate these burials or institute a reburial program. One employee of the SCDWMR mentioned that the "bones" were picked up after having been bulldozed from the site and were stored in cardboard boxes in the stairwell of the administrative building for several years. Some of the remains eventually made their way to Dr. Ted Rathbun, a forensic anthropologist with the University of South Carolina. He noted that the materials were passed on to him under the Uniform Anatomical Donation Act by the Charleston County Medical Examiner's Office after the retirement of Dr. Joel Sexton, although he was not familiar with how the materials came to the Medical Examiner's Office (Dr. Ted Rathbun, personal communication 1994). His brief examination indicates very fragmentary remains of four African American adults, including three females and one male.

A more detailed study was conducted by two students, Mona Cantu and Jo Ann Allen, who

examined the two most complete individuals. Individual 1, found to be between 18 and 22 years of age:

appears to have been a petite black female from coastal South Carolina, 5' to 5'2" tall who was at least uniparous. She was also probably right-handed and the lack of muscularity indicates a fairly non-stressful occupation. The absence of Linear Enamel Hypoplasias and lines of increased density support a conclusion that the individual lived a fairly healthy and unstressed life (Cantu and Allen 1981:25).

Individual 2 was similarly a small, black female probably 22 to 29 years old and:

about 4'9" to 5'1" tall. No massive muscle insertions were noted, which indicates a slight musculature. However, this conclusion is tentative due to the absence of several bones (especially those of the upper arm and girdle). Poor dental health may point to a lower economic strata (Cantu and Allen 1981:41).

Summarizing their study, Cantu and Allen observed that:

the presence of coffin handles<sup>4</sup> leads to the conclusion that at least one of the individuals was given a formal burial. Two of the individuals were small petite females with no evidence of extreme muscularity, thus, probably not engaged in a very laborious occupation. These facts

---

<sup>4</sup> Two specimens of two lug swing bale coffin handles were included in the collection. This style is most common prior to 1880, but use did continue into the twentieth century (see Hacker-Norton and Trnkley 1984).

probably point to an income somewhere above the poverty level. There are postmortem cuts on various bones. This, as well as the fact that the remains were commingled, leads to the conclusion that a plow or tractor of some nature massed over the skeletons (Cantu and Allen 1981:42).

They also briefly noted that irregular bony deposits at the center of the ulnar notch of both Individual 2 and 4 "which could possibly indicate a familial linkage" (Cantu and Allen 1981:39).

In 1989 several sites were re-inventoried by Preservation Consultants (1989) as part of a National Park Service Survey and Planning Grant administered by the S.C. Department of Archives and History, with additional funding provided by Charleston County. Unfortunately, the only structures incorporated into this study were the Fort Johnson powder magazine (Survey Site # 0880112), an unnamed beach battery (possibly Battery Harleson) at Fort Johnson (Survey Site #2490083) and the Marshlands Plantation House (Survey Site #0890096).

#### **Previously Identified Archaeological Sites on Fort Johnson**

Six different archaeological sites, with eight discrete numbers, have been previously recorded for the Fort Johnson facility. Two sites, 38CH16 and 38CH34, were originally recorded with The Charleston Museum in the late 1920s by local individuals who collected small quantities of Native America artifacts from the along the marsh edge at the southwest corner of the current Fort Johnson tract. The materials collected included Deptford and Wilmington sherds from 38CH34, and bone fragments and a "chert drill from 38CH16 (38CH16 and 38CH34 site forms, S.C. Institute of Archaeology and Anthropology, University of South Carolina). While unclear from the existing site records, the current study has revealed that these two numbers represent only one site. As is common for incidental reports such as these, the recorders saw different portions of the same extensive shell midden and recorded each exposure as a different site.

38CH22, also recorded as 38CH74, is one of the more curious sites recorded for Fort Johnson. Filed in 1972, it describes the Marshlands Plantation House, which was moved to the facility in December 1961 from its original Cooper River location in the Charleston Naval Yard. While the plantation, and the associated house, had a long history, at its current secondary location the structure cannot legitimately be considered an archaeological site.

Site documentation for 38CH69, also recorded as 38CH71, was completed in 1971. Like many sites recorded during this period we can only guess at the exact intentions of the recorder. While the form stipulates a site size of between 10 and 20 acres, which represents only a fraction of the Fort Johnson tract, and that the site is situated "on [a] point of land at north end of James Island jutting into [the] Charleston Harbor," the description suggests the site was intended to incorporate not only the early forts on the point, but also various Civil War fortifications much further inland. Such contradictions are the result of the site being recorded on the basis of a brief walking tour, absent any meaningful survey. Other portions of the site form also reveal that so little was known about the complexities of Fort Johnson that no reasonable, or appropriate, management recommendations could be offered.

Archaeological site 38CH274, the martello tower on the north central portion of the Fort Johnson facility, was recorded in 1975, again based on a very limited exploration. To further confuse matters, the site form stipulated that 38CH274 is "part of 38CH69." No boundaries are provided by the site form, so it is unclear whether it was intended to incorporate only the architectural ruins, or any additional ground.

The Native American shell midden 38CH275 was recorded in 1975, again as "part of 38CH69." No further information is provided by the site form and the study by South and Widmer (1976) must be consulted for additional information. Their study makes it clear that they interpreted 38CH69 to incorporate the entire 90 acre tract, notwithstanding the recorded site form. In addition, they describe 38CH275 as occupying, "a ridge of sand lying east-west, measuring 100 feet wide by 500 feet long, separated from the ridge of



site 38CH16 by a distance of 100 feet of low ground" (South and Widmer 1976:1). As their study progressed it becomes obvious that the occupation was not confined to the individual discrete sand ridges, but extends into the intervening trough, or low, areas, blurring the seemingly easily defined boundaries between 38CH16 and 38CH275).

Consequently, the site files for the Fort Johnson area are perhaps better at documenting the evolving attitudes toward site boundaries and survey approaches than in offering any substantive guide to the archaeological resources. We have synthesized from these discussions that 38CH69 was originally intended to provide "umbrella" coverage for all of the resources associated with the *historic* occupation of Fort Johnson (regardless of time period or nature), although there was a clear recognition that the prehistoric resources, while overlapping, were not necessarily part of 38CH69

### Prehistoric Archaeology

For the purposes of these discussions the Woodland Period begins about 1000 B.C., or immediately after the Thom's Creek phase (see Figure 4). Most researchers call the period from about 2000 B.C. to 1000 B.C. the Late Archaic because of a perceived continuation of the Archaic lifestyle in spite of the manufacture of pottery. Regardless of the terminology employed, the period from 2000 to 1000 B.C. is well documented, although many of the technological changes and much of the reorganization of the cultural landscape is only beginning to be fully realized, understood, and studied (see Sassaman 1993; see also Trinkley 1993 for a brief review of this early period).

#### Early Woodland

Following the Late Archaic Stallings and Thom's Creek phases is the Refuge phase, strongly associated with the Georgia sequence and the Savannah drainage (DePratter 1979; Lepionka et al. 1983; Williams 1968). The Refuge Phase, dated from 1070±115 B.C. (QC-784) to 510±100 B.C. (QC-785), is found primarily along the South Carolina coast from the Savannah drainage as far north as the Santee River (Williams 1968:208).

Anderson (1975:184) further notes an apparent concentration of Refuge sites in the Coastal Plain, particularly along the Santee River. The pottery is found inland along the Savannah River (Peterson 1971:151-168), although it does not extend above the Fall Line (see Anderson and Schuldenreim 1985:719; Garrow 1975:18-21).

The Refuge series pottery is similar in many ways to the preceding Thom's Creek wares. The paste is compact and sandy or gritty, while surface treatments include sloppy simple stamped, dentate stamped, and random punctate decorations (see DePratter 1979:115-123; Williams 1968:198-208). Anderson et al. note that these typologies are "marred by a lack of reference to the Thom's Creek series" (Anderson et al. 1982:265) and that the Refuge Punctate and Incised types are indistinguishable from Thom's Creek wares. Peterson (1971:153) characterizes Refuge as both a degeneration of the preceding Thom's Creek series and also as a bridge to the succeeding Deptford series. There is a small stemmed biface associated with the Savannah drainage Refuge sites. This type has been termed Groton Stemmed by Stoltman (1974:114-115) and Deptford Stemmed by Trinkley (1980b:20-23). Peterson suggests that, "a change from the 'Savannah River' to the small stemmed points, a diminution basically, could occur during the Refuge" (Peterson 1971:159), although points similar to the Small Savannah River Stemmed continue to occur.

While large Refuge shell middens, such as 38JA61 (Lepionka et al. 1983), occur, a significant change in the Refuge settlement pattern and subsistence base is clearly evidenced. At the end of the Thom's Creek phase a number of small, non-shell midden sites are found. This pattern of small sites, situated away from potential shellfish sources, continues in the Refuge phase (see, for example, Peterson 1971:164-168). Refuge pottery is common on coastal sites south of the Santee River, but is usually found in sandy buried soils with few features or organic remains (see, for example, Trinkley 1982 and the distribution discussions by Anderson et al. 1982:266).

It is difficult to reconstruct the subsistence base, although the sites suggest small, seasonal camps for small groups (Trinkley 1982). The settlement fragmentation, which began at the end

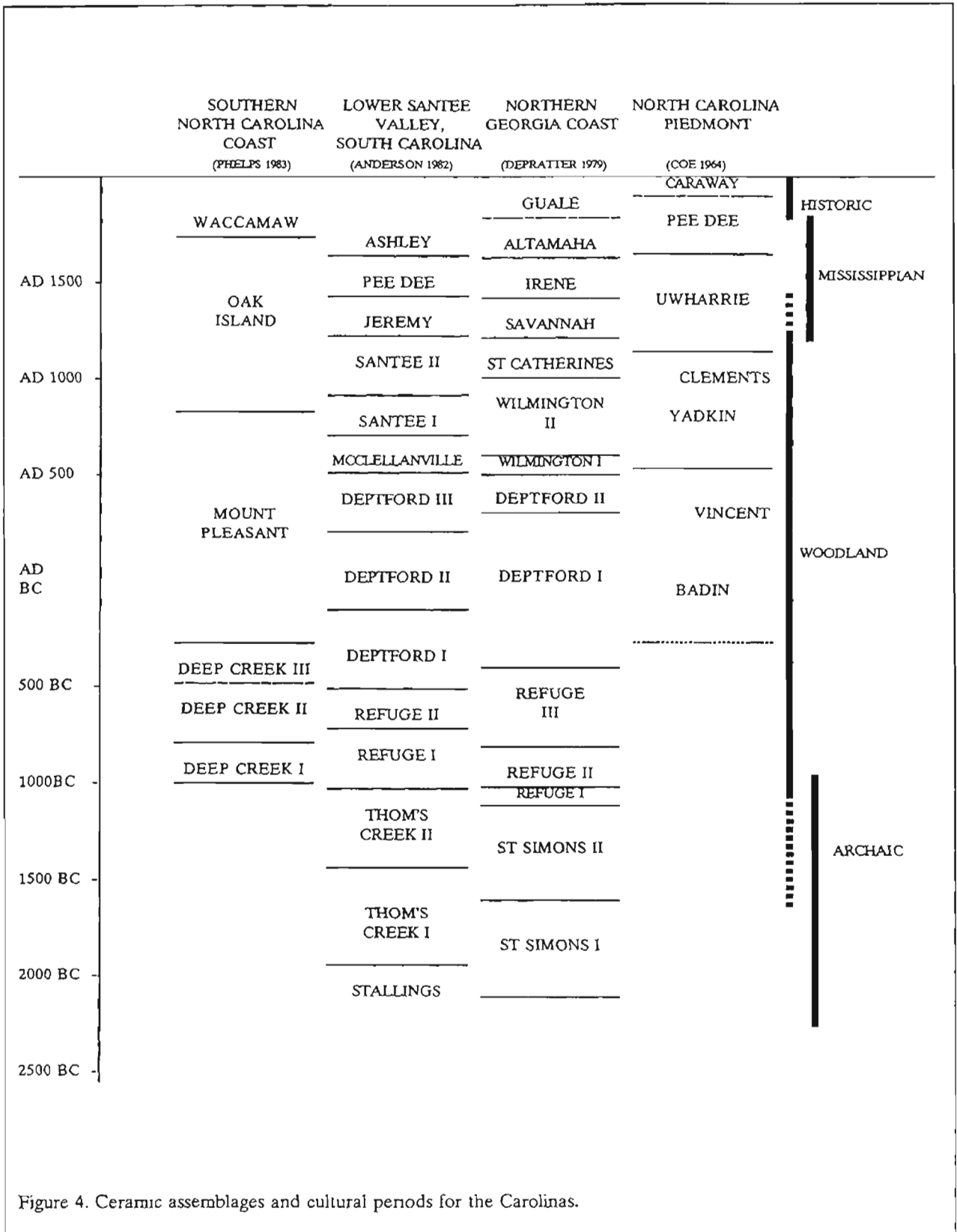


Figure 4. Ceramic assemblages and cultural periods for the Carolinas.

of the Thom's Creek phase, around 1000 B.C., probably relates to the increase in sea level, from a Thom's Creek phase low of 10 feet below the current high marsh surface at 1200 B.C. to a high of about 3 feet below the current high marsh surface at 950 B.C. (Brooks et al. 1989). This increasing sea level drowned the tidal marshes (and sites) on which the Thom's Creek people relied. The following Refuge phase evidences the fragmentation necessary when the environment, which gave rise to large sedentary populations, disappeared. Hanson (1982:21-23), based on Savannah River data, suggests that subsistence stress present during the Thom's Creek phase may have resulted in an expansion of the settlement system into diverse environmental settings. It seems likely, however, that the development of mature, upland tributaries was also an essential ingredient in this process. This same "splintering" is observed on the South Carolina coast.

#### Middle Woodland

The Deptford culture takes its name from the type site located east of Savannah, Georgia, which was excavated in the mid-1930s (Caldwell 1943:12-16). Deptford phase sites are best recognized by the presence of fine to coarse sandy paste pottery with a check stamped surface treatment. This pottery is typically in the form of a cylindrical vessel with a conoidal base. Other Deptford phase pottery styles include cord marking, simple stamping, a complicated stamping which resembles early Swift Creek, and a geometric stamping which consists of a series of carved triangles or diamonds with interior dots (see Anderson et al. 1982:277-293; DePratter 1979).

The Deptford technology is little better known than that of the preceding Refuge phase. Shell tools are uncommon, bone tools are "extremely rare" (Milanich and Fairbanks 1980:77), and stone tools are rare on Coastal Zone sites. All of this indicates to some researchers that "wood must have been worked into a variety of tool types" (Milanich and Fairbanks 1980:75). One type of stone tool associated with South Carolina Deptford sites is a very small, stemmed projectile point tentatively described as "Deptford Stemmed" (Trinkley 1980b:20-23). This point is the culmination of the Savannah River Stemmed reduction seen in the Thom's Creek and Refuge

phases. Similar points have been found at a variety of Deptford sites (see Milanich 1971:175-176; Stoltman 1974:115-116, Figure 20i-j, 40h-j). Also found at Deptford sites are "medium-sized triangular points," similar to the Yadkin Triangular point (Coe 1964:45, 47, 49; Milanich and Fairbanks 1980:75-76). In the Savannah River area Sassaman et al. (1990:156-157) report that Deptford pottery appears much more strongly associated with triangular projectile points (Badin and Yadkin types) than with the small stemmed points. They note, "small stemmed bifaces are attributed to the Early Woodland period with the recognition that they probably persisted into the subsequent period but were rapidly and thoroughly replaced by triangular forms by 2000 B.P." (Sassaman et al. 1990:157).

Perhaps of even greater interest is the co-occurrence of the larger triangular points (such as Badin and Yadkin) with smaller triangular forms (such as Caraway) traditionally attributed to the Late Woodland and South Appalachian Mississippian periods. This situation has been reported at Coastal Plain sites (Blanton et al. 1986:107), Savannah River sites (Sassaman et al. 1990:157), and Coastal Zone sites (Trinkley 1990). Blanton et al. (1986) suggest that these point types were used at the same time, but perhaps for different tasks.

Anderson (1975:186) has found Deptford wares distributed throughout the South Carolina Coastal Plain, with major sites at the mouths of the Santee and Savannah Rivers. The earliest date for Deptford, 1045 ± 110 B.C. (UGA-3515), has been obtained from 38LX5 in Lexington County (Trinkley 1980b:11). The most recent date comes from St. Simons Island, Georgia, where a date of A.D. 935 ± 70 (UM-673) was obtained. Milanich and Fairbanks (1980:60) suggest a tighter range of about 500 B.C. to A.D. 600, while Anderson et al. (1982:281) suggest a date range of about 800 B.C. to A.D. 500.

Deptford sites on the South Carolina coast are often small, especially when compared to the earlier Thom's Creek middens, and they are usually multicomponent. Deptford Coastal Zone sites, while containing shell, do not represent massive mounds, but rather thin middens formed as series of small shell heaps which have been

deposited adjacent to the marsh and gradually formed continuous masses. These heaps were the result of short periods of site use, perhaps as a base camp for shellfish collecting (see Milanich and Fairbanks 1980:72-73; Trinkley 1981b). Results of soil chemical analyses from the Pinckney Island midden (Trinkley 1981b:53-54) suggest less than intensive occupation. The chemical studies support Milanich's assessment that occupation was not on the shell piles, but adjacent to them (Milanich and Fairbanks 1980:72-73; Trinkley 1981b:53-54).

Milanich (1971:192-198; see also Milanich and Fairbanks 1980:70-73) suggests that the Deptford phase settlement pattern involves both coastal (i.e., Coastal Zone) and inland (i.e., Coastal Plain) sites. The coastal sites, which are always situated adjacent to tidal creek marshes, evidence a diffuse subsistence system. The inland sites are also small, lack shell, and are situated on the edge of swamp terraces. This situation is similar to that found in South Carolina, although there are Deptford middens which exhibit a very focal subsistence emphasis (Trinkley 1990). Sites such as Pinckney Island (38BU67 and 38BU168; Trinkley 1981b) and Minim Island (38GE46; Drucker and Jackson 1984; Espenshade and Brockington 1989) evidence large Coastal Zone Deptford occupations, while sites such as 38BU747 (Trinkley 1990) evidence only small, focal shell midden occupations. Sites such as 38BK984 (Roberts and Caballero 1988) provide evidence of Coastal Plain non-shell midden Deptford occupation.

At Pinckney Island the bulk of the calories came from shellfish while mammals played a relatively insignificant role (Trinkley 1981b:57-60). A similar situation occurs at Minim Island (38GE46), where late spring and summer occupation is documented with a reliance on fishing, with mammals being a secondary, if not minor food source. In the fall there is evidence of intensive oyster gathering and possible use of nearby hickory masts (Drucker and Jackson 1984; Espenshade and Brockington 1989).

Inland, sites such as 38AK228-W, 38LX5, 38RD60, and 38BM40 indicate the presence of an extensive Deptford occupation on the Fall Line and the Coastal Plain, although sandy, acidic soils preclude statements on the subsistence base (see

Anderson 1979). These interior or upland Deptford sites, however, are strongly associated with the swamp terrace edge, and this environment is productive not only in nut masts, but also in large mammals such as deer. Perhaps the best data concerning Deptford "base camps" comes from the Lewis-West site (38AK228-W), where evidence of abundant food remains, storage pit features, elaborate material culture, mortuary behavior, and craft specialization has been reported (Sassaman et al. 1990:96-98).

An often offered view of an estuarine Deptford adaptation with minor interior occupations must be re-evaluated based on the Savannah River drainage work of Brooks and Hanson (1987) and Sassaman et al. (1990:293-295) who suggest larger residential base camps and foraging zones along the Savannah River, coupled with smaller, household residences and foraging zones in the uplands along small tributaries. While it is not yet clear if these upland sites represent a perennial settlement pattern or a seasonal fissioning typical of the Late Archaic, it seems likely that the pattern was equally affected by demographic pressures and external socio-political influences (see Sassaman et al. 1990:303-304). Of considerable potential significance is evidence of trade between coastal and interior Deptford groups. For example, the Lewis-West site (38AK228-W) has produced evidence of sharks' teeth and whelk shells from the coastal region.

The later Middle Woodland in South Carolina is characterized by a pattern of settlement mobility and short-term occupation. On the southern coast it is associated with the Wilmington phase, while on the northern coast it is recognized by the presence of Hanover, McClellanville or Santee, and Mount Pleasant assemblages. Wilmington and Hanover may be viewed as regional varieties of the same ceramic tradition. The pottery is characterized almost solely by its crushed sherd temper which makes up 30 to 40% of the paste and which ranges in size from 3 to 10 mm. Wilmington was first described by Caldwell and Waring (Williams 1968:113-116) from coastal Georgia work, while the Hanover description was offered by South (1960), based on a survey of the Southeastern coast of North Carolina (with incursions into South Carolina). The Wilmington phase was seen by Waring (Williams 1968:221) as

intrusive from the Carolina coast, but there is considerable evidence for the inclusion of Deptford traits in the Wilmington series. For example, Caldwell and McCann (1940:n.p.) noted that, "the Wilmington complex proper contains all of the main kinds of decoration which occur in the Deptford complex with the probable exception of Deptford Linear Checkstamped" (see also Anderson et al. 1982:275). Consequently, surface treatments of cord marking, check stamping, simple stamping, and fabric impressing may be found with sherd tempered paste. Anderson et al. (1982) suggest that Hanover is simply a variant of Wilmington in a type-variety system, presenting a compelling approach to deal with this typological overlap.

Sherd tempered Wilmington and Hanover wares are found from at least the Chowan River in North Carolina southward onto the Georgia coast. Anderson (1975:187) has found the Hanover series evenly distributed over the Coastal Plain of South Carolina, although it appears slightly more abundant north of the Edisto River. The heartland may be along the inner Coastal Plain north of the Cape Fear River in North Carolina. Radiocarbon dates for Wilmington and Hanover range from 135±85 B.C. (UM-1916) from site 38BK134 to A.D. 1120±100 (GX-2284) from a "Wilmington House" at the Charles Towne Landing site, 38CH1. Most dates, however, cluster from A.D. 400 to 900; some researchers prefer a date range of about 200 B.C. to A.D. 500 (Anderson et al. 1982:276).

Largely contemporaneous with the sherd tempered wares are the Mount Pleasant, McClellanville, and Santee series. The Mount Pleasant series has been developed by Phelps from work along the northeastern North Carolina coast (Phelps 1983:32-35, 1984:41-44) and is a Middle Woodland refinement of South's (1960) previous Cape Fear series. The pottery is characterized by a sandy paste either with or without quantities of rounded pebbles. Surface treatments include fabric impressed, cord marked, and net impressed. Vessels are usually conoidal, although simple, hemispherical, and globular bowls are also present. The Mount Pleasant series is found from North Carolina southward to the Savannah River (being evidenced by the "Untyped Series" in Trinkley 1981b). North Carolina dates for the series range from A.D. 265±65 (UGA-1088) to A.D. 890±80

(UGA-3849). The several dates currently available from South Carolina (such as UGA-3512 of A.D. 565±70 from Pinckney Island) fall into this range of about A.D. 200 to 900.

The McClellanville (Trinkley 1981a) and Santee (Anderson et al. 1982:302-308) series are found primarily on the north central coast of South Carolina and are characterized by a fine to medium sandy paste ceramic with surface treatment of primarily v-shaped simple stamping. While the two pottery types are quite similar, it appears that the Santee series may have later features, such as excurvate rims and interior rim stamping, not observed in the McClellanville series. The Santee series is placed at A.D. 800 to 1300 by Anderson et al. (1982:303), while the McClellanville ware may be slightly earlier, perhaps A.D. 500 to 800. Anderson et al. (1982:302-304; see also Anderson 1985) provide a detailed discussion of the Santee Series and its possible relationships with the McClellanville Series. Anderson, based on the Santee area data from Mattassee Lake, indicates that there is evidence for the replacement of fabric impressed pottery by simple stamping about A.D. 800 (David G. Anderson, personal communication 1990). This strongly suggests that McClellanville and Santee wares are closely related (or even identical), both typologically and culturally. Also probably related is the little known Camden Series (Stuart 1975) found in the inner Coastal Plain of South Carolina.

Sand burial mounds have been known from the Georgia and southern South Carolina Coastal Zone since C.B. Moore's investigations in 1898. Recent studies include those by the American Museum of Natural History on St. Cathernes Island, Georgia, which document the Early to Late Woodland use of sand burial mounds (Larsen and Thomas 1982; Thomas and Larsen 1979), as well as the re-investigation of the Callawassie Island burial mound (38BU19) in Beaufort County, South Carolina (Brooks et al. 1982; Trinkley 1991).

Although it is not yet clear whether ossuaries and sand mounds are found along the entire South Carolina coast, nor is there precise dating or a thorough understanding of their cultural significance, Wilson notes that, "the sand burial mounds cannot be associated with any

one prehistoric physical type or aboriginal group," for in North Carolina they are found in the context of probable Iroquoian, Siouan, and Algonquian populations (Wilson 1982:172). The available information, however, suggests a relatively egalitarian society was common to all. Anderson suggests that, "these mound/ossuary complexes appear to represent principal burial areas for local lineages or other currently unrecognized social entities" (Anderson 1985:56).

These later Middle Woodland Coastal Plain and Coastal Zone phases continue the Deptford pattern of mobility. While sites are found all along the coast and inland to the Fall Line, shell midden sites evidence sparse shell and artifacts. Gone are the abundant shell tools, worked bone items, and clay balls. Recent investigations at Coastal Zone sites such as 38BU747 and 38BU1214, however, have provided some evidence of worked bone and shell items at Deptford phase middens (see Trinkley 1990).

In terms of settlement patterns, several researchers have offered some conclusions based on localized data. Michie (1980:80), for example, correlates rising sea levels with the extension of Middle Woodland shell middens further up the Port Royal estuary. Scurry and Brooks (1980:75-78) find the Middle Woodland site patterning in the Wando River affected not only by the sea level fluctuations, but also by soil types (see also Trinkley 1980a:445-446). They suggest that the strong soil correlation is the result of upland sites having functioned as extraction areas, principally for exploitation of acorns, hickory nuts, and deer. Shell midden sites, they suggest, also represent seasonal camps and therefore exhibit small size, low artifact density, and infrequent re-occupation. Ward's (1978) work in Marlboro County suggests that interior site patterning changed little from the Early to Middle Woodland. Sites continue to be found on the low, sandy ridges overlooking hardwood swamp floodplains, which suggests that while pottery styles changed, site locations, and presumably subsistence, did not (see also Ferguson 1976). Drucker and Anthony's (1978) work in Florence County, South Carolina reveals virtually continuous short-term occupation along the terraces associated with the floodplain of Lynch's Lake. DePratter's (1985) work at the Dunlap site, however, suggests that a few, relatively stable

villages were present in the Middle Woodland.

Middle Woodland research in South Carolina has concentrated primarily on the abundant shell middens found along the coast. Various means of classifying these shell middens have been offered (Trinkley 1991 has offered a descriptive scheme, while Espenshade et al. 1993 has offered what purports to be a more functional interpretation), although it seems clear from the debate that additional research is necessary to fully address both descriptive *and* functional questions. Some aspects of Middle Woodland shell midden research have been outlined by Trinkley (1993) and Trinkley and Adams (1993), with topics concentrating on a wide range of issues:

- The ceramics themselves can be examined for information on kin-based groups using cordage analysis at an intrasite level, comparing materials between a variety of discrete midden piles. Similar analysis can also be accomplished using chemical analysis of the paste, perhaps concentrating on a small array of trace elements.
- Chemical analyses of the pottery may provide clues to the clay sources, which in turn may provide information regarding seasonal (or other) rounds. These analyses may also be able, once there is a sufficient data base, to project the limits of different groups.
- Both chemical analyses and cordage studies may be useful to refine typological issues, especially when conducted in addition to more traditional paste studies. For example, this battery of analytic approaches may be able to refine our understanding of the array of clay and grog tempered Wilmington, Hanover, and St. Catherine's pottery. Perhaps there is good reason to review the

Mattassee Lake report (Anderson et al. 1982) and adopt a type-variety system.

- Even using different analytic approaches, such as the concept of estimated vessel equivalence, may provide a better understanding of inter and intrasite ceramic diversity. Likewise, making complete cordage analysis a standard feature of all studies would assist in allowing others to adopt a colleagues work to new and different theoretical approaches.

- Radiocarbon dating, based on relatively large charcoal samples, could be used to date a variety of discrete shell middens within one site, with 10 to 20 dates refining our understanding of site function. It might be possible to identify sufficient charcoal samples from distinct levels within the midden to allow for beginning and ending dates for individual middens (accepting one or two sigma deviations), providing even closer temporal control. Further, each charcoal date could be compared to a shell date from the same midden in an effort to develop better alternatives when there is insufficient charcoal for a reliable date.

- Pollen analysis at individual middens could explore the nature of site vegetation, testing for evidence of site disturbance, second growth or weedy species. This information might better help us understand how, and how intensively, the sites were used. Such studies could be combined with more traditional ethnobotanical research to identify wood species for cross-checking.

- Incorporation of additional shellfish studies may be able to further refine our understanding of seasonal use, especially when several seasonal indicators are used as cross-checks from discrete midden areas. It may also be useful to examine middens on a shellfish assemblage basis in an effort to reconstruct specific ecotonal use areas.

There seems to be ample evidence that there is still much to learn from coastal shell middens. Viewed from a different perspective, we are not even close to the point of redundancy at these sites.

#### Late Woodland

In many respects the South Carolina Late Woodland may be characterized as a continuation of previous Middle Woodland cultural assemblages. While outside the Carolinas there were major cultural changes, such as the continued development and elaboration of agriculture, the Carolina groups settled into a lifeway not appreciably different from that observed for the previous 500 to 700 years. This situation would remain unchanged until the development of the South Appalachian Mississippian complex (see Ferguson 1971).

Sassaman et al. (1990) echo the belief that the Late Woodland evidences relatively little change from earlier periods, observing that it "is difficult to delineate typologically from its antecedent of from the subsequent Mississippian period," but that the best typological break may be "the decline in stamped Deptford wares at about 1500 B.P." (Sassaman et al. 1990:14).

Along the central and northern South Carolina coast, Anderson et al. (1982:303-304) suggest a continuation of the Santee series into the Late Woodland. The Hanover and Mount Pleasant series may also be found as late of A.D 1000. Along the southeastern North Carolina coast, South (1960) has defined the Oak Island complex, which is best known for its shell tempered ceramics with cord marked, fabric impressed, simple

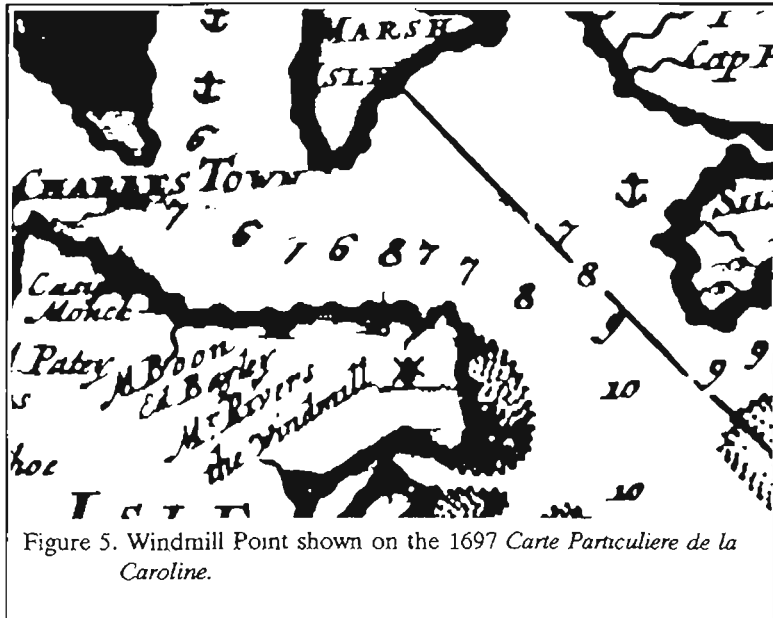


Figure 5. Windmill Point shown on the 1697 *Carte Particuliere de la Caroline*.

In the late seventeenth and early eighteenth centuries the area now known as Fort Johnson was called Wind Mill, Windmill, or Mill Point and "the Windmill" is shown on Maurice Mathews' 1697 *Carte Particuliere de la Caroline* (Figure 5). This tract was likely granted to William Russell in 1694, although neither the warrant nor the grant for the 100 acres specifies the actual location (Salley 1915:58). Russel, however, sold "a plantation Containing one Hundred Acres of Land known by the name of Mill Point being on James Island" to John King in 1704 so it is reasonable that the earlier grant was the same parcel (S.C. Department of Archives, Records of the Secretary of the Province: Grants 1704-1709, Vol. D, p. 67). Since King already had possession of the tract at

stamped, and net impressed surface finishes. The phase is briefly discussed by Phelps (1983:48-49), but curiously this manifestation is almost unknown south of the Little River in South Carolina. Very little is known about the northern coastal South Carolina Late Woodland complexes, although sites such as 38GE32 may document the occurrence of village life in the Late Woodland.

#### A Historical Synopsis of Fort Johnson

There are a number of general overviews or secondary sources for the history of Fort Johnson, in particular the review of Fort Johnson by Courtenay (1883), the early history of its construction by Mustard (1963), the details on the events there during the Civil War provided by Burton (1970), and the general synthesis provided by South (1975b). Preservation Consultants (1989) offer a synthesis of James Island history which is particularly interesting and useful to place the local events in a wider context. While this study has integrated a number of primary sources, including some materials from the National Archives, there are a tremendous number of primary sources which have not been incorporated because of either the project's time frame or the cost of the additional research. Areas of future research, however, are recommended at the conclusion of this section.

the time of the grant it is likely that he had leased the plantation the year before, suggesting that he was already engaged in agricultural activities. In August 1706, during Queen Anne's War (1702-1713) a combined French and Spanish forces attacked Charleston. When this was unsuccessful they attempted landings, including one on James Island where they burned a structure. These attacks were also repulsed with the Colony inflicting heavy losses on the expedition (Wallace 1951:75). Afterwards a number of planters claimed losses, including one by King for £30 (Mustard 1963:134).

In spite of the threat and a failed legislative attempt to build a fortification as early as 1703, Mustard clearly demonstrates that the original fort on Windmill Point was not constructed to guard the harbor entrance until 1708 (Mustard 1963:130). He notes that of the original act only the section regarding the fort, entitled "An Act for the building a fortification on Windmill Point, and to barr and lay Booms cross the Channel of Ashley River and to case up Trenches along the White Point and other necessary Places, and, to Provide a Public Store of Provisions, Ammunition and small Arms, and to draw Money out of the Publik Treasury to defray the Charges of Same," has fortuitously been preserved (see Trott 1736:153). A manuscript letter

#### Eighteenth Century Activity at Fort Johnson



to the Board of Trade, dated September 17, 1708 explained, "at the entrance to the Harbour is a place called Windmill Point within cannon shot<sup>5</sup> of which all vessels must pass by, is now building and almost finished a triangular fort which when finished will be the key and bulwark of the Province" (Records in the British Library Office Relating to South Carolina 1701-1716: 203-210). The fortifications were certainly complete by February 1709 when representatives of the House

appraisers to value his "house and land thereunto belonging, consisting of 100 acres, or thereabouts, as also some damage done to the Crops of the said King by negroes employed by the public last Summer" (Mustard 1963:131). The appraisal came back at £140, which presumably was eventually paid.

The history of the fort during the first half of the eighteenth century was relatively peaceful. A May 7, 1709 statute established a guard of a Captain, Lieutenant, and 12 men (Cooper 1837:333). A road was ordered cleared and built from Fort Johnson to "causey leading to Wappoo Bridge" in 1719 (Cooper 1838:III:103). This is likely the same road shown on the Charleston Harbor inset of Mouzon's 1776 *An Accurate Map of North and South Carolina* (Figure 6). By 1723 the guard was being encouraged to "clear, fence, plant provisions, make gardens and other improvements to their own proper use," likely to encourage them to stay close to the fort and also to reduce the cost of upkeep (Cooper 1838:III:236).

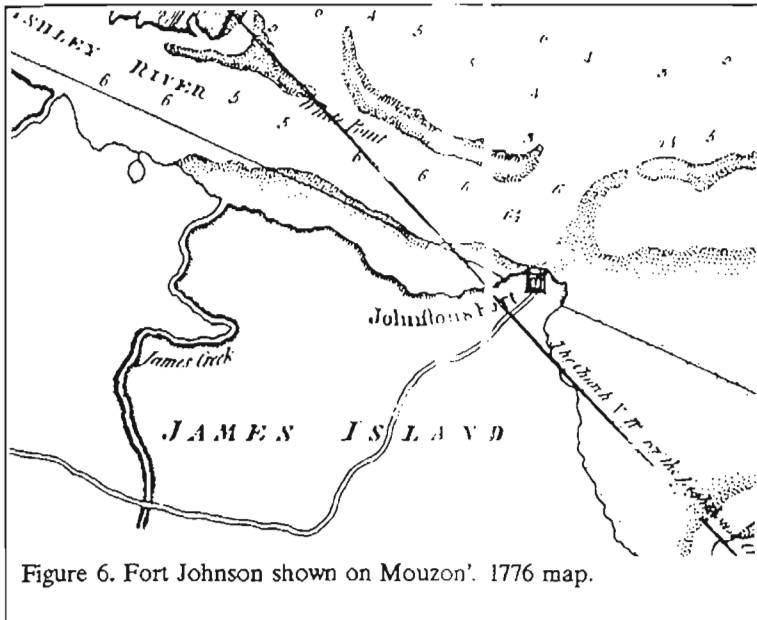


Figure 6. Fort Johnson shown on Mouzon's 1776 map.

visited the site, although it was not until April that a commander, Captain Jonathan Drake, was selected (Mustard 1963:121). While it is uncertain whether all the armament was actually provided, the "New Fort at the entrance of the Harbor on Mill point" was allocated, "16 Guns Cannon 42 lbs Shott" and "12 Demi Cannon<sup>6</sup> 36 lb Shott" (Mustard 1963:131). It was also not until May 1709, however, that the issue of compensating John King for his plantation was brought up. At that time King appeared before the House and requested £300. In reply the House sent out

On June 12, 1724 the Commons House received a report on the condition of Fort Johnson. They found the carriages, arms, and ammunition all in good order, although the fort itself was showing considerable signs of deterioration. Specifically they reported that:

it is absolutely necessary That large Quantitiys of Ballast Stones Should be thrown at the foot of the Piles of the Battery which the Committee are of Opinion is the only way for effectually preserving the same ag<sup>t</sup> all Hurricanes and Incroachments of the Sea. the North East Point Ought to be Secur'd with Pine Saplins, Marsh mudd & Oyster Shell a Lare of each in the same manner is already done which they find to stand firm and good, and that the

<sup>5</sup> Carbine or carbine, is a kind of fire-arm, shorter than the musket and often used by the cavalry and other troops.

<sup>6</sup> As the name implies, the demi-cannon has a smaller bore than a cannon.

same be forthwith done before the hurricane time approaches.

several Bastions ought to be floar'd with Cypress plank & Ship Carriages made for the Guns therein. the Parts in the Battery ought forthwith to be fac'd with Bricks and Cypress pland.

that two wells ought to be Sunk in the Battery for the use of the Great Guns in case of an Engagement. upon reviewing the Magazine find it unfett to preserve powder without some more effectual method be taken by making Draught for Air as shall be thought proper by making Funnels for an Inlett to the same. Cp' House Armoury and Store Room ought to be Rais'd Eight foot higher, Convenient Windows putt in to give Air to the Arms (Salley 1944:29-30).

The next day the Commons House received a proposal made by Arthur Hall to secure the northeast bastion of the fort. Specifically he suggested making:

a Mudd Wall Eighty feet Long Twenty feet wide Six foot of which to be solid Mudd & the Rem<sup>r</sup> of Timber & Oyster Shells the said Wall to be Six foot high the Front whereof to be secured by piles drove in the Ground for which Consideration doe expect the Sum<sup>e</sup> of Two hund'd & fifty pounds & the privilege of getting the Timber that's wanting for the s'd Worck off the Publick's Lands (Salley 1944:37).

By the next year the review committee found little positive change, suggesting that Hall's proposal was rejected:

plank of the Embrazier<sup>7</sup> on the battery is intirely gone & great part of the mudd wall washed away & that the Com'ittee are of opinion great part of the remainder will likewise be carried off. The Com'ittee are of Opinion that between the Pallasadoes of the outward breast work be filled up with oyster Shells from the point adjoining to the Fort. That the breach in the North east point still is unrepaired & grows worse by every storm so that there is an absolute necessity for repairing thereof & Ballast as shell thrown before it to protect it form the encroachm<sup>t</sup> of the Water. That the South West Bastion is in great danger; if not timely secur'd with large ballast & other out works. That there is an absolute necessity of an immediate repair, of the dwelling house there being nothing done since the last View. That outward draw bridge is intirely rotten. That the gun's ought to be lifted to See what Condition the carriages & Axsel threes are in; & that the magazine is not a fit place to keep any quantity of powder in.

that Ladles Ram'ers & Spunges<sup>8</sup> are Wanting (Salley 1945:50-51).

This plea for repairs was taken more seriously and £634.2.0 were appropriated for at least some of the needed repairs (Salley 1945:69) although curiously, this seems to have had little impact.

---

<sup>7</sup> Embrasure, an opening, widening from within, made in the parapet for the purpose of allowing a gun to be fired through it.

<sup>8</sup> The sponge was used to clean the barrel and extinguish sparks which might remain from the previous charge. The ladle was used to measure the correct charge of powder. The rammer was used to ram the charge home, or compact it.

In 1726 the Commons again heard of the problems at Fort Johnson and the committee's report is quoted at length below:

First in the N.E. Bastion<sup>9</sup>  
A Gun of Six pound called the signal Gun the carriage broke.  
1 of 3 lb in Carriage much honey comb'd, Flaff staff  
Flagg and Pendant.  
In the Curtam<sup>10</sup> between the N.E. Bastion the Tenaille<sup>11</sup> on the N.W. Angle of the Fort.  
2 gun's of 6 lb: each in carriages in good order  
1 of Ditto carriage broke and dismantled  
In the Tenaille  
1 Gun' of 2 lb: dismantled & an old carriage  
In the S.W Bastion  
1 Gun' of 2 lb: in a carriage in good order  
Within the Fort between 15 and 16 rounds of Round and Barr Shott  
a Cooper ladle for the 12 lb: Gun }  
12 Spunges & Ram'ers }  
In Good order  
1 Worm<sup>12</sup> 40 launces }  
12 small Arms }  
12 Cartouch boxes filled as the Cap<sup>l</sup>: says  
12 D<sup>o</sup>: empty

20 Hand Spikes<sup>13</sup>, defective  
In the Magazine  
60 lb: of powder, but damp  
In the Battery  
15 Gu'n's of 12 lb & 9 lb  
1 dismantled 3 carriages bad  
The Condition of the Fort  
Front of the Battery much Sunk & the work read to fall to pieces, The Embrasseurs quite gone & the Platt form so rotten cannot be used, so that there is a im'mediate necessity for this whole work to be through out repaired.  
The foundation of the N.E. corner of Ravelin<sup>14</sup> before the draw bridge undermined and the work down. The Pallasadoes in the Ditch & the other parts of the Fort mostly decayed.  
The bridge going into the Ravelin wants much repair & the frame of the Gate and Draw bridge in s<sup>d</sup>. Ravelin must be intirely new, the Parapett of that work is quite level it having been left unfinished when the last Repairs were made; The bridge leading from the Ravelin into the Fort is in pretty good order requiring only two or three new Planks but rope is wanting for Pullies to the inner draw bridge.  
The Parapett of the S.W Bastion & some part on the Tenaille is still unfinished & severall of the Parapetts round the Fort must be repaired it having been much shaken by firing of the Gu'n's while the work was new. Platforms for all the Gun's within the Fort are wanting -----

---

<sup>9</sup> Diamond-shaped bastions allowed cannons to be positioned so as to create a deadly cross fire with those in an adjacent bastion.

<sup>10</sup> This is the plain wall of a fortification connecting two bastions.

<sup>11</sup> Tenaile, a small low work consisting of one or two re-entering angles placed before the curtain wall between two bastions.

<sup>12</sup> This was a corkscrew-like device used to remove unburned fragments of cartndge wrappings.

---

<sup>13</sup> These were most likely bars used as levers to train the pieces by moving the carriages from side to side.

<sup>14</sup> This is a triangular over work shielding the fort's entrance from enemy fire.

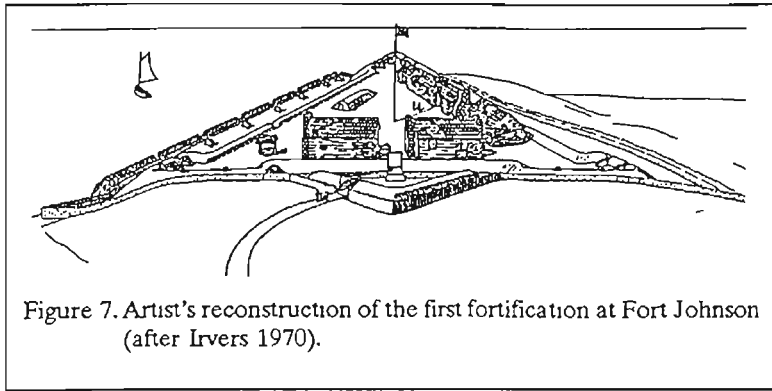


Figure 7. Artist's reconstruction of the first fortification at Fort Johnson (after Ivers 1970).

of the Fortifications &  
 Johnsons Fort  
 500..0..0  
 (Salley 1946:78-80).

These detailed accounts allowed Ivers to reconstruct the appearance of this first fortification, although at least some of the details are speculative (Figure 7):

the triangular shaped  
 fort sat on a low hill  
 at the harbor's edge.

A moat surrounded the structure on the land side, and the mud from the moat, alternated with layers of pine saplings and oyster shells, formed the wall. A palisade was planted along the bottom of the moat. At each corner of the wall was a bastion with mounted cannons. The entrance to the fort was protected by a ravelin, a detached "V" shaped earthen wall and palisade. A drawbridge spanned the ravelin's moat and another spanned the principal moat between the fort and ravelin. Guarding the harbor entrance was a battery of heavy cannons constructed at the fort's base, or harbor side, several feet lower than the fort itself. The battery wall, constructed of earth retained by driven piles was protected from the sea by a large number of ballast stones.

Although the number and composition of buildings inside the fort varied from decade to decade, there was usually a commander's house, a barracks, a guardhouse, a magazine, and a storehouse. The houses were constructed by siding a frame of heavy, hewn timbers with clapboards and roofing it with shingles. During most of the colonial period the barracks were probably crude, post-framed, and clapboard-sided huts having

The Guard house in good Repair & the Cap<sup>t</sup>. house raised and may be finished.

Cartridge paper & match & 6 sizable ladles are wanting a Gin to mount several of the Gu<sup>'</sup>ns.

If the Magazine of Johnson's Fort was filled in about three feet with brick & air funnels make 'twould prevent the damp which distroys the powder kept there.

The Cap<sup>tn</sup>: account of expence of powder not ready but promises to lay it before the Com<sup>'</sup>ittee in two or three days.

The Front of the Battery & Platt form to be interely new

The Foundation of the Revelin repaired. The several Parapetes to be finished, New Platt forms to be made with

4000..0..0

the Fort. The gate of the Ravelin to be new & the Drawbridge repaired

The Pallisadoes round the Fort all new & ten new Carriages a New Gin &<sup>ca</sup>

For two Perrnagoes to secure the ballast for the service of the several parts

earthen floors (Ivers 1970:26).

A drawing of the fortification, made in 1737, reveals how accurate Ivers description is (Figure 8). The drawing, commissioned by the Commissioners on Fortifications, also reveals that three structures were present, the Captain's House, the "Old Barracks," and the powder magazine.

Not only was the fort almost always in poor condition, but at least one of its commanders was embroiled in controversy. Captain James Sutherland was appointed to command the fort in 1722, but was removed by the South Carolina Council in 1729. Sutherland remarked that he was discharged "without any regard to my past Services or any just Reason or Complaint" and the position was "sold to a Hatter who is an utter Stranger not only to Military Discipline, but to the Use & almost Name of Arms" (letter from James Sutherland, ca. 1729-1730, *South Carolina Historical Magazine* 68:81). He eventually received a Royal Commission and was reinstated, only to be removed again in 1737 after a Commons House investigation found the fort and equipment dilapidated, the soldiers either ill-equipped or absent from their posts, and Sutherland's two-year-old son on the muster role (Ivers 1970:52). The account of the fort indicated that it was "in a ruinous and defenseless Condition." It noted that:

there are at Present lodged in the said Fort 190 Dutch twelve pound Shot, unsizable for the Cannon belonging to the said Fort, 60 Twelve pounds sizable, 170 nine pounds Shot, 28 six pounds Shot, 30 lbs. of Powder, two Pieces of Cannon fit for service and 19 unfit. the Guns upon the upper Platform are grown rusty and unfit for Service, through Neglect of the Commanding Officer. the Carriages are very much impaired for Want of frequent moving, and that the Shot lay buried in Sand, and by that Means have contracted so much Rust that they can't with Safety be made Use of (Easterby 1951:234).

Thomas Broughton came to the defence of Sutherland, asking the Assembly

consider with me, that as the last Hurricane made such great Destruction of that Fortress, as well as in the Buildings &c, as in dismounting and burying the Guns in the Sand; it cannot be expected he could put the Same in Order without being enabled and directed, which cannot find he has been (Easterby 1951:273).

Broughton also added an additional plea that the Assembly also consider "the moving Circumstances of himself and Family." Somehow Sutherland survived the charges he was again reinstated in 1739, only to die in 1740. While he received his back pay of a little over £81, the Assembly refused to pay his estate the £200 owed for the current year's salary (letter from James Sutherland, ca. 1729-1730, *South Carolina Historical Magazine* 68:79n).

While there are a number of inventories of the military items and ordinance, at Fort Johnson, a 1736/7 inventory provides a rare glimpse of the more routine items, including a lantern, "speaking trumpet," two "large iron pots," an axe, a spade, a grindstone, an iron pestle and mortar, eight "narrow hoes, one corn mill and one "iron Crow"<sup>15</sup> (Easterby 1951:261-262). This inventory suggests that life was spartan at Fort Johnson, with relatively few of the items expected for even a modest size plantation -- and certainly not adequate equipment to maintain the fort's earthworks.

A 1740 appraisal of Fort Johnson found that the "Captain's House is not habitable" and a carpenter advised that it was not even worth repairing -- the culmination of at least 16 years of neglect. The committee recommended rebuilding the house "from the Brick Work, which is its Foundation." In addition, the committee recommended that barracks, a kitchen, and a store house be built, suggesting that earlier facilities had

---

<sup>15</sup> Possibly a reference to a crowbar, but more likely a grappling hook.

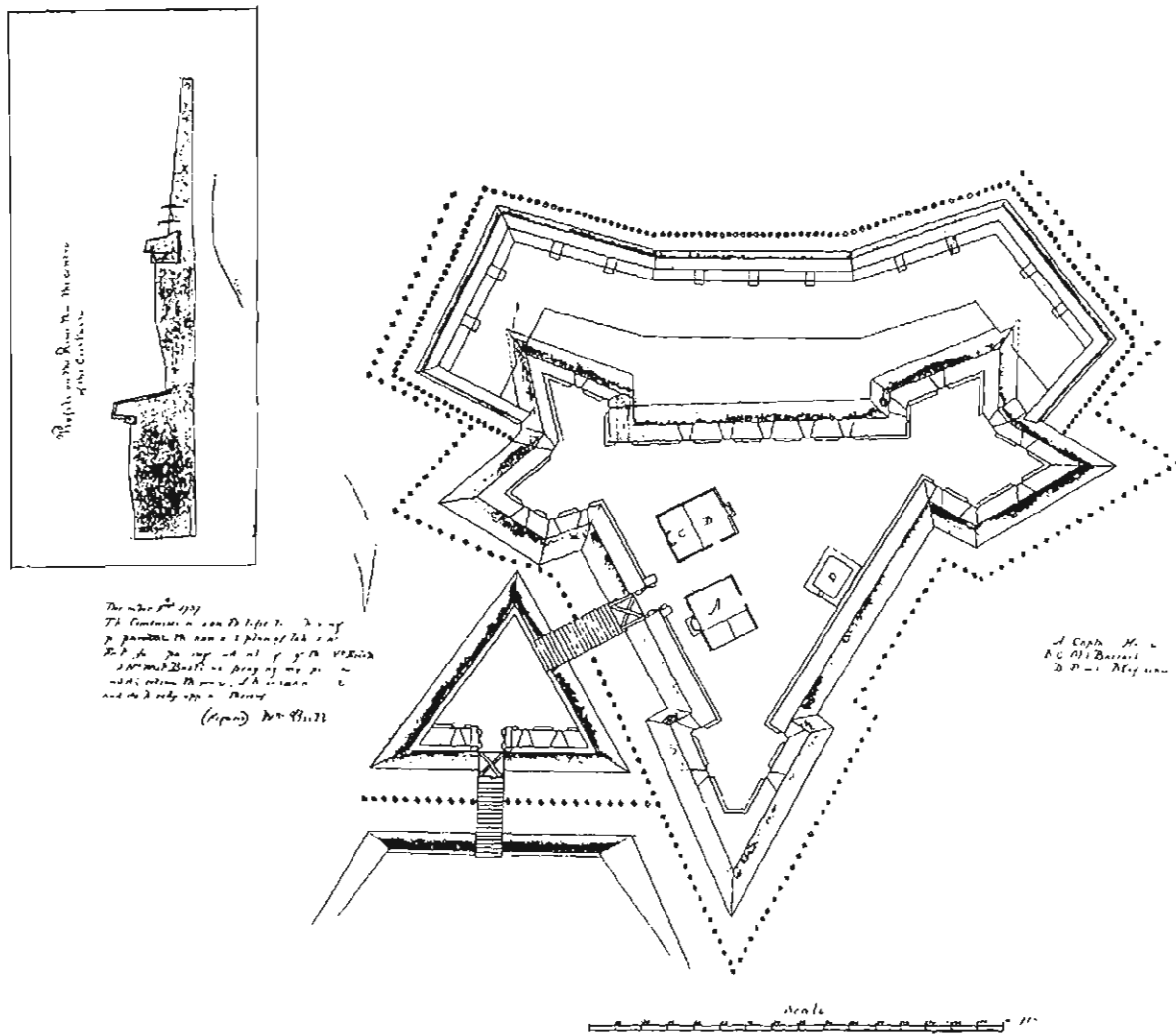


Figure 8 Drawing of 1737 fortifications at Fort Johnson (National Archives, RG 77, P&R File, #270-2)

completely collapsed (Easterby 1952:269). Apparently some level of maintenance was undertaken since in 1742 the Assembly reported that "it is great Satisfaction to us that Fort Johnson is already put into a good Posture of Defence" (Easterby 1954:18). In 1744 additional funds were raised for the construction of new barracks (Easterby 1955:83). By 1745 the fort's armament included 33 cannon of 18, 12, 9, 6 pound shot with a garrison of up to 25 men. In spite of the fort being in the best condition since its original construction, the Assembly was noticing that it wasn't likely to be a very effective fort:

[the fort] cannot be reinforced under some Hours by the Militia of that Island, which consists of between seventy and eighty Men, unexperienced in the Management of great Guns or the Defence of fortified Places. That besides this there is an open unguarded Channel through Hog Island Creek. By a late Survey of which it appears that any Vessel that can come over Charles Town Bar may pass out of the Reach of the Guns of Fort Johnson (Easterby 1955:477).

While South Carolina couldn't do much about the deep water channels or the range of the guns, Governor James Glen urged the Assembly that they could increase the size of the command at Fort Johnson:

the Barracks of Fort Johnson are not capable of containing more Men than are already there, though it is absolutely necessary to encrease the Number, neither is there the smallest Accommodations for any of the Officers. I therefore hope you will come to Resolution of enlarging the Barracks for the Use of Forty private Men and their Officers (Easterby 1956:109).

At least some of the requested changes were made since in 1749 the Assembly heard that "Fort Johnson but lately finished, and was not long ago

in good Order" (Easterby 1962:272).

The French and Indian War, which began in 1754 and which was officially declared two years later, caught South Carolina off guard. The hurricane of September 15, 1752 was perhaps the worst South Carolina had survived since its founding (Ludlum 1963). The damage to low lying structures was extensive and Governor James Glen noted that the "shadow" fortifications as he called them, were wrecked. In an effort to strengthen the colony from feared French attacks, William DeBrahm was invited to visit and offer his expertise.

DeBrahm wrote that Fort Johnson was about 2½ miles southeast of Charleston and that the fort had barracks for 50 men (providing additional support for the posited expansion). He remarked that:

this Fort lays on a high Bluf, commands the Channel, which is hear only ¾ of a mile wide, but the Construction and Age of this place cannot afford much Defence, unless from a new Battery, which is lately erected at its Foot, mounting fifteen 18 pounders and five 9 pounders, in all twenty cannons, rather too weak a Battery to stop a vessel from passing.

The Author proposed Anno 1755 to Governor Glen a Project of a new Fort at the same place, with two (vide, a high and low) batteries of 200 cannons together, and a Bastion detachee in the Channel to mount 50 Cannons more, and a Boom to barricade the Channel between the Fort and its detached Bastion (DeVorse 1971:91).

While this ambitious new plan, shown in Figure 9, might have accomplished all that DeBrahm promised it, like most of his other schemes (such as constructing a moat to make Charleston an island), was far too costly for South Carolina and

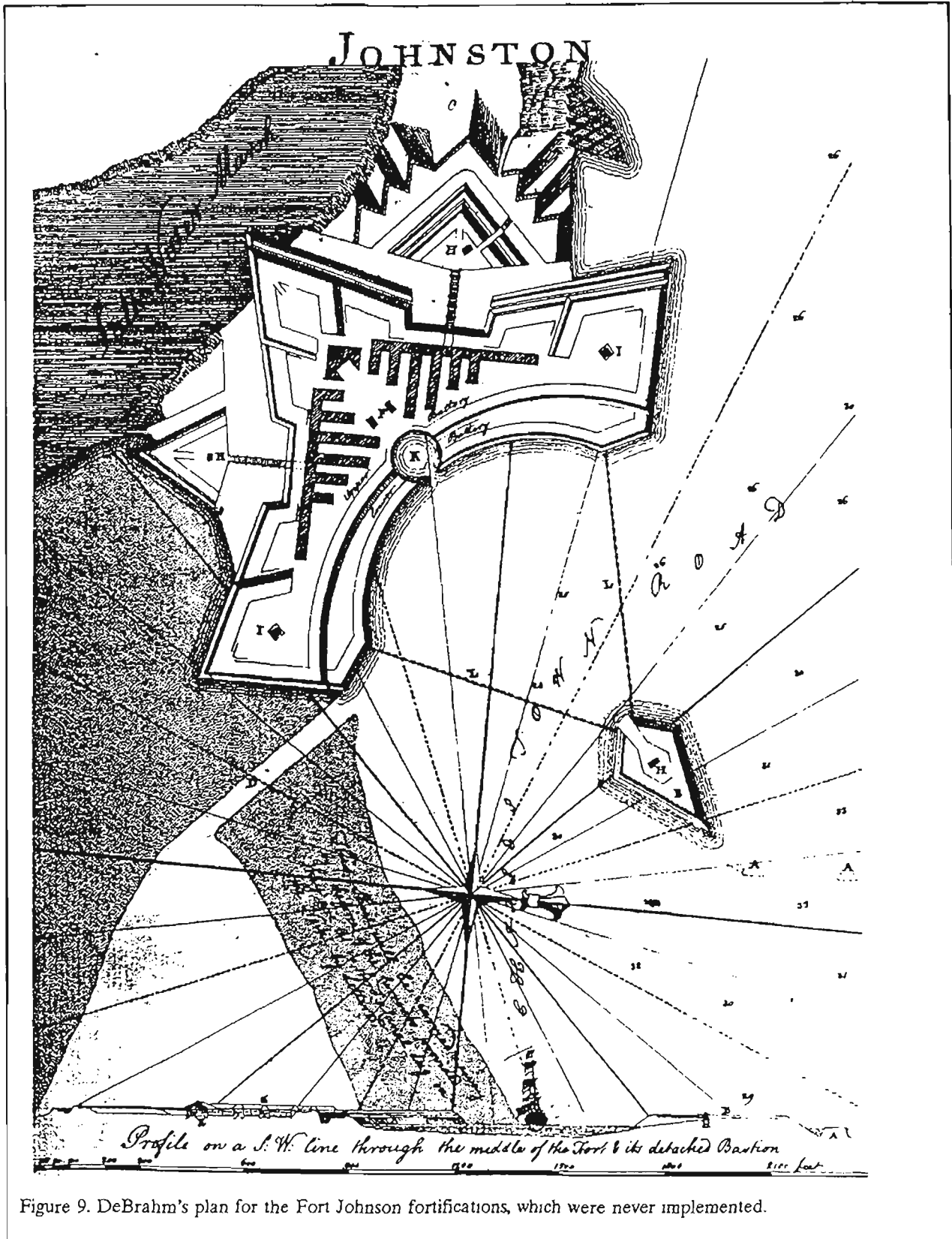


Figure 9. DeBrahm's plan for the Fort Johnson fortifications, which were never implemented.



was never implemented. Its significance is purely that of a historical curiosity, revealing the many efforts to make something useful out of Fort Johnson.

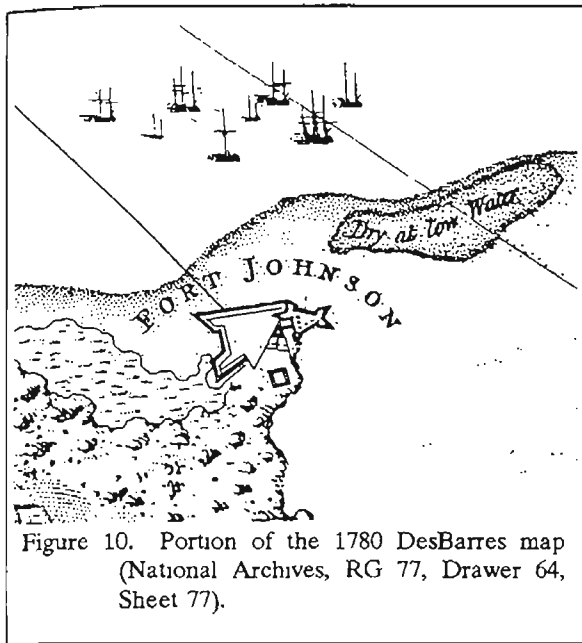


Figure 10. Portion of the 1780 DesBarres map (National Archives, RG 77, Drawer 64, Sheet 77).

In spite of the impending crisis, in 1756 an act was passed which required all vessels to anchor at Fort Johnson for an inspection by a physician. The fort, for the first time in its history, was associated with the maintenance of Charleston's health (Cooper 1838:IV:28). In that same year a report described the fort as consisting of only a thin case of brickwork filled with loose sand. At the water level, below the upper fort, a lower barbette<sup>16</sup> battery had been constructed which would probably present a greater threat to enemy ships than the main fortifications (Lipscomb 1991.15). By 1759 funds were finally approved for new construction at Fort Johnson and Courtenay reports that a tapai or tabby fort was built, probably on the site of the first fort (Courtenay 1883:472). The new fort was apparently triangular, "with salients<sup>17</sup> bastioned and priest-capped<sup>18</sup>, the

<sup>16</sup> This is a platform or mound on which guns are raised so they can be fired over the parapet.

<sup>17</sup> These are lines of earthworks which meet at an angle.

gorge<sup>19</sup> closed, the gate protected by an earth-work, [and] a defensible sea wall of tapia extended the fortification to the West and Southwest" (Courtenay 1883:473). Lipscomb (1991.15) notes that the fort was repaired and plans were developed by Lieutenant Emmanuel Hess, an engineer with the Royal American Regiment, to enlarge the fort through the construction of a tabby hornwork on the land side. As the threat subsided so too did the enthusiasm of the Assembly to pay for the work and construction was apparently never completed. Although no copy of the original plan can today be identified, a contemporary DesBarres map shows an eccentric groundplan which suggests that he may have had access to Hess' plans and simply incorporated them into his drawing without verifying their accuracy (Lipscomb 1991.15) (Figure 10).

Between the end of the 1750s and the beginning of the Revolutionary War there is little record of activities at Fort Johnson. Although erosion certainly continued, there were no major hurricanes, so it is likely that immediate threats to the fort seemed remote. In 1764 cracks appear in the seaward face of the old fort, some extending all the way down to the foundation. In spite of its rapidly deteriorating condition, Fort Johnson obtained notoriety in 1765 as the landing place for a supply of British stamped paper carried by a British sloop-of-war. The local citizenry formed a battalion of about 150 men under the leadership of Francis Marion, Charles Pinckney, and Barnard Elliott and marched to Fort Johnson under cover of darkness, surprised the garrison placing them under guard, and securing the stamped paper. The local forces raised a flag with a blue field and three white crescents. At daylight a British officer was sent from the sloop to ascertain the meaning of the flag. Upon seeing the preparations and being told that the volunteers intended to burn the paper if it wasn't retrieved, the British forces accepted the cargo and retreated from the harbor. This action was unprecedented, "Charleston paraded armed men by authority of a Town meeting, captured a British fort while under the authority of the crown,

<sup>18</sup> A priest-cap was an outwork with three salient and two re-entrant angles.

<sup>19</sup> The gorge was usually the neck of a bastion.

and displayed a blue flag with three white crescents, " ten years before the American Revolution began (Courtenay 1883:474). This version, however, has been disputed by Mary A. Sparkman, Secretary of the Historical Commission, who noted that:

it is true that the stamped paper which arrived from England October 18, 1765, was placed at Fort Johnson, and the stamp officers, Saxby and Lloyd went there, fearing the wrath of the people in Charles Town. But it was not until Monday morning the 28th (of October) that a party went over to Fort Johnson, friends of the stamp officers, to bring them up to town under their protection. They came ashore at noon from a boat in the head of which was hoisted a Union flag (i.e. a British Union Jack) with the word "liberty" in the centre and a laurel branch on the top of the staff. Arrived in town the stamp officers gave their voluntary, solemn pledge to an assembled crowd, not to distribute the stamps at that time, so the two men were allowed to go in peace to their homes (notes on file, City of Charleston Archives).

At the start of the American Revolution in 1775 Fort Johnson was once again seized, although this time by an order of the Council of Safety. No resistance was met and the South Carolina captured twenty-one guns (Courtenay 1883:474). Johnson provides a detailed account of the attack:

orders were accordingly issued to Col. Motte, who detached Captain T Heyward's company of the Charleston Artillery, with others, to effect this duty. They embarked after dark, in open boats with every thing necessary to take the fort and retain possess of it. Unfortunately, just after they had embarked, they were overtaken by

a severe gale of wind from the east with heavy rain. Driven by the gale about two miles westward of the fort. Here they landed, without a dry thread upon them; their ammunition all wet, and their match ropes and port fires<sup>20</sup> all ruined. They marched forward and fortune favored their brave enterprise. They met no opposition; not even the challenge of a sentinel was heard; the British troops had evidently abandoned the fort in haste; the guns were dismounted or overturned, and everything left in great confusion. Every thing being wet with the rain, they could not flash a pistol, or otherwise strike a light. William Johnson being a private in Captain Heyward's company, was one of this expedition; while groping his way in the dark, his foot struck against something in one of barracks, which, on examination, proved to be bag belonging to the British gunner. On opening it, the first thing that he put his hand upon was a tinder box and matches. These gave him light, and kindled a fire. Then, he found in the bag a hammer, a cold chisel, and files; then gimlets, nails, &c. They could now see the situation of the cannon and carriages, and could now proceed actively to clear and remount them. By the dawn of day three of the cannon were mounted, ammunition and balls found in the fort, the guns loaded, and everything ready for defence. As soon as the king's ship discovered that the fort was in the hands of the rebels they drew off, anchored near Sullivan's Island, and were

---

<sup>20</sup> Port fires consisted of a flaming compound on a short stick used to fire artillery pieces.

subsequently expelled from that position also, bearing off Lord William Campbell with them to Jamaica (Johnson 1851:63-65).

By at least November of 1775 work was underway to erect a redoubt west of Fort Johnson, presumably to protect the fort from land attack (Hemphill 1960:115). Courtenay reports that this supporting battery mounted twelve guns and was located five hundred and forty-eight yards (about 0.3 mile) west of the fort (Courtenay 1883:474). About the same time Col. William Moultrie, having been made commander of the fort, was instructed to stop and search all boats leaving Charleston "in order that no correspondence be carried on, which might prove injurious to the colony in its present state" (Hemphill 1960:112).

An undated map in the National Archives (RG 77, Drawer 64, Sheet 1) a copy of which is in the files at nearby Fort Moultrie, shows the outer earthworks associated with Fort Johnson, as well as several structures (including a store house and the "General's Quarters"), as well as the "West Battery." It seems possible that this map dates from the last quarter of the eighteenth or first decade of the nineteenth century and shows the general area as it appeared shortly after the American Revolution. It is, however, notable that the earthworks between the harbor and the marsh to the south are different in form than those shown on the siege map (Figure 11).

A survey made in June 1775 by Benjamin Lord, Deputy Surveyor, at the request of the Commissioners of Fortifications, found Fort Johnson to include 89½ acres "exclusive of the fort" (South Caroliniana Library, Horatio Gouverneur Wright, May 8, 1883) (Figure 12). The survey also reveals that the fort was not situated on high land, but was on a "bank of shells." with the sea wall protecting its northeastern flank. Lipscomb notes that this survey was conducted:

ostensibly to settle a seventeen-year-old dispute over the boundary line between the public land and the adjoining property belonging to the heirs of Thomas

Lamboll. Since the plat bore the date of 29 June 1775, however, the suspicion arises that the colonists were more interested in collecting military intelligence about the defenses of Fort Johnson than in setting a boundary dispute (Lipscomb 1991:16).

In June of the following year General Henry Clinton received a report said to be from two American deserters "of the Artillery mounted for the Defence of the Town & Harbour of Charlestown, South Carolina." At this time Fort Johnson was thought to have sixty guns of 26, 24, and 18 pounds (South Caroliniana Library, Ms. of Henry Clinton, June 6, 1776). This information was of course being collected as the British prepared to attack Charleston. The June 28 attack was intended to land soldiers on Long Island, cross Breach Inlet (separating Long from Sullivan's Island) while the British navy attacked Fort Moultrie on Sullivan's Island. The plan resulted in a significant loss for the British -- over 100 men dead and at least one ship sunk (Rosen 1982:53).

While successful, perhaps this confrontation with war caused the General Assembly to react more favorably than it had in the past when requested to improve the defenses. A plan by General Robert Howe to case the old masonry of the fort with palmetto logs was apparently approved, with the design intended to prevent enemy cannon fire from shocking the walls and causing their failure. Lipscomb also suggests that by the late 1770s the fort may have taken on a quadrilateral shape (Lipscomb 1991:15).

Charleston afterwards saw three years of peace and some prosperity since the harbor was open. However, the siege of Charleston began on April 13, 1780 and lasted for a month with the town finally surrendering. Charleston remain occupied by the British for the remainder of the war and Rosen remarks that the "Revolution was almost as much a civil war in Charleston as it was a war for independence" (Rosen 1982:55). One siege map of Charleston (Figure 13) reveals the shape of the fort present at the time, as well as earthworks thrown up between the harbor to the

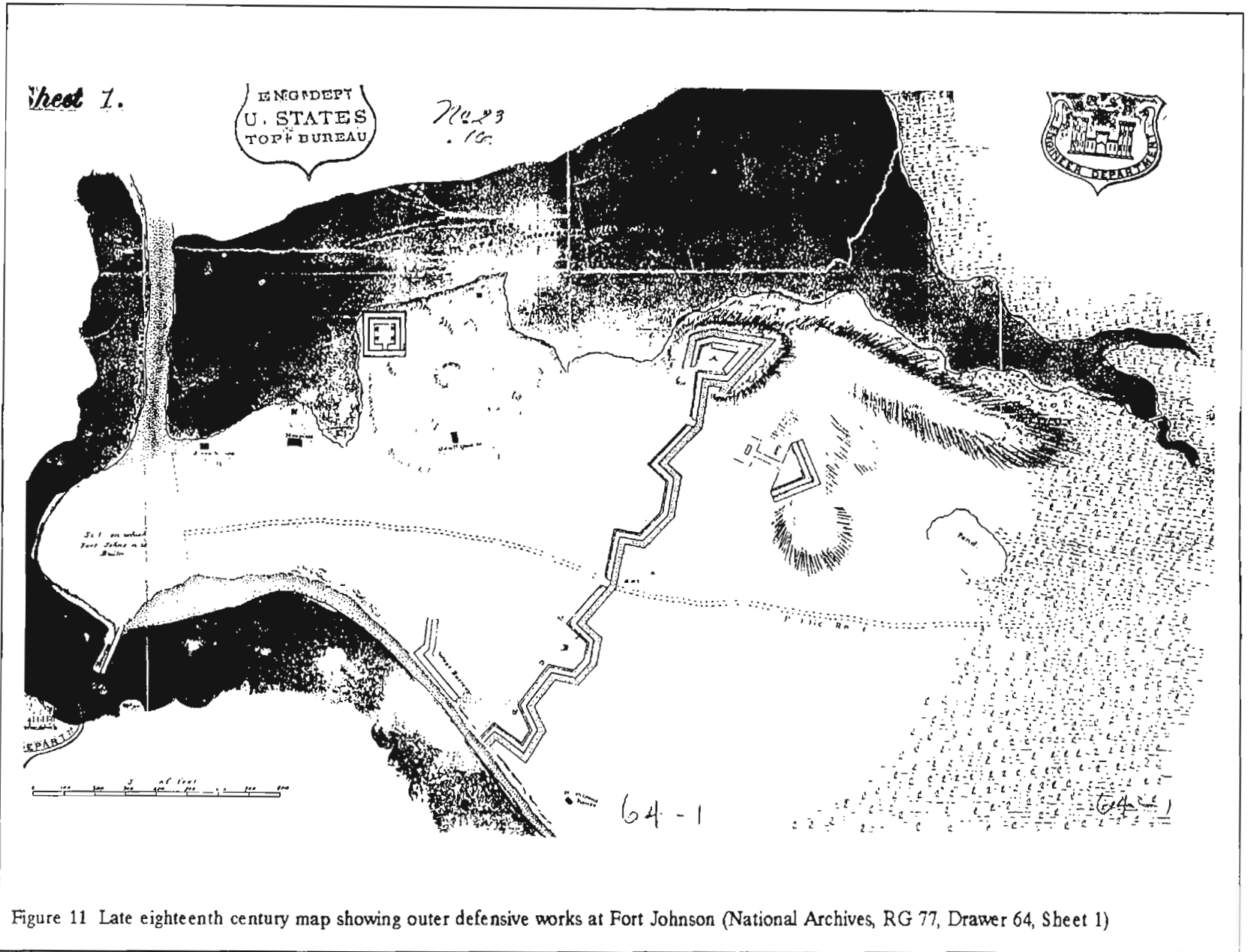


Figure 11 Late eighteenth century map showing outer defensive works at Fort Johnson (National Archives, RG 77, Drawer 64, Sheet 1)

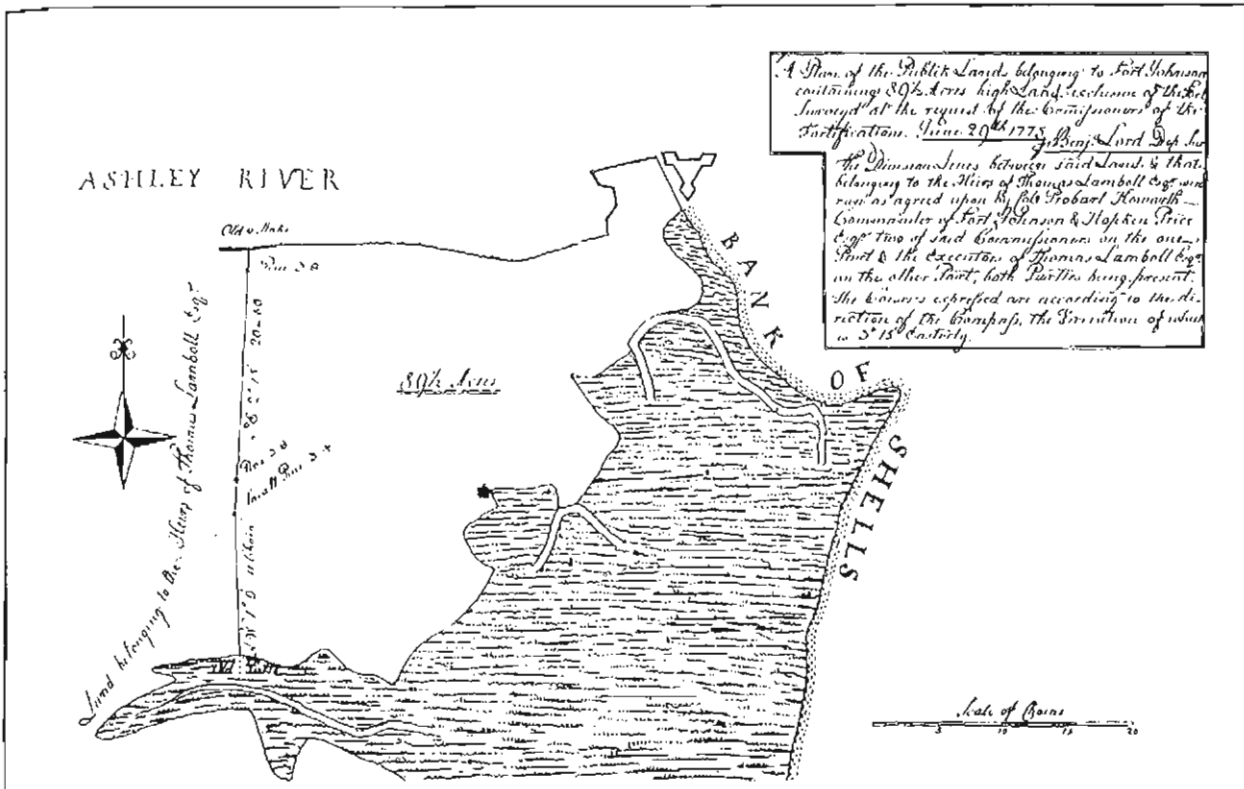


Figure 12. 1775 survey laying out the boundaries of Fort Johnson (National Archives, RG 77, Drawer 118, Sheet 86).

north and a tributary of Lighthouse Creek to the south. A somewhat similar British map (National Archives, RG 77, I-14) shows the "enemy works" protecting the rear of Fort Johnson, as well as the fortification and associated sea wall. Sir Henry Clinton's Siege Map of 1780 designates Fort Johnson as "destroyed" after the military action (National Archives, RG 77, Drawer 64, Sheet 77), although Courtenay remarks that "whether by military order or by storms is not known" (Courtenay 1883:475; however, see below for another commentary which suggests the fort was destroyed by the retreating colonists).

After the British evacuated Charleston at the end of the Revolution on December 14, 1782 attention was again turned to the defence of the harbor. Courtenay reports that in 1787 plans were submitted by Col. John Christian Senf, the

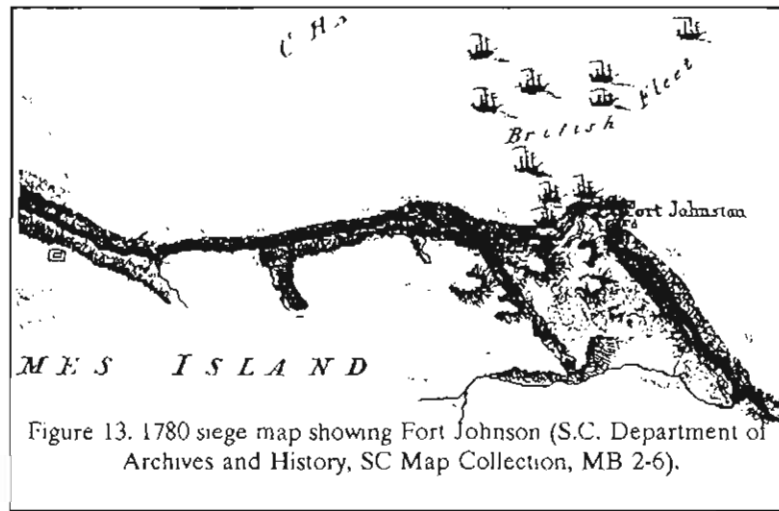


Figure 13. 1780 siege map showing Fort Johnson (S.C. Department of Archives and History, SC Map Collection, MB 2-6).

Engineer for the State of South Carolina, for an enclosed battery of eight guns, near the location of the old fort, which is shown on the drawing dashed lines, suggesting an advanced state of disrepair. More importantly, the map shows the barracks, four unlabeled structures, the "Commandant's

House" as a cluster of at least three buildings on a rise, and the Gunner's House consisting of two structures also on a rise. Nearby is "Bunker Hill" (Figure 14).

In 1791, during George Washington's southern tour, he visited the garrison at Fort Johnson and Lipscomb reports that Washington:

walked a short distance east and inspected the ruins of the fort (1708-1779). He described the works as "quite fallen." An earlier visitor's travel diary had been more specific: "The irregular works, of no particular strength or compass, are run up of oyster-shells and lime, They were in part blasted by the Americans themselves when they abandoned this fort in [1779], and storms and waves have done the rest" (Lipscomb 1993:34).

#### Fort Johnson in the Nineteenth Century

Although Senf's plans had not been implemented by the time of Washington's visit in 1791, they were still alive and a variation were built to the rear of the previous forts by William Moultrie in 1793 (Courtenay 1883:475, South Caroliniana Library, Horatio Gouverneur Wright, May 8, 1883). This work was later repaired by the U.S. Government (Courtenay 1883:475). An 1800 map (Figure 15) provides exceptional assistance in "putting together" many of these eighteenth century forts. It shows the plan of the 1793 fort built by Moultrie, as well as how much of this fortification was destroyed by the October 1800 "gale." It also shows the additional battery built by the U.S. Government in 1794 and the barracks added in 1796. At least some of the early 1759 tabby works are also shown to the west of the current forts, along the edge of the water (and with a bastion in the water). The palmetto works from the Revolutionary War are also shown north and east of the current fort, as well as some additional works erected by Moultrie. The map also reveals the location of three wells, the fort's hospital, the

bake house and the Artificers<sup>21</sup> shop.

One of the few references to the fort in this period is a June 28, 1800 letter from the commander of the fortifications to Washington, D.C. where he declined a shipment of drugs intended for the hospital. He noted that:

unfortunately I am at present without a Surgeon's Mate -- Dr. Thomas who has been appointed in the place of Dr. Dalcho, has been here but two nights and one day; he offered his resignation to the Secretary of War and left me without medical assistance (South Caroliniana Library, Constant Freeman, June 28, 1800).

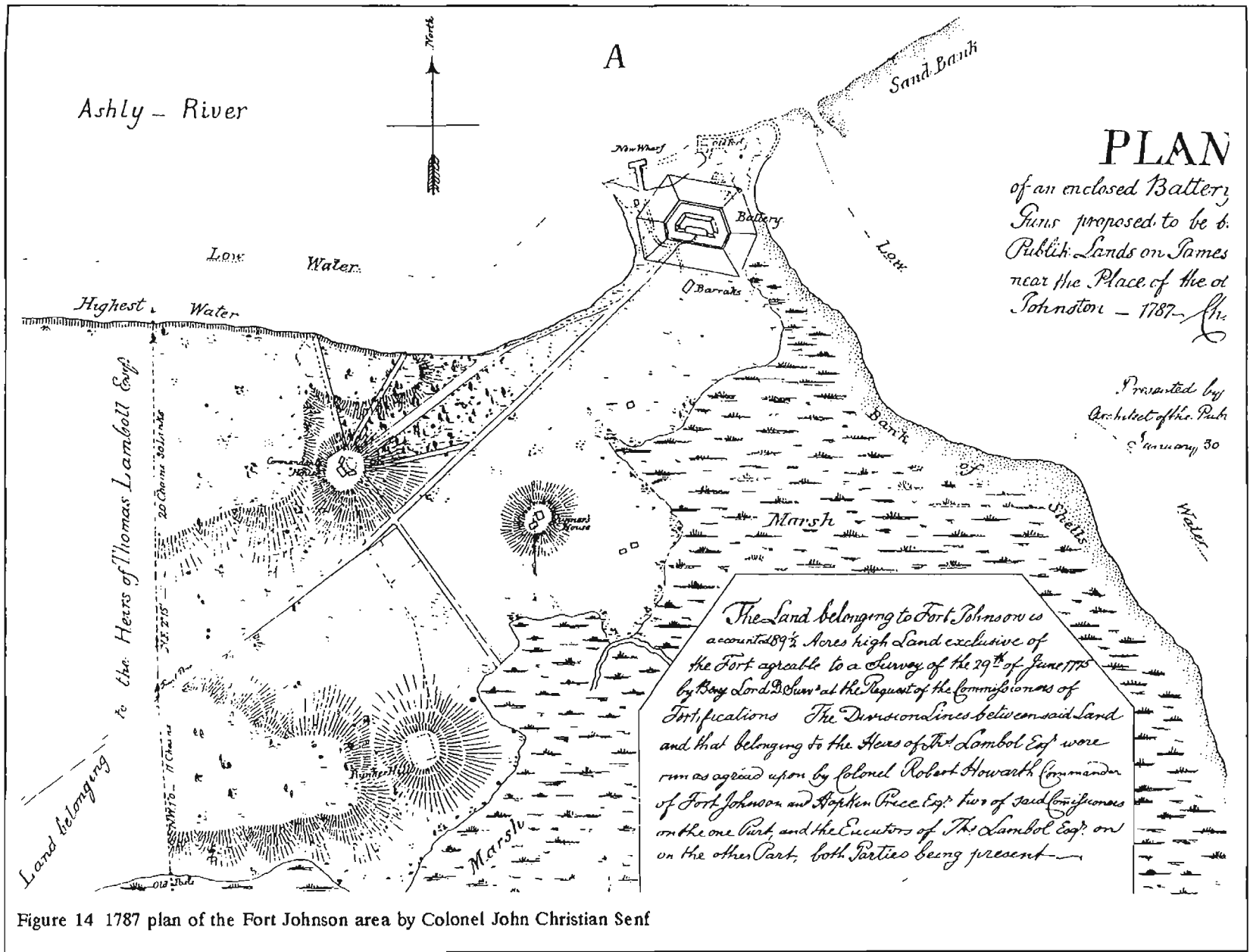
Beyond this, an April 1807 report by Lieutenant Colonel Jonathan Williams reported that, "Nothing has been said as to the present state of Fort Johnson, as the subscriber does not perceive that any part of the ruins can be brought into use unless it be by forming a mass in front to prevent the future depredation of the sea" (South Caroliniana Library, Horatio Gouverneur Wright, May 8, 1883).

It appears that sometime between 1800 and 1807, perhaps as the result of the September 7, 1804 hurricane, that the fort was abandoned. Whether garrisoned or not, it seems clear that its condition had been allowed, once again, to decline. By 1812, when hostilities with England were certain, re-establishing the fort was again critical and General J.G. Swift reported that two batteries at the fort would be ready for service in a short time (South Caroliniana Library, Horatio Gouverneur Wright, May 8, 1883). While sources at National Archives have not been explored to identify maps of these batteries and associated defensive works, it seems that the effort was limited and perhaps even "half-hearted." In 1815

Lieutenant James Gadsden of the Engineers reported to General

---

<sup>21</sup> An artificer was a soldier-mechanic attached to the ordnance, artillery, or engineer service to construct and repair military materials.

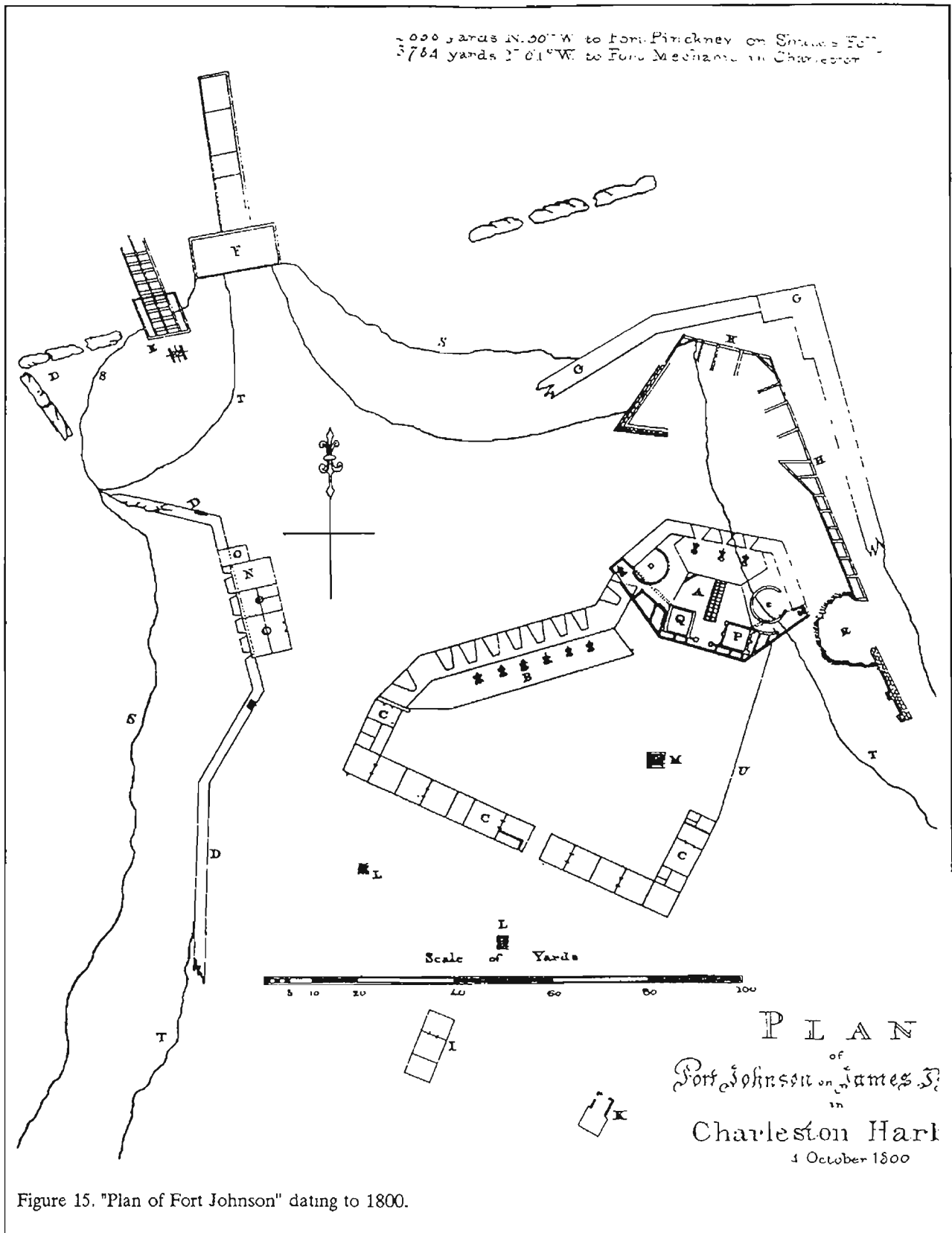


# PLAN

of an enclosed Battery  
Guns proposed to be in  
Publick Lands on James  
near the Place of the old  
Johnston - 1787 - S<sup>r</sup>

Presented by  
Archibut of the Pub<sup>l</sup>  
January 30

Figure 14 1787 plan of the Fort Johnson area by Colonel John Christian Senf





Swift as follows. Fort Johnson is little better than a battery in ruins the gale of 1813 having nearly destroyed it. Lieutenant Gadsden recommended the abandonment of the site and the construction of a new work a 12 gun battery a short distance in the rear of it (South Caroliniana Library, Horatio Gouverneur Wright, May 8, 1883).

Another survey was conducted in 1821 by Captain W.T. Poussin of the Topographic Engineers and the fort was still shown in ruins, no improvements having been made (Figure 16). The survey does, however, show the location of a storehouse, quarters, barracks, and the powder magazine. The fortifications present are shown on this survey and consist of remnants of several previous forts. In March 1826 the Board of Engineers referred to Fort Johnson as having "a few remains." The very next year the description was downgraded to "scarcely a vestigage remains" (South Caroliniana Library, Horatio Gouverneur Wright, May 8, 1883). Courtenay reports, from unspecified sources, that in spite of these reports two permanent buildings and a martello tower were added to the fortification sometime later.

An 1833 map of the Fort (Figure 17) indicates that while the fortifications had been allowed to fall into ruins, Fort Johnson was a thriving maintenance facility for the U.S. Board of Engineers. Figure 17 illustrates that the fort included a wharf and two small docks; the engineer's quarters (or barracks); quarters for the clerks, master carpenters and masons, and commissary; store rooms and offices, including the Doctor's office; a carpentary work shop; the overseer's tool house; a blacksmith shop; the "old magazine" (still standing), which was intended to be used as a cistern; a house for the overseer, Mr. Peronneau, which also provided boarding for mechanics; a house for the steamboat captain, Mr. Maxcy, which also served as a boarding house; and "negro houses." The map also shows two sheds "in ruins," as well as four "pumps," which appear to be cisterns and/or wells. To the southeast of the facility are the beginnings of a summer planters' village (discussed in more detail below). Included were houses for Dr. Leiby (likely Dr. Robert Leiby) and Captain Rivers, as well as a church.

Martello towers were small circular forts with massive walls, usually containing vaulted

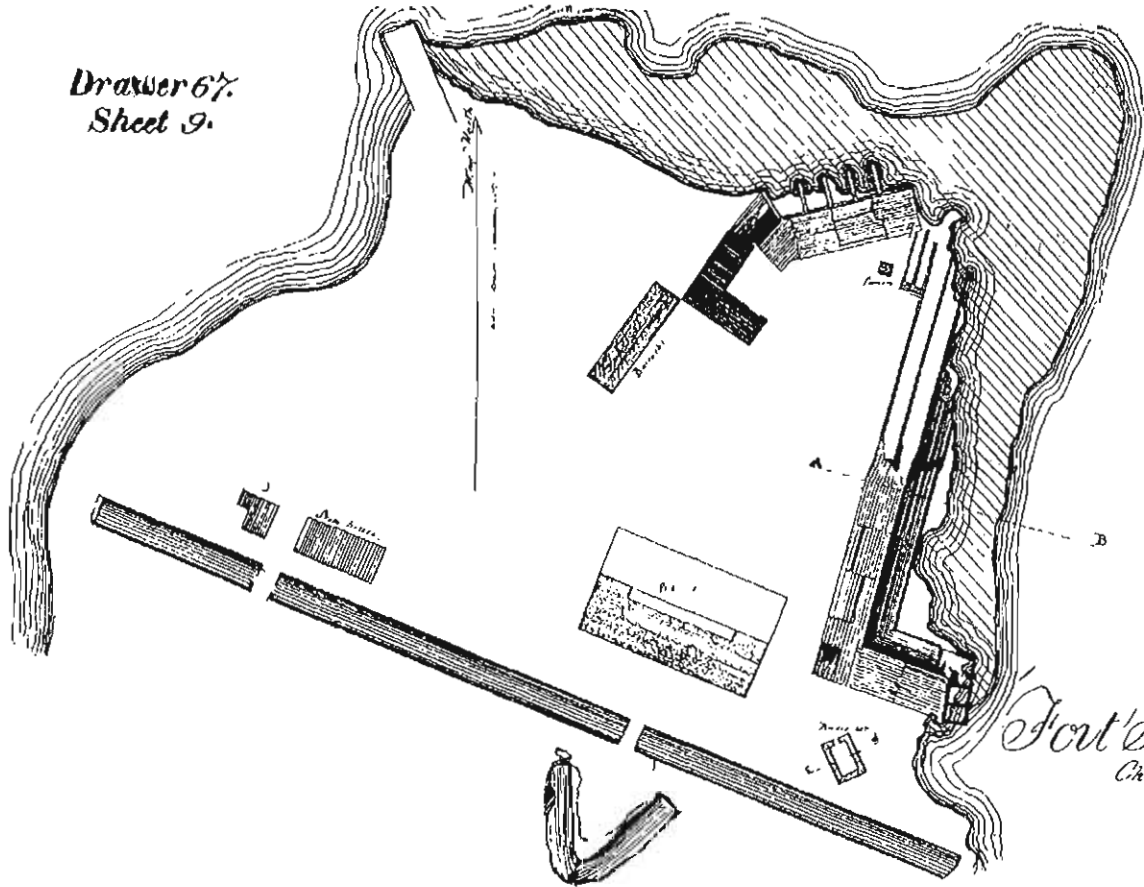
rooms for the garrison and having a platform on top for the mounting of one or two guns. The name comes from Cape Mortella in Corsica where a tower of this type was captured only with some difficulty by the English on two separate occasions. The English were so impressed with these towers that a number were built for the defence of the British coast. There are a number surviving on England's south coast, in Ireland, on the Channel Island, and elsewhere. As late as the 1867 publication of *Sailors Workbook* the martello tower was noted to be an excellent defensive work since being round, it was difficult to hit with cannon fire.

Sutcliffe reports that very few towers were built in North America and only two were located on the Atlantic coast of the United States. One was in Georgia at the mouth of the Savannah River and the other was on James Island. Although the date of construction has not been verified, Sutcliffe remarks that it was likely the first of the two, being built perhaps as early as 1821 (Sutcliffe 1972:153). When new it measured 38 feet in height, had a base diameter of 52 feet, and its walls were 10 feet thick. Curiously, unlike its European counterparts, the James Island martello tower had no central pillar to support the flat roof, "but instead there was an unwieldy construction of radiating beams not unlike the spokes of an umbrella" (Sutcliffe 1972:153). By 1833 the tower required extensive repairs, the flat roof and parapet having rotted, and some alterations were undertaken. The walls of the tower were used as the parapet, lowering the wooded barbette floor by about 8 feet. The other recommended alterations were apparently not implemented since a 1846 drawing reveals the structure to be the same as it was drawn in 1833. Keith reports that the wooden members burned in 1859 and the tower was never rebuilt (Keith 1984).

The 1833 plat, however, also reveals that the summer village, discussed below, covered an area of 900 feet south of the fort area. Other structures were scattered over the 90 acre site (National Archives, RG 77, Drawer 64, Sheet 9).

In 1843, Edmund Ruffin visited Fort Johnson during his survey of the state. At the time a Captain Bowman was commander of the fortification. Bowman was also spending much of his time collecting and transporting oyster shells

Drawer 67.  
Sheet 9.



Fort Johnson  
Charleston S.C.  
Designed by Capt. T. M. Smith  
1811

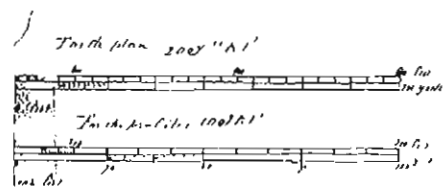


Figure 16 1821 survey of the Fort Johnson fortifications (National Archives, RG 77, Drawer 67, Sheet9)

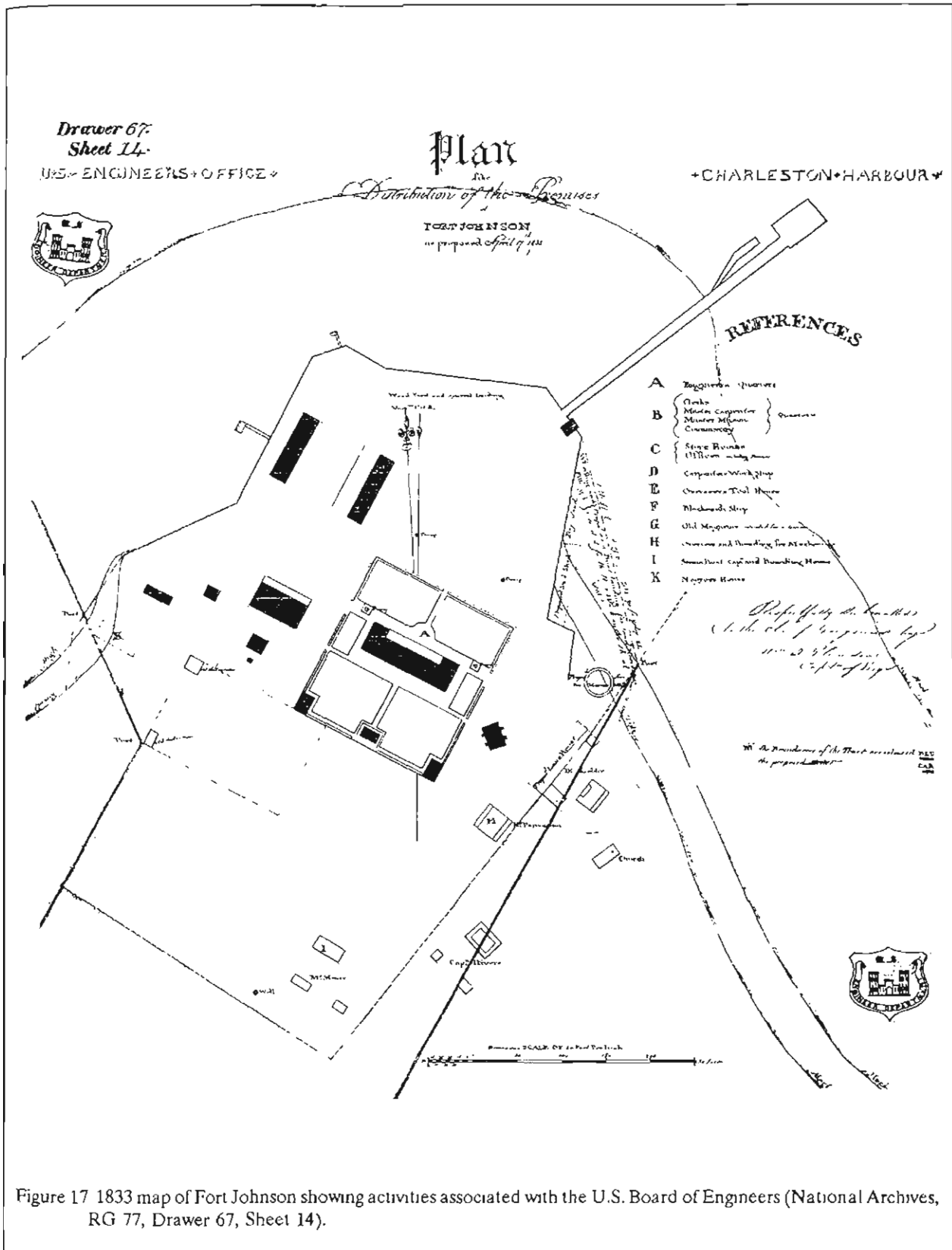


Figure 17 1833 map of Fort Johnson showing activities associated with the U.S. Board of Engineers (National Archives, RG 77, Drawer 67, Sheet 14).

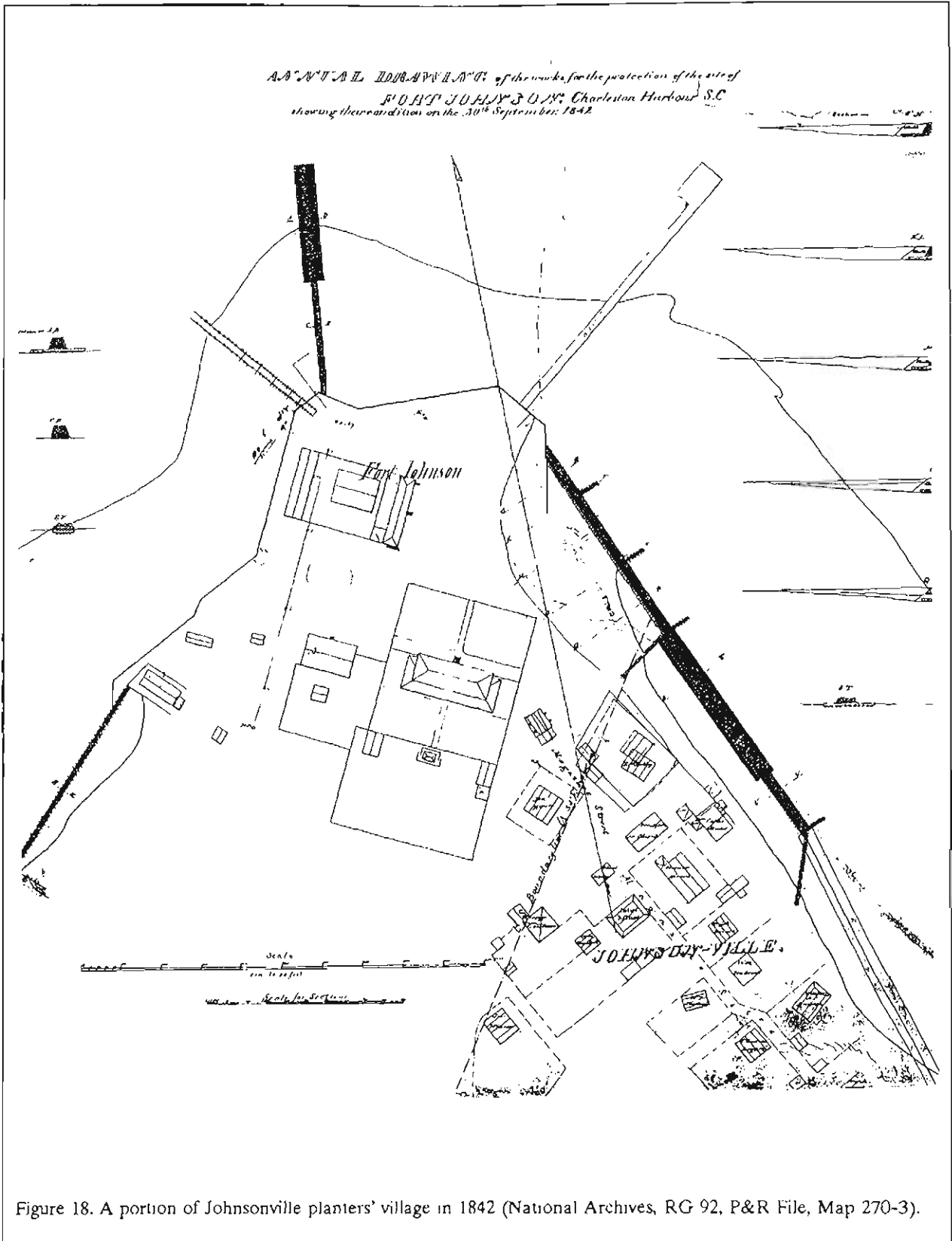


Figure 18. A portion of Johnsonville planters' village in 1842 (National Archives, RG 92, P&R File, Map 270-3).

from a nearby oyster bank or rake, although Ruffin does not explain if the shells were being used at the fort. It is possible that they were being used to stabilize the shore and retard further erosion. Ruffin described his visit in some detail:

Old Fort Johnson two miles below Charleston, is no longer maintained for defence & indeed there is no fortification, except for a ridiculous watch [?] Tower. This site of the fort is used by the planters of the island as their summer residence, & there is quite a village of small houses, of plain & unpretending appearance. I heard here some curious facts in regard to the local limits of the malaria from which this spot is exempt, though no person's life would be safe if sleeping one night but 100 yards back from the beach. The old hospital stood about half as far in the rear; & every physician who successively attended it was of the opinion that one end was healthy & the other sickly, from being subject to malaria. A few of the houses of the summer residents are below & a little back from the water behind a narrow marsh. This situation is as healthy as the others on the beach; but it is supposed that directly between these houses & the others, though not 150 yards apart, there was an interval subject to malaria, & to avoid walking through which at night, a foot bridge was made across the narrow marsh to the beach (Mathew 1992:102).

One of the more interesting maps of this village is reproduced here as Figure 18 (National Archives, RG 92, P&R File, Map 270-3). It shows the names of at least a few residents, including Joseph Hinson, Jonothon Rivers, Robert Lebby, John Minot, William Godber, William Mathews, Horace Rivers, Mrs. Calder Michel, Elijah Rivers, William Seabrook, Thomas Legare, and Winborn Lawton. It also reveals that the village had not only a

Presbyterian Church, but also a school house. Although commercial establishments are not shown, the lower part of the map is cut off and other plats, while not labeled, reveal that this likely represents only a quarter of the total village.

By 1848 Tuomey's chief interest in Fort Johnson was to note that the remains there offered an interesting example of coastal processes. Noting that originally built on dry land, "the foundation may now be seen on the strand, at low water" (Tuomey 1848:198).

By 1842 there was renewed interest in attempting to maintain Fort Johnson and a series of yearly plans were developed for jetties, shell piles, log emplacements, and sand filled berms -- all designed to cease the continued erosion. One plan (National Archives, RG 77, Drawer 67, Sheet 22) reveals that a marine railroad had been built at the northwest corner of the property. Otherwise, the buildings shown on earlier maps were still in place and being used in a similar fashion.

#### Fort Johnson and the Civil War

Fort Johnson apparently did not see a great deal of action, nor did it generate any specific interest, again until the Civil War. There are a number of references dating from this period and this synopsis will mention only a few, concentrating of events and maps which are most likely to help interpret and evaluate the site. Confederate forces occupied the fort sometime prior to April 12 and had constructed two batteries described at some length by Robert Lebby, who was stationed at Fort Johnson during this period and who later served as the Quarantine Officer:

there were two mortar batteries erected at Fort Johnson for the reduction of Fort Sumter. One situated on the front beach, midway between old Fort Johnson and the Lazaretto point, and directly west of Fort Sumter, and known as the beach, or east, battery, and the other was located due northwest of the former on a hill near some houses and contiguous to the present

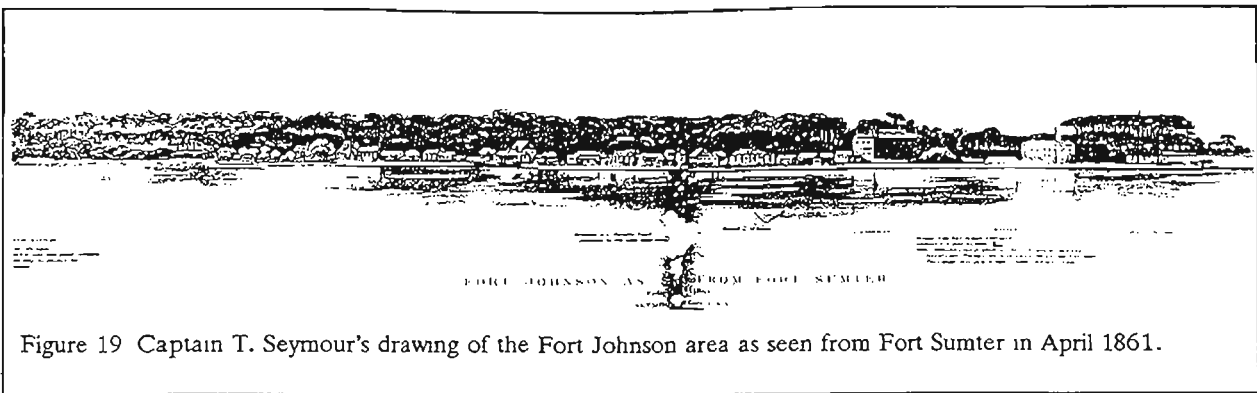


Figure 19 Captain T. Seymour's drawing of the Fort Johnson area as seen from Fort Sumter in April 1861.

quarantine residence. The remains of this battery are still plainly visible. It was known as the hill, or west, battery. The east, or beach, battery has been washed away by the sea. The post Fort Johnson consisted, at that date [April 12, 1861], of these two batteries of mortars and a company of infantry as reserves, all under command of Captain George S. James, South Carolina State troops (Lebby 1911:142).

Lebby also reveals that the infantry were encamped not far away, near the martello tower and the Confederate troops attempted to blow up at least one of the nearby houses, owned by a Mr. Greer, fearing that it was too close to the hill, or west, battery (Lebby 1911:143, 144). This house was almost certainly one of the summer houses mentioned by Ruffin in 1843.

A series of panoramic drawings were made by a Captain T Seymour from Fort Sumter in February 1861. The one for Fort Johnson illustrates the beach battery, describing it as being "constructed upon the beach of sand, with plank revetment. A line of sand-bags on the east, for infantry fire. Number of mortars unknown." The martello tower location is shown with the notation that it had been "destroyed by fire some years since," indicating that it was in ruins (but still standing) prior to 1861. A second battery is shown on the point, "constructed of sand its form. Three embrasures, two of which are directed upon the anchorage toward Castle Pinckney, the third toward, but not upon, Fort Sumter. They contain three guns of light caliber said to be 24 pdrs." It

seems likely that the second, or hill, battery mentioned by Lebby could not be seen by Seymour and was therefore not incorporated into his view. Likewise, the seaward battery was probably not mentioned by Lebby since it was not a mortar battery and did not participate in the initial shelling. But perhaps of greatest importance in Seymour's drawing are the number of houses comprising the planters' summer village (Figure 19).

The first shot beginning the Civil War was fired from the east, or beach, battery on April 12, 1861, with the second shot coming from the west battery seconds later. After this initial few hours of glory, or infamy, Fort Johnson lapsed into a military routine dominated by fatigue duty. A letter from William Gyles to his mother in February 1862 suggests that the pace continued throughout much of the war, "we have been working very hard the last few days building batteries" (South Caroliniana Library, William Alfred Gyles, February 22, 1862).

The "Map of Charleston and Its Defenses" drawn in 1863 (Figure 20) illustrates at least in general form the earthworks at Fort Johnson, as well as the location of Battery Harleston to the southwest, an unnamed battery to the southeast, and Battery Simpkins at the end of Shell Point. Off the project tract were Batteries Wampler and Cheves. An essentially identical map, *Map of the Defenses of Charleston Harbor, 1863-65*, was produced some years after the Civil War by John Johnson.

In April 1863 the Union forces made their first, unsuccessful, attempt to take Fort Sumter. While Fort Johnson was in range of the attack, Burton notes that since all its guns were trained on the inner harbor, they were not able to

participate in the battle (Burton 1970:138-140). A second effort in September of the same year was no more successful, although Fort Johnson did participate in repulsing the Union forces (Burton 1970:192). Another brief bit of history occurred at Fort Johnson on August 30, 1863 when the submarine Hunley, tied up at the wharf, was flooded and drowned five of her crewmen (Burton 1970:230-231).

The first of two amphibious assaults on Fort Johnson came on July 3, 1864 when troops of the 52nd Pennsylvania Volunteer Infantry, the 127th New York Volunteer Infantry, and the Third Rhode Island Artillery intended to land south of Fort Johnson as part of a larger assault. Only a small number of the troops, all from the 52nd Pennsylvania Volunteers, actually made landfall. Fired on by both Fort Johnson and Battery Simpkins the Union forces were routed. With no hope of reinforcements the Union forces surrender (Burton 1970:287). A second assault was made on July 10, 1864, although Keith remarks that "reports of this second attack are scant and not much importance seemed to have been placed on it (Keith 1975a:39). This effort also failed, ending

Wright explains that:

when it [Fort Johnson] fell into the hands of the United States in February 1865 the armament was as follows:

- Water Battery
  - 2 10" Columbiad rifled & banded
  - 2 10" Smooth bore
- Extreme Left
  - 4 10" Columbiads smooth bore
- Flanking Guns
  - { eight field pieces
  - { one 8 siege howitzer
  - one 32 pounder rifled & banded
  - two 10" sea coast mortars

The fort with its outworks formed an entrenched camp of considerable strength & capacity (South Caroliniana Library, Horatio Gouverneur Wright, May 8, 1883).

Courtenay (1883:477) notes that this account is incorrect, providing a different inventory of armament, although there seems to be little reason to debate the actual number of placement of the various pieces, at least for the current study.

Shortly after occupation by Union forces Fort Johnson and the other harbor defenses came under scrutiny and a series of plans were produced, including two reproduced here (Figures 21 and 22). The first, surveyed in between March and May 1865 by Brevet Major General R. Delafield provides very detailed information on the fortifications, including earthworks, gun emplacements, bombproofs, Batteries Harleston and Simpkins, the remnant of

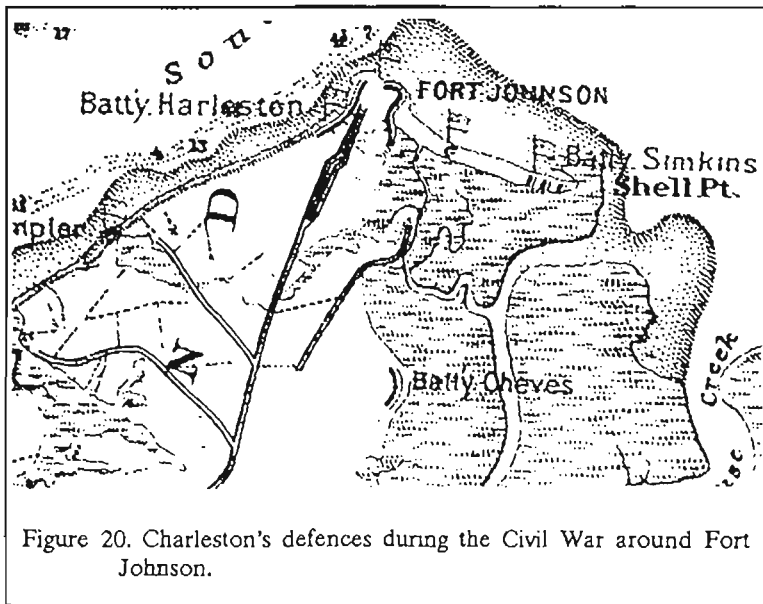


Figure 20. Charleston's defences during the Civil War around Fort Johnson.

the abortive attempts by the Union forces to take Charleston. Fort Johnson was never assaulted again and stood until evacuated along with the other harbor defenses on the night of February 17, 1865

the tabby seawalls, several structures, a cistern, and the "remains of the Old Fort." An essentially identical survey was produced under the direction of C.O. Boutelle, also in 1865 While it fails to illustrate any of the details outside the

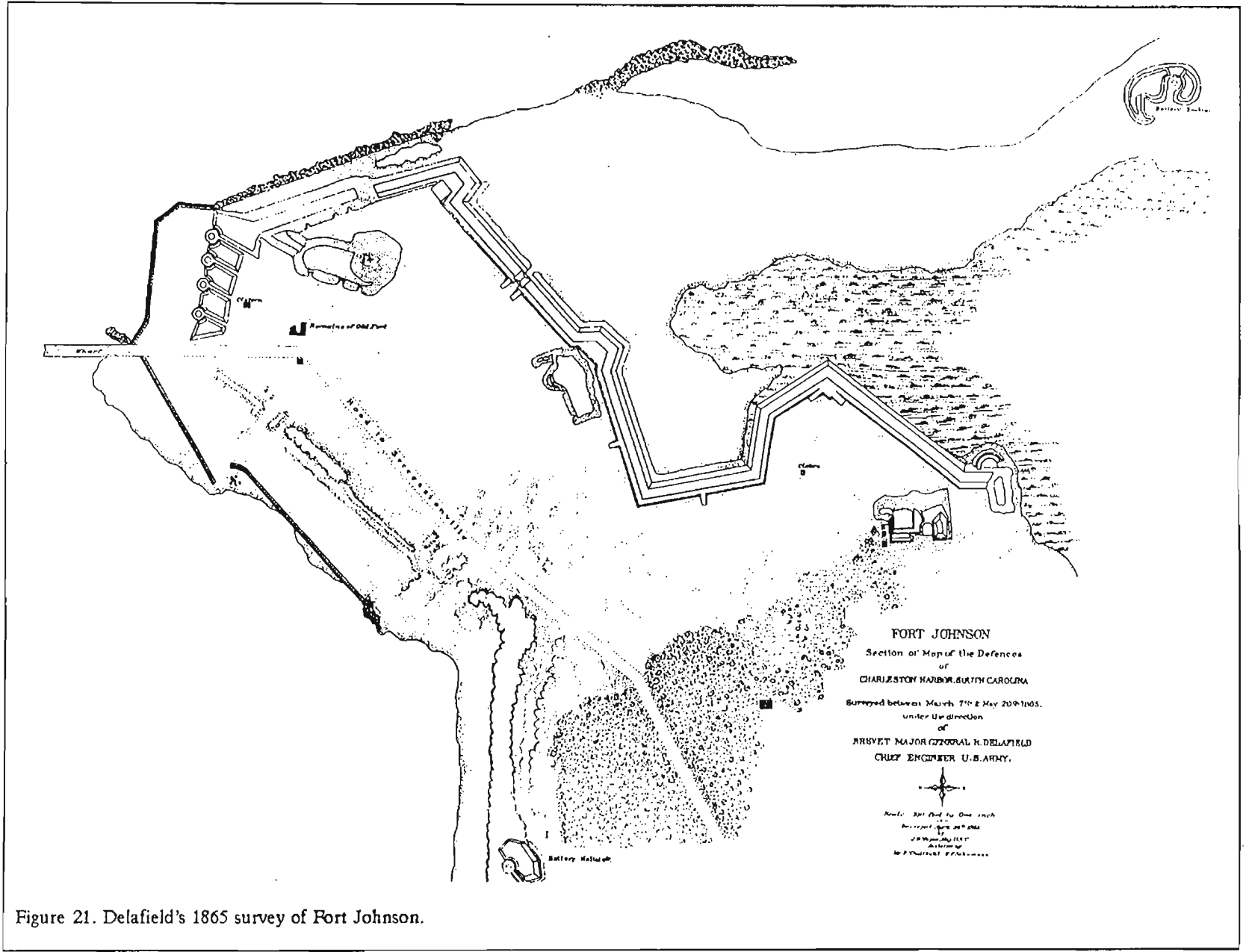


Figure 21. Delafield's 1865 survey of Fort Johnson.



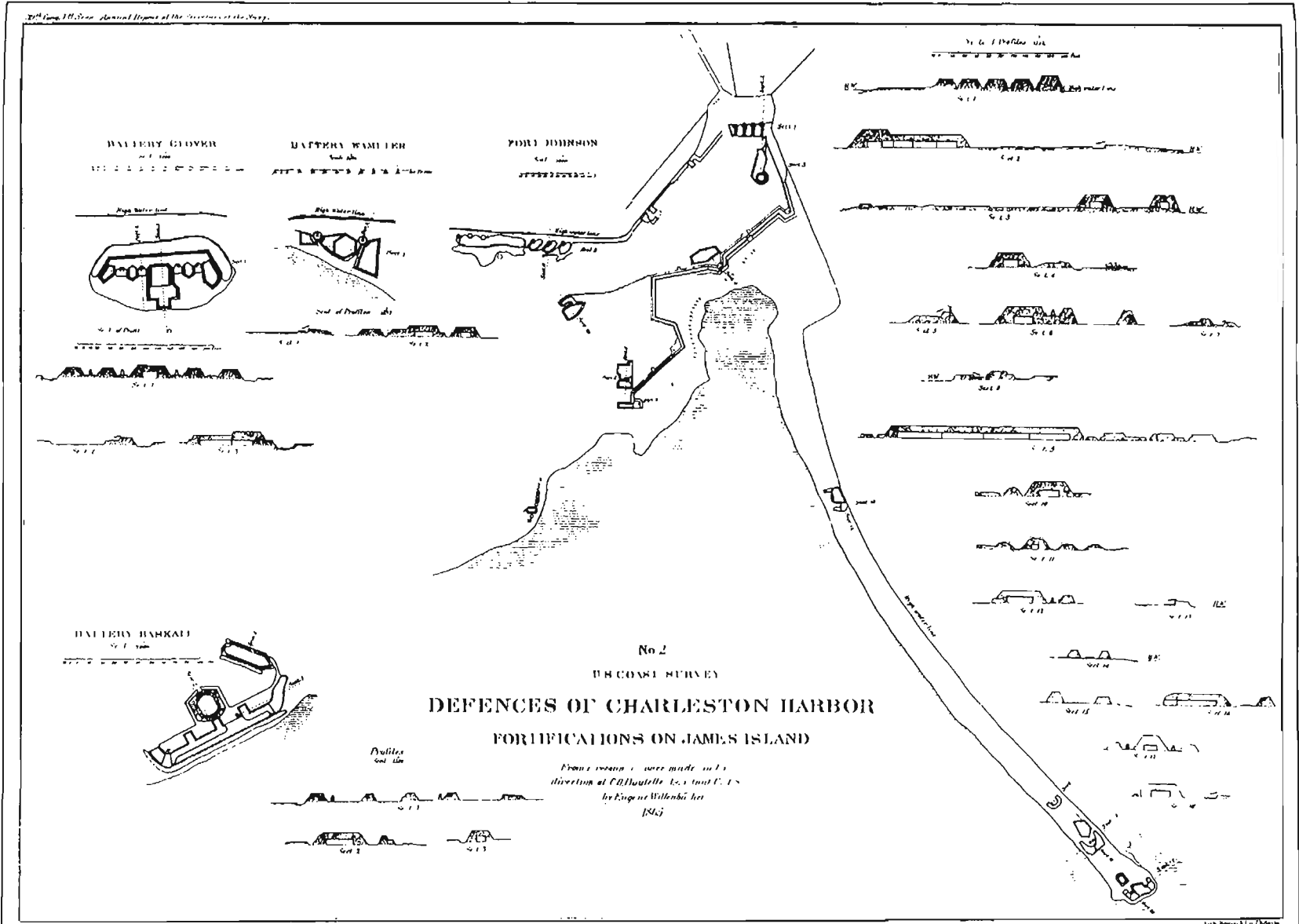


Figure 22 Boutelle's 1865 "Defences of Charleston Harbor - Fortifications on James Island "

fortifications, the earthworks and various batteries are clearly shown. Curiously, both of these plans fail to reveal any evidence of the planters' village which existed as late as February 1861, suggesting that the Confederate forces had razed all of these buildings in the intervening years.

There are also a series of photographs taken by Union photographers which show the condition of the works and the associated encampments shortly after the Confederate evacuation. Many of these have been published by Keith (1975a) and one is shown here as Figure 23.

The 1866 "Charleston Harbor and Its Approaches" (Figure 24) shows the extensive planters' settlement at Fort Johnson, but none of the Civil War defenses, suggesting that the Coast Survey Office simply used earlier surveys without modification or correction. Consequently, this map probably shows the area as it appeared in the late 1840s or 1850s.

#### Postbellum Use of Fort Johnson as a Quarantine Station

On March 4, 1872 an Act was passed by the South Carolina legislature to establish quarantine stations at Georgetown, Charleston, and Hilton Head. After only six months 366 vessels has passed through the Charleston station, while only 44 were reported in Beaufort and 122 were inspected at the Georgetown harbor. Dr. Robert Leiby, who had previously been stationed as a Confederate soldier at Fort Johnson, was appointed the Quarantine Officer and reported that the quarantine crews and health officers had not yet been paid (Leiby 1872:727, 734). In spite of what appear to be continuing problems, Leiby wrote to Dr. Harvey E. Brown, the U.S. Inspector of Quarantine, that:

quarantine laws are municipal acts, to be regulated by the several states . . . . I am of opinion that it is not advisable for the General Government to assume the charge of the quarantine (Leiby 1872:737),

a view which recalls states' rights debate of only a few years earlier. Waring suggests that Robert

Leiby's brother, Brewerton Monroe Leiby, may have served as a quarantine officer at Fort Johnson prior to Robert's service. He indicates that Robert Leiby did not assume duties at Fort Johnson until either 1876 or 1878 and continued to serve until 1906 when the U.S. Public Health Service took over control of the facility (Waring 1967:256, 258). Regardless, Leiby was clearly at Fort Johnson by 1880 when he wrote his father in Charleston about visiting since there were no infected ships at Fort Johnson which required his attention (Leiby Family Papers, South Caroliniana Library, August 11, 1880). It is also clear that Robert Leiby was at Fort Johnson during its most active period at the close of the nineteenth century.

The exact nature of the transfer of the property from the federal government to South Carolina is not clear, although documents at the National Archives reveal that reservation was "originally ceded to the U. States by the State of South Carolina, 17th Dec. 1805 and subsequently resurveyed and regranted to the U. States by Act of Legislature of South Carolina dated December 18, 1846" (National Archives, RG 77, Drawer 189-SC 5-2). By February 7, 1880 the S.C. Board of Health had applied to the United States government for use of Fort Johnson (National Archives, RG 77, Drawer 67, Sheet 43; reproduced here as Figure 25). This application reveals the location of three structures, an old buoy shed, the existing "health officer's house" likely occupied by Dr. Leiby, and a "negro dwelling." The accompanying map, however, incorporates only a little over 31 acres. Presumably the remainder of the Fort Johnson tract was continued to be maintained as federal property.

Even while the quarantine station was operating at Fort Johnson, the site's military importance was still being considered. Wright note that in 1881 the Board of Engineers "reported that if Fort Johnson was armed with large barbette guns it would add to the protection of Charleston . . . that it should therefore be preserved" (Horatio Gouverneur Wright, South Caroliniana Library May 8, 1883).

About the same time a more detailed inventory of the site was conducted:

This old earthwork,

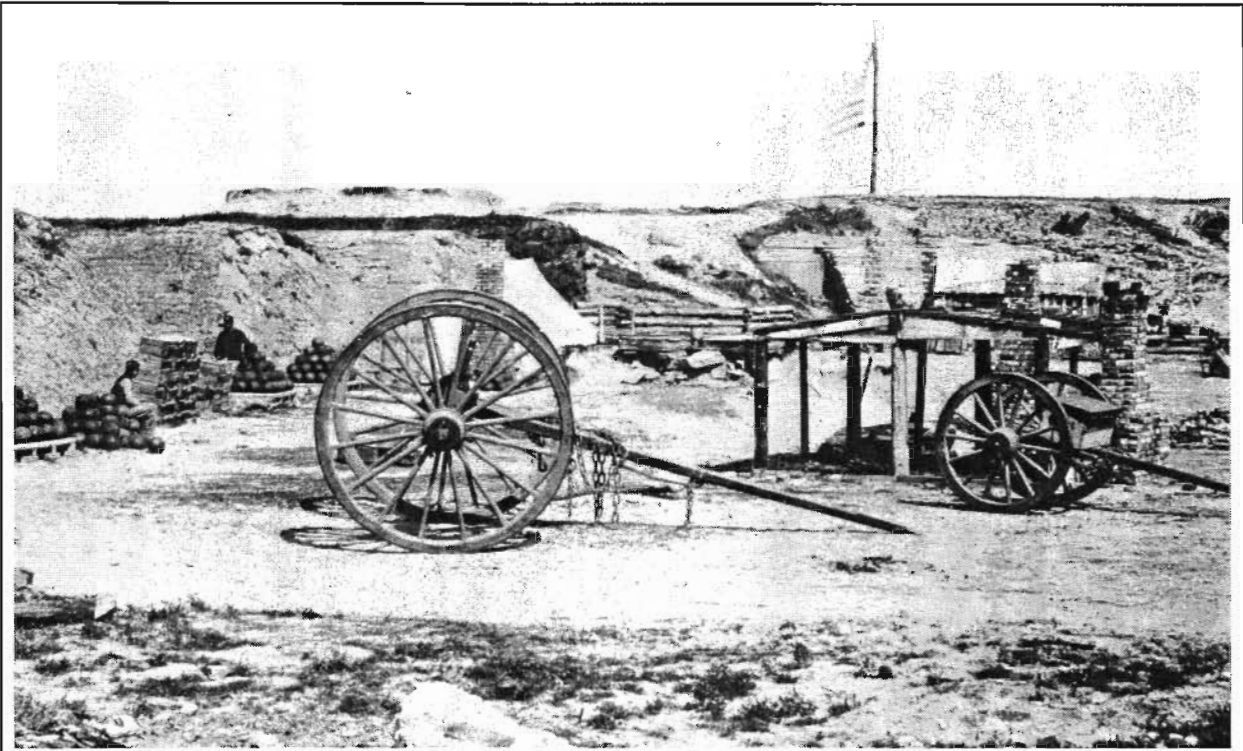


Figure 23. Photograph of Fort Johnson after the Civil War (National Archives, Brady Collection B-2).

situated on James Island a little more than one mile and a quarter west of fort Sumter should constitute one of the inner works in the system of defense for this

locality.

There is nothing left of the old fort at this place except some rough mounds of earth and some confederate guns which are about completely buried in the ground. Without considerable excavation it is not possible to determine the condition of these guns.

The Charleston City Quarantine station is near the fort, but outside of the United States reservation.

The government wharf is in good order.

Three buildings are on the reservation which are not known to belong to the United States; they are believed to have been built by the National Board

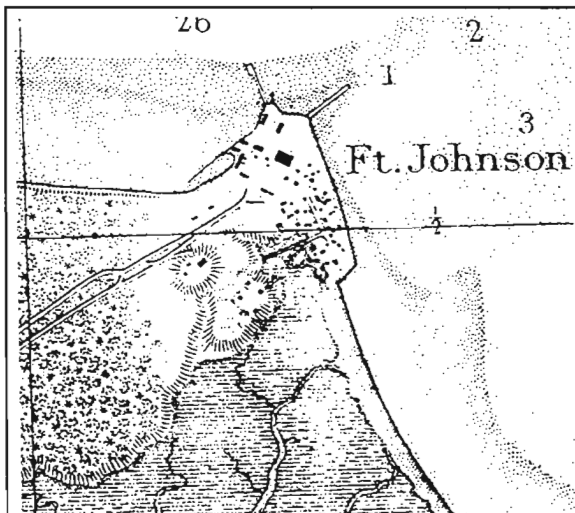


Figure 24. Fort Johnson and extensive planters' village, probably as it appeared before the Civil War

of Health. These buildings are one frame house 70x25', three rooms; in good condition and used for storage purposes. Two small one-story frame buildings, each containing one room 12' x 12'; in fair order and used as offices. There are besides some rough cabins on the reservation, occupied by colored people under whose authority is not known, but there seems to be no occasion for disturbing them.

The fresh water supply of the Fort Johnson reservation is represented by two tanks, holding about 6,000 gallons each.

February 24, 1874 Gen. Gilmore submitted a project for a battery for four 13-inch mortars, to be placed south of Fort Johnson, gun battery as originally constructed, and facing the channel between forts Sumter and Moultrie; thus reserving the old position of Fort Johnson for its eventual restoration as a gun battery.

February 27, 1874 this project was referred to the Board of Engineers and returned by it March 24, 1874 recommending the plan for approval, with the exception of the height of parapet, which should be increased two feet. The plan as changed by the Board was approved by the Chief Engineer March 28, 1874 and its construction authorized "from any funds which may now be, or may hereafter be available for that purpose."

The platforms for this battery were on hand (creosoted) and paid for, but its construction has not been commenced (National Archives, RG 77,

Drawer 67, Sheet A).

Perhaps the best synthesis of quarantine activities in the late nineteenth century comes from a series of papers published by Dr. H.B. Horlbeck, City of Charleston Health Officer (see Horlbeck 1890, 1891 for examples). In these articles Horlbeck explains the operation of the quarantine laws in Charleston, noting that their recently adopted approach was the "Holt System," named for the health official (Dr. Joseph Holt) who devised the method in New Orleans several years earlier. In fact Charleston's health officials visited New Orleans with a draftsman in 1889 in order to develop the plans "out from which the present plant [at Fort Johnson] was constructed" (Horlbeck 1890:151). Horlbeck offers one of the few descriptions of the facility:

two wharves have been built, with convenient pier heads affording 22 feet of water at low tide. Disinfection and fumigation are practices from one, and ballast-listing at the other. On the ballast wharf, to the west, there is a steam winch, capacity twenty tons per hour, railroad track and cars for carrying ballast. It is furnished with a naphtha launch for boarding, and also for ready and convenient communication with the city. This form of launch has given the fullest satisfaction -- 25 feet in length. On the wharf to the east are facilities for fastening vessels at anchor, and affording them sulphur fumes from a 12-inch galvanized tube; also affording them bichloride mercury solution from iron tubes. The station is provided, further, with a large and commodious dwelling-house for the quarantine officer, convenient office for business, dwelling-house for engineer, and one for the captain of the naphtha launch; also barracks for officers, female passengers, and crew of vessels undergoing fumigation, fever hospital and pest-house, and large storage

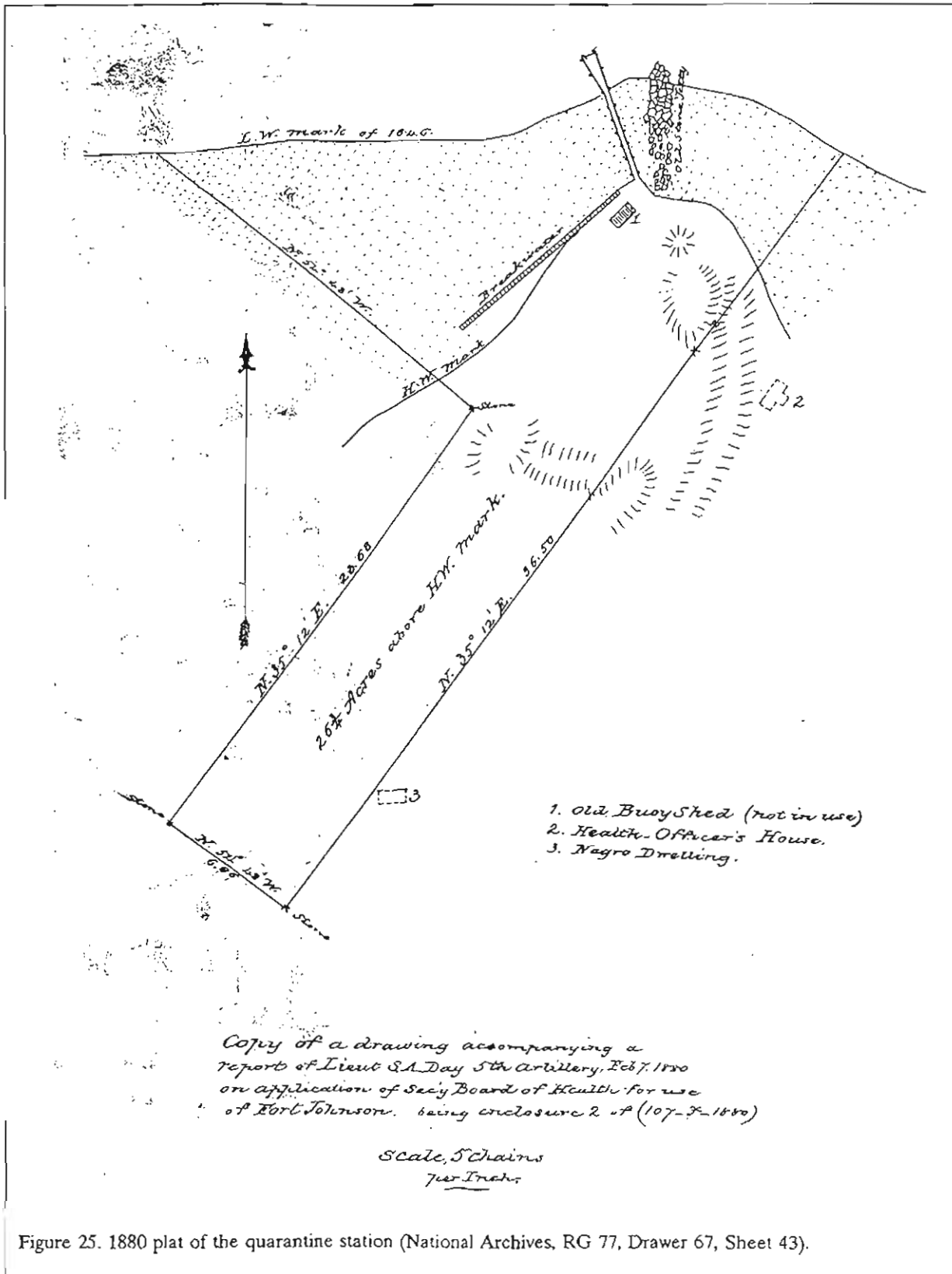


Figure 25. 1880 plat of the quarantine station (National Archives, RG 77, Drawer 67, Sheet 43).



Figure 26. View of "maritime sanitation" buildings. To the right are the quarters for the ship's crew.

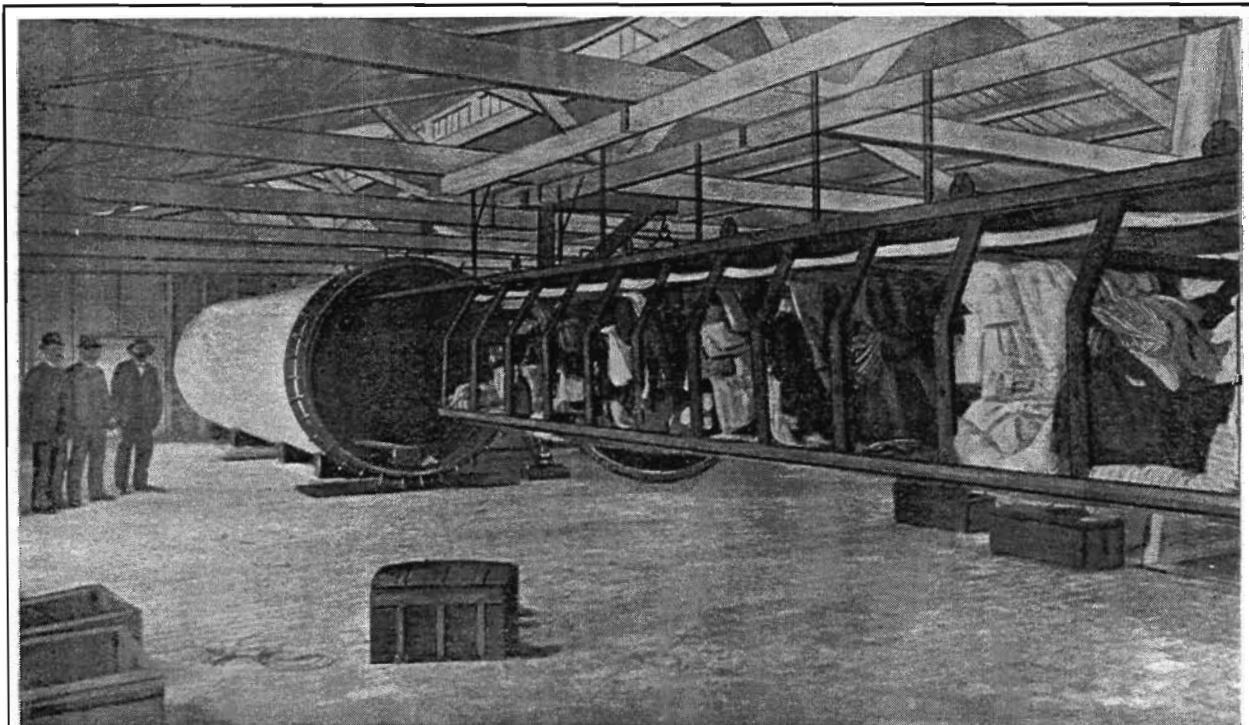


Figure 27. View of cylinder being loaded with clothing and bedding for sterilization.

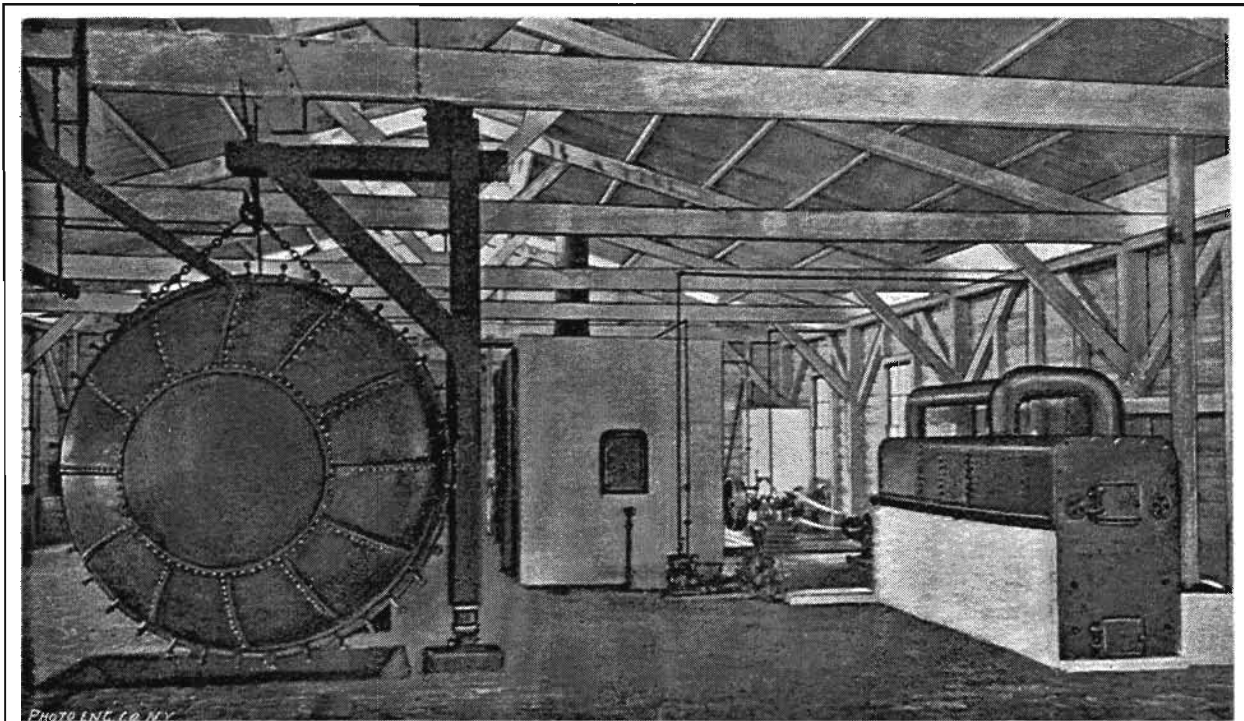


PHOTO ENG. CO. N.Y.

Figure 28. Interior of the maritime sanitation building, showing the sterilization chamber, boiler, and sulfur furnace.

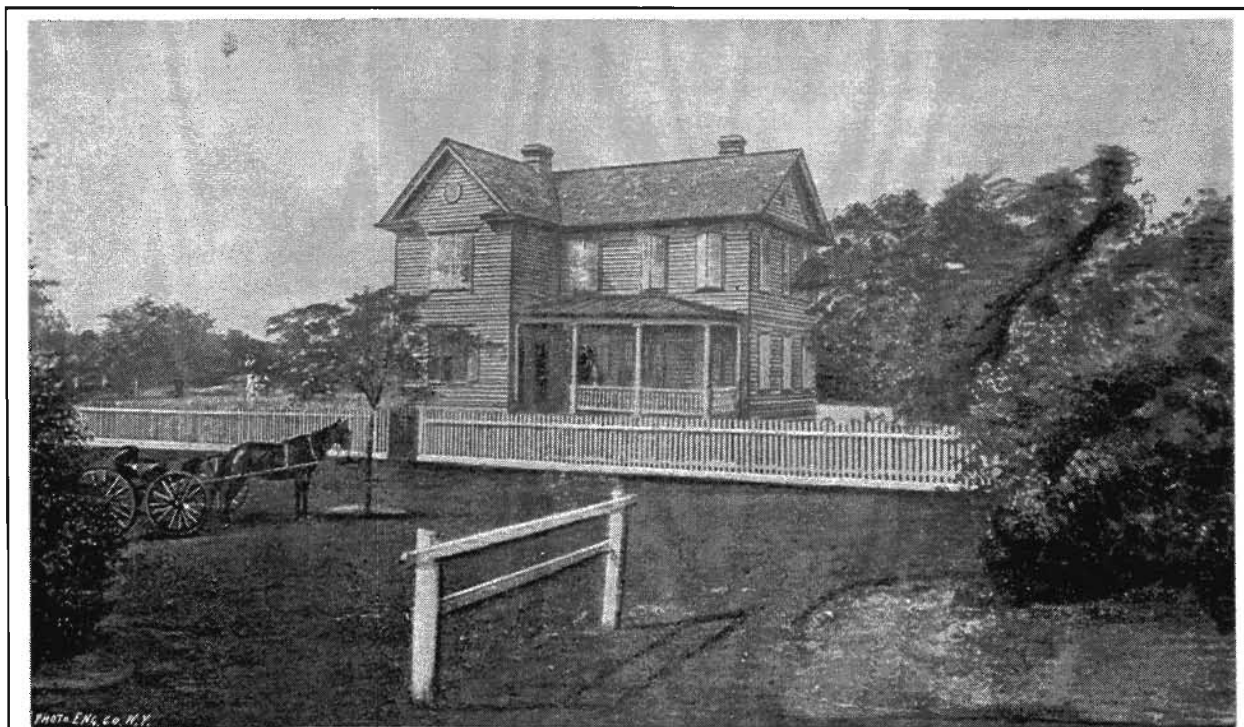


PHOTO ENG. CO. N.Y.

Figure 29. View of quarantine officer's house at Fort Johnson.

building, boarding skiff for boarding, when required; naphtha launch for boarding and communication with the city, and boat-house for same (Horlbeck 1890:149-150).

The first operation was apparently to remove the ballast, thought to be a source of considerable possible contagion. Horlbeck notes that some vessels used very soft stones which "cannot be regarded as a healthy ballast, and doubtless may become a vehicle for infecting a ship" (Horlbeck 1890:148). Others used mud, earth, or even refuse "scraped up directly from the shores." Regardless, these materials would be removed from the holds of the ships originating at suspected or infected ports, placed in the railroad cars on the wharf, and transported to elsewhere on the shore (perhaps only a short distance to the east), and dumped. Horlbeck noted that this had been done for the past 10 years (since at least 1880).

Clothing and bedding from these vessels would be removed and placed in a 30 foot long cylinder 8 feet in diameter for heat sterilization at dry temperatures of about 240° F which "thoroughly destroys all bacteria inimical to human life" (Horlbeck 1890:150). The vessel was meanwhile washed down on the inside with the mercuric chloride solution which was presumably then dumped in the harbor. The source of this "corrosive sublimate solution" was a 35 foot high tank near the wharf. After "the entire cleaning of the vessel, the hatches are covered over, and fumes containing 18% sulphur dioxide gas are forced in and the foul air driven out, one hatch temporarily left open, until the vessel is thoroughly filled up with disinfecting medium" (Horlbeck 1890:150). The sulfur dioxide was obtained from a "sulphur furnace," which was designed to burn large quantities of sulfur (anywhere from 200 to 300 pounds). The vessel was closed for upwards of 24 hours and then vented. The ships company might be held in quarantine for an additional five days.

A series of illustrations prepared by Horlbeck of the Fort Johnson facility are reproduced here as Figures 26-29. Figure 26 illustrate the eastern wharf, looking back toward the quarantine station with its work building and tank for "corrosive sublimate." To the right (or west) were the quarters for the ship's company.

Figure 27 provides a view of the cylinder used for disinfecting bedding and clothing in the process of being loaded. Figure 28 shows this tank, boiler, and sulfur furnace within the work building. Figure 29 (which should be compared to Figure 56) is an illustration of the quarantine officer's dwelling to the south of the work buildings.

By 1906 the decision to transfer operation of the quarantine station to the federal government had been made and a July 1906 *The Charleston Evening Post* article reported that a T.J. Raymond, of the U.S. Marine Hospital Service, was at Fort Johnson inspecting and inventorying the facilities. The article reveals that this inspection was exacting, "not only are the lines of the property measured, but the government official has taken the dimensions of the various houses and structures of the station, even to the sizes of the respective rooms, with a full description of the machinery and everything about the plant" ("Close Look at Our Quarantine," *The Charleston Evening Post*, July 24, 1906).

Although this study did not explore the federal operation of the quarantine station in detail, an oral history by Mr. Marion L. Burn, Jr. of its operation is in the files of Mr. Willis J. Keith and was consulted. Mr. Burn's familiarity with the station is primarily during the late 1930s through early 1940s. He reports that throughout his memory there were about four families on the property and the operation included not only the Medical Officer in Charge, but also boat pilots, boatmen, maintenance crew, carpenters, inspectors, and others. He reports that each vessel was inspected by a medical doctor (for contagious diseases) and a sanitarian (for rodent infestations). The fumigation was conducted using Zyklon (a proprietary name for hydrocyanic acid).

One of Mr. Burn's the most interesting remembrances concerns at least one of the cemeteries on Fort Johnson:

as an 11 year old, one of my first acquaintances was Mr. Ellis Pinckney (whose family still lives just outside the entrance of the S.C. Marine Resources Center). He told me of early sailors from a



foreign ship [that] had died and were " . . . shot in the ground." After much discussion, in Gullah, I realized that these persons had been afforded a military funeral and that these sailors (7 of them) had had the traditional volley fired over their graves.

The graves are located just inside the entrance to the Marine Center on the right about 500 yards from the gate. This must have been common practice on quarantine Stations because I know of others buried on [the] Brunswick, Georgia Quarantine Station (Burn 1987a:1-2).

It seems likely that this cemetery was the one destroyed by the construction of the Southeast Utilization Research Center, although it is not known if additional graves might still exist.

Burn reports that during the early years of the Second World War the quarantine station was used by a U.S. Coast Guard detachment with the troops billeted in the hospital. The post also trained military guard dogs, with the animals housed "closed to the present pump house near the entrance to the Marine Center on the left" (Burn 1987a:2). It was during this period that the powder magazine was refitted as a jail and that anti-aircraft batteries came to the station to practice. Burn also mentions that the present slip, or basin, at the Marine Resource Center was originally built in

1947.

The earliest identified map of Fort Johnson during this period is the 1919 War Department topographic surveys (Charleston and James Island quadrangles) shown in Figure 30. The eastern wharf for vessels and the western wharf for ballast removal are clearly visible, as are a series of three structures just south and a fourth somewhat further to the southeast. By this time the quarantine activities had been taken over by the U.S. Public Health Service. In the late 1930s the quarantine station was described by a WPA writer:

branching off the Folly Beach Highway at a signed marked "Light House Point", and traveling due east over a hardsurfaced road cut between blending shades of green shrubbery, tall pines, and wide spreading oaks, one passes large farms where Negroes are busily loading trucks, hoeing cabbages or gathering vegetables in season. Black children in multi-colored garments are standing by the side of the road offering bunches of wild flowers for sale . . . This is the Quarantine with its patches of bright green grass and neatly kept government houses. The place commands a fine view of Charleston harbor with its surrounding islands, forts and bridges. Water splashes softly against the sea wall and from the ocean comes the smell of oysters and salt marshes. As the name Quarantine implies, all ships from foreign lands must stop here for examination before proceeding to Charleston.

A large boat house projects over the water. Offices as well as quarters for government officials are scattered about the grounds. At the southeastern side of Quarantine, surrounded by a bed of clover, stands an old fort of Revolutionary fame (Cohen n.d.:1).

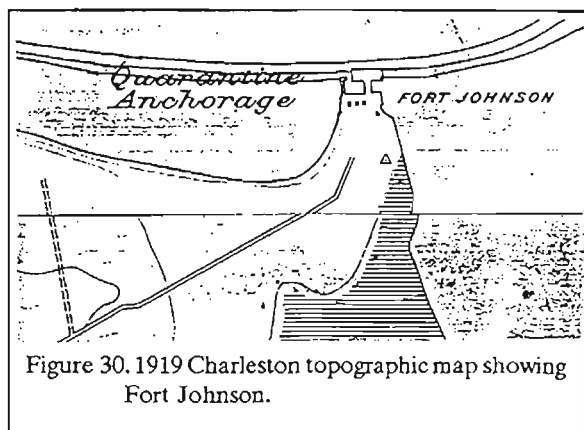


Figure 30. 1919 Charleston topographic map showing Fort Johnson.

While the observation concerning the fort is likely inaccurate and the comments about the station itself rather ambiguous, it seems that the facility changed little between 1890 and 1930. Perhaps the most notable change during these 40 years was that the wharfs had been replaced by a slip, the land being created by the dumped ballast extending dry land further outward into Charleston Harbor. This is best shown by the 1943 Charleston topographic sheet (Figure 31). The I-shaped building to the southeast of the slip was the hospital, while the other buildings are locations of the various offices, warehouses, quarters, and houses on the property.

### The Modern Period

As early as 1935 local officials recommended that the federal government develop Fort Johnson as a historical park, favoring this location over either Fort Moultrie or even Fort Sumter ("Site Chosen for Historical Restoration, First Fort in Carolina, Overlooks 2 Other Famed Military Posts," *Charleston News and Courier*, July 1, 1935). Regrettably, somehow this recommendation was ignored and while both Sumter and Moultrie became federal parks, in 1948 the quarantine station, with its 14 buildings including a 40-bed hospital, was abandoned by the federal government and its custodian, the Department of Health,

Education, and Welfare, offered the 90 acre tract to the State of South Carolina. For five years the property set vacant with local and state groups unwilling, or unable, to reach a consensus on the use of the property. Finally, HEW reclaimed the tract.

In 1954 Dr. George D. Grice, president of the College of Charleston, developed a plan to turn the facility into a marine biological research center. With the Medical College of South Carolina cooperating, HEW granted quitclaim deeds on Fort Johnson to both institutions in June 1954. This gave about 50 acres to both the College of Charleston and the Medical University. The latter used the facility to carry on animal research and small colonies of sheep, dogs, primates, and hogs were maintained at Fort Johnson for the study of disease. The College of Charleston concentrated on marine biological research and in August 1955 named Dr. Joseph Merkel director of the laboratories. He converted the hospital building into the first labs ("Former Fort is Transformed Into Scientific Work Center," *Charleston News and Courier*, March 18, 1957). In 1961 the Marshlands antebellum plantation house was donated to the City of Charleston by the Charleston Naval Base. Funds were raised by the College of Charleston to move the structure and it was transferred to their Fort Johnson facility for use as a faculty residence (Keith 1975b:2).

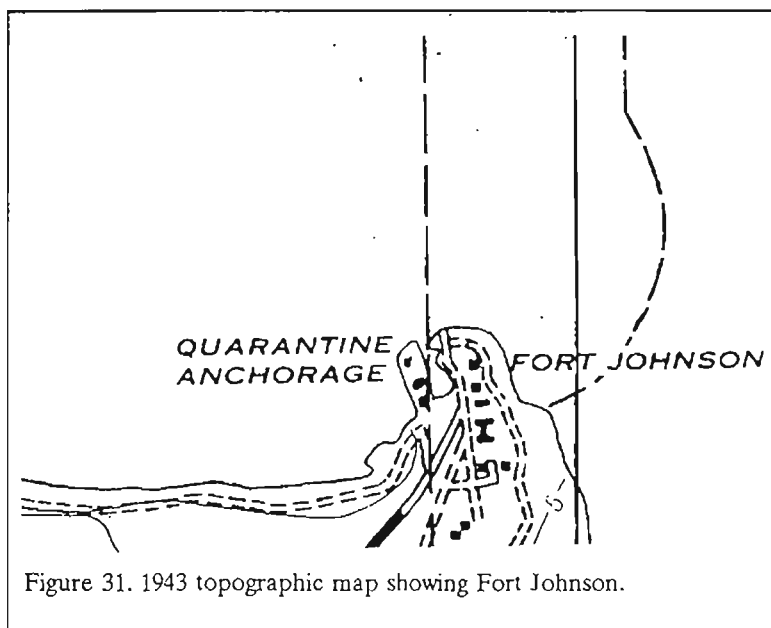


Figure 31. 1943 topographic map showing Fort Johnson.

At least by 1967 plans were again being investigated to convert Fort Johnson into a historic park. The College of Charleston, anxious to proceed with expansion plans in Charleston was interested in selling 40 of its 50 acres, maintaining only 10 acres on the point where the early laboratory building was located. Local groups, including Mayor J. Palmer Gaillard of Charleston, urged the S.C. Department of Parks, Recreation, and Tourism to purchase the site, but this was never realized (Proposal Made to Use Fort Johnson as Park," *Charleston News and Courier*, November 9, 1967). Instead, around 1970 the bulk of the property was transferred from the

College of Charleston and the Medical University to the S.C. Department of Wildlife and Marine Resources for use as a research facility, ending efforts to utilize the unique history and heritage of the area as a park.

### The Need for Further Research

It will be obvious that this brief synopsis has only touched on the most obvious primary and secondary sources available for Fort Johnson -- many others remain either unidentified or unexplored. The goal here is to only briefly mention some of the sources which other researchers may wish to examine.

No real effort has been made to explore the agency records of the S.C. Department of Wildlife and Marine Resources, the College of Charleston, or the Medical University for information on how the fort was used, what activities may have taken place on the property, or how these activities may have changed the face of the tract. Clearly a tremendous amount of ground disturbing activities have taken place and at least some of these may be documented by facilities reports, engineering records, or physical plant inventories. Other information may be available in correspondence files. Unfortunately, most state agencies have relatively short institutional memories and searching for this information is likely to be tedious and the files voluminous.

There are likely files concerning Fort Johnson in the records of the Public Health Service (National Archives Records Group 90), especially the Records of the Quarantine Divisions which date from 1878 to 1936 (with the period from 1906 to 1936 being appropriate for this study). There is in addition a category of records known simply as the General Records of the Public Health Service which may contain further information. The Records of the Hospital Division may contain information on the operation of the Fort Johnson hospital. Since this Division maintained records on the patients, these records may shed additional light on the recurring rumor that the quarantine station operated a cemetery on Fort Johnson.

Prior to the federal government assuming control of Fort Johnson, it was operated as a joint

City and State facility. While there seem to be no remnant City records (based on a review of the Charleston City Archives), some information may be present in the State Board of Health files and especially those relating to the City of Charleston (1883-1887, 1892-1894, 1896-1897, 1899-1900). There is also, under the State Board, records from the Committee on Quarantine. Of particular interest, however, are the State records from the Port of Charleston Health Officer (dating from 1869/70 - 1881/82). Willis Keith also notes that a descendant of one of the last quarantine boat captains, Mr. Marion Burn, Jr., is still alive. This individual should be interviewed since his memory of the station is likely to be of exceptional use.

This study has not attempted anything resembling a definitive examination of Civil War documents relevant to our understanding of the Fort Johnson defenses. There exist, for example, not only the *Official Records*, but also the War Department Collection of Confederate Records (National Archives, Record Group 109) which information on fortifications, military commands, and related items. As anyone who has researched the Civil War records of the National Archives realizes, pertinent information may be found in a wide range of Record Groups, including the Records of the Office of the Chief of Engineers (Record Group 77). Regimental histories, especially for Confederate troops which may have been stationed at Fort Johnson, have not been examined.

For all the periods there are likely to be records surviving at the local level. The collections of the College of Charleston, the Charleston Library Society, and the South Carolina Historical Society have either not been examined, or have been explored only superficially. In addition, no effort has been made to examine the various early Charleston newspapers.

### Implications

This research has multiple implications. First, and certainly most fundamental, is that the Fort Johnson facility is a unique historical resource which has much to offer the citizens of South Carolina. Its nearly 160 years of continuous military use traces the historical development of the Carolina colony, its struggle for survival, and

Figure 32. Caption for Eighteenth Century Sites Identified on Fort Johnson.

Site Number	Description	Date
1	"Commandant's House," 3 bldg., 1 circular ruin	1787
2	"Gunner's House," 2 bldg.	1787
3	elevation, with earthwork	1775
	"Bunker Hill," 1 bldg.	1787
4	2 bldg.	1787
5	"Encampment of the Army" [British]	1780
	1 bldg.	1787
6	"Barraks," [sic] 1 bldg.	1787
7	1 bldg.	1787
8	"New Wharf"	1787
9	interior of battery, with barracks	1787
10	walls of battery	1787
11	bldg., in ruins	1787
12	Fortifications (including "Captain's House," "Old Barracks," "Powder Magazine"	1737
	"Fort Johnson"	1780
	"Fort Johnson, <i>destroyed</i> "	1780
	"Old Fort," in ruins	1787
13	"Strong redout, erected near Ft. Johnson"	1780
	earthwork	1780
14	earthworks	1780

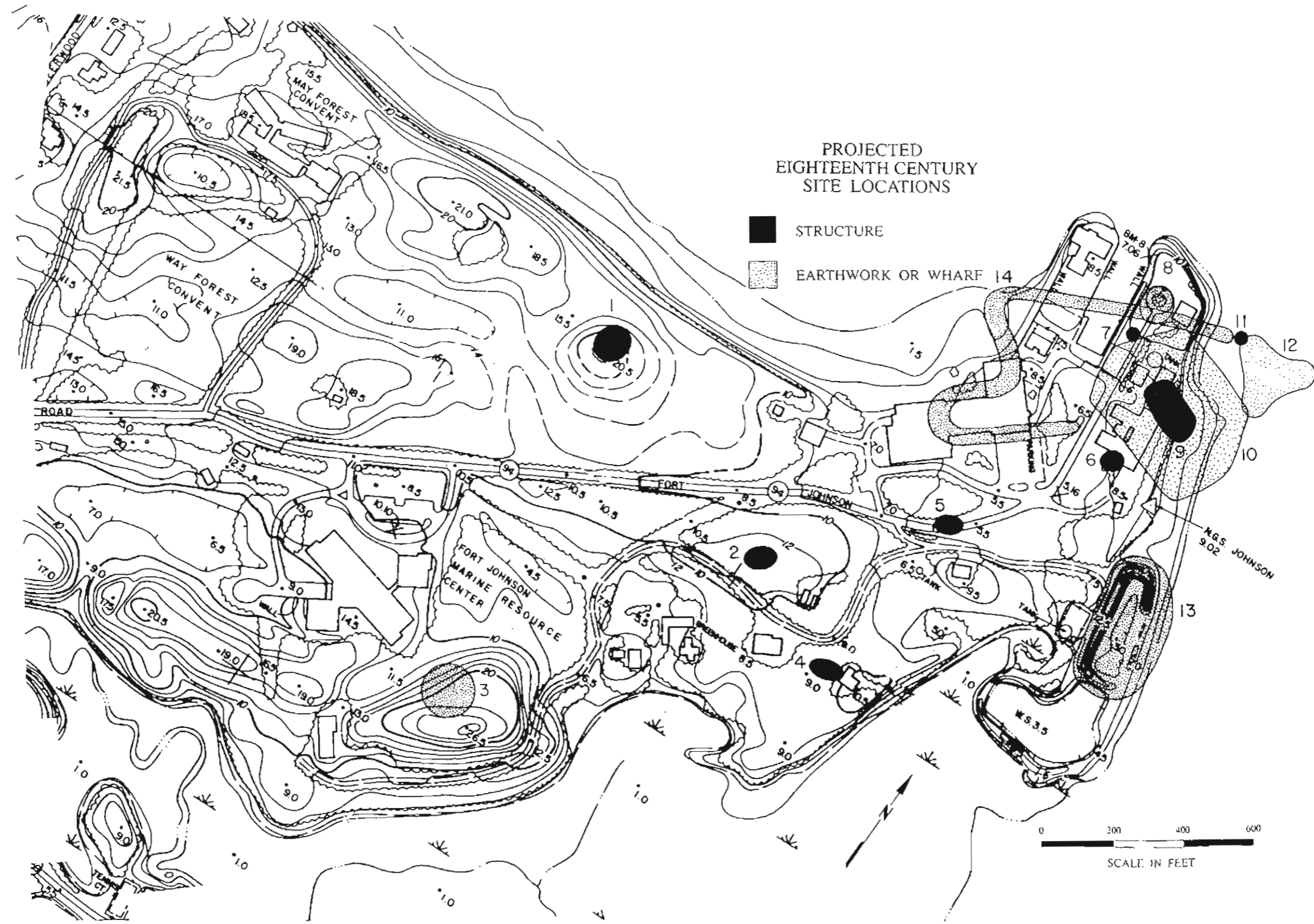


Figure 32. Projected Eighteenth Century site locations.

Figure 33. Caption for Antebellum Sites Identified on Fort Johnson.

Site Number	Description	Date	Site Number	Description	Date
1	"Cork Quarters" 1 bldg. "Another knoll, on which it is a house that was once (one just occupied by Col. Sedg. the Engineer of the State"	1800	35	wharf	1833
	1 bldg.	1833		wharf	1838
2	wharf	1800		wharf	1841
	wharf	1833		wharf	1842
3	"Hospital" 1 bldg. Mr. Massey's Steam Boat Cabin & Boarding House, well, 2 bldg.	1800		wharf	1843
	1 bldg.	1846		wharf	1843
4	"Store House," 1 bldg.	1800	36	carthouses or whf	1833
5	1 bldg.	1800	37	1 bldg.	1833
6	fortification	1800		"Carpenter's work shop"	1833
	2 bldg.	1833		"Workshop," 1 bldg.	1842
7	1 bldg.	1800		"Workshop &c." 1 bldg.	1843
8	1 bldg.	1800		1 bldg. at head of wharf	1833
9	"West Battery"	1800		"boat slip"	1843
	"West Battery, erected in the Revolution, now entirely ruined"	1800	39	"Dr. Lobby," 3 bldg.	1833
	erected earthworks	1838		1 bldg.	1838
10	earthworks across peninsula with opening in "Public Road"	1800		2 bldg.	1842
	earthwork	1830		"Robt. Lobby," 2 bldg., fenced	1842
11	"Powder Bldg." 1 bldg.	1821		1 bldg.	1846
12	"Old Magazine - intended for a Casemate"	1833	40	"Church," 1 bldg.	1838
	"Magazine," 1 bldg.	1842		1 bldg.	1842
	"Magazine," 1 bldg.	1843		"Presbyterian Church," 1 bldg.	1842
	1 bldg.	1846		"Negro House," 1 bldg.	1833
13	"The barracks built at the expense of the U.S. in 1796"	1800	41	1 bldg.	1838
	"Quarters," 1 bldg.	1821		1 bldg.	1841
	1 bldg.	1833		"Labourers' Quarters," [sic] 2 bldg.	1842
	"Engineer's Quarters," 1 bldg. with two "pumps" near corner	1833		"Labourers' quarters," 1 bldg.	1843
	1 bldg.	1838		"Cape Riven," 3 bldg.	1833
	1 bldg.	1841		"George Lawton," 3 bldg., fenced	1842
	"Engineer's Quarters," 1 bldg.	1842		1 bldg.	1846
	"Officer's Quarters," 1 bldg.	1843	43	"J. Pennington," "Overseer and Boarding for Mechanics" 1 bldg.	1833
	1 bldg.	1846		1 bldg.	1838
14	"Store House," 1 bldg.	1821		"Jno. Riven," 1 bldg., fenced	1842
	1 bldg.	1833		"Proposed Site for Marine Barr"	1833
	"Clerk/Master Carpenter/Master Mason/Commissary's Quarters"	1833	45	1 bldg., associated with site 13	1833
	3 bldg.	1833		1 bldg.	1842
	"Overseer Quarters," 2 bldg.	1842		1 bldg.	1843
	"Overseer Quarters," 2 bldg.	1843	46	1 bldg., associated with site 13	1833
	1 bldg.	1846		1 bldg.	1842
15	1 bldg.	1821		1 bldg.	1843
	"Overseer Tool House," "Blacksmith Shop"	1833	47	1 bldg., associated with site 13	1833
	"Smiddy," 2 bldg.	1842		1 bldg.	1842
	"Smiddy," "quarters," 2 bldg.	1843		1 bldg.	1843
16	"Barracks," 1 bldg.	1821		1 bldg.	1843
	1 bldg.	1833	48	wharf	1833
	"Store rooms, offices, including Doctor's"	1833	49	"Old shed in ruins"	1833
	1 bldg.	1838		1 bldg.	1842
	1 bldg.	1841	50	"old shed in ruins"	1833
	"Office, Hospital, etc.," 1 bldg.	1842		1 bldg.	1842
	Hospital/office, 1 bldg.	1843	51	wharf	1833
	1 bldg.	1846		"Jesse," stone jetty, 222 feet in length	1841
17	"Furnace"	1821		stone jetty	1842
18	wharf	1800		jetty	1843
	"Marine Railway"	1842		jetty	1846
	marine railroad	1842	52	2 bldg.	1838
	"Marine railway"	1843		"Shed," 1 bldg.	1842
	jetty	1846	53	"shed," 1 bldg.	1843
	"marine ways"	1840		1 bldg.	1846
19	"The Palmetto Works" and "The work erected by Genl. Moultrie"	1800	54	1 bldg.	1842
	fort walls	1821	55	"School House," 1 bldg.	1842
	fort walls	1821	56	1 bldg.	1838
21	"The Hospital"	1800	57	"John Minor," 3 bldg., fenced	1842
	earthworks	1821		"Crillage," of log and stone	1841
22	"The Boat House Built in 1796"	1800		breakwater of shell, stone and logs	1843
23	"The lobby work which was built in 1796"	1800		wharf	1846
24	"The lobby work which was built in 1796"	1800	58	1 bldg.	1838
25	"The lobby work which was built in 1796"	1800	59	"Mr. Calder Mabel," 1 bldg.	1842
26	"The Ammunition shop" and "Small wooden building almost in ruins"	1800	60	1 bldg.	1838
	"Well"	1810		"Wm. Mathew," 1 bldg., fenced	1842
27	"Well"	1810		1 bldg.	1838
28	"The Bake House"	1830	61	"Thomas Legere," 2 bldg., fenced	1842
29	"A well now filled up"	1810		1 bldg.	1838
30	"A Battery built in 1794 by the U.S."	1800	62	"Winborn Lawton," 3 bldg., fenced	1842
31	"The fort built by Genl. Moultrie in 1793 and repaired at the expense of the U.S. in 1796"	1840		1 bldg.	1838
32	"A knoll called Bunkers Hill on which a work was erected in the Revolution"	1820	63	"Frank Echard," 1 bldg.	1842
	1 bldg.	1813	64	"Wm. Seabrook," 1 bldg., fenced	1842
34	"A knoll on which it is a house occupied by Captain Butler in"	1830	65	"Egyn Riven," 3 bldg., fenced	1842
	"Martello Tower"	1839		1 bldg.	1838
	martello tower	1846	66	"Honor Riven," 1 bldg., fenced	1842
				"store room," 1 bldg.	1841
			67	new breakwater of stone, shell and sand	1843
				breakwater	1850
			68	1 bldg.	1838
				1 bldg.	1846
			69	1 bldg.	1840
			70	erected area	1873
				1 bldg.	n.d.
			71	1 bldg.	n.d.
				1 bldg.	n.d.
			72	1 bldg.	n.d.
				"well"	n.d.
			73	"well"	n.d.
				"pump"	n.d.
			74	"well"	n.d.
				"pump"	n.d.
			75	"Jon. Hinman," 1 bldg., fenced	1842
				1 bldg.	1846
			76	"Wm. Calder," 1 bldg.	1841

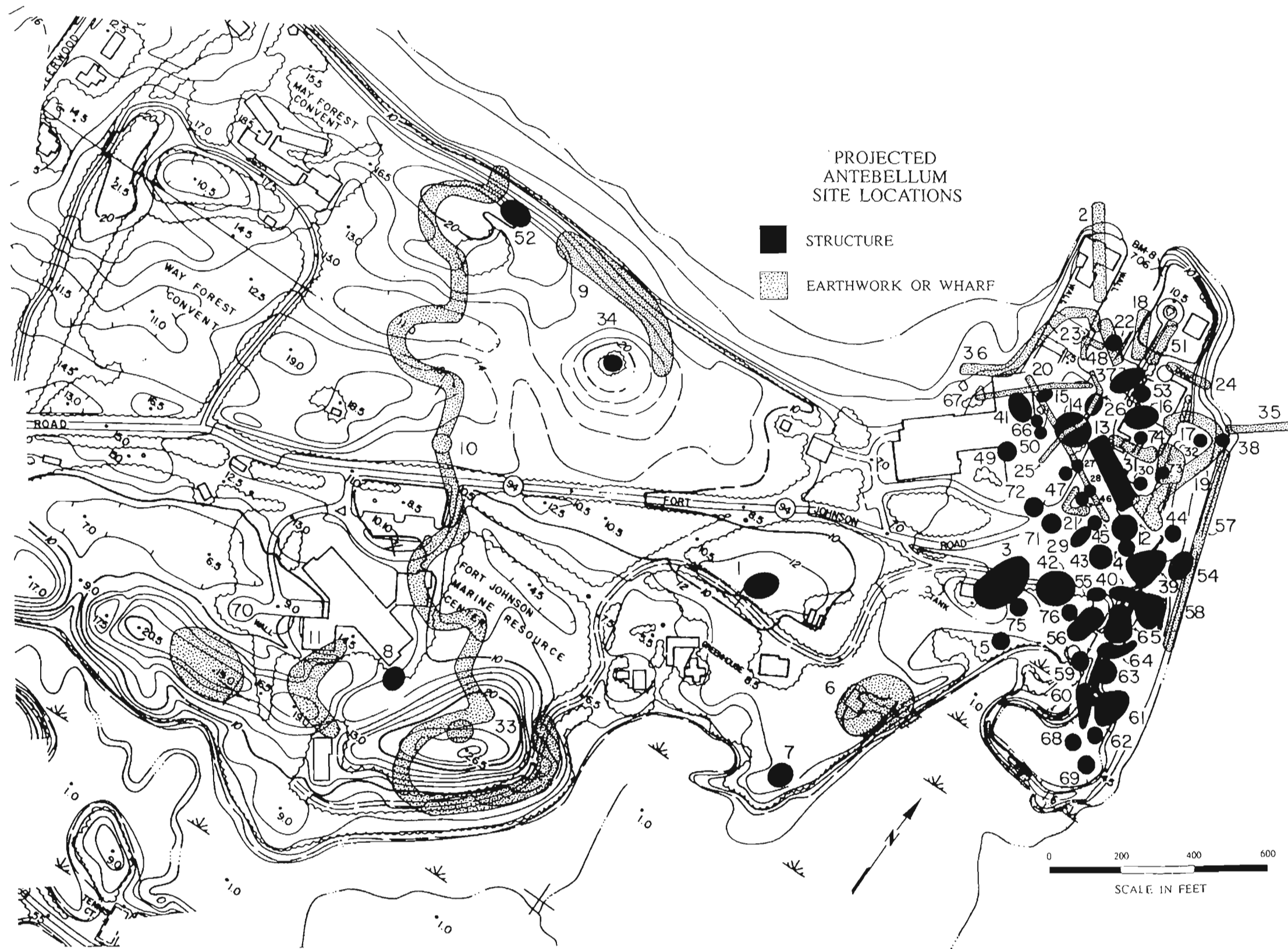


Figure 33. Projected Antebellum site locations.

Figure 34. Caption for Civil War Sites Identified on Fort Johnson.

Site Number	Description	Date
1	"Battery Hallsted"	1865
2	"Wharf"	1865
3	1 bldg.	1865
4	battery or fortification	1863
	battery or fortification, 3 bldg.	1865
5	"cistern"	1865
6	earthwork, possibly old	1865
7	powder magazine and earthwork	1865
	1 bldg.	1866
8	Earthworks of Fort Johnson	1863
	Fort Johnson walls	1865
9	seawall	1865
10	"Remains of Old Fort"	1865
11	"cistern"	1865
12	earthworks	1865
	3 bldg.	1866
13	3 bldg.	1865
14	1 bldg.	1865
	2 bldg.	1866
15	"Bty Wampler"	1863
	battery	1865
16	wharf	1860
	wharf	1866
17	wharf	1866
18	3 bldg.	1866
19	3 bldg.	1866
20	"work shop," 1 bldg.	1860
	1 bldg.	1866
21	"Jettee"	1860
22	"quarters," 1 bldg.	1860
23	"overseer's quarters," 2 bldg.	1860
	2 bldg.	1866
24	1 bldg.	1860
25	"officers' quarters," 1 bldg.	1860
	1 bldg.	1866
26	1 bldg.	1860
27	1 bldg.	1860
28	1 bldg.	1860
	2 bldg.	1866
29	1 bldg.	1860
30	earthwork	1865
31	"hospital/office," 1 bldg.	1860
	1 bldg.	1866
32	1 bldg.	1866
33	1 bldg.	1866
34	3 bldg.	1866



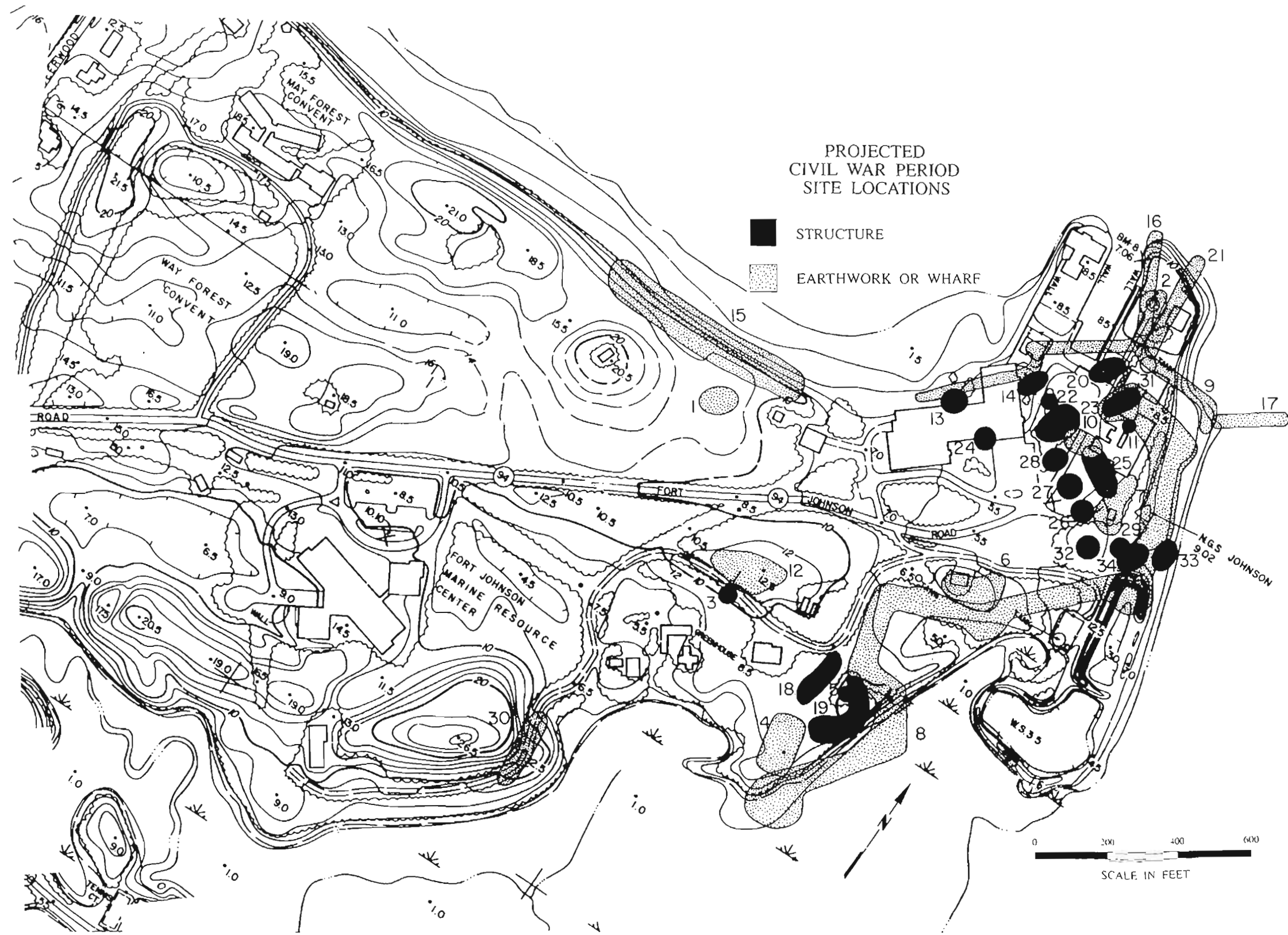


Figure 34. Projected Civil War period site locations.

Figure 35. Caption for Postbellum Sites Identified on Fort Johnson.

Site Number	Description	Date
1	"Mound Covering Old Magazine" earthwork 1 bldg.	ca. 1880 1880 1943
2	"Old Barrack," 1 bldg.	ca. 1880
3	"Store House/Light House Depart't," 1 bldg. "Store House," 1 bldg. "Old Buoy Shed (not in use)" "Quarantine Bldg.," 1 bldg.	1874 ca. 1880 1880 1892
4	"Wharf"	ca. 1880
5	"Sea Wall" "Old Wharf"	1874 ca. 1880
6	"Stone Work" "Breakwater" "Old Breakwater"	ca. 1880 1880 1892
7	1 bldg. "Dr. Leby's Outbuilding," 2 bldg.	ca. 1880 1892
8	"Old Stone Jetty" wharf	1880 1919
9	"Health Officer's House," 1 bldg.	1880
10	"Negro Dwelling," 1 bldg.	1880
11	wharf "Quarantine Wharves"	1919 1892
12	1 row of 3 bldg.	1919
13	1 bldg. 1 bldg.	1919 1943
14	1 bldg. 1 bldg.	1892 1943
15	1 bldg.	1943
16	1 bldg.	1943
17	2 bldg.	1943
18	1 bldg.	1943
19	1 bldg.	1943
20	1 bldg.	1943
21	1 bldg.	1943
22	"Negro Cabins," row of 4 bldg.	1892
23	"Cabin," 1 bldg.	1892
24	wharf	1874
25	"Sea Wall"	1874
26	battery	1874
27	battery	1874
28	"Negro Cabins," row of 3 bldg.	1892
29	"Old Wharf"	1892
30	"Ballast"	1892
31	"Quarantine Bldgs.," 1 bldg.	1892
32	"Quarantine Bldgs.," 1 bldg.	1892
33	"Negro Cabins," 1 bldg. shown	1892

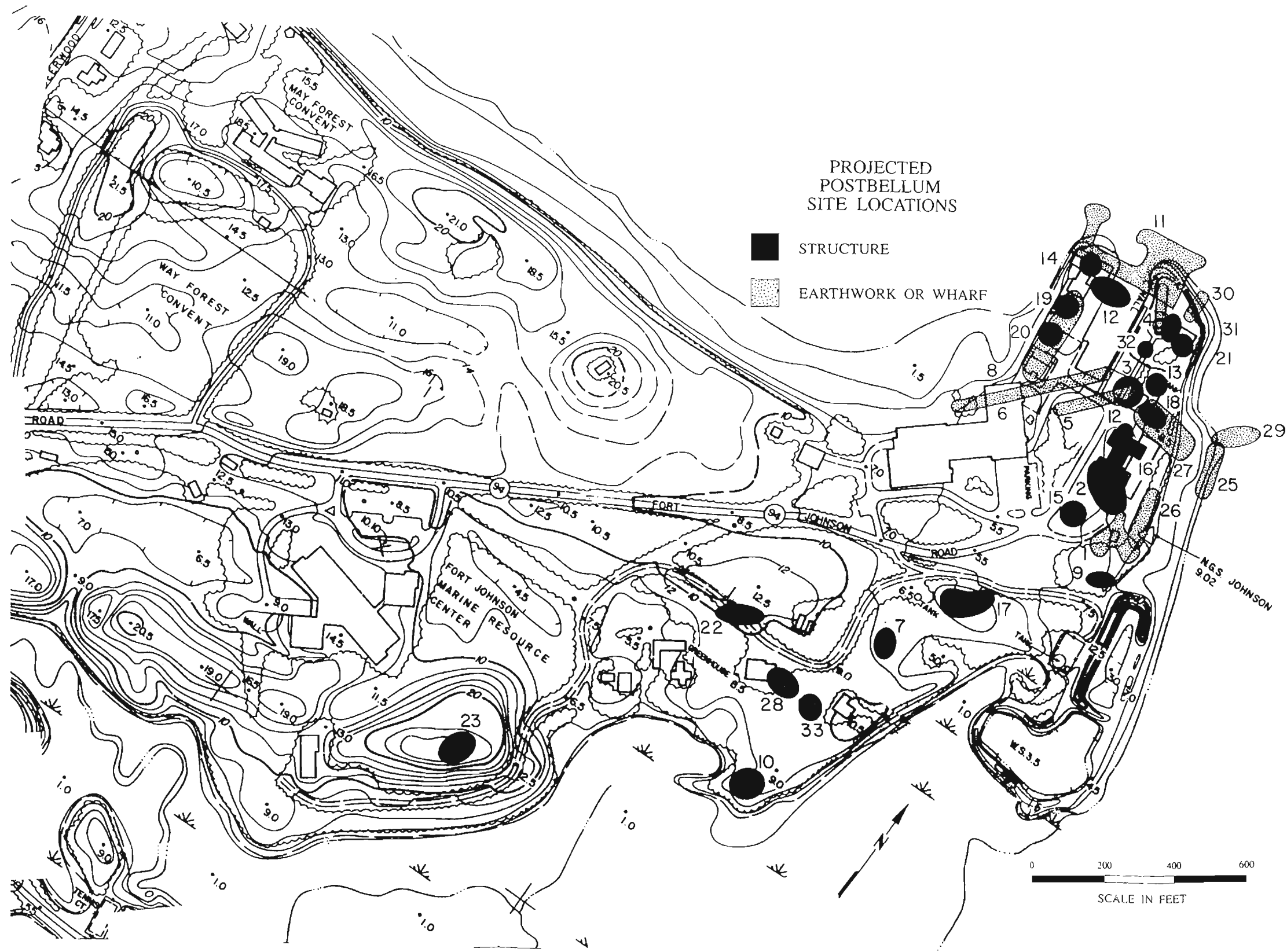


Figure 35. Projected Postbellum site locations.

the obstacles faced during the process. Such resources are rare and are of particular importance. This significance, of course, has been documented by placing the entire 90 acre site on the National Register for Historic Places.

This review also reveals the need not only for an intensive archaeological survey of the entire property, but also for a clear understanding of the site's importance, the potential impact of development activities, and the need for a carefully developed preservation plan. Some of Fort Johnson's irreplaceable resources have been damaged or even destroyed by development. It is clear that many others will likely be threatened in the future. A preservation plan for the facility would identify those resources which, under no circumstances, should be impacted, those resources which might be suitable for data recovery excavations if the need arises, and those resources which may perhaps be redundant or already sufficiently impaired that no further archaeological or historical research is necessary prior to development. In addition, a preservation plan would establish clear procedures for compliance with state and federal law and would also establish written procedures for recovery of operations after natural disasters (such as hurricanes) which will not adversely affect the resources. While the conclusions of this study offer some general recommendations in each of these areas, the development of a detailed preservation plan is beyond the scope of the current project. Its development, however, should not be ignored or postponed.

The historical research has also served to supplement the archaeological investigations, offering an exceptional opportunity to better understand the resources on Fort Johnson. Figure 32 shows the eighteenth century historic sites overlaid on a modern map of the facility. At least fifteen specific areas of concern were identified, although six of these have clearly been destroyed by erosion. The remaining, however, represent a wide range of potential cultural resources, including the location of the "Commander's House" from 1787, a structure on what was known throughout the period as "Bunker Hill," two structures associated with the "Gunner's House."

Figure 33 illustrates 76 different

nineteenth century sites, including a large concentration covering the point or extremity of the tract. While this was clearly the area most often used, either for fortifications or for the planters' village, there are also a number of isolated structures, earthworks, and features on the remainder of the modern-day Fort Johnson facility

Figure 34 shows documented Civil War earthworks and associated features. These nearly 20 different site areas include batteries, earthworks, wharfs, structures, cisterns, and buildings spread throughout the tract, but concentrated on the northeastern half.

Figure 35 illustrates the location of the structures thought to be associated with the Quarantine Station during the late nineteenth and early twentieth centuries. Twenty-three different features, structures, or wharfs were identified from this general period.

These maps offer a graphic representation of how the historic use of the facility has changed through time. They also reveal the complexity of Fort Johnson's cultural resources, offering yet another resource, in conjunction with the archaeological and architectural studies, to help preserve and protect this unique heritage.

## RESEARCH STRATEGY AND METHODS

### Introduction

As was previously indicated, the primary goals of the Fort Johnson survey were to identify, record, and assess the significance of archaeological sites within the approximately 90 acre tract at the end of Fort Johnson Road on James Island. Secondary goals included an examination of several major known historical sites dating from the American Revolution through Civil War, the examination of settlement and subsistence patterns for prehistoric sites, the examination of soils and drainage as they affect the location of prehistoric sites, and an effort to identify late seventeenth and early eighteenth domestic sites thought to exist on the facility. As the historic research was conducted, it also became obvious that another goal should be the identification of the antebellum summer village of planters known to have existed on the Fort Johnson tract. No major analytical hypotheses were created prior to the field work and data analysis, although certain expectations regarding the secondary goals will be outlined in these discussions. The research design proposed for this study is, as discussed by Goodyear et al. (1979:2), fundamentally explorative and explicative.

### Archival Research

The study of Fort Johnson incorporated a review of the site files at the South Carolina Institute of Archaeology and Anthropology and coordination with the S.C. Department of Archives and History for information on previous architectural surveys and National Register sites. In addition, archival and historical research was conducted at the Thomas Cooper Library Map Repository, the City of Charleston Archives, the National Archives Cartographic and Architectural Branch, the South Carolina Department of Archives and History, and the South Caroliniana Library. While the historical research is not exhaustive, it does provide a clear background and

context for the evaluation of identified sites. It also offers a significant base for future work in the project area. This historical and archival research was primarily conducted by Dr. Michael Trunkley, with assistance from Ms. Debi Hacker.

### Field Survey Methodology

The typical methodology for a compliance survey of a tract such as Fort Johnson is to establish a systematic intensive survey methodology which examines the entire acreage for archaeological and historical resources. Such an approach, although extremely labor intensive, was used on Fort Johnson since the tract is very complex and exhibits a wide range of cultural resources.

The initially proposed field techniques were based on the Scope of Work which stipulated that "the survey shall include subsurface sampling technique based upon random placement of test cores throughout the site as described in Research Manuscript Series No. 93 of the Institute of Archeology and Anthropology" (Statement of Work to Identify Specific Requirements and Develop Design Criteria and Schematic Plans for Proposed Marine and Environmental Health Laboratory at Charleston, SC, dated February 5, 1994 and revised February 23, 1994).

Such an approach does not prevent the research from evaluating the archaeological potential of the tract and designing different levels or intensities of investigation. Often areas of posited high potential are investigated using transects spaced 100 feet apart with tests every 100 feet, while areas of reduced potential are explored using transects spaced 200 feet apart with tests every 200 feet. In the case of Fort Johnson, however, previous investigations combined with even the preliminary historical research, suggested that no portions of the property could legitimately be classified as having a "low potential" for

archaeological resources. In fact, quite the contrary was likely -- Fort Johnson exhibited a near uniform high to very high archaeological potential. In addition, almost all of the tract was known to be wooded with many areas exhibiting very dense understory vegetation resulting from the loss of overstory during Hurricane Hugo in 1989. Consequently, shovel testing was proposed on transect lines in order to provide a systematic examination of the vegetated areas. Shovel tests, approximately 1.0 foot square, would be excavated at 100 intervals along transects also placed at 100 foot intervals. Transects were typically staggered, producing offset shovel tests. A total of 496 shovel tests were placed on 80 transects (Figure 36). All soil was screened through ¼-inch mesh and all recovered cultural materials was retained, except for shell, brick, and mortar which would be qualitatively assessed and discarded in the field. Individual shovel tests which produced cultural materials were flagged so that loci could be relocated should additional investigations be necessary.

Normally, if archaeological remains are discovered during testing operations, the spacing of the tests is decreased to no greater than 50 feet (both parallel and perpendicular to the original test) in order to better identify the limits of the site. These shovel tests are intended to assist not only in determining site boundaries, but also in determining site integrity, artifact density, and temporal periods of occupation. At Fort Johnson the density of remains and the overlapping of various components made such an approach difficult. There were few areas where boundaries could be identified on the basis of an absence of cultural materials. More often boundaries had to be determined either topographically or because the assemblage changed.

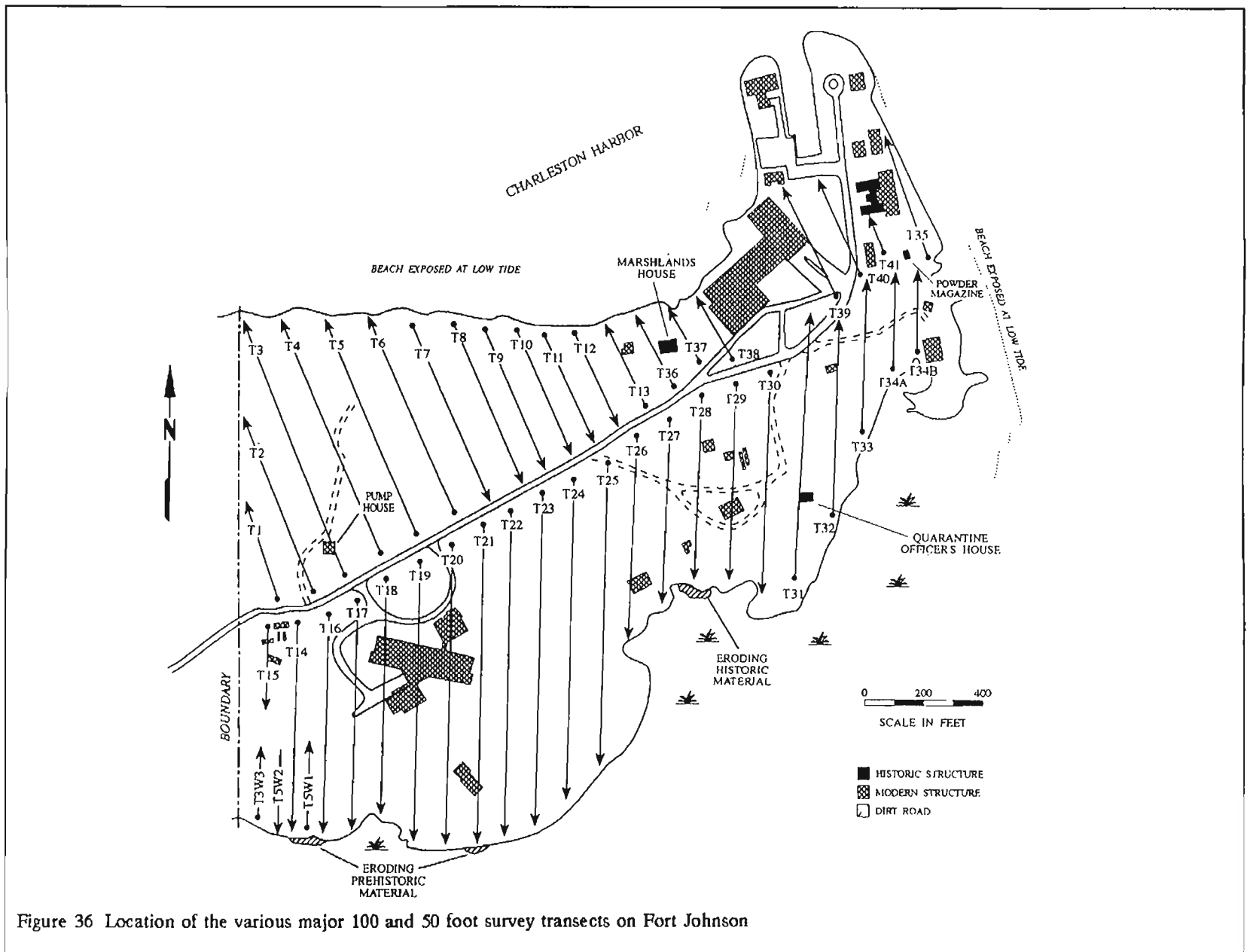
There were, however, three areas pointed out during the field investigation as being the most likely locations for development activities. These included an area in the northwest corner of the property just north of Fort Johnson Road, an area in the south central portion of the tract in the vicinity of an existing radio tower, and a ridge in the extreme southwestern corner of the tract adjacent to the marsh. In the northwestern corner of the tract the 100 foot shovel tests revealed such

a low density of remains no additional close interval testing was conducted. In the other two areas shovel testing was conducted at 50 foot intervals to provide more accurate indicators of occupational intensity and activity areas. An area measuring 600 feet north-south by 400 feet east-west (about 5.5 acres) in the vicinity of the radio tower was intensively examined, while an area measuring 300 feet north-south by 600 east-west (about 4.1 acres) in the vicinity of the marsh edge was also explored at 50 foot intervals.

In addition, Chicora relocated and assessed all previously identified sites recorded in the S.C. Institute of Archaeology and Anthropology site files. Architectural survey data was collected for standing structures not previously recorded. It was originally anticipated that the previously recorded archaeological sites would be re-evaluated with the information compiled for easier use.

As discussed earlier, for both logistical and philosophical reasons we decided to incorporate all of the identified archaeological materials into 38CH69 as previous defined. This approach was logistically the simplest course. Boundary distinctions were difficult at best and a number of different loci will eventually overlap. For example, Johnsonville, the antebellum planters' village overlaps the Civil War military earthworks and encampments, parts of which also overlap prehistoric sites. Under such circumstances a loci approach seems more reasonable and is easier for future researchers to adapt to their specific needs. Philosophically, it avoids the problem of site inflation, or attempting to identify what amounts to specific activity areas within a broader context. This approach is similar to that adopted by researchers working in the urban setting where similar complexity reveals that the whole area is a "site," with specific areas defined on the basis of immediate needs. It is also important to point out that our approach is the most conservative and allows future researchers to take a different path without being burdened by vast numbers of previously assigned site numbers (this approach has also been reviewed and approved by the SCIAA Information Management Division).

This survey methodology is consistent with the *South Carolina State Historic Preservation Office*



*Guidelines and Standards for Archaeological Investigations* and was provided for review by the S.C. Department of Archives and History and the S.C. Institute of Archaeology and Anthropology

The only maps available for the survey area were a 1973 boundary plat with no topographic features and only limited cultural features (such as buildings and roads), a 1980 map showing suspected historic sites but no topographic features, and an undated map which provided generalized topographic data and very dated cultural information. During the field investigations we did not have access to mapping which provided detailed topographic data and cultural features. Because these maps are dated and offer few topographic features the various loci or area locations identified must be considered approximate, with an average accuracy of  $\pm 50$  feet.

#### **Limitations of the Survey Methodology**

One primary goal of this study was to determine the nature and extent of cultural remains on the property. In order to accomplish this goal a testing program using shovel tests at 100 foot intervals on transects spaced every 100 feet was implemented. It is important that the limitations of the adopted survey methodology be fully understood.

The use of 100 foot interval testing is traditional in archaeological research, representing a compromise between acceptable levels of site discovery and acceptable levels of cost. Obviously, the closer the interval the more field time involved and the higher cost of the survey. Years of archaeological research has demonstrated that testing every 100 feet allows many, although not all, sites to be found. There is, however, mounting evidence that this approach not only fails to identify some sites, but also fails to provide particularly accurate boundaries for other sites (see Trunkley et al. 1993:58-69). As a result, there has been experimentation using testing at intervals as close as every 10 feet, although 50 or 25 foot intervals are likely to produce more acceptable cost-benefit ratios.

Regardless, it is important to understand that the 100 foot transects incorporated into this

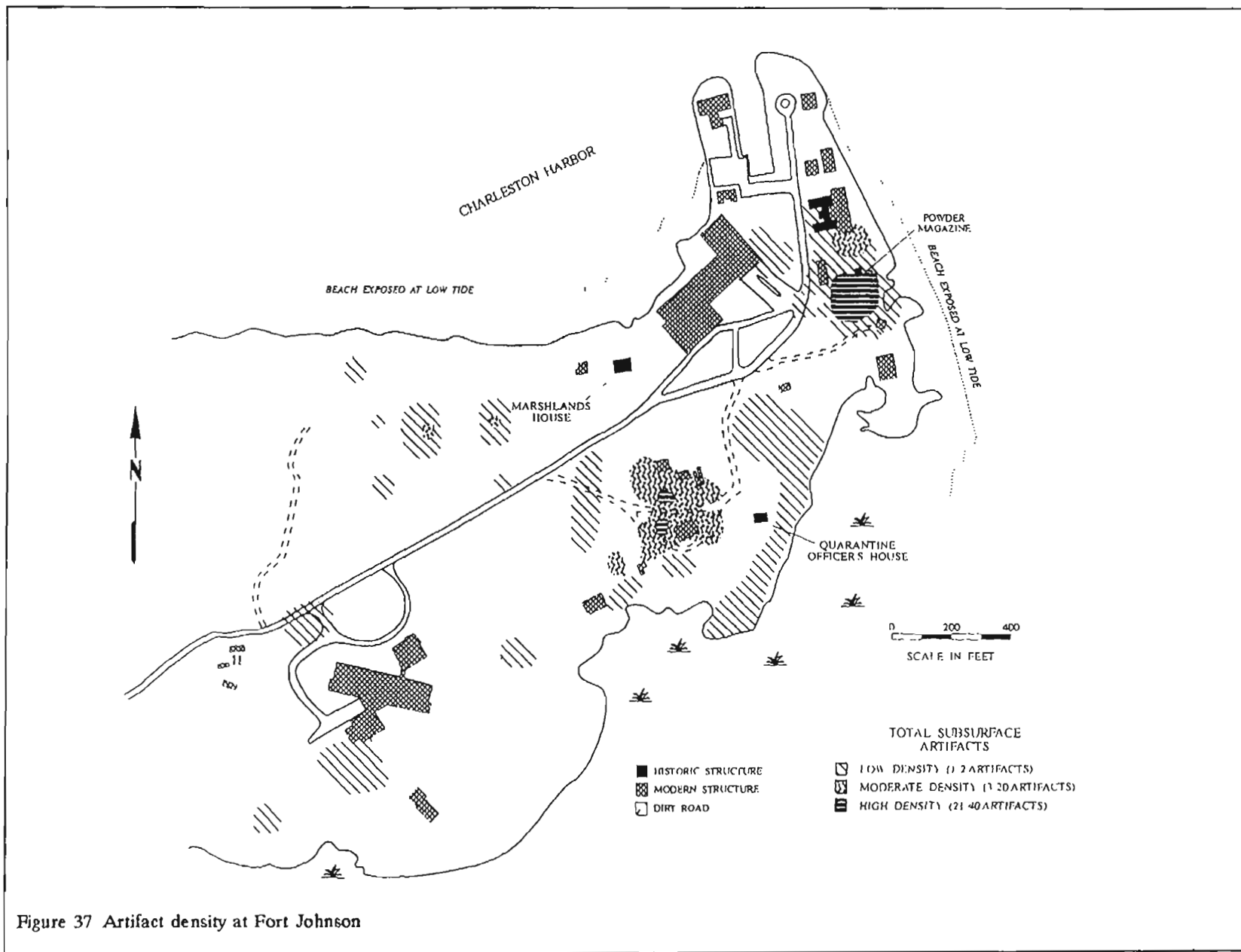
study offer only a gross level for a site of the complexity found at Fort Johnson. The failure to identify archaeological remains in shovel tests at 100 foot intervals cannot be taken to mean that no remains exist. In fact, *comparison of all the available data sources (archaeological testing, surface scatters, architectural remains, and posited historic sites) is likely to offer the best possible predictions for the presence of cultural remains at a particular area within Fort Johnson.* Failure to take advantage of all of the sources of information will result in spurious reconstructions which ignore potentially significant archaeological and/or historical resources.

With these cautions, Figures 37 through 42 help to provide a general understanding of archaeological density at Fort Johnson, clearly revealing different areas, or concentrations or sub-surface remains.

Figure 37 illustrates the density of all artifacts, revealing especially dense remains in the vicinity of the powder magazine and around the support buildings in the vicinity of the radio tower. When historic artifacts (Figure 38) are considered the distribution is essentially identical, largely because of the overwhelming contribution of historic materials when compared to prehistoric artifacts. When the historic artifacts are divided between architectural items (primarily nails) and kitchen artifacts (primarily ceramics and glass) the resulting maps (Figures 39 and 40) are similar, but not identical. The architectural remains perhaps more clearly reveal the locations or general areas of structural remains, while the kitchen artifact distribution is influenced by Civil War encampments which contributed stonewares, bottle glass, and ceramics to the archaeological record.

Figure 41 illustrates the density of prehistoric remains (primarily pottery), illustrating that these tend to be sparsely distributed across Fort Johnson. Two general contributions are noted, one north of the powder magazine, on the point, and the other in the vicinity of the pump house road. Other small areas of pottery distribution are shown along the edge of the marsh. This distribution is reinforced by the location of dense shell midden, illustrated on Figure 42. Only one of the prehistoric occupation areas is along the





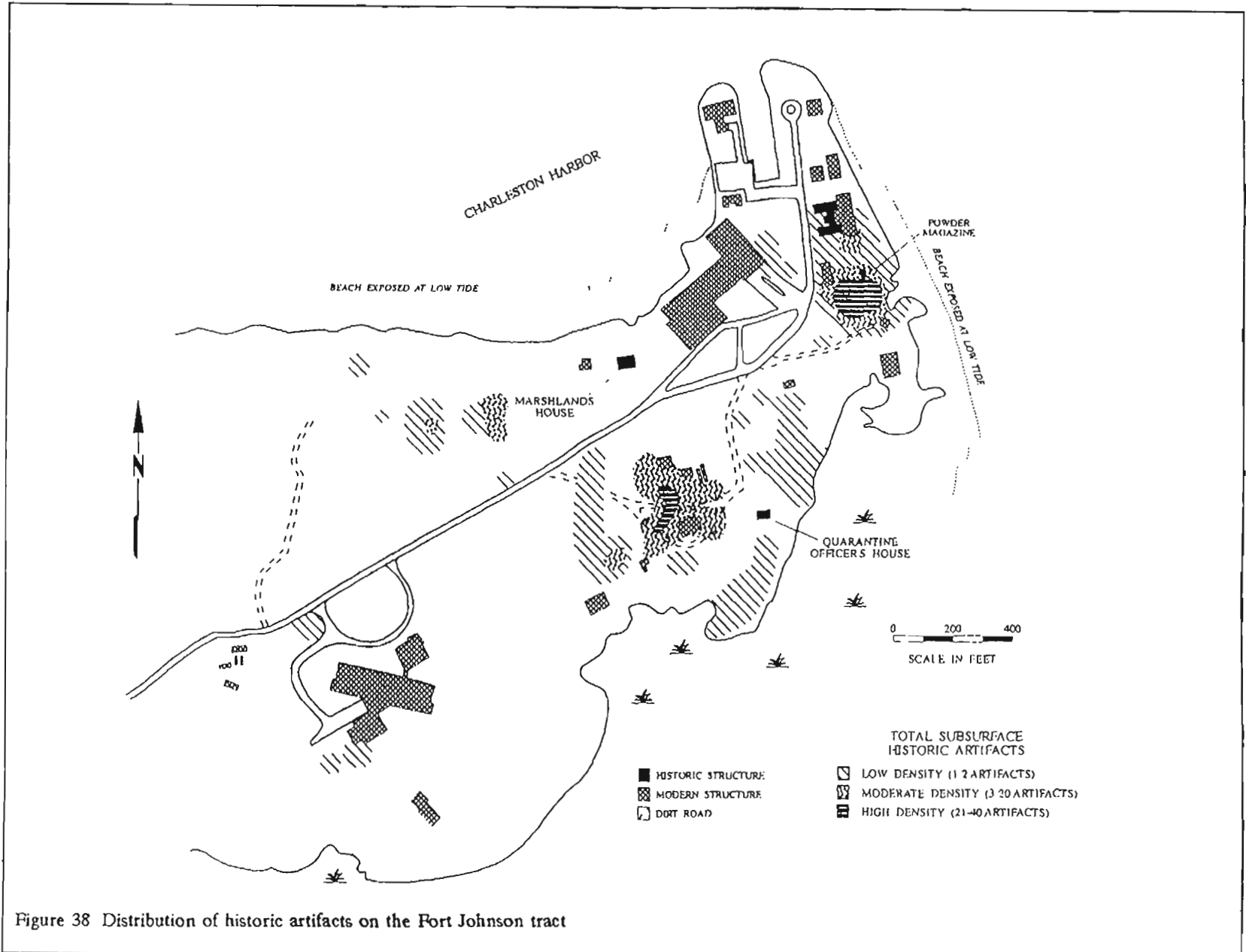
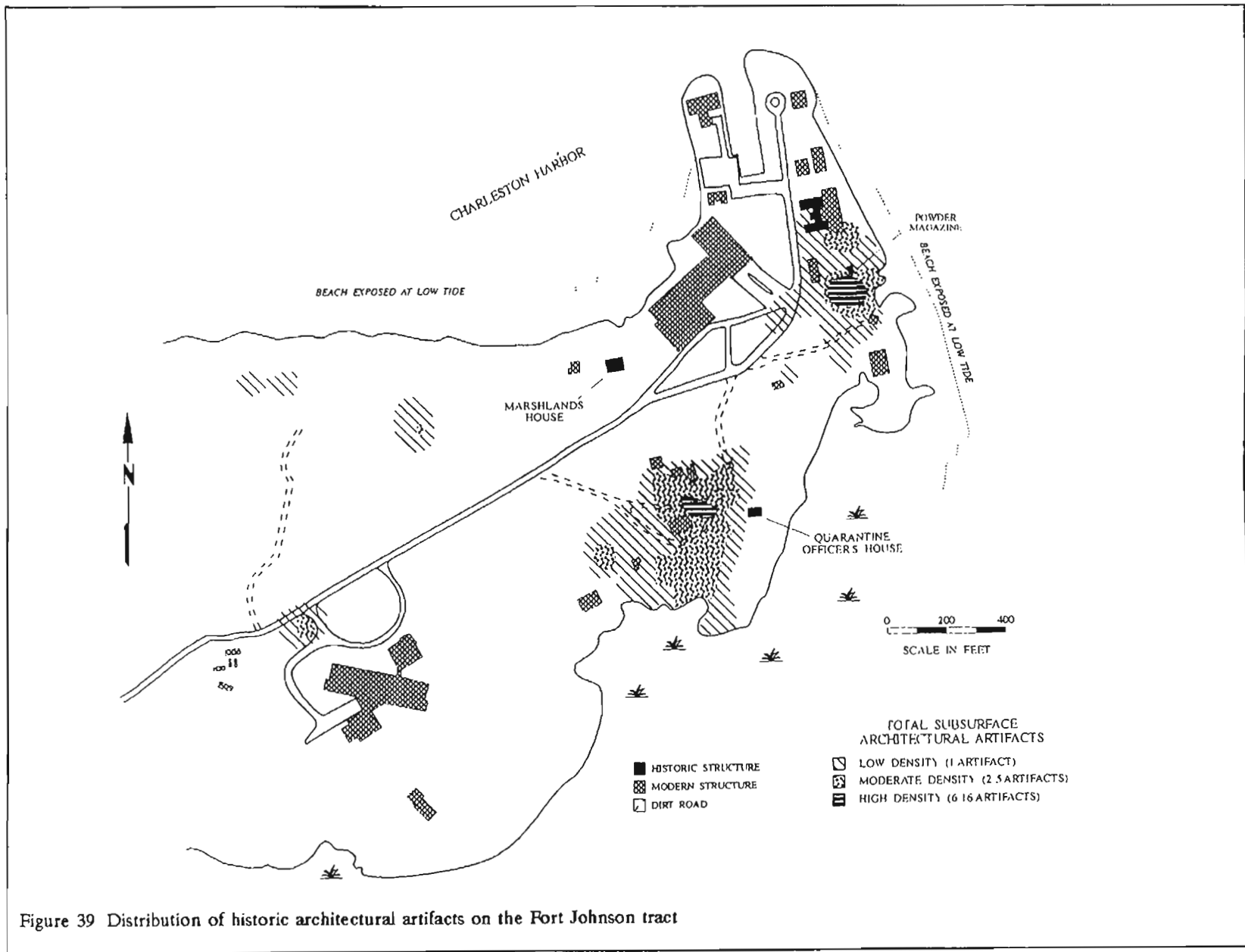
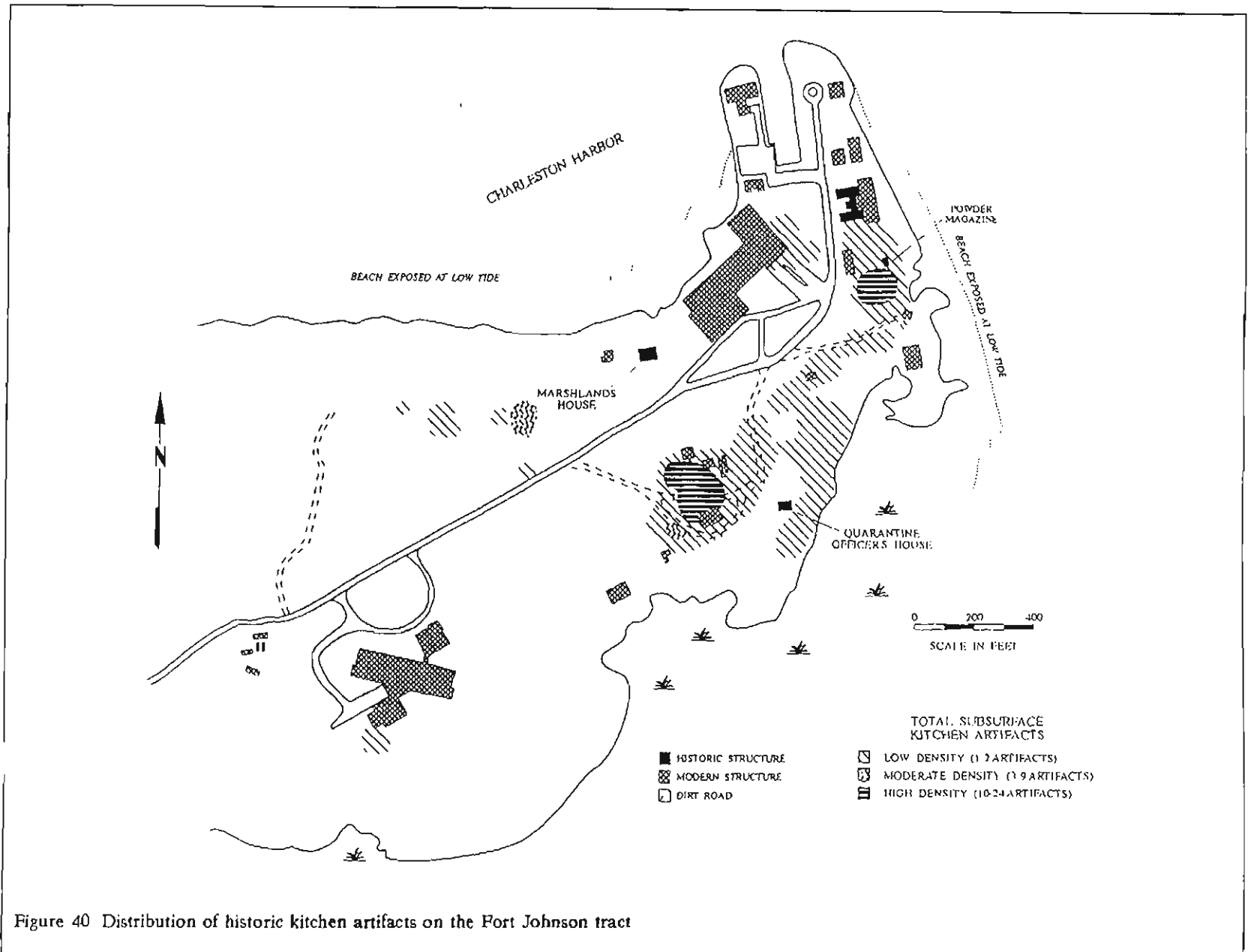
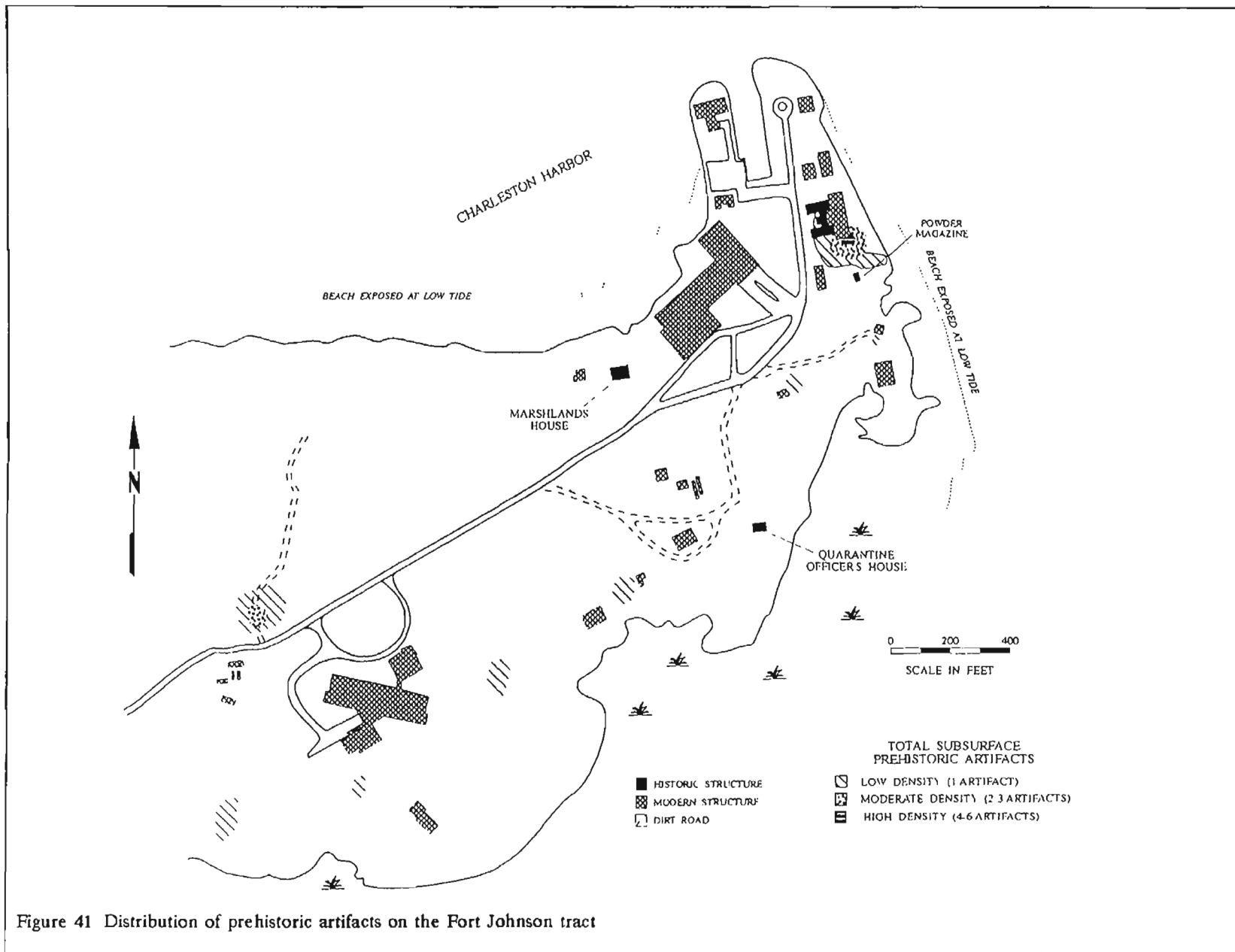
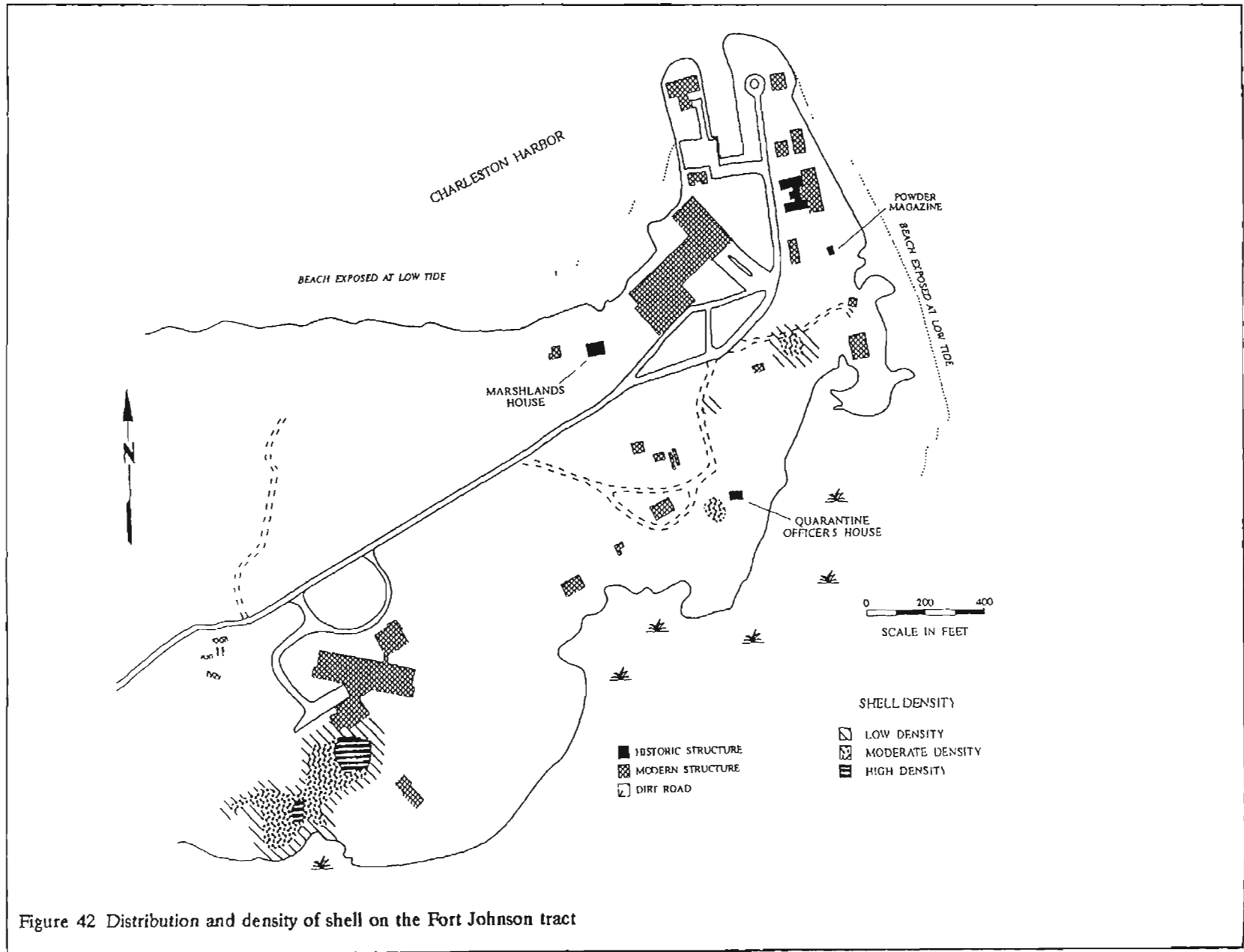


Figure 38 Distribution of historic artifacts on the Fort Johnson tract









harbor; most are clustered along the marsh edge or are situated further inland in a non-shell midden area.

When these maps are compared to those created by South and Widmer (1976:Figures 3-6) strong similarities can be observed, although clearly their research offers a more refined view of a smaller sampling universe. In addition, the work by South and Widmer fails to provide information on density of remains, instead noting only presence and absence.

#### Laboratory and Analysis Methods

The cleaning of artifacts was begun in Charleston during the field work and completed in Columbia. Cataloging of the specimens was conducted at the Chicora laboratories in Columbia immediately after the fieldwork, from May 3 through May 5, 1994. All artifacts except brass and lead specimens were wet cleaned. Brass and lead items were dry brushed. All of the artifacts were evaluated for their conservation needs and most were determined to be stable. Those which were not stable were primarily miscellaneous iron objects which were identified, drawn when

appropriate, and discarded.

As previously discussed, the materials have been accepted for curation by the South Carolina Institute of Archaeology and Anthropology. The materials have been cataloged using this institution's accessioning practices. Specimens were packed in plastic bags and boxed. Field notes were prepared on pH neutral, alkaline buffered paper and photographic material were processed to archival standards. All original field notes are also curated with this facility. Copies of the field notes have also been provided to Calcara Duffendack Foss Manlove Inc. as stipulated by the scope of work.

Analysis of the collections followed professionally accepted standards with a level of intensity suitable to the quantity and quality of the remains. Prehistoric pottery was classified using common coastal Georgia and South Carolina typologies (DePratter 1979; Trinkley 1983). The temporal, cultural, and typological classifications of the historic remains follow Noel Hume (1970), Miller (1980, 1991), Price (1970), and South (1977).

## IDENTIFIED ARCHAEOLOGICAL SITES

As previously discussed, after the conclusion of the field research it was decided that all of the remains found at Fort Johnson would be recorded as 38CH69, with the different concentrations identified as loci or areas. This allows more convenient research in the future without the problems associated with overlapping or poorly defined site boundaries. It serves to simplify management decisions and options. And it allows greater flexibility in future research projects. Consequently, this portion of the report will outline the identified archaeological areas and the associated surface scatters of archaeological remains (see Figure 43). The different areas are

- was present during the period of significance, relates to the documented significance of the property, and possesses historic integrity, or is capable of yielding important information about the period, or
- it independently meets the National Register criteria.

Non-contributing resources do not add to the historic qualities or associations, or archaeological values for which a property is significant. An area may be considered a non-contributing resource because:

- it was not present during the period of significance or does not relate to the period of documented significance,
- it has been so altered, disturbed, or otherwise significantly changed that it no longer possesses historic integrity or is no longer capable of yielding important information about the period, or
- it does not independently meet the National Register criteria.

Table 2.  
Areas of Sub-Surface Cultural Material at Fort Johnson

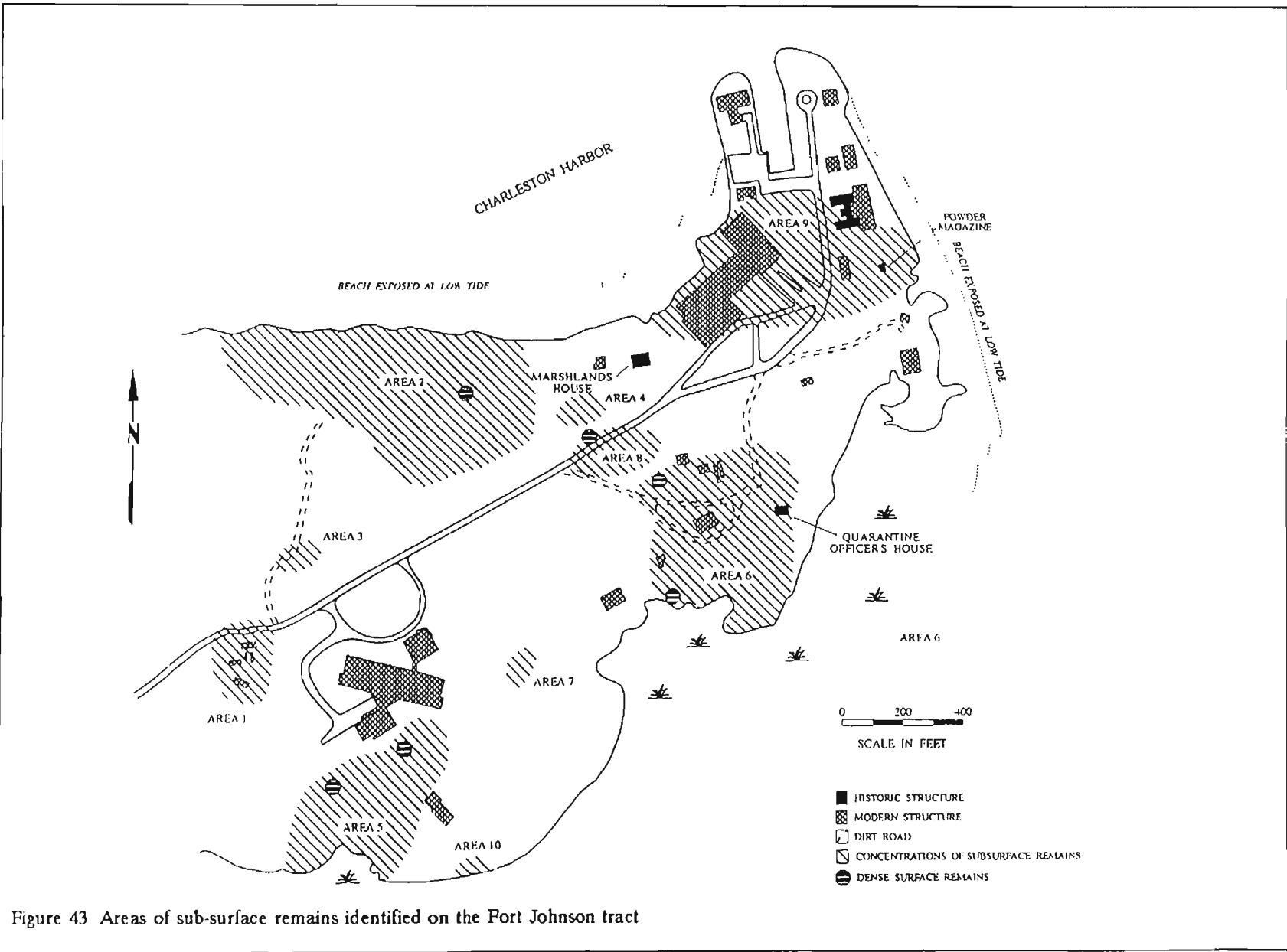
Area	Previous Site #	Function	Size (in feet)
1	38CH275	Prehistoric (Deptford phase); 19th century	300 (N-S) x 200 (E-W)
2	38CH274	18th/19th century military and domestic	700 (N-S) x 1000 (E-W)
3	---	20th century with standing structure	100 (N-S) x 150 (E-W)
4	38CH274	18th/19th century domestic	100 (N-S) x 150 (E-W)
5	38CH16	Prehistoric (Deptford/Cape Fear phase)	
		19th century military (?)	350 (N-S) x 700 (E-W)
6	---	18th/19 century planters' summer village	
		19th/20th quarantine officer's house	600 (N-S) x 650 (E-W)
7	---	Prehistoric (Deptford/Cape Fear phase)	
		19th century military	50 (N-S) x 100 (E-W)
8	---	19th century	200 (N-S) x 350 (E-W)
9	38CH69	18th/19th century fortifications	450 (N-S) x 850 (E-W)
10	38CH16	Prehistoric shell midden	150 (N-S) x 150 (E-W)

reviewed in Table 2.

In an effort to help those making management decisions better understand the different site areas, each one is assessed as either *contributing* or *non-contributing*. Following the recommendations of National Register Bulletin 16a, *How to Complete the National Register Registration Form*, contributing resources are those which add to the historic association or archaeological values for which the property is significant. The area may be contributing because it either:

This approach recognizes that while all 90 acres of Fort Johnson are listed on the National





Register, not all of the archaeological and historical resources on the property have equal importance. It is also necessary to recognize that while all 90 acres are on the National Register, that does not mean that all 90 acres contain significant archaeological resources. Examination of Figure 43 reveals many areas which are not identified as "areas" of archaeological remains. Caution, however, is again recommended. It is essential that sub-surface archaeological remains, above ground archaeological and architectural remains, and potential historical remains all be taken into account prior to determining that an specific tract contains no cultural or historical resources. When all three resource or data sets are overlaid on the Fort Johnson facility, it becomes obvious that there are few areas which can be evaluated as containing no significant cultural remains (this concept is discussed at greater length in the concluding section of this study).

#### Area 1

This area is situated just inside and south of the Fort Johnson entrance gate. It consists of a surface scatter of historic materials dating to the nineteenth century (no historic materials were identified in the shovel tests), as well as four prehistoric sherds recovered only from sub-surface contexts.

Shell in front of the security office (the first structure within the gate), just south of Fort Johnson Road, appears to be a shell drive based on its surface dispersion, absence of associated artifacts, and shallow depth. No clear historic or prehistoric connection or antecedent could be documented. There is, however, a small scatter of brick just north of the road, although even here shovel testing failed to identify artifacts. The size of this area is estimated to be about 300 feet north-south by 200 feet east-west, based on both the dispersion of surface materials and the low incidence of sub-surface remains. This area was identified by South during the survey of the nearby NOAA facility, although no assessment was made and no independent site form was completed.

A total of 26 shovel tests were excavated in this area, although only three contained material (Table 3). The identified materials tend to date

Table 3.  
Artifacts Recovered from Area 1

	ST 4	ST 7	ST 9	Surface
Cut nail fragments	1		2	
UID nail fragments		1		
"Black" bottle glass				2
Light blue bottle glass				1
Whiteware, blue tp				1
Deptford pottery			1	
UID small sherds	3			
Calcined animal bone		1		

from the Middle Woodland (ca. 500 B.C.) and the mid-nineteenth century (ca. A.D 1850). The central UTM coordinates for this area are N3623700 E602580 and the soils are Wando series sands. The shovel tests revealed about 0.8 foot of brown loamy sand over the subsoil.

Too few materials have been collected from this area to offer an assessment regarding the area's independent eligibility for inclusion on the National Register or its contribution to the documented history of the property. Consequently, this area is recommended as a potentially contributing resource. Further evaluation and documentation is necessary to evaluate the area's significance.

#### Area 2

This area was defined on the basis of 99 shovel tests, 33 of which were positive. The area represents the martello tower, previously recorded as 38CH274. Materials recovered from this survey date from the eighteenth and nineteenth centuries, yielding a mean ceramic date of 1803.3 (Tables 4 and 5).

The martello tower itself consists of a large rubble pile, heavily overgrown at the time of the survey (Figure 44 shows the area after clearing). However, the area is considerably larger than the tower itself, perhaps representing earlier plantation period remains, as well as associated military encampments and barracks. At least three possible sub-areas can be discerned, although they are poorly defined. Boundaries, based on both surface scatters and shovel tests at 100, 50, and 2'

Table 4.  
Artifacts Recovered from Area 2

	Shore Surface	General Surface	Metal Detecting	General Transects	Close Interval Transects	Martello Tower Area
Westerwald	1					1
White SG SW		1				
Stoneware, brown SG	1			1		
Stoneware, gray SG		1		1		
Stoneware, alkaline glazed	1	1				
Redware, clear glaze	1					
Delft					1	
Creamware, undecorated		2				2
Pearlware, undecorated		1				
Pearlware, blue tp		1			1	
Whiteware, undecorated	2	1				
Whiteware, blue tp	1					
Burnt/UID earthenware		1			1	
Chinese porcelain		1				1
White porcelain	1					
"Black" bottle glass	8	9		8	4	2
Cobalt bottle glass	1			1		
Lt. green bottle glass					3	
Amethyst bottle glass	1	5			1	
Clear bottle glass				5	1	
Amber bottle glass		1		1		
Milk glass fragments				1	1	
Stemmed glassware	1					1
Stove fragment					1	
Hinge fragment		1				
Cut nail fragments				5	2	1
Wire nail fragments					1	
UID nail fragments					1	
Brass clothing decoration			1			
Machine gun bullet casing		1				
UID metal fragments			2		3	
Sheet metal fragments					6	
Ballast stone	2					
Animal bone				1		8

foot intervals, are 700 feet north-south by 1000 feet east-west. The western edge of the site is located about 50 feet east of the property boundary, with the eastern boundary being located approximately 200 feet west of the Marshlands plantation house. The southern boundary is irregular. However, this locus is confined to the area north of Fort Johnson Road. The southwest quadrant of this site has been destroyed by the recent operation of a borrow pit. Remains can be found in the walls of the borrow pit, as well as in the associated spoil piles. The central UTM coordinates are N3624000 E602700.

This site is clearly a contributing resource, offering the opportunity to explore military life and activities on Fort Johnson during the second

quarter of the nineteenth century, prior to the Civil War. As one of only a very few martello towers built on the east coast of the United States, the Fort Johnson site assumes exceptional importance for our understanding of military strategy and policy. The early date associated with this area also suggests that plantation remains, or possibly earlier military activities, may be incorporated. Included are Civil War barracks, barracks associated with the early nineteenth century use of the tower, and at least five eighteenth and nineteenth century domestic sites. Given the intensive use of this area and the survey intervals, the discrete locations of these structures could not be identified. Since the archaeological remains from these locations smear into one another, only very close interval testing (every 25 feet for example) will provide any resolution.

All use of the existing borrow pit should cease immediately (we understand the pit is no longer used) and steps should be taken to restore the

pit to minimize future erosion and loss of cultural remains. This is an important area of the Fort Johnson site which bears very close additional examination.

### Area 3

This area was recorded in the immediate vicinity of the pump house, north of Fort Johnson Road. A total of seven shovel tests were excavated in the vicinity of the structure, although only one yielded archaeological remains (a single fragment of modern brown glass). Soils in this area consist of about 0.8 foot of brown sand overlying a yellow sand subsoil. Surface materials included one fragment of clear window glass and one fragment

Table 5.  
Mean Ceramic Date for Area 2

Ceramic	Mean Date (xi)	(fi)	$x_i \times x_i$
Underglazed blue porcelain	1730	2	3460
White porcelain	1881	1	1881
White SG stoneware	1758	1	1758
Plain Delft	1720	1	1720
Creamware, undecorated	1791	4	7164
Pearlware, undecorated	1805	1	1805
Pearlware, blue tp	1818	2	3636
Whiteware, undecorated	1860	3	5580
Whiteware, blue tp	1848	1	1848
Total		16	28852

$$\text{Mean Ceramic Date} = 28852 \div 16 = 1803.25$$

of clear modern glass. The combination of surface materials, single positive shovel test, and structure location provide boundaries of 100 feet north-south by 150 feet east-west. The central UTM coordinates are N3624000 E602700.

Although these archaeological remains do not, at first glance, appear to represent contributing resources, the oral history obtained during the background research indicates that guard dogs were trained and housed in this area during World War II. Without additional research to document this training (for example: Was this the only training site in South Carolina? What role did the dogs trained here play in the different theaters of operation?) and to better understand the facility's use during the 1940s, it is not possible to fully evaluate these remains. Consequently, this specific area is recommended as a potentially contributing resource which requires additional research.

#### Area 4

Area 4 is a small scatter of late eighteenth and early nineteenth century remains found east of Area 3 and south of the Marshlands house (which

of course was transported to Fort Johnson and is therefore not associated with any archaeological deposits). The central UTM coordinates are N3623840 E602720

A total of nineteen tests were excavated at 25 foot intervals, with 11 producing artifacts (Table 6). Based on these remains the area is estimated to measure about 150 feet north-south by 100 feet east-west. The Wando soils at the site include an A or Ap horizon of about 0.8 foot overlying subsoil.

Materials recovered from the shovel tests include one creamware ceramic, one pearlware ceramic, one fragment of hand painted milk glass, three clear glass fragments, seven "black" bottle glass fragments, one fragment of window glass, two cut nail fragments, and two UID metal fragments. The two recovered ceramics produce a mean ceramic date of 1798, although the cut nail fragments suggest a nineteenth century date. This assemblage suggests that the area may be the location of a domestic structure, perhaps related to

Table 6.  
Artifacts Recovered from Area 4

	25E	25W	50W	75W	25N	75N	100N	50S	75S	100S	Center
Clear glass					2			1			
"Black" glass	3	1	1	1							1
Milk glass			1								
Creamware						1					
Pearlware	1										
Window glass							1				
Nail fragments								2			
UID iron											2

either plantation developments in the area or, alternatively, the military occupation at Fort Johnson after the American Revolution.

The density and nature of these remains suggests that this area is a contributing resource, capable of supplying information concerning the late eighteenth and early nineteenth century activities at the site. Although no above or below ground features were identified during this study, the area has the potential to contain intact features since no heavy disturbance appears to have taken



Figure 44. Area of the martello tower cleared by hand to show the brick rubble pile.



Figure 45. Bricks, shell, and artifacts eroding from Area 2 into Charleston Harbor.

place in the general vicinity. This site, because of its small size and proximity to currently developed tracts, could be easily damaged. Steps should be taken to ensure that it is protected.

**Area 5**

This area represents what is left of several large prehistoric shell middens within the boundaries of Fort Johnson. The central UTM coordinates are N3623500 E602700. Situated in the southwestern corner of the tract, these remains have been previously defined as 38CH16, 38CH34, and 38CH275. In addition, this area also reveals the presence of a light nineteenth century component. Whether these remains represent freedmen settlers, peripheral grave deposits, or possibly Civil War encampments cannot be readily determined from the available information -- all three remain distinct possibilities.

Of the 89 shovel tests excavated at or in the vicinity of this area (primarily at a 50 foot

bottle glass, and a kaoline pipe stem. These materials are consistent with a Civil War period occupation, although the presence of the white porcelain also suggests a postbellum occupation. The types, densities, and dispersion of artifacts are remarkably similar to those identified by South and Widmer (1976).

The remains identified in this study measure about 350 feet north-south by 700 feet east-west. The site, topographically, is found on the series of ridges and troughs in the southwestern corner of the tract. South and Widmer have previously observed that both ridge top and trough bottom deposits are present, although the close interval distribution studies they undertook were limited to a rather small portion of the overall site, much of which was destroyed by subsequent development.

Although the site was covered by very dense understory vegetation at the time of this survey, only two out of the dozen or more of the Civil War encampments noted by South could be found. One of his three "craters" was relocated, while the other two were destroyed by the construction of NOAA building. Although not investigated by this study, the remaining feature appears to be a well, similar to others identified at Civil War encampments on nearby Folly Island.

This site is recommended as a contributing resource on the basis of its "stand-alone" eligibility for inclusion on the National Register as a prehistoric site capable of addressing a broad spectrum of research in the areas of settlement and subsistence. Previous research by South and Widmer (1976) found

Table 7  
Artifacts Recovered from Area 5

	N-S 100' interval				E-W 50' interval				N-S 50' interval													
	Surface	1/2	1/3	3/1	3/2	1/1	1/3	2/1	2/3	3/1	4/2	4/3	4/4	5/1	5/2	5/3	14/7	16/4	16/5	16/6		
Alkaline glazed SW	1																				1	
Albany slip SW																						1
Rockingham	1																					
"Black" bottle glass			1		1																	
Whiteware, undec.						1			1					2								
White porcelain																						1
Kaoline pipestem																						1
Deptford Cord							1		1													1
Deptford Fabric Imp.	1																					
Deptford Check									1													1
Deptford Plain					1		1															
Deptford UID															1							
Wilmington Plain																						1
Small sherds				1	1	1					1	1	1								1	1

interval), 31 yielded moderate to dense shell or artifact remains (Table 7). The prehistoric artifacts consisted entirely of pottery from the Deptford and/or Cape Fear phases or were too small to analyze. The associated shell middens ranged from thin sheet deposits to dense middens up to 1.5 feet in depth. Historic artifacts consisted for alkaline glazed stonewares, Rockingham ceramics, undecorated whitewares, white porcelain, "black"

that distinct structures and activity areas would be identified through simple density studies. They also identified features suitable for providing carbonized materials for both floral studies and also radiometric dating. A wide range of tool types were identified, including the possibility of worked clam shells. South and Widmer also observed a settlement pattern which avoided the fore dune area in favor of dune trough and second dune

ridge locations. Investigation of the total site could refine this preliminary study, expanding our knowledge of Middle Woodland lifeways.

This area has also produced small quantities of historic materials. Coupled with the historic research there is a strong reason to believe that the area contained important historic resources during the period of documented significance at the site. There is a very strong possibility that intact Confederate encampments and features such as barrel wells may be found. These remains would be of particular importance for comparison to similar encampments by Union forces. They would help us better understand camp life among Confederate troops during the Civil War. Of particular interest would be comparing the availability of resources between Confederate and Union camps.

This area may also provide information on the presence of black "squatters" who likely took up residence when the fortifications were occupied by Union troops. Little is known about this class of freedmen and research comparing these individuals to those living at Mitchelville, a documented freedman's village could expand our understanding of African American adaptations to freedom during the early postbellum.

Finally, it is possible that additional burials may be present in the vicinity of the NOAA building. Not only are any surviving human remains protected by state law (S.C. Code, § 16-17-590 et seq. and 27-43-10 et seq.), but they also offer unparalleled opportunities for forensic research, exploring issues of health, disease, diet, and mortuary patterning. The destruction or damage of the cemetery during construction of the NOAA building was a serious loss to our understanding of African American physical anthropology.

#### Area 6

This is a particularly complex site area, situated in the south central portion of the tract in the vicinity of the maintenance building. It consists of small quantities of prehistoric remains and abundant historic artifacts. The central UTM coordinates are N3623800 E603120. Materials were

found throughout the area where ever there was open ground. A possible dump area exists on the southern edge of the area, where nineteenth century artifacts were found in the marsh grass. Structural remains include a small tabby building. Additional materials are almost certainly associated with the postbellum quarantine officer's structure on the eastern edge of the area. Historical research also reveals that a large planter's village, known as Johnsonville, existed in this area prior to the Civil War.

The single above ground feature, a tabby structure, measures about 7 by 9 feet and is oriented N40°W (Figures 46 and 47). Further testing is needed to determine the date and probable function of the structure. Somewhat similar tabby buildings, however, have been identified on Callawassie Island, where they were found to be slave houses (Brooker 1991:145-152).

Based on shovel testing and pedestrian survey of the surrounding land and marsh edge, the site measures approximately 600 feet north-south by 650 feet east-west. The bulk of the site was surveyed at 50 foot intervals. Of the 129 shovel tests excavated, 62 (or 48.1%) produced artifacts and/or brick, shell, or tabby. Table 8 provides a list of the artifacts collected. The ceramics yield a mean ceramic date of 1821.4 (Table 9) and the artifact pattern indicates that approximately 74% of the artifacts are kitchen related, while 18% are architectural (Table 10). While this most closely resembles the pattern yielded by many eighteenth century slave sites (Wheaton et al. 1983), a more reasonable conclusion is that the summer residences were architecturally spartan. Such simply residences might have resulted in a kitchen:architecture ratio seen at this area of Fort Johnson. It must also be recognized that this pattern may be the result of either the sampling strategy or too small a sample. Since no comparative research is available, many of these questions must await further study at Johnsonville.

Several of the shovel tests (Transect 28, Shovel Tests 2, 3, and 5) contained dense deposits to an average depth of two feet suggesting the presence of intact features. The average soil profile consisted of 1.1 feet of brown sand overlying the subsoil.

Table 8.  
List of Artifacts Recovered from Area 6

Center of tabby structure: 3 kerite frags, 1 plaster frag, 2 window glass, 1 UID iron, 6 animal bone  
 North Wall: 1 lt. green glass, 1 lamp glass  
 West Wall: 2 window glass  
 South Wall: 1 lt. green glass  
 East Wall: 2 clear bottle glass, 2 cut nails, 1 "black" glass, 1 blue tp whiteware  
 Marsh Edge Surface: 3 SGSW, 10 undec whiteware, 1 blue tp whiteware, 2 aqua glass, 3 "black" glass, 1 lt. green glass, 3 amber glass  
 General Surface: 1 Nottingham SW, 1 blue delft, 2 yellow combed slipware, 1 undec creamware, 2 blue tp pearlware, 4 undecorated whiteware, 3 amethyst glass, 9 "black" glass,  
 1 hand wrought nail, 10 window glass, 1 pencil lead, 1 UID brass item, 1 Deptford Plain sherd

T26ST1: 2 "black" glass  
 T26ST2: 1 undec whiteware, 1 clear glass, 1 Thom's Creek Finger Pinched  
 T27ST1: 1 "black" glass  
 T27ST3: 1 undec creamware, 2 window glass  
 T27ST4: 1 small prehistoric sherd  
 T28ST2: 2 undec creamware, 1 blue delft, 1 plain delft, 1 lead glazed redware, 1 rod tp whiteware, 4 window glass, 7 "black" bottle glass, 1 clear glass, 1 lead crystal drinking vessel  
 fragment, 5 animal bones  
 T28ST3: 1 Nottingham SW, 1 undecorated creamware, 3 blue tp whiteware, 4 "black" bottle glass, 1 clear glass, 2 UID nail fragments, 1 flattened lead, 1 window glass, 1 animal  
 bone, 1 Wilmington Cord Marked  
 T28ST5: 5 "black" bottle glass, 2 aqua glass, 3 amber glass, 1 window glass, 1 cut nail fragment, 1 keyhole escutcheon, 8 UID iron, 1 animal bone  
 T28ST6: 1 small prehistoric sherd  
 T29ST2: 1 green glazed creamware, 1 animal bone  
 T29ST3: 1 dark olive green bottle glass, 1 window glass  
 T30ST2: 1 lamp glass  
 T30ST3: 1 cut spike  
 T30ST4: 2 "black" bottle glass  
 T30ST5: 1 clear modern glass  
 T30ST6: 2 undecorated creamware  
 T31ST2: 1 aqua glass, 1 lt. green glass  
 T31ST4: 1 burnt earthenware, 1 milk glass, 1 clear glass  
 T32ST1: 1 ballast stone fragment, 1 piece of slate  
 T32ST2: 1 blue tp pearlware  
 T32ST4: 1 Deptford Check Stamped  
 T33ST3: 1 banded yellow ware, 5 window glass  
 T34ST4: 1 UID nail fragment  
 T35ST5: 1 modern window glass  
 T35ST2: 1 Deptford/Cape Fear Cord Marked, 5 small sherds  
 T35ST4: 1 clear glass  
 T35ST5: 1 clear modern glass  
 T35ST1: 1 milk glass fragment, 1 small prehistoric sherd  
 T35ST3: 1 lead glazed slipware, 1 colonoware, 2 flint fragments, 3 animal bones  
 T35ST5: 1 "black" glass, 12 modern clear glass, 1 small prehistoric sherd  
 T35T6: 1 underglazed porcelain, 1 SGSW, 4 "black" bottle glass, 1 clear glass, 1 window glass, 1 US general issue eagle button  
 T35T8: 1 undec creamware, 2 blue tp pearlware, 1 blue hp pearlware, 1 cut spike fragment, 1 UID iron, 2 animal bones  
 T45T2: 1 undec whiteware  
 T45T4: 2 undec creamware, 1 undec whiteware, 1 SGSW  
 T45T5: 1 burnt earthenware, 1 blue edged pearlware, 1 blue tp pearlware, 1 aqua green glass  
 T45T6: 1 molded creamware, 2 aqua glass, 1 "black" bottle glass  
 T55T1: 1 undecorated creamware, 1 cut nail  
 T55T3: 1 blue edged pearlware, 1 animal bone  
 T55T4: 1 black bottle glass, 1 fishing weight  
 T55T5: 1 undec pearlware, 1 blue tp pearlware, 1 lead glazed redware, 1 "black" bottle glass, 1 cut nail, 1 brass tailor's thumble, 1 animal bone, 1 Thom's Creek Shell Punctate  
 T55T6: 1 "black" bottle glass  
 T55T8: 1 UID nail fragment  
 T65T2: 2 window glass  
 T65T6: 3 undec creamware, 1 green edged pearlware, 1 undec pearlware, 1 underglazed porcelain, 1 window glass, 2 cut nail fragments  
 T65T7: 2 UID nail fragments, 2 UID iron  
 T65T8: 1 "black" bottle glass, 2 cut nail fragments, 1 UID iron  
 T75T1: 1 cut nail fragment, 1 UID nail fragment  
 T75T2: 1 cut nail fragment  
 T75T3: 1 undec creamware, 1 "black" bottle glass, 1 iron buckle  
 T75T5: 1 UID nail fragment  
 T75T7: 1 blue hp pearlware, 1 iron button fragment  
 T75T8: 1 burnt earthenware, 2 "black" bottle glass, 2 clear glass, 1 cut nail fragment, 1 wire nail, 1 roofing tack, 4 window glass, 2 animal bones  
 T75T9: 6 modern clear glass, 1 UID nail fragment  
 T85T1: 1 window glass  
 T85T4: 1 blue tp whiteware  
 T85T8: 1 colonoware, 1 cut nail fragment, 1 spike

Given that no archaeological research has ever been performed at a planters' village, this area

is particularly important and is recommended as a contributing resource which is also independently



Table 9  
Mean Ceramic Date for Area 6

Ceramic	Mean Date (xi)	fi	fi x xi
Underglazed porcelain	1730	2	3460
Nottingham stoneware	1755	2	3510
Lead glazed slipware	1733	3	5199
Green glazed cream body	1767	1	1767
Decorated delft	1750	2	3500
Plain delft	1720	1	1720
Creamware, undec	1791	15	26865
Pearlware, blue hp	1800	2	3600
Pearlware, blue tp	1818	7	12726
Pearlware, edged	1805	3	5415
Pearlware, undec	1805	2	3610
Whiteware, blue tp	1848	6	11088
Whiteware, non-blue tp	1851	1	1851
Whiteware, undec	1860	6	11160
Whiteware, "vitreous"	1895	13	24635
Whiteware, "Willets"	1894	1	1894
Yellow ware	1853	1	1853
Total		69	123853

Mean Ceramic Date =  $123853 \div 69 = 1821.4$

eligible for inclusion on the National Register. It contains a number of data sets (architectural remains, kitchen related artifacts, animal bone, and possible features) which could be used to address a number of research questions such as:

- how do these sites compare with rural plantation sites and urban residences in terms of architecture, diet, and other status indicators?
- what types of domestic activities took place at the site?
- did these villages include stores or other conveniences which can be archaeologically identified?

This locus has been disturbed by the construction of the maintenance building, support structures, roads, as well as Civil War earthworks. In addition, a small portion of the site is located on a grassless knoll which is eroding. However, many other areas of the site appear to be intact. In

addition to the remains associated with the planters' village, a standing domestic structure is located on the eastern edge of the site. This structure, built in 1887 and more fully discussed in the following section, served as the quarantine station officer's house.

#### Area 7

This portion of the Fort Johnson site is located at the base of the north side of the three gun battery hill and consists of a light prehistoric and nineteenth century scatter of artifacts. Fourteen shovel tests were excavated at 25 and 100 foot intervals in cardinal directions. Of those 14 shovel tests, five (or 35.7%) were positive. The artifacts are summarized in Table 11.

The central UTM coordinates are N3623720 E602920 and the soils, like elsewhere on Fort Johnson, are classified as Wando sandy loams. Soil profiles at the site consisted of 0.9 feet of brown sand A horizon overlying subsoil. No intact features were located during shovel testing.

While the archaeological remains do not seem particularly dense or significant, this appearance is likely deceiving. Situated in the shadow of the Confederate battery, these remains are probably associated with small encampments made here by the troops. Such remains are notoriously difficult to identify through traditional shovel testing. Several transects were made east-west through this area using a metal detector. While the readings were not ground truthed, the number and dispersion of remains supports a more intensive military occupation than implied by the meager collection. Consequently, at least the historic remains in this area are recommended as potentially contributing resources which should be protected from any future disturbance or damage.

#### Area 8

This locus is situated between Areas 2 and 6, having central UTM coordinates of N3623900 E 603200. The bulk of the area is south of Fort Johnson Road, although a small portion extends north of the road. Above ground remains consist of a brick rubble pile found north of Fort Johnson Road just inside of the woods line. Surface artifacts were recovered from both sides of the

**Table 10.**  
**Artifact Pattern for Area 6**

<u>Kitchen Group</u>			
Ceramics	78		
Colonoware	2		
Glass	96		
Kitchenware	3		
Subtotal	180	74.1%	
<u>Architecture Group</u>			
Window glass	15		
Door lock parts	1		
Construction hdw	1		
Nails	23		
Spikes	3		
Subtotal	43	17.7%	
<u>Furniture Group</u>			
Hardware	2		
Subtotal	2	0.8%	
<u>Clothing Group</u>			
Buttons	2		
Other clothing	2		
Subtotal	4	1.6%	
<u>Personal Group</u>			
Miscellaneous	1		
Subtotal	1	0.4%	
<u>Activities Group</u>			
Fishing gear	1		
Other	12		
Subtotal	13	5.3%	

rubble pile is similar to those found by South at Area 5 and may be related to the Civil War era use of the property, the assemblage more strongly suggests postbellum freedman settlement. Like other military posts, as soon as the property was held by the Union army African Americans likely began to seek refuge on the tract. Proximity to Union encampments meant not only wage labor, but also afforded some degree of protection. The open lands of Fort Johnson likely also permitted easier than normal cultivation in areas which were not contested by the previous white land owners.

Shovel testing indicated that the soil profile, similar to other Wando soils on the tract, consists of 0.7 feet of brown sand overlying a tan subsoil. Much of the site has been extensively damaged by Fort Johnson Road, landscaping, and the digging of utility lines. In spite of this there may exist areas of intact remains and the area is recommended as a potentially contributory resource. Fort Johnson's history did not stop at the Civil War and additional research concerning the African American use of the tract is important to fully understanding the historical diversity of the tract. Consequently, this area is recommended as a potentially contributing resource. Additional close interval testing is necessary to determine if either intact surface remains or intact intra-site patterning can be discerned.

road. Based on shovel testing and surface artifacts,

the locus measures 200 feet north-south by 350 feet east-west. Six shovel tests were excavated at 50 foot intervals paralleling the south side of the road. Of those seven tests, only one (or 14.3%) yielded artifacts. This test yielded one piece of calcined bone and one piece of aqua bottle glass. Surface collected were one piece of amber bottle glass, 12 pieces of amethyst glass (three monogram S.C. Dispensary bottle fragments), 11 pieces of clear glass, one piece of aqua bottle glass, one piece of light green bottle glass, one piece of light olive green bottle glass, one piece of light blue bottle glass, one piece of blue bottle glass, two Bristol slip stoneware bottle fragments, one piece of white porcelain, one 5/64 inch bore kaolin pipestem, and one cut nail fragment.

The temporally sensitive artifacts, such as cut nails and amethyst glass, suggest a mid to late nineteenth century use of this area. While the brick

**Table 11.**  
**Artifacts Recovered from Area 7**

	T21 ST6	T22 ST5	25S	25E	50W
"Black" glass			1		1
UID iron				1	
Deptford UID sherds	1				
Cape Fear Cord Marked		1			
Small prehistoric sherds		1	1		

#### Area 9

This portion of Fort Johnson was originally recorded as 38CH69/71 and in 1972 the site was placed on the National Register of Historic Places, with the nomination focusing on the standing magazine (Figure 48). Although no intensive survey was performed on the tract, the entire 90 acres was included in the National

Table 12.  
Artifacts from Area 9

Artifacts	T34		T35				T40		T41	2SS	50S
	ST1	ST3	ST1	ST2	ST3	ST5	ST2	ST3	ST1		
Pearlware, undec				1							
blue tp			1					1			1
Whiteware, undec				2					1		1
annular				2	1						
blue trans printed				1							
Yellow ware				1							
Brown SGSW				1							
Gray SGSW									1		
White porcelain				1			3				1
"Black" Glass	1	1	1	13							
Clear Glass					3	1					
Cut nails				12	1	1			2		
UID nails	1		1	4							1
Window glass											2
UID flat metal											2
S/64 pipestem				1							
Prehistoric							5				
Animal bone					2						

Register nomination. Stanley South excavated portions of the site and exposed the remains of several eighteenth and nineteenth century features, including barracks for the fort and construction details around the magazine converted into a bombproof during the Civil War. He also explored one of the two tabby cisterns (Figure 49). He also noted the location and condition of several tabby sea walls associated with some of Fort Johnson's earliest fortifications (Figures 50 and 51).

Since South's initial study little efforts has been devoted toward stabilizing the various components of this locus. While the magazine is in relatively sound condition, vegetation which South noted was actively causing deterioration of the brick work is once again present. The tabby sea walls continue to be exposed to tidal erosion. The cisterns have not been stabilized and the tabby is evidencing serious deterioration. In spite of South's strong warnings, a water treatment plant was built in the midst of one series of very important Civil War fortifications (Figure 52) and other earthworks are being gradually destroyed by encroaching construction (Figure 53).

During this investigation Area 9 was surveyed either at 100 foot or 25 foot intervals. As a result, a total of 26 shovel tests were excavated with 11 (or 42.3%) yielding subsurface artifacts and/or brick. These tests indicated that the locus measures about 450 feet north-south by 900 feet east-west. Artifactual remains were particularly

dense in the eastern edge of the site, and remains here were found to a depth of 2.5 feet in some areas although artifacts and brick at the base of these tests were clearly water worn. The artifacts are summarized in Table 12.

The mean ceramic date is 1845.8 and the artifact pattern closely resembles an eighteenth century planter's context.

However, this pattern is probably due to the sampling strategy, combined with the unique nature of the remains and various site transformations.

The central UTM coordinates are N3624050 E603200 and the soils are classified as Wando series sands. Shovel testing at the site yielded a typical soil profile of 0.9 feet of brown to dark brown sand overlying subsoil. In some areas (particularly south of the boat shed) the topsoil was found to a depth of 1.2

Table 13.  
Mean Ceramic Date for Area 9

Ceramic	(xi)	fi	fi x xi
Underglazed porcelain	1730	1	1730
White porcelain	1881	4	7524
Pearlware, blue tp	1818	4	7272
undec	1805	1	1805
Whiteware, blue tp	1848	1	1848
annular	1866	3	5598
undec	1860	4	7440
Yellow ware	1853	1	1853
Total		19	35070

$$\text{Mean Ceramic Date} = 35070 \div 19 = 1845.8$$

feet and appeared to be disturbed. Profiles by the water were much deeper, exhibiting complex stratification. The average profile here consisted of 0.4 feet of dark brown soil, over 0.8 feet of medium brown soil with brick and shell, overlying 1.0 feet of light brown soil with brick and shell, 0.4 feet of medium brown soil with light brick and shell, all on top of a tan subsoil.

A large portion of the site has been destroyed by the construction of the College of Charleston biological laboratory and the Marine



Figure 46. Exterior wall of tabby structure at Area 6.



Figure 47. Interior wall of tabby structure at Area 6.

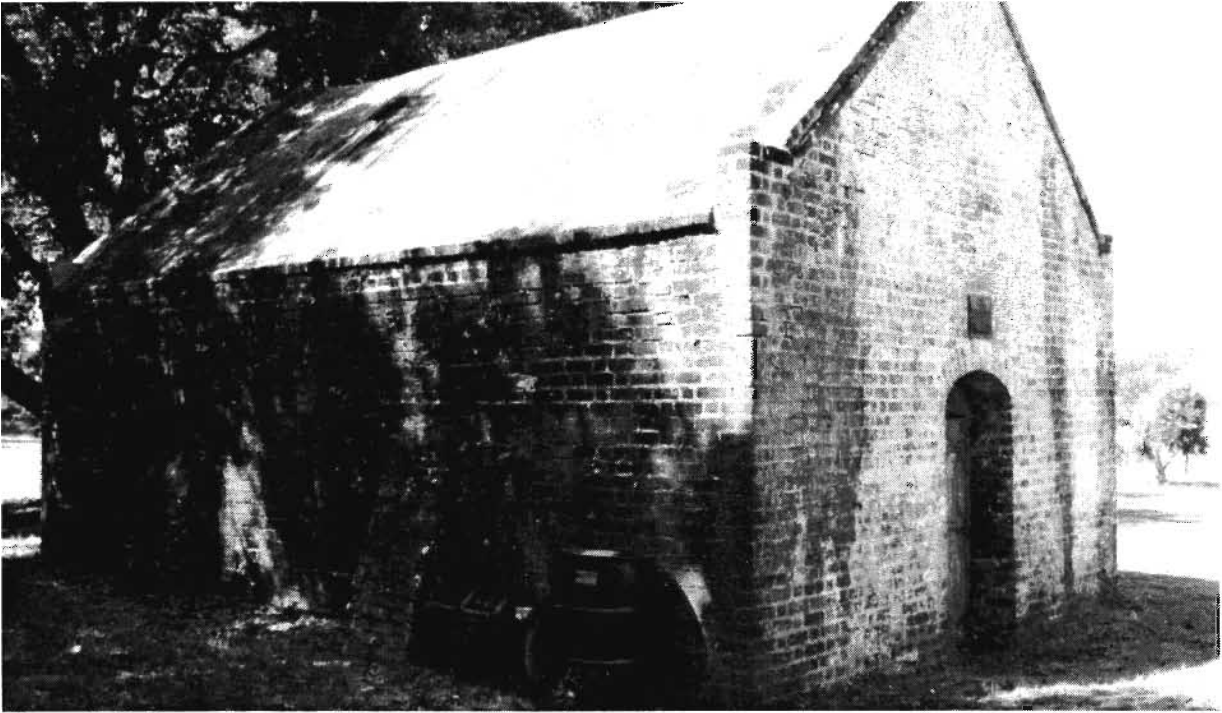


Figure 48. Brick powder magazine at Fort Johnson, view to the southwest.

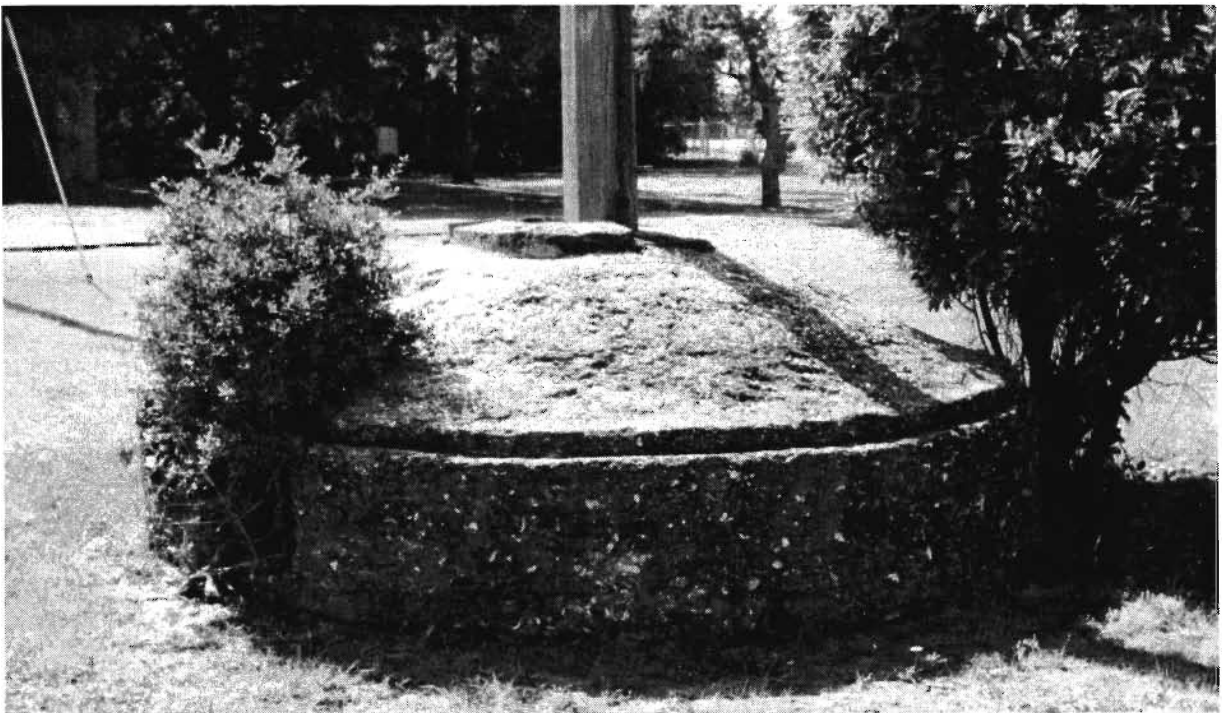


Figure 49. Cistern with vegetation growing through tabby walls.



Figure 50. Bastionete at the east edge of Fort Johnson, exposed at low tide. Note erosion and debris.

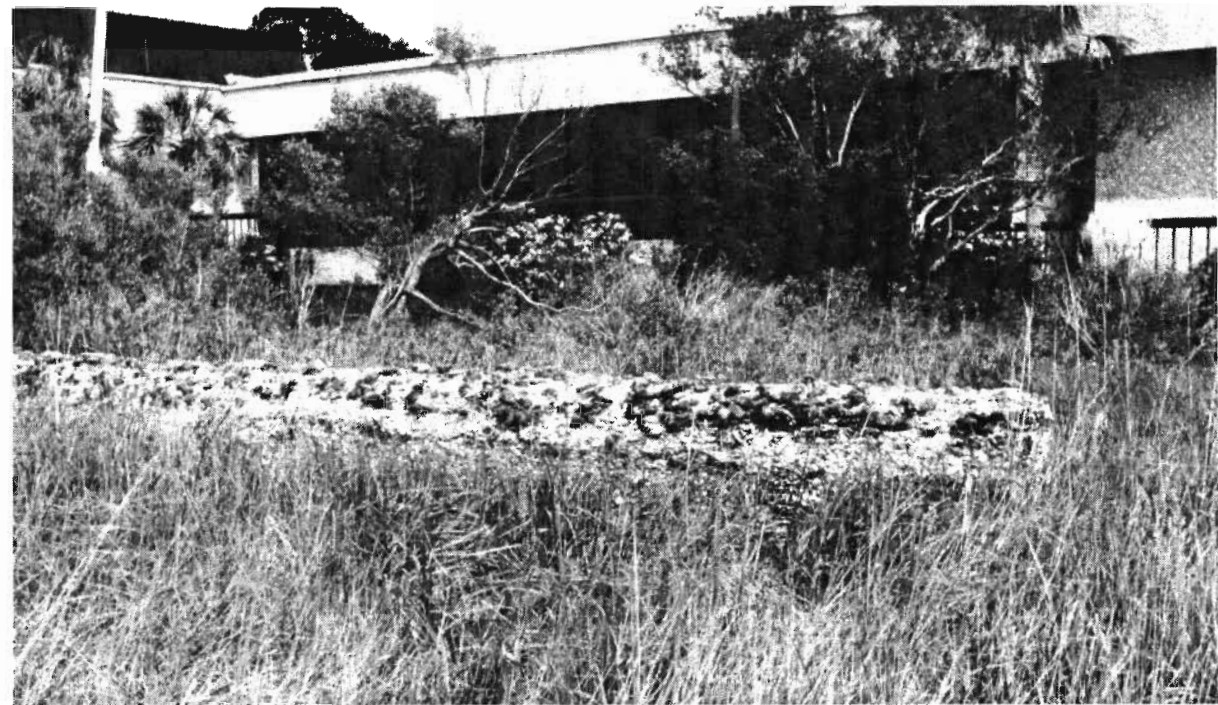


Figure 51. Tabby and brick sea wall along Charleston Harbor. High ground continues to retreat southward.



Figure 52. View of waste treatment plant and trash on and around the Confederate battery.

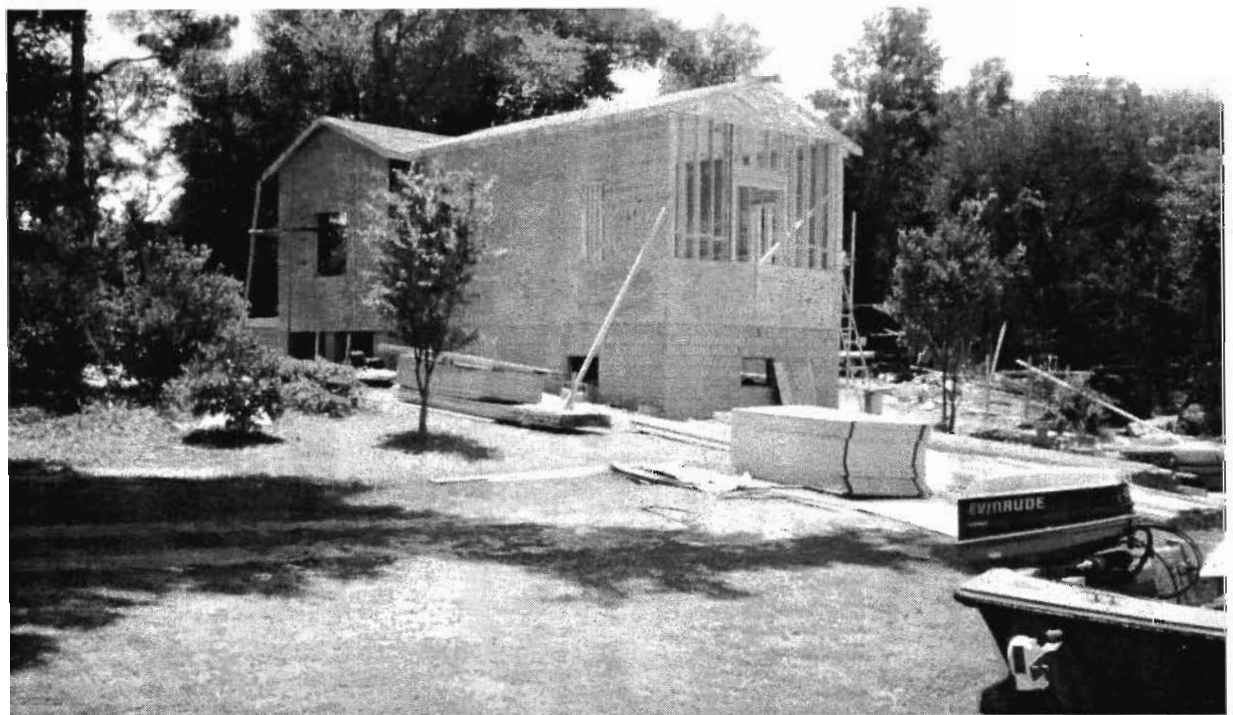


Figure 53. Construction and excavation on top of Confederate earthworks.

Resources Research Institute building, in addition to the construction of parking lots, a boat shed, and a HVAC plant. In addition, there were some ground disturbing activities between the Marine Resources Research Institute building and the Civil War earthworks to the south during hurricane Hugo cleanup (Mr. Foster Folsom, personal communication 1994).

Nonetheless, shovel testing the area near the College of Charleston biological laboratory indicated that there are dense and deep deposits associated with the site which are still intact. Combined with South's exceptional excavations, it is clear that there are very significant remains still preserved in this area, even underlying roads and other shallowly placed modern features. This area is recommended as clearly contributory to the National Register nomination and no ground disturbing activities should take place in this portion of the facility without detailed archaeological investigation.

#### **Area 10**

Area 10 represents a small eroding shell midden situated east of 38C116 with central UTM

coordinates of N3623460 E602760. While additional testing may reveal that it is associated with other nearby concentrations such as Area 5, at the present time no clear association can be demonstrated. The site measures about 150 feet north-south by 150 feet east-west.

A series of six shovel tests were excavated in a cruciform pattern across the site at 25 foot intervals. Only one of these tests produced a single small prehistoric sherd. While the tests revealed a profile of about 0.4 foot of oyster shell midden overlying a tan sand subsoil close to the shore, this midden thins out rapidly toward the north (inland), becoming little more than a sheet midden about 50 feet from the marsh edge.

The data sets present at the site do not appear suitable to address a broad range of the research questions appropriate to Middle Woodland shell middens. Although care must be exercised in defining the boundaries of Area 5, and Area 10 may be found to represent an associated midden, at present if it is considered a stand-alone loci, it is recommended as not being a contributory resource nor is it recommended as independently eligible for inclusion on the National Register.



## IDENTIFIED ARCHITECTURAL SITES AND FEATURES

In addition to the below ground archaeological sites and their associated remains (such as the tabby walls at Area 6 or the brick piles at Areas 5 and 8), this study also identified and assessed a range of standing architectural structures and above ground features. It is this totality which makes our past so rich and varied. Exploring, or preserving, only one aspect of our heritage yields a monotonous, uni-dimensional understanding. In addition, both the federal and state historic preservation laws offer protection to both archaeological and architectural sites.

The only structures which, in the past, have been recorded at Fort Johnson are the Marshlands House (SCDAH Survey Site #0890096) and the powder magazine (SCDAH Survey Site #0890112). While this coverage is likely the result of the nature of the survey process, some may have assumed that it meant that none of the other structures on Fort Johnson are significant or warrant protection. This clearly is not the case. Consequently, an important portion of these discussions will concentrate on the standing architecture at Fort Johnson. In addition, some brief discussion will be offered concerning the architectural features, such as the various earthworks present on Fort Johnson. These earthen fortifications are part of the landscape at Fort Johnson and represent considerable engineering skill. Both, taken together, represent an exceptional resource.

### Standing Architectural Sites

#### Marshlands

Samuel Gaillard Stoney (1977) provides a brief account of the Marshlands House, noting that it was built in 1810 by John Ball on his Cooper River rice plantation. He notes that:

the lavish and excellently executed  
gouge work used at Marshlands

to supplement its more formal Adam enrichments may have been forced on its builder by the embargoes and other interruptions to trade with England, whence the Adam ornaments came. Later, American putty workers substituted patriotic eagles for the lost nymphs, and stars for the classic rosettes, but gouge work, particularly among these plantations, had by then pretty well taken the place of the older style.

This work at Marshlands was similar to that in the town house of John Ball's father and was probably by the same hand. The interiors of the older Ball's house are now in the home of Ellery Sedgwick, in Massachusetts, and are in part illustrated in the "Georgian Period" (Stoney 1977:77).

Stoney illustrates both the south and north facades of the house in its original setting on the Cooper River, as well as providing excellent photographs of the gouge work on the cornice, lintels, and jambs of the drawing room doors; the brackets applied to the string of the stair treads; and the mantle and fireplace surrounds (or chimney piece) with guilloche, dentil, and bellflower decorative elements in several rooms.

In 1961 the house was moved from its original location to the Fort Johnson tract by the College of Charleston. Stoney reported that the house was to be restored by the Charleston architects, Simons & Lapham. In 1972 Marshlands was nominated to the National Register, in spite of its move, based on its unique and very well preserved architectural detailing. The National

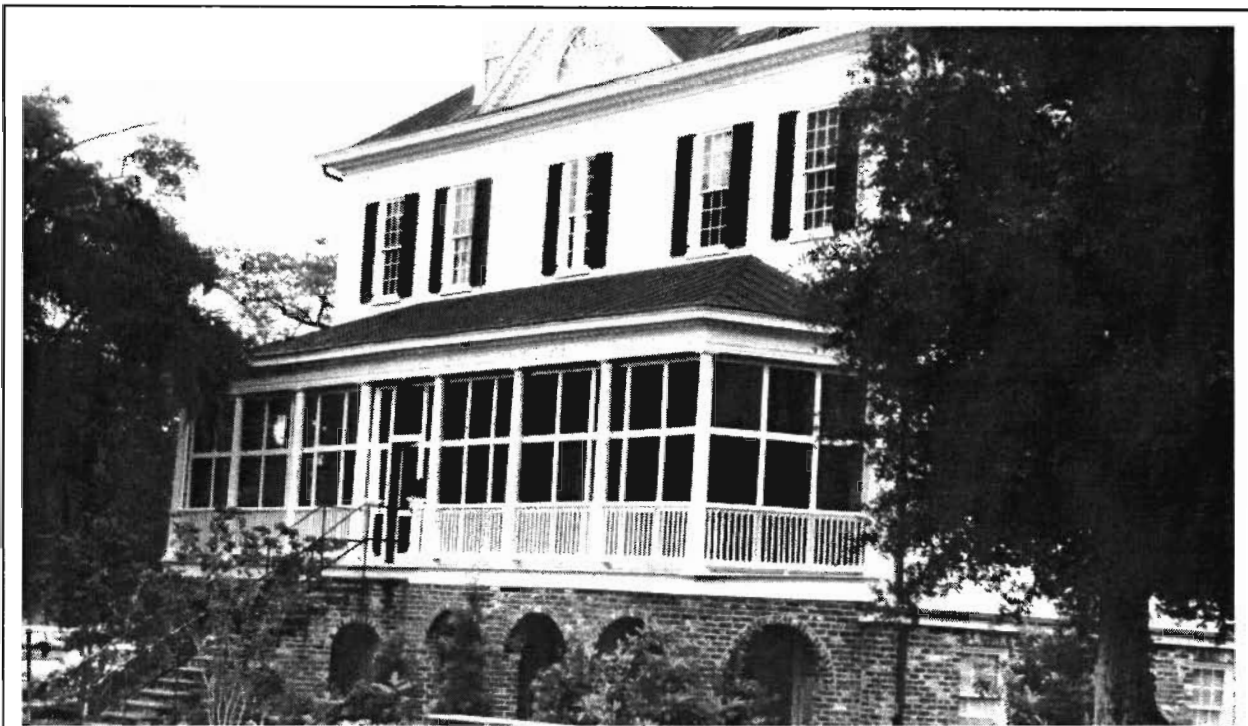


Figure 54. North facade of the Marshlands House facing the Charleston Harbor.



Figure 55. South facade of the Marshlands house.

Register form provides additional details regarding the structure:

Exterior: This two-and-one-half story clapboard house resting on high brick foundations has remained basically unaltered since it was built in 1810. Brick foundations and chimneys, however, were taken apart and reconstructed (with the exception of one chimney) following a 1961 move of approximately seven miles.

Basement level of main facade features an arcade of eight high brick arches. (Two corner arches were formerly enclosed.) Also resting on arched foundations is a steep, straight brick stairway.

First floor piazza extends the width of the house. Presently screened and enclosed by a balustrade, the piazza has the original hipped roof with dentils on the soffit of the eaves. Supporting the wide porch are eight slender freestanding columns and two identical engaged columns.

Behind the piazza the facade proper has a central doorway flanked on each side by a pair of evenly spaced windows.

On the second level there are five identical windows. A pair of nine-over-nine-light, double hung sash windows are located on each side of a central window. Louvered shutters have not been replaced following the 1961 move.

On the hipped front roof of the house is a centrally located, gable window which is decorated with dentils and contains a semi-elliptical, radiating fanlight. This gable is flanked on either side by two hipped roof dormers containing slip-sill windows.

Varying from the main facade, the rear of the house

[previously the south elevation which overlooked the mainland] has a central ten foot square open portico on high brick foundations. On each side of the portico at basement level are two windows. A steep eighteen riser stairway on arcaded foundations leads to the square portico. Both stairway and portico are surrounded by an iron railing (formerly a wooded balustrade.) Portico is protected by a curved hood roof and supported by four slender wooded columns, two of which are engaged.

As in the main facade, the back door is flanked by two pairs of nine-over-nine-light, double-hung sash windows. Topped by a five-paned transom, the doorway is framed by rectangular tracery sidelights. The back entrance opens into the one story clapboard extension.

Second level follows the house's five window pattern.

Rear slope of the roof served as the location for the two original interior chimneys, one of which was damaged and has not been replaced since the 1961 move. A dormer in the palladian style with intersecting tracery is centrally placed in roof line.

Identical side facades consist of four evenly spaced windows on the basement level, three windows on the first level, and two windows on second level. There is a hipped gabled dormer set in roof on each side.

Interior: Entrance opens into a spacious hall which is flanked on either side by two rooms. Front hall is ornamented by an elaborate acanthus leaf cornice and a plaster ceiling medallion. This hall contains an open-string stairway with mahogany chair rail and paneled wainscoting. A

mahogany bannister and ornamental brackets under the treads also decorate the stairway.

The hand-carved woodwork in the east front room is a valuable example of Adam ornamentation. East room fireplace, rectangular with a marble surround is framed by pilasters decorated in a wheat ear-drop pattern. Above the pilasters is an ornate three panel frieze. A goddess bearing sheaves of rice, surrounded by a foliated scroll pattern, forms the central tablet. On each side is a panel with floral and swag design. All three tablets are framed by end blocks decorated with mythological figures holding agricultural instruments. Above the frieze is a dentate cornice and mantel shelf.

Identical six-panel doors on each side of the fireplace are framed by fluted pilasters. Above the door and pilasters is a dentate cornice and a three-panel gouge work entablature. Central raised panel is a fan design and is flanked by two panels in a wave molding pattern. These frieze panels are framed by end blocks with a vertical sunburst design.

Wall decoration includes an elaborate cornice, paneled wainscoting, and a chair-rail, carved in alternating rectangular blocks of a sunburst ellipse followed by a garland design on fluted background.

In the west room central panel of the fireplace frieze bears a carving of a Roman tomb. Cornices are of a scroll design alternating every three or four inches with a square metope which formerly contained a small rosette, although most have now disappeared.

The two second story rooms are noted for their fine

gouge carving, contrasting with the more formal Adam enrichments in lower level rooms. Gouge work, deeply niched symmetrical designs, is recognized as a more indigenous American style than the Adam decoration. In 1810 the inaccessibility of Adam mantels due to embargoes and other obstacles to trade with Britain might have influenced the builder's selection of the simpler gouge carving.

Directly above second floor rooms are two rooms on the third level which have no interior carving (S.C. Department of Archives and History, Marshlands National Register form on file).

While transported from its original, and more meaningful physical context, the house remains an excellent architectural example of the period. In the last quarter of the eighteenth century vast fortunes were made from rice cultivation, with planters seeing returns of over 26% on their investment -- all of course created through the labor of African American slaves. By the 1820s, only a few years after the construction of Marshlands, the rate of return on rice cultivation had plummeted to a -6% and throughout the nineteenth century profits were never greater than about 1 to 2%. By the eve of the Civil War rice cultivation saw a rate of return of -28% (Coclanis 1989:141). Marshlands was built at the crest of the rice planter wealth. Afterwards the few such grand houses built would be constructed on borrowed money.

Normally moved properties are not considered eligible for inclusion on the National Register, since significance "embodied in locations and settings as well as in the properties themselves" (*How to Apply the National Register Criteria for Evaluation*, National Register Bulletin 15, page 29). However, properties such as Marshlands can be nominated under Criteria C (design/construction) when they retain enough historic features to convey its architectural values and retain integrity of design, materials, workmanship, feeling, and association. Clearly this is the case with

Marshlands.

It is important to note that the exceptional significance of this property, resting as it does on design and construction integrity, can be easily damaged through neglect, deferred maintenance, and improper adaptive reuse. The custodians of this site should be particularly careful to ensure that they have in place written plans for periodic maintenance -- the first line of defence against a wide range of structural and cosmetic problems. Deferred maintenance should have no place in the care of historic structures and where present are little more than demolition through neglect. In addition, the custodians should have written disaster recovery plans for the structure. Marshlands, given its age and setting on the Charleston Harbor, is particularly vulnerable to a range of disasters ranging from plumbing leaks to hurricanes. The fabric of the building must be protected from these disasters and this can only be accomplished through a detailed disaster preparedness and recovery plan.

#### **Powder Magazine**

Stanley South provided one of the first professional accounts of the powder magazine in 1973, noting that it:

is of brick, rectangular in shape, with three buttresses on the north and south sides. The roof is of brick that has been cemented over, but this has cracked and allowed water and soil to enter, and grass is now growing there. Large cracks are to be seen in several places, where the pressure of the roof is forcing the walls outward, and this is soon to result in portions of the wall falling outward (S.C. Institute of Archaeology and Anthropology, 38CH69 site file).

The 1972 National Register nomination for Fort Johnson provides relatively little additional detail, while repeating a number of historical errors. The building measures 27.5 by 19.5 feet and is constructed of brick laid up in Flemish bond.

There is evidence that the building was at one time whitewashed. The front and rear gables, as noted by the National Register nomination, are high:

with one-dimensional linear extensions at their bases on the roof line; the roof is covered with a cement-like coating to prevent it from taking fire. There are but two openings in the front of the building: a semi-elliptical door and a small square window set immediately above the door for ventilation. The side walls are pieced in the center with slot windows measuring approximately seven by fourteen inches. While the exterior is original, the interior is barrel vaulted, probably by the Confederate forces during the early 1860s, to enable the roof to withstand the pressure of the earth when the building was buried. The interior was further fortified with additional brickwork in common bond (S.C. Department of Archives and History, Fort Johnson National Register form on file).

As South clearly revealed during this research at Fort Johnson, the structure was most likely built as part of the forts modifications in anticipation of hostilities during the War of 1812. Some repair work appears to have been attempted in the 1970s, although the repointing and similar repairs are rather crudely attempted. The interior of the building is used as locked storage and was not accessible during this study.

Of considerable concern is the vegetation once again growing from cracks in the building, suggesting a deferred maintenance program which is certain to cause irreparable harm to the structure. In addition, the use of the building for storage is inappropriate to its historic nature and may cause damage to the building through carelessness or fire. As will be discussed in the concluding section of this study, this building offers an exceptional opportunity for public interpretation and it should be maintained for that purpose.

### Quarantine Officer's House

This structure (survey number U/19/0678/249-2045) had not been previously surveyed, although it is of considerable historical importance, representing one of a series of buildings constructed by the City of Charleston and the State of South Carolina about 1887 for the use of the quarantine officer stationed at Fort Johnson. This survey was very brief and incorporated only exterior details. No interior survey was conducted, although a brief walk-through was conducted.

The two story clapboard building is constructed on a "L" plan and set on brick piers with later brick infill. On the south elevation, which evidently served as the formal entrance, are two full story porches filling the "L." The upper porch has a shed roof. Comparison to ca. 1890 photographs reveal that the upper screened porch has been recently added, while the lower porch has been recently screened. The single door on the front or south elevation has rectangular side and overhead fan lights. The lateral gable roof is covered in a standing seam tin roof which evidences wear. There are two central chimneys and one exterior chimney (possibly a recent addition). The bulk of the windows are six-over-six-light, double hung sash windows.

Associated is a kitchen building, connected to the main house by a covered walkway. The kitchen is a single story, wood frame, clapboard structure with a lateral gable roof and standing seam metal roofing. Attached is a screened in full-facade porch with a shed roof. The kitchen, like the main house, is laid on brick piers. Also associated with the house is a small shed, possibly post-dating the initial construction of the house and kitchen.

The main house and connected kitchen are evaluated as contributing resources to the National Register nomination. In addition, they appear to be independently eligible for inclusion on the National Register under Criterion A (association with events important in the defined historic context) Criterion B (association with Dr. Robert Leiby, a noted South Carolina physician who served in the Civil War and later helped organize the quarantine system), and Criterion C (design/construction typical for the period).

It appears that there has been no clear recognition of this structure's historical significance, given the haphazard modifications, repairs, and "renovations." Even during this study contractors were engaged in modifications which failed to meet even the most basic levels of preservation quality. Like the other architecturally significant sites on Fort Johnson, this complex should have a program of proactive maintenance, as well as clearly established disaster prevention and recovery plans. All future modifications should be as carefully assessed as those undertaken on Marshlands since this complex is no less significant in its own context.

Also worthy of note are the landscape features, especially the plants, associated with this residence. Although no detailed study was conducted, even a brief tour of the immediate surroundings revealed *lantana* (apparently naturalized as a perennial), *oak*, *spider wort*, *camellia*, *trumpet vine*, *English ivy*, *wax myrtle* (in a formal setting), *azalea*, *amaryllis*, *spirea*, *first breath of spring* or *forsythia*, and *umbrella tree*. These represent a wide diversity of plant materials, some native to the area (such as *oak* and *umbrella tree*) and others clearly introduced plant material (such as the *lantana* and *amaryllis*). These vegetative landscape features are an important dimension of the settlement and should not be disturbed.

### Other Quarantine Station Structures

There are remnants of other quarantine station structures on Fort Johnson, although most are heavily modified. Examples include two warehouses, the remaining portion of the hospital, and a small office building. Because of the extensive alteration of the hospital, leaving only portions of its west-facing "H" shaped facade intact, it was not evaluated in this study. It seems likely that the building has been so modified that it is no longer a contributing resource. The two warehouses, situated just north of the hospital, have not been significantly altered. Consequently, they are recommended as potentially contributing resources and additional architectural evaluation is recommended. Like the hospital, this study did not conclusively determine their dates of construction, although it is likely that they post-date the 1906 control of the facility by the U.S. Public Health



Figure 56. Quarantine Officer's House, view to the northwest.

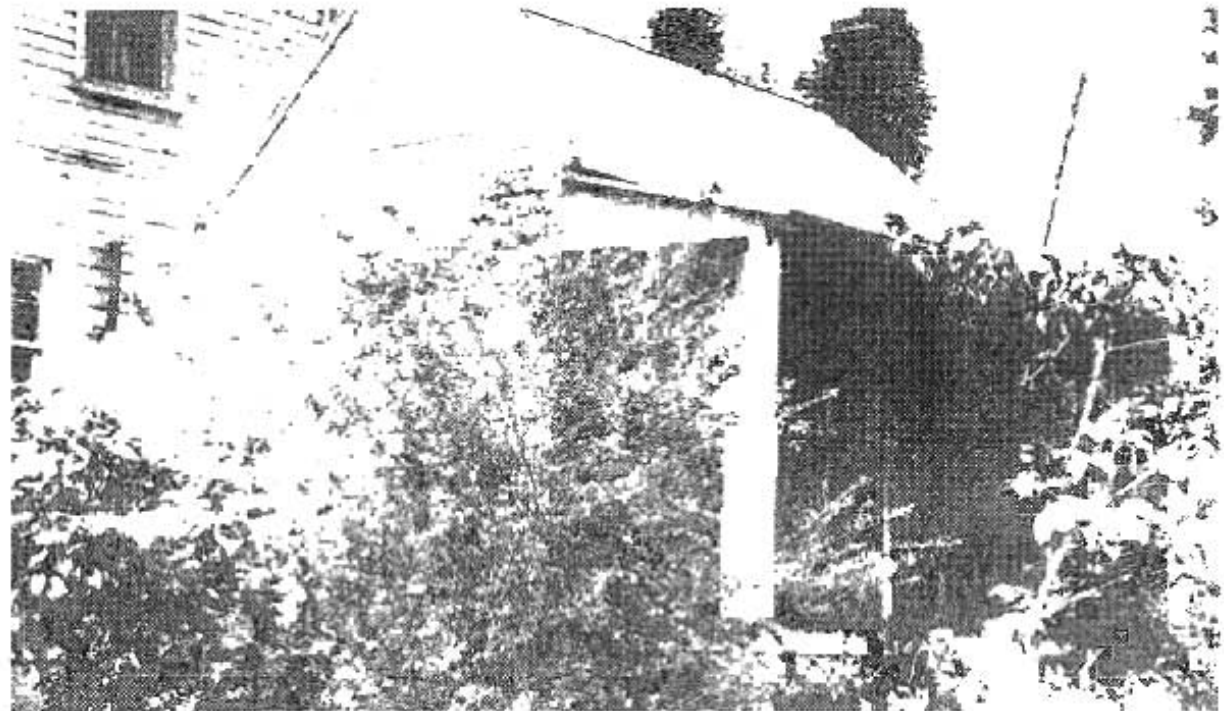


Figure 57. Kitchen associated with the Quarantine Officer's House.

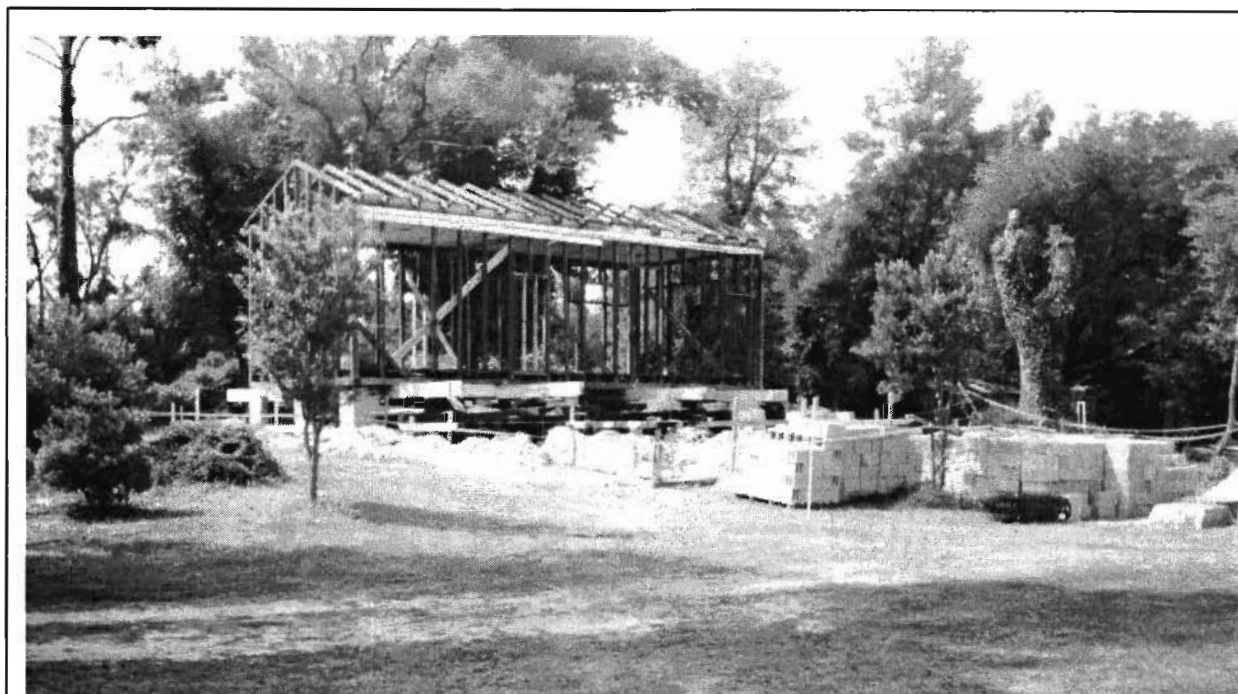


Figure 58. Example of radical alteration with loss of historic fabric and context. Only portions of the original framing associated with the Quarantine Station Office have survived.



Figure 59. Pump House associated with ca. 1940 construction at Fort Johnson.





Figure 60. Portion of the Civil War earthworks south of the Powder Magazine on Fort Johnson.



Figure 61. Civil War earthworks and bombproof.

Service.

A small, one-story wood frame office, apparently dating from the late nineteenth century, previously existed in good condition on the edge of a Civil War earthwork, set between the quarantine wharf and the station officer's house. During this survey the structure was in the process of being "rehabilitated," with the associated loss of all historic fabric, setting, and context. Not only was the entire structure gutted and stripped, but it was so thoroughly enlarged and modified that the only remaining historic fabric were a few of its framing members. The structure was essentially demolished, with a modern structure rebuilt on an enlarged site. This destruction, without measured drawings, photographs, or recordation, represents a serious loss to the architectural resources of Fort Johnson while also endangering the below ground archaeological resources.

#### Post Quarantine Structures

Most notable of the post-quarantine (i.e., ca. 1940, World War II vintage) structures on the Fort Johnson tract is a pump house (survey number U/19/0678/249-2045) situated north of Fort Johnson Road at the entrance to the tract. It is a rectangular, one-story wood frame and clapboard building of slab construction. It has a hip roof with very limited overhang covered in asphalt shingles. Windows are present, but have been boarded up and were not available for inspection. A single paneled door is situated on the east facade. The structure was presumably built to provide water for the facility as it was improved in the mid-twentieth century. Since the interior of the building was not examined, we do not know whether the original pump equipment is still in place and operable.

This structure, alone, does not appear to be a contributing resource. Even in conjunction with additional historical research or the collection of oral histories it is unlikely that this structure can either contribute to the historic context of Fort Johnson or be considered independently eligible. This survey briefly recorded the exterior of the structure. Some additional recordation should be undertaken on the interior prior to either its abandonment or eventual demolition.

#### Safeguarding Historic Sites

Historic sites such as those on the Fort Johnson tract are faced with both natural disasters (such as hurricanes) and man-made disasters (such as plumbing, roof leaks, and even inappropriate maintenance and use). Considering the exceptional resources present on Fort Johnson, both maintenance and disaster plans are *strongly* recommended.

#### Maintenance

Maintenance is a relatively simple -- even absolute -- issue: no maintenance, no building. Stewart Brand observes that:

Preservationists are so adamant on the subject [of maintenance] that the motto of their department at the US National Park Service declares "Preservation IS maintenance." John Ruskin himself, the founder of anti-scrape preservation, intoned, "Take proper care of your monuments and you will not need to restore them. A few sheers of lead put in time upon the roof, a few dead leaves and sticks swept out of a water course, will save both roof and walls from ruin. Watch an old building with anxious care; guard it as best you can, and at any cost, from every influence of dilapidation" (Brand 1994:111).

Deferred or improper maintenance of historic structures is the cause of many serious problems ranging from disfigurement or loss of the historic fabric through irreparable damage. Deferred maintenance, begun in the 1970s as a mechanism for reducing maintenance costs, seeks to prolong the use of basic building components such as roofs, increase the period between normal maintenance activities such as painting, and reduce the overall level of custodial attention. *Deferred maintenance is a certain recipe for problems with long-term consequences. Nominal maintenance is highly reactive and fails to meet either the needs of the*

*building or its users. Unfocused maintenance is still reactive, correcting perceived problems without consideration of cause or effect.* Frequent repainting, for example, without attention to why the paint is failing, may lead to much worse conditions.

An adequate maintenance program includes a listing of activities and controls how often the cycle repeats. It defines, prioritizes, and schedules all maintenance activities. Maintenance must be understood as a continuous ongoing process -- it should be proactive and preventative. Effective maintenance programs integrate assessment, planning, maintaining, and evaluating.

The building's needs are periodically assessed through detailed inspections. The assessment must avoid the temptation to recommend treatments without fully understanding the cause of the problem. For example, while it is tempting to replace a cornice damaged by carpenter ants, it is more important to find the source of water which lead to the infestation and treat the problem holistically.

After the assessment, which should be written using detailed project evaluation sheets, a planning phase should determine what needs to be done, how it should be done, who should do it, and how much it will cost. The planning stage should prioritize the needs of the building -- treating all of the needs, but concentrating on critical needs first.

The third phase, that of maintaining, emphasizes the need for regular attention. A single person should be held responsible, and accountable, for building maintenance. This person should also have the authority to halt work if it appears that it is not going as planned or is damaging the historic fabric of the structure. An equally important aspect of this phase is documentation. It is essential to document what is done through photographs, drawing, and even samples. Twenty or fifty years from now it is essential that those undertaking work know what was done and how it was done.

Finally, the last stage is evaluating the work -- considering the quality, value, and success of the work. This process helps mistakes from being repeated and provides the next cycle of maintenance solid information on which to build.

Maintenance on historic structures should recognize that the most common problem involve building dynamics, moisture, adverse approaches to previous maintenance, chemical actions, and insects/rodents/birds. By understanding the pathology of a building it is easier to ensure that correction actions are appropriate and treat the root cause, not merely symptoms.

Preservation-minded maintenance is difficult for any bureaucracy to understand, much less implement. Organized on outdated and probably unworkable principles, those made responsible for maintenance of historic structures typically have no understanding of basic preservation philosophy and simple architectural conservation procedures, much less a clear understanding of facilities management responsibilities as mandated by the International Facilities Management Association.

Required reading, at a very general level, might include Stewart Brand's *How Buildings Learn: What Happens After They're Built*. Brand goes beyond the traditional preservation text by exploring how some buildings last, while other deteriorate, noting that much of the difference can be found both in building care and also in how well the building can adapt to change.

Moving on to more technical issues, one excellent source of information is J. Henry Chamber's *Cyclical Maintenance for Historic Buildings* which emphasizes daily (such as, checking fire detection/suppression systems), weekly (checking HVAC controls), monthly (lubricating and adjusting mechanical drives), quarterly (cleaning light fixtures), semiannually (sounding fire alarms and conducting drills), annual (inspecting boilers and controls), and quinquennial (inspecting and testing electrical insulation and installation) activities.

Naturally, all work on the historic buildings at Fort Johnson should rigorously adhere to *The Secretary of the Interior's Standards and Illustrated Guidelines for Rehabilitation*, available from the Superintendent of Documents (stock number 0240-005-01091-2). In addition, Building Conservation International offers excellent preservation advice, including:

- There are few panaceas in building. Nothing lasts forever, especially if laced with cement.
- The easy answer is often neither the right one nor the cheapest one.
- A quality job will be economical and save time and hassle in the long run.
- There are no hard-and-fast rules. A situation must be judged on its merits.

An exceptional survey of preservation quality work is provided by Gersil Newmark Kay (1991) in *Mechanical and Electrical Systems for Historic Buildings*.

#### **Disaster Planning and Recovery**

The first step in disaster planning and recovery is, obviously, recognize those threats which are preventable and work to prevent them. The second step is to recognize those threats which are not preventable and work to reduce their potential impact. In the first category are fires -- the leading threat to historic properties. Fires are preventable through the use of safe electrical systems, occupant awareness, adequate fire detection systems, and appropriate fire suppression systems. In the second category are hurricanes. While not preventable, the impact of hurricanes to historic structures can be reduced through appropriate planning. Even after the disaster, whether preventable or not, the damage can be limited by undertaking the correct actions and steps in a timely manner.

While it is almost certain that the facility has some form of disaster planning as a research facility, it is likely that these plans provide little, if any, protection to the historic resources of the tract. Typically institutional disaster plans are geared, understandably, for business continuity, not for the preservation of historic buildings, earthen fortifications, and underground archaeological sites.

It is essential that Fort Johnson institute a program of risk evaluation, hazard mitigation, and emergency preparedness *which incorporates the properties unique, and irreplaceable, historic and archaeological resources*. This covers a wide range of actions, including identifying past emergencies, determining the types of natural events which pose a threat to the historic structures, determining the types of damage which might be expected, and most importantly, identifying the hazard and emergency preparedness measures which are needed to safeguard against the most probable damage. Hazard mitigation will include developing a work plan for carrying out the structural and hazard proofing measures identified, developing a schedule for this work, and identifying and securing the necessary resources to ensure the work is correctly performed. It is possible, through appropriate planning, to balance historic preservation interests with disaster protection. Emergency preparedness includes the inventorying and photographing of the site prior to any emergency, developing appropriate protective measures, developing a resource list of professionals to assist in evaluations and recovery, developing an emergency response network, developing a chain of command to ensure the preservation of the structures, developing a checklist of emergency response tasks, assembling supplies and equipment for recovery efforts, and preparing a plan for how best to recover after a disaster strikes.

*Staff must be trained to know the actions to take during disasters and emergencies not only to protect their own lives, but also to protect the cultural resources of Fort Johnson. Both can be done, but only if there is clear direction and training.*

After the disaster, the staff should have a clear understanding of how to stabilize the historic properties, minimizing additional damage. While personal safety comes first, the disaster plan must have provisions for checking the buildings for structural damage, stabilizing sagging plaster, establishing air circulation, and restoring safe electrical service. The plan should incorporate a clear understanding of insurance. The plan should contain a detailed salvage plan for the structure, including measures to make the building weathertight and stable. All staff members should

understand that federal and state laws may apply, even in disaster situations and that work involving rehabilitation, repair, restoration, or demolition will likely require the review and approval of the State Historic Preservation Office. Demolition is an acceptable alternative only when all other alternatives have been exhausted. Often there are historically appropriate methods which can be taken to stabilize and ultimately repair damaged buildings.

One very good emergency salvage procedure checklist has been developed by Caroline Alderson, General Service Administration, National Capital Region, Historic Preservation. For noncombustible, waterproof items the recommended approach is to salvage as much as possible and, if possible, to leave the materials in place. Nothing should be thrown away until its possible use is fully known. For example, even completely shattered stone may be ground for use in composite patch repair of other cracked or chipped stone panels. Ornamental metal should be salvaged, either for reuse or for casting replacements. Woodwork and ornamental plaster is often heavily damaged by either water or fire. All intact woodwork should be retained and in cases of extensive damage samples of every type should be retained for replication. Whole pieces are best, but even broken plaster castings can be glued together to make a whole. Flooring should be left in place for evaluation by an architectural conservator. The intent should be to leave the flooring necessary to show floor patterns, color, layout, and associated borders. The wall-floor edge is very important since it often provides a "footprint" for reproducing features such as wainscoting and built-in furnishings.

Clean-up should consist only of non-chemical, non-abrasive methods. No detergents or proprietary cleaning products should be used on unpainted wood, plaster, or metal. But most importantly, involve an architectural conservator immediately after a disaster to ensure that important architectural details are not lost in the recovery.

A disaster plan for Fort Johnson should incorporate information on these, and additional, steps. The information must be on-hand, understood, and capable of being implemented

*before the disaster* After the disaster has occurred it will likely not be the time to seek and gather information.

### Landscape Features

#### **The Earthworks**

The primarily landscape features at Fort Johnson are the earthworks associated with the various forts, primarily from the Civil War. A number of the historic maps clearly show the extent, and often the construction details, of these later earthworks. It is regrettable that at the time of this study no detailed topographic map was available to assist in delimiting the extent of the surviving features. Regardless, comparison of the historic maps to on-the-ground features reveals four major surviving earthwork systems.

Beginning south of the Grice Marine Biological Laboratory are the remains of the earthworks which originally formed the eastern and southern perimeter around Fort Johnson. Today remnants are found along the edge of the marsh north of the waste treatment plant and along the edge of the marsh. In most areas the features are rounded, evidencing a topography of 4 to 5 feet. These earthworks are associated with the first shots fired on Fort Sumter and on two abortive Union attempts to capture Fort Johnson. As Stanley South has previously noted, the location of the wastewater treatment plant is the area where the heaviest fighting took place during the initial Union attempt to overpower the small guard left at the fort on July 3, 1864. A bombproof originally associated with the southern end of the system is still intact, while a second bombproof situated more centrally has been largely destroyed by encroaching development. The northern portion of this earthwork, including a battery on the point has been destroyed through a combination of erosion, construction of modern facilities, and use as fill. Additional damage has been caused by the placement a burn area in the vicinity of the earthworks after Hurricane Hugo (clearly demonstrating the need for a well organized, appropriate disaster recovery plan).

A battery situated southeast of the NOAA building apparently took advantage of a sand ridge to further enhance its elevation. This earthwork is

in generally good condition, and the location of the three gun emplacements is still faintly visible. Peripheral to this site are a series of encampments, which have been heavily impacted by the NOAA building.

The earthworks and Battery Harleston on the northern property boundary, facing the Charleston Harbor, have suffered extensive erosion. Although portions still exist, without swift and definitive action these features will be claimed by the sea within the next decade.

Running about north-northeast by south-southwest and crossing the Fort Johnson Road are the remnants of trench and earthwork fortifications which may date from the American Revolution. While the features cannot be exactly matched to any examined maps, most of the resources from this time period fail to provide the detail necessary for convincing comparisons. Regardless, these remains are likely the oldest on the property.

These remains are recommended as contributing resources to the National Register nomination of Fort Johnson. In addition, there is good evidence that they are independently eligible for inclusion on the National Register (for a brief review of Civil War site preservation efforts in the Charleston area see Stine 1993). The early earthworks represent some of the few remaining defense lines intended to protect the City of Charleston. Additional historical research may more clearly define their construction date, but even absent this information they represent unique landscape features associated with the very earliest history of Fort Johnson. The Civil War earthworks represent important historical features associated with the Confederate efforts to create a defensive ring protecting Charleston. They are further significant given their function in the first few hours of the Civil War. In addition, portions of the property are best understood in terms of hollowed ground, where Union and Confederate forces actually met in battle.

Construction details of bombproofs and earthworks, coupled with the ability to reconstruct camp lifeways using associated archaeological remains, add yet another dimension to the significance of these landscape features. These features are recommended independently eligible

under National Register Criterion A (they have made a significant contribution to the broad patterns of our history) and Criterion D (they are likely to yield information important in our history). Although inadequately researched, it is possible that the remnants of the northern fortifications associated with Battery Harleston may represent unique construction techniques found only in the Charleston area. If so, this portion of the site may also be considered independently eligible for inclusion on the National Register under Criterion C (they contain significant works of engineering).

#### **Maintenance and Disaster Recovery Considerations**

Just as the standing structures require clear maintenance and disaster recovery plans, so too do these earthworks. In the past they have been needlessly damaged by activities ranging from construction to hurricane recovery. Now that their location, and significance, is more fully understood several areas of concern should be quickly addressed. The first is the need to develop specific erosion control strategies. Along the Charleston Harbor it seems likely that erosion is caused, or encouraged, by the continued dredging performed by the U.S. Army Corps of Engineers. If so, they may be responsible for developing and implementing an erosion control program to protect these sites, or alternatively, of undertaking data recovery excavations. If additional research determines that the Corps' activities are not responsible for the loss of this site, then *the SCDWMR must undertake an independent program to protect these sites. Continued loss to erosion is the equivalent to the demolition of a standing structure by neglect.* Erosion control options include the construction of a sea wall or the installation of rip-rap. Along the marsh frontage erosion is likely natural and the SCDWMR is alone responsible for maintaining and protecting these features. While careful selection and encourage of vegetation may be adequate for seasonally high tide erosion, it is likely that additional steps will be necessary to protect the landscape features from hurricane damage.

It is also essential that continued operations and activities undertaken at Fort Johnson be designed and implemented not to

adversely affect the identified cultural resources. Virtually all activities, ranging from parking vehicles to excavating utility lines will damage archaeological and historical resources. The care and maintenance of these resources is a public trust which demands considerable care and attention.

Disaster planning and recovery should recognize that often conventional "recovery" efforts cause as much or more damage than the disaster. It is essential that a clear plan be developed which guards against further damage during clean-up efforts (for a brief review of these issues see Morgan 1993).

For example, after a hurricane it is

essential that the soils be dry before downed vegetation is mechanically removed. Even on dry soils only rubber tracked vehicles should be used. If skid trails are necessary they should not be allowed to cross earthworks. All clearing should be done using the least intrusive methods possible. There should also be a recognition that as the vegetation pattern of the sites change so too may their preservation problems. Burn areas should be physically removed from sensitive historic or archaeological sites. In virtually every disaster case there are experts available which have confronted the identical or similar situation -- this expertise should be consulted to ensure that the historic resources are not further damaged.

## CONCLUSIONS AND RECOMMENDATIONS

### Historical Findings

The research for Fort Johnson, even at the necessarily superficial level of this survey, reveals an exceptional complex and rich history. While often overshadowed by Forts Sumter and Moultrie, Fort Johnson has played a part in the defence of Charleston during the French and Indian War, the American Revolution, the War of 1812, and the Civil War.

The first fort was built in 1708 as a response to the vulnerability of the colony during Queen Anne's War. While no good records of this first fort could be found, some historians believe that it was triangular in form with bastions at each corner and a moat on the land side. Before this the property, known as Windmill Point, was the plantation of William Russell and later John King. During this early period the lands were being cultivated, possibly for indigo or subsistence crops like corn.

By 1724 the fort was already showing signs of serious deterioration and the process of neglect, inadequate repair, and disinterest was already established. The next major renovation was the 1759 tabby fort built in anticipation of French or Spanish attack during the French and Indian War. Tabby is a mixture of burned shells (which forms lime, serving as the binder), whole oyster shells (serving as the aggregate), mixed with water to form a slurry. Poured in forms and allowed to harden it is a good building material, but does not fair well when exposed to either cannon fire or the undermining effects of the tides.

As the threat subsided so too did the enthusiasm of the Assembly to pay for the work and construction was apparently never completed. Although no copy of the original plan can today be identified, a contemporary map shows an eccentric plan which suggests that he may have had access to the plans and simply incorporated them into the

map.

At the beginning of the American Revolution Fort Johnson was seized by the Council of Safety and held until 1780 when the British General, Henry Clinton, laid siege to the city. The fort was blown up by the Colonists before the fort was abandoned. It was during this period, however, that some of the first earthworks were established.

An effort was made after the American Revolution to once again upgrade the defensive works and a new fort was built just west of the old ones. Efforts were made to maintain this fort, but when the threat posed by the War of 1812 was realized Fort Johnson was once again little more than a pile of rubble. The new batteries constructed in 1812 to protect the harbor entrance were almost immediately destroyed by the August 1813 hurricane. It was probably during this phase of construction that the brick powder magazine still present on the site was built. Accounts from 1827 indicate that almost nothing remained of the fort.

Rather than once again rebuild the fort, a martello tower was constructed southwest of the old forts, along with barracks for the men and officers. These towers, with massive brick walls and having a platform on top for one or two guns, were thought at the time to be great defensive value. The James Island martello tower, one of only a few constructed on the East Coast, stood until just before the Civil War when it burned.

During this period of peace local planters began a summer village at Fort Johnson, known as Johnsonville, to take advantage of the "healthful climate." They built a small city, laying out roads and establishing an almost urban environment south of the fort.

Although there were occasional proposals to reactivate Fort Johnson's more massive defenses little was actually done until the post was seized by



the Confederate forces for the construction of a mortar battery. On 4:00 on the morning of April 12, 1861, a shell from this battery exploded over Fort Sumter, signalling the bombardment of the Union fort and the beginning of the Civil War.

Over the next several years Fort Johnson was considerably strengthened. Outposts were established, including Battery Simkins on the southeast, Battery Glover about two miles to the west, Battery Wampler in the present-day Clearview Subdivision, and Battery Harleston, near the old martello tower. In all there were at least 26 guns and mortars at the various batteries. In addition, an extensive entrenched camp was constructed at Fort Johnson including bombproofs, officers and enlisted quarters, and magazines. The only real action Fort Johnson saw during the Civil War was on July 3, 1864 when Union forces landed between Battery Simkins and Fort Johnson. Although the Union forces fought their way into parts of the defensive system they were forced to surrender when no reinforcements were forthcoming. On the night of February 17, 1865 Fort Johnson and the associated batteries were evacuated as part of the general Confederate withdrawal from Charleston Harbor.

By the early 1880s Fort Johnson was converted into a quarantine station under the joint jurisdiction of the City of Charleston and the State. Vessels from ports with suspected contagions or with sickness on board were required to stop. Ballast would be unloaded and discarded on site, while the ships were washed with mercuric bichloride, a powerful (and poisonous) disinfectant and then fumigated with sulfur dioxide fumes. Bedding and clothing from the ships would be placed in a huge container and heated to a temperature of 240° F for 15 to 20 minutes.

The old military buildings were replaced by a dwelling houses for the quarantine officer, engineer, and captain of the launch. Also built were barracks for officers, female passengers, and the crews of vessels being detained. A "fever hospital" and "pest-house" were built for the ill, as well as storage buildings and warehouses.

In 1906, the U.S. Public Health Service took over these quarantine duties from the State and City. In 1948 the property was abandoned by

the federal government and offered to the state. When, after five years of contentious wrangling no proposal for use of the property was advanced, the land returned to federal ownership. In 1954 a consortium of the College of Charleston and the Medical University of South Carolina proposed to develop Fort Johnson into a marine biological research center and in June 1954 a quitclaim deed was issued by the U.S. Department of Health, Education, and Welfare. While efforts to create a historic park, complete with tour boats leaving Fort Johnson for Forts Sumter and Moultrie, were again raised in the late 1960s, the bulk of the land was eventually deeded to the South Carolina Wildlife and Marine Resources Department in 1970. A small portion of the property was retained by the College of Charleston for its Grice Marine Laboratory. The South Carolina Medical University kept title to a dwelling on the northeastern point which is today used for office space.

Examination of historical maps reveals that a number of structures, features (such as wells and cisterns), and earthworks were constructed on the property. While some of these, particularly the fortifications built on the Charleston Harbor, have been destroyed by erosion, many others have likely survived.

### Archaeological Findings

The archaeological research at Fort Johnson consisted of a relatively traditional intensive survey with subsurface excavations (shovel tests) placed every 100 feet along transects also spaced every 100 feet. Some areas of the property received even more intensive survey, with tests placed at 25 or 50 foot intervals or a metal detector used to identify military and architectural remains. It is no exaggeration that there are few areas on the 90 acre survey tract which do not contain some evidence of cultural activity -- either pottery, glass, brick fragments, shell, or even above ground remains.

An unusual range of cultural resources, some of which are unique, are present at Fort Johnson. The site's military history and associated military remains provides the opportunity to study the lives of soldiers during the range of late eighteenth century and early nineteenth century

conflicts. The ability to explore camp life at Confederate installations offers particularly important data for comparison with the recent research by Legg and Smith (1989) at Union camps on Folly Island and Legg et al. (1991) at a Union camp on Hilton Head Island. Not only are there possibly cultural differences, but the blockade of Charleston may have reduced the supply of both essential and luxury items to Confederate troops, further reducing the comfort of camp life. Dietary studies may be able to provide additional information on the supply of troops and their ability to forage. Even Fort Johnson's earthworks, such as the sunken gun emplacement on the Charleston Harbor and at "Bunker Hill," may offer unique engineering data not available from other sources. The ruins of the martello tower, for which there are surviving plans at National Archives, represents one of two or three such structures built on the East Coast of the United States. While there were a number of summer villages for the planters, some of which were abandoned, none have been archaeological investigated. This assemblage offers the opportunity to explore a facet of plantation life which is neither truly urban nor rural, but which lies halfway between the two extremes. Seeking shelter in these villages from the hot weather illness which invaded their plantations, little is known about the architecture or the lifestyle. The use of the facility as a quarantine station offers yet another unique opportunity to explore the lifestyle of government workers who were in one sense isolated from Charleston society, but in another way were intimately exposed to the goods and ideas of a wide range of cultures. Only two individuals (both brothers) held the position of quarantine officer prior to 1906. Even between 1906 and 1948 the post had only a handful of health officers, allowing better control of research questions. While not unique, Fort Johnson also offers the opportunity to study the use of the "free" government land by African American freedmen. The lifeways of these squatters, who likely represent a large segment of the black population in the postbellum period, have not been studied and would offer essential comparative data to both the freedmen of Mitchelville and more rural blacks engaged in tenancy. Even the prehistoric sites at Fort Johnson offer exceptional opportunities for research. South's work at one shell midden revealed the potential for recovery of structural data, subsistence remains, and radiocarbon data --

all still central issues in Middle Woodland research today. For all of these research opportunities -- all of these resources -- to be found on one tract is uncommon to say the least.

A series of 10 "areas" were defined on the basis of sub-surface remains, surface collections, and associated above ground features. These areas are briefly recounted in Table 2 and most are associated with the property's eighteenth or nineteenth century historic occupation, although several date from the prehistoric period. A management decision, in consultation with the S.C. Institute of Archaeology and Anthropology, was made to classify all of these sites under the initial site form, 38CH69, for Fort Johnson. This prevented the further proliferation of site numbers on the tract, the concurrent problems associated with site boundaries and especially multiple components with different boundaries.

At some levels this approach may also help simplify assessment for the purposes of compliance with either federal or state cultural resources/historic preservation acts. Since all 90 acres of the Fort Johnson facility were placed on the National Register in 1972, the issue becomes not whether a site is eligible for inclusion on the National Register, but rather whether a particular area or feature is a contributing resource. It also encourages a more wholistic approach to cultural resource management, emphasizing that the entire facility is listed on the National Register.

In spite of the survey intensity, it quickly became obvious that the complexity of Fort Johnson's resources would preclude simple answers to some management questions. For example, while the survey isolated areas of special concern or which evidenced concentrations of cultural remains, it could not consistently identify if a relatively small area was "free" of cultural materials. What this means is that while this study offers exceptional potential for managing cultural resources, identifying areas where construction activities will almost certainly cause damage to the cultural resources, it is potentially less useful in certifying that small construction projects will have no impact in areas where the density of remains *seems* lower. In other words, the study clearly reveals where remains *are*, although it is less

accurate in forecasting where they aren't.

### Architectural Findings

The "above ground" sites on Fort Johnson consist of both traditional standing architecture and also the various earthworks and remnant fortifications, perhaps best classified as engineering features. Both, however, contribute to the richness of Fort Johnson, providing unique preservation opportunities.

The Marshlands House, while not original to Fort Johnson is certainly an architectural jewel representing what Stoney has described as "lavish and excellently executed" gouge work, as well as excellent examples of more formal Adam enrichments. Although preservation at its original location, complete with a historic context and archaeological remains, would have been decidedly more appropriate, its relocation is nevertheless a success story. Likewise the powder magazine is a very early structure, likely dating to construction around 1812 and offers an equally important standing feature for interpretation of the site and its history. The quarantine officer's house, while only recognized during this study as an architectural resource, is certainly as important as the other structures in its own right. Representing low country vernacular construction, the house was apparently constructed by the City of Charleston and the State of South Carolina sometime in the 1880s. It represents, as far as can be determined, the only surviving example of this type of facility in South Carolina. There are also examples of standing architecture on Fort Johnson which require further evaluation, such as the warehouses just north of the original quarantine hospital.

Unfortunately, not all of the original architecture at Fort Johnson has been preserved, or has been preserved sensitively. For example, the "H" shaped hospital has been so extensively modified with laboratory additions that it no longer represents an architecturally significant resource. Even at the time of this study, a small office building, likely associated with the pre-1906 quarantine station, was being dismantled, refabricated, enlarged, and reconstructed, totally destroying its architectural integrity and significance (as well as damaging below ground archaeological remains and threatening the

associated Civil War earthworks). The quarantine officer's house is being modified or "rehabilitated" using non-preservation methods which may result in devaluing its architectural significance.

The earthworks have fared little better. Some have been extensively damaged by erosion, others have been leveled for fill dirt, and still others have been damaged by construction of the wastewater treatment facility and the "rehabilitation" of an late nineteenth century structure. Those which remain, forming four concentrations or clusters, are impressive and of clear importance. They include the Civil War shore battery, largely destroyed by erosion; the eastern and southern battery, largely intact and also dating from the Civil War; the Civil War battery south of the NOAA building; and portions of an eighteenth century earthwork crossing Fort Johnson Road.

### Identification of Significant Areas

All three sources of data -- the historical research, the archaeological survey, and the architectural features -- must be considered in evaluating significance. Figure 62 provides a graphic representation of those areas on the facility which evidence significant cultural remains.

Insofar as such generalized representations are useful for management decisions, those areas shown as having a high level of cultural significance should be protected from any future development activities. In these areas the cultural remains are so dense, or complex, that archaeological recovery would not only be expensive and time consuming, but the excavation of the sites would perhaps not best serve the public. Instead, these areas offer an exceptional opportunity for historic site interpretation and public involvement in the history and heritage of Fort Johnson.

Those areas shown as having a moderate level of cultural significance should not be developed without additional archaeological survey and, most likely, data recovery. In some areas the data recovery may be costly and/or time consuming. However, the resources involved are primarily important for the information they contain and can be satisfactorily recovered, given adequate funding and time. Even here, however,

HISTORIC STRUCTURE  
 MODERN STRUCTURE

High Level of Cultural Significance.  
 Area should be protected from any future  
 development or disturbance.

Moderate Level of Cultural Significance.  
 Not suitable for future development or disturbance  
 without additional survey and/or data recovery.

Low Level of Cultural Significance.  
 Suitable for development after appropriate regulatory review.

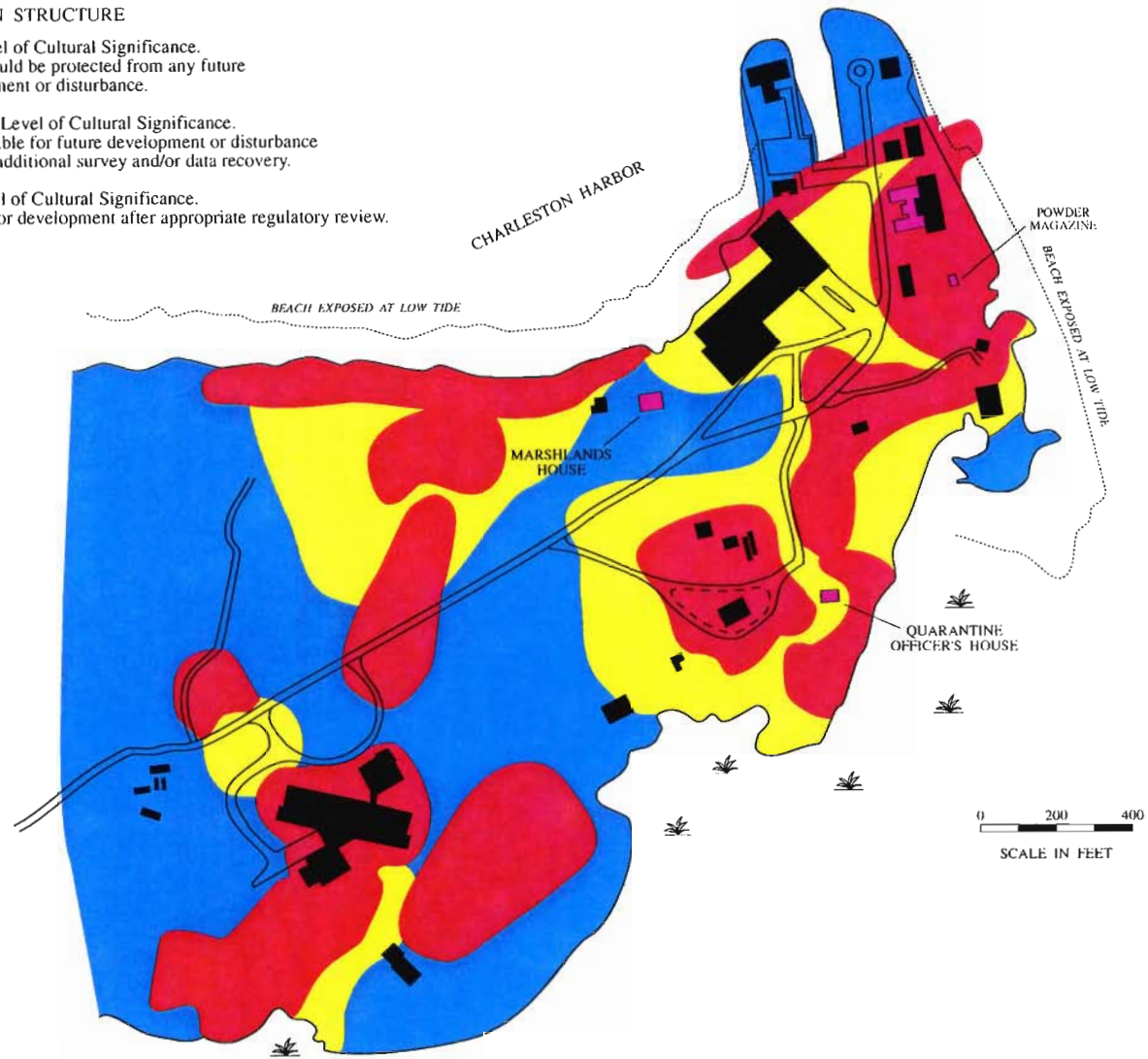


Figure 62. Map showing areas of anticipated high, moderate, and low cultural significance on the Fort Johnson tract.

every possible effort should be made to avoid use of these areas, allowing the sites instead to be "banked" or preserved for future research.

Those areas shown as having a low level of cultural significance can likely be developed with little or no additional archaeological investigation. The current survey level suggests that cultural remains are either very sparse in these areas or that they have been so thoroughly disturbed as to no longer retain the level of integrity necessary to address significant research questions.

Some areas are also shown on the map as having been developed, such as building sites, roads, and other heavily impacted areas. Continued use or maintenance of these areas will not likely affect any cultural resources, however, expansion of existing facilities, even by seemingly small proportions, may result in the additional loss of cultural resources.

#### **Re-evaluation of Goals**

The goals previously established for this project largely have been achieved. The primary goals of site identification and evaluation, coupled with an evaluation of site loss, have been met. Although this management document focuses on "areas" of activity, as opposed to the more conventional concept of "site," concentrations of activities and cultural remains were clearly identified and assessed as either contributing or non-contributing resources within the context of the existing National Register nomination. Further, this study has briefly illustrated areas of cultural resource loss, not in an effort to assess blame, but to point out the extraordinary importance of this site and the need for responsible resource management. Losses to South Carolina's heritage are not recoverable. This is a unique site which requires special attention and consideration.

The secondary goals included examination of the military sites at Fort Johnson, identification of early eighteenth century settlements on the tract, and explore Native American settlement. The archival research clearly documents, even at this preliminary stage, the importance of Fort Johnson as a military post. A summary of these findings have been previously discussed. In addition, this study also reveals that the tract has a rich history

as both an Engineer's Office and later as a quarantine station. There is little historical or archaeological documentation for either type of facility, further supporting careful preservation and management of Fort Johnson. Identification of early eighteenth century sites was less successful. In fact, while a few isolated early eighteenth century artifacts were recovered, there are no assemblages which suggest the plantation development of William Russell or John King. There are several equally likely explanations for this missing assemblage. Settlements in this area, judging from mid- to late-eighteenth century maps, tended to occur relatively close to the harbor shore. The Windmill Point settlement may therefore have been lost to erosion. It is also possible that the relatively brief settlement, at most only extant for 14 years, may have been "swamped" by the later "developments," losing clear recognition. It is also likely that any structures present would have been at least temporarily adopted by the military, perhaps for officer's quarters. While unrecognizable at the survey level, it is possible that detailed excavations will eventually identify the early settlements on Windmill Point.

Native American settlement on the point seems limited. This, coupled with the presence of only one soil series, served to limit our research in this area. However, it became quickly evident that Native American settlements avoided the harbor side in favor of the more protected marsh frontage. South and Widmer previously observed that prehistoric settlements incorporated both the sand ridges and the intervening troughs, so similar findings by this study are by no mean "new" data (although independent confirmation at slightly different locations more strongly supports the assertion that this is not a unique situation).

#### **Essential Management Actions**

Fort Johnson represents a unique resource to the State of South Carolina. Its custodians bear a singular responsibility, holding this site in public trust. In the past the cultural resources have not always received appropriate care or consideration. The wastewater treatment facility was constructed in the midst of the Civil War fortifications at the very site of the July 1864 battle. The construction of the NOAA building destroyed a number of Civil War encampments, despite assurances that the

sites would be avoided. The NOAA building even damaged or destroyed an African American cemetery, with no effort to locate or remove the graves made during the construction. An office building associated with the quarantine station has been so totally altered that it no longer possesses any integrity or significance.

One of the first essential steps for the management of historic resources anywhere, including those at Fort Johnson, is for the managers to better understand the nature, and implications, of preservation. America's foremost architectural historian, Vincent Scully, described the preservation movement as "the only mass popular movement to affect critically the course of architecture [and history in general] in our century." Coming from seemingly out of nowhere during the 1970s and 1980s, it was a quiet, populist revolution. As Brand observes, one central element was that, "people *liked* old buildings, and professionals who couldn't get along with that could find another line of work" (Brand 1994:88).

But the importance of the movement was greater than simply that people liked old buildings and it covered much more territory than simply architectural sites. Preservation incorporated a philosophy of time and responsibility for resources -- such as those at Fort Johnson -- and it recognized that these resources embody our history. As the cultural historian Ivan Illich has remarked, "History gives us distance from the present, as if it were the future of the past. In the spirit of contemplation it releases us from the prison of the present to examine the axioms of our time."

Through time it has become increasingly apparent that archaeological, historical, and architectural sites all offer exceptional economic potential -- they have the ability to promote heritage based tourism. They provide an additional dimension -- Fort Johnson is not only fisheries research, it is also history. Under pressure from preservationists, economists have begun to understand that historic sites, like forests, are best appraised as possessing *intergenerational equity*.

There are a number of courses which are designed to help site managers better understand

the significance, and fragility, of archaeological and historical resources. The Division of Continuing Education at the University of Nevada, Reno, for example, offers courses such as "Archaeology for Managers," "Cultural Resource Protection and the Law," and "Public Presentations About the Past," while the National Park Service offers courses such as "Introduction to Federal Projects and Historic Preservation Law." All of these may be helpful to those with the responsibility to manage the archaeological and historical resources present at Fort Johnson.

This study has identified a range of additional steps which should be taken to ensure the long-term preservation of these resources. Each issue is briefly presented below in bold type, followed by the recommended action or actions in italics. Since the goal of this survey was not the creation of a detailed preservation plan, these essential management actions are presented in only a generalized format.

**1. It is essential that all management level staff at Fort Johnson recognize the significance of the site and the legal obligation to protect these resources.** Preservation, to be taken serious by support staff, must be seen as having the support of the very highest levels of administration. *Actions to ensure that the importance of Fort Johnson is recognized may include circulation of this study, incorporation of cultural resource issues in staff meetings, and a memorandum to all staff. A staff meeting which involves the S.C. State Historic Preservation Office should be conducted on site to acquaint upper level management with their legal obligations to protect and preserve Fort Johnson's cultural resources.*

**2. It is equally essential that all staff recognize their part in helping to preserve and protect Fort Johnson.** Many times the actions of bulldozer operations or janitorial staff can help or hinder preservation efforts and they must be incorporated in the preservation loop. *The small Fort Johnson brochure previously prepared by Chicora Foundation should be distributed to all current and new staff of the facility. As additional preservation steps are implemented they should be explained to the staff, not simply mandated.*

**3. Steps should be taken to ensure that the cultural resources at Fort Johnson are not damaged by routine maintenance or research activities.** Many seemingly normal activities, such as parking, use of historic buildings, or laying of new utility lines, can cause irreparable damage to the cultural resources. *Immediate actions should include limiting parking to within 50 feet of historic resources such as earthworks and buildings, removal of all stored materials from within the powder magazine, and establishing a clearinghouse for all ground disturbing activities, no matter how small or insignificant they may seem to be. Another immediate action should be an evaluation of all rehabilitation actions currently underway at Fort Johnson. In particular, it is important that electrical contracting at the quarantine officer's house integrate more sensitive preservation approaches. Moderate-term actions (i.e., actions to be undertaken within the next three to six months) should include the development of a proactive maintenance plan for the historic structures on Fort Johnson and an evaluation of maintenance and preservation needs by an architectural conservator such as George Fore and Associates.*

**4. Steps should be taken to ensure that the resources at Fort Johnson are protected from looters, metal detector enthusiasts, and other collectors.** The cultural resources at Fort Johnson belong to all members of the public, but are held in trust by the SCDWMR. As custodians of this resource it is essential that steps be taken to ensure that these resources are not lost to looters and those using metal detectors. The administration must realize that Civil War "relics" are valuable commodities. Some buttons, for example, will easily bring \$200 on the open market. The looting of Fort Johnson's cultural resources involves not only trespass, but also destruction of state property. *An immediate action is to advise all staff members, by memo, that anyone observed digging or using a metal detector on the grounds should be immediately reported to security. SCDWMR Law Enforcement Officers should be acquainted with the importance of Fort Johnson and enlisted to assist in site protection. Through time signage may be an appropriate action, but this should be further evaluated in light of other recommendations below.*

**5. Fort Johnson should develop plans to**

**help protect cultural resources from man-made and natural disasters and to ensure that recovery efforts are appropriate and do not cause additional damage.** The planning should incorporate archaeological sites, standing structures, and landscape features. It should receive administrative support, including adequate staff time and financial resources to ensure its success. *An immediate step should include forming a disaster preparedness committee with the authority to proceed in the planning. A workable plan should require no more than 3 months to prepare, review, and implement. Part of this committee's responsibility should be an evaluation of security needs, especially fire detection systems. for the standing historic structures.*

**6. Fort Johnson is a unique historical property and steps should be taken to interpret that history for both staff and visitors.** While Fort Johnson is not a historical park, and likely will never become one, the uniqueness and significance of its historical resources cannot be ignored. Interpretation of these resources for the staff, the occasional visitor, and those specifically interested in its history (for example, the Civil War battle site tourist) will ensure that the public has access to that history and will also promote a greater awareness of its significance to South Carolina. *A minimal level of interpretation involves three steps. The first is to ensure that historic sites, structures, and features are well cared for and offer an appropriate image to the public. This includes, for example, ensuring that the standing structures have preventative (not deferred) maintenance and that all work is done according to strict preservation standards. It includes keeping landscape features accessible and open for public visitation. The powder magazine should no longer be used for storage, but should be opened for the public. The second step is to ensure that the public has some brief historical account of Fort Johnson, the buildings, and the archaeological sites. Something similar to Chicora's brochure would be appropriate. This should be available at different offices and from a protected interpretative display at the front gate. The third step is to create interpretative signage at major features, including the NOAA building to commemorate the African American cemetery, the martello tower, the Civil War earthworks, and the powder magazine.*

**7. Portions of Fort Johnson continue to be eroded and protective steps must be taken.** Of particular concern is the erosion to the Charleston Harbor side of the facility and the loss of the Civil War earthworks. *Fort Johnson should investigate the responsibility of the Army Corps of Engineers to protect the facility's cultural resources from erosion created by maintenance and use of the harbor. Regardless of responsibility, steps should be taken to develop and implement an erosion control program to protect the threatened cultural resources.*



## SOURCES

- Allston, R.F W  
 1854 *Essay on Sea Coast Crops*. A.E. Miller, Charleston.
- Anderson, David G.  
 1975 *Inferences from Distributional Studies of Prehistoric Artifacts in the Coastal Plain of South Carolina* *Southeastern Archaeological Conference Bulletin* 18:180-194.
- 1979 *Excavations at Four Fall Line Sites: The Southeastern Beltway Project* Commonwealth Associates, Inc., Jackson, Michigan. Submitted to the South Carolina Department of Highways and Public Transportation, Columbia.
- 1985 *Middle Woodland Societies on the Lower South Atlantic Slope: A View from Georgia and South Carolina*. *Early Georgia* 13:29-66.
- Anderson, David G., Charles E. Cantley, and A. Lee Novick  
 1982 *The Mattassee Lake Sites: Archaeological Investigations Along the Lower Santee River in the Coastal Plain of South Carolina*. Commonwealth Associates, Inc., Jackson, Michigan. Submitted to National Park Service, Archaeological Services Branch, Atlanta.
- Anderson, David G. and Joseph Schuldenrem (editors)  
 1985 *Prehistoric Human Ecology Along the Upper Savannah River: Excavations at the Rucker's Bottom, Abbeville and Bullard Site* Commonwealth Associates, Inc., Jackson, Michigan. Submitted to National Park Service, Archaeological Services Branch, Atlanta.
- Andrus, Patrick W  
 1992 *Guidelines for Identifying, Evaluating, and Registering America's Historic Battlefields*. National Register Bulletin 40. National Park Service, Interagency Resources Division, Washington, D.C.
- Anonymous  
 n.d. *Proposal for Archaeological and Historic Research at the Site of Fort Johnson, Charleston County, South Carolina Presented to the South Carolina Wildlife Resources Department and the College of Charleston*. S.C. Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- Barlow, A.R.  
 1899 *Company G. A Record of Services of One Company of the 157th N.Y Volunteers in the War of the Rebellion*. A.W Hall, Syracuse.
- Bense, Judith A., Hester A. Davis, Lorraine Heartfield, and Kathleen Deagan  
 1986 *Standards and Guidelines for Quality Control in Archaeological Resource Management in the Southeastern United States*. *Southeastern Archaeology* 5:52-62.
- Blanton, Dennis B., Christopher T Espenshade, and Paul E. Brockington, Jr.  
 1986 *An Archaeological Study of*

- 38SU83: *A Yadkan Phase Site in the Upper Coastal Plain of South Carolina*. Garrow and Associates, Atlanta. Submitted to South Carolina Department Highways and Public Transportation, Columbia.
- Brand, Stewart  
1994 *How Buildings Learn: What Happens After They're Built*. Viking, New York.
- Brooker, Colin  
1991 Callawassie Island Sugar Works: A Tabby Building Complex. In *Further Investigations of Prehistoric and Historic Lifeways on Callawassie and Spring Islands, Beaufort County, South Carolina*. Edited by Michael Trinkley, pp. 110-154. Research Series 23. Chicora Foundation, Inc., Columbia.
- Brooks, Mark and Glen Hanson  
1987 Late Archaic-Late Woodland Adaptive Stability and Change in the Steel Creek Watershed, South Carolina, draft. Ms. on file, Savannah River Archaeological Research Project, South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- Brooks, Mark, D.J. Colquhoun, J.G. Brown, and P.A. Stone  
1989 Sea Level Change, Estuarine Development and Temporal Variability in Woodland Period Subsistence-Settlement Patterning on the Lower Coastal Plain of South Carolina. In *Studies in South Carolina Archaeology*, edited by Albert C. Goodyear and Glen T. Hanson, pp. 91-100. Anthropological Studies 9 South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- Brooks, Mark, Larry Lepionka, Ted A. Rathbun, and John Goldsborough, Jr.  
198 *Preliminary Archaeological Investigations at the Callawassie Island Burial Mound (38BU19), Beaufort County, South Carolina*. Research Manuscript Series 185. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- Burton, E. Milby  
1970 *The Siege of Charleston, 1861-1865* University of South Carolina Press, Columbia.
- Burn, Marion L., Jr.  
1987a The U.S. Quarantine Station, Fort Johnson, James Island, S.C. 1937-1948. Ms. on file, S.C. Department of Wildlife and Marine Resources, Charleston.  
1987b The U.S. Quarantine Station, Fort Johnson, James Island, S.C. 1939-1955. Ms. on file, S.C. Department of Wildlife and Marine Resources, Charleston, South Carolina.
- Butler, William B.  
1987 Significance and Other Frustrations in the CRM Process. *American Antiquity* 52:820-829.
- Caldwell, Joseph R.  
1943 *Cultural Relations of Four Indian Sites of the Georgia Coast*. Unpublished Master's thesis, Department of Anthropology, University of Chicago, Chicago.  
1958 *Trend and Tradition in the Prehistory of the Eastern United States*. *Memoirs of the American Anthropological Association* 88.  
1971 Chronology of the Georgia Coast. *Southeastern Archaeological Conference Bulletin* 13:88-92.

- Caldwell, Joseph R. and Catherine McCann  
1940 Semi-Annual Report on the Excavations in Chatham County. Ms. on file, Chicora Foundation, Inc., Columbia.
- Calhoun, Jeanne A.  
1983 *The Scouring Wrath of God: Early Hurricanes in Charleston, 1700-1804* Leaflet 29 The Charleston Museum, Charleston, South Carolina.
- Cantu, Mona and Jo Ann Allen  
1981 38CH71. *A Forensic Case Study*. Ms. on file, Chicora Foundation, Inc., Columbia.
- Coclanis, Peter A.  
1989 *The Shadow of a Dream: Economic Life and Death in the South Carolina Low Country 1670-1920* Oxford University Press, New York.
- Coe, Joffre L.  
1964 *The Formative Cultures of the Carolina Piedmont*. Transactions of the American Philosophical Society 54(5).
- Cohen, Ethel M.  
n.d. *Quarantine*. Ms. on file, WPA files, South Caroliniana Library, C-3-16.
- Cooke, C. Wythe  
1936 *Geology of the Coastal Plain of South Carolina*. Bulletin 867 U.S. Geological Survey, Washington, D.C.
- Cooper, Thomas  
1837 *South Carolina Statutes*, vol. 2. A. S. Johnson, Charleston, South Carolina.  
1838 *South Carolina Statutes*, vols. 3 and 4. A.S. Johnson, Charleston, South Carolina.
- Copp, Eldridge J.  
1911 *Reminiscences of the War of the Rebellion 1861-1865*. Telegraph Publishing, Nashua, New Hampshire.
- Courtenay, W.A.  
1883 *The Centennial of the Incorporation of Charleston. Charleston Year Book, 1883*. Charleston, South Carolina.
- Dawson, William Forrest, editor  
1957 *A Civil War Artist at the Front, Edwin Forbes' Life Studies of the Great Army*. Oxford University Press, New York.
- DePratter, Chester  
1979 Ceramics. In *The Anthropology of St. Catharines Island 2. The Refuge-Deptford Mortuary Complex*, edited by David H. Thomas and Clark S. Larsen, pp. 109-132. *Anthropological Papers of the American Museum of Natural History* 56(1).  
1985 *The Dunlap Site: A Woodland Occupation on the Pee Dee River*. Paper presented at the Eleventh Annual Conference on South Carolina Archaeology, Columbia.
- DePratter, Chester and J.D. Howard  
1980 *Indian Occupation and Geological History of the Georgia Coast: A 5,000 Year Summary In Excursions in Southeastern Geology*, edited by James D. Howard, Chester B. DePratter, and Robert W. Frey, pp. 1-65. Guidebook 20. Geological Society of America, Atlanta.
- DeVorse, Louis, Jr., editor  
1971 *DeBrahm's Report of the General Survey in the Southern District of North America*. University of South Carolina Press, Columbia.

- Drucker, Lesley and Ronald W Anthony  
1978 *An Archaeological Reconnaissance of the Lake City Wastewater Treatment Improvements Project.* Carolina Archaeological Services, Columbia.
- Drucker, Lesley and Susan H. Jackson  
1984 *Shell in Motion: An Archaeological Study of the Minum Island National Register Site, Georgetown County, South Carolina* Carolina Archaeological Services, Columbia. Submitted to Charleston District, U.S. Army Corps of Engineers, Charleston, South Carolina.
- Easterby, J.H.  
1951 *Journal of the Commons House of Assembly of South Carolina, November 10, 1736-June 7, 1739* Historical Commission of South Carolina, Columbia.  
1952 *Journal of the Commons House of Assembly of South Carolina, September 12, 1739-March 26, 1741* Historical Commission of South Carolina, Columbia.  
1954 *Journal of the Commons House of Assembly of South Carolina, September 14, 1742-January 27, 1744* S.C. Department of Archives and History, Columbia.  
1955 *Journal of the Commons House of Assembly of South Carolina, February 20, 1744-May 25, 1745.* S.C. Department of Archives and History, Columbia.  
1956 *Journal of the Commons House of Assembly of South Carolina, September 10, 1745-June 17, 1746.* S.C. Department of Archives and History, Columbia.  
1962 *Journal of the Commons House of Assembly of South Carolina,*
- March 28, 1749-March 19, 1750. S.C. Department of Archives and History, Columbia.
- Edgar, Walter B. (editor)  
1972 *The Letterbook of Robert Pringle.* 2 vols. University of South Carolina Press, Columbia.
- Espenshade, Christopher T and Paul E. Brockington  
1989 *An Archaeological Study of the Minum Island Site: Early Woodland Dynamics in Coastal South Carolina.* Brockington and Associates, Atlanta. Submitted to U.S. Army Corps of Engineers, Charleston District, Charleston.
- Espenshade, Christopher T., Linda Kennedy, and Bobby G. Southerlin  
1993 *What Is A Shell Midden? Data Recovery Excavations of Thom's Creek and Deptford Shell Middens, 38BU2, Spring Island, South Carolina.* Brockington and Associates, Inc., Atlanta.
- Ferguson, Leland G.  
1971 *South Appalachian Mississippian.* Unpublished Ph.D. dissertation, University of North Carolina. University Microfilms, Ann Arbor.  
1976 *An Archaeological Survey of a Fall Line Creek: Cane Creek Project, Richland County, South Carolina.* Research Manuscript Series 94. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- Garrow, Patrick H.  
1975 *The Woodland Period North of the Fall Line. Early Georgia* 3(1):17-26.
- Glassow, Michael A.  
1977 *Issues in Evaluating the*

- Significance of Archaeological Resources. *American Antiquity* 42:413-420.
- Goodyear, Albert C., John H. House, and Neal W Ackerly  
 1979 *Laurens-Anderson An Archaeological Study of the Inter-Riverine Piedmont* Anthropological Studies 4. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- Hacker-Norton, Debi and Michael Trinkley  
 1984 *Remember Man Thou Art Dust: Coffin Hardware of the Early Twentieth Century*. Research Series 2. Chicora Foundation, Inc., Columbia.
- Hammond, Henry  
 1884 Report on Cotton Production of the State of South Carolina. In *Report on the Cotton Production in the United States*, edited by Eugene W Hilgard, pp. 451-526. Census Office, Department of the Interior, Washington, D.C.
- Hanson, Glen T., Jr.  
 1982 The Analysis of Late Archaic-Early Woodland Adaptive Change Along the Middle Savannah River: A Proposed Study. *South Carolina Institute of Archaeology and Anthropology Notebook* 14:1-38.
- Hemphill, William E.  
 1960 *Extracts from the Journals of the Provincial Congresses of South Carolina: 1775-1776* S.C. Department of Archives and History, Columbia.
- Hilliard, Sam B.  
 1972 *Hog Meat and Hoecake: Food Supply in the Old South, 1840-1860*. Southern Illinois University Press, Carbondale.
- 1984 *Atlas of Antebellum Southern Agriculture*. Louisiana State University, Baton Rouge.
- Horlbeck, H.B.  
 1890 *Maritime Sanitation at Ports of Arrival*. In *City of Charleston Year - 1890*, pp. 135-158. Walker, Evans & Cogswell, Charleston, South Carolina.
- 1891 *Maritime Sanitation at Ports of Arrival*. Republican Press, Concord, New Hampshire.
- Huneycutt, Dwight J.  
 1949 *The Economics of the Indigo Industry in South Carolina*. Unpublished M.A. Thesis, Department of Economics. University of South Carolina, Columbia.
- Ivers, Larry E.  
 1970 *Colonial Forts of South Carolina, 1670-1775*. University of South Carolina Press, Columbia.
- Johnson, A. Sidney, H.O. Hillstad, S.F Shanholtzer, and G.F Shanholtzer  
 1974 *An Ecological Survey of the Coastal Region of Georgia*. National Park Service Scientific Monograph Series 3 Washington, D.C.
- Johnson, Joseph  
 1851 *Traditions and Reminiscences Chiefly of the American Revolution in the South*. Walker and James, Charleston, South Carolina.
- Kay, Gersil Newmark  
 1991 *Mechanical and Electrical Systems for Historic Buildings*. McGraw-Hill, New York.
- Keith, Willis J.  
 1975a Fort Johnson. *Civil War Times Illustrated* 14:32-39

- 1975b The Marshlands House. Ms. on file, S.C. Department of Wildlife and Marine Resources, Charleston, South Carolina.
- 1984 Martello Tower Ruins. Ms. on file, S.C. Department of Wildlife and Marine Resources, Charleston, South Carolina.
- Kjerfve, Bjorn  
1975 Climatology of Kiawah Island. In *Environmental Inventory of Kiawah Island*, edited by William M. Campbell and John Mark Dean, pp. C-1 - C-34. Environmental Research Center, Inc., Columbia.
- Kutz, Herman and Kenneth Wagner  
1957 *Tidal Marshes of the Gulf and Atlantic Coasts of Northern Florida and Charleston, South Carolina*. Studies 24. Florida State University, Tallahassee.
- Larsen, Clark Spencer and David Hurst Thomas  
1982 *The Anthropology of St. Cathernes Island 4. The St. Cathernes Phase Mortuary Complex* Anthropological Papers 57(4). The American Museum of Natural History, New York.
- Lebby, Robert  
1872 *Annual Report of Quarantine Operations on the Coast of South Carolina for the Year Ending October 31st, 1872*. Ms. on file, South Caroliniana Library, Columbia.
- 1911 The First Shot on Fort Sumter. *South Carolina Historical and Genealogical Magazine* 12:141-145.
- Lefler, Hugh T (editor)  
1967 *Lawson's A New Voyage to Carolina*. University of North Carolina Press, Chapel Hill.
- Legg, James B. and Steven D Smith  
1989 "The Best Every Occupied..." *Archaeological Investigations of a Civil War Encampment on Folly Island, South Carolina*. Research Manuscript Series 209 S.C. Insitute of Archaeology and Anthropology, University of South Carolina, Columbia.
- Legg, James B., Christopher T Espenshade, and Lynn M. Snyder  
1991 *Camp Baurd: Archaeological and Historical Investigations of the Autumn 1864 Camp of the 32nd US Colored Infantry, Hilton Head Island, South Carolina* Brockington and Associates, Inc., Atlanta.
- Lepionka, Larry, Donald Colquhoun, Rochelle Marrinan, David McCollum, Mark Brooks, John Foss, William Abbott, and Ramona Grunden  
1983 *The Second Refuge Site, Location 22 (38JA61), Savannah National Wildlife Refuge, Jasper County, South Carolina*. University of South Carolina, Beaufort. Submitted to National Park Service, Inter-agency Archaeological Services, Atlanta.
- Lipscomb, Terry W  
1991 *The Carolina Lowcountry, April 1775-June 1776*. S.C. Department of Archives and History, Columbia.
- 1993 *South Carolina in 1791. George Washington's Southern Tour* S.C. Department of Archives and History, Columbia.
- Ludlum, D.M.  
1963 *Early American Hurricanes, 1492-1870* American Meteorological Society, Boston.
- Lynch, P.N., J.F.M. Geddings, and C.U Shepard  
1882 *Artesian Wells - 1823-1879 Yearbook - City of Charleston*. Charleston, South Carolina.

- Mathew, William M.  
 1992 *Agriculture, Geology, and Society in Antebellum South Carolina: The Private Diary of Edmund Ruffin, 1843*. University of Georgia Press, Athens.
- Mathews, Thomas D., Frank W Stapor, Jr., Charles R. Richter, John V Miglarese, Michael D. McKenzie, and Lee R. Barclay  
 1980 *Ecological Characterization of the Sea Island Coastal Region of South Carolina and Georgia*, vol. 1. Office of Biological Services, Fish and Wildlife Service, Washington, D.C.
- Michie, James L.  
 1980 *An Intensive Shoreline Survey of Archaeological Sites in Port Royal Sound and the Broad River Estuary, Beaufort County*. Research Manuscript Series 167. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- Milanich, Jerald T  
 1971 *The Deptford Phase: An Archaeological Reconstruction*. Ph.D. dissertation, University of Florida. University Microfilms, Ann Arbor.
- Milanich, Jerald T and Charles H. Fairbanks  
 1980 *Florida Archaeology*. Academic Press, New York.
- Miller, E.N., Jr.  
 1971 *Soil Survey of Charleston County, South Carolina*. U.S.D.A., Soil Conservation Service, Washington, D.C.
- Miller, George L.  
 1980 Classification and Economic Scaling of 19th Century Ceramics. *Historical Archaeology* 14:1-40.  
 1991 A Revised Set of CC Values for Classification and Economic Scaling of English Ceramics from 1787 to 1880. *Historical Archaeology* 25:1-25.
- Mills, Robert  
 1972 *Statistics of South Carolina*. Reprinted. The Reprint Press, Spartanburg, South Carolina. Originally published 1826, Hurlbut and Lloyd, Charleston, South Carolina.
- Morgan, Robert T  
 1993 The Effects of Hurricane Hugo on the Cultural Resources in the Francis Marion National Forest. In *Site Destruction in Georgia and the Carolinas*, edited by David G. Anderson and Virginia Horak, pp 32-38. Interagency Archaeological Services Division, National Park Service, Atlanta.
- Mustard, Harry S.  
 1963 On the Building of Fort Johnson. *South Carolina Historical Magazine* 64:129-135.
- Noel Hume, Ivor  
 1970 *A Guide to Artifacts of Colonial America*. Alfred A. Knopf, New York.
- Peterson, Drexel  
 1971 *Time and Settlement in the Archaeology of Groton Plantation, South Carolina*. Unpublished Ph.D. dissertation, Department of Anthropology, Harvard University, Cambridge.
- Phelps, David S.  
 1983 Archaeology of the North Carolina Coast and Coastal Plain: Problems and Hypotheses. In *The Prehistory of North Carolina: An Archaeological Symposium*, edited by Mark A. Mathis and Jeffrey J. Crow, pp. 1-51. North Carolina Division of Archives and History,

Raleigh.

Printing, Columbia.

Preservation Consultants

- 1989 *James Island and Johns Island Historical and Architectural Inventory* Preservation Consultants, Charleston, South Carolina.
- Price, Cynthia  
1979 *19th Century Ceramics in the Eastern Ozark Border Region*. Monograph Series 1. Center of Archaeological Research, Southwest Missouri University, Springfield.
- Roberts, Wayne D and Olga M. Caballero  
1988 *Archaeological Test Excavations at Site 38BK984, Berkeley County, South Carolina*. South Carolina Department of Highways and Public Transportation, Columbia.
- Rosen, Robert N.  
1982 *A Short History of Charleston*. Lexikos, San Francisco.
- Salley, A.S.  
1915 *Warrants for Land in South Carolina, 1692-1711* S.C. Department of Archives and History, Columbia.
- Salley, A.S. editor  
1944 *Journal of the Commons House of Assembly of South Carolina, June 2, 1724-June 16, 1724* General Assembly of South Carolina, Columbia.  
1945 *Journal of the Commons House of Assembly of South Carolina, November 1, 1725-April 30, 1726*. General Assembly of South Carolina, Columbia.  
1946 *Journal of the Commons House of Assembly of South Carolina, November 15, 1726-March 11, 1726/7* State Commercial
- Sandifer, Paul A., John V Miglarese, Dale R. Calder, John J. Manzi, and Lee A. Barclay  
1980 *Ecological Characterization of the Sea Island Coastal Region of South Carolina and Georgia*, vol. 3. Office of Biological Services, Fish and Wildlife Service, Washington, D.C.
- Sassaman, Kenneth E., Jr.  
1993 *Early Pottery in the Southeast: Trend and Innovation in Cooking Technology* University of Alabama Press, University, Alabama.
- Sassaman, Kenneth E., Mark J. Brooks, Glen T Hanson, and David G. Anderson  
1990 *Native American Prehistory of the Middle Savannah River Valley: A Synthesis of Archaeological Investigations on the Savannah River Site, Aiken and Barnwell Counties, South Carolina*. Savannah River Archaeological Research Papers 1. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- Scurry, James and Mark Brooks  
1980 *An Intensive Archaeological Survey of the South Carolina State Ports Authority's Bellview Plantation, Charleston County, South Carolina*. Research Manuscript Series 157 South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- Seabrook, Whitemarsh B.  
1848 *An Essay on the Agricultural Capabilities of South Carolina*. John G. Bowman, Columbia.
- Sherfy, Marcella and W Ray Luce  
n.d. *Guidelines for Evaluating and Nominating Properties That Have*



- Achieved Significance Within the Last Fifty Years*. National Register Bulletin 22. National Park Service, Interagency Resources Division, Washington, D.C.
- South Carolina Water Resources Commission  
1973 *Wando River Environmental Quality Studies, An Interim Report*. Columbia.
- South, Stanley  
1960 An Archaeological Survey of Southeastern North Carolina. Ms. on file, Research Laboratories of Anthropology, University of North Carolina, Chapel Hill.
- 1974 *An Archaeological Survey of An Area of Fort Johnson*. Research Manuscript Series 62. S.C. Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- 1975a A Research Design for Preliminary Archaeological Field Study at the Site of the Southeastern Utilization Research Center (38CH275) at Fort Johnson, South Carolina. Ms. on file, S.C. Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- 1975b *Fickle Forts on Windmill Point: Exploratory Archaeology at Fort Johnson, South Carolina*. Research Manuscript Series 81. S.C. Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- 1975c *Preliminary Assessment of the Site of the Southeastern Utilization Research Center and the Waste Treatment Plant at Fort Johnson, South Carolina*. Research Manuscript Series 79. S.C. Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- 1977 *Method and Theory in Historical Archaeology*. Academic Press, New York.
- South, Stanley and Randolph Widmer  
1976 *Archaeological Sampling at Fort Johnson, South Carolina (38CH275 and 38CH16)* Research Manuscript Series 93. S.C. Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- Stine, Linda France  
1993 *Site Destruction or Park Construction: Charleston County's Civil War Sites*. In *Site Destruction in Georgia and the Carolinas*, edited by David G. Anderson and Virginia Horak, pp. 49-58. Interagency Archaeological Services Division, National Park Service, Atlanta.
- Stoltman, James B.  
1974 *Groton Plantation An Archaeological Study of a South Carolina Locality*. Monographs of the Peabody Museum 1, Harvard University, Cambridge.
- Stoney, Samuel Gaillard  
1977 *Plantations of the Carolina Low Country* Carolina Art Association, Charleston.
- Stuart, George E.  
1975 *The Post-Archaic Occupation of Central South Carolina*. Ph.D. dissertation, University of North Carolina at Chapel Hill. University Microfilms, Ann Arbor.
- Sutcliffe, Shelia  
1972 *Martello Towers*. David and Charles, Devon, England.

- Thomas, David Hurst and Clark Spencer Larsen  
 1979 *The Anthropology of St. Catherines Island 2. The Refuge-Deptford Mortuary Complex* Anthropological Papers 56(1). The American Museum of Natural History, New York.
- Thompson, Morrow B.  
 1972 *What is an Estuary?* In *Port Royal Sound Environmental Study*, edited by the S.C. Water Resources Commission, pp. 7-15. State Printing, Columbia.
- Townsend, Jan, John H. Sprinkle, Jr., and John Knoerl  
 1993 *Guidelines for Evaluating and Registering Historical Archaeological Sites and Districts.* Bulletin 36. National Park Service, National Register of Historic Places, Washington, D.C.
- Trott, Nicholas  
 1736 *The Laws of the Province of South Carolina.* Charles Town, South Carolina.
- Trinkley, Michael  
 1980a *Investigation of the Woodland Period Along the South Carolina Coast.* Ph.D Dissertation, University of North Carolina at Chapel Hill. University Microfilms, Ann Arbor.
- 1980b *Addinonal Investigations at Site 38LX5* South Carolina Department of Highways and Public Transportation, Columbia.
- 1981a *Archaeological Testing of the Walnut Grove Shell Midden (38CH260), Charleston County.* U.S.D.A., Forest Service, Columbia.
- 1981b *Studies of Three Woodland Period Sites in Beaufort County, South Carolina.* South Carolina Department of Highways and Public Transportation, Columbia.
- 1982 *A Summary Report of the Excavations at Alligator Creek, Charleston County, South Carolina.* U.S.D.A., Forest Service, Columbia.
- 1983 *Ceramics of the Central South Carolina Coast.* *South Carolina Antiquities* 15:43-53.
- 1990 *An Archaeological Context for the South Carolina Woodland Period.* Research Series 22. Chicora Foundation, Inc., Columbia.
- 1993 *Is There A Future for Shell Midden Research.* Research Contribution 118. Chicora Foundation, Inc., Columbia.
- Trinkley, Michael (editor)  
 1991 *Further Investigations of Prehistoric and Historic Lifeways on Callawassie and Spring Islands, Beaufort County, South Carolina.* Research Series 23. Chicora Foundation, Inc., Columbia.
- 1993 *The History and Archaeology of Kiawah Island, Charleston County, South Carolina.* Research Series 30. Chicora Foundation, Inc., Columbia.
- Trinkley, Michael and Natalie Adams  
 1993 *Archaeological Testing at 38BU861, A Middle Woodland Shell Midden on Hilton Head Island, Beaufort County, South Carolina.* Research Contribution 120. Chicora Foundation, Inc., Columbia.
- Tuomey, M.  
 1848 *Report on the Geology of South Carolina.* A.S. Johnson, Columbia.
- Wallace, David Duncan  
 1951 *South Carolina: A Short History,*

1520-1948. University of South  
Carolina Press, Columbia.

Ward, H. Trawick

1978 *The Archaeology of Whites Creek,  
Marlboro County, South Carolina.*  
Research Laboratories of  
Anthropology, University of  
North Carolina, Chapel Hill.

Waring, Joseph I.

1967 *A History of Medicine in South  
Carolina, 1825-1900* S.C. Medical  
Association, Columbia.

Williams, Stephen B. (editor)

1968 *The Waring Papers: The Collected  
Works of Antonio J. Waring, Jr.*  
Papers of the Peabody Museum  
of Archaeology and Ethnology 58.

Wilson, Homes Hogue

1982 *An Analysis of Skeletal Material  
from Bw<sup>o</sup>67, Brunswick County,  
North Carolina.* Unpublished  
Master's thesis, Department of  
Anthropology, University of  
North Carolina, Chapel Hill.

Zierden, Martha A., Lesley M. Drucker, and  
Jeanne Calhoun, editors

1986 *Home Uprver: Rural Life on  
Daniel's Island, Berkeley County,  
South Carolina* Carolina  
Archaeological Services,  
Columbia and The Charleston  
Museum, Charleston. Submitted  
to the South Carolina  
Department of Highways and  
Public Transportation, Columbia.

**Archaeological  
Investigations**

**Historical Research**

**Preservation**

**Education**

**Interpretation**

**Heritage Marketing**

**Museum Support  
Programs**



**Chicora Foundation, Inc.**  
PO Box 8664 • 861 Arbutus Drive  
Columbia, SC 29202-8664  
Tel: 803-787-6910  
Fax: 803-787-6910  
[www.chicora.org](http://www.chicora.org)