

Defending The Florida Reef: A History of the Coastal and Harbor Defenses of Key West, Florida, Part 1: 1829-1895

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Preface

Thanks to Glen Williford and Robert D. Zink for the information they have made available over the years. Their encyclopedic knowledge of so many aspects of seacoast fortification and harbor defense is truly legendary. Thanks Bruce E. McCall for his assistance in providing much needed documentation during the research stage of this expanded study, and acknowledges the assistance of the staff of the U.S. Army Military History Institute at Carlisle Barracks, PA, and the staff at the U.S. Army Center of Military History, in Washington D.C.

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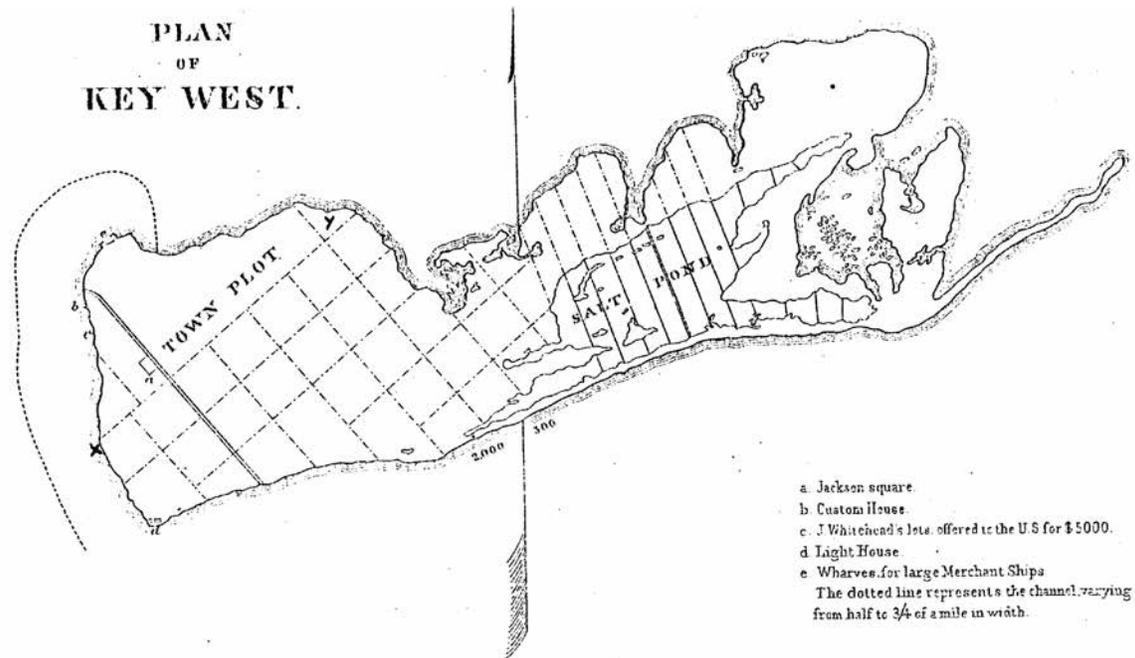
In 1993, a shorter version of this study entitled "The Coastal and Harbor Defenses of Key West, Florida" appeared in the *CDSG Journal*, Vol. 7, No. 4, (Fall 1993), pp. 21-30.

The U.S. Navy Establishes a Naval Station and Depot

The Florida Keys are comprised of a series of low-lying isles, or keys, that extend in a southwesterly direction from Cape Florida at the southeastern end of the Florida Peninsula. These keys emerged from a mixture of coral, limestone, and oolite between 48,000 to 100,000 BC.

Located at the southernmost end of this string of small islands is the island of Key West. It was supposedly mapped and claimed for Spain by Ponce De Leon in 1513. The island's present name is a corruption of the Spanish, Cayo Hueso, or Bone Island. According to tradition, the name was suggested by the large number of human skeletons, the sole remains of a tribe of warring Indians who had been driven steadily southward down the islands of the Florida Reef until they were finally exterminated by rival tribes in a last stand at Key West. From Key West the string of keys continues generally west another 70 miles, terminating in the Dry Tortugas Islands.

From the 16th century through the early 1800s, the Florida Reef claimed no less than 83 ships on its shoals and coral reefs as they transited the Florida Passage and Florida Straits. Key West eventually became the center for "wreckers" who salvaged the cargos of the stricken vessels.



The island of Key West was granted to Juan Pablo Salas by the Spanish Government in 1815. The Spanish colonies of East and West Florida were initially ceded to the United States on February 22, 1819, but the actual transfer did not take place until October 24, 1820. After Florida became a territory of the United States on February 22, 1821, Juan Salas sold the island to John W. Simonton, a New Jersey trader, on December 20, 1821, for \$2,000. In January 1822, Simonton in turn sold an interest in the island to John Whitehead, John W.C. Fleming, and Parden C. Greene, recouping his initial investment. Initially the Florida Keys were a part of Saint Johns County, but on July 3, 1823, the Keys and that part of the Florida Peninsula south of Lake Okeechobee were made a part of Monroe County.

Key West became an official port of entry to the United States in 1822. Key West, incorporated as a city on January 8, 1828, had no harbor in the strict sense of the word; the “harbor” was more accurately an open roadstead known as “Man of War Harbor,” sheltered on the east by Key West Island and on the other three sides by coral reefs and low islands or “keys” across which the ocean swept during storms and hurricanes. In the early 19th century, four buoyed channels afforded access to the harbor. The Southeast Channel, some 12,500 yards long, had a minimum depth of about 23 feet. The 300-foot-wide Main Ship Channel, some 10,000 yards long, ran nearly north and south through the reefs and then turned northwest into the central part of the roadstead. The channel of the Southwest Passage cut through the offshore reefs for a distance of some 21,500 yards. It, however, only had a depth of about 18 feet due to numerous coral outcroppings and nodules. The Northwest Channel was 18,000 yards long, with a depth of only 19 feet.(1)

During the 1820s, Midshipman David D. Porter, USN, was dispatched to the Florida Reef to rid the southeastern coast of pirates such as Blackbeard (Capt. Edward Teach) and the remnants of Jean Lafitte’s crews who were operating in Gulf waters. On March 25, 1822, Lieutenant Matthew C. Perry, USN, commanding USS *Shark*, an armed schooner engaged in suppressing the pirates and slave trade in the Caribbean, arrived in Key West Harbor, and the flag of the United States was raised for the first time on the island. Commodore John Rogers in the sloop of war USS *Erie* arrived at Key West in June

1822 and found the island well suited as a base for the West Indies Squadron's anti-piracy operations. Later in the year, Capt. L.T. Patterson, USN, and 2nd Lt. Stephen Tuttle, CE, an assistant to the Board of Engineers, arrived with orders to survey the coastline and the harbor of Key West. Soon, more vessels entered the harbor with cargos of stores and supplies. By the end of 1822, a regularly constituted naval station and depot had been established at Key West. From this location, the U.S. Navy was able to operate with increased efficiency and maximum security against an enemy attempting to enter the Gulf of Mexico through either the Florida Straits or by way of the Yucatan Passage between Mexico and Cuba's western tip. The navy, anticipating the island's use as a naval station, renamed Key West as Thompson's Island, but that name quickly fell into disuse, and the island's name remained Key West. (2)

Barracks and Battery Planned by The Army

The United States Army began to take a serious interest in the Florida Reef in 1829, based upon the surveys carried out in 1822. An enemy's possession of Key West would provide his fleet with a base of operations and place the commerce along the entire Gulf coast at his mercy. Key West, just 90 miles north of the Spanish colony of Cuba, had been the subject of a report in March 1829 by Assistant Surgeon Edward Macomb to Lt. Col. George M. Brooke on the area's health. Macomb's report was favorable and Col. Brooke, then assigned to the 4th U.S. Infantry Regiment, was sent to Key West in March 1829, to select a location for quarters and a battery site for the defense of the island's small naval station and harbor.(3)

The civilian owners quoted \$5,000 as the purchase price for three lots on the west side of the island near the U.S. Custom House. Colonel Brooke in a letter to Maj. Gen. Alexander Macomb, Commanding General of the Army, on December 24, 1829, recommended establishment of a barracks and garrison, and a battery on the northwest point of the island, in the vicinity of the U.S. Customs House. In order to cover the waters of Man of War Harbor, Brooke felt the battery should be armed with 18-pounder and 24-pounder smoothbore guns.(4)

Key West Barracks was finally established January 2, 1831, on a two-acre tract of land fronting Garrison Bight on the island's northeast side. The post was adjacent to the harbor of Key West and about one mile from the center of town. Key West's first federal garrison came to the island in February 1831, when Bvt. Maj. James McMillan Glassell arrived with two companies of the 6th United States Infantry Regiment. From that date forward, for more than a century, elements of the United States Army would be posted there, albeit on an irregular basis.(5)

The site facing Garrison Bight proved too contracted for even Glassell's small command. Consequently, in 1833 an additional 14.79 acres was purchased from Mary Fleming and others. In 1835, additional lots were purchased from Parden C. Greene, and in 1837, eight more acres were acquired from Mr. and Mrs. James Webb. These acquisitions increased the size of the reservation to about 25 acres.(6)

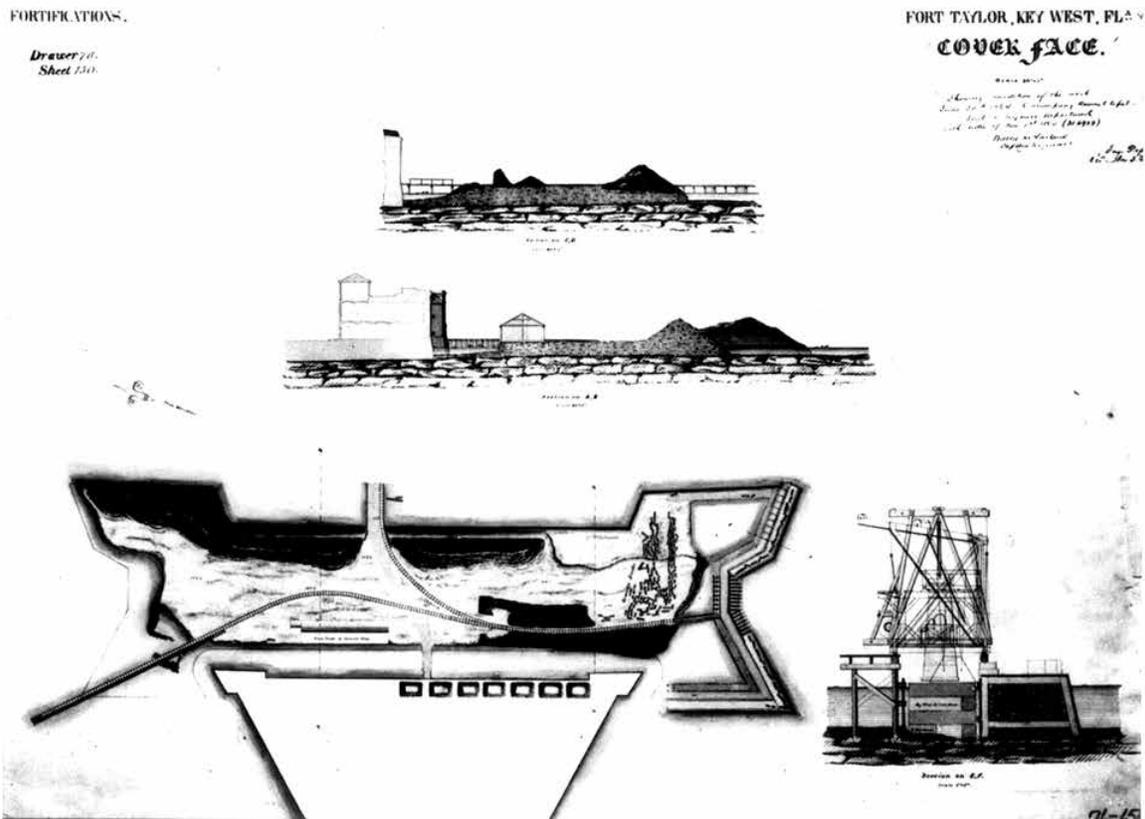
Forts Planned for the Florida Reef

Although fortifications were considered necessary for the island, little was done to provide any defenses for several years. On March 29, 1836, Lt. Col. Joseph Gilbert Totten, senior member of the Corps of Engineers' Board of Engineers, recommended that the Florida coast be surveyed from Cumberland Sound to Pensacola Bay, and preliminary costs and estimates be prepared for fortifying Key West as well as the Dry Tortugas Islands, seven small keys and numerous reefs and flats some 68 miles west of Key West. Fortifications planned for Key West and the Dry Tortugas were estimated at

approximately \$3,000,000. These preliminary figures did not, however, lead to the immediate commencement of defenses on the Florida Reef.(7)

Four years later, another board of officers comprised of now Chief of Engineers Colonel Totten, Lt. Col. Sylvanus Thayer, CE, Lt. Col. George Talcott, an experienced ordnance officer, and Col. Truman Cross, acting assistant quartermaster general, developed recommendations for works at Key West “adequate to resist escalade, bombardment and cannonade from vessels, and to sustain a protracted investment.” The works were to have “...capacious storerooms, be thoroughly bombproof, and be heavily armed.” Because no detailed surveys had yet been undertaken, no additional details of the projected defenses at Key West were offered. The estimates of \$3,000,000 made in 1836 were still considered “ample.”(8)

Although fortifications on the “Florida Reef” remained very much on the drawing board, it was not until 1844 that anything substantive was developed regarding works at Key West. In his annual report to the Secretary of War in 1844, Totten explained his rationale for the non-implementation of fortifications on the Florida Reefs, pointing out that it was necessary to first secure the safety of the ports of New Orleans, Mobile, and Pensacola before commencing works at Key West and the Dry Tortugas. However, early in 1844, Totten had called upon Capt. John Gross Barnard, an experienced fortification engineer, to conduct a survey and a “general reconnaissance” of the Florida Reef. Barnard completed his survey and made his report to Totten in November 1844, recommending that a square, three-tiered structure be constructed of native stone at the southwest point of the island. The two lower tiers were to contain 24 bombproof casemates, the whole work surmounted by an open tier arranged to receive 16 barbette guns. Upon receipt of Barnard’s report, Totten recommended to Secretary of War William Wilkins that a board of engineer officers should conduct detailed surveys of Key West as soon as possible, preliminary to commencing the new fortifications with the least practicable delay.(9)



Progress drawing of the fort at Key West and its proposed coverface. (NARA)

Florida became the 27th state on March 3, 1845. On December 2, 1845, a board of engineers was sent to make a detailed survey of the Florida Reef with a view to constructing fortifications at Key West and Dry Tortugas. Presided over by Maj. William H. Chase, the senior engineer officer on the Gulf Coast, this board consisted of Maj. John Lind Smith, and Capt. Henry Brewerton, CE, and Capt. George Dutton, CE. Dutton would ultimately be assigned as the superintending engineer of the fortifications to be built at Key West. A month later the board filed its report to Colonel Totten. They called for a work even larger than that projected by Captain Barnard. Using the recommendations of the Chase Board, the Key West fort was planned by Colonel Totten. Totten took a direct interest in the design of the forts built while he served as chief engineer (1838-1863), and personally supervised the preparation of the initial architectural drawings for Fort Taylor. This plan was developed so as to cover the four channel approaches to Key West Harbor. In order to successfully attack Key West, its commerce, and shipping, an enemy fleet would have to enter the roadstead, as the range of naval ordnance and seacoast artillery in the pre-Civil War period was less than 2,000 yards.(10)

Engineering Operations Are Begun on a Fort at Key West

Upon receipt of the board's report, Totten requested \$150,000 be appropriated to initiate construction of a fort at Key West, as well as one on Garden Key in the Dry Tortugas. Congress, however, saw fit to appropriate only \$50,000 for Key West, an amount barely sufficient for Capt. George Dutton, the newly appointed superintending engineer at Key West, to commence work. A tract of submarine land just under 63 acres some 1,000 feet offshore of Whitehead Point on the southwest end of the island was acquired between October 15, 1845, and February 17, 1846, from John Barcroft, William C. and Elizabeth M. Green, John W. Simonton, and Hetty Green. Having spent much of 1844 securing title to the land tracts and to the collection of materials for constructing the fort, Dutton finally obtained clear title to the site of the fort in 1845. The government paid \$15,954.61 for the future military reservation.

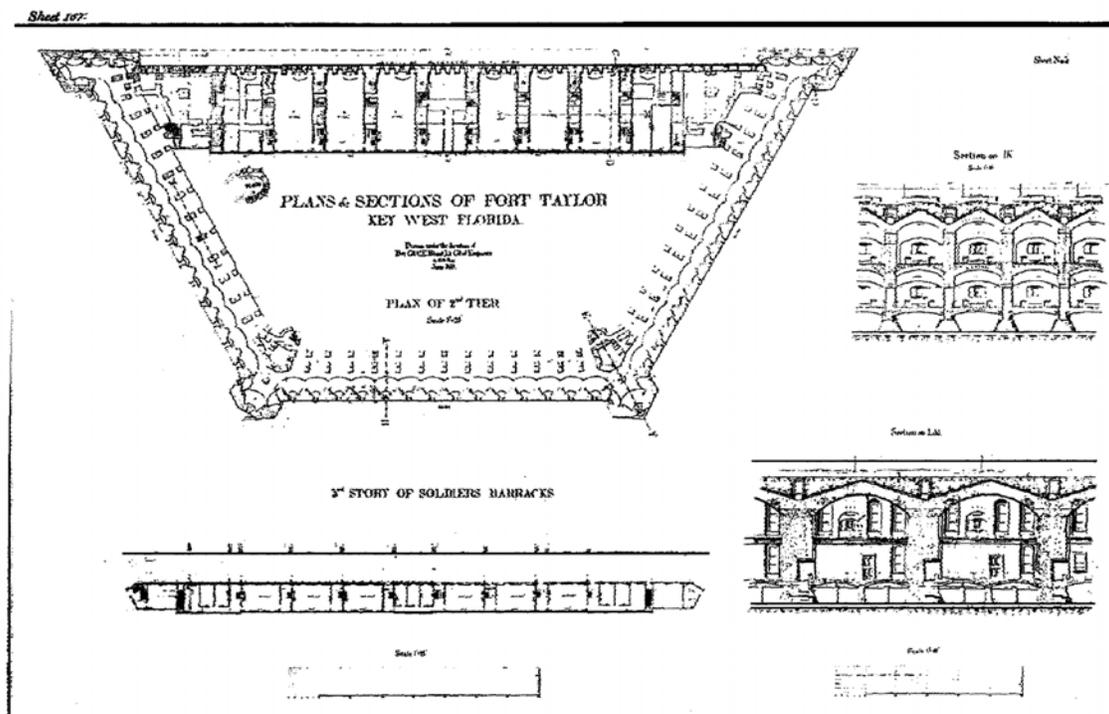
This submarine site consisted of a rocky bottom comprised of Key West Island Stone, a type of calcareous rock, some 10 feet below low water, that commanded the junction of the four channels leading into Key West Harbor. In addition to gaining clear title, Dutton also began preparing the plans and estimates for the fortifications and continued the collection of construction materials.(11)

What has become known as the First System of U.S. seacoast fortifications were built between 1794 and 1802. The so-called Second System works were built between 1806 and 1817. The seacoast fortifications constructed between 1818 and 1870 are termed Third System works. The Third System works can be separated into two phases: Works built between 1818 and 1838 when Colonel Totten became chief of engineer, and those works begun between 1838 and 1870. The designs used in the earlier of these two phases were strongly influenced by the French fortifications engineer Simon Bernard, an exponent of Vauban's bastioned system of fortification. When Totten became chief engineer, the polygonal (sometimes termed the "German") system of fortification as interpreted by the French fortification theorists the Marquis de Montalembert and Lazare Nicholas Marguerite Carnot, was adopted for the numerous fortifications begun after 1840. The design of the fort at Key West was typical of the fortifications of the Third System works erected during the period Totten served as chief engineer. These works incorporated multiple tiers of casemates in a relatively confined space. The trace of Fort Taylor was laid out as one-half of a hexagon composed of three channel fronts, each approximately 255 feet long. A 495-foot gorge completed the fort's polygon. The fort was a three-tiered affair arranged for armament on the three channel fronts: One barbette tier and two casemated tiers. The enclosing gorge had two stories fitted out as living quarters for the garrison, storage rooms, as well as administrative

spaces, and was topped with a barbette tier. The sallyport, flanked by guardrooms and rifle galleries, was situated at the mid-point of the gorge.(12)

The flanking defenses of the fort were to be provided with bastions at each angle. Demibastions at each end of the gorge would have irregular faces, while the two on the angles of the channel faces would be of the bastionette type, also known as tower bastions, with short flanks and faces. *Faux-coupes* were to be provided on the first-tier level of the tower bastions. The second tiers of the tower bastions were to have the form of a *pan-coupe*. The armament of the uppermost tier of the fort was to be mounted *en barbette*.(13)

In June 1845, work was finally commenced. Before actual construction of the fort could begin, however, a breakwater of stone had to be formed around the site of the fort. The foundation of the scarp was composed of granite quarried in Maine, Vermont, and Connecticut, and shipped down to Key West. These massive granite blocks were laid atop a sub-foundation layer of local limestone. The foundation of the fort was gradually raised to some 12 to 18 inches above low water. The lower portion of the scarp, from the foundation to the soles of the first-tier embrasures, would be composed of large blocks of cut and dressed ashlar granite. The remainder of the scarp was comprised of rose-colored brick manufactured in large quantities by the firms of Abercrombie and Raiford at Mobile and Pensacola. The five-foot-thick scarp was sustained by large arched piers of concrete faced with brick laid in English Bond. Flooring of the casemated tiers was composed of bluestone flags laid in running bond. The superintending engineer of operations on the Gulf Coast, Maj. William H. Chase, had a long-standing arrangement with the brick manufacturing companies of Abercrombie and Raiford, who had supplied much of the brick used in the construction of the forts at Pensacola Bay. As historian Ames Williams has noted, the supply of brick from these two firms proved to be less than adequate and deliveries were sporadic, frequently causing short-term suspensions of construction at the fort.(14)



Plans of Fort Taylor (NARA)(2)

The principal powder magazines of the fort were to be in the gorge adjacent to the demibastions. Service magazines were to be in the first and second tiers in the rear of the flanking casemates of the two tower bastions. Vertical communication between the three tiers would be by spiral staircases of granite enclosed in towers of brick masonry in each angle of the channel faces. Segmental arches cut through the concrete and brick masonry piers of the channel fronts would provide interior communication between the casemates of the two lower tiers. Water cisterns beneath each of the casemates of the first tier collected rainwater.(15)

The work progressed well until October 11, 1846, when the island was struck by a hurricane which demolished nearly all the work accomplished as well as the construction plant and some of the building materials. In addition, the storm also demolished the lighthouse on Whitehead Point. Although the lighthouse was rebuilt the following year, construction progress at the fort was much slower.(16)

After the delays caused by the hurricane, Capt. Dutton and his newly arrived assistant, 2nd Lt. Masillon Harrison, salvaged what they could and rebuilt the construction plant. By the end of June 1847, the breakwater in front of the three channel faces was nearly complete and preparations were nearly complete to commence the fort's foundation. After about one year at Key West, Lieutenant Harrison was transferred to service in the field during the War with Mexico, leaving Dutton to continue the construction of the fort. During the fiscal year 1847/1848, 21,000 cubic feet of the cut and dressed granite required to build the massive foundation of the fort had been received from Maine and an additional 15,000 cubic feet was on order. The granite foundations of the west front had been laid 12 to 18 inches above low water by the end of June 1848.

Having received the July 1847 appropriation, Dutton fully expected to complete the foundation and start filling the interior of the site with rock and sand in 1848/1849. Building continued until June 17, 1848, when construction funds were exhausted. Work was suspended and the construction workers were laid off. Although Congress appropriated another \$50,000 on July 20, 1848, by that time the work force had been discharged and many had left the area. At the end of September 1848, the breakwater and the loading platforms associated with the wharf were complete.(17)

By the end of September 1849, the foundations had been raised some eight feet above the plane of site, or about 18 inches above low water on the three channel fronts and the southeast gorge bastion. The breakwater and platforms on the gorge side of the fort were also complete except for a 50-foot gap left to enable lighters to gain access to the fort's interior with loads of fill and building materials.(18)

Noticeable progress was evident by 1850. With the foundation complete, the superstructure of the work had been raised some five feet above high water on the three channel fronts. Filling the space encompassed by the granite and brick masonry foundation had commenced and some 3,000 cubic feet of sand had been deposited in the interior of the fort. During the 1850/1851 work season, the fort was placed in a sufficiently advanced state to enable it "to be brought speedily into efficiency." In other words, it was close to being capable of receiving some of its first-tier armament. The scarp of the work had been raised almost to the soles of the lower tier's embrasures. The estimated cost to complete the fort was now \$805,000.(19)

The Fort Is Named

On November 4, 1850, while the fort was still under construction, it was named in honor of former President and Maj. Gen. Zachary Taylor. General Taylor had served with distinction during the War of 1812, and had received the brevet rank of major for his gallant conduct in the defense of Fort Harrison, IN. He had attained the rank of colonel in the 6th Infantry Regiment by the outbreak of the Second Seminole War in 1837. On December 25, 1837, Taylor was brevetted brigadier general for his

distinguished service at the Battle of Kissimmee (Okeechobee), FL. He was brevetted major general for his successive victories over Mexican forces at the Battles of Palo Alto and Resaca de la Palma, TX, on May 8 and 9, 1846, as well as numerous other engagements during the War with Mexico. He was promoted to the permanent rank of major general in 1846. General Taylor resigned his commission in January 1849, having won election to the office of President of the United States, which he assumed on March 4 of that year. After little more than a year in office, President Taylor died on July 9, 1850.(20)

In fiscal year 1851/1852, when Congress failed to appropriate funds for Fort Taylor, Colonel Totten recognizing the importance of defenses for Key West, reassigned unexpended funds from other fortification projects to the Key West works to keep the project going. When even these funds were exhausted in 1852, however, work on the fort was suspended. Florida's Congressional delegation, among others, were soon voicing their concerns regarding the state of Forts Jefferson and Taylor on the nation's southern frontier, and in a resolution to Secretary of War Charles M. Conrad in January 1853, requested a report of the status of the works including the costs incurred on their construction and the amounts that would be required to complete them. In response to the congressional query, Colonel Totten noted that the scarps of the work, then standing in about ten feet of water, had been raised to the level of the soles of the embrasures of the lower tier and that construction of those embrasures were slated to be commenced upon the reinstating of construction funds. The space on the interior of the fort had been filled with earth up to the level of the parade ground and on the nearby shore of Key West the necessary shops, storehouses, and cisterns had been built. To that date, the fort had cost some \$395,000, including the purchase of the site and the losses incurred from hurricane damage in the early years of the project. Totten also noted that the fort could be placed in service in an emergency by mounting the armament of the lower tier within about one year, if the requested sum of \$150,000 was appropriated.(21)

Succession of Engineers Continue Construction when Funding Is Restored

With appropriations finally restored to the project in 1853, construction of bridges, wharfs, and a cement house were undertaken. Island stone was used in making the concrete that formed the center cores of the fort's walls. Excavations for the pier foundations were made and their foundations begun. With the difficult submarine work on the *enceinte* complete, excavation work and the laying of the timber grillages for the piers and cisterns on all fronts began. Pier construction on the gorge and the bastions were completed, as were the main drains under the northwest and southwest bastions.(22)

Captain Dutton, who had been serving as Fort Taylor's superintending engineer since 1845, was reassigned on April 11, 1853, to the Board of Engineers for Atlantic Coast Defenses, and assumed new duties on the northeastern Atlantic seaboard doing harbor surveys, building lighthouses, and supervising repairs to forts in New England in addition to his duties with the board. Capt. Jeremiah H. Scarritt, CE, was assigned to succeed Dutton at Key West. Captain Scarritt served at Fort Taylor just over a year before succumbing to yellow fever in the early summer of 1854, and he died at Key West on June 22, 1854, at the age of 37. Because of the numerous projects underway along the Atlantic, Gulf, and Pacific seaboard in the 1850s, engineer officers were in short supply.(23)

As much of the fortification work at Pensacola Bay was now winding down and could easily be managed on a part-time basis, General Totten reassigned Major Chase, then on duty at Pensacola, to succeed Scarritt at Key West. Major Chase, initially assigned to the Gulf Coast as a lieutenant of engineers in 1820, had by 1838 risen to the rank of major and had served as the senior engineer on the Gulf Coast for many years. In the 33 years he had served on the Gulf Coast, Chase had built forts at New Orleans, Mobile, and Pensacola. He also had invested in a number of long standing and ongoing

private business ventures in the Pensacola-Mobile area, including involvement in a railroad and land speculation. While Chase was engaged in turning over the works at Pensacola to another officer and making his preparations for the move to Key West, First Lieutenant Horatio G. Wright, the superintending engineer at Fort Jefferson in the Dry Tortugas Islands, assumed temporary charge of Fort Taylor. When Major Chase finally began his new duties as superintendent at Key West in November 1854, he did so somewhat grudgingly, and during his short tenure there, he made frequent trips back to Pensacola to see to his numerous commercial and financial interests. Chase was finally recalled by the Chief of Engineers to report to him in Washington, early in 1856. Chase lost no time in departing from Key West, but took a two month leave in Pensacola, before proceeding on to report to Totten and the War Department in April 1856. While there he was appointed to serve as Superintendent of the U.S. Military Academy. Chase chose, however, to resign his commission rather than leave his home and business interests in Northwest Florida. During Wright's temporary period of supervision and Chase's short tenure at Key West, the grillages for piers and cisterns were laid on all fronts; the main drains under the northwest and southwest bastions were completed, the granite scarps and many of the piers and arches on all fronts were raised to the height of the second tier, a large shot furnace some 15 feet long was built on the parade ground, and the first tier was arranged to receive its armament.(24)

Colonel Totten sent newly graduated 2nd Lt. Cyrus B. Comstock down to Key West to assist Major Chase in the latter part of 1855. Comstock remained only one work season, being reassigned to work on Fort Carroll in Baltimore Harbor at the end of spring 1856. Chase was replaced at Key West on February 16, 1856, by Capt. and Bvt. Maj. William D. Fraser, CE. Major Fraser managed to work through the remainder of the 1855/1856 work season at Fort Taylor before he too succumbed to yellow fever on July 27, 1856, at Key West. He was succeeded temporarily by the civil agent, Felix Senac, pending the arrival of Major Fraser's successor, Capt. and Bvt. Maj. John Sanders, CE, and his assistant, Bvt. 2nd Lt. Miles D. McAlester, CE, in December 1856. Fraser and McAlester supervised the project during the winter months and on April 30, 1857, they both proceeded north to supervise construction work at Fort Delaware, on Pea Patch Island in the Delaware River, which was the alternate project for the Key West engineers during the hot, fever-ridden, summer months that were often termed the "sickly season." While at Fort Delaware, on July 29, 1858, Major Sanders also died of the fever which he had contracted at Key West. Sanders was succeeded at Key West briefly by Capt. Daniel P. Woodbury, CE, the superintending engineer at Fort Jefferson. Captain Woodbury supervised the work at Fort Taylor until December 10, 1857, when 1st Lt. Edward B. Hunt, CE, was assigned to the project. Woodbury then departed for Charleston, SC, to recruit a new work crew. At this time, the workers at Fort Taylor were receiving \$5.00 per day because of the hazardous nature of work in an area threatened by hurricanes and plagued annually with yellow fever. Lieutenant Hunt directed the fort's construction through the end of the 1850s, and into the early months of the Civil War.(25)

Fort Taylor Brought to Completion

In spite of the frequent changes in superintending engineers at Fort Taylor, delays in the delivery of brick, sickness that continued to impede progress, and labor shortages during the summer months, major progress continued toward the completion of the work in the late 1850s. The scarp was brought up to the level of the second tier and most of the arches on the channel fronts were raised to the level of the second tier and turned. On the gorge front, portions of the piers were raised to about half the height of the first tier. All the cisterns were completed, and construction of the two principal magazines begun. Most significant of all, however, was the arrival of the armament for the 1st tier, which had been mounted by the latter months of 1855.(26)

By the end of September 1856, all of the 1st tier arches had been turned and the flooring of all but three of the 1st tier casemates was completed from traverse circle stones to the parade wall. The magazines in the northwest and southwest bastions were completed and the gorge piers and scarp of its two demibastions had been raised some 20 feet above the plane of the site. On the gorge, the sallyport had been partially paved with granite and the drawbridge hoisting equipment and machinery had been received and was ready for installation.(27)

During the 1856/1857 work season, progress continued as the concrete and granite scarp of the fort rose above the waters off the southern shore of Key West. Much of the work done that year was applied to the completion of the masonry work of the second tier and the completion of the arches over that tier. By the end of the 1857 work season, the platforms for the 42 guns of the second-tier curtains were covered, as well as the 18 flank howitzers and two 8-inch columbiads that were emplaced in the seaward facing casemates on the second tier of the two tower bastions. In January 1858, Lieutenant Hunt was promoted to captain and continued on his duties at Key West until the end of the fiscal year in September 1858. By then the second tier of the fort was sufficiently complete to permit mounting 42 8-inch columbiads in the second-tier casemates of the channel fronts. Captain Hunt then departed for New York and New England to hire additional men for his working parties. He returned with a full work force in November and resumed work on the fort. Between December 1858 and the early summer of 1859, considerable attention was given to completing the second story of the gorge and fitting and setting the traverse irons of the first and second tiers along the channel fronts. By the end of 1859, the fort had been brought to near completion with the greatest amount of work being applied to the gorge. The principal work remaining on the fort's channel fronts was asphaltting the roofs of the arched casemates of the second tier, laying the stone work of the barbette tier's gun platforms and breastheight walls, and forming and grading the earthen parapets and terreplein. In the rear of the fort, a massive earth and stone coverface that would mask the gorge of the fort and guard access to the causeway connecting the fort with the island was yet to be commenced.(28)

The 1860 work season saw the asphaltting of the arched roofs of the second-tier channel fronts commenced, the completion of the barbette tier of the fort, and partial filling of the earthen parapet. The foundations were then laid for 46 columbiad gun platforms on the barbette tier. In the gorge the masonry work of the sally port was finished, construction of the quarters on the third floor had been partially plastered and finished. Also begun was the preliminary work on the fort's coverface. Locally obtained stone had been gathered and broken up for concrete to be used in building the coverface's seawall by the beginning of summer 1860. The year 1860 also saw the special appropriation to the quartermaster general for the construction of a magazine and hospital at Key West Barracks.(29)

In the spring of 1860, the U.S. Navy intercepted a number of slave ships in the waters off the Florida coast and brought the ships and their human cargo to Key West. Upon their arrival, the U.S. Marshall called upon Captain Hunt to make the nearly complete fort available for quartering the slaves. Captain Hunt protested the use of the incomplete fort for this purpose to his superiors in Washington, suggesting that barracoons be constructed at Key West for the slaves. Eventually, this suggestion was followed and suitable arrangements were made for them elsewhere on the island. The engineering operations at the fort involved the completion of the barbette tier of the channel fronts and the finish work on the third story of the gorge. The earth fill of the parapet was deposited and partially graded and the asphaltting of the second-tier casemate arches completed. The drainage system was installed and a portion of the earthen terreplein was formed and 46 columbiad platforms laid. Captain Hunt estimated that if \$70,000 was made available, he could bring the *enceinte* of Fort Taylor to completion during fiscal year 1860/1861. If an additional sum of \$150,000 were made available,

he noted that he could complete the seawall of the coverface, fill the enclosure with earth, build the permanent wharf and bridge, and begin construction of the piers and arches of the outwork's gun and storage casemates.(30)

The State of the Works at the Beginning of the Civil War

At the end of November 1861, Colonel Totten reported to Secretary of War Cameron that Fort Taylor under the oversight of Captain Hunt been "...so far completed as to be ready for its entire armament." The operations during the previous year [1860] had embraced:(31) "completing and applying finish of soldiers quarters, constructing roofing, floor girders, and floor arches, building ovens, and store-rooms, setting embrasures of ground tiers, barbette gun platforms, and loophole gratings, making embrasure shutters, tightening most of the cisterns, making and hanging drawbridge, and renewing standing bridge, constructing foot wall of parapet slope, salt marsh breastheight, fitting magazines for use putting up conductors, completion of asphaltting, embanking earthen parapet and coverface and advanced works."

Totten then asked for a \$100,000 additional appropriation for the 1861/1862 fiscal year, as well as an additional \$200,000 for the 1863/1864 fiscal year.(32)

The First Artillery Regiment Occupies the Fort

By the last months of 1860, the massive fortification was rapidly nearing completion. The impending secession of Florida, and the threatened crisis of Civil War, caused a flurry of activity at Fort Taylor. By December 11, 1860, Captain Hunt anticipating the imminent secession of Florida, became concerned that an attempt would be made by Floridians from the mainland to seize Fort Taylor, and Capt. John Milton Brannan, commanding Company B of the 1st U.S. Artillery then at Key West Barracks, wrote Adj. Gen. Samuel Cooper in Washington for instructions. Hunt hastened the pace of finish work at the fort and took emergency measures to strengthen the defenses of the fort's relatively weak land side. Guns were mounted on the barbette tier of the gorge, siege mortars were put in place, and windows in the gorge scarp were bricked up except for a few which were transformed into loopholes and others as makeshift embrasures for 8-inch columbiads emplaced to cover the land approaches to the fort. By January 3, 1861, Hunt had 60 seacoast and garrison cannon mounted: 50 8-inch columbiads and 10 24-pounder flank howitzers. In addition, a battery of four 12-pounder howitzers was at the fort. He had also amassed 34,459 pounds of powder and had some 2,826 cartridge bags, 962 priming tubes, and 759 cartridges for small arms. The work of preparing the fort for an emergency was well advanced by mid-January 1861.(33)

With the secession of Florida, Captain Hunt having no means of holding the fort if an attempt was made to seize it, called upon Captain Brannan on January 12 to occupy Fort Taylor and assume command of the defenses. The Union garrison, comprised at that time of the three officers and 44 enlisted men of Captain Brannan's Company B, 1st United States Artillery, was posted at Key West Barracks on the opposite side of town from Fort Taylor. Anticipating a sudden movement by secessionists on the island to seize the fort, Brannan sent a shipment of supplies and baggage from Garrison Bight around the island by water to the fort and then on the night of January 15, he rapidly moved his company across town to the fort, occupying it for the purpose of securing both it and the harbor of Key West from seizure by the Confederate sympathizers on the island. In cooperation with the army, the guns of USS *Wyandotte* at anchor in Man of War Harbor covered the land approaches to the fort while Brannan's men took possession of the fort. The artillerymen were augmented by some 60 loyal civilian mechanics and laborers.(34)

The following day, Brannan reported his action to higher command, the Department of the East, noting that he had four months of provisions and 70 gallons of water at the fort and advised the War Department that his orders be forwarded via the American Consul in Havana as the mail facilities through Florida had ceased to operate. After a period of 10 days when no aggressive action had been taken against Fort Taylor's small garrison, Brannan again wrote to Adj. Gen. Cooper on January 25 and reported that he felt no apprehension from the population of Key West, but that he expected a move against the fort by a force on the mainland.(35)

On January 26, Brannan received a response to his letter of December 11, 1860, with instructions from Lt. George W. Lay in the Adjutant General's Office in Washington. Lay had sent a letter out on January 4 directing Brannan to move his whole command into Fort Taylor and advised him that orders had been issued to the commanders of USS *Mohawk* and USS *Wyandotte* to act in concert with Brannan. Lieutenant Lay also advised Brannan that Bvt. Maj. Lewis Golding Arnold with his Company C, 2nd U.S. Artillery, had been ordered south to Fort Jefferson from Boston.(36)

While Brannan awaited an attack by secessionists, the War Department was moving rapidly to reinforce both Forts Taylor and Jefferson, the twin guardians of the Florida Straits and the lower keys. Bvt. Maj. Arnold and Company C arrived at the Dry Tortugas aboard the steamer *Joseph Whitney* on the morning of January 18. Finding Fort Jefferson deficient in heavy guns, Arnold sent Capt. Montgomery C. Meigs of the engineers and Lt. Henry Benson of Arnold's company to Fort Taylor on the chartered brig *Alpine* to obtain six of Brannan's 50 8-inch columbiads and the two 6-pounder guns and two 12-pounder howitzers that comprised Fort Taylor's field battery. *Alpine's* return voyage to the Dry Tortugas was escorted by USS *Crusader*. Early in February, Brannan provided seven of the 8-inch columbiads on Fort Taylor's channel fronts to Fort Jefferson.(37) Captain Brannan's command of 52 artillerymen of Company B, 1st U.S. Artillery, and some 60 civilian employees of the Corps of Engineers, were barely able to provide an adequate guard for Fort Taylor, a work that in time of war was to have a garrison of a thousand men. The coverface on the land front of the fort having only just begun, it was not prepared to resist a siege from the island. To make that side of the fort more defensible, Brannan's men began mounting 10 of the 8-inch columbiads on the barbette tier of the gorge soon after taking up quarters in the fort.

Efforts to increase the strength of the two forts in the keys continued into February and March 1861. As U.S. troops began to depart Texas, Companies A and H of the 1st U.S. Infantry and Companies F and K of the 1st U.S. Artillery arrived from Fort Duncan, TX, and bolstered the small garrison at Fort Taylor, while Companies L and M of the 1st Artillery were added to the garrison at Fort Jefferson. Company F remained at Key West only until May 1861, however, when it went to Pensacola Bay to reinforce Fort Pickens. Company D, 1st Artillery, arrived in December 1861, relieving Company K, which was transferred to the District of Columbia in January 1862. In the end, Fort Pickens, Fort Jefferson, Fort Taylor, and Fort Monroe were the only federal seacoast fortifications that did not fall into the hands of the Confederacy during the Civil War.(38)

Captain Brannan was promoted Brigadier General, U.S. Volunteers, in March 1862 and placed in command of federal forces at Key West. Brevet Major William H. French, of the 1st Artillery, who had come from Texas with a sizable portion of his regiment, assumed command of Fort Taylor and Key West Barracks in June. Two of the infantry companies and a company of artillery were posted at the barracks, while the remaining two artillery companies were quartered at Fort Taylor. Major French would command at Key West until September 28, 1861, when he too was promoted to brigadier general, U.S. Volunteers, and transferred to Washington, D.C. On September 28, General Brannan was transferred to the District of Beaufort, S.C. On October 29, 1861, Maj. Bennett H. Hill, 2nd Artillery, was ordered to Key West as French's relief.(39)

The state of affairs at Key West did not go unnoticed in Washington. Chief Engineer Totten wrote Secretary of War Simon Cameron on December 9, 1861, imploring him to obtain sufficient funds to fully complete Forts Taylor and Jefferson. He reminded the secretary that “unless the appropriations be promptly made labors at those points must be interrupted, the force of workmen disbanded, and the best working season of the year lost before operations can be again commenced.”(40)

General Brannan would return to Key West in January 1862, as the commander of the newly established Department of Key West. On January 30, 1862, Maj. Gen. George B. McClellan wrote General Brannan and in an extensive “laundry list” of instructions, directed him to:(41)

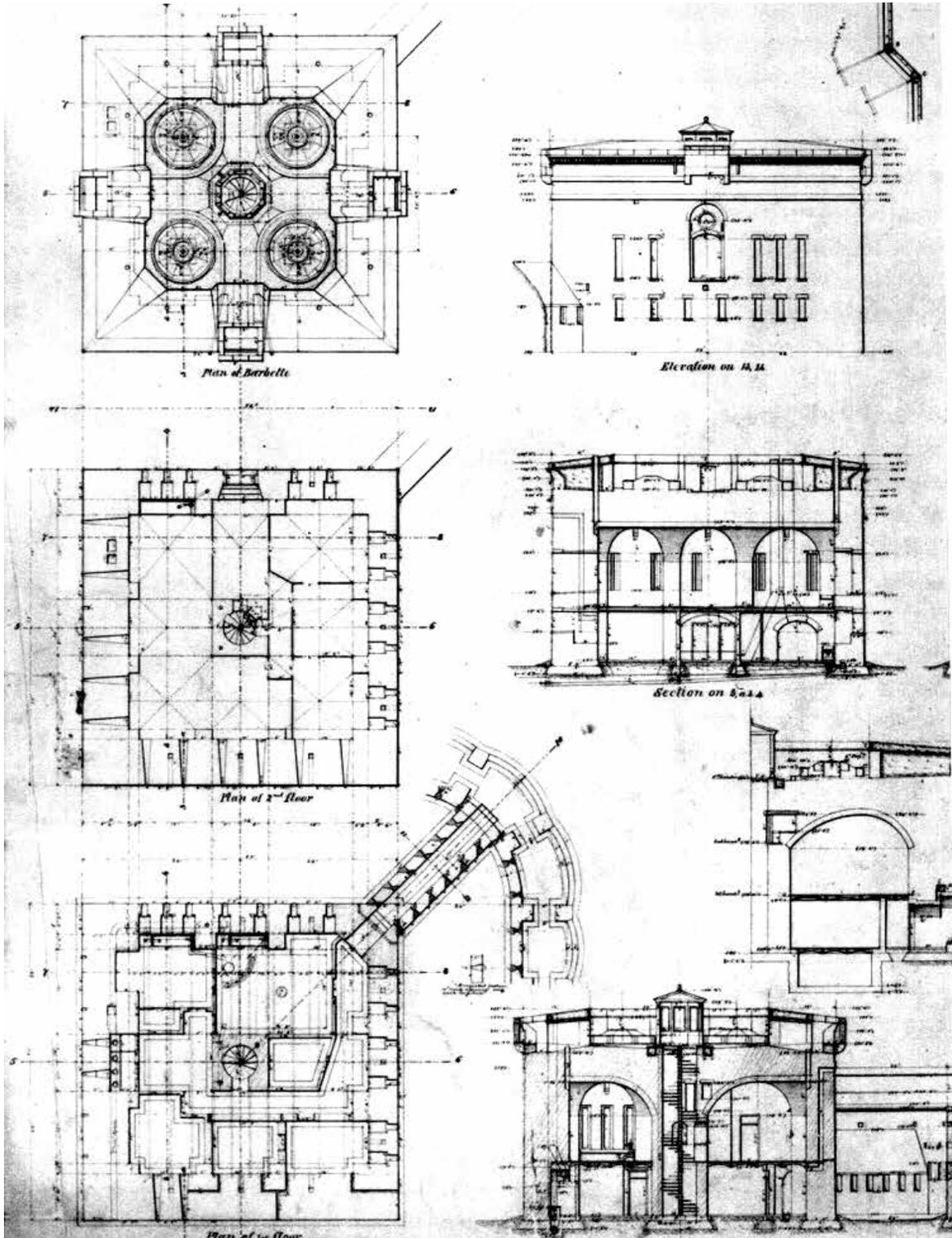
“place Forts Jefferson and Taylor on the war footing and in a thorough condition for defense assigning the troops and distributing the guns and material at our disposal between the forts to the best of your judgment, and constructing such temporary batteries and defense as, upon consultation with the engineer officer, may seem advisable. Cause your men to be well instructed in the service of heavy guns. Preserve the strictest vigilance as to the admission of vessels of all kinds into the harbors, and allow no persons to visit the forts, except those in government employ, without a pass from the commanding officer. Repress all disunion movements in Key West, arresting any citizens whose presence is manifestly dangerous to the Government or who may give aid and comfort to the rebels, if necessary, sending them to the North. In fine, exercise all the vigilance and precaution usual in time of war, bearing in mind that your greatest danger is from surprise, and that you are not likely to receive warning of breaking out of hostilities. You will please afford such protection as may be in your power to the Light-House Board in reestablishing and maintaining the light most necessary for navigation in those waters, and cover the operations of the Coast Survey so far as may be done without risk. Should the commanders of Fort Pickens and Ship Island call upon you in an emergency you will lend them such assistance as you can without risk to the security of your own posts. Should the state of affairs render it advisable to occupy Tampa for the purpose of procuring supplies of fresh beef for the army and navy forces in the Gulf, you are authorized to seize and hold it, calling upon the naval commander in the vicinity for the necessary assistance. I hope to send you at an early day at least one steamer and one or more schooners. When you have transportation you must use your discretion as to any movements upon Cedar Keys or Apalachicola. No movement on the former would be necessary unless for a mere foray, except in case of the occupation of Fernandina by Sherman, on the latter, advisable only to seize cotton and prevent contraband trade. You are authorized to occupy such land as may be necessary for the erection of batteries and defenses or for the encampment of your troops, and to take possession of any buildings which may be required for the preservation and security of public stores. As your command might suffer from the want of fresh water before the requisite condensers can be furnished, you are also authorized in case of emergency to take such supplies of it as may have been collected for sale to naval and other vessels.”

“Martello” Towers Are Planned as Advanced Outworks

Most of the funds requested by Colonel Totten’s request for 1861/1862 were for construction of the four projected advanced outworks in the form of “Martello” towers that had been authorized by Congress in 1844. These towers were to be constructed along the shore of the island to guard the rear approaches to Fort Taylor.(42)

Even before the tracts for the first two of the four towers projected were obtained, preliminary work at Towers No. 1 and No. 2 had begun under the supervision of Bvt. 2nd Lt. Walter McFarland, CE, who had arrived for duty as assistant engineer to Captain Hunt on February 19, 1861. McFarland served at Key West until April 14, when he was transferred to Fort Pickens. During this period a railway was laid to the two sites from Fort Taylor and the collection of construction materials was undertaken.(43)

In mid-August, plans and drawings for the two advanced works were sent to Key West. Both towers were to be identical in design and construction. They were based on a United States version of the *Tours-Modeles* developed in France for coastal defense earlier in the 19th century. A prototype for this type of work in the United States had been begun in 1856, at Proctorsville, LA.(44)



Plan and Sections of the Key West Martello Towers. (NARA)

The Key West Towers were designed to be very powerful outposts. Upon completion they would be somewhat circular in trace; the four sides of the work were to be provided with a glacis and a 27-foot-tall counterscarp containing reverse fire casemates for 24-pounder flank howitzers and loopholed rifle galleries. A modification in the design was made in 1862 that altered the seaward side of the work so as to present a casemated front provided with a ditch 20 feet wide and a partial earthen coverface some 16 feet high and 10 feet thick at its top. The casemates were to be armed with a dozen seacoast cannon. On the interior of the work stood a three-story square concrete masonry tower faced with brick. The tower was 56 feet square and 36 feet tall, the third, or top, story being open to the air, was arranged as a barbette battery for four guns. The tower's scarp was eight feet, four inches thick on its seaward side and five feet thick on its landward side. The central pier of the tower was built of brick masonry. Within this central pier a spiral staircase with cast iron treads afforded communication between the tower's three levels.(45)

The lower floors of the tower contained a mess room and kitchen, as well as closets, latrines, powder magazines, and filling rooms. A barracks room and three rooms for officers occupied the second floor of the tower. The third story was a barbette gun platform arranged to receive four heavy guns on center-pillar mounts which gave the guns all around fire capability. The gun platforms were situated in each of the four corners of the barbette tier.(46)

Communication between the central tower and the reverse fire gallery of the counterscarp was provided by a segmental arched brick masonry *caponiere* or loopholed passageway. Access to the tower from outside the work was provided by a narrow roadway which ascended the glacis to a short platform extending from the counterscarp at the top of the glacis. A drawbridge 10 feet long and six feet wide connected the platform with the sally port entry in the tower's second floor.(47)

On September 21, 1861, the federal government authorized Hunt to take possession of two tracts of private property on the south shore of Key West. Designated Tower No. 1 and Tower No. 2, the two reservations each encompassed about 33 acres. Tower No. 1 (the East Tower) was three miles from Fort Taylor and Tower No. 2 (the West Tower) was one and a half miles from the fort. (In April 1862, these designations were reversed. Tower No. 1 became the West Tower and No. 2 the East Tower.) Chief Engineer Totten, promoted to the rank of brigadier general at the beginning of the Civil War, placed a high priority on the rapid advancement of the two towers and Fort Taylor's coverface. To hasten this construction project, he ordered the Engineer Agency in New York to ship 500,000 common bricks to Key West with dispatch.(48)

Construction of the Advanced Towers Is Begun

When General Totten learned in November 1861 that actual work on the towers had still not begun; the process of gaining clear title to the sites not having been completed, Totten ordered Hunt to arbitrarily take possession and start the work without further delay. When ground was broken at the site of Tower No. 1, however, it was discovered that the site was on a Negro graveyard. Some 300 graves were opened during the excavation process for the tower. As the construction work advanced, Captain Hunt realized he needed more laborers. The shortage had reached the crisis stage by 1862, and between three and four hundred contraband Negroes were sent down to Key West from South Carolina and Louisiana. Captain Hunt, however was actively seeking service in the field, and by March 1862 he had obtained an appointment to serve with one of the Union armies, and departed from Key West. Hunt's former assistant, Walter McFarland, aged 26, now a first lieutenant and brevet captain, returned from Fort Pickens at Pensacola Bay, where he had been serving as an engineer for the Union defenses. He assumed his duties as Hunt's successor and superintending engineer at Key West on March 5, 1862.

FORTIFICATIONS.

Drawer 76.
Sheet 151.

FORT TAYLOR, KEY WEST, FLA.

POWER NO 1
AND
ADVANCED BATTERY.

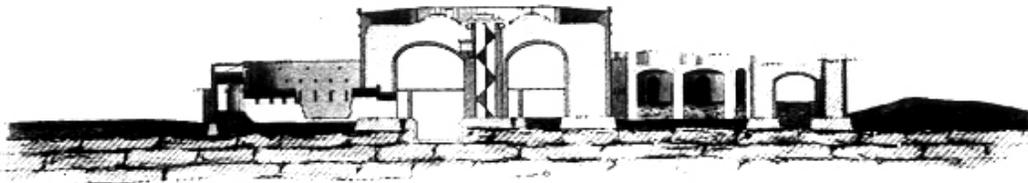
Scale 20' = 1"

Showing condition of the work
from 20th Nov. 1864 to present
and a proposed improvement with
view of an attack (N 4955)
Walter W. Burdell
Captain Engineers

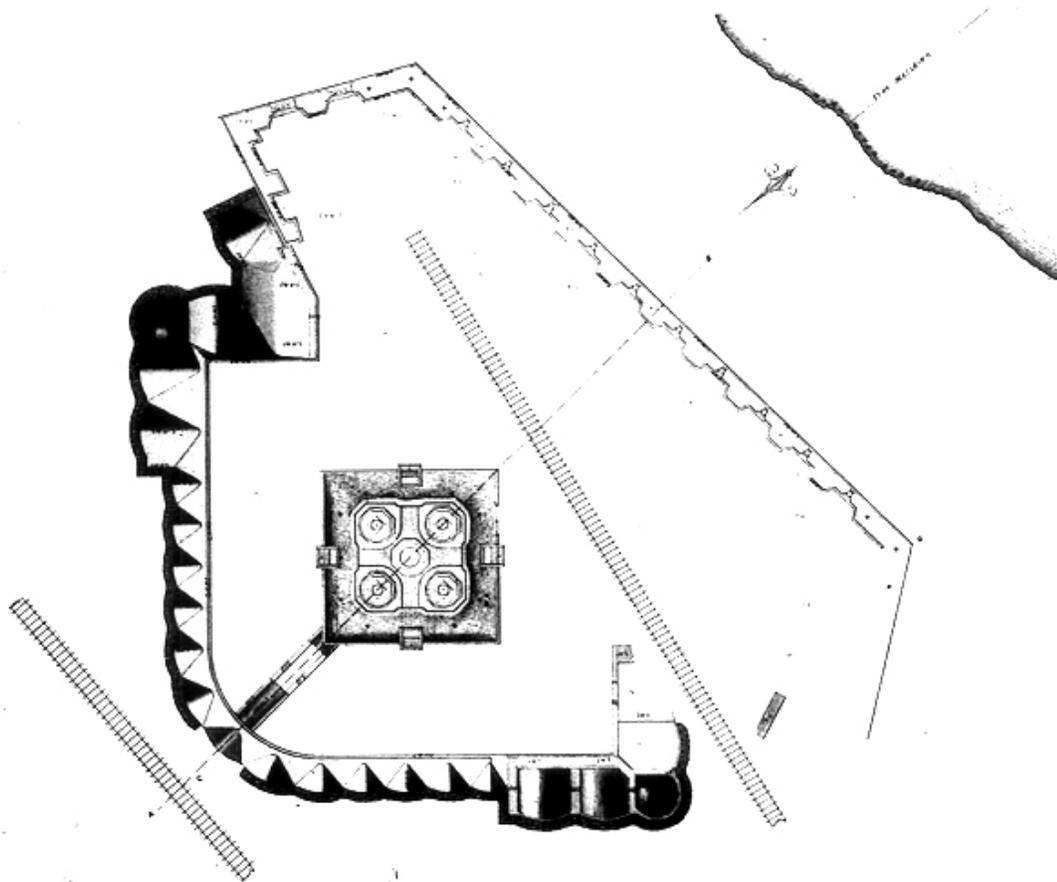
1st Lt. Eng. Dept.
Nov. 5 1864.



Elevation on C.D.



Elevation on A.B.



For a full history of these works
see P. 100 MAR. 1. 1865. Vol. 122

76-151

Engineer drawing of the seafront battery of the Martello towers at Key West. (NARA)

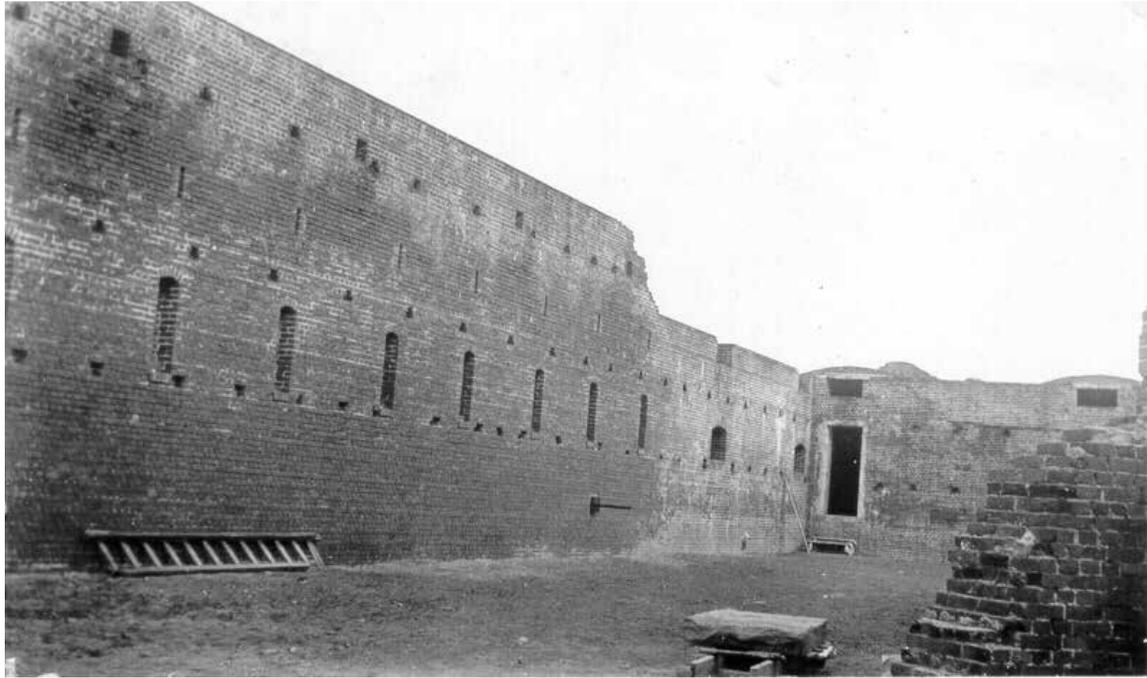
McFarland would serve at Key West through the remainder of the Civil War, with only two brief temporary assignments: from March 5 - April 25, 1863, at Charleston Harbor and as chief engineer at Mobile, AL, while serving with the 13th and 16th Army Corps from April 21 to August 15, 1865.(49)

Soon after McFarland's return to Key West in 1862, General Totten sent him instructions regarding the advanced towers. The War Department considered these works to be of such importance that the towers themselves were to be pushed to completion without the benefit of their covering works. Further, the chief engineer suggested that orders to begin the second pair of towers, one on Fleming Key and the other on Stock Island, were in the offing. Towers No. 3 and No. 4 were to be built in the same manner as Towers No. 1 and No. 2, that is, in accordance with Dutton's original memoir on Key West's defenses. Totten however, directed that the ditches on the seaward fronts of the towers were to be deleted in front of the casemated battery. These same changes were to be made at Towers 1 and 2. While the orders to commence the second pair of towers were never actually issued, the directed alterations in the first pair of towers were carried out by Lieutenant McFarland.(50)

The casemated curvilinear seafront batteries were to be some 186 feet long, with 36-foot flanks. They were to be comprised of two tiers, each containing 14 casemates. The top surface of the battery was to be provided with a heavy earthen cover that would protect the upper tier of casemates as well as help mask the scarp of the tower. The flanks of the batteries were to be tied into the counterscarp galleries of the land fronts by an interior passageway. The scarps of these batteries were to be some 37 feet in height and five feet thick. The lower tier of casemates on the sea front was to be armed with 14 10-inch Rodman smoothbore guns and the upper casemated tier with 14 8-inch columbiads. Because of the increased size of the garrison required by the casemated batteries, additional living quarters were to be provided in the flanks of the batteries. Four rifled Parrott guns were to be mounted on the center-pintle platforms at the corners of the towers' barbette tiers. As a protection from escalade, an eight-foot-wide wet ditch six feet deep was to be dug from one flank of the casemated battery and extended around the foot of the glacis coupè on the land fronts to the other flank of the casemates. The lower tier of the casemated battery was to be provided with heavy timber doors which could be closed in the event of esclade. Exterior stairways at either end of the battery provided access to a balcony onto which the second tier casemates were to open. Staircases on the interior of the flanks also provided access to the second tier of casemates.(51)



Fort Zachary Taylor Seth Eastman painting



Exterior of the counterscarp gallery at the unfinished East Martello tower.
(W.C. Gaines Collection)



Rear of the casemates of the seacoast battery at the East Martello tower.
(W.C. Gaines Collection)



Two views of the East Martello Tower, undated (Mark Berhow Collection)



West Martello Tower ruins, undated (Mark Berhow Collection)

Civil War Garrison Augmented

General Brannan's command, the Department of Key West, remained fairly small well into 1862. In the latter months of 1861, plans were made to reassign the existing units to new stations and augment the U.S. forces at Key West and Fort Jefferson. The infantry companies were among the first Regular Army companies to depart. They were soon followed by artillery companies. Company F of the 1st Artillery was the first regular army artillery unit to depart when it was transferred to Fort Pickens on May 24, 1861. Companies B, D, and K of the regiment remained at Key West through the remainder of 1861, however. In January 1862, Company K of the 1st Artillery left for Washington, where it was assigned to the Reserve Artillery of the Army of the Potomac. Six months later the remaining two artillery companies would also leave the island.(52)

On February 4, 1862, the 47th Pennsylvania Volunteer Infantry Regiment under Col. Tilghman H. Good arrived at Key West aboard the steamer *Oriental* to garrison the forts on the Lower Keys. Good retained six companies of his regiment at Key West, while Lt. Col. Alexander with the remaining four companies was posted at Fort Jefferson. The 47th Pennsylvania was soon joined by the 90th New York Volunteer Infantry Regiment and two companies of the 91st New York Volunteer Infantry, which arrived at Key West in March 1862. These infantry regiments, and for a short period the artillery companies, would constitute the Key West garrison through most of 1862.(53)

On June 16, 1862, the steamer *Erickson* arrived at Key West from Fort Jefferson with Company M and Companies B and D, 1st Artillery, who had finally been withdrawn from Fort Taylor and Key West. These three companies then sailed aboard *Erickson* for Hilton Head, SC. Two days after the departure of the regulars, the 47th Pennsylvania also left Key West for Hilton Head. The 90th New York remained at Key West only until November, when it was reassigned. The work gangs of the Corps of Engineers, however, remained and continued finish work on the fort and construction of the two advanced "Martello" towers.(54)

Garrison life in Key West was an almost incessant schedule of drill and discipline for the New Yorkers of the 90th Volunteer Infantry. Like many of the Union soldiers at that stage of the Civil War, they almost daily expected news of the war's conclusion. The tedium of soldiering in Key West made life hard for the infantrymen, but the situation got much worse during the summer of 1862, when another epidemic of yellow fever struck. In July 1862, soon after the departure of the regulars, Key West was visited by particularly virulent strain of the fever. This epidemic created a panic in the crowded construction camps and among the ranks of the Northerners in the garrison who were not yet acclimated to the island weather. Between July and October, 331 of the 448 men forming the Union garrison of Key West contracted the fever. Seventy-one of these cases were fatal. In the construction gangs, more than half of the skilled civilian artisans were stricken with the disease that killed 30 of them. Lieutenant McFarland supervising construction of the Martello towers also fell victim to the "Yellow Jack" and lay ill from July 31 until September 10. Construction on the seacoast defenses was suspended between August and October.(55)

On November 15, 1862, the 47th Pennsylvania received orders to return to Key West and Dry Tortugas in view of the impending departure of the 90th New York. Upon its arrival, Companies A, B, C, E, G, and I were posted at Fort Taylor and at Key West Barracks, while Companies D, F, H, and K were sent on to Fort Jefferson.(56)

After a few months of service in the District of Beaufort, SC, the 90th New York Infantry was ordered back to Key West on January 29, 1863, where Colonel Morgan relieved Colonel Good in command of the 47th at Key West. Good was ordered to take the six companies of his regiment at Key

West to Hilton Head. The battalion of the 47th at Fort Jefferson was, however, to remain to garrison Fort Jefferson. After less than a month, however, Colonel Good was ordered to return to Key West and upon arrival to send two of his six companies to Fort Jefferson, keeping the other four at Key West. The 90th remained at Key West, however, for only a few months before it was ordered to New Orleans in April 1863. This left Key West and Fort Jefferson to be held by the 47th Pennsylvania until February 1864, when that regiment was also ordered to New Orleans.(57)

The frequent movement of the two regiments at Key West was required by the numerous federal military operations along the southeastern seaboard conducted by Maj. Gen. David Hunter, commanding the Department of the South from his headquarters at Hilton Head. Hunter juggled his troops between their normal stations along the South Carolina, Georgia, and Florida coasts and their regular incursions into the inland reaches of the Confederacy. As a consequence, Key West, which in Hunter's view required a force of 1,200 men, was frequently at about 900 men or less. Fort Jefferson was garrisoned by about two hundred men, when a thousand were required.(58)

By February 1863, the engineers and the personnel of the 90th New York and 47th Pennsylvania Infantry Regiments had increased the mounted armament of Fort Taylor to 64 guns:

- six 10-inch columbiads
- forty-one 8-inch columbiads
- two 100-pounder Parrott rifles
- six 84-pounder rifles
- nine 30-pounder Parrott rifles

This armament was still considered deficient in terms of what was needed in the event of an attack. General Hunter in a letter to General in Chief of the U.S. Army Henry W. Halleck, noted that both Forts Taylor and Jefferson could be carried by a *coup de main* and recommended that both works be "armed to their utmost capacity with a large proportion of guns of the heaviest caliber known."(59)

In a reorganization of the Union forces operating along the Gulf of Mexico coastline, the War Department ordered Brig. Gen. Daniel P. Woodbury to Key West on March 16, 1863, to command the newly designated District of Key West and Tortugas in the Department of the Gulf.(60)

McFarland Takes Leave but Returns to Oversee the Completion of the Work

Lt. Walter McFarland took a well-deserved leave in the latter part of 1862 to complete his recuperation from yellow fever and left the construction work in the charge of his civilian overseers. He returned to Key West briefly early in 1863 following his leave, but on February 21, 1863, he received orders to join Gen. Quincy Gillmore's siege operations against Fort Sumter and Charleston. By early March, however, before taking an active part in the siege of Charleston, he was ordered back to Fort Taylor at the insistence of Chief Engineer Totten, newly promoted to the permanent rank of brigadier general. After several weeks of duty with the forces in South Carolina, the continued insistence of Generals Halleck and Totten and the fact that Key West was no longer a part of the Department of the South, resulted in General Hunter ordering McFarland, who had been promoted to Captain of Engineers on March 3, 1863, back to Key West.(61)

Work on the two towers resumed in the fall of 1862 and continued through the spring of 1863. All but about six of the black laborers employed on the construction efforts at the two advanced towers quit working upon hearing of President Lincoln's Emancipation Proclamation. In spite of the decreased size of the labor force, the West Tower "citadel" was brought to near completion except

for building the cisterns, magazines, tower stairs, and interior finish work by late Spring. Much the same progress was made on the East Tower, where its four center-pintle gun platforms were laid. The skilled artisans, mechanics, and other workers which had come down from the North the previous year, began leaving in large numbers as the "sickly season" of 1863 approached. To offset these losses, Gen. Nathaniel Banks sent several hundred more Negroes from Louisiana. To assist in building the fortifications at Key West and Fort Jefferson for which McFarland also had responsibility, 1st Lt. Asa H. Holgate was assigned. Holgate took over at Fort Jefferson, which enabled McFarland to concentrate on the works at Key West, and to some extent on the still incomplete Fort Clinch at Fernandina, FL.(62)

The end of July 1863, Key West's garrison was 20 officers and 458 men. Two companies of the 91st New York Volunteers Infantry under Maj. Charles G. Clark were posted at Fort Taylor, while the four companies of the 90th New York commanded by Col. J.S. Morgan were quartered at Key West Barracks. The remaining six companies of the 90th New York Infantry, some 13 officers and 222 enlisted men, were posted at Fort Jefferson under the regimental executive Lt. Col. Louis I. Tinelli.(63)

Construction on the towers continued haltingly through the summer and fall of 1863. "Yellow Jack" failed to make its appearance but the bulk of the work force had departed the island in anticipation of a reoccurrence of the fever during the sickly season. Labor was promised from New Orleans but never materialized. Some 800,000 bricks were required each month to advance the construction of the defenses. In May 1863, a long-awaited shipment of North River brick arrived, but was of such poor quality that Engineer McFarland noted that if they were "the best quality North River brick...it would be well for the North River brick makers to try some other trade." Another shipment of brick that arrived in July had to be unloaded by the troops because of the absence of sufficient labor. The return of some 165 masons and laborers in September enabled work on the fortifications to resume and by the end of October the rear walls of the counterscarp galleries at the two towers had been finished. By November 1863, work on the two advanced towers had progressed to the stage where they could receive a portion of their armament. Four 100-pounder Parrott rifles were mounted on the center-pintle platforms atop each tower. The reverse fire casemates of the counterscarps were also ready for their 24-pounder flank howitzers. The casemated seacoast batteries had been advanced up to the soles of the embrasures of the second tiers, but the ditches in front of the casemates and the glacis had not yet been formed.

The engineers were faced with a myriad of problems during the prime construction season between October 1863 and May 1864. The labor force that arrived in September 1863 proved to be of much poorer quality and there was much drunkenness and absenteeism. By December the laborers were striking for back pay and a raise. McFarland was having trouble getting timely appropriations for the projects at Key West and began having trouble meeting the payrolls.

Col. Stark Fellows' 2nd U.S. Colored Troops, some 36 officers and about 942 enlisted men, arrived at Key West in March 1864. One of the regiment's first duties was construction of the fortifications, replacing the labor force that had begun fleeing the island in anticipation of another outbreak of yellow fever. The black troops were paid an additional forty cents a day for their construction work. The yellow fever failed to materialize until June. But when it did return it took a heavy toll on the 2nd U.S. Colored Troops, whose ranks were decimated. By March 1864, the engineer was contemplating a suspension of construction, plagued by yellow fever, poor quality work force, and inadequate funding placing the two unfinished towers in caretaking status in July 1864; a state that would last until July 1865.(64)

By the end of 1863, General Woodbury had bolstered his defenses to the point that he was able to begin planning offensive operations. On December 14, 1863, he wrote to the chief of staff of the

Department of the Gulf at New Orleans that he was contemplating the establishment of a small military post in the vicinity of Charlotte Harbor on Florida's south west coast. There were in that vicinity he reported, several hundred rebel deserters and men avoiding conscription by the Confederate Army that he intended to recruit into the federal forces in an effort to disrupt the cattle production that was supporting the Confederate military operations in central and north Florida.(65)

At this time Woodbury's garrison had been reduced to a single regiment, Tilghman Good's 47th Pennsylvania Infantry with 23 officers and 369 enlisted men. These troops were distributed between Forts Jefferson with five companies under the command of Lt. Col. George W. Alexander and Col. Good's force of five companies at Key West.(66)

In February 1864, the 47th Pennsylvania was transferred to Franklin, LA, in exchange with Col. Stark Fellows' 2nd U.S. Colored Troops, which were to come from Ship Island, MS, and the 110th New York Volunteer Infantry Regiment that was to come from Franklin.(67)

Col. Fellows' 2nd U.S. Colored Troops substituted for the men of the 47th Pennsylvania who had been carrying out the incursions into southwest Florida, and in company with the newly recruited renegades and deserters that made up the 2nd Florida Cavalry Regiment (Union), and elements of the U.S. Navy, carried out numerous successful raids as far north as Tampa Bay.(68)

The end of June 1864 found General Woodbury's District of Key West and Tortugas deployed as follows: The 2nd U.S. Colored troops were, when not carrying out raids along Florida's Gulf coast, at their station at Key West, while the 110th New York Infantry under Colonel Charles Hamilton manned Fort Jefferson.

General Woodbury's health went into decline in the inhospitable summer climate of Key West and the War Department was in the process of ordering him away from Key West when the general died of yellow fever at Key West on August 15, 1864. On August 19, before news of his death had reached Washington, the War Department ordered him to Washington. He was succeeded in command of the district by Col. Hamilton pending the arrival of Woodbury's successor. It was mid-October before Maj. Gen. E.R.S. Canby, commanding the Military Division of the Mississippi, finally ordered Brig. Gen. John Newton to command the District of Key West and Tortugas in the Department of the Gulf.(69)

Like many other officers assigned to finish the numerous seacoast fortifications during the war, Capt. McFarland sought active service in the field. He was no doubt dismayed to see officers some years his junior being rapidly advanced in rank to colonel and even brigadier general. Only strong ultimatums from his chief in Washington to either resign his commission as an engineer officer, or remain at Key West kept the young officer at his post in the Keys. McFarland remained in charge of the fortification work in the Florida Keys through the end of the Civil War. In the final weeks of the conflict, from March 7 to June 2, 1865, he was assigned to the additional duty of chief engineer of the 16th Army Corps and placed in charge of the defenses of Mobile and the eastern shore of Mobile Bay, where he was promoted to Bvt. Maj. of Engineers. From June 2 to August 15, 1865, McFarland served as Assistant Adjutant General of the 13th Army Corps with the rank of Lt. Col. of U.S. Volunteers.(70)

With the end of the Civil War, the District of Key West and Tortugas was augmented by the arrival of another regiment of black troops, the 99th U.S. Colored Troops under Maj. Samuel Pollock.(71)

The guns had barely silenced when Brig. Gen. Richard Delafield, the new chief of engineers (succeeding Brig. Gen. Totten, who had passed away in 1864), urged General U.S. Grant, the commanding general of the army, to have General Canby release Captain McFarland to return to his duties at Key West. McFarland returned to Key West during the summer of 1865 to continue the finish work on the island's defenses.(72)

The collapse of the Confederacy and the hunt for the various leaders of the Confederate Government kept the Key West garrison on the alert for several months following the war. In mid-August, word was received that an expedition was underway to seize Fort Jefferson and release the prisoners being held there. General Canby issued orders to the commanders at Forts Taylor and Jefferson to increase the state of their alert and to guard against any attempt to take Fort Jefferson, but the attack did not materialize.(73)

In July 1865, it was possible to again undertake construction of the advanced towers and much of the money allocated was expended on finishing the brick masonry work at the two towers. In his annual report dated October 20, 1866, Gen. Delafield noted that \$219,908 remained unexpended at the end of the 1865/1866 fiscal year and requested an additional sum of \$150,000 in the appropriations for 1866/1867. The bulk of these monies were, however, to be expended on the two Martello towers. On October 22, 1865, before planning for this undertaking could be completed, a hurricane passed near the island and did considerable damage to Fort Taylor. As a result of the storm damage, on November 27 McFarland received an assistant: 1st Lt. William R. Livermore. The two engineers became engaged in numerous repair projects. One involved the rebuilding and repair of the breakwaters on the channel fronts, and the construction of new breakwaters at the northwest end of the coverface. About 100 feet of seawall had to be constructed and another 60 feet required repair. In addition, a new standing bridge was required between the coverface and the shore. Lieutenant Livermore was reassigned to duties with the Engineer Battalion during the summer of 1866, but returned in November 1866 and continued to serve at Key West until July 24, 1868.(74)

Engineering Operations Are Suspended and a Succession of Engineer Officers Oversee Minor Repairs in the Postwar Period

On November 3, 1866, McFarland received orders from General Delafield to suspend operations on the nearly complete fort and the seafront casemates of the two towers. The death knell for the vertical walled masonry fort had been sounded in 1862 during the American Civil War, when rifled siege artillery breached the brick masonry scarp of Confederate Fort Pulaski at the mouth of the Savannah River. Heavy-caliber siege cannon and rifled artillery had made short work of other third system forts that had been seized by the Confederates at the beginning of the war. One by one they had succumbed to the powerful battering force of the heavy Rodman and Dahlgren guns and Parrott rifles that had been developed during the war. Fort Sumter had been battered into a pile of rubble during the last years of that conflict by the powerful Rodman guns and Parrott rifles, some of the latter firing projectiles weighing 300 pounds. Improvements in both range and caliber had also been made in naval armament during and after the Civil War. Other than the conversion of some muzzleloading smoothbore 10-inch Rodman guns into 8-inch muzzleloading rifles, giving them a range of some 4,000 yards, the nation's seacoast armament had not kept pace with advancements in naval armament following the Civil War, and by the mid-1880s those weapons were seriously outdated.

McFarland, however, continued to carry out repairs on the fort and the two towers insofar as funds allowed, most of which were spent on the coverface and the preservation of the site. Some additional work was also carried out for part of the glacis of Tower No. 1. McFarland was promoted to Major of Engineers on March 7, 1867, and departed Key West in December 1867 for the last time, succeeded by Col. James H. Simpson, CE, as senior engineer officer on the Gulf Coast. Simpson spent almost no time at Key West and repairs required after five years of occupation by the troops were carried out under the supervision of civilian employees of the Engineer Department. This consisted mostly of continuing to form the coverface of the fort. After a year Simpson was succeeded by Lt. Col. Charles E.

Blunt, CE, in December 1868. Blunt was assisted by 1st. Lt. James B. Quinn, CE, who was more often on the scene at Fort Jefferson, leaving his superior to oversee the defenses of Key West.(75)

During Blunt's tenure at Fort Taylor, work continued on developing the fort's massive coverface. In addition, new pintles were put down on the barbette tier of the fort for the new iron carriages developed for the 10-inch Rodman guns.(76)

New Fortifications Projected for Key West

In 1870 and early 1871, projects for the modification of the fort and the planning of two exterior water batteries were developed. The thickness of the scarp next to the fort's magazines was to be increased and the parapets and terreplein of the fort's barbette tier were to be modified to receive the 15-inch Rodman gun on its improved iron carriage. In 1872, 18 gun platforms for 10-inch guns were removed from the terreplein and replaced with two platforms for 15-inch Rodmans and three sand traverses. Modifications were also planned on the mainland at the fort's rear. There, water batteries were planned immediately north and south of the main fort. These masonry-revetted sand batteries were designed to be extensive, mounting a total of about 16 15-inch Rodman smoothbore guns. In October 1872, Brig. Gen. Andrew A. Humphries, who had succeeded Gen. Delafield as chief of engineers on August 8, 1866, was able to report to Secretary of War William W. Belknap that "the embankments (sand) of the two barbette-batteries close to the beach, north and south have been commenced and carried sufficiently far to provide emplacements for six 15-inch guns, (two in the north and four in the south battery)." Each pair of these powerful muzzle loaders was to be separated by a heavy traverse magazine. Work proceeded slowly, however, and construction was frequently hindered by tropical storms and hurricanes. Colonel Blunt was transferred to the defenses of Portsmouth, NH, in January 1874 and succeeded by Maj. Jared A. Smith, CE, who served at Key West until December 1876. By the end of the 1873/1874 fiscal year, General Humphries noted, in his annual report to the secretary of war, that:(77)

"The south end of the north battery has been essentially completed, and the two 15-inch guns mounted there may now be used. The work upon this battery includes the building of 10 running feet of revetment or sustaining wall at the end, and of 200 feet of brick scarp with concrete backing and stone coping; the building of the breastheight walls for the two guns, the turning of the arch and completion of the south traverse magazine and embankment of the traverse. At the south battery the salient and enough of the adjoining faces to admit of the mounting and serving four 15-inch guns have also been completed. This has involved the building of 195 running feet of scarp on the west face, and 183 feet on the south face, besides 83 feet of brick scarp-facing on the south face. The breastheight walls for the four guns have also been built, the two traverse magazines with their sand coverings completed, and ramp leading to salient completed, with its side walls."

At the end of September 1874, the chief engineer was able to report that:(78)

"During the past fiscal year the foundations of sea-faces of scarp-wall for south battery have been excavated to the coral rock and filled with concrete complete. The scarp or sea-wall on face running east has been completed 352 feet from angle, and the remaining portion finished save coping. On face running northwest the wall is completed 196 feet from angle, and an additional distance of 165 feet finished save coping. About one-half the sand required to complete embankment and parapet on the easterly face of battery has been procured and placed in position. Although looking to emplacements for guns as an ultimate result, none have been finished during the year."

When funding was halted in 1875 and the project suspended, the two water batteries were still far from complete. As work wound down, Humphries noted that the primary accomplishments had:(79)

“consisted mainly in constructing sea-wall and accumulating sand in the south battery. Five hundred and eighty-seven cubic yards of masonry have been built in the wall, and 11,574 cubic yards of sand collected and transported to the battery.”

Eventually, about six 15-inch Rodman guns and three 8-inch converted rifles, along with their carriages, were brought to the exterior batteries, and some of them mounted. These weapons were still at the post in 1898 and were not removed from their emplacements until the construction program for modern batteries was commenced in the 1890s.

As the construction program was being shut down in 1875, the island was again visited by a hurricane which inflicted serious damage to the southwest portion of the coverface. A 150-foot-wide breach was cut in the seawall and most of the funding that remained was required to make the necessary repairs and to preserve the site. When General Humphries made his annual report to the secretary of war, he noted the following accomplishments, hurricanes notwithstanding:(80)

“1,596 linear feet of board-fence built for protection of south battery. No work has been done on the sand batteries. The designs for batteries have been considerably modified, so that the guns may be protected singly instead of in pairs. This reduces the emplacements in south battery to fourteen, and in north battery to eight. The heavy guns in these batteries and main work are on wooden platforms which are becoming unserviceable, and should be permanently rebuilt.”

These alterations to the batteries were not undertaken, however, and the batteries would for all intents and purposes be left as they were for the next 20 years.

Fort Taylor and Outworks All but Abandoned

Throughout the construction history of Fort Taylor, the prevalence of yellow fever had proven to be a major obstacle to the construction program. Between 1850 and 1900, epidemics were frequent, coming annually in varying degrees of seriousness. The disease halted progress on the works innumerable times, and after 1865, the garrison was withdrawn when the epidemics were most severe. The fever was often exacerbated by the unsanitary conditions on the island. During the last half of the 19th century, post surgeons assigned to Key West Barracks repeatedly stressed the unsanitary conditions that prevailed all over the island. One surgeon described Key West as the “dirtiest city in the United States.” In 1880, as the result of these epidemics, the garrison, which had continued to occupy the barracks in the city, was withdrawn from Key West. The post was abandoned for all practicable purposes except for an ordinance sergeant and the engineer officer responsible for the fortifications on the island. For the next 13 years, Key West Barracks was for all practical purposes abandoned, and Fort Taylor was turned over to the Corps of Engineers.(81)

Fort Taylor remained in a state of suspended development with only the slightest repairs being made over the next 20 years. An appraisal by the Board of Engineers in 1881 reiterated the military importance of Fort Taylor, noting that “a maritime enemy must be prevented from seizing Key West and its harbor and existing works.” The board suggested that the 10-inch and 12-inch rifled guns projected several years before would still leave the island insecure if additional shore batteries and iron turrets and 100-ton guns were not emplaced to guard the island and its harbor. A succession of engineers served at Key West between 1875 and 1896. On December 16, 1876, Capt. William H. Heuer, CE, was assigned as engineer in charge of the works at Key West. He served at Fort Taylor until February 1, 1885. Heuer was relieved by Capt. Thomas Turtle, CE, who was succeeded nine months later by Capt. William T. Rossell, CE. Rossell was in turn relieved by Maj. W.H. Heuer, who returned to Key

West on November 17, 1885. With little or no work being done to complete or preserve the fortifications, by the end of fiscal year 1884, Brig. Gen. John Newton, who had assumed the duties of chief of engineers the previous March, reported:(82) “the exterior earthen batteries are suffering the inevitable deterioration due to their incomplete condition; the platforms, a combination of concrete and wood, are, because of the decay of the wood, utterly useless in their present condition. The estimated cost of these batteries is \$240,338, which on account of deterioration should be increased to \$250,000.”

Needless to say, the requisite funding was not forthcoming from the Congress for the maintenance of the obsolete fortifications. An ordnance report made in June 1883 listed 133 guns and howitzers mounted at Fort Taylor, with an additional 65 guns and howitzers held in storage at the fort. These were arranged as follows:(83)

Left Channel Face:

1st Casemated Tier:

Thirteen 10-inch Rodman smoothbores on iron seacoast carriages.

2nd Casemated Tier:

Two 10-inch Rodman smoothbores on iron seacoast carriages.

Three 30-pounder Parrott rifles on iron seacoast carriages.

Nine 8-inch columbiads on wooden carriages

Barbette Tier:

Seven 10-inch Rodman smoothbore guns on iron seacoast carriages.

Three 300-pounder Parrott rifles on iron seacoast carriages.

Center Channel Face:

1st Casemated Tier:

Fourteen 10-inch Rodman smoothbores on iron seacoast carriages.

2nd Casemated Tier:

Two 30-pounder Parrott rifles on iron seacoast carriages.

Nine 8-inch columbiads on wooden carriages

Barbette Tier:

Six 10-inch Rodman smoothbores on iron seacoast carriages.

Right Channel Face:

1st Casemated Tier:

Fourteen 10-inch Rodman smoothbores on iron seacoast carriages.

2nd Casemated Tier:

Eleven 8-inch columbiads on wooden carriages.

One 30-pounder Parrott rifle on iron seacoast carriage.

Barbette Tier:

Seven 10-inch Rodman smoothbores on iron seacoast carriages.

Three 300-pounder Parrott rifles on iron seacoast carriages.

Flanking defense armament consisted of:

Left Demibastion:

1st Tier:

Three 24-pounder flank howitzers on wooden flank carriages.

2nd Tier:

Seven 24-pounder flank howitzers on wooden flank carriages.

Left Tower Bastion:

1st Tier:

Two 24-pounder flank howitzers on wooden flank carriages.

2nd Tier:

One 8-inch seacoast howitzer on wooden carriage.

Two 24-pounder flank howitzers on wooden flank carriages.

Right Tower Bastion:

1st Tier:

Two 24-pounder flank howitzers on wooden flank carriages.

2nd Tier:

One 8-inch seacoast howitzer on wooden carriage.

Two 24-pounder flank howitzers on wooden flank carriages.

Right Demibastion:

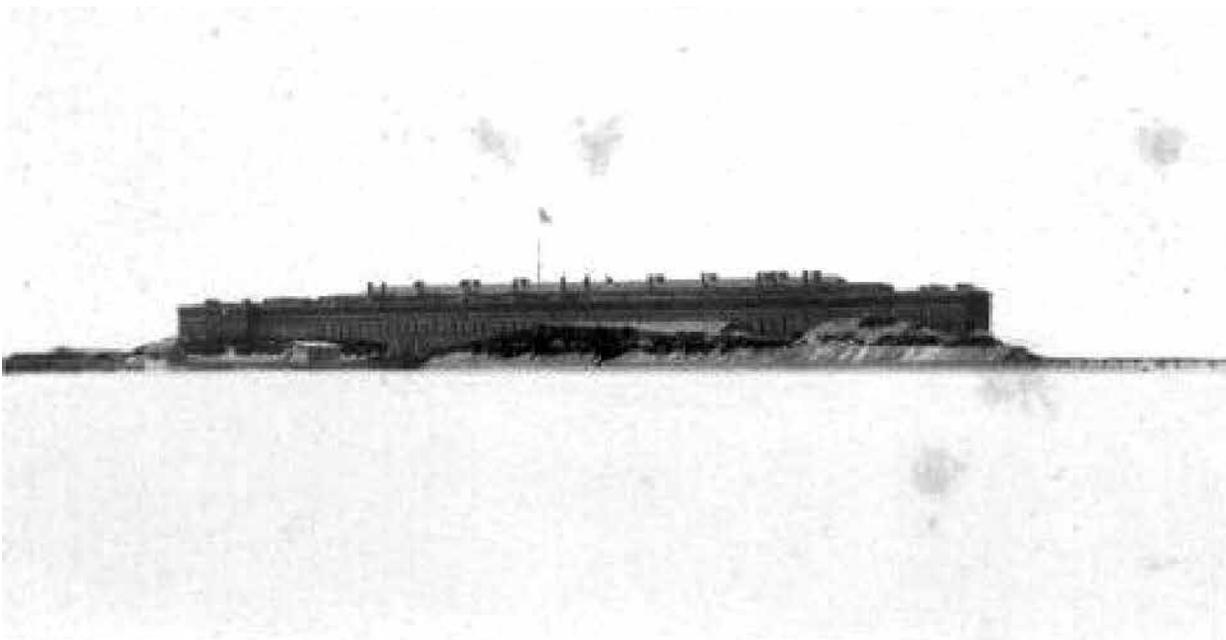
1st Tier:

Three 24-pounder flank howitzers on wooden flank carriages.

2nd Tier:

Seven 24-pounder flank howitzers on wooden flank carriages.

Life for the ordnance sergeants assigned to posts such as Fort Taylor was generally routine. However, on one occasion in 1895, Sergeant Seymour was sorting condemned munitions when a dynamite fuse exploded. "Crazed with pain he ran and jumped off the breakwater into the bay and would have drowned had he not been rescued by parties who witnessed the occurrence. Sergeant Seymour was taken to the hospital at the garrison [Key West Barracks] on a stretcher by a detail of soldiers and at present is resting easy, though it is thought his injuries will prove fatal." (84)



Fort Zachary Taylor, undated (Mark Berhow collection)

To be continued in the next issue of the *Coast Defense Journal*

Endnotes

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61. S.O. No. 104, Headquarters, Department of the South, February 21, 1863, *O.R. I*, Vol. 14, p. 422. D. Hunter to Joseph G. Totten, March 6, 1863, *O.R. I*, Vol. 14, p. 421. Joseph G. Totten to D. Hunter, March 16, 1863, *O.R. I*, Vol. 14, pp. 421-23. H.W. Halleck to D. Hunter, March 16, 1863, *O.R. I*, Vol. 14, pp. 429-30. S.O. No. 226, April 24, 1863, *O.R. I*, Vol. 53, p. 88.

62. Cullum, *Biographical Register*, Vol. II, pp. 733-34; Vol. III, p. 2. Colin G. Jameson, *History of East Martello Tower, Key West*, (Key West Art and Historical Society, Key West: 1992) p. 16. Hereafter: Jameson, *East Martello Tower*.
63. Abstract from Return of the Department of the South - July 31, 1863; and Organization of the Troops in the Department of the South, July 31, 1863, *O.R. I*, Vol. 14, pp. 367-69.
64. S. Fellows to H.W. Bowers, May 10, 1864, *O.R. I*, Vol. 35, Pt. 1, pp. 390-91. Williams, "Stronghold of the Straits," pp. 22-23. Jameson, *East Martello Tower*, pp. 16-17.
65. D.P. Woodbury to Charles P. Stone, December 14, 1863. *O.R. I*, Vol. 25, Pt. 1, pp. 855-56.
66. Abstract from Returns of the Department of the Gulf, *O.R. I*, Vol. 26, Pt. 1, p. 827. Organization of troops in the Department of the Gulf, District of Key West and Tortugas, *O.R. I*, Vol. 26, Pt. 1, p. 532.
67. S.O. No. 39, Department of the Gulf, February 13, 1864, *O.R. I*, Vol. 34, Pt. 2, p. 316. Richard B. Irwin to Maj. Gen. Franklin, February 19, 1864, *O.R. I*, Vol. 34, Pt. 2, p. 370.
68. S. Fellows to H.W. Bowers, May 10, 1864, *O.R. I*, Vol. 35, Pt. 1, pp. 390-91.
69. Troops in the Department of the Gulf, *O.R. I*, Vol. 34, Pt. 4, pp. 611, 19. S.O. No. 275, AGO, August 19, 1864, *O.R. I*, Vol. 53, p. 108. S.F.O. No. 79, Military Division of the Mississippi, September, 24, 1864, *O.R. I*, Vol. 39, Pt. 2, p. 452. Cullum, *Biographical Register*, Vol. I, p. 634.
70. S.O. No. 272, War Department, June 2, 1865, *O.R. I*, Vol. 43, Pt. 2, p. 726. Cullum, *Biographical Register*, Vol. II, pp. 733-34. Between March 5, 1862, and his final departure from the Keys in December, 1867, while residing in Key West, McFarland also served as superintending engineer of Fort Taylor and the Martello Towers. He had also served as the superintending engineer of Fort Jefferson's construction in the Dry Tortugas Islands.
71. Organization of Troops in the Military Division of West Mississippi, April 30, 1865, *O.R. I*, Vol. 48, Pt. 2, pp. 251, 60.
72. Jno. A. Rawlings to Maj. Gen. Canby, May 6, 1865, *O.R. I*, Vol. 48, Pt. 2, p. 329.
73. Edwin M. Stanton to Maj. Gen. Canby, August 17, 1865, *O.R. I*, Vol. 48, Pt. 2, p. 1190.
74. Cullum, *Biographical Register*, Vol. II, pp. 733-34. *Annual Report of the Chief of Engineers*, 1866, GPO, 1866, p. 428. Hereafter: *ARCE* page and date.
75. Cullum, *Biographical Register*, Vol. II, pp. 255-56, 733-34; Vol. II, p. 66. *ARCE*, 1867. p. 13.
76. *ARCE*, 1869, p. 16.
77. *ARCE*, 1870, p. 24; 1871, p. 21; 1872, p. 18; 1873, pp. 19-20. Cullum, *Biographical Register*, Vol. II, pp. 848-49.
78. *ARCE*, 1874, p. 24.
79. *ARCE*, 1875, p. 23-24.
80. *Ibid.*
81. Southeastern Sector, Eastern Defense Command. *History of the Southeastern Sector, Eastern Defense Command 1 March 1944-15 May 1945*, p. 40. Hereafter: *History of the Southeast Sector*. Fort Taylor Record Book.
82. Report of the Board of Engineers on the Condition of the Fortifications and What Number of them if any can be dispensed with, Sen. Exec. Doc. No. 3, 47th Cong., 1st Sess., p. 424. *ARCE*, 1884, pp. 45-46. Cullum, *Biographical Register*, Vol. III, pp. 82, 207.
83. Fort Taylor Record Book.
84. "Exploded While Seymour was Handling it," *Florida Times Union* (Jacksonville), April 11, 1895.

Defending The Florida Reef: A History of the Coastal and Harbor Defenses of Key West, Florida, Part 2: 1895-1906

William C. Gaines

Part 1 of this article appeared in the previous issue of the *Coast Defense Journal*

Modern Defenses Planned and Begun at Key West

In 1885, President Grover Cleveland authorized the “Board on Fortifications and other Defenses,” chaired by Secretary of War William C. Endicott, to develop seacoast defenses for the nation. When the Endicott Board submitted its report early in 1886, new fortification plans were made for the various seaports, harbors, and naval bases along the nation’s maritime frontier. The modern seacoast defenses planned for Key West ranked 12th in priority on an initial list of some 27 ports. Key West was the nation’s 13th largest harbor in 1885. For Key West’s modern defenses, two 16-inch guns, 12 12-inch guns and 32 12-inch mortars were considered necessary to safeguard the harbor and naval station. It was not until the eve of the Spanish-American War, however, that the first of these modern fortifications were actually begun. In the decade that followed, the Endicott Board’s initial recommendations for Key West underwent considerable change.(85)

The revised armament list for Key West in 1896 was substantially altered from that prescribed a decade earlier and was vastly different from the armament in place in 1881. By 1896, the Board of Engineers had determined that the harbor could be adequately defended by a single battery of two 12-inch guns on barbette carriages, 16 12-inch mortars, and four 10-inch guns and two 8-inch guns on disappearing carriages. These gun and mortar batteries would be supplemented by submarine mines planted in the channel approaches. Later, a battery of 6-inch guns on disappearing carriages, one of 4.7-inch guns on barbette mounts, and four batteries of 3-inch rapid-fire guns on masking parapet and pedestal mounts would defend the minefields.

Between 1884 and 1895, a succession of engineer officers had Fort Taylor and the Key West defenses under their nominal supervision, but the engineer presence at Key West during these years was minimal. Capt. Thomas Turtle, CE, succeeded Major Heuer in 1884 and Capt. William T. Rossell, CE, supervised the defenses for about 15 months in 1885 and 1886. On May 15, 1889, Capt. William M. Black, CE, assumed charge of the defenses in the district encompassed by the State of Florida, serving from until August 28, 1895. Maj. Thomas H. Hanbury, CE, commanded the engineering activities at Key West from May 15, 1894, until January 4, 1896.

Lt. Col. William H.H. Benyaurd, CE, arrived in Key West on January 7, 1896, to prepare for the construction of modern fortifications at Fort Taylor. On September 15, 1896, 2nd Lt. Robert P. Johnston, CE, was assigned to assist Col. Benyaurd at Fort Taylor, arriving at Key West on September 26. Construction of the new batteries at Fort Taylor had been authorized by the War Department in accordance with the Act of June 6, 1896. Plans and specifications were being prepared in accordance with the orders of the Engineer Department for two emplacements for 12-inch guns on barbette carriages, emplacements for eight for 12-inch mortars, four 10-inch guns on disappearing carriages, and two 8-inch guns, also on disappearing carriages. Col. Benyaurd assigned Lt. Johnston to supervise the initial construction of the 8-inch and 10-inch gun emplacements projected for the mainland in the rear of the Third-System fort.(86)

The Government Acquires the Advanced Towers

The tracts on which the two Martello towers had been partially built in the 1860s were still privately owned when they were brought to near completion. The property remained in private hands through the following years. Finally, on January 23, 1897, authority was granted by the Secretary of War for the purchase of the two parcels of land upon which the towers stood. A deed for the West Tower (No. 2) was finally passed from Frank Livermore and others to the federal government on April 28, 1897. The site of the East Tower (No. 1) was purchased from Eduardo H. Gato and his wife on March 14, 1898.(87)

Submarine Mine Facilities Built

An allotment of \$10,000 for the construction of a mining casemate was made on November 13, 1896. Col. Benyaurd assigned Lt. Johnston to also supervise construction of this first element of the modern defenses at Key West. The mining casemate was to be built by hired labor near the center of Fort Taylor's unfinished coverface. Work finally began February 26, 1897, with the necessary excavation. A grillage of 30-foot-long, 18-inch square timbers was laid near the mid-point of the incomplete coverface upon which the concrete foundation of the casemate was laid. On June 17, however, the design of the roof was altered from an arched to a flat roof, supported by steel beams. By the end of the fiscal year on June 30, the foundation had been put in and the concrete masonry walls of the structure raised to the spring lines of the casemate's arches. The submarine cable gallery leading from the casemate to the water's edge was also completed before work was suspended pending the arrival of the steel roof beams.(88)

Construction of the casemate continued into fiscal year 1897/1898 and by December 1897, the structure was complete with the exception of a small amount of fill to be applied to its bombproof covering of sand and earth to bring the covering mound's height up to its required height of 30 feet.

The casemate design was similar to other mining casemates of the period, although it reflected some slight alterations from the typical casemate:

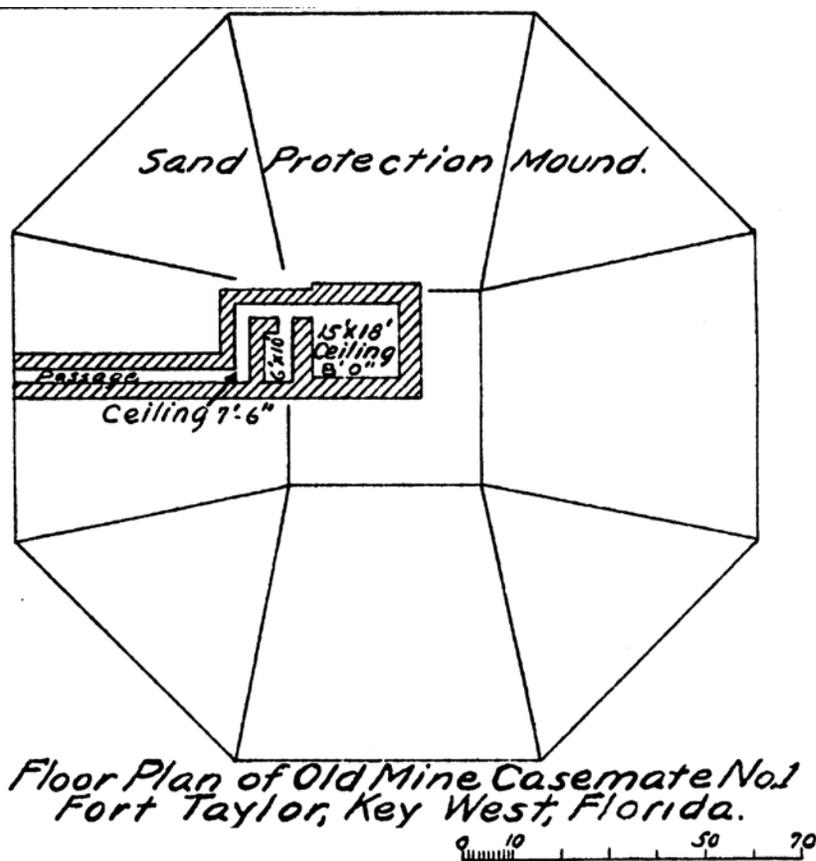
1. The main operating room was enlarged to an area of 15 by 18 feet.
2. The thickness of its earth and sand cover was increased to 19 feet on its land faces at the thinnest point, and to a minimum of 25 feet on its exposed sides.
3. The casemate was provided with a flat roof as opposed to the more typical arched ceiling

The battery room and the casemate's operating room were accessed through a passage about 30 feet long. Upon reaching the casemate, this passage turned left and then right, passing the six-foot by ten-foot battery room on its right and then opened into the operating room. The ceiling of the casemate was eight feet high, while that of the passage was seven feet, six inches. The casemate was transferred to the garrison on October 15, 1901, at a cost of \$10,925.(89)

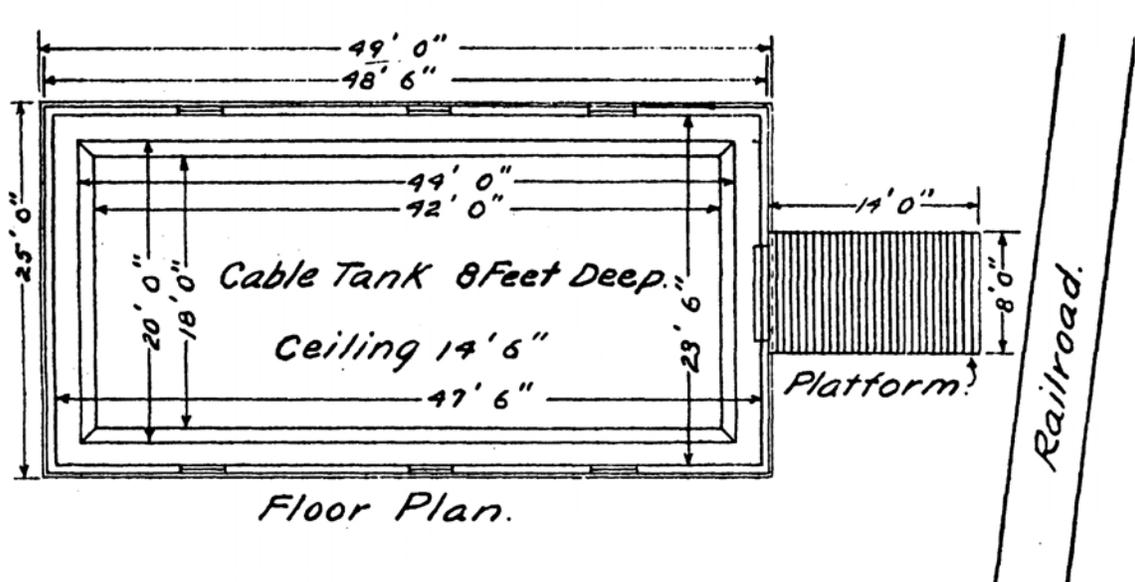
On August 10, 1898, \$5,000 was allotted for construction of a cable tank on the coverface of Fort Taylor, with a railroad track leading to the breakwater. Casemates in the Third-System fort were for the storage of the torpedo materiel. By October 1899, the cable tank was finished and shutters were put up on the torpedo loading room, engine room, and the storage casemates. The original cable tank, built in the rear of the fort, was a wooden frame and concrete structure.(90)



Gorge of Fort Taylor in 1898 prior to the removal of the upper tiers to accommodate the modern batteries. Note the incomplete coverface on which the mining casemate would be built. (NARA)



Plan of the original mine casemate as built in 1897. (NARA)

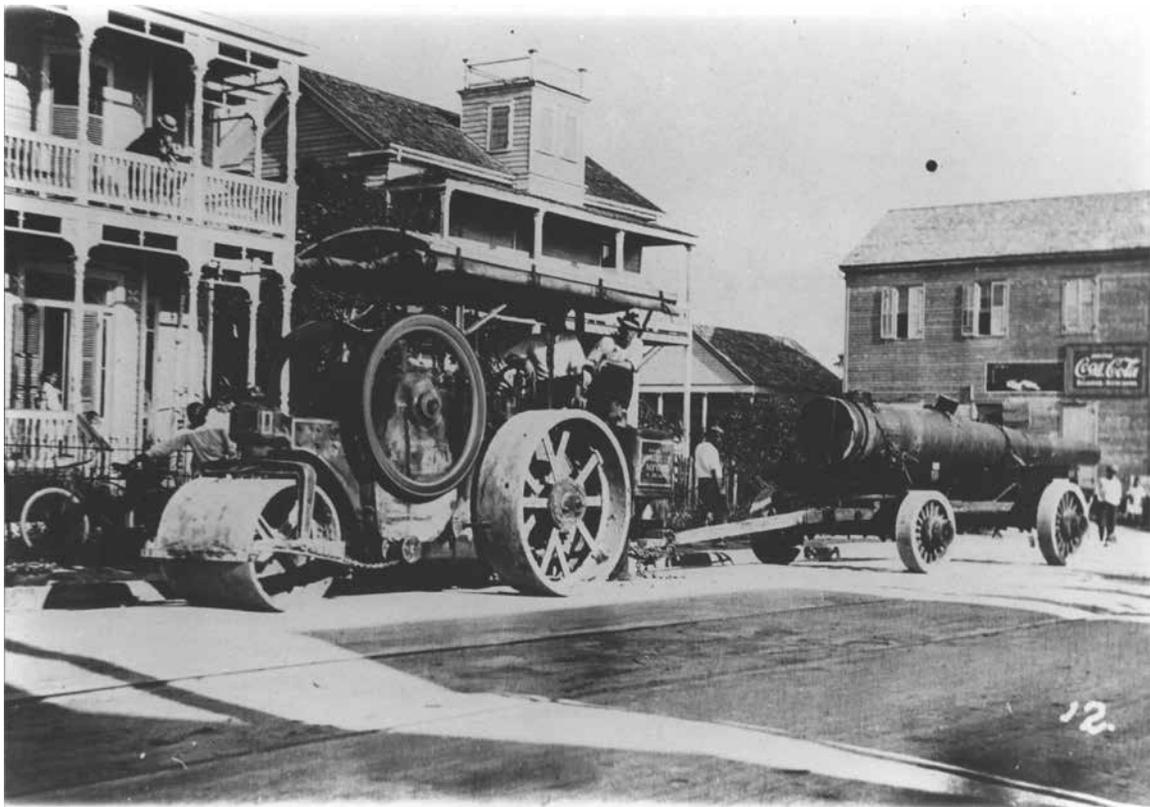


Plan of original 1898 cable tank. (NARA)

Batteries for 10-Inch And 8-Inch disappearing guns built at Key West

The Act of June 6, 1896, authorized construction of the 8-inch and 10-inch gun batteries and emplacements for half of the projected 16 12-inch mortars. These emplacements were to be built on the mainland east of the fort on the site of the old 1870s South Barbette Battery. The mortar battery was to be constructed to the north of the two gun batteries. Construction of emplacements for four 10-inch guns on disappearing carriages, two 8-inch guns on disappearing carriages, and eight 12-inch mortars were advertised for bid on October 24, 1896, and opened on November 24. All the bids were considered too high, and they were ordered rejected by the Office of the Chief of Engineers and readvertised in December 1896. On January 16, 1897, the new bids were opened. The proposal of the Venable Construction Co. of Atlanta, GA, to construct the three batteries for \$378,992 was approved by the Chief of Engineers on March 27 of that year and a contract was entered into with the company for the construction of the three batteries on March 3, 1897. Under the terms of the agreement, work was to commence no later than March 20, 1897, and be completed no later than January 1, 1898. The month of May was consumed in setting up the construction plant and awaiting the arrival of construction materials. At the end of the fiscal year in June 1897, the contractors had not actually begun construction.(91)

When finally begun, the emplacements for the pair of 8-inch guns and the four 10-inch guns were built atop the South Battery of the 1870s, the 8-inch emplacements on the left of the 10-inch emplacements and at a near right angle to them. Progress proved much slower than expected, however, and contract extensions were granted on September 8, 1897, May 14, 1898, and June 8, 1898. Concrete



Moving the gun tubes in Key West (Mark Berhow collection)

work on the battery advanced haltingly until June 30, 1898, when most of the concrete work of the emplacements was complete.(92)

In the meantime, the short war with Spain declared by the United States Congress on April 25, 1898, had broken out. Because of Key West's close proximity to the Spanish colony of Cuba, advancing the modern defenses at Fort Taylor became a very high priority. By the end of June 1898, two 10-inch M1888M1 and two 10-inch M1888M2 guns, along with three M1896 disappearing carriages, had been received. Three of the guns and carriages were hurriedly mounted while awaiting delivery of the fourth carriage. The sand ramparts of the battery had still to be formed when the guns were placed in service. When fully armed, the battery consisted of:(93)

- Emplacement No. 1 - one M1888M1 10-inch BLR (S.N. 46)
on an M1896 disappearing carriage (S.N. 55).
- Emplacement No. 2 - one M1888M1 10-inch BLR (S.N. 65)
on an M1896 disappearing carriage (S.N. 42).
- Emplacement No. 3 - one M1888M2 10-inch BLR (S.N. 64)
on an M1896 disappearing carriage (S.N. 39).
- Emplacement No. 4 - one M1888M1 10-inch BLR (S.N. 34)
on an M1896 disappearing carriage (S.N. 40).

The two 8-inch M1888M1 guns had also been mounted on their M1894 disappearing carriages. The 8-inch gun battery consisted of:(94)

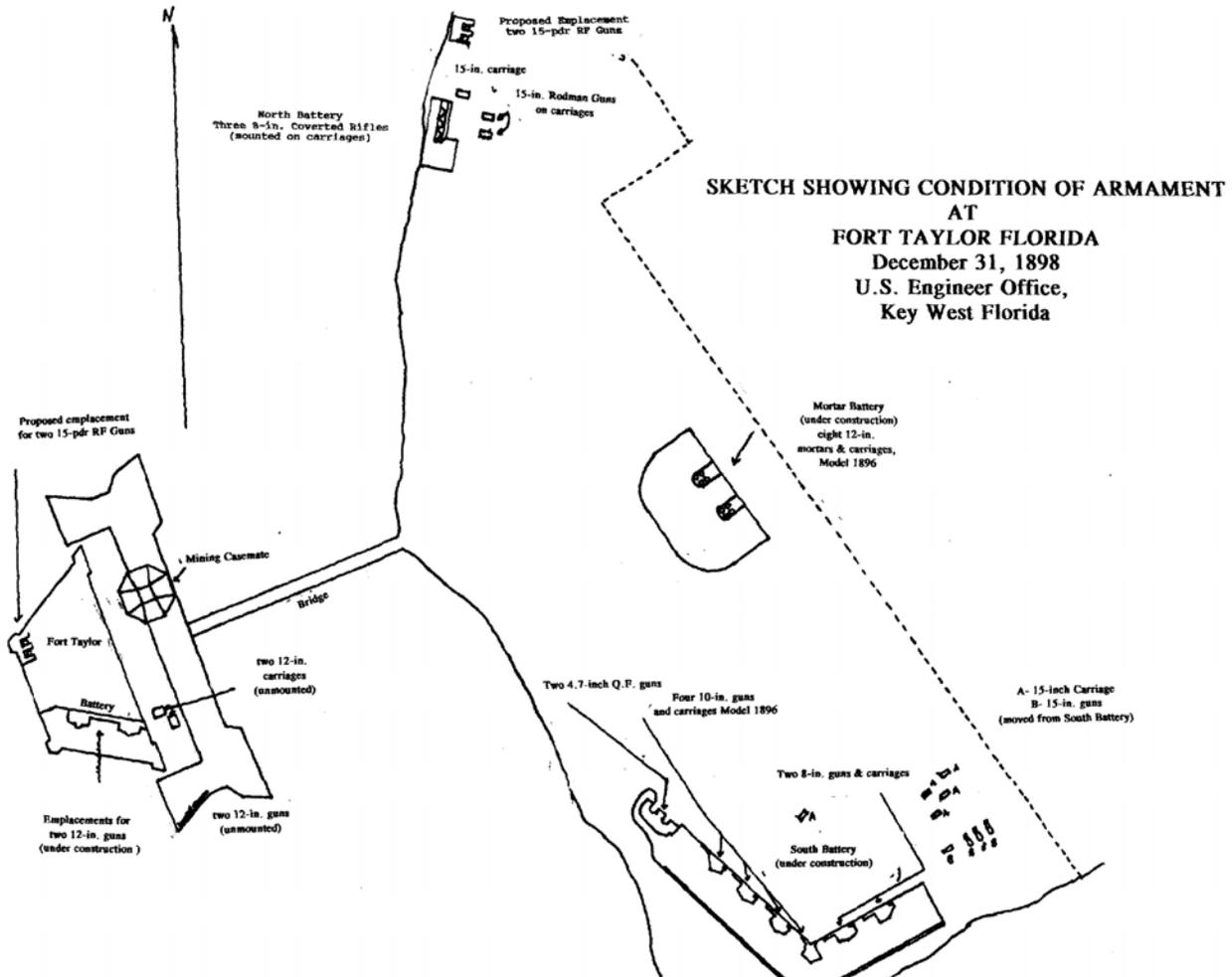
- Emplacement No. 1 - one M1888M1 8-inch BLR (S.N. 40)
on an M1894 disappearing carriage (S.N. 25).
- Emplacement No. 2 - one M1888M1 8-inch BLR (S.N. 39)
on an M1894 disappearing carriage (S.N. 24).

By June 1899, the concrete work of the 10-inch and 8-inch gun batteries was generally complete except for about 14 cubic yards required to build the steps from the roadway in the battery rear to the top of the sand embankment that formed a parados at the rear of the battery. All iron work was completed except for the three iron stairways leading to the guns. Capt. McKinstry, the engineer in charge, noted in his report for October 1899 that 15,287 cubic yards of the sand parapet remained to be thrown up, to be covered with some 3,210 cubic yards of loam planted with 9,630 square yards of Bermuda grass.(95)

Capt. Hamilton Rowan, 1st U.S. Artillery Regiment, commanding the Post of Key West Barracks and Fort Taylor, submitted a report to the Adjutant General of the Department of the Gulf on July 7, 1899, noting that construction of the south battery was still far from complete.(96)

"A small part only of the exterior slope has been filled in. This work is being done by contract and is executed by fits and starts. Some filling will be done upon the mortar battery for a few days and then that will be left to itself and filling will be done upon the South Battery. Such periods of activity are followed by periods of rest during which nothing is done. Not a wheel had been turning for some days. A construction railroad is laid upon the superior slope of the South Battery. This prevents any use of the guns. A stationary engine is fixed near the north X" [10-inch] Rifle and a locomotive runs along the forementioned track. Both these engines cause much dirt and annoy [sic] to Gun Commanders.

The material used for the exterior slope of this [South] Battery is pulverized coral rock dug out of the sea. When dry this material may be reduced to a powder by rubbing it between the fingers, and it is the most unpromising material for the covering of a battery. I am told that it is "hoped" that this moist material will harden in time. This seems to me doubtful, but almost any material would have time to petrify at the rate of speed now in practice by the constructors."

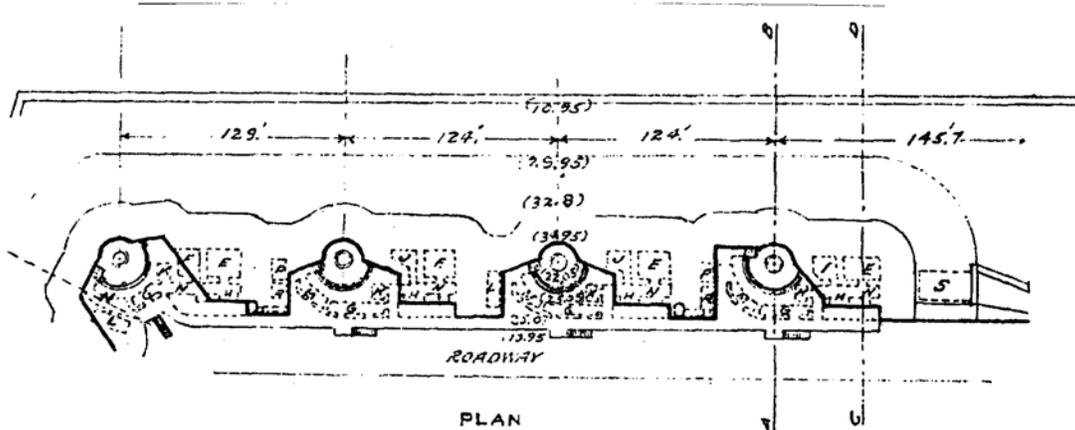
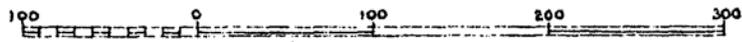


Layout of Fort Taylor Reservation in December 1898. (Adapted from a drawing from NARA)

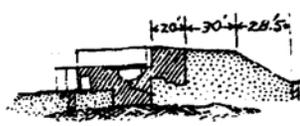
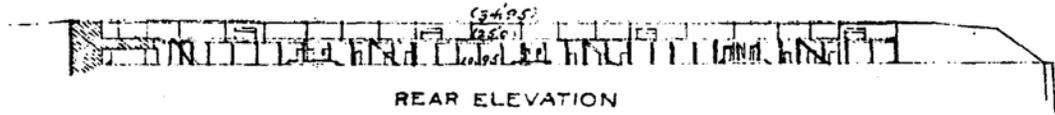
Rowan was particularly critical of the quality of workmanship on the modern emplacements then under construction at the South Battery. The concrete work was, he commented, the "poorest I have ever seen. It is full of cracks and seams and slight blows will loosen large fragments in some places. To prevent leaking there are patches of asphalt on the superior slopes." The steps of the interior stairs leading to the lower galleries were found to be "very ragged in many instances," and in one place on the stairs descending from Emplacement No. 6, only four feet, two inches of head room was provided!(97)

The battery's parapet and minor finish work was slowly completed over the next few years and by November 1903 the battery was complete. The 8-inch battery was placed in service upon transfer to the coast artillery garrison on June 30, 1904, along with the four 10-inch emplacements. The battery of 10-inch guns was named for the Spanish explorer and "discoverer" of Florida, Juan Ponce DeLeon. Battery DeLeon's guns had a range that allowed them to cover the waters of the harbor, however, they could not cover the waters of the Northwest channel. All four emplacements of Battery DeLeon served

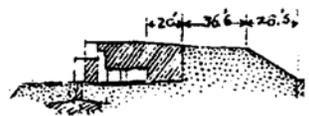
COAST DEFENSES OF KEY WEST, FLORIDA.
 FORT TAYLOR.
 BATTERY DE LEON
 NO. OF GUNS 4, CALIBER - 10" CARRIAGE - DIS.
 SCALE



E - MAGAZINES	15.5 X 18
F - SHELL ROOM	13.5 X 15.5
G - SHOT ROOM	6 X 30
H - AMM. HOIST	5 X 11.5
I - SHELL ROOM	13 X 13.5
J - SHELL ROOM	9 X 13.5
K - STOREROOM	7 X 9
L - STOREROOM	8 X 21
M - STOREROOM	6 X 18
N - PASSAGEWAY	6 FT. WIDE
P - STOREROOM	8 X 12
R - STOREROOM	8 X 13
S - F.C. & POST TEL. S.B. ROOM	15 X 30



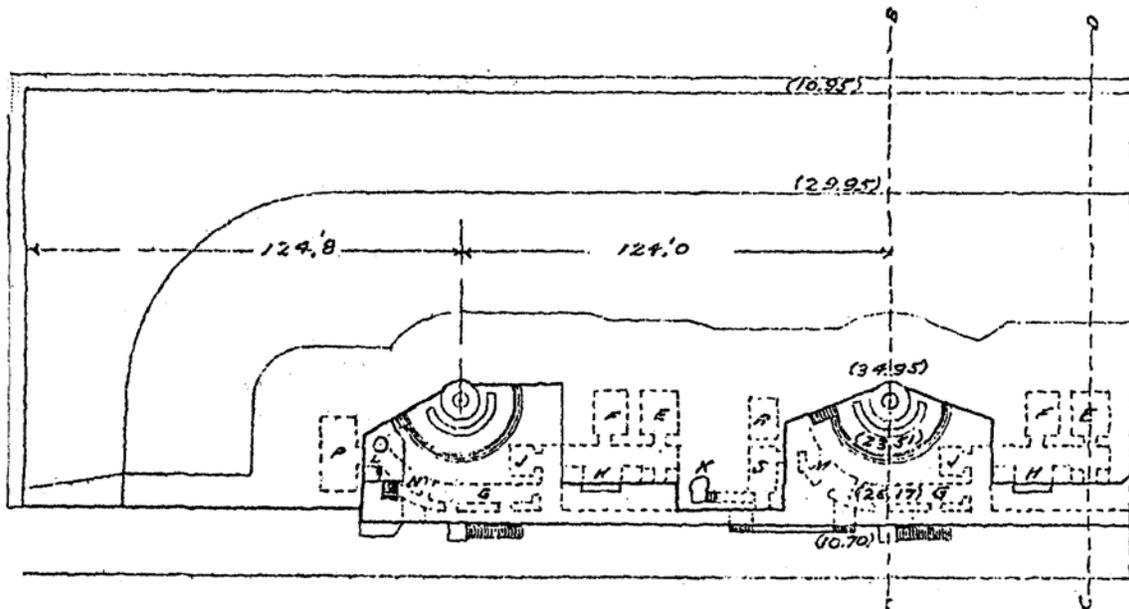
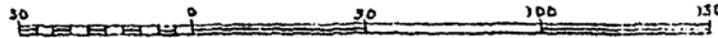
SECTION ON A-B.



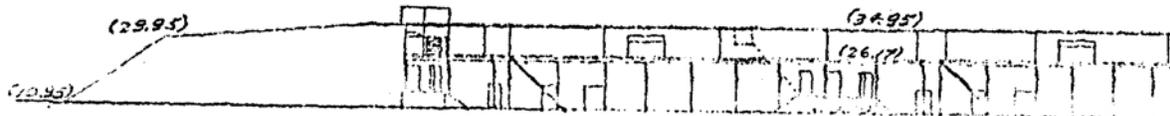
SECTION ON C-D.

Plan and sections of Battery DeLeon. (NARA)

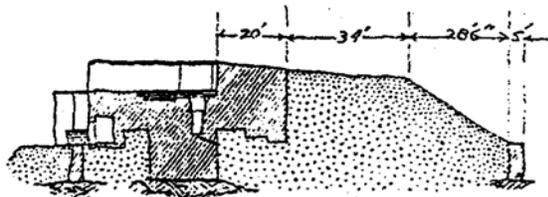
COAST DEFENSES OF KEY WEST, FLORIDA.
 FORT TAYLOR.
 BATTERY COVINGTON
 NO. OF GUNS 2. CALIBER -8" CARRIAGE - DIS.
 SCALE



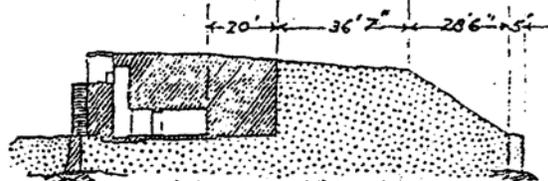
PLAN



REAR ELEVATION



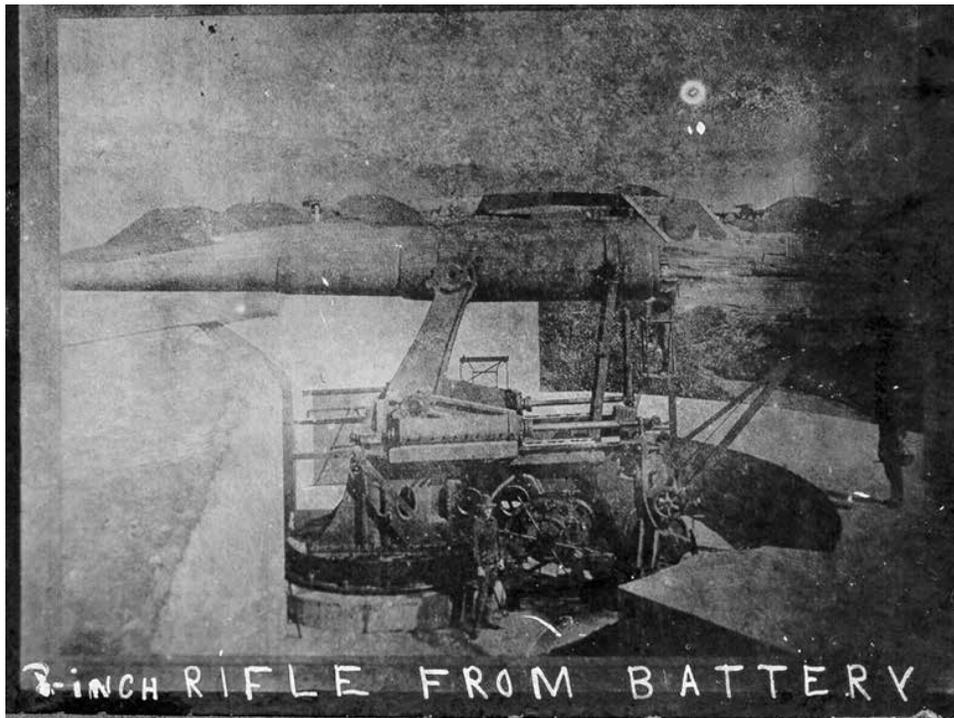
SECTION ON A - B



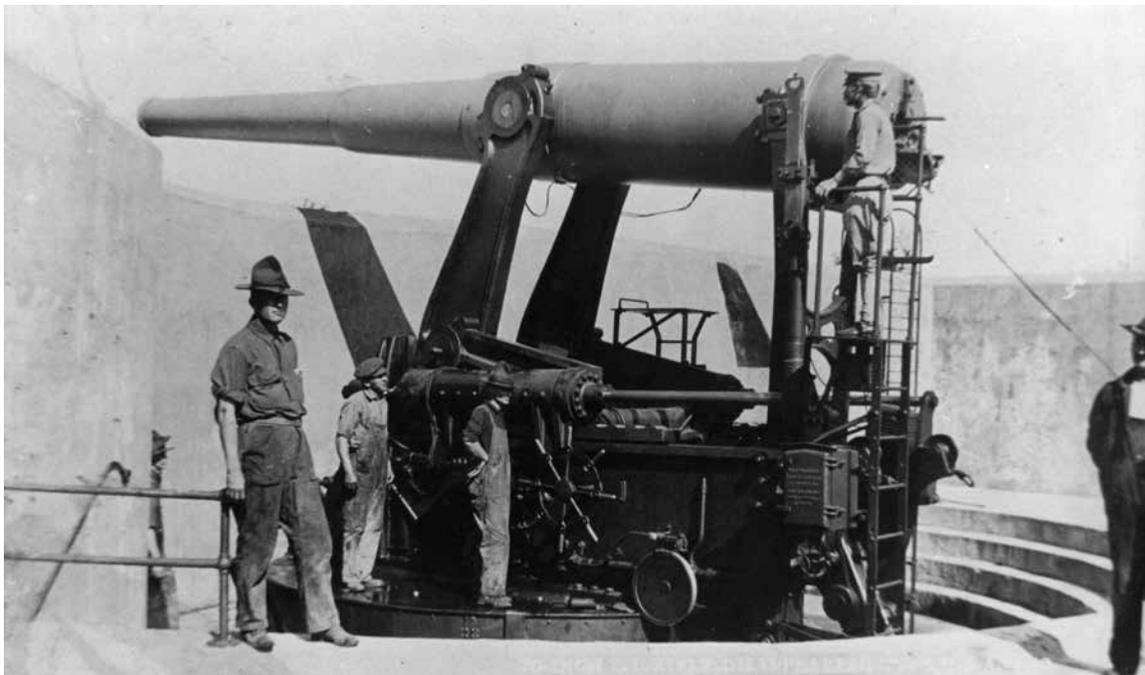
SECTION ON C - D

E - MAGAZINES	11 X 13
F - SHELL ROOM	9 X 13
G - SHOT ROOM	6 X 29
H - AMM. HOIST	5 X 11
J - STOREROOM	7 X 9
K - OBSERV. STA.	
L - C. R. F. FORD	
M - STOREROOM	6 X 18
N - STOREROOM	6 X 14
P - STOREROOM	10 X 21.5
R - STOREROOM	8 X 12
S - STOREROOM	8 X 13.5

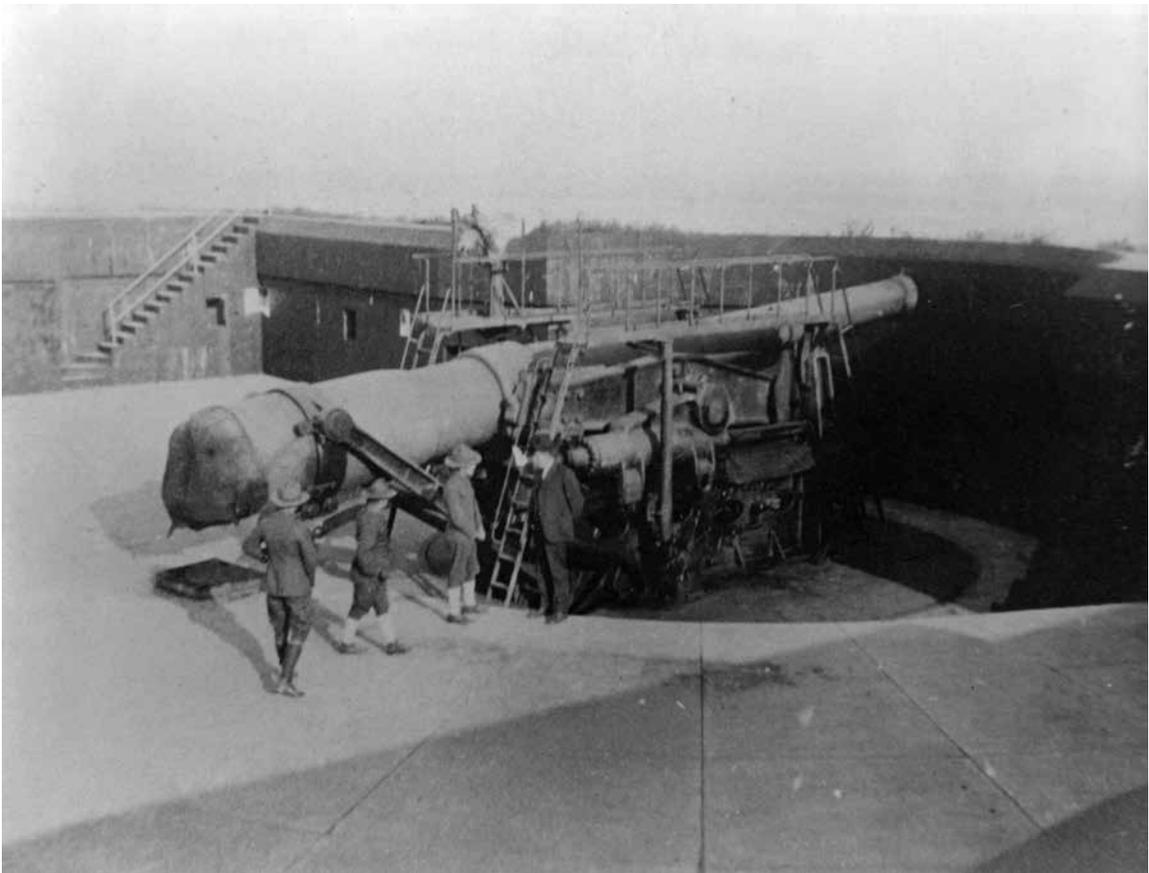
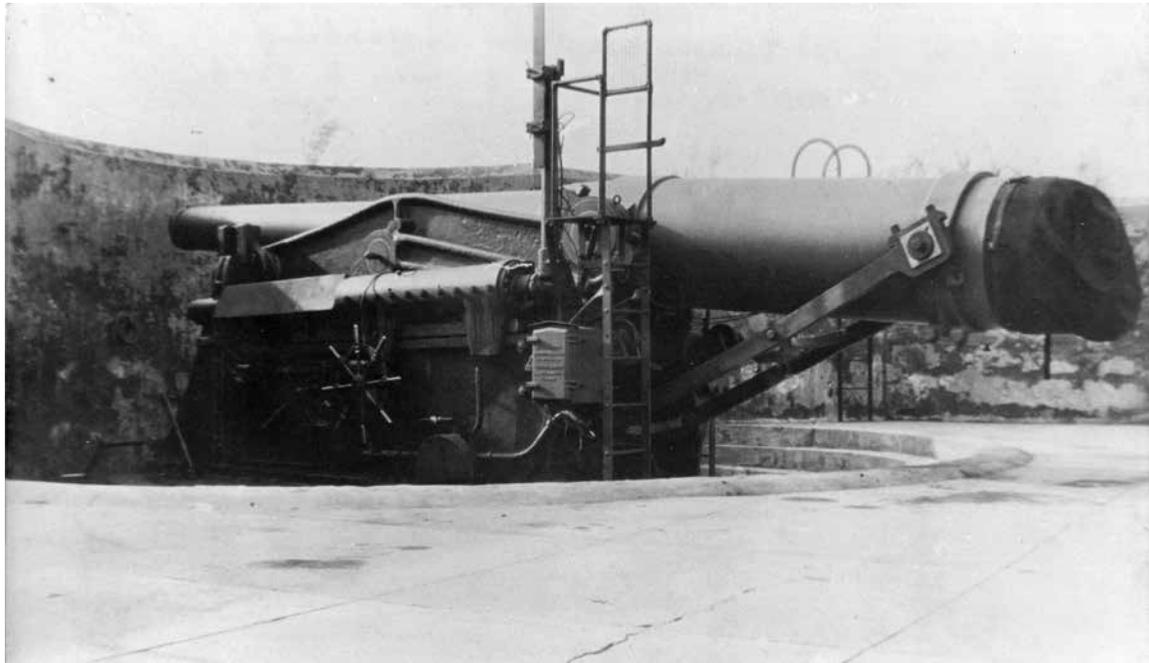
Plan and sections of Battery Covington. (NARA)



One of Battery DeLeon's 10-inch disappearing guns as they appeared in 1905.
(B.W. Smith Collection)



One of Battery Covington's 8-inch disappearing guns. (B.W. Smith Collection).



Battery Covington (Mark Berhow collection)

in the defenses of Key West until late July 1917. The 8-inch battery was named in honor of Brig. Gen. Leonard Covington, who died of wounds on November 14, 1813, following the engagement at Chryslers Field, Canada, on November 11, during the War of 1812. Battery Covington generally covered the Southeast and Main Ship Channels for a distance of some 14,000 yards.(98)

A Mortar Battery Is Authorized and Built

Construction of a battery for the first eight of a projected 16 12-inch mortars was also authorized on June 6, 1896, and eventually undertaken by the Venable Company. Work began in June 1897 and progressed well, at least initially, so that by June 1898 the concrete work on the inclined forward retaining walls of the two mortar pits was nearing completion. Six of the battery's eight M1896 mortar carriages had been received and were set in place by the end of June 1898; delivery of the other two carriages and the eight 12-inch 1890M1 breechloading mortars was still awaited. In the meantime, the army had decided that Key West could be adequately defended by eight mortars and the second pair of mortar pits was deleted from the plans. The remainder of the battery's ordnance was finally received after the War with Spain ended, and was mounted before the end of fiscal year 1898/1899 as construction continued. By the end of June 1899, concrete work on the observation stations at each end of the battery and the stairways leading to them was underway and sand filling of the parapet had begun.(99)

Capt. Rowan also found the progress on the mortar battery in July 1899 to be less than satisfactory. While the greater part of the concrete work was completed, he noted, "a large pile of coral mud has been dumped in front of the magazines and galleries but much of the concrete work remains uncovered. No work whatever is in progress at the present writing as regards filling in."(100)

Rowan also noted that the 1894-type mortar battery was only a slight improvement over the recitilinear type battery and still possessed numerous deficiencies, noting:(101)

"These pits are so small that the mortar beds lack but two feet of tangency [sic] with each other. To load the mortars requires that the breeches of the two forward mortars be pointed toward the center of the pit while the two rear mortars are placed parallel with the sides of the pit. In the case of the first pair the position necessary for loading brings the rear end of the sponges and rammers towards each other and thus necessitates some care in running up the shell trucks. There is just room for two trucks to pass the mortars abreast provided the traversing gear is not in operation."

Rowan noted in his report that there was no room for the storage of sponges and rammers, recommending that brackets be mounted on the side walls of the pits for these implements. They were at that time hung on makeshift racks in the passage to the plotting room, obstructing it, as it was barely wide enough for the easy passage of one man. He also noted that no convenient place had been provided for the tool and armament chests. At that time, they were placed in the magazine passage under the trolleys, where they were in the way of the shot trucks. In addition, he found no provision for supplying water to the battery for either drinking or cleaning purposes. That no provisions had been made for latrines or water closets at the battery Rowan found to be completely "incomprehensible." Drainage was also found to be defective, as the mortar emplacements required bailing out on a frequent basis. This problem was exacerbated by the low elevation of the pit floors which were affected by high tides. While the various elements of the battery power plant were in place, it was not yet in working order. The magazines and the plotting rooms had a "disagreeable atmosphere" because of dampness and a lack of ventilation, and Rowan believed that electric fans would be absolutely necessary. He also noted that the magazine passageways constituted the only cover for the manning detachments and were inadequate for the 96 men then assigned to the mortars.(102)

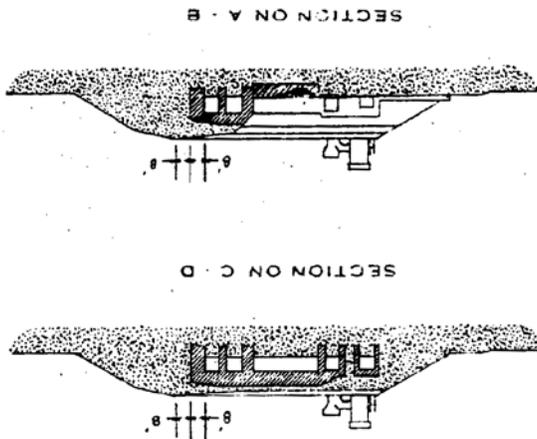
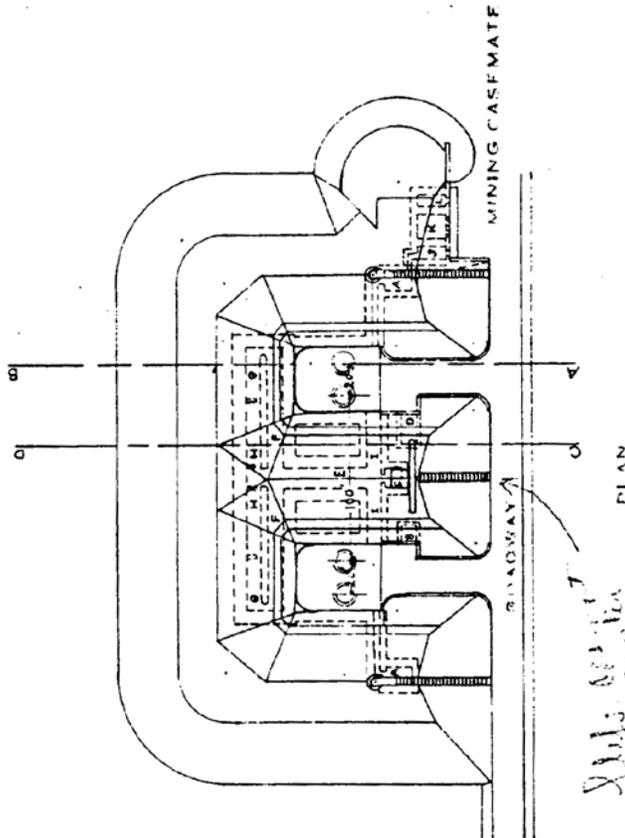
REPORT OF COMPLETED WORKS.
SEACOAST FORTIFICATIONS.

COAST DEFENSES OF KEY WEST, FLORIDA.
FORT TAYLOR.
BATTERY SEMINOLE.
NO. OF GUNS 4. CALIBER 12" CARRIAGE-MORTARS.

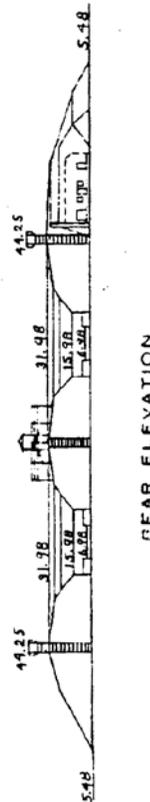
BATTERY PLAN.
CORRECTED TO JUNE 30, 1919.

FORM 7

SCALE 1 IN. = 100 FT.



- A. REFUGATING ROOM 12 X 16
- B. STOREROOM 8 X 9
- C. STOREROOM 9 X 11
- D. POWER ROOM 10 X 20
- E. GALLERY 13 X 64
- F. SHOT ROOM 11 X 73
- G. SHOT ROOM 9 X 32
- H. POWDER MAGAZINE 9 X 37
- I. GALLERY 8 X 32
- J. ENGINE ROOM 9 X 19
- K. OPERATING ROOM 15 X 19
- L. STORAGE BATTERY 8 X 19



Plan and elevation of Battery Seminole, 1919. (NARA)

Construction was suspended in the summer of 1899 when yellow fever again broke out in Key West. Only minimal progress was made on the actual construction and almost none on forming the battery's massive earth and sand parapet which entailed placing some 40,733 cubic yards of sand fill and 3,473 cubic yards of loam, to be planted with 10,417 square yards of Bermuda grass.(103)

In April 1900, the still incomplete battery was named Battery Seminole in War Department General Order No. 43. The Seminole Indians had been numerous in Florida and had been powerful adversaries of the U.S. Army during the Seminole Wars of the 19th century.(104)

Battery Seminole's armament consisted of the following ordnance:(105)

Pit "A"

Emplacement No. 1 - one 12-inch M1890 BLM (S.N. 44)
on M1896 mortar carriage (S.N. 102).

Emplacement No. 2 - one 12-inch M1890 BLM (S.N. 41)
on M1896 mortar carriage (S.N. 100).

Emplacement No. 3 - one 12-inch M1890 BLM (S.N. 4)
on M1896 mortar carriage (S.N. 130).

Emplacement No. 4 - one 12-inch M1890 BLM (S.N. 42)
on M1896 mortar carriage (S.N. 101).

Pit "B")

Emplacement No. 1 - one 12-inch M1890 BLM (S.N. 26)
on M1896 mortar carriage (S.N. 132).

Emplacement No. 2 - one 12-inch M1890 BLM (S.N. 25)
on M1896 mortar carriage (S.N. 93).

Emplacement No. 3 - one 12-inch M1890 BLM (S.N. 24)
on M1896 mortar carriage (S.N. 131).

Emplacement No. 4 - one 12-inch M1890 BLM (S.N. 43)
on M1896 mortar carriage (S.N. 92).

The project was finally funded adequately in 1901 and 1902, and the battery was completed by November 1903. The battery was transferred to the garrison on June, 30, 1904, and placed in service. Although the mortars of Battery Seminole had an all-around-fire capability, its coverage of the waters of the harbor was limited to a range of 15,000 yards. When in May 1915, a restudy of the protection afforded battery magazines was made at Key West, substantial changes were recommended for Battery Seminole. Because of its contracted mortar pits, a characteristic of mortar batteries designed in the early 1890s, it was recommended that the number of mortars in each pit be reduced to one and that additional pits be constructed, each containing a single 12-inch mortar. The estimated cost for completely remodeling Battery Seminole came to \$198,928. It is not surprising that this modification was not adopted.(106)

A Succession of Contractors Complete the Primary Gun and Mortar Batteries

By 1899, the work on the batteries continued to lag and the quality of the work became increasingly unsatisfactory. Finally, an indefinite extension of the contract with the Venable Construction Co. was ordered by the Secretary of War in 1900. This extension was cancelled, however, when it became clear that Venable was making no further effort to complete the batteries. In an attempt to finish the two gun batteries and the mortar battery, and the construction of storehouses, the Engineer Depart-

ment advertised for new bids. The bids were opened on November 30, 1901, and a contract let to the construction firm of L.L. Leach and Sons of Chicago. Under the terms of this contract, the project was to be completed by August 13, 1901. Leach and Sons set up their construction plant and began filling the incomplete roadway behind Batteries DeLeon and Covington and collected the materials to construct the storage facilities. Like the Venable contracts, Leach and Sons' work on the batteries proceeded slowly and it was necessary to extend Leach's contract by three months on August 13, 1901. Work was halted several times due to insufficient cash flow on the part of the contractor, and on June 11, 1902, Leach's work at Key West ended. In the meantime, a third contractor, Snare and Triest of New York, was employed to pour the small remaining amounts of concrete, install iron hand railing, and apply the sand and loam fill of the parapets and plant them with grass.(107)

Neither the contractors that constructed structures such as Batteries DeLeon, Covington, and Seminole, nor the engineer officers who supervised the projects, had much prior experience in the building of these modern seacoast batteries. This inexperience created numerous headaches for both contractors and engineers during the 1890s and the early years of the 20th century.

Having been built without waterproof courses, the rooms of these three batteries leaked badly. During the early 1900s the engineers applied Rosendale mortar to the concrete surfaces and covered that with asphalt. This measure proved unsuccessful, however, as the asphalt soon blistered in the oppressive summer heat and broke up. Water again seeped into the rooms below. In a second attempt to cure the moisture problems, galvanized iron ceilings with metal drains were installed in the battery rooms, and interior walls of brick were built in the powder magazines and projectile rooms, leaving air spaces between the brick walls and the original concrete walls. This method of dealing with the leaks proved much more satisfactory.(108)

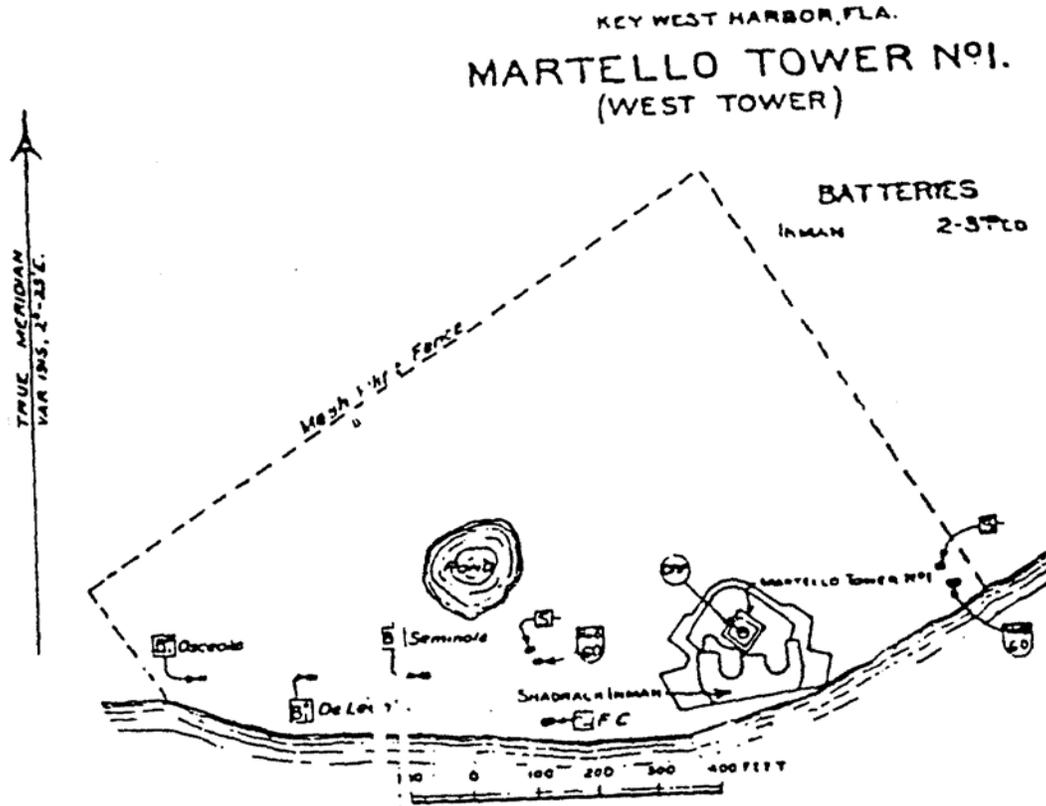
Martello Tower Reservations Enlarged

In 1897, a 12-acre tract at Tower No. 2 was purchased from the Livermore Estate for \$4,600 to enlarge the government property at one of Fort Taylor's two Civil War-era outworks. A similar tract at Tower No. 2 was acquired by condemnation proceedings through eminent domain in May 1898. That property's appraised value was set at \$19,750, and payment was made on May 31, 1898.(109)

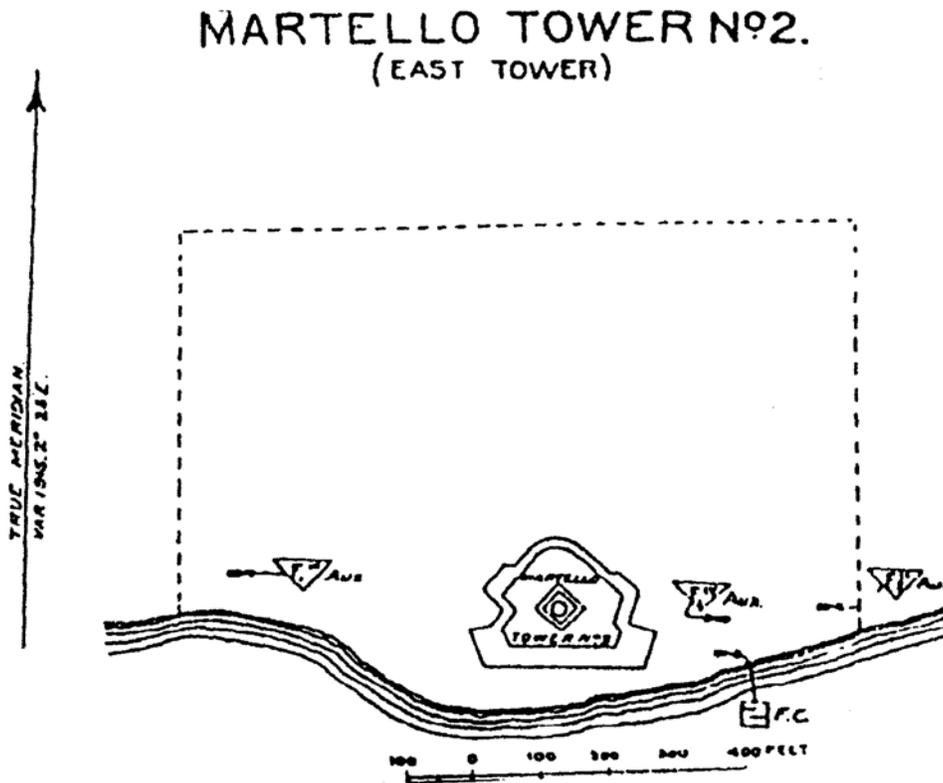
War With Spain Hastens Development of the Defenses

The troops which had been absent for 13 years returned to the island in 1893 when Capt. James O'Hara's battery of the 3rd U.S. Artillery Regiment reoccupied Key West Barracks. Batteries A and B of the 1st U.S. Artillery, under Maj. John H. Calef, relieved the 3rd Artillery on October 23, 1896. Battery A was commanded by Capt. Arthur Murray and Battery B by Capt. Abner H. Merrill. Maj. Calef was transferred in June 1897 and succeeded in command at Key West by Capt. Merrill.(110)

Companies A and G of the 25th U.S. Infantry Regiment (Colored) under Lt. Col. Aaron S. Daggett arrived aboard the steamer *City of Key West* on April 16, 1898, to reinforce the garrison. The African-American troops made quite a sight as they marched in a column of twos from the wharfs to Key West Barracks in heavy marching order, wearing their wide brimmed felt campaign hats, blue flannel shirts, and brown wrap-around leggings. Upon the arrival of the black troops, Battery B of the 1st U.S. Artillery commanded by Capt. A.H. Merrill moved from Key West Barracks to the fort to make room for the two companies of infantrymen, veterans of many Indian campaigns. The modification of the old fort was still underway when the War with Spain began later in April 1898. Companies A and G of the 25th Infantry remained at Key West Barracks only until May 6, when they left to join the rest



Plan of Martello tower reservation No. 1. (NARA)



Plan of Martello tower reservation No. 2. (NARA)

of their regiment at Tampa. In the later weeks of the war, elements of the 3rd Texas Volunteer Infantry Regiment were posted at Key West.(111)

The sudden outbreak of war resulted in the men of Battery B remounting some of the old muzzle-loading guns and rifles at Fort Taylor. Two unserviceable stone masonry gun platforms in the fort were torn out and replaced with temporary platforms of timber and concrete, upon which two 15-inch Rodman guns were mounted. Outside the fort in the North Barbette Battery, two other 15-inch Rodman guns were removed from their emplacements and relocated in the rear of the battery. The stone emplacements for the Rodmans were then torn out and three new emplacements of concrete with granite pintle blocks were built for 8-inch converted rifles on modified iron carriages.(112)

Soon after the artillerymen moved into the fort, a detachment from the Engineer Battalion at Fort Totten, NY, arrived and began planting a minefield in the Key West Channel. This consisted of three grand groups of controlled submarine mines. By the end of June 1898, one grand group had been set up on the main line and a second group set up for judgmental firing. In July, a third grand group was planted and also set for judgmental firing. All the groups were controlled from the mining casemate in Fort Taylor's coverface.

A General Electric Company 30-inch searchlight was shipped from the Engineer Depot in New York City, arriving at Key West on July 20, 1898. The searchlight was mounted atop the south bastion of Fort Taylor near the left flank of the battery for 12-inch guns then under construction. The searchlight's power plant was set up in Storeroom No. 3 in the gorge of the Third-System fort. An 18-horsepower upright Lidgerwood fire tube boiler powered a direct-connected General Electric 5.6-kilowatt generator set with a 9.3 h.p. horizontal engine. At night, the mine field was patrolled by small craft and swept by the 30-inch searchlight. (113)

At the conclusion of the War with Spain on August 12, 1898, the Main Channel mine group was moved out of the way of commercial shipping and the two other groups exploded on August 18. On August 19 and 20, the remaining grand group was also exploded.(114)

Quick Firing Guns Emplaced to Protect the Minefields

The urgency of war coupled with the close proximity of Key West to Cuba, Spain's principal colony in the West Indies, 90 miles to the south, drew the immediate attention of the War Department. Exertions were undertaken to ensure the security of the navy's coaling station and prevent the occupation of the harbor by a Spanish naval squadron.

In 1898 the 4.72-inch rapid-fire gun was projected by the War Department to defend controlled minefields against attempts by enemy torpedo boats and destroyers to penetrate the nation's protected harbors. The Nordenfeldt Company was slated to produce a number of these 4.72-inch guns, and architectural plans were developed by the Corps of Engineers for the construction of batteries for these guns at the fortified harbors along the Atlantic and Gulf seaboard.

The Nordenfeldt Company was still in the early process of producing these rapid-fire guns when threats of war between the United States and Spain prompted the War Department not to wait for the Nordenfeldt guns. Instead, it contracted with the W.G. Armstrong, Whitworth, and Company Ltd., at New Castle on Tyne, in Great Britain, for purchase of 14 4.72-inch quick-firing Armstrong guns, 12 of 40-caliber and two of 50-caliber.

These guns were purchased early in 1898, and on March 19, 1898, emplacements for two 4.72-inch/40-caliber guns (Nos. 11002 and 11003) on pedestal mounts 9082 and 11044 were authorized for Key West by Congress and a directive was issued from the War Department to construct the emplacements at the earliest practicable date. The sum of \$6,000 was allotted from the Appropriation

for National Defense Act of March 9, 1898, to begin the project. A week later, an additional \$4,000 was allotted from the same act. Because of the impending war with Spain, when the guns were delivered, they were mounted in temporary positions, as there was insufficient sand and broken stone and brick immediately available for the construction of their permanent emplacements. Work was finally begun on the permanent emplacements by hired laborers supervised by engineer officers in June 1898 and completed in January 1899. These permanent emplacements were located at the right extremity of the South Battery adjacent to the No. 1 Emplacement of the 10-inch disappearing gun battery in June 1898 and completed in January 1899. The quick-firing guns were then remounted in the permanent emplacements. The battery was transferred to the garrison on February 12, 1900, having cost \$18,000. These two emplacements were named Battery Gardiner in honor of Capt. George Washington Gardiner of the 2nd U.S. Artillery, who was killed in action on December 28, 1835, while serving as part of the command of Maj. Francis L. Dade when Dade's command was massacred near the Withlacoochee River during a march between Forts Brooke and King, FL., precipitating the Second Seminole War.(115)

Battery Gardiner functioned as an element of the minefield defenses until July 1913, covering the waters where the Southeast, Main, and Southwest Channels joined in Key West Harbor. On August 5, 1913, the guns were removed and eventually sent to Oahu in the Hawaiian Islands. The battery structure remained unarmed after removal of the Armstrong guns, but a magazine in the left flank traverse of the battery was modified for use as a plotting room for Battery DeLeon.(116)

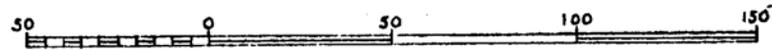
Yellow Fever Forces the Army to Evacuate Key West

The number of troops posted at Key West increased as the War with Spain neared a conclusion. Men of Companies D and M, 3rd Texas Volunteer Infantry, were brought to Key West from Cuba and detailed to police the fort and the barracks. The burden of command may have weighed heavily on Capt. Merrell, as he received "bad press" from a *New York Times* correspondent who reported a number of incidents in which Merrell, who may have been something of a martinet, inflicting what was described as "needless discomfort" on the troops at Key West. Sergeant Lenihan of the 3rd Texas was ordered arrested by Merrell for growing his hair too long and was court martialed.(117)

In August 1898, in an effort to escape an outbreak of Yellow Fever, the 200 men of Batteries A and B, 1st Artillery, under Capt. Merrill, 200 men of Companies D and M, 3rd Texas Infantry, commanded by Capt. Walter L. Smith, 56 engineer troops under Lt. McKinstry, and Surgeon Major W.C. Borden, USV, and four assistant surgeons, boarded the U.S. Army Transport *San Marcos*, for passage to New York. The transport, an old Mallory Line steamship, had 118 sick soldiers aboard when she arrived at Key West from Santiago, Cuba. In the absence of the garrison, a small caretaking detachment of coast artillerymen and infantry under 2nd. Lt. E.J. Blaine of the 3rd Texas Infantry, was left at Key West to safeguard public property.(118)

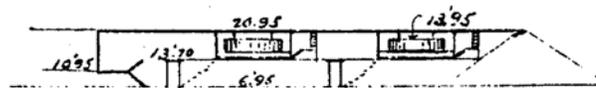
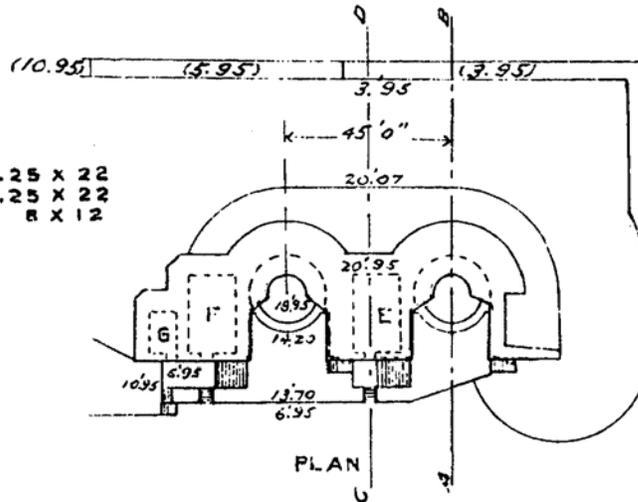
The number of sick troops on the transport increased to 156 when 38 fever-ridden troops from the Key West garrison were added. Living conditions for the 600 enlisted men aboard the transport were generally very bad. The main deck amidships was designated the hospital; there the sick were issued a blanket and assigned to bunks constructed of "rough pine boards [that] resembled potato bins" three tiers high. Each of these bunk tiers were occupied by three men. The enlisted personnel who were well were quartered in the orlop, the lowest deck in the vessel. While the food for the regulars was nearly inedible, that provided for the sick troops was of a somewhat better quality. The noon ration for the enlisted men on the day before *San Marcos* entered New York Harbor was typical, consisting of a small piece of bacon, two pieces of hardtack, and a half a mug of coffee. On occasion, a soggy biscuit was

COAST DEFENSES OF KEY WEST, FLORIDA.
FORT TAYLOR.
BATTERY GARDINER GUNS DISMOUNTED.
NO. OF GUNS 2, CALIBER - 4.7" CARRIAGE - PED.
SCALE

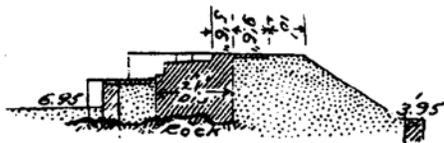


E - MAGAZINE
F - MAGAZINE
G - STOREROOM

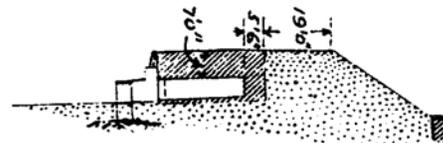
13.25 X 22
13.25 X 22
8 X 12



REAR ELEVATION



SECTION ON A-B.



SECTION ON C-D.

Plan and Elevation of Battery Gardiner. (NARA)



A 4.7-inch Armstrong quick-firing gun of the type emplaced in Battery Gardiner.
(William C. Gaines Collection)

added to the ration. Water was also in short supply and almost undrinkable for both the sick and the well. What little the troops got came through their comrades in the “hospital.” Capt. Merrell insisted that the men eat all their meals on the main deck, which became crowded at mealtime.”(119)

On August 28, *San Marcos* entered New York Harbor and as she stood up the harbor, a small tug came out to meet the transport. Two women in the tug’s pilot house began waving handkerchiefs at the soldiers on deck and soon the rails were lined with the troops waving back. This offended Captain Merrell to such an extent that ordered his men to cease waving and then drew his pistol and fired a shot across the bow of the tug and ordered the tug to depart. When *San Marcos* arrived at its anchorage off Bedloe [Liberty] Island, the U.S. Engineer Tug *General Meigs* came out to take off 10 of the most ill soldiers for transport to hospitals in New York City. Another hundred or more were transferred to army hospitals at Forts Hamilton and Slocum. Capt. Merrell kept these troops aboard the transport for a day or so before allowing them to disembark. The volunteers of the 3rd Texas Infantry were to be forwarded to Camp Wykoff on Montauk Point for recuperation from the rigors of campaigning in a tropical climate, while at least some of the regulars were to be paid off and sent on a two-month furlough.(120)

Early in the morning of August 29, Capt. Merrell went to the Army Building in lower Manhattan to obtain orders as to the disposition of the men in his charge. While he was there, he received a call from the War Department which appeared to observers to be exceedingly critical of the captain’s alleged harsh treatment of the men under his command aboard *San Marcos*. Just after 3:00 p.m. on the 29th the transport again got underway and sailed for Montauk Point with the 3rd Texas and some of the regulars of the 1st Artillery still aboard.(121)

Fort Taylor Garrison Comes and Goes 1898-1901

Following a few weeks of recuperation at Camp Wykoff and furloughs for the artillerymen, Batteries A and B of the 1st U.S. Artillery Regiment were sent south to Fort Fremont at Port Royal Sound, SC, in mid-September 1898. Battery B returned to Key West in November 1898. The 300 men assigned to Merrill's Battery B was considerably reduced in number within a few months of the war's end. During January and February 1899 alone, 76 enlisted men were discharged, and by spring, the battery had been reduced to 130 men. Capt. Merrill was promoted to major and transferred to the 3rd Artillery in February 1899, succeeded by Capt. Hamilton Rowan, who had transferred to the 1st Artillery from the 2nd Artillery on April 26, 1899. First Lieutenant John L. Chamberlain was promoted to captain on March 2, 1899, and succeeded Rowan later in the summer of 1899. On August 4, Key West was struck once again by yellow fever, and the garrison at Key West Barracks was placed in quarantine and arrangements begun to send Battery B north. On September 6, movement to a transport to take the command north began. To avoid marching the men through the fever-infested streets of the city, small boats transported the men and their baggage from the barracks dock on Garrison Bight to the waiting transport at anchor in the roadstead. The battery then sailed for New York, leaving 11 enlisted men under 2nd Lt. Albert G. Jenkins who had volunteered to remain as a caretaking detachment at Key West Barracks and Fort Taylor. Of this detachment only two enlisted men were stricken with the fever, but Sergeant Patrick Meegan and Private William Gundill both died from the fever during the battery's absence.(122)

The transport conveyed the battery to Fort Terry on Plum Island in Long Island Sound. Modern batteries were also under construction on the island and accommodations for the battery were inadequate. As the battery would not be able to winter on the island, it was ordered to Fort Monroe on December 4, 1899, arriving a few days later.(123)

Battery B of the 1st Artillery was aboard a steamer on its way back to Florida on January 18, 1900, when word came of another outbreak of the fever at Key West. The next day the battery was diverted to St. Francis Barracks, at St. Augustine, FL, until March 6, 1900, when it was again deemed safe to return to Fort Taylor.(124)

During this period, the Corps of Engineers again took custody of the fortifications and conducted a general cleanup, maintenance, and repair of the reservation. Buildings were painted and whitewashed as necessary, trash and construction debris were cleaned up; the ironwork, such as ammunition trolleys and tracks, shot and powder hoists, cranes, railings, beams, etc., at the batteries was scraped and painted to preserve it from rust. The torpedo materiel was overhauled and inspected twice during the year and then coated with preservatives and securely stored away. The engines and dynamos were run at regular intervals until they were returned to the troops in December 1899.(125)

Battery B's stay at Key West Barracks lasted less than four months. By July 1, 1900, leaving a small detachment behind to care for the public property, the battery was once again enroute north to avoid the recurrence of the "Yellow Jack." This time Battery B traveled to Fort Moultrie at Charleston, SC, and later to Fort McPherson, GA. The caretaking detachment of Battery B left at Key West in July 1900 was withdrawn in January 1901 when Battery B received orders for a permanent change of station to Fort Trumbull, CT, ending its tour of duty at Key West.(126)

Battery N of the 1st Artillery was organized in April 1899 at St. Francis Barracks. The battery, commanded by Capt. Albert E. Waldron, was transferred to Fort Monroe, where it arrived on December 18, 1899, posted at Old Point Comfort until December 5, 1900, when it departed for Key West, taking up quarters at Key West Barracks, relieving the caretaking detachment of Battery B, and assuming its duty as the manning detachment for the newly completed modern batteries at Fort Taylor.

A Battery For 12-Inch Guns Is Built on Fort Taylor's Left Channel Face

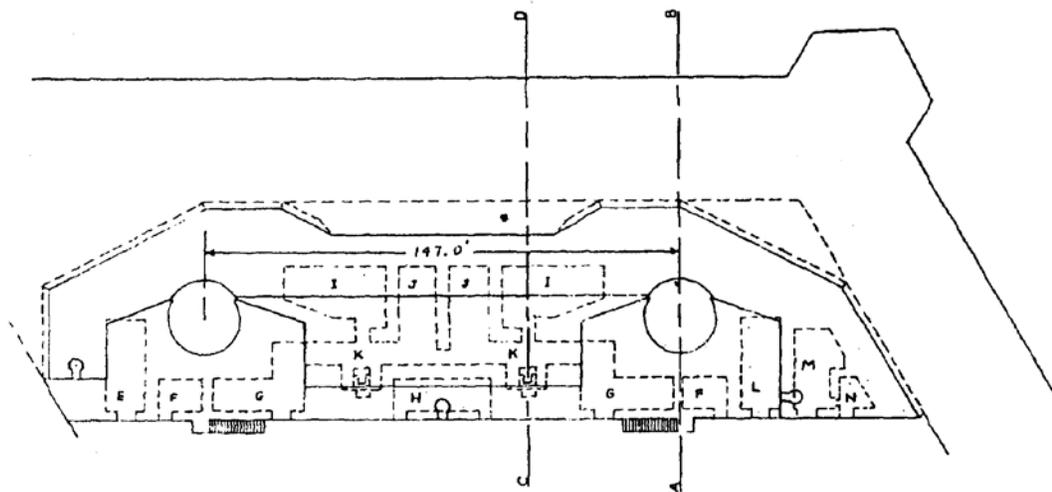
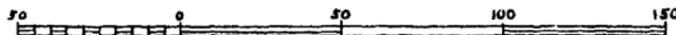
Although a battery for a pair of 12-inch guns had been included in the defense plans for Key West, no action was taken until the United States girded for war with Spain in 1898. This battery, the most powerful in the Fort Taylor arsenal, was to be composed of a pair of 12-inch breechloading rifled guns located on the left channel face of the Third-System fort. Funds for the nation's defense needs were speedily appropriated on March 9, 1898, when Congress passed one of the "Acts for the National Defense." On April 25, 1898, the day Congress declared war on Spain, the sum of \$40,000 from that act was allotted by the War Department for the immediate construction of a battery for two 12-inch guns on barbette carriages inside the fort. Like the battery for the Armstrong guns, this battery was to be built by hired labor. To permit the construction of the battery and provide an unhindered field of fire, Fort Taylor was to be modified by removing the barbette and upper casemated tiers of the three-tiered brick and granite masonry fortification. Tearing down the east channel front of Fort Taylor was hastened to ready the site for the newly authorized battery. In the process of preparing the fort for the modern armament, the obsolete columbiads, Parrott rifles, and Rodman guns were dismantled from the barbette and second tiers and, along with gun carriages and shot and shell, dumped into the lower tier along with tons of sand and brick and concrete rubble from the upper tiers.(127)

The razing of the upper tiers of Fort Taylor was generally complete by October 1899, and a large amount of brick and stone had been piled on the fort's parade ground. While a considerable amount of this rubble was used to fill the casemates in front of the projected battery for 12-inch guns, a large amount was crushed and used to construct roadways at the post. Six inches of crushed concrete and brick were laid between concrete curbs atop a sand fill to construct these roads, which extended along the rear of Batteries Covington, DeLeon, and Gardner and thence to the Division Street Gate by way of the rear of Battery Seminole.(128)

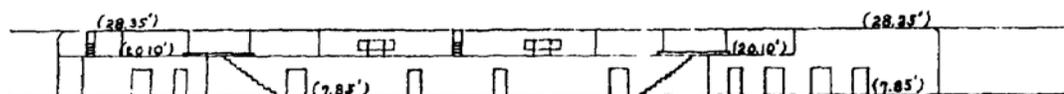
As soon as practicable in June 1898, the engineers began construction of massive concrete emplacements for the two 12-inch guns atop the first-tier casemates of the fort's left channel face. Construction continued into the following year. The two 12-inch M1888 guns and their M1892 barbette carriages were received and the base rings set in the emplacements. By June 1899 the battery was nearing completion. The next two months were spent placing the ammunition trolley beams in place, hanging the battery doors, etc. Although the battery's ordnance had arrived, it remained unmounted and the battery electric power plant had yet to be provided. The guns and carriages were finally mounted by Battery N, 1st U.S. Artillery Regiment, the Key West garrison. Emplacement No. 1 was armed with Gun No. 23 and Carriage No. 11, and Emplacement No. 2 was armed with Gun No. 39 and Carriage No. 10. The battery's two emplacements were transferred to the garrison on February 3, 1900. The battery was provided with Hodges chain hoists for raising the projectiles and powder to the loading platform from the magazines. As electric power had not yet been supplied to the battery, these hoists were hand operated. When completed, the battery cost \$112,891.97. The two guns with ranges of about 13,500 yards covered the waters of the harbor from where the Southwest Channel entered the harbor to the Northeast Channel.(129)

On April 4, 1900, in General Order No. 43, the War Department named the newly completed battery for Osceola, the leader of the Seminoles, who had fled from Alabama into north Florida with a band of "Red Sticks" after the Battle of Tohopeka during the Creek War. He settled with the Tallahassee Indians, where he was also known as Tallahassee Tustenuggee. Osceola grew to prominence among the bands of Indians and by the mid-1830s had become a principal leader of the resistance to the removal of the Seminoles to the Trans-Mississippi. He led the Seminoles in the Second Seminole

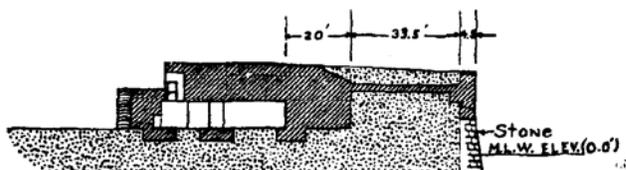
COAST DEFENSES OF KEY WEST, FLORIDA.
 FORT TAYLOR.
 BATTERY OSCEOLA.
 NO. OF GUNS 2. CALIBER - 12" CARRIAGE - NON DIS
 SCALE



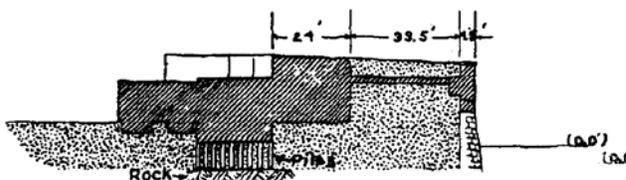
PLAN



REAR ELEVATION



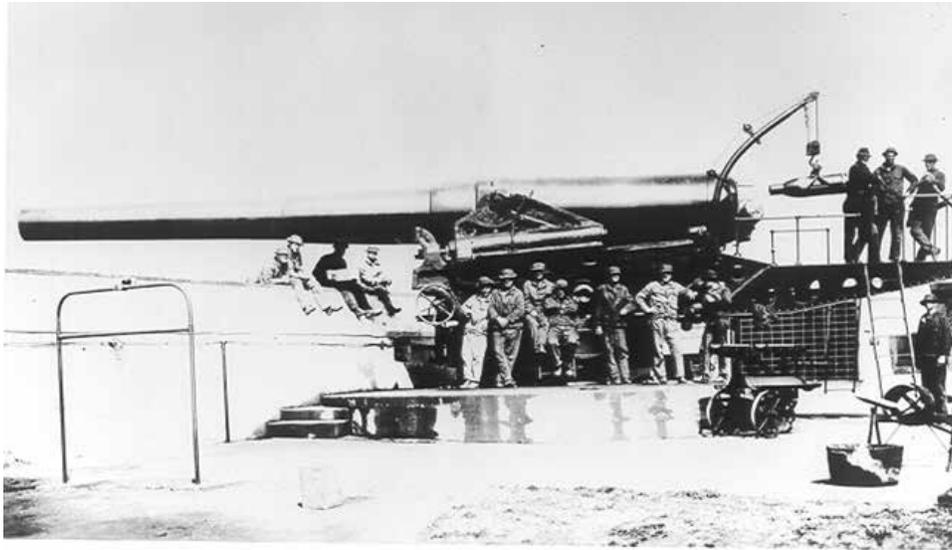
SECTION ON C - D



SECTION ON A - B

E - ENGINE ROOM	12.5 X 28
F - STOREROOM	10 X 13.5
G - SHOT ROOM	10 X 11 & 10 X 28
H - STOREROOM	10 X 30.5
I - MAGAZINE	16 X 31.5
J - SHELL ROOM	12 X 23
K - PASSAGEWAY	7 X 41
L - STOREROOM	12.5 X 28
M - ENGINE ROOM	10 X 24.5
N - FAN MOTOR ROOM	8 X 10 IRREG

Plan and elevation of Battery Osceola. (NARA)



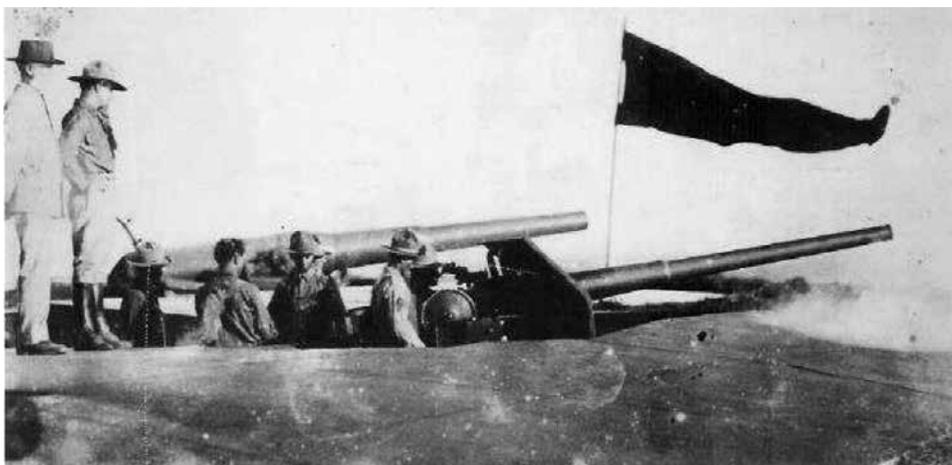
An M1888 12-inch gun on an M1892 barbette carriage of the type employed in Battery Osceola. (Ruhlen Collection, Casemate Museum, Fort Monroe, VA)

War until his capture in October 1837 while under a flag of truce at St. Augustine. He was imprisoned at Fort Moultrie, where he died on January 30, 1838.(130)

Meanwhile, some of the first-floor rooms in the fort's gorge were to be fitted up as storage rooms for "torpedoes," as submarine mines were termed in the 1890s.(131)

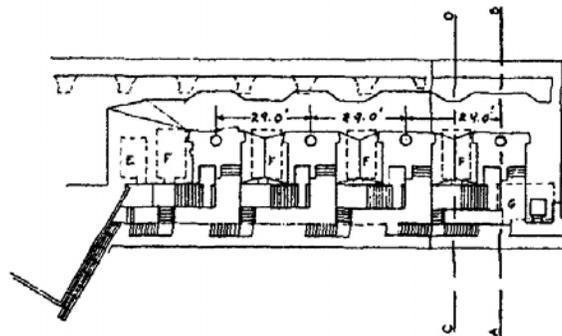
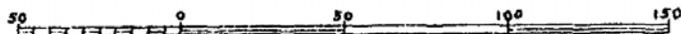
Batteries for 3-Inch Rapid-Fire Guns Emplaced

The approved project prepared March 16, 1898, by the Board of Engineers for the artillery defense of Key West called for 11 15-pounder (3-inch) M1898 Driggs-Seabury rapid-fire guns. Initially three of these guns were proposed for the west front of the masonry fort along with three 6-pounder (2.24-inch) M1898 Driggs-Seabury rapid-fire guns. Two more 15-pounders were planned for near the old North Barbette Battery of the 1870s. Three more were projected for emplacement at each of the two Martello Towers. This, however, reflected the optimum plan. Five guns of this type were considered to be the minimum number required for the harbor's defense.(132)



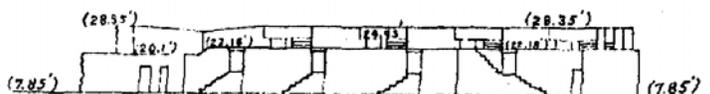
Battery Adair gun and emplacement with a gun of Battery Osceola behind (Mark Berhow collection)

COAST DEFENSES OF KEY WEST, FLORIDA.
FORT TAYLOR.
BATTERY ADAIR.
NO. OF GUNS 4. CALIBER - 3" CARRIAGE - BAR.
SCALE

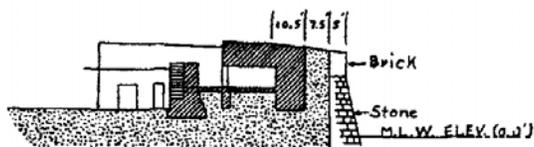


PLAN

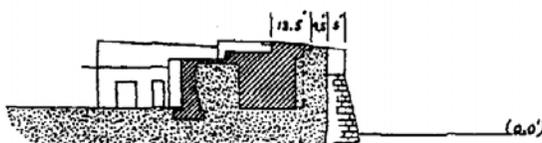
- E - STOREROOM 8 X 11
- F - MAGAZINE 9 X 15
- G - STOREROOM 13 X 17.5



REAR ELEVATION



SECTION ON C - D



SECTION ON A - B

Plan and sections of Battery Adair. (NARA)

In June 1899, two emplacements for 15-pounder (3-inch) M1898 Driggs-Seabury rapid-fire guns on M1898 masking-parapet mounts were begun atop the first-tier casemates of the fort's center channel face. The emplacement design was the standard type for such batteries, and by September 1, 1899, the emplacements had been advanced as far as possible until the masking-parapet carriages had been received and mounted. These emplacements were the subject of considerable discussion and correspondence during June 1900 in an attempt to determine the location of a fifth gun emplacement that would complete the minimal requirements for the rapid-fire batteries. After several months of deliberation, the decision was made in December 1900 to increase the number of 15-pounder emplacements on the west front of the fort to four and reduce the pair of guns proposed near the North Battery to one. While construction of the first pair of emplacements at the Third-System fort was underway, clearing the remaining rubble of the fort's middle tier for the third and fourth emplacements continued, as it was contemplated that the three 6-pounder emplacements would be located on the left of the 15-pounder emplacements. With the decision to expand the number of 15-pounder guns at the fort to four, the location and number of 6-pounder guns to be employed was deferred in favor of adding two 15-pounders. As soon as the necessary clearing of the site was complete, the Third and Fourth Emplacements were begun by hired laborers during the summer and fall of 1900. Funding for these two emplacements was obtained by transferring \$6,000 from the proposed battery near the North Battery and an allotment of \$7,000 from the "Allocation for Gun and Mortar Batteries." A portion of the brickwork from the fort was crushed to make concrete used in building the rapid-fire gun battery. Work continued until the four emplacements were sufficiently complete to permit pouring the concrete in conjunction with the laying of the outer rings and bottom castings of the masking-parapet carriages when the carriage base castings were received. In October 1900 the five base castings for the masking-parapet mounts along with the guns and masking-parapet carriages were finally received, although still lacking their sight drums. At this point it was discovered that the cement on hand had become unfit for use due to its age and the mounting of the ordnance was again delayed.(133)

The next few months were spent determining whether the guns would be mounted by the engineers or by the artillery. It was the view of Capt. Charles H. McKinstry, the district engineer, that the concrete work and setting of the iron outer bases should be done by the engineers, but that the mounting of the guns and carriages be done by the garrison. The pair of 12-inch guns on the southwest front of the fort was then in the process of being mounted by Battery N of the 1st Artillery and in the estimate of 2nd Lt. Malcolm Young, then commanding the post of Key West Barracks, that task was all that Battery N could undertake. He recommended that the mounting of the rapid-fire guns be done with labor hired by the engineers and supervised by the engineers. On January 9, 1901, Chief of Engineers Brig. Gen. John M. Wilson granted Capt. McKinstry the authority to mount the 15-pounders. The battery was declared finished in February 1901 by the Engineers, with the exception of mounting its armament. This work was accomplished over the next several weeks and on March 22, General Wilson recommended that the five rapid-fire emplacements be transferred to the Fort Taylor garrison.(134)

On April 23, 1901, the completed battery was transferred to the Coast Artillery garrison at Key West and placed in service. The battery was named in honor of Capt. Lewis D. Adair, 22nd U. S. Infantry, who died October 5, 1872, of wounds received the previous day during an engagement with Sioux Indians at Heart River Crossing in the Dakota Territory.(135)

Emplacements Numbers 2, 3, and 4 were transferred to the garrison on April 23, 1901. Emplacement No. 1 was not completed until 1904, and was transferred to the garrison on October 13, 1904. Emplacement No. 1 was armed with gun and masking-parapet carriage No. 120; Emplacement No. 2 was armed with gun and masking-parapet carriage No. 42; Emplacement No. 3 was armed with gun

and masking-parapet carriage No. 43; and Emplacement No. 4 was armed with gun and masking-parapet carriage No. 44. In 1904 the masking parapet carriages of the battery were modified so that they could no longer be recessed below the level of the parapet and the carriage designations changed to M1898M1. This effectively made them “pedestal” mounts.(136)

Located on the right flank of Battery Osceola, Battery Adair was completely unprotected from the point-blank fire of battleships in the Southwest Channel. That channel’s length and the large number of coral heads and shoals suggested that it was not worth the expense of rebuilding the battery to provide the requisite protection, however. The rapid-fire guns of Battery Adair covered the Southwest Ship Channel and adjacent waters, and remained in service through the World War. During that war, a station for a 9-foot coincidence range finder (CRF) was established for Battery Adair on the parapet of the fort at the right end of the battery.(137)

No emplacements were ever actually built for 6-pounder rapid-fire guns at Fort Taylor. Two American Ordnance Co. M1900 6-pounder rapid-fire guns (Nos. 28 and 34) on parapet mounts were, however, provided for Fort Taylor and turned over to the coast artillery garrison on April 26, 1906.(138)

Disposition Of Obsolete Ordnance

While numerous pieces of Civil War-era seacoast guns and mortars had been left in the sand-filled first tier casemates, there were some that had been formerly mounted elsewhere in the fort. Action was taken in June 1901 to dispose of 17 remaining pieces of obsolete muzzleloading ordnance:

- Seven 10-inch Rodman guns
- Three 100-pdr Parrott rifles
- Two 30-pdr Parrott rifles
- Two 10-inch columbiads
- Two 8-inch columbiads
- One 8-inch seacoast mortar

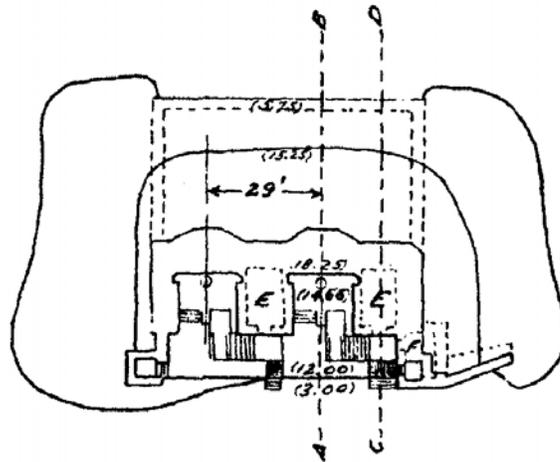
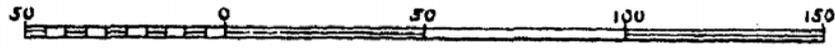
Capt. Thomas H. Rees of the engineers recommended that the old ordnance be sold. It is uncertain that the potential bidder for the armament, Henry Hittner, ever actually purchased the 16 guns and one mortar. These obsolete weapons may be among those that were ultimately incorporated into the casemates and mixed with the concrete to form the parapet of Battery Osceola.(139)

Rapid-Fire North and South Barbette Batteries

At the site of the former North Battery of the 1870s, two more modern rapid-fire batteries were built in the early 1900s. In June 1900, plans were approved and \$13,000 allotted for the construction of a battery for two 15-pounder rapid-fire guns. On July 27, 1900, before construction could start, the number of guns was reduced to one, and \$6,000 of the allocation applied to the rapid-fire battery at the masonry fort. Work on the remaining emplacement began in August 1900 at the north end of the old North Barbette Battery. The gun and pedestal mount were received in October, and in February, 1901, its 3-inch M1898 Driggs-Seabury rapid-fire gun was mounted on its M1898 masking-parapet carriage, and on April 23, 1901, the emplacement was turned over to the garrison.(140)

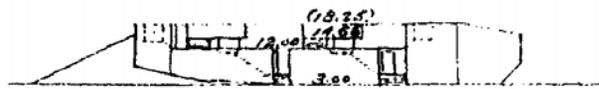
A second emplacement, to be built on the right flank of the one already completed, was authorized on April 7, 1901, and construction began the same month. By the end of June, the battery was nearly complete and ready for the base casting of its pedestal mount. The two 3-inch gun emplacements on the North Battery were named in honor of 2nd Lt. Rankin Dilworth, 1st U.S. Infantry, who died September 27, 1846, of wounds received in the Battle of Monterrey, Mexico, on September 21, 1846.

COAST DEFENSES OF KEY WEST, FLORIDA.
FORT TAYLOR.
BATTERY DILWORTH.
NO. OF GUNS 2 CALIBER - 3" CARRIAGE - PED.
SCALE

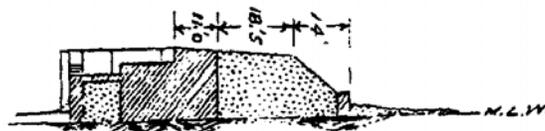


PLAN

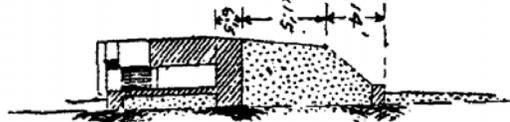
E - MAGAZINE 9 X 15
F - STOREROOM 8 X 12



REAR ELEVATION



SECTION ON A - B



SECTION ON C - D

Plan and sections of Battery Dilworth. (NARA)

Battery Dilworth's two M1898 3-inch rapid-fire guns were emplaced as follows:(141)

Emplacement No. 1 - Gun No. 39 on barbette carriage No. 39.

Emplacement No. 2 - Gun No. 41 on barbette carriage No. 41.

This battery was one of the few in the Key West Defenses that covered the vicinity of the Northwest Channel. While Battery Dilworth could cover the waters of the harbor, it could not oppose vessels that could lie in the channel and bombard Key West and its anchorage at ranges greater than 11,000 yards. In the early 1900s, the masking-parapet carriages of the battery were modified so that the gun tubes could not be depressed below the level of the parapet, changing their designations to M1898M1. A 1915 study of the battery's effectiveness noted that its left flank required additional protection from battleships in the main ship channel. Because of the battery's closeness to the water, the study noted that a concrete seawall would be required to protect the parapet slopes from the sea.(142)

Adjacent to Battery Dilworth, another battery was built between 1903 and 1906 on the site of North Battery. This battery, consisting of emplacements for two 6-inch M1900 guns on M1900 pedestal mounts, was placed in service in March 1906, having cost \$14,100. It was formally transferred to the coast artillery garrison on April 26, 1906.

The armament of the battery was as follows:(143)

Emplacement No. 1 - Gun No. 21 on barbette carriage No. 40.

Emplacement No. 2 - Gun No. 31 on barbette carriage No. 41.

The battery was named in honor of John Baron De Kalb of Bavaria, who served during the Revolutionary War as a major general in the Continental Army. General De Kalb died on August 19, 1790, of wounds received at the Battle of Camden, SC, on August 16, 1790. Battery John De Kalb's guns had a maximum range of 14,600 yards and could fire on hostile vessels in the Northwest Channel. To help protect the left flank of the battery from the fire of battleships at a distance of five miles, an additional eight feet of sand for some 25 feet along the flank of the battery was deemed necessary.(144)

Another battery for two 3-inch M1903 rapid-fire guns on M1903 pedestal mounts was begun some 500 feet from the left flank of Battery DeLeon on the left extremity of the South Battery in December 1903. Although construction was completed in August 1904, the emplacements remained unarmed. The battery was transferred to the coast artillery garrison on April 26, 1906, still unarmed. This battery was named for Maj. Mahlon Ford, veteran of the Revolutionary War and former officer of the 1st Regiment of Artillerists and Engineers, who served until June 1, 1802. Major Ford died on June 12, 1820. In March 1909, the requisite ordnance for Battery Mahlon Ford was shipped to Fort Taylor, arriving on April 26, 1909. On July 13, 1909, George E. Brown, the inspector of engineers at Key West, was able to report to Capt. George R. Spaulding, CE, the District Engineer at Jacksonville, that mounting Battery Ford's armament had been completed that day.(145)

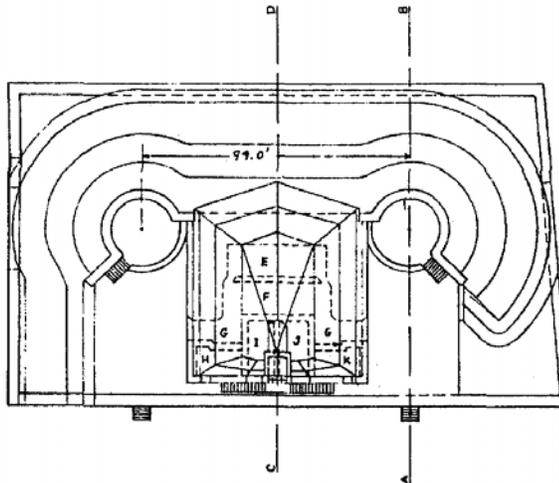
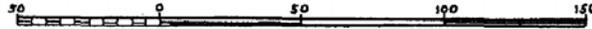
Battery Ford's two M1903 rapid-fire guns were emplaced as follows:

Emplacement No. 1 - Gun No. 72 on barbette carriage No. 45.

Emplacement No. 2 - Gun No. 74 on barbette carriage No. 46.

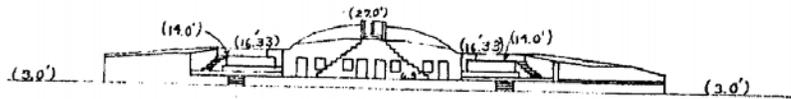
As one of the harbor's mine batteries, Battery Ford's guns, finally mounted on July 13, 1909, covered the waters of the Southeast Passage out some 11,000 yards. Battery Ford was, however, exposed to fire from ships in the Main Ship Channel or from outside the reef at a distance of five miles. To protect the manning detachment, an increase in the height of the sand fill of the parapet and covering of the

COAST DEFENSES OF KEY WEST, FLORIDA.
 FORT TAYLOR.
 BATTERY DE KALB. DISMOUNTED.
 NO. OF GUNS 2. CALIBER - 6" CARRIAGE - NON DIS.
 SCALE 1 IN. - 50 FT.

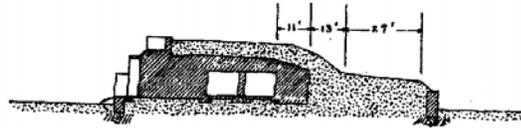


PLAN

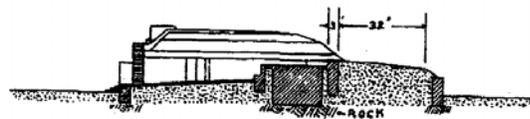
E - POWDER ROOM	11.75 X 35
F - SHELL ROOM	12 X 36
G - PASSAGE	7 X 19
H - STORAGE BATTERY	9.75 X 16
I - GUARD ROOM	10 X 19.75
J - OFFICE	10 X 19.75
K - STOREROOM	9.75 X 16



REAR ELEVATION



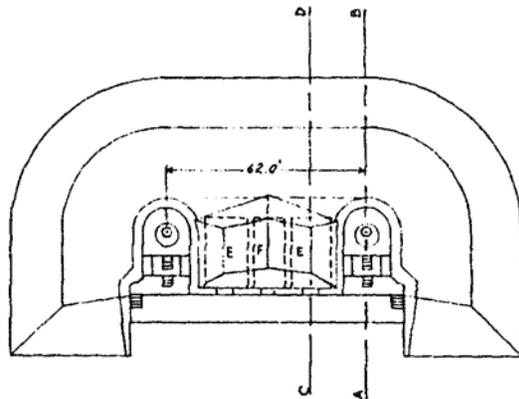
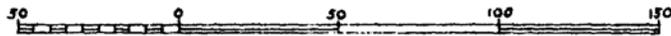
SECTION ON C - D



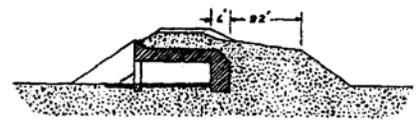
SECTION ON A - B

Plan and Section of Battery DeKalb. (NARA)

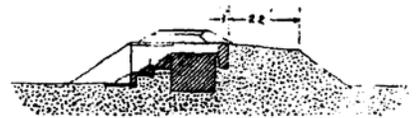
COAST DEFENSES OF KEY WEST, FLORIDA.
 FORT TAYLOR.
 BATTERY FORD.
 NO. OF GUNS 2. CALIBER - 3" CARRIAGE - PED.
 SCALE 1 IN = 50 FT.



PLAN



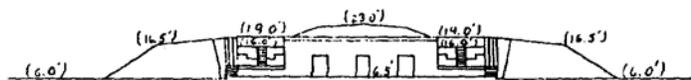
SECTION ON C - D



SECTION ON A - B

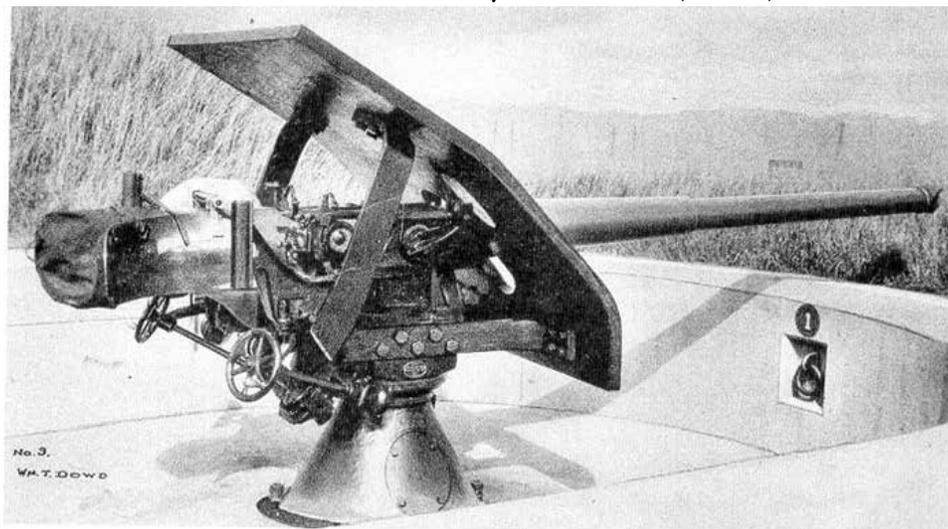
E - MAGAZINE
 F - STOREROOM

12.5 X 22
 10 X 22



REAR ELEVATION

Plan and sections of Battery Mahlon Ford. (NARA)



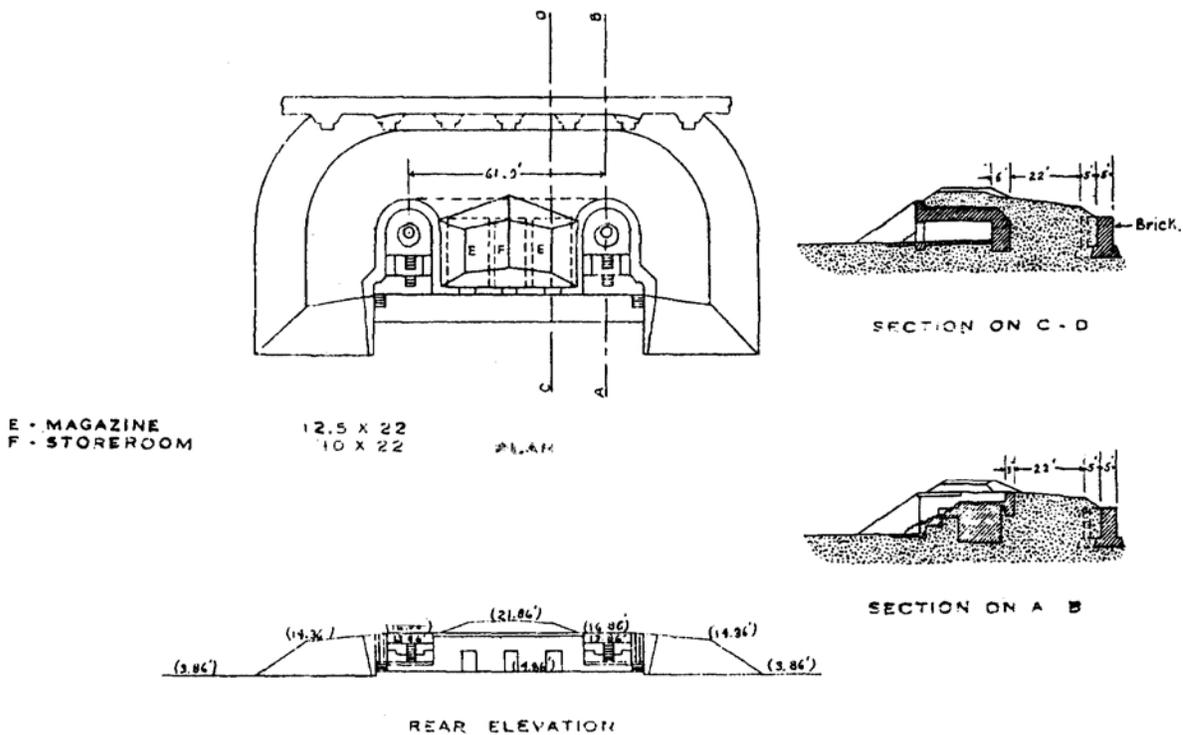
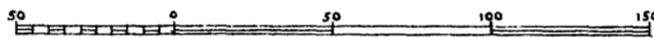
M1903 3-inch rapid-fire gun of the type employed in Battery Ford. (NARA)

magazines by an additional eight feet for a distance of some 25 feet was necessary. The increase of the sand slope was to be retained in place at the toe of the slope by concrete retaining walls. In 1921, the gun platforms of the battery were enlarged and hand rails installed along the rear of these ammunition service platforms.(147)

Rapid-Fire Battery Built at West Martello Tower

The last two emplacements at Key West for 3-inch rapid fire guns on barbette (pedestal) mounts were constructed in the latter part of 1903 about one mile from Fort Taylor at the West Martello Tower Reservation. The construction of this modern battery required demolition of about two thirds of the West Martello Tower. Only the eastern part of the counterscarp gallery and part of the tower's exterior walls remained. The battery itself was built between February and December 1904, where the old brick masonry casemated battery of the tower had once stood and was brought to completion in 1905. The battery was named for Capt. Shadrack Inman of the Georgia Militia, who had served in the Revolutionary War until he was killed at Musgrove's Mill, SC, on August 18, 1780. Although the

COAST DEFENSES OF KEY WEST, FLORIDA.
FORT TAYLOR.
BATTERY INMAN.
NO. OF GUNS 2. CALIBER - 3" CARRIAGE - PED
SCALE



Plan and sections of Battery Shadrack Inman. (NARA)

battery was transferred to the Fort Taylor garrison on April 26, 1906, it remained unarmed until just before the World War in 1917.(148)

The battery's 3-inch M1903 rapid-fire guns and its two M1903 barbette carriages were shipped to Key West in June 1909, and received on July 8, 1909. They were then placed in storage, as there were insufficient personnel to man all the rapid-fire batteries. Battery Inman's guns were to cover the Southeast Channel and its adjacent waters. The May 1915 study of the Key West coast defenses found the battery sufficiently protected from the fire of small guns, and no additional protection required to protect it from larger-caliber naval artillery.(149)

Battery Inman's two 3-inch M1903 guns were as follows:(150)

Emplacement No. 1 - M1903 rapid-fire gun No. 63 on M1903 pedestal carriage No. 74.

Emplacement No. 2 - M1903 rapid-fire gun No. 64 on M1903 pedestal carriage No. 75.

With the entrance of the United States into the World War, Battery Shadrach Inman was manned by a detachment from the 1st Company, Key West Barracks. The 3-inch guns appear to have been fired infrequently during that war. The only recorded firing during that period were one-half, three-quarters and full-service pressure charge tests were fired on December 14, 1917, a total of five rounds from each gun. Following the World War, the platforms for the 3-inch guns were widened and hand rails added. In 1922, a station, consisting of a 24-foot-high steel frame house equipped with a 9-foot CRF, was built into the remains of the partially demolished brick Martello tower in the rear of the battery.(151)

Battery Repairs and Improvements Planned

Even before Batteries Covington, DeLeon, and Gardiner were turned over to the garrison, the problem of leakage into the powder and projectile magazines became serious. The magazines and engine room of Battery DeLeon leaked very badly. Battery Gardiner's magazine side walls were almost always damp after a rain.(152)

To alleviate the leakage through the battery roofs, two layers of asphalt, about three-quarters of an inch, were placed on a coating of Rosendale mortar covering the battery's concrete top surfaces, with a good slope to facilitate drainage. The asphalt was composed of 440 pounds of rock asphalt mastic, three gallons of coal tar, and five gallons of siliceous sand. The asphalt was left exposed to the weather, there being no sand fill over it. The asphalt blistered and broke up within a short period and proved completely unsuccessful.(153)

In a subsequent attempt to prevent leakage in the shell and powder rooms and in the engine room of Battery DeLeon, interior ceilings of galvanized iron were used, leaving an air space between it and the concrete ceilings. Interior brick walls of the "Phoenix" type were also put in, leaving ventilation space between the brick walls and the concrete side walls. Brick side walls were not used in the shot rooms. Instead, pipes were laid through the concrete floor to the sand beneath which proved entirely successful.(154)

Battery Seminole had been built without a waterproof course in the body of the concrete. Consequently, when the sand fill was added to the roofs of the magazines and other interior rooms of the battery, the interior spaces leaked badly. To waterproof the top surfaces, the sand was removed and the concrete top surfaces of the battery were given the same type of asphalt mastic covering applied to Batteries Covington and DeLeon. Also, in the case of Battery Seminole, the exterior walls of the battery rooms were plastered with Portland cement and painted with two coats of hot coal tar. The asphalt was then given the bombproofing covering of sand. This process proved to be very successful, as only one minor leak developed.(155)

Fort Taylor's other batteries which were begun later received waterproof courses during their construction; preventing leakage through the roofs of the battery rooms and magazines:(156)

“About two feet of concrete is placed over the rooms and finished with about half an inch of Portland mortar, placed immediately after the concrete is in position before any set has occurred. This cement is laid to a grade of about 6 inches in 25 feet. 3/4 inch of asphalt in two layers is laid over this cement. Over the asphalt is placed Rosendale mortar mixed in the proportions of one cement to two sand. This is to prevent the sand in overlying concrete from cutting into the asphalt. 6-inch air spaces are left around the rooms and covered with bricks. The asphalt extends over the bricks into the outer walls.”

These measures proved effective in preventing leaks in the ceilings of the newer batteries. When some of the side walls of rooms in these batteries became damp, the outer walls were plastered with Portland mortar comprised of equal amounts of cement and sand and then covered with one or two coats of Portland cement grout. This proved successful in preventing percolation of moisture through the walls of the batteries. Attempts to seal cracks by filling them with boiled linseed oil and coating the concrete surfaces with alum sulfate and cement were tried, but with only marginal success.(157)

As early as February 1904 recommendations were made that the concrete of the completed gun emplacements at Key West be colored to diminish glare as much as possible. By the end of April, the completed emplacements had been “painted a suitable colour with induring [sic] water paint.” Not only was the glare reduced, but the visibility of the batteries was also decreased. The cost of painting those batteries still under construction at Key West was estimated to cost \$700 if done by hired engineer labor. The post commander noted that if the paint was supplied by the Corps of Engineers, the batteries could be painted by the enlisted men of the garrison; the estimated expense being \$300 for the cost of the paint.(158)

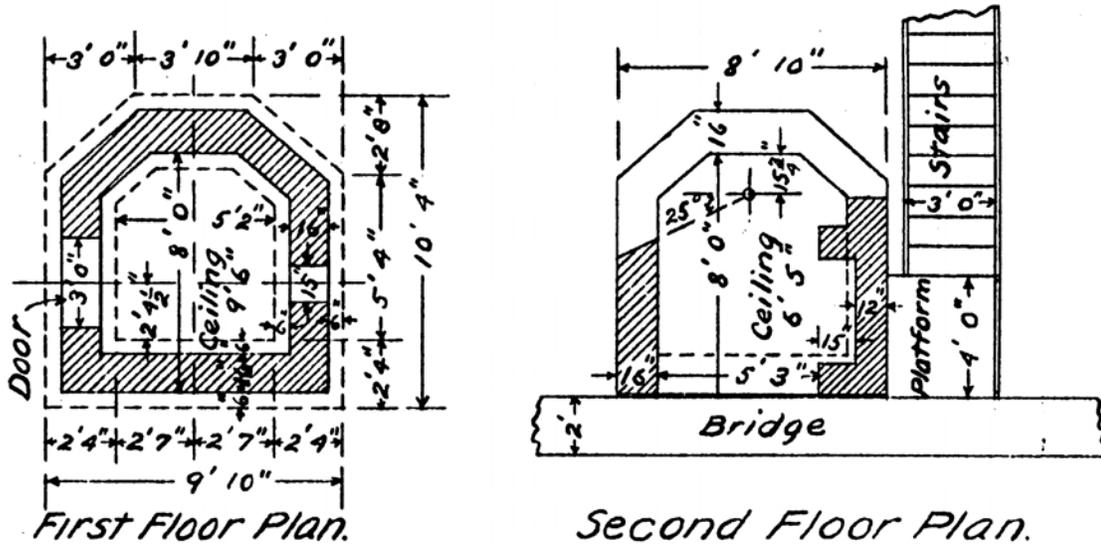
New electric-powered back-delivery Taylor-Raymond projectile hoists had been installed in Batteries Covington and DeLeon by August 1907, replacing the original hand cranked platform lifts. The platform lifts for the powder charges were retained, however. By the end of June 1908, the engineers were preparing cost estimates for the preservation and repair of Fort Taylor's gun batteries. The vertical concrete surfaces around the loading platforms of the batteries were to be painted to reduce the glare, “a matter of the first importance in the latitude of Key West.” In addition, the gun platforms of Batteries DeKalb and Gardiner had proven too narrow and were to be widened. There were however, no recesses or places for the ammunition trucks. Fort Taylor's commanding officer had suggested that platforms be built in the old elevator shafts which were no longer used. Plans had, however, already been prepared by the Engineer Department for the construction of truck recesses for that type of battery. Consequently, these jury-rigged alterations were not implemented.(159)

Provisional Fire Control System Established at Fort Taylor

Even before the end of the 19th century, measures were taken to provide improved direction and fire control of the batteries at Fort Taylor. During the initial years following their construction, the gun and mortar fire had been directed from the crows-nest positions at the batteries, as at Batteries Seminole and DeLeon. These observing positions were, however, “inconveniently planned” for the observers, as the speaking tubes were less than breastheight on the wall on the side of the pedestal away from the observer. These speaking tubes were of the common hotel pattern, complete with whistle attachments. There were no draw-out tubes, requiring the observer to step away from his instrument and assume an awkward and cramped position while sending or receiving messages.(160)

At first, Battery DeLeon's sole fire control instrument consisted of an Emergency Type B Lewis Depression Position Finder mounted on a 5-inch cast-iron pipe that was installed in June 1899 at the observer's station. During the early 1900s the coast artillery company assigned to Battery DeLeon erected a makeshift secondary station constructed of wooden boxes, scantling, and scrap timber collected around the reservation. This station was on the left flank of Battery Inman at the West Martello Tower. This rickety and "very insecure" structure was still in use in 1909 when a recommendation was made for its relocation to about midway between Battery Inman and Battery Seminole's secondary station and its replacement with a new station of the Sewell type. Sewell buildings were thin-reinforced concrete similar to frame-stucco construction that was developed by Maj. John Stephen Sewell, CE, and adopted by the Corps of Engineers in 1906. These buildings were used where a fire-resistant structure was required, as in groups of fire control stations. The buildings were framed as they would be for a timber building, except the studs were to be on 12-inch centers rather than 16-inch, and metal lathing was to be used on both the inside and outside of the frame instead of weather board. This lath was then to be plastered on both sides of the metal lathing. The roofs were to be formed with a wood frame and wooden sheathing covered with a flat seam tin roof.(161)

Even before the turn of the 19th century, measures were taken to provide improved direction and fire control of the batteries at Fort Taylor. In February 1899, officers serving on the Board on the Location of Position Finders recommended a site for the battery commander's station for Battery DeLeon. On August 3, 1900, \$9,850 was allotted from the appropriation for Gun and Mortar Batteries Act of May 25, 1900, for the Battery DeLeon fire control station. On November 26, 1900, a contract was entered into with the American Bridge Co. for construction of a tower, with the work to be completed by June 28, 1901. Beyond crushing some granite blocks for the concrete footings of the tower, no



*B. C. Station. Battery Seminole.
Fort Taylor. Key West, Fla.*

Scale



The two-story battery commander's station for Battery Seminole atop the central traverse of the mortar battery. (NARA)

other work had been done when the contract expired on June 28 and the contract was cancelled the next day.(162)

The battery commander's station (BCS) for Battery DeLeon was then undertaken by the engineers using hired labor and finished in 1902, at a cost of \$6,994.61. The station was turned over to the garrison on April 21, 1902. It was constructed to the rear of Battery Mahlon Ford near the east end of the post. The station consisted of a corrugated galvanized iron building measuring 10 feet square atop a 55-foot-high steel frame tower. It was equipped with a Type A Lewis Depression Position Finder (DPF).(163)

In April 1904, a horizontal base line for the large-caliber guns was established as part of a temporary fire control system. One end of the baseline was on top of the old mine casemate atop the coverface of the fort and the other end fixed at the East Martello Tower.(164)

The initial fire control instrumentation for Battery Osceola's 12-inch guns in the 19th century Fort Taylor was an Emergency Type B Lewis Position Finder mounted on a 5-inch cast-iron pipe in the battery's observation station.

Fire control and direction for the 12-inch guns improved with the construction of a three-story wooden building that measured 36 feet by 37 feet, two inches, in front of Battery Seminole. The battery observing station for Battery Osceola occupied one of the two third-floor rooms of the building, while the other room was used as the fire commander's station. The building was transferred to the coast artillery garrison on November 23, 1905. The double observing station was designated as the combination fort command primary station (F') of the horizontal fire control system. A secondary station (F'') was located at the West Martello Tower Reservation in a 10-foot-square concrete house atop a 25-foot steel frame tower, some 800 feet west of Battery Inman.(165)

In 1908, a two-story battery commander's station (BCS) for Battery Seminole was built atop the central traverse between the two mortar pits. The concrete walls of this structure were 16 inches thick, and the rooms were about five feet wide and eight feet deep. The upper floor of the structure had a wooden roof and was visible some four miles out at sea. Equipped with a Type B Lewis Depression Position Finder, it was transferred to the garrison on January 14, 1909.(166)

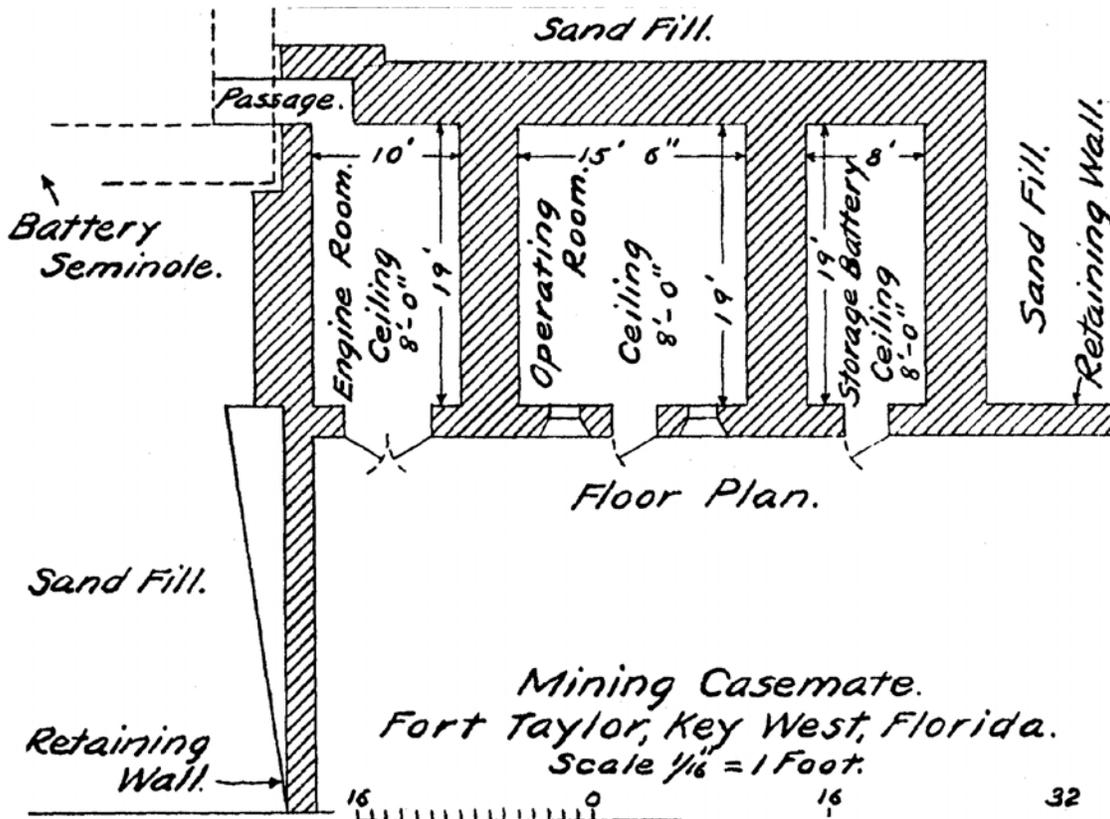
In spite of these early efforts to provide an adequate fire control system for Fort Taylor, the system remained rudimentary. Although a few fire control stations had been erected in the first decade of the 20th century, the system in place on the eve of the nation's entry into the World War was still an improvised one.

Initially the directing of the rapid-fire batteries used the Case I method, with the on-carriage fire direction instruments at the individual guns of the batteries used by their manning details. This would be the sole means of directing the 3-inch guns until after the nation had entered the World War.

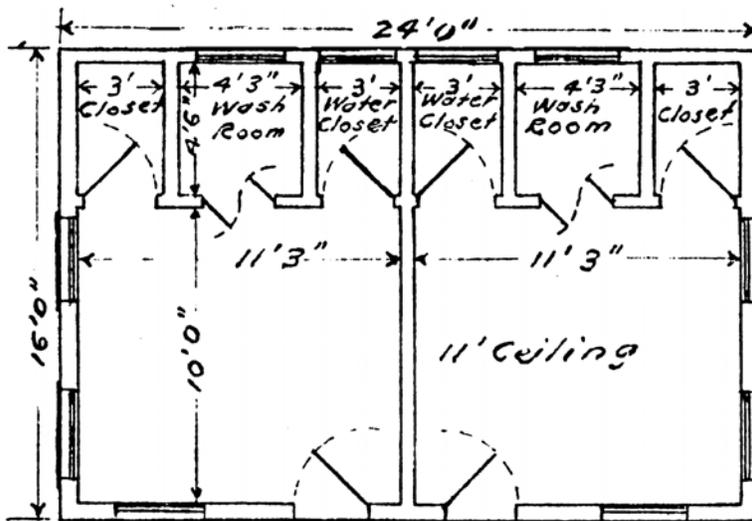
Submarine Mine Facilities Expanded and Improved

Most of the support facilities for the submarine mining project for Key West were grouped on and around the coverface at the northwest rear of Fort Taylor. The original storage for the mines was in three casemates in the gorge of Fort Taylor, north of the sallyport. The mine facilities had been upgraded following the Spanish-American War. From 1901 through 1910 numerous improvements were made in the submarine defenses. The casemate built in 1897 remained in service only until June 23, 1904, when it was replaced by a new casemate.(167)

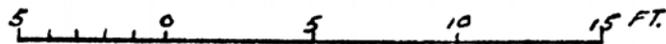
Even before it was formally transferred to the coast artillery garrison in October 1901, the original mining casemate on Fort Taylor's coverface had proven inadequate. Shortly thereafter plans were underway to construct a new casemate. A new site was chosen on the right flank of Battery Seminole. A



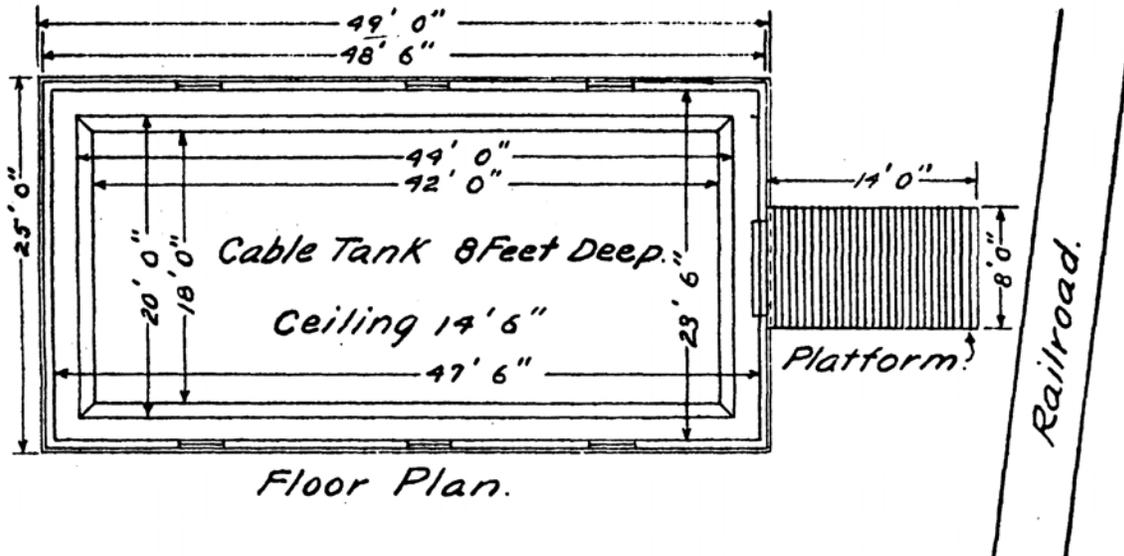
Plan of the new mine 1904 casemate. (NARA)



*Mining Casemate Living Room
Fort Taylor, Key West, Florida.*



Dormitory for the new mine casemate. (NARA)

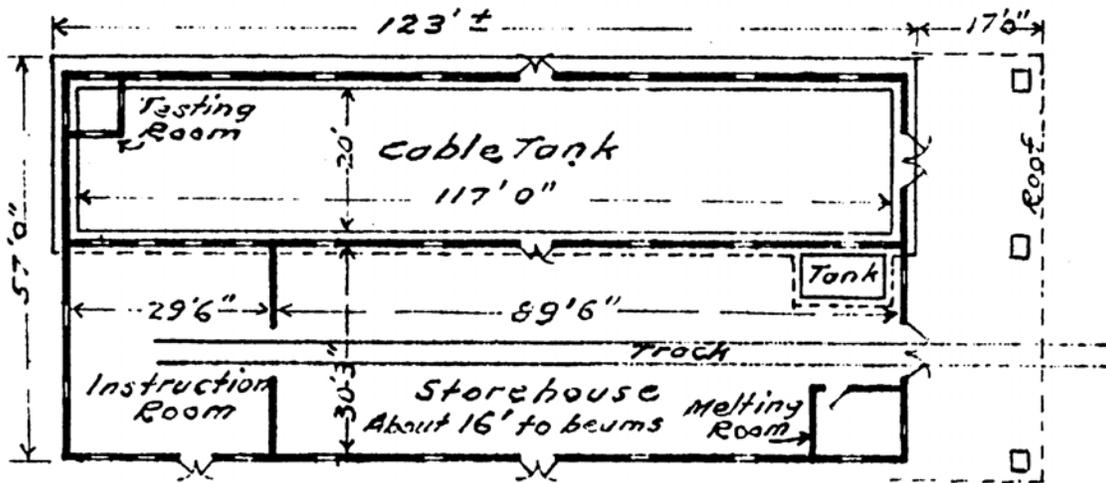


Floor Plan.

Old Cable Tank.
Fort Taylor, Key West, Fla.
Scale



The second cable tank was built in 1901. (NARA)



Torpedo Storehouse and Cable Tank
Fort Taylor, Key West, Florida.
Scale

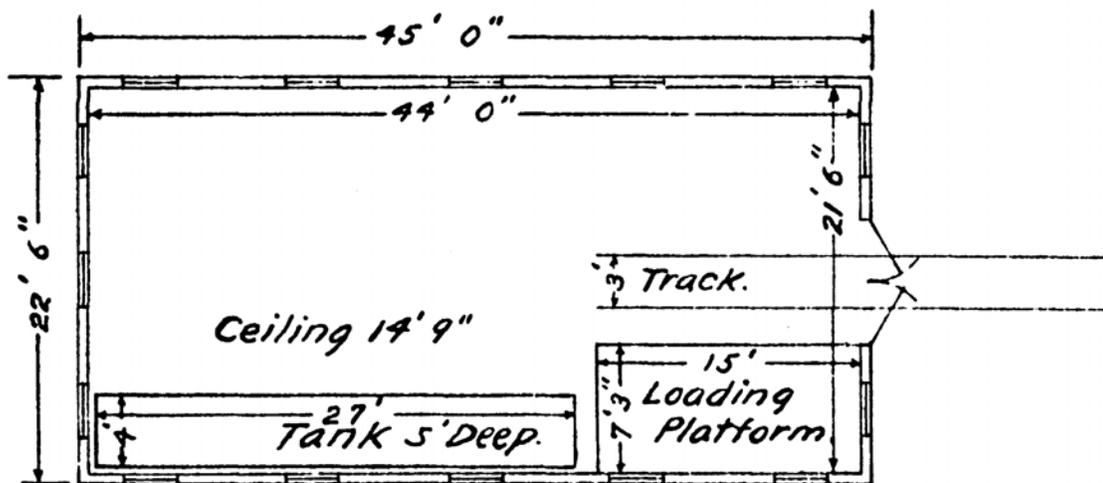


Plan of the combined cable tank and torpedo storehouse. (NARA)

one-story concrete structure, protected by an extension of the sand parapet of the mortar battery, was erected in 1903. This casemate had three rooms. The 10 by 19-foot engine room contained the electric power plant used to charge the batteries providing the current to operate the electrically controlled minefield. The center room serving as the mine operating room measured 15 feet, 6 inches in width and 19 feet in length. The room at the right end of the building was the battery room, containing the wet cell batteries that powered the system. All three rooms had eight-foot ceilings. The new casemate was transferred to the garrison on January 23, 1904. The 1904 casemate remained in service through the end of the World War. The old casemate on the coverface was converted for use as a magazine for gun cotton used in the submarine mines.(168)

To the rear of Battery Seminole, a wooden dormitory or "living room" was built for the casemate's manning detachment. This structure, transferred to the garrison in April 1907, had two rooms measuring 10 feet by about 11 feet, and was equipped with separate water closets, washrooms, and closets for the officers and enlisted men of the manning detachment.(169)

In 1901, measures were taken to build a wooden second cable tank building south of the first mine casemate. This structure, 49 feet long and 25 feet wide, contained a concrete cable tank 44 feet long and 20 feet wide at its top, and 42 feet long and 18 feet wide at its bottom. Cables once used in a mine field were, upon being recovered at the end of the minefield's period of activity, stored in the tank that was filled with salt water to prevent deterioration of the cables' insulation. It was transferred to the custody of the garrison on October 15, 1901.(170)



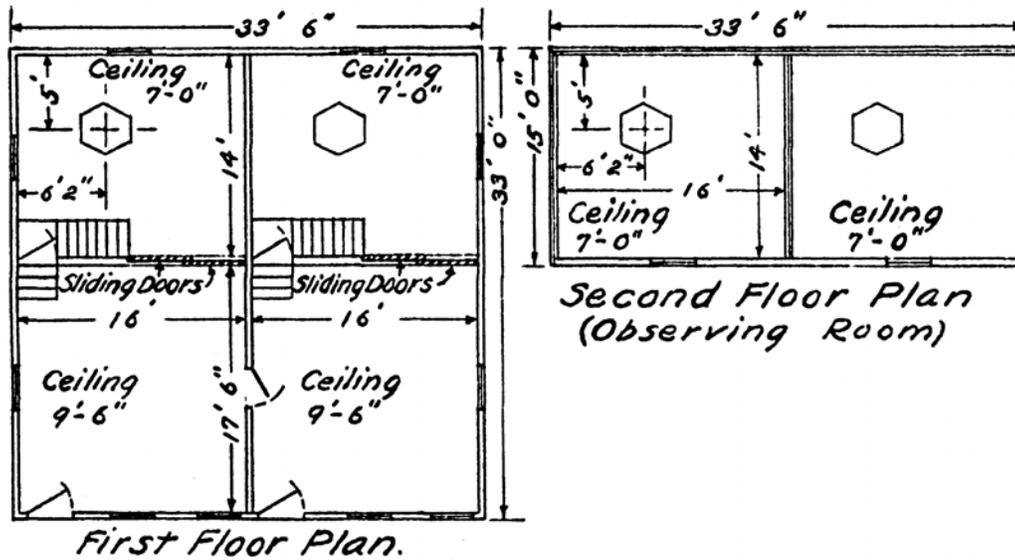
Floor Plan.

Torpedo Loading Room.
Fort Taylor, Key West, Florida.

Scale



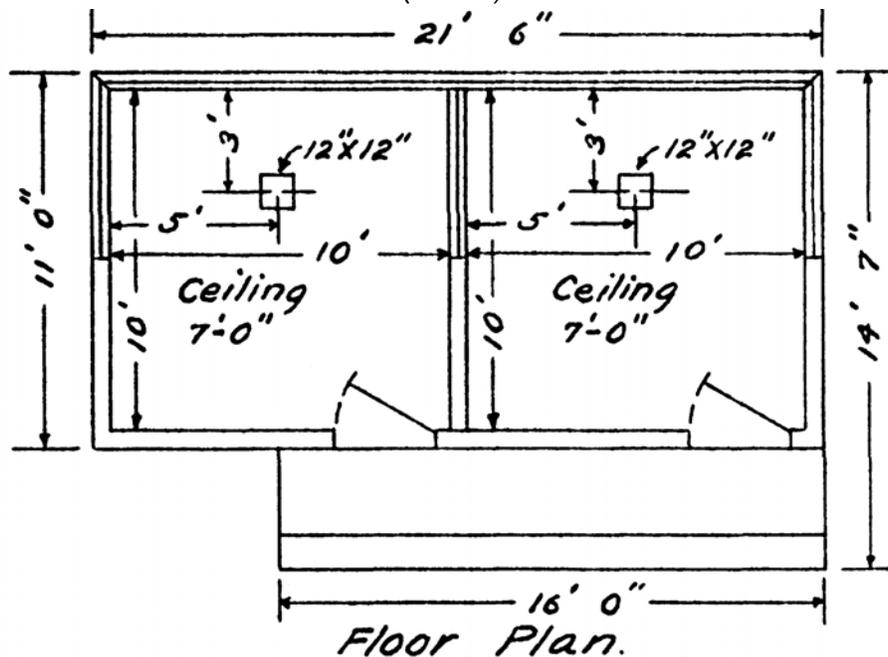
Plan of the 1908 mine loading room. (NARA)



*M-M' Station.
Fort Taylor, Key West, Florida.
Scale*

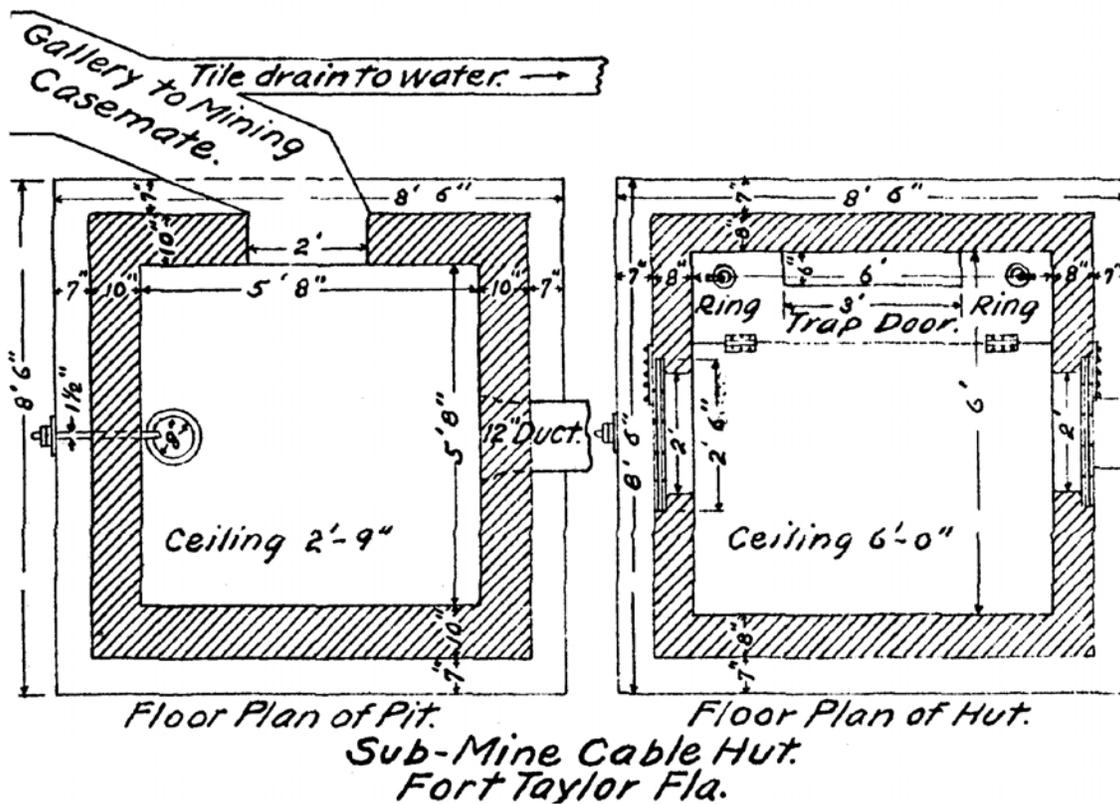


Plan of the two-story concrete primary mine command station built in 1907 atop the old mine casemate. (NARA)

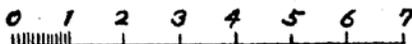
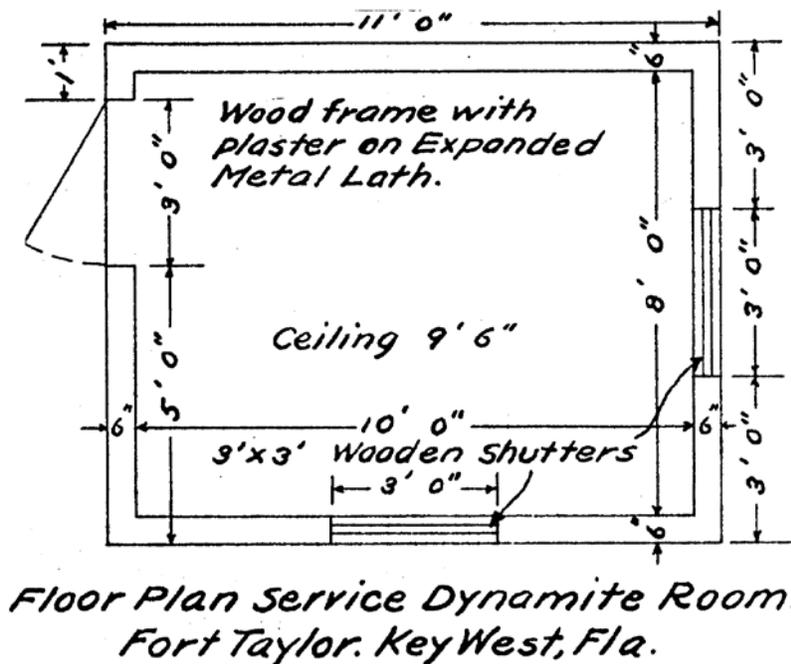


*M-M'' Station.
Fort Taylor, Key West, Florida.*

Plan of the secondary mine command station. (NARA)



Plan of the cable terminal hut for the submarine minefield in Key West Harbor. (NARA)



Plan of the dynamite storage building. (NARA)

The second cable tank building also proved inadequate and in 1907 a 123-foot long by 50-foot-wide combination torpedo storehouse and cable tank building was erected on the north side of the old mine casemate mound. The concrete cable tank was 117 feet long and 18 feet wide. Soon after the structure was completed instructions were received to build a cable test room in one corner of the cable tank under the tank cover. When it was replaced in 1908 with an enlarged tank and combination torpedo storehouse 123 feet long and 57 feet wide, the old cable tank was adapted as a workshop for the Engineer Department.(171)

A reinforced concrete mine loading room was built in 1908 at the rear of old fort, east of its northeast bastion. The mine loading room was 45 feet long and 22 feet, 6 inches wide, roofed with galvanized iron. A track entered the building at one end adjacent to which there was a 15-foot-long loading platform. At the end of the platform was a 27-foot-long tank five feet deep.(172)

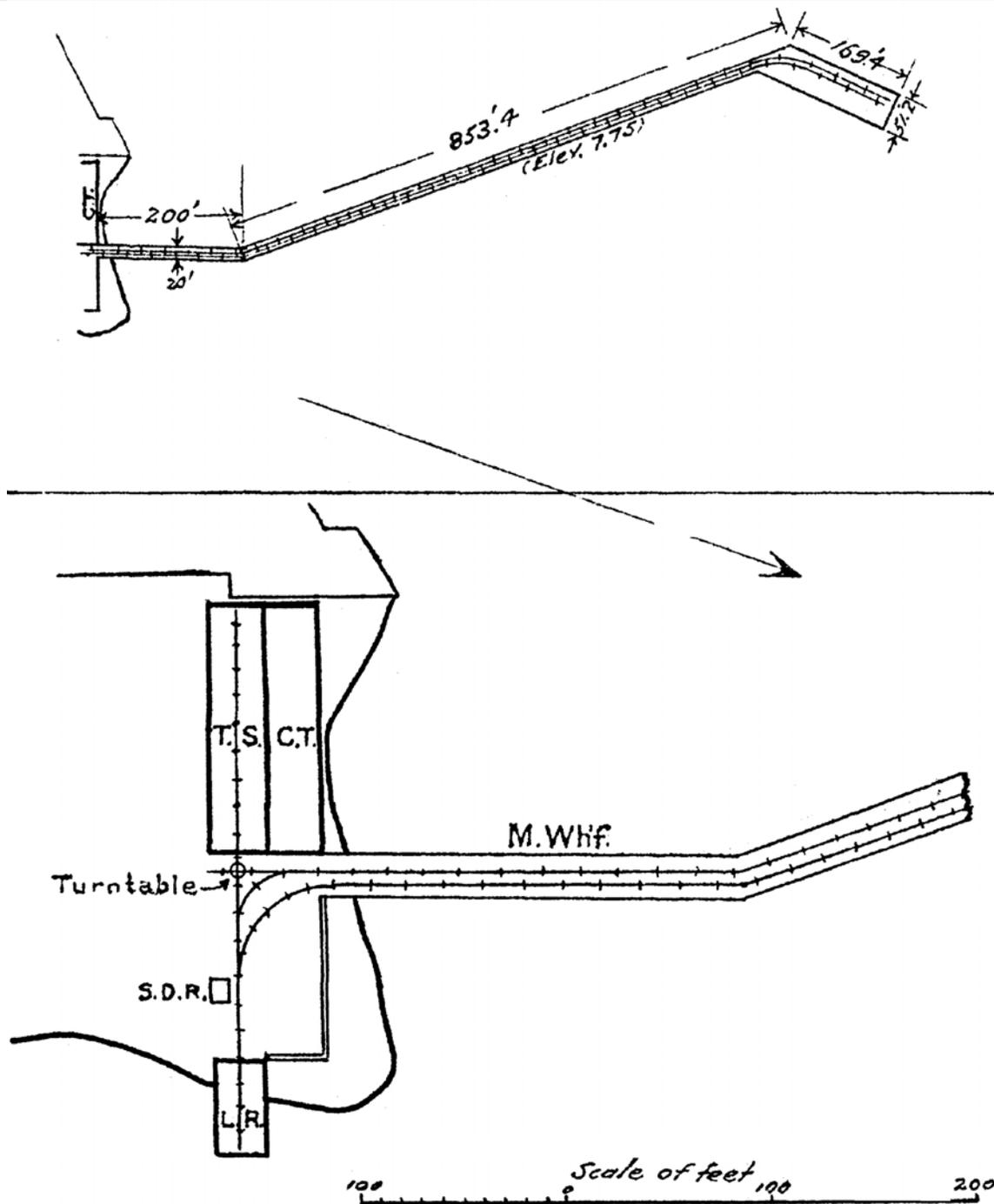
Double primary and secondary mine observation stations were built about 1907 and transferred to the coast artillery garrison February 26, 1908. The primary (M') station was a tin-roofed reinforced concrete two-story building built on the mound that covered the original mine casemate. The station was protected on its north side by the mound covering the old casemate. The station consisted of two 14 by 16-foot instrument rooms equipped with two Type B Lewis Depression Position Finders mounted on 14-foot-high concrete instrument piers. The secondary station (M'') was built on the left flank of Battery Mahlon Ford of reinforced concrete, but consisted of only two observing rooms, each measuring 10 feet square. On the south side of the M' station was a plotting room measuring 16 by 17 feet, 6 inches. The observing rooms of both stations were equipped with Type B instruments. In 1908, the M' station and its plotting room were provided with a protective berm of sand some 34 feet high. In October 1914, the height of the instrument piers in the primary station were raised one foot at a cost of \$300, increasing the cost of the station to \$3,500. The secondary station only cost \$600.(173)

A Type C terminal hut in front of Battery Seminole provided connections for the subterranean cables connecting the primary (M') and secondary (M'') stations with the mining casemate. This hut was transferred to the coast artillery garrison on January 23, 1904. After the submarine mine project was eliminated from the coast defenses in 1920, the hut was used as a fire control hut.(174)

The service dynamite room was another structure supporting the submarine mine operations, constructed in 1908 in the vicinity of the mine storehouse and cable tank. It was an 11-foot-long by eight-foot-wide Sewell-type building.(175)

By the second decade of the century, plans were underway to build a reinforced concrete mine wharf that would extend out from the mine facilities at the north end of the coverface some 1000 feet offshore to a wharf-head in water 20 feet deep to moor the army mine planters which trained the coast artillery mine companies in mine drills that were generally carried out about once a year. At the wharf-head the mine planter took on the submarine mines that were to be planted in the harbor's minefields. Built at a cost of \$102,885, the wharf when completed in 1913 was dog-legged. The first leg extended north by northwest for some 200 feet and then turned northwest for another 853 feet to the wharf-head. The head of the wharf had a length of 169 feet and a width of about 80 feet. Eight 36-inch-gauge tram cars on a tramway built in 1908 connected the storehouse and loading room, and after 1913 extended out to the end of the wharf-head, giving it an overall length of some 2,600 feet.(176)

Part of the improvement to the submarine mine facilities at Fort Taylor was the provision of the 32-foot *Junction Box Launch No. 3*. In addition, the 86-foot-long quartermaster steamer *Major A.B. Forse* arrived about 1907 to provide improved transportation for the commander of the artillery district. This latter vessel was a marked improvement over the Quartermaster Launch *Lieutenant Burnham* that had been in service at Key West for several years. *Forse* was transferred to Fort DeSoto

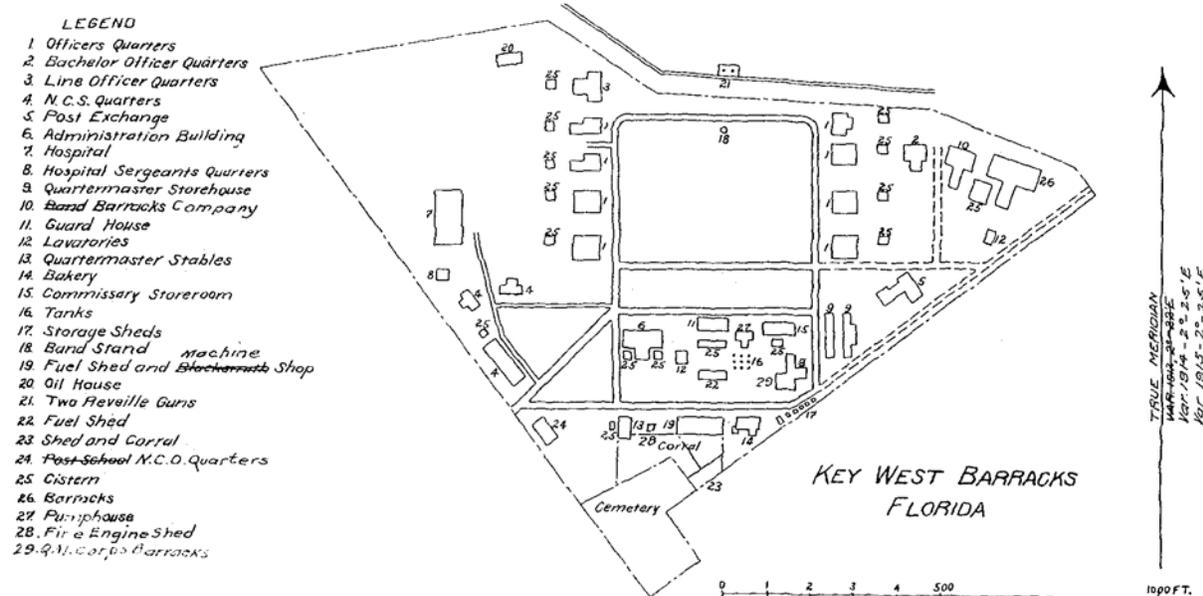


Layout of the mine wharf and tramway at Fort Taylor. (NARA)

December 22, 1909, being replaced by the 120-foot quartermaster steamer *Weeks*. *Lieutenant Burnham*, although well maintained during its period of service at Key West, was severely damaged in the hurricane of October 1909 and saved from total destruction by scuttling in shallow water. The vessel was raised and expected to be back in service soon in February 1910. *Lieutenant Burnham* was eventually replaced by one of the new artillery launches, a 60-foot vessel named *Shipp*. Although no mine planter was specifically assigned to Key West, the 145-foot Lighthouse Service Tender *Arbitus* based in Key West and the quartermaster steamer *Weeks* could be pressed into service in an emergency as *ad hoc* mine planters.(177)

Additional Acreage Sought by the Command

As early as 1899, a board of officers had been appointed to select a site for the erection of barracks on the Fort Taylor Reservation, concerns being continually raised regarding the distance from Key West Barracks to the fortifications. During the oppressive Summer heat, one and three-quarter-mile march across town to the batteries was found to be so fatiguing to the guard details and gun detachments that it became necessary to transport the men in wagons between the barracks and the batteries. (178)



Plan of Key West Barracks in 1916. (NARA)

The board noted serious objections to quartering the troops at the Fort Taylor reservation because of the poor sanitary conditions at the Division Street Gate adjacent to the “most unsanitary portions of the city.” Additionally, the city’s garbage dump was located close to the south corner of the reservation. Capt. McKinstry, the District Engineer, recommended that barracks be built on the reservation and that the “unprepossessing reservation” could be made more attractive by expenditure of a few thousand dollars to grade the site, filling in the low lying spots where water collected and stagnated, and instituting a tree and grass planting program. (179)

McKinstry recommended that barracks be erected in front of Battery Seminole along the south shore between the Engineer Reservation and Battery Gardiner. Here the breezes and the view made this the most desirable location. However, no action was taken toward moving the garrison to Fort Taylor beyond providing a guardhouse and housing a small detachment in the gorge of the Third-System fort. (180)

During the course of an inspection of Fort Taylor in early February 1904 by Brig. Gen. Thomas H. Barry, commanding the Department of the Gulf, Col. Anthony W. Vogdes, AC, the post commanding officer, expressed his desire to reclaim a considerable portion of land by running a 1,140-foot seawall from the Marine Hospital Reservation at the naval station to Fort Taylor and another seawall 3,100 feet along the waterfront at Key West Barracks at the low water point. Further consideration of the seawall projects was undertaken by the division and district engineers and cost estimates prepared for the

projects. A third seawall project was presented by the engineers to extend 950 feet from the southeast demibastion of the masonry fort to a point near the northern extremity of Battery DeLeon. The area enclosed by the seawalls at Fort Taylor would encompass some 32.71 acres and would afford needed space and provide sites for new batteries, should any be needed, and provide room for a garrison. This acreage would be raised three feet above sea level by pumping sand fill from off shore.(181)

While the reclamation of tidal lands at Fort Taylor received the wholehearted support of the engineers, the project for Key West Barracks required added study, and endorsement of the seawall by the Corps of Engineers was predicated upon the continued use of the reservation. The engineers believed that the artillery troops should be housed at Fort Taylor. Even if the existing barracks facing Garrison Bight were to continue in use for infantry to be used in the land defenses, the engineers did not think that an increase in the size of that reservation was advisable. If it was decided to reclaim land by building a seawall, it was recommended that the seawall be built further out into Garrison Bight, to increase the acreage.(182)

To be continued in the next issue of the *Coast Defense Journal*

Endnotes

85. House Exec. Doc. No. 1, 49th Cong., 2nd Sess., pp. 502, 11.
86. *ARCE*, 1897, pp. 17, 703. Cullum, *Biographical Register*, Vol. II, pp. 869-70; Vol. IV, p. 550.
87. Call, *United States Military Reservations*, pp. 45-46.
88. *ARCE*, 1897, pp. 17, 703, 705-06.
89. "Torpedo" was the term used by the army during the last half of the 19th century, for what would become known during the 20th century as submarine mines. The "torpedoes" used by the army were submarine mines planted in ship channels and connected by electrical cables to the shore, where they could be fired from a mine control room. Because the earliest of these control rooms had been situated in well-protected casemates in the older Third-System masonry seacoast fortifications, they became known as "torpedo" or "mining casemates." Mining casemates became "mine casemates" early in the 20th century, although they were rarely in the casemates of the older forts. None of the mine casemates built at Key West were located in Fort Taylor's casemates. *ARCE*, 1898, p. 723. Reports of Completed Works, Seacoast Fortifications (Fire Control or Torpedo Structures), Coast Defenses of Key West, Fla., Fort Taylor, Mining Casemate, Corrected to December 31, 1919, RG 77, Archives II, NARA. Hereafter: (RCW). Report of Completed Batteries, etc., (hereafter: RCB), for December 31, 1909, Miscellaneous Fortifications File, RG 77, SRRC, NARA.
90. RCW, Old Cable Tank, Corrected to December 31, 1919. Report of Operations for the Month of October 1899, Defense of Key West, Fla, RG 77, SRRC, NARA.
91. *ARCE*, 1897, pp. 17, 703. Report of Operations for the Month of October 1899, Defense of Key West, Fla., RG 77, SRRC, NARA.
92. The Venable Construction Co. had successfully bid on the construction of a battery for four 8-inch guns at Fort Screven, GA, the previous year. The Key West venture may have been an overextension of the company's capabilities.
93. RCB, December 31, 1909, File 64, Entry 1173, RG 77, SRRC, NARA.
94. *ARCE*, 1898, pp. 27, 720, 722-23. RCB, December 31, 1909, File 64, Entry 1173, RG 77, SRRC, NARA.
95. Report of Operations for the Month of October 1899, Defense of Key West, Fla., RG 77, SRRC, NARA.
96. Quarterly Report on the Defense of Key West, July 7, 1899, RG 77, SRRC, NARA.
97. *Ibid.*

98. Heitman, *Historical Register*, Vol. I, p. 330. *ARCE*, 1899, pp. 890-91, 893. G.O. No. 43, AGO, April 4, 1900. Fort Taylor Record Book.
99. *ARCE*, 1898, pp. 721. *ARCE*, 1899, pp. 890-91, 93.
100. Quarterly Report on the Defense of Key West, July 7, 1899, RG 77, SRRC, NARA.
101. *Ibid.*
102. *Ibid.*
103. *ARCE*, 1900, pp. 826-27, 924-26. Report of Operations for the Month of October 1899, Defense of Key West, Fla., RG 77, SRRC, NARA.
104. G.O. No. 43, AGO, April 4, 1900. Fort Taylor Record Book.
105. RCB, December 31, 1909, File 64, Entry 1173, RG 77, SRRC, NARA.
106. Fort Taylor Record Book. Memorandum on "New Modernization work in protection of magazines, May 26, 1915," Miscellaneous Fortifications File, RG 77, SRRC, NARA. "Proceedings of a Board of Officers Convened at the Coast Defenses of Key West, Florida, June 16, 1917, to Review the Fire Control Plans for the Coast Defense."
107. *ARCE*, 1900, pp. 924-26. *ARCE*, 1901, pp. 826-27.
108. Memorandum for Colonel Powell, n.d., Correspondence of Chief of Engineers, December 1903-February 1904, Entry 1172, RG 77, SRRC, NARA.
109. *ARCE*, 1897, p. 707. *ARCE*, 1898, p. 723.
110. Fort Taylor Record Book. Heitman, *Historical Register*, Vol. I, p. 274.
111. The 3rd Texas Infantry Regiment had been activated upon the outbreak of the War with Spain and its companies deployed as infantry supports along the Gulf Coast at Forts Morgan, Barrancas, and several other seacoast fortifications in addition to Fort Taylor. John H. Nankivell, (Comp.) *The History of the Twenty-Fifth Regiment United States Infantry 1869-1926*, (Fort Collins, CO, 1972), p. 66.
112. *ARCE*, 1898, p. 722. RCB, December 31, 1909, Miscellaneous Fortification Files, RG 77, SRRC, NARA.
113. RCB, December 31, 1909, RCB, December 31, 1909, Miscellaneous Fortification Files, RG 77, SRRC, NARA. Twenty-four-inch and 30-inch Searchlights, June 14, 1915, Miscellaneous Fortifications File, RG 77, SRRC, NARA.
114. *ARCE*, 1899, pp. 29, 897-98. Report on 24" and 30" searchlights to the Chief of Engineers, June 14, 1915. RCB, December 31, 1909, Miscellaneous Fortification Files, RG 77, SRRC, NARA.
115. Fort Taylor Record Book. RCB, December 31, 1909, Miscellaneous Fortifications File, RG 77, SRRC, NARA.
116. Battery Gardiner was destroyed in 1962 when the area was developed for naval housing. RCB, January 22, 1918, Miscellaneous Fortifications File, RG 77, NARA, East Point, GA. *ARCE*, 1898, p. 724. *ARCE*, 1899, p. 894. *ARCE*, 1900 p. 926. Heitman, *Historical Register*, Vol. I, p. 445. Fort Taylor Record Book. "Proceedings of a Board of Officers Convened at the Coast Defenses of Key West, Florida, June 16, 1917, to Review the Fire Control Plans for the Coast Defense." Emplacement Book, Battery Gardiner, Fort Taylor, RG 392, SRRC, NARA.
117. "The San Marcos Arrives," *New York Times*, August 29, 1898, p. 1.
118. *Ibid.*
119. *Ibid.*
120. *Ibid.*
121. "San Marcos Goes to Montauk," *New York Times*, August 30, 1898, p. 4.
122. "History of the 2nd Co., CAC," Unit Folder, 2nd Company, CAC, RG 407, Archives II, NARA.
123. *Ibid.*
124. *Ibid.*
125. *ARCE*, 1900, p. 928.
126. *Ibid.* "History of the 2nd Co., CAC," Unit Folder.

127. *ARCE*, 1898, p. 724. *ARCE*, 1899, pp. 895, 97.
128. Report of Operations for the Month of June 1901, Defenses of Key West, Fla., July 10, 1901, RG 77, SRRC, NARA.
129. *ARCE*, 1898, p. 724. *ARCE*, 1899, p. 897. RCB, December 31, 1909, Memorandum for Colonel Powell [circa January, 1904], Correspondence file, Defenses of Key West, Miscellaneous Fortification Files, RG 77, SRRC, NARA.
130. G.O. No. 43, AGO, April 4, 1900. Fort Taylor Record Book. Robert McHenry (ed.) *Webster's American Military Biographies* (Dover Publications, Mineola NY: 1984), pp. 303-04.
131. *ARCE*, 1899, p. 895.
132. Correspondence of Thomas H. Rees to John M. Wilson, June 11, 1900, with endorsements, Re: Plans and estimates for 15-pounder guns at Fort Taylor, RG 77, Archives II, NARA.
133. Masking-parapet mounts were also frequently termed balanced-pillar mounts by the Corps of Engineers. Thomas H. Rees to J.M. Braxton, June 5, 1901, RG 77, SRRC, NARA. Correspondence of Thomas H. Rees to John M. Wilson, June 11, 1900, with endorsements, Re: Plans and estimates for 15-pounder guns at Fort Taylor, Correspondence of Charles H. McKinstry with John M. Wilson, November 22, 1900, Re: Receipt of 15-pounder guns and carriages. Correspondence of John M. Wilson with A.R. Buffington, November 16, 1900, and endorsements Re: Completion of emplacement for 15-pounder guns and setting of the outer base castings, RG 77, Archives II, NARA.
134. Correspondence of C.H. McKinstry to John M. Wilson, December 31, 1900, with endorsements, re: Mounting 15-pounder guns and carriages at Fort Taylor, RG 77, Archives II, NARA. Fort Taylor Record Book.
135. Heitman, *Historical Register*, Vol. I, p. 151. Fort Taylor Record Book. RCW, Battery Adair, Fort Taylor, Key West Florida, RG 77, Archives II, NARA. *ARCE*, 1899, p. 894. *ARCE*, 1900, p. 926. *ARCE*, 1901, p. 827.
136. RCB, December 31, 1909, Miscellaneous Fortifications File, RG 77, SRRC, NARA.
137. Memorandum on "New Modernization work in protection of magazines, May 26, 1915."
138. Fort Taylor Record Book. RCB, December 31, 1909, Miscellaneous Fortification File, RG 77, SRRC, NARA.
139. Thomas H. Rees to J.M. Braxton, June 15, 1901, RG 77, SRRC, NARA.
140. RCW, Battery Dilworth, Fort Taylor, Key West, Florida, Corrected to June 30, 1919. RCB, December 31, 1909, Miscellaneous Fortifications File, RG 77, NARA. *ARCE*, 1900, p. 828.
141. RCB, December 31, 1909, Miscellaneous Fortifications File, RG 77, SRRC, NARA.
142. Memorandum on "New Modernization work in protection of magazines," May 26, 1915. Fort Taylor Record Book. *ARCE*, 1900, p. 828.
143. RCB, December 31, 1909, Miscellaneous Fortifications File, RG 77, SRRC, NARA.
144. Memorandum on "New Modernization work in protection of magazines," May 26, 1915. G.O. No. 194, December 27, 1904, AGO, December 27, 1904. Fort Taylor Record Book. Heitman, *Historical Register*, Vol. I, p. 365.
145. Fort Taylor Record Book. Heitman, *Historical Register*, Vol. I, p. 428.
146. RCB, December 31, 1909, Miscellaneous Fortifications File, RG 77, SRRC, NARA.
147. Memorandum on "New Modernization work in protection of magazines," May 26, 1915. W.W. Gibson to Artillery District Ordnance Officer, District of Key West, Key West Barracks, Transfer of Ordnance Property File, March 6-May 3, 1909. Report of the Board of Officers for Fire Control Installation in the Coast Defenses of Key West, Florida. George E. Brown to George R. Spaulding, July 13, 1909, Miscellaneous Fortification Files, Key West Fortifications, RG 77. G.O. No. 194, AGO, December 27, 1904. Fort Taylor Record Book. *Historical Register*, Vol. I, p. 429.
148. Fort Taylor Record Book.

149. RCW, Coast Defenses of Key West, Fla, Fort Taylor (West Martello Tower), Battery Shadrach Inman, Corrected to September 30, 1921. Memorandum on "New Modernization work in protection of magazines," May 26, 1915.
150. RCB, December 31, 1909, Miscellaneous Fortifications File, RG 77, NARA.
151. RCW, Coast Defenses of Key West, Fla., Fort Taylor, 9-Foot C.R.F. station for Battery Inman, Corrected to August 15, 1922. Transfer of Guns, Carriages, and Parts, June 2-July 9, 1909, Miscellaneous Fortification Files, Key West Fortifications, RG 77, Emplacement Book, Battery Inman. Fort Taylor Record Book. G.O. No. 20, 1906, War Department General Orders and Bulletins, 1909, RG 94, Archives II, NARA.
152. Memorandum for Colonel Powell [circa January, 1904], Correspondence file, Defenses of Key West; Miscellaneous Fortification Files, RG 77, SRRC, NARA.
153. *Ibid.*
154. *Ibid.*
155. *Ibid.*
156. *Ibid.*
157. *Ibid.*
158. *Ibid.*
159. Thomas H. Barry to the Adjutant General, Atlantic Division, March 1, 1904. District Engineer, Jacksonville, Fla., to Alexander Mackenzie, April 29, 1904, RG 94, Archives II, NARA.
160. Memorandum for Colonel Powell [circa January, 1904]. Lansing H. Beach to the Chief of Engineers, June 23, 1908, Correspondence file, Defenses of Key West. RCB, December 31, 1909, Miscellaneous Fortification Files, RG 77, SRRC, NARA.
161. Quarterly Report on the Defense of Key West, July 7, 1899, RG 77, SRRC, NARA.
162. Sewell Buildings were thin-reinforced concrete similar to frame-stucco construction that was developed by Maj. John Stephen Sewell, CE, and adopted in 1906. These buildings were used where a fire-resistant structure was required, as in groups of fire control stations. The buildings were framed as they would be for a timber building except the studs were to be on 12-inch centers rather than 16-inches, and metal lathing was used on both the inside and outside of the frame instead of a weather board covering. This lath was then to be plastered on both sides of the metal lathing. The roofs were to be formed with a wooden frame and wooden sheathing covered with a flat seam tin roof. Mimeograph No. 100, 1906, "Type of thin-reinforced concrete construction for fire control station," etc., RG 77, SRRC, NARA. Cullum *Biographical Register*, Vol. IV, p. 509.
163. Report of Operations for the Month of June 1901, Defenses of Key West, Fla., July 10, 1901, Entry 1203, RG 77, SRRC, NARA.
164. RCW, Coast Defenses of Key West, Fla., Fort Taylor, Fort Commander Station, Corrected to December 31, 1919. RCB, December 31, 1909, Report of the Board of Officers for Fire Control Installation in the Coast Defenses of Key West, Florida. Report of Operations for the Month of June 1901, Defenses of Key West, Fla., RG 77, SRRC, NARA.
165. Francis R. Shyunk to A. Mackenzie, April 4, 1904, Correspondence of Chief of Engineers, December, 1903-February, 1904, Entry 1172, Miscellaneous Fortification Files, RG 77, SRRC, NARA.
166. RCW, Coast Defenses of Key West, Fla., Fort Taylor, Fire Commander (F') Station and B' Station for Battery Osceola, Corrected to November 30, 1921. George H. Spaulding to J.M. Braxton, January 25, 1909, and George H. Spaulding to Chief of Engineers, February 18, 1909, Artillery Exercises, 1909 File, Key West Fortifications, Miscellaneous Fortification Files, RG 77, SRRC, NARA.
167. RCW, Coast Defenses of Key West, Fla., Fort Taylor, Battery Commander Station, Battery Seminole, Corrected to December 31, 1919, Plan of BC station for Battery Seminole, 1908, Key West Fortifications, Miscellaneous Fortification Files, RG 77, SRRC, NARA.
168. Fort Taylor Record Book. RCW, Coast Defenses of Key West, Fla., Fort Taylor, Mining Casemate No. 2, Corrected to January 31, 1920, RG 77, Archives II, NARA.

169. RCW, Coast Defenses of Key West, Fla., Fort Taylor, Mining Casemate No. 2, Corrected to January 31, 1920, RG 77, Archives II, NARA.
170. RCW, Coast Defenses of Key West, Fla., Fort Taylor, Mining Casemate Living Room, Corrected to January 31, 1920, RG 77, Archives II, NARA.
171. Charles H. Bogart, *Controlled Mines: A History of Their Use by The United States* (Bennington, VT, 1985), p. 12.
172. Sketch Showing Proposed Approach to Storehouse, Cable Tank, etc. and Protection for Prim. Mine Field Station, August 4, 1908; RCW, Coast Defenses of Key West, Fla., Fort Taylor, Double M'-M' Station, Corrected to December 31, 1919; RCW, Coast Defenses of Key West, Fla., Fort Taylor, Cable Tank and Torpedo Storeroom, Corrected to December 31, 1919, Key West Fortifications, Miscellaneous Fortification Files, RG 77, SRRC, NARA.
173. RCW, Coast Defenses of Key West, Fla., Fort Taylor, Torpedo Loading Room, Corrected to December 31, 1919, RG 77, Archives II, NARA.
174. J.M. Braxton, to Lansing H. Beach, February 8, 1908, Key West Fortifications, Miscellaneous Fortification Files. RCW, Coast Defenses of Key West, Fla., Fort Taylor, Double M'-M' Station, Corrected to December 31, 1919. Sketch Showing Proposed Approach to Storehouse, Cable Tank, etc. and Protection for Prim. Mine Field Station, August 4, 1908; RCW, Coast Defenses of Key West, Fla., Fort Taylor, Double M'-M' Station, Corrected to December 31, 1919; RCB, December 31, 1909, George H. Spaulding to J.M. Braxton January 25, 1909, and George H. Spaulding to Chief of Engineers, February 18, 1909, Artillery Exercises, 1909 File, Key West Fortifications, Miscellaneous Fortification Files, RG 77, SRRC, NARA.
175. RCW, Coast Defenses of Key West, Fla., Fort Taylor, Cable Terminal Hut, Corrected to December 31, 1919, RG 77, Archives II, NARA.
176. RCW, Coast Defenses of Key West, Fla., Fort Taylor, Service Dynamite Room, Corrected to December 31, 1919, Miscellaneous Fortification Files, RG 77, SRRC, NARA.
177. RCW, Coast Defenses of Key West, Fla., Fort Taylor, Wharf and Tramway, Corrected to December 31, 1919, Key West Fortifications, Miscellaneous Fortification Files, RG 77, SRRC, NARA.
178. Report of Inspection of Key West Barracks, June 23, 1909, RG 94. *List of Coast Guard Cutters, Harbor Service and Artillery Boats, and Lighthouse Tenders*, April 26, 1916, RG 165, Archives II, NARA.
179. C.H. McKinstry to the Commanding Officer, Key West Barracks, Key West, Florida, August 21, 1899, RG 77, SRRC, NARA.
180. *Ibid.*
181. Thomas H. Barry to the Adjutant General, Atlantic Division, March 1, 1904; District Engineer, Jacksonville, Florida, to Alexander Mackenzie, April 29, 1904, RG 94, Archives II, NARA.
182. District Engineer, Jacksonville, Florida, to Alexander Mackenzie, April 29, 1904, RG 94, Archives II, NARA.

Defending The Florida Reef: A History of the Coastal and Harbor Defenses of Key West, Florida, Part 3: 1906-1940

William C. Gaines

Parts 1 & 2 of this article appeared in the previous issues of the *Coast Defense Journal*.

The Inspector General Visits In 1906

From February 3rd through the 10th of 1906, the Inspector General of the Atlantic Division conducted an exhaustive inspection of the Post of Key West Barracks and its sub-post of Fort Taylor. During a week-long visit, the inspection team examined every facet of the military establishment in the island city. Its report provides a detailed picture of the post in 1906 as the last of the fixed gun and mortar batteries were completed.

At the time of the inspection, the officers assigned were:(183)

Maj. Charles L. Phillips, AC, commanding officer of the post and of the Artillery District of Key West.

Capt. Henry M. Merriam, AC, Artillery District of Key West staff officer, on leave pending transfer to Hawaii.

Capt. John H. Stone, MC, post surgeon.

Capt. Mervyn C. Buckley, AC, commanding officer, 122nd Company, Coast Artillery.

Capt. Harry P. Wilbur, AC, commanding officer, 123rd Company, Coast Artillery

Capt. Philip R. Ward, AC, commanding officer, 11th Company, Coast Artillery, on detached service at the Artillery School.

1st Lt. Alexander Greig Jr., AC, 121st Company, Coast Artillery, post exchange officer.

1st Lt. Frank J. Miller, AC, 122nd Company, Coast Artillery.

1st Lt. John M. Dunn, AC, post adjutant, and adjutant, Artillery District of Key West, post ordnance officer, commander of 9th Coast Artillery Band, sick in quarters.

1st Lt. Charles L. Fisher, AC, post quartermaster, post commissary officer, post librarian, in charge of construction work on post, and acting commanding officer, 11th Company, Coast Artillery.

2nd Lt. Paul D. Bunker, AC, 11th Company, Coast Artillery, acting post adjutant and temporary commanding officer, 9th Coast Artillery Band.

At this time, Key West was garrisoned by the 11th, 121st, and 122nd Coast Artillery Companies, and the 9th Band of the Artillery Corps, as well as detachments of the staff departments, a total of 11 officers and 299 enlisted men. Two officers and eight enlisted men were absent. When a personnel inspection was held, one additional officer and 68 men were on other duties that precluded their appearance at the inspection. Twenty-three were on guard, four were sick in hospital, six were confined in the guardhouse, and 12 were absent without leave. Nineteen others were on duty at the hospital, the messhalls, and the three company barracks.

In addition to the military personnel there were seven civilians regularly employed at the post, as civil engineer and superintendent of construction, a clerk for the post quartermaster, a teamster, the post plumber, post engineer, post carpenter, and the pilot and engineer for the post launch *Lieutenant Burnham*. There were also five temporary carpenters and a painter working on the post at the time of

the inspection, carrying out repairs to barracks and quarters at Key West Barracks and building a frame boathouse at Fort Taylor.

During the course of the inspection, the IG witnessed the command in the following drills:(184)

- Day and night drill with the 12-inch mortars, 10-inch guns, and rapid-fire guns
- Fire direction and control by day and night using the temporary system, as no permanent system had yet been provided
- Vessel tracking
- School of the soldier, squad, platoon, company, and battalion
- Full dress review and parade
- Escort of the colors
- Inspection of the command in full campaign marching order
- Pitching shelter tents
- Extended order infantry drill
- Setting up exercises
- Butts manual
- Bayonet exercise
- Signal drill
- Hospital drill

When the water supply system was inspected, it was noted that the cistern at the south end of the hospital had been disconnected from the overall post water system by order of Capt. John H. Stone, the post surgeon. The water in the cistern was contaminated because the hospital water closet and lavatory floor projected over this cistern by nearly four feet.

The continuance of Key West Barracks was also reconsidered during the visit of the inspector general. While the district engineer had noted that it was preferable for the troops to be quartered near the batteries, the IG noted that while Fort Taylor was projected as an eight-company post, three companies could be quartered adequately at Key West Barracks, and additional land could be acquired to the east of the post for all buildings needed to accommodate the Fort Taylor garrison. He also noted that while these companies would have to march a total of three miles a day between Fort Taylor and the barracks, this would provide an opportunity for instruction in marching and the inspecting officer could “not see that the hours thus spent is a detriment to the command as they got through with their military instruction easily by the noon of each day.” He concluded that it “would be in the interests of economy to continue Key West Barracks and to make such additions to the existing post as may be necessary to care for the garrison which is contemplated to look after the guns at Fort Taylor.”

In commenting on the overall district commanded by Maj. Phillips, the IG noted that the one-company posts of the district, Forts DeSoto and Dade, were expensive to maintain, each requiring a full non-commissioned staff and an expensive boat system. In his experience, the batteries in the hands of “gun cleaners” were almost uniformly as well taken care of as those in actual commission. He then said:(185)

“I believe that it would be in the interest of better administration to abandon these one-company posts and to put the troops and the officers at the larger posts where there is almost universally a shortage of both officers and men. This policy would in my opinion tend to the better instruction of the personnel of the artillery and would reduce materially the cost of administration.

The armament at these one-company posts can be kept in perfect condition by small detachments made from the garrison stationed at the posts of which they are sub-posts.”

The IG found Phillips' command to be well disciplined and generally well instructed in both infantry and artillery duties, and in general he found the command "equipped and ready to take the field." The post was well policed and was attractive in appearance. The hospital was in good condition and well run.

The week-long inspection of the garrison did, however, uncover nearly 50 irregularities and deficiencies. Among these were:(186)

- New guardhouse needed. Bunks in the guardhouse dirty and infested with bed bugs.
- Records of the post cemetery deficient.

Engineer Department

- Work started on the casemates on Fort Taylor's north front not finished. Casemates on north and northwest fronts filled with rubbish and trash; top row of roof tiling left off.
- Urinals and lavatories have no drains in the cement flooring under them and the latrines smell bad.
- The third floors of the barracks buildings where the enlisted men sleep have no screens between the walls and the roof.
- Post wagons required extensive repairs and painting
- The launch *Burnham* provided for the use of the district commander is not large enough to serve as a target-towing vessel; a 60-foot launch is recommended to serve the artillery needs at the post.
- Underclothing allowances for garrison are not large enough for troops serving in a climate where the slightest exertion throws them into violent perspiration.
- No installation of the proposed fire control system; there is a shortage of telephones and other instruments at the post.
- No drills or firing of Battery Osceola's 12-inch guns had been carried out since 1903.
- The contents of the armament chests and implement chest and accessories for gun and carriages of Battery DeLeon were incomplete.

While the various branches reflected numerous deficiencies, the post's administration also received its share of "rockets," from the IG.

- The fort record book was not complete and separate files of orders relating to the artillery service were not filed separately
- The Articles of War had not been read to the enlisted "men in the prescribed time and the men were generally ignorant of the Articles of War."
- Numerous irregularities were discerned in the uniforms of the enlisted personnel. Much of it was not marked with the soldier's name and number.
- Officers revolvers and equipment not at the post.
- Some companies did not have a copy of the manual for cooks in the kitchens.
- The signalmen of two companies were not well instructed.
- The command not well instructed in the use of telephones.
- Instruction in the sights of the magazine rifle not very thorough.
- Shelter halves were not marked; and the men of the 122nd and 121st Companies could not pitch shelter tents.
- Many cotton bags and leather sheaths of men's haversacks in the 121st and 122nd Companies missing.

In the three coast artillery companies at the post, more deficiencies were discovered:(187)

11th Company, Coast Artillery

- This company manned the rapid-fire batteries of Battery Adair, Gardner, and DeKalb. In general, the gunners did not know the distance to prominent points in the harbor. Three gunners did not know the value of the points in their sights and one gunner set his sight for 800 yards to hit a boat that was over 2,500 yards away.
- Non-commissioned officers did not have chevrons on their dress uniforms or fatigue clothing. Gunners did not wear their insignia or badges.

121st Company, Coast Artillery

- Personnel could not pitch a shelter tent.
- Company had no soldiers' handbooks.

122nd Company, Coast Artillery

- Personnel could not pitch shelter tents.
- Company equipment not properly marked.
- Company had no soldiers' handbooks.
- Company lavatory, bath, and water closet not clean.
- Bunks in barracks not clean and many had bed bugs.
- Cooks did not know the weight of the bread ration and no record was kept of the meat received in the company kitchen.

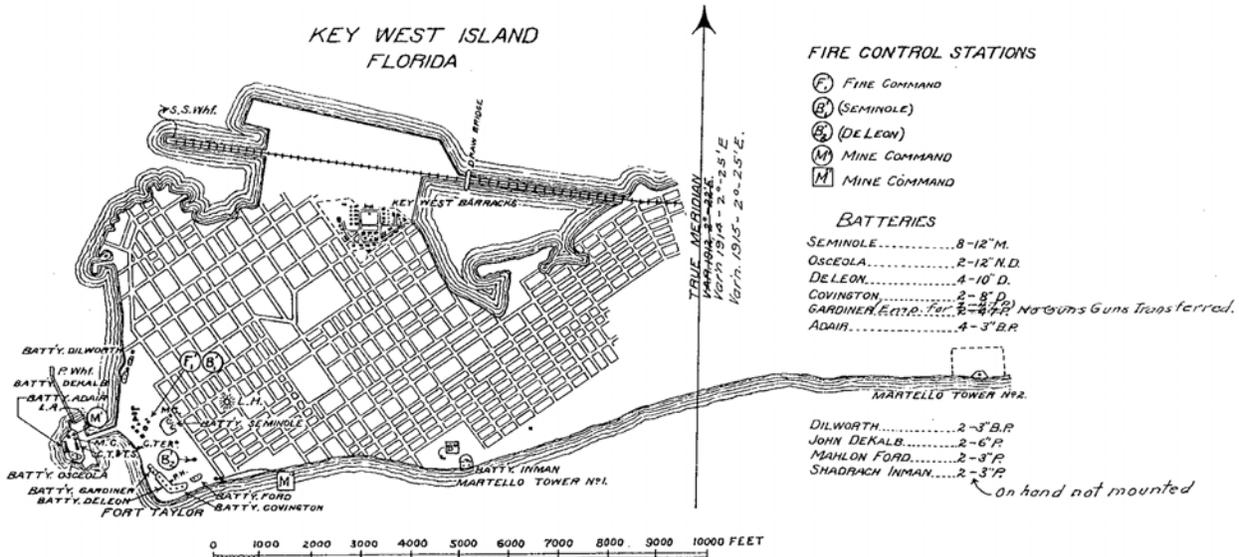
A Storm Damages Military Installations at Key West

On October 11, 1909, Key West was visited by one of the major tropical storms that frequent the area between June and November of each year. The winds reached some 64 miles per hour, sufficient to do material damage to the public property at Key West. Nearly all of the buildings at Key West Barracks were damaged, some of them to such an extent that it was not worthwhile to repair them. Barracks Nos. 4 and 8 were left twisted and leaning and leaving them standing was a menace to life and the source of danger to the adjacent buildings. An inspection by the chief quartermaster of the Department of the Gulf recommended their immediate condemnation. Officers' Quarters Nos. 1, 2, and 15 were also severely damaged and could not be occupied "without first expending more money in repairs than would be advisable." It was recommended that these quarters not be repaired or replaced as they were very old and heavily damaged.(188)

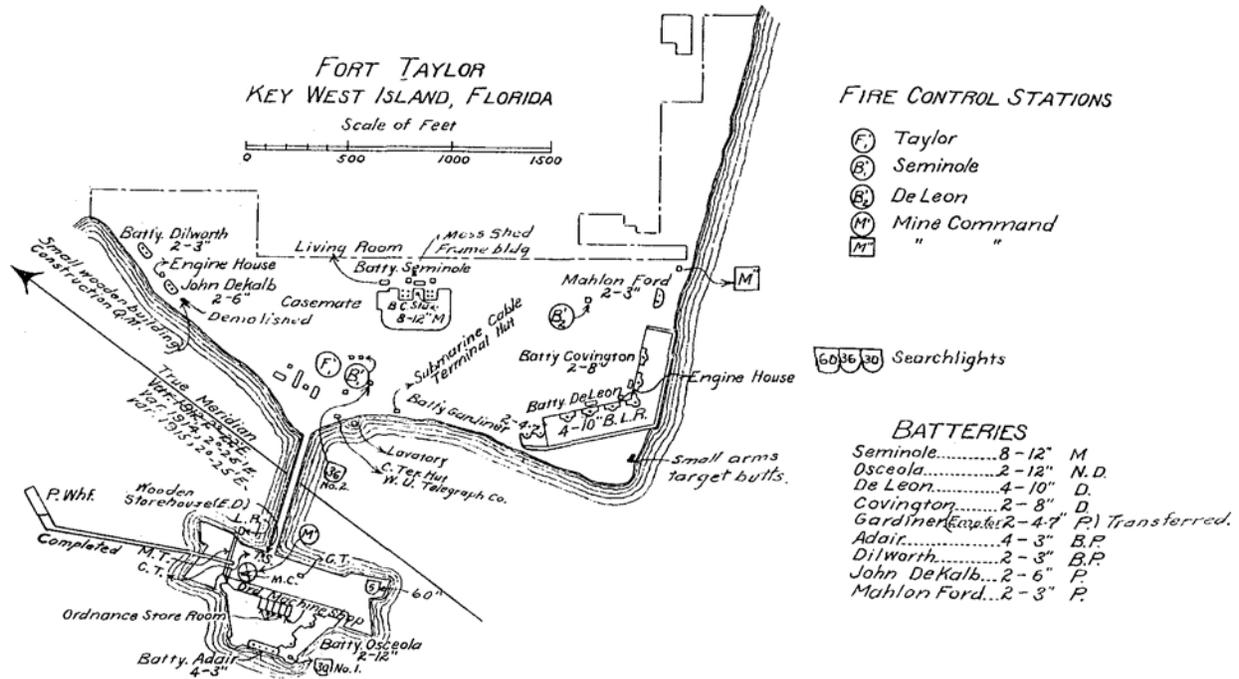
Screens at several sets of officers' quarters and the barracks occupied by the 89th Company and 9th Band were blown out and required replacement to enable the structures to be reoccupied. Other buildings damaged were repairable and \$3,000 was allotted for repairing damage so there were sufficient barracks, quarters, guard house, storehouses, stables, and a pumping plant in fairly good condition to provide for the garrison then posted at Key West.(189)

Funding of repairs was kept to the absolute minimum as the future of Key West Barracks was still in a state of flux; it was still contemplated that the garrison would be relocated to Fort Taylor once new barracks were erected at the fort. The fences around the barracks reservation were partially blown down by the storm and measures were taken to rebuild much of it with salvaged materiel.(190)

At Fort Taylor the old dumping wharf on the east edge of the reservation was demolished and carried away by the storm. The target range was ruined. A portion of the new wharf under construction west of the masonry fort by the Corps of Engineers for the joint use of the engineers and the Quartermaster Department was partially destroyed by the storm. Repairs and continuance of the project had, however, been undertaken by January 1910.(191)



Key West Island as it appeared in March 1916. (NARA)



Fortification elements at Fort Taylor Reservation in 1916. (NARA)

Fire Control Reviewed in 1917

After war broke out in Europe in 1914, measures were taken to upgrade the nation's coastal defenses. But it was not until February 28, 1917, that significant planning began to improve the fire control of the seacoast batteries. On that date Lt. Col. William C. Davis, CAC, was ordered to review the fire control plans at the seacoast defenses within the Eastern Department. In April 1917, Maj. James F. Boll, CE, was detailed to assist Col. Davis, and those two officers, along with the commanding officers of the various fortifications under review, formed a board of three officers to carry out the review. Col. Davis and Maj. Boll arrived in Key West in June 1917 and with Maj. Elijah B. Martindale Jr., commanding officer at Key West Barracks and Fort Taylor, met on June 16, 1917, to conduct a study of the fire control system at Key West.(192)

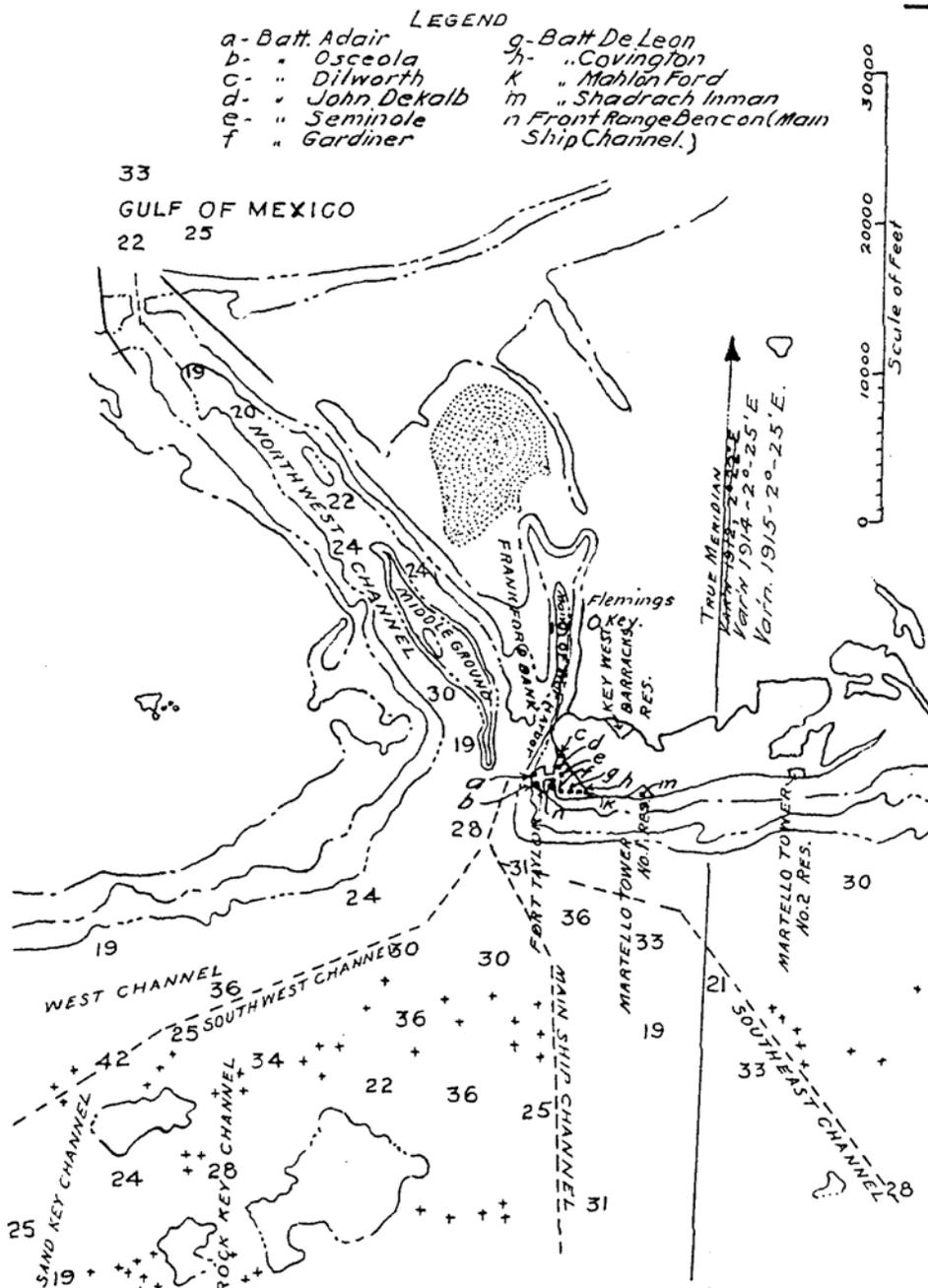
The board noted that if an enemy were to gain control of the seas in the vicinity of Key West, the island and the military and naval installations thereon would become vulnerable to bombardment at ranges of 17,500 to 18,000 yards by hostile naval forces to which none of the seacoast armament could reply. The maximum range of Battery Osceola, Fort Taylor's most powerful battery, was barely 13,400 yards. After modification of the carriage to increase its range, the gun would still only be able to attain a range of 17,400 yards. Further, this most powerful battery in the defenses, as well as Batteries Covington, Adair, and Ford, could be taken in reverse by hostile vessels firing from the Northwest Channel. Hostile warships laying off the Southeastern Channel at a range of between 17,000 and 18,000 yards could enfilade Batteries Seminole and DeLeon, and take Batteries DeKalb and Dilworth in reverse. While the board recommended that the existing armament on disappearing carriages be modified to increase their maximum ranges, this measure would only keep enemy vessels at or near their own maximum ranges and would not guarantee the safety of Key West Harbor.(193)

An enemy bombardment, if successful in silencing the guns at Fort Taylor, would enable him to follow up with landing parties and send in mine sweeping craft to clear the submarine mines in the channels. Additionally, by bombarding the viaducts of the Florida East Coast Railway along the keys at strategic locations such as Seven Mile Bridge, the line of communication with the Florida mainland would be severed and Key West's supply line interrupted.(194)

The Davis Board found that the existing fire control installations were rudimentary at best and called for the establishment of additional stations. The fire commander's station was serving as the fort command or "C" station as well as the primary station for the first fire command (F'1) and primary station (B') for Battery Seminole. The board recommended that the tower be rebuilt and its function altered. The eight-foot by eight-foot right hand observing room to be used as the "C" station on a temporary basis and the F'1 station and the left hand room to be assigned as the B' station for Battery Osceola, and that a five-foot-square observing room be built around the instrument pier. Telephone booths were to be built at the base of the tower. Battery Seminole's B" station was housed in a dilapidated frame building located on the West Martello Tower Reservation. Its instrument was sited 20 feet above the ground on a wooden pier which had rotted out.(195)

Directly in front of Battery Seminole and some 110 yards north of Battery Covington was a 70-foot steel-frame tower that had been transferred to the garrison in April 1902. The galvanized-iron 10-foot-square house atop the tower was, in 1910 as it had been since 1902, serving as the B' station for Battery DeLeon. The board recommended that this station be reassigned as the new command post for the coast defense commander or "C" Station and provided with telephone booths at its base.(196)

The function of the two-story concrete double primary station for the mine command (M') atop the 1897 mine casemate on the coverface of the fort remained unchanged. Its two upper floor observ-



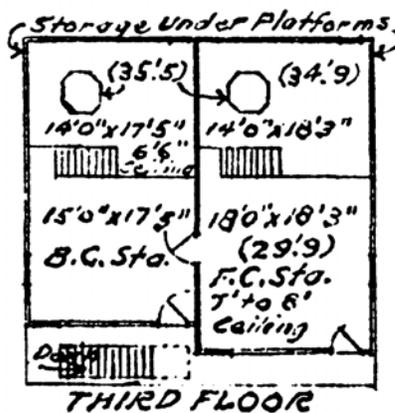
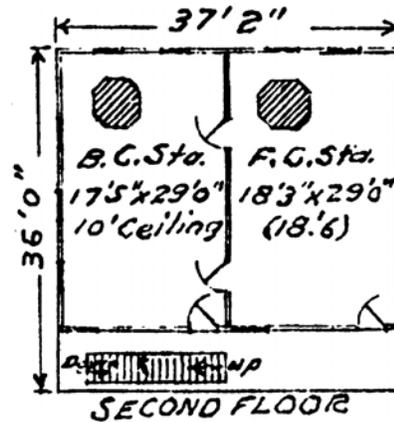
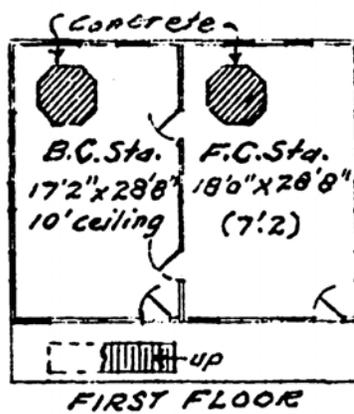
Southeast Channel is safe for vessels of 15' draft. M.L.W

Main Ship	"	"	"	"	"	29	28	"	"	"
Sand Key	"	"	"	"	"	16	"	"	"	"
Southwest	"	"	"	"	"	17	"	"	"	"
Northwest	"	"	"	"	"	17	"	"	"	"

GULF STREAM

Mean rise and fall of tide at Key West is 1.5 ft.
 Mean " " " on the Northwest Bar is 2.5 ft.
 From the junction of the Southeast, Main Ship, Sand Key, and Southwest Channels, near Whitehead Spit to Man O' War Harbor, the channel is safe for vessels drawing 26 feet.
 24

Man of War Harbor, Key West, March 1916. (NARA)



First, Second and Third Floor Plans, Combined F-B Osceola Station at Fort Taylor, Key West, Florida.

10 20 40 60 Ft.

Floor plans of the three-story frame building that served as the primary stations for Battery Osceola and the first fire command. (NARA)

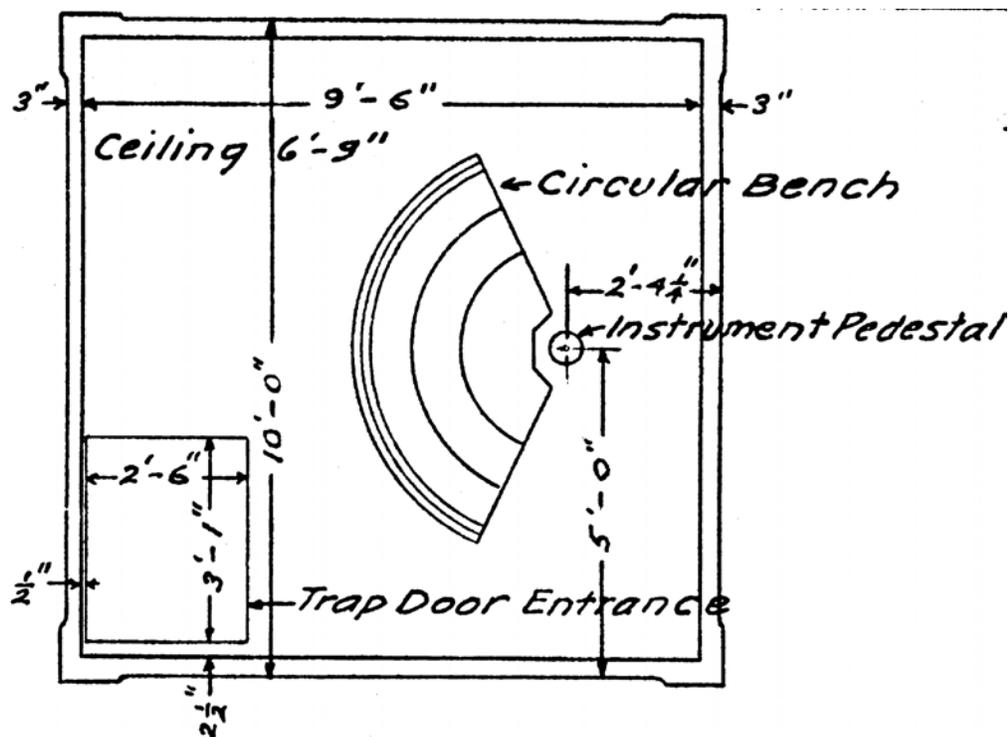
ing rooms had Type B Lewis position finders with instrument heights of 31 feet when installed. In 1914, the instrument height had been raised one foot. This station was protected by a sand traverse. The concrete double M" station located to the left of Battery Ford was also retained in its original service. The M" station was also equipped with two Type B Lewis position finders.(197)

The Davis Board, having examined the existing fire control structures, recommended that the coast defenses be reorganized into a fort command consisting of two fire commands and a mine command. It also recommended eight new fire control stations and that coincidence range finders be supplied to the rapid-fire batteries of the mine command and provided the necessary equipment for their battery commander's stations.(198)

Three of the eight new stations, primary stations for Batteries DeLeon, Covington, and Seminole, were to be scattered around the Fort Taylor Reservation. The other five, secondary stations for Batteries Osceola, DeLeon, Covington, and Seminole, and the first fire command, were to be located in an east-west line on the West Martello Tower Reservation just west of the Martello tower. Both the new primary and secondary stations were to be constructed of reinforced concrete and steel atop steel frame towers erected by Corps of Engineers. The primary stations were about 45 feet tall while those at the West Martello Tower site were about 35 feet tall.(199)

The observing rooms of these eight stations were of standardized design; each measuring nine-feet, six-inches by ten feet. In the right rear corner of the observation room was a trap door in the floor three feet, one inch, by two feet, six inches, for the ladder providing access to the room. Each observing

room was to be provided with a Type B instrument supported by a concrete instrument pedestal with a diameter of two feet, four and one-half inches. A semicircular wooden bench around the pedestal was provided for the observer. Electric power for the secondary stations at the West Martello Tower was provided from the power plant for Searchlight No. 4. Power for the primary stations at Fort Taylor was provided by Battery Seminole's power plant. (200)

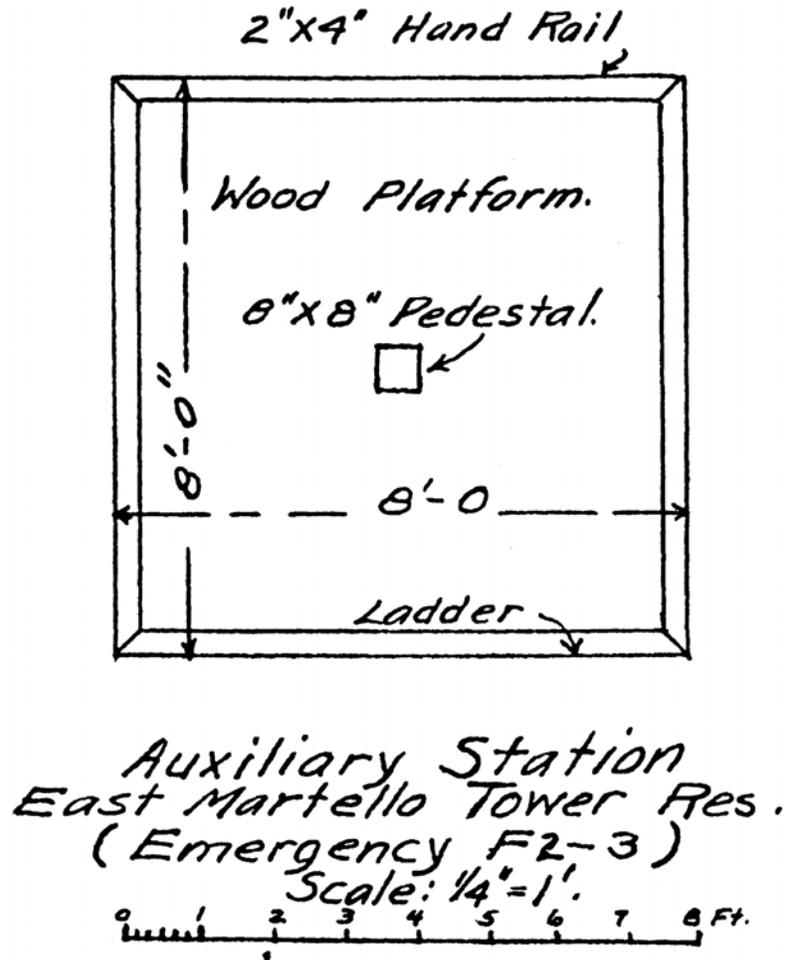


*Floor Plan B Primary DeLeon Station.
Fort Taylor, Fla.*

Scale of feet. 0 1 4 8

Standardized plan of the fire control stations recommended by the Davis Board and built at Fort Taylor shortly after World War I. (NARA)

As a supplement to the primary and secondary stations, the Davis Board also recommended a separate and independent system of auxiliary stations. Two stations for the first fire command were to be provided at the East Martello Tower Reservation along with an additional station at the observation tower of a proposed airfield to be built at the navy's radio receiving reservation some 2,000 yards north of the East Martello Tower. A fourth station was proposed for the water tank at Key West Barracks. The second fire command, Battery Seminole's mortars, was also slated for auxiliary fire control stations: one atop Key West Barracks' water tank, another to be at the East Martello Tower Reservation. The mine command also had an auxiliary station on the barracks water tank and another on the paradots at the rear of the mine command's primary station. (201)



Standardized floor plan of the auxiliary or emergency fire control stations built at East Martello Tower.
(NARA)

The Davis Board also recommended spotting stations for the mine command and the first fire command, on the navy's radio mast. Local approval by the navy for both spotting stations was quickly obtained, with final approval by the Navy Department. Communications from these auxiliary stations were to be carried on the island's commercial telephone lines for the most part.(202)

Open-roofed structures for coincidence range finders (CRF) were also proposed for the rapid-fire batteries of the mine command. Battery Dilworth's CRF station was to be atop a concrete power house near the right flank of Battery DeKalb.(203) Battery DeKalb's CRF station was to be built 40 yards to the left of its No. 2 6-inch disappearing gun. Battery Adair was to receive a station for a 9-foot CRF some 40 feet to the right of the battery's No. 1 gun. Battery Ford's station for a 15-foot CRF was to be midway between the right flank of Battery Ford and the left flank of Battery Covington.

Although the guns of Battery Gardner had been dismantled when the Davis Board examined Fort Taylor, the board recommended that if the battery was to be rearmed, then a CRF station be built about 30 yards to the right of the battery. Battery Inman, at the West Martello Tower Reservation, was slated to receive a 15-foot CRF 40 yards to the left of its No. 2 gun emplacement. The CRF was to be stored at Fort Taylor until the battery's armament was emplaced.(204)

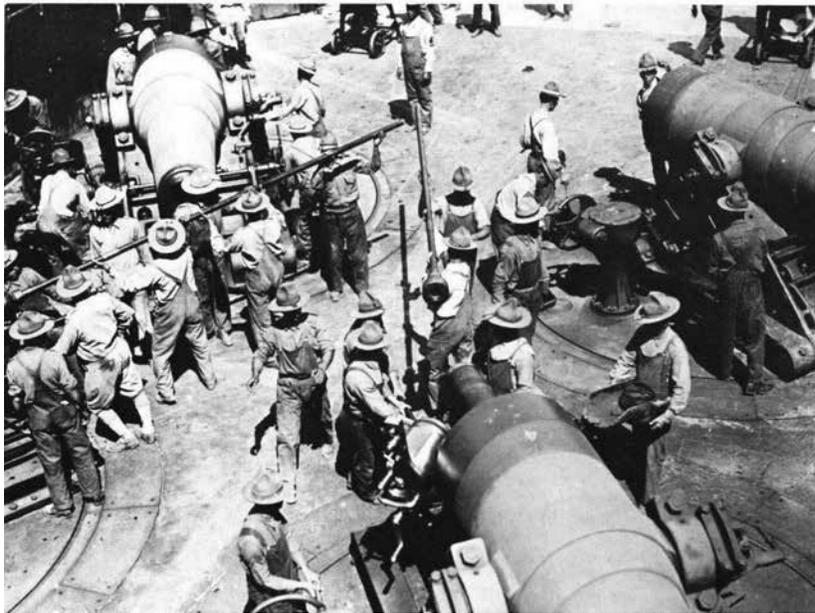
Col. Davis and the board also noted that by using a universal type plotting board in all the major-caliber batteries, the fire commanders could reassign any battery from one base line to another when necessary. The board also suggested that all communication lines from observation stations be routed through a fire control switchboard room. This would permit the rapid realignment of base lines as required.(205)

The board recommended that in general communication lines be of subterranean cable and that the lines run from the switchboard room in the right flank of Battery Gardner to the East Martello Tower via the West Martello Tower, with a second line from the switchboard room to Battery Osceola. The remaining communication lines at both Fort Taylor and the West Martello Tower Reservations were to consist of armored subterranean cable in trenches covered with protecting planks. The board noted that a better protected fire control switchboard room was required and ranked that element of the defenses ahead of the new fire control stations and searchlights.(206)

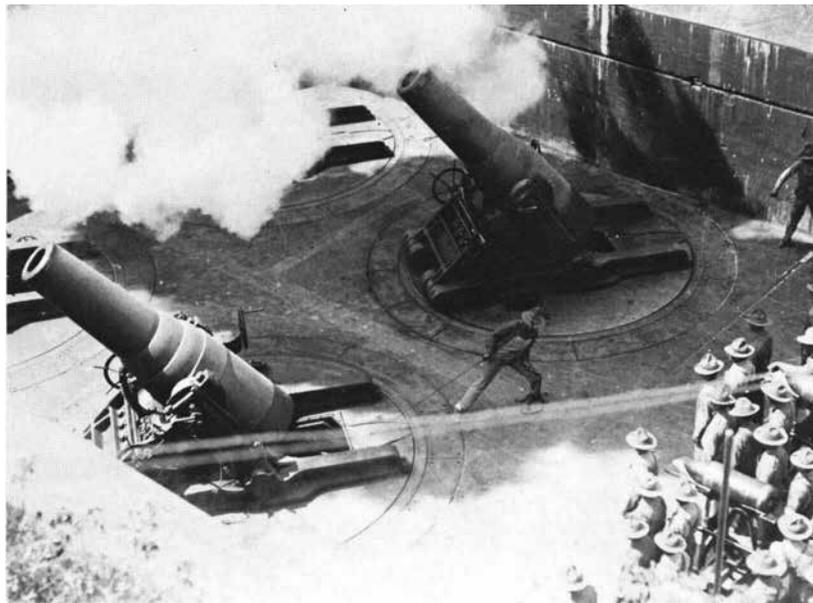
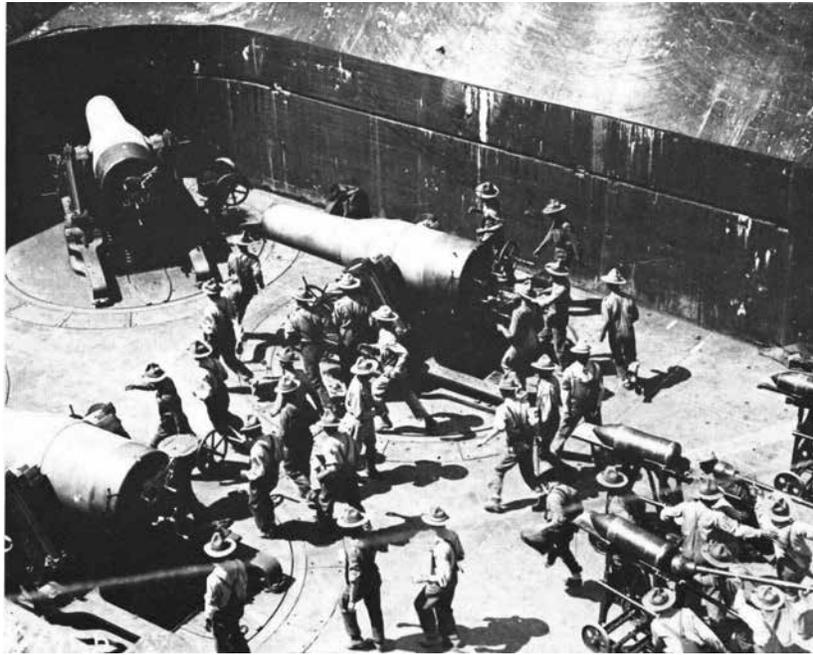
Implementation of many of the Davis Board's recommendations were carried out in spite of the higher priority granted other coast defenses during the World War. On September 20, 1917, District Engineer Col. John Millis forwarded plans and estimates for the construction of coincidence range finder stations for Batteries Adair and Dilworth. Both batteries were to receive 9-foot CRF instruments. In November 1917, the plan and cost estimate for constructing a 15-foot CRF station for Battery Ford at Battery Covington was submitted. In January 1918, allotments were made for 9-foot CRF stations for Batteries Adair and Dilworth and a 15-foot CRF for Battery Ford. Each of the 9-foot CRF units was to be equipped with three wall telephones and head sets, one pair of field glasses, a stopwatch, two push buttons, two interval bells, and a megaphone. Similar equipment was to be supplied to Battery Ford's CRF station, in the empty No. 4 gun emplacement of the adjacent Battery Covington.(207)

Construction was slow in getting initiated, and only the CRF stations for Batteries Adair and Ford had been built when in 1920, the War Department declared the M1898M1 Driggs-Seabury carriages for 3-inch rapid-fire guns obsolete and ordered their removal and salvage from the coast defenses. The guns were to be placed in storage pending remounting on newer carriages. The order also canceled construction of the CRF stations for such batteries unless construction was "actually in progress." This order resulted in the inactivation of Batteries Adair and Dilworth, the two batteries at Fort Taylor armed with the Driggs-Seabury ordnance. The CRF station for Battery Adair had been completed in 1919 and transferred to the garrison on March 5, 1919. The CRF emplacement for Battery Dilworth not having been begun when the War Department order was issued, was canceled. Battery Ford, armed with M1903 guns, was not affected by the order.(208)

On October 29, 1918, in accord with the Davis Board Project, the district engineer established the required dimensions for the plotting rooms for the Key West gun and mortar batteries. The plotting room at Battery Osceola was to be 30 feet by 10 feet, in a room at the battery. Battery DeLeon's plotting room was to be in the battery's former eight by thirteen-foot relocating room. A 10 by 22-foot storeroom in Battery Covington was to be converted into that battery's plotting room. Battery DeKalb's plotting room would measure 10 by 20 feet, and the plotting room for Battery Seminole would measure 12 by 16 feet. In light of the disarming of some of the batteries, plotting rooms in the unarmed batteries would not be built unless they were rearmed.(209)



Mortar firing drill at Battery Seminole (NARA)



Mortar firing drill at Battery Seminole (NARA)

Seacoast Searchlights Updated and Their Coverage Expanded

In conjunction with the gun and submarine mine defenses, searchlights illuminated the various mine fields in the harbor channels. In January 1906, Chief of Engineers Brig. Gen. Alexander Mackenzie had advised Capt. F.R. Shunk, the district engineer in Florida, that a 36-inch searchlight outfit consisting of a searchlight projector truck and a generator truck was to be provided to Fort Taylor. As this light and generator was to be drawn by horses of the Quartermaster Department, Mackenzie recommended that the shelter for the light be located near the Quartermaster's stables.(210)

A second 36-inch searchlight outfit was provided prior to the artillery exercises of 1907, during which both engines running the dynamos powering the 36-inch lights malfunctioned. The wet cell batteries proved insufficient to start the engines and each had to be supplemented with six dry cells.(211)

The obsolete 30-inch searchlight installed during the Spanish-American War was still in service on the west parapet of the Third-System fort at a height of 27 feet. In April 1915, a 60-inch Sperry High Intensity Seacoast Searchlight with 180,000,000 candlepower, manufactured by the GE Co., was received in the coast artillery district. The board recommended that the 30-inch light be replaced by the 60-inch light. The 30-inch light was retained for signaling purposes only. The 60-inch searchlight was temporarily positioned on a 40-foot wooden-frame tower supported by concrete pillars when the light arrived at Fort Taylor. The light however, was directly in front of Battery Osceola's No. 2 gun when it was trained to cover a critical sector of fire to the southeast. The light was powered from a powerhouse inside the fort on Battery Osceola's left flank. The light was transferred to the coast artillery on December 16, 1915.(212)

When the Davis Board examined the Coast Defenses of Key West in June 1917, it also reviewed Key West's three searchlight installations. The most powerful of these lights was the 60-inch light about 110 yards to the left of Battery Osceola's left flank. The board recommended this light be moved 75 yards north opposite the old mine cable tank. There a 40-foot wooden frame tower on concrete piles was erected on the Fort Taylor coverface. The installation consisted of a wooden house measuring 15 feet in width, 17 feet, 10 inches in length, and 13 feet in height, that sheltered the light with a metal roof. When placed in operation, the light, mounted on a steel frame car, was run out of the shelter on a set of rails. The controller for the light was temporarily installed in the B' station for Battery Seminole. The controller was to be permanently located in the relocated F'1 station.(213)

A 36-inch searchlight with 61,000,000 candlepower, 500 yards to the left of Battery Ford near the Union Street Gate to the reservation, was inoperative. The Davis Board recommended that the number of searchlights be increased to six; four to be located at Fort Taylor and two at the West Martello Tower.(214)

Light No. 1 would be a new 36-inch searchlight on a 40-foot disappearing tower near the north edge of the Fort Taylor Reservation some 75 yards north of the right flank of Battery Dilworth. Its controller was to be located in the battery commander's station at Battery DeKalb. It would be connected by aerial telephone lines to the "C" station.

No. 2 Searchlight was a new truck-mounted 36-inch light on the northwest parapet of Fort Taylor so that it could be moved along the parapet. The light was to be controlled from the mine command's primary station. A telephone line connected the primary station with the "C" station. The board recommended that the light be kept in a protected casemate during the day. The board also recommended that the light be operated from the casemate with its beam being projected seaward by a mirror.

No. 3 Searchlight was the existing 60-inch light that was to be moved to the new position on a 60-foot disappearing tower near the old cable tank.

No. 4 Searchlight then undergoing repairs was the existing 36-inch light to the left of Battery Ford. The board recommended that when the light was repaired it should be placed atop a 40-foot disappearing tower and controlled from the "C" station.

No. 5 Searchlight was a new 60-inch light that was to be on a 60-foot disappearing tower between the West Martello Tower and the group of secondary fire control stations. This light would be controlled from the F"1 station and connected by telephone lines to the "C" station.

No. 6 Searchlight was a new 36-inch light atop a disappearing 40-foot tower. The light would be controlled from the battery commander's station at Battery Inman. As was the case with the other searchlight controllers, the controller booth was connected with the "C" station by aerial telephone lines.

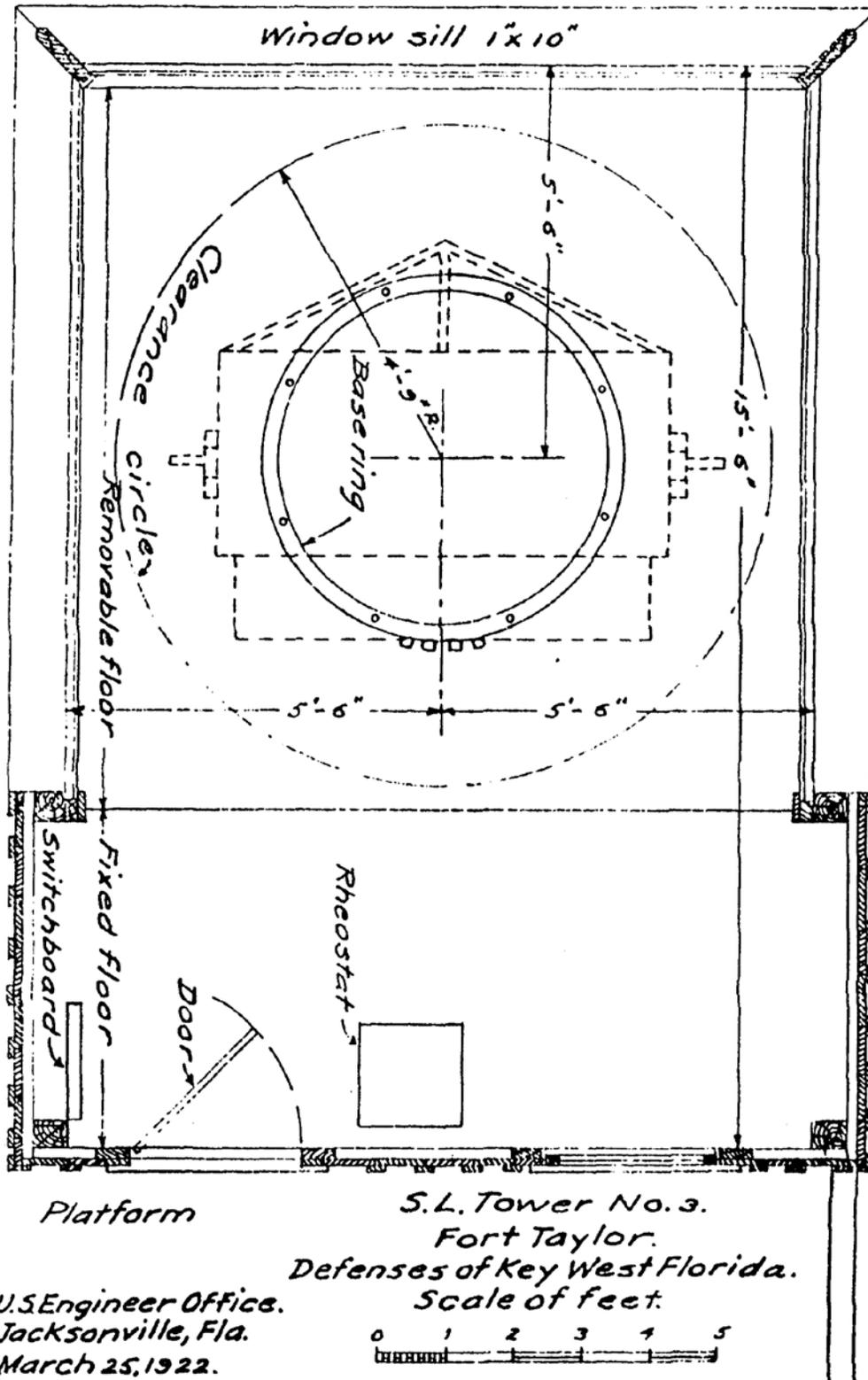
Power plants for the searchlights were to be located in protected positions near the searchlights they served, their power cables provided with ample protection.(215)

In June 1920, four 60-inch Sperry-type antiaircraft searchlights manufactured by GE were received at Key West. The searchlight emplacements and their powerplants were prepared in 1921 and on February 16, 1922, the four new searchlights were transferred to the troops. These four searchlights and the fixed light on the coverface were given new numerical designations. The light installed in April 1915 on the coverface became Searchlight No. 2. Searchlight No. 1 was on the northwest parapet of Fort Taylor. Here, a 23-foot frame tower was built on the brick parapet. On top of the tower some 51 feet above the water was the searchlight shelter, a wooden house measuring some 12 by 15 feet. Shutters on three sides of the house could be opened when the light was being operated. Searchlight No. 1 was controlled from the signal station atop the original mining casemate on the coverface. The light and its controller were powered by a searchlight powerplant in the former torpedo storeroom of the combination cable tank and torpedo storeroom on the northeast end of the coverface.(216)

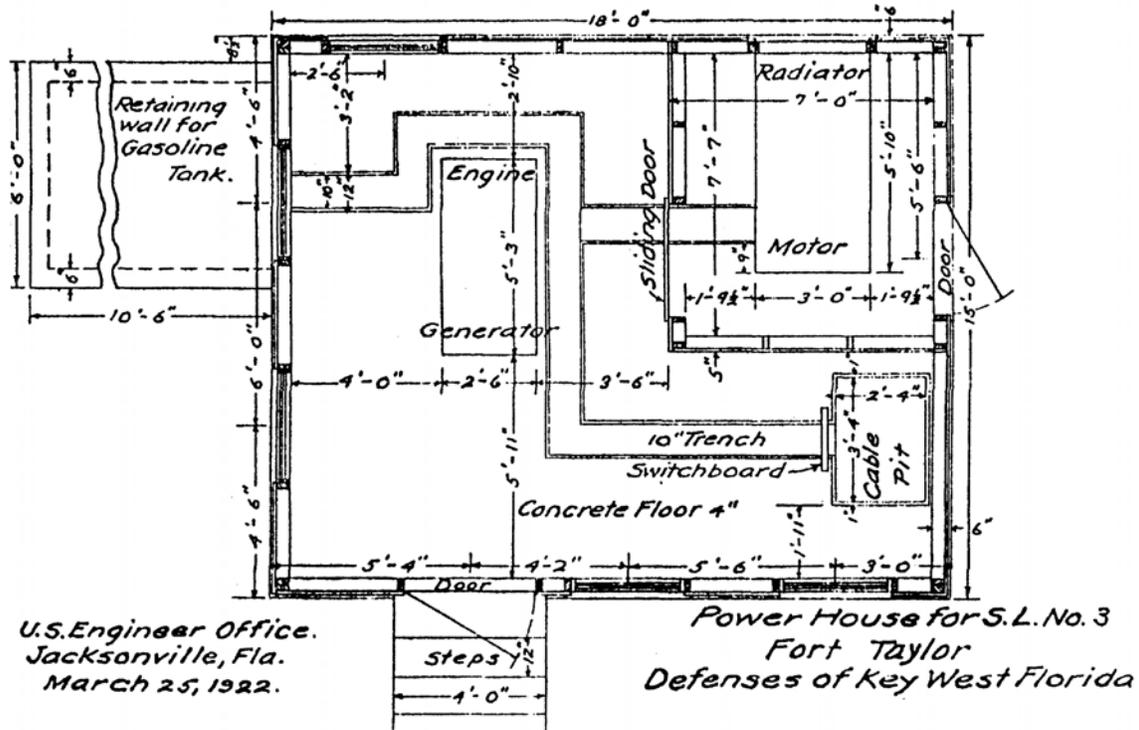
Searchlight No. 3 was installed at the east end of the Fort Taylor Reservation, about 900 feet east of Battery Mahlon Ford. This light was enclosed in a wooden house measuring 12 by 15 feet, and like Searchlight No. 1, it too had shutters on the three sides facing the water. The house was set atop a 40-foot tower of concrete piers. A DL-1916 type controller was set up in the fort commander's station, with power supplied from a 25 kW generator in a 15 by 18-foot frame building sheathed with corrugated sheet iron.(217)

Searchlight No. 4 was installed at the West Martello Tower Reservation. Here, atop a 60-foot tower of concrete piles, was a standard-sized wooden shelter of the same type provided to the other lights installed in 1921. The tower stood about 175 feet west of the Martello tower. The light and its controller were powered from a searchlight powerplant in a frame corrugated sheet-iron building some 50 feet north of the tower. The controller was located in the B" station for Battery Osceola near the Martello tower.(218)

The last of the searchlights, No. 5, was installed atop a standard 40-foot searchlight tower in the east corner of the West Martello Tower Reservation. Its powerplant was some 50 feet north of the searchlight tower and the light's controller was installed in Battery Shadrach Inman's CRF Station atop the Martello tower. These five fixed searchlights comprised the searchlight defenses of Key West Harbor until World War II, when the searchlight project was revised.(219)



Plan of Searchlight Installation No. 3. (NARA)



Plan of power house for Searchlight No. 3. (NARA)

The Artillery Is Reorganized

By the turn of the century, it had become increasingly clear that the service of artillery had taken a revolutionary turn. The advent of electro-mechanical devices that were being used in the modern disappearing guns required skilled electrical specialists and engine mechanics. Advances in ballistics coupled with new means of range finding created a need for artillerymen with computational skills more advanced than that required of traditional artilleryman. Consequently, in February 1901, Congress authorized the reorganization of the United States Artillery. The seven regiments of U.S. Artillery were broken up and an artillery corps of 126 coast artillery companies and 30 batteries of field artillery was to be substituted in their stead. The organizational structure of the coast artillery companies would remain in force, with some modifications, for the next 23 years.

As a result of the 1901 reorganization, Battery N of the 1st U.S. Artillery was redesignated the 11th Company, Coast Artillery, Artillery Corps. On October 1, 1901, half of the personnel of the 11th Company was used to organize the 121st Company, Coast Artillery, Artillery Corps, commanded by Capt. George A. Nugent. At this time Batteries Adair, Dilworth, and Gardner were the only batteries in actual service at Fort Taylor. The finish work on Batteries DeLeon and Covington was still being slowly advanced. Battery Osceola was only transferred the day after the reorganization of the artillery. The 122nd Company, under Capt. Henry W. Butner, was transferred from Fort Hamilton, New York Harbor, to Key West in the fall of 1902. The 11th, 121st, and 122nd Companies and the 9th Coast Artillery Band constituted the Key West garrison until 1907.(220) Capt. Waldron transferred to the Corps of Engineers on January 18, 1902, and Capt. Oscar L. Straub succeeded to command of the 11th Company.(221)

In 1907, the Artillery Corps was separated into the Field Artillery and a Coast Artillery Corps (CAC), the latter being formed from the 126 companies of coast artillery that had formed part of

the Artillery Corps. The various colonial territories acquired at the turn of the century required forces for their defense. Because of their distant locations from the continental United States, the territories of Hawaii, the Philippines, and the Panama Canal Zone would require full peacetime complements of coast artillery to man the gun and mortar batteries and mine defenses. To meet these increased needs, in 1907 the CAC was authorized 708 officers and 19,321 enlisted men and an additional 45 companies of coast artillery to bring the number of companies in the CAC up to 170. Between 1907 and 1916, the number of companies on foreign service grew to 41 companies. Even with the corps' augmentation of 45 companies, it became necessary for the War Department to reduce the authorized strength of the Regular Army garrisons of the coast artillery posts to what amounted to about half strength, although the number of personnel required to operate the mine defenses and power plants were to be maintained at full peacetime levels. Even this measure caused 13 of the 78 continental coast artillery posts to be reduced to either one-company posts or to be placed in caretaking status. Of the latter, 32 were ungarrisoned except for small caretaking detachments that frequently numbered a dozen men or less.(222)

The 1907 reorganization resulted in a brief increase in the Key West garrison. In April 1907, the 80th Company, CAC, was transferred to Key West from Fort Schuyler, NY, in exchange for the 11th Company that was transferred from Key West to Fort Schuyler in May of that year. In November 1907, the 162nd Company, CAC, was organized at Fort Barrancas, FL, and was ordered to Key West as a mine company when it arrived on November 27. At the end of 1907, Key West was garrisoned by four companies of Coast Artillery: the 80th, 121st, 122nd, and 162nd, and the 9th Coast Artillery Band. In March 1909, after some eight years of duty at the island city, the 122nd Company returned to the post where it had been organized, Fort Hamilton, New York.(223)

Following the hurricane of October 11, 1909, the 162nd Company was moved to Fort Dade on Egmont Key, at the mouth of Tampa Bay, in November 1909, and in 1910, the 121st Company was transferred to Fort Screven at the mouth of the Savannah River in Georgia. This reduction in Key West's garrison reduced the garrison to a single company, the 80th Company, CAC, commanded by Capt. Edward Kimmel.(224)

After seven years of construction, Key West was finally linked to the mainland by a railroad. The Florida Keys extension of Henry M. Flagler's Florida East Coast Railway was completed on January 22, 1912, at a cost of \$500,000,000. With its completion an uninterrupted flow of coal from the mainland was assured for the navy's Key West coaling station. When President William H. Taft arrived in Key West on his way to inspect the Panama Canal then under construction, he arrived on Flagler's Florida East Coast Railway, where he was rendered honors by the 80th company, CAC. Fort Taylor and Key West Barracks were garrisoned by the 80th Company until it was redesignated in 1916.(225)

Corps Of Engineers Cleans Up the Fort Taylor Reservation

In 1909 and 1910, hurricanes caused considerable damage to structures and installations on the reservation. By July 1911, however, much of the storm debris, and the form timbers used in the construction of the new concrete mine wharf had been cleared away and the usable wood was stacked neatly.

The form lumber was "piled as compactly as practicable on the coverface at Fort Taylor, between the old cable tank building and the east flank of Battery Osceola." The salvaged deck planking from the wooden approach to the old wharf was piled on the edge of the coverface apron just to the south of the dynamite service room. A site some 200 feet in front of a fire control station, formerly occupied by Storehouse No. 1 that was destroyed in the hurricane of 1909, had become a dumping ground for

hollow ceiling tiles and scrap iron. A substantial shed to house a three-drum Lidgerwood engine was built on the site of the old engineer stable, which was totally demolished in the 1910 hurricane.(226)

Fort Taylor in the World War 1914-1918

When war broke out in Europe in the summer of 1914, the U.S. War Department lost little time in reviewing the nation's coastal defenses and took steps toward augmenting the army. As part of this augmentation, the Coast Artillery Corps was authorized a 50 percent increase to be carried out in five increments over the next five years. The first increment resulted in the organization of 17 companies. Key West's garrison was, however, not included in this increase.(227)

In the summer of 1916, the War Department ordered a redesignation of the companies manning the coastal defenses. The serially numbered separate companies of the CAC were renumbered serially as companies of the post at which they were stationed. Thus the 80th Company, CAC, became the 1st Company, Key West Barracks, in 1916.(228)

The 1st Company, Key West Barracks, was the only coast artillery unit available for duty at Fort Taylor when the United States declared war on Germany on April 6, 1917. This shortage was alleviated to some extent on June 1, 1917, when the 2nd Company, Key West Barracks, was activated with personnel from the 1st Company; whose ranks were filled out with new recruits. Despite this augmentation, the post was severely undermanned.(229)

The two companies at Key West were again redesignated in August 1917, becoming the 1st and 2nd Companies, Coast Defenses of Key West, respectively. It was not until October 1917 that Fort Taylor added a third company with the arrival of the 1st Company, Florida National Guard, CAC, which was redesignated the 3rd Company, Coast Defenses of Key West. At the end of December 1917, the garrison at Key West was still below its authorized enlisted strength of only 435 men. These troops were about evenly divided between Regular Army personnel, National Guard troops, and newly drafted men of the National Army. A fourth company was finally constituted for the Key West defenses in 1918. This new company, organized at Key West Barracks on January 21, 1918, with a cadre of 20 enlisted men from the 1st, 2nd, and 3rd Companies, was designated the 4th Company, Coast Defenses of Key West. It was comprised largely of Cuban-American recruits residing in the lower keys. With the coast defenses now at authorized strength, these four companies had the additional mission of providing for the land defenses of Fort Taylor through the remainder of the World War.(230)

The 1st Company, serving as the mine company of the coast defenses, manned Battery Adair with an additional assignment manning machine guns covering the land approaches to the post. The 2nd Company manned the mortars of Battery Seminole as well as a battery of two 2.24-inch and four 3.2-inch field guns as their land defense assignment. The 3rd Company manned Battery DeLeon as well as four 3.2-inch field guns. The newly organized 4th Company was assigned to Battery Osceola and four more 3.2-inch field guns. In September 1918, the 1st Company was reassigned to Battery Shadrach Inman.

In early April 1918, Headquarters, South Atlantic Coast Artillery District, at Charleston, SC, advised the commanding officer of Fort Taylor that the U.S. Army Mine Planter *General John M. Schofield* would be available from July 25 to August 17 for the 1st Company's annual mine practice.(231)

Near the end of September 1918, the Coast Defenses of Key West were called upon to provide a firing battery for a newly constituted coast artillery regiment that was to be organized at Fort Moultrie, in Charleston Harbor, SC. This regiment, the 36th Artillery, CAC, was to be raised in the South Atlantic Coast Artillery District. Battery B of the regiment was to be organized from troops at Key West. Rather than redesignating one of the existing companies serving at Key West, men were detailed

individually from the four companies then serving in the coast defenses. This reduced the Key West coast artillery garrison by nearly half, as firing batteries for the overseas units often numbered between 150 and 200 men each, while the companies manning the fixed gun and mortar batteries in the coast defenses frequently numbered less than one hundred men each. Battery B of the 36th Artillery was transferred to Camp Eustis, VA, in October, and in November to Camp Stuart, VA, prior to staging for France. The November 11 Armistice ending the World War came before the 36th Artillery could be dispatched overseas and the regiment was demobilized in December 1918 at Fort Monroe, where most of the men were discharged and the remainder reassigned.(232)

The end of the World War brought a rapid demobilization of the wartime army. At Key West, the 3rd and 4th Companies, organized from the National Guard and the National Army, respectively, were quickly demobilized and their personnel discharged; their Regular Army personnel reassigned to the two remaining companies in the coast defenses.(233)

When a mine planting exercise was scheduled for Key West between September 21 and October 9, 1919, there were so few troops left in the two companies remaining in the coast defenses that it was questionable whether mine practice could be carried out. This was a common occurrence in the immediate postwar period and the coast defense commanders were, in conjunction with the commanding officer of the mine planter, given the discretion to cancel that year's mine practices. By this time the submarine mine project was being eliminated from Key West's defense plans.(234)

The two companies at Key West were recruited up to nominal peacetime strength during 1919 and 1920. The 1st and 2nd Companies, being Regular Army organizations, constituted the Key West garrison until the middle of 1921, when sufficient men had been recruited to activate a new 3rd Company. The 1st and 2nd Companies each had 92 men and occupied quarters at Fort Taylor, while the 45 men of the newly organized 3rd Company were quartered at Key West Barracks. The 1st Company was assigned to Battery Osceola, while the 2nd Company manned the four remaining the 12-inch mortars of Battery Seminole. The 3rd Company operated the searchlights and power plants, while manning the fort and fire command fire control systems.(235)

Garrison life in the postwar years was not all business. There were regular recreation opportunities for "smokers" and other athletic activities, and the climate enabled outdoor activities year-round. Teams from the various military and naval installations on the island of Key West traveled to each other's bases for athletic competition. The beaches around the island were also popular and salt water bathing was given credit by some for the garrison's resistance to the annual periods of yellow fever and flu. Measures were taken by the War Department to insure the well-being of the troops. Libraries and service clubs were established.(236)

The rise of Communism in the post-World War era also increased concern in the U.S. Army regarding the impact of "radical propaganda" on the troops. The Morale Branch of the War Plans Division of the War Department soon issued a lengthy circular to all army installations cautioning the post commanders against attempts to subject their troops to the "propaganda and influence of disorderly and radical elements" that might attempt to "undermine the patriotic loyalty of the soldier."(237)

Armament Changes Made

In the years just prior to the outbreak of war in Europe in 1914, America had been focused on the Far East and to the potential of conflict with Japan over American immigration policy. A possible armed insurrection among the large Japanese population in the Territory of Hawaii prompted the War Department to enhance the land defenses of the coastal fortifications on the island of Oahu. In 1913, six 4.7-inch quick-firing and four 6-inch Armstrong guns that had been purchased from Great Britain

on the eve of War with Spain, as well as a pair of 5-inch rapid-fire guns, were dismantled from batteries along the Atlantic seaboard and shipped to Oahu. Battery Gardiner's two 4.7-inch guns were dismantled from the battery and shipped to Hawaii, where they were re-emplaced in Battery Barri on the Bishop's Point Reservation as part of the land defenses of Fort Kamehameha, the coast artillery post protecting Pearl Harbor.(238)

On the eve of the nation's entry into the World War, Fort Taylor's armament consisted of Battery Osceola's two 12-inch guns, the eight 12-inch mortars of Battery Seminole, Battery DeLeon's four 10-inch disappearing guns, Battery Covington's pair of 8-inch disappearing guns, Battery John DeKalb's two 6-inch disappearing guns, and the 10 3-inch rapid-fire guns mounted in Batteries Adair, Dilworth, Inman, and Ford. By the latter months of 1917, the threat of attack by major units of the German High Seas Fleet had become negligible. The decision was made by the War Department to remove a substantial number of heavy and medium-caliber seacoast guns from fixed batteries in the coastal defenses and to remount them on wheeled mounts and railway carriages for use by U.S. troops in France. The removal of Fort Taylor's armament began during the summer of 1917, when some of the batteries were disarmed and their ordnance shipped to various arsenals for modification into mobile artillery. (239)

The four emplacements of Battery DeLeon only served in the defenses of Key West until late July 1917. The first to be disarmed were the 10-inch guns in Emplacements No. 3 and No. 4. The two 10-inch gun tubes, Nos. 64 and No. 34, were to be shipped away on August 5, 1917, and placed in storage elsewhere in the 4th Coast Artillery District. On January 22, 1918, however, the two dismantled guns were still on the reservation awaiting shipping orders. The disappearing carriages remained in place but were eventually sold for scrap. The 10-inch guns in Emplacements No. 1 and No. 2 remained mounted, although later in 1917, their Taylor-Raymond projectile hoists were dismantled and prepared for shipment to an arsenal where they were to be modified to handle long-point projectiles.(240)

Battery Covington remained in service until October 18, 1917, when its pair of obsolescent 8-inch guns were removed and shipped away on October 22 to be prepared for service in France as railway artillery. The conversion process consumed many months and the guns, if actually remounted on railways cars, never reached France. The battery's disappearing carriages were scrapped. Battery Covington's magazines were retained for storing ammunition.(241)

In 1917, the two 6-inch guns of Battery De Kalb were also ordered removed with a view to remounting them on mobile field carriages for service in France. The end of the war, however, found the guns still at Fort Taylor and their preparation for field service incomplete. On July 7, 1919, the guns were ordered dismantled and shipped to Fort Winfield Scott in the Coast Defenses of San Francisco. On October 25, 1919, the guns were dismantled and shortly thereafter were shipped to San Francisco, where they were remounted in Battery Chamberlin.(242)

As early as 1908, the ammunition service at Battery Seminole had been determined to be too slow. The magazine spaces and the mortar pits themselves were too crowded, having been designed in the early-1890s when the time for loading and directing the mortars was much longer. As Capt. George W. Brown noted in 1909: "the hallways are too narrow to permit the men bringing shot from magazines to pass and to handle shot as fast as required." To alleviate this situation, the district artillery commander had suggested that 18-foot shot tables be built under the trolley rail in each gallery at the entrance to the mortar pits. A recommendation in 1915 to reduce the number of mortars per pit to one and to construct six additional pits for single mortars failed to receive the required approval. The overcrowded condition of the pits was at least partially resolved during the World War, when the two forward mortars and mortar carriages in Pits "A" and "B" of Battery Seminole were dismantled and shipped

away to San Francisco on July 23, 1918. This afforded more space for the manning detachments of the remaining mortars and the speed and efficiency of handling was improved.(243)

Following the war, the chief of ordnance was authorized to scrap remaining carriages of the disarmed batteries. Also, the six 3-inch Driggs-Seabury rapid-fire guns emplaced in Batteries Dilworth and Adair were dismantled between October 8 and 15, 1919, and the guns shipped away for storage; their M1898M1 carriages were declared salvage and scrapped. With these reductions in the coastal defenses, the manning requirements of Fort Taylor were also significantly reduced. At the end of the war, the only armament projected for retention in the Coast Defenses of Key West were the two 12-inch guns in Battery Osceola, the four remaining M1890M1 12-inch mortars in Battery Seminole, and the four 3-inch rapid-fire guns mounted in Batteries Ford and Inman. When the Harbor Defense Project for Key West was developed in the 1930s, these batteries were retained in the project. Both Batteries Ford and Shadrach Inman were, however, placed in maintenance status between the world wars.(244)

Fort Taylor Receives 155 MM GPF Guns

On July 7, 1919, the War Department issued orders that would provide a battery of four 155 mm mobile seacoast guns to replace the medium-caliber armament of Batteries DeLeon, Covington, and DeKalb removed during and immediately after the World War. Four M1918 155 mm GPF guns arrived in the coast defenses on August 27, 1919. Each gun was provided with 500 rounds of high-explosive Mk IV-star point-detonating fuzes that were to be stored in battery magazines at Fort Taylor. Three potential battery sites had been selected to cover the Northwest Channel approaches to the harbor. Although it was initially proposed that the guns and their fire control equipment be stored at Key West Barracks, Battery Covington was returned to service when two of the GPF guns were positioned on the parapet slopes of the battery's No. 1 and No. 2 Emplacements. The other pair of guns were set up on the parapet in front of Battery DeLeon's disarmed No. 3 and No. 4 Emplacements. Although essentially abandoned in 1917, Battery DeLeon's remaining two 10-inch guns were still mounted in No. 1 and No. 2 Emplacements. They had apparently been taken out of service when their ammunition hoists had been removed for modification. The four 155 mm guns remained at Batteries Covington and DeLeon through the 1930s, while the post was in caretaking status. The 2,000 rounds of high-explosive ammunition provided with MkIV-star point-detonating fuzes were stored in the magazines of Batteries Covington and DeLeon.(245)



155 mm GPF guns at Key West and later emplaced at Fort Taylor. (NARA)

Hurricane Damages Fort Taylor

Winds picked up to hurricane strength at Key West on September 9, 1919, and for the next 36 hours the Fort Taylor Reservation was subjected to widespread damage. The mine facilities being so close to the water suffered considerable damage: The rear wall of the loading room was completely destroyed and the window sashes, blinds, and doors were so damaged that they required replacement. The new cable tank lost its roof; gutters and downspouts were blown away, and doors and windows blown in by the storm. The 84 mph winds also took off the roofs of the mine command's primary and secondary observation stations and destroyed the sashes, doors, and blinds of those buildings. The mine casemate dormitory had its windows and doors blown in. Damaged roofs and blown-out windows and doors were the general rule at the post.

The stairway on the 60-inch searchlight tower was partially demolished, and the tower housing the B¹ station for Battery DeLeon received damage to its windows and doors. The bridge of Battery Seminole's battery commander's station was torn away and destroyed. The combination fort commander's station and primary station (B') for Battery Seminole had its roof so damaged that it had to be replaced.

A considerable amount of the reclaimed land on which the post was situated was washed out by the combined effect of the storm surge and high tides. Low spots were left holding large amounts of seawater. The West Martello Tower Reservation fared somewhat better than the main post, only its wooden fence required replacement.

Communications with the mainland were temporarily cut off and it was two days after the storm passed that George E. Brown, the superintending engineer at Fort Taylor, was finally able to send a telegram message regarding the damage to the district engineer at Jacksonville. By September 17, Brown had completed a comprehensive survey of the post and arrived at a dollar value of the damages, which he passed on to the district engineer. Brown noted that most of the numerous buildings that had roof damage had also suffered serious water damage to their interiors. He estimated the cost of repairs to be \$5,063.27.(246)

Minfields Are Deleted from the Defenses

With the end of the war, the mine fields were cleared and the mining apparatus picked up and placed in storage. In 1919 however, the decision was made to turn over the area west of the Third-System fort occupied by the old North Battery and the more modern but unarmed Batteries Dilworth and DeKalb to the U.S. Navy. With the transfer of that section of the army reservation went any future submarine mining operations at Key West, which were also transferred. When turning over the submarine mine project to the navy was completed early in 1920, those submarine mine structures still on army property were converted to other uses.

The mine casemate of 1904 was converted into a combination fire control switchboard room and post switchboard room which was moved from the right flank of Battery DeLeon in 1922, when the casemate in the right flank of Battery Seminole was inactivated. The switchboards were set up in the former mine control room, and the structure transferred to the garrison on June 20, 1922. The mining casemate dormitory was made available for the use of the fire control details assigned to the primary group of fire control stations nearby.(247)

The old torpedo storeroom that had occupied the 1st, 3rd, and 4th casemates in the gorge of the old fort on the north side of the sally port were converted to other storage uses. The double primary station of the mine command was converted into a storehouse, as was the old torpedo loading room,

the service dynamite room, and the combined torpedo storehouse and cable tank building. The double secondary station of the mine command was reassigned for the searchlight controller booth for Searchlight No. 4. The mine wharf continued to be used jointly by both the army and the navy.(248)



Aerial view of Key West Harbor and Fort Taylor (upper left) in 1922. (NARA)



Aerial View of Fort Taylor in 1922. Note finger piers of newly established navy submarine base. (NARA)

Fire Control Systems Updated

In response to the recommendations of the Davis Board's review shortly after the United States entered the World War, a plotting room for Battery DeLeon had been set up in a storeroom in the left flank of adjacent Battery Gardner. The battery plotting room was moved back to Battery DeLeon on May 31, 1932, in a room formerly used for the power plant and later as a combination fire control and post switchboard room, in the right flank of the battery.(249)

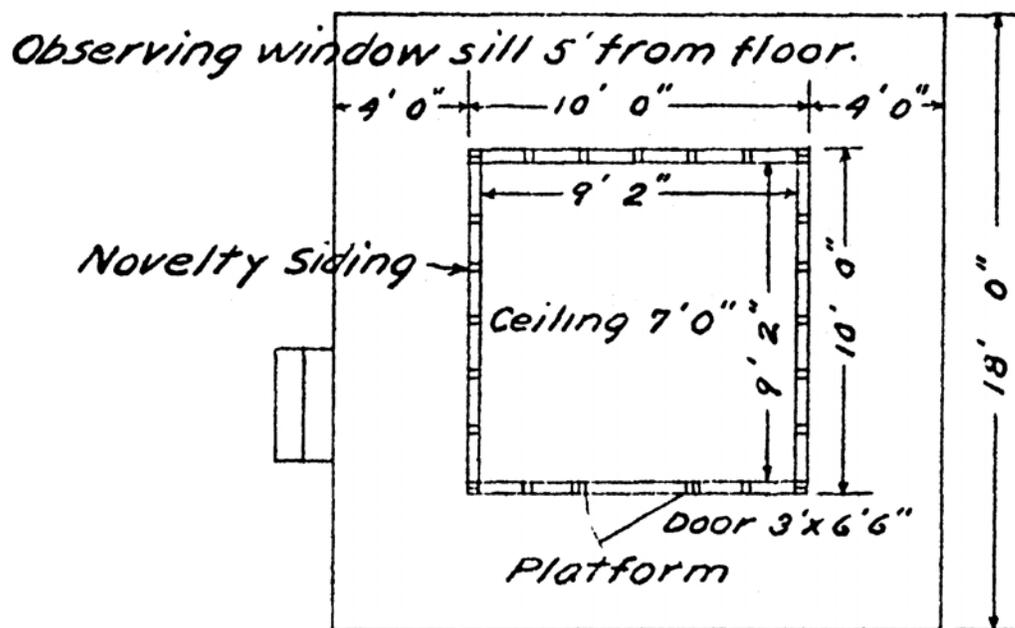
During the course of the World War, plans were developed for the additional fire control installations called for by the Davis Board. Some were begun before the end of the war, but five were not undertaken until after the signing of the Armistice.

Permanent fire control stations for Battery DeLeon consisting of its primary (B') and secondary stations (B'') were begun in 1921. The B' station about 200 feet southwest of Battery Seminole was transferred to the garrison on June 27, 1922. This was a concrete house about 10 feet square atop a 35-foot steel frame tower. The B'' station was similar. It was near the West Martello Tower Reservation, about 600 feet west of Battery Inman.(250)

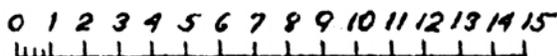
Plans made in 1918 to provide a coincidence range finding station (CRF) for Battery Adair were completed late in the war and work was carried out on the structure in the latter part of 1918 and early 1919. This station, built on the parapet of the fort with an interior measurement of 10 feet, 3 inches square, was designed to accommodate a 9-foot CRF instrument. The station was equipped for a removable azimuth instrument positioned to the right rear and a few feet higher than the CRF. The structure was of concrete with an open roof that could be provided with a canvas cover. The CRF station was transferred to the coast artillery on March 5, 1919, only a year before its armament of guns and obsolete M1898M1 carriages were removed. A battery commander's station atop the traverse between Emplacements Nos. 2 and 3 was also projected in the latter part of 1918. The decision to remove Battery Adair's armament and scrap the M1898M1 barbette carriages resulted in the cancellation of the battery commander's station. Plans developed during 1918 to relocate Battery Dilworth's guns were also dropped with the decision to disarm the batteries armed with the M1898 Driggs-Seabury guns.(251)

To the west of Battery Ford, a temporary wooden tower was erected before the World War for an 8-foot coincidence range finder (CRF) station. Following the World War, a new station for a 15-foot CRF was set up in No. 4 Emplacement of the adjacent disarmed Battery Covington, replacing the temporary prewar station. Like the CRF station built for Battery Adair, the station was equipped for a removable azimuth instrument positioned to the left rear and a few feet higher than the CRF. The CRF station was transferred to the garrison on March 5, 1919.(252)

Fire control for Battery Seminole also underwent improvement during the post-World War period. Among these improvements was the application in 1919 of more protection to the exterior of the BCS in the form of a protective embankment of sand that came up to the observation slot sills of the upper floor, some three and a half feet below the roof of the station. The battery was returned to full service in May 1921. Also undertaken in the immediate post-war period was the construction in 1921 and 1922 of the battery's primary and secondary fire control stations. The B' station was atop a 35-foot steel frame tower about 300 feet south of Battery Seminole. Like the other fire control towers erected at this time, the station was a 10-foot-square concrete house on top of the tower. It was equipped with an Emergency Type B Lewis Depression Position Finder (DPF) which was mounted atop a 5-inch cast-iron pipe. The B'' station was in a similar tower at the West Martello Tower Reservation some 400 feet west of Battery Inman.(253)



*Floor Plan Fort Signal Station.
Fort Taylor. Key West, Fla.*



Plan of the Fort Taylor signal station. (NARA)

The telephone cables connecting the various batteries with their primary and secondary fire control stations and with the "C" station were of buried armored cable. A Type C fire control cable hut served as a terminal location for the telephone lines linking the various batteries with their stations. This cable hut was at the east end of the trestle bridge connecting the old fort with the mainland. Another Type C hut was built at the West Martello Tower Reservation. Both terminal huts were transferred on March 24, 1921. When the submarine mining project was abandoned, the cable terminal formerly used for the mines was incorporated into the fire control system.(258) To improve the fire control capability, three of the auxiliary, or emergency, fire control stations recommended by the Davis Board in 1917 were built at the East Martello Tower Reservation in 1921 and 1922. All three were sited atop 20-foot wooden towers built at varying distances from the Martello tower. Each of the new towers had an eight-foot-square open platform on top, equipped to receive an azimuth observing instrument. All three of these towers were transferred to the garrison on February 16, 1922.(259)

Coast Defense Project Revised

Following the World War, a restudy of the nation's coastal defenses found the existing defenses of Key West Harbor insufficient to prevent bombardment of the island and its harbor facilities, and their reduction by a strong naval attack. The development of powerful Dreadnought warships and the significant advances made in naval armament in the years prior to and during the World War had rendered much of the coast artillery armament of the type at Key West obsolescent. The guns of the

world's battleships could easily outrange the heaviest guns at Fort Taylor. The island's continued importance as a naval installation was sufficient to warrant an increase in the island's defenses to make an attack on the island too dangerous for an enemy to attempt.

The study conducted in the late winter and early spring of 1920 called for a pair of 16-inch rifled guns with all-around fire capability, and possibly more guns of that caliber, if the initial two could not cover the attack approaches from both the southeast and northeast. The location selected for this proposed battery was initially projected for the West Martello Tower Reservation, which was considered preferable to Fort Taylor. The addition of a long-range battery would also require augmentation of the fire control system.(260) Secondary armament was also called for, consisting of six more 155 mm GPF guns in addition to the four provided in 1919.

Permanent installation of the searchlights was recommended as soon as fixed searchlight mounts could be perfected. Provision of antiaircraft guns, preferably of 4.7-inch caliber, on mobile mounts were also recommended.

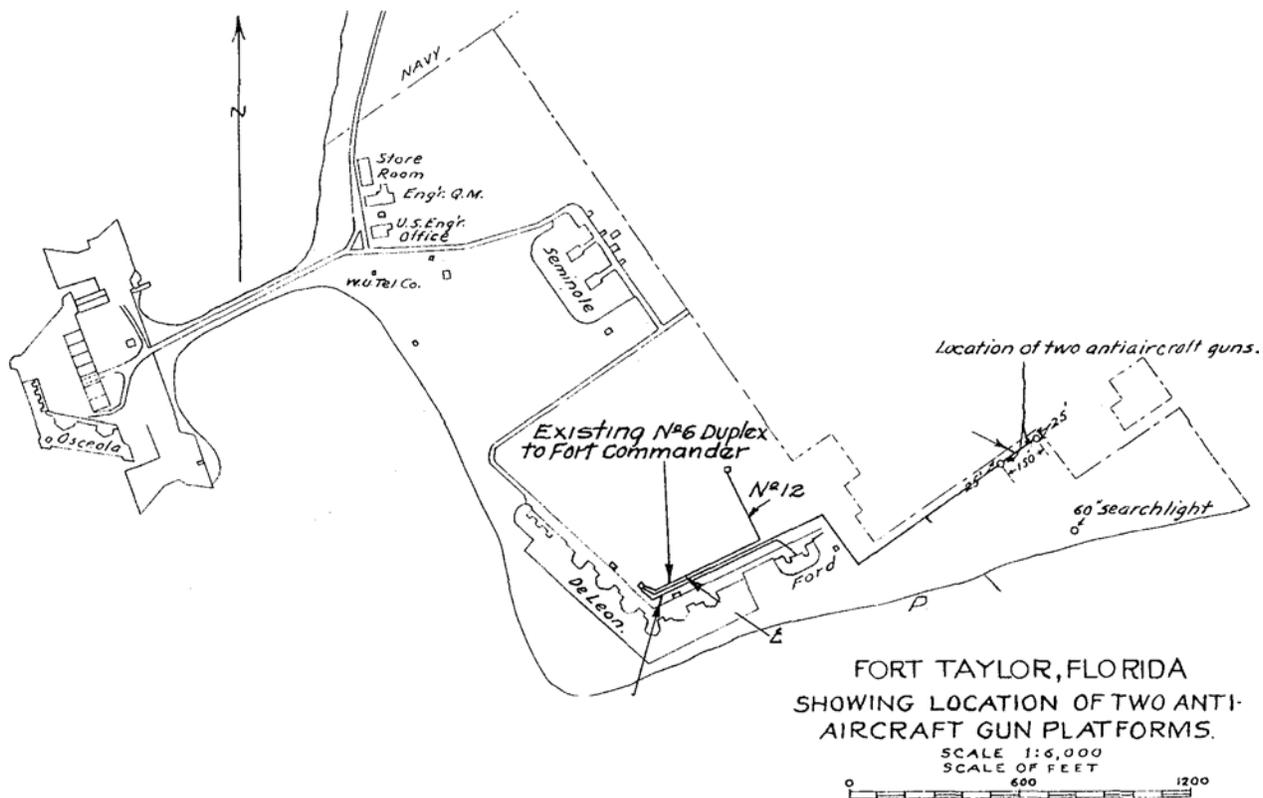
Despite these somewhat grandiose schemes for upgrading the island's defenses, the plans remained on the drawing board and were never implemented. The only change in the land defense project for Key West was a reduction in the number of infantry troops required to guard the line of communication along the Overseas Railroad from the mainland to Key West from a full regiment of three battalions to only two battalions.(261)

Antiaircraft Batteries Installed

The use of aircraft in the World War prompted the Coast Artillery Corps to install antiaircraft batteries at its coast defense installations during the war. Although a number of emplacements were built at the various coastal forts during or immediately after the war, most were not armed or transferred to the coast artillery garrisons until the early 1920s. Although 4.7-inch guns on mobile mounts had been recommended in the coast defense review of April 1920, four 3-inch guns were provided instead. Fort Taylor's first battery of antiaircraft guns was emplaced some 800 feet northeast of Battery Ford near the post's United Street Gate. Here, two circular concrete gun pads, 18 feet across, were built 150 feet apart, between June and October 1920. The battery's pair of 3-inch M1917 AA guns were emplaced on M1917 AA carriages early in 1921, and the battery transferred to the garrison on March 14, 1921. These two guns were later modified as M1917A2 AA guns. On April 23, 1934, a third emplacement was authorized but construction was not approved until 1937. Two more emplacements were built in 1920 at Key West Barracks, but not armed.

While the primary mission of Fort Taylor's antiaircraft battery was defense against enemy aircraft attacking Fort Taylor, the Martello towers, Meacham Field, the Key West Naval Station, and later the naval air station, the guns were also positioned to supplement the fire of Batteries Ford and Inman in the event of a hostile approach from seaward and to provide indirect fire in support of the military and naval installations within its range as part of the land defenses of the coast defenses.(262)

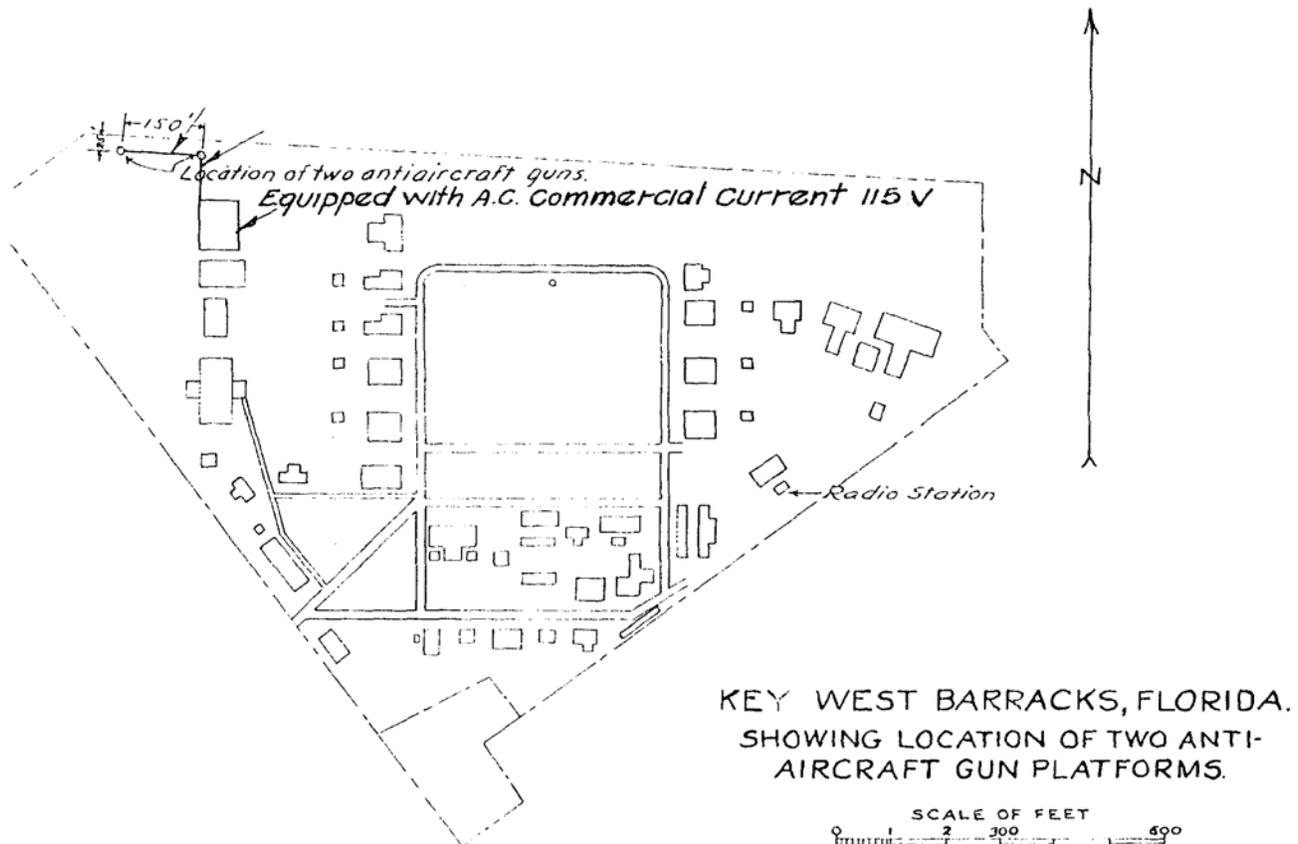
While these improvements were being made in the defenses of Key West, the harbor was being enlarged and its depth increased by dredging. The sand fill from the dredging was deposited between the coverface of the old fort and the modern gun and mortar batteries behind it, thus increasing the area of the Fort Taylor reservation and the growing naval station west of the fort. During this period and during subsequent dredging and depositing of fill, the former North Barbette Battery, and disarmed Batteries Dilworth and DeKalb were demolished and their remnants buried.



Location map of anti-aircraft gun battery at Fort Taylor, 1920. (NARA)



3-inch M1917 AA gun of the type emplaced at Fort Taylor. (US Army Museum of Hawaii)



Plan and elevation of anti-aircraft gun battery at Key West Barracks. (NARA)

Harbor Defenses of Key West Placed on Caretaking Status

The peacetime garrison at Key West during 1919 and 1920 was typical of the coast artillery garrisons in the South Atlantic Coast Artillery District. The actual enlisted strength of the two companies manning Fort Taylor was under one hundred men; far less than half its authorized peacetime strength of 204 men, and never were all of the required number of enlisted specialist billets filled. Of the 10 specialist billets allotted to Fort Taylor, the number filled was typically less than half that number. In addition, there were some two-dozen quartermaster and finance troops posted in Key West.

Although the Coast Defenses of Key West were authorized nine officers, the coast defense commander frequently had as few as five and rarely more than seven commissioned officers. In addition to the CAC officers, there were occasionally assigned officers of the Quartermaster Corps, the Medical Corps, and on rare occasions, the Dental Corps. Consequently, in addition to their duties with the two companies of coast artillery posted at Key West, each assigned officer had numerous collateral duties such as artillery engineer, mine commander, coast defense ordnance officer, post quartermaster, property officer, finance officer, transportation and subsistence officer, adjutant, post librarian, intelligence officer, prison officer, fire marshal, morale officer, post exchange officer, and insurance officer.(263)

Col. Oscar I. Straub, CAC, commanded the Coast Defenses of Key West during most of 1919 until May 1920. Straub's relief, Maj. James D. Watson, CAC, did not arrive until August 1920. During the interim the senior captain in the coast defenses, Clarence B. Ross, CAC, served as the coast defense commander.(264)

Coast artillery troop levels at Key West remained generally constant at about 85 enlisted men into 1921. During the summer of 1921, the Coast Artillery Corps underwent significant reductions. Whole regiments of mobile troops organized during the World War were inactivated and large numbers of personnel were discharged. The garrisons of many coast defenses were also reduced, although some, like the Coast Defenses of Key West, received small augmentations.

The reduction of the Coast Defenses of Tampa, FL, in August 1921 resulted in its excess personnel being transferred to Key West Barracks. On August 15, Headquarters of the 4th Coast Artillery District advised Tampa Bay's coast defense commander that the U.S. Army Mine Planter *General J.M. Schofield* would arrive at Fort Dade about August 27 to take its 40 excess enlisted men on board for transportation to Key West. The trip from Tampa to Key West was estimated to take 24 hours. When notified of the plan to use his vessel for the troop movement, Maj. R.S. Atwood, CAC, advised the Coast Artillery district headquarters:(265) "The trip from Fort Dade to Key West will take roughly 24 hours. There are no bunks for the accommodation of forty men. They can be furnished meals if furnished with mess kits and can bring blankets and mattresses if desired and sleep on deck under awnings. They can make the trip in this way if rough weather is not encountered. The life boat capacity is 52 men. A life raft will support about 6. There are only 55 life belts aboard, 40 are required for the crew of this vessel. The Coast Defense of Tampa should furnish the ship 25 life belts before sailing from there." The arrival of *Schofield* at Key West brought a welcome addition to the understrength companies at Key West. This enabled the coast defenses to reorganize the 3rd Company, Coast Defenses of Key West.

During the World War and between the two world wars, Key West Barracks was expanded and a number of new buildings constructed. Among these were a new administration building and an annex to the hospital. Cisterns were increased in number, as were quartermaster and commissary storerooms. Old buildings that once housed NCOs were torn down and new buildings provided; the former administration building was also converted to their use.

Companies Redesignated

In June 1922, all of the units in the Coast Artillery Corps were again redesignated and the 1st Company became the 80th Company, CAC, once again. The 2nd Company, organized in 1917, received the designation of 182nd Company, CAC. The 3rd Company, organized in 1921, was consolidated with the reconstituted 77th Company, CAC (a unit that had been demobilized as the 3rd Company, Coast Defenses of Pensacola in March 11, 1919), and the consolidated unit was redesignated the 77th Company, CAC.(266)

The assignment of three active companies of coast artillery to Key West in the peace that followed the World War did not last long. In the later part of 1922, the 77th and the 80th Companies were transferred to Fort Crockett, TX, where they were redesignated as Batteries B and C, respectively, of the newly constituted 60th Artillery (Antiaircraft), CAC. The 182nd Company that remained at Key West was far from a full-sized company and its function was limited largely to caretaking duties for the coast artillery materiel and property at Fort Taylor.(267)

13th Coast Artillery Regiment Garrisons Fort Taylor

The 182nd Company served in the Key West defenses until the summer of 1924, when the Coast Artillery Corps again underwent a reorganization. On July 1, 1924, the CAC redesignated its various separate companies as either headquarters batteries or lettered firing batteries of coast artillery regiments. The 182nd Company was redesignated Battery E, 13th Coast Artillery (Harbor Defense) Regiment, and remained assigned to the Coast Defenses of Key West. The garrison was bolstered, on paper at least, when Battery F, an inactive battery of the 13th Coast Artillery Regiment, was also assigned

to the Harbor Defenses of Key West. Prior to July 1, 1924, Battery F had held the designation of the 181st Company, CAC, and had been posted at Fort Screven, GA. That company had been inactivated there on September 23, 1921, and was transferred less personnel and equipment to Key West on June 30, 1924.

Battery E was reduced to caretaking strength, two officers and about 15 enlisted men. Except when facilitating summer camps for coast artillery elements of the National Guard, the caretaking detachment's primary duty was preserving and caring for government property at Fort Taylor and the two Martello tower reservations. The detachment was quartered at Key West Barracks. During the training period during the summer, the barracks in the gorge of the fort housed the National Guard troops. During most of the period between 1923 and 1930, beyond its occupancy for a few weeks each summer by the National Guard, the brick masonry fort was used infrequently for military purposes.(268)

The caretaking detachment of the 13th Coast Artillery Regiment at Key West was increased in 1930 to two officers and 27 enlisted men. In conjunction with the reorganization of the CAC in 1930, a reevaluation of the military importance by a board of officers concluded that the installations were still of vital importance to the security of the United States. They did note that the East Martello Tower Reservation could be dispensed with, especially if required by another agency of the federal government. They also noted that Key West Barracks should be retained until such time as regular barracks and quarters were erected at the Fort Taylor Reservation.(269)

During the Great Depression of the 1930s, however, the Third-System fort served for a while as a convalescence center for members of the Civilian Conservation Corps. Battery E, the only active unit in the defenses, served as a caretaking detachment from 1924, augmented with newly recruited personnel in 1940.(270)

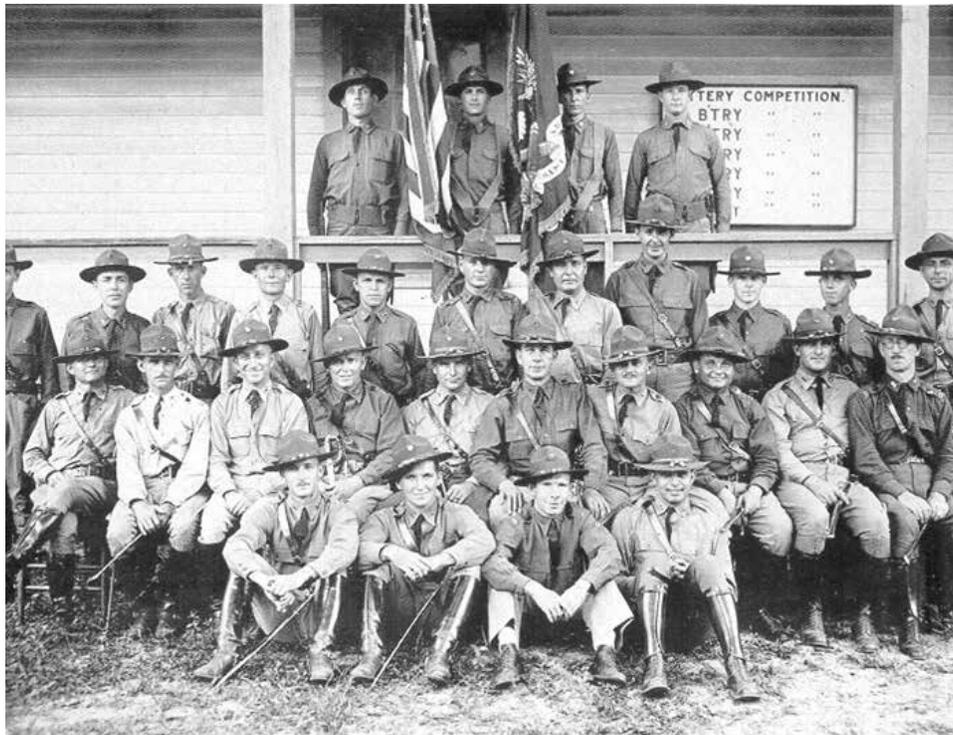
Fort Taylor Becomes the Training Station for the 265th Coast Artillery Regiment, Florida National Guard

The coast artillery companies of Florida's National Guard had been demobilized at the end of the World War and it was not until May 27, 1921, that the first postwar company was reorganized at Jacksonville as the 1st Company, CAC, Florida National Guard. This company was redesignated the 437th Company, CAC, on May 29, 1922.

Company I, 124th Infantry, Florida National Guard, had served in France during the World War and had also been demobilized at the end of that war. The company was reorganized on June 29, 1923, as the 438th Company, CAC, Florida National Guard. This company had initially been organized in June 1888 at Key West as the Island City Guards, a company of the state's volunteer militia. After several redesignations, the company had been designated Company I, 2nd Florida Infantry, and mustered into Federal service for duty on the Mexican border from June 1916 until January 1917. The company was drafted into federal service again in October 1917 as Company I, 124th Infantry Regiment, for service in the World War. The 124th Infantry was demobilized January 14, 1919, at Camp Gordon, GA.(271)

The 1st Separate Battalion, CAC, Florida National Guard, was constituted and organized February 9, 1924; the 437th Company was redesignated Battery A and the 438th Company was redesignated Battery B of the battalion. The battalion was expanded in 1925 and redesignated the 265th Coast Artillery (Harbor Defense) Regiment. The unit held its initial annual encampment at Fort Moultrie and thereafter at Fort Barrancas until 1930, when its mobilization post was changed to Fort Taylor and the regiment was reorganized. When a second battery was organized at Jacksonville it was initially designated Battery C. Battery D was organized in July 1929 at Daytona Beach and Battery E was organized at Miami in 1930.(272)

Beginning in 1930, the five organized batteries of the 265th Coast Artillery Regiment conducted their annual two-weeks active duty at Key West. One of the functions of the 13th Coast Artillery's caretaking detachment at Key West Barracks was to facilitate the active service training of the National Guard unit each summer. Batteries A, B, and C conducted their annual service practices at Fort Taylor with the 10-inch guns of Battery DeLeon, while Batteries D and E each manned a mortar pit of Battery Seminole. In 1934, the regiment was reorganized to form three battalions. The 1st Bn, Batteries A and B, was to man 155 mm mobile seacoast guns, while the 2nd Bn, only Battery C, was to serve as an antiaircraft battery manning 3-inch AA guns. The 3rd Bn, Batteries D and E, continued to man the 12-inch mortars. Under this arrangement, the regiment, less Battery C which went to Fort Pickens at Pensacola for its annual summer training with antiaircraft guns, carried out its annual active-duty service at Fort Taylor during August 1935. In 1936, the home station of Battery D was changed from Miami to Pensacola, and although reassigned to the 2nd Bn, continued to man seacoast artillery as opposed to antiaircraft guns. This restructuring of the regiment left Battery E as the sole element of the 3rd Bn until the organization of Battery F on October 2, 1939.(273)



Officers of the 265th Coast Artillery Regiment, c. 1936. (Florida Army National Guard)

The 265th again underwent internal reorganization in the late 1930s when its firing batteries were again reassigned to the gun and mortar batteries at Fort Taylor. The army's Fourth Corps Area Protective Mobilization Plan of 1938 called for the 265th to arrive in the harbor defenses five days after receiving its mobilization orders. In accord with this plan, Battery A of the 265th would man Battery Osceola, while Batteries B and D would man the mortars of Battery Seminole. Battery C was to man the antiaircraft battery near the United Street Gate and Battery E the rapid-fire guns of Batteries Ford and Inman. Battery F, still inactive in 1938, would upon its activation and organization, man Fort Taylor's battery of four 155 mm guns. Although two 10-inch disappearing guns remained emplaced in Emplacements Nos. 1 and 2 of Battery DeLeon, they were considered obsolete armament and no plans were in place to man the old armament.(274)

Antiaircraft Defenses Are Improved

The antiaircraft emplacements at Fort Taylor and at Key West Barracks built in the early 1920s constituted the sole air defense installations in the Key West Harbor Defenses into the late 1930s. During the 1930s, the two 3-inch M1917 AA guns mounted on M1917 fixed carriages near the United Street gate to the reservation were modified for M1917A2 guns on M1917M1 mounts.

On June 14, 1937, a second antiaircraft gun battery at Fort Taylor was begun in the open ground between and somewhat to the rear of Batteries Ford and Covington. The two AA gun emplacements, 60 feet apart, were completed by the end of the month. The circular concrete gun blocks were 10 feet, 6 inches across and had an oak plank edge 30 inches wide around their edge. These emplacements were occupied by 3-inch M1918 AA guns on M1918 mobile AA mounts. By the end of the month the emplacements were completed and on June 30 were transferred to Battery E, 13th Coast Artillery.(275)

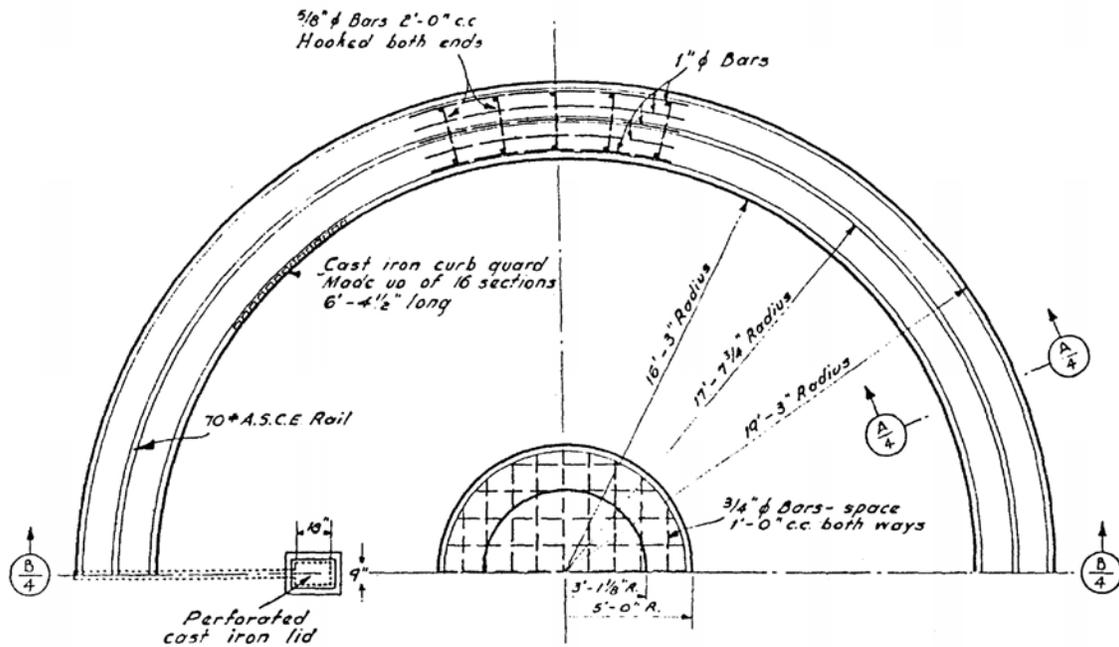
On May 7, 1940, a third emplacement for a 3-inch AA gun was begun at the antiaircraft battery near the United Street Gate. The work proceeded without delay and was completed on June 1, 1940. Its 3-inch M1917A2 AA gun was mounted on an M1917M1 fixed carriage soon afterward, and on July 29, 1940, the battery was transferred to the garrison.(276)

155 MM Guns Emplaced at Batteries Covington and DeLeon

When initially manufactured in France, the 155 mm gun was a field artillery weapon for firing on fixed or very slow-moving targets. On its own carriage, it could be traversed 60 degrees, insufficient for firing on swiftly moving naval targets. During the late 1920s an experimental concrete emplacement permitting a more rapid traversing of the 155 mm gun to permit fire on moving naval targets was developed in the Panama Canal Zone. This "Panama mount" consisted of a circular gun block upon which the gun carriage was mounted; the ends of the gun's split trail carriage rode on an outer semi-circular ring of concrete. The gun was traversed by moving the split trail carriage on the outer ring using pinch-bars. This new type emplacement was recommended for adoption by the army in June 1929 and in the ensuing years emplacements were constructed in many of the harbor defenses. Later in the 1930s a 360-degree mount was also approved and employed in those locations where all-around fire was desired.(277)

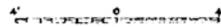
As early as 1936, the Harbor Defenses of Key West had requested construction of concrete Panama mounts for the four 155 mm guns at Fort Taylor. Since their arrival just after the World War, the guns had been stored at Key West Barracks and were later placed in field emplacements in front of Batteries Covington and DeLeon. The field emplacements were inefficient against moving naval targets, but no action was taken to fund the Panama mounts and the harbor defenses again requested authorization for Panama mounts on October 15, 1938. Seventeen more months would elapse, however, before the requisite approval was finally received on May 9, 1940. The cost estimates for the construction of the four Panama mounts on the parapet slopes of Batteries Covington and DeLeon were projected to be \$14,748.08.(278)

Considering the length of time the fort's armament had been in place, very little target practice took place. A report in April 1938 showed that the guns and mortars remaining in the defenses had been fired infrequently, chiefly by National Guard units during their summer encampments.(279)

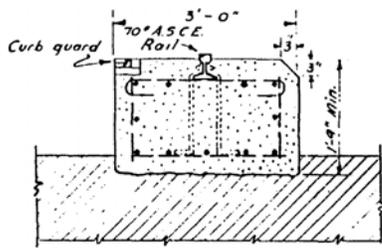


TYPICAL HALF PLAN

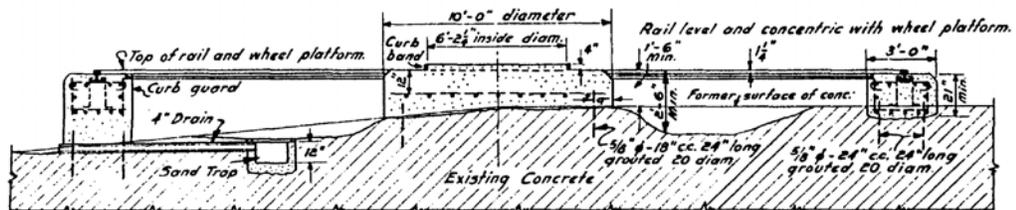
SCALE $\frac{3}{16}'' = 1'-0''$



SECRET



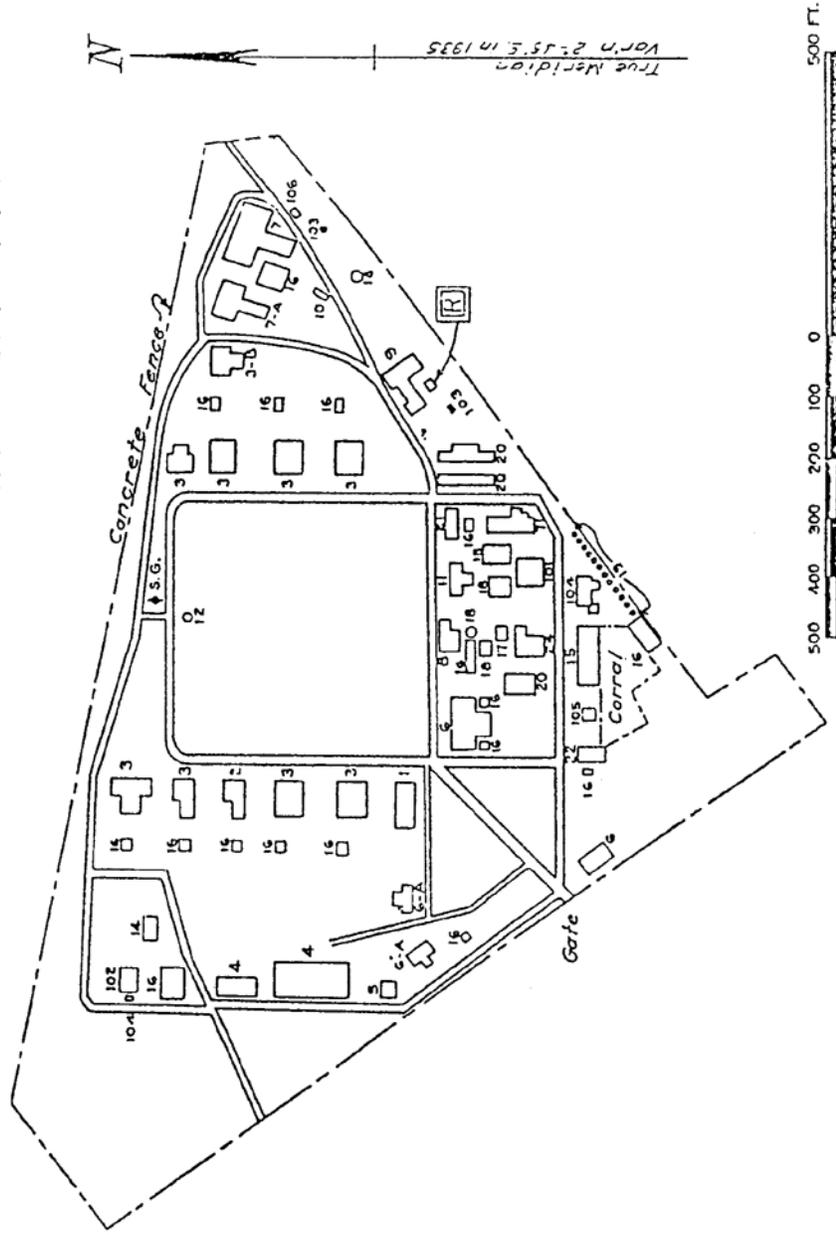
SECTION $\frac{A}{3}$
SCALE $\frac{1}{2}'' = 1'-0''$



SECTION ON $\frac{B}{3}$
SCALE $\frac{3}{16}'' = 1'-0''$

Plans and sections of Panama mount for 155 mm GPF gun. (NARA)

KEY WEST HARBOR F.L.A.
KEY WEST BARRACKS.



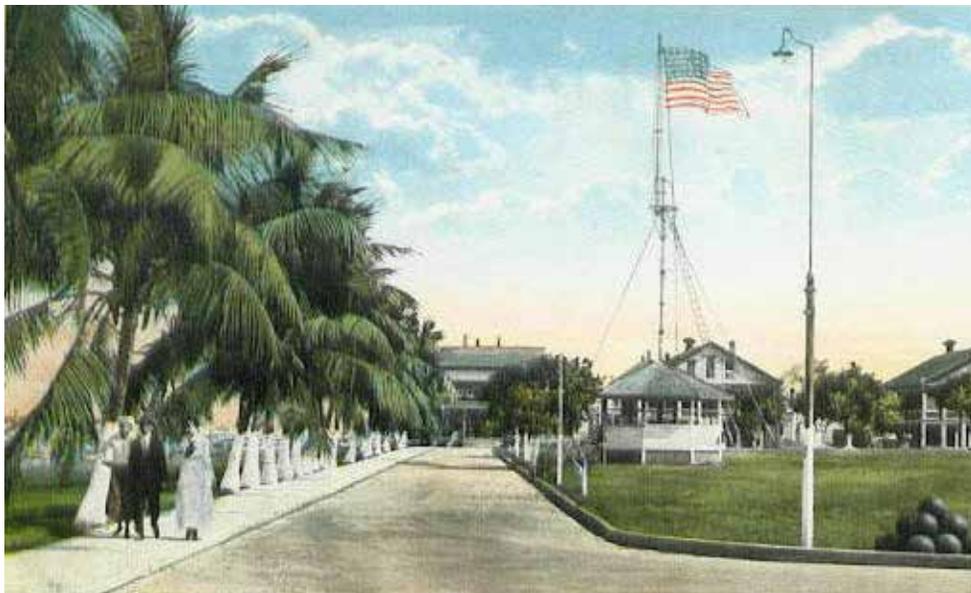
- 1 ADMINISTRATION BLDG.
- 2 COMMANDING OFFICERS QRS.
- 3 OFFICERS QUARTERS.
- 3-B BACHELOR OFFICER QRS.
- 4 HOSPITAL & ATTACHMENT QRS.
- 5 HOSPITAL STEWARDS QRS.
- 6 N.C.O. QUARTERS.
- 6-A N.C.S. QUARTERS.
- 7 BARRACKS.
- 7-A COMPANY BARRACKS.
- 8 GUARD HOUSE.
- 9 POST EXCHANGE.
- 10 LAVATORIES.
- 11 BAKERY
- 12 FLAGPOLE
- 13 BLACKSMITH & CARPENTER SHOP
- 14 OIL HOUSE.
- 15 SHED.
- 16 CISTERN.
- 17 PUMP HOUSE.
- 18 WATER TANKS.
- 19 12 WELLS.
- 20 Q.M. STOREHOUSE.
- 21 COMMISSARY ST. ROOM.
- 22 Q.M. STABLE.
- 24 FUEL SHED.
- 71 SERVICE CLUB.
- 101 GARAGE & REPAIR SHOP
- 102 GARAGE.
- 103 RADIO TOWERS.
- 104 FILLING STATION.
- 105 FIRE HOUSE.
- 106 VACANT.

Layout of Key West Barracks in 1934. (NARA)

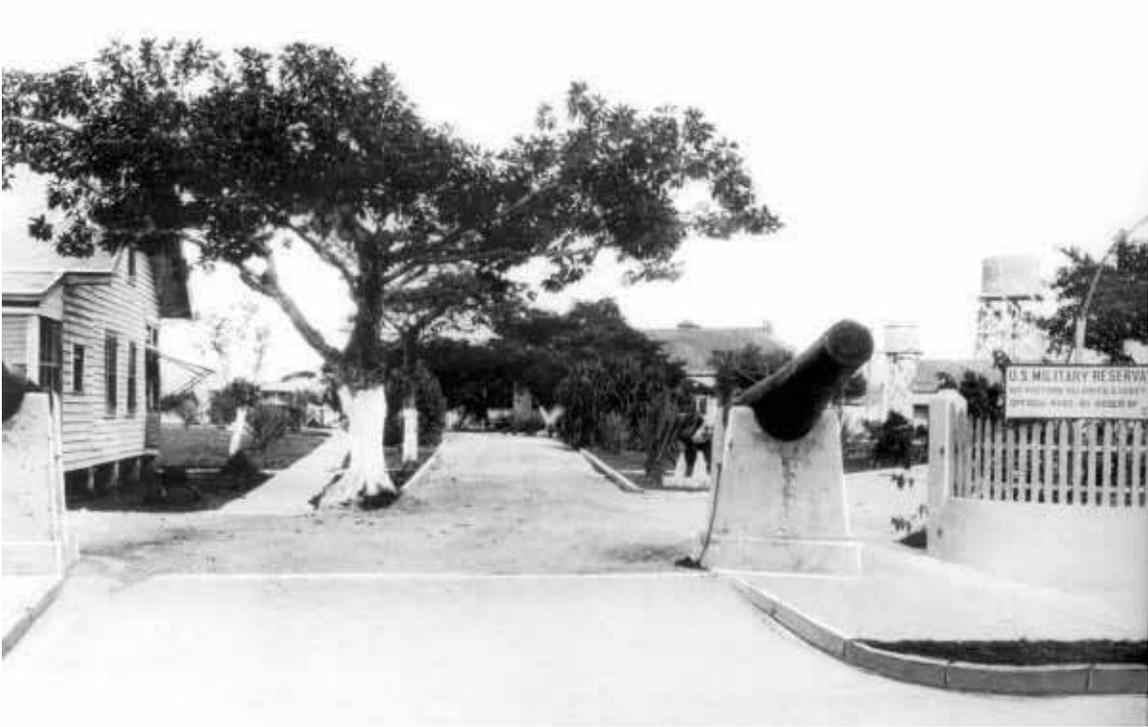
The 265th Coast Artillery Assigned to Galveston, TX

The 265th Coast Artillery was not immediately mobilized when the National Guard was federalized in September 1940 for a year of intensive training. In fact, the regiment was not called upon to begin its active duty for training until January 6, 1941. Rather than proceeding to its traditional mobilization station at Fort Taylor, the regiment was ordered to Fort Crockett in the Harbor Defenses of Galveston, TX. This departure from the mobilization plans left the Key West harbor defenses severely undermanned as the nation faced the probability of involvement in World War II. Nearly 15 months would elapse before the Florida regiment would return to its home state and assume the defense of the nation's southernmost continental harbor.(280)

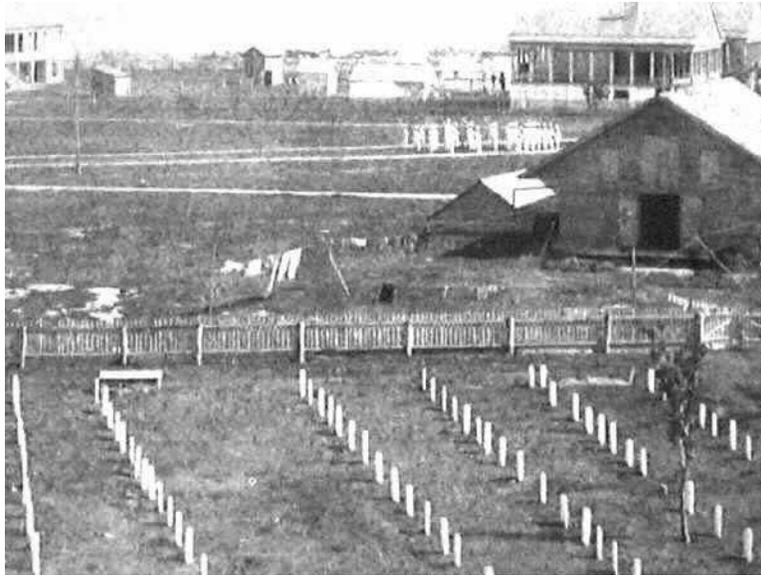
To be concluded in the next issue of the *Coast Defense Journal*



Key West Barracks scenes (Mark Berhow collection)



Key West Barracks scenes (Mark Berhow collection)



Endnotes

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Defending The Florida Reef: A History of the Coastal and Harbor Defenses of Key West, Florida, Part 4: 1940-1946

William C. Gaines

Parts 1, 2, and 3 were published in the previous issues of the *Coast Defense Journal*. This article concludes the series.

1940 Harbor Defense Modernization Program Plans New Works for Key West

One reason the 265th was not sent to its expected mobilization station was the proposed dismantling of much of Fort Taylor's existing seacoast armament. Battery Osceola's pair of 12-inch guns and the two remaining 10-inch guns of Battery DeLeon were projected for dismantling and salvage. The carriages were to be disassembled for spare parts or scrapped. This action had not been implemented when war came to America in 1941, and the guns were again pressed into service.

The fall of France and the high probability that Germany would invade Great Britain during the summer of 1940 resulted in moves by the U.S. War Department to revitalize the nation's harbor defenses. The prospect of a German fleet reinforced by the Italian Fleet and bolstered further with the captured French Navy and at least a part of Great Britain's powerful Royal Navy should Britain fall, became a major concern by June 1940. The nation's harbor defenses were defended by even fewer gun and mortar batteries than during the World War, and nearly all were of less power than the battle fleets of Europe. Therefore, plans were begun in the summer months of 1940 by the U.S. Army Harbor Defense Board to enhance the harbor defenses of the United States with some of the most powerful seacoast artillery batteries in existence. Some batteries were to be armed with powerful 16-inch MkII Mod 1 naval guns on army M1919M2 long-range barbette carriages, within reinforced-concrete casemates covered with earth.(281)

Secondary batteries of long-range 6-inch guns on shielded barbette carriages were also proposed. With ranges of some 27,000 yards (17 miles), these guns would provide powerful secondary fire against enemy cruisers, destroyers, transports, and smaller vessels. These 6-inch batteries were given construction numbers in the 200 series by the Corps of Engineers.(282)

In 1941 and 1942, the U.S. Navy undertook a major expansion of the Key West Naval Station. Additionally, the large Key West Naval Air Station for seaplanes was built at Key West and an airfield for land-based planes initially established by the Army Air Corps on adjacent Boca Chica Key was transferred to the navy, and after undergoing a major expansion became the Boca Chica Naval Air Station.

Had the U.S. Navy not embarked on this major development program at Key West, it is probable that the army would have expended little or none of its resources on additional defenses for Key West. The U.S. Army's property at Key West on the eve of the nation's entry into World War II consisted of Fort Taylor's approximately 80.1 acres, Key West Barracks consisting of 28.62 acres, East Martello Tower's 12 acres, and the West Martello Tower Reservation of 12.5 acres.(283)

Unlike most of the continental harbors that were afforded modern batteries, Key West was not slated to receive any powerful 16-inch guns. It was, however, to be provided with two long-range 6-inch gun batteries, supplemented by the 3-inch guns of Batteries Ford and Inman. The guns of both rapid-fire batteries were to be given overhead protection for the gun crews in the form of shields covering the front, sides, and top of the gun. Upon completion of the modern batteries, the 12-inch guns and

mortars of Batteries Osceola and Seminole, and the 155 mm GPF guns were to be decommissioned and the emplacements abandoned.(284)

Finally approved in the late summer of 1940, the new long-range batteries for Key West were well down on the priority list. Construction of 6-inch Battery Construction Numbers 231 and 232 did not begin until 1942.(285)

13th Coast Artillery Regiment Augmented

Headquarters and Headquarters Battery, 1st Bn, 13th Coast Artillery Regiment, was activated at Key West Barracks on August 8, 1940, and with an augmented Battery E, the Coast Artillery garrison at Key West increased to some 15 officers and 200 enlisted personnel. These two elements of the regiment comprised Key West's entire harbor defense garrison when the United States entered World War II in December 1941. Key West also became the location for the Headquarters of the Florida Sub-Sector of the Southern Sector of the Southern Coastal Frontier. Because of the island city's somewhat isolated location, much consideration was given to moving the sub-sector headquarters farther north in the early days of the war and it was relocated to Miami in June 1942. (286)

On December 7, 1941, the fixed armament still in place at Key West consisted of the two 12-inch guns of the decommissioned Battery Osceola, and Battery DeLeon's remaining pair of 10-inch guns. With the outbreak of the war Battery Osceola was recommissioned and placed in service along with its primary (B') and secondary (B'') fire control stations. Battery DeLeon, however, remained out of service.(287)

Due to lack of personnel, Battery Seminole (four 12-inch mortars) was retained in a Class C, or maintenance status but it could, if necessary, be placed in service in about 72 hours if sufficient personnel were available. The other batteries: Battery Mahlon Ford (two 3-inch RF guns), Battery Shadrach Inman (two 3-inch RF guns), Tactical Battery 5 (four 155 mm GPF guns); and Antiaircraft Battery No. 1 required far more men than the understrength detachment of the 13th Coast Artillery at Fort Taylor could supply. In fact, Battery E was only able to provide manning detachments for the battery of 155 mm guns and the three fixed 3-inch AA guns at Fort Taylor, while Headquarters, 1st Bn, 13th Coast Artillery, operated the harbor entrance control post (HECP) and the harbor defense command post (HDCP). The HDCP was initially located on the third and fourth floors of the four-story wooden building that had once served as the primary station for Battery Osceola and the command post for Gun Group Two. The commanding officer of the 1st Bn, Lt. Col. Webster Putnam, in addition to his battalion duties, also served as harbor defense commander at Key West, and as commander of the Florida Sub-Sector of the Southern Sector of the Eastern Defense Command. This arrangement continued until Col. Royce S. McClelland, CAC, arrived to assume command of the Harbor Defenses of Key West on February 28, 1942. Brig. Gen. Kenneth T. Blood assumed command of the Florida Sub-Sector early in 1942, establishing his headquarters at Key West. Blood would command the sub-sector until March 17, 1942, when he relieved Brig. Gen. R.F. Cox commanding the Southern Sector. General Blood would command the Southern Sector until May 23, 1942.(288)

One of the early projects carried out by Col. Putnam was obtaining scout and patrol surface craft for use by the harbor defenses. The army's sole vessel, the *Lieutenant Koehler*, a 65-foot Quartermaster Corps steam tug, was made available and arrangements were made with the Thompson Fish Company of Key West for 75-foot *J.B. Sullivan* and *C.W. Powers*, two 75-foot diesel-powered commercial fishing boats, as well as the 65-foot *Heron*, also diesel powered, and four 32-foot gasoline-powered fishing craft: *Mullet*, *Bluefish*, *Mackerel*, and *Crawfish*.(289)

Army Bolsters the Defenses of the Keys

Soon after the Axis declared war on the United States, the 155th Infantry Regiment of the 31st Division then stationed at Camp Blanding, near Starke, FL, was alerted for duty along Florida's east coast. The 155th Infantry, a former Mississippi National Guard unit, had been activated in November 30, 1940, for a year of active-duty training, posted at Camp Blanding. The regiment's augmented 1st Bn was sent to Jacksonville and a company placed on detached service at West Palm Beach.

The 155th Infantry Regiment also provided a battalion combat team, built around its 2nd Bn and Battery B, 116th Field Artillery Regiment, for service on the Florida Keys. Battery B, 1st Bn, 116th Field Artillery, was part of the 56th Field Artillery Brigade, the artillery element of the 31st Division. The combat team arrived in Key West at the end of December 1941. Headquarters and Headquarters Battery, 2nd Bn, 155th Infantry Regiment, was stationed at Fort Taylor to provide overall command and control of the combat team. Company G's five officers and 168 men were also posted at Fort Taylor, assigned a patrol area some 39 miles long that included guarding 18 bridges along the Overseas Highway between Key West and Pirates Cove. It also provided details for 10 guard posts at important locations in Key West itself. Company H was also posted at Fort Taylor, where it manned eight heavy .50-caliber antiaircraft machine guns emplaced to repel low-flying enemy aircraft as well as providing exterior and interior guard details for Fort Taylor. Battery B, 116 Field Artillery Bn, comprised of four officers and 116 enlisted men, was posted at Fort Taylor with two of the battery's 75 mm guns as part of the beach defenses. A second pair of 75s was emplaced at the West Martello Tower for the same purpose.(290)

While most of the infantry supports were stationed at Fort Taylor, some elements were deployed at various locations in the keys as follows: Company E, 155th Infantry, with five officers and 171 enlisted men, was bivouacked at Pigeon Key and assigned to guard some 14 miles of the middle portion of the Overseas Highway, with 19 bridges that included Seven Mile Bridge. Pigeon Key was one of the smallest of the inhabited keys, having an area of only 5.3 acres. The key had been a principal work camp for the men building Henry Flagler's railway to Key West in the early years of the century. A small village grew up on the tiny isle which continued to serve as a home for maintenance gangs and bridge tenders when the Overseas Highway was built in the mid-1930s. When Company E arrived on Pigeon Key it was serving as a park and fishing camp, graced with a restaurant and bar.(291)

Company F of the 155th Infantry, less one platoon, arrived, three officers and 121 men on Long Key, where it patrolled another 45 miles of the Overseas Highway and guarded 12 bridges as far north as Key Largo and Card Sound. Company F's 2nd Platoon, two officers and 50 men, was posted at Homestead, FL, where they patrolled some 18 miles and seven bridges on the northernmost part of the Overseas Highway, providing guard details for six small bridges in the vicinity of Card Sound at the northern end of the Florida Keys.(292)

The combat team's mobility was enhanced by two officers and 90 enlisted men of Company A of the 106th Quartermaster (Truck) Bn, less detachments, that were assigned to combat teams in other parts of the sector. One officer and 45 men of 2nd Platoon, Company B, 106th Engineer Regiment, were also posted at Fort Taylor, where they manned two mobile .50-caliber machine guns in the beach defenses as well as providing personnel for engineering tasks. Two more .50-caliber machine guns were received at Fort Taylor on January 1, 1942.(293)

Both the harbor defenses and the combat team were placed on 24-hour-a-day alert on January 6, 1942, a status that would be maintained through the end of October 1942. Providing a combat team to the Florida Keys was not a casual measure by the War Department. Increased activity by German

U-boats was expected and there was genuine concern that the lines of communication between the headquarters of the Florida Sub-Sector and the other elements of the Sub-Sector as well as to the Sector headquarters then in Atlanta might be interrupted by enemy agents or saboteurs. In fact, in the early morning hours of December 27, 1941, a guard detail on Upper Matacumbe Key and an officer of the U.S. Immigration and Naturalization Service spotted a flashing light signaling to a vessel in the vicinity of Indian Key. A search the following morning found the place where a person had been laying while operating his signal light.(294)

Assignment of the 2nd Bn Combat Team of the 155th Infantry was a temporary expedient, however, for by February 1942, plans were afoot to relieve the 155th Infantry of coastal defense duties and to reassemble the regiment's various elements at Camp Blanding. There, Battery B of the 116th Field Artillery Regiment was reorganized as Battery B, 116th Field Artillery Bn, on February 10. On February 14, 1942, the 13th Infantry Regiment of the 8th Division (Motorized) of II Corps posted at Fort Jackson, SC, relieved the three combat teams of the 155th Infantry. The 13th Infantry combat teams were reinforced by elements of the 43rd Field Artillery Bn, equipped with 105 mm howitzers and other support troops. The Florida Keys Line of Communication was taken over by the 2nd Bn (Reinforced), 13th Infantry. Company E established its camp at Pigeon Key, while a detachment of that company set up camp at Ramrod Key. Company F was posted at Homestead and maintained an outpost at Long Key. Companies G and H, and battalion headquarters were posted at Fort Taylor, along with Battery B, 43rd Field Artillery Bn, Company A of the 12th Engineers, and half of a truck company from the 105th Quartermaster Bn, all of which were stationed at Fort Taylor and Key West Barracks. By early March 1942, the command post of the 2nd Platoon, Company E, 13th Infantry, had moved from Ramrod Key to West Summerland Key.(295)

The stay of the 13th Infantry combat team in the keys lasted a little more than a month. On March 25, the 1st Bn, 28th Infantry, another motorized regiment of the 8th Division, arrived from Camp Jackson to relieve the 13th Infantry. Although the Southern Sector troops were still on a 24-hour-a-day alert, the harbor defense troops and their infantry supports in the Keys had assumed a readiness status of CONDITION TWO. Unlike readiness CONDITION ONE, this could be maintained indefinitely. Harbor defense and antiaircraft observation stations and communications were, however, manned continuously if necessary, with reduced personnel or in reduced amounts, but not less than one fire control station per battery. Command posts of all echelons operated continuously, with sufficient personnel assigned to meet current requirements. Armament, equipment, and personnel not actually at battle stations were kept in such a state of readiness that CONDITION ONE could be taken up within three minutes during daylight hours and within five minutes during darkness. The Key West harbor defenses also continued to emphasize the importance of all lookouts and mobile patrols to stay alert for possible landing of enemy agents.(296)

265th Coast Artillery Relieves the 13th Coast Artillery

By April 12, 1942, orders had been received at Key West for the elements of the 13th Coast Artillery (Harbor Defense) Regiment at Fort Taylor to depart for Camp Pendleton, VA, by April 23. The 13th Coast Artillery was finally to be relieved by the 265th Coast Artillery (Harbor Defense) Regiment, elements of which were then at Fort Crockett in the Harbor Defenses of Galveston, TX, and at Fort MacArthur in the Harbor Defenses of Los Angeles, CA. A few days following the Japanese attack on Pearl Harbor, the 265th's 2nd Bn was sent to Fort MacArthur to bolster the Harbor Defenses of Los Angeles. When the 265th was ordered to Key West, the regiment's two battalions were still manning harbor defense batteries in Texas and California.(297)

In anticipation of the arrival of a full regiment of coast artillery, elements of the 28th Infantry combat team posted at Fort Taylor made ready to occupy a new encampment at the Redlands Transient Camp near Homestead, FL. One company of the 28th, Company D, however, remained at Key West as harbor defense supports and Company B continued to occupy the outpost positions at Pigeon and West Summerland Keys. What had become a regular pattern of rotation of combat teams in the South Florida area continued. On April 29, the 3rd Bn Combat Team of the 121st Infantry Regiment (Motorized), a former Georgia National Guard regiment, relieved the combat team of the 28th Infantry at Homestead and in the later part of May the 121st was relieved by the 3rd Bn, 104th Infantry Regiment, former Massachusetts National Guard.(298)

The advance elements of Col. Pency L. Wall's 265th Coast Artillery, consisting of the Regiment's Headquarters and Headquarters Battery, the Regimental Band, the Medical Detachment, and Battery C, began arriving at Key West from Fort Crockett, at 1345 on April 18. The 1st Bn (less Battery C) followed from Fort Crockett about 24 hours later, arriving on April 19. The 2nd Bn arrived from California at 2300 on April 23. Headquarters Battery, 1st Bn, and Battery E, 13th Coast Artillery, departed the Harbor Defenses of Key West for Camp Pendleton on April 23, 1942.(299)

Coastal Batteries Are Fully Manned

With the arrival of the 265th, a major program of construction was undertaken to provide adequate quarters for the enlarged garrison. Additional acreage was acquired at Fort Taylor and at the Martello towers and the 85.8-acre tract was also acquired at the Salt Ponds at the west end of Meacham Army Airfield, the island's former commercial airport.(300)

Near the end of April, Lt. Col. Ulmo of the Sector Headquarters Staff arrived to assist the 265th in setting up a permanent harbor entrance control post (HECP) atop Battery Seminole.(301)

By early May, the fixed armament had the following detachments from the 265th Coast Artillery:(302)

Battery A was assigned to the two 3-inch RF guns of Battery Inman at the West Martello Tower.

Battery B was assigned to the 3-inch RF guns of Battery Ford at Fort Taylor.

Battery C was assigned to Fort Taylor's 155 mm mobile seacoast gun battery.

Battery D was assigned to the three 3-inch fixed anti-aircraft guns.

Battery E was assigned to the 12-inch barbette guns of Battery Osceola in the old fort.

Battery F was assigned to Battery Seminole's four 12-inch mortars.

A detailed inspection of the harbor defenses and its armament by Capt. Joseph S. Piram of the Sector Staff on April 28 and 29 found numerous deficiencies when the batteries, most of which had not been fired or exercised since the World War, were provided with manning details. The coincidence range finders for Batteries Ford and Inman were in serious need of repair. An M2 gun director was out of order and Battery Osceola's recoil cylinders needed repacking. The communications systems connecting the batteries was also found to be defective.(303)

In addition to the fixed batteries, the 265th also emplaced Fort Taylor's four 155 mm GPF guns (Tactical Battery No. 5) on Panama mounts in front of the parapet slopes of Batteries Covington and DeLeon. Two of the 155 mm guns remained in place in front of Batteries Covington and DeLeon until Battery 231 was completed. They were then removed to the West Martello Tower Reservation and re-emplaced on Panama mounts to the west of Battery Inman.

A second 155 mm battery position of the 265th was established on Panama mounts on the north side of Roosevelt Road near the East Martello Tower Reservation on the south shore of the island. These batteries, coupled with the fixed 3-inch guns of Batteries Shadrach Inman and Mahlon Ford, provided what the army considered adequate defenses for the island of Key West and its naval station pending the completion of two proposed batteries of long-range 6-inch guns.(304)

265th Makes Improvements in the Harbor Defenses

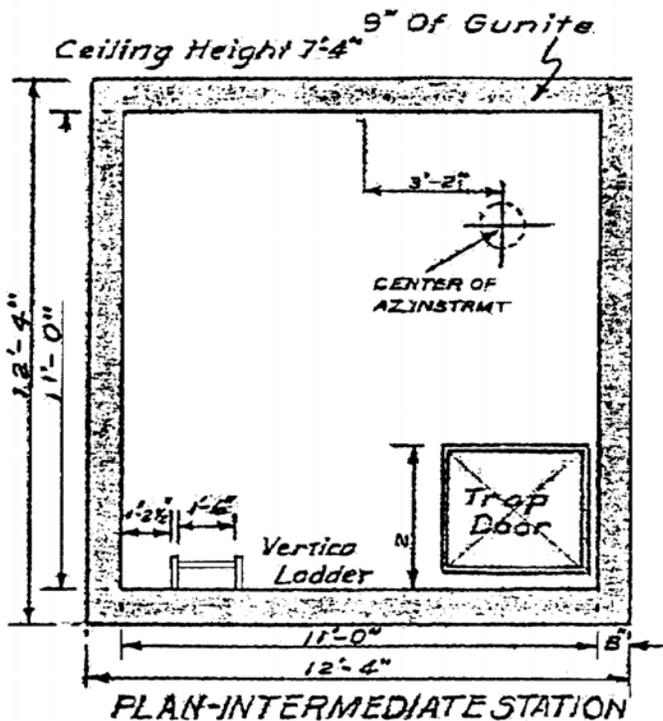
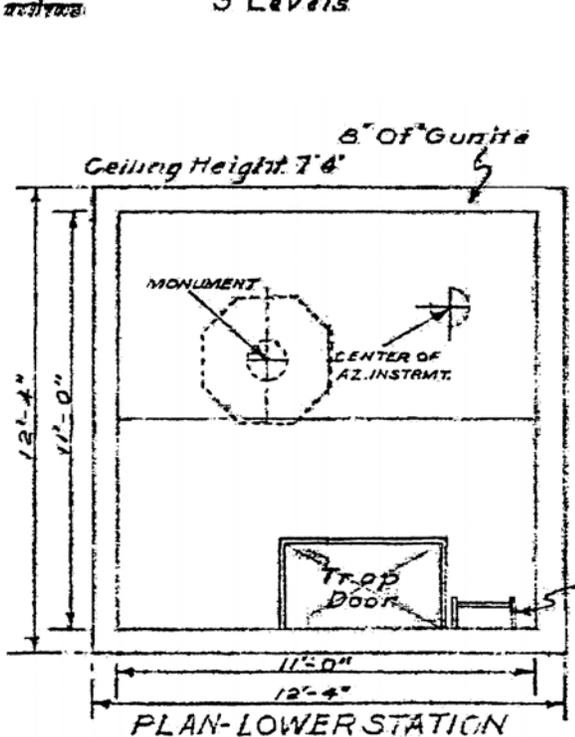
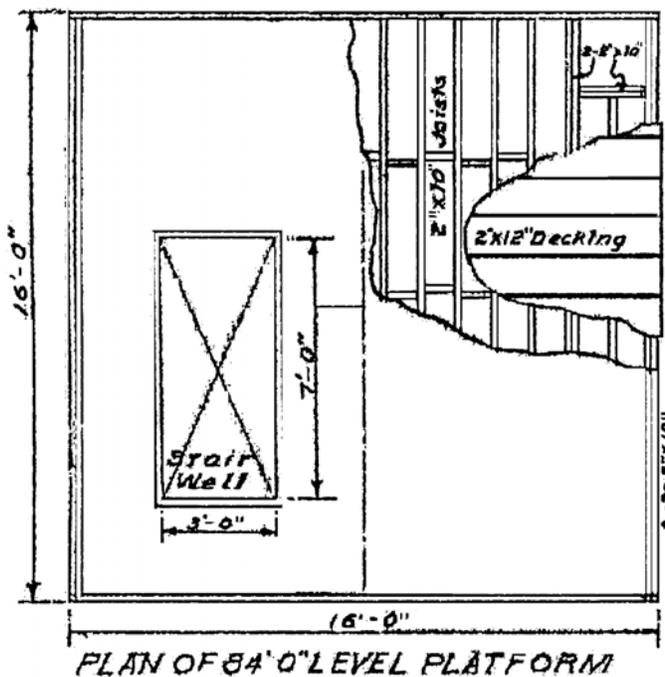
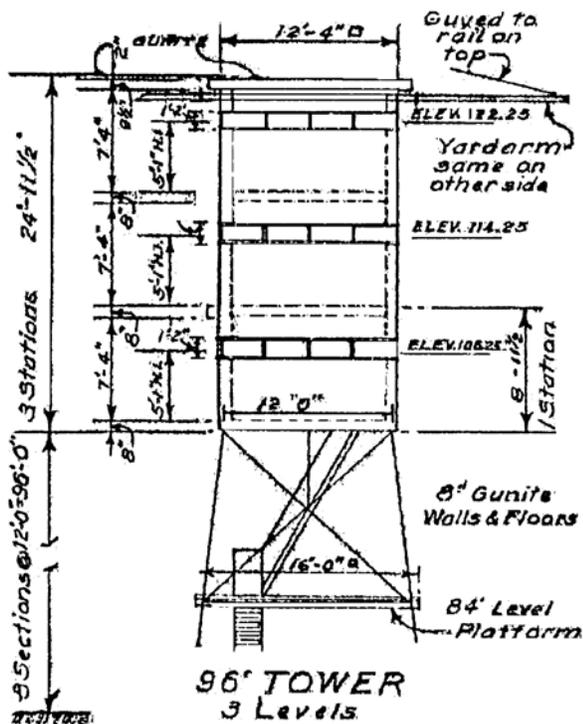
During the 10-month stay of the 265th Coast Artillery at Key West, it was possible to make some improvements to the harbor defenses. Some of the interior spaces of the old mortar battery were converted as a bombproof harbor defense command post (HDCEP). Two new reinforced-concrete bombproof entrances were built into the left traverse of Battery Seminole for the new HDCEP; one led through the front parapet of the battery while the other passed through the left parapet slope. Atop that, on the battery's central traverse, an HDCEP tower was constructed. The primary observing station of the reestablished mine command was also located on Battery Seminole's parapet. At the time the conversion of its interior spaces was undertaken, Battery Seminole was taken out of service and by the end of 1942, its armament had been authorized for salvage. Although placed in service early in the war, the four retained mortars of the battery were rarely, if ever, fired after the spring of 1942. They remained in place well into 1943, when they were finally dismounted and removed for scrap. Most of the conversions of Battery Seminole's interior spaces were brought to completion by March 1, 1944.(305)

In the rear of Battery DeLeon, a 96-foot steel-framework tower was erected. Atop this tower a three-story house was built, its walls and roof constructed of gunite 18 inches thick. The lower level of this station served as the harbor defense observation post, while the intermediate and upper levels functioned as the signal station for the harbor defenses. Each level was equipped with an M1910A1 azimuth instrument, while the HDOP was also provided with an M1908 observation telescope. The 18-inch gunite roof of the tower was 130 feet above sea level. From the roof of the upper level, used as the signal station, an observer could see more than 12 nautical miles out to sea.(306)

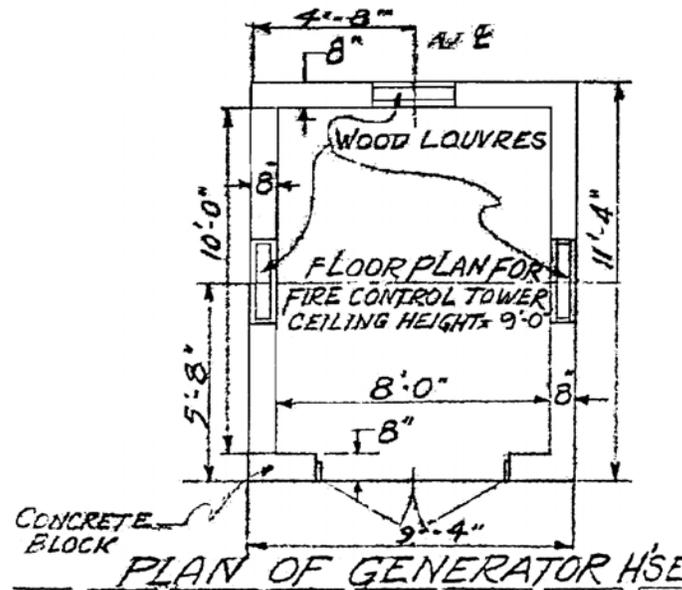
Increased German submarine activity in the Florida Straits during the summer of 1942 resulted in a blackout being imposed on Key West during the night of May 3-4. On May 3, the U-506 sank the 600-ton Nicaraguan freighter *Sama* in the Florida Straits before passing onto the Gulf of Mexico while the guns of the harbor defenses were fully manned and readied for action. Although the harbor defenses saw no action with enemy naval forces that night, it was not long in the evening before the guns of the harbor defenses were being called upon to enforce the regulation of vessels in the controlled harbor. At 2045 on May 3, Battery B of the 265th manning Battery Ford, then serving as the harbor's examination battery, fired a shot across the bow of a small unidentified vessel entering the harbor. The vessel then hove to and was eventually identified as a friendly tug.(307)

265th Provides a Battery for Miami Beach

Concerns over the presence of German submarines off South Florida and the possibility that U-boats might attempt to bombard the Port of Miami, prompted the Florida Sub-Sector to order a pair of 155 mm GPF guns moved up to Miami Beach. The guns were taken out of the battery in front of Battery DeLeon and moved by barge through the inside passage to Biscayne Bay during the last week of May 1942. This left only two 155 mm guns at Fort Taylor, mounted in front of Battery Covington's parapet. A platoon of Battery C of the 265th departed Fort Taylor by truck for the trip up the Overseas Highway to Miami Beach on May 25 and the barge load of GPF guns arrived at the Governor's



Elevation and plans of HEOP levels. (NARA)



Elevation and plans of HEOP levels. (NARA)

Cut entrance to the Port of Miami on May 27. The guns were unloaded at the government reservation on Fishers Island and emplaced in field positions so as to cover the approaches to the harbor entrance from the waters north and south of the channel. Later, Panama mounts were constructed for the guns.

Changes were also made in the dispositions of the 104th Combat Team. Several of its elements were shifted further to the north along the East Florida coastline, reducing even more the number of troops in the Florida Keys. With the movement of the 104th combat team out of the keys, Battery E of the 265th Coast Artillery was redeployed from its previous duties reconditioning and manning Battery Osceola to the former infantry bivouac area on Pigeon Key and assigned to patrol the line of communication and to provide guard details at strategic locations along the Overseas Highway. Battery F that had previously manned Battery Seminole's mortars was reassigned to the 12-inch guns of Battery Osceola.

Although most of the army units seemed to be headed north out of the keys, the garrison at Key West received a small reinforcement in the form of 3rd Platoon, 123rd Signal Company, that arrived from Fort Clinch, FL, on May 29. This unit arrived to enhance the radar and radio direction finding operations in the keys and communications that were found to be deficient during the operational inspection in May. The 123rd Signal Company's primary duty was tracking the radio emissions of German U-boats operating in the Florida Straits. Its direction-finding equipment operated in conjunction with other sites operated by the 123rd Company along the Atlantic seaboard.(308)

May and June 1942 brought a resurgence of U-boat activity in the Florida Straits, when several U-boats began operating off South Florida. U-564 sank four ships and damaged two others in rapid succession between Cape Canaveral and Miami in early May. Other U-boats passed through the Straits of Florida into the Gulf of Mexico, where they exacted a sizable toll in allied tonnage. A month later U-157, attempting passage from the Gulf to the Atlantic, was tracked as it departed the mouth of the Mississippi River and by the time the sub reached the waters off Key West, an armada of nine anti-submarine vessels that included three destroyers and two coast guard cutters, lay in wait. On the afternoon of June 13, the 165-foot USCG cutter *Thetis* made a strong sonar contact and in two runs over U-157 dropped 10 depth charges, sinking the German submarine. USS *Noa* (DD-343) and the Coast Guard

cutter *Triton* (WPC-116) and three subchasers dropped another 22 depth charges on the oil slick that boiled to the surface. These activities kept the harbor defenses on the alert. In an attempt to counteract the losses, the Key West-Norfolk Convoy link was established and a large anchorage established for the assembly of vessels prior to sailing, protected by hundreds of navy contact mines. The end of May also brought a change in the command structure in the Southern Sector, which became a subordinate element of the Eastern Defense Command, and Brig. Gen. H.F. Loomis relieved General Blood as sector commander. Col. P.L. Wall of the 265th Coast Artillery, commander of the Harbor Defenses of Key West, assumed additional duties as commander of the Florida Sub-Sector. At midnight, June 16, 1942, the headquarters of the Florida Sub-Sector was closed at Fort Taylor and at 0001 on June 17 opened at the duPont Building in downtown Miami. (309)

On June 24, Headquarters, Battery C, moved to Miami Beach to operate the newly established Temporary Harbor Defenses of Miami Beach, leaving a single platoon of the battery at Fort Taylor to man the remaining pair of 155 mm guns emplaced at Battery Covington. The men of the 265th drilled with the armament at Fort Taylor as they prepared for their batteries annual service practices. Functional firing of the 155 mm guns at Miami Beach was carried out on July 3. Activities at Fort Taylor included tracking missions with the AA guns and searchlights by Batteries D and G on July 10. During the months of July, August, and September, the batteries of the 265th conducted daily artillery drills and regular sub-caliber target practices. Batteries A, B, and F fired sub-caliber target practices between July 17 and 20, Batteries A and B each firing 100 rounds with the 37 mm sub-caliber guns of Batteries Inman and Ford. These practices culminated in the firing of their annual service practices for record. Battery B held its service practice at Battery Ford on July 22, firing 20 rounds of 3-inch service ammunition; Battery A fired its service practice, also of 20 rounds, at Battery Inman on July 23. On August 25 Battery C at Miami Beach fired its first service practice with the 155 mm guns there. On August 27, Battery B also fired a 155 mm service practice with the two 155 mm guns at Battery Covington.(310)



Target practice with 155 mm GPF guns. (NARA)

Battery D fired four trial shots with the 3-inch AA guns near the Union Street Gate on August 31. The battery fired another four trials shots on September 8 and on the 26th another trial shot problem was fired by the anti-aircraft battery.(311)

Battery F of the 265th Fires Battery Osceola

Upon replacing Battery E at Battery Osceola, Battery F completed the preparation of the 12-inch guns for service and commenced drilling on the guns July 1, 1942. The men of the battery drilled on the 12-inch guns from 9:30 until 11:30 a.m., five days a week throughout July and August. The battery's range detail manning the plotting room and the primary and secondary fire control stations also participated in the drills, and service conditions were simulated as far as possible. Battery F used 75 mm sub-caliber guns for their practices at Battery Osceola. Sub-caliber target practice was carried out between July 17 and 20, during which Battery F fired 50 75 mm sub-caliber rounds.(312)

Beginning in September, Battery F attempted to conduct its annual service practice. The first five attempts were thwarted when the high-speed target failed to stay afloat when the tow-line of the target sled parted before USS *Dahlgren* (DD-187) could bring the target sled up to the required speed of 12 knots. Finally on September 5, *Dahlgren* maintained her tow and the service practice was carried out. Four trial shots were fired followed by 10 shots for record. The powder charges used in the shoot proved to be generally too powerful and the split rings of the breech block of the No. 2 gun became so spread that the breech block became hard to close after the firing. Primer cases also became stuck, even though the seat was rammed thoroughly after every round. In spite of these difficulties, the final salvo of Battery Osceola straddled the target. Soon after firing its service practice, Battery F was transferred to Pigeon Key, where it relieved Battery E of the 265th. Battery E then returned to Key West.(313)

The Harbor Defenses in Operation

The antiaircraft battery and searchlights of the harbor defenses were frequently called upon at night to illuminate unidentified aircraft above Key West, giving the men of Battery D ample opportunity to practice tracking aircraft. U.S. Coast Guard patrol boats and other naval craft were frequently used to test the alertness of the HECF atop Battery Seminole and would attempt entry of the harbor undetected. Such attempts were countered by the HECF watch-keeping officers who called on the harbor defense searchlights manned by Battery G of the 265th to illuminate and identify the vessels. Practice alerts were held frequently and real alerts came on a regular basis as well; usually as a result of German U-boat activity in the Straits of Florida. In addition to the target practice with the fixed and mobile batteries, the men of the 265th also trained in infantry tactics, as they were now also responsible for their own local defense in the event of an enemy attack. Consequently, the batteries of the 265th spent at least three hours a week on the grenade course and even more hours on the rifle range. Because of Key West's important tactical and strategic position guarding the northern passage into the Gulf of Mexico, and because it represented the largest single command in the Florida Sub-Sector, it was frequently inspected by staff members of the Eastern Defense Command, the Southern Sector, and by the Florida Sub-Sector.(314)

October and November were generally routine, with the harbor defenses conducting the usual duties until November 6, 1942, when a late-season hurricane threatened the Florida Keys and it was necessary to recall Battery F from its outpost station at Pigeon Key. The storm skirted the keys and Battery F was able to return to its camp on that minuscule isle on November 7.(315)

Limited-Service Troops Alter the Character of the Garrison

On the last day of November 1942, the first limited-service troops began arriving at Fort Taylor. These men had been drafted but during their basic training were found ill-suited for overseas service by virtue of their age, physical condition, or minor ailments that precluded their assignment to for-

eign service. They could, however, perform the relatively less strenuous duties required in the nation's harbor defenses, and their presence in those defenses permitted the release of more able-bodied men for service in the field. The first group of 125 men were organized into a provisional training battery to begin their coast artillery training. At the same time the physical training of the personnel of the 265th increased. Each battery undertook a 10-mile march each week and general physical fitness was emphasized. The days of the 265th's tour of duty at Key West were now numbered.(316)

Changes in the Garrison Are Ordered

The decision was made in late summer 1942 to replace the 265th Coast Artillery with a still to be organized limited-service regiment of coast artillery. The new regiment organized at the Coast Artillery Training Center at Camp Pendleton, VA, was to be designated the 31st Coast Artillery (Harbor Defense) Regiment, and transferred to Fort Taylor to form Key West's harbor defense garrison. The limited-service troops that had begun arriving at Key West in November were slated for eventual assignment to this new regiment. As the 265th Coast Artillery was scheduled to be at Fort Jackson, SC, by the end of 1942, and the 31st Coast Artillery was not slated for organization until March 1943, arrangements were made to garrison the Key West harbor defenses during the interim period.(317)

Harbor Defenses Receive a Temporary Garrison

The interim garrison for Key West was resolved when the Eastern Defense Command made the 1st and 2nd Bns of the 50th Coast Artillery Regiment available to fill the necessary gaps in the defenses. The 50th Coast Artillery, under Col. Ellsworth Young, CAC, was a mobile unit equipped with 155 mm GPF seacoast guns. It had recently returned to Camp Pendleton from service on the Gulf Coast in Texas, Louisiana, and Alabama. Its 3rd Bn had, remained on detached service at Fort Morgan at the entrance to Mobile Bay, where it provided a garrison for the Temporary Harbor Defenses of Mobile, AL. While there was a need at Key West for personnel familiar with 155 mm guns, there was also a need for men familiar with manning the fixed seacoast batteries, which the 50th Coast Artillery did not have. As a consequence, the 2nd Bn of the 50th was slated to temporarily help operate the Harbor Defenses of Charleston, SC, so that 2nd Bn of the 263rd Coast Artillery stationed at Charleston Harbor could be temporarily posted at Key West along with the Headquarters and 1st Bn of the 50th Coast Artillery.(318)

The regimental Headquarters and Headquarters Battery and the 1st and 2nd Bns of the 50th Coast Artillery departed by troop train from Camp Pendleton on December 14, 1942, and arrived at Fort Moultrie in the Harbor Defenses of Charleston at 1600 the next day. At 0815 the morning of December 16, a troop train bearing the 50th Coast Artillery, minus its 2nd Bn, again got underway, reaching Homestead, FL, at 1800 on December 18. The next day the 1st Bn, 50th Coast Artillery, completed the 160 mile trip by troop convoy down the Overseas Highway to Key West, arriving there at 1700 on December 19.(319)

While the replacement units were being scheduled and moving toward Key West, the 265th continued its intensive regime of target practices with the seacoast armament, weekly route marches, and small arms qualification courses, while preparing to depart Key West. The platoon of Battery C of the 265th was withdrawn from the battery at Miami Beach and Battery F of the 265th was recalled from its outpost at Pigeon Key, leaving a 27-man detachment there for another three days before it too moved back to Key West. In the meantime, the 2nd Bn of the 50th Coast Artillery completed the relief of the 2nd Bn, 263rd Coast Artillery, at Fort Moultrie. Finally, at 1300 on December 20 an ad-

vance party comprised of five officers and 37 enlisted personnel of the 2nd Bn, 263rd Coast Artillery, left Charleston. The advance party of the 265th Coast Artillery, one officer and three enlisted men, departed Key West for Fort Jackson at midnight on December 21.(320)

On December 26, the main body of the 2nd Bn, 263rd Coast Artillery, departed Fort Moultrie and was scheduled to arrive in Key West on the 27. The morning after the arrival of the 263rd, the main body of the 1st Bn, 265th Coast Artillery, began the long truck ride north to Military Junction, the rail junction of the Seaboard Airline and Florida East Coast Railways, near Miami, where it was to board troop trains for Fort Jackson. Turning the harbor defenses over to the relieving units was completed by the end of December and the remainder of the 265th departed Key West on January 2, 1943.(321)

The firing batteries of the 1st Bn, 50th Coast Artillery, and the 2nd Bn, 263rd Coast Artillery, lost no time in assuming their new duties, and the headquarters units of the two battalions took over the command and control of the fire control groups.(322)

Headquarters and Headquarters Battery, Harbor Defenses of Key West, provided command and control of the harbor defense elements at Key West and manned the HDCP. Headquarters and Headquarters Battery, 50th Coast Artillery, assisted in providing command and control of the harbor defenses and manning the HDCP and HECP. Headquarters and Headquarters Battery, 1st Bn, 50th Coast Artillery, operated the 155 mm gun group at Key West. Battery A, 50th Coast Artillery, manned a battery of 155 mm guns at the West Martello Tower. Battery B, 50th Coast Artillery, initially manned the 3-inch guns of Battery Inman. In early 1943, the battery also manned several 90 mm guns on mobile mounts at the West Martello Tower Reservation.

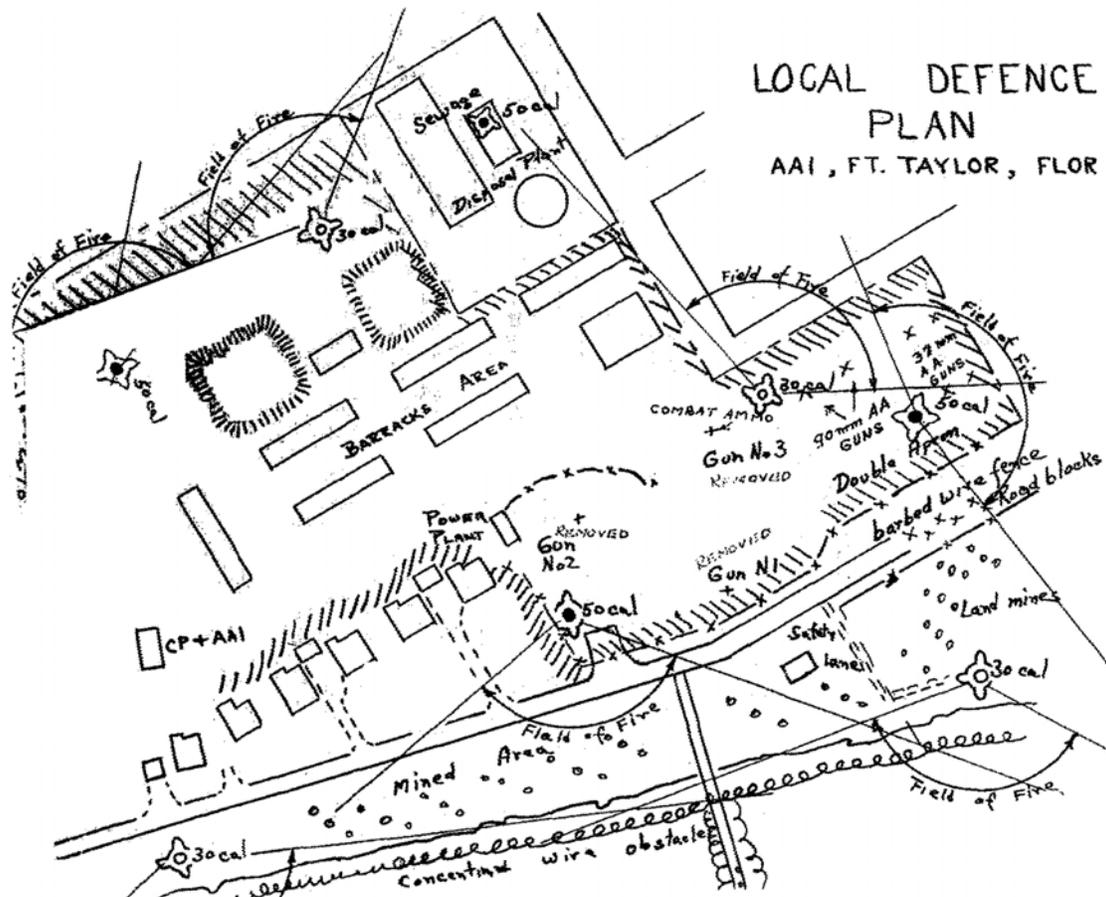
Battery G, 50th Coast Artillery (less its 3rd Platoon), manned the seacoast and antiaircraft searchlights at Fort Taylor, as well as a searchlight section on detached service attached to a field artillery battery at Fort Lauderdale.

Headquarters and Headquarters Battery, 2nd Bn, 263rd Coast Artillery, operated the Seaward Defenses and its fire control stations. Battery E, 263rd Coast Artillery, manned the fixed antiaircraft battery of 3-inch AA guns at Fort Taylor. Battery F, 263rd Coast Artillery, manned the 12-inch guns of Battery Osceola.

Fort Taylor's Antiaircraft Battery Becomes a Strong Point in the Local Defenses

Although all of the batteries had machine guns for local defense, the fixed battery of 3-inch anti-aircraft guns near the Union Street Gate to Fort Taylor was the principal defense against aircraft until the latter part of 1942, when the first 90 mm dual purpose guns began arriving. Throughout the first year of the war the battery of three 3-inch AA guns had formed a strong point in the land defenses of the fort. The battery remained basically unimproved, following its construction in 1921 until the addition by Battery E, 13th Coast Artillery, and post engineers of a third emplacement in December 1941.

Upon the arrival of the 265th Coast Artillery and the assignment of Battery D to the AA battery, splinter-proof service magazines were built at the battery site. Although not initially equipped with the proper gun directors or a height finder, the battery was assigned the primary mission of denying hostile aircraft access to the Key West Antiaircraft Defense Zone, a five-mile radius around the island of Key West. The defended installations of the battery, in addition to Fort Taylor and the Martello towers, included the navy operating base, the naval air stations at Key West and Boca Chica, Meacham Field north of the East Martello Tower, which had been transferred to the navy for use as its blimp base, and the city of Key West itself.



Layout of the local defenses of Antiaircraft Battery No. 1 at Fort Taylor. (After a drawing in NARA)

Battery D occupied five temporary barracks buildings, a messhall, and a day room about 100 feet to the rear of the guns. A power plant and an auxiliary director position as well as the command post for the battery were also in the vicinity of the guns. This entire battery location was encircled with barbed wire entanglements, land mines, and machine gun emplacements for local defense, making the position one of the primary strong points on the Fort Taylor Reservation.

Battery D manned the AA battery until it was relieved in December 1942 by Battery E, 263rd Coast Artillery. Battery E manned the battery until Battery F of the newly organized 31st Coast Artillery took over April 16, 1943.

In June 1943, a height finder and a new director were made available and emplaced atop sandbag mounds within the battery compound north of the battery's barracks area.(323)

In the latter part of 1943, two 90 mm M1 guns on M1 mobile mounts and four 37 mm M1 automatic weapons on mobile mounts replaced the three outdated 3-inch AA guns. The 3-inchers were removed and stored until they were declared surplus and scrapped. The new armament occupied the site until the end of the war.(324)

31st Coast Artillery Regiment Is Organized to Man the Key West Harbor Defenses

With the arrival at Key West of the temporary replacement units for the 265th Coast Artillery, two officers and 338 enlisted limited-service troops that had received some coast artillery training at Fort Taylor departed on January 14, 1943, for Camp Pendleton, slated for reassignment to the 31st Coast

Artillery (Harbor Defense) Regiment that had been constituted on December 31, 1942, in accordance with an Adjutant General's letter dated December 21, 1942, and designated as the permanent garrison for Key West. The regiment was activated at Camp Pendleton on January 15, 1943, less its Battery A, which was activated at Key West Barracks that same day. Battery A's personnel were obtained by reassigning officers and men from Headquarters and Headquarters Battery, Harbor Defenses of Key West, and by transfers of limited-service personnel from the 50th and 263rd Coast Artillery Regiments.(325)

The 31st Coast Artillery was organized as a Type B harbor defense regiment, with a headquarters battery and two battalions, each comprised of a headquarters battery and three firing batteries, and a regimental searchlight battery. A large percentage of the personnel assigned to the 31st were limited-service troops. Upon its activation, Battery A of the 31st took over the 155 mm GPF gun battery at Fort Taylor.(326)

The main body of the 31st Coast Artillery spent February and March completing its organization and training. On April 2 the regiment was finally ordered to Key West. An advance party of the 31st departed Camp Pendleton by train on April 7, reaching Fort Taylor on April 9 at 0900. The troop trains bearing the regimental Headquarters and Headquarters Battery and the 2nd Bn departed for Florida at 2330 on April 10 and arrived at Military Junction, near Miami, on April 12. There, the troops boarded buses for the 157-mile trip down the Florida Keys to Key West, arriving there at 1700 that evening. The rear echelons of the 31st, comprised of the Headquarters and Headquarters Battery and Batteries B and C of the 1st Bn, reached Key West at 2145 on April 16.(327)

As the 31st Coast Artillery began arriving in Key West, the 2nd Bn of the 263rd Coast Artillery was released from its duties in the harbor defenses, and led by an advance party, began departing for Charleston Harbor. The main body of the battalion left Key West at 0830 on April 16. Although the 31st Coast Artillery assumed charge of the defenses, elements of the 50th Coast Artillery remained at Key West until May 18, while the men of the 31st familiarized themselves with the harbor defenses, and on May 14, the 50th's advance party departed for the regiment's new station at Camp Hero on Montauk Point, Long Island, in the Harbor Defenses of Long Island Sound. The main body of the regiment assembled at the Miami rail junction where on May 19 it boarded trains for the trip north. On April 20, the Band of the 31st Coast Artillery arrived from Fort Hancock, NJ.(328)

The various elements of the 31st Coast Artillery were assigned to the harbor defenses:(329)

The regimental Headquarters Battery, four officers and 131 men, manned the harbor defense command post and the harbor entrance control post as well as the mine command at Fort Taylor.

Headquarters Battery, 1st Bn, two officers and 58 men, alternated with Battery C in manning Battery Inman at the West Martello Tower. Battery Inman functioned as the examination battery for the harbor defenses and was fully manned around the clock, seven days a week. Battery A, four officers and 154 enlisted men, was assigned to the 3-inch guns of Battery Ford at Fort Taylor.

Battery B, three officers and eighty men, was posted at the East Martello Tower, where it manned the battery of two 155 mm GPF guns.

Battery C, two officers and seventy-three men, was also assigned to the West Martello Tower, where it alternated with the battalion headquarters battery in manning Battery Inman pending the installation of a battery of 90 mm guns.

Battery D, four officers and 137 men, manned four 90 mm guns on the parapets of Batteries Osceola and Adair.

Battery E, five officers and 155 enlisted men, was assigned to the battery of four 155 mm GPF guns at Batteries Covington and DeLeon on the Fort Taylor Reservation.

Battery F, four officers and 157 men, was initially assigned to Fort Taylor's battery of 3-inch AA guns near the Union Street Gate of the Fort Taylor Reservation.

Battery G, the regimental searchlight battery, with six officers and 141 enlisted men, manned the nine GE-Sperry 60-inch seacoast searchlights in the harbor defenses.

In June 1943, not long after the 31st Coast Artillery had assumed charge of the harbor defenses at Key West, the regiment received a draft of 72 limited-service privates from Fort Sill, OK. On July 15, another detachment of trainees arrived from the Coast Artillery Replacement Center at Camp McQuade, CA. Additional replacements were received later in 1943. Thirty-seven men were received from the Antiaircraft Artillery Command, and 35 more from Fort Meade, MD, in November 1943.

The defenses were further augmented in July, when two 155 mm M1917M1 GPF guns were shipped to Key West from Fort Adams, RI. In anticipation of the arrival of the guns, a prefabricated 66-foot steel tower was erected between the previously prepared positions and communications were installed. Upon arrival, the guns were turned over to Capt. Wilbur P. Schmader, CAC, commanding officer of Battery B. The guns were towed to the East Martello Tower on July 21, where they were emplaced in prepared positions near the two previously emplaced GPF guns. The plotting room was equipped with a Whistler-Hearn plotting board and provided with an improvised range percentage corrector, a range correction board, and an improvised deflection board, as well as a Thompson spotting chart. An M3 spotting board was received on July 26, and on August 10, a 110° plotting board replaced the outdated Whistler-Hearn Board.(330)

Land Defenses Are Strengthened

Although the Eastern Defense Command had been quick to send infantry to Key West in the early months of the war, that had been reduced to a single company posted at Fort Taylor and another assigned to patrol the keys by the time the 265th Coast Artillery arrived from Texas in April 1942. Even these two companies were withdrawn from the keys by May of that year and Fort Taylor's coast artillery garrison assumed responsibility for the local defense, not only of the Fort Taylor Reservation and the two Martello reservations, but for that portion of the island of Key West encompassed within a radius of 20,000 yards of the Key West Lighthouse as well.(331)

The U.S. Navy, which occupied most of the north side of Key West Island, was responsible for the local defense of that side of the island. Throughout 1942, measures were taken to improve the beach defenses along the south shore. A total of 20 .50-caliber and 36 .30-caliber machine guns in sandbagged positions were provided to defend the beaches and as antiaircraft against low flying planes. Strong points encircled by barbed wire entanglements were developed at the East and West Martello Towers, and at Fort Taylor. The beaches of the south shore were strewn with concertina wire, land mines, and other obstacles. Movable roadblocks were positioned where Roosevelt Road passed through concentrations of beach defenses. Typically, the sandbagged .30-caliber and .50-caliber machine guns were positioned around the searchlights, fire control stations, and seacoast gun emplacements. These installations were also surrounded by barbed wire entanglements and land mines. Where the sandbagged machine gun emplacements positioned at intervals along the shore were located in the mine fields, safety lanes were provided for their manning detachments.(332)

The strong point established at the fixed AA battery near the Union Street entrance to the Fort Taylor Reservation was typical of those established at the Martello Towers. This location had the dual

purpose of serving as a beach defense strong point as well as covering access to the seacoast batteries from the rear. The three AA guns were laid out in a triangle and provided with sandbagged revetments. The fields of fire for two .50-caliber machineguns, also in sandbagged revetments, covered the beach which was further protected with concertina wire and land mines. A .30-caliber machinegun was emplaced near the shoreline in the mine field, accessible only through a safety lane through the mines. The westernmost .50-caliber machinegun was also able to cover the approaches to the reservation along Union Street. A .30-caliber machinegun to the rear of AA gun No. 3 and another .50-caliber gun atop a building in the sewage disposal plant covered the approaches from the northwest. Two more .30-caliber guns and another .50-caliber gun covered a minefield and more barbed wire entanglements bordering the north, or land, side of the reservation as far as the naval reservation.(333)

By 1943, after the arrival of the 31st Coast Artillery at Key West, a revised land defense plan had been finalized and implemented. A platoon of coast artillery at Fort Taylor, equipped as mobile infantry, was maintained in an alert status around the clock. This unit was reinforced by two M3A1 light tanks and a mobile searchlight section equipped with two 24-inch beach defense lights at the East Martello Tower. This alert platoon was supported by a platoon from the Headquarters Battery, 1st Bn, 31st Coast Artillery, at the East Martello Tower and a platoon from Battery A, 31st Coast Artillery, at the West Martello Tower. This composite company was further supported by local defense units of navy, coast guard, and marines at the adjacent naval operating base, the naval air station at Key West, Meacham Field, and the naval air station at Boca Chica. Artillery support would be provided by all land-bearing fixed and mobile coast artillery batteries and the available field artillery at Fort Taylor. (334)

AMTB Batteries Added to the Defenses

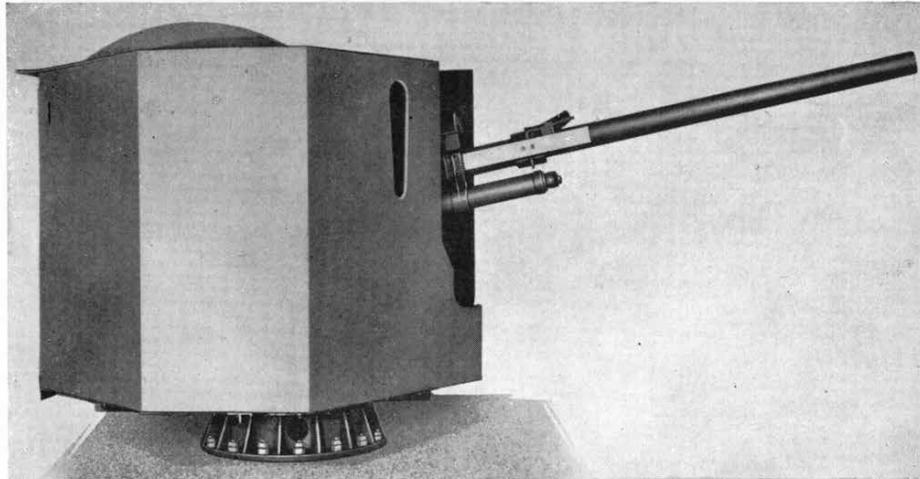
A few days after the hurricane of November 6, 1942, had passed, word was received at Fort Taylor that 90 mm guns had been authorized for Key West on October 24, 1942, as anti-motor torpedo boat (AMTB) batteries. These dual-purpose rapid-fire guns were slated to replace the 3-inch guns of Batteries Ford and Inman, and a reconnaissance was carried out by harbor defense staff to determine the best locations for these modern weapons.(335)

The first of the eight 90 mm M1 guns authorized for Key West arrived on November 14, 1942. Two more on M1 mobile carriages arrived on November 17, and on November 18 and 19, two more guns with M3 fixed mounts arrived. The remaining three 90 mm guns and the 37 mm automatic weapons were received by June 1943.(336)

Each of these two batteries consisted of two 90 mm M1 dual-purpose guns on fixed M3 mounts and two 90 mm guns on mobile M1A1 mounts, along with a pair of 37 mm M1 automatic weapons on mobile M1A1 carriages. The 37 mm guns were replaced in 1944 by 40 mm automatic weapons. Their primary purpose was as AMTB batteries, and in a secondary role, as part of the antiaircraft defenses of the island. Both batteries were provided with a self-contained fire control system consisting of a battery commander's station, a tracker, a height finder, and base end stations, all of which were placed atop steel-frame towers. Neither of these batteries was sufficiently completed to place in service until June 1943, after the arrival of the 31st Coast Artillery.

AMTB Battery No. 1 (Tactical Battery No. 5)

The four guns of AMTB Battery No. 1 at Fort Taylor were emplaced on the parapet slopes of Battery Adair in the old Third-System fort. One of the fixed mounts for a 90 mm gun was built atop the



90 mm M1 gun on an M3 fixed mount of the type provided the Harbor Defense of Key West.
(*Seacoast Artillery Weapons*)

west tower bastion and the second at the No. 4 Emplacement of Battery Adair. Its two 90 mm guns on mobile mounts were positioned on the parapet in front of Battery Adair. The provisional position finding system for the AMTB battery on the parapet of Fort Taylor was provided with a 110° plotting board that was installed on May 5, 1943. It remained in place until January 15, 1944, when a standard fire control system was placed in service. The battery also received a height finder on May 10 and a DPF on May 17. The slide rule computer used with the height finder was not installed, however, until August 29, 1943. An M9 director with an M2 height finder for use with the standard position finding system was installed on September 15, 1943. Base end stations were provided with M1910A1 azimuth instruments.(337)

AMTB Battery No. 2 (Tactical Battery No. 6)

The guns of AMTB Battery No. 2 were emplaced on the beach side of Roosevelt Road near the 155 mm gun battery just to the west of the West Martello Tower. The fire control arrangement, and equipment provided for the battery at the West Martello Tower Reservation, was set up across Roosevelt Road from the four guns among the barracks and other support structures on the reservation. The battery commander's station was installed in a two-level house atop a 30-foot steel tower completed on July 1, 1943. Its upper deck was equipped with two M1910 azimuth instruments and a battery commanders telescope.

The lower level of the station served as a searchlight controller booth. An M19 distant electric controller (DEC) for 60-inch Searchlight No. 6 several hundred feet west of the AMTB battery also contained another M1910 azimuth instrument. The position finding system for the AMTB battery was initially equipped with a 13½-foot M2 stereoscopic range finder (height finder), manufactured by GE, mounted atop a 30-foot tower to the west of the battery commander's tower. An M2 tracker was installed atop another 30-foot tower nearby. Erection of the steel-frame towers for the height finder and the tracker were not completed and their equipment installed until February 15, 1944. Construction of a plotting, or computer, room for the battery was completed in March 1944, to the rear of the guns across Roosevelt Road. This reinforced-concrete structure was covered by a thick layer of sand, both to provide protection to the command elements it housed, and to camouflage the building. The plotting room was equipped with an M2 altitude converter, an M3 computer, a range correction board, a wind

component indicator, and an M1 range percentage corrector. In addition, a lateral adjustment board, a deflection board, and a bracketing adjustment chart were installed in the plotting room. The final element of the fire control system was an SCR-547 radar unit. Installation of the radar set was completed near the battery site by April 28, 1944.(338)

Battery E, which had been manning the pair of 155 mm guns at Fort Taylor, took over AMTB Battery No. 1. Battery C of the 31st was reassigned to AMTB Battery No. 2. The gun blocks of the two fixed 90 mm guns of Battery No. 2 are still extant.

On May 9, 1943, before all of the armament had arrived at Key West, and long before the AMTB batteries' fire control systems were fully in place, nine settling rounds were fired from No. 2 Fixed 90 mm Gun at the West Martello Tower by Battery C, 31st Coast Artillery Regiment. Eight more rounds were fired by the No. 1 Fixed Gun on May 19. The battery's armament was not fired again, however, until December 12, 1943.(339)

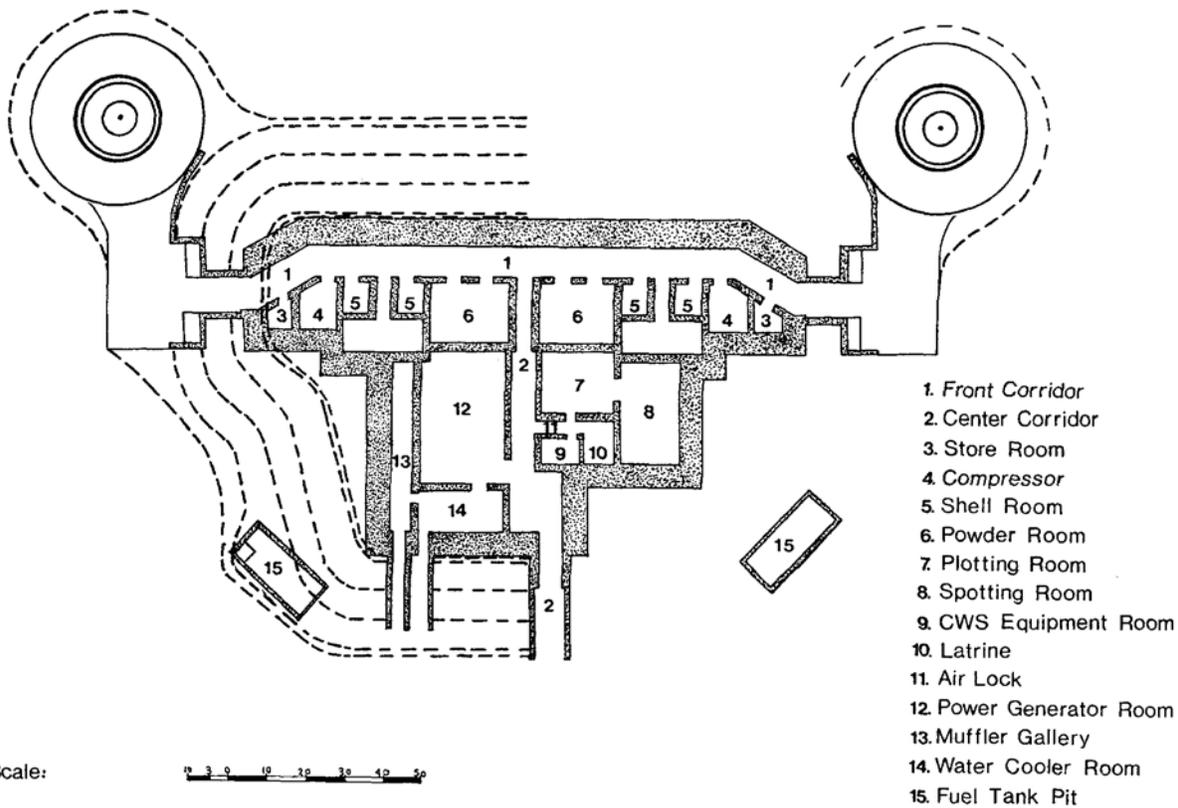
Some of the 90 mm guns had been in place at Key West for less than a year when on December 18, 1943, the Eastern Defense Command concluded that attacks along the Atlantic seaboard by enemy vessels was highly unlikely, and directed that the 90 mm guns on mobile carriages be taken out of service and placed in storage as Class "C" armament. The 90 mm guns on fixed mounts were, however, to be kept in place for the time being and maintained as Class "A" armament. Their primary mission was now redefined as an adjunct to the island's antiaircraft defenses, and secondarily as seacoast armament. The first seacoast calibration firing of the 90 mm guns at the West Martello Tower was fired by Capt. P.R. Smith's Battery C, 31st Coast Artillery, on February 8, 1944. On December 4, 1944, Battery A, 31st Coast Artillery, calibrated those same guns for use as an antiaircraft battery.(340)

1943 Joint Army-Navy Maneuvers

With the arrival of a new permanent harbor defense garrison, training and maneuvers were intensified at Key West. Between September 24 and 27, 1943, the "Harbor Defenses of Key West Joint Army-Navy Maneuver" was conducted. This large-scale exercise began with "enemy" submarines surfacing and simulating firing on Key West to draw fire from the harbor defense batteries. The second day "enemy" planes flew over the island on reconnaissance missions, dropping pamphlets while ships representing destroyers simulated a bombardment of the island from some 10,000 yards to seaward. Later on, the second day of the maneuvers, bombers dropped one-pound flour sacks on Fort Taylor and its batteries, and on the Key West Naval Station. Small craft representing motor torpedo boats attacked shipping in and around the harbor, and a landing was made by commandos. On the third and final day of the maneuvers, elements of the 3rd Bn, 144th Infantry Regimental Combat Team, carried out a "commando" landing and made three attacks on positions and installations around the island city. The platoon of airborne troops stationed at Miami was air dropped in the vicinity of Meacham Field and the East Martello Tower to make an assault on the tower early in the morning of the maneuvers' last day.(341)

Modern Defenses Planned and Implemented

The upgrading of the nation's harbor defenses that had been planned in 1940 was implemented in 1941, when sites for a large number of casemated primary batteries for powerful 16-inch guns and secondary batteries of long-range 6-inch guns were approved by the War Department. Although the 1940 Harbor Defense Modernization Program was modified several times during the course of World War II, the two batteries of long-range 6-inch guns authorized for Key West were retained in the program. These were designated Battery Construction Nos. 231 and 232.(342)



Plan of the magazine/service traverse between the 6-inch gun emplacements of Batteries 231 and 232. (W.C. Gaines Collection)



6-inch shielded gun of the type emplaced at Battery 232 in the Salt Ponds. (W.C. Gaines Collection)



Key West view late 1940s, BCN 231 is located center bottom between the empty emplacements of Battery DeLeon and Battery Covington (NARA)



BCN 232 at the Salt Ponds, Key West, 1945 (NARA)

Battery 231 was to be built on the Fort Taylor Reservation in the angle between batteries Covington and DeLeon. Battery 232 was to be built about halfway between the two Martello Towers and about 500 yards inland from the beach at the newly acquired location north of Meacham Field known as the Salt Ponds. The 6-inch guns of these batteries would have all-around fire and a maximum effective range of 20,000 yards. The construction project for Battery 231 would result in the removal of portions of Batteries Covington and DeLeon.

Construction of the two batteries began in 1942, and by March 1, 1944, all four of the fixed emplacements were about 90 percent complete, and ready to receive their M3 barbette carriages and cast-steel gun shields. Battery 232 at the Salt Ponds was equipped with its T2(M1) 6-inch guns and placed in service later in 1944. Battery 231, on the Fort Taylor Reservation, however, did not receive its armament prior to the end of the war.(343)

Three steel-frame fire control towers were built to serve as base end stations for the two long-range 6-inch gun batteries. One of the three towers was erected in a spoils area just off the northeast side of Fleming Key, adjacent to the seadromes of the navy's seaplane base at Key West. This tower had two tiers; one served as a combination observing and spotting station for Battery 231 and the other for the observing and spotting station for Battery 232 that raised its total height to almost 110 feet. A second 120-foot steel-frame tower was at the east end of the Fort Taylor Military Reservation. The uppermost of the three levels served as the observing station for Gun Group 1 (G-1), while the two lower levels served as primary base end and spotting (B¹S¹) stations for Batteries 231 and 232. It had three observing levels. The lowest of the three had a ceiling height of five feet, ten inches, while the middle and upper levels each had ceiling heights of eight feet. The third of the towers, also 120 feet high, was on a narrow neck of land at the south end of Stock Island. Its two levels housed the B²S² stations for the two 6-inch gun batteries. The base end stations atop these three towers were wooden, sheathed with asbestos siding and roofs, and were transferred to the coast artillery on March 9, 1943.(344)

On October 27, 1943, the battery commander's stations (BCS) for Batteries 231 and 232 were transferred to the garrison. The BC station for Battery 231 was atop an 84-foot tower directly to the rear of Battery 231's No. 2 Emplacement between the remains of the old Endicott Batteries Covington and DeLeon. Its design was similar to that of the other tower, but had only a single 12 feet square observing level constructed of steel and gunite. It was also equipped with a pair of M1910A1 azimuth instruments. The BCS for Battery 232 was to the rear of the battery atop a 96-foot steel-frame tower erected on a small island in the Salt Ponds. The tower was surmounted by a two-story, 12-foot square building constructed of steel and gunite, equipped with two M1910A1 azimuth instruments. (345)

Searchlight Project

Another element of the updated harbor defense project called for an increase in the searchlight defenses. A total of 11 60-inch searchlights would be required under the new project: the original five fixed lights plus five more portable lights with an 11th light to be held in reserve as a spare. The five new lights were to be installed atop steel towers on Fleming Key, at Fort Taylor, and atop the West and East Martello Towers. When not in use, the five portable lights were to be stored in a 60 by 24-foot storage building that had been erected in the latter part of 1941, near the northeast corner of the Fort Taylor Reservation next to the reservation's east fence.(346)

The addition of six additional GE M1940, M1941, and M1942 and Sperry M1941 60-inch searchlights to the harbor defenses in the early 1940s resulted in renumbering the searchlight positions:(347)

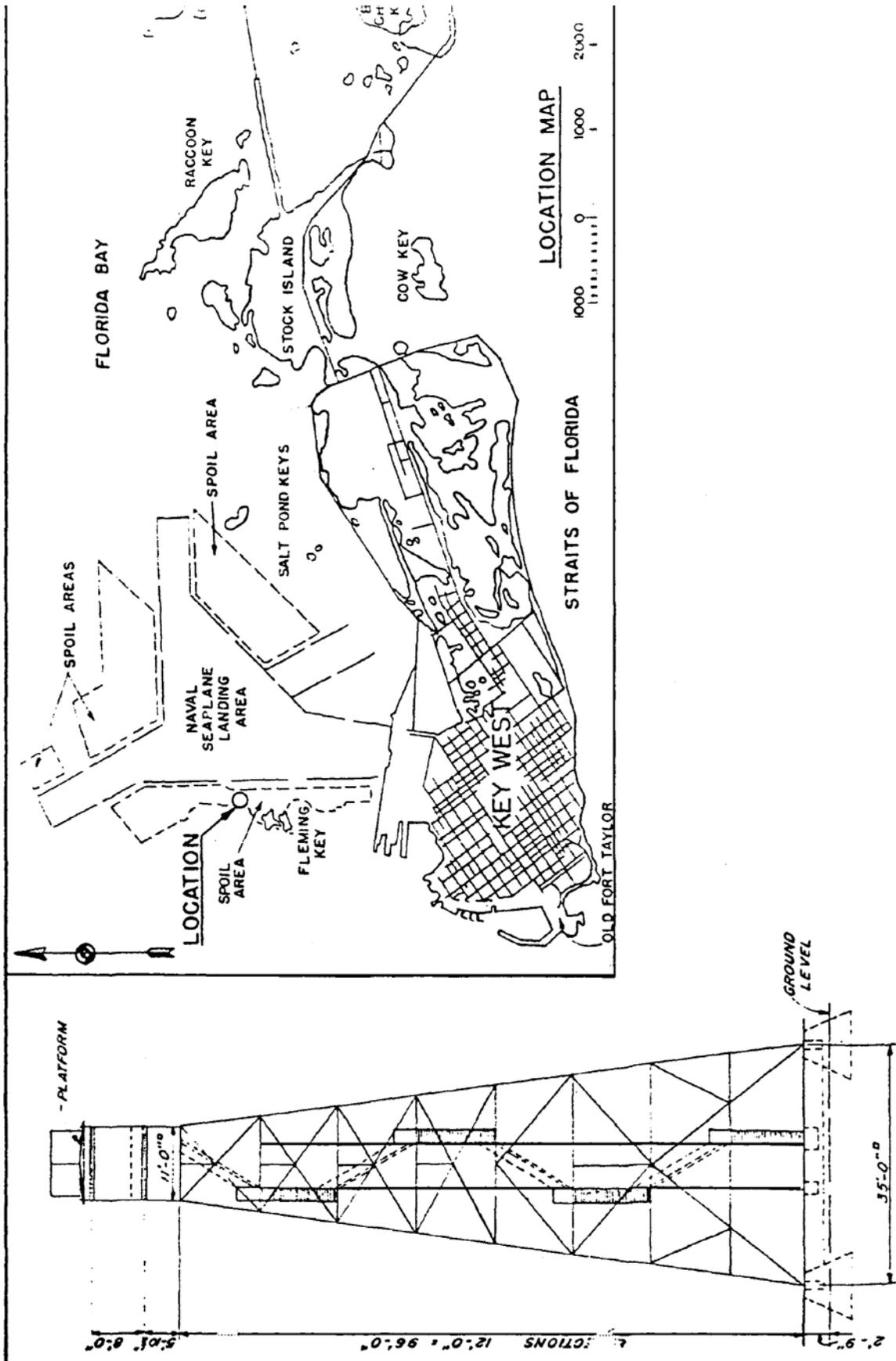
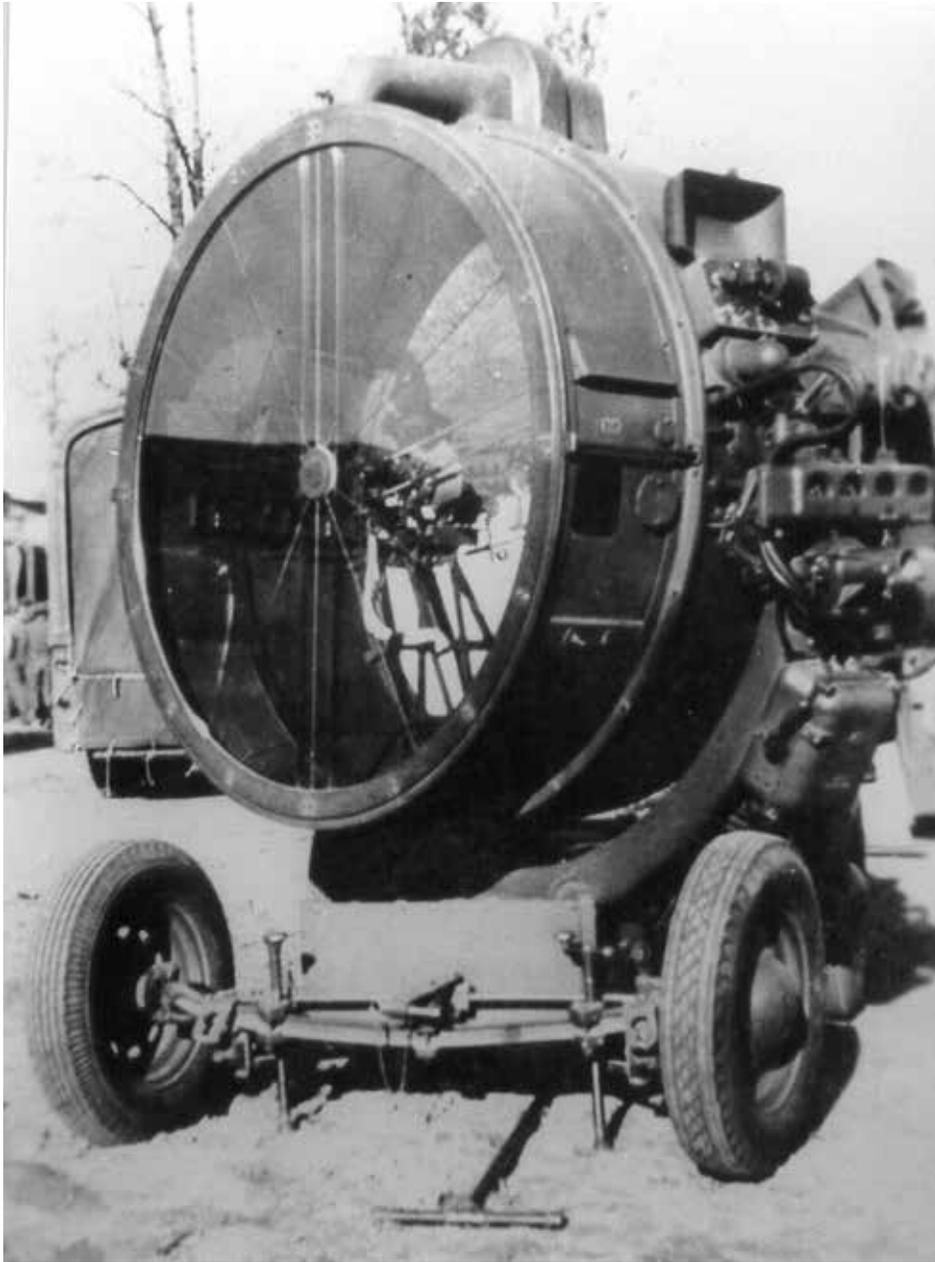


Illustration of the 96-foot tower erected on Fleming Key, which served as base end stations for the projected 6-inch long-range guns. at Key West. (NARA)



A 60-inch portable searchlight of the type provided to the HDKW in the early 1940s. (NARA)

Searchlight No. 1, a portable light, was atop a tower on the fill area north of Fleming Key, just north of Key West.

Searchlight No. 2, a portable light, was atop a tower on the fill area north of Fleming Key. Searchlight No. 3, a portable light, was atop a tower adjacent to the northwest parapet of the old fort, replacing the old Fixed Searchlight No. 2.

Searchlight No. 4, a portable light, was atop a tower on the coverface east of the old fort, replacing the old fixed Searchlight No. 2 that had been dropped in 1943 and damaged beyond repair.

Searchlight No. 5, a fixed GE light atop a 40-foot wooden tower at the east end of the Fort Taylor Reservation near the anti-aircraft battery, had formerly been designated Fixed Searchlight No. 3

Searchlight No. 6, a fixed light, was on a tower at the east end of the Fort Taylor Reservation.

Searchlight No. 7, a fixed GE light on a 60-foot wooden tower about 175 feet west of the West Martello Tower, had formerly been designated Fixed Searchlight No. 4.

Searchlight No. 8 was a fixed GE light on a 40-foot tower at the east corner of the East Martello Tower Reservation, formerly designated Fixed Searchlight No. 5.

Searchlight No. 9, a portable light, was atop the East Martello Tower.

Searchlight No. 10, a portable light, was atop a wooden tower at the East Martello Tower.

Downsizing the 31st Coast Artillery and the Harbor Defenses of Key West

The 31st Coast Artillery, as originally organized, manned the Harbor Defenses of Key West through the end of 1943 and conducted regular target practices with the ordnance on hand. The older armament that remained had been reduced to the 12-inch guns of Battery Osceola, which had been placed in maintenance status soon after the departure of Battery F of the 263rd Coast Artillery in the spring of 1943, and the 12-inch mortars of Battery Seminole, also in maintenance status since the latter part of 1942. By November 1943, however, the removal of these old guns and mortars was underway. On December 11, 1943, the War Department directed that Battery Osceola's obsolete "guns, carriages, ammunition and accessory equipment" be removed and scrapped or otherwise disposed of in accordance with regulations.(348)

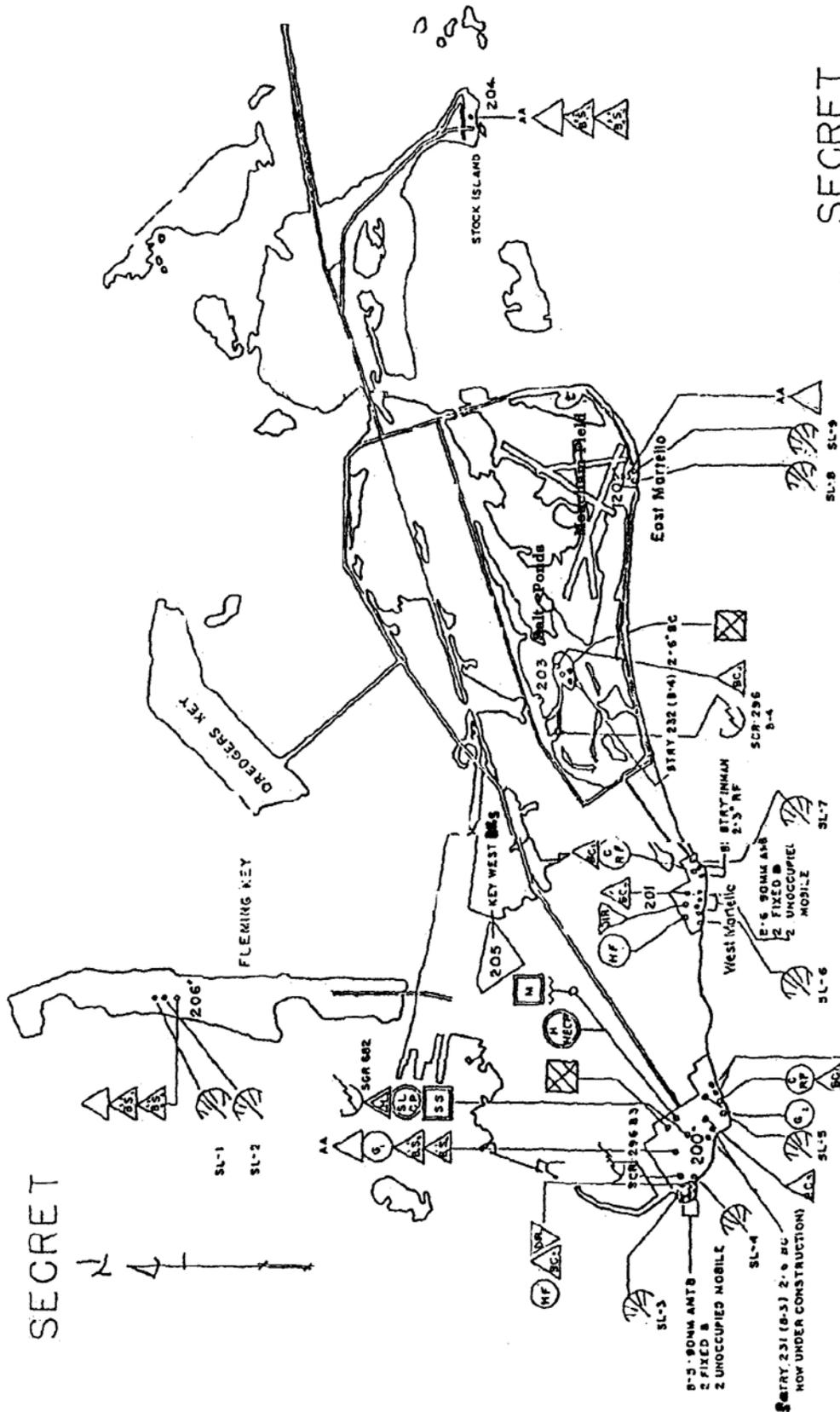
On December 30, 1943, Headquarters Battery and Battery A fired special service practices with the guns of Batteries Ford and Inman, while Batteries C and D conducted a calibration firing and carried out special service practices with the fixed 90 mm guns. Battery E conducted a special target practice with the 155 mm guns. With the placing in service of the 90 mm and 37 mm guns, the harbor defense command was able to reduce the number of men required for the defense of the harbor. Batteries Ford and Inman were placed in a reduced manning status, as was Fort Taylor's 3-inch AA Battery.(349)

On January 29, 1944, the 31st Coast Artillery was reorganized and the headquarters batteries of the 1st and 2nd Bns were transferred to Fort Jackson to be inactivated and their personnel reassigned to other units of the Army Ground Forces. On February 28, 1944, two of the mobile 90 mm guns and a 37 mm gun then in storage at Fort Taylor were taken to Fort Lauderdale Beach by Battery B, 31st Coast Artillery. There they relieved Battery D of the 53rd Coast Artillery and took over the responsibilities for the Temporary Harbor Defenses of Fort Lauderdale.(350)

Batteries C and F were also reassigned to relieve batteries of the 53rd Coast Artillery then manning the Temporary Harbor Defenses of Miami on Fisher's Island at the Government Cut entrance to the Port of Miami, and the Temporary Harbor Defenses of Tampa, located at Pass-A-Grille Beach on the north side of the entrance to Tampa Bay. Each of these two batteries took a pair of 90 mm guns on mobile carriages and a 37 mm gun. Early in March 1944, Battery G was also transferred out of the defenses and inactivated, with the exception of one platoon that continued to man the searchlights at Key West.(351)

Concurrent with these changes, the Eastern Defense Command was also reorganized and downsized. The Southern Sector was inactivated and absorbed by a newly authorized Southeastern Sector of the Eastern Defense Command.(352)

SECRET



HARBOR DEFENSES OF KEY WEST PRESENT &	Revised	Date
	PROPOSED INSTALLATIONS	
Prepared By	31 March-1945	
HO. H.D.K.W.	EX. NO. 1-A	

SECRET

NOTE:
 LOCATION NUMBERS,
 NO LOCATION HAS BEEN
 CHOSEN FOR THE 120MM
 A.A. BTRY

Elements of the Harbor Defenses of Key West in 1944. (NARA)

Batteries Ford and Inman Placed in Maintenance Status

With the emplacement of the 90 mm guns and their assignment as examination batteries, the two remaining batteries of 3-inch guns in the harbor defenses were no longer required. Consequently, Harbor Defense Commander Col. Jeffords directed that Battery Ford and Battery Inman be placed in Class B Maintenance Status. All ammunition and the battery tools and preservation equipment, spare parts, and fire control equipment were turned over to the Ordnance Section at Fort Taylor. On March 18, 1944, the status of this armament was reduced to Maintenance Status C, in light of the recent reorganization of the harbor defenses at Key West. On October 18, 1944, the now empty No. 3 and No. 4 Emplacements for mobile 90 mm guns at the West Martello Tower were washed out by the storm surge of a hurricane, the guns having been relocated to one of the temporary harbor defenses the previous March.(353)

Joint Army-Navy Exercises of 1944

As the reorganized harbor defenses and most of the modernized batteries, facilities, and equipment were in place by the end of summer 1944, a three-day Joint Army-Navy Maneuvers was planned for the end of November 1944 to measure the effectiveness of the downsized harbor defenses. These exercises involved the U.S. Navy's Operating Base, its Fleet Sonar School, and aviation units from the Boca Chica Naval Auxiliary Air Station.

Aircraft from Boca Chica acted as enemy aircraft that carried out reconnaissance flights that provided information to "enemy" naval surface units to would aid them in formulating their attack plans. These flights were "opposed" by the antiaircraft batteries at Fort Taylor and other locations on the island. An air attack by 47 patrol bombers, dive bombers, and fighters followed the aerial reconnaissance, during which the harbor defense installations were bombed with flour sacks and subjected to simulated strafing. After "softening" up the island's defenses, 18 ships began a simulated bombardment of the army and naval installations at Key West and soon afterward, a landing was carried out by a detachment of Headquarters Battery of the 31st Coast Artillery that attempted to infiltrate the harbor defense installations. This force was met and repulsed by the alert platoon that represented the harbor defenses' beach defense force.(354)

31st Coast Artillery Regiment inactivated and Redesignated

Outside of the usual garrison duties, and the routine drills and exercises, activity in the Harbor Defenses of Key West was limited. By October 1944, the necessity for even a moderate-size harbor defense garrison had declined greatly, and the 31st was again reduced and reorganized. Batteries B, C, and F, then on detached duty at the Temporary Harbor Defenses of Fort Lauderdale, Miami, and Tampa, were redesignated respectively the 250th, 251st, and 252nd Coast Artillery (Harbor Defense) Batteries (Separate) and permanently detached from the 31st Coast Artillery Regiment, which was then inactivated. The remaining personnel from Batteries A, D, E, and G were reassigned within the Key West harbor defense command as elements of the Harbor Defenses of Key West (HDKW) commanded by Col. R.E. Turley, Jr. The regimental Headquarters and Headquarters Battery was redesignated as Headquarters and Headquarters Battery, HDKW; Battery A, 31st Coast Artillery, was redesignated Battery A (AMTB), HDKW, and manned the pair of 90 mm guns at the West Martello Tower. Battery D, 31st Coast Artillery, was redesignated Battery B (6-inch gun), HDKW, assigned to the new 6-inch battery at Salt Ponds. Battery E, 31st Coast Artillery, was redesignated Battery C, (AMTB), HDKW, and assigned to the 90 mm guns at Fort Taylor; the Antiaircraft Searchlight Pla-

toon of Battery G was redesignated Battery D (Searchlight), HDKW, and assigned to the searchlights in the harbor defenses.(355)

Battery A, HDKW, with three officers and 127 enlisted men, manned the two 90 mm guns on fixed mounts, as well as two 40 mm guns on mobile mounts of AMTB Battery No. 2 (Tactical Battery No. 6) at the West Martello Tower, while Battery D's four officers and 101 men manned the newly completed 6-inch guns of Battery No. 232 (Tactical Battery No. 4). Battery E, with three officers and 127 men, was assigned to the fixed-mount 90 mm and mobile-mount 40 mm guns of AMTB Battery No. 1 (Tactical Battery No. 5) that was adjacent to Battery Adair at Fort Taylor. This battery had been redesignated the Harbor Defense Examination Battery when Battery Inman was placed in maintenance status. Battery Ford (Tactical Battery No. 1), had no manning detachments as it had also been placed in maintenance status. Battery 231 (Tactical Battery No. 3), the other 6-inch gun battery located between the old Batteries Covington and DeLeon, had no manning detachments as it had not yet received its armament.(356)

On March 24-25, 1945, a harbor defense maneuver was conducted to test the operational efficiency of the reorganized harbor defenses at Key West. In this instance, Batteries A and C manned the 90 mm, 40 mm, and 37 mm guns of the AMTB batteries against attacking aircraft. Battery B functioned as an infantry unit opposing an enemy landing force simulated by the 1459th Station Complement Unit.(357)

Key West Harbor Defenses Inactivated

The Harbor Defenses of Key West underwent still another reorganization on April 1, 1945, when the personnel allocated to the harbor defense headquarters battery was increased to 23 officers, 3 warrant officers, and 151 enlisted men. Batteries A and C were, however, inactivated, their personnel being reassigned to Batteries B and D. The examination battery was taken over by a detachment from headquarters battery. The Salt Ponds Reservation and East Martello Reservations were also inactivated. Batteries B and D remained active through the end of the war, although in the later part of 1945, both Batteries B and D were reduced in strength.(358)

The headquarters of the Harbor Defenses of Key West moved to Key West Barracks on February 8, 1946. On February 25, the HDOP was closed and inactivated, and the radio station went off the air and was inactivated two days later.(359)

On June 30, 1946, the remaining elements of the Harbor Defenses of Key West, Headquarters and Headquarters Battery, HDKW; Battery B; and the AA platoon of Battery D, were inactivated and government property placed in the hands of a newly activated SEVENTH ARMY coast artillery caretaker detachment, consisting of five officers, one warrant officer, and 40 enlisted men.(360)

Over the following months, the remaining armament was taken out of service and either stored or scrapped, and the Fort Taylor Military Reservation was absorbed into the Key West Naval Station. The U.S. Navy used the army's fortifications and other installations largely for storage. Gradually the obsolete seacoast gun batteries of the Endicott period as well as the modern batteries and installations behind the old brick fort were demolished and a portion of the space used to erect family quarters for naval personnel at the Key West Naval Station.

In 1968, the first efforts since World War II toward preserving the old brick fort were begun by Howard England, a retired civilian architect at the naval station. This nearly single-handed effort by England eventually gained recognition for the old fort. The uncovering of a large collection of mid-19th-century seacoast ordnance that had been sealed up in the lower tier casemates of the Third-System fort for nearly three quarters of a century justified a major effort to recover and preserve the guns and other remnants of the time when Fort Taylor and its small garrison saved Key West for the Union. Today the fort is a Registered National Historic Landmark and administered as a Florida State Historic Site.(361)



West Martello Tower and Battery Inman, 1940s (NARA)



Fort Zachary Taylor, 1930s (NARA)

Endnotes

281. Stetson Conn, Rose C. Engelman and Byron Fairchild, *United States Army in World War II: The Western Hemisphere Guarding the United States and Its Outposts*, Office of the Chief of Military History, GPO, 1964, pp. 44-54. Eastern Defense Command, *History of the Eastern Defense Command*, Raleigh, N.C., 1945, p. 24.
282. Eastern Defense Command, *History of the Eastern Defense Command*. Robert D. Zink, "The Six-Inch Part of the Modernization Program of 1940," *CDSG Journal*, Vol. 8, No. 2 (May 1994), p. 26.
283. Fort Taylor Record Book.
284. Chief of Coast Artillery to the Adjutant General, July, 27, 1940, "Abandonment of Harbor Defense Posts No Longer Required for Seacoast Defense," Harbor Defense Modernization Project File, RG 407, Archives II, NARA.
285. Fort Taylor Record Book.
286. Historical Data Sheet and Station List, Headquarters and Headquarters Battery, 1st Bn, 13th Coast Artillery (Harbor Defense) Regiment, Organizational Records Unit, Military Personnel Records Section, National Personnel Records Center, St. Louis, MO. Hereafter: ORU, MPRS, NPRC. Field Order No. 1, January 10, 1942, Headquarters, Southern Sector, "History of the Southern Sector," Eastern Defense Command, Vol. I, RG 407, Archives II, NARA. Hereafter: "History of the Southern Sector."
287. RCW, Coast Defenses of Key West, Fla., Fort Taylor, Battery De Leon, Corrected to September 30, 1921; RCW, Harbor Defenses of Key West, Fla., Fort Taylor, Primary Station, Battery DeLeon, Corrected to August 15, 1922; RCW, Harbor Defenses of Key West, Fla., Fort Taylor, Secondary Station, Battery DeLeon, Corrected to August 15, 1922, RG 77, SRRC, NARA. These fire control stations were slated for removal in 1943, the primary station being considered a hazard in the outfield of Fort Taylor's baseball field. The two remaining 10-inch guns and their disappearing carriages at Battery DeLeon were removed and scrapped in 1942 and the battery structure was partially demolished that same year for construction of the modern Battery 231. The remainder of the battery was covered with fill about 1962 in connection with construction of navy family housing.
288. Southern Coastal Frontier, Headquarters, Southern Sector to Commanding General, Eastern Theater of Operations, Disposition of Combat Teams January 1, 1942, History of the Southern Sector, Vol. II, RG 407. History of the Southeastern Sector of the Eastern Defenses Command, 1 March 1944 to 15 May 1945, Appendix II, p. 42. Gaines, "The Coast Artillery at Pensacola Bay 1898-1946," pp. 19-33. Gaines, "13th Coast Artillery (Harbor Defense) Regiment" *CDSG Journal*, Vol. 7, No. 2 (May 1993), pp. 49-58.
289. Fort Taylor Record Book.
290. History of the Southern Sector, Vol. II, Periodic Report No. 1, December 29, 1941; Periodic Report No. 5, January 2, 1942.
291. The Overseas Highway was the successor to the Florida East Coast Railway's extension from Homestead to Key West. The railroad was totally destroyed on Labor Day 1935 by one of the worst hurricanes to ever strike the Western Hemisphere. The center of the hurricane passed across the Keys just below Lower Matacumbe Key, where some six hundred CCC workers, most of them veterans of the World War, were employed on various public works. These CCC workers and an estimated four hundred more persons lost their lives in the catastrophe. From September 1935 until 1938, Key West could only be reached by aircraft or surface vessel. The Overseas Highway and Toll Commission purchased the railroad right of way and remaining bridges from the Florida East Coast Railway in 1936 and built a highway to Key West. During World War II, the highway was extensively improved, with new bridges and roadways. W.F. McDonald, "1935: The Hurricane of August 31 to September 6, 1935," *Monthly Weather Review*, Vol. 63, pp. 269-71. "A Brief History of Pigeon Key, Pigeon Key Restoration Foundation, 1998. History of the Southern Sector, Vol. II, S-3 Report No. 1, December 29, 1941; S-3 Report No. 5, January 2, 1942.
292. History of the Southern Sector, Vol. II, S-3 Report No. 1, December 29, 1941; Periodic Report No. 5, January 2, 1942.
293. *Ibid.*

294. History of the Southern Sector, Vol. II, S-3 Report No. 4, December 31, 1941, to January 1, 1942; Periodic S-3 Report No. 8, January 6, 1942.
295. History of the Southern Sector, Vol. II, S-3 Report No. 19, February 15, 1942; S-3 Report No. 22, March 8, 1942.
296. History of the Southern Sector, Vol. II, S-3 Report No. 26, April 5, 1942; S-3 Report No. 27, April 12, 1942.
297. William C. Gaines, "Coastal and Harbor Defense of Galveston, Texas," *CDSG Journal*, Vol. 7, No. 3 (Summer 1993), p. 25. "Harbor Defenses of Los Angeles in World War II," *San Pedro Bay Historical Society Shoreline*, pp. 7-8.
298. The Redlands Transient Camp was one of several camps for migratory farm workers in the large truck farming area in the southern part of Dade County, FL. History of the Southern Sector, Vol. II, S-3 Report No. 28, April 19, 1942; S-3 Report No. 30, May 3, 1942; S-3 Report No. 33, May 24, 1942.
299. Upon arrival of the elements of the 13th Coast Artillery at Camp Pendleton and Fort Story, VA, they were inactivated and their personnel reassigned to the 53rd Coast Artillery being reorganized. The inactive batteries of the 13th Coast Artillery were then transferred, minus personnel and equipment, to Fort Barrancas near Pensacola, where they were reactivated. History of the Southern Sector, Vol. II, S-3 Report No. 29, April 26, 1942; S-3 Report No. 29, April 29, 1942.
300. The army had turned over a sizable parcel of the East Martello Tower Reservation in the mid-1920s to the FAA for a beacon installation. This tract was enlarged to provide Key West with its first airport. Meacham Field was named for Edward Meacham, who had purchased the tract for an airport from the Key West Realty Corporation in 1925. Pan American Airways operated the airport from 1927 until early 1942, when the airline leased the field to the army. In January 1944 the army turned the field over to the navy, who operated the field as a base for its lighter than air (blimp) antisubmarine patrols.
301. History of the Southern Sector, Vol. II, S-3 Report No. 30, May 3, 1942.
302. *Ibid.*
303. *Ibid.*
304. RCW, Battery Seminole; Emplacement Book, 155 mm Battery No. 7, East Martello Tower, Entry 150, Box 1, Harbor Defenses of Key West, Present and Proposed Installations, March 31, 1945, Harbor Defense Project, Key West Florida, Annex A, Document No. 1, RG 392, SRRC, NARA. 265th Coast Artillery Selected Abstract Biographies, World War II, St. Augustine, Florida, 1992. Gaines, "The Coastal and Harbor Defenses of Key West, Florida," *CDSG Journal*, Vol. 7, No. 4 (Fall 1993), pp. 21-30. Fort Taylor Record Book.
305. Fort Taylor Record Book.
306. RCW, Harbor Defenses of Key West, Florida, Fort Taylor HDOP & Signal Station at Site 6, Corrected to 25 October 1943, RG 77. Harbor Defenses of Key West, Present and Proposed Installations, March 31, 1945, Harbor Defense Project, Key West Florida, Annex A Document No. 1. Fort Taylor Record Book.
307. History of the Southern Sector, Vol. II, S-3 Report No. 31, May 10, 1942.
308. *Ibid.*, S-3 Report No. 34, May 31, 1942; S-3 Report No. 43, August 2, 1942; Gaines, "The Temporary Harbor Defenses of Fort Lauderdale, Florida, 1942-1944," *CDSG Journal*, Vol. 9, No. 2 (May 1995), pp. 50-58.
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357. "Southeastern Sector," *CAJ*, Vol. 88 (No. 3, 1946), p. 84. Fort Taylor Record Book.
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Fort Taylor view, 1930s (NARA)

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