

# Tequesta:

---

## Stronghold of the Straits

A SHORT HISTORY OF FORT ZACHARY TAYLOR

By AMES W. WILLIAMS

The art of fortification is as old as man's instinctive quest for security. Each rising civilization has made its contribution of techniques, but from the walls of Jericho to the Siegfried Line the objective has remained the same. The history of the New World is inextricably bound up with the stories of the citadels erected by its settlers. The early forts in what is now the United States, with notable exceptions like Castillo de San Marcos in St. Augustine, Florida, were usually temporary structures which, after serving a particular need, were allowed to fall into decay.

The Revolutionary War and the War of 1812 conclusively proved the inadequacy of existing defenses. With little or no opposition, the British were able to seize strategic harbors and use them as effective bases for land operations. This obvious weakness, contrasted with the stubborn and successful defense of the city of Baltimore made by Fort McHenry against the combined land and water attacks of the British, convinced American military strategists of the importance of strong permanent fortifications.

The resulting brick and mortar concept of defense inspired the initial construction and in some instances the repair of a great chain of maritime bastions of which the crumbling and largely forgotten Fort Zachary Taylor at Key West, Florida, was a single link.

In drafting plans for an elaborate system of fixed coastal fortifications following the war with Great Britain, the United States in 1816 engaged the professional services of Simon Bernard, a brilliant French military engineer and former staff officer of the Emperor Napoleon. Gen. Bernard and Col. Joseph G. Totten, later Chief of Engineers, after making an extensive study of the eastern maritime frontier, submitted a joint report containing specific recommendations for the protection of each important sea approach.

Due to petty jealousies within the Corps of Engineers concerning Gen. Bernard's prerogatives, his association was apparently an unhappy one. He resigned his commission in 1831 and returned to France. The work, however, went on under the persevering and competent direction of Col. Totten who may be regarded as the principal architect of the string of imposing fortifications which still stands a silent but impotent watch along the Atlantic and Gulf coasts from Maine to Louisiana.

Because of Florida's extensive shore line, assumed to lack deep-water harbors, no consideration had been given to any project south of the St. Mary's River or east of Pensacola Bay. The tactical gap in the contemplated system was recognized in 1836 by Col. Totten who urged Congress to appropriate three million dollars for fortifications at Key West and the Dry Tortugas in addition to funds for certain other Florida undertakings. Strong works at these places, he felt, would insure the protection of the Florida straits and at the same time deny their harbors to enemy vessels.

Until 1821 Key West, or Cayo Hueso as the Spaniards named it originally, had been a notorious rendezvous for pirates and freebooters. Following its cession to the United States, Commodore David Porter routed the "brethren of the coast" and established a naval station on this small island at the tip of the great Florida reef. Piracy gave way to wrecking, a profitable profession which flourished for some years until a chain of government light-houses was built to guide mariners safely along the treacherous reef.

Although Key West had been garrisoned by various military detachments since 1830, no site for a permanent fortification was selected until the autumn of 1844. At that time an inspection was made by Capt. J. G. Barnard, an able assistant to Col. Totten who later distinguished himself in the Civil War as Chief Engineer of the Army of the Potomac and designer of the ring of fortifications protecting the city of Washington.

Capt. Barnard wrote to the Chief of Engineers in December 1844 that the southwest point of Key West Island would be the most strategic location for a strong work. He recommended a square structure of native stone with two tiers, each containing twenty-four bomb-proof gun chambers, or case-mates, surmounted by sixteen barbette platforms.

Following the customary procedure, a board of engineer officers consisting of Majors William H. Chase and William D. Fraser and Captains Henry Brewerton and George Dutton was selected in January 1845 to survey the site proposed by Capt. Barnard and make specific findings. The report of this board more or less concurred with Barnard's recommendations except for suggesting that the size of the work and armament be increased.

At the approved site, approximately sixty-three acres commanding the junction of the four ship channels leading into the harbor were chosen for the military reservation. The modest sum of \$15,954.61 expended for its purchase proved to be the smallest part of the ultimate cost of the installation.

On the basis of accumulated field information, plans for the fort at Key West were drawn up in the Office of the Chief of Engineers under the personal direction of Col. Totten.

The castle, or main defensive work, was to be built in the form of a trapezoid, some 1,000 feet offshore upon submarine foundations. Each of the three seaward curtains, or walls, was to extend approximately 255 feet in length and the gorge, or land face, 495 feet. At each salient angle where the curtains joined, a bastion containing flank casemates was planned to allow howitzer fire to sweep the walls in the event of an attempt at escalade. The curtains were to be five feet thick, except for the gorge, and rise in height some fifty feet above high water. The entire structure was to be built of concrete, faced with hard-burned brick and granite rather than the previously proposed island stone.

The gorge, containing three floors of living quarters for the garrison and the sally port, was to be protected from land bombardment by a huge coverface, or embankment, of sand retained in place by masonry, likewise resting on underwater foundations. Between the castle and coverface was to be a 30-foot moat spanned by a drawbridge. A temporary pier capable of quick destruction was to link the coverface with the shore. The armament of the castle was to be mounted in two tiers of casemates and along the terreplein, or top, of each curtain.

Construction began in June 1845 under the able direction of Capt. George Dutton, Corps of Engineers. Temporary quarters were first erected to house the many workmen supplied by the various engineer agencies. The majority of artisans and mechanics were immigrant Irish and Germans recruited by the New York agency fresh upon their arrival from Europe. The back-breaking labor, for the most part, was furnished by Key West slaves hired out under contract by their masters. Mrs. Stephen R. Mallory, whose husband was later to become Confederate Secretary of the Navy, was among the local citizens who found such an arrangement profitable.

The hours of labor were long and the scale of pay was remarkably low as compared to today's standards. Shortly after taking command Capt. Dutton announced that "Until further notice the hours of labor on the Public Works at this place will be as follows viz.: From 7 A.M. until Noon and

from 1 P.M. until Sunset." The pay accounts show that master masons, carpenters and blacksmiths received about four dollars a day; stone cutters, painters and apprentices somewhat less. Laborers, including Negro slaves, were paid a little better than one dollar a day. In the case of the latter, of course, their owners received the compensation.

The foundation for the massive structure, a complicated grillage of cypress ties and girders, was laid upon bed rock in about eleven feet of water which first necessitated the building of breakwaters and cofferdams. Huge granite blocks imported by schooner from New England served as facing for the foundation. The ashlar facing was carried sixteen feet above normal high water to allow for rough seas and buffeting by storms.

On October 11, 1846, a violent hurricane struck Key West, wrecking Capt. Dutton's wharf, storage sheds and barracks. Breakwaters were carried away and large quantities of equipment damaged. So severe was the storm that it demolished the Government lighthouse on Whitehead Point and unroofed the Marine Hospital.

In spite of this damage which set his construction schedule back almost a year, Capt. Dutton pushed forward with great energy. To fill his urgent need for a competent assistant, Lt. Masillon A. Harrison was ordered to Key West in March 1847. With a war beyond the horizon and hence a possibility of promotion, the assignment proved too dull for the young lieutenant. Harrison asked for and soon received orders to join Gen. Winfield Scott's army in Mexico where he was attached to the staff of Chief Engineer Robert E. Lee.

The maintenance of an adequate supply of brick was a constant source of anxiety, not only to Capt. Dutton but to his many successors. Bricks from Danvers, New York and Ponchartrain were tried but the oversized, rose variety made by Abercrombie and Raiford at Mobile and Pensacola was preferred for its strength and weathering qualities. Production by this firm, however, never seemed over-zealous and this limitation coupled with shipping difficulties often forced a suspension of work or the use of inferior substitutes. Occasionally the supply of granite from Maine and Vermont fell behind. In July 1848 Capt. Dutton was granted leave to find a new source, which he did near New London, Connecticut.

During his eight-year tour of duty at Key West, Dutton submitted a detailed memoir to the Chief of Engineers setting forth his own plan of fortifications for the island. He envisaged five Martello towers, each mounting a 32-pounder gun and an 8-inch seacoast howitzer *en barbette* and containing

machicolations, or loopholes, for protected small arms fire. A curt acknowledgement rewarded Capt. Dutton's gratuitous efforts. His plan was filed away and forgotten.

Sufficient progress had been made by October 8, 1850 to prompt the War Department to name the rising work Fort Zachary Taylor in honor of the President and hero of the Mexican War.

When, in May 1853, Capt. Jeremiah M. Scarritt assumed command of Fort Taylor, the walls had risen well above the embrasures of the first tier of casemates and the cisterns for storing rain water were about complete. Bricks, as usual, were in short supply and the masons could not turn the arches in the first tier galleries. Asa Tift, an enterprising Key West merchant, agreed to help and diverted his vessel to hauling brick across the Gulf.

In June 1854, the first of a series of yellow fever epidemics visited the construction camp. Of the many stricken with the disease, fifteen died including Capt. Scarritt. Until another officer could be found, the Chief of Engineers ordered Lt. Horatio G. Wright from nearby Fort Jefferson, simultaneously under construction in the Dry Tortugas, to assume temporary charge at Key West.

Lt. Wright was notified on September 22 that a shipment of ordnance was on its way to Fort Taylor. Within a few days 50 8-inch columbiads, 33,000 pounds of powder and 500 shot arrived from the Baton Rouge arsenal. The Washington arsenal sent the casemate carriages for the 8-inch smoothbores and Fort Monroe contributed 1,200 8-inch shells. The work was not ready to receive the guns or to store the powder properly. Nevertheless, by the exercise of ingenuity, Lt. Wright managed to get the guns and ammunition under temporary cover.

Maj. William H. Chase, later to serve the Confederacy as a major general, next assumed responsibility for the building of Fort Taylor. He arrived in Key West under strict injunction to have the first tier of casemates ready and the guns mounted by the first of the coming year. The construction of a 15-foot hot shot furnace was also to be given high priority.

Maj. Chase was a competent, though temperamental, engineer. Many features of the structure did not conform with his opinions and he pressed for numerous changes and alterations. The Chief of Engineers at last bluntly wrote that the design of Fort Taylor was a settled one, meeting his and the Board's full approval, and it was Maj. Chase's duty to adhere to it.

The Key West Barracks at this time were occupied by a company of the First Artillery under the command of Capt. Israel Vogdes. A dispute arose

between Chase and Vogdes as to whether the former's superior rank would entitle him to command should an emergency arise. The question being resolved in favor of the sensitive Maj. Chase, amicable relations between the two officers were restored.

Not until April was the first tier of casemates finished, with the guns emplaced therein. In the interim, however, the 24-pounder howitzers had arrived and had likewise been put into place for action.

With summer approaching, concern over the possibility of yellow fever manifested itself among the workers. As a measure of reassurance the War Department authorized the employment of a local physician, Dr. S. F. Jones, at a monthly salary of one hundred and fifty dollars. His position could not be considered a sinecure since, in addition to his professional services, he was required to perform general clerical duties.

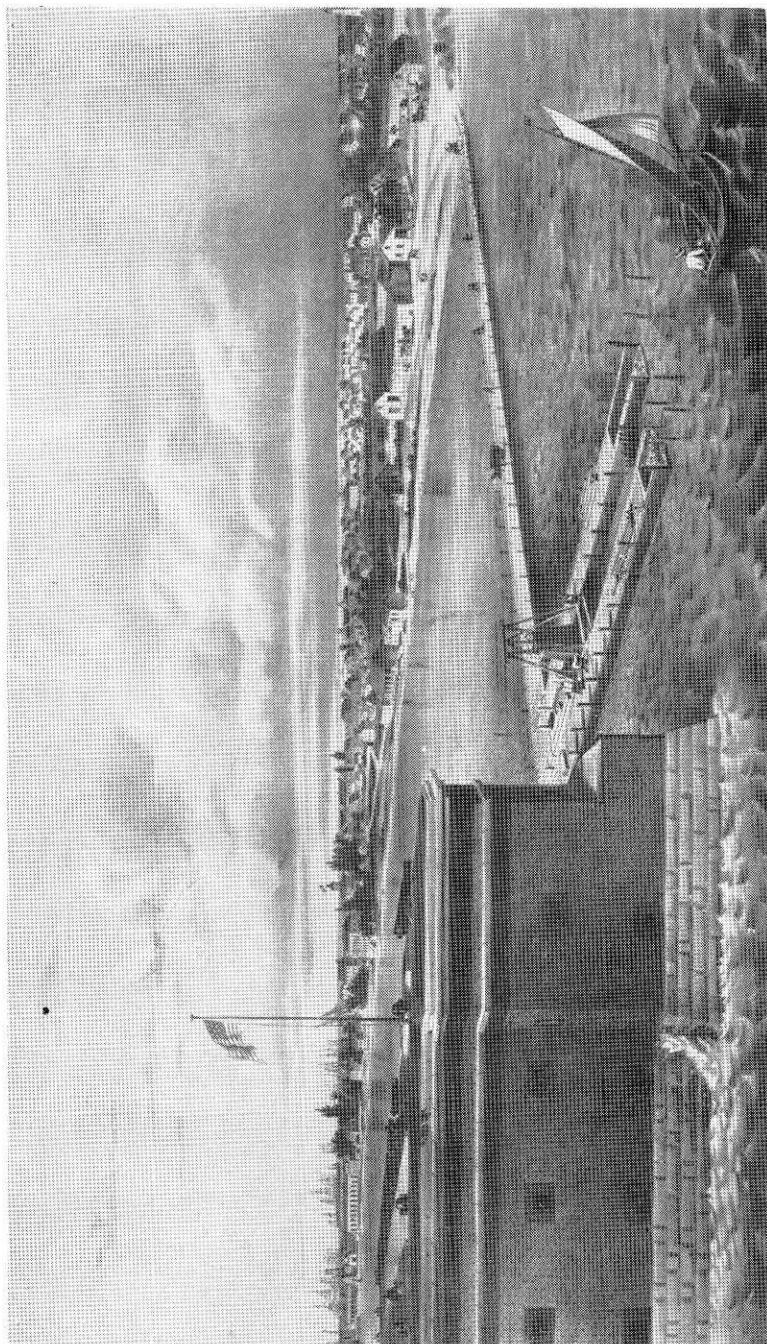
Considerable apprehension was felt in Washington over the lack of attention being given to the coverface, and in an effort to accelerate its erection Col. Totten dispatched Lt. Cyrus B. Comstock and ten enlisted men of Company A, Corps of Engineers, to Key West. Until this time, all those employed at Fort Taylor, except for the officers in charge, had been civilians.

Maj. Chase, whose attitude toward his assignment had never been sympathetic, was relieved on December 15, 1855, by Maj. William D. Fraser, a young engineer officer with a distinguished record in the Mexican War. By May of the following year the castle walls were finished and some progress had been made in setting the coverface foundations.

Early in July, Maj. Fraser was directed, in the event of an outbreak of yellow fever, to leave the island, taking with him the enlisted detachment of sappers and miners. These orders, however, came too late. "Yellow Jack" had already struck down more than thirty workers. Maj. Fraser contracted the dread disease on the 25th and died two days later.

Desultory work continued throughout the summer and fall under the direction of Chief Clerk Felix Senac and Draughtsman James C. Clapp, Lt. Comstock having been relieved of his assignment before the July epidemic while on temporary duty at Washington. Clapp augmented his salary of three dollars a day by making sketches of the town of Key West. These were lithographed in Boston and Paris and are highly esteemed today by print collectors of the American scene.

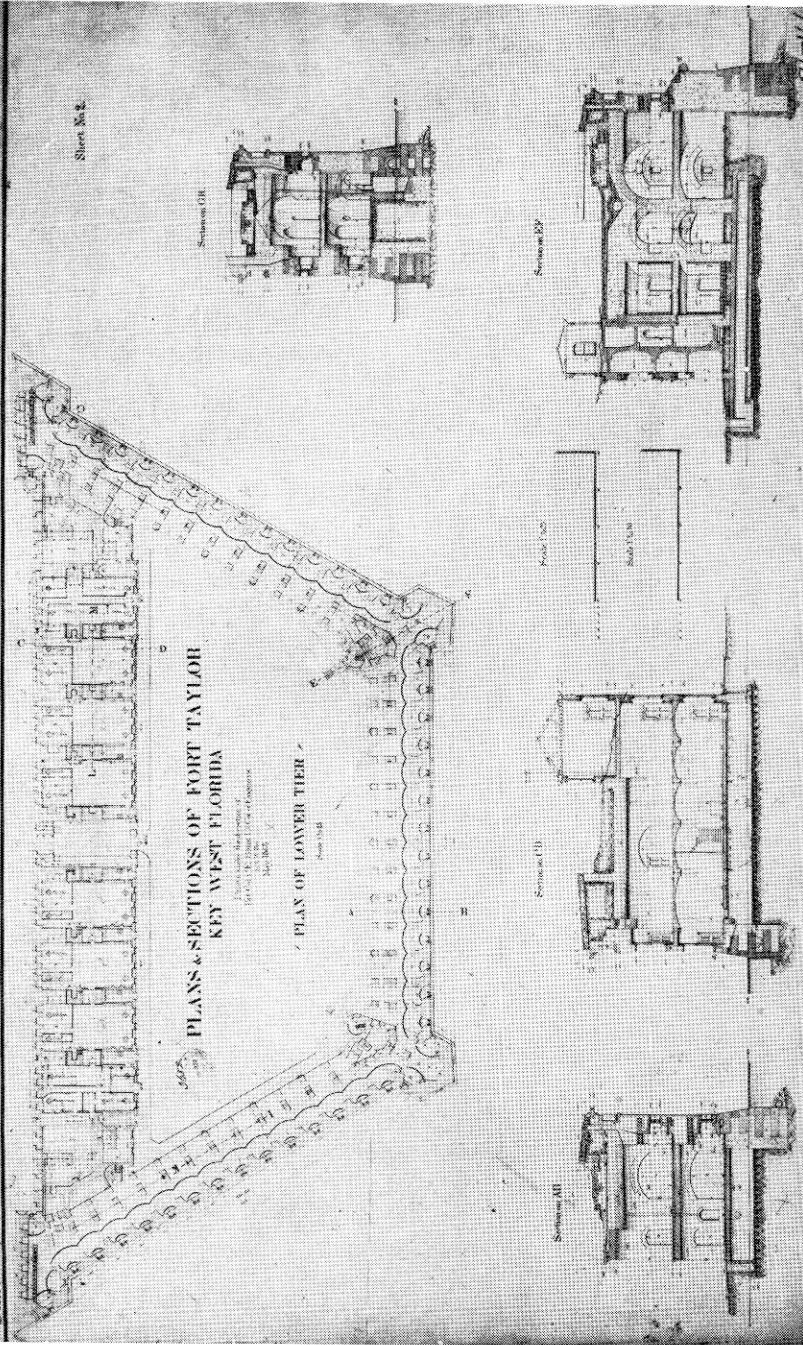
Maj. John Sanders, assigned to Fort Taylor on August 28, 1856, did not relish this fever-ridden post and made strenuous efforts to have his orders



*Courtesy: Harry Shaw Newman, The Old Print Shop.*

Fort Taylor and Key West circa 1855  
showing construction of coverface foundations  
by James C. Clapp (draughtsman at Fort Taylor)

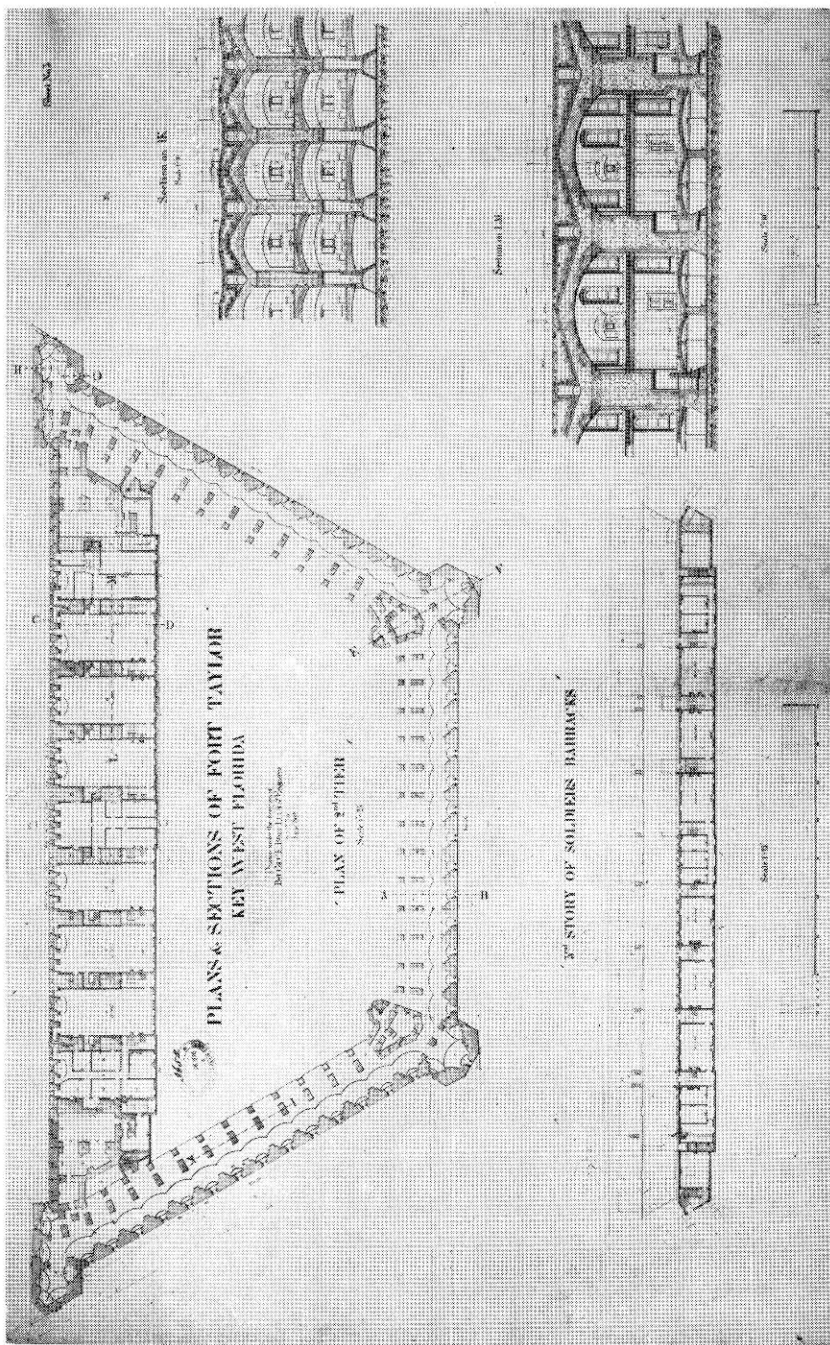
Drawn To Scale 1/64"



Courtesy: National Archives.

Sectional Drawing, First Tier of Casemates, Fort Taylor (1869)





Courtesy: National Archives.

Sectional Drawing, Second Tier of Casemates, Fort Taylor (1869)

This Page Blank in Original  
Source Document

changed. Evidently he failed to pull the right wires and December found him on the way to Key West accompanied by his assistant, Bvt. Lt. Miles D. McAlester.

In spite of the interruptions of storms and pestilence, work on the fort continued. During the winter the living quarters within the castle, intended to house four companies of artillery, were raised and the vaulting of the second tier of casemate arches was completed. The foundations of the cover-face were being put into place, the parade was being filled and the cisterns readied for use.

An ample supply of pure drinking water was an important requirement on the island, the clouds being the only source of supply. Until a few years ago the inhabitants of Key West were entirely dependent upon cisterns to collect their needs and to carry them through the dry seasons which recurred regularly.

Problems of command at Key West arose in the spring of 1857. McAlester was relieved on April 16. By the end of the month Sanders was in Washington where, on May 7, he was ordered by the Secretary of War to Fort Delaware for duty. Chief of Engineers Totten protested the Secretary's action in circumventing his authority and called Maj. Sanders to account, but evidently Sanders' influence at court was sufficient to make the transfer effective. Capt. Daniel P. Woodbury, supervising the work on Fort Jefferson in the Tortugas, some seventy miles out in the Gulf of Mexico, was called upon to look after the work on Fort Taylor until another officer could be found for the task.

Meanwhile, Draughtsman Clapp, still at his post during the summer, sent the Chief of Engineers the unpleasant news on September 10 that yellow fever was again present on the island. As a result of a previous order by Col. Totten to suspend unnecessary work and grant leaves of absence to all who could be spared during the summer and fall months, most of those susceptible to the disease had left and the tragedy of earlier epidemics was averted.

Late in the year, Col. Totten discovered the man for the Key West job in Lt. Edward B. Hunt, then an assistant in the building of Fort Adams at Newport, Rhode Island. Hunt was in Charleston, South Carolina, in December 1857 hiring a new crew of workmen for Fort Taylor. The dangers of the job had raised the pay scale; master masons were now offered five dollars a day. From Charleston, Hunt proceeded to Key West where by Christmas the work was under way in a manner that pleased the critical eye of Col.

Totten. The magazines in the fort were completed and the ammunition was removed from temporary storage ashore.

In January 1858, Hunt requested an ordnance sergeant to care for the guns already mounted. His energetic endeavors to secure laborers took him far afield and evoked a complaint from Senator S. R. Mallory to the Secretary of War. Apparently, masters of slaves in Key West were taking advantage of a scarce local labor market to demand more than Hunt would pay. Congressional pressure brought the inevitable result: the conscientious officer was told to give preference in the future to the hiring of Key West slaves.

The usual problem of maintaining an adequate supply of building materials beset Hunt who found it necessary to visit the brickyards at Pensacola and Mobile to speed up deliveries. Because of the climate it was difficult to keep a sufficient supply of cement and lime on hand without running the risk of spoilage. Taking advantage of the seasonal lull in operations brought on by the yellow fever threat, Hunt, now advanced to the rank of captain, spent the summer in New England and New York procuring materials for the next year's construction. He returned to the island in late November with the hope of a constant flow of supplies and a full crew of workers. A Dr. Whitehurst joined his staff in the dual role of surgeon and bookkeeper at the salary of \$150.00 per month.

Annual appropriations by Congress varied from 75 to 150 thousands of dollars. The original estimate of completing the work for less than a million dollars had long since been exceeded and the fort was still far from completion. By March of 1859 the castle drawbridge was in place and work on the coverface was proceeding rapidly. A narrow-gauge railroad was built from the castle wharf to the south beach in order to haul sand and coral fill.

A recapitulation of Capt. Hunt's report covering his activities for the past two seasons is impressive. The second and barbette tiers of the channel curtains were about complete. The earth filling of the parapet was in place and the concrete covering layer from breast height to the scarp was formed around the entire circuit of the castle. The main arch roofs of the whole work had been asphalted. The terreplein was entirely filled and the foundations for all columbiad platforms had been laid. The magazines were ready. The soldiers' quarters were under roof and some of the third story rooms plastered. A large lagoon of stagnant water adjacent to the workmen's quarters had been drained and surrounded by a dike to prevent its refilling in the future.

The winter of 1859 and the spring of 1860 were devoted to the completion of the castle and to mounting the barbette guns. The soldiers' quarters within the fort were finished sufficiently for occupancy. A sanitary system was installed, a temporary bakery built and other arrangements made to accommodate a garrison.

To add to Capt. Hunt's trials in the now hectic days, several pathetic cargoes of captured slave ships were put ashore in Key West and the United States Marshal attempted to have the Negroes quartered in Fort Taylor. The fear of disease prompted quick refusal. In justification of his position, Hunt wrote to the Chief of Engineers, in part:

"If permanent barracoons are to be established at Key West for recaptured Africans, a lot should be procured for the purpose and a building properly arranged in anticipation of arrivals. The use of any part of the Fort grounds for this purpose is quite objectionable on sanitary and disciplinary grounds. The landing of sick Africans in the midst of a force of unacclimated men would introduce new dangers beyond those of climate.

"So far as Fort Taylor is concerned, it is much to be hoped that its hospitalities will not be taxed and that it may be freed from the prospect of being flooded with wild Africans."

The gathering war clouds inspired appeals by Hunt to Washington for additional funds and a stronger working force. Since the coverface was far from completion, the gorge of the fort was vulnerable to attack from land. Capt. J. M. Brannon, commanding the detachment of the First Artillery stationed at the Key West Barracks, shared Hunt's anxiety over this situation and endeavored to enlist support from his superior officers.

All efforts were now directed toward readying the fort for a surprise attack. Windows on the gorge front were bricked up, leaving loop holes for small arms. The drawbridge was ironed and embrasures were cut through the gorge to permit the mounting of 8-inch columbiads facing the shore. Temporary gun carriages were placed on the gorge terreplein to accommodate four more such guns and a number of siege mortars.

Excitement accompanying the tense political situation on the mainland had been communicated to Key West, but Capt. Hunt wrote early in January 1861 that he so far had been unmolested. Construction was progressing well and he was ready for any emergency. The mechanics and laborers were exhibiting a loyal spirit and had volunteered to defend the fort should the need arise. Further improvisations on the gorge had now brought eleven

8-inch columbiads and a number of howitzers to bear upon the shore. The soldiers' quarters were ready and a number of the casemates had been converted into living quarters.

Since the Key West Barracks were located at some distance from the fort and a surprise attack could prevent the troops from reaching the castle, Capt. Brannon on January 21 moved his command, along with the civilian workers, into the fort's protected confines. A week later, Lt. Walter McFarland was assigned to assist Hunt at Fort Taylor.

Capt. Hunt expressed considerable concern over the lack of strong naval support. At the same time he voiced some doubt as to the loyalties of a Capt. Moffitt, commanding the vessel *Crusader* about to depart from Key West, since Moffitt had once declared publicly that he would not interfere with any expedition directed against Fort Taylor. Explaining that Moffitt was bound to Charleston by close associations, Hunt suggested that a tribute from high authority might be helpful in holding a valuable naval officer to his duty.<sup>1</sup>

In a message from Capt. Hunt to the Chief of Engineers on February 7, 1861, the matter of loyalties again came up:

"I am inclined to think, from all I can learn, that the town of Key West has quite as many men who are loyal, if they can be sustained as otherwise and moreover secession seems to be losing ground. They are mostly governed by ideas of interest and if they are convinced that secession will not be the winning side, they will forget that secession ever had any advocates here. . . . I believe the town is really glad that Fort Taylor is saved from seizure, but some think they must show great indignation. I have come in for a large share of brave talk behind my back, chiefly because I made haste on Sunday last month to break down the wharf and batten up the fort thief-tight, but of course I do not care much for this, especially as it belongs to the lower stratum. The social atmosphere is much tinctured by these commotions, but this is an easily excited community and will rapidly change with the wind."

Just three days earlier, however, on February 4, 1861, Florida representatives met with those of five other southern states at Montgomery, Alabama, to form the Confederate Government. On March 3, Brig. Gen. P. G. T. Beauregard took command of the Confederate troops at Charleston. By this time all Federal forts in the seceding states had been seized without resistance except Forts Pickens, Jefferson and Taylor in Florida and Fort Sumter in Charleston harbor, South Carolina.

<sup>1</sup> Moffitt subsequently resigned and, on Nov. 8, 1861, accepted appointment as a lieutenant in the Confederate Navy.

At 4:30 a. m. on April 12, Confederate batteries opened fire on Fort Sumter and the war began. Capt. Hunt, who had been commended earlier for his devotion to duty and his preparation for the defense of Fort Taylor, was provided with a Navy signal book and instructed to keep in daily communication with the vessels in the Gulf Squadron by means of flag hoists.

The Chief of Engineers urged that work on the coverface of the castle be speeded and dispatched fourteen additional gravel cars to Key West together with a supply of railroad iron for extension of the tracks. A spur line of the railroad had already been run to the naval coal dock to expedite fueling of ships assigned to the blockade patrol.

On May 4, Hunt was informed that further defenses, outside Fort Taylor, were under consideration and that instructions would be forthcoming shortly. In Washington the neglected memoir submitted by Capt. Dutton some seven or eight years before had been resurrected from the archives and, with numerous modifications, was about to be adopted.

Plans and directions for erecting two permanent advanced towers on Key West Island were forwarded to Capt. Hunt on August 14. The towers were to be identical in construction, 56 feet square and 36 feet high, and were to be located on the approximate sites where their remains now stand, the first about a mile and a half and the second about three and a half miles from Fort Taylor. Within the 10-foot square central piers of each was to spiral a circular staircase with cast iron treads. The seaward walls of the towers were to be 8' 4" thick at the bottom, with the land faces only 5' 4". The foundations and all the superstructure were to be of concrete except for facings and interior arches.

The lower floors were each to contain a mess room, kitchen, closets, privies, magazine and filling rooms. The second floors, sustained by groined arches and wrought iron girders, were each to include a barracks room to accommodate sixty soldiers and three rooms for officers. The arches over the second floors, some semi-circular and some semi-elliptical in shape, were to rise six feet from imposts eight feet above the floor. From the second story of each tower, a light drawbridge 10 feet long and 6 feet wide, raised and lowered by pullies without gearing, was to connect with a short platform extending from the counterscarp gallery.

Each counterscarp, covered by a glacis, or earthen slope, would contain eight casemates of reverse fire for 24-pounder flanking howitzers, designed to sweep the tower faces of any hostile forces attempting to cross the moat or

scale the glacis. The lower floor of each tower at the northeast angle would communicate with the counterscarp casemates by means of a caponiere, or covered way, notched with loopholes to provide light and ventilation. To protect the seafronts of the towers from escalade, a moat or ditch 20 feet wide and a partial earthen coverface about 16 feet high and 10 feet thick at the top were to be prepared.

The terreplein of each tower was to mount four heavy barbette guns or rifles on center pintle mounts permitting a 90-degree traverse. Each face of the terreplein parapet, about 12 feet thick, was to have a projecting and covered machicoulis to allow downward small arms fire or the dropping of grenades upon an enemy reaching the base of the tower.

Communication between the sets of reverse-fire casemates and the covered ways leading to the towers was to be maintained by means of counterscarp galleries formed of short casemates, each containing a loophole and a ventilator under the key of the arch.

The only access to each of the towers from beyond the glacis could be had by ascending the 27-foot slope and descending through a cut therein to the counterscarp parapet. Entrance to the towers could then only be effected by means of the drawbridges to the parapet level. The glacis were to be carried far enough around the water faces of the towers to protect them from land batteries.

The tower terrepleins, in addition to supporting the principal armament, were to provide the means of supplying fresh water to the garrisons. A complex network of gutters was to trap rain water and conduct it to large cisterns to be built in the foundations of the towers. To ensure the health of the garrisons, elaborate sewerage and ventilation systems were devised. Loophole windows on all sides of the towers would admit light and air to the interiors. The kitchens were to have large fireplaces and the living quarters Franklin stoves.

These advanced towers designed by Totten, who by now was a brigadier general, were to differ substantially from their Corsican prototype whose name through mistaken usage they would come to bear. The true Martello tower was a circular, rather than a square, structure supporting a barbette platform with one or two guns. Furthermore, it was devoid of any outwork, glacis or ditch. The stout resistance offered by the original tower in Martello Bay against an English fleet in 1794 so gained the admiration of the British that a string of seventy-four similar works was erected along the Channel coast between the years 1805 and 1810 to meet the threat of a French assault.



The design was well known to American military engineers and Martello towers were erected, among other places, at James Island, in Charleston harbor, South Carolina, Tybee Island, Georgia, and Proctorsville, Louisiana. An examination of the illustrations of each type of tower will readily show the structural differences.

Capt. Hunt was directed to obtain the sites and begin construction immediately, extending the railroad from Fort Taylor to facilitate the transportation of building materials. The towers were to be built simultaneously and as rapidly as possible with the proviso that if the erection of Tower No. 2 (the present West Tower) should retard the construction of Tower No. 1 (the present East Tower), work on the former should be moderated since the more distant Tower No. 1 was regarded to be slightly more vital to the defense of the island. At the same time Capt. Hunt was admonished not to slacken his efforts toward completing the coverface for Fort Taylor proper.\* To lighten the burdens of his distant subordinate, Gen. Totten ordered the New York Engineer Agency to procure and immediately ship 500,000 of the best common bricks available as well as a substantial cargo of cement.

The task facing Capt. Hunt was prodigious. A major and continuing problem was the increasing shortage of laborers due to the influx of occupation troops and extensive naval activity. As this problem became more acute, contraband Negroes from Louisiana and South Carolina were shipped to Key West by the hundreds. Another setback to Hunt was the loss of his assistant, Lt. McFarland. Col. Brown, who now commanded the Key West Barracks, peremptorily re-assigned McFarland, and another officer could not be sent to take his place.

In November Gen. Totten asked what progress had been made on the advanced towers. The report returning from Key West was discouragingly concise—nothing. The sites had not even been secured, since the owners of the land were away and, when located with difficulty, had to be dealt with in due, but tedious, legal course *in absentia*. Totten's reply to this was equally terse—take possession and begin work immediately.

The harassed Capt. Hunt countered in turn with a request to be relieved and at the same time implored his friend, Gen. McClellan, to find a place for him with the army in the field. Apparently his request found favor; his former assistant, Lt. McFarland, was again ordered to construction duties

---

\* Prior to transfer, Hunt recommended that Tower No. 1 be named in honor of George Dutton, and Tower No. 2 for William D. Fraser. No official notice has ever been taken of this suggestion.

at Key West on January 23, 1862. Hunt, a persevering and conscientious officer who had found time during his trying duties to design a counterpoise gun carriage and other ordnance devices, met death less than a year later. He was killed in an accidental explosion at Brooklyn Navy Yard while trying to perfect a torpedo for the Navy.

McFarland, despite difficulties in being released from field service, took over his Key West assignment in March. Only a few days after relieving Capt. Hunt, he learned that in addition to his duties in Key West he would also assume charge of the construction of Fort Jefferson.

In mid-April of 1862, Gen. Totten wrote Lt. McFarland that since work on the two advanced towers had not progressed as evenly as originally contemplated, the West Tower, nearest the fort, having been built first, the official designations should be changed. The West Tower thus became Tower No. 1 and the East work Tower No. 2, counting from Fort Taylor proper. Totten explained that the occupation of the advanced sites by works capable of some resistance was now deemed so important that the War Department directed the completion of the towers without the benefit of covering works.

Still following the recommendations of the Dutton memoir, McFarland was told that the erection of two more towers might be ordered, one on Flemings Key and the other on Stock Island. These, upon order, were to be built exactly as the Key West towers except for covering casemate batteries on the sea approaches rather than ditches or glacés. Similar supporting works were to be substituted at Towers 1 and 2. The order for the construction of the additional towers was never to be given.

Since pressure had now lessened, Lt. McFarland was directed to begin the casemated batteries at once. Each structure was to contain two tiers of fourteen casemates mounting 8-or 10-inch columbiads. The seafront curtain was to be about 186 feet in length and each flank 36 feet. The scarp walls were to be five feet thick and the over-all height of the work thirty-seven feet. Barbette armament was omitted since such weapons were to be mounted on the towers.

A wet ditch six feet deep and eight feet wide was to be dug in front of each casemate battery and extend around the flanks to meet the glacis of the tower counterscarp. The galleries connecting the casemates of each tier were to be groin vaulted and paved with heavy flagstone. Living quarters for officers and men were to be provided in the flanks, and an interior passageway was to connect the lower tier with the counterscarp casemates.

Exterior stairways would lead to a balcony upon which the second tier of casemates opened.

Like the tower, each battery was to contain a large cistern for drinking water and an elaborate drainage and sewerage system to carry away wastes. To illustrate the careful nature of the planning: privy vault ventilators were to be only a half a brick from the kitchen fireplace flues in order that the air in the vents would become heated and continually rise.

In July 1862, a virulent epidemic of yellow fever swept through Key West, exacting a heavy toll. Panic seized the construction camps and only by large daily rations of whiskey and quinine were the men persuaded to remain. The town was then filled with unacclimated men. Quarters at Fort Taylor and Key West Barracks bulged. Near these establishments were temporary camps into which hundreds of contraband Negroes who had been brought in to work on the fortifications were crowded. Under the circumstances it is not surprising that the disease claimed many victims. Of the 448 men garrisoning Fort Taylor, 331 contracted yellow fever between July and October; 71 of the cases were fatal. More than half of the civilian laborers and mechanics were stricken and of this group 30 died.

While writing a report of the desperate situation on July 31, McFarland was stricken. Luckily he recovered, but his debility was so great that his letter to Gen. Totten remained unfinished until September 10.

Every means then favored by medical science was employed to abate the pestilence. A pall of smoke from burning tar barrels hung over the barracks. Cannon boomed intermittently in an effort to dispel the miasma supposedly responsible for the disease. Physicians were divided in their opinions as to the cause and cure of the malady. Some supposed that it was imported from Cuba. Others felt that it was a local phenomenon. Assistant Surgeon Cornick, attached to Fort Taylor, was convinced that the pools of stagnant water and rotting vegetation disturbed while clearing the land for the fortifications played an important role. He likewise attributed some blame to the intolerable stench which arose when some three hundred graves of a Negro burial ground were opened to clear the site for the West Tower.

Mosquitoes, unfortunately, were regarded more as a nuisance than a menace. Dr. Cornick's journal contains a now significant note that mosquito bites on patients in the first or febrile stage of yellow fever caused strange purple purpura-like spots.

The contemporary treatment of yellow fever, as practiced by the Army in Key West, called for hot mustard baths and liberal doses of calomel,

castor oil and spirits of nitre. Should the victim be lucky enough to survive the dreaded second or black vomit phase, recovery usually followed.

A welcome leave of absence was granted to McFarland in October, along with a commendation from his chief for keeping the vital work going despite the epidemic. Labor continued on the Key West fortifications under the direction of civilian overseers.

Since the North controlled the seas, uninterrupted shipments of building materials and supplies continued to arrive at the Fort Taylor wharf. The railroad daily shunted brick and cement to the rising advanced towers on the south beach and returned with tons of sand and rock to be poured into the coverface. Ordnance, including new rifled guns, arrived from time to time, some pieces to be mounted in the castle of Fort Taylor and others for transshipment to Fort Jefferson in the Dry Tortugas.

Shortly after he returned to Key West from leave, McFarland was transferred to Hilton Head, South Carolina, where plans were being made to retake Fort Sumter from the Confederates into whose hands it had fallen almost two years before. Before Gen. Gillmore's campaign against the defenses of Charleston got underway, however, McFarland was again sent back to duty at Fort Taylor.

The civilian supervisors were unable to cope with the many problems before them. Laborers were fewer than ever and with the yellow fever season approaching, the mechanics, like migratory birds, were flying north with every ship that would carry them. Gen. Banks sent three hundred Negroes from Louisiana to bolster McFarland's thinning ranks in May. The next month, Lt. Asa H. Holgate, Corps of Engineers, was sent fresh from the Military Academy to assist him.

McFarland's apparent respite was short. In addition to his duties at Key West and the Tortugas he was soon given the extra responsibility of inspecting and reporting on construction progress at Fort Clinch, an unfinished fortification far to the north at Fernandina, Florida, which for a brief period had fallen into the possession of the Confederates.

After rising to the rank of captain, McFarland attempted to have his family brought to Key West but the request was denied by the War Department. His brother John, however, a civilian, joined him in Key West and found employment as an overseer on the fortifications.

By November of 1863, four center-pintle mounts for 100-pounder Parrott rifles had been placed on the terrepleins of both advanced towers and the

howitzers for which they had been designed. On the negative side, the counterscarp reverse-fire casemates were ready to receive the 24-pounder ditches before the towers or the glaces covering the counterscarp galleries had not yet been built, nor had the casemated batteries before the towers progressed beyond the soles, or bases, of the second tier of embrasures.

With the possibility of European intervention and consequently the danger of naval attack increasing, the Chief of Engineers, now Gen. Richard Delafield, directed that every effort be made to finish the casemate batteries and ready them for action. It was fortunate that this threat did not materialize, since construction efforts at this time rapidly declined. Epidemics, labor and material shortages because of diversions to more important theatres of war and boredom had sapped the morale of the garrison and construction camps.

Capt. McFarland, desiring to improve his situation, requested transfer to the field. Failing in this, he accepted a commission as Lieutenant Colonel of Volunteers and Assistant Adjutant General of the 13th Army Corps. While traveling to his new post, he received an ultimatum from the Chief of Engineers—either to resign from the Engineers or get back to Key West. McFarland chose the latter and on September 8 again resumed charge at Fort Taylor and Fort Jefferson.

Work went on sporadically at Key West throughout the remainder of the war, interrupted occasionally by visitations of yellow fever and hurricanes.

On November 3, 1866, Capt. McFarland was ordered to suspend construction at Key West of all masonry casemate fronts exposed to the direct fire of a hostile fleet.

This order marked the finish of the brick and mortar concept of defense. It was actually an anticlimax. The end had come some four years earlier at Cockspur Island near Savannah, Georgia, when a 7½-foot thick masonry wall of Fort Pulaski was reduced to a pile of rubble by Gen. Quincy Adams Gillmore's 64- and 84-pounder James rifles. As the report of that event discerningly put it:

“The result of this bombardment must cause a change in the construction of fortifications as radical as that foreshadowed in naval architecture by the conflict between the *Monitor* and *Merrimac*. No works of stone or brick can resist the impact of rifled artillery of heavy calibre.”

No effort was ever made to modernize the unfinished advanced towers. Through the intervening years, the West Tower has almost disappeared. A

portion of the central concrete pier and a section of the counterscarp gallery remains, used until recently as an art gallery. The East Tower, somewhat remote, has fared better, standing today, with some deterioration, almost as the workmen left it. The preservation of this relic of military architecture seems assured by the efforts of the Key West Art and Historical Society which has leased the structure from the Federal Government for operation as a museum and art gallery.

Just before the war with Spain in 1898, Fort Taylor was cut down to the first tier of casemates and the south curtain filled in with concrete to accommodate heavy 12-inch disappearing rifles, 8-inch mortars, and 15- and 36-pounder rapid-fire guns. Into the concrete fill for these installations were dumped many of the rusting columbiads, howitzers and Parrott rifles which had been mounted in the castle during the sixties. Accretion over the years has built up the beach where the castle, including the unfinished coverface, is now an integral part of the shore line.

Fort Taylor, augmented by sand batteries and modern ordnance, continued as an active coast artillery installation through World War II. With the abolition of the Coast Artillery Corps in 1947, Fort Taylor was transferred to the Navy and the Key West Barracks sold to a housing project as surplus property.

Thus, after a century of occupation, the Army has withdrawn from Key West and Gen. Totten's proud but untested stronghold has become a warehouse to service the busy Naval Station adjoining it.