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Biscayne National Park
Historic Resource Study

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BISCAYNE NATIONAL PARK

HISTORIC RESOURCE STUDY

January 1998

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Foreword

We are pleased to make available this historic resource study, part of our ongoing effort to provide comprehensive documentation for all the historic structures and landscapes of National Park Service units in the Southeast Region. Following a field survey of park resources and extensive research, the project team updated the park's List of Classified Structures, developed historic contexts, and prepared new National Register of Historic Places documentation. Many individuals and institutions contributed to the successful completion of this work. We would particularly like to thank Biscayne Superintendent Dick Frost and Cultural Resource Specialist Jim Adams for their assistance. We hope that this study will prove valuable to park management and others in understanding and interpreting the historical significance of the park's cultural resources.

Kirk A. Cordell
Chief, Cultural Resources Stewardship
Southeast Support Office
January 1998

CHAPTER ONE: INTRODUCTION

Congress established Biscayne National Park (the Park) in Dade County, Florida, in 1968 to preserve and protect the tropical setting, vegetation, and animal life of Biscayne Bay and the upper Florida Keys. In addition to its natural resources, the Park possesses a vast array of cultural resources: prehistoric sites that provide evidence of aboriginal settlement of the Biscayne Bay region, historic shipwrecks dating from the Spanish exploration of the Americas into the twentieth century, archeological ruins related to nineteenth and early twentieth century homesteading and pioneer settlements, and the buildings and structures from a private resort complex associated with the development of the Miami area as a vacation destination during the first half of the twentieth century.

DESCRIPTION OF BISCAYNE NATIONAL PARK

Biscayne National Park comprises approximately 180,000 acres in Dade County, Florida, just south of Miami. The Park is about 22 miles long, with its northern boundary near Key Biscayne and its southern boundary near Key Largo. The red mangrove forest of the western shore of Biscayne Bay delineates the western boundary of the Park, while the eastern boundary follows the 60-foot-depth contour, for an approximate width of 14 miles. Biscayne is primarily a marine park, with 95 percent of its area submerged within either the shallow Biscayne Bay or the more turbulent waters of the Hawk Channel and the Florida Straits. The park's land area includes 4,825 acres of largely undeveloped mangrove shoreline and 4,250 acres scattered across forty-two keys. The only overland access to the Park is at the Convoy Point Visitor Center via Southwest 328th Street (North Canal Drive).

Congress established Biscayne National Monument in 1968 "in order to preserve and protect for the education, inspiration, recreation, and enjoyment of present and future generations a rare combination of terrestrial, marine, and amphibious life in a tropical setting of great natural beauty." The Park was expanded in 1974 and again in 1980, at which time it was redesignated Biscayne National Park.[1]

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[1]U. S. Department of the Interior, National Park Service, *Resource Management Plan for Biscayne National Park* (draft), 1991, 5-7.

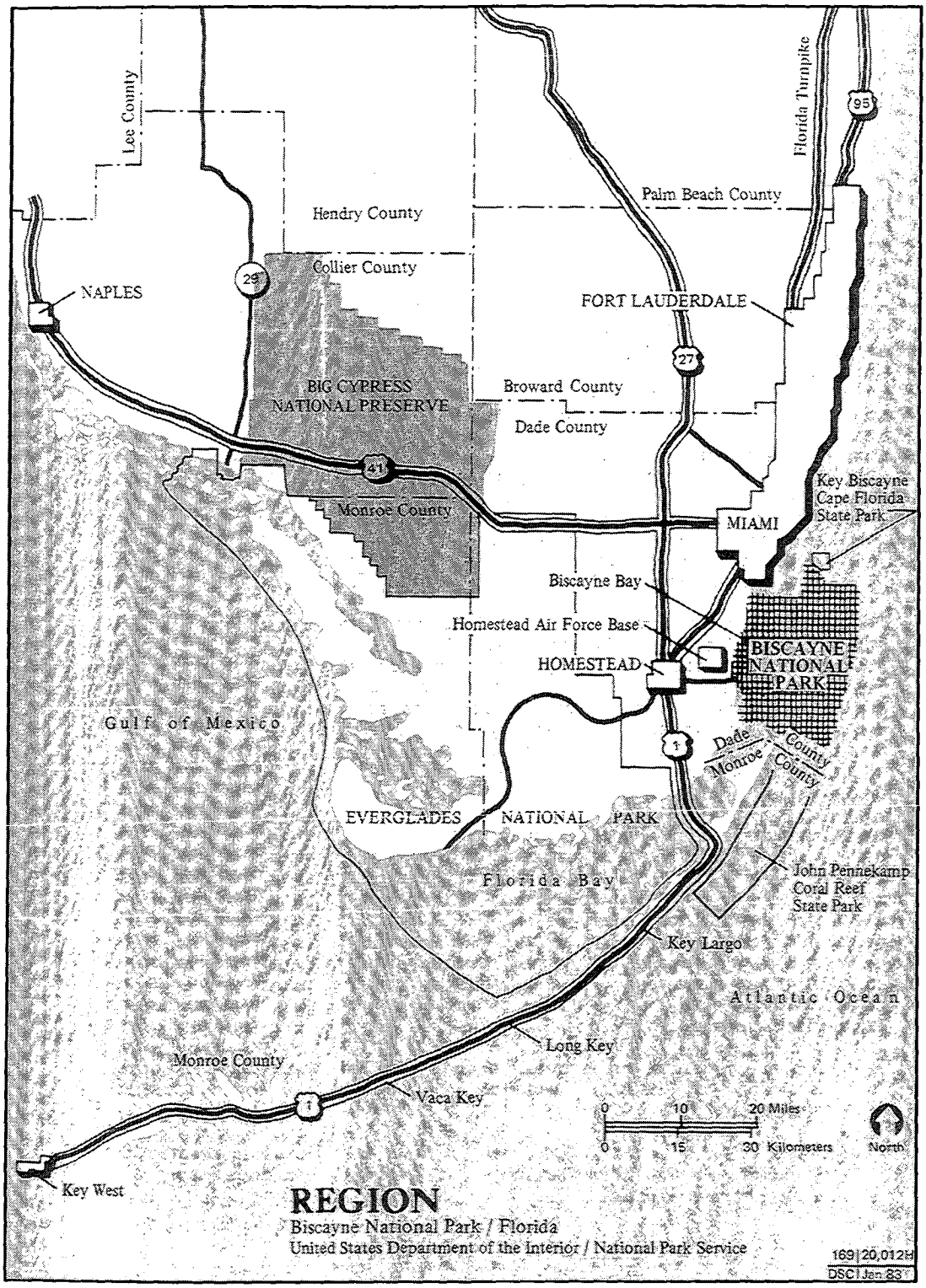

Figure 1. Location of Biscayne National Park

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Scope and Purpose of Historic Resource Study

The Historic Resource Study (HRS) identifies the various historic resources within Biscayne National Park, establishes and documents the historic contexts associated with the Park's cultural resources, and evaluates the extent to which existing resources represent those contexts. It provides a thematic framework for the Park's cultural resources, outlining historical and anthropological themes that can be more fully developed in future studies and reports. The completed HRS will serve as a tool for future site planning, resource management, and the continuing development of interpretive programs at the Park. It will complement other cultural resource studies being prepared for the Park, such as the Cultural Resource Management Plan, the Archeological Overview and Assessment, and other, more specialized archeological, historical, and ethnographic surveys.

The HRS provides an overview of the prehistory and history of the Biscayne Bay area in Chapter Two, "Background History." This chapter outlines the geologic and human history of the Florida Keys, including the occupation of South Florida by Native American groups and early settlement of the Biscayne Bay area by American citizens. The chapter refers to all known and potential cultural resources, primarily archeological sites and structural ruins, within the Park, but it does not attempt to evaluate the significance of these resources.

The third chapter, "Recreational Development of Miami and Biscayne Bay, 1896-1945," focuses on the Park's historic architectural resources. The chapter outlines the evolution of the Miami area into a resort community and examines the development of a private resort on Boca Chita Key. It also identifies and evaluates, using National Register criteria, the extant historic structures within the Park, all of which are located on Boca Chita Key, and how well they represent the historic context associated with recreational development of the Biscayne Bay area.

Few historic buildings survive in the Park. The subtropical climate, hurricanes, and the accidental and purposeful actions of humans have all contributed to the destruction of man-made structures on the keys. The historic resources of Biscayne National Park include a complex of stone and concrete structures built on Boca Chita Key between 1937 and 1940 by Mark Honeywell, founder of Honeywell Industries, as a private resort. The only other historic structure within the boundary of the Park is the Fowey Rocks Lighthouse, which is owned by the United States Coast Guard and therefore has not been evaluated in this study. A brief description of the lighthouse has been included as appendix D.

Summary of Identification and Evaluation Methods

Survey Methodology

Goals of the historic resource survey of the Park are to 1) update the List of Classified Structures (LCS) database for the Park for use by management; 2) prepare a Historic Resource Study for the Park; 3) complete National Register documentation; and 4) assemble a comprehensive survey of structures in the Park built before 1950 and considered eligible for the

National Register. This information will be used in complying with Sections 106 and 110 of the National Historic Preservation Act of 1966.

David Cullison examined records at the Park and conducted a field survey to determine the present condition of the structures in August 1995. Further research in both primary and secondary materials was conducted at the Southeast Regional Office of the National Park Service, the University of Miami, the Tebeau History Museum and Research Center of the Historical Association of Southern Florida, and other libraries.

The survey of cultural resources was limited to historic structures owned by the National Park Service. As a result, structures built after 1950 and the Fowey Rocks Lighthouse, which is owned by the Coast Guard, were excluded from the survey. Archeological sites, including those listed on the National Register within the Offshore Reefs Archeological District, were also excluded from the survey.

Determination of Historic Contexts

This study evaluates the historic integrity and assesses the eligibility of the Park's historic architectural resources within a single historic context, "Recreational Development of Miami and Biscayne Bay, 1896-1945." This context is related to several historic themes identified by the National Park Service in its revised thematic framework. The NPS theme "Peopling Places" is represented in the context through the examination of population movement south down the Florida peninsula around the turn of the century and the settlement of the Biscayne Bay area. The discussion of the wealthy society that migrated every winter to Miami Beach and the Florida Keys relates to the theme "Expressing Cultural Values." The construction of weekend retreats on the keys served to "Transform the Environment," another NPS theme explored in the historic context.

The context "Recreational Development of Miami and Biscayne Bay, 1896-1945" also relates to the statewide historic contexts developed by the Florida State Historic Preservation Office (SHPO). These contexts divide Florida's history after acquisition by the United States chronologically; therefore, the Florida contexts from the turn of the century through the Great Depression and World War II are directly related to the context contained in the HRS.

Figure 2. Aerial view of Boca Chita Key

HISTORICAL BASE MAP DISCUSSION

The historical base map (appendix E) depicts the existing historic resources on Boca Chita Key that are documented in this study. Although prehistoric and historic archeological sites exist on other keys within the Park, none of these sites contain significant architectural resources. As a result, these sites are not depicted on the base map. Maps produced by the Denver Service Center of the National Park Service served as the basis for maps found in this study. The historical base map does not attempt to depict a historic scene or identify nonextant historic structures.

CHAPTER TWO: BACKGROUND HISTORY

GEOLOGY AND PHYSICAL GEOGRAPHY OF BISCAYNE NATIONAL PARK

The Florida Keys begin with Soldier Key in the northern section of the Park and continue to the south and west. The upper Florida Keys (from Soldier to Big Pine Key) are the remains of a shallow coral patch reef that thrived one hundred thousand or more years ago, during the Pleistocene epoch. The ocean level subsided during the following glacial period, exposing the coral to die in the air and sunlight. The coral was transformed into a stone often called coral rock, but more correctly termed Key Largo limestone. The other limestones of the Florida peninsula are related to the Key Largo; all are basically soft limestones, but with different bases. The nearby Miami oolitic limestone, for example, was formed by the precipitation of calcium carbonate from seawater into tiny oval particles (oolites),[2] while farther north along the Florida east coast the coquina of the Anastasia formation was formed around the shells of Pleistocene sea creatures.

When the first aboriginal peoples arrived in South Florida approximately 10,000 years ago, Biscayne Bay was a freshwater marsh or lake that extended from the rocky hills of the present-day keys to the ridge that forms the current Florida coast. The retreat of the glaciers brought about a gradual rise in global sea levels and resulted in the inundation of the basin by seawater some 4,000 years ago. Two thousand years later, the rising waters levelled off, leaving the Florida Keys, mainland, and Biscayne Bay with something similar to their current appearance.[3]

The keys change. Tides scour the eastern shores, slowly dissolving the porous limestone. The tidal surges of hurricanes clear the islands, washing soil and small plants away, and turn groves of trees into stands of rotting timber. Storm surges at times totally submerge the keys. Today the Key Largo limestone of the upper keys rises just south of Key Biscayne, showing

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[2]John Edward Hoffmeister, *Land from the Sea: The Geologic Story of South Florida* (Coral Gables, Fla.: University of Miami Press, 1974), 31-32.

[3]John W. Griffin, *The Archeology of Everglades National Park: A Synthesis* (Tallahassee, Fla.: National Park Service, Southeast Archeological Center, 1988), 36; Peter A. Stone, "Dry Tortugas and South Florida Geological Development and Environmental Succession in the Human Era," in *Dry Tortugas National Park Submerged Cultural Resources Assessment*, edited by Larry Murphy (National Park Service, 1993).

itself above the water's surface first at Soldier Key, and forming the islands from Soldier south to Big Pine Key.[4] The Largo stone also underlies the oolitic limestone of the lower keys, extending at least as far south and west as the Dry Tortugas, and underlies the sand keys north to Miami Beach and beyond.[5]

The northern park boundary is located off the southern tip of Key Biscayne. From this point a wide area of shoals known as the Safety Valve extends more than eight miles to the south, with only the small island of Soldier Key[6] rising in the gap between Key Biscayne and the first of the Ragged Keys. Stiltsville, a small community of weekend residences that rise from the shallow shoal waters between Key Biscayne and Soldier Key, predates the acquisition of the area by the National Park Service; the houses sit on land that the tenants originally leased from the State of Florida but is now owned by (and thus leased from) the National Park Service.

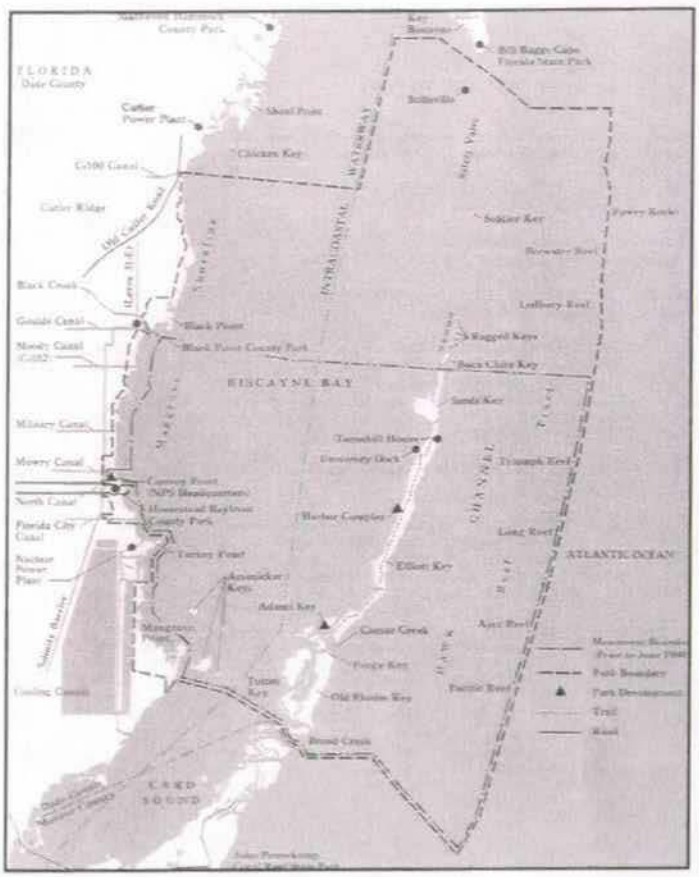

Figure 3. Biscayne National Park boundaries

The Ragged Keys, five small rock islands with low vegetation, are so close together, and the water around them so shallow, that it is possible to walk from one to another at low tide. At the southern end of the Ragged Keys lies Boca Chita Key. At twenty-nine acres Boca Chita is much larger than the other Ragged Keys, primarily because of the man-made expansion of the island in the first half of the twentieth century. Boca Chita is the only site in the Park with substantial, intact historic structures. These are described in more detail in chapter 3.

Sands Key is the next island south of Boca Chita beyond Lewis Cut, followed by Elliott Key. Elliott is the largest of the islands in the Park and has been the site of most human activity on the

[4]Gilbert L. Voss, *Coral Reefs of Florida* (Sarasota, Fla.: Pineapple Press, 1988), 19-20.

[5]Hoffmeister, 86.

[6]Soldier Key is the northernmost of the true Florida Keys. Key Biscayne and the other islands to its north are geologically different from the limestone-based keys to the south.

park's keys. At the lower end of Elliott Key lies a cluster of smaller islands gathered around Caesar Creek and Jones Lagoon. Old Rhodes Key is the largest of these, with Totten, Adams, and others lying to the west. South of Old Rhodes Key lie the small islands of Swan and Gold Keys, the last keys inside the Park boundary. Shoals and a few more islands (the various Arsenicker Keys) dot the bay from the shoreward side of Old Rhodes and Totten Keys to Mangrove Point on the mainland. The eastern boundary of the Park runs east of the Hawk Channel into the Florida Straits, encompassing the northern extremity of the Florida Reef, the northernmost living coral reef in the continental United States.

ABORIGINAL POPULATIONS AND EUROPEAN EXPLORATION IN BISCAYNE BAY, 1513-1859

In 1513, the Spanish explorer Juan Ponce de León discovered a chain of rocky islets off the Florida coast that he called *Los Martires* (the Martyrs). On May 13th of that year, Ponce's ships sailed south along a sand bar and a reef of islands to an island they called Santa Pola. A bay stretched between the reef and the mainland. The bay was probably Biscayne, but the identity of the island of Santa Pola is unknown. It may have been Key Largo, or possibly one of the keys lying between Largo and Key Biscayne.[7]

At the mouth of the Miami River, Ponce's party encountered the people known to the Spanish as the Tequesta.[8] The domain of the Tequesta reportedly stretched from the vicinity of the current Dade-Broward county line to Cape Sable. Although the name disappeared from the Spanish records over the next two hundred years, other native groups were reported in the same area. Archeologists suggest that some of these groups, notably the Costas, Vizcayano, and Boca Ratone, may have been descendants of the Tequesta or related groups.[9]

The ancestors of the Tequesta probably visited the Biscayne Bay area by 8000 B.C. Excavations at the Cutler Fossil site, located adjacent to the northwest corner of the Park, yielded artifacts and bones that represent the earliest known occupation for South Florida. Marine faunal remains at the site demonstrate a continual link between man and the sea that has characterized the human adaptation in South Florida, Biscayne Bay, and the Florida Keys for 10,000 years.[10] Additional archeological sites from this period most likely exist on the outer reefs and on the bottom of Biscayne Bay.

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[7]Anthony Q. Devereux, *Juan Ponce de León, King Ferdinand, and the Fountain of Youth* (Spartanburg, S.C.: Reprint Co., in association with Waccamaw Press, 1993), 116, 128.

[8]The name is also spelled Tekesta or Chequescha.

[9]Jerald T. Milanich and Charles Hudson, *Hernando de Soto and the Indians of Florida* (Gainesville, Fla.: University Press of Florida and the Florida Museum of Natural History, 1993), 114-16; Charles H. Fairbanks, "Ethnohistorical Report on the Florida Indians," in *Florida Indians III*, comp. and ed. by David Agee Horr (New York: Garland Publishing Company, 1974), 39-40.

[10]Robert S. Carr, "Preliminary Report of Archaeological Excavations at the Cutler Fossil Site in Southern Florida," (Paper presented at the 51st Annual Meeting of the Society for American Archeology, 1986); Robert S. Carr, "Prehistoric Settlement of the Florida Keys," Biscayne National Park, typescript; Robert S. Carr, "Early

Evidence of human occupation in the centuries before European exploration has been found on the mainland as far south as Coconut Grove, as well as on both the bay and ocean sides of the keys within Biscayne Bay and on the Florida Keys to the south. A unique site exists on Sands Key, which is located within Biscayne National Park. Pottery sherds collected from the site date from the Glades IIB-IIIB Period up to early European contact, around A.D. 1650. The site includes extensive mounds of worked shell and middens, suggesting intensive settlement on the key by A.D. 1000, if not earlier. These conclusions are largely based on surface finds; potentially, more subsurface excavation could reveal longer use of the area.[11]

Neither these early peoples nor their descendants, the Tequesta, practiced agriculture. Instead, they migrated seasonally from the shore to the inland regions and back, subsisting on native plants and animals, including both manatee and turtle. A Spanish account from the sixteenth century describes the local Indians as traveling to an offshore island to eat "nuts and dates." Although it appears by these accounts that the inhabitants of the Biscayne area were visiting the islands during the period immediately after European contact, there may not have been any permanent Native American settlements on the keys during the historic period.

The Tequesta and other aboriginal peoples of South Florida appear to have died off in the early- to mid-eighteenth century. In the 1770s the English cartographer Bernard Romans described the area as having only empty, unpopulated villages. One writer believes that eighty native families taken to Cuba by the Spanish when control of Florida was relinquished to Britain in 1763 may have been the last remnants of the Tequesta.[12]

About the same time the Tequesta disappeared from South Florida, the Oconee tribe and several smaller, related groups from Georgia and Alabama began to move into Florida. In 1778, this group, which soon became known as the Mikasuki (Miccosukee), was joined by a large group of immigrants from the Lower Creek towns. The Mikasuki tribe expanded again in the aftermath of the Creek War, which was fought in Alabama between 1813-1814; Muskogean refugees, primarily from the Upper Creek settlements, fled to Florida after the disastrous defeat of the Creeks at the Battle of Horseshoe Bend in March 1814 and the resulting Treaty of Fort Jackson, in which the Creeks ceded 20 million acres in Georgia and Alabama.[13] The disparate

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Man in South Florida," *Archaeology*, 40, no. 6, (1987): 62-63; George R. Fischer and Richard E. Johnson, *Archeological Data Section, Preliminary Cultural Resource Management Plan, Biscayne National Park* (Tallahassee, Fla.: National Park Service, Southeast Archeological Center, 1982), 1-3.

[11]Robert S. Carr, personal communication to Jim Adams, 1997.

[12]Howard F. Cline, "Provisional Historical Gazetteer with Locational Notes on Florida Colonial Communities," in *Florida Indians II*, comp. and ed. by David Agee Horr (New York: Garland Publishing Company, 1974), 218; Bernard Romans, *A Concise Natural History of East and West Florida* (1775; reprint, New Orleans: Pelican Publishing Co., 1961), 194; John R. Swanton, *The Indians of the Southeastern United States* (1946; reprint, Washington: Smithsonian Institution Press, 1979), 192.

[13]William J. Cooper, Jr., and Thomas E. Terrill, *The American South: A History* (New York: McGraw-Hill, 1991), 139-40.

community that resulted came to be known as the Seminole, from a Creek word meaning fugitive.[14]

The Seminole expanded southward down the depopulated Florida peninsula, establishing the town of Ochupocrassa (Echeepocrassa) near Biscayne Bay about 1820. The Seminole were primarily an agricultural people and by this date had adopted many European methods of animal husbandry and agriculture. It is unlikely that the Seminole occupied any of the lands now included in Biscayne National Park.[15] In 1823 representatives of the Seminole signed the Treaty of Moultrie Creek, agreeing to cede much of their land to the United States and to retreat to an inland reservation. Soon the United States government began inducing the voluntary emigration of the Seminole to Oklahoma. Forcible removal began in the 1830s; by 1859, all but a few hundred of the Seminole people had been removed from Florida.[16]

THE WRECKING INDUSTRY IN THE FLORIDA KEYS, 1513-1921

The Spanish made few attempts to settle in South Florida and established no permanent settlements in the Florida Keys. Nevertheless, Spanish ships utilized the area intensively after Ponce's discovery of the Straits of Florida, the channel between the mainland and the Bahamas through which the Gulf Stream flows. The warm waters of the Gulf Stream provided the quickest route from the Gulf of Mexico to the North Atlantic Ocean; therefore, this passage soon became the preferred route for ships returning to Spain from the New World.

Although the Straits of Florida provided the fastest route to Europe, the passage was also dangerously narrow, particularly given the limited navigational aids available to sailors prior to the nineteenth century. As evidenced by the archeological shipwrecks found within Biscayne National Park, many ships wrecked in and around the Florida Keys during this period. Two of the more significant historic wrecks whose remains are located within the Park are the sites of the *Nuestra Senora de Populo*, a Spanish treasure galleon wrecked in 1733, and the HMS *Fowey*, a British fifth-rate warship sunk in 1748.[17] Because many ships leaving Spanish America carried rich cargoes, the wrecking industry emerged to assist sailors in salvaging their cargoes. The wreckers recovered goods from dying ships and helped refloat ships that had run aground

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[14]Swanton, 181.

[15]Cline, 191, 249; Fairbanks, 263, 289; Swanton, 182; Fischer and Johnson, 3.

[16]John K. Mahon, *History of the Second Seminole War, 1835-1842* (Gainesville, Fla.: University of Florida Press, 1985).

[17]David E. Brewer and Barbara E. Mattick, *National Register of Historic Places Registration Form: Offshore Reefs Archeological District* (draft), 1993, section 7, 1-2.

but which remained seaworthy. In return, the wreckers received a percentage of the value of the property saved.[18]

Native Americans, Spaniards, Bahamians, and Americans established temporary salvage camps in the Florida Keys. Although not documented, it is likely that the keys within Biscayne National Park provided sites for many of these camps over the centuries. During the period of Spanish dominance of Florida the center for wreckers was in nearby Havana, Cuba. Later, the center of the wrecking business moved to New Providence, in the Bahamas, with a British Admiralty Court sitting at Nassau. Bahamian salvaging in Florida waters began in the seventeenth century and continued until 1825, when a Congress passed a law requiring that all wrecks salvaged in American waters be brought to an American port for adjudi-cation. The federal government established a court in Key West, and many Bahamians moved to the Florida Keys soon thereafter, turning the area into a well-known center for wrecking.

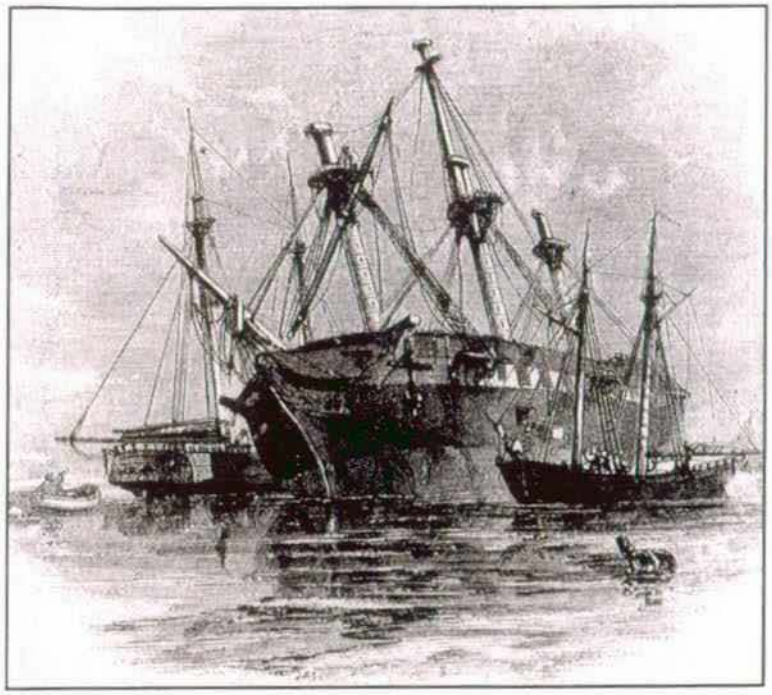

Figure 4. "Wreckers at Work" from *Harper's New Monthly Magazine*, April 1859

The wrecking industry began to decline in importance in the keys between 1852 and 1878 with the construction of the Florida Reef lighthouses. The gradual replacement of the sailing vessel with the steamship in the latter half of the nineteenth century also contributed to the industry's decline. The wreck of the *Alicia* (or *Alecia)* on Ajax Reef, near the Fowey Rocks Lighthouse, in 1906 provided the last great opportunity for the wreckers of the Florida Keys to profit from the misfortune of sailors;[19] after that time, wrecks continued to occur along the coast, but in smaller numbers and at less profit. Jefferson Browne noted in 1912 that "eight or

[18]Jefferson B. Browne, *Key West: The Old and the New* (Gainesville, Fla.: University of Florida Press, 1973), 162-63.

[19]The remains of the *Alicia* are one of the archeological sites in the Park. In 1984, the archeological remains of the *Alicia* and 42 other shipwrecks within the Park were listed on the National Register of Historic Places as contributing sites within the Offshore Reefs Archeological District. Lindsay C. M. Beditz, *National Register of Historic Places Inventory—Nomination Form: Offshore Reefs (Triumph, Long, Ajax, Pacific) Archeological District*, 1980.

ten vessels a year are stranded on the reefs," most of which were rescued by the wreckers. The wrecking era on the Florida Reef ended quietly in 1921 with the closure of the Wrecking License Registry.[20]

AMERICAN SETTLEMENT ON THE KEYS, 1822-1865

Although wreckers and other groups had utilized the keys as temporary camps for many years, no permanent settlements existed in the area in 1821 when the Spanish cession of Florida to the United States took effect.[21] The establishment of a United States Navy base on Key West in 1822, followed by the creation of a federal court on the island several years later, caused the local population to grow, and in 1828 the town of Key West was chartered.

Immigrants from the Bahamas, known as "Conchs," were the largest group to settle in the Florida Keys during the early- to mid-nineteenth century. The Conchs formed the backbone of the early society of the keys, from Key West north to Elliott. The outbreak of the Second Seminole War during the 1830s forced settlers on the upper keys and on the mainland as far north as the New River to flee to the safety of Key West.[22]

South Florida grew slowly. At the time of the Civil War, Key West was the only city in southern Florida, and only a few settlers had established themselves around Biscayne Bay. Florida seceded from the Union in 1861, but the lower half of the state contributed little to the war effort. South Florida, with the exception of the port and fortress of Key West, was of little strategic significance to either the Union or the Confederacy during the war. Although the proximity to the ports of the Caribbean and the many secluded islands and streams along the coast might have provided refuge for Confederate blockade-runners and their contraband, the lack of overland transportation routes to the north made running goods through the state impractical. For the most part, blockade-runners sailed for Savannah and other points farther north.

The only notable incident related to the Civil War that occurred within the Park was during the flight of the Confederate cabinet after General Robert E. Lee's surrender at Appomattox Courthouse. John C. Breckinridge, Confederate general and secretary of war and former vice president of the United States, fled down the east coast of Florida in a small boat with a few companions. The group entered Biscayne Bay on June 7, 1865, spending an uncomfortable

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[20]Browne, 166. In contrast, during the 1850s an average of fifty ships each year wrecked on the Florida Reef. See Vincent Gilpin, "Bradish W. Johnson, Master Wrecker," *Tequesta* I, 1 (1941): 21; Alfred Jackson Hanna and Kathryn Abbey Hanna, *Florida's Golden Sands* (Indianapolis: Bobbs-Merrill, 1950), 93.

[21]The treaty conveying Florida to the United States was signed in 1819, but the transfer of power did not occur until 1821.

[22]Charles M. Brookfield and Oliver Griswold, *They All Called It Tropical: True Tales of the Romantic Everglades National Park, Cape Sable, and the Florida Keys* (Miami, Fla.: Data Press, 1949), 34, 58.

night anchored off Key Biscayne, and, after a poor meal on Elliott Key, passed a second night anchored in the bay before passing through Caesar's Creek and continuing south to Cuba.[23]

AGRICULTURE ON THE KEYS, 1860-1926

Commodore Ralph Middleton Munroe, who first visited Biscayne Bay in 1877, related that there were "but a few dozen settlers" when he first came to the area. He wrote, "to the explorer and sailor [the bay area] was all pure delight, although to the settler trying to make a living there might be disadvantages."[24] Indeed, the keys did not offer a great deal of arable land to the early settlers, and much of that was covered with hardwood hammocks. Early visitors to the area valued these clusters of mature hardwoods for their mahogany. Later settlers generally saw the hammocks as worthless, and the "almost universal custom" was to clear the "scrubby woods" to plant fields or groves. The preferred method of clearance was burning.[25]

Pineapple became the first successful crop to be grown in the keys. Benjamin Baker of Key West brought pineapple slips from Mexico in 1860 and introduced them on Plantation Key. The plants grew easily on the coral islands, taking root in small crevices, and were believed to require no fertilization and little care. By 1890, growers had established pineapple plantations along the keys from Matecumbe to Elliott. The keys produced all of the pineapples grown in the United States until around 1884, when they were introduced in the Indian River area in Florida.[26]

Pineapple farmers brought gangs of laborers, primarily African-Americans, from the mainland to harvest and pack the fruit for shipping. Before the completion of the Florida East Coast Railway south to Miami in 1896, pineapples were loaded onto schooners and shipped north to east coast markets like New York City and Baltimore. After the railroad opened, farmers on the keys sent the fruit to Miami for shipment north by rail.

At the height of pineapple cultivation on the keys, Plantation Key produced the largest number of pineapples annually, with Elliott a close second. Elliott Key, the center of the farming community on the Biscayne Keys, had a population of about ninety people and a one-room school, a general store, packing house, cabins for farmhands, and houses. About

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[23]John Taylor Wood, "Escape of the Confederate Secretary of War," in *Century Magazine* XLVII (1893), 110-23.

[24]Ralph Middleton Munroe and Vincent Gilpin, *The Commodore's Story* (1930; reprint, Miami, Fla.: Historical Association of Southern Florida, 1990), 80, 97.

[25]Ibid., 311. The old West Indian term for mahogany was "Madeira wood."

[26]Phillip K. Platts, *Pineapple ABC's* (Tallahassee, Fla.: Florida Department of Agriculture, 1950), 71; R. Munroe, 211; George M. Barbour, *Florida for Tourists, Invalids, and Settlers...* (New York: D. Appleton and Company, 1882), 181. Platts gives the name as Benjamin Balker.

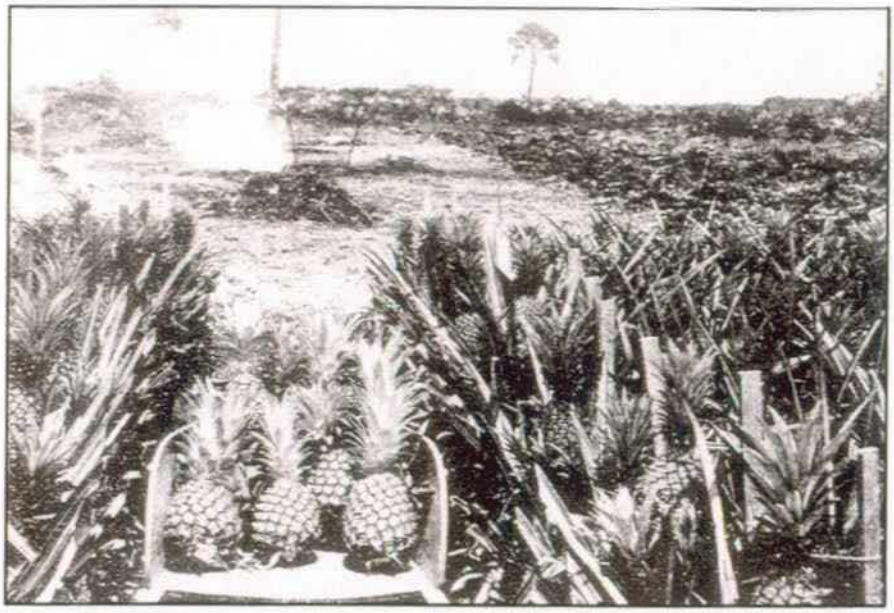

Figure 5. Pineapple fields in Boynton, Florida, 1906

fourteen families, most of Bahamian descent, lived on Elliott during this period, just prior to the turn of the century. They farmed pineapples on the bay side of the island.[27] Like their neighbors on other keys, Elliott residents supplemented their income by wrecking and harvesting marine life from the bay.

The experiences of Asa Sweeting and his family, who were among the earliest homesteaders on Elliott Key, were probably similar to that of other families living on the keys during the late nineteenth century. The Sweetings sailed from the Bahamas to Key West in 1866, then moved to Elliott Key in 1882, claiming 154.4 acres for the family homestead. They built a temporary wood-frame dwelling, sixteen by twenty-four feet in size, on their property, hauling timber and other supplies from Key West for construction. The family had to bring fresh water from springs in Biscayne Bay and the mainland until a cistern was built. In 1887, Sweeting reported that he had cleared and cultivated 30 acres on the key, planting a variety of fruits and vegetables. The family eventually planted 100 acres, with pineapples and key limes as the primary crops.[28]

The pineapple boom on the keys gave out because of the leaching of organic material from the soil and a devastating hurricane in 1906. Charles Torrey Simpson described the collapse of pineapple cultivation in the Florida Keys as a direct result of the destruction of the hardwood

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[27]R. Munroe, 211.

[28]Peg Niemiec, "The Sweeting Homestead: Pioneering on the Florida Keys, 1882-1930, Elliott Key, Florida," Biscayne National Park, 1992, typescript; Peg Niemiec, "The Sweeting Homestead on Elliott Key," *Tequesta*, LVI (1996): 24-45; Charlotte Arpin Niedhauk, *Charlotte's Story: Parts of an Undated Florida Key Diary, 1934-1935* (Smithtown, N.Y.: Exposition Press, 1973).

hammocks. "As soon as the forest was destroyed [to plant pineapples] the roots began to decay, the soil washed down through the bed of loose porous rock, and in five years nothing was left but the old original stony fields. Finally the pineapple crops were no longer profitable, failing as the soil departed." He also lamented the later planting of lime groves in the keys.[29]

Dr. Henry Perrine introduced the first lime trees to the Florida Keys from the Yucatan in 1838, planting on Indian Key and possibly other nearby keys. For many years the lime was used only locally; the Conchs utilized the citrus to flavor their foods as well as for medicinal purposes. As late as 1906 an expert reported that, though the limes picked from wild trees in the keys sold for very high prices, "the peculiar demands of the market...are such as to make lime growing unprofitable." Nevertheless, after the collapse of the pineapple industry, the residents of the keys "developed slowly a lime industry," and plantings increased rapidly after 1913 both in the keys and near Fort Myers.[30]

Lime production peaked in 1923 at more than 40,000 boxes. A 1926 hurricane devastated the industry by damaging or destroying most of the lime groves in the keys. Competition from growers in the West Indies and Mexico hindered recovery. Florida Key lime production was nil in 1927 and by 1935 had climbed to only one quarter of the 1923 total.[31]

Farmers tried other crops in the Florida Keys at various times. Commodore Munroe reported that sweet potatoes grown on the keys were extraordinarily large. He described a sweet potato from Elliott Key that he ate in 1877 "which was so big that it was far easier to cut with a saw than a knife, and was further remarkable in having to be dug out of the hollows of the rock with a crowbar!"[32] Even allowing for the Commodore's liking of a good story, this was probably a very large sweet potato. The keys also produced peaches, tomatoes, coconuts, lemons, and sapodillas for market.

The history of homesteading on the keys of Biscayne National Park is being further developed. Homesteading was not limited to Elliott Key, but would have also included the keys to the south, Totten, Adams, and Old Rhodes. In September 1997, the Sweeting Homestead

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[29]Larry Jackson, *Citrus Growing in Florida*, 3d ed. (Gainesville, Fla.: University of Florida Press, 1991), 50; Charles Torrey Simpson, *In Lower Florida Wilds: A Naturalist's Observations on the Life, Physical Geography, and Geology of the More Tropical Part of the State* (New York: G. P. Putnam's Sons, 1920), 49.

[30]Jackson, 50; Helen Muir, *Miami, U.S.A.* (New York: Henry Holt and Company, 1953), 10; P. H. Rolfs, *Citrus Growing in the Gulf States*, Farmer's Bulletin No. 238 (Washington: U.S. Department of Agriculture, 1906), 14.

[31]Jackson, 50; Mark Derr, *Some Kind of Paradise: A Chronicle of Man and the Land in Florida* (New York: William Morrow and Company, 1989), 33; U. S. Department of Agriculture, *Agricultural Statistics—1936* (Washington: U.S. Department of Agriculture, 1936), 131. John Gifford wrote (tongue in check, one would hope) that the lime industry rose in response to the development of the Gin Rickey cocktail, of which lime is an important ingredient, and that the industry's demise was caused by Prohibition. John C. Gifford, *On Preserving Tropical Florida*, compiled by Elizabeth Ogren Rothra (Coral Gables, Fla.: University of Miami Press, 1972), 45.

[32]R. Munroe, 91.

site was added to the National Register. This and other homesteading sites in the Park will be the subject of further archeological survey.

CHAPTER THREE: RECREATIONAL DEVELOPMENT OF MIAMI AND BISCAYNE BAY, 1896-1945

THE DEVELOPMENT OF MIAMI AS A VACATION RESORT

The completion of Henry M. Flagler's Florida East Coast Railway in 1896 opened southeastern Florida to overland commerce and travel for the first time. The railroad, which connected older cities in northern Florida, like Jacksonville and St. Augustine, with the largely undeveloped lower half of the state, permitted the development of new resort communities for the rich in Palm Beach and Miami. The tropical climate of South Florida quickly became popular with vacationers from the Northeast and Midwest, particularly during the winter months. In 1912, Flagler realized his dream of connecting Jacksonville to Key West with the completion of the Overseas Railroad, which traversed a number of long bridges across the keys; this new railway effectively opened the keys to recreational development.[33]

Miami developed quickly after the arrival of the railroad in the late nineteenth century. The city incorporated in July 1896 with a population of 502 voters;[34] by 1915, the total population had grown to 15,000. The boom following World War I more than doubled the population in five years, from fewer than 30,000 in 1920 to 71,000 in 1925.[35]

A number of factors contributed to the phenomenal growth of Miami and South Florida. The subtropical climate of the region attracted many visitors and new residents after the completion of the railroad, which provided cheap and easy access to an area previously accessible only by water. The outbreak of war in Europe also increased travel to the area, as many wealthy Americans accustomed to vacationing in the Mediterranean sought new playgrounds closer to home. South Florida became the destination of choice for many of these people.[36]

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[33]Gloria Jahoda, *Florida: A Bicentennial History*, The States and the Nation Series (New York: W. W. Norton and Co., 1976), 119.

[34]Hanna and Hanna, 370.

[35]Frank Parker Stockbridge and John Holliday Perry, *Florida in the Making* (New York: de Bower Publishing, 1926), 193.

[36]Gene M. Burnett, *Florida's Past: People and Events That Shaped the State* (Sarasota, Fla.: Pineapple Press, 1986), 233.

At the conclusion of World War I, Americans possessed more disposable income than ever before. The affordability of the Ford Model T resulted in an increasingly mobile population, and new roads like the Dixie Highway, which opened in 1925 from northern Michigan to Miami, made traveling to the vacation resorts of South Florida much easier. These factors, combined with large-scale advertising and promotions by area developers, led to the Florida land boom of 1922 to 1926.[37]

Figure 6. Ocean side of Miami Beach, looking north from about 1st Street, 1920

In Miami, the development and promotional activities of Carl Fisher transformed the small coastal town into a tourist mecca. Fisher, founder of the Prest-o-lite Company and the Indianapolis Speedway, purchased a winter home in Miami in 1910. Three years later, Fisher financed the completion of a bridge connecting the city to a barrier reef across Biscayne Bay. He then secured the approval of the State of Florida and the U.S. Army Corps of Engineers to dredge Biscayne Bay for sand to fill the mangrove swamp on the reef.

Within a short period of time, Fisher had transformed his offshore reef into one of the preeminent resorts of the first half of the century—Miami Beach. Fisher sold the first lots on Miami Beach in 1919, and tycoons and other wealthy visitors soon populated the island on their own private estates and in the lavish new hotels. Fisher advertised his development heavily, employing a number of marketing gimmicks to focus media attention on the area. The popularity of Miami Beach, combined with that of nearby developments like Coral Gables,

[37]Ibid., 233.

caused property values to skyrocket in Florida between 1922 and 1926; according to one author, in 1925, at the height of the land boom, the assessed value of beach property "had been boosted 200 times."[38] The exorbitant prices associated with the land boom extended to the keys in Biscayne Bay as well. Commodore Munroe related in his memoirs the story of two brothers, Brainerd and Charley Ball, who were approached to sell property they owned on the narrow peninsula at the north end of Sands Key. "While they were debating whether they should ask two hundred or three hundred for it, the buyer lost patience and demanded, 'Well, will you take four thousand for it?'" Munroe considered this "typical of the breathless absurdity" of land speculation at that time.[39]

The Florida land boom crashed in 1926 for several reasons. The realization by some investors that prices had spiralled out of control with no regard to actual value was one reason; another was a government investigation of fraudulent exchanges. Perhaps most important was the breakdown of transportation to the area in 1925 and 1926: the railroad closed temporarily to repair its heavily used lines, and a disabled ship blocked the entry to the harbor for an extended period. The *coup de grace* was the hurricane of September 1926, the first major storm to strike the Florida mainland since 1910. The storm killed nearly 400 people, injured another 6,000, and destroyed thousands of buildings. The Florida economy fell into depression with the collapse of the land boom that had been driving it.

Nevertheless, the Miami area rebuilt. Although applications for building permits almost ceased immediately following the storm, the construction industry began to grow again in the early 1930s. Between 1930 and 1939 the number of hotels on Miami Beach grew from sixty to 250, and hundreds of new apartment and commercial buildings appeared on the Miami skyline. The main emphasis of new construction, however, was single-family homes.[40]

Although most Americans faced financial hardship during the Great Depression of the 1930s, some continued comfortable lives, while others prospered. By the middle of the decade an estimated 600 millionaires spent the winter in Miami Beach. In 1939 the Beach was described as "a world of moneyed industrialists, boulevardiers, and stars of stage and screen, its atmosphere gay, carefree, and expensive."[41] Unlike nearby Palm Beach, Miami Beach tended to attract the new-money millionaires, many of whom were Midwesterners. In 1925 Will Rogers

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[38]Ibid., 205.

[39]R. Munroe, 187.

[40]Cleveland Amory, *The Last Resorts* (New York: Grosset & Dunlap, 1952), 368; Howard Kleinberg, *Miami Beach: A History* (Miami, Fla.: Centennial Press, 1994), 128; Reinhold Paul Wolff, *Miami: Economic Pattern of a Resort Area* (Coral Gables, Fla.: University of Miami Press, 1945), 101; Polly Redford, *Billion-Dollar Sandbar: A Biography of Miami Beach* (New York: E. P. Dutton, 1970), 205.

[41]Works Progress Administration, *The WPA Guide to Florida* (reprint, New York: Pantheon Books, 1984), 210.

described Carl Fisher as "the man that took Miami away from the Alligators and turned it over to the Indianians."[42] Although the occasional Vanderbilt or Astor was found in Miami Beach, most of the names—Maytag, Hertz, Florsheim, Firestone, and Honeywell—held different associations.[43]

DEVELOPMENT IN BISCAYNE BAY AND THE UPPER FLORIDA KEYS

As Miami Beach grew and prospered in the 1910s and 1920s, Carl Fisher began to plan further development in Biscayne Bay. Encouraged by the success of the dredging operations at Miami Beach, which were relatively inexpensive because of the bay's geological and geographical features, Fisher decided to build artificial islands in the bay using the same method. Star Island was the first of many man-made islands built in Biscayne Bay between 1917 and 1945. The five islands along the Venetian Causeway connecting Miami and the Beach, completed in 1926, are perhaps the most prominent of the man-made islands in the bay.

Developers also planned to build artificial islands and expand shorelines in lower Biscayne Bay. Although most of these projects were never completed, portions of the Coconut Grove and Key Biscayne shorelines were extended, and Boca Chita, Adams, and Elliott Keys were enlarged. More ambitious plans for the construction of artificial islands off Coconut Grove and on the Safety Valve shoals south of Key Biscayne failed.[44] The result of dredging and the creation of artificial islands in Biscayne Bay during the first half of the twentieth century was dramatic: it has been estimated that about 20 percent of what had been open water in the upper bay in 1877 was filled, while another 20 percent had been dredged.[45]

While the popularity of the Miami area as a vacation resort drove development activities in Biscayne Bay, it also fueled change on the existing keys. Destructive hurricanes and exhausted soils had brought the decline of agriculture on the keys by the 1920s, and the rapid development

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[42]Ann Armbruster, *The Life and Times of Miami Beach* (New York: Alfred A. Knopf, 1995), 59. The Will Rogers quote is found on page 15. Marion Post Walcott, a Farm Security Administration photographer, visited Miami and Miami Beach in 1939 and has left a file of 77 prints from her trip in the Library of Congress. See Carl Fleischhauer and Beverly W. Brannan, eds., *Documenting America, 1935-1943* (Berkeley: University of California Press, in association with the Library of Congress, 1988), 174-87.

[43]"War profits and the Harding-Coolidge 'normalcy' had created a brash new aristocracy, which, since it could not break into Newport and Palm Beach, took over Miami and the Catskills." Cabell Phillips, *From the Crash to the Blitz, 1929-1939* (New York: Macmillan, 1969), 361. "The honky-tonk Broadway-Bagdad atmosphere of Miami Beach is entirely lacking at Palm Beach, and Palm Beachers who journey down to bet on the races at Hialeah...could wish for no worse fate than to have to spend even one night in their sister resort." Amory, 368.

[44]R. Munroe, 336, 339-43.

[45]Redford, 236; Roland E. Chardon, "A Geographical History of the Biscayne Bay Area," in *Biscayne Bay—Past/Present/Future: A Symposium Presented by the University of Miami, April 2-3, 1976*, edited by Anitra Thorhaug (Coral Gables, Fla.: Information Services, University of Miami, 1976), 240.

of the Miami area eventually ended their agricultural use. The advent of the motorboat made the keys easily accessible to residents and visitors in the Miami area, and some wealthy individuals began to purchase keys to build weekend retreats. The development of these millionaires' retreats sealed the fate of agriculture on the keys.

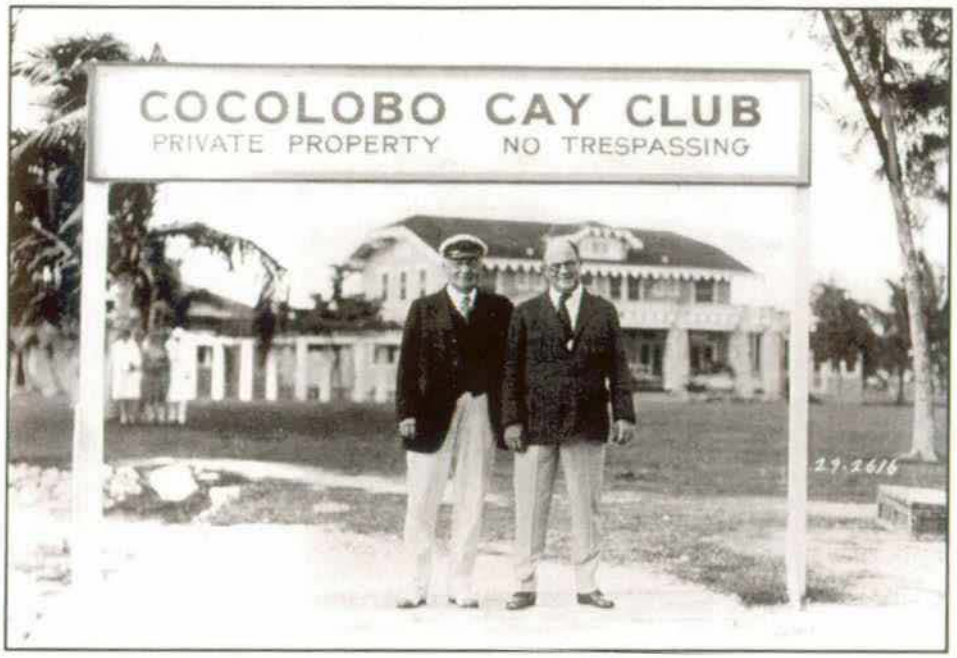

Figure 7. Carl Fisher (right) and guest at Cocolobo Club

In 1904, Henry Flagler opened the first fishing lodge and resort facilities in Biscayne Bay on Soldier Key. The club was an extension of his famed Hotel Royal Palm, located in nearby Miami. The *Louise* made daily steamer runs between the Royal Palm and Soldier Key.[46] Twelve years later, Carl Fisher and two partners, Charles W. Kotcher and Jim Snowden, established a vacation lodge in the upper keys, the Cocolobo Club,[47] on Adams Key. The lodge was located on Caesar's Creek, reputedly one of the premier fishing spots in the area, as an offshoot to Fisher's Miami Beach development. Fisher brought prospective buyers to the Cocolobo on his fleet of motorboats to take them fishing and acquaint them with the beauty of the Florida Keys, with the hope that they would then want to purchase property on nearby Miami Beach. Among Fisher's guests at the Cocolobo Club were President Warren G. Harding and Secretary of the Interior Albert Fall, entertainer Will Rogers, prizefighter Jack Dempsey, and Coleman du Pont. Many wealthy men and captains of industry became members of the club;

[46]Jim Adams and Terence L. Helmers, "History of Soldier Key: A Preliminary Historical Study and Annotated Listing of Historical References," Biscayne National Park, 1996, typescript.

[47]Named for the *Cocolobo diversifolia*, also known as the pigeon plum, a native tree.

however, membership began to decline during the Great Depression, and the key was sold to Gar Wood, who eventually disbanded the club and maintained the key as a private retreat.

Resort developments emerged on other keys as well. On Elliott Key, Dr. John C. Gifford subdivided and sold twenty-acre lots stretching across the key, from bay to ocean. Buyers built weekend residences and private fishing camps on the lots. Charles Brookfield operated a fishing camp, the Ledbury Lodge, on Elliott Key during the 1930s. Stiltsville began as a private club in the shoal waters south of Key Biscayne in the late 1930s; over the next three decades, between sixteen and twenty residences arose on bay bottom parcels leased from the State of Florida.[48]

Even as the keys in Biscayne Bay began their transformation from sparsely populated agricultural islands to resort communities, their relative isolation and proximity to the burgeoning Miami area made them scenes of intrigue in the early twentieth century. The enactment of national prohibition in 1920 brought a new type of commerce to the area—bootlegging. The vacationing populations of Miami and other Florida resort cities provided a strong demand for liquor,[49] and the Bahamas provided a nearby source, reached easily within a few hours by motorboat. The Biscayne keys and reefs provided convenient transshipment points and hiding places for the rumrunners to await their chance to dash across the straits.[50]

The keys sheltered other illegal activities during the late nineteenth and early twentieth centuries as well. Both illegal drugs and illegal aliens, primarily Asians, entered Florida through Biscayne Bay.[51] At the same time, smugglers utilized the bay and Elliott Key as cover for the transport of guns from Florida to revolutionaries in Cuba. The best known of these gunrunners was Napoleon Bonaparte Broward, later governor of Florida.

Throughout the early twentieth century, the only route between the upper keys and the mainland was by water. The Overseas Railroad, completed in 1912, had bypassed the upper keys, leaving the mainland at a point south of Elliott Key on the way to Key West. Local residents began to demand construction of a road in 1929, when the "Upper Keys Improvement Association" published a pamphlet proposing a road from Key Largo to Elliott, using ferries to cross over Broad and Caesar Creeks. The text of the pamphlet was primarily a reprint of a

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[48]Jim Adams, "The History of Stiltsville," Biscayne National Park, 1996, typescript.

[49]"Downtown saloons operated on an open-door policy and tourists accepted this freedom as part of the June-in-January setting. In Miami it was not so much that people did not observe Prohibition—they blatantly ignored its existence." Muir, 121.

[50]For an idea of the amount of liquor illegally brought into South Florida one can consider the amount legally imported into the Bahamas. In 1917 the islands imported 38,000 gallons of liquor. In 1922 1,340,000 gallons were imported. Paul Albury, *The Story of the Bahamas* (London: Macmillan Education Limited, 1975), 179.

[51]Stan Windhorn and Wright Langley, *Yesterday's Florida Keys*, Seeman's Historic Cities Series, No. 12 (Miami, Fla: E. A. Seeman Publishing, 1974), 11; Niedhauk, 73.

newspaper article by John Gifford, a landowner on Elliott and a member of the association. Gifford predicted that, if the road were constructed, the keys in Biscayne Bay "will soon become developed ocean and bay fronts with high taxable value." The road was not built, perhaps due in part to the stock market crash in the same year.[52]

From the 1930s to the 1950s, the ranks of absentee landowners expanded on the keys. Promoters revived development plans for the Biscayne keys in the late 1950s; again, the centerpiece of the proposal was the construction of a road to connect the keys with the mainland. Supporters discussed several possible routes: some envisioned connecting the keys to the mainland by a causeway over the shallow bay waters, while others advocated construction of a causeway from Key Largo on the south or over the Safety Valve from Key Biscayne on the north. Property owners and other proponents envisioned extensive residential and resort development on the keys and on filled land; they also considered the construction of an oil refinery on the adjacent mainland.

Despite these efforts, Dade County officials decided not to pursue the construction of a causeway to the islands. The county advised landowners that they would have to finance and build the road themselves if they wished to connect the keys to the mainland. Property owners on the islands responded by seeking to incorporate, and the City of Islandia became a municipality in December 1960.[53]

The city quickly met with opposition in its efforts to build the causeway. Conservationists organized to seek national monument status for the largely undeveloped keys in lower Biscayne Bay and received a favorable report from a National Park Service study of the area in the mid-1960s. In 1965, conservationists secured the support of the Hoover Foundation, and the tide of local public opinion turned toward preservation rather than development. In late 1967, the Islandia city government, feeling that the battle was nearing a close, approved the bulldozing of a 120-foot-wide strip down the center of Elliott Key. The road, which became known as "Spite Highway," resulted in a lawsuit by the county because it passed through a county park without authorization, destroying 6.3 acres of vegetation.[54]

In 1968, Congress held hearings to consider the creation of a national monument in the area. In the hearings, Islandia Mayor Ralph A. Fossey testified that twelve to fifteen people lived on Elliott Key and approximately twenty-four structures stood on the island. Despite the vocal opposition of Fossey and some other island landowners, Congress approved the creation of

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[52]The map included in the pamphlet shows the new road leaving the mainland at Mangrove Point, crossing Old Rhodes and Porgy Keys, and continuing the length of Elliott to Sands Key. John Clayton Gifford, "County Road Needed to Elliott's Key," in *The Upper Keys: Playground of the Presidents* (Coconut Grove, Fla.: The Upper Keys Improvement Association, 1929).

[53]E. Carter Burrus, Jr., "A History of the Islands and Waters of the Biscayne National Park—A Multi-media Interpretive Program" (Ph.D. diss., University of Miami, 1984), 87.

[54]Ibid., 87-92.

Biscayne National Monument, and President Lyndon B. Johnson signed the bill into law on October 18, 1968. The bill authorized the National Park Service to spend $25 million over five years to buy and develop the 164-square-mile park.[55]

THE HONEYWELL ERA ON BOCA CHITA KEY, 1937-1945

Like other islands in Biscayne Bay, Boca Chita Key experienced development and change as a result of the growth of the Miami area in the 1910s and 1920s. Carl Fisher, F. A. Seiberling, and some business associates purchased the key in 1916. Seiberling probably initiated recreational development on the island, building a wooden bulkhead and one or more buildings to house visitors; however, the hurricane of 1926 obliterated all of these improvements. Seiberling also oversaw the enlargement of the key, which proved to be a more permanent alteration to the island. Workers added fill material five to thirteen feet deep on top of the existing limestone, bringing the key to something like its current size.

Figure 8. Mark C. Honeywell, ca. 1938

After Milton W. Harrison purchased Boca Chita from Seiberling and his partners in 1926, he made several improvements to the island. Harrison built a two-story frame house on the man-made north end of the key; he also dredged the boat basin and installed steel bulkheads around 1934, replacing the wooden ones destroyed in the hurricane of 1926. However, despite these alterations, the island was relatively undeveloped when Harrison sold the property to Mark C. Honeywell in 1937.

Honeywell and his wife, Olive Lutz Honeywell, purchased Boca Chita Key as a vacation retreat from their winter home in Miami Beach.[56] The Honeywells maintained their primary residence in Wabash, Indiana, where Mark Honeywell was born in 1874. Honeywell entered the heating business in 1902[57] and found success in the 1910s, when his firm began to produce and sell an improved version of the thermostat, or heat regulator.

In 1927, the Mark Honeywell Heating Specialties Company merged with the Minneapolis Heat Regulator Company, owned by W. R. Sweatt. The new public company that emerged, the Minneapolis Honeywell Heat Regulator Company, posted annual sales of $3 million after the

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[55]Ibid., 92-94.

[56]The Miami *Social Register* listed the Honeywells' address as 4567 Pine Tree Drive in Miami Beach; their "northern address" as 394 North Wabash Street in Wabash, Indiana; and their summer address at Lake Wawasee, Indiana. *Social Register of Greater Miami* (Miami Beach, Fla.: Blue Book Publishing, 1936).

[57]*Who Was Who in America; with World Notables*, Vol. 4 (1961-1968) (Chicago: Marquis Who's Who, Inc., 1968), 457.

merger. Honeywell was the company's first president and later became chairman of the board, a position he held until 1953. Despite initial success, the company suffered during the early years of the Depression, and sales had dropped back to around $3 million by 1933. Business was so bad at one point that the company produced flour sifters for another Minneapolis firm. Nevertheless, the business recovered by 1935, and sales soon climbed to $9 million annually.[58]

The Honeywells were prominent in Miami Beach society, associating with other wealthy industrialists. The couple belonged to the most prestigious clubs in the area: Mrs. Honeywell was a member of the Miami Beach Women's Club, and Mr. Honeywell belonged to the Indian Creek Golf Club, the Surf Club, the Cocolobo Club, and the Miami Beach Committee of One Hundred.[59] Honeywell served as president of the Committee of One Hundred from 1936 to 1951.

The Honeywells purchased Boca Chita Key in 1937 and soon after began building a vacation retreat on the island. They retained the frame house built by Harrison as the primary residence, building a number of support structures and landscape features in the vicinity of the house on the north end of the key. The new structures included a lighthouse, chapel, picnic pavilion, and a barn or garage.

Honeywell employed the architectural firm of August Geiger to design and build the lighthouse on Boca Chita. Geiger, a well-known Miami architect, had also designed the Honeywells' Miami Beach home and a studio for their Wabash, Indiana, residence. According to Jim Church, a junior draftsman who worked on the plans for the lighthouse, Leon Angle Camp was the designer of the lighthouse, and Jack Hunt was the contractor.[60]

Camp designed the 65-foot masonry lighthouse to sit at the harbor on the north end of the key, where yachts belonging to Honeywell and his guests moored during their visits. A popular story about the lighthouse claimed that it was shut down by the U.S. Coast Guard after one lighting because it was not an approved navigational aid;[61] however, the absence of hardware for affixing a light in the floor of the lantern suggests that the lighthouse may never have been intended for navigational use.

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[58]Edson W. Spencer, *Honeywell After 100 Years* (New York: Newcomen Society of the United States, 1985), 14-15.

[59]The Miami Beach Committee of One Hundred has been described as the richest and most elite club on the Beach. With a few exceptions the members all had their permanent residences outside of Florida. The committee was organized after the 1926 hurricane and met weekly for discussions and lectures. The annual "stag party" was held at the Cocolobo Club on Adams Key. Armbruster, 62.

[60]Beverly Yelen, "Historical Information Relating to Boca Chita Cay," (Biscayne National Park, photocopy), 1-2.

[61]Ibid., 2.

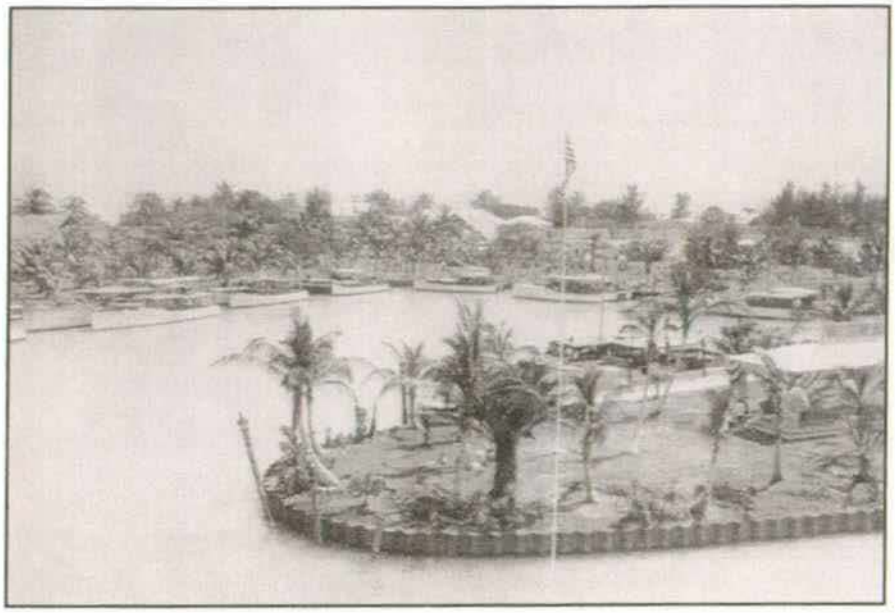

Figure 9. Yachts lined up in Boca Chita Harbor for the annual Committee of One Hundred party, ca. 1938

The lighthouse was constructed of Miami oolitic limestone, as were the other structures built during the Honeywell era. This limestone was a popular building material in South Florida as early as the mid-nineteenth century. Although no documentation exists regarding the design and construction of the picnic pavilion, chapel, and other structures on the island, it appears likely that the Geiger firm built the entire Honeywell estate on Boca Chita. The design and materials employed are similar in character and suggest the work of a single individual or firm.

The Honeywells built their vacation retreat between the time they purchased the key in 1937 and Mrs. Honeywell's death in 1939. During this two- to three-year period, Mark and Olive Honeywell built the lighthouse, chapel, picnic pavilion, engine house, and garage; they also constructed a stone wall around the main complex, retaining walls at the water's edge, concrete sidewalks from the harbor to the house and generator building, and an arched bridge across an existing canal. Other support structures were built on the island as well, but none of these buildings remain.

The Honeywells used the complex at Boca Chita as a rural retreat from their home in Miami Beach. They often entertained friends on the island, ferrying themselves and visitors over on their three yachts, the *Olivette*, *Harpoon*, and *Semego*.[62] Honeywell reportedly fired a cannon, which sat at the opening of the harbor near the lighthouse, to welcome his guests arriving on the island. The Honeywells hosted the annual charity party of the Miami Beach Committee of One Hundred on Boca Chita, a tradition that continued with the next owners of the property, the

[62]*Social Register*.

Figure 10. Picnic pavilion with the Honeywells' yacht, *Olivette,* moored alongside in the harbor, ca. 1938

Figure 11. Lighthouse, ca. 1938

Emermans. The annual party was an exclusive event, with the guest list limited to members, the media, celebrities, and politicians.[63] It was also an extravagant affair: photographs from one party show a gaily decorated elephant in attendance.[64]

Figure 12. Elephant rides (at left) at annual party of the Committee of One Hundred on Boca Chita Key, ca. 1938

Although Honeywell continued to host the annual charity party of the Committee of One Hundred on Boca Chita, he lost interest in the property after his wife's death. In 1942 he married Eugenia Hubbard, and three years later he sold the property to Florence Emerman. Mark Honeywell died in 1964 at the age of 89.[65]

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[63]Yelen, 3.

[64]The elephant was probably Rosie, the popular pachyderm maintained at Miami Beach by Carl Fisher. Rosie had acted as President-elect Warren G. Harding's golf caddy during his visit to Miami Beach in 1925.

[65]*Who Was Who*, 457.

Figure 13. Mark Honeywell and guest enjoy Committee of One Hundred fete, ca. 1938

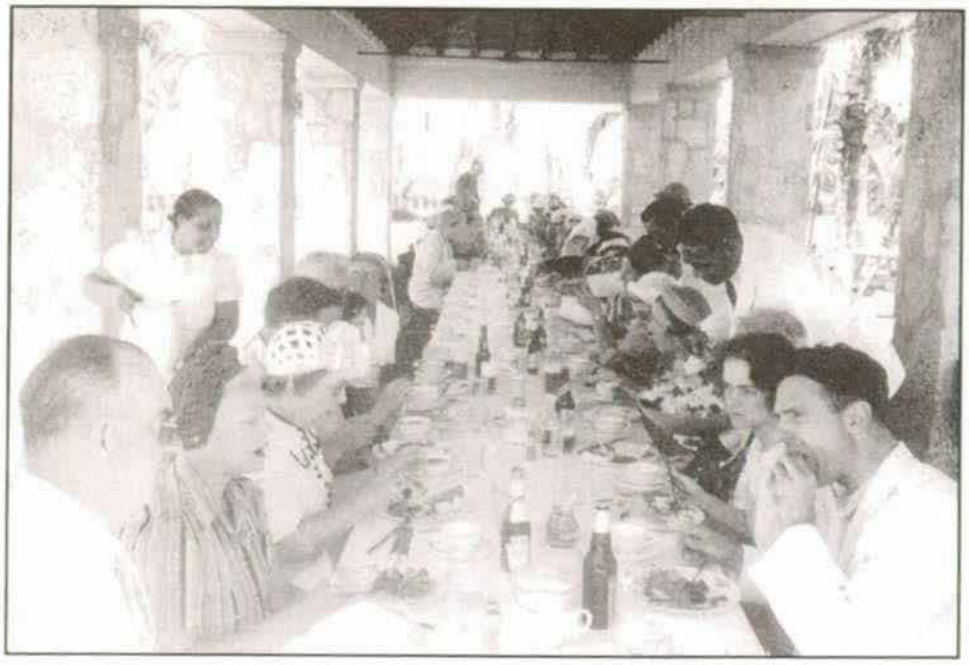

Figure 14. Partygoers enjoy barbecue in the picnic pavilion, ca. 1938

ASSOCIATED PROPERTIES

The Honeywell complex on Boca Chita Key, which includes the lighthouse, chapel, picnic pavilion, garage, engine house, bridge, canal, cannon, stone walls, retaining walls, and concrete walkways is associated with the context, "Recreational Development of Miami and the Florida Keys, 1896-1945." The complex illustrates the growth of the Miami area in the early twentieth century and the spread of development onto the keys in Biscayne Bay. It is also typical of the weekend retreats built by the wealthy elite of Miami during this period.

Physical Characteristics

The complex of buildings and structures built by Mark and Olive Honeywell on Boca Chita Key between 1937 and 1940 forms a locally significant historic district on the north end of the island. All of the structures have exterior surfaces of quarry-faced Miami oolitic limestone. The use of this limestone throughout the area visually unifies the structures and the district.

The lighthouse rises 65 feet from its position north of the harbor entrance. The tower is a tapering cylinder constructed of concrete bricks laid in common bond, with the exterior clad in uncoursed limestone. The base of the tower is approximately 21 feet in diameter and sits on a terrace-like base 28 feet square. An observation deck with painted steel railings projects outward near the top of the tower; the lantern rises from the reinforced concrete deck. The lantern is a dome-shaped steel frame, originally set with glass lights, topped by a small metal finial. Small, deeply inset, rectangular window openings pierce the column of the tower; the doorway has a smooth stone surround that projects slightly from the walls. The interior of the tower houses a circular staircase cantilevered from the walls.

Across the harbor entrance from the lighthouse stands the picnic pavilion. The pavilion rests on a concrete slab measuring 15 feet by 52 feet. Ten squared limestone piers rise from the slab foundation along the long sides of the pavilion; the piers support a simple classical cornice and frieze, above which rises the hipped asphalt shingle roof. The roof framing and two metal tie-bars that extend the width of the structure are visible from the interior of the pavilion.

The chapel is a 12- by 20-foot concrete block building covered with rock-faced, uncoursed oolitic limestone. The chapel has a steeply pitched concave roof with asphalt shingles. The building has two symmetrically arranged openings in each wall; doorways are on the north and east walls. A low wall curves out from the southeast corner of the building to flank the south door.

The garage (or barn) is a 71-foot by 31-foot concrete block building with a reinforced concrete frame. The gabled asphalt shingle roof shelters limestone exterior walls. The building rests on a concrete slab foundation and has low chimneys at either end. The north facade features one standard-size door and four large garage door openings with transom windows; the south or rear facade has five windows, also with transoms.

The engine house or generator building has concrete block walls with limestone facing rising from a concrete slab foundation. The building measures 15½ feet wide by 23½ feet long and has an asphalt shingle, front gable roof. The front facade has a door and window, and the

Figure 15. Chapel, 1997

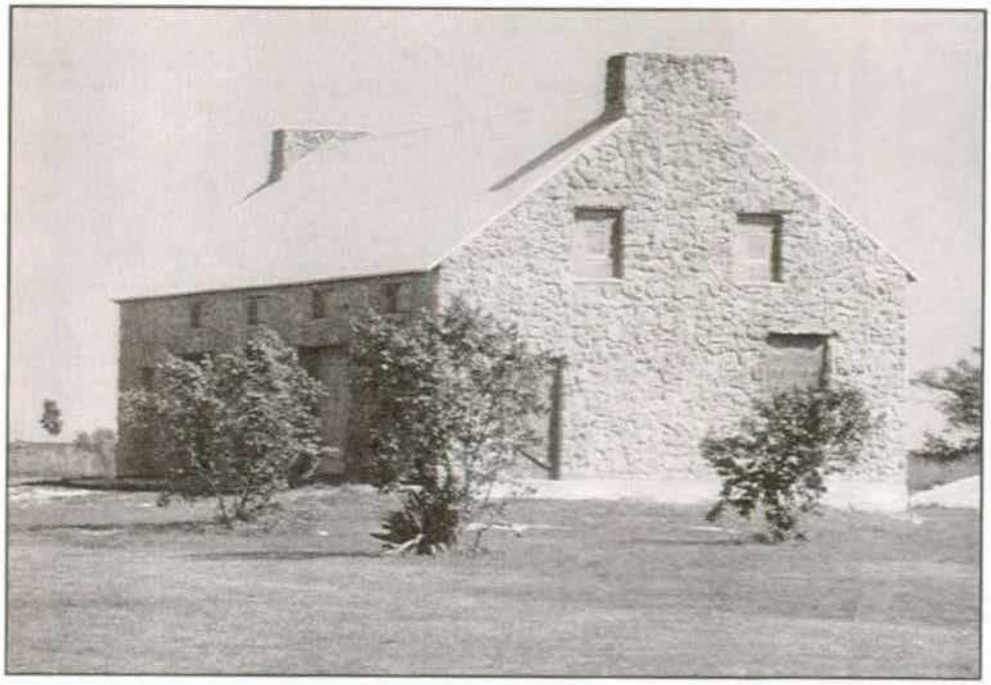

Figure 16. Garage, 1997

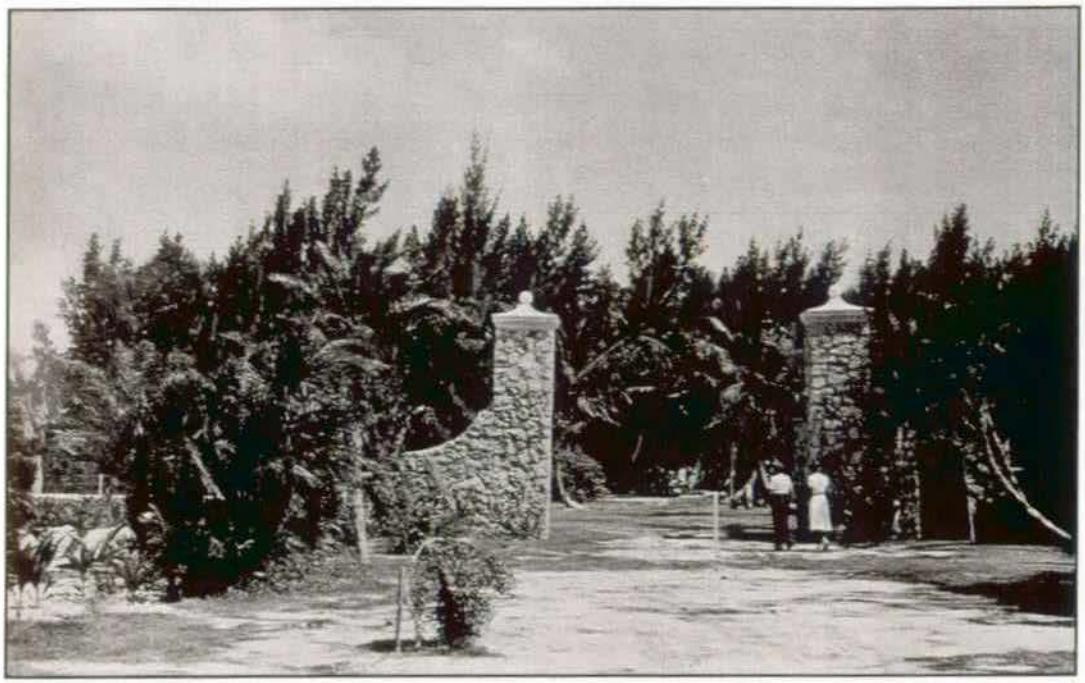

Figure 17. Gate posts in stone wall, ca. 1938

Figure 18. Bridge over canal, ca. 1938

north and south sides have three windows each. The rear (east) wall has no openings; an octagonal concrete cistern with sides of 15 feet each is attached to this facade.

A simple arched concrete bridge spans a narrow, bulkheaded canal, the remains of a channel built from the harbor to the center of the island prior to 1932. The rectangular canal extends approximately 45 feet south beyond the bridge and has walls of uncoursed limestone topped with a concrete coping. The north end of the canal was blocked by the addition of a new metal bulkhead in the harbor in 1995, which left the canal dry. The canal has since been partially filled with dirt. The bridge spanning the canal is 14 feet long and 6 feet wide; 3-foot-high walls of uncoursed limestone rise from the concrete deck. The walls originally flared out into low scroll forms at each end. Hurricane Andrew destroyed about two-thirds of the south wall of the bridge in 1992.

A cannon resting in a stone base sits on the northwest tip of Boca Chita Key near the bottom of the lighthouse. The sloped base has small depressions at the top on either side of the cannon to hold the gun's trunnions. The metal of the cannon is severely corroded. The cannon is classified as an object for National Register purposes.

A concrete slab walkway extends from Boca Chita Harbor east to the main house site, then proceeds south to the engine house. A short walkway also extends northeast from the intersection with the modern boardwalk around to the rear of the house site. The walkway is continuous, except where it crosses the boardwalk at two separate points.

The Honeywells constructed a stone wall around the primary structures in the original complex on Boca Chita. This wall, constructed of limestone on a concrete foundation with vertical steel reinforcing rods, originally ran southeast from the Biscayne Bay shore south of the picnic pavilion about 400 feet, curved tightly east for 35 feet, extended to the east for another 309 feet, then turned north for 155 feet, terminating near the engine house. Seven gateways passed through the original wall, although only three remain. Two of these have 10-foot-wide openings flanked by tall gateposts; the third has a 4-foot-wide opening topped with an arch rising from the wall. Hurricane Andrew destroyed the eastern two-thirds of the wall, including a one-room stone gatehouse.

Honeywell also built a limestone retaining wall along the north side of the island. The dry-laid stone walls extends along the side of the fill. The wall is slowly deteriorating due to the action of wind and waves; some of the stone has fallen away, and all of the surfaces are eroding.

Associative Characteristics

The structures built by Mark Honeywell on Boca Chita Key represent the growth and development of the Miami area in the early- to mid-twentieth century. South Florida, and particularly Miami Beach, grew rapidly during this period because of a combination of factors, including improvements in transportation, increased disposable income, and tireless promotion. The development of Miami Beach spread onto the keys in Biscayne Bay, and the Honeywell complex reflects this development trend.

The complex on Boca Chita is closely associated with the wealthy class of industrialists that emerged between the world wars. These individuals had large disposable incomes, which they

often used to entertain themselves and their friends. Thus they made their winter homes in Miami Beach, joined numerous clubs and social organizations, and built weekend retreats on the keys. Mark Honeywell was an influential member of this wealthy class, and the structures he built on Boca Chita illustrate the interests and inclinations of this class.

The structures also represent typical resort architecture for the Miami area in the 1930s. Popular architectural styles during this period included the Art Deco, Art Moderne, and varying Mediterranean influences. The architectural firm of August Geiger, which designed the lighthouse and probably the rest of the complex as well, often employed the Mediterranean style in its resort designs. The Honeywell complex on Boca Chita, with its quarry-faced Miami oolitic limestone exteriors, provides an example of this type of resort architecture.

Significance

The Honeywell complex on Boca Chita Key, including the lighthouse, picnic pavilion, garage, engine house, chapel, bridge, canal, cannon, stone wall, retaining walls, and sidewalks, forms a locally significant historic district under National Register Criteria A and C. These structures are significant because they are typical of the architectural styles employed on weekend retreats in the Florida Keys during the 1930s. As such, they suggest the growth and development of the Miami area during the early- to mid-twentieth century. They also represent in a broader sense the activities of the wealthy industrial class that emerged between World Wars I and II.

REGISTRATION REQUIREMENTS/INTEGRITY

The complex of structures built by Mark Honeywell on Boca Chita Key forms a locally significant historic district with integrity of location, design, setting, materials, feeling, and association. The lighthouse, picnic pavilion, chapel, garage, engine house, bridge, canal, cannon, walkways, and walls retain integrity of location, materials, and workmanship. All of the structures are in their original locations, and changes to materials and workmanship have been minimal.

All of the buildings in the Honeywell complex on Boca Chita possess integrity of design. In 1992, Hurricane Andrew partially destroyed the stone wall and bridge on Boca Chita. Although the damage impaired the design integrity of these two structures somewhat, enough structural integrity remains to illustrate the original design, function, and use of each. Likewise, time, weather, and erosion have impacted the retaining walls, but not to such a degree that they have lost design integrity. The canal is perhaps the most altered structure; a new steel bulkhead installed in the harbor in 1995 blocked the flow of water into the canal, and dirt fill has been added in the channel. Nevertheless, the original function and use of the canal remains apparent.

The structures built by the Honeywells were laid out on the north end of the island, in the vicinity of the main house built by the previous owner. This house burned in the 1960s, altering the historic setting on the key. The building was not replaced, and only concrete foundations remain. Despite this loss the overall historic setting remains essentially intact; no infill construction exists in the area, and the historic spatial relationships have been maintained. The integrity of setting contributes to the integrity of feeling and association retained by the complex.

Several structures within the proposed historic district are not eligible for the National Register and should be considered noncontributing properties. The foundations of the main house lack sufficient integrity for listing in the National Register. While they mark the location of the main house in relation to the existing structures on the island, the foundations do not contribute to the significance of the district. The bulkhead, built in 1934 by Harrison, predates the other resources and lacks significance and integrity. It is a functional landscape feature that was recently altered by the addition of a second bulkhead by the National Park Service. The ruins of these structures should be listed as historical archeological sites in the park's Archeological Overview and Assessment.

Two other structures, the shower house foundations, which are located near the site of Grandma's Hut, and the boardwalk, which is near the main house foundations, are less than fifty years old and do not relate to the areas or period of significance for the site. As a result, they are ineligible for inclusion on the National Register.

CONTRIBUTING PROPERTIES

Picnic pavilion
Chapel
Garage
Engine house and cistern
Bridge
Canal
Cannon
Stone wall
Retaining walls
Concrete walkways

NONCONTRIBUTING PROPERTIES

Bulkhead
Foundations of main house
Shower house foundations
Boardwalk

CHAPTER FOUR: MANAGEMENT RECOMMENDATIONS

Although Biscayne National Park is primarily a natural area, the Honeywell complex on Boca Chita Key represents a significant historic resource within park boundaries. This complex should be maintained and interpreted to illustrate the history of the site. Retention of the historic structures on Boca Chita can be accomplished without negatively impacting the park's legislated purpose and can support recreational use of the Park by visitors.

The historic Honeywell complex on Boca Chita Key should be preserved, with the lighthouse, picnic pavilion, chapel, garage, engine house, bridge, canal, cannon, stone wall, retaining walls, and concrete walkways maintained as contributing structures within the historic district. The lighthouse and the bridge should be repaired and opened to the public. Consideration should also be given to re-opening the canal beneath the bridge to restore the historic appearance and function of these structures. The stone retaining walls should be retained and allowed to weather naturally.

Any proposed development on the key should take into account the size and scale of the historic structures and the overall plan of the complex. Compatible small-scale development would be acceptable within the large open area in the vicinity of the old main house site, the area between the engine house and the garage, and in the natural section to the south. Development of the historic core of the complex, roughly delineated by the stone wall on the south, the main house site on the east and the shoreline on the north and west, should be avoided.

The main house site was central to the original plan for the complex. Its location may be considered for archeological testing. Development in the area between the house site and the harbor should be avoided. New construction in and around the harbor should be minimized and should not adversely impact existing historic structures. All sight-lines between the major structures of the complex, including the main house site, pass over the harbor, so development around the harbor could greatly impact the integrity of the complex.

The next RMP update should include project statements for the Cultural Landscape Inventory (CLI) and a subsequent Cultural Landscape Report (CLR) for Boca Chita Key. The CLI, like the LCS, is a computerized evaluated inventory of all cultural landscapes having historical or cultural significance located within properties owned or managed by the NPS. Once the significant elements of the historic landscape have been identified and evaluated, restoration of the historic landscape may be recommended.

Interpretation of the site should focus on Honeywell and the wealthy industrialists with whom he associated, as well as on the work of August Geiger, an architect popular with Honeywell and his associates. The development of the key should also be referenced because the development of Boca Chita mirrored that of other keys in upper Biscayne Bay. The construction of the bulkhead and filling of the island as well as the later introduction of exotic plants illustrate on a small scale the changes wrought elsewhere in the bay on a much larger scale.

If the Park does not already maintain building files for historic structures, it should establish a building file system. Building files should contain information about the condition and maintenance history of each structure. Many LCS properties have been altered over the years, and the dates and nature of the alterations should be documented in the Park files. Section 106 documentation and maintenance records are important sources of information about alterations to historic structures. Park building files should contain at a minimum a copy of the LCS form, a black and white photographic print, and other pertinent information related to the history and maintenance of the property.

The architectural ruins on Boca Chita Key, as well as those on other keys, need to be included in the park's Archeological Overview and Assessment for their potential contribution to the historical record.

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APPENDIX A

ARCHITECTURAL DESCRIPTIONS AND RECOMMENDED TREATMENTS FOR THE HONEYWELL COMPLEX ON BOCA CHITA KEY

Except for the Fowey Rocks Lighthouse, which is not owned by the National Park Service, all surviving architectural resources in Biscayne National Park are located on Boca Chita Key. Foundations, cisterns, modified landforms, shipwrecks, and prehistoric sites exist in and around other keys in the park; however, none of these are historic architectural resources.

Mark C. Honeywell owned Boca Chita Key from 1937 to 1945 and probably built his vacation retreat between 1937 and 1940. No documents have been found verifying the dates of construction or the designer of the structures. Jim Church, a junior draftsman in the architectural firm of August Geiger, prepared the blueprints for the lighthouse and named Leon Angle Camp and Jack Hunt as the designer and contractor, respectively. Because of similarities of design and construction, it is believed that the Geiger firm also designed the other structures on the island. The firm's principal, August Geiger, was a prominent architect in the Miami area, practicing from 1905 until the late 1940s. His significance as an architect is discussed in appendix B.[1]

The Honeywell complex is located on the north end of Boca Chita Key. This end of the key is man-made, composed of fill material atop the original limestone. The fill is twelve to thirteen feet deep on either side of the mouth of the harbor, becoming shallower to the east and southeast. The fill is only a little more than five feet deep near the eastern shore of the island near the garage building.[2]

All of the buildings on Boca Chita were constructed with exterior walls of Miami oolitic limestone.[3] Miami oolite has been used as a building material in South Florida since the mid-nineteenth century. The typical use is as rubble masonry, quarry-faced and unfinished, as found on Boca Chita. Less frequently the oolite is used for decorative highlights, as around the lighthouse door.[4]

The stone in the buildings on Boca Chita is likely to have problems similar to those exhibited by the coquina at Castillo de San Marcos in St. Augustine. The stones are of a similar age and

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[1]Geiger also designed the Honeywells' Miami Beach home and a studio for their estate in Indiana. *Florida Architecture and Allied Arts* (Miami, Fla.: Florida Architecture and Allied Arts, 1939); *Florida Architecture and Allied Arts* (Miami, Fla.: Florida Architecture and Allied Arts, 1941).

[2]KBC Consultants, Inc., "Report of GeoTechnical Consulting Services" (November 10, 1993).

[3]Not to be confused with Key Largo limestone, which is also known as 'keystone' or 'coral rock.'

[4]Metropolitan Dade County Office of Community and Economic Development, Historic Preservation Division, *From Wilderness to Metropolis: The History and Architecture of Dade County, Florida, 1825-1940*, (Miami, Fla.: Metropolitan Dade County, 1982), 164.

chemical make-up, but the stone on Boca Chita has been exposed to weathering for a shorter period of time. Design differences should result in fewer problems at Boca Chita because the buildings have fewer horizontal surfaces for rain and ocean spray to penetrate.

The structures on Boca Chita Key have proven sturdy in the decades following their construction. Thirteen hurricanes have blown through Dade County since 1939. During at least four of these storms the eye passed over Boca Chita Key. The buildings weathered their first test in 1941 when the eye of a hurricane passed just to the south of Miami, with winds measured at 123 miles per hour at Dinner Key. Sailing Baruch, who owned Boca Chita from 1950 to 1953, recorded that he had ridden out a hurricane in the lighthouse. This was probably Hurricane King, a category 3 storm which passed over Boca Chita in 1950. The most recent experience was Hurricane Andrew, which swept over the island in 1992. Andrew's gusts reached a speed of 169 miles per hour at nearby Fowey Rocks Lighthouse.[5] The stone structures on Boca Chita have withstood the winds and the storm surges well, incurring little damage except to roofs, windows, and minor structural features.

Architectural descriptions of contributing and noncontributing properties within the Boca Chita Key Historic District follow. The descriptions, as well as the attached list of problems and recommended treatments, are based on the survey of the site in August 1995 by David Cullison. The Park has since completed restoration work on a number of the historic structures on Boca Chita; however, these changes are not reflected in this appendix.

Contributing Properties

Boca Chita Lighthouse (LCS 90190; HS-1): Honeywell reportedly built the lighthouse on Boca Chita as a beacon to guide himself and his guests to the island. A popular story reports that the United States Coast Guard ordered it shut down after its first lighting in the late 1930s because it was not a registered and approved navigational aid. However, the floor of the lantern at the top of the tower has no attachments for affixing a light and appears never to have had any, casting doubt on the story.

The core of the tower is open, with the concrete bricks forming a shell around the open center with its spiral staircase. Oolite is laid on the outside of the concrete. The exterior of the building is of rubble masonry construction, using Miami oolitic limestone. The lower section of the tower is constructed as a plinth, which is wider than the upper sections. The base of the tower measures just under 21 feet in diameter. The plinth is topped by a water table, a rounded course of limestone that both merges the projecting plinth with the set-back upper section of the

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[5]Ivan Ray Tannehill, *Hurricanes: Their Nature and History—Particularly Those of the West Indies and the Southern Coasts of the United States* (Princeton, N.J.: Princeton University Press, 1952), 227; Nicholas N. Patricios, *Building Marvelous Miami* (Gainesville, Fla.: University Press of Florida, 1994), 278-79; Yelen, 3; National Hurricane Conference, *Lessons of Hurricane Andrew, Excerpts from the 15th Annual National Hurricane Conference, April 13-16, 1993, at Twin Towers Hotel, Orlando, Florida*, comp. by Lawrence S. Tait (Tallahassee, Fla.: Federal Emergency Management Agency, 1993), 15.

wall and acts as a coping for the plinth. Above this course the wall tapers upward to the reinforced concrete deck, which serves as the floor of the gallery and the top floor beneath the lantern. The lantern is a dome-shaped steel frame, originally set with glass lights, and topped by a small metal finial. The frame rises directly from the floor, and consists of four pieces bolted together. After Hurricane Andrew the dome was removed, sandblasted, and repainted. The dome construction is similar to that of the Alhambra Water Tower (1926) in nearby Coral Gables.

A steel ladder provides access to the lantern through a rectangular hole in the floor, currently covered by a wooden hatch. A simple painted steel balustrade encloses the gallery. Small, deeply inset, rectangular window openings pierce the column of the tower. Several openings still hold the wooden casements that formed the original windows; in other cases only elements of the steel hardware remain. In all cases the glass is missing.

A circular staircase occupies the interior of the tower; the stairs are cantilevered, allowing the center to remain open. The balustrade is the same type as that enclosing the gallery. A reinforced concrete intermediary floor is set between the ground and the gallery level.

The front doorway has smooth stone surrounds projecting slightly from the walls. The door is a simple batten pattern. Three stone steps lead to the doorway, which is deeply set between walls of polished, coursed ashlar blocks of oolitic limestone. A single large slab of shaped stone spans the entry.

The tower is reported to stand atop a cistern. The foundations appear well constructed; the tower has stood on 13 feet of relatively loose fill since 1939. The foot of the tower is set on a terrace-like base paved with the same stone used in the body of the tower. This terrace is square, 28 feet on each side, with chamfered corners. Each corner holds two low piers connected by curving stone walls. Each of the three sides away from the front entrance has a heavy steel or iron chain stretched across it, with the ends secured in the flanking piers. The tops of the piers and low walls are coped with a thin layer of concrete.

The lighthouse is a modest representation of the Streamline Moderne style. The curves of the upper concrete gallery deck and the dome are typical of this style, as are the swirling interior stairs and the curves of the entry steps and roof. Both the Streamline Moderne style and its antecedent, the Art Deco, were popular in the Miami area in the 1920s and 1930s.

Problems and Recommended Treatments–In 1992, Hurricane Andrew destroyed all the glass in the tower as well as some of the wooden casement frames. The Honeywell Foundation of Wabash, Indiana, is underwriting the replacement of the glass in the lantern. The missing casements should be replaced with similar wooden windows. The surviving frames should be repainted and missing elements replaced. The front door needs to be repainted and any missing elements replaced.

The major potential problem with the lighthouse is a vertical crack running down the front of the tower (east face) from the base of the concrete collar at the gallery level nearly to the top of the door frame. Photographs taken in 1992 show that the crack predates Hurricane Andrew. The cause of the crack cannot be determined without further study. The most common cause of

cracks in masonry walls is differential settlement; however, the placement of this crack seems to rule out settlement as the cause. The most likely cause of the crack appears to be stress from the uneven distribution of the weight of the concrete at the top of the tower. Another possibility is stress caused by the high winds associated with the several hurricanes that have struck Boca Chita since the tower was built. This possibility seems less likely because of the apparent lack of structural damage by Hurricane Andrew in 1992, however.

A structural engineering consultant's advice should be sought to identify the cause of the damage and determine whether the crack has stabilized.[6] If the crack is still active, then the stress on the masonry must be alleviated. Otherwise, portions of the facade may eventually collapse. If the crack has stabilized (i.e., the crack itself has relieved the structural stress), then only relatively simple repairs will be necessary. The stones around the crack will need to be examined to assure that they remain bonded to the rest of the facade, and the crack will need to be sealed with a mortar that has been matched to the original material. The purpose of the crack sealing is two-fold: to prevent water penetration and accompanying deterioration of the surrounding stonework, and to cosmetically blend the crack into the rest of the facade.

A less threatening problem is the deterioration of stone at the water table, the course topping the plinth near the bottom of the lighthouse. Close examination of the stone shows that the curved surface here is slowly dissolving, likely because of rainwater abetted by blowing salt spray. Acid rain will speed this process, but even pure water can dissolve limestone given enough time. Water runs quickly down the nearly vertical sides of the upper tower, but slows as this course of stone curves to approach the horizontal. The flow speed increases again below this course, down the vertical walls of the lower tower. This type of problem has been identified in the past in other structures built of oolitic limestone.[7]

The most likely method to prevent continued erosion is to seal the stone, allowing the water to flow past without penetrating and dissolving the material. The easiest method of sealing the stone would be to apply a layer of concrete over the stones in this course; however, this method would compromise the design integrity of the lighthouse. Chemical methods of sealing stone are available, but all are controversial. The best immediate response appears to be to simply monitor the situation. The deteriorating stone should be measured to establish a baseline, and further measurements taken at regular intervals to determine the speed of deterioration. If damage continues too rapidly, repairs would be necessary to preserve the long-term integrity of the facade. If the erosion is slow, the park may want to allow time for better products to reach the market. In the long run, the stones in this course may eventually need to be replaced.

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[6]A simple test to determine whether the crack has stabilized is to place a patch of plaster across the crack and to observe the patch for several months.

[7]See Wilson G. Martin, "Oolitic Limestone Conservation: A Case Study in Conservation and Maintenance, Governor's Mansion, Salt Lake City, Utah," *APT Bulletin* XVII, 2 (1985): 25, 27.

The paving stones of the terrace are also dissolving, probably for the same reasons as the stones of the water table. The treatment considerations are the same, except that use of concrete, or any paving material other than the current stones, would greatly change the look of the building and detract from its integrity.

The chains strung between the piers around the terrace are also deteriorating. The damage thus far is minimal, but corrosion can be expected to continue unless protective measures are taken. The recommended treatment is to seal the metal away from the salt air. The simplest method of protecting the chains is to remove all rust and then paint them, preferably a dull black color to simulate their natural state. As with any painted surface, this will need to be renewed periodically.

Boca Chita Chapel (IDLCS 90191; HS-2): The chapel is a small (12 feet by 20 feet) building constructed of concrete block faced with uncoursed Miami oolitic limestone. The most eye-catching feature is the unusual steeply pitched, concave roof. The building has two openings in each wall, symmetrically arranged, with doorways on the north and east walls. All of these openings were boarded over with plywood at the time of the site visit; prior to Hurricane Andrew the windows held double-hung sash. The window- and doorsills are of concrete. A low wall curves out from the southeast corner of the building to flank one of the entry doors. New fiberglass/asphalt shingles cover the roof, replacing a similar covering destroyed in the 1992 hurricane.

Problems and Recommended Treatments–Hurricane Andrew removed the roof, damaged the roof framing, and damaged the windows and doors on the building. The park has already repaired the roof framing and replaced the asphalt shingle roof; however, the windows and doors have not been replaced. All windows and doors should be replaced in kind.

The stonework below some of the windows is stained, probably by ferrous oxide leaching from the concrete sill. This is a common problem when portland cement is close to limestone, marble, and some sandstones. The preferred method of cleaning is to use a treated poultice (a description of this procedure is included in appendix C). The staining will reoccur, but cleaning every few decades should be more cost-effective than replacing the concrete sills. However, if replacement becomes necessary, a nonstaining portland cement should be used.

Boca Chita Picnic Pavilion (IDLCS 90192; HS-3): Ten squared oolitic limestone piers rise from a 15-foot-by-52-foot concrete slab base. The piers probably are constructed around either a steel or a reinforced concrete core. They are aligned in two parallel rows, creating a structure four bays long and one bay wide. A simple, classical cornice and frieze separate the piers from the hipped roof. The cornice was partially repaired after Hurricane Andrew. New fiberglass/asphalt shingles replace similar material destroyed in the hurricane. Unusual metal tie-bars help hold the two sides of the structure together. Both the tie-bars and the roof framing are visible inside the pavilion.

Problems and Recommended Treatments–Prior to Hurricane Andrew, a frame addition stood at the north end of the pavilion, and the pavilion was screened. Both of these features were destroyed in the storm, and the park does not intend to replace them. The park has repaired the damage to the roof and cornice caused by Hurricane Andrew, and the structure appears to be in good condition.

Boca Chita Garage (IDLCS 90193; HS-4): Also known as the barn or maintenance building, this concrete block structure has a reinforced concrete frame and an exterior of uncoursed oolitic limestone. The structure rests on a concrete slab foundation and measures 71 feet by 31 feet. New fiberglass/asphalt shingles cover the steel roof trusses. The rectangular solidity of the building, along with its gabled roof and the low chimneys rising at each end, give the impression of a Colonial residence. The barn has no stylistic details. The north side has four large garage door openings; the fifth bay is occupied by a standard-size door. A transom is set below the eaves above each of the larger doors. The rear (south) facade has five windows, each with a transom above. Two smaller windows are set in the upper wall on the west ends. All window- and doorsills are concrete. At the time of the survey all windows and three of the large doors were boarded with plywood. A new garage-type door had been installed in the fourth bay.
Problems and Recommended Treatments–Hurricane Andrew removed the roof, damaged portions of the roof framing and the upper walls, and damaged or destroyed all the windows and doors. The roof and walls have been repaired, but only one of the doors has been replaced. The remaining doors and windows should be replaced with materials similar to the originals. The modern garage door that has been installed should also be replaced with one that more closely resembles the original.

As in the chapel, the walls are stained beneath the concrete sills. Cleaning poultices as described in appendix C should remove the stains.

Boca Chita Engine House and Cistern (IDLCS 90194; HS-5): Also known as the generator building, this concrete block structure with concrete slab foundation measures 15½ feet by 32½ feet. The rear third of the structure is built of a different type of concrete block than the front, although no corresponding variation can be discerned on the exterior. The exterior walls are of uncoursed oolitic limestone. The front-gabled roof has been re-covered with asphalt/fiberglass shingles, replacing the old roof damaged by Hurricane Andrew. The narrow building front has a door and window. The door appears to be original. The rear wall has no openings. Originally, the rear was gabled, but it is now hipped as a result of repairs undertaken after Hurricane Andrew. An octagonal concrete cistern, 15 feet on each side, is attached to the rear (east) of the building. A shed porch on the south side of the building was demolished by the hurricane and will not be rebuilt.
Problems and Recommended Treatments–At the time of the site visit the windows were covered with plywood. The original windows should be repaired or replaced to match the originals. Staining beneath the windows should be poulticed.

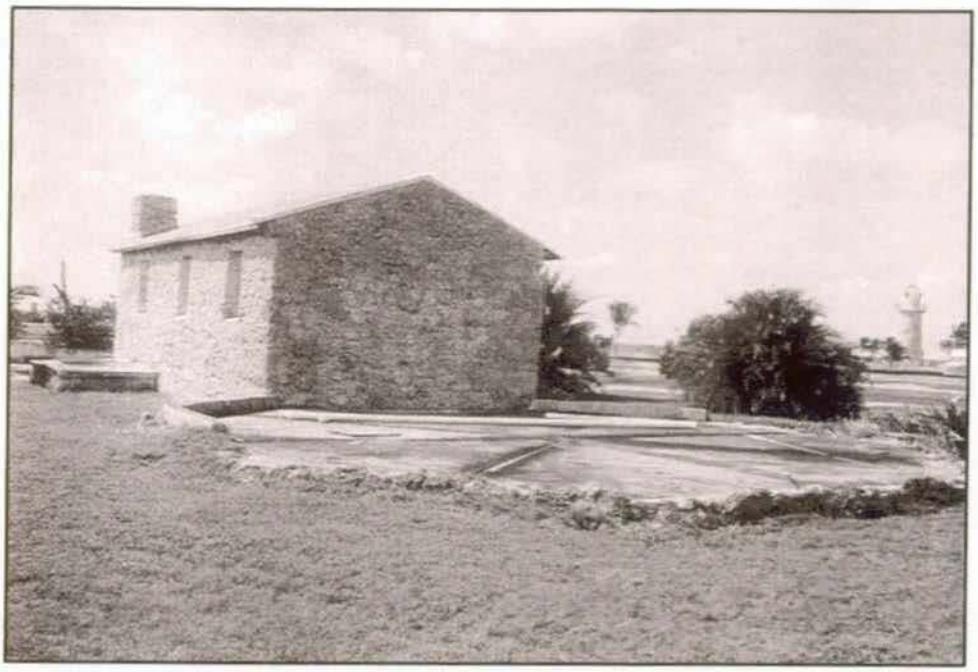

Figure A- 1. Engine House, 1997

Boca Chita Bridge (IDLCS 90195; HS-6): A simple arched concrete bridge spans a small, bulkheaded canal. The bridge is 14 feet long and 6 feet wide. The deck and the arched reinforcements on either side below the deck are of reinforced concrete, while the 3-foot-high walls are of uncoursed oolitic limestone. Each of the walls originally flared out into low scroll forms at either end. Hurricane Andrew removed about two-thirds of the south wall of the bridge.

Problems and Recommended Treatments–Most of the concrete sheathing on the bottom of the bridge deck has pulled free and has fallen from the bridge, exposing the corroded reinforcement and forming cracks in the upper surface of the deck. The reinforcing bars in the ribs beneath either side of the deck are also exposed. Photographs taken in 1992 prior to the hurricane show the exposed rebars in the ribs. It is likely that the reinforcement under the deck had begun to decay before the storm and that the surf and storm surge dislodged the loose concrete. Although the original corrosion might be due to seawater contamination of the original cement mixture, it is more likely that the corrosion is the result of salt infiltration due to long-term exposure to seawater. The concrete survived a long time before showing the corrosion, and nothing similar has been found in any of the other buildings constructed at the same time.

An engineer experienced with both historic structures and marine conditions should be consulted. The most thorough method of repair in this situation is to expose and clean the metal reinforcements within the bridge and to protect them from future corrosion before fresh concrete

is applied. Care should be taken to add new, rust-proof reinforcements to guarantee the bond between the new concrete and the old. Other methods are sometimes useful and may be recommended by a consulting engineer. Plans for the canal under the bridge will also impact the choice of reinforcement material for the bridge.

At the time of the site visit the new bulkhead being installed in the harbor blocked off the canal from the sea. Removal of the water from under the bridge alters the historic function and use of the structure and damages its integrity. On the other hand, blocking the canal has the benefit of preventing direct contact between seawater and the bridge, eliminating the need for waterproof reinforcement.

The bridge wall should be rebuilt to replicate the historic work. The original material may be recoverable from the canal under the bridge. If the stones have not been damaged by their immersion, they should be re-used. If the original material is too deteriorated, matching stone may be used.

Boca Chita Stone Walls (IDLCS 90196; HS-7): The original complex included a stone wall around the primary structures in the original complex on Boca Chita. The wall was constructed of oolitic limestone on a concrete foundation, with steel reinforcing rods running at intervals vertically through the stonework, tying it to the foundation. Prior to Hurricane Andrew, the stone wall on Boca Chita ran southeast from the Biscayne Bay shore south of the picnic pavilion about 400 feet, curved tightly east for 35 feet, extended to the east for another 309 feet, then turned north for 155 feet, terminating near the engine house. Seven gateways passed through the original wall, but only three remain. Two of these are 10 feet wide and are flanked by tall gateposts. The third is only 4 feet wide and is topped by a small arch rising above the wall. The hurricane demolished the eastern two-thirds of the wall, excluding small segments, as well as a one-room stone gatehouse. The park plans to retain the ruins of the wall in place.

Problems and Recommended Treatments–The destruction of more than half of the wall by Hurricane Andrew presents two alternatives for its treatment: 1) to reconstruct the damaged wall sections, or 2) to allow the remains of the wall to remain in place, with no reconstruction. The park has chosen the second alternative, in part because reconstruction of the wall would be expensive. Removal of the rubble is not recommended because the ruins illustrate the original function of the wall to delineate between the developed and natural sections of the key.

Boca Chita Canal (IDLCS 91570; HS-8): The canal predates the bridge, appearing on a 1932 map of the area. It extends about 45 feet to the south beyond the bridge. The canal walls are uncoursed limestone topped by a concrete coping. The canal is rectangular in form; the stone retaining walls forming the canal enclose its south end, and the metal bulkhead installed in 1995 encloses the north end. The north end formerly was open to the harbor.

Problems and Recommended Treatments–The south end of the canal broke loose during the hurricane, possibly due to subsidence of the fill beneath it. This section may be repaired to its original condition using the displaced stones, but preservation of the integrity of the site does

not require this, especially if the canal is to remain dry. Cracks should be repaired with similar stones and a concrete coping should be installed to prevent the damage from expanding and to protect visitors.

The stones of the canal walls show obvious signs of deterioration from their immersion in seawater. The deterioration cannot be stopped if the stones continue to be exposed to the sea, but the rate of dissolution appears slow enough that the wall could stand for another twenty or thirty years. If the park chooses to maintain a dry canal, deterioration will be greatly decreased and perhaps eliminated.

Boca Chita Retaining Walls (IDLCS 91571; HS-9): Dry-laid stone retaining walls are found on the north side of the island.[8] These walls are constructed of oolitic limestone. The retaining wall on the north is distributed along the side of the fill. Some of the stone has fallen away, and all has deteriorated to some extent. The wall appears weathered and thus has the natural look of stone shores on the seaward side of several of the other keys in the park.
Problems and Recommended Treatments–Repair of these walls is not necessary to maintain the historic integrity of the site. If the park decides to repair the walls, they should reinstall fallen stones rather than incorporating new material. If an insufficient number of fallen stones are found, matching material should be used. Spot infill of stones is preferred over mass replacement of the historic material.

Concrete Walkways (IDLCS 91616; HS-10): A concrete slab walkway extends from the harbor east to the main house foundations, then proceeds south to the engine house. A short walkway also extends northeast from the intersection with the modern boardwalk around to the rear of the house site. The walkway is continuous, except where it crosses the boardwalk at two separate points.
Problems and Recommended Treatments–The concrete walkways are in good condition; however, they are threatened by development at the site. The historic traffic patterns at the Honeywell complex should be preserved, and the park should consider using existing walkways in plans for future development of visitor facilities on the island.

Boca Chita Cannon: The cannon is cradled in a stone base with small depressions on either side to hold the gun's trunnions. The stone of the base is in good condition, but the cannon is badly corroded, with the outer layers exfoliating. The muzzle of the gun is open, allowing water to enter and, incidentally, providing a nest for a crab. This cannon apparently was cast in two

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[8]Retaining walls also exist along both sides of the shallow drainage channel on the west side of the island; however, the walls are outside the Boca Chita Key Historic District boundary and little is known about their construction. A third stone retaining wall lines the short canal from the harbor, but it is different in character and has been discussed in the section dealing with the Boca Chita Bridge.

parts, with the inner section and outer of two different alloys. Where the inner material is exposed near the muzzle it does not appear corroded.

Problems and Recommended Treatments– The surface of the cannon needs to be protected from both rain and saltwater. The surface will need to be prepared by the removal of rust, which in this case will be difficult because of the extent of the corrosion. Only manual methods should be used to remove the corrosion; a wire brush should probably be used, but chemical application might also be a possibility. The metal should then be stabilized by painting with primer and a black finish coat appropriate to the salt environment. The joints where metal rests against stone should be carefully examined for openings where water could pool against the gun or flow under it and the openings sealed. The mouth of the gun should be plugged to prevent water infiltration.

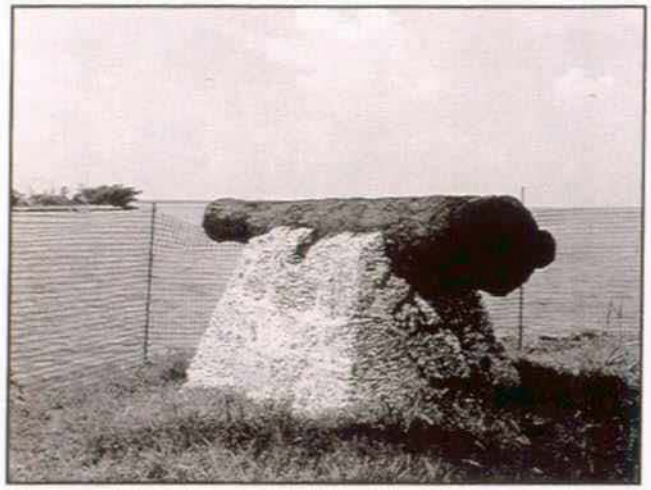

Figure A- 2. Cannon, 1995

Noncontributing Properties

Boca Chita Bulkhead: A bulkhead is a vertical retaining wall constructed to hold fill in place and to prevent erosion by the sea. The original bulkhead on Boca Chita was reportedly constructed of wood in either the later 1910s or early 1920s. This wall was probably destroyed in a hurricane. Milton W. Harrison installed the first steel bulkhead on the island in the early 1930s. This structure remains, but the National Park Service installed a new steel bulkhead in 1995 between the water and the old bulkhead. The gap between the two was then filled with earth. The new bulkhead resembles the one it replaced, although it probably better resists the damaging effects of the marine environment. Bulkheads are present in the harbor, the northwest point of the island, and the west side of the island from the harbor to a point south of the stone wall.

Problems and Recommended Treatments–The older bulkhead has deteriorated in several places, primarily as a result of surface run-off. The areas of greatest corrosion and deterioration are at the heads of shallow erosion gullies. These gullies should be filled and the run-off problems solved to slow further deterioration of the steel.

Foundations of Main House–The concrete foundations of the main house exist within the historic district. They are located near the center of the district, east of the harbor, north of the engine house, west of the stone wall, and southeast of the chapel.

Shower house foundation–A concrete block and cement slab foundation measuring 12 feet by 6 feet marks the location of a shower house at the site of Grandma's Hut. The foundation is located directly south of the main house ruins.

Boardwalk–The National Park Service constructed a wooden boardwalk on Boca Chita Key after Hurricane Andrew devastated the island in 1992. The boardwalk extends east from Boca Chita Harbor at two separate points, merging just south of the main house foundation ruins.

Other Comments on the Site

A concrete slab marks the site of the main house. This building predated the Honeywell tenure on the island but served as the primary housing for the Honeywells and subsequent owners until the 1960s, when it burned. A concrete sidewalk leads from the harbor to the house site. A limestone pavement runs along the old bulkhead in front of the main house site. The stones show signs of dissolution, apparently caused by water pooling on the stone. The park plans to build a raised walkway along the bulkhead which would cover this terrace, although it may not protect the surface from continued water damage.

Until recent years the Australian pine (*Casuarina equisetifolia*) was a very common tree on the island. This exotic was introduced into South Florida in the early twentieth century and was widely used in local landscaping. The park has established a program to remove the pine from all park property to limit its propagation and the destruction of native species. Although the Australian pine was probably used in the original landscaping of the site, the problems caused by the tree more than outweigh the value of its retention. All Australian pines appear to have been removed from Boca Chita, and some have been replaced by native plantings. The 1992 hurricane caused some damage to the new plantings and killed off the native mangrove swamp located in the center of the south side of the island. Research and anecdotal evidence show that damaged mangroves have grown back after earlier hurricanes.[9]

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[9]See Peter Wayne Harlem, *Aerial Photographic Interpretation of the Historical Changes in Northern Biscayne Bay, Florida, 1925 to 1976*, Sea Grant Technical Bulletin No. 40 (Coral Gables, Fla.: University of Miami, 1979), 3, for mangrove destruction by the 1926 hurricane and subsequent regrowth. Also see R. Munroe, 187, for a brief description of the denuded Ragged Keys after the 1906 storm.

APPENDIX B

AUGUST GEIGER

August Geiger was born in New Haven, Connecticut, in September 1887. Geiger grew up in New Haven and began vacationing in the Miami area with his family around 1899. After completing his formal education at Boardman's Manual Training School, Geiger decided to study architecture and secured a position with a New Haven firm. In 1905, Geiger moved his permanent residence to Miami, working for a local architectural firm for six years before opening his own practice. Geiger opened a second office in Palm Beach in 1915; at that time, he and Addison Mizner were the only architects with offices in the growing resort city.[1]

Geiger experimented with a number of architectural styles during his career in South Florida, including the Mission, Italian Renaissance, and Art Deco.[2] Geiger is best known, however, for introducing the Spanish Colonial or Mediterranean Revival style to the area in 1915 with his design for the Miami City Hospital, locally known as "the Alamo." This building and the Miami Beach Municipal Golf Course House, built in 1916, were similar in design and appearance:

> *In both buildings...Geiger employed a classical sense of design through elements like scale, proportion and symmetry, befitting the architect's Beaux Arts training. These elements were expressed in a Spanish idiom of applied stucco ornaments, arcaded ground floor loggia and a tile roof. Not truly Spanish, the style was inspired rather by the architecture of California, Texas and New Mexico during the years of Spanish territoriality. Geiger had actually created the earliest traceable example of Spanish Colonial Revival architecture in Miami.*[3]

Geiger's designs were popular with the wealthy industrial class that vacationed in South Florida, and his firm built many of their winter homes in Miami Beach and elsewhere. Geiger also served as the architect of the Dade County School Board and designed several schools in the county. The Geiger firm additionally designed churches, commercial buildings, and hotels, including Carl Fisher's first hotel on Miami Beach, the Lincoln.

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[1]James O. Jones Company, *The Book of Florida,* (N.p.: Florida Editors Association, 1925), 347; Donald W. Curl, *Mizner's Florida: American Resort Architecture,* American Monograph Series (New York: Architectural History Foundation; Cambridge: MIT Press, 1984), 62; George M. Chapin, *Florida, 1513-1913, Past, Present and Future* (Chicago: S. J. Clarke Publishing, 1914), 599-600.

[2]Metropolitan Dade County Office of Community and Economic Development, Historic Preservation Division, 86; Armbruster, 35.

[3]Metropolitan Dade County Office of Community and Economic Development, Historic Preservation Division, 87-88.

Partial List of Geiger's Buildings

This chronological list of buildings designed by August Geiger is based on secondary sources,[4] with no examinations of the buildings themselves. Some of these structures have been demolished, and some may be duplicates.

Neva Cooper School, built as the Homestead Public School (1914), is located at 520 NW 1st Avenue in Homestead. Geiger described this building as being in the Mission style, although it lacks some of the important characteristics of that style as defined today. The school is listed on the National Register.

Geiger designed Carl Fisher's first hotel on Miami Beach, the ***Lincoln Hotel***, which was constructed in 1914 or 1916 at the southwest corner of present Washington Avenue and Lincoln Road. The 32-room building was intended to be an apartment house. The hotel was modeled after Italian Renaissance buildings. The "first luxury accommodations on the Beach" opened its doors on January 20, 1917, but by 1921 was considered "too rustic" to meet Fisher's needs. The site of the hotel is located within the Art Deco District.

The clubhouse of the *Miami Beach Municipal Golf Course* (1915) is located at 2100 Washington Avenue. More recent names for the structure are the Miami Beach Community Center, the Washington Avenue Community Center, and the Carl Fisher Clubhouse. This is the oldest building remaining on Miami Beach and is included in the Art Deco Historic District. This is believed to be the first use of Mediterranean style architecture on the Beach and one of the first in the Miami area.

The *Alamo* (constructed 1915-1918) is the popular name given to the Mediterranean style building located at 1611 NW 12th Avenue in Miami. This is the original building of the Miami City Hospital (Jackson Memorial Hospital) and, along with the Miami Beach Municipal Golf Course Clubhouse, the first use of the Mediterranean style in the Miami area. Geiger won a competition to design the hospital. The building is listed on the National Register.

The *Hindu Temple* is a residence built for John Seybold, a Miami merchant, in 1920. Seybold was inspired to request this house from Geiger by a similar structure built as part of a movie set on this same site, 870 NW 11th Street, Miami.

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[4]Material for the list was compiled from: Metropolitan Dade County Office of Community and Economic Development, Historic Preservation Division; Patricios; *The Book of Florida*; Barbara Baer Capitman, *Deco Delights: Preserving the Beauty and Joy of Miami Beach Architecture* (New York: E. P. Dutton, 1988); Armbruster; Kleinberg; *Florida Architecture and Allied Arts*, 1939, 1940, 1941; Curl; Works Progress Administration; and Patricia Gabriel, *The Villagers' Book of Outstanding Homes of Miami* (Coral Gables, Fla.: University of Miami Press, 1975).

St. Francis Hospital, 250 W 63rd Street, Miami Beach, was built in 1924 in the Mediterranean style, although the building had been "greatly altered" by 1982.

Carl Fisher Residence (1925). This was Fisher's second house on Miami Beach and is located in the 5000 block of North Bay Road. The house was constructed in the Neo-Classical style, reportedly modeled after Italian villas of the Renaissance. The house originally included a large rectangular tower from which Fisher and his prospective customers could look out over Miami Beach. The tower has since been removed.

Miami Women's Club (1925) was originally built as the Flagler Library, 1737 North Bayshore Drive in Miami. Geiger won a competition judged by the AIA to design this building. The building is listed on the National Register.

Geiger acted as associate architect with A. Ten Eyck Brown, of Atlanta, on the *Dade County Courthouse* (1925), located at 73 W. Flagler Street. The 27-story, Neo-Classical style building is listed on the National Register.

In 1925 Geiger designed the *First Church of Christ, Scientist* at 1836 Biscayne Boulevard in Miami. The WPA *Guide to Miami* describes the church as "an excellent example of the simplicity and purity of ancient Greek architecture."

The 1925 *Book of Florida* reports that Geiger had constructed "the *Maison des Beaux Arts* Building on Lincoln Road to provide ideal shops for the beach." The building, located within the Art Deco District, was built in the early 1920s.

Kleinberg reports that Geiger designed the *Allison Hospital* for Jim Allison, a friend of Carl Fisher. The three-story building was in the "Spanish Style" and was built by John Orr. The building cost $3.5 million to construct and was opened on January 1, 1926. (This might be the same building as the St. Francis Hospital described above.)

The *Ida M. Fisher Junior High School*, 1424 Drexel Avenue in Miami Beach, was constructed in 1936 as the Miami Beach Senior High School. The Mediterranean style building was designed by Geiger and constructed by the Public Works Administration (PWA). The school is located in the Art Deco district.

North Beach Elementary School, 711 Arthur Godfrey Road, Miami Beach, was constructed in 1936.

Built in 1937, the *Chase Federal Bank* building originally housed the Chase Federal Savings and Loan. The address is variously given as 1630 Lenox Avenue or 1100 Lincoln Road in Miami

Beach. Patricios calls this building "one of the last Moderne works in Miami Beach," while Capitman calls it "one of the last works of this master of the Federal Deco style." An alteration to the building is illustrated in the 1941 edition of *Florida Architecture and Allied Arts.*

The 1939 issue of *Florida Architecture and Allied Arts* includes photographs of "*Residence of Mr. and Mrs. George A. Steiner*, Miami Beach, Florida," designed by Geiger.

The 1939 issue of *Florida Architecture and Allied Arts* includes photographs of "*Residence of Mr. and Mrs. Mark C. Honeywell*, Miami Beach, Florida," designed by Geiger. The Miami *Social Register* gives Honeywell's address as 4567 Pine Tree Drive, Miami Beach, each year from 1936 through 1945.

Addition to the *Central Elementary School*, Miami Beach, Florida

Railey-Milam Store Building, Miami, Florida, Modernized

Studio of Mr. Mark C. Honeywell, Wabash, Indiana

A commercial building for *S. A. Ryan*

APPENDIX C

CLEANING STAINS ON HISTORIC STONE MASONRY

The Secretary of the Interior's Standards for Rehabilitation require that, "The surface cleaning of structures...shall be undertaken using the gentlest means possible."[1] The limestone on many of the structures on Boca Chita Key has been stained by the corrosion of iron used in the concrete construction. This appendix outlines a poultice treatment recommended for removing iron stains from limestone. Further information about mixing and using poultices to clean masonry is available in *Practical Building Conservation—Volume I, Stone Masonry* by John Ashurst and Nicola Ashurst, and *Keeping It Clean: Removing Exterior Dirt, Paint, Stains and Graffitti from Historic Masonry Buildings* by Anne E. Grimmer.

Recipe for cleaning iron stains from limestone:

Before cleaning, test the poultice on a small, unobtrusive section of the masonry to determine whether there will be any unwanted effects on the stone.

1) Make a mixture of 7 parts glycerine, 1 part sodium citrate, and 6 parts warm water.
2) Add attapulgite clay to the solution until a smooth paste is formed.
3) Apply the paste to the stained surface and leave until dry.
4) Remove the paste with a wooden or other non-metallic spatula.
5) Repeat (3) and (1) as often as required to lift or satisfactorily lighten the stain.

For very stubborn stains:

1) Wet the surface with a solution of 1 part sodium citrate and 6 parts water.
2) Apply an attapulgite wet pack containing sodium hydrosulphite (sodium dithionite).
3) Lift off and follow by washing with copious amounts of clean water.

Note: Some success has been achieved using an amine complex of hydrocaboxilic acid in aqueous solution.[2] Ammonium oxalate has also been suggested as a substitute for the sodium

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[1]U.S. Department of the Interior, National Park Service, *The Secretary of the Interior's Standards for Rehabilitation and Illustrated Guidelines for Rehabilitating Historic Buildings* (Washington: U.S. Department of the Interior, 1992), vii.

[2]John Ashurst and Nicola Ashurst, *Practical Building Conservation—Volume 1, Stone Masonry*, English Heritage Technical Handbook (New York: Halsted Press, 1988), 62. The same recipe is given in John Ashurst

citrate and glycerine. Suggestions for other materials with which to replace attapulgite can be found in the National Park Service publication *Keeping It Clean*.[3]

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and Francis G. Dimes, *Conservation of Building and Decorative Stone*, vol. 2 (London: Butterworth-Heinemann, 1989), 135.

[3]Anne E. Grimmer, *Keeping It Clean: Removing Exterior Dirt, Paint, Stains and Graffiti from Historic Masonry Buildings* (Washington: U.S. Department of the Interior, National Park Service, Preservation Assistance Division, Technical Preservation Services, 1987), 31, 20-21.

APPENDIX D

FOWEY ROCKS LIGHTHOUSE

The United States Coast Guard owns the Fowey Rocks Lighthouse, although the structure is located within the boundary of Biscayne National Park. The surveyor could not obtain access to the lighthouse but examined the structure from the deck of a boat. The lighthouse appears eligible for listing in the National Register.

Figure D- 1. Fowey Rocks Lighthouse, 1995

In 1875, after many years of complaint about the inadequacy of the old Cape Florida light, the Lighthouse Board decided to replace it with a new one located on Fowey Rocks, seven miles from shore "on the northern extremity of the reef."[1] The Fowey Rocks Lighthouse, once called the "Eyes of Miami,"[2] is one of a group of six skeletal lighthouses constructed on the Florida Reef between 1852 and 1880. It is the northernmost of the lights and the fifth built. This network of lights did much to lessen the dangers of navigation in the Florida Straits.

The Lighthouse Board supervised the architectural drawings for the new structure on Fowey Rocks. The board contracted with Paulding and Kemble, of Cold Spring, New York, to provide materials and labor to build the bottom of the tower, and Pusey Jones and Company, of Wilmington, Delaware, to finish the structure in 1877. Soldier Key, the nearest land, was used as the base for construction. When bad weather set in, heavy seas made transit from the key to the construction site impossible for many days at a time. Workers were forced to camp on the new lighthouse's platform in order to continue work. The keeper's dwelling was

[1]The Fowey Rocks owe their name to the *HMS Fowey*, a British frigate wrecked there in 1748. Kirk Munroe, "Lights of the Florida Reef," in Irving A. Leonard, *The Florida Adventures of Kirk Munroe* (Chuluota, Fla.: Mickler House, 1975), 183-84.

[2]Love Dean, *Reef Lights: Seaswept Lighthouses of the Florida Keys* (Key West, Fla.: Historic Key West Preservation Board, 1982), 103.

completed on April 30, 1878, the lens was installed on May 25th, and the light was illuminated on June 15, 1878.[3]

The Fowey Rocks Lighthouse is a cast iron, octagonal, skeletal tower constructed on piles screwed into the coral below. The tower stands in about 4 feet of water and rises 110 feet above the sea.[4] The tower's frame is made up of vertical members at each corner of an octagon, interconnected by horizontal girders and diagonal tie-rods. Above the initial rise the tower becomes an open cone, truncated at the base of the lantern.

The keeper's home is an octagonal Second Empire structure located some 35 feet above the coral. Set within the framework of the tower, it is also constructed of cast iron, and has one story plus the area under the Mansard roof. The windows in the upper level are hooded. The remains of a boat winch projects from one wall of the keeper's house. An enclosed cylindrical stairway connects the living quarters with the lantern above. Simple metal balustrades enclose the galleries on the level of the living quarters and at the lantern. The glass is missing from the lantern, but the bell-shaped metal roof above it appears to be intact. The structure, or at least the upper portions of it, was exhibited at the 1876 Centennial Exposition in Philadelphia.[5] The light was automated in 1974. The tower is in fair condition but is deteriorating. It appears to be poorly maintained.

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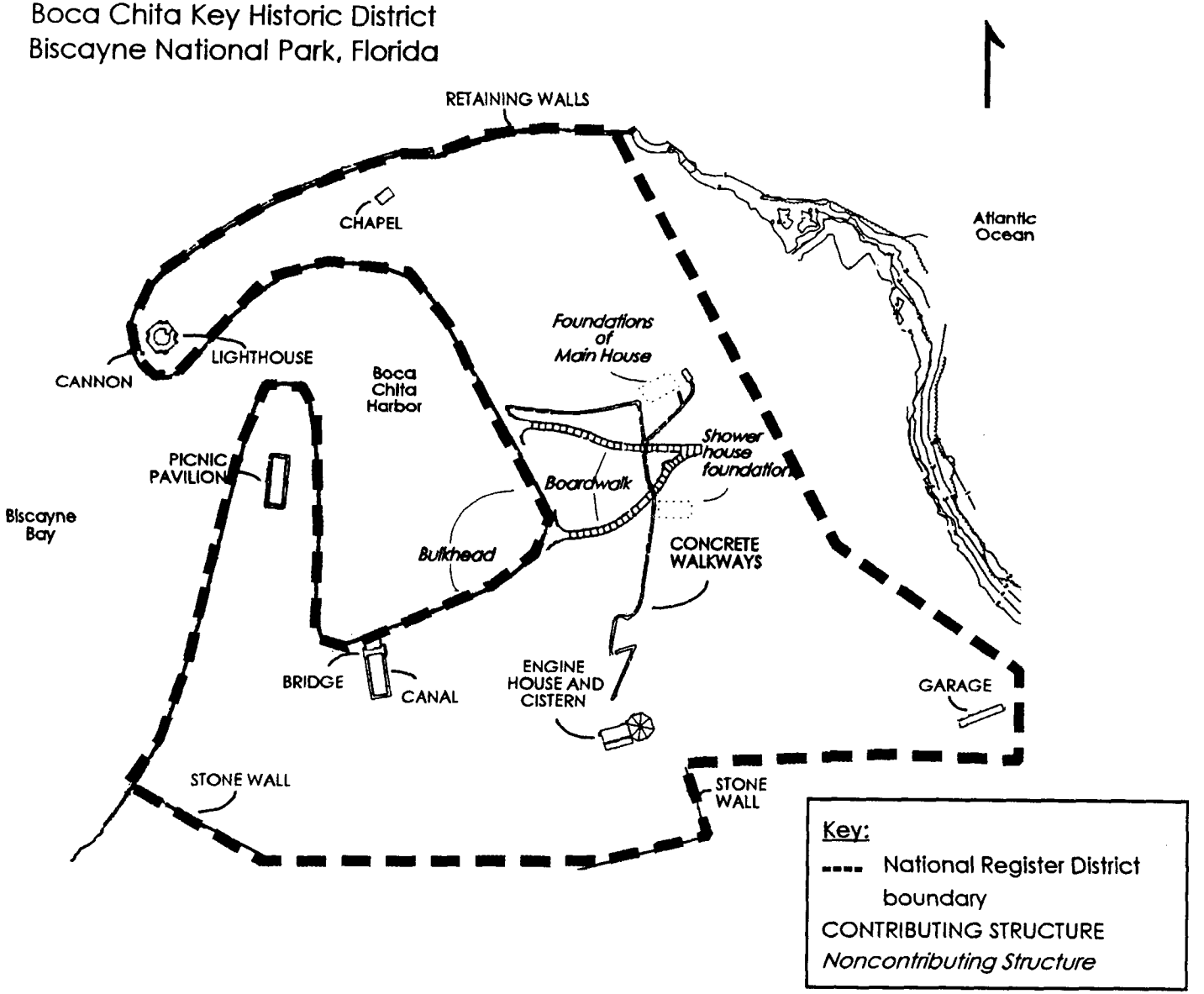
[3]Ibid., 98-100.

[4]Ibid., 128.

[5]R. Munroe, 78, and K. Munroe, 184.

Historical Base Map
Boca Chita Key Historic District
Biscayne National Park, Florida



APPENDIX E

HISTORICAL BASE MAP

APPENDIX F

NATIONAL REGISTER NOMINATION FOR BOCA CHITA KEY HISTORIC DISTRICT

NPS Form 10-900
(Rev. 10-90)

OMB No. 1024-0018

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
REGISTRATION FORM

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in How to Complete the National Register of Historic Places Registration Form (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name Boca Chita Key Historic District

other names/site number _____

2. Location

street & number The northwest portion of Boca Chita Key, bounded by Biscayne Bay on the north and west, the remnants of a stone wall on the south, and an imaginary line on the east that arcs behind the developed area from the stone wall to the north shore

not for publication ___

city or town vicinity of Miami

vicinity ___

state Florida *code* FL *county* Dade *code* 025

zip code _____

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1986, as amended, I hereby certify that this ____ nomination ____ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property ____ meets ____ does not meet the National Register Criteria. I recommend that this property be considered significant ___ nationally ___ statewide ___ locally. (___ See continuation sheet for additional comments.)

_____ _____

Signature of certifying official *Date*

_____

State or Federal agency and bureau

In my opinion, the property ✓ meets ____ does not meet the National Register criteria. (___ See continuation sheet for additional comments.)

Judith E. Ketig, DSHPO 5-28-97

Signature of commenting or other official *Date*

Bureau of Historic Preservation, Florida Dept. of State

State or Federal agency and bureau

4. National Park Service Certification

I hereby certify that this property is:

X entered in the National Register ___ See continuation sheet.	[illegible]	8/1/97
___ determined eligible for the National Register ___ See continuation sheet.		
___ determined not eligible for the National Register		
___ removed from the National Register		

___ other (explain): _____

for *Signature of Keeper* *Date of Action*

5. Classification

Ownership of Property
(Check as many boxes as apply)

___ private
___ public-local
___ public-State
x public-Federal

Category of Property
(Check only one box)

___ building(s)
x district
___ site
___ structure
___ object

Number of Resources within Property
(Do not include previously listed properties in the count)

Contributing	Noncontributing	
3	0	buildings
0	0	sites
8	4	structures
1	0	objects
12	4	Total

Number of contributing resources previously listed in the National Register N/A

Name of related multiple property listing (Enter "N/A" if property is not part of a multiple property listing.) N/A

6. Function or Use

Historic Functions (Enter categories from instructions)	*Current Functions* (Enter categories from instructions)
DOMESTIC/secondary structure	LANDSCAPE/park
TRANSPORTATION/pedestrian-related	

7. Description

Architectural Classification (Enter categories from instructions)	*Materials* (Enter categories from instructions)
MODERN MOVEMENT/Moderne	*foundation:* CONCRETE
	walls: STONE/Limestone
	roof: ASPHALT
	other:

Narrative Description (Describe the historic and current condition of the property on one or more continuation sheets.)

8. Statement of Significance

Applicable National Register Criteria (Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing)

_x_ A Property is associated with events that have made a significant contribution to the broad patterns of our history.

___ B Property is associated with the lives of persons significant in our past.

_x_ C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.

___ D Property has yielded, or is likely to yield information important in prehistory or history.

Criteria Considerations (Mark "X" in all the boxes that apply.)

___ A owned by a religious institution or used for religious purposes.

___ B removed from its original location.

___ C a birthplace or a grave.

___ D a cemetery.

___ E a reconstructed building, object, or structure.

___ F a commemorative property.

___ G less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance
(Enter categories from instructions)
ARCHITECTURE
ENTERTAINMENT/RECREATION
SOCIAL HISTORY

Period of Significance
1937-1945

Significant Dates

Significant Person
(Complete if Criterion B is marked above)

Cultural Affiliation
N/A

Architect/Builder
August Geiger Firm

Narrative Statement of Significance (Explain the significance of the property on one or more continuation sheets.)

9. Major Bibliographical References

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS)
___ preliminary determination of individual listing (36 CFR 67) has been requested.
___ previously listed in the National Register
___ previously determined eligible by the National Register
___ designated a National Historic Landmark
___ recorded by Historic American Buildings Survey # _____
___ recorded by Historic American Engineering Record # _____

Primary Location of Additional Data
___ State Historic Preservation Office
___ Other State agency
_X_ Federal agency
___ Local government
___ University
___ Other

Name of repository: National Park Service, Southeast Support Office, Atlanta Federal Center, 1924 Building, 100 Alabama Street, SW, Atlanta, GA 30303

10. Geographical Data

Acreage of Property 11

UTM References (Place additional UTM references on a continuation sheet)

	Zone	Easting	Northing		Zone	Easting	Northing
A	17	582740	2822940	D	17	582980	2823000
B	17	583100	2822960	E	17	582920	2823180
C	17	583070	2823010	F	17	582750	2823110

___ See continuation sheet.

Verbal Boundary Description (Describe the boundaries of the property on a continuation sheet.)

Boundary Justification (Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title David Cullison, Historian, and Jennifer Brown Leynes, Historian

organization National Park Service, Southeast Support Office

date May 30, 1997

street & number Atlanta Federal Center, 1924 Building, 100 Alabama Street, SW

telephone (404)562-3117

city or town Atlanta *state* GA *zip code* 30303

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps
A USGS map (7.5 or 15 minute series) indicating the property's location.
A sketch map for historic districts and properties having large acreage or numerous resources.

Photographs
Representative black and white photographs of the property.

Additional items (Check with the SHPO or FPO for any additional items)

Property Owner *(Complete this item at the request of the SHPO or FPO.)*

name National Park Service

street & number P.O. Box 37127 *telephone* _____

city or town Washington *state* DC *zip code* 20013-7127

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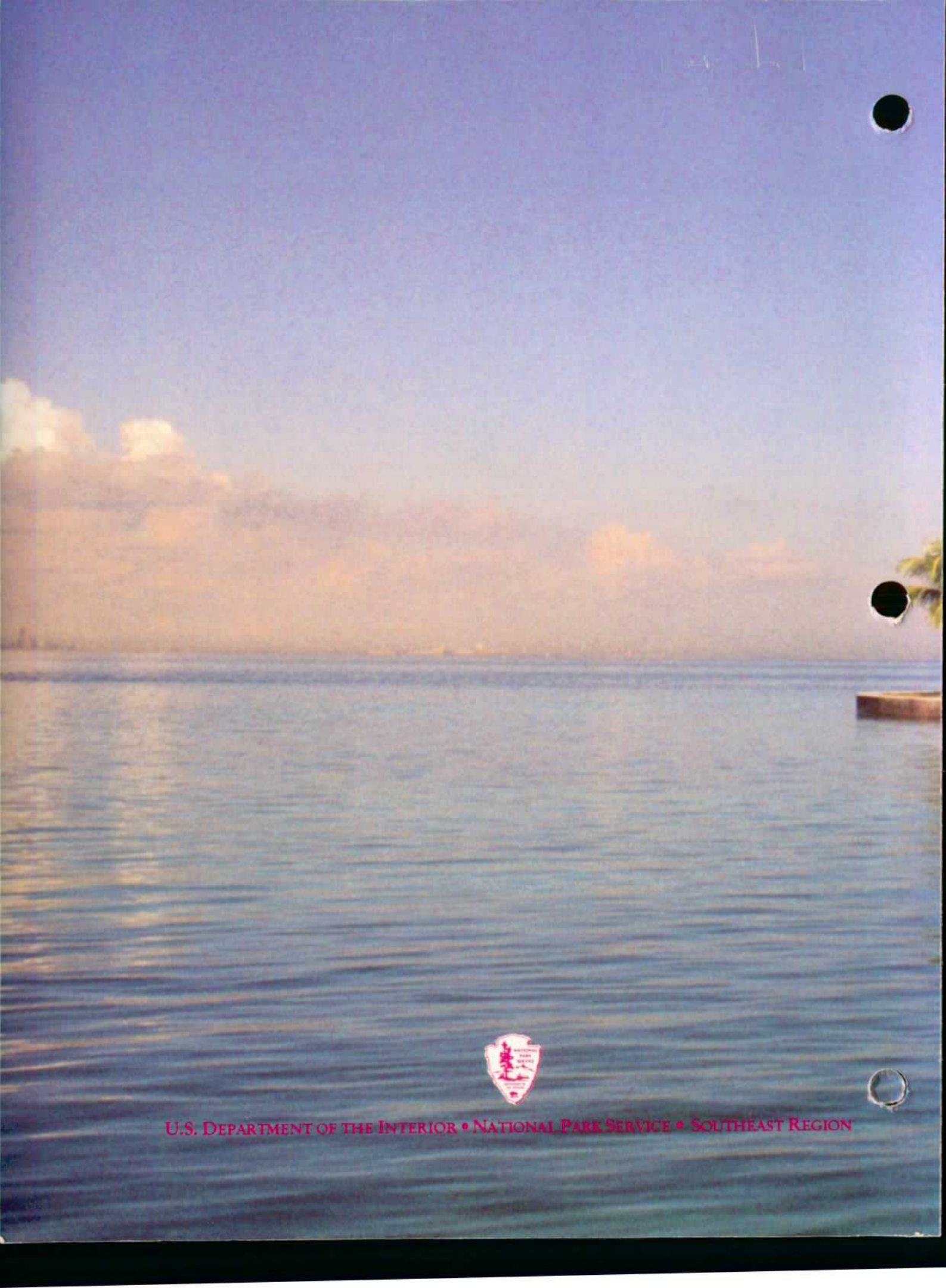

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