Defending the Narrows
The Harbor Defenses of Southern New York

William C. Gaines

Part II, The Breechloading Era, 1890-1950

The Garrison Deploys during the War with Spain

With the departure of the 5th Artillery in 1890, the 1st Artillery returned from the South to occupy the forts at the Narrows, bringing nine heavy and one light battery to New York Harbor. Following the usual pattern, in early 1896 the First Artillery Regiment was distributed as follows: Batteries A, G, and I at Fort Hamilton; C, D, and L at Fort Wadsworth; and Batteries B, H, and M at Fort Columbus. The 1st Artillery returned to the South in October 1896, while the 5th Artillery returned from the West Coast. Lt. Col. William Sinclair, 5th Artillery, commanded Batteries E, K, and L on Staten Island, Maj. Joseph G. Ramsay commanded Batteries A, D, H, and I at Fort Hamilton.(1)

By early 1898, batteries of the 5th Artillery were moving increasingly frequently. As modern batteries were completed at Sandy Hook, Batteries A, C, L, and M moved down to man them in March 1898, joined by Battery C from Fort Slocum. By summer, Batteries D, F, G, and K had been designated to form part of the siege train being organized at Camp Rodgers at Ybor City, in Tampa, FL. Only two batteries of the 5th Artillery garrisoned the Narrows forts through the brief Spanish-American War, Battery I at Fort Hamilton and Battery E at Fort Wadsworth. By September, Batteries F and H rejoined Battery I at Fort Hamilton and Battery M arrived at Fort Wadsworth.(2)

In 1899, two more batteries, N and O, were authorized for each existing regiment of artillery, making 14 firing batteries. Both new batteries in the 5th Artillery were assigned to seacoast defenses.

Modernizing Defenses at the Narrows 1897-1914

Mine Installations

As early as 1887, plans had been made to plant submarine mines in the Narrows channel in the event of war. First, a mine operating room or "casemate" for controlling the minefield in the Narrows was constructed by modifying gun casemates on the lower tier of Fort Wadsworth's northwest bastion. The casemate was afforded the same type of overhead and lateral protection as the other mining casemates in the New York area, including additional masonry on the casemate's scarp side. The operating room contained the electrical switchboard; a battery room housed the wet-cell batteries that powered the mine control boards. A third space housed the oil (kerosene) engine to charge the wet-cell batteries. Cables passed through a cable gallery to the outside of the fort and thence to the minefield. On July 1, 1897, additional submarine mining facilities were begun on Staten Island. A brick torpedo (mine) storehouse with a bridge crane and a cable tank with a movable hoist for handling cable drums had been built behind Fort Wadsworth. (3)

War with Spain Prompts Activation of the Mines

Between 1896 and 1898, a board of engineer officers undertook a study to improve the submarine mine materiél and system for New York Harbor. They had practically completed that study when

hostilities with Spain commenced in March 1898. At the beginning of 1898, a number of mine cases and a small amount of operating equipment were stored at the Engineer Depot on Willets Point, at the East River outlet into Long Island Sound. There was, however, little or no material on hand to swiftly install submarine mines in the nation's harbors. Mines were to be planted in two areas in the southern approaches to New York Harbor. The outer minefield was to be planted in the Ambrose and other channels between Sandy Hook and Rockaway Point and controlled from Sandy Hook. The inner minefield in the Narrows would be controlled from Fort Wadsworth.

Following the destruction of the USS *Maine* in Havana Harbor on February 15, 1898, nearly two million dollars was expended on single and multiple-conductor cable, more than 150 tons of explosives, mine cases, searchlights, circuit closers and regulators, casemate operating apparatus, and other submarine mining materiél.

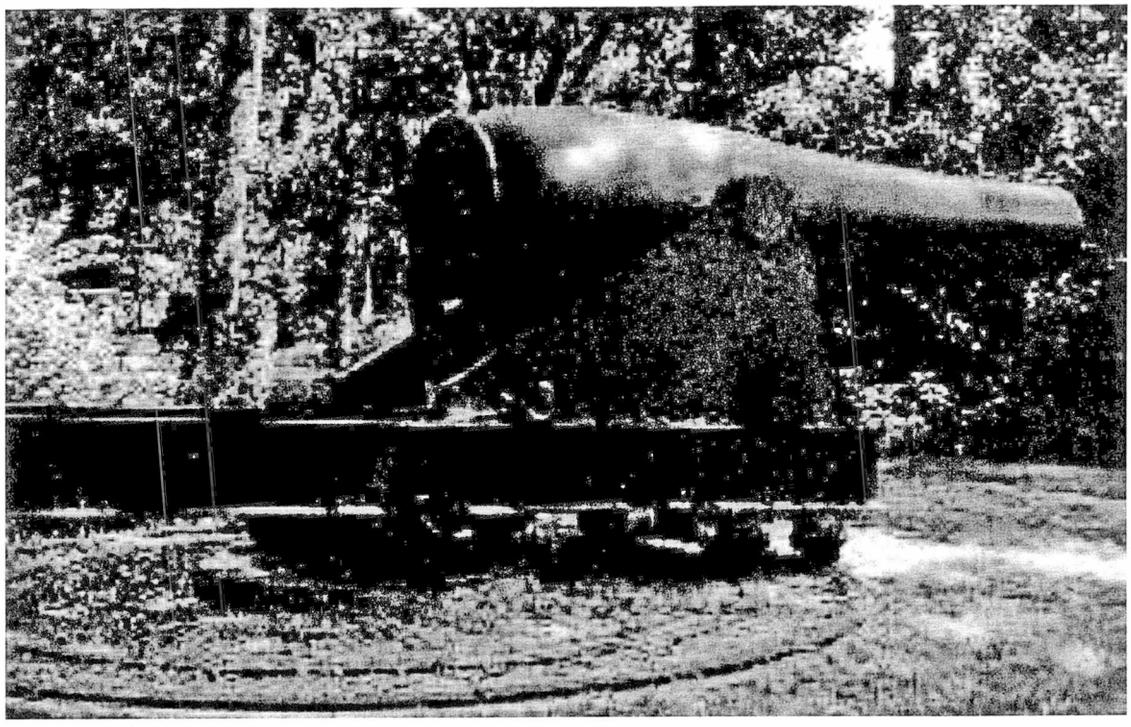
Because of the proximity of the materiél at Willets Point, it was possible to begin planting the mines in both the outer and inner fields in April 1898. Planting the minefields was hampered by a lack of equipment, but by June 11, 1898, the minefields were planted and until the end of the war, mining activities consisted for the most part of maintenance.

The Narrows minefield was illuminated by a pair of 36-inch searchlights, temporarily mounted on the parapets of Fort Lafayette and Fort Wadsworth. When the order to take up the Narrows minefield was issued in July 1898, all but two of the mines were recovered. Their associated cables were taken up in August and all material was cleaned, overhauled, and stored in the torpedo storehouse at Fort Wadsworth.(4)

Temporary Defenses of the Minefields

In the tense atmosphere crated by the war in 1898, temporary batteries were erected and armed with what could be provided from Ordnance Department stocks, the objective being to utilize any weaponry that could cover the minefields. The Narrows minefield was covered by two 4.72-inch Armstrong quick-firing guns emplaced in South Cliff Battery by July 1898. In addition to the numerous smoothbore Rodman guns and converted rifles mounted in Fort Wadsworth, South Cliff Battery and the original section of Battery Hudson were still armed with a pair of 300-pounder Parrott Rifles and two 15-inch Rodmans. In the original section of the battery, two more emplacements formerly occupied by 15-inch Rodmans were prepared for a pair of M1888 8-inch breechloading guns by modifying the existing gun platforms. By June 1898, one of the platforms had been modified. The second emplacement was modified by July 1898 and the two 8-inch guns were mounted on their carriages in August 1899. Five more pintle plates were set in 15-inch Rodman platforms and five other 15-inch Rodman platforms altered to receive 8-inch converted muzzle-loading rifles (MLR). These were 10-inch Rodman smoothbores re-sleeved to 8-inch rifles, using wrought-iron sleeves. Parrott Rifles, in the seacoast defenses since the Civil War, had an unpleasant habit of bursting unpredictably, and were considered generally unreliable. However, although obsolete, several still constituted part of the armament on Staten Island through the end of the 19th century. In 1901, two 100-pounder and one 300-pounder Parrot rifles were dismounted in the Staten Island batteries and shipped away as historical monuments.

Because of the 1898 emergency, a temporary battery for three 8-inch converted rifles with a sand parapet and magazine was begun in May at Princess Bay on Staten Island; it was completed in June 1898 for just over $4,000. Three 8-inch converted rifles were dismounted at Fort Wadsworth and moved to the Princess Bay battery in July 1898. (5)



15-inch Rodman gun on center-pintle carriage. *Author's Collection*

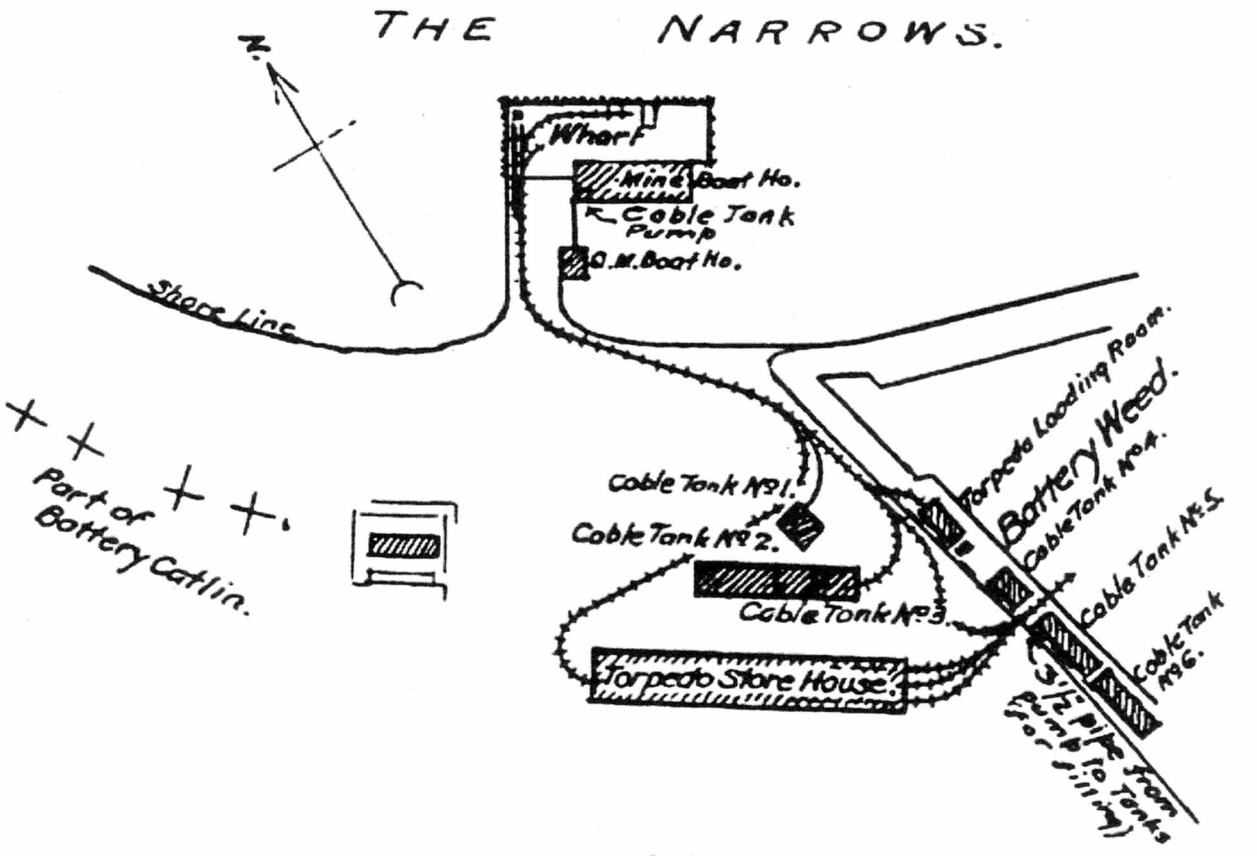
New Mine Facilities on Staten Island

After the war, the mines and cable were taken up and the operating materiél was removed from the casemate and stored in the large torpedo storehouse behind the fort. The two portable 36-inch searchlights and their power plants were also placed in storage. The fort casemate had proven unsuitable for electrical equipment due to dampness. Attempts to improve it were unsuccessful, and although it was finally transferred to the garrison on May 6, 1901, plans were developed to relocate the mine casemate.

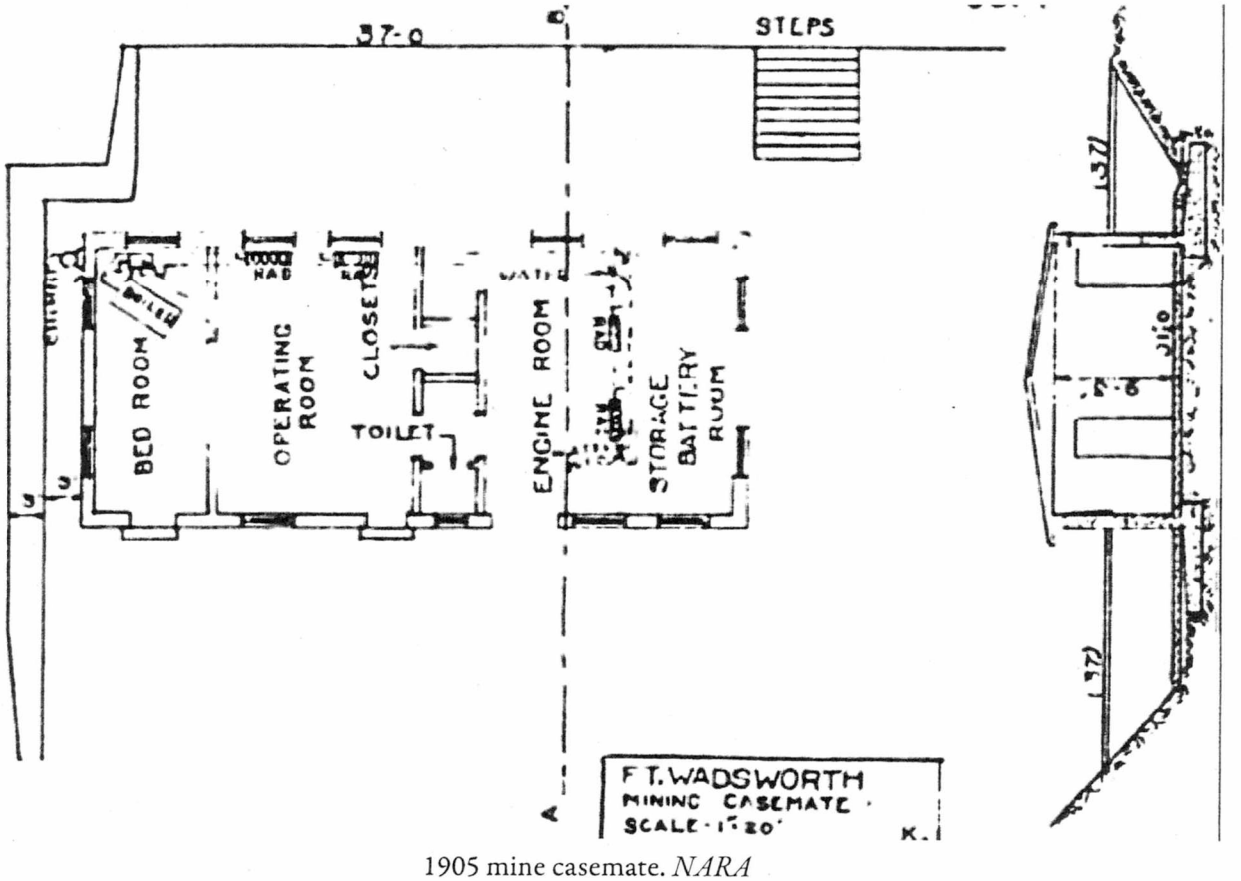
In the latter part of 1898, two additional cable tanks were built in the ditch of Fort Wadsworth's gorge to store the large amounts of submarine cable retrieved from the minefields at the end of the war. A crane served both tanks. All three cable tanks and the torpedo storehouse were formally transferred to the coast artillery garrison on May 6, 1901, although they had been in use for nearly three years. (6)

A new mine casemate was required to replace the original one in the old fort, which was renamed Battery Weed in 1902. The new mine casemate commenced in 1904 was transferred to the coast artillery March 29, 1905. The four-room brick building roofed with copper was near the right-flank of Battery Catlin, some 300 feet northwest of the mine wharf. It contained a storage battery room, an engine room, an operating room, and a small bedroom for personnel assigned to the casemate. The casemate was partially concealed by an embankment formed by a remnant of the old North Cliff Battery parapet at the south end of Battery Catlin.(7)

In addition, a mine loading room was commenced in 1904, adjacent to the cable tanks in the north end of the old fort's ditch. Beyond these additions to the shore facilities of the submarine defenses, little more was done until the Murray Board's recommendations were approved in February 1905. At Fort Wadsworth, the board called for two additional cable tanks and an extension of the tramway to the end of the wharf, along with an extension of the wharf's stonework.(8)



Fort Wadsworth mine facilities. *NARA*



1905 mine casemate. *NARA*

Modern Gun Batteries at Fort Hamilton

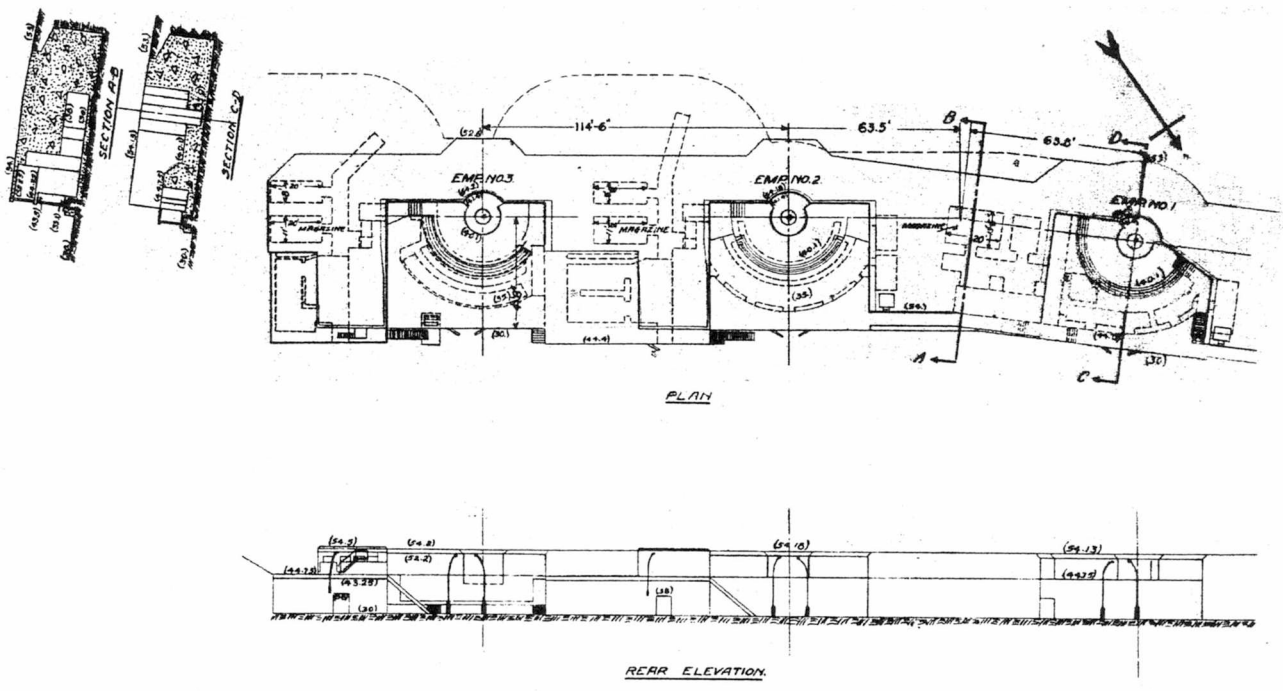
Detailed planning for the first modern breechloading gun and mortar batteries on the Long Island side of the Narrows began in the early 1890s. Eventually 11 batteries would be built at Fort Hamilton, supplanting the outdated muzzleloading smoothbores and rifles. By the early 1900s, six 12-inch, seven 10-inch, ten 6-inch, two 4.72-inch, and two 3-inch breechloading guns, plus eight 12-in mortars, were emplaced. These, with a similar number of guns on Staten Island, would prevent a hostile fleet from passing the Narrows and laying waste to New York City.

Seven-Gun 10-inch Battery Constructed along Fort Hamilton's Shoreline

On July 23, 1892, six years before the war with Spain, the chief of engineers ordered detailed drawings and cost estimates for two massive battery structures to mount seven 10-inch guns on disappearing carriages along the Narrows east of Fort Hamilton. All seven emplacements would be on the site of the new 15-inch Rodman battery, bearing on the Narrows, while Emplacements 6 and 7 would also bear on Gravesend Bay and Lower New York Bay. On October 18, drawings and cost estimates of $413,290.40 were submitted to the chief of engineers. Lt. Col. George L. Gillespie and 1st Lt. Robert McGregor were authorized to begin construction on Emplacement 7, the eastern-most gun emplacement. Once the construction plant had been erected and building materials collected, work began on the initial emplacement. Construction on Emplacement 7 continued until the project was suspended on September 30, 1894, pending completion of the design for the Buffington-Crozier disappearing carriages. Upon completion of the design, the project was to be resumed and the gun platforms built.

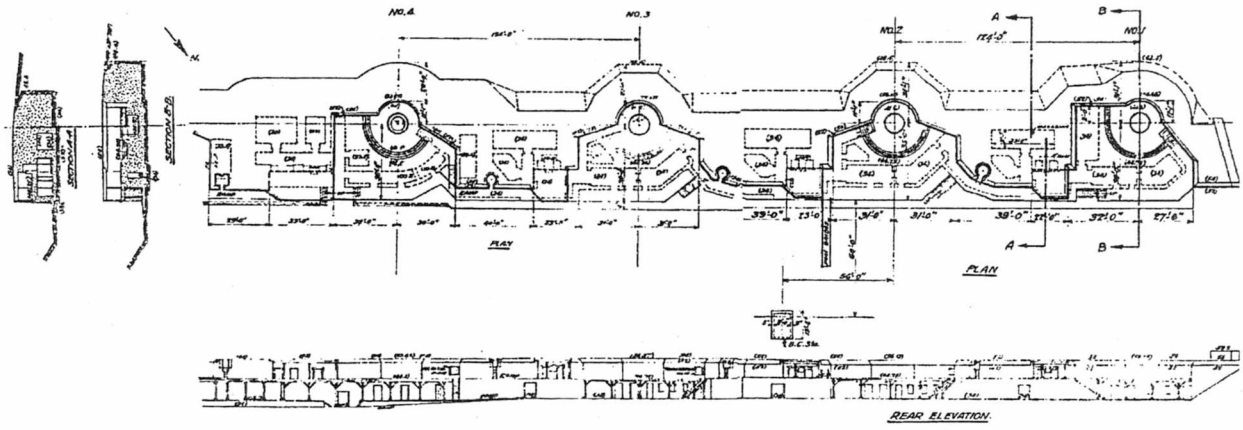
Work on Emplacement 7 was resumed in September 1895 and finished in November. The base rings were received and installed in December. On November 13, 10-inch M1888 gun No. 17 was received and placed on the parapet pending arrival of Buffington-Crozier disappearing gun carriage No. 21 later in 1896. In conjunction with the emplacement, several of the Rodman battery's traverse magazines were converted into casemates for 6-pounder RF guns. By June 30, 1897, Emplacement 7 was complete, its gun and carriage mounted and ready for service.(10)

Emplacement 6 was authorized, with an allotment for its construction in 1895. On June 29, 1896, Emplacement 5 was authorized, along with modifying two more traverse magazines into casemates for 6-pounder RF guns. By June 30, 1897, Emplacements 5, 6, and 7 were complete and ready for service, except Emplacement 5 lacked ammunition hoists. All three emplacements mounted 10-inch model M1888 guns on M1894M1 disappearing carriages. Emplacement 6 was armed with Gun No. 14 on Carriage No. 20, and Emplacement 5 was armed with Gun No. 45 on Carriage No. 23. Emplacement Numbers 6 and 7 were transferred to the artillery garrison on March 12 and No. 5 on May 5, 1898. (11)



Emplacements 5, 6, and 7 of the 7-gun battery originally named Battery Gillmore, renamed Battery Samuel Spear in 1906. *NARA*

Emplacements 1, 2, 3, and 4, built in a separate structure to the right of Emplacements 5, 6, and 7, would eventually constitute a separate tactical battery. Emplacement No. 4 was begun soon after an allotment of $45,000 on May 29, 1897. The National Defense Appropriation Act of March 9, 1898, allotted $25,000 to begin Emplacements 1, 2, and 3. By June 30, 1898, Emplacements 2 and 3 were ready for their disappearing carriages and excavation had started on Emplacement 1. While two of the four emplacements would have M1888 10-inch guns Nos. 38 and 45, all would be mounted on newer M1896 disappearing carriages. Emplacement No. 4 was transferred to the garrison on March 12, 1898. Work was completed by June 1899. The remaining three emplacements were transferred September 26, 1899. The guns for Emplacements 1 and 2, received and mounted in 1900, were newer M1895 10-inch guns Nos. 6 and 4 on M1896 disappearing carriages Nos. 58 and 62.(12)



Emplacements 1, 2, 3, and 4 of Battery Gillmore. *NARA*

On April 4, 1900, the seven 10-inch emplacements were named Battery Gilmore for Col. (Maj. Gen., USV) Quincy Adams Gillmore, Corps of Engineers. Gillmore graduated from USMA in 1849 and was appointed a brevet 2nd lieutenant of engineers. A brigadier general of volunteers in April 1862, Gillmore was brevetted lieutenant colonel of engineers for gallantry and meritorious service in the siege and capture of Fort Pulaski, GA, in April 1862. He was brevetted colonel in March 1863 for his service in the Battle of Somerset, KY, and brigadier general in March 1865 for meritorious service in the capture of Fort Wagner, SC, and brevet major general for the assault on Morris Island, SC, and the subsequent bombardment of Fort Sumter. Gillmore was advanced in the Regular Army to major of engineers in June 1863. He returned to the Corps of Engineers in 1865, was promoted to lieutenant colonel in January 1874 and colonel in February 1883. Colonel Gillmore died on April 7, 1888.(13)

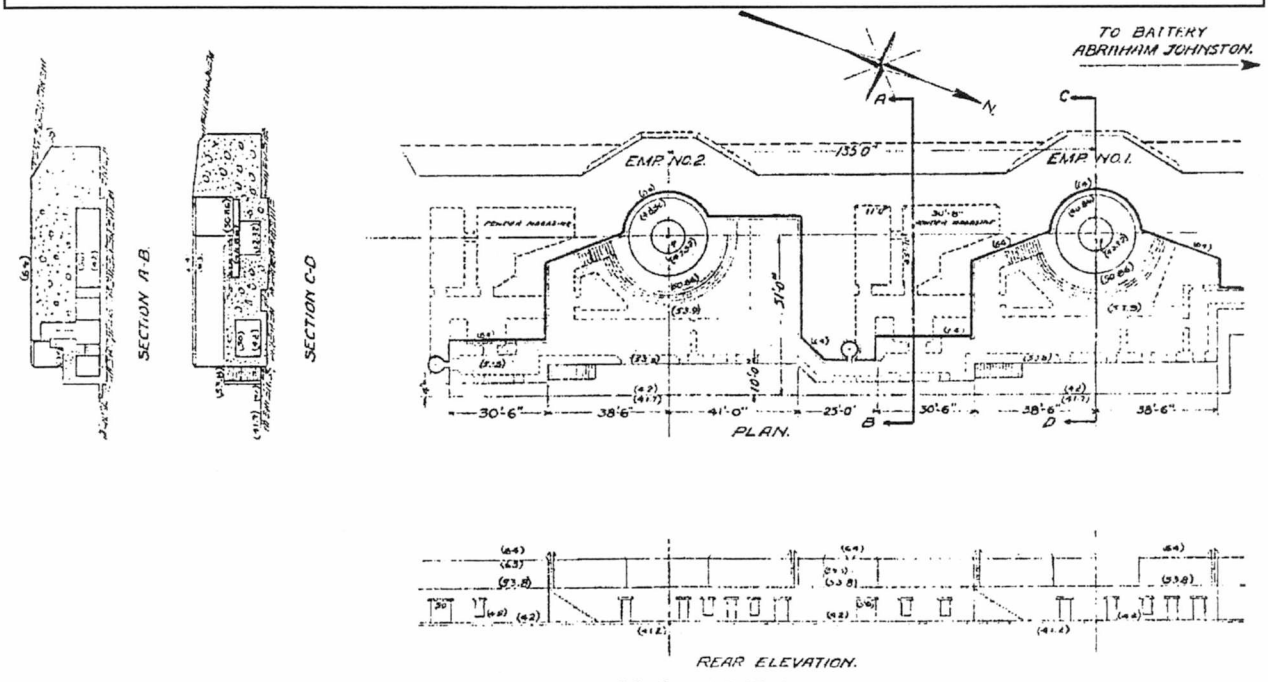
In 1906, Emplacements 5, 6, and 7 of Battery Gillmore were renamed Battery Samuel Spear. Samuel Perkins Spear entered military service in August 1839 as a private in the 2nd Dragoons, rising to sergeant major by October 1848. Discharged in 1859, he reentered the 2nd US Cavalry as a private and had advanced to First Sergeant in Company F when he was appointed lieutenant colonel, 11th PA Volunteer Cavalry in October 1861. Spear was advanced to regimental colonel in August 1862 and brevetted brigadier general of volunteers for gallantry at Darbytown, VA, March 13, 1865. He resigned his commission May 9, 1865, and died May 4, 1875.(14)

Batteries William Neary and Doubleday

A $40,000 allocation was made April 25, 1898, for a battery of two 12-inch guns on barbette carriages. On June 10, 1898, a second $40,000 was allotted for a second pair of emplacements on the left flank of the first set, these for disappearing carriages. Built to the east of the 10-inch gun batteries, the 12-inch guns would face Gravesend Bay and enable the battery to fire directly on Lower New York Bay. Excavation was still underway at the end of June 1898. Work continued rapidly; by June 1899 the battery had been completed and the base rings for the carriage set in place, although the guns and carriages had not been received.

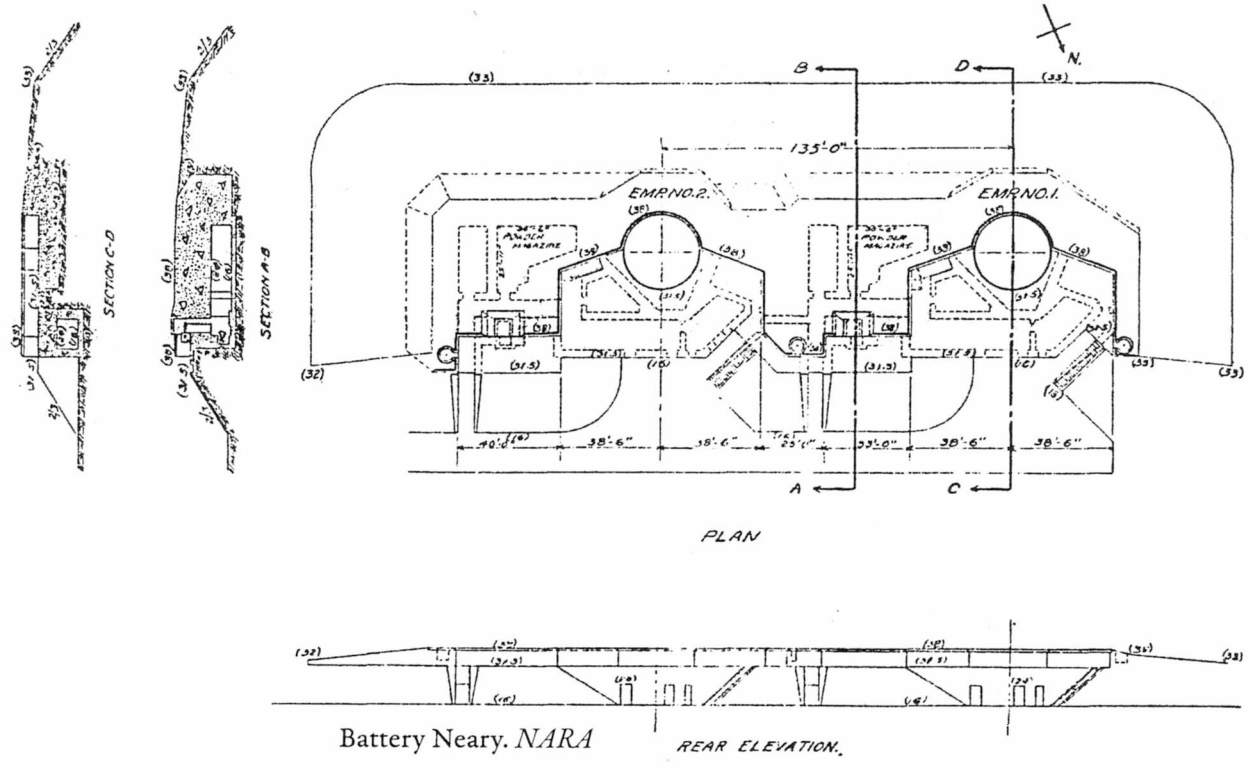
The guns for Emplacements 1 and 2, M1888 12-inch guns Nos. 32 and 46, and M1892 "non-disappearing" (barbette) carriages Nos. 19 and 20 were received by 1900. By June of that year they, and 12-inch gun M1895 No. 17 and its M1897 disappearing carriage No. 12 for Emplacement No. 3, were being mounted. M1895 gun No. 19 and its M1897 disappearing carriage were mounted in Emplacement 4 soon thereafter.(15)

The battery's four 12-inch gun emplacements were named for Col. (Maj. Gen., USV) Abner Doubleday on April 4, 1900. Doubleday graduated from the USMA in 1838 and was commissioned 2nd lieutenant in the 1st Artillery in February 1845. He was stationed at Fort Sumter when it fell in April 1861, after which he was appointed major of 17th US Infantry in May and brigadier general of volunteers in February 1862. He was promoted to major general of volunteers in November 1862 and served through the end of the war. Doubleday was brevetted brigadier general and major general for service at Gettysburg and was promoted to colonel of the 35th US Infantry Regiment in September 1867. He was reassigned to the 24th US Infantry in December 1870 and retired on December 11, 1873. General Doubleday died January 26, 1893.(16)



Battery Doubleday. *NARA*

In 1904, a single-gun battery at Fort Columbia, WA, was named for 1st Lt. William Curtis Neary, 4th US Infantry, who entered the army as a private in Company E of the Engineer Battalion in October 1884. He served as a corporal until March 1888, when he was commissioned 2nd lieutenant in the 3rd US Infantry. He transferred to the 4th US Infantry in February 1895 and served in Cuba during the War with Spain. He died July 9, 1898, of wounds received at the Battle of El Caney, Cuba, on July 1, 1898. In January 1906, the battery at Fort Columbia was made a part of Battery Jules Ord and Neary's name was transferred to Emplacements 1 and 2 of Battery Doubleday.(17.)

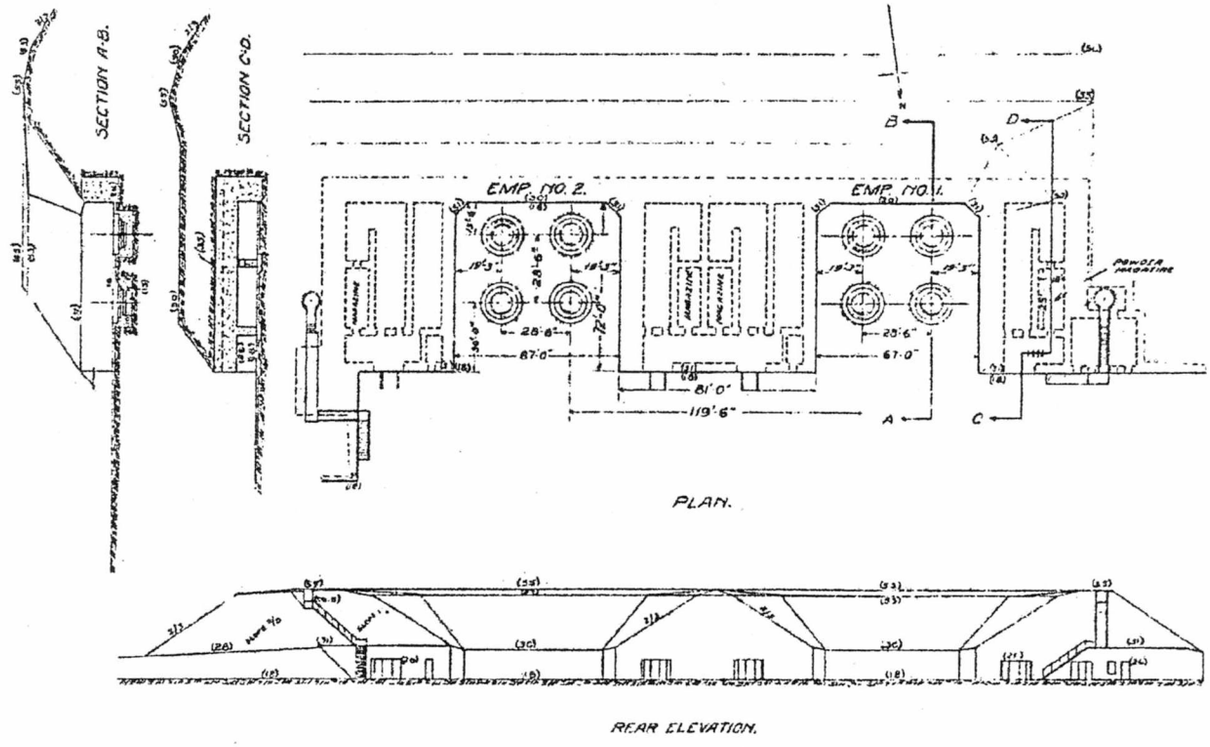


Battery Neary. *NARA*

Battery Piper

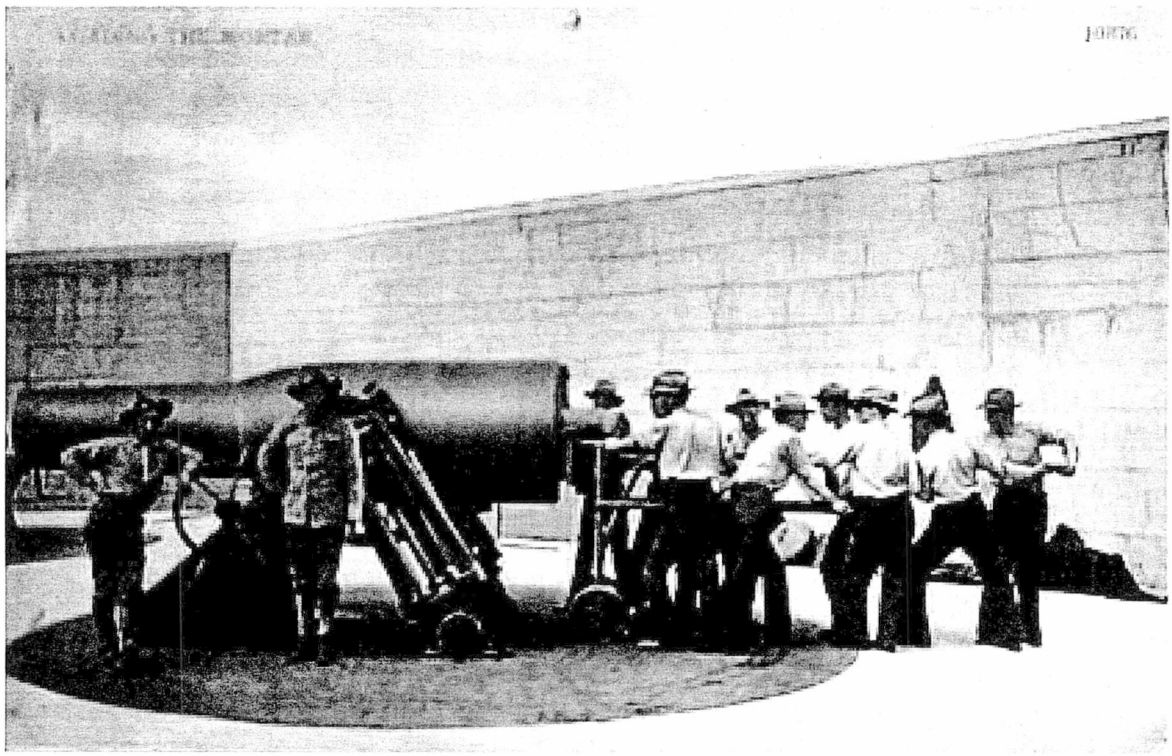
On June 27, 1898, $200,000 was allotted to build a battery for eight 12-inch breechloading mortars some 800 feet behind Battery Neary. The engineers moved forward with planning, and construction finally began in 1899.

Excavation for the mortar battery continued through the remainder of the year. By 1900 some 5,779 cubic yards of earth had been had been excavated and by the end of June 1900, some 8,5621 cubic yards of concrete and masonry had been placed, nearly finishing the concrete work. The eight base rings for the mortars were also set. In addition, 1,000 square yards of sod on the parapets and slopes was also laid. During the 1901 work season, an additional 656 cubic feet of concrete was poured and 5,529 cubic yards of earth formed the parapet and rampart slopes of the battery. The slopes and parapet were sodded, the ditch macadamized, and gutters paved. Water and electricity were supplied to the battery and electric lights installed. The eight 12-inch mortars were mounted on their carriages in the battery's two pits. The ammunition trolley system was installed and stairs were erected to the "crows nest" fire control positions on the battery flanks. The battery was turned over to the garrison on March 4, 1901.(18)



Battery Piper. *NARA*

The battery was armed with eight M1890M1 12-inch mortars (Pit A: Nos. 102, 100, 103, and 101; Pit B Nos. 93, 65, 46, and 89) on eight M1896M1 mortar carriages (Pit A Nos. 225, 227, 203, and 224; Pit B: Nos. 201, 202, 223, and 226). On March 19, 1902, the battery was named Battery Piper for Col. Alexander Piper, 5th US Artillery, who graduated from the USMA in 1847 and was commissioned in the 3rd Artillery. In 1863, he was brevetted major for gallantry and meritorious service in the campaigns of Northern Virginia. In January 1863, he was appointed colonel of the 10th NY Volunteer Artillery and brevetted again in 1864 for gallantry and meritorious service in front of



Loading one of Battery Piper's 12-inch mortars. *Author's Collection*

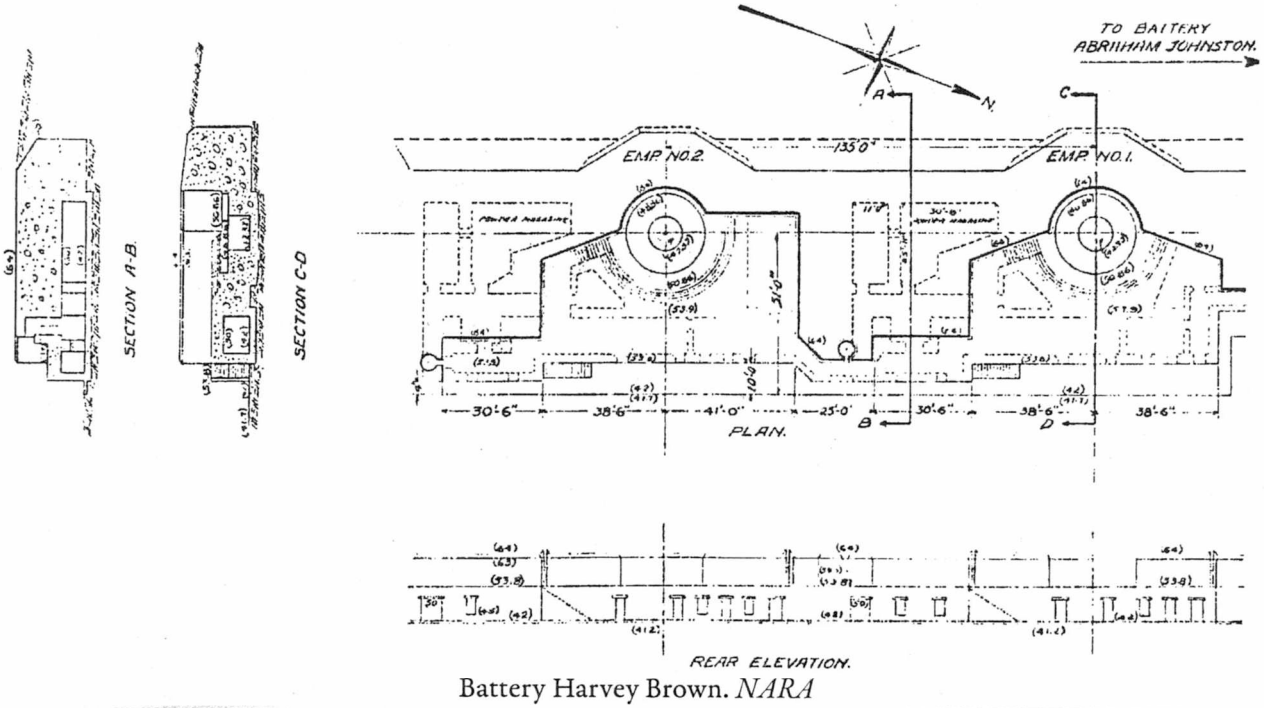


Fort Hamilton's modern ancillary batteries in 1923. Left to right: Batteries Burke, Johnston, and Brown in front of the old fort, with Battery Griffin near the shoreline. To the right of the old fort along the shoreline, left to right: Batteries Gilmore, Spear, Neary, and Doubleday. Batteries Livingston and Mendenhall are visible in the distance. Battery Piper occupies the heights immediately to the rear of Batteries Gilmore, Spear, Neary, and Doubleday. *NARA*

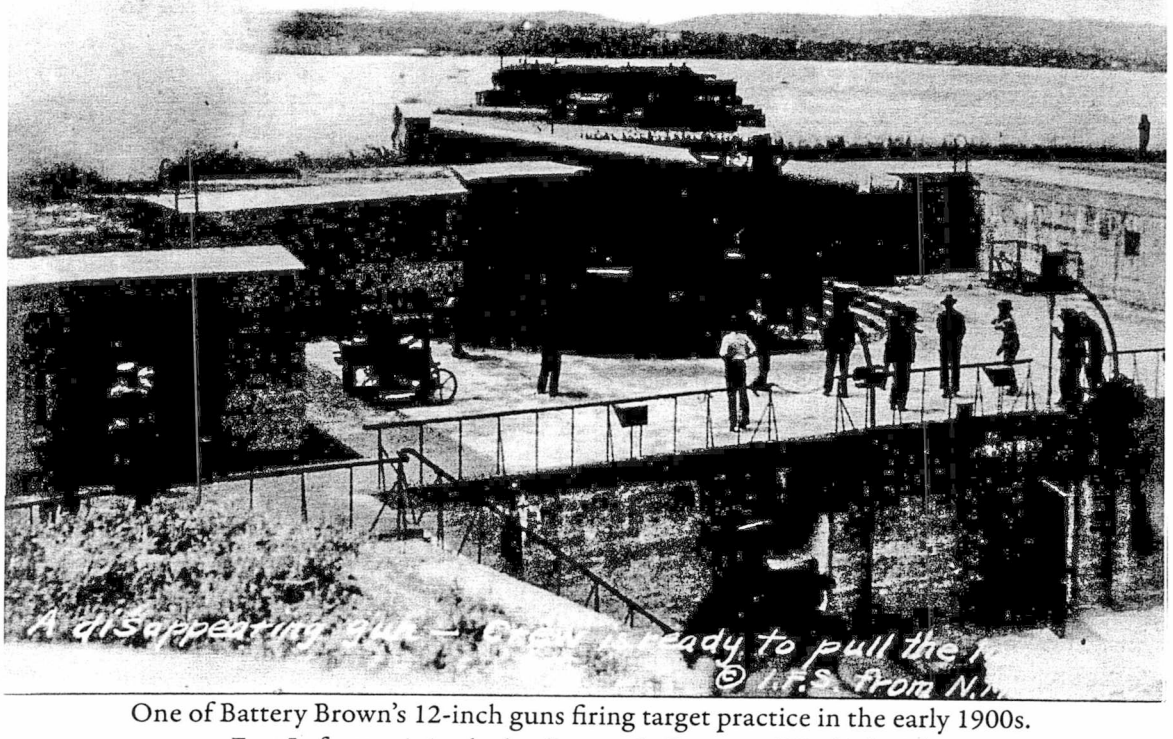
Petersburg, VA. Following the war, he returned to the 4th Artillery, being promoted to major in 1875. He was promoted to colonel and transferred to the 1st Artillery in August 1887. Colonel Piper retired July 1, 1891, and died on February 22, 1902.(19)

Battery Harvey Brown

A second battery for 12-inch guns on disappearing carriages was authorized on April 5, 1898, shortly after the commencement of hostilities with Spain. Detailed plans for the battery were approved



Battery Harvey Brown. *NARA*



One of Battery Brown's 12-inch guns firing target practice in the early 1900s. Fort Lafayette is in the background. *Courtesy of Karl Schmidt*

and preparations were begun to build the battery on the east flank of the pair of 12-inch barbette guns, directly in front of the channel face of the old fort. The project was so close to the scarp of the old fort that 5,998 cubic yards of stone had to be removed. With this removal, excavation for the foundations began and pouring concrete commenced.

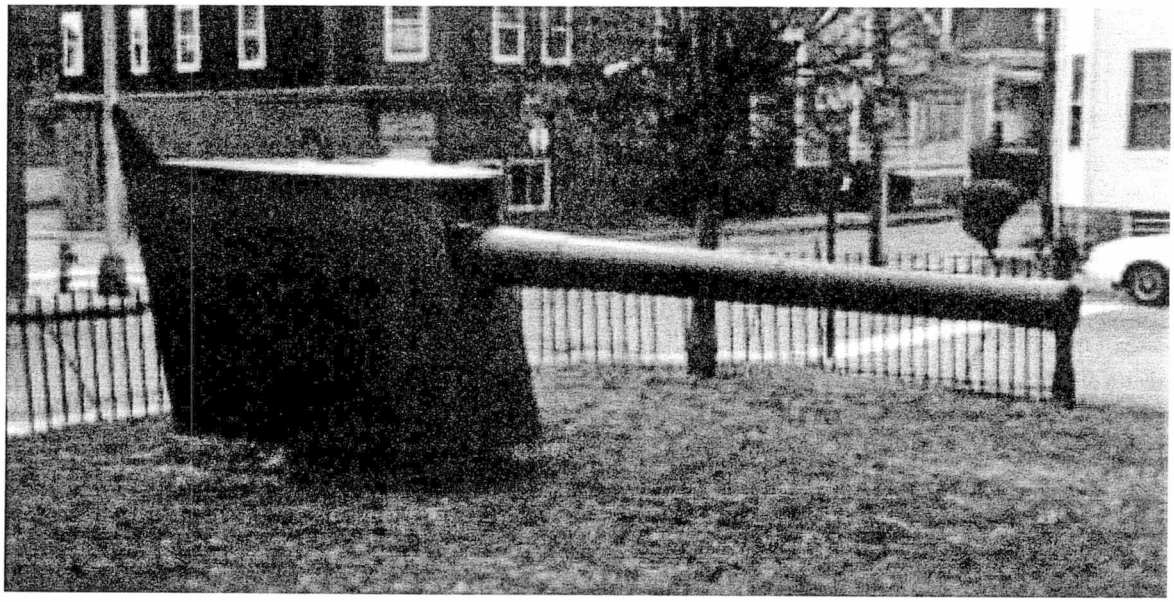
The battery was completed in 1901 and its 12-inch guns were mounted by June 1901. The battery was armed with M1895M1 12-inch guns Nos. 2 and 32 on M1897 disappearing carriages Nos. 29 and 28.

A wooden frame house was erected on the terreplein of the masonry fort's left curtain about 100 feet behind the battery for a battery commander's station. Completed in 1901, it was turned over to the garrison on November 30.(20)

The battery was named for Col. and Bvt. Maj. Gen. Harvey Brown, 5th US Artillery. After graduating from USMA, Brown was commissioned in the Regiment of Light Artillery in July 1818. He transferred to the 1st Artillery upon its organization in June 1821 and was brevetted colonel for gallantry in the Mexican War. Brown transferred to the 4th Artillery in April 1861 and was appointed colonel of the newly constituted 5th Artillery in May 1861. He was brevetted brigadier general for gallantry and good conduct at Fort Pickens in November 1861. He was instrumental in suppressing the draft riots in New York City, for which he was brevetted major general in 1866. He continued to command the 5th Artillery until his retirement August 1, 1863. General Brown died in New York City on March 31, 1874.(21)

Rapid-Fire Guns Protect the Minefields

To defend the controlled minefields from enemy minesweeping vessels, and to prevent torpedo boats and destroyers from penetrating protected harbors, the War Department contracted for 33 British 4.72-inch quick-firing Armstrong guns, early in 1898. By May, they were being delivered.



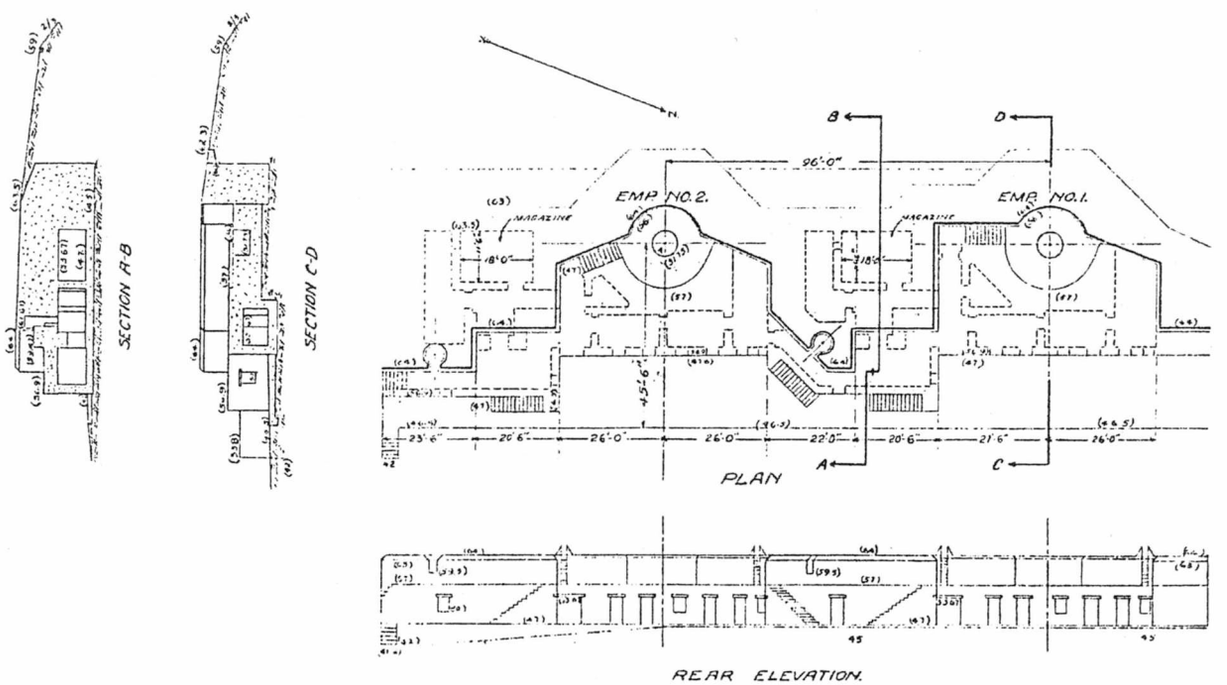
A 4.72-inch Armstrong gun of the type mounted in Battery Griffin. *Author's Collection*

Plans were made for modifying Platforms 7 and 8 of the 1860-70s Barbette Battery No. 1 in front of the old fort to fit the Armstrong guns. On April 6, 1898, $6,000 was allotted for altering the emplacements and by May 17, two model 1898 4.72-inch/45 caliber QF Armstrong guns on pedestal

mounts (Nos. 9081 and 9083) had been mounted in their emplacements. These two emplacements remained unnamed until incorporated into Battery Griffin, when the remainder of the old barbette battery was modified as a 3-inch RF battery in 1899-1903.(22)

Battery Abraham Johnston

Funds from the 1899 Appropriation for Gun and Mortar Batteries for a pair of 6-inch guns on disappearing carriages were granted March 9, 1899, and plans for these emplacements were submitted and approved. This required removal of 428 cubic yards of the old masonry fort's channel front before excavation for the battery's foundations could begin, but by the end of June 1900 the project was ready to pour concrete. In 1901, 4,317 cubic yards of concrete were placed, parapets were formed and graded, ladders and railings installed, and the battery supplied with water and electricity. This battery was built in conjunction with Battery Harvey Brown, on the right flank of the 12-inch battery, and was nearly completed in 1901. M1897 6-inch gun No. 9 was received and mounted on M1898 disappearing carriage No. 1 in Emplacement 2. Finish work was completed and the battery was transferred to the garrison December 2, 1902. M1897 gun No. 1 and M1896 disappearing carriage No. 27 were mounted in Emplacement 1.



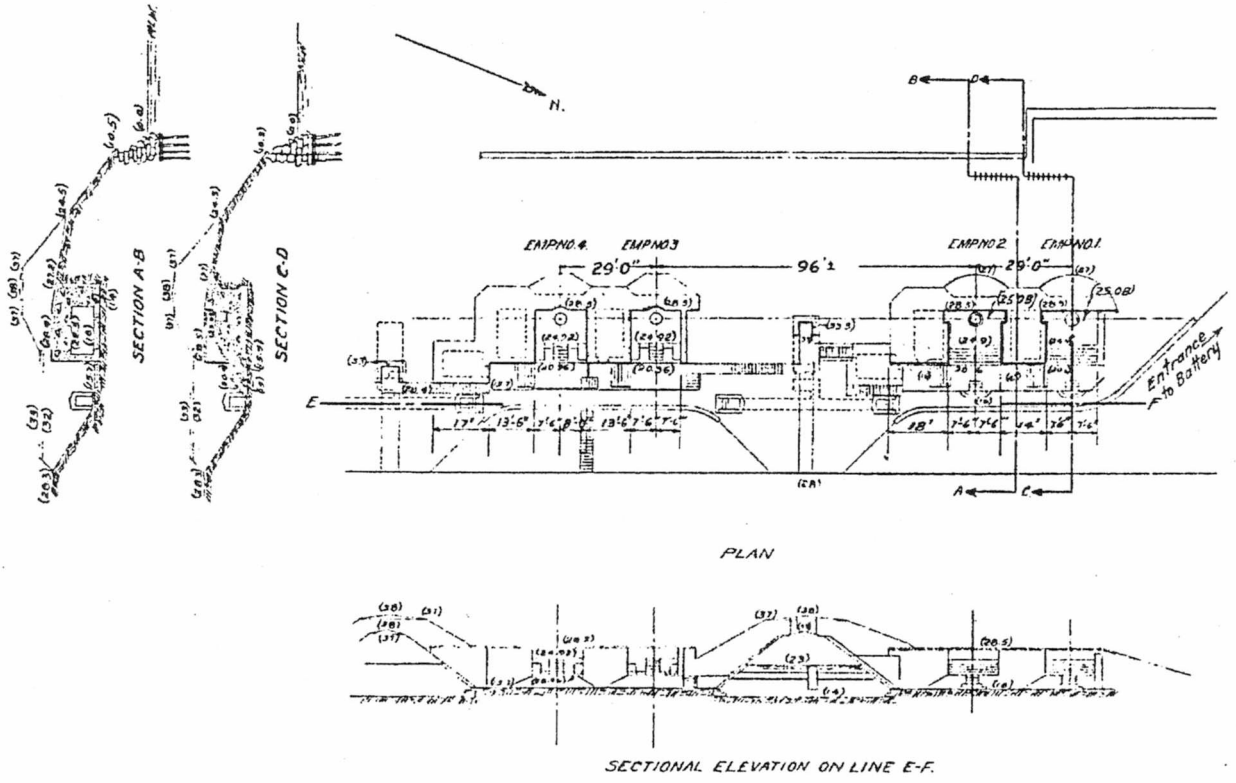
Battery Abraham Johnston. *NARA*

On January 25, 1906, the battery was named for Capt. Abraham Robinson Johnston, 1st US Dragoons. Johnston graduated from the USMA and was commissioned a second lieutenant in the 1st Dragoons in 1835. Captain Johnston was killed in action December 6, 1846, at San Pasqual, CA, during the Mexican War. (23)

Battery Griffin

The initial emplacements of what would eventually be designated Battery Griffin consisted of the pair of emplacements for 4.72-inch QF guns. Two emplacements for 3-inch (15-pounder) Driggs-Seabury RF guns to the right of the 4.72-inch guns were authorized and funded in 1899. This battery occupied the north end of Barbette Battery No. 1 in front of old Fort Hamilton. A pair of 8-inch converted rifles was dismounted from Platforms 1 and 3 for the new emplacements. Construction began in June 1899.

Construction was pursued at a less than frantic pace, and it was not until 1902 that the two emplacements were completed, for 3-inch M1898 guns Nos. 87 and 88 on M1898 masking-parapet carriages Nos. 87 and 88. The battery was transferred to the garrison September 10, 1902.



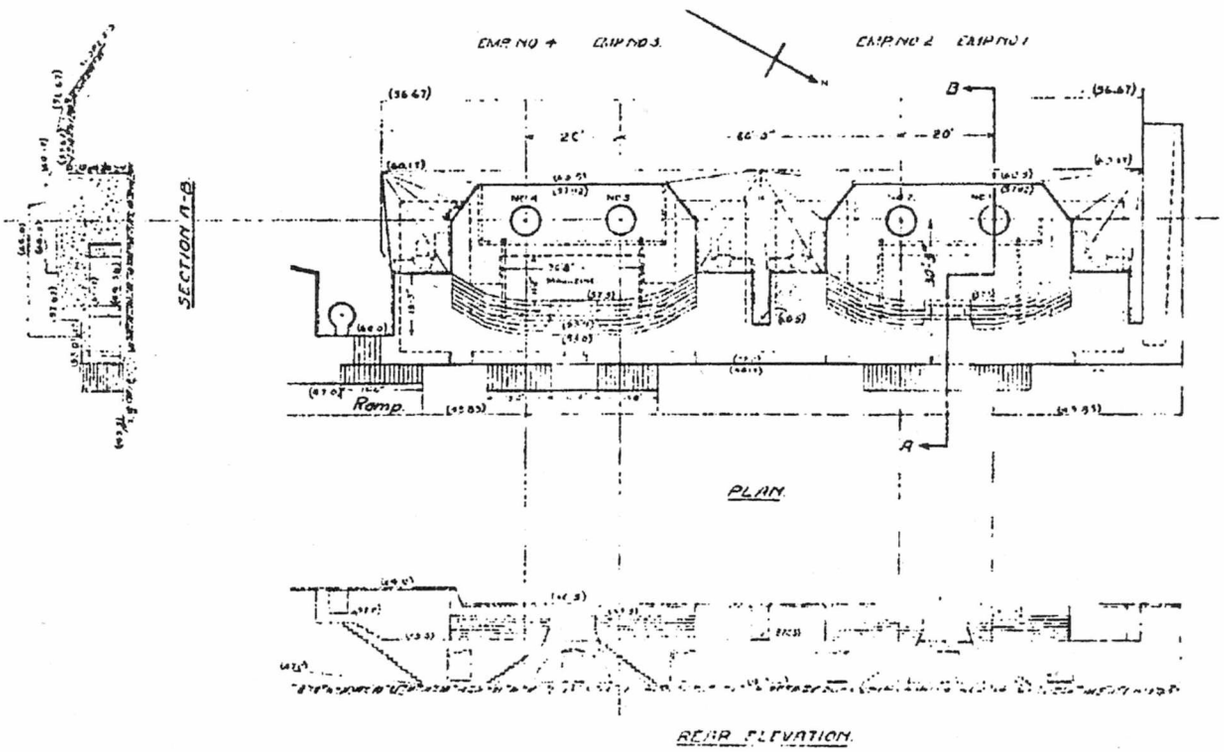
Battery Griffin. *NARA*

In October 1902, the battery was named for Col. (Bvt. Maj. Gen. and Maj. Gen., USV) Charles Griffin, 35th US Infantry. Griffin graduated from the USMA and was commissioned a second lieutenant in the 4th Artillery July 1847. He transferred to the newly constituted 5th Artillery as a captain, receiving a brevet to major for service at Bull Run, July 21, 1861. He eventually commanded a division as a major general of volunteers in 1864. He was repeatedly brevetted for gallantry and meritorious service during the Civil War, culminating in brevet major general March 13, 1865. General Griffin was mustered out of the volunteer service on January 15, 1866, and appointed colonel of the 35th US Infantry in July 1866. Colonel Griffin died September 15, 1867, at Galveston, TX.(24)

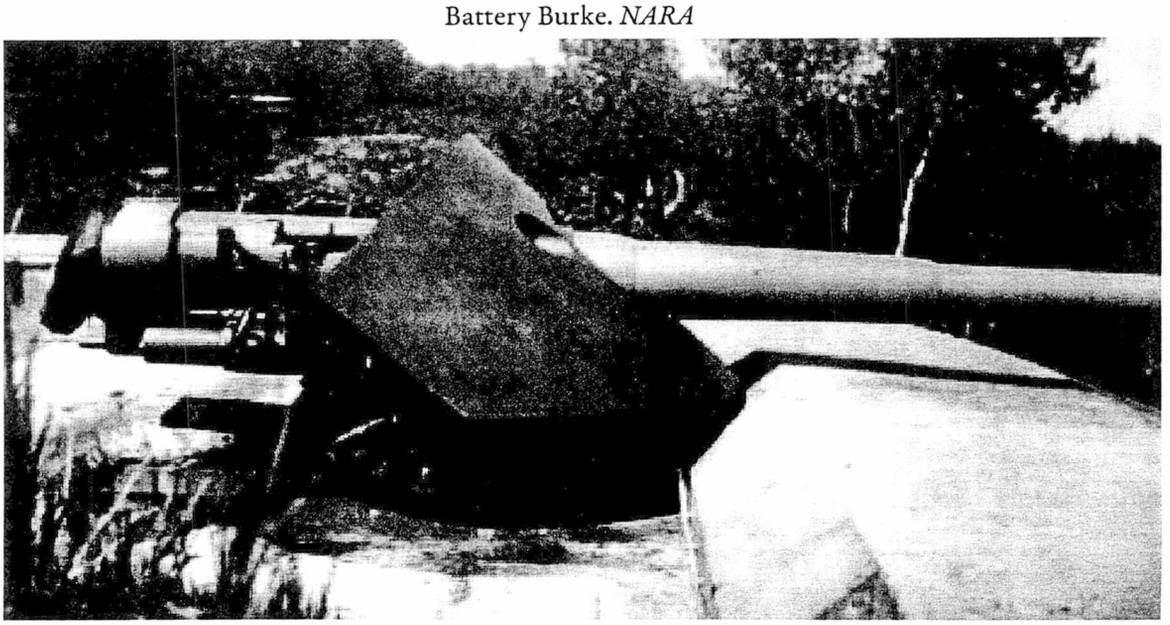
Battery Burke

Two emplacements were funded May 15, 1901, each emplacement for two 6-inch RF guns on pedestal mounts, and construction commenced in August. The site on the right flank of Battery Abra-

ham Johnston, in front of the old masonry fort's right flank, required removal of some 986 cubic yards of masonry of the right flank caponnier as well as part of the glacis. Work progressed well and some 1,499 cubic yards of earth was excavated. They began pouring concrete in the fall; 2,870 cubic yards of concrete and 1,026 square yards of paving were laid in the rear of the battery. By mid-1902, the battery was nearly complete, awaiting its armament and requiring only a little concrete work and preparation of the exterior parapet slopes. The completed battery was armed with 6-inch M1900 RF guns Nos. 24 and 25 on M1900 pedestal mounts Nos. 20 and 21. The battery was transferred to the garrison September 14, 1903. Apparently, guns were only mounted in Emplacements 2 and 4.



Battery Burke. *NARA*



M1900 6-inch gun of the type in Batteries Burke and Livingston. *Author's collection*

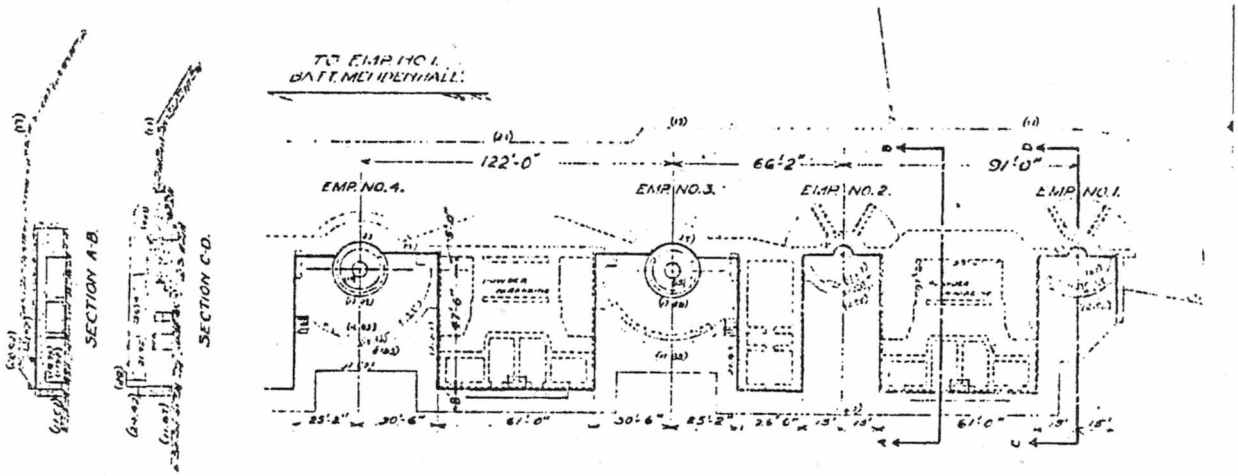
The battery was named October 24, 1902, for Lt. Col. and Bvt. Brig. Gen. Martin Burke. An 1820 graduate of the USMA, he was commissioned in the 8th US Infantry and transferred to the 3rd Artillery in June 1823. He was brevetted major and lieutenant colonel for gallantry and meritorious conduct in the War with Mexico. He was advanced to lieutenant colonel in 1861, serving with the 3rd Artillery until his retirement August 1, 1863. On March 13, 1865, he was brevetted brigadier general for faithful service. General Burke died in New York City April 24, 1882.(25)

Battery Manning Livingston

Four emplacements for 6-inch guns, two on pedestal mounts and two on disappearing carriages, were authorized and funded in 1901. Construction began in August 1901, east of the 10-inch gun batteries overlooking Gravesend Bay. Construction advanced rapidly and the platforms were ready for their armament by the end of June 1902. Little remained to finish at the battery beyond pouring a small amount of concrete, grading and sodding the exterior and rear slopes of the parapet, and completing a roadway in the rear of the battery.

The project was completed in the summer of 1905 and armed with two 6-inch RF guns on pedestal mounts and two on disappearing carriages. Emplacement Nos. 1 and 2 were armed with M1900 guns Nos. 22 and 23 on M1900 pedestal mounts Nos. 22 and 23. Emplacements 3 and 4 were armed with M1903 guns on M1903 disappearing carriages. The battery was transferred to the garrison on November 23, 1905. The disappearing guns and carriages were removed and shipped to USMA November 13, 1907.

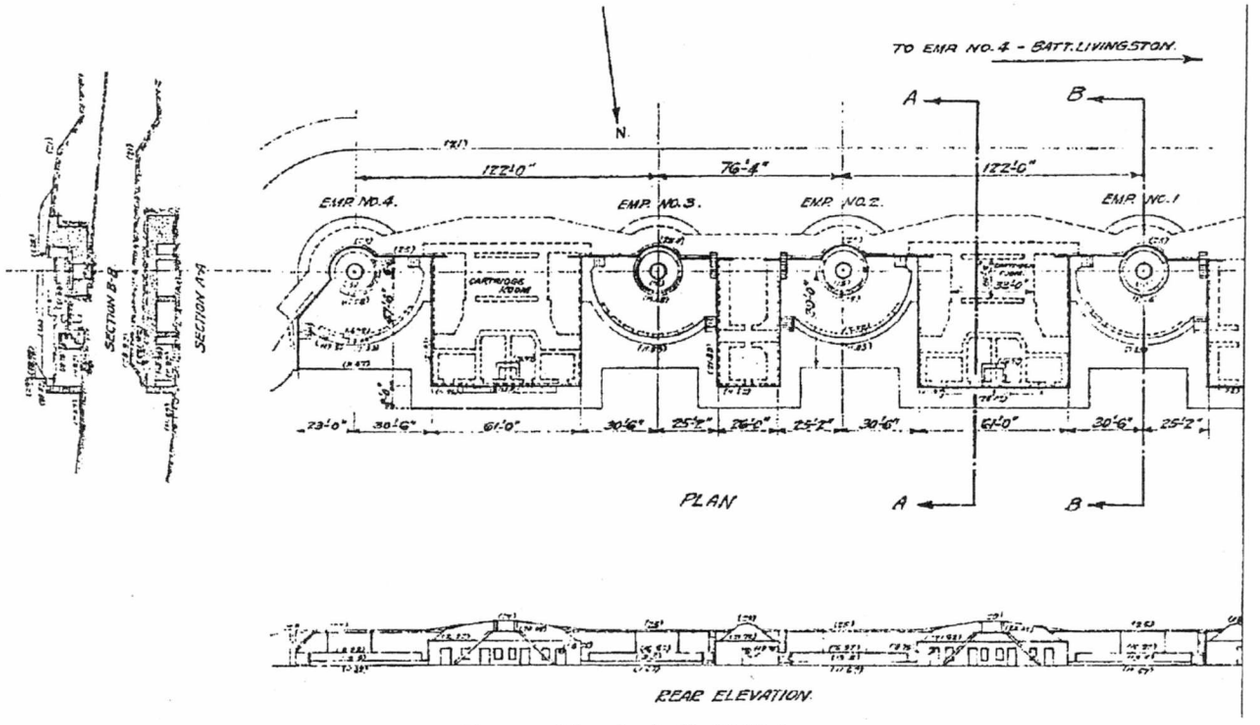
On December 27, 1904, the battery's four emplacements were named for 2nd Lt. and Bvt. Capt. Manning Livingston. Appointed 2nd lieutenant in the 3rd US Artillery February 19, 1862, he was killed in action July 2, 1863, at Gettysburg, PA. For his gallantry and meritorious service, he was brevetted 1st lieutenant and captain.(26)



Battery Livingston. *NARA*

Battery John Mendenhall

Two emplacements for 6-inch RF guns on disappearing carriages were authorized in 1904 and construction commenced later that that year, to the right of Battery Livingston, overlooking Gravesend Bay and the southern approach to the Narrows. Once construction was underway, construction commenced on Emplacements 3 and 4 for the same armament. The project was completed in the summer of 1905 and the battery transferred to the garrison November 23.



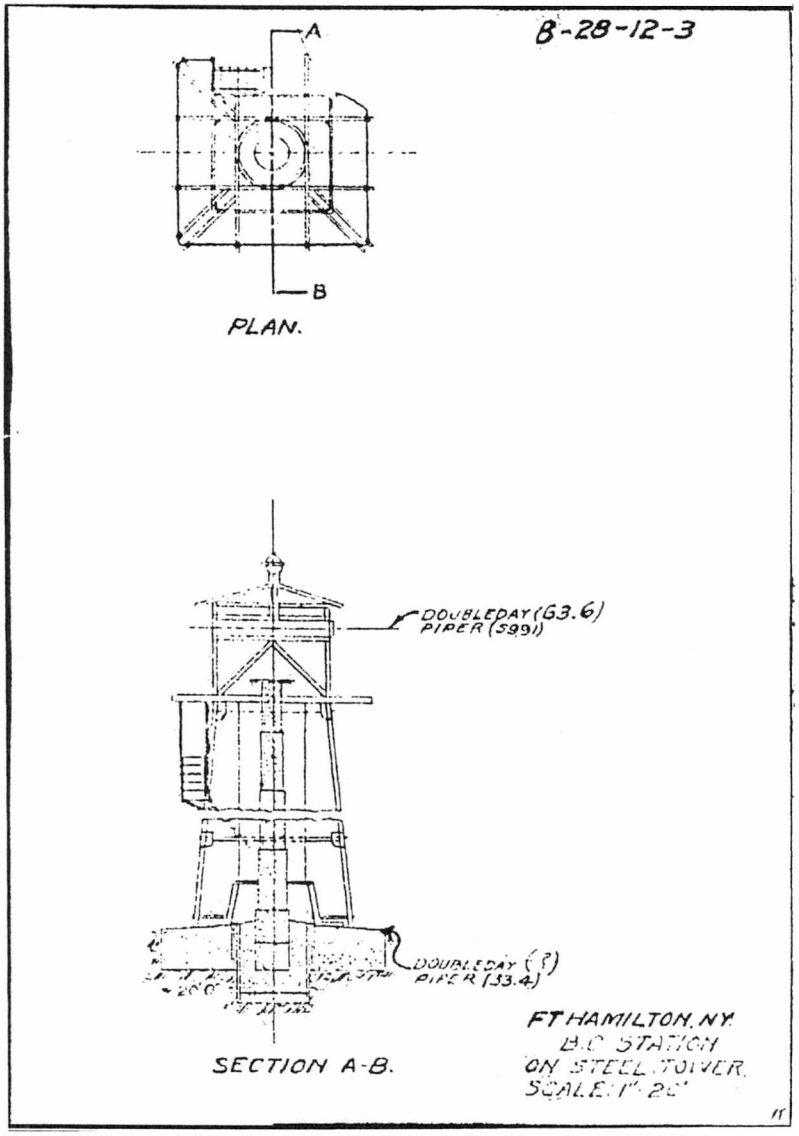
Battery Mendenhall. *NARA*

The battery was armed with M1903 6-inch guns Nos. 43, 44, 49, and 55 on disappearing M1903 carriages Nos. 3, 4, 5, and 6. On December 27, 1904, the battery was named for Col. John Mendenhall, 2nd US Artillery. Mendenhall graduated from the USMA in 1847 and was commissioned in the 4th US Artillery in 1852. He was brevetted lieutenant colonel for gallantry and meritorious service at the Battle of Chickamauga, GA, September 20, 1863. He was appointed major and judge advocate in the volunteers, serving as assistant inspector general from February to September 1864. Honorably mustered out of volunteer service in 1865, he resumed military service in the 1st Artillery with the rank of captain and on December 4, 1888, was promoted colonel of the 2nd US Artillery. Colonel Mendenhall died July 1, 1892.(27)

Fort Hamilton's Initial Fire Control System

Shortly after the end of the War with Spain, planning began for fire control stations. Two "armored range-finding shelters" for the 10-inch guns of Battery Gillmore were authorized April 12, 1899, and plans were submitted to the chief of engineers.

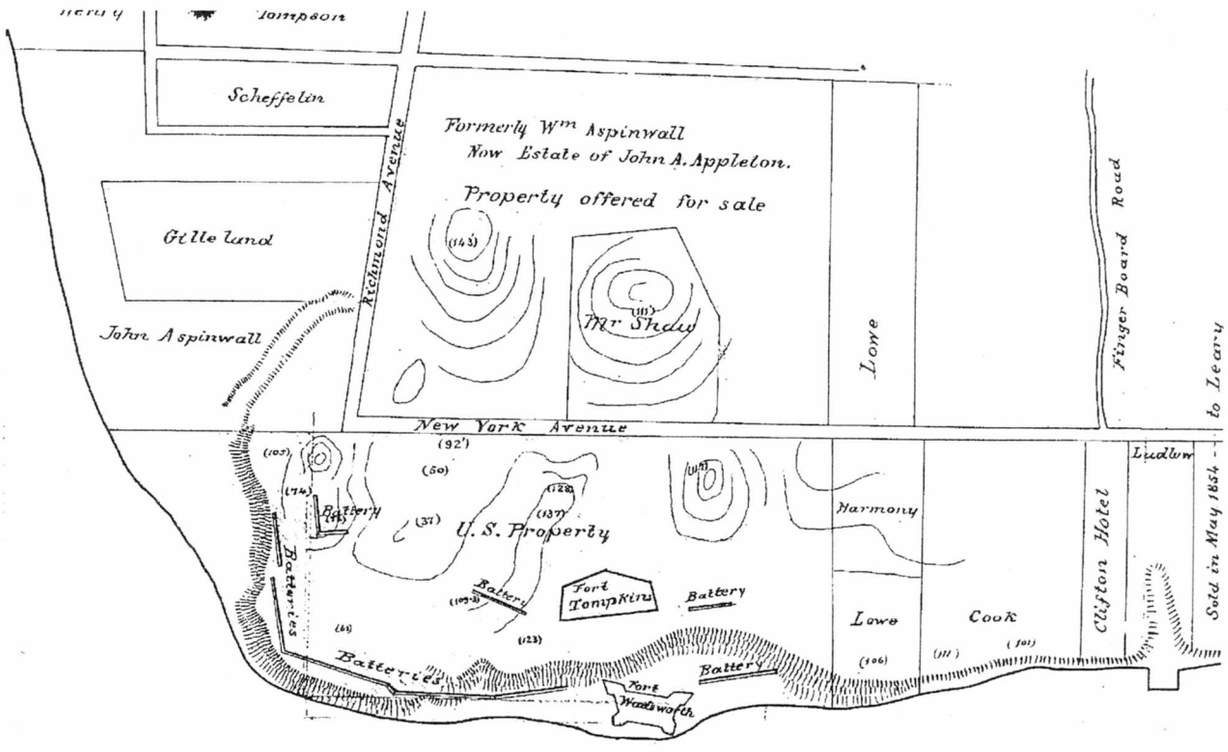
In 1901, a fire commander's station and two battery commanders' stations (BCS) were approved for Fort Hamilton. A 20-foot steel tower surmounted by a one-room frame house was erected 100 feet to the rear of the central traverse of Battery Piper for its BCS. The station was completed in 1901 and turned over to the garrison on November 30. This station was replaced a few years later by a new BCS atop the battery's central traverse.(28)



BCS for Batteries Doubleday and Piper. *NARA*

Fort Wadsworth Enlarged to Accommodate Projected Batteries

Shortly after commencement of batteries at Fort Hamilton, planning got underway for the first modern Endicott-Era batteries at Fort Wadsworth. Lt. Col. Henry M. Robert and his assistant, 1st Lt. William E. Craighill, selected their prospective sites. However, before construction could begin, it was necessary to acquire considerable additional property. Purchases between 1892 and 1901 increased Fort Wadsworth from 90 to 226 acres. First, 78 acres were acquired in March 1892 from Adolfo and Josepha Hegewisch. This was followed on January 5, 1893, by 50 acres from Serena P. Appleton and 26.4 acres from J.J. and J.H. Alexandre. In 1891, the secretary of war authorized $44,000 for about 6.25 acres owned by Mrs. Sarah Schuyler Martin, with 6% interest until the sale was completed. On December 26, 1895, $53,680 was paid for Martin's property, and $60,000 for Joseph Whitney's seven acres. Between 1898 and 1901, an additional $111,266 was paid to Elizabeth Ockerhauser, Joseph Whitney Adeline Hauxtum, and Henry Mouquin for 33.43 acres.



The Narrows.

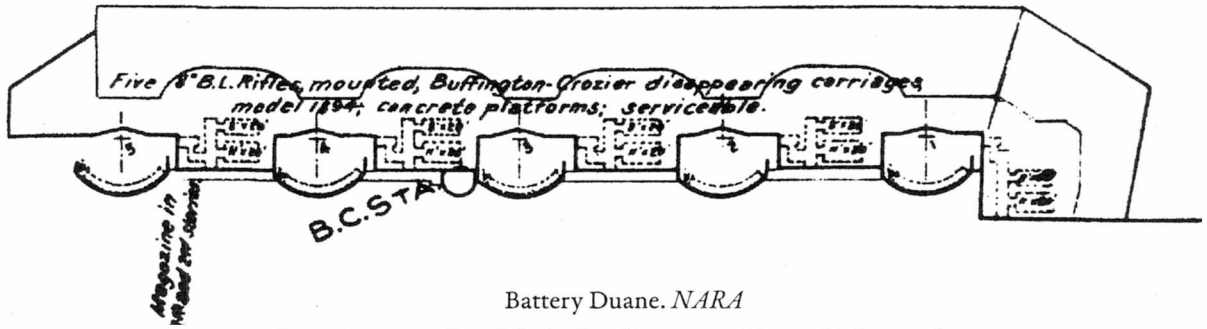
Tracts added to Fort Wadsworth Reservation in the 1890s and early 1900s. *NARA*

Battery Duane Built on Signal Hill

The collection of materials for a battery of five 8-inch guns on disappearing carriages began in 1894 and construction commenced later that year on the first four emplacements. This battery was located on the south side of Fort Tompkins, to the rear of the old 1870s Glacis Mortar Battery. Sufficient funds were not forthcoming, however and the project was suspended pending the allocation of funds on April 1, 1895. Authority was granted for the addition of the fifth emplacement in 1895 and work resumed. By June 1895, the initial four emplacements were well advanced.

In 1896, the battery was completed; 8-inch M1888 guns Nos. 5, 7, 4, 17, and 24 and M1894 Buffington-Crozier disappearing carriages Nos. 1, 2, 3, 4, and 5 had been received and mounted. Up to August 31, 1896, $265,299.41 had been expended on the battery. Installation of projectile hoists, trolleys, cranes, handrails, and lights was completed in 1897.

On April 4, 1900, the five 8-inch emplacements were named for Brig. Gen. James Cheatham Duane. After General Duane graduated from USMA in 1848, he was commissioned 2nd lieutenant of engineers. During the Civil War, he rose to major and was successively brevetted lieutenant colonel, colonel, and brigadier general for meritorious and faithful service. He was progressively promoted until appointed brigadier general and chief of engineers in 1886. General Duane retired in June 1888 and died on November 8, 1897.(29)



Battery Duane. *NARA*

Fort Newton Established Adjacent to Fort Wadsworth

One building, an old hotel known as the King House, belonging to A.L. King, was retained by the army as quarters for noncommissioned officers. On November 24, 1897, at the direction of the President, the tracts southwest of the junction of New York and Richmond Avenues, newly acquired from J.J. Alexandre, J.H. Alexandre, and Sarah Martin, were designated Fort Newton, in honor of Brig. Gen. John Newton. General Newton had spent a portion of his career as engineer in charge of fortification construction on Staten Island. A native of Virginia, he graduated from the USMA and was commissioned 2nd lieutenant of engineers on July 1, 1841. He served on numerous fortification projects including Staten Island until the Civil War. On September 23, 1861, he was appointed brigadier general and then major general of volunteers in March 1863. Newton was brevetted for gallantry and meritorious service at Antietam in 1862, Gettysburg in 1863, and Peach Tree Creek and Atlanta in 1864. He was mustered out of the volunteer service in 1866 and returned to the Corps of Engineers as a lieutenant colonel. Promoted brigadier general and chief of engineers in 1884, he retired August 27, 1886, and died on May 1, 1895.(30)

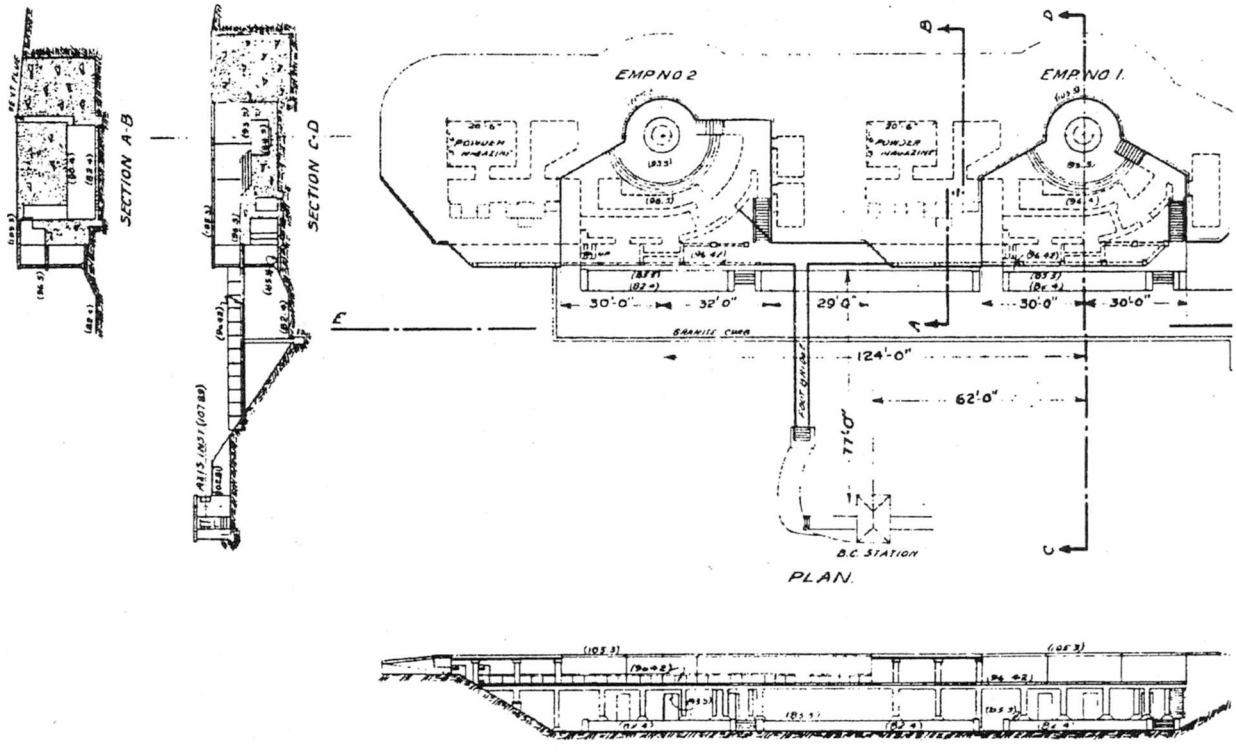
Batteries Emory Upton and Barry

Between 1896 and 1902, four batteries of large-caliber modern breechloading rifles were built on Fort Newton. The 12-inch gun batteries were named Richmond and Ayres, while the 10-inch gun batteries initially designated Ravenna and Clifton Batteries were later renamed Batteries Emory Upton and Barry. In February 1902, the order naming Fort Newton was revoked and the tract was became part of Fort Wadsworth.(31)

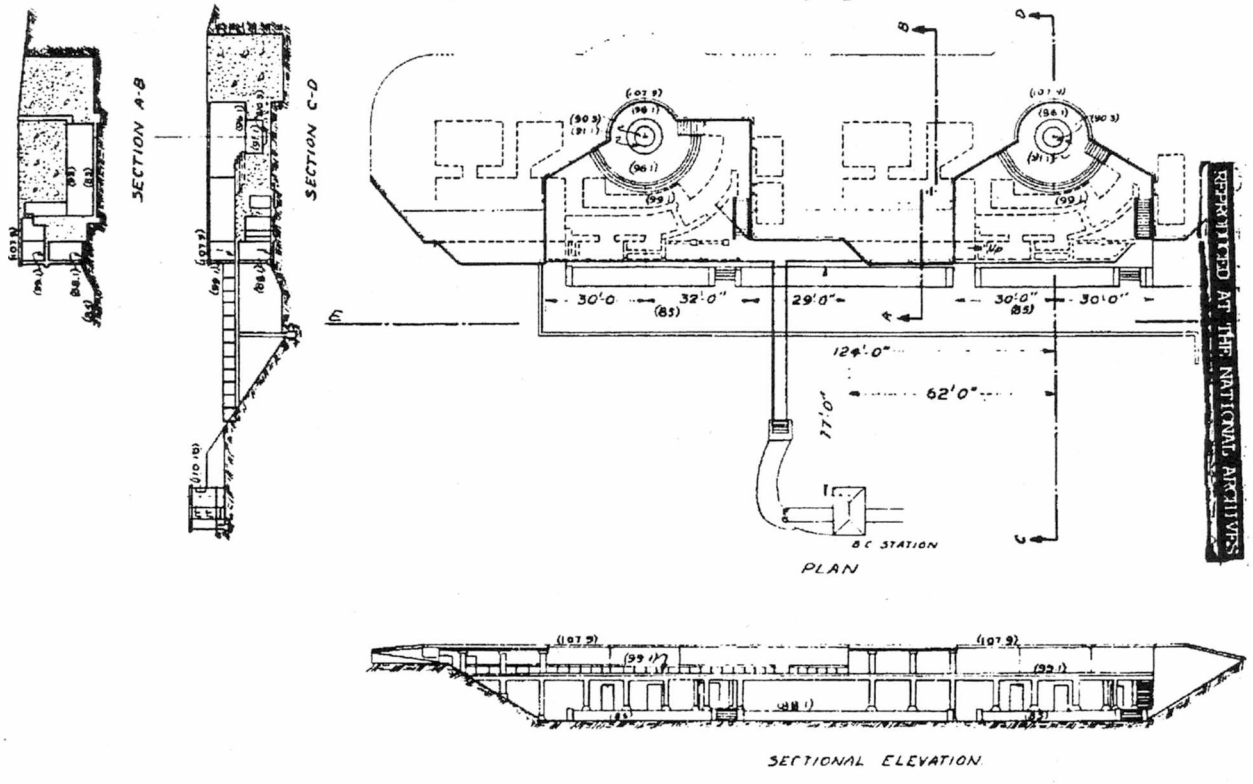
Funds were appropriated June 1, 1896, for four emplacements for 10-inch M1888 guns on M1896 disappearing carriages. Work was quickly started in July and advanced rapidly, so by the end of June 1897 both batteries had been nearly completed and were ready for their armament, at $61,498.66 for each battery. By March 1898, the annual work season was getting underway and with war with Spain in sight, extra gangs pushed completion of the two batteries. In 1898, the finishing touches to the two batteries were completed. Ammunition lifts were installed along with trolleys and cranes. The magazine doors were hung, stairs, handrails, and ladders were set in place, superior slopes and blast aprons of the emplacements were painted, and electric lights installed in the magazines. Telephone booths were built at each emplacement. On December 18, 1898, the two batteries were turned over to Fort Wadsworth's garrison.(32)

Battery Upton was armed with M1888 10-inch guns Nos. 11 and 19 on M1896 disappearing carriages Nos. 23 and 9. The battery was equipped with Hodges back-delivery projectile hoists in December 1897. The battery's powder hoists, however, were not provided until 1911. Battery Barry was

armed with two M1888 10-inch guns, Nos. 23 and 24, on M1896 disappearing carriages Nos 26 and 10. Battery Barry's projectile hoists were Hodges back-delivery type, installed in late 1897. The electric power used in the two batteries was supplied from a power plant in two of Fort Tompkins' casemates.



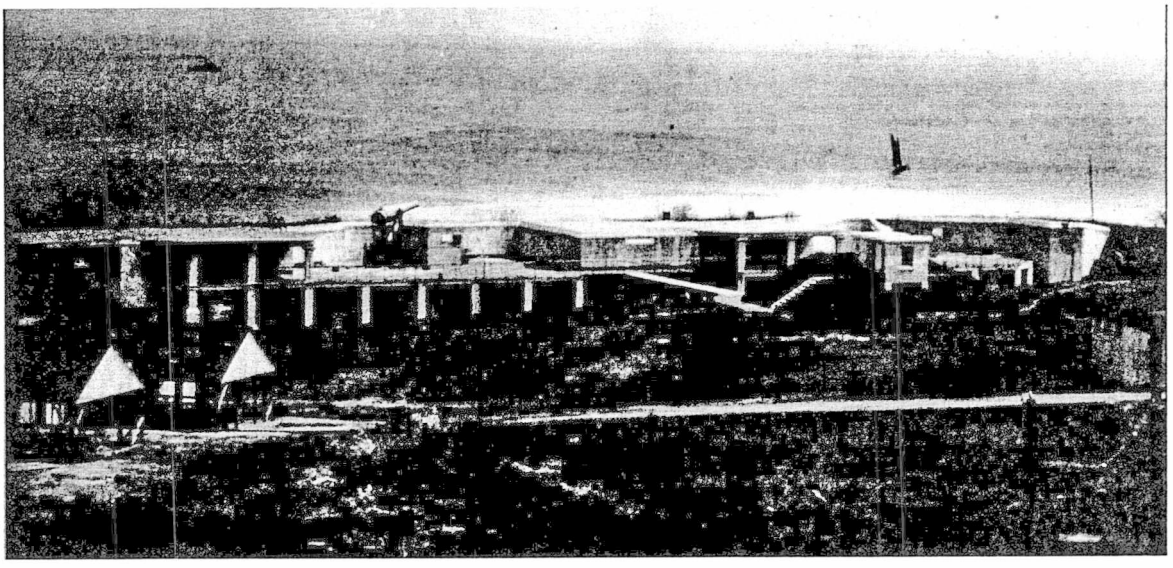
Ravenna Battery, later renamed Battery Emory Upton. *NARA*



Clifton Battery, later renamed Battery Barry. *NARA*

Both batteries were named February 14, 1902. The Ravenna Battery was named for Col. (Maj. Gen. of Volunteers) Emory Upton. Upton graduated from the USMA and was commissioned a second lieutenant in the 4th US Artillery in 1861. In 1862 he was appointed colonel of the 121st NY Volunteer Infantry and brigadier general of volunteers in 1864, along with brevets to major general for gallantry during the Civil War. He was mustered out of the volunteers in 1866 and eventually returned to the 4th Artillery, which he commanded as colonel in 1880. Recognized as one of the leading theorists in the US Army, he died March 15, 1881.(33)

Clifton Battery was named for Col. (Maj. Gen. of Volunteers) William Farquhar Barry. Barry graduated from the USMA and was commissioned in the 2nd Artillery in 1838. In 1861, he was appointed major in the newly organized 5th Artillery. He was appointed brigadier general of volunteers and brevetted major general for gallantry in the Civil War. Chief of artillery under General McClellan, he commanded the artillery in the defenses of Washington, D.C., before serving as chief of artillery under General Sherman. Mustering out of the volunteers, Barry returned to the 2nd Artillery as colonel. After long service as commandant of the Artillery School at Fort Monroe, General Barry died on July 18, 1879.(34)

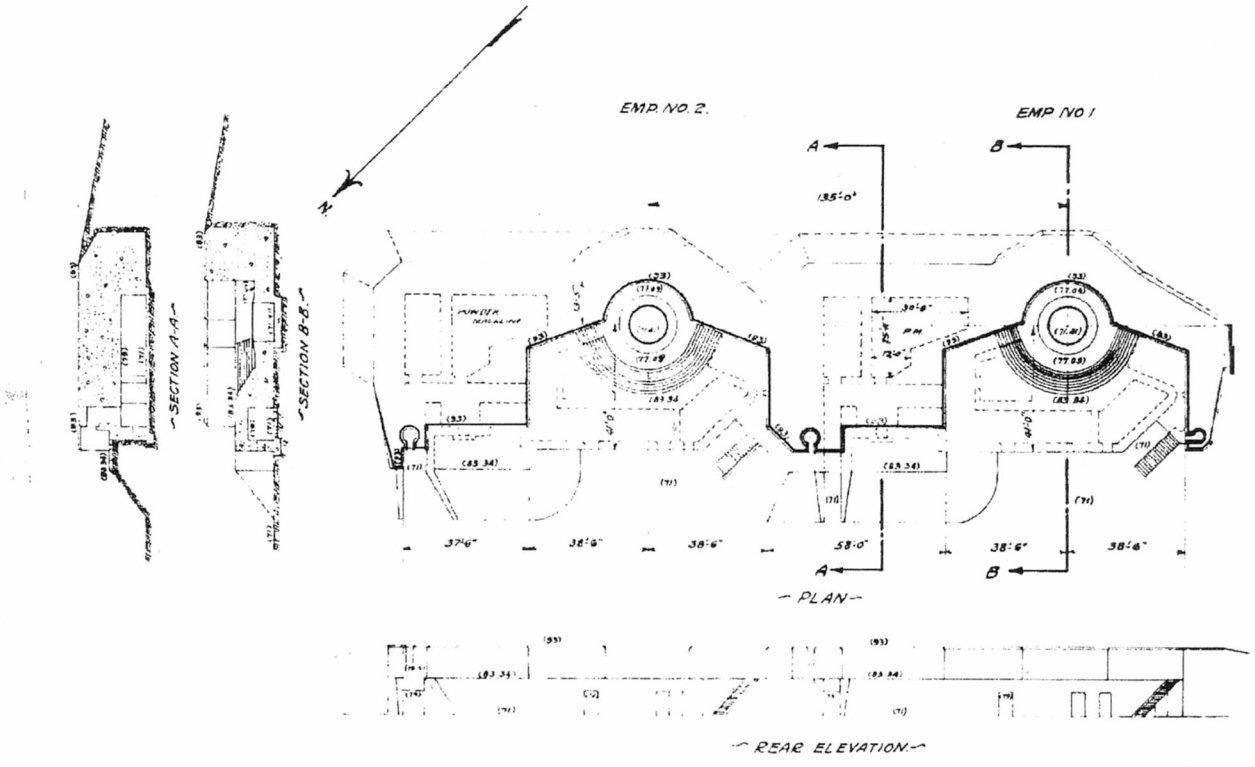


Battery Barry in 1902. *NARA*

Battery Richmond

On March 18 and 23, 1898, $100,000 from the National Defense Act of March 9, 1898, was allocated to construct a battery on Fort Newton. This was the first of four batteries, each mounting a pair of 12-inch guns on disappearing carriages. This first battery was built just to the west (right) of Battery Barry. Work was begun in March 1898 and rapidly pushed in light of the War with Spain that began the next month. The gun platforms were ready to receive their armament by the end of June 1898. The battery structure was completed in 1899 and one of the base rings had been set by the end of June 1899. M1888 guns Nos. 5 and 28 and M1896 disappearing carriages Nos. 26 and 10 were on hand. The battery was transferred to the garrison on September 5, 1899, but remain unarmed until the middle of 1900.

On April 4, 1900, the War Department named the emplacements Battery Richmond for the Staten Island Country of Richmond and for old Fort Richmond, the site of which was now occupied by the Third-System fort that had been renamed Battery Weed. (35)



Battery Richmond. *NARA*

Battery Hudson Built In the Return of Old Battery Hudson

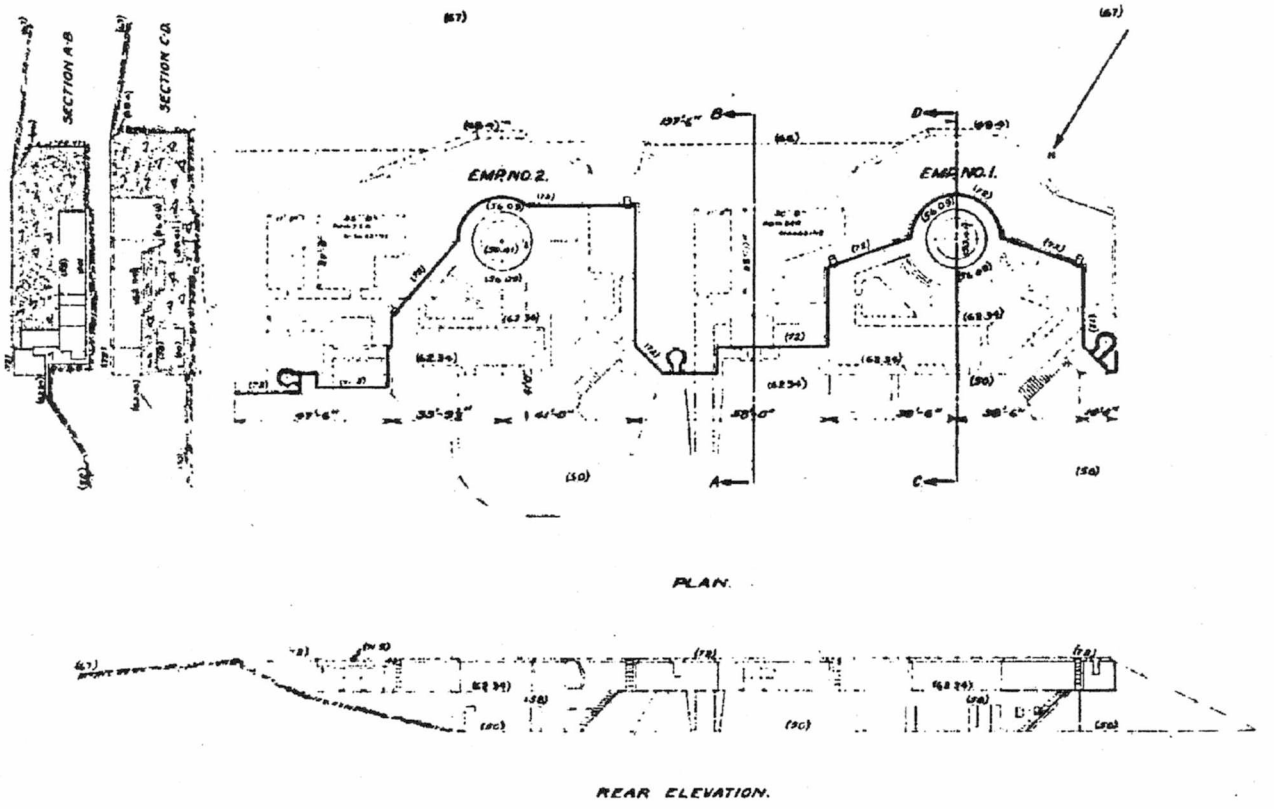
The second battery for 12-inch guns was authorized and funds were allocated from the regular appropriation for gun and mortar batteries on June 18, 1898. The battery was to be between the old lighthouse on the west return of Battery Hudson and the 1870s Battery Hudson. By June 30, 1898, excavations were well underway and the construction plant was being erected. Concrete was poured beginning in September 1898 and the platforms were generally complete and ready for their armament by October. M1896 disappearing carriages Nos. 21 and 11 had already been received at Fort Wadsworth but not been unloaded from their railcars.

The still-unarmed battery was transferred to the garrison on August 18, 1900. While two 12-inch guns, M1888MII No. 20 and M1895 No. 41, arrived in 1900, they were not mounted until 1902.

The battery was named for the earthen Battery Hudson in which it was located. The older battery had in turn been named for the explorer Henry Hudson.(36)

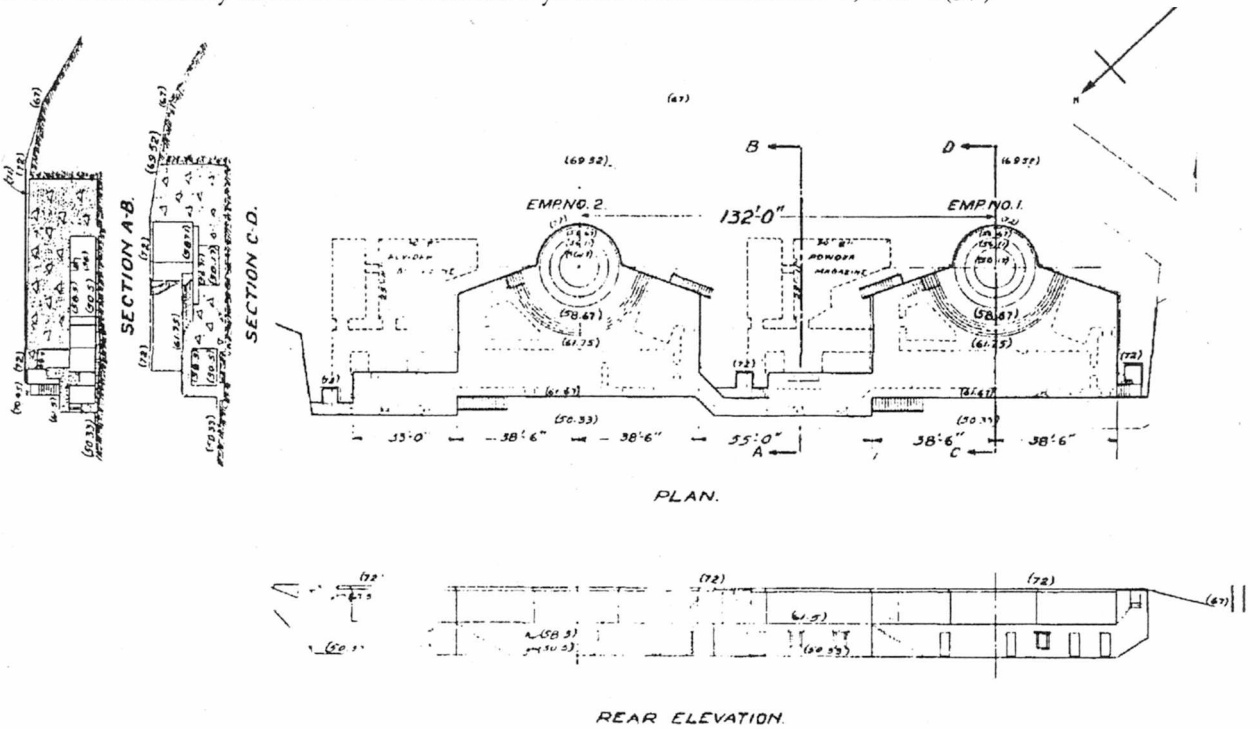
Battery Ayres

The third 12-inch battery was begun at Fort Newton in 1899. It was sited about 100 feet to the right of Battery Richmond. The sense of urgency brought on by the War with Spain in 1898 having passed, the project advanced more leisurely and was not completed until 1902. M1895MI guns Nos. 1 and 10 were mounted on M1897 disappearing carriages Nos. 24 and 25, and the battery was transferred to the garrison July 30, 1902. The battery was named on February 1902 for Col. and Maj. Gen. of Volunteers Romeyn Beck Ayres. Ayres graduated from USMA in 1847 and was commissioned in the 1st Artillery. In 1861, he transferred to the 5th Artillery. During the war, he was brevetted repeat-

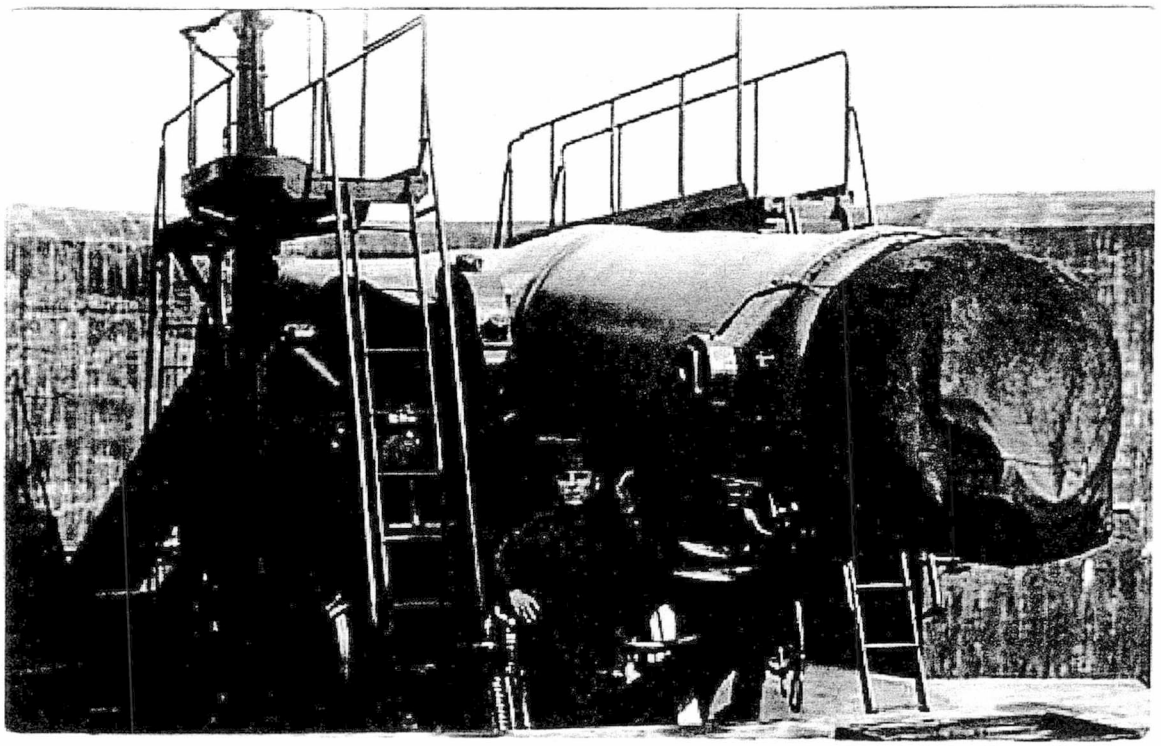


Battery Hudson. *NARA*

edly, reaching major general, for gallantry and meritorious service. Appointed brigadier general of volunteers 1862, when mustered out of the volunteer service, he returned to the 28th US Infantry as a lieutenant colonel. He transferred to the 3rd Artillery in December 1870 and nine years later returned to the 2nd Artillery as its colonel. Colonel Ayres died on December 4, 1888.(37)



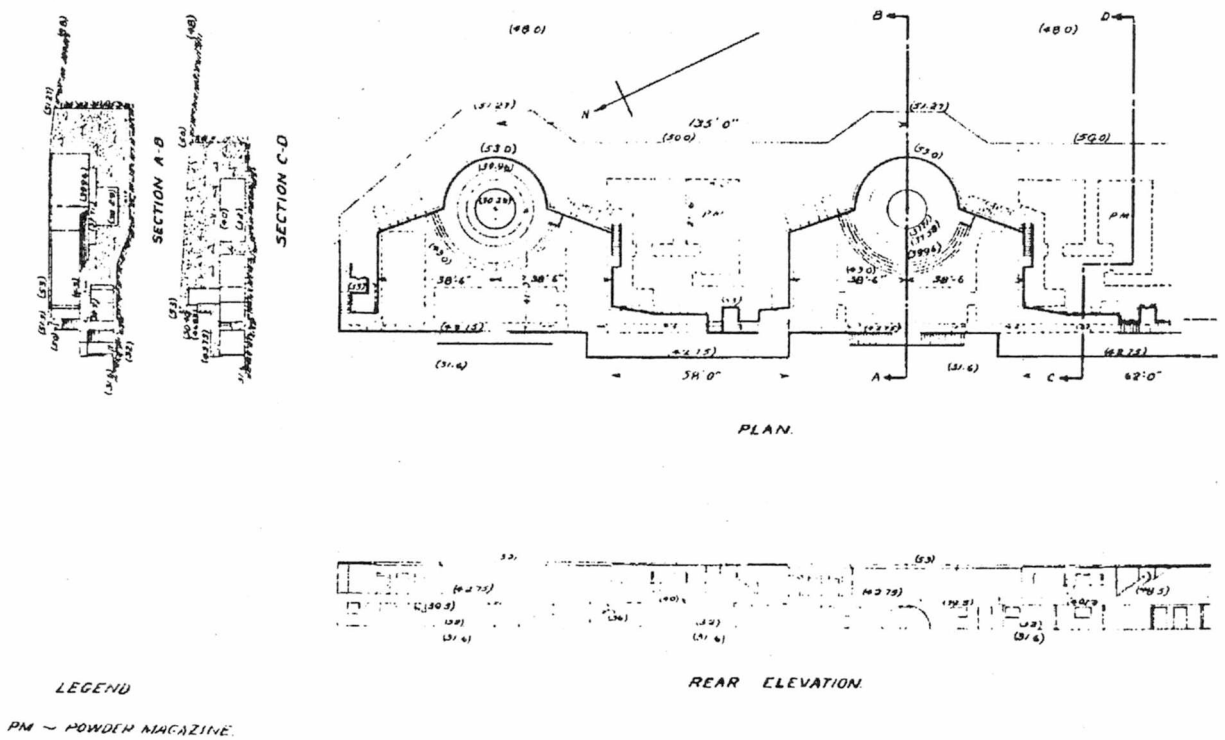
Battery Ayres. *NARA*



One of Battery Ayres' 12-inch guns, ca 1918. *Author's Collection*

Battery Dix

On September 14, 1901, construction was begun on the last 12-inch gun battery at Fort Newton. An allotment of $100,000 enabled it to be prosecuted without major delays, some 300 feet in front of



Battery Dix. *NARA*

Battery Upton and about 500 feet to the right of Battery Mills. Concrete work, about half completed by June 1902, was completed later that year. The battery was armed with M1900 12-inch guns Nos. 6 and 9 on M1901 disappearing carriages Nos. 5 and 6.

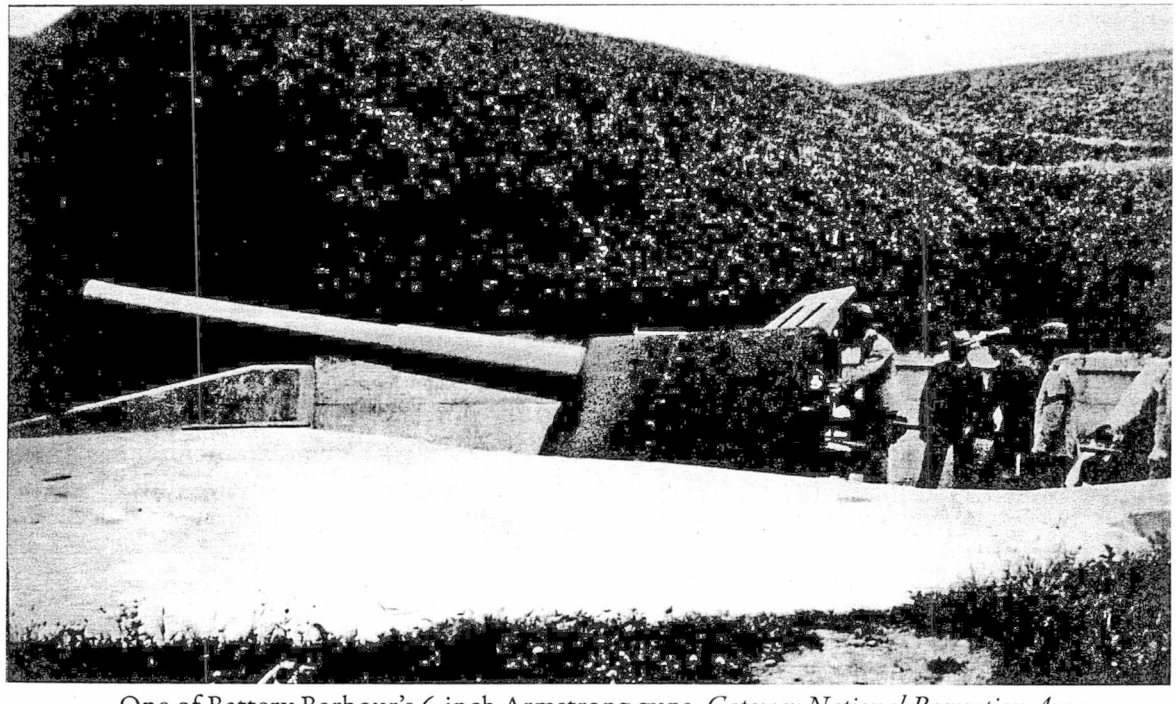
The battery was named for John Adams Dix of New Hampshire, who was appointed ensign in the 14th US Infantry on May 10, 1813. In March 1814 he transferred to the Corps of Artillery, where he was promoted to 1st lieutenant in March 1818. When the artillery was reorganized in June 1821, he was assigned to the 1st US Artillery but transferred to the 3rd Artillery in August 1821. After Dix resigned from the army in 1828, he held many political positions, including senator and postmaster of New York City. He returned to military service in 1861 as a major general of volunteers. He resigned again in November 1865 and died April 21, 1879.(38)

Rapid-Fire Batteries

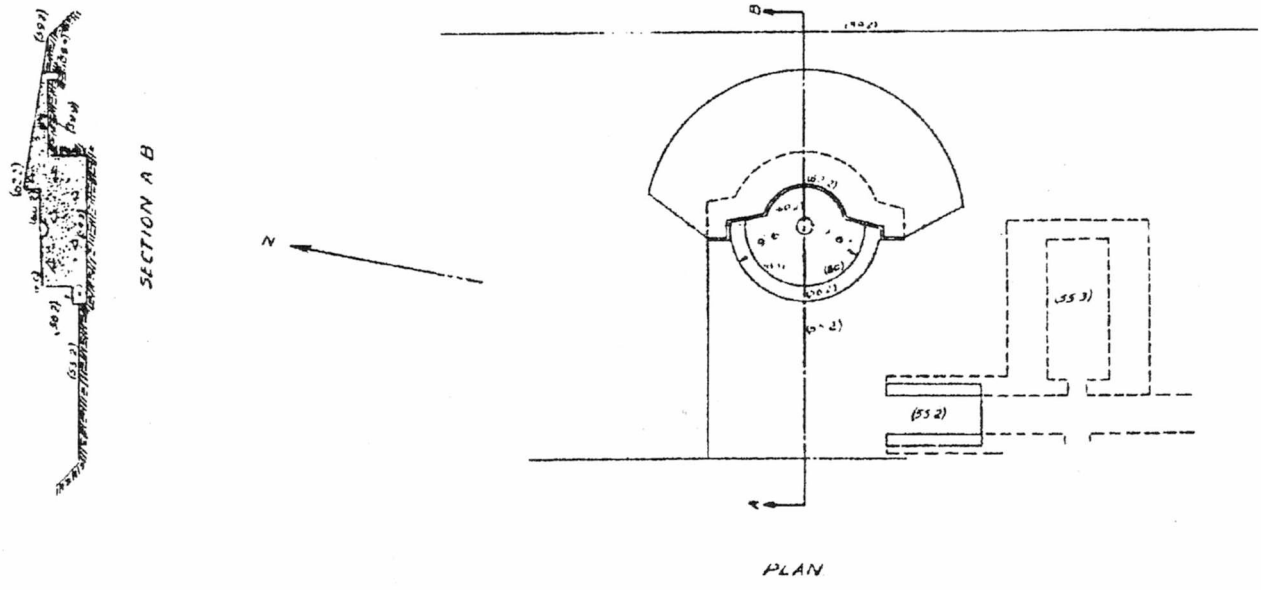
As at Fort Hamilton, RF guns at Fort Wadsworth were necessary to protect the minefields. As part of that protection, emplacements for 6-inch and 4.72-inch Armstrong quick-firing guns, as well as domestic 6-inch and 3-inch RF guns were also prepared in North and South Cliff Batteries and in old Battery Hudson. War with Spain hastened the establishment of these batteries, although construction continued into the early 20th century.

Battery Barbour

The appropriation of March 9, 1898, funded two emplacements for 4.72-inch/40-caliber Armstrong quick-firing guns for minefield defense, one in South Cliff Battery and one in Battery Hudson. Emplacement 1 was in the east section of Battery Hudson while Emplacement 2 was built in South Cliff Battery. Their platforms were completed and pedestal carriages Nos. 10837 and 10840 were emplaced by April 26, 1898. By May 8, the 4.72-inch guns Nos. 9721 and 12135 had been mounted. Some finish work remained to be carried out in the latter months of 1899. Both emplacements became part of Battery Barbour.(39)



One of Battery Barbour's 6-inch Armstrong guns. *Gateway National Recreation Area.*



One of Battery Barbour's 6-inch Armstrong gun emplacements. *NARA*

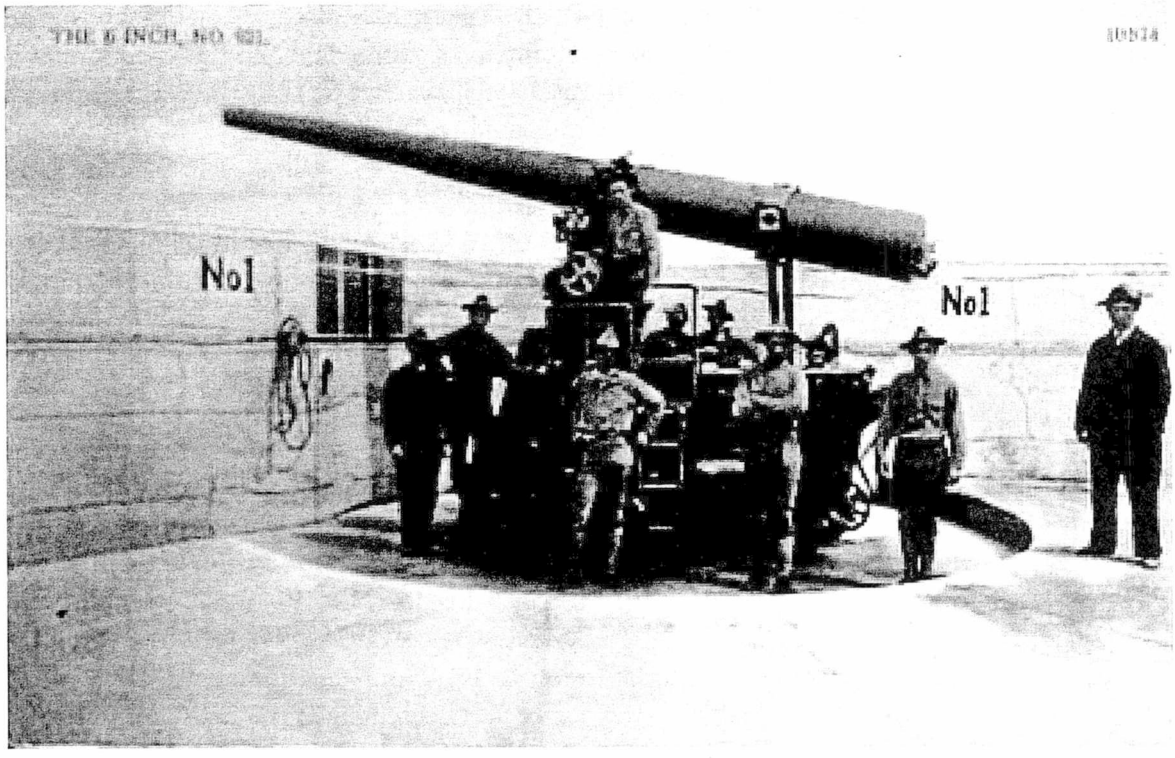
In addition to the 4.72-inch guns, emplacements for two 6-inch/40-caliber QF Armstrong guns was authorized March 9, 1898, and work commenced in September 1898. These guns were widely separated, one overlooking the Narrows near the south end of the 1870s section of Battery Hudson, the other in the south end of the old South Cliff Battery. These two emplacements also became a part of Battery Barbour. Concrete work was completed and the platforms were ready for their armament by November 1898, and 6-inch Armstrong guns Nos. 12135 and 12136 were mounted on pedestal mounts Nos. 11160 and 11161. Both emplacements were transferred to the garrison on December 20, 1899.

In May 1903, the emplacements for the Armstrong guns were named Battery Barbour, for Capt. Phillip Nordbourne Barbour, who graduated from USMA and was commissioned in the 3rd US Infantry in July 1834. Captain Barbour was brevetted major in May 1846 for gallant and distinguished service in the War with Mexico. On September 21, 1846, Captain Barbour was killed at the Battle of Monterey, Mexico.(40)

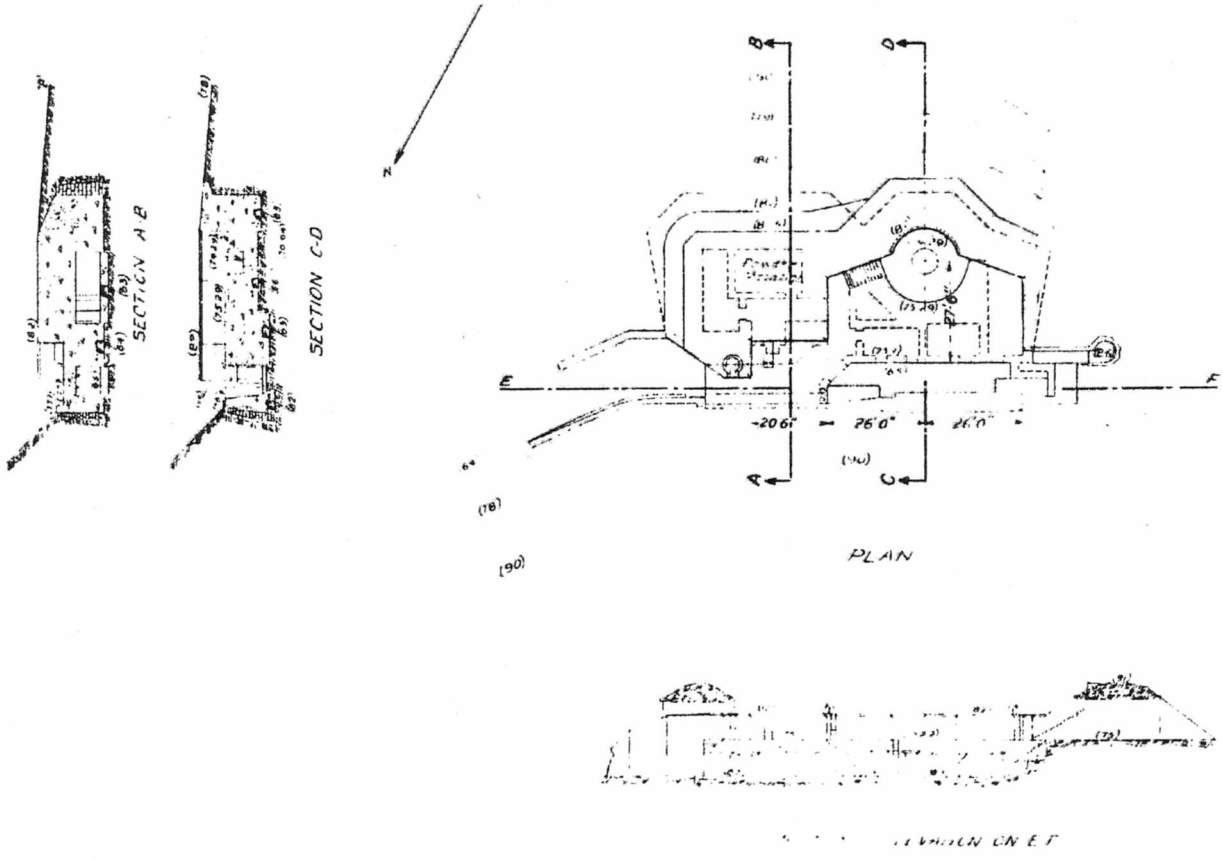
Battery Charles Mills

A second battery for two 6-inch guns on disappearing carriages was authorized in 1898 and work commenced in March 1899 for Emplacement 2 on the right flank of the 12-inch Battery Hudson and Emplacement 1 at the site of the Battery Hudson Extension, some 500 feet west. By the end of June 1899, Emplacement 2 was almost completed and construction on Emplacement 1 had commenced.

Both emplacements were fully completed by mid-1900, and M1897M1 guns Nos. 7 and 8 and M1898 disappearing carriages Nos. 28 and 29 were in place. The two emplacements were provided with hand-powered Hodges shell hoists. The battery was transferred to the garrison on October 26, 1900.



Battery Mills' M1897MI 6-inch gun No. 1 in 1912. *Author's Collection*

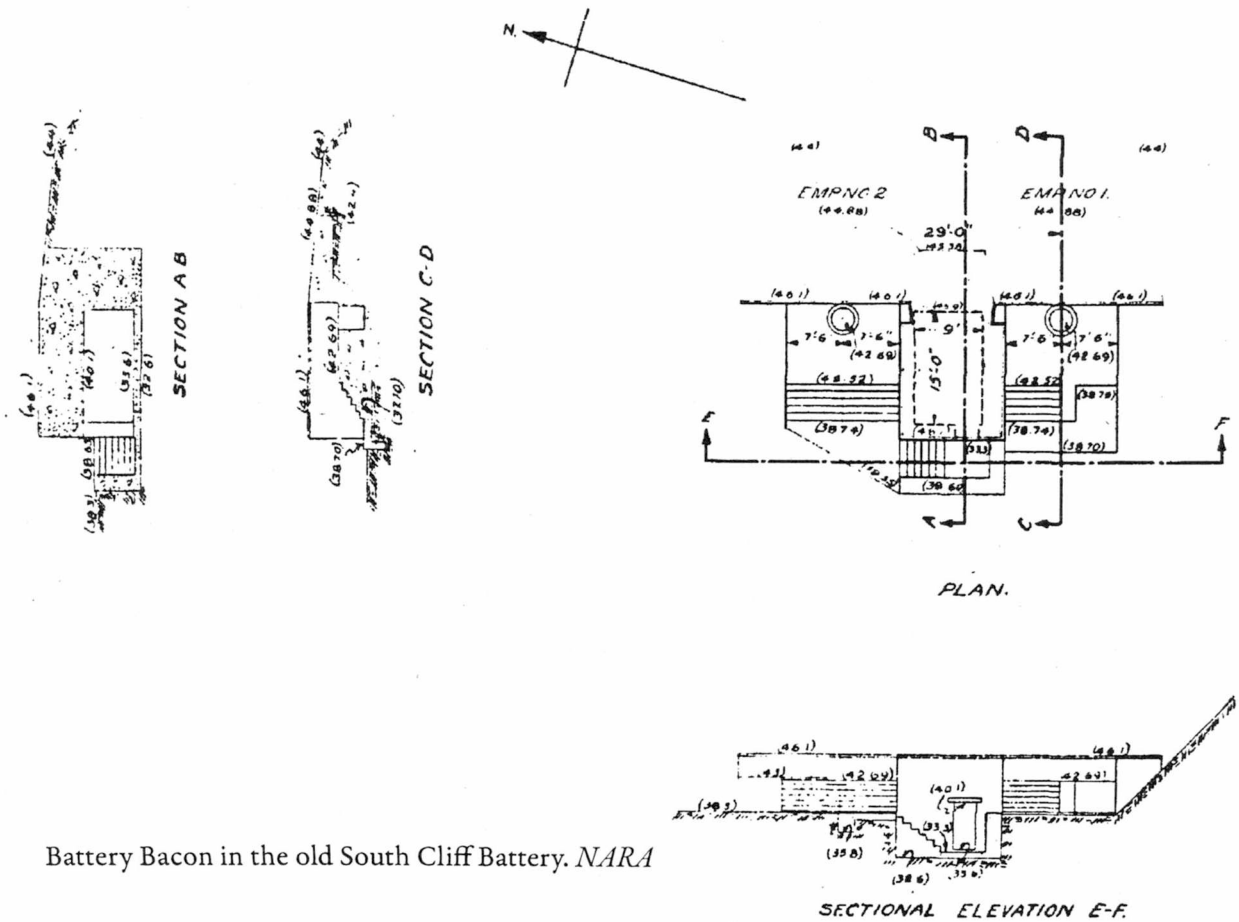


Emplacement No. 1 of Battery Mills in the old Battery Hudson Extension. *NARA*

In January 1906, the two 6-inch gun emplacements were named Battery Charles Mills, for Capt. and Bvt. Col. Charles J. Mills, US Volunteers. Appointed 1st Lieutenant, 2nd Massachusetts Volunteer Infantry, September 5, 1862, and honorably discharged March 18, 1863, he was reappointed adjutant of the 56th Massachusetts Volunteer Infantry September 1, 1863. Assigned as assistant adjutant general in July 1864, he was promoted captain in August 1864. Mills was brevetted major for gallant and meritorious conduct in the Battles of the Wilderness, Spotsylvania Courthouse, Bethesda Church, and the operations before Petersburg, VA, on January 23, 1865. He was killed in action at the Battle of Hatchers Run, near Petersburg, VA, on March 31, 1865. He was posthumously brevetted lieutenant colonel and colonel for his service during the war.(41)

Battery Bacon

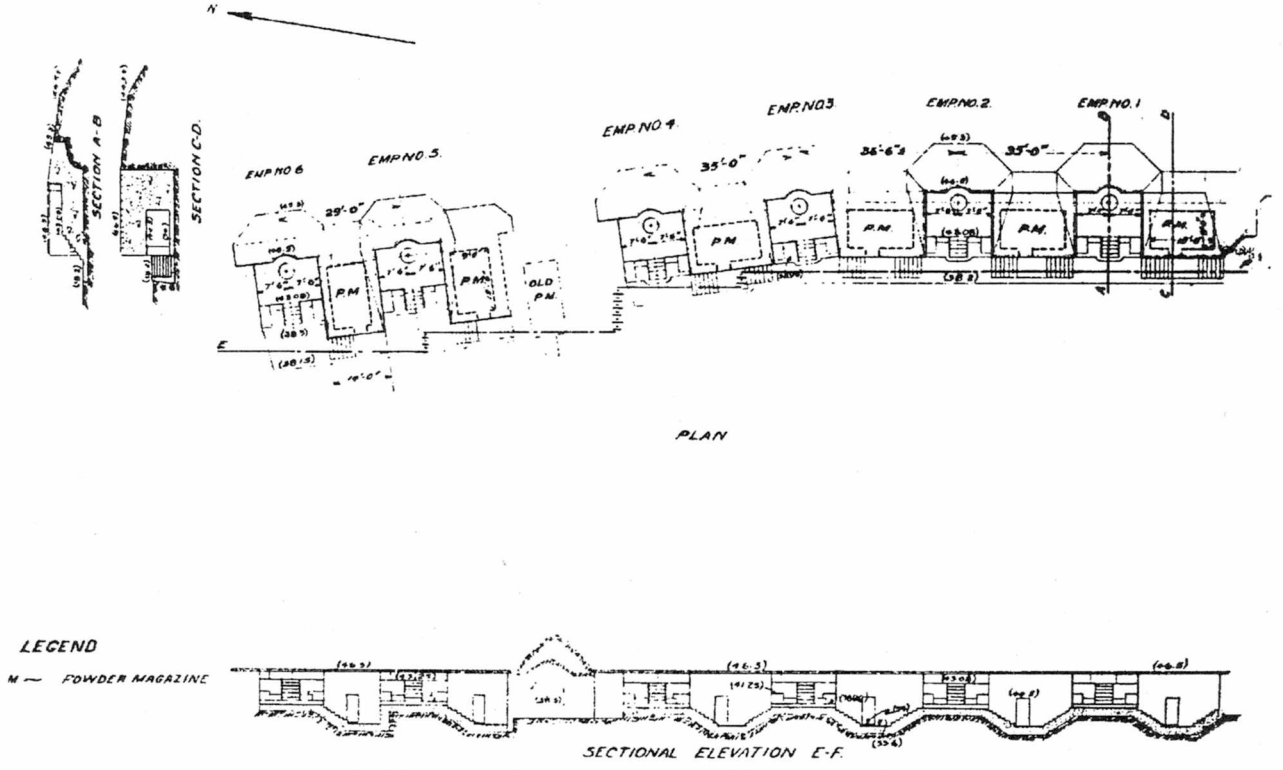
A battery for two 3-inch (15-pounder) RF guns was authorized for Fort Wadsworth in 1899 and a site was selected at the north end of the old South Cliff Battery. These guns would help cover the minefields in the Narrows and prevent the passage of torpedo boats. Construction began in February and it was transferred to the garrison on March 12, 1899. The battery was completed in June 1899. The two M1898 3-inch (15-pounder) Driggs-Seabury RF guns Nos. 91 and 94 on their M1898 masking-parapet mounts Nos. 91 and 94 were mounted when received at the fort. The emplacements were named Battery Bacon in May 1903, in honor of 1st Lt. John Danforth Bacon, 6th US Infantry, who graduated from USMA and was appointed brevet 2nd lieutenant in the 2nd US Infantry in July 1840. He transferred to the 6th US Infantry in December 1840 and was promoted to 1st lieutenant in June 1846. Wounded August 20, 1847, at the Battle of Churubusco, outside Mexico City, he died on October 12, 1847.(42)



Battery Bacon in the old South Cliff Battery. *NARA*

Battery William Turnbull

Soon after completion of Battery Bacon, four additional 3-inch emplacements were planned along the 1870s South Cliff Battery between Battery Barbour and Battery Bacon. This required removing the remaining obsolete muzzleloading artillery pieces as well as most of the remaining barbette gun platforms and traverse magazines. Excavations for the modern RF battery began in the early 1900s and progressed well. An additional pair of emplacements to the left of the four initial emplacements was authorized. By the end of 1902, concrete pouring was generally completed and in 1903 the finish work was completed and the battery was ready for its armament. Four 3-inch M1903 RF guns, Nos. 60, 66, 67, and 68, on M1903 pedestal mounts Nos. 37, 38, 39, and 40 were transferred to the garrison November 19, 1903. Emplacement Nos. 5 and 6 were armed with M1903 guns Nos. 81 and 82 on pedestal mounts Nos. 41 and 42 and transferred a few months later.

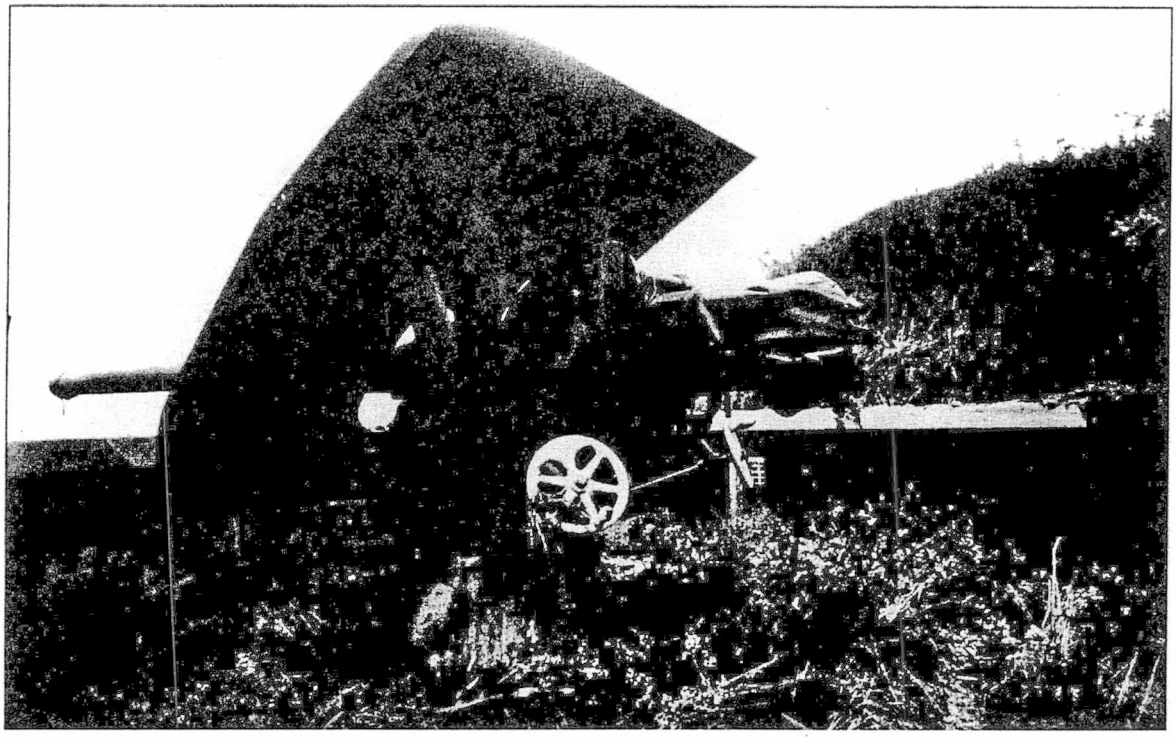


Battery Turnbull's six emplacements in the old South Cliff Battery. *NARA*

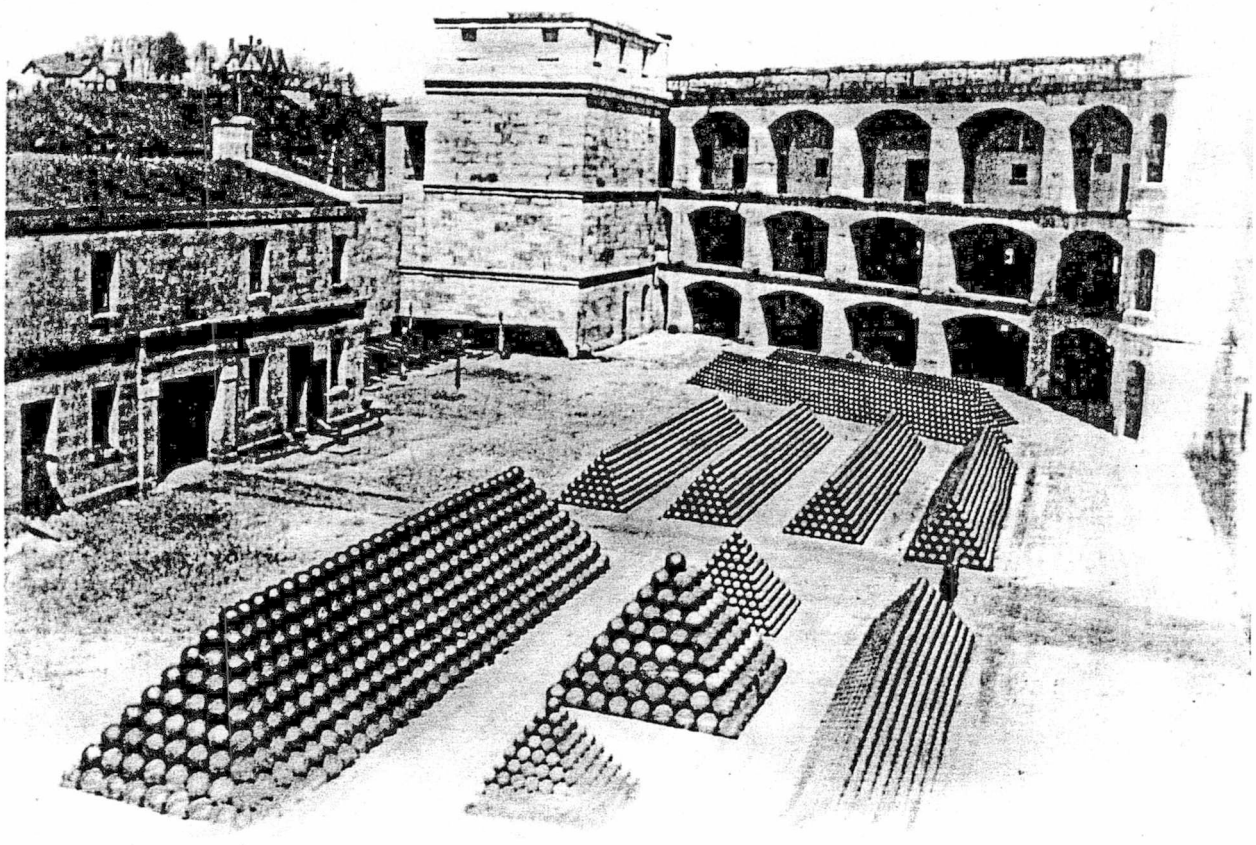
The battery was named in 1904 in honor of Maj. and Bvt. Col. William Turnbull, US Topographical Engineers. Turnbull graduated from the USMA and was commissioned in the Corps of Artillery in July 1819. He was assigned to the 4th US Artillery upon its organization in 1821 and was brevetted captain in the Topographical Engineers ten years later. Turnbull was brevetted lieutenant colonel and then colonel for gallantry and meritorious conduct in the War with Mexico. Colonel Turnbull died on December 9, 1857.(43)

Battery Robert Catlin

Once the heavy-caliber batteries were complete, or nearly so, and RF guns were being emplaced along the length of the South Cliff Battery and in portions of old Battery Hudson, attention was given

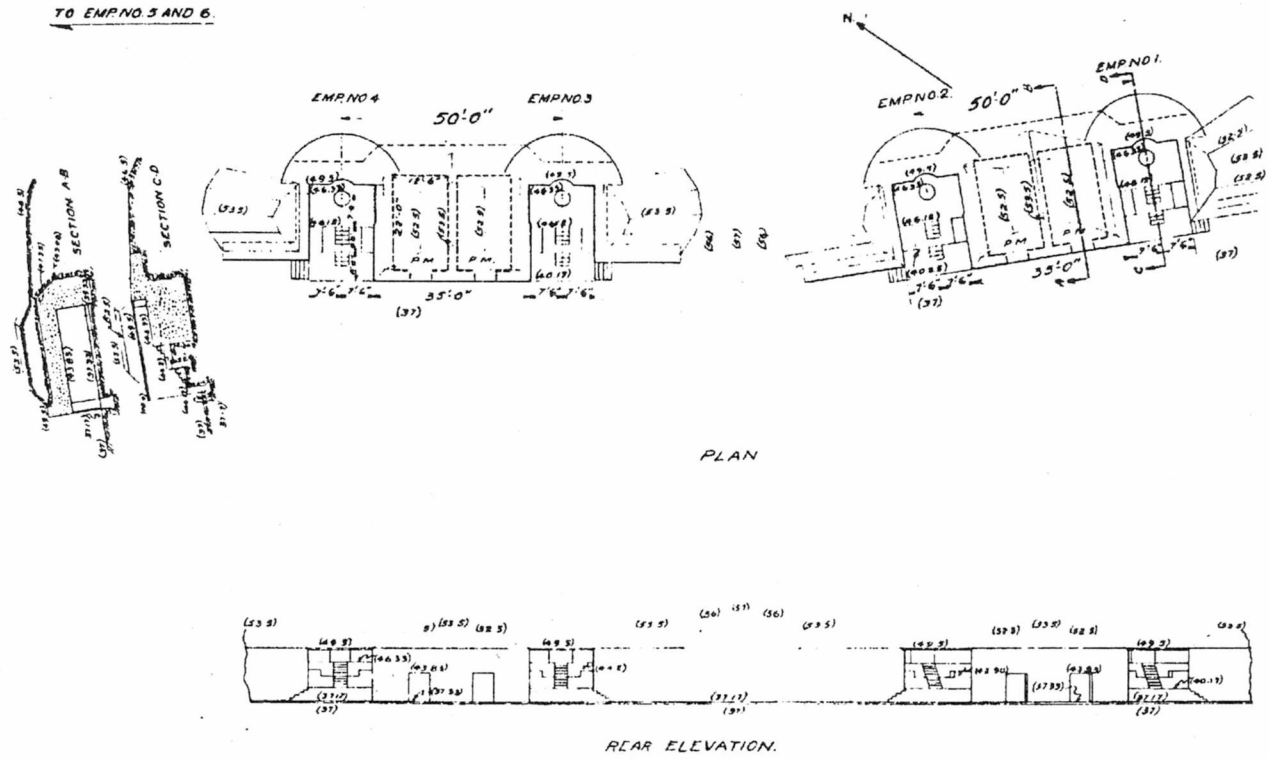


M1902 3-inch rapid-fire gun of Battery Turnbull, ca 1920s. *Gateway NRA.*



Battery Weed. *Author's Collection.*

to modifying North Cliff Battery for RF guns. By 1902, approval had been obtained to construct four emplacements for 3-inch (15-pounder) RF guns on pedestal mounts. Before construction, the old Rodman guns had to be dismounted and placed in storage pending disposal, and substantial amounts of earth had to be excavated for the projected batteries. Once construction was underway, an additional pair of emplacements to the left of the initial four was authorized. The initial four were transferred to the garrison July 22, 1904, Emplacements 5 and 6 a few months later. Beyond a few passageways through the earthen traverses, virtually nothing was left of the old 1870s works other than the old roadway along the battery's rear. The battery was initially armed with six M1902 RF guns and pedestal mounts Nos. 30, 31, 32, 33, 34, and 35.

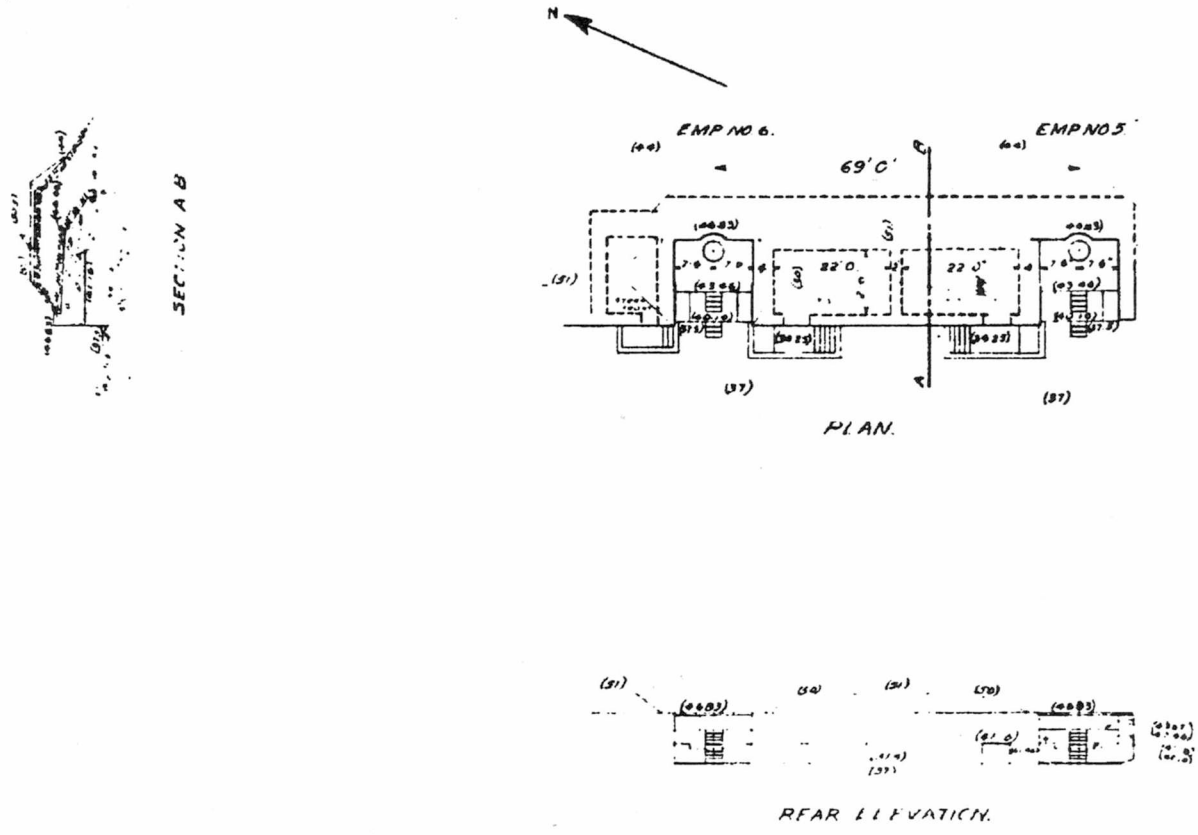


Emplacements 1 through 4 of Battery Catlin. *NARA*

On December 27, 1904, the battery was named in honor of Capt. Robert Catlin, who graduated from USMA and was commissioned in the 5th Artillery in 1863. He retired April 26, 1865, but reentered the Army as a captain in the 43rd US Infantry in July 1866. He retired again on December 15, 1870, and died December 28, 1903.(44)

Initial Fire Control Stations at Fort Wadsworth

The initial fire control structures at Fort Wadsworth were built during 1898 in conjunction with Batteries Emory Upton, Barry, and Hudson. The first, a two-room brick and timber structure to the right of Battery Catlin, later served as command post (CP) of the Second Battle Command. Three more wooden range-finder "shelters" were constructed behind Batteries Upton and Barry. A brick meteorological station was built on the left flank of Battery Duane behind the old site of Two-Gun Battery. All of these buildings were turned over to the Board of Regulation of Seacoast Artillery Fire on November 12, 1897, to evaluate fire control for the Narrows defenses preliminary to establishing a permanent fire control system.



Emplacements 5 and 6 of Battery Catlin. *NARA*

The next fire control structure erected was a battery commander's station (BCS) for Battery Richmond, a one-room brick building commenced at the rear of the battery in August 1898, completed in December, and transferred on September 20, 1899. A BCS for Battery Hudson was commenced in April 1899 and was complete except for its roof by June 30.(45)

In the first decade of the 20th century, a number of fire control stations were built at Forts Hamilton and Wadsworth. What evolved during that decade was the result of a series of studies of fire control requirements in New York Harbor. Two tactical battle commands were formed; the First Battle Command, composed of the First, Second, and Third Fire Commands, was at Fort Hamilton; the Second Battle command, Fourth and Fifth Fire Command and the Mine Command, was at Fort Wadsworth.

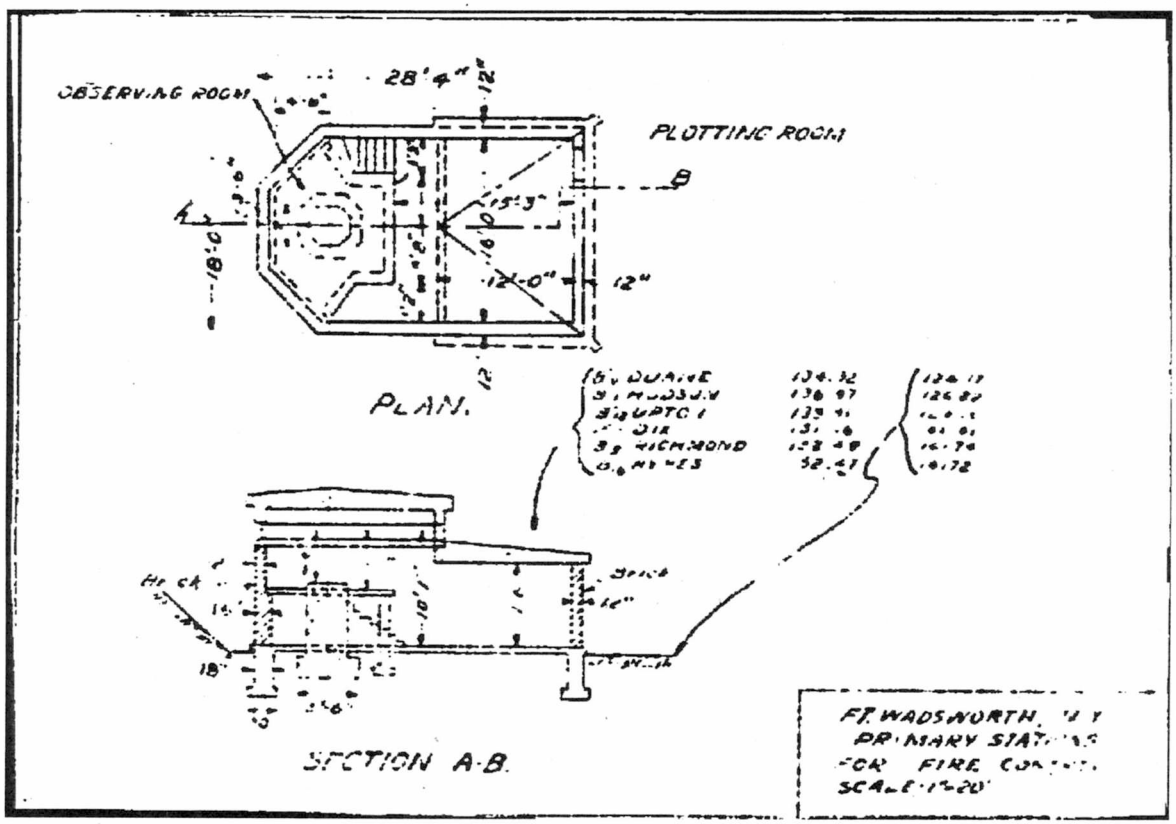
First Battle Command's CP was a splinterproof three-room concrete and timber structure on the east parapet of the masonry fort behind Battery Harvey Brown's left flank. The station was transferred to the garrison July 24, 1906.

The First Fire Command consisted of Batteries Spear (3 x 10-inch), Gillmore (4 x 10-inch), Harvey Brown (2 x 12-inch), Burke (2 x 6-inch), Johnson (2 x 6-inch), and Griffin (2 x 4.72-inch and 2 x 3-inch) at Fort Hamilton. The Second Fire Command, also at Fort Hamilton, consisted of Batteries Mendenhall (4 x 6-inch), Livingston (4 x 6-inch), Doubleday (2 x 12-inch), and Neary (2 x 12-inch). The eight 12-inch mortars of Fort Hamilton's Battery Piper made up the Third Fire Command.

The Second Battle Command CP and the batteries it controlled were at Fort Wadsworth. The CP's observation and plotting rooms were in a two-room brick and timber structure on the right of Battery

Catlin, overlooking the Narrows. This had been among the first fire control structures to be built and was transferred in 1897.

The Fourth Fire Command was composed of Batteries Dix (2 x 12-inch), Barry (2 x 10-inch), Richmond (2 x 12-inch), and Ayres (2 x 12-inch). The Fifth Fire Command was composed of Batteries Mills (2 x 6-inch), Duane (5 x 8-inch), Hudson (two 12-inch), and Upton (2 x 10-inch). The Mine Command consisted of Batteries Barbour (2 x 4.72-inch and 2 x 6-inch Armstrong), Turnbull (6 x 3-inch), Bacon (two 3-inch,), and Catlin (6 x 3-inch).



BCS for Batteries Richmond, Ayres, Hudson, Dix, Upton, and Duane. *NARA*

Construction of fire control stations at the Narrows continued in 1904 with eight primary stations at Fort Wadsworth, across New York Avenue some 600 feet north of Battery Barry. These primary stations were chiefly stand-alone two-story structures of brick and timber, with observation rooms on the upper levels and battery plotting rooms on the lower levels. These primary stations served the Fourth and Fifth Fire Commands and Batteries Mills, Hudson, Upton, Barry, Duane, and Dix. A four-room dormitory behind the midpoint of the line of primary stations housed the men assigned to the stations. Three secondary stations about 800 feet behind Battery Richmond served the First Fire Command and Batteries Gillmore, Brown, and Burke-Johnston at Fort Hamilton. These wooden structures, each with a single observation room, were transferred to the garrison October 10, 1904.(46)

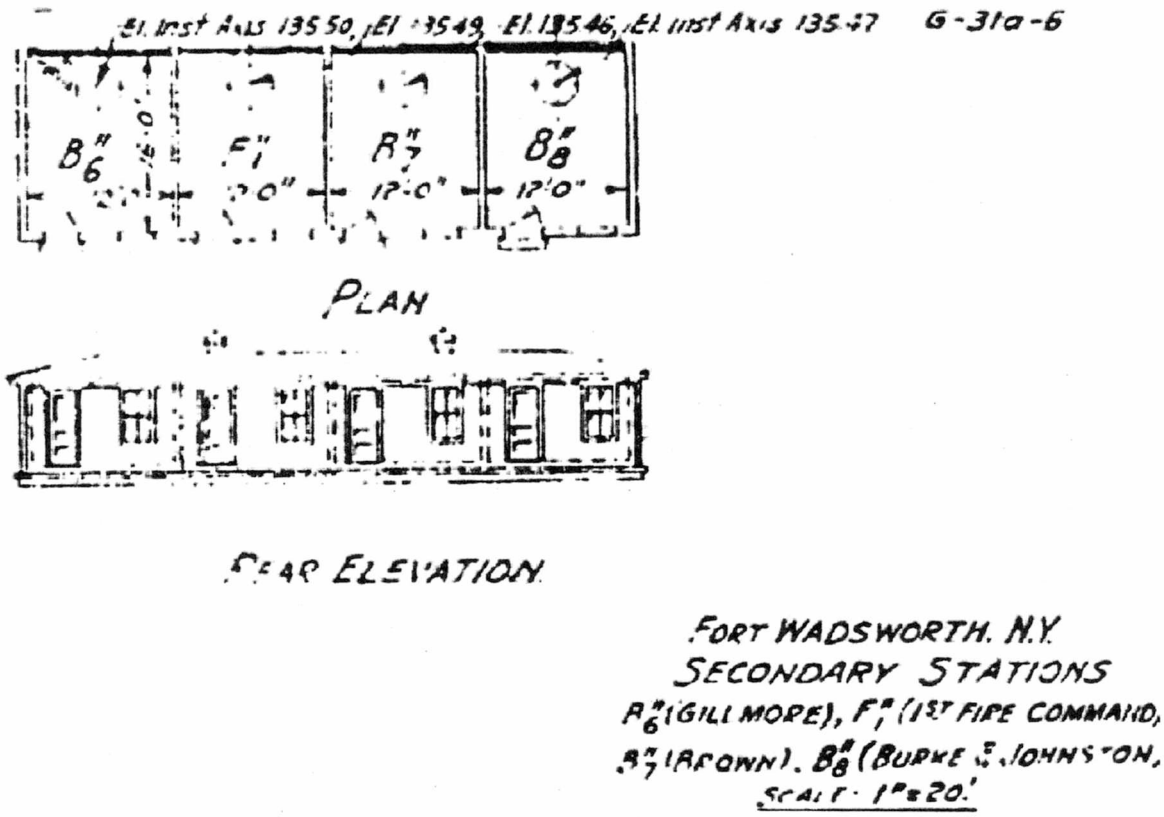
Fire Control Stations at Fort Hamilton

The building program continued for the next three years. In 1905, the primary focus was at Fort Hamilton, where primary stations for the First Battle Command and the First, Second, and Third Fire Commands were built, along with secondary stations for the Fort Wadsworth batteries. The primary

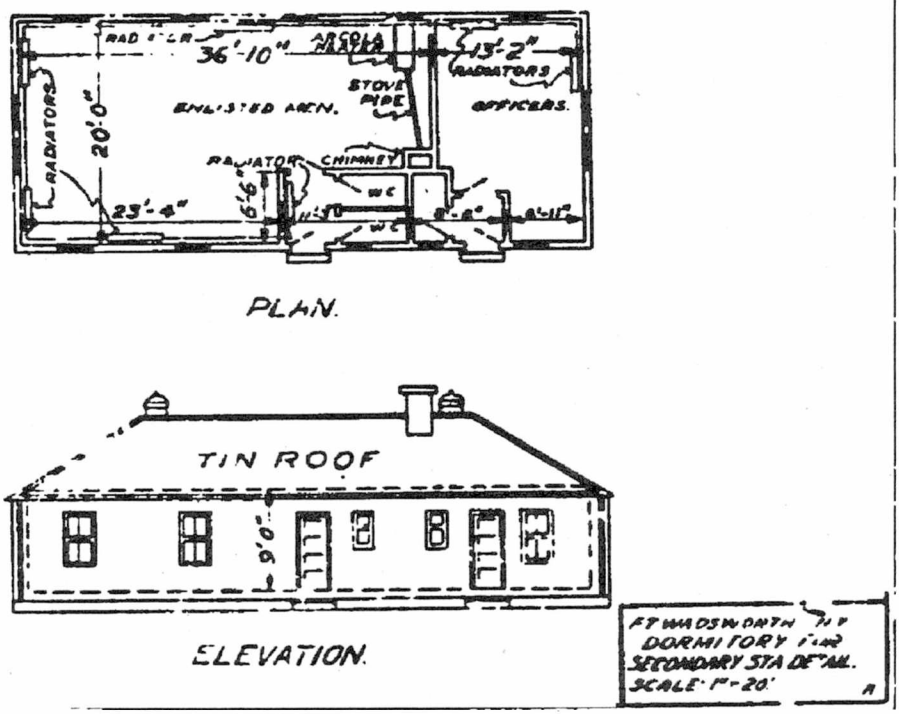
stations for the First and Second Fire Commands were behind Battery Gillmore, just east of the masonry fort. The lower levels of these stations were concealed behind the substantial embankments of the old 1870s mortar battery. The primary station for the Third Fire Command was east of the other primary stations, some 260 feet behind Battery Spear. These two-room, twin-story timber primary stations, each containing observation and plotting room, were transferred to the Fort Hamilton garrison on July 24, 1906.

The secondary stations for the Fort Wadsworth batteries were built some 700 feet north of Batteries Mendenhall and Livingston at Fort Hamilton. A nine-room complex was constructed in two timber buildings. The first building housed the observation rooms of the secondary stations for the Fourth Fire Command and Batteries Ayres, Richmond, and Duane; the second building housed a tertiary station for the Third Fire Command, the secondary station for the Fifth Fire Command, and secondary stations for Batteries Dix, Upton, and Hudson. These stations were transferred to the garrison on October 17, 1905. (47)

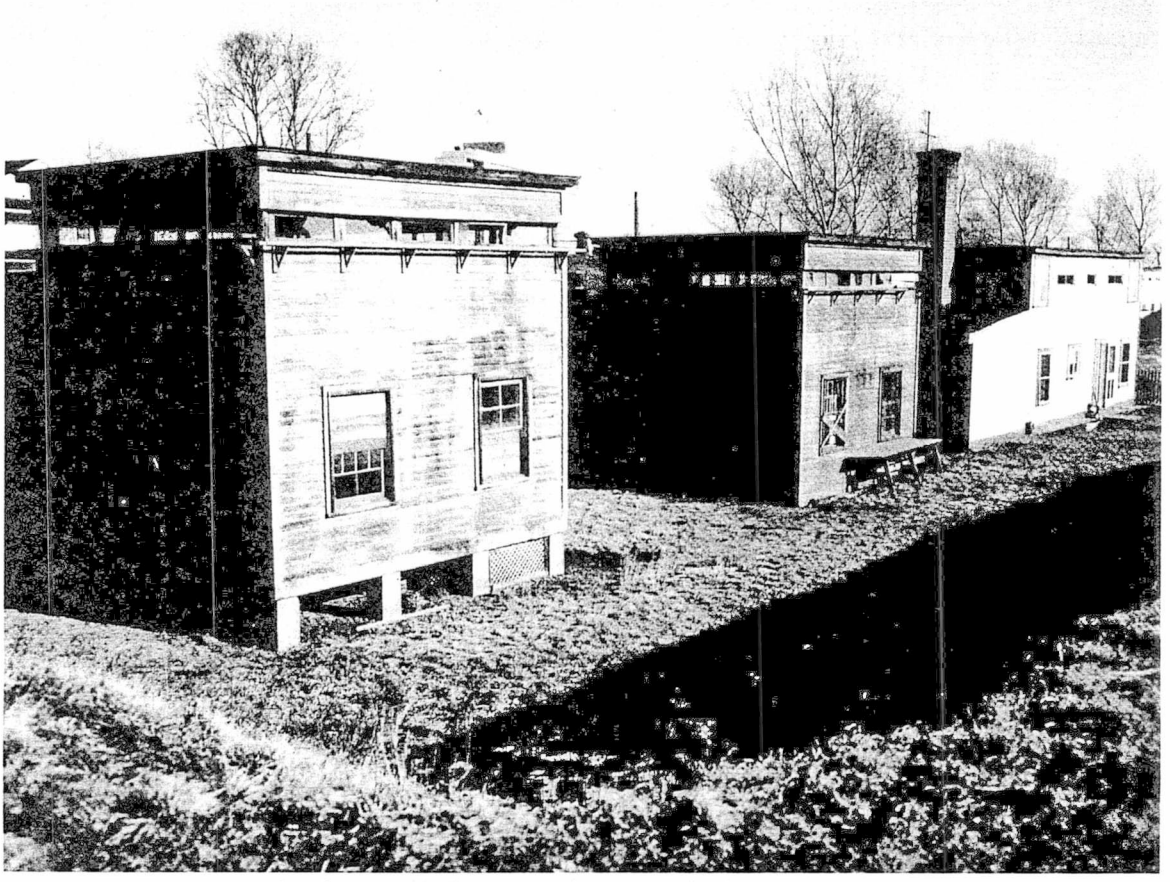
In 1906, primary stations for the First Fire Command and Batteries Spear, Gillmore, and Brown were built in a three-building complex just east of Fort Hamilton's glacis and some 300 feet north of Battery Gillmore. Fort Hamilton's switchboard rooms, one type-A and one type-C, were built just behind the primary stations in single-story timber structures with galvanized iron siding. The primary stations and switchboard rooms were transferred July 24, 1906.(48)



Secondary stations at Fort Wadsworth for Fort Hamilton batteries. *NARA*



Dormitory at Fort Wadsworth for Fort Hamilton's secondary stations. *NARA*



Fort Hamilton's primary fire control stations for large-caliber batteries.

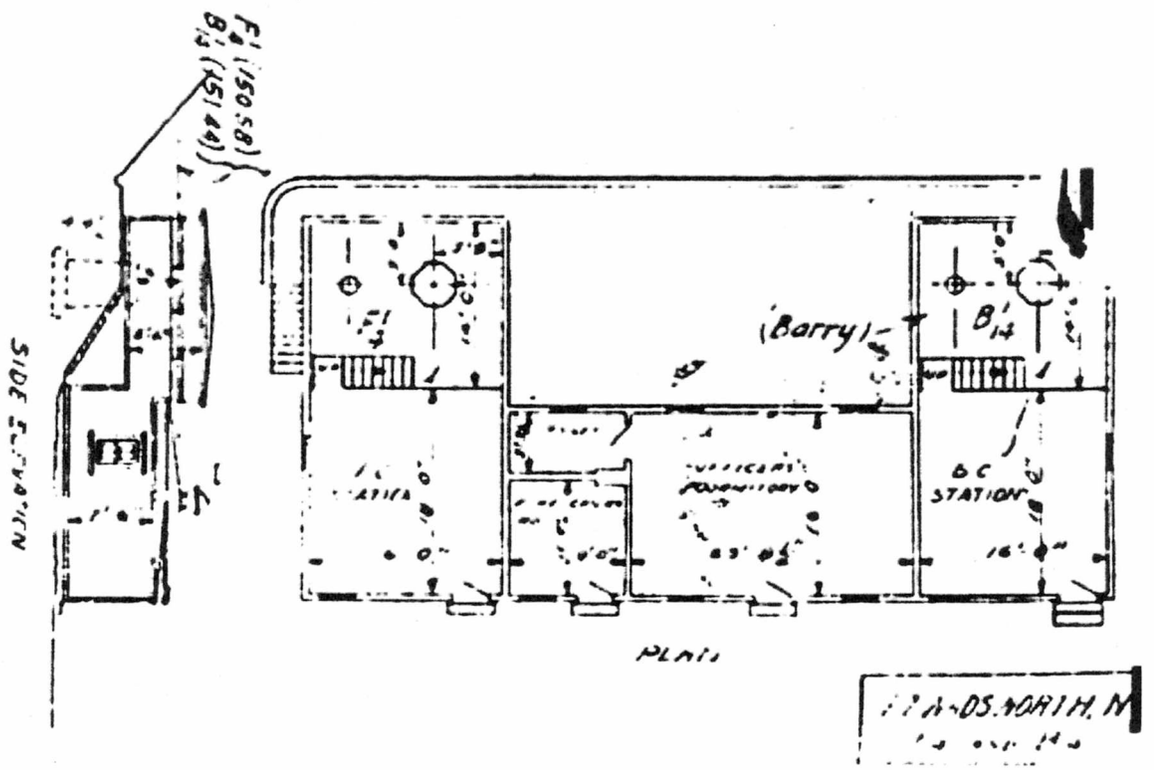
North of Battery Spear, a second group of four buildings was constructed as primary stations for the Second and Third Fire Commands and Batteries Neary, Doubleday, Livingston, and Mendenhall. Each was a double station, serving two batteries with a slight change in design. These buildings, still two stories, were timber with sidings and roofs of galvanized iron.(49)

Secondary stations for the Second and Third Fire Commands were built at Fort Wadsworth as part of a six-station complex behind Battery Richmond. It also housed secondary stations for Batteries Livingston, Doubleday, and Neary, and a supplementary station for Battery Ayres. A second complex of four stations housed the secondary stations for the First Fire Command and Batteries Burke-Johnston, Brown, and Gillmore. These stations were transferred on August 9, 1906.(50)

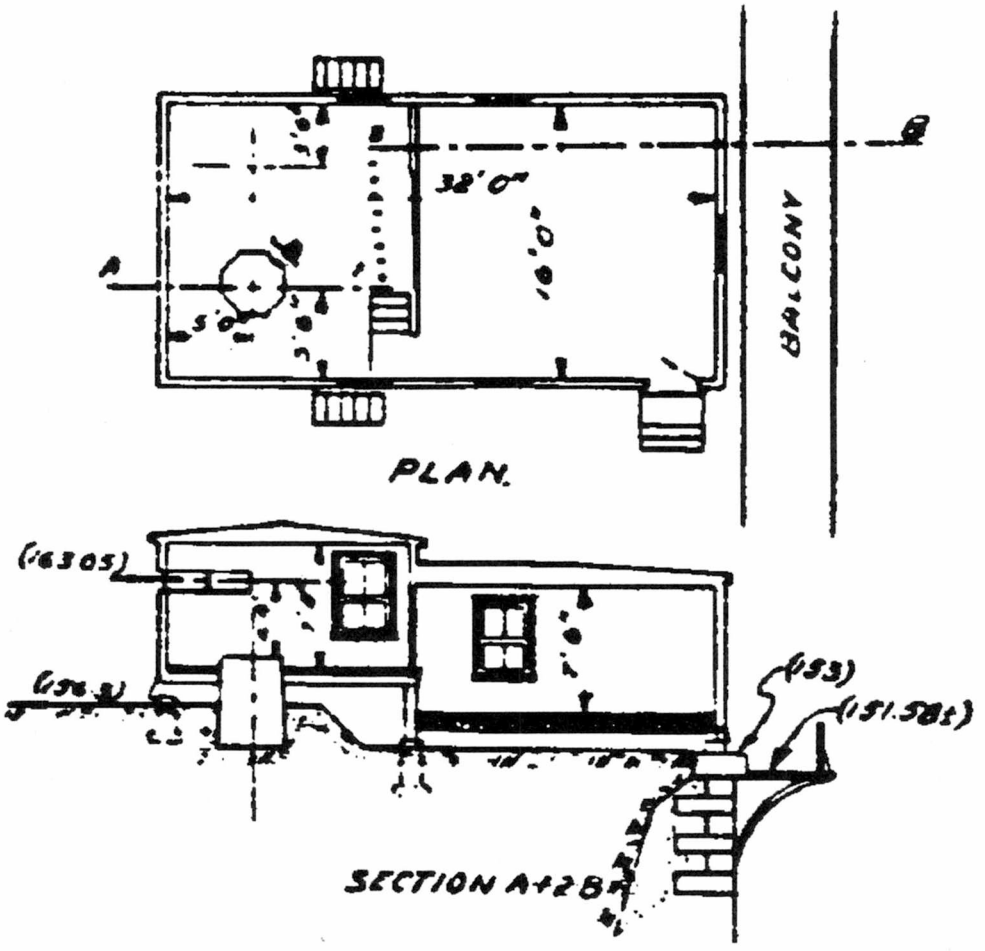
Battery Gillmore's BCS was built directly behind the battery. This 8 by 12-foot room of "reinforced" concrete (Reinforced concrete at this time did not contain the rebar incorporated later.) was dug into the top of the embankment of the old 1870s mortar battery. It was transferred on December 13, 1906.

In 1907, a CP for the First Battle Command was completed at Fort Hamilton, a three-room concrete-and-timber structure behind Battery Brown's left flank. The station was transferred on January 31, 1907, along with a tide station on the quartermaster wharf equipped with two tide gauges, one vertical staff and float in a copper tube, and one horizontal gauge with a float in a wood tube. Officers and enlisted dormitories were also built in 1907 to complete the fire control elements on the Long Island side of the Narrows. Both were transferred March 14, 1907.

Across the Narrows at Fort Wadsworth, two more fire control structures were built in 1907. Battery Barry's splinterproof concrete BCS was completed in the late summer of 1907 and transferred October 13, replacing a 1904 double station in a structure that had also served as primary station for the Fourth Fire Command. A two-room frame supplementary station for Fort Hamilton's Third Fire Command in the rear and to the right of Battery Catlin was transferred December 13, 1907.(51)



Battery Barry's BCS and plotting room in the fire control complex that housed the primary station for the Fourth Fire Command and an officers' dormitory. NARA



Supplementary station for Fort Hamilton's Third Fire Command on the right flank of Battery Catlin, at Fort Wadsworth. NARA

Manning the Defenses 1900-1924

The Artillery Corps Is Constituted and Organized

By 1900, the increasingly divergent missions and materiel of seacoast, also termed foot or heavy, batteries and the mounted light or field batteries urged the separation of the two types of artillery. Congress enacted an Act to Reorganize the Artillery February 2, 1901, abolishing the regimental system in force since 1821 and reorganizing the batteries into an Artillery Corps of 126 companies of coast artillery and 30 batteries of field artillery. The lettered firing batteries A, B, C, E, G, H, I, L, M, N, and O of the 5th Artillery regiment were redesignated the 49th through 59th Coast Artillery Companies, while Batteries D, F, and K were redesignated the 9th, 10th, and 11th Field Batteries. As only 82 companies of coast artillery could be formed from the former regiments, the remaining 44 companies were organized from the existing companies. The personnel for the 83rd, 84th, 85th, 86th, 98th, 122nd, 123rd, and 124th Companies of Coast Artillery were obtained respectively by dividing the 49th, 54th, 53rd, 57th, 51st, 52nd, 55th, and 50th Companies in half and filling out the ranks with recruits.

Following the reorganization, the following coast artillery companies were posted in the forts in the Artillery District of Southern New York:(52)

48th Co. Formerly O/4 Artillery, Ft. Hancock
49th Co. Formerly A/5 Artillery, Ft. Columbus
50th Co. Formerly B/5 Artillery, Ft. Wadsworth
51st Co. Formerly C/5 Artillery, Ft. Hamilton
52nd Co. Formerly E/5 Artillery, Ft. Hancock
53rd Co. Formerly G/5 Artillery, Ft. Wadsworth
54th Co. Formerly H/5 Artillery, Ft. Hamilton
55th Co. Formerly I/5 Artillery, Ft. Hancock
57th Co. Formerly M/5 Artillery, Ft. Wadsworth
83rd Co. Organized 4/6/01 at Ft. Hamilton
84th Co. Organized 1901 at Ft. Hamilton
85th Co. Organized 4/15/01 at Ft. Wadsworth
86th Co. Organized 1901 at Ft. Wadsworth
95th Co. Organized 1901 at Ft. Hancock
98th Co. Organized 8/2/01 at Ft. Hamilton
122nd Co. Organized 10//01 at Ft. Columbus
123rd Co. Organized 10//01 at Ft. Hamilton
Battery L, 5th Artillery, became the 56th Co. at San Juan, PR

The middle of 1903 found the garrisons at the Narrows organized as follows:(53)

Fort Hamilton: 51st, 84th, 98th, and 123rd Cos., CA.
Fort Wadsworth: 50th, 53rd, 57th, 85th, and 86th Cos., CA.
(The 85th Co. was later transferred to the Philippines)
Fort Hancock: 48th, 55th, 95th, and 113th Cos., CA.

In June 1905, the only change was the replacement of the 85th Co. at Fort Wadsworth with the 56th Co. In June 1906, the only change was the shift of the 86th Co. from Fort Wadsworth to Fort Hamilton.

The New York National Guard in Defense of New York City

From the earliest days of the republic, the Regular Army had relied upon the militia of the various states to reinforce it in the defense of the country. New York's State Militia, renamed the National Guard, contributed to the defense of New York Harbor. The 13th New York Heavy Artillery was one of the regiments that would play an integral part in the manning of the harbor forts. The relationship between the Regulars and the Guardsmen was, however, not always a happy one. The 13th had a historic lineage traced back to the Revolution and held its traditions sacred. The relationship was also clouded by politics. Periodically during the early years of the 20th century, the War Department would invite the 7th Infantry and 13th Artillery Regiments and other units of the New York National Guard to participate in the annual coast defense exercises. In 1907, the invitation was initially rejected by the state adjutant general, Maj. Gen. Charles F. Roe, after consultation with the regimental officers, because the guardsmen would not be under their own officers but would be parceled out among the harbor forts

as reserves. The National Guard officers were also invited to participate, although not in immediate command of their own troops. However, Roe was overruled by the governor and the National Guard units were ordered to participate.(54)

The National Guard elements distributed among the forts at the Narrows for the 1907 exercises included one battalion of the 7th Infantry Regiment, NYNG, and five companies of the 13th Regiment at Fort Wadsworth. The remainder of the 7th and four companies of the 13th were assigned to Fort Hamilton, while the remainder of the 13th and the 8th Infantry Regiments serving as coast artillery reserves and infantry supports were assigned to the defenses of Eastern New York. Over the next seven days, National Guard personnel participated in the maneuvers, which Col. Medorem Crawford, commanding Fort Wadsworth, described as "for the purpose of thoroughly interesting the National Guard in the coast defenses and fitting them to render valuable and efficient service in time of war. . . This kind of work has never before been undertaken seriously and the result is that much of the work this year will be of an elementary nature consisting to a large extent of object lessons with a "regular" beside every militiaman to coach him in the work that he would be called upon to do should his services be necessary in time of war."(55)

The training period culminated in an exercise in which a hostile fleet of "battleships, cruisers, and torpedo boats" (an army mine planter, tug, and launch) attempted to enter the harbor and lay waste to the city. On the final day of the sham battle, the hostile force was represented by the battleships USS *Alabama* and *Connecticut* that entered the harbor in a thick fog and were not discovered until they were only some 2,000 yards from the forts. As they emerged from the fog, the battlewagons were "sunk" by mines before entering the Narrows. The guns and mortars of the forts continued to belch flame and thunder as the two vessels proceeded on into the inner harbor followed by the destroyers and other vessels of the fleet, followed in turn by the army "fleet" of mine planter, tug, and launch. That night another run-by was attempted, but the "battleships" and "cruisers" were picked up at 5,000 yards by the searchlights of the forts. According to the umpires, the "enemy" fleet was destroyed four times.(56)

In June 1908, additional exercises were conducted at Fort Hancock using two battalions of New Jersey National Guard. In this event, the "hostile fleet" was army mine planters *Armistead* and *Knox* and two harbor boats that operated in the waters of the lower bay. "Enemy" forces managed to land on Sandy Hook and capture the fort, which placed Forts Hamilton and Wadsworth on the front line of the defenses. Tragically, a burning powder bag fragment in the bore of a 12-inch gun at Battery Dix was drawn back to the powder chamber when the breech was opened for reloading. When the new powder bag was pushed in, an explosion ensued, killing two men of the 9th Coast Artillery District, NYNG, and wounding several more. Col. Henry L. Harris, commanding the Artillery District of Southern New York, believed that the explosion was caused by the men being so intent on making a record in reloading and firing the gun.

In conjunction with the exercises, Fort Wadsworth's 10-inch and 12-inch guns were test fired to determine the differences between guns. On the first day, Batteries Ayres, Richmond, and Dix fired. The results of the firing of Battery Dix were so disparate that a second day of firing was required to establish the mathematical model for its two 12-inch guns. That second day, Battery Barry also fired 10 rounds from its 10-inch guns in the test firings. The exercises also presented an opportunity for Companies A and E of the 13th Artillery District, NYNG, to calibrate Battery Piper's 12-inch mortars. Men of the 13th also manned Battery Harvey Brown during its first full service charge calibration shoot. (57)

While the War Department had no authority to hold up shipping during gun practices, simple prudence on the part of ship captains would have indicated that passage at such times was ill advised.

Sometimes, however, stubbornness or arrogance held sway. The captain of the White Star Line's *Adriatic* may have possessed one or more those characteristics. *Adriatic* was seaward bound during the June 1908 target practices, and keeping to her course and speed gave the long streaming red flag flying high above Fort Hamilton a saluting toot on her whistle and made for the open sea, causing a temporary halt in the firing. Observers noted that the first full service round fired from Battery Brown at the large red target off Sandy Hook seemed not all that far removed from the *Adriatic's* churning propellers.

While windows and crockery had been broken in previous firings of the guns, using reduced charges, this first firing with full service charges created real havoc. Battery Brown's manning detachment of the 13th Artillery District were thrown down on the loading platforms as the column of crimson flame shot from the muzzle followed by a brown cloud of smoke. The effects were not confined to the battery. The post canteen suffered a pandemonium of exploding sarsaparilla, ginger, and soda bottles as they popped their corks, while the tobacco shelves came down from the walls with a clatter. Although the post inhabitants had opened the windows of their quarters in accordance with instructions, window-panes were smashed anyway. Outside the fort, civilians also felt the effects of the firing. The beer pipes at Meyers' Tavern were twisted and sent flying into the air. An ancient denizen of the tavern who had not head a sound in a decade when asked if he heard the shot retorted: "Hear it, I thought I was hit!" A few doors away from the tavern, the plaster fell from the ceiling, one large piece falling on a woman who was laying down to rest. She had to be treated at the hospital.

Firing continued at targets off Coney Island and Sandy Hook, creating a cross fire from Forts Wadsworth and Hamilton. The Cunard liner RMS *Lusitania*, bound for Liverpool, exercised more caution than the *Adriatic*, halting in the Narrows for nearly a half hour as the firing was carried out.(58)

Firing practice would not continue at Forts Hamilton and Wadsworth beyond 1909 because of the destruction and complaints from the civilian population. The damage, coupled with the growth of the areas near the forts and increasing political pressure, forced the army to suspend firing practices from the Narrows forts. Future target practices would be carried out at Fort Hancock and the more isolated forts in the Coast Defenses of Long Island Sound.

Several New York National Guard heavy artillery regiments became coast artillery after the turn of the century. They were designated artillery districts in 1908 and coast defense commands in 1914, while retaining their traditional numbers.(59)

The Artillery Corps Is Divided into Field Artillery and Coast Artillery Corps

In the Artillery Corps, officers were subject to assignment with either field or coast units. The technological differences noted at the turn of the century had steadily increased with the modern advances of the early 20th century. Electrically operated artillery and searchlights, telephonic communications, and highly technical optical instruments used in long-range observation and fire control, as well as major increases in the power and range of seacoast guns and mortars argued for more specialization among the coast artillery officers whose talents were largely wasted when assigned to field batteries. The need for organizational changes was fully recognized by 1906.

Additionally, there was a need for additional coast artillery companies to man the projected seacoast fortifications under construction in the newly acquired overseas possessions in Hawaii and the Philippines. Because of their distance from the continental United States, and the lack of a local population of unquestioned loyalty, the War Department planned to place a full peacetime coast artillery garrison capable of fully manning the gun, mortar, and submarine mine defenses in Hawaii and the Philippines. In the Continental US, manning detachments equal to half that required for the gun and mortar batteries and full manning detachments for the submarine mine defenses were to be provided.

To achieve this goal, a substantial number of additional coast artillery companies were required. To provide a full manning detachment for the submarine mine defenses for the coast defenses at home and overseas, 41 companies would be needed, nearly the entire projected augmentation of 44 companies.

Consequently, in 1907 the Artillery Corps was dissolved and two separate branches were created. The field artillery was organized into regiments and a separate Coast Artillery Corps (CAC) was to be composed of 170 companies. The new companies would be organized by splitting existing companies and filling out the ranks with recruits.

The Artillery District of Southern New York, 15 companies in 1907, gained little from the reorganization. The 157th Co., CAC, was organized at Fort Wadsworth in 1907, bringing the number of mine companies in the district to six. Almost immediately, the 57th Co. departed Fort Wadsworth for the Philippines on July 24, 1907. This transfer reduced the number of mine companies in the district to five. Upon arrival in Manila on September 4, the 57th Company was assigned to Fort Wint on Grand Isle in Subic Bay.

The Artillery District of Southern New York contributed three more companies to the Philippine defenses early in 1908. On February 17, the 50th Co. (Fort Wadsworth), 51st Co. (Ft. Hamilton), and 55th Co. (Ft. Hancock) left New York aboard the USAT *Kilpatrick* for the Philippines. The 50th Company was posted at Fort Wint in Subic Bay, the 51st and 55th Cos. at Fort Mills on Corregidor Is.

Soon after the departure of the companies for the Philippines, the 3rd Co., CAC, was ordered to Fort Moultrie, SC, but returned to Fort Hamilton by the years end. Efforts were made to keep about 15 companies of coast artillery in the district. To maintain that strength level, it was necessary to transfer companies to New York from elsewhere. In 1909, the 76th Co. arrived from Fort Barrancas, FL.

The 86th and 95th Cos. departed for Manila January 29, 1911, reducing the coast artillery in the Southern New York artillery district to 13 companies. This strength level was maintained into 1914. (60)

Armament Changes

By 1913, the army attempted to concentrate non-standard artillery to facilitate supply of parts and ammunition. The pair of 4.72-inch Armstrong QF guns in Battery Griffin at Fort Hamilton was transferred to Honolulu. In addition to shipping away obsolescent guns, improvements were also undertaken to increase the efficiency of the ammunition service of the 12-inch guns in the No. 2 emplacements of Batteries Brown, Neary, and Doubleday. On October 4, 1916, Taylor-Raymond back-delivery projectile hoists were ordered to replace the less efficient Hodges hoists.

At Fort Wadsworth in April 1914, the 3-inch guns of Battery Turnbull were exchanged with the guns of Battery Catlin, giving Battery Turnbull the six M1903 guns, while the six M1902 guns were in Battery Catlin. In 1908, three of Battery Duane's five 8-inch M1888 disappearing guns were dismounted and transferred down the bay to Sandy Hook, to be emplaced in Battery Arrowsmith. The remaining pair of 8-inch disappearing guns had become increasingly obsolescent by the middle of the second decade of the 20th century and the battery was considered of insufficient military value to justify either men or ammunition. Shortly before World War I, the remaining two guns of the battery were briefly moved to Battery Barton, Fort Rodman, RI, in July of 1917, before being shipped to Sandy Hook Proving Ground at the end of the year.(61)

In 1913, the Artillery District of Southern New York was renamed the Coast Defenses (CD) of Southern New York, part of the North Atlantic Coast Artillery District, headquartered at Fort Totten, in the CD of Eastern New York. The headquarters of the CD of Southern New York was moved from

Fort Hancock to Fort Hamilton. Late in the summer of 1914, in response to the war in Europe, the 114th Co. was transferred from Fort Totten to Fort Wadsworth, raising the number of companies in the CD to 14.

By July 1915, the garrison of the CD of Southern New York, commanded by Col. Samuel E. Allen, was distributed between three forts:

Fort Hamilton: 3rd, 84th, 98th, 122nd, and 123rd Cos.
Fort Wadsworth: 53rd, 54th (mine), 114th, Cos.
Fort Hancock: 76th, 113th, 136th (mine), 137th (mine) Cos.(62)

Soon afterward, Fort Hancock was separated as the CD of Sandy Hook, and nearly half the companies of the CD of Southern New York were assigned to the CD of Sandy Hook.

When war erupted in Europe in 1914, the U.S. Army was ill prepared to participate. By the latter part of 1914, super-dreadnoughts were raising increased concern in the United States War Department. These new battleships boasted guns considerably more powerful than those in the nation's coastal defenses. Even more important, these new naval guns had greater ranges than before, with higher trajectories which threatened to negate the advantage offered by the disappearing gun batteries that made up the backbone of the nation's harbor defenses. Although not yet involved in the European conflict, the United States Army reviewed the continental seacoast defenses as well as those of the overseas territories and possessions, and prepared for possibly being drawn into the conflict.(63)

The War Department lost little time forming a War Department Board of Review to consider the defense needs of the nation. The CAC was greatly under strength, with only 701 officers and 19,321 enlisted men in 170 separate companies, distributed among 25 domestic and five overseas harbors. The troop strength approved in 1907 was insufficient to man half of the gun and mortar batteries and all of the mine defenses in the continental defenses, along with all the overseas defenses, even on a peacetime basis. For this, 1,312 officers and 30,309 enlisted personnel were required. The CAC was short 10,000 men in November 1914 and stretched thin, as it was deploying 49 of its 170 companies to the newly completed coastal fortifications in the Panama Canal Zone, Hawaii, and the Philippines.

Among the board's recommendations was some 11,000 additional enlisted men for the CAC over the next four years. Congress approved, and the first increment, about 2,000 men, was ordered in 1916. This enabled creation of 29 new companies in 1916 and early 1917. Concurrent with the augmentation of the CAC, the designations of the separate companies manning the coast defenses were changed in the summer of 1916. The serially numbered designations held since 1901 were changed, and companies were numbered at the coast artillery post to which they were assigned.

As a part of this restructuring, the 98th Co. was demobilized in 1916 and its personnel were used to organize two new companies, the 1st and 4th Companies, Fort Hamilton, in the CD of Southern New York. The following redesignations were made in the CD of Southern New York:

Fort Hamilton Companies
1st Co. organized in 1916 Ft. Hamilton
3rd Co. redesignated 2nd Co., Ft. Hamilton
84th Co. redesignated 3rd Co., Ft. Hamilton
4th Co., (I) Ft. Hamilton, organized 1916; demobilized 1917 Rockaway Beach
123rd Co. redesignated 5th Co,. Ft. Hamilton
122nd Co. redesignated 6th Co., Ft. Hamilton

Fort Wadsworth Companies
53rd Co. redesignated 1st Co., Ft. Wadsworth
54th Co. redesignated 2nd Co., Ft. Wadsworth
114th Co. redesignated 3rd Co., Ft. Wadsworth

The Coast Defenses of Southern New York in World War I

The early months of 1917 were increasingly tense between Germany and the United States. Finally, in response to Germany's unrestricted submarine warfare, the US severed relations with Germany on February 3, 1917. War fever in the US was increased by disclosure of the contents of the "Zimmerman Note" in March, and on April 6, 1917, Congress declared war on the Central Powers. Since the outbreak of war in 1914, the War Department had been gradually moving toward a war footing. With the declaration of war, the augmentation authorized in 1916 to increase the army, including the CAC, over a four-year period was accelerated and the entire augmentation was authorized. A Selective Service Act was passed and plans were developed to forward American troops to Europe to reinforce British and French forces on the Western Front.

The expansion of the CAC to 30,000 men soon had an impact on the CD of Southern New York. In June, six more companies were organized in the Coast Defenses. Two companies, the 4th and 5th Cos., Fort Wadsworth, were organized on Staten Island, while Fort Hamilton's 7th Co. was organized.

On February 6, 1917, orders were given to remove two 6-inch guns from Battery Burke at Fort Hamilton. Two 6-inch M1900 guns Nos. 24 and 25 and their M1900 pedestal mounts Nos. 20 and 21 were removed from Battery Burke on July 1 and transported to Rockaway Beach for emplacement in the East Battery.(64)

By the time the United States entered World War I, the 4th Co., Fort Hamilton, had been shifted to Rockaway Point. In June, the 4th Company, Fort Hamilton, was disbanded, its personnel providing cadres for the 1st and 3rd Cos., Rockaway Beach. A new 4th Co. (II), Fort Hamilton, was organized later in June at Fort Hamilton.(65)

On May 1, 1917, the CDs of Long Island Sound, Eastern New York, Southern New York, and Sandy Hook were placed under the new Middle Atlantic Coast Artillery District, commanded by Brig. Gen. Harry F. Hodges.

Thus by the end of June 1917, the CD of Southern New York, commanded by Col. William C. Rafferty, consisted of:

Fort Hamilton, Colonel Rafferty, 1st-7th Cos.
Fort Wadsworth, Maj. Hudson T. Patten, 1st-5th Cos.
Rockaway Beach Military Reservation, Maj. Henry J. Hatch, 1st-3rd Cos.

The World War on the Western Front degenerated from a war of maneuver to a war of position, resulting in the stalemate of trench warfare by 1915. The contending armies wore themselves out in massive and largely futile attempts to smash their way through extensive systems of entrenchments. As a consequence, both sides relied more and more on massive artillery to pave the way for infantry across the shell-pitted "no man's land" between the two armies. This was the situation in April 1917 when the United States entered the war.

July 1917 saw more changes in the coast defense garrisons. The War Department authorized organization of a large brigade to man heavy artillery in France. During the first several weeks of the war,

the War Department developed plans to organize and field the heavy artillery brigade as part of the American Expeditionary Force (AEF) being prepared for deployment to France. As the CAC was best experienced in handling the large-caliber artillery needed, it fell to that corps to organize the brigade. In a memorandum dated June 27, 1917, Maj. Gen. Erasmus M. Weaver, chief of coast artillery, recommended the expeditionary brigade consist of three regiments. This proposal was approved by the chief of staff on July 6. This brigade was projected to man a portion of the available armament, much of which was to come from the nation's coast defenses. General Weaver then instructed his district commanders along the Atlantic seaboard to designate sufficient separate companies of coast artillery from the coast defenses to form a brigade of 36 companies organized into a brigade of the 6th, 7th, and 8th Provisional Regiments for overseas.

The CD SNY was called upon to provide five companies for the brigade. The 4th and 6th Cos., Fort Hamilton, were ordered to Fort Adams in July 1917, where they became Battery L, 7th Provisional Regiment. The 3rd Co., Fort Hamilton, was also ordered to Fort Adams and redesignated Battery F, 8th Provisional Regiment. Across the Narrows at Fort Wadsworth, the 3rd Co., Fort Wadsworth, was sent to Fort Adams to become Battery E, 8th Provisional Regiment. The recently organized 3rd Co., Rockaway Beach, was also transferred to the 8th Provisional Regiment as Battery G. The transfer of nearly half of the companies in the CD SNY again left the command short of troops through the remainder of the 1917.

In August 1917, the coast artillery troops underwent another reorganization. The companies were renumbered within their assigned coast defense commands. The 1st, 2nd, and 5th Cos., Fort Hamilton, were redesignated the 1st, 2nd, and 3rd Cos., CD of Southern New York. The 1st, 2nd, 4th, and 5th Cos., Fort Wadsworth, were redesignated the 5th, 6th, 7th, and 8th Cos., CD SNY. The 1st and 2nd Cos., Fort Tilden, were redesignated the 9th and 10th Cos., CD SNY.(66)

Armament Changes

Meanwhile, there were considerable changes in the armament of Forts Wadsworth and Hamilton. While the Narrows forts retained considerable heavy artillery, Fort Hancock's batteries on Sandy Hook and newly established batteries on Rockaway Beach constituted the primary defense of New York Harbor.

In conjunction with the brigade of heavy artillery for service in France, the War Department authorized dismounting heavy and medium-caliber seacoast guns and mortars from the coast defenses for modification and remounting on railway and tractor-drawn carriages for use in France, or for use on transport ships. Forts Hamilton and Wadsworth, as a secondary line of defense, would see much of their 6, 10, and 12-inch armament removed and sent off to be modified.

On August 24, 1917, General Weaver reported that one of Battery Spear's 10-inch M1888 guns, two of Battery Livingston's 6-inch M1900 guns, and four of Battery Mendenhall's M1903 6-inch guns at Fort Hamilton had been ordered dismounted for modification. Dismounting the guns and preparing them for shipment continued through fall and by December 31, 1917, the remaining pair of Battery Livingston's 6-inch guns and all four of Battery Mendenhall's 6-inch guns had been shipped to the Morgan Engineering for remounting on wheeled carriages. In the ensuing months, still more orders for the removal of coast artillery ordnance came to CD SNY and by July 3, 1918, the two 12-inch M1895 guns of Battery Doubleday had been tabbed for shipment to Watervliet Arsenal for conversion to railway artillery. In most cases, the gun carriages were left in place at the batteries. The next orders for the removal of Fort Hamilton's armament came July 24, 1918, when the remaining 10-inch gun of Battery Spear was ordered sent to Sandy Hook Proving Ground. The gun was transferred September

25, 1918. Both of Battery Gillmore's 10-inch M1888MII guns were ordered to Watervliet Arsenal on August 31, 1918.

In April 1918, the temporary mortar battery at the Rockaway Naval Air Station adjacent to Fort Tilden was completed and four of Battery Piper's 12-inch M1890M1 mortars, Nos. 46, 93, 102, and 103, were temporarily emplaced in a straight line behind a sand berm. In May 1918, orders to dismount the M1888 10-inch guns of Battery Gillmore at Fort Hamilton and Battery Barry at Fort Wadsworth were received, while Battery Piper's four remaining mortars were tabbed for removal and conversion to railway artillery. This was apparently not done because of the conclusion of hostilities later that year.

Across the Narrows, Battery Barry's pair of 10-inch guns were dismounted and shipped to Watervliet September 11, 1918. One of Battery Upton's 10-inch guns, No. 19, was shipped to the proving ground September 28, 1918, while gun No. 11 was scheduled to be sent to Watervliet for conversion to railway artillery, although it remained temporarily in place. One of Battery Mill's 6-inch guns was dismounted and transferred to SHPG. The battery's other 6-inch gun remained.

Battery Ayres' two 12-inch guns, and one of Battery Hudson's 12-inch guns, were also ordered dismounted and shipped to Watervliet Arsenal for conversion to railway artillery.

While removal of the 12-inch guns at Fort Hamilton and Wadsworth would constitute a considerable loss to the CD SNY, efforts were made to replace them from less vulnerable locations, such as Baltimore and Delaware Bay. Battery Stricker at Fort Howard, Battery Towson at Fort Carroll, and one of Battery Winchester's guns at Fort Armistead in Baltimore Harbor, along with Battery Read's two 12-inch guns at Fort DuPont in the CD of the Delaware, were slated for transfer to Southern New York.

As it turned out, the war ended in November 1918 before many of Fort Hamilton's guns could be shipped off and the War Department canceled their conversion. Initially, the replacement armament, upon arriving at Forts Hamilton and Wadsworth, was to be held in reserve until final decisions could be made regarding the railway artillery conversion project. Following the Armistice, the seven replacement guns for those sent to Watervliet Arsenal for conversion were emplaced in Batteries Ayres and Hudson at Fort Wadsworth and Batteries Doubleday and Brown at Fort Hamilton.

The improvements to the ammunition hoists in the 12-inch gun batteries at Fort Hamilton ordered in October 1916 were finally realized in March 1918, when the Taylor-Raymond hoists were installed. Between ordering and installing, the decision was made to purchase Taylor-Raymond hoists for both No. 1 and No. 2 emplacements of Batteries Brown, Neary, and Doubleday.(67)

Augmenting the Garrisons at the Narrows

Not until mid-December 1917, when the War Department began creating additional regiments for overseas service, were the forts at the Narrows authorized reinforcements. The regimental-sized 8th, 9th, and 13th Coast Defense Commands of NYNG, with some three dozen companies, had been formed prior to the war, but only a few of their companies had been federalized when many coast artillery National Guard units had been mustered into federal service in the summer of 1917. They, however, formed an immediate reserve of manpower that could be activated quickly and placed in the defenses.

That need arose at the end of 1917, when the War Department constituted 12 regiments of heavy artillery for service in France. Three of the 12 regiments were organized in the New York Coast Defenses. One of these, the 59th Artillery, CAC, was organized at Fort Hamilton in January 1918. Concurrent with the orders to organize the 59th Artillery, orders were received federalizing the 8th and 13th Coast Defense Commands for service in the CD SNY. Four companies of the 8th CDC and the 8th

CDC Band (redesignated the 24th CA Band) were assigned to CD ENY, while five other companies went to Fort Wadsworth and elsewhere on Staten Island. The 33rd Co., 8th CDC, NYNG, was assigned to Constable Hook at the outlet of Kill Van Kull into Newark Bay, Bayonne, NJ. The remaining personnel of the 8th CDC were assigned to non-coast artillery organizations.

The 13th CDC was stationed at Fort Hamilton, where most of its personnel were used to organize the 59th Artillery, CAC. Five companies were assigned to the batteries at Fort Hamilton and one company went to Fort Tilden. In addition to the National Guard companies, 14 additional Regular Army companies were organized as the 32nd through the 45th Companies, CD SNY, and assigned to the batteries at Forts Hamilton, Wadsworth, and Tilden. As of January 1918, the organization of the CD SNY was:

Fort Hamilton, 1st, 2nd, 3rd, 4th, 36th, 37th, 40th, 42nd, and 43rd Cos., CD SNY.
Fort Wadsworth, 5th, 6th, 7th, 8th, 26th, 29th, 31st, 32nd, 33rd, 34th, & 35th Cos., CD SNY.
Fort Tilden, 9th, 10th, 44th, and 45th Cos., CD SNY.

The 38th Co., CD SNY, was posted at Constable Hook, Bayonne, NJ, the 39th at the Iona Island Naval Ammunition Depot, and the 41st Co., CD SNY, was at Tompkinsville, Staten Island.

The 59th Artillery, CAC, was organized at Fort Hamilton in January 1918 by redesignating three Regular Army companies and five companies from the 13th CDC, NYNG. Hq Co. was formed by redesignating the 9th Co., CD SNY. Supply Company was formed from the 4th Co., 13th CDC; Battery A from the 4th Co., CD SNY; Battery B from the 1st Co., 13th CDC; Battery C from the 2nd Co., CD SNY; Battery D from the 6th Co., 13th CDC; Battery E from the 3rd Co., 13th CDC; Battery F from the 12th Co., 13th CDC. The regiment trained and prepared for overseas deployment into early spring of 1918. The various companies continued to occupy their quarters on each side of the Narrows during organization and training, as the 59th's companies were filled out with recently drafted National Army men. After weeks of organization and training, the regiment was moved to the Hoboken Port of Embarkation on March 27, 1918, sailing for France March 28.(68)

In February 1918, the detached companies at Iona Island, Constable Hook, and Tompkinsville were ordered back to Fort Hamilton. A major reorganization of the garrison, which also involved redesignating the 33rd through the 45th Cos., was completed in March. After reorganization, the garrison was composed as follows:(69)

<u>Fort Wadsworth</u>
1st Co. (II) CD SNY*
2nd Co. (II) CD SNY*
4th Co. (II) CD SNY*
5th Co. CD SNY
6th Co. CD SNY
7th Co. CD SNY
8th Co. CD SNY
17th Co. CD SNY (2nd Co. 13th CDC)
28th Co. CD SNY (26th Co., 8th CDC)
29th Co. CD SNY (30th Co., 13th CDC)
30th Co. CD SNY (33rd Co., 8th CDC)
31st Co. CD SNY (35th Co., 8th CDC)
32nd Co. CD SNY*

Fort Hamilton
3rd Co. CD SNY
11th Co. CD SNY*
12th Co. CD SNY*
13th Co. CD SNY*
14th Co. CD SNY*
15th Co. CD SNY*
16th Co. CD SNY*
18th Co. CD SNY*
19th Co. CD SNY*
20th Co. CD SNY (5th Co., 13th CDC)
22nd Co. CD SNY (7th Co., 13th CDC)
23rd Co. CD SNY (8th Co., 13th CDC)
24th Co. CD SNY (9th Co., 13th CDC)
25th Co. CD SNY (10th Co., 13th CDC)
26th Co. CD SNY (11th Co., 13th CDC)

Fort Tilden
9th Co. CD SNY
10th Co. CD SNY
21st Co. CD SNY*
27th Co. CD SNY*

*Regular Army/National Army companies organized January 1918

By the summer of 1918, as companies organized the previous January were generally trained, orders were received to organize a second regiment for service in France, the 70th Artillery, CAC, from the personnel in the coast defenses. Rather than redesignating whole companies as batteries of the new regiment, the transfers were done on an individual basis, although several coast defense companies were reduced to only a few men. The 70th Artillery moved across the Narrows to Fort Wadsworth, where it completed its training and preparations for shipment to France. In July, the 70th Artillery moved to Hoboken PoE and sailed later that month.

No sooner had the 70th Artillery departed when orders came to form still more units. The 38th Artillery, CAC, was organized at Fort Hamilton in September, along with Hq Co. of the 40th Artillery Brigade, CAC, and the 6th AA Bn, CAC. Later in September, 6th AA Bn moved to Camp Mills, NY, and Hq, 40th Brigade, shipped out for France through Hoboken PoE. The 38th Regiment moved to Camp Eustis, VA, in October and was awaiting transportation to France when the Armistice was signed. It then moved to Camp Stuart, near Fort Monroe, until the regiment returned to Fort Hamilton, where it was demobilized in December.

With the Armistice on November 11, 1918, the coast defense garrisons soon began to downsize. In December, all the companies composed of National Guardsmen were demobilized and any regular army personnel in those companies were reassigned to the companies that would remain active. The demobilization was so swift that it became necessary to reorganize several companies in January that had been demobilized in December. At the end of February 1919, the CD SNY was composed of the following companies:(70)

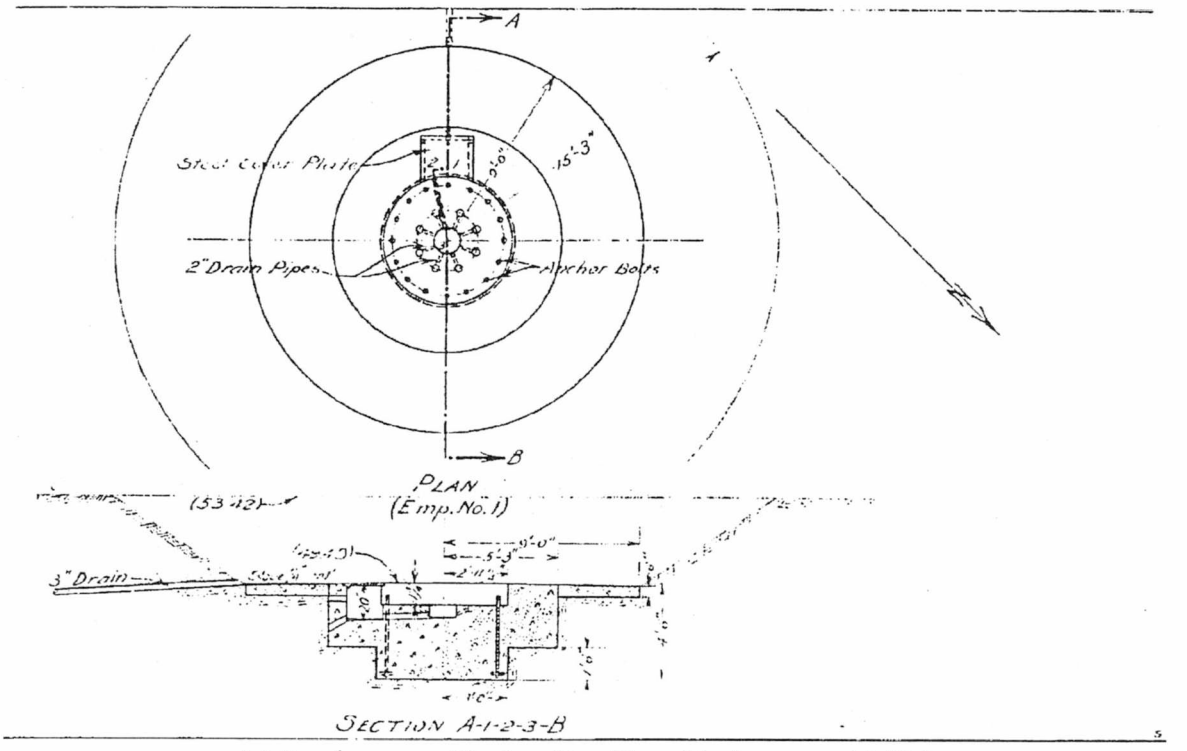
1st Co. (III), CD SNY, Fort Hamilton
2nd Co. (II), CD SNY, Fort Wadsworth*
3rd Co., CD SNY, Fort Hamilton
4th Co. (III), CD SNY, Fort Wadsworth
5th Co., CD SNY, Fort Wadsworth
6th Co., CD SNY, Fort Wadsworth
7th Co., CD SNY, Fort Wadsworth
8th Co., CD SNY, Fort Wadsworth
9th Co., CD SNY, Fort Tilden
10th Co., CD SNY, Fort Tilden*
11th Co., CD SNY, Fort Hamilton*
12th Co., CD SNY, Fort Hamilton*
13th Co., CD SNY, Fort Hamilton*
14th Co., CD SNY, Fort Hamilton*
15th Co. (II), CD SNY, Fort Tilden*
*Demobilized in September 1919

Forts Hamilton and Wadsworth between the World Wars

The downsizing of Fort Hamilton's coast artillery garrison continued into 1919, and by September only the 1st (III) and 3rd Cos., CD SNY, manned the post. The 4th Co. (III), 5th, 6th, 7th, and 8th Cos., CD SNY, manned Fort Wadsworth's batteries, while the 9th Co., CD SNY, was at Fort Tilden.

The armament continued to evolve. Scrapping the obsolete 4.7 and 6-inch Armstrong QF guns in Battery Barbour at Fort Wadsworth was authorized July 22, 1919. Before the war, firing the less than satisfactory 3-inch M1898 Driggs-Seabury guns on masking-parapet carriages had been prohibited except in case of actual attack. In 1920, the War Department declared the carriages obsolete and the guns were placed in storage.(71)

The secretary of war approved the recommendations of the Board of Review for antiaircraft batteries at the forts in the CD SNY, and they were included in the 1917 Ordnance Department estimates. Plans were prepared for two emplacements for 3-inch AA guns at each fort in February 1916. Two emplacements for M1917 3-inch AA guns on fixed mounts were called for on the southwest parapet of the Fort Hamilton Redoubt. Although construction of the AA emplacements at the redoubt was begun in 1918, they were not completed and armed with M1917 3-inch AA guns until June 1921. At Fort Wadsworth, two more emplacements for the same armament were projected, on the northern and southern parapets of Fort Tompkins. One more was to be placed on each flank of Battery Barry. Construction of the Fort Tompkins emplacements commenced January 1919 and was completed in May. Those at Battery Barry were begun in May 1919 and finished June 30. The Forts Hamilton and Wadsworth emplacements were transferred to the garrisons September 15, 1921.(72)



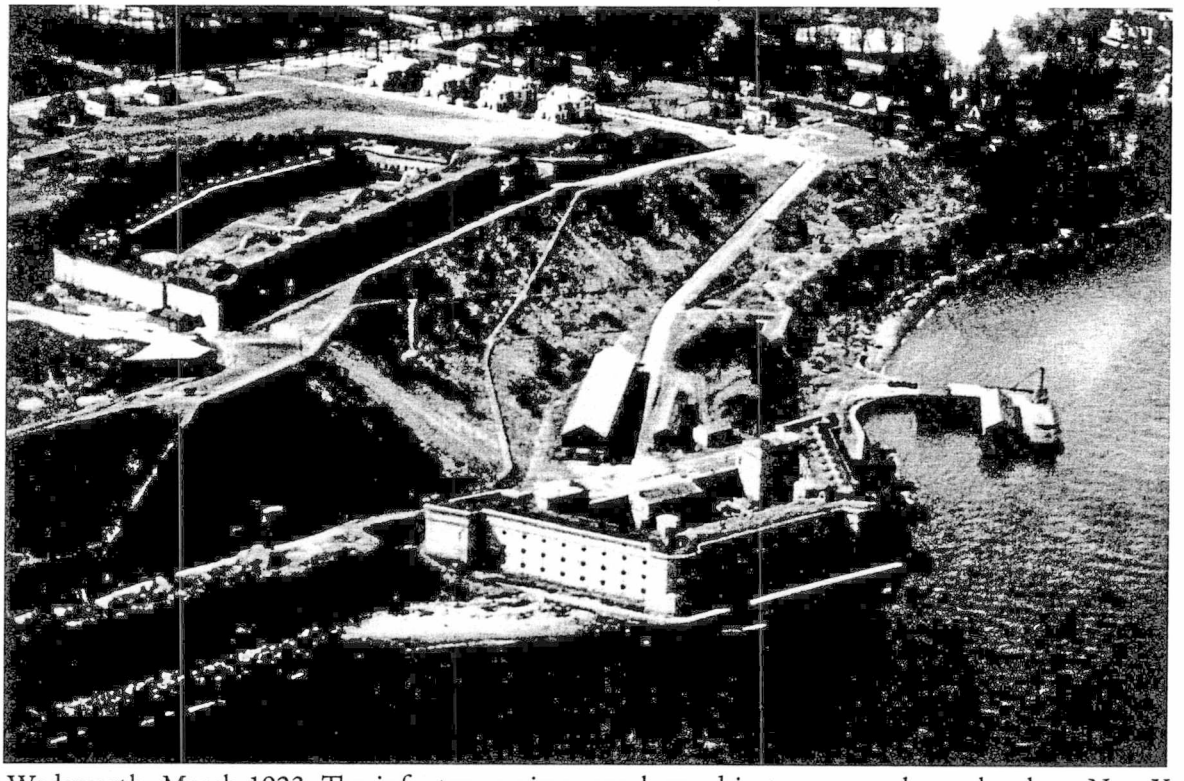
AA Emplacement No. 1 on Fort Tompkins' parapet. *NARA*



Southern portion of Fort Wadsworth in 1923. From left to right: an angle of Fort Tompkins II visible at the far left, Battery Duane's five unarmed emplacements, and the old Glacis Mortar Battery in advance of Battery Duane. The L-shaped groups of buildings are NCO quarters, while a larger group of buildings to the rear of Batteries Hudson and Mills are WWI temporary barracks, mess halls, and storehouses. *NARA*

The National Defense Act of 1920, approved by Congress on June 4, 1920, became the basis on which the US Army operated for the next two decades. The stated objective of the bill was to avoid the nation's characteristic unpreparedness at the beginning of a war and to set up an organized peacetime establishment consisting of the Regular Army, National Guard, and Organized Reserves. The act provided for all of the divisions and military elements necessary for a complete and immediate mobilization in the event of a national emergency. The act also sought to avoid the burden of "national militarism" and the expense of a large peacetime standing army. The authorized strength of the Regular

Army was set at 280,000 men, a number not achieved over the next 20 years. By 1925, the army's enlisted strength had dropped to 122,000, and by the next year, there were only 50,000 combat troops in the entire army. The Coast Artillery Corps was reduced to a mere 12,000 men, fully half of which were posted overseas. This concentration of CAC manpower overseas meant most of the nation's continental harbor defenses were in caretaking status.(73)



Fort Wadsworth, March 1923. The infantry garrison was housed in temporary barracks along New York Avenue and in the rear of Batteries Hudson and Mills. The South Cliff batteries Bacon and Weed and the submarine mine facilities occupy the foreground, with Fort Tompkins II on the heights. *NARA*

The organizational structure of CD SNY remained generally unchanged through the first half of 1921, but in June 1921, the 8th and 9th Cos., CD SNY, were demobilized, reducing the garrison to seven companies. On October 11, 1921, the remaining seven companies assigned to the CD of Southern New York were inactivated and the coast artillery materiél was placed in caretaking status, maintained by a company from the CD of Sandy Hook. On November 22, 1922, Fort Tilden became a sub-post of Fort Hancock in CD of Sandy Hook. The posts at the Narrows were not abandoned, as they were occupied October 9, 1921, by elements of the 22nd and 34th US Infantry Regiments and the 1st Engineer Regiment of the First Division, as well as the usual detachments from the Finance, Medical, Ordnance, and Quartermaster Departments. The 1st Bn, 34th Infantry (less Co. A) and the 85th Motor Transport Co. were posted at Fort Hamilton, while Co. A was stationed at Fort Wadsworth. Howitzer Co. of the 22nd Infantry was posted at Miller Field, as was Co. B, 1st Engineers. (74)

Coast Defense Airfield Built on Staten Island

A farm near New Dorp, Staten Island, belonging to William H. Vanderbilt was selected for an Army Air Service airfield; its principle mission being to assist the Coast Artillery in the defense of New York Harbor. (Crissy Field in San Francisco performed the same function.) In November 1919, construction of the field's two sod runways, seaplane ramps, and four hangars was begun. The longest runway was 2,100 feet, on an E/W bearing. The other on an NW/SE bearing was 1,729 feet long. The airport, which took 20 months to complete and cost $1,350,000, was named Miller Field in honor of Capt. James Ely Miller, commander of the 95th Aero Squadron, who was shot down and killed by a German aircraft on March 10, 1918, over German-held territory in the Rheims sector. When completed in July 1921, Miller Field was the Air Service's only coast defense station on the East Coast.

Although the field was completed in July 1921, it was little used, and by October 1922, no Army Air Service personnel remained at the field. In 1923, the 102nd Observation Squadron, NYNG, moved to Miller Field from Mitchel Field on Long Island. This unit, part of the 27th Division's Aviation section, remained through the 1930s. Miller Field was the site of military air shows in the 1920s. The National Defense Day Celebration, September 12, 1924, included a mock air attack on nearby Fort Wadsworth using sacks of flour as simulated bombs. On July 25, 1925, the Tank Company of the 1st Division arrived at Miller Field, after two and a half months of intensive training at Camp Dix, NJ. During the summer of 1928, Adm. Richard Byrd, the polar explorer, tested his Ford Trimotor named "Floyd Bennett" at Miller Field. On November 28-29, 1929, he flew this aircraft to Antarctica. By 1931, the little-used airfield was being considered for sale as surplus.(75)



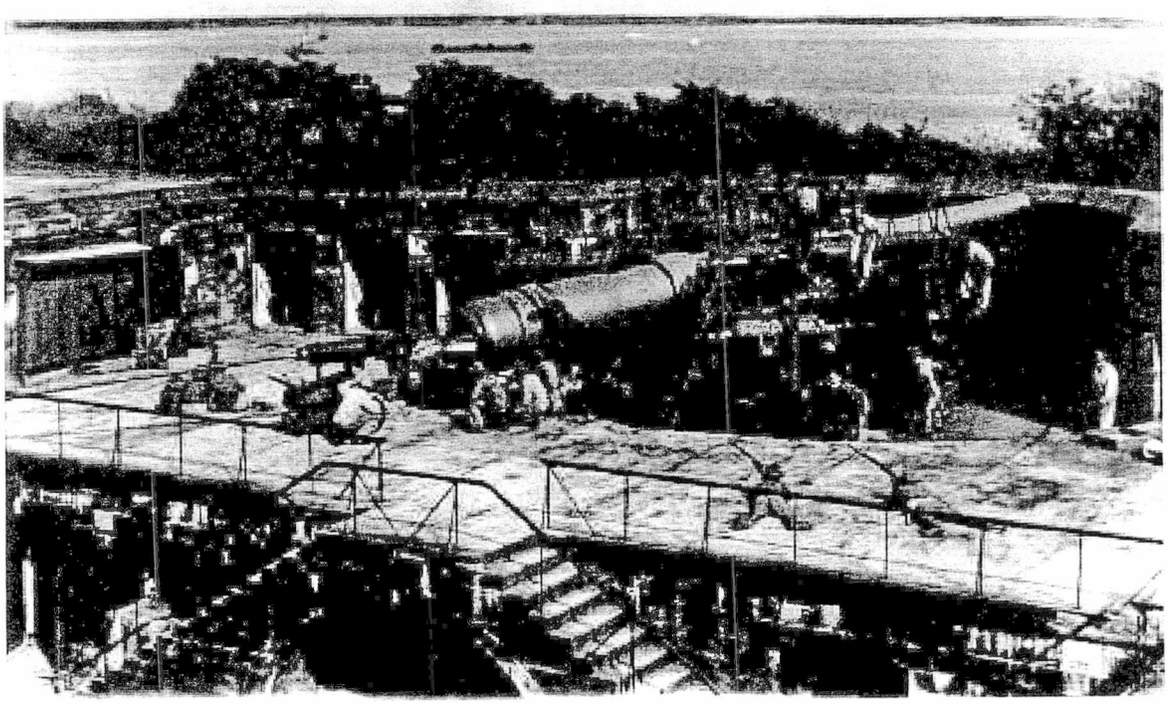
Miller Army Air Field in 1935. *NARA*

In the May 1931 economies, Miller Field was included in the 53 military posts slated for abandonment and sale. However, the field, one of four in the New York area, was retained as Hq of the aviation section of the 27th Division. On Oct 15, 1940, the 102nd Observation Squadron was activated for federal service and moved to Fort McClellan, AL. Miller Field's broad open area served as storage for trucks and other material awaiting shipment overseas during World War II. The airfield was also the site for one of the anti-motor torpedo boat batteries covering the Narrows during the war, as well as one of the many facilities holding Axis PoWs.

CAC Reorganized

On June 1, 1922, the Coast Artillery Corps was again reorganized in an attempt to restore the CAC's prewar *esprit de corps* and historic lineage. The 170 companies organized before the 1916 reorganization were to be restored to their pre-1916 designations and those active companies organized following the 1916 reorganization became the 171st-198th Cos., CAC. Twenty-five of the pre-1916 companies had been redesignated batteries in regiments formed during the World War and were demobilized at the end of the war. These units were reconstituted and consolidated with active companies organized after 1916 that were serving in the coast defenses; the consolidated company was assigned the pre-1916 designation. In addition, the regimental Hq and firing batteries organized during the war retained on the army's rolls after the war as either active or inactive were assigned serially numbered additional designations as CAC companies. For batteries organized after 1916, these were the 199th-274th Cos. The seven CD SNY companies inactivated October 1922 received the following designations:

1st Co., CD SNY, redesignated 98th Co. CAC
2nd Co., CD SNY, redesignated 3rd Co. CAC
3rd Co., CD SNY, redesignated 123rd Co. CAC



One of the First Division M1917 tanks "attacks" a detachment of the 22nd Infantry defending Battery Hudson in the 1920s. *Author's Collection*

4th Co., CD SNY, redesignated 176th Co. CAC
5th Co., CD SNY, redesignated 53rd Co. CAC
6th Co., CD SNY, redesignated 54th Co. CAC
7th Co., CD SNY, redesignated 177th Co. CAC

All seven remained inactive. The posts at the Narrows would remain without a coast artillery garrison until mid-1924. Caretaking for the batteries and ordnance continued to be provided by a detachment from Fort Hancock.

CAC Reorganized as Regiments

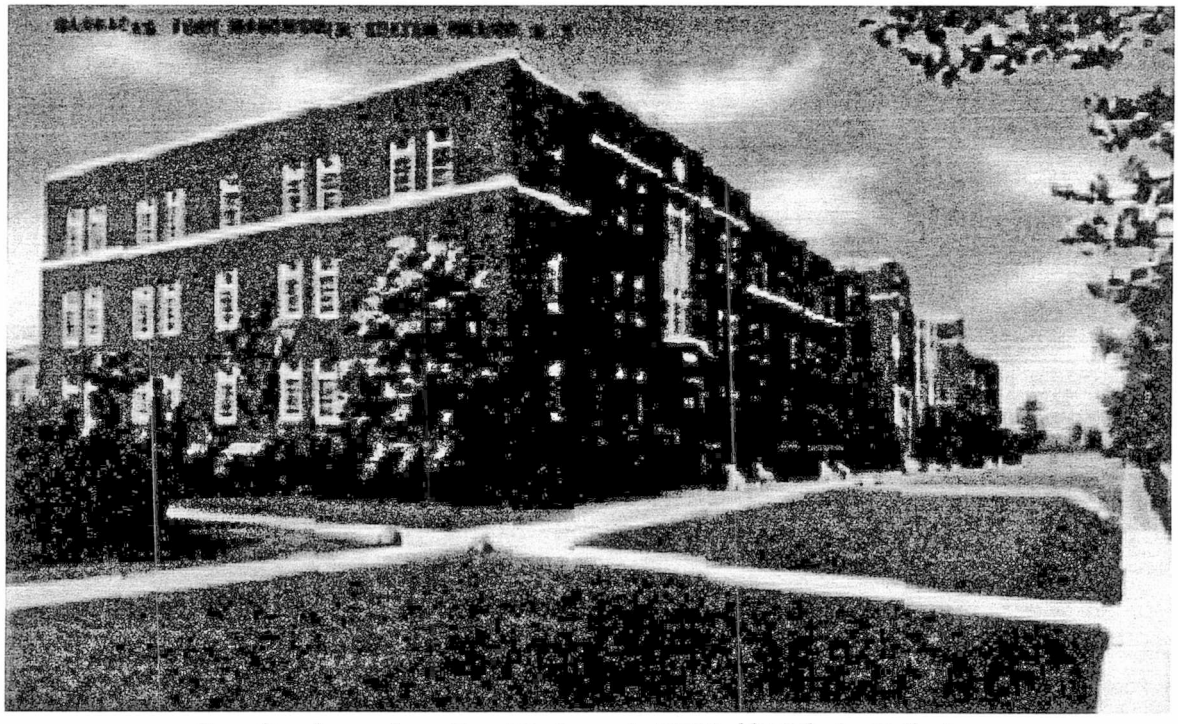
To better enable the CAC to serve with the mobile army and to further improve *esprit de corps*, another reorganization was ordered in February 1924. On July 1, 1924, the serially numbered separate companies were redesignated either Hq batteries or lettered firing batteries of 16 newly constituted coast artillery harbor defense regiments. The 1st through the 7th Coast Artillery (Harbor Defense) Regiments were to assume the historic lineage of the 1st through 7th Regiments of US Artillery that had been broken up in 1901 to form the Artillery Corps. The CD SNY would be manned by the 5th CA (HD) Regiment.(76)

Hq Battery was formed by redesignating the 57th Co., CAC, transferred from Fort Winfield Scott in the CD of San Francisco to Fort Hamilton. The battery was activated with personnel of the caretaking detachment assigned to the forts at the Narrows and would be the only active element of the regiment until shortly before World War II.

Battery A (inactive) was formed by redesignating the 49th Co., CAC, transferred to Fort Hamilton from Fort Worden. Battery B (inactive) was formed by redesignating the 50th Co., CAC, transferred to Fort Hamilton from Fort Levett. Battery C (inactive) was formed by redesignating the 51st Co., CAC, transferred to Fort Hamilton from Fort McKinley. Battery D (inactive) was formed by redesignating the 56th Co., CAC, transferred to Fort Hamilton from Fort Hancock. Battery E (inactive) was formed by redesignating the 54th Co., CAC, transferred to Fort Hamilton from Fort Wadsworth. Battery F (inactive) was formed by redesignating the 55th Co., CAC, transferred to Fort Hamilton from Fort DeRussy. Battery G (inactive) was formed by redesignating the 53rd Co., CAC, transferred to Fort Hamilton from Fort Wadsworth.(77)

New Barracks Construction Program

The War Department undertook to dispose of many military reservations that were considered no longer necessary, and with the funds obtained, planned to improve garrison housing at the retained posts. An initial sum of $285,000 was earmarked for new barracks at Fort Wadsworth. Bids were finally advertised in August 1927 for a large three-story barracks at the fort to accommodate a full battalion of infantry. Construction began on the first of three projected barracks in 1928 and was completed in 1929 at a cost of $350,000. Although three large barracks had been projected, only two 650-man barracks were actually built; the economic woes of the "Great Depression" halted efforts to build the third barracks. By the time the project was suspended, some $675,727.49 had been expended to improve the garrison accommodations at Fort Wadsworth.(78)



Battalion barracks at Fort Wadsworth. *NY Public Library Collection*

A new post theater was built in 1932 by federal prisoners under the oversight of the Corps of Engineers. While at Fort Wadsworth, the prisoners were housed in Fort Tompkins. They also built a large brick stable for 51 army mules and horses. As the depression recovery programs progressed, laborers from the Works Progress Administration (WPA) and the 390th Veterans Company of the Civilian Conservation Corps (CCC) arrived in the mid-1930 to make various improvements at the post. The WPA workers were housed in temporary World War I wooden barracks west of New York Avenue, near the rear of Batteries Richmond and Ayres. The WPA workers helped build the front and rear gates to the fort, along with garages, guardhouses, several roads, a post exchange, and an officers club. The CCC built a portion the seawall and did some forestry work on the post. In October 1940, the War Department approved construction of six temporary structures: a medical staff building, a recreation building, a mess hall, company officers quarters, and two barracks.(79)

In the early 1930s, the 2nd and 3rd Bns of the 18th Infantry occupied the two new barracks at Fort Wadsworth, replacing elements of the 34th Infantry. Fort Wadsworth saw very little infantry training while 1st Division elements were posted there. The infantry regiments usually went to Fort Dix, NJ, each summer for summer maneuvers.

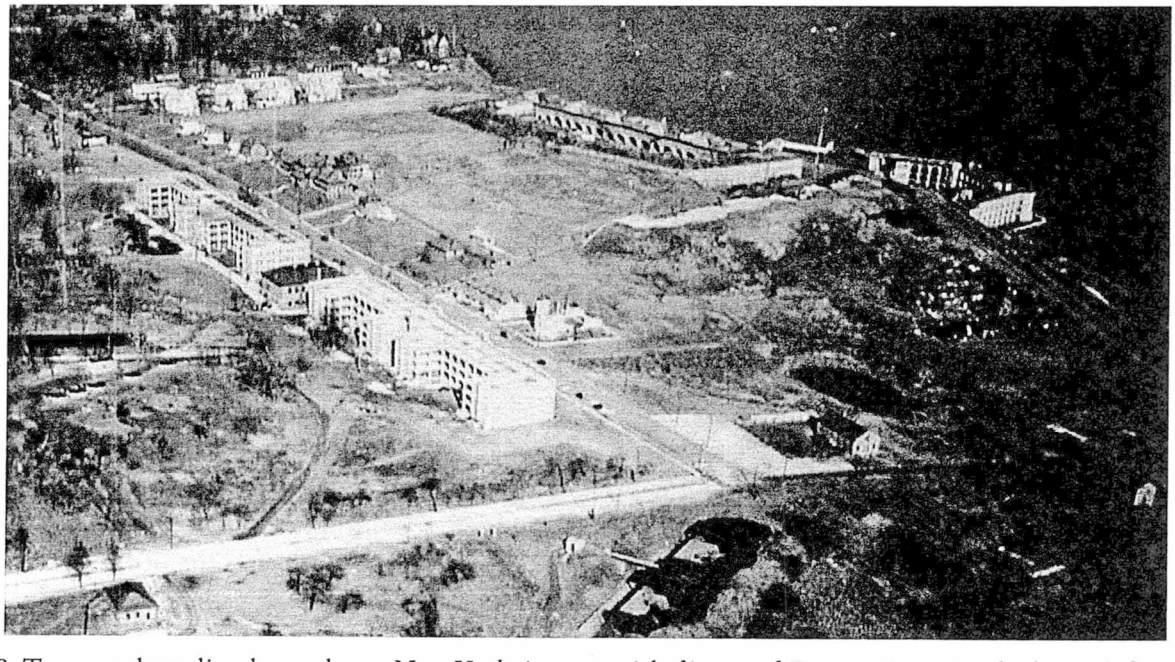
In 1930, the CAC was reorganized to meet a new training mission that emphasized antiaircraft defense. This reorganization had little impact on the 5th CA, as the three officers and 56 enlisted men of Hq and Hq Battery had been on caretaking status for nearly a decade. A detachment of one officer and 20 men was responsible for the seacoast artillery and materiél in the HD ENY, leaving the main body of Hq Battery to care for the guns and materiél at the Narrows.

The army was granted a new strength level of 165,000 in 1936, including a 5,000-man augmentation for the CAC. Most of the augmentation went to overseas harbor defenses and to the antiaircraft regiments.(80)

Complaints by residents on Staten Island and in Brooklyn on Long Island had silenced the guns at the Narrows after 1909, but 23 years later, on July 4, 1932, the 12-inch guns at Forts Hamilton and Wadsworth fired a national salute. By now, however, these weapons were obsolete, without the range to counter a bombardment by enemy vessels that could stand offshore and bombard New York and its harbor with impunity. New York's harbor defense relied almost entirely on the 16-inch guns of Battery Harris at Fort Tilden and the four 12-inch long-range guns of Batteries Kingman and Mills at Fort Hancock.(81)

The number of officers assigned to the 5th CA during the early 1930s rarely exceeded three. Maj. Gilbert Marshal commanded the regiment at Fort Wadsworth from 1930 until promoted to lieutenant colonel in June 1934, when he was transferred to Fourth Corps Area. 1st Lt. Robert J. Moulton commanded Hq Battery, 5th CA, from August 1930 to June 1933. Lt. Col. Lloyd P. Hortsfall succeeded Marshall in command of the harbor defenses in June 1934 and commanded the 5th CA until August 1936. Capt. Walter J. Gilbert arrived at Fort Hamilton in January 1934. He and Capt. Carroll G. Riggs, who arrived at Fort Wadsworth in December 1934, composed the officer contingent in 1937. Maj. James R. Lowder arrived from Hawaii in June 1938 to command the caretaking detachment at Fort Wadsworth. By October 1938, Maj. Ernest R. Barrows was in command at Fort Hamilton. In December 1939, Maj. Edward W. King arrived to command the Panama Detachment being formed at Fort Hamilton.

With the expansion of the army in 1940, the 5th CA began receiving additional officers to fill out various headquarters staff positions and supply line officers for newly activated batteries. Maj. Walter J. Wolfe was assigned to the 5th CA, as was 1st Lt. William H. Jordan, who commanded Hq Battery, and 1st Lt. Alan B. White, assigned to Fort Wadsworth. Maj. Edmond E. Russell, a CA Reserve officer, 1st Lt. Seth F. Hudgins, and 2nd Lts. Edwin F. Black and Mark C.B. Klunk were assigned to Fort Hamilton in October 1940. In February 1941, Maj. Willard L. Wright reported for duty at Fort Hamilton. By August 1941, 2nd Lt. James E. McElroy was also on duty at Fort Hamilton.(82)



128. Two new battalion barracks on New York Avenue with disarmed Battery Barry in the lower left corner and Battery Upton at the end of New York Avenue, 1932. *NARA*

War in Europe Fosters Modernization of the Coast Defenses

The Veterans Administration's need for additional facilities caused that agency to approach the War Department in March 1940 to ascertain whether any military posts could be transferred to that agency. In evaluating this request, the War Department ordered a new survey of the nation's seacoast defenses by the Harbor Defense Board. At that time, France was falling to the German blitzkrieg and Great Britain was threatened by German invasion. The survey was still in progress in June when France fell and the German threat to Great Britain intensified. The probability of the French fleet falling into German hands, along with possibly the greater part of the Royal Navy being combined with the German *Kriegsmarine,* raised the specter of a weakly defended American eastern seaboard being attacked by a massive enemy fleet. The Harbor Defense Board, presided over by Maj. Gen. Walter C. Baker, chief of the Chemical Warfare Service, was directed to a completely reassess harbor defense requirements.(83)

On July 27, 1940, the board submitted its recommendations for what would become the last system of seacoast gun defenses in the United States. The 16-inch gun would be retained as the primary seacoast weapon and 6-inch guns as the standard secondary seacoast armament. The proposed 16-inch batteries were to be emplaced within protective casemates of concrete, covered with earth to conceal and protect them from aerial and shipboard bombardment. New batteries of two 6-inch guns each, mounted *en barbette,* were also proposed, to supplement the older 6-inch and 3-inch RF batteries. When completed, this program would permit the deletion of outmoded Endicott-era batteries. In addition to the new construction, 16-inch barbette batteries and 12-inch barbette batteries built after World War I were also to be casemated and included in the new harbor defense system. By September 11, 1940, the initial priorities were set.(84)

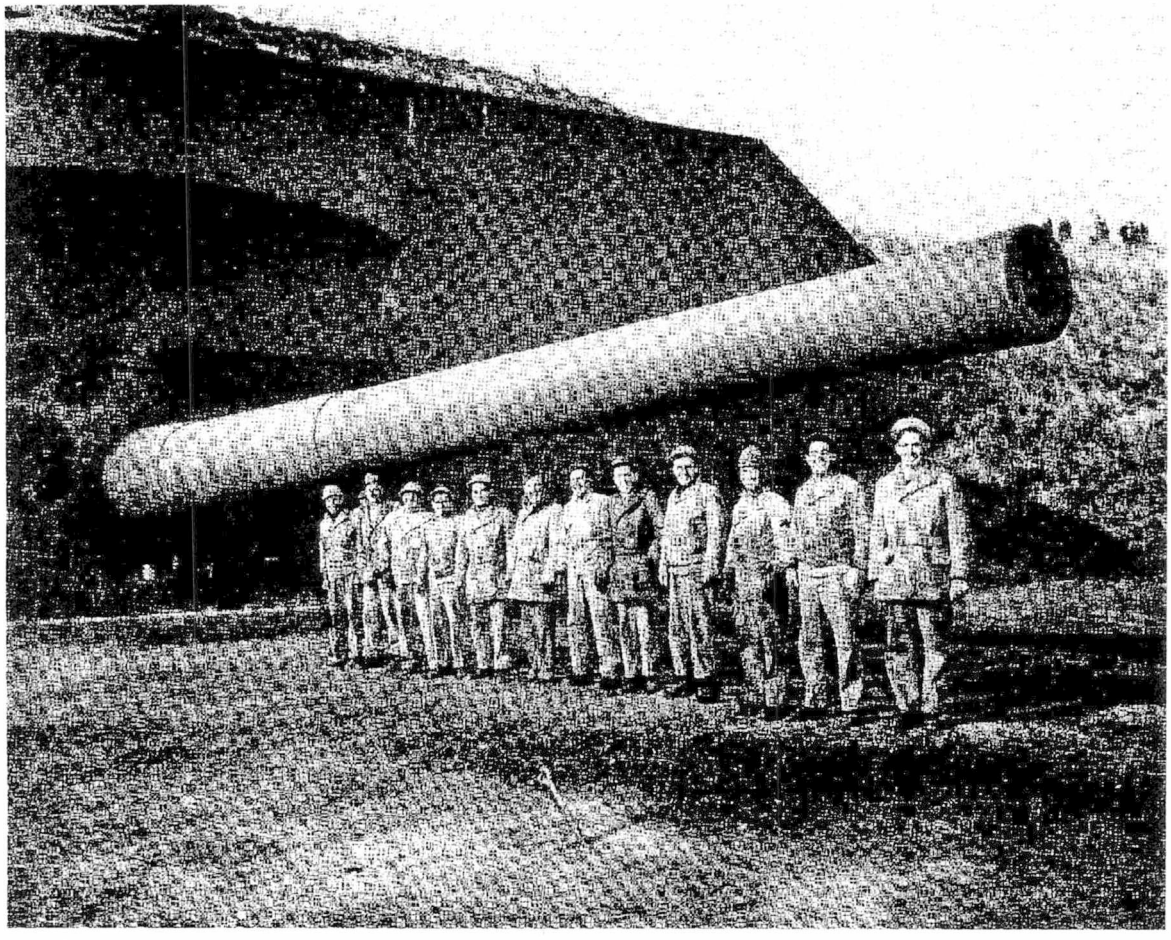
At New York, three new 16-inch batteries were projected as part of the 1940 Modernization Program. One was to be built on the southern flank of the harbor in the New Jersey Highlands, a second at Fort Wadsworth. The third was to be located at Nigger Point near the Jamaica Sea Airport. Battery Harris's 16-inch guns at Fort Tilden were to be casemated, as were the four 12-inch guns of Batteries Kingman and Mills at Fort Hancock. Of the modern 6-inch gun batteries, three were to protect the southern approaches to New York Harbor. One would be built near the 16-inch battery in the New Jersey Highlands, the second would replace West Battery at Fort Tilden, while the third would be located at Fort Wadsworth near the proposed 16-inch battery. East Battery's pair of 6-inch guns at Fort Tilden, renamed Battery Kessler, was to be given shields and bombproof magazines. Formal approval of the 1940 Modernization Program came in early September 1940, accompanied by a recommendation that $62,000,000 be allotted to begin the program.(85)

The various projects in the 16-inch battery program were assigned battery construction numbers (BCN) beginning with 101. BCN 101 and 102 were at Portland Harbor, 103 at Portsmouth, and so on down the Atlantic seaboard, and then north along the Pacific coast from San Diego to Puget Sound. Fort Wadsworth's 16-inch battery was BCN 115. The 6-inch gun batteries of the program were similarly numbered in the 200s. The third to be built at Fort Wadsworth was designated BCN 218.(86)

The 1940 Program progressed slowly. Planning, constructing, and arming massive gun batteries was a lengthy process and the program lagged as the program vied with other construction projects associated with the military buildup of the early 1940s. In July 1941, a year after the board decided to develop the new harbor defense program, only four casemated 16-inch batteries had been completed and these had been authorized under an earlier program in 1934 and begun between 1939 and 1940. Only five of the batteries authorized in 1940 had even been begun. The realization that the construction of the batteries as originally planned could not be attained for several more years, coupled with the

belief that by then our air and naval forces would be so strong as to make the modern harbor defense batteries much less necessary, caused the army to reevaluate the entire seacoast defense program. By August 1941, the War Department had decided to continue construction of only those 16-inch batteries that could be brought to completion by the end of June 1944. Construction of the others would be deferred pending further evaluation.(87)

The 16-inch battery for Fort Wadsworth initially had been given a priority of 34, out of 36 batteries initially proposed in September 1940, but by 1941 the project had been canceled and deleted from the program altogether, before any funding was allotted for planning or construction. Although Battery Construction Project 117 near Jamaica Sea Airport had an initially priority of 21, and in August 1941 its priority was increased to 19, it too never received any funding. By November 13, 1942, that project too was deleted from the program. Only the 16-inch battery in the Navesink Highlands of New Jersey, eventually named Battery Lewis, would actually be completed in May 1943. In the meantime, the nation had become embroiled in World War II.(88)



A battery of 16-inch casemated guns like this one at the Navesink Highlands, NJ, were projected for, but not built at Fort Wadsworth. *Author's Collection*

World War II

Between the two world wars, considerable planning was undertaken with regard to the organization of the nation's defenses. This planning was codified in what became known as the Joint Action Army and Navy (JAAN) plan. As revised periodically in the interwar period, it called for wartime

"coastal frontiers," defined as "geographical divisions of our coastal area established for organization and command purposes in order to insure the effective coordination of Army and Navy forces employed in coastal frontier defense." On the east coast of the United States, the North Atlantic Coastal Frontier and the Southern Coastal Frontier were established. The army's tactical subdivisions of the coastal frontiers consisted of sectors and subsectors that corresponded generally to the various coast artillery districts and harbor defenses, respectively. The First Army was responsible for the North Atlantic Coastal Frontier and from about the middle of 1941, First Army, headquartered at Fort Jay on Governor's Island in New York Harbor, had placed itself on a war footing and established a Northeastern Theater of Operations. When war was declared in December 1941, the theater plan was implemented. This organizational structure continued until March 1942, when four continental defense commands were established and the Northeastern Theater was redesignated the Eastern Defense Command (EDC).(89)



Fort Tompkins quadrangle from the HECP during WW II. *Author's Collection*

When the United States entered World War I, there was no effective mobilization plan and in the years following, the War Department sought to remedy that shortcoming by instituting Protective Mobilization Plans each year to speed mobilization of the National Guard and the Organized Reserves in the event of war or national emergency. By 1938, the mobilization plan for HD SNY was well developed. The 5th CA would be fully activated with 78 officers and 1,617 enlisted personnel within 30 days after mobilization was ordered and by M+120, the regiment would be fully operational.(90)

By 1941, however, considerable alterations were made in the mobilization requirements for HD SNY, largely as a result of the 1940 Modernization Plan and the projected elimination of most of the seacoast armament from Forts Hamilton and Wadsworth. These changes would reduce the manning detachments that had been considered necessary only a few years before.

On August 1, 1940, the 5th CA first stirred beyond daily caretaking activities by the regimental headquarters battery. Battery A was activated at Fort Wadsworth with cadre from the caretaking detachment. By mid-January 1941, the War Department moved to reactivate some of Fort Wadsworth's seacoast gun batteries. On January 15, 1941, Battery B was activated at Fort Wadsworth and Battery D at Fort Hamilton. One hundred draftees from the Panama Coast Artillery Detachment at Camp Upton, Yaphank, Long Island, NY, were sent for the two new batteries. James R. Lowder, newly promoted to lieutenant colonel of the 5th CA (HD) Regiment, was sent from Fort Hamilton to command the Staten Island post when the 18th Infantry departed. As war clouds continued to darken in early 1941, the men of the 1st Division began departing the New York harbor forts that had been their home for a decade. By February 27, 1941, the last infantrymen had departed and the forts again became coast artillery posts.(91)

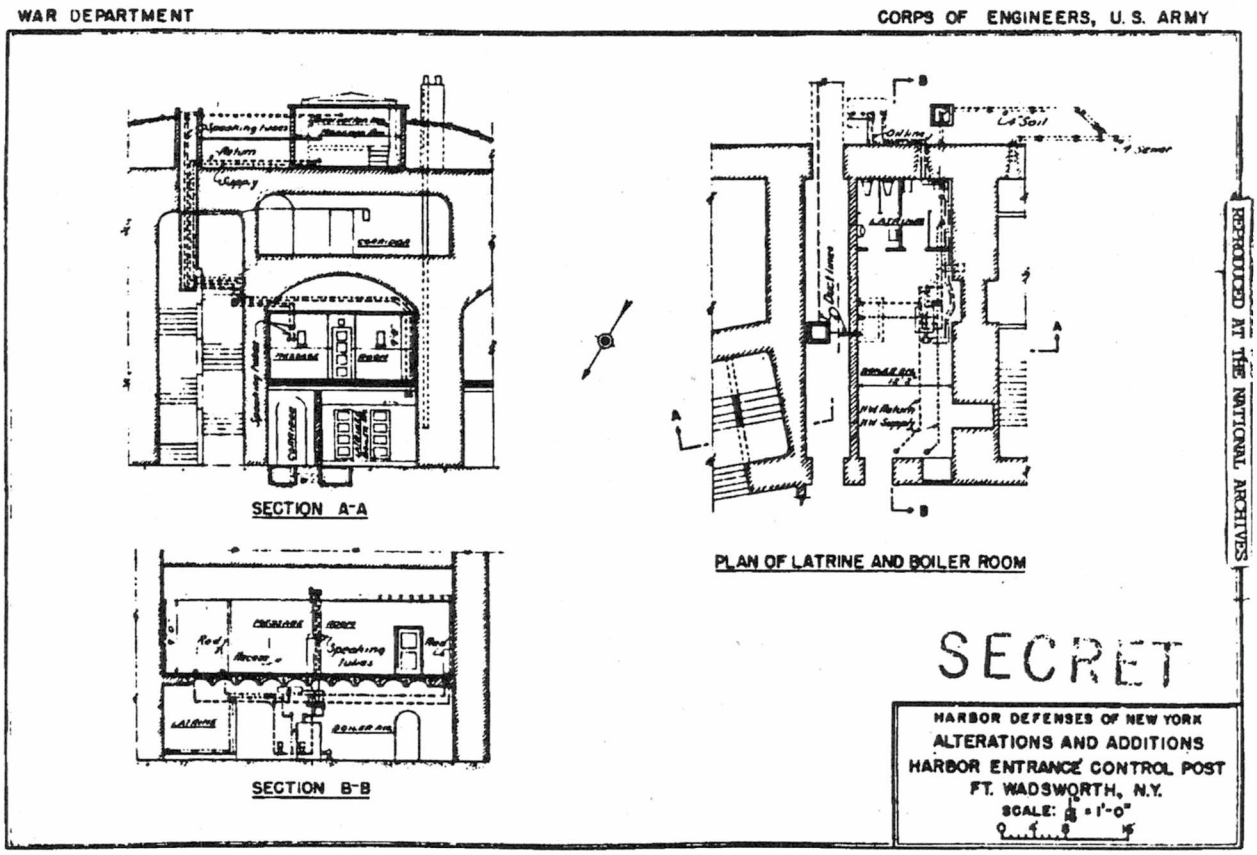
As planned prewar, the 2nd Coast Artillery District commanded by Gen. Arthur G. Campbell at Fort Hamilton became a sector of the North Atlantic Coastal Frontier. Brig. Gen. Ralph E. Haines and Campbell exchanged commands, with General Haines taking command of 2nd CA District at Fort Hamilton and General Campbell going to Fort Adams, RI, to command the HD of Narragansett Bay. On March 20, 1941, the Local Joint Planning Committee for what would eventually became the New York-Philadelphia Sector of the North Atlantic Coastal Frontier met at Fort Hamilton for the first time to discuss plans for the projected sector. Although operating under the JAAN Plan, the 2nd CA District officially remained as such until March 1, 1942, when the War Department created the New York-Philadelphia Sector as a part of the EDC.

A local board of officers met in October 1940 to determine the harbor defense needs, both current and upon completion of the modernization program authorized in September. After considerable study, the board recommended shields for Batteries Livingston and Griffin at Fort Hamilton and Catlin and Turnbull at Fort Wadsworth. Once the modernization program was complete, the 12-inch guns of Batteries Doubleday and Harvey Brown at Hamilton and Dix at Wadsworth, along with the remaining 6-inch disappearing gun of Battery Mills, were to be salvaged.(92)

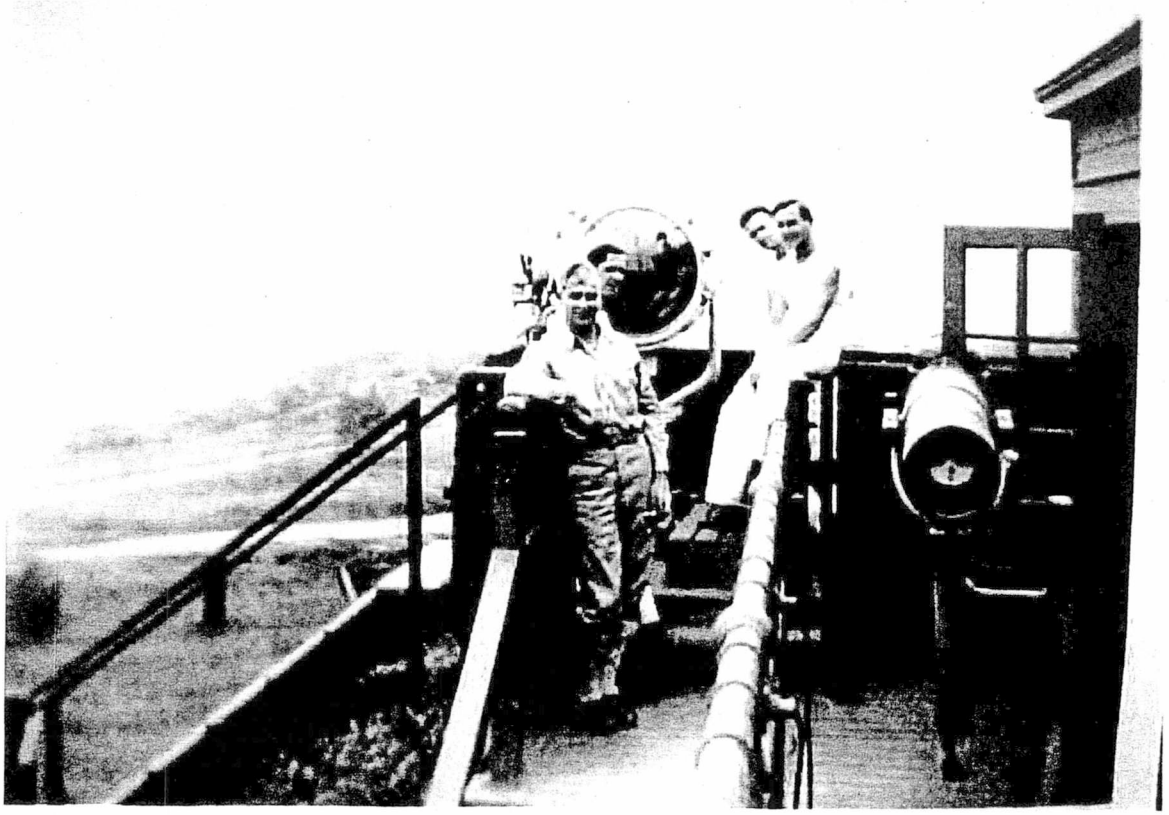
Fort Wadsworth Selected for Harbor Entrance Control Post

In March 1941, the local joint planning committee selected Fort Wadsworth for the joint-service harbor entrance control post (HECP) in the New York Sub-Sector of the New York-Philadelphia Sector. At that time, the army's harbor defense command post (HDCP) was at Fort Wadsworth. However, it was immediately obvious that Fort Wadsworth alone could not gave complete observation of the entire defensive coastal area. The solution was to provide additional observation posts at Forts Hancock and Tilden. These were subsequently designated advanced HECPs, while tests and exercises in conjunction with the navy ended with the selection of the southeast corner of Fort Tompkins for the central HECP at Fort Wadsworth.(93)

The HECP message center, equipped with radio, telephone, and teletype, was in an upper-tier casemate in the south front; the boiler room with an oil-fired burner and a latrine were on the casemate's ground level. The observation room of the HECP was directly above the message center, in a small frame house on the barbette tier of the fort. Voice communication with the message center was by speaking tubes. The observation room was protected from hostile gunfire with splinterproof steel plates and by the fort's brick breastheight wall. The observation room was equipped with telescopes and radiotelephones. The portion of the observation room visible from seaward was given camouflage paint. Outside the observation room was a signal station with a signal mast and halyards for signal flags, blinker signal lights, and telescopes for visual communications.(94)

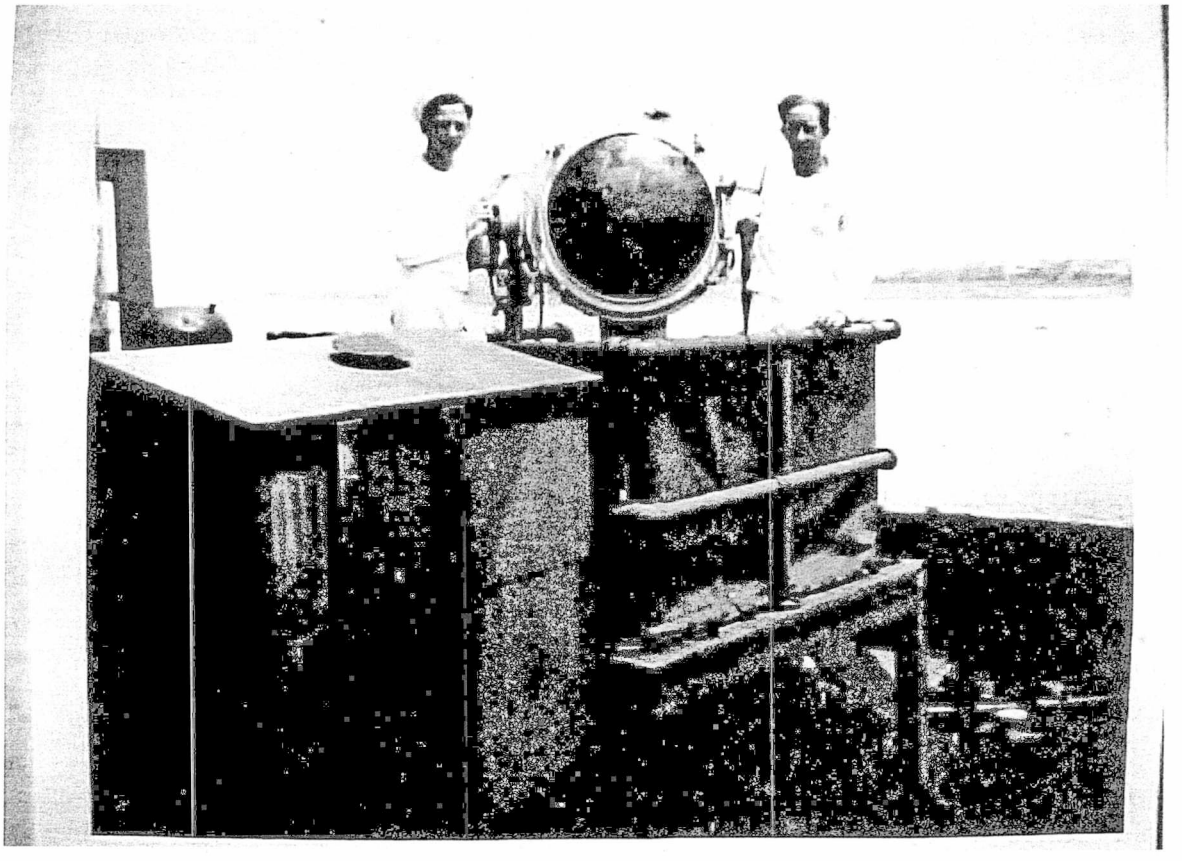


HECP at Fort Tompkins II in 1942. *NARA*



Part of the HECP detachment at Fort Tompkins II. *NARA*

On June 7, 1941, President Roosevelt directed the army and navy to take certain measures for the defense of the Western Hemisphere. The chief of naval operations and the army chief of staff issued a joint directive to man HECPs on a training basis. In HD SNY and HD Sandy Hook, the harbor defenses were placed in readiness condition three (except for the major-caliber batteries) and the HECP at Fort Wadsworth was placed in operation for training basis, preparing for continuous operation. Additionally, a third 3-inch AA gun position was to be added to the AA batteries at Fort Hamilton and Wadsworth. The HECP was opened on a training basis by the 2nd CA District, with two officers from the HD of Sandy Hook and two from the HD SNY, who prepared the Fort Wadsworth HECP for continuous operations and conducted frequent tests of its operation. Although the HECP had been in "existence" since May 1941, it still had several deficiencies, including the lack of independent electrical power to make it ready for "war operation." Fort Hancock's signal station atop decommissioned Battery Potter was pressed into service as an *ad hoc* advanced HECP and the HECP became active October 20, 1941. Considerable difficulty was experienced in getting the two advanced HECP authorized by the War Department, as they required additional personnel and three HECPs for one harbor entrance was judged excessive. As a consequence, the proposed advanced HECP for Fort Tilden could not be activated until August 6, 1943, since the War Department directed that personnel for the two advanced HECPs were to come from the garrisons at Forts Hancock and Tilden.



Signal searchlight and flag bag on signal deck of the Fort Wadsworth HECP 1942. *NARA*

Defending the Narrows in World War II

Fort Hamilton briefly served as Hq of the 2nd Coast Artillery District, and Batteries Livingston and Griffin were still armed. Meanwhile, the post on Long Island had also become Hq of the army's

New York PoE. In addition to Hq and Hq Battery, Battery D of the 5th CA had begun manning the 6-inch guns of Battery Livingston 24 hour a day in June 1941 and after the commencements of hostilities, manning the 3-inch guns of Battery Griffin. The remaining coast artillery units at the Narrows, Batteries A and B, 5th CA, moved to Staten Island in 1941.

During 1941 the garrison of Fort Wadsworth was increased by the activation of the 1205th Coast Artillery Station Complement (CASC), which assumed most of the routine garrison duties to allow the battery personnel of the 5th CA to concentrate on their primary assignment of training and manning the seacoast armament. The 1216th CASC, slated for Miller Field, was formed at Fort Wadsworth from a cadre from the 1205th CASC. Also posted at Fort Wadsworth were the 716th MP Bn and 175th Signal Repair Co. of the Signal Corps. By January 1942, components of both the 61st and 213th CA (AA) Regiments were also stationed at Fort Wadsworth.

The plan for the operation of the New York-Philadelphia Sector was placed in effect December 10, 1941, by Hq, 2nd CA District, which began functioning as sector headquarters although the sector was not formally established until March 1942. Upon the outbreak of war in December 1941, the 5th CA, now commanded by Lt. Col. Ernest R. Barrows, was positioned as follows: Hq Battery operated the HECP at Fort Wadsworth while detachments from Batteries A and B manned searchlights at Forts Hamilton and Wadsworth. Battery A operated as a mine battery.

Battery B manned Battery Dix's 12-inch guns at Fort Wadsworth, the 3-inch guns of Batteries Turnbull and Catlin (on an emergency basis only), the 6-inch guns of Battery Livingston at Fort Hamilton and the 3-inch AA batteries at Forts Hamilton and Wadsworth. Battery D manned the 3-inch guns of Battery Griffin at Fort Hamilton on an emergency basis only.

The HD SNY had nine batteries ready for service with ammunition when the war began. Inadequate funding during the interwar years, coupled with the small caretaking detachment had taken its toll in the defenses, leaving the supporting elements in the harbor defense far from adequate.

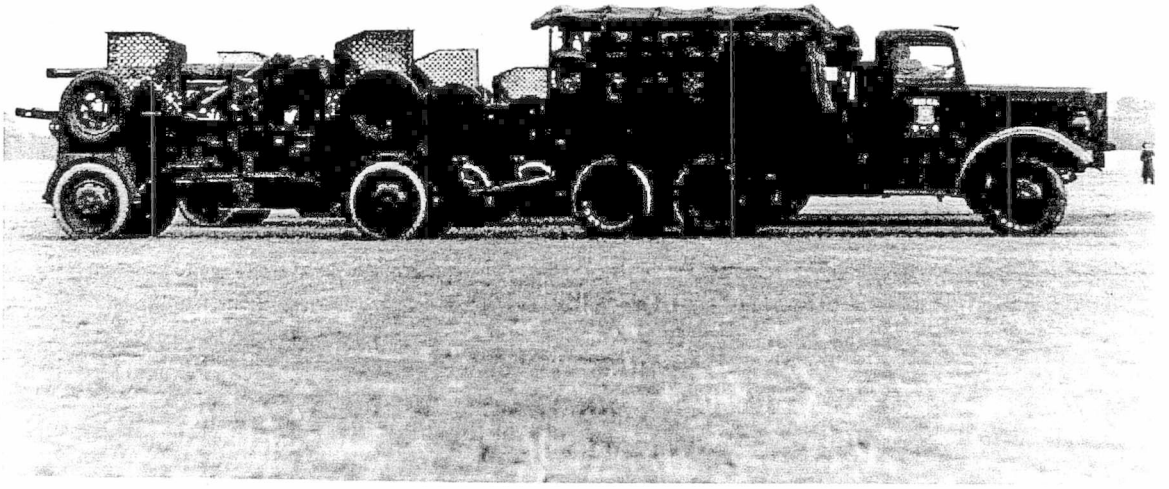
At Fort Hamilton, the following batteries were available:

Battery Doubleday, two 12-inch disappearing guns - 240 rounds
Battery Brown, two 12-inch disappearing guns - 240 rounds
Battery Livingston, two 6-inch barbette guns - 339 rounds
Battery Johnston, two 6-inch barbette guns - 491 rounds
Battery Griffin, two 3-inch barbette RF guns - 336 rounds

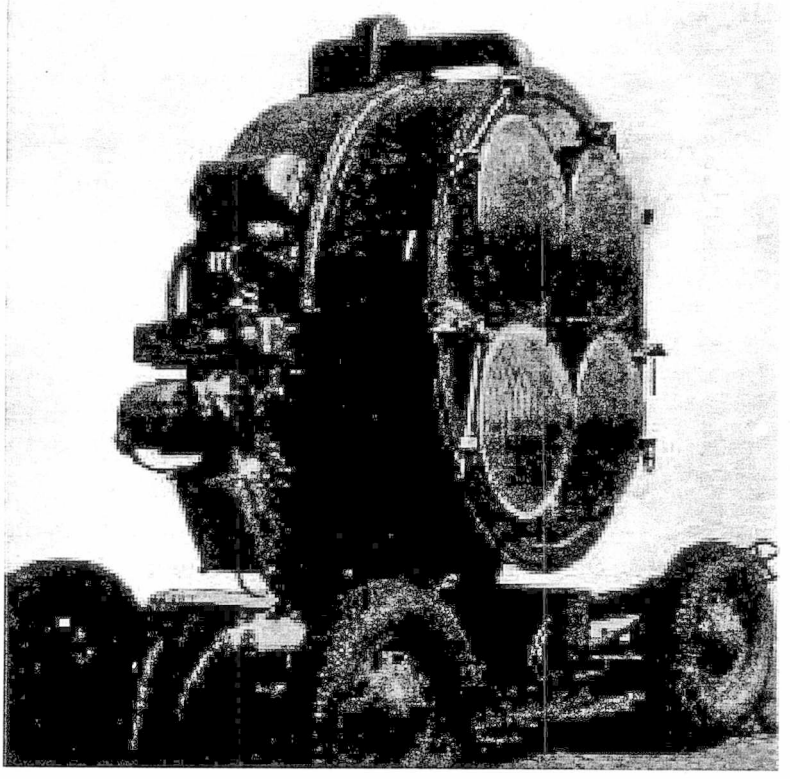
At Fort Wadsworth, the following batteries were available:

Battery Dix, two 12-inch disappearing guns - 480 rounds
Battery Mills, one 6-inch disappearing gun - 300 rounds
Battery Catlin, six 3-inch barbette RF guns - 1201 rounds
Battery Turnbull, six 3-inch barbette RF guns - 701 rounds

The mobile 155 mm gun battery at Fort Wadsworth was not ready for service, with no ammunition, field wire, or telephones. There were two AA gun batteries in HD SNY, each with three 3-inch M1917 AA guns on fixed carriages. Neither was serviceable. They had no ammunition; their fire control system was not complete as they lacked their two directors; one battery had no height-finder, field wire, or telephones, as well as being short eight 60-inch portable AA searchlights.(95)



A 3-inch M3 AA gun towed by a prime mover of the 213th CA (AA), ca 1941. *Author's Collection*

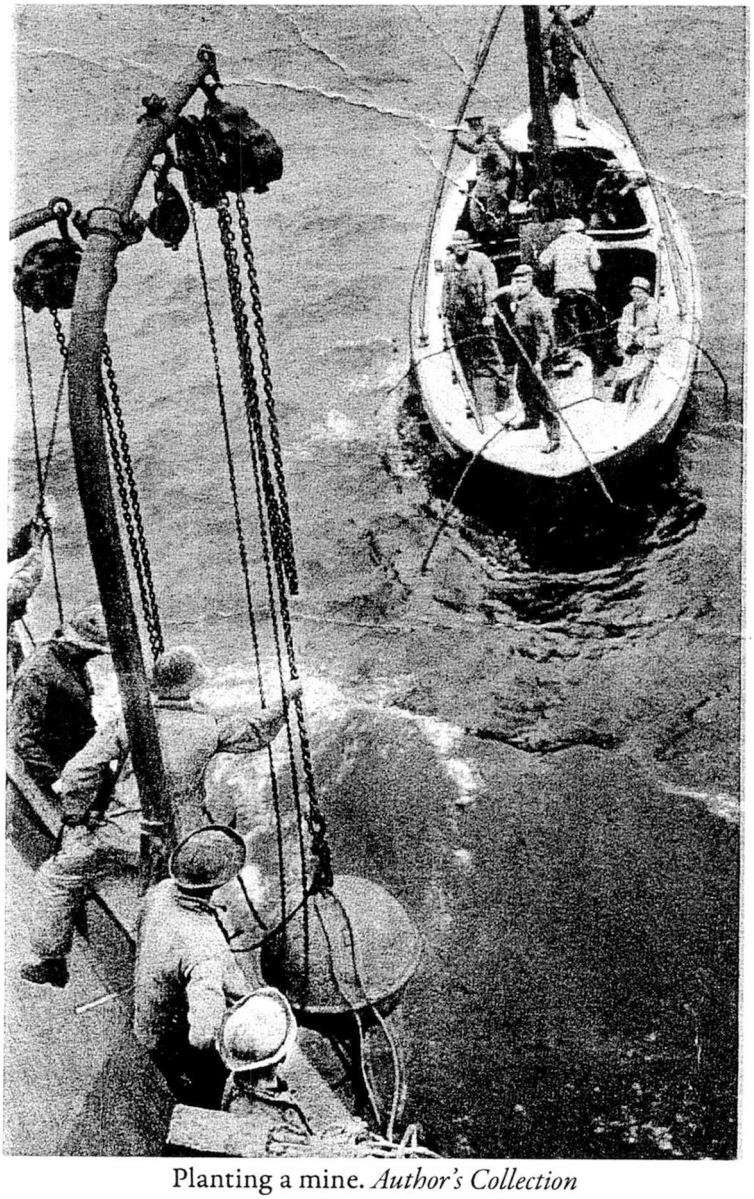


M1941 60-in portable searchlight with spread beam attachment. *Author's Collection*

The antiaircraft defenses for the New York area initially fell to the 62nd CA (AA) Regiment from Fort Totten and later to elements of the 38th CA (AA) Brigade, ordered from Camp Stewart, GA, December 12, 1941. The brigade headquarters was established at Fort Totten and the 213th CA (AA) Regiment arrived at Fort Hamilton December 22. On January 1, 1942, elements of the 213th CA

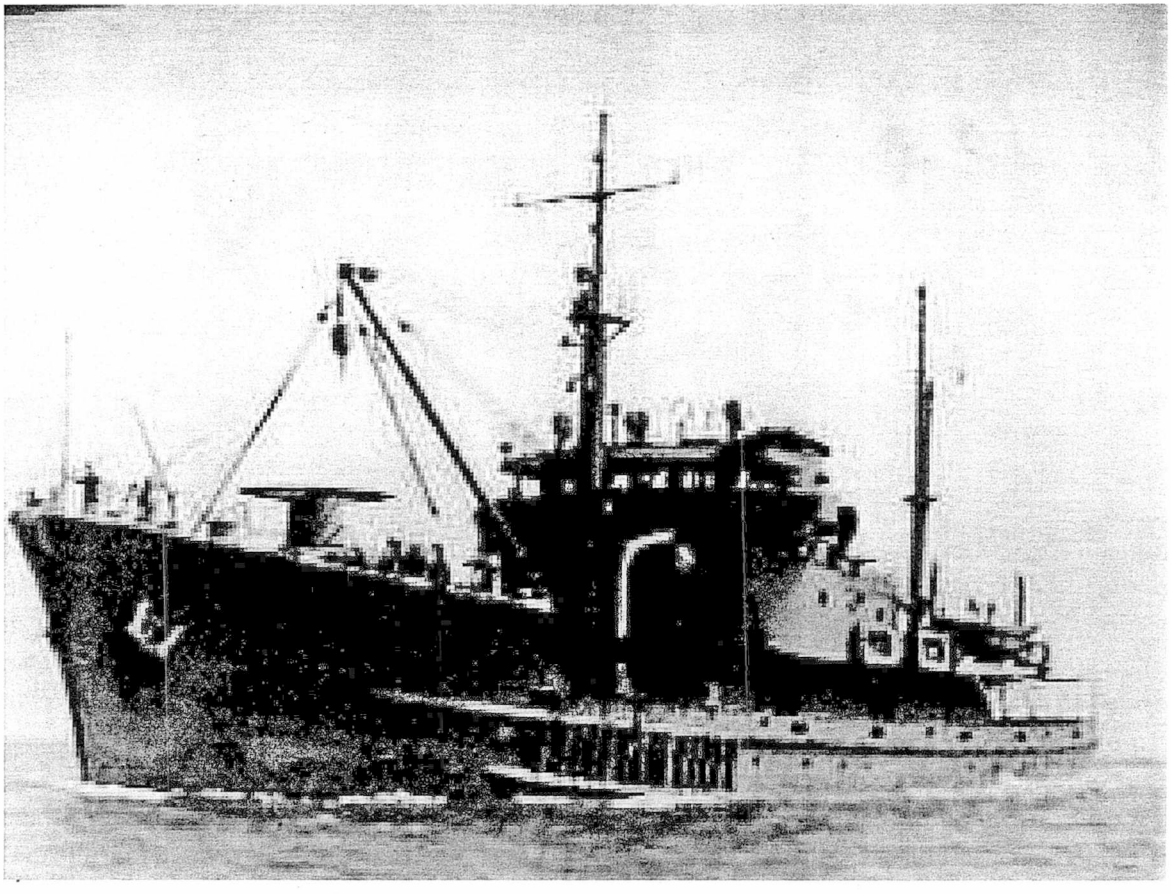
moved across to Fort Wadsworth, where they manned the AA defenses of the Narrows until June 7, 1942. The 62nd CA (AA) Regiment's primary mission was the AA defense of the Brooklyn Naval Yard, consequently it was not available to man AA defenses of the harbor defense. There were two fixed and two portable 60-inch seacoast searchlights on hand and serviceable.

The mine command at the Narrows, just Battery A, 5th CA, was also inadequately supported. It was short its mine planter and a distribution box (DB) boat. The USAMP *General E.O.C. Ord*, and the US Army Cable Ship *Joseph Henry,* a former mine planter, were assigned to the Sandy Hook defenses, where both vessels were fully occupied planting the outer minefields. The Coast Guard buoy tender USCGC *Spruce* (WAGL-246) was made available "on two days notice," August 1, 1941, as an emergency mine planter and it was believed that the Narrows, or inner, minefield could be planted in about one week. This inner minefield consisted of a single line of five groups of submarine mines between Staten and Coney Islands. Ironically, in 1919 *Spruce* had been built as US Army mine planter *Colonel Garland N. Whistler.* In the budget cutbacks of the early 1920s, the 704-ton 172-foot *Whistler* was transferred to the US Lighthouse Service as a tender on December 24, 1923, and renamed USLHS Tender *Spruce.* When the Lighthouse Service was amalgamated with the Coast Guard July 1, 1939, *Spruce* became a Coast Guard buoy tender in New York Harbor.



Planting a mine. *Author's Collection*

The army mine planters assigned to the seaward Sandy Hook minefields operated out of the Brooklyn Army Base and later from Fort Hancock. The *Spruce*, which maintained the Narrows mine groups, was based at Tompkinsville, Staten Island, where the navy's coastal frontier base operated the naval net depot, the base anti-submarine warfare training center, a section base for the inshore patrol, the naval frontier base's ship repair training unit, the anti-submarine training unit, and the degaussing range (Ambrose Channel). They picked up submarine mine materiél at the extensive Fort Wadsworth mine depot's wharf next to Battery Weed. Two new army mine planters were expected to arrive in early 1943. One would relieve the cable ship *Joseph Henry* and work with the mine planter *Ord*, while the second was projected to relieve *Spruce.* When the USAMP *Story* arrived on January 1, 1943, it was assigned to Fort Hancock. The USAMP *Maybach,* manned by the



USAMP *Maybach* underway in New York Harbor. *Author's Collection*

20th Coast Artillery Mine Planting (CAMP) Battery, arrived at New York May 13, 1943, and was assigned to Fort Wadsworth, mooring at Tompkinsville.(96)

Combat Teams and Reconnaissance Patrols Assigned as Sector Mobile Reserve

On December 12, 1941, First Army ordered II Corps to make up a battalion combat team from elements of the 113th Infantry Regiment of the 44th Division, at Fort Dix, NJ. The team was to be based at Mitchel Field on Long Island, NY, as the mobile reserve for the New York-Philadelphia Sector. The next day a second battalion combat team was ordered to the vicinity of Georgetown, DE, and a third battalion to the vicinity of Freehold NJ. Hq and Hq Co., 113th Inf., established its headquarters at Fort Hancock December 23, 1941. The combat teams were formed early in 1942, when the 199th FA Bn, with 75 mm truck-drawn guns, was reassigned as part of the sector mobile reserve, along with elements of the 177th Engineer Bn, 119th QM Regiment, and the 119th Medical Regiment. The 1st and 3rd Bns, 113th Inf., were assigned to the New York Sub-Sector.(97)

New York's Separate Harbor Defenses Merged into a Single Command

While the beginning of the war appeared to find New York Harbor's defenses with a somewhat archaic organizational structure consisting of three separate harbor defense commands, this "disunity" of command was more appearance than reality, as the Harbor Defenses of Sandy Hook operated as the superior command of the harbor defenses, under Brig. Gen. Phillip S. Gage.(98)

The army also occupied Hoffman and Swinburne Islands, small, man-made isles at the south end of the Narrows off South Beach, Staten Island. Hoffman Island, the larger of the two, had been taken over from the US Public Health Service as a training station for the US Maritime Service. Here, a small detachment from Battery A, 5th CA, operated the primary station for Minefield No. 5 in the upper reaches of Lower New York Bay. Later in the war, Swinburne Island was the site for an AMTB battery. (99)

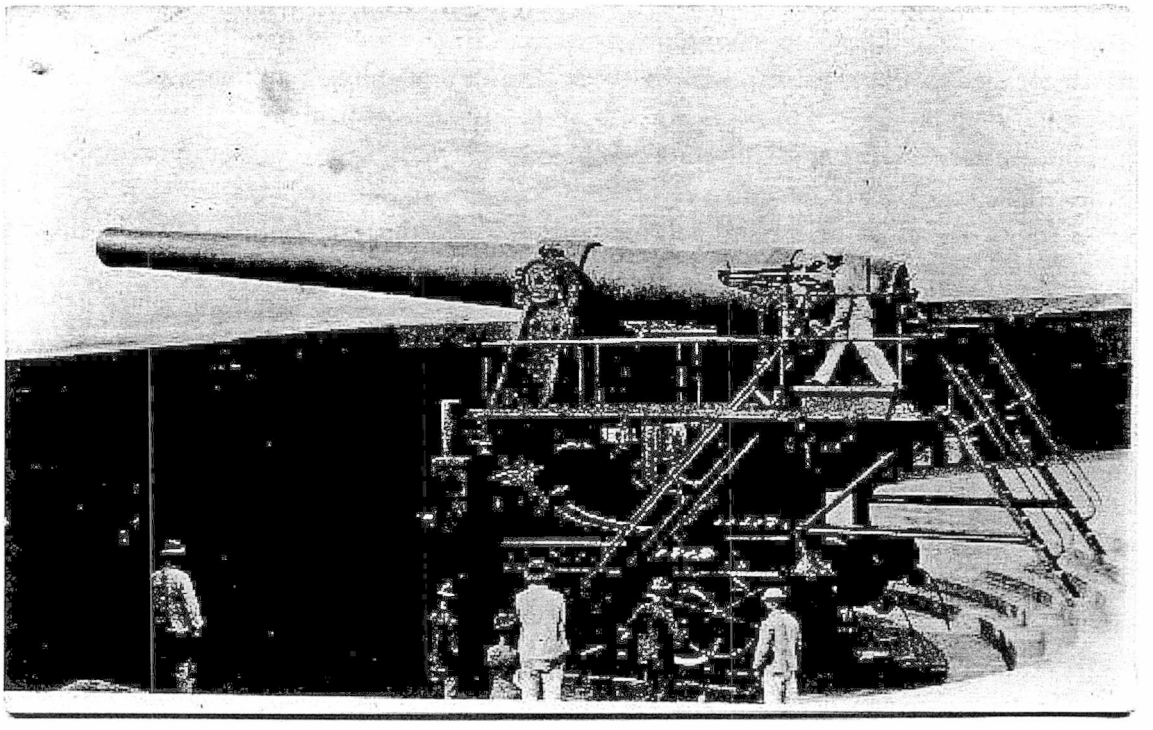
On May 5, 1942, the separate harbor defenses for New York were inactivated and the Harbor Defenses of New York constituted and activated with Hq and Hq Battery of the HD of New York (HD NY) at Fort Hancock, by order of Brig. Gen. Ralph E. Haines, commanding the New York–Philadelphia Sector, Eastern Defense Command (EDC). This action made the defense of New York City and its harbor more efficient. Brig, Gen. Phillip S. Gage, commanding HD of Sandy Hook, was placed in command of HD NY. General Gage had essentially been commanding the three harbor defense commands as a single organization since December 1941, and the action by the sector simply formalized the merger.

In order to release as many able bodied men for service overseas as possible, most of the harbor defense regiments in the EDC, including the 5th CA, were designated "limited service units" on November 11, 1942. Limited service units were to have their general service personnel gradually reduced as limited service personnel to replace them became fully trained. Meantime, all elements of the 5th CA were moved to Fort Wadsworth with the exception of Battery D and a detachment from regimental Hq Battery, which remained at Fort Hamilton. By January 1, 1943, the 5th CA had 37 officers, two warrant officers, and 785 enlisted men.(100)

Housing to accommodate the 5th CA, the newly organized station complements, and other supporting elements at Forts Hamilton and Wadsworth was generally sufficient. Fort Hamilton's permanent and mobilization-type housing for 2,137 men was more than sufficient for the small coast artillery contingent assigned to that post. At Fort Wadsworth, mobilization barracks for only 386 men were required in addition to the permanent barracks that housed 1,219 men. That post also had 31 sets of married officers' quarters, although 20 officers were accommodated in mobilization-type structures. The post also boasted a 119-bed permanent hospital. When Battery Turnbull was relocated to the southeast corner of the post, theater-of-operations-type housing was provided for 88 men. Miller Field also had permanent housing for some 200 men, as well as 14 sets of permanent married officers' quarters. Another 102 men were housed in theater-of-operations barracks.(101)

By autumn of 1942, it was becoming increasing clear that major enemy naval units did not pose a threat to the Atlantic seaboard of the United States. Consequently, the EDC directed that the "C" category of defense be reduced to "B" for all seacoast batteries in excess of 6-inch calibers, with the exception of mobile 155 mm GPF guns. The "C" category continued to be maintained at all other installations such as fire control stations, searchlights, etc. In HD SNY, the 12-inch disappearing guns of Batteries Harvey Brown and Dix were to be kept in class "B" maintenance status, pending completion of the modern batteries.

The shortage of antiaircraft troops in the New York area, coupled with the impending departure of the 62nd CA for England in July 1942, resulted in the organization of the 701st Provisional Antiaircraft Regiment at Fort Totten, May 20, 1942; the provisional designation was dropped October 1. When the regiment was activated, one battery manned the fixed AA battery at Fort Totten, while other batteries manned the fixed AA batteries at Forts Hamilton, Wadsworth, Tilden, and Hancock. By March 1943, the 701st CA (AA) Regiment had been ordered to Camp Miles Standish, MA, and the AA defenses at Forts Hamilton and Wadsworth was reassigned to the harbor defense troops. The 701st CA (AA) Regiment was broken up September 1, 1943, and its elements redesignated.(102)



One of Battery Dix's 12-inch guns. *Author's Collection*

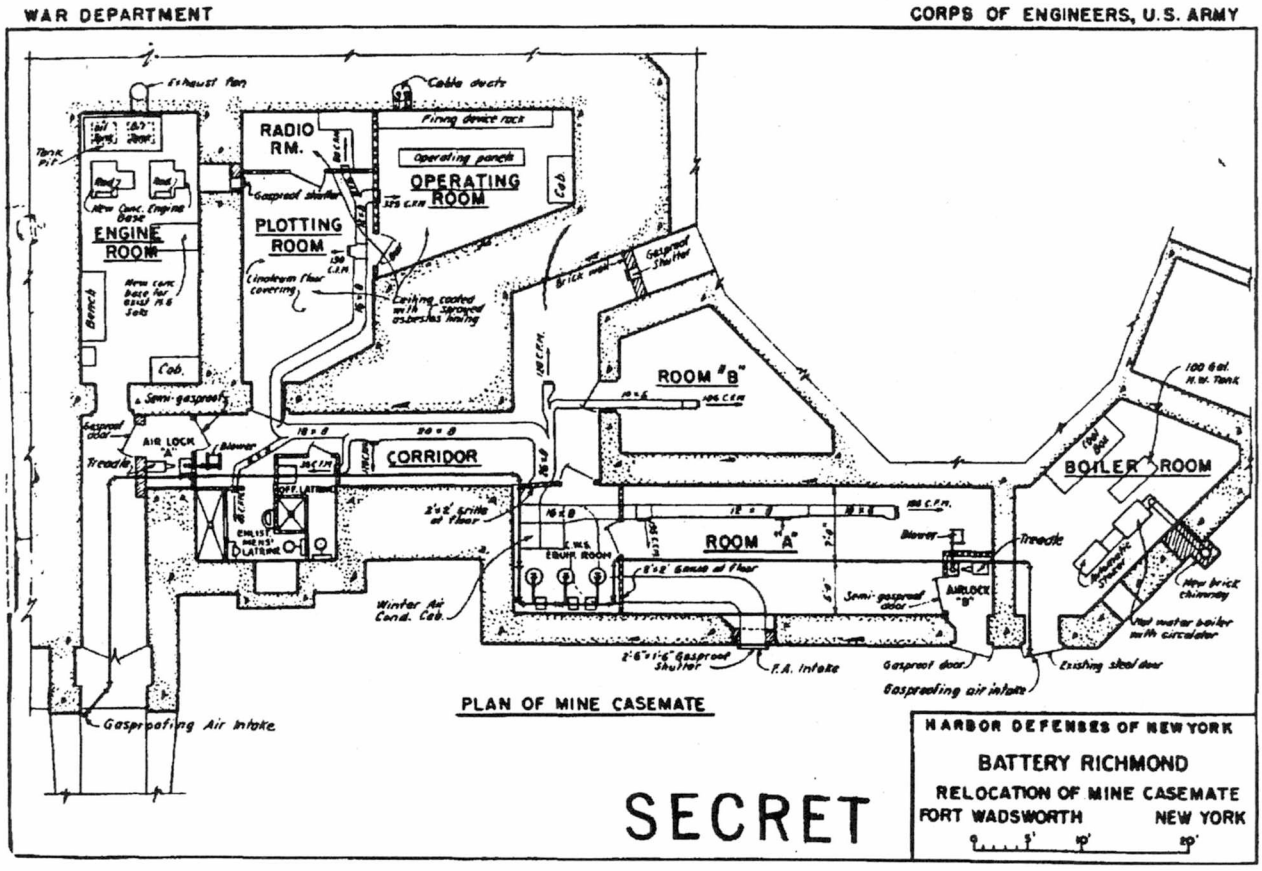
Salvaging the Armament at the Narrows

By 1941, Fort Hamilton's seacoast gun and mortar batteries had for the most part been abandoned and most were at least partially disarmed. The abandonment of the batteries was partially because they were obsolescent and superseded by more powerful and longer-range batteries at Forts Hancock and Tilden, and partially because of the absence of personnel to man them. The War Department eventually ruled on October 19, 1942: "Due to the shortage of enlisted personnel, no activation of units to be employed within the continental United States can be favorable considered at this time." Army manpower shortages continued to be a problem in HD SNY, eventually resulting in the abandonment of all batteries greater than 6-inch. On November 3, 1942, sector headquarters determined that Batteries Johnston at Fort Hamilton and Mills at Fort Wadsworth should be placed in class "C" caretaking status. The "active season," when the guns would be used for training, for Batteries Doubleday and Brown at Fort Hamilton and Battery Dix at Fort Wadsworth would be limited to April 1 to September 30 each year. On November 12, 1942, orders for the disposition of much of the remaining armament at Forts Wadsworth and Hamilton were issued. The gun tubes of Batteries Upton, Richmond, Ayres, and Hudson at Fort Wadsworth and Battery Gillmore at Fort Hamilton were to be turned over to the Ordnance Officer, Second Service Command, and their disappearing carriages were to be scrapped. (103)

Although the massive concrete monoliths of the Endicott Era were being phased out of service, use of the structures did not end. The battery magazines and storerooms would be adapted for general storage and some batteries would continue to have a tactical mission. In 1942, Battery Neary's magazines between Emplacement 1 and 2 were converted into a fire control switchboard and radio room, heated by a coal-fired boiler with automatic stoker. Flush-type latrines were provided and an emergency electric generator installed.

The sector Hq established its command post at Fort Hamilton at the beginning of the war and later in 1942 work was commenced on a bombproof sector command post. Long abandoned Battery Piper was chosen for the command post and $3,751.57 was made available to modify the old battery's magazines. Upon completion, the Chemical Warfare Section (CWS) provided the battery with air locks, collective protectors, and other gasproofing equipment. The modified magazines provided offices and quarters for the commanding general, a cryptographic room, a radio room and message center, and an operations room, as well as officer and enlisted latrines. Acoustical tile ceiling and wood flooring was installed, along with fluorescent lighting, air conditioning, and an oil-fired furnace.(104)

At Fort Wadsworth, abandoned Battery Richmond gained new life when it was selected for the new bombproof and gasproof mine casemate and fire control switchboard and post telephone switchboard rooms. The former magazines and storage rooms of Emplacement 2 were converted into a gasproof mine casemate. The casemate contained an operating room equipped with the firing panels for the groups of mines used in the M3 submarine mine system. Next door was a plotting room equipped with an M1906 submarine mine plotting board and a room equipped with telephone and radio communications. An engine room contained two generators to power the casemate and minefield. A coal-fired boiler provided hot water and heat in winter. Two rooms provided sleeping accommodations for officers and enlisted personnel. Two latrines were adjacent to the CWS air locks. There were two entries to the casemate, each with an airlock. At the opposite end of the battery, in the magazines and storage rooms of Emplacement 1, air locks afforded entry to the fire control switchboard room, the post telephone switchboard room, and a restroom.(105)

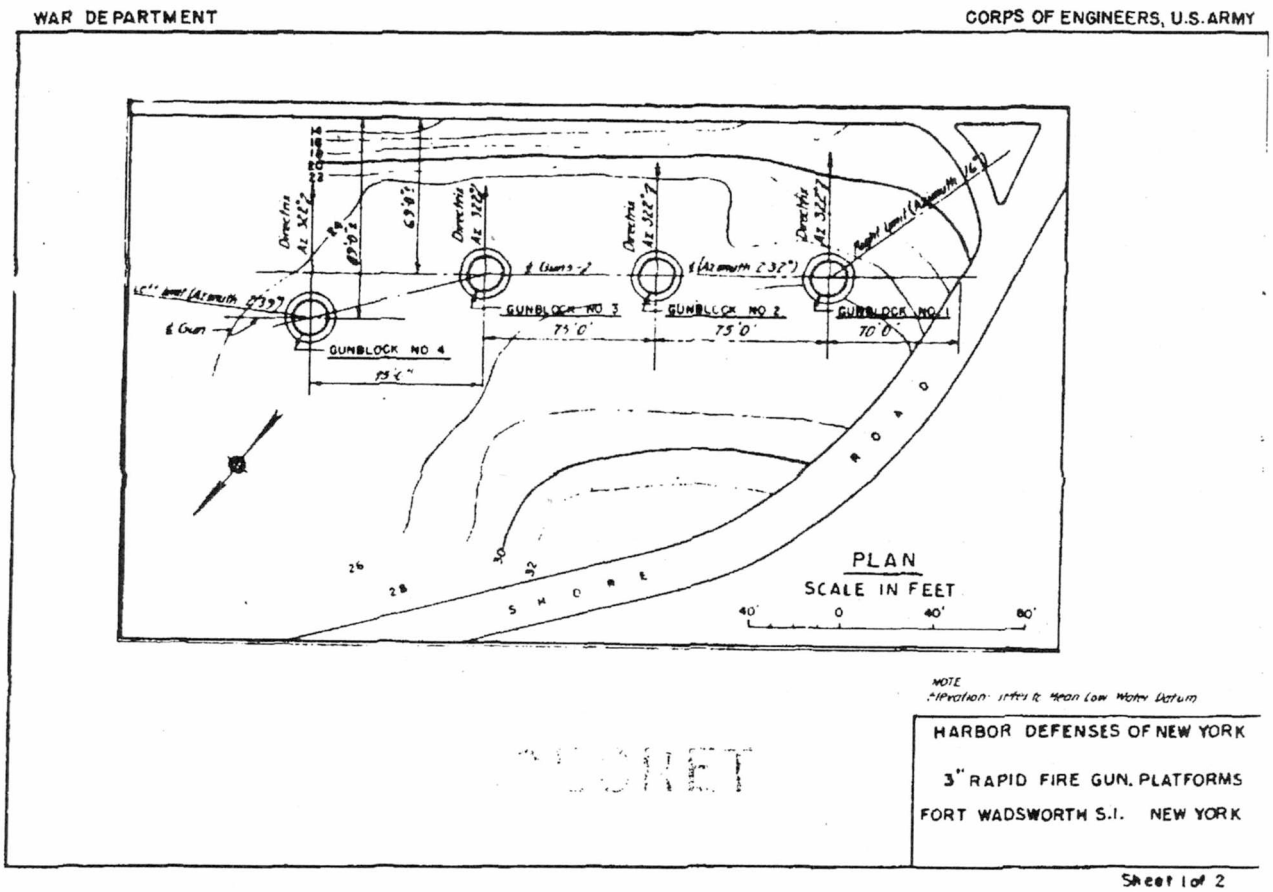


New mine casemate relocated to Battery Richmond. *NARA*

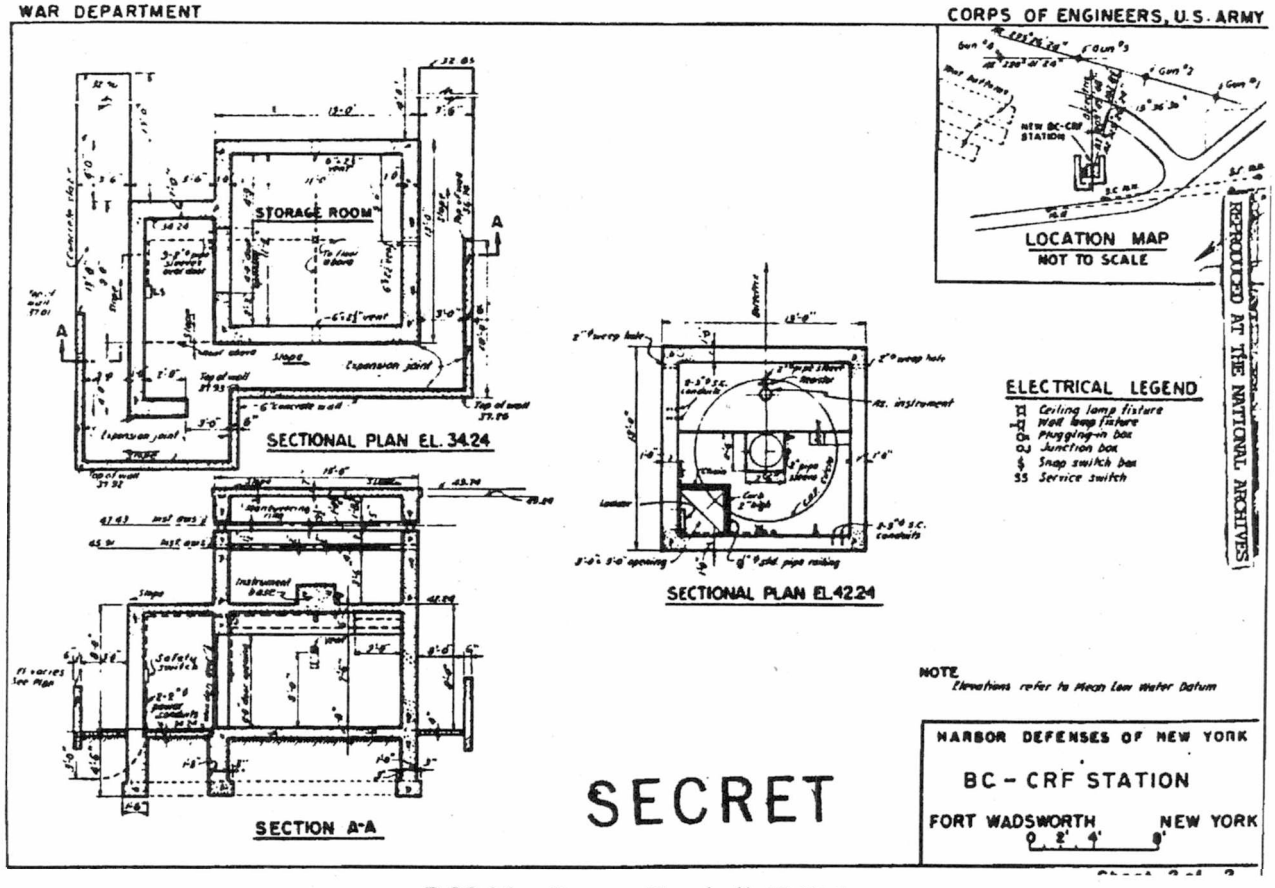
Anti-Motor Torpedo Boat (AMTB) Batteries Established

One of the first problems to be confronted in the harbor defenses early in 1942 was that of attack by motor torpedo boats. These fast and highly maneuverable small boats posed a threat that the existing seacoast armament had not been designed to counter. The War Department was working rapidly to adapt the newly developed 90 mm AA gun, but until that was perfected, the harbor defenses were to utilize 37 mm automatic weapons and 3-inch seacoast guns, as well as fixed and portable 3-inch and 90 mm AA guns as extemporized AMTB weapons. The 5th CA was authorized to re-site these weapons as necessary to prevent penetration of the harbor by torpedo boats.

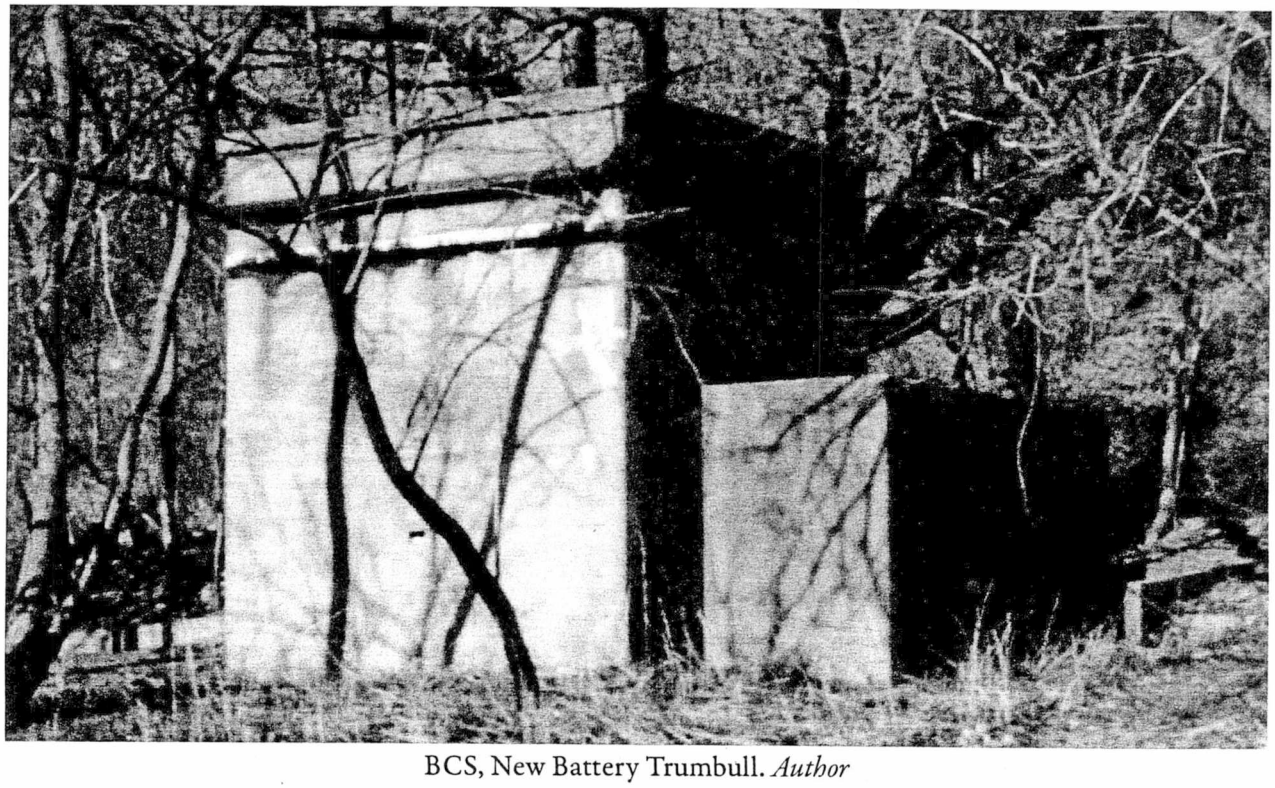
By April 1942, a plan had been developed to relocate four of Battery Trumbull's guns and six of Battery Catlin's guns to new locations to provide a better defense against enemy motor torpedo boats. Four of Battery Trumbull's 3-inch M1903 RF guns (Nos. 60, 66, 67, and 68) and barbette carriages (Nos. 37, 38, 39, and 40) were shifted to the southeast corner of the Fort Wadsworth Reservation in June 1942, where they were designated New Battery Turnbull. New Battery Trumbull was provided with four open concrete gunblocks in a line, affording all around fire. To the rear of the gun line, a two-story splinterproof station was commenced late in 1942 and completed by early 1943. The structure's lower level was used as storage while the upper level served as the BCS and coincidence range finder (CRF) station. The remaining two guns of Battery Turnbull were transferred to Fort Miles at Cape Henlopen, in the HD of the Delaware, where they were also part of a temporary AMTB battery. (106)



New Battery Turnbull. *NARA*



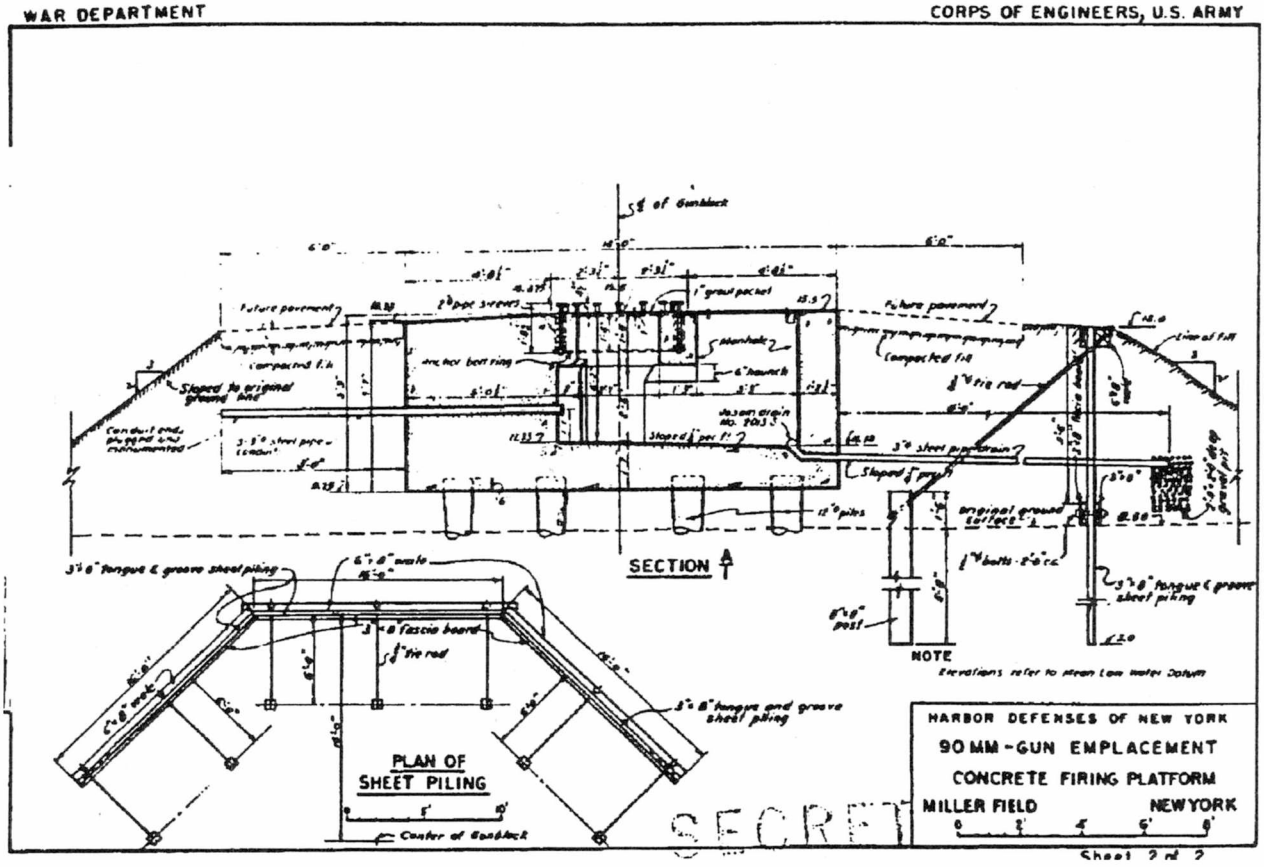
BCS, New Battery Turnbull. *NARA*



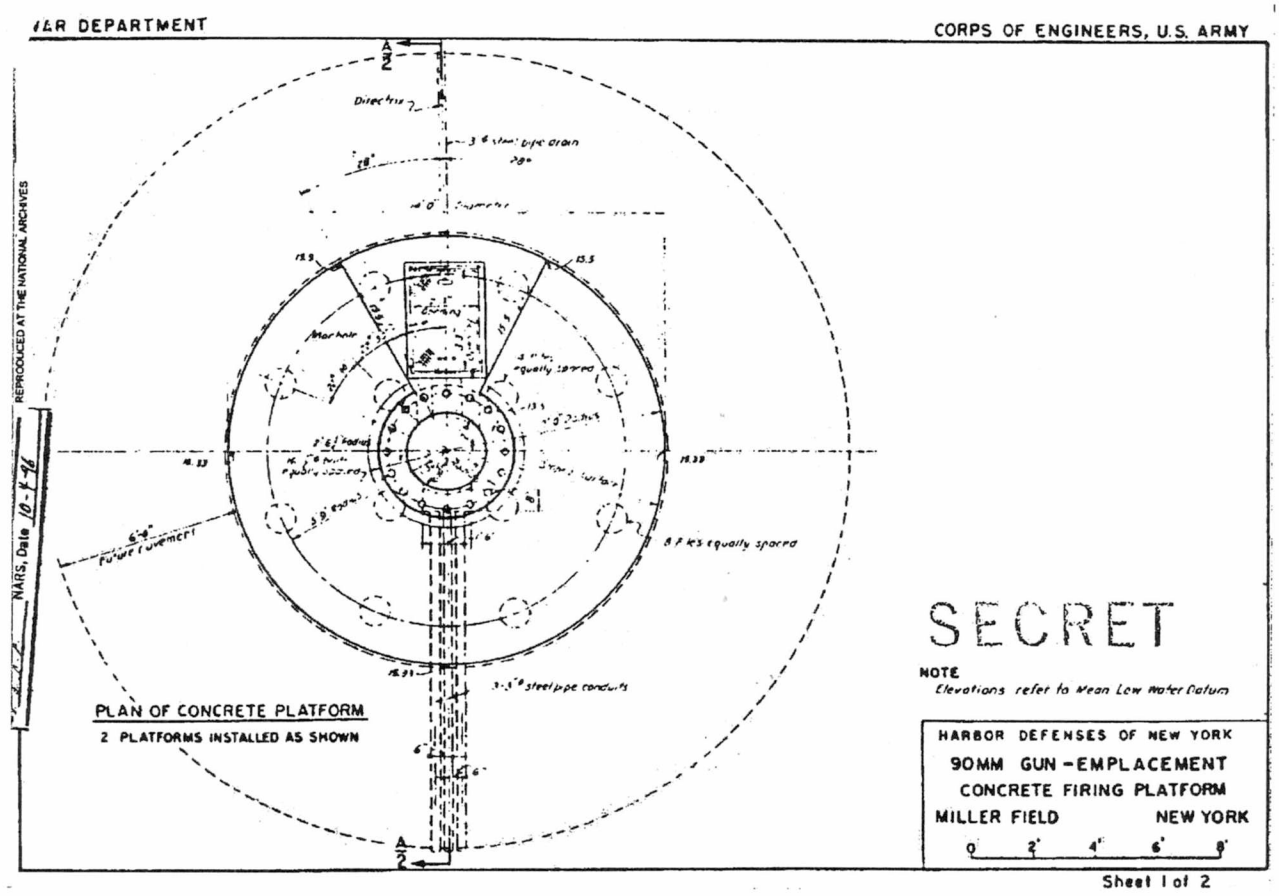
BCS, New Battery Trumbull. *Author*

In the late summer of 1942, four of Battery Catlin's six 3-inch M1902 RF guns and carriages (Nos 32, 33, 34, 35) were moved from Fort Wadsworth to Norton's Point on the Long Island side of the lower bay, near Seagate, NY. Designated New Battery Catlin, the battery was completed November 6, 1942, although it was not formally transferred to the CA until July 9, 1943. The four guns were mounted on open concrete gun blocks in a single line. The battery's combination BCS/CRF station was behind the gun line, between Guns 3 and 4. The two-story splinterproof-concrete structure sported a pitched roof to camouflage it as a seaside cottage. This structure was probably completed by late 1942, although not transferred to the coast artillery until January 3, 1944. The battery was designated Tactical Battery No. 18. The remaining two guns and carriages of Battery Catlin (Nos. 30 and 31) were shipped to Rockaway Point and designated Tactical Battery 20.(107)

A trio of 90 mm AMTB batteries would be emplaced to cover the waters of the Lower Bay and Narrows. By January 1943, the first 90 mm AMTB battery was installed at Forts Hancock, followed by a battery at Fort Tilden. These covered the channel into the Lower Bay. Typically, the AMTB batteries were equipped with four M1 90 mm guns, two on fixed M3 carriages on gun blocks 14 feet in diameter and two on mobile M1A1 carriages. The guns could rotate through 360 degrees, elevate from -8 to 80 degrees, and had a range of 8,000 yards. A crew of 15 men (9 men in the gun squad and 6 men in the ammunition squad) manned each gun. These guns were initially supplemented by a pair of 37 mm automatic weapons; by the last year of the war these had been replaced by a pair of 40 mm weapons. The first AMTB battery, AMTB Battery 19, was adjacent to New Battery Catlin at Norton's Point. Construction began on February 1, 1943, and was completed March 30, 1943. The battery was



90 mm AMTB battery at Miller Field. *NARA*



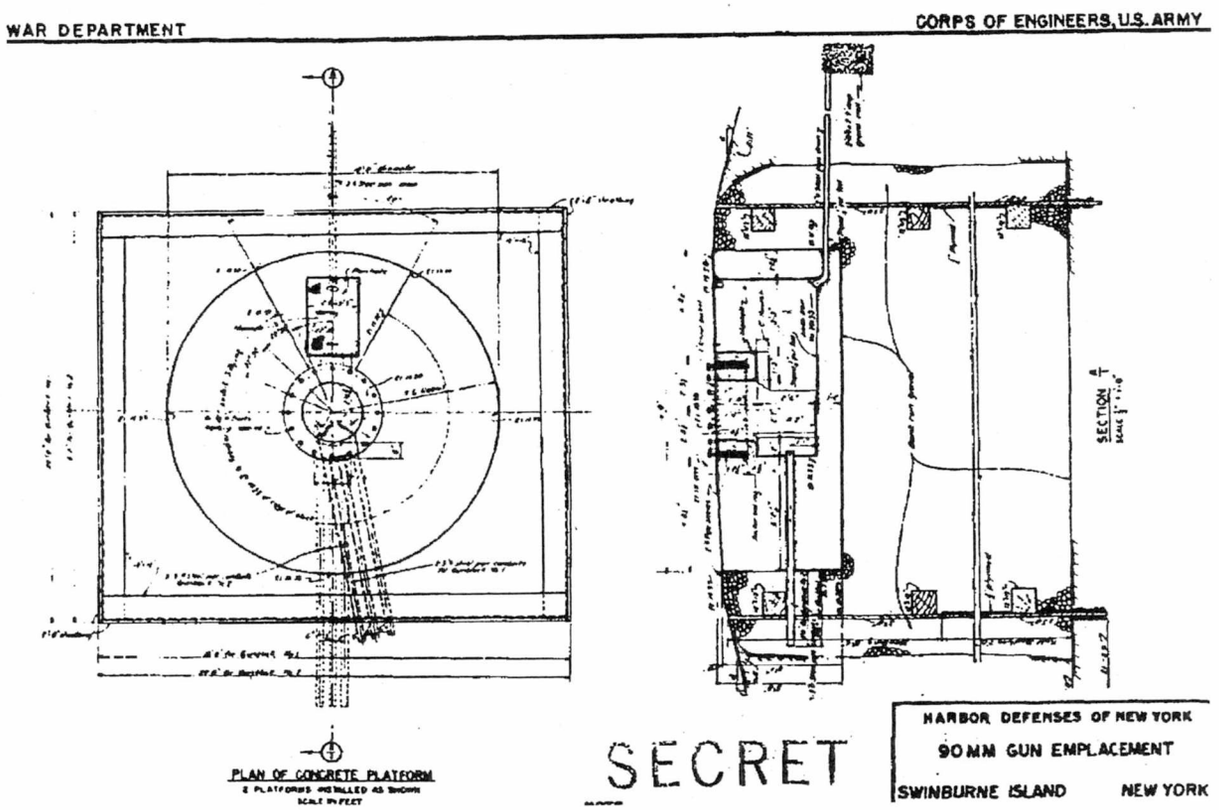
Firing platform for 90 mm AMTB at Miller Field. *NARA*

transferred April 14, 1943, but its four 90 mm M1 guns were not emplaced until September 1943. These guns were supplemented by the four 3-inch RF seacoast guns emplaced there in the late summer of 1942.

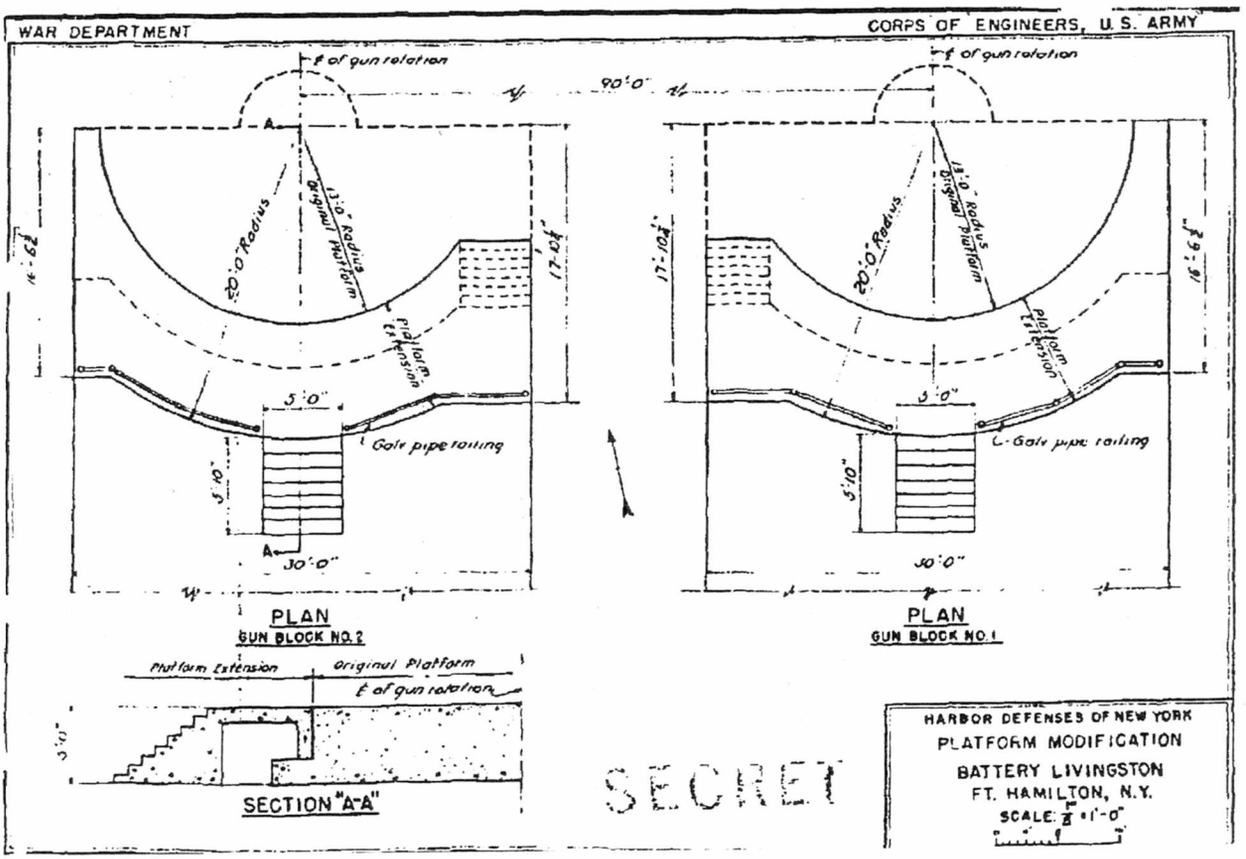
The second battery was commenced on Staten Island at Miller Field, April 13, 1943. Later that month, two 90 mm M1 guns on M1 mobile carriages were emplaced at the battery. Construction was completed June 11, 1943, and two more 90 mm guns on fixed T3 carriages were emplaced in July of that year. The Miller Field battery was designated AMTB Battery No. 11. Battery M, 245th CA, helped construct and then man the Miller Field battery from February 22 to May 20, 1943, and Battery G, 245th CA, was assigned from May 20 until December 2, 1943, when they were relieved by Battery K, 245th CA. Battery K manned the Miller Field battery until March 1, 1944, when they moved to Fort Wadsworth.

The third AMTB battery at the Narrows, a pair of M1 90 mm guns, was commenced April 20, 1943, and completed on July 3, 1943, on Swinburne Island, just off South Beach, Staten Island. Its two 90 mm M1 guns on T3 (M3) shielded fixed mounts were emplaced in August 1943. The Swinburne Island battery was designated AMTB Battery No. 12. Early in 1944, EDC placed 90 mm guns on M1A1 mobile carriages in storage.(108)

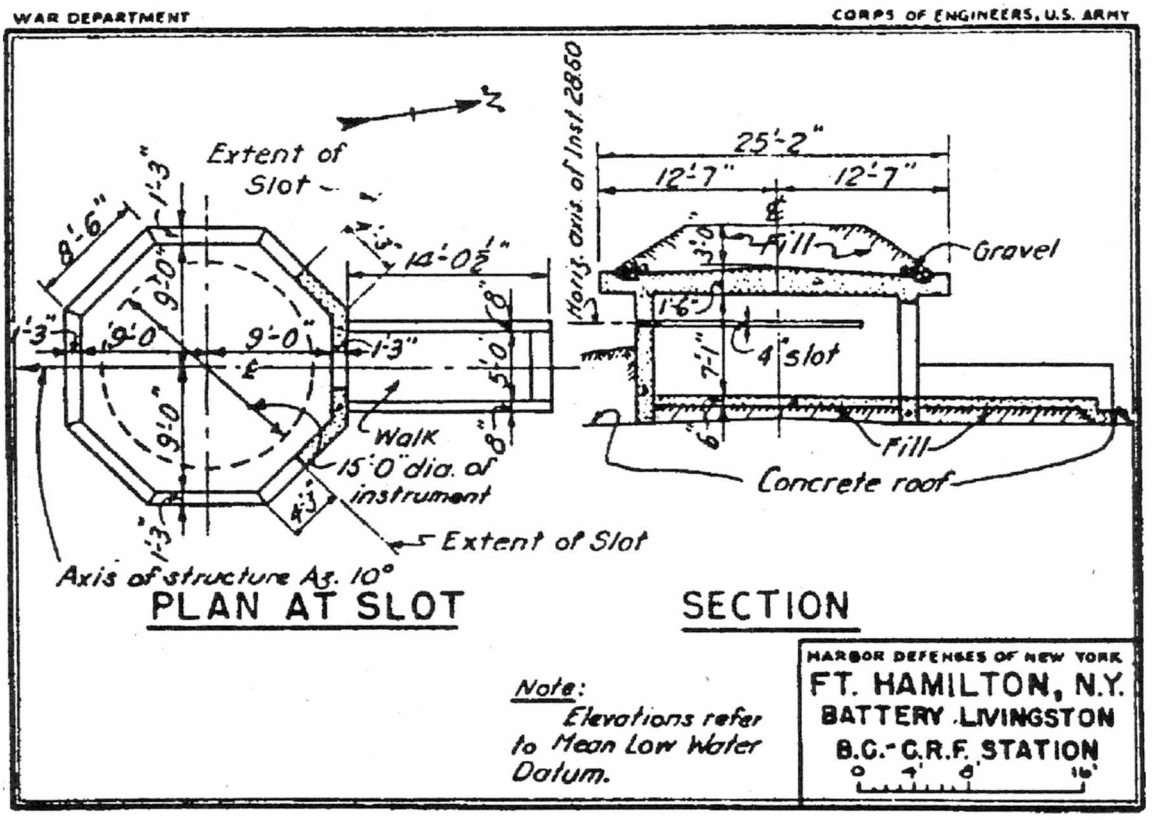
By 1943, the four 3-inch guns of the relocated New Battery Turnbull at Fort Wadsworth, the pair of barbette 6-inch gun at Battery Livingston, and Battery Griffin's pair of 3-inch RF guns were the only remaining Endicott-era batteries in service. Battery Livingston's Emplacements 1 and 2 had been remodeled in 1941, extending their loading platforms seven feet and building stairs up to the plat-



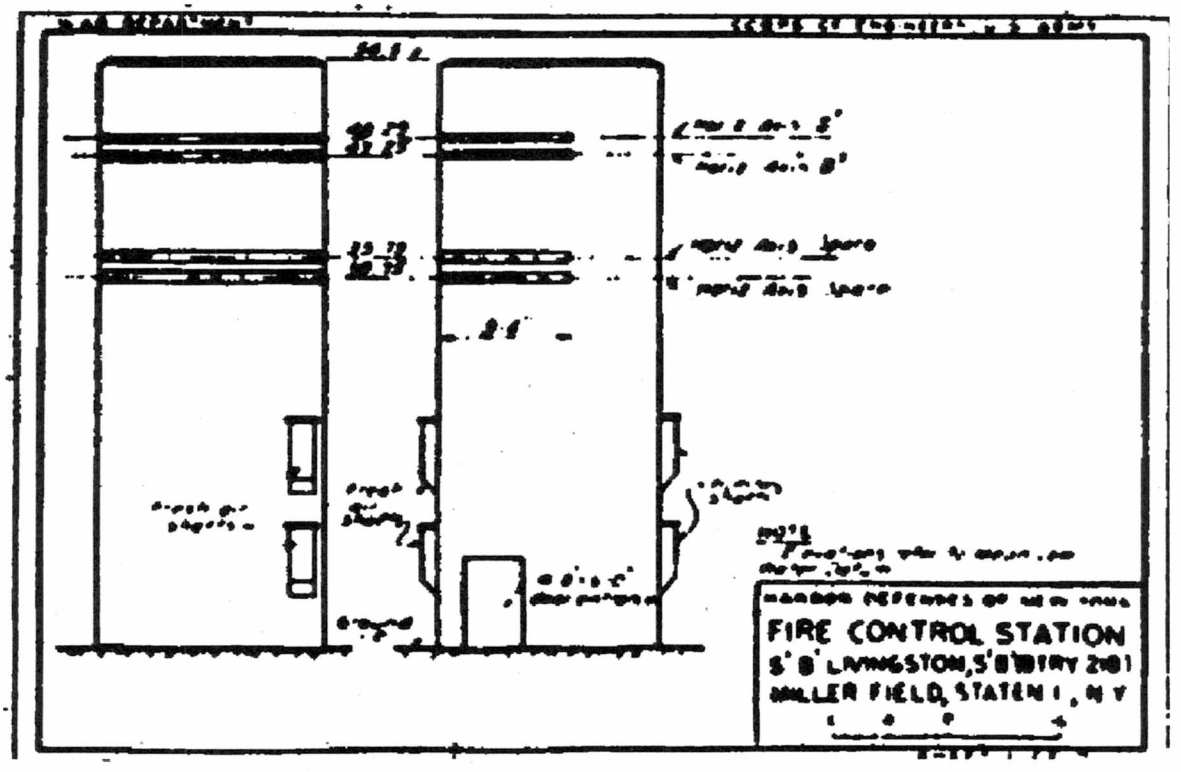
90 mm AMTB emplacement at Swinburne Island. *NARA*



Battery Livingston's remodeled emplacements. *NARA*



New splinterproof BCS and CRF station, Battery Livingston. *NARA*

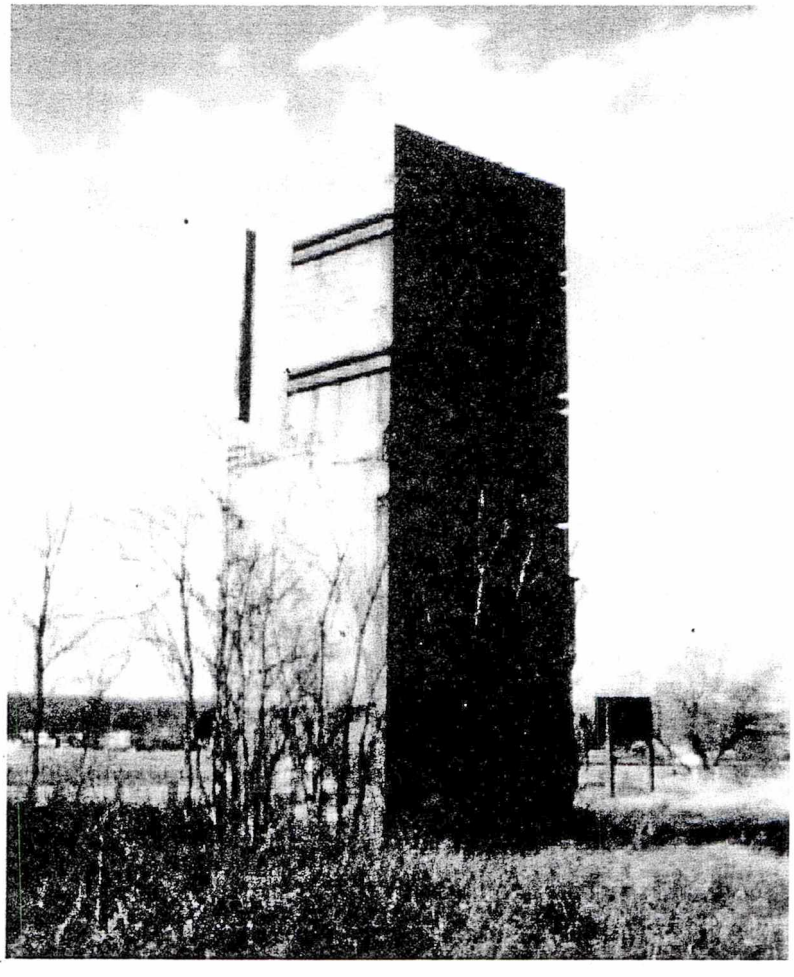


Miller Field base-end station for Battery Livingston and BCN 218. *NARA*

forms. In September 1943, splinterproof-concrete BCS/CRF had been constructed at both Batteries Livingston and Battery Griffin.(109)

A 70-foot long, 24-foot 8-inch-wide sheet metal building on concrete footings was erected in 1943 at Fort Hamilton to store six portable 60-inch searchlights and their portable electrical generators, one of the very few harbor defense structures built at the Narrows during World War II. A similar but slightly smaller (60 feet long by 24 feet 8 inches wide) building for another four portable searchlights and generators was erected in the south-central section of Fort Wadsworth.(110)

At Miller Field, a 44-foot splinterproof-concrete fire control tower was also built in 1943 and transferred to the garrison in September. The uppermost station was a base end station for Battery Livingston, while the lower was for BCN 218, when that battery was completed. In 1944, a 100-foot structural-steel tower was erected for an SCR-296A fire control radar for BCN 218. The top of the tower mounted a prefabricated antenna housing. In addition to the tower, there were two generator buildings and equipment and transmitter buildings. A timber platform with ramp for a 60-inch portable searchlight was also built at Miller field in 1944 to provide illumination for Batteries Livingston, Griffin, and the Miller Field AMTB battery. The searchlight platform was transferred January 3, 1944. (111)

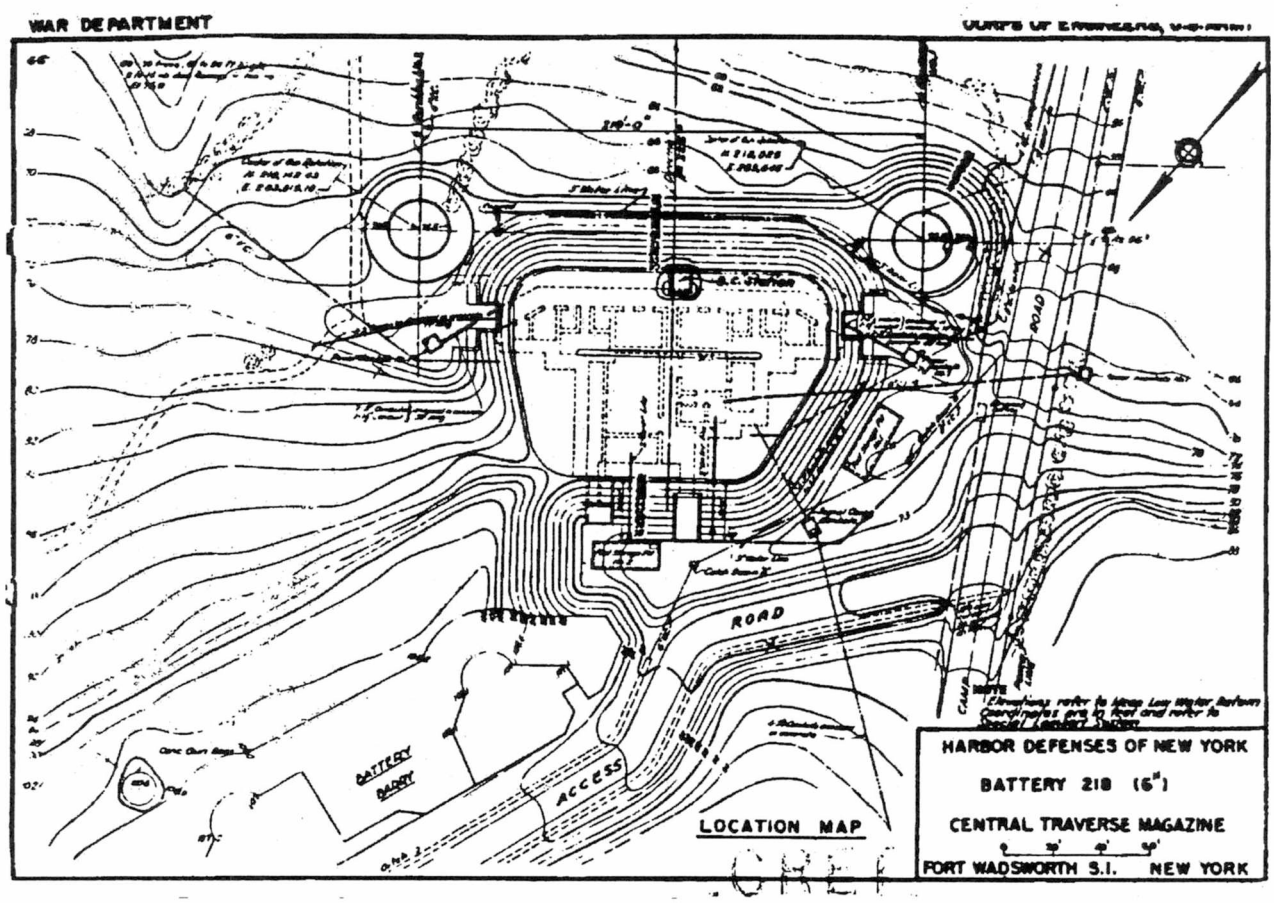


Base-end station at Miller Field. *Author's Collection*

Because the several harbor defense commands in New York had been merged into a single command, the various coast artillery regiments were shifted as the need arose. The 265th CA (HD) Regiment arrived at Fort Hancock February 16, 1943, from Key West, FL, by way of Fort Jackson, SC. Most of this former Florida National Guard regiment's batteries were assigned Forts Hancock and Tilden, but Battery C took over New Battery Catlin at Norton's Point, while Battery F took over New Battery Trumbull in July 1943. The 265th CA manned batteries in the HD New York until late December 1943, departing for Alaska on January 11, 1944.(112)

Hq and Hq Battery, 245th CA (HD) Regiment, along with Batteries D and N, also moved to Fort Wadsworth early in 1943. By late summer, Battery D had been shifted out to Swinburne Island to man the new 90 mm AMTB battery there, while Battery N manned the AA guns and radar on Staten Island. By this time, however, the various elements of the 5th CA were preparing to move to Forts Tilden. On May 20, 1943, Hq and Hq Battery and Battery D, 5th CA, moved to Fort Tilden, while Battery B, 5th CA moved to Fort Hancock. Battery A, 5th CA, continued to man Battery New Turnbull until relieved by Battery F, 265th CA, in July.(113) 113.

Hq and Hq Battery, 4th Bn, 245th CA, was posted at Fort Wadsworth from March 22 until May 20, 1943, when it moved to Norton Point. On May 20, 1943, Hq and Hq Battery, 3rd Bn, and Batteries H and I, 245th CA, were posted at Fort Wadsworth, and Hq and Hq Battery, 3rd Bn, moved to Norton Point November 23, 1943. Battery I was transferred to Fort Tilden October 1, 1943, and Battery H moved to Fort Tilden December 2, 1943. Battery L, 245th CA, manned the batteries at Norton Point from November 23, 1943, until February 22, 1944, when it too moved to Fort Wadsworth.



BCN 218 in front of the right flank of obsolete Battery Barry. *NARA*

By November 1, 1943, the modernization program for New York Harbor was sufficiently advanced to eliminate the last Endicott-era seacoast batteries. These batteries had been largely used for training during the past year and were no longer essential to the defense. On November 9, 1943, the War Department authorized disposal of Battery Dix at Fort Wadsworth, Batteries Brown and Doubleday at Fort Hamilton, the remaining 6-inch disappearing gun of Battery Mills at Fort Wadsworth, and Battery Johnston's pair of 6-inch disappearing guns at Fort Hamilton. Only the guns of Battery New Turnbull at Fort Wadsworth remained in service at the end of 1943, those of Battery Griffin at Fort Hamilton having been placed in maintenance status.(114)

On February 1, 1944, the HD of New York was composed of the following units:(115)

Hq, New York Subsector, Ft Hancock
Hq and Hq Battery, HD NY, Ft Hancock
HECP HD NY, Ft Wadsworth
Advanced HECP No. 1, Ft Hancock
Advanced HECP No. 2, Ft Tilden
Hq and Hq Battery, 7th CA (HD) Regiment, Ft Hancock
Hq and Hq Battery, 1st Bn, 7th CA (HD) Regiment, Ft Hancock
Hq and Hq Battery, 2nd Bn, 7th CA (HD) Regiment, Ft Hancock
Batteries A, B, C, D (-det), & E, 7th CA (HD) Regiment, Ft Hancock
Battery D (det) and F, 7th CA (HD) Regiment, Ft Totten
Hq and Hq Battery, 245th CA (HD) Regiment, Ft Wadsworth
Band, 145th CA (HD) Regiment, Ft Hancock
Hq and Hq Battery, 1st & 2nd Bns, 245th CA (HD) Regiment, Ft Hancock
Hq and Hq Battery, 3rd Bn, 245th CA (HD) Regiment, Ft Tilden
Hq and Hq Battery, 4th Bn, 245th CA (HD) Regiment, Norton's Point
Battery A, B, E, & F, 245th CA (HD) Regiment, Ft Hancock
Battery C & N (-AA Plt), 245th CA (HD) Regiment, Ft Wadsworth
Battery D, 245th CA (HD) Regiment, Swinburne Island, Ft Wadsworth
Battery G, H, I, & N (AA Plt), 245th CA (HD) Regiment, Ft Tilden
Battery K, 245th CA (HD) Regiment, Miller Field
Battery L, 245th CA (HD) Regiment, Norton's Point
Battery M, 245th CA (HD) Regiment, Rockaway, Ft Tilden
Hq & Hq Battery, 5th CA (HD) Regiment, Ft Tilden
Battery A, 5th CA (HD) Regiment, Ft Wadsworth
Battery B, 7th CA (HD) Regiment, Ft Hancock
Battery D, 7th CA (HD) Regiment, Ft Tilden
5th CA Mine Planter Battery, USAMP *General Ord,* Brooklyn Army Base
15th CA Mine Planter Battery, USAMP *Story,* Ft. Jay, Governors Is.
20th CA Mine Planter Battery, USAMP *Maybach,* Tompkinsville, S.I.

With the departure of the 5th CA from Fort Hamilton, Battery Griffin was placed in Class C maintenance and the fort left in the hands of Hq, 113th Infantry RCT; 199th FA Bn; 2nd Bn, 132nd Engineers; and 671st Collection Co. (Sep). Fort Wadsworth was similarly left almost devoid of a coast artillery presence, only Battery A of the 5th CA remaining.

By the end of 1943, the New York Subsector had been stripped of most of its non-harbor defense functions, especially with the removal of the infantry battalion combat teams. Effective March 1, 1944, the EDC was reorganized. The New York-Philadelphia Sector and its subsectors were closed, and the EDC was restructured with two new sectors, the Northeastern and the Southeastern. Initially HD NY came under the direct control of the Southeastern Sector. On July 29, 1944, the northern boundary of the Southeastern Sector was adjusted to conform to the northern boundaries of Merced and Monmouth Counties, NJ, and HD NY became a part of the Northeastern Sector effective August 1, 1944.(116)

Concurrent with the reorganization of the EDC in March 1944, the harbor defenses were further reduced. The 5th CA Regiment was transferred to Camp Rucker, AL, on March 11, 1944, where it was inactivated April 19, 1944, and disbanded June 26. The 7th CA that had garrisoned the Sandy Hook defenses since 1924 was transferred to Fort Leonard Wood, MO, and Camp Chaffee, AR, March 13, 1944. The 7th CA was inactivated April 7, 1944.(117)

The 245th CA Regiment continued to operate HD NY until October 1, 1944, when it was reorganized into two separate battalions: the 192nd CA (HD) Bn (Separate) and the 245th CA (HD) Bn (Separate). The elements of the 245th CA Regiment were redesignated as follows:

HHB, redesignated HHD, 245th CA (HD) Bn, Ft Hancock
Btry A, 245th CA (HD): Btry A, 245th CA (HD) Bn, Ft Hancock
Btry B, 245th CA (HD): Btry B, 245th CA (HD) Bn, Ft Hancock
Btry C, 245th CA (HD): Btry C, 245th CA (HD) Bn, Ft Wadsworth
Btry D, 245th CA (HD): Btry A, 192nd CA (HD) Bn, Swinburne Is.
Btry E, 245th CA (HD): Btry D, 245th CA (HD) Bn, Ft Hancock
Btry F, 245th CA (HD): Btry E, 245th CA (HD) Bn, Ft Tilden
Btry G, 245th CA (HD): Btry B, 192nd CA (HD) Bn, Norton Pt
Btry H, 245th CA (HD): Btry C, 192nd CA (HD) Bn, Ft Tilden
Btry I, 245th CA (HD): Btry D, 192nd CA (HD) Bn, Ft Tilden
Btry K, 245th CA (HD): Btry E, 192nd CA (HD) Bn, Miller Field
Btry L, 245th CA (HD): inactivated
Btry M, 245th CA (HD): inactivated
Btry N, 245th CA (HD): Btry F, 245th CA (HD) Bn, Ft Wadsworth
HHB 192nd CA (HD) Bn constituted and organized Ft Tilden

On March 18, 1945, the coast artillery forces remaining at Forts Hamilton and Wadsworth were minimal. Only the 90 mm AMTB batteries were still in service, and even they had been reduced to their fixed guns, the mobile 90 mm guns being in storage. The numerous radars and searchlights around the harbor also remained active, as did the 40 mm automatic weapons and machine guns. The HECP detachment of Hq and Hq Battery, HD NY, was posted in the HECP atop Fort Tompkins. Battery B, 192nd CA Bn, was posted at Norton Point manning a pair of 90 mm guns. The removal of the remaining 90 mm guns from the AMTB batteries at Miller Field, Swinburne Island, and Norton Point was authorized April 14, 1945, and on May 15, the navy ordered removal of the harbor's anti-submarine nets and booms.

The retrieval of the single line of five groups of submarine mines of the inner mine field between Staten and Coney Islands began March 21 and continued until mid-August 1945. On March 21, the Northeast Sector was abolished and HD NY reported directly to the EDC. The remaining armament

was now in Class C caretaking status. Battery E was assigned to Forts Hamilton and Wadsworth, providing caretaking detachments for the remaining armament, consisting of Battery Livingston's pair of 6-inch guns and Battery Griffin's two 3-inch RF guns at Fort Hamilton. At Fort Wadsworth, BCN 218, complete except for its gun tubes, as well as New Battery Turnbull's four 3-inch guns, a 3-in AA battery, and the two 90 mm guns AMTB guns at Miller Field were also in caretaking status. Even the light ships returned to their stations.

On June 8, the EDC directed all remaining harbor defense armaments be placed in Class C caretaking status and on June 18, the HECPs were closed and the US Coast Guard's ship reporting service took over the Fort Wadsworth HECP. The 192nd and 245th CA Battalions continued to operate HD NY until August 1, 1945, when they were inactivated and the batteries of the 245th CA (HD) Bn were redesignated batteries of HD NY. Batteries A, B, and D were assigned to Fort Hancock, Batteries C and F to Fort Wadsworth, and Battery E to Fort Tilden.(118)

Battery C, HD NY, manned Battery 218 at Fort Wadsworth, with four officers and 101 enlisted men. Battery F, HD NY, a single platoon of three officers and 48 men, was the caretaking detachment for Forts Hamilton and Wadsworth. Hq and Hq Battery, HD NY, continued to operate the harbor defenses from Fort Hancock until June 30, 1946, when it was inactivated by order of the First Army and replaced by a harbor defense caretaking detachment.(119)

In November 1946, the War Department Seacoast Defense Armament Board ("Tilton Board") chaired by Brig. Gen. Rollin L. Tilton presented its recommendations to the War Department. At New York, the Board recommended advancing the harbor defenses seaward, concentrating at Forts Tilden and Hancock. Forts Hamilton and Wadsworth were judged to have no further value as harbor defenses if the inner minefield was eliminated and the mine defenses were advanced seaward. The newly constructed BCN 218 at Fort Wadsworth (still without its guns) would no longer be necessary and could be dismantled and removed. At Fort Hamilton, Battery Livingston, the sole remaining seacoast battery, was no longer required and could be removed. Miller Field was also surplus to harbor defense needs, with the exception of the small area occupied by AMTB Battery 11, a 60-inch searchlight position, and fire control and radar sites that were to be retained. The Tilton Board also recommended retaining the AMTB battery sites at Norton Point and Swinburne Island and the searchlight position at Hoffman Island. The War Department, however, did not view the recommendations with favor to the extent they involved the expenditure of any funds.(120)

Although the two forts at the Narrows would no longer have a significant harbor defense role, their usefulness to the army had not ended, and Forts Hamilton and Wadsworth entered the postwar era with new missions that would continue for decades. Today although much diminished in area, Fort Hamilton continues to be an important army base, while Fort Wadsworth is now part of the National Park Service's Staten Island Unit of Gateway National Recreation Area.

Footnotes

1. William L. Haskin, "The First Regiment of Artillery," in Theodore F. Rodenbough and William L. Haskin, (eds.) *The Army of the United States: Historical Sketches of Staff and Line with Portraits of Generals-in-Chief* (Ann Arbor, MI: University Microfilms, 1966), p. 310. Hereafter: Haskin, "The First Regiment of Artillery."
2. *Official Army Register, 1901,* Adjutant General's Office, pp. 113-114.
3. *Annual Report of the Secretary of War*, Annual Report of the Chief of Engineers, 1898 (GPO, 1889), pp. 628-29. Hereafter: ARCE, year.
4. Willets Point was named Fort Totten in July 1898. ARCE, 1898, p. 12; 1899, pp. 176-77, 189. "Torpedo Journal," Fortification Notebook, Southern New York, Coast Defense Fortification File, 1898-1920, Entry 220, RG 77, Archives I, Washington, DC. Hereafter:" Torpedo Journal," Fortification Notebook.

5. ARCE, 1898, pp. 629-30; 1899, pp. 773-75; 1901, p. 766. Frederick R. Black, *Historic Resource Study: A History of Fort Wadsworth, New York Harbor* (Boston: NPS, 1983), pp. 112-13. Hereafter: Black, *History of Fort Wadsworth.*

6. ARCE, 1899, p. 766. "Torpedo Journal," Fortification Notebook.

7. Report of Completed Works, Mining Casemate Fort Wadsworth, Corrected to August 21, 1935, Harbor Defense Geographical File, Entry 1007, RG 77, Archives II, College Park, MD. Hereafter: RCW, battery/structure, date.

8. "Torpedo Journal," Fortification Notebook.

9. RCW, M' and M" Stations, Fort Wadsworth, corrected to July 1, 1920.

10. ARCE, 1895, pp. 7-8, 504-05; 1896, pp. 14-15, 478-79; 1897, pp. 614-18. Card File on Guns and Carriages, Entry 712, Records of the Chief of Ordnance, RG 156, Archives II. Hereafter: Gun and Carriage Card File.

11. ARCE, 1897, pp. 614-18. RCW, Battery Samuel Spear, corrected to February 2, 1922. Gun and Carriage Card File.

12. ARCE, 1897, pp. 614-18; 1898, pp. 627-28; 1899, pp. 768-69. RCW, Battery Gillmore, Corrected to July 1, 1920. Gun and Carriage Card File. "Battery Journal," Fortification Notebook.

13. ARCE, 1900, p. 833. Heitman, *Historical Register*, Vol. I, p. 457-58. Matthew Adams (comp.), *Designating US Seacoast Fortifications* (Peoria: self, 2000), p. 46.

14. Francis B. Heitman, *Historical Register and Dictionary of the United States Army from its Organization September 29, 1789, to March 2, 1903*, Vol. I (GPO: 1903), p. 909. Hereafter: Heitman, *Historical Register.* Adams, *Designating US Seacoast Fortifications*, p. 85.

15. ARCE, 1898, pp. 627-28; 1899, pp. 768-70; 1900, p. 833.

16. Heitman, *Historical Register*, Vol. I, p. 380. Adams, *Designating US Seacoast Fortifications,* p. 46.

17. Heitman, *Historical Register*, Vol. I, p. 741. Adams, *Designating US Seacoast Fortifications*, pp. 80, 85, 86.

18. ARCE, 1898, p. 627; 1899, p. 770; 1900, p. 833; 1901, p. 762. RCW, Battery Piper, corrected to July 1, 1920.

19. Gun and Carriage Card File. Heitman, *Historical Register*, Vol. I, p. 793. Adams, *Designating US Seacoast Fortifications*, p. 58

20. ARCE, 1898, pp. 627-28; 1899, p. 770; 1900, p. 833; 1901, pp. 685-86. RCW, Battery Harvey Brown, corrected to July 1, 1920.

21. Adams, *Designating US Seacoast Fortifications*, p. 58. Heitman, *Historical Register*, Vol. I, p. 251.

22. Battery Griffin's two 4.72-inch guns were removed July 28, 1913, shipped to Fort Kamehameha, and emplaced in Battery Barri. ARCE, 1898, pp. 627-28. Gun and Carriage Card File.

23. ARCE, 1899, p. 770; 1900, p. 833; 1901, pp. 685-86; 1901, p. 763; 1902, pp. 685-86. RCW, Battery Abraham Johnston, corrected to July 1, 1920. Adams, *Designating US Seacoast Fortifications*, p. 85. Heitman, *Historical Register*, Vol. I, p. 577.

24. ARCE, 1899, p. 770. The masking-parapet was Driggs-Seabury's balanced-pillar mount. Adams, *Designating US Seacoast Fortifications*, p. 61. Heitman, *Historical Register*, Vol. I, p. 478.

25. RCW, Battery Burke, corrected to July 1, 1920. ARCE, 1901, p. 763; 1902, p. 686. Heitman, *Historical Register*, Vol. I, p. 263. Adams, *Designating US Seacoast Fortifications*, p. 61.

26. ARCE, 1901, p. 763; 1902, p. 686. RCW, Battery Manning Livingston, corrected to February 2, 1922. Emplacements 3 and 4 were disarmed in 1907. Report of Completed Batteries, Southern New York, File Nos. 49105 and 79501, Entry 103, RG 77, Archives I. Hereafter, RCB. Adams, *Designating US Seacoast Fortifications*, p. 77. Heitman, *Historical Register*, Vol. I, p. 636.

27. RCB. Adams, *Designating US Seacoast Fortifications*, p. 77. Heitman, *Historical Register*, Vol. I, p. 708.

28. ARCE, 1899, p. 771; 1901, p. 686. RCW, Battery Commander's Station, Battery Piper, corrected to July 1, 1920. "Fire Control Ledger," Fortification Notebook.

29. Black, *History of Fort Wadsworth,* pp. 106-10. ARCE, 1895, pp. 7, 504-05; 1896, pp. 14, 478; 1897, p. 613. Heitman, *Historical Register*, Vol. I, p. 384. Adams, *Designating US Seacoast Fortifications*, p. 46

30. Heitman, *Historical Register*, Vol. I, p. 746. Adams, *Designating US Seacoast Fortifications*, p. 32. Black, *History of Fort Wadsworth*, p. 108.

31. Adams, *Designating US Seacoast Fortification*, pp. 32, 52.

32. ARCE 1896, p. 14; 1897, p. 613; 1898, p. 629. RCW, Battery Emory Upton, corrected to April 2, 1928. RCW, Battery Barry, corrected to February 2, 1922. "Work At Fort Wadsworth," *Brooklyn Eagle*, March 15, 1898, p. 1.

33. ARCE, 1899, p. 776. RCB. "Battery Journal," Fortification Notebook. RCW, Battery Emory Upton, corrected to April 2, 1928. RCW, Battery Barry, corrected to February 2, 1922. Gun and Carriage Card File. Heitman, *Historical Register*, Vol. I, pp. 978-79. Adams, *Designating US Seacoast Fortification*, p. 52.

34. Heitman, *Historical Register*, Vol. I, p. 195. Adams, *Designating US Seacoast Fortification*, p. 52.

35. ARCE, 1898, p. 629; 1899, p. 773; 1900, p. 838. Gun and Carriage Card File. RCB. Adams, *Designating US Seacoast Fortifications*, p. 46.

36. ARCE, 1898, p. 629; 1902, p. 688. Gun and Carriage Card File. RCB. "Battery Journal," Fortification Notebook. Adams, *Designating US Seacoast Fortifications*, p. 46.

37. Gun and Carriage Card File. RCW, Battery Ayres, corrected to July 1, 1920. Adams, *Designating US Seacoast Fortifications*, p. 52. Heitman, *Historical Register*, Vol. I, p. 177.

38. ARCE, 1902, p. 688. Gun and Carriage Card File. RCB. RCW, Battery Dix, corrected to July 1, 1920. Adams, *Designating US Seacoast Fortifications*, p. 66. Heitman, *Historical Register*, Vol. I, p. 375.

39. ARCE, 1898, p. 629; 1899, p. 773. Guns and Carriages Card File.

40. ARCE, 1899, p. 775. RCB. Guns and Carriages Card File. Adams, *Designating US Seacoast Fortifications*, p. 66. Heitman, *Historical Register*, Vol. I, p. 190.

41. RCB. "Battery Journal," Fortification Notebook. Adams, *Designating US Seacoast Fortifications*, p. 85. Heitman, *Historical Register*, Vol. I, p. 713.

42. ARCE, 1899, p. 775. Heitman, *Historical Register*, Vol. I, p. 713. Adams, *Designating US Seacoast Fortifications,* pp. 65, 179.

43. RCW, Battery Turnbull, corrected to July 1, 1920. Adams, *Designating US Seacoast Fortifications*, p. 77. Heitman, *Historical Register*, Vol. I, p. 974.

44. RCW, Battery Catlin, corrected to July 1, 1920. RCB. Guns and Carriages Card File. Heitman, *Historical Register*, Vol. I, p. 291. Adams, *Designating US Seacoast Fortifications*, p. 77

45. It is believed these early wooden range-finder stations were demolished and replaced early in the 20th century when a horizontal base line system was implemented. Battery Richmond's initial BCS was reassigned as the secondary (B") station for Fort Hamilton's Battery Spear. ARCE, 1899, p. 776. "Fire Control Ledger," Fortification Notebook.

46. "Fire Control Ledger," Fortification Notebook.

47. RCWs, Battle Commanders Station, corrected to July 1, 1920; Secondary Stations for Ft. Wadsworth, May 21, 1919. "Fire Control Ledger," Fortification Notebook.

48. "Fire Control Ledger," Fortification Notebook. RCW, Primary Stations for Battery Spear and Gillmore, corrected to July 1, 1920. RCW, Type A Switchboard Room, corrected to July 1, 1920. RCW, Type C Switchboard Room and Storage Battery Room, corrected to July 1, 1920.

49. "Fire Control Ledger," Fortification Notebook. RCW, Primary Stations for Batteries Doubleday and Neary, corrected to July 1, 1920. RCW, Primary Stations for Batteries Mendenhall and Livingston, corrected to July 1, 1920.

50. "Fire Control Ledger," Fortification Notebook. RCWs, 6 Secondary Stations, corrected to July 1, 1920; 4 Secondary Stations, corrected to July 1, 1920.

51. "Fire Control Ledger," Fortification Notebook. RCWs, Officers Dormitory, corrected to July 1, 1920, Mens Dormitory, corrected to July 1, 1920; Barry Primary Station, corrected to July 1, 1920.

52. *Army List and Directory,* Adjutant Generals Office, January 20, 1901; July 20, 1901; January 20, 1902.

53. *Army List and Directory,* June 20, 1903, pp. 13-16; June 20, 1904, pp. 15-16; June 20, 1905.

54. "Guardsmen Refuse Regular Army Offer," *New York Times,* April 20, 1907, p. 5. Gen. Roe Overruled," *New York Times,* April 24, 1907, p. 5. "Troops Will Not Revolt," and "Gen. Roe Changed His Mind," *New York Times,* April 25, 1907, p. 5.

55. "Troops Will Not Revolt," *New York Times,* April 25, 1907, p. 5. "Regulars To Teach Citizen Soldiery," *New York Times,* June 9, 1907, p. 5.

56. "Forts Defend City in Mimic Warfare," *New York Times,* June 14, 1907, Pt 2, p. 14. "Enemy Driven Off Mimic War Ends," *New York Times,* June 15, 1907, p. 5.

57. "Three Men Dying in Sham Bay Fight," and "With the Gun Spotters," *New York Times,* June 19, 1908, p. 16. "Bay War Ends in Gloom," *New York Times,* June 20, 1908, p. 16.

58. "Big Guns Cause Havoc near Forts," *New York Times,* June 18, 1908, pp. 1, 5.

59. "Big Guns Here End 23 Years of Silence," *New York Times,* July 6, 1932, p. 21.

60. *Army List and Directory,* January 1908, p. 24; June 1908, p. 23; December 1908, p. 24; January 1911, p. 25

61. "Battery Journal," Fortification Notebook.

62. *Army List and Directory,* July 1914, p. 26; October 1914, p. 26; July 1915.

63. "Coast Artillery Short 10,000 Men," *New York Times,* November 1, 1914, Section IV, p. 6.

64. On August 2, 1917, the military reservation at Rockaway Beach was designated Fort Tilden in honor of former Governor Samuel J. Tilden. Gun and Carriage Card File. "Battery Journal," Fortification Notebook, "Rockaway Guns Mounted," *New York Times,* March 4, 1917, Section I, p. 8.

65. U.S. Army War College, Historical Section, *Order of Battle of the United States Land Forces in the World War (1917-19): Zone of the Interior,* GPO, 1949, Vol. 3, Part 2, pp. 1201, 1217, 1225. Hereafter: *Order of Battle, World War.*

66. *Order of Battle, World War,* Vol. 3, Pt. 2, pp. 1201, 1217, 1226-27.

67. Gun and Carriage Card File. "Battery Journal," Fortification Notebook.

68. *Order of Battle, World War,* Vol. 3, p. 300; Part 1, Part 2, pp. 1140, 1186, 1187, 1201. Janice E. McKinney, *Air Defense Artillery* [Army Lineage Series] Washington, D.C., 1985. Hereafter: McKinney, *Air Defense Artillery.*

69. *Order of Battle, World War,* Vol. 3, p. 300; Part 2, pp. 1140, 1186, 1187, 1201.

70. Ibid.

71. "Battery Journal," Fortification Notebook. Gun and Carriage Card File.

72. "Battery Journal," Fortification Notebook. RCWs, AA Battery Fort Hamilton, corrected to December 1, 1921; AA Battery (Battery Barry), corrected to December 1, 1921; AA Battery, Fort Tompkins, corrected to December 1, 1921.

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75. "Miller Field Air Post," *New York Times,* May 21, 1931, p. 12.

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78. "Moves to Improve New York Army Posts," *New York Times,* March 13, 1926, p. 6. "Army To Soon Build New Barracks Here," *New York Times,* February 5, 1928, p. 6. "$40,000 for Fort Wadsworth Barracks," *New York Times,* April 18, 1928, p. 9. "Summerall Visits Fort," *New York Times,* January 20, 1929, p. 7. "Fort Wadsworth Bill Approved," *New York Times,* February 27, 1929, p. 25.

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81. "Big Guns Here End 23 Years of Silence," *New York Times*, July 6, 1932, p. 21.

82. "The Coast Artillery Corps, Officers Station List, January 20, 1937," *CAJ,* Vol. 80, No. 1 (Jan-Feb 1937), pp. 97-102. "The Coast Artillery Corps, Officers Station List, October 1, 1938," *CAJ,* Vol. 81, No. 5 (Sep-Oct 1938), pp. 409-16. "The Coast Artillery Corps, Officers Station List, October 1, 1939," *CAJ,* Vol. 82, No. 5 (Sep-Oct 1939), pp. 491-96. "The Coast Artillery Corps, Officers Station List, August 1, 1940," *CAJ,* Vol. 83, No. 4 (July-Aug 1940), pp. 393-400. "Coast Artillery Orders," *CAJ,* Vol. 73, No. 2 (Aug 1930), pp. 189-92; Vol. 76, No. 6 (Nov-Dec 1932), pp. 477-78; Vol. 77, No. 3 (May-June 1934), pp. 224-25; Vol. 79, No. 4 (July-Aug 1936), pp. 312-13; Vol. 81, No. 2 (July-Aug 1938), pp. 325-26; Vol. 873, No. 1 (Jan–Feb 1940), p. 90; Vol. 83, No. 6 (Nov-Dec 1940), pp. 582-86; Vol. 84, No. 2 (Mar-Apr 1941), pp. 185-87; Vol. 84, No. 6 (Nov-Dec 1941), pp. 641-43.

83. George V. Strong to the adjutant general (TAG), April 3, 1940. Walter C. Baker, President of the Harbor Defense Board, to TAG, April 25, 1940. Records of the Adjutant General's Office, 1917-, RG 407, Archives II.

84. Report of the Harbor Defense Board to TAG, July 27, 1940, RG 407, Archives II. *History of the Eastern Defense Command*, pp. 21-22. Stetson Conn, Rose C. Engleman, and Byron Fairchild, *Guarding the United States and its Outposts* (Washington, 1964) pp. 47-48. Hereafter: Conn, et al, *Guarding the United States.*

85. Jamaica Sea Airport and the squatters' shacks of Cornell Basin were named Gen. Alexander E. Anderson Airport by the New York City Council for a resident of Forest Hills, World War II aviation hero, and former chairman of the Queens Democratic Committee. The name never caught on, however, and people just called it Idlewild Airport until the name was changed to John F. Kennedy Airport in 1963. Conn, et al, *Guarding the United States,* pp. 48-49.

86. Report of the Harbor Defense Board to TAG, July 27, 1940, RG 407, Archives II.

87. Conn, et al, *Guarding the United States,* p. 49.

88. Southeastern Sector, EDC, *History of the New York-Philadelphia Sector, Eastern Defense Command* (Raleigh, NC, 1945), p. 44. Hereafter: *History of the New York-Philadelphia Sector.*

89. *History of the Eastern Defense Command*, pp. 20-34.

90. David P. Kirchner, "The Harbor Defense in the 1938 Protective Mobilization Plan," *CDSG Journal*, Vol. 12, No. 2 (May 1998), pp. 4-41.

91. Station List and Historical Data Sheet, 5th CA (HD) Regiment, Organizational Records Section, Military Personnel Records Unit, National Personnel Records Center, St. Louis, MO. Hereafter NPRC. *History of the New York-Philadelphia Sector,* p. 9. "To Revert to War Status," *New York Times*, January 16, 1941, p. 16. Black, *History of Fort Wadsworth,* p. 9.

92. Station List and Historical Data Sheet, 5th CA (HD) Regiment, NPRC. *History of the New York-Philadelphia Sector,* p. 9. "To Revert To War Status," *New York Times*, January 16, 1941, p. 16. Black, *History of Fort Wadsworth,* pp. 9, 30.

93. *History of the New York-Philadelphia Sector,* pp. 9, 126-27.

94. RCW, HECP Fort Wadsworth, corrected to 15 September 1943.

95. *History of the New York-Philadelphia Sector,* pp. 1-13, 25-26, 99-100, 127-130.

96. *Spruce's* "rebirth" as a mine planter was short lived. When the USCGC *Acacia* (WAGL-200, former USAMP *General John P. Story*) was sunk by gunfire from the German submarine *U-161* south of Haiti, March 15, 1942, *Spruce* was transferred to Puerto Rico to replace her. Ibid., pp. 18-19, 26, 112-113, 125.

97. The 113th Infantry Regiment, commanded by Col. H. Norman Schwarzkopf, was a NJNG unit inducted into federal service September 16, 1940. *History of the Eastern Defense Command*, p. 51. *History of the New York-Philadelphia Sector,* pp. 93-96.

98. *History of the New York-Philadelphia Sector,* p. 97.

99. In 1863, the city of New York ordered construction of two artificial islands in Lower New York Bay for quarantine. Two hexagonal artificial sand islands were formed in 1870 and 1873, revetted with timbers and riprap. Swinburne Island, originally called Dix Island but renamed for Dr. John Swinburne, a Civil War surgeon and health officer for New York City, was used primarily as a quarantine hospital for infectious diseases. Hoffman Island, named for former Governor John T. Hoffman, was also used for isolation and quarantine. Between 1901 and the 1920s, almost 8,000 people were detained on Hoffman Island, in crowded and not overly sanitary conditions. In the 1920s, the islands were sold to the US Public Health Service and fell into disuse. From 1931 to 1937, imported parrots were quarantined on Hoffman Island.

100. *History of the New York-Philadelphia Sector,* pp. 42-44.

101. Report of the War Department Seacoast Defense Armament Board, Vol. II, Annex B, Inclosure 7, pp. 5-7.

102. *History of the New York-Philadelphia Sector*, pp. 41-42, 115-116. Edwin C. Bearss, *Fort Hancock, 1895-1948* (Denver Service Center, Historic Preservation Div., NPS, 1981), p. 584. James A. Sawicki, *Antiaircraft Artillery Battalions of the US Army* (Dumfries, VA: Wyvern Publications, 1991), Vol. II, p. 776. Shelby Stanton, *Order of Battle, U.S. Army, World War II* (Novato, CA: Presidio Press, 1984), p. 476.

103. *History of the New York-Philadelphia Sector,* pp. 110-11.

104. RCW, Sector CP, corrected to 1 February 1944.

105. RCW, Relocation of Mine Casemate, Battery Richmond, corrected to 21 June 1943.

106. *History of the New York-Philadelphia Sector,* pp. 38, 109. RCWs, New Battery Trumbull, corrected to 22 January 1944; BC CRF Station, corrected to 21 June 1943.

107. *History of the New York-Philadelphia Sector,* p. 109. RCW, New Battery Catlin, corrected to 27 March 1944; BCS/CRF Station 3-inch RF Battery No. 18, corrected to 4 April 1944.

108. *History of the New York-Philadelphia Sector,* pp. 133, 135, 137, 138. RCWs, Battery 11, Miller Field, corrected to December 8, 1943; 90 mm gun emplacements, corrected to December 8, 1943; 90 mm gun emplacements, Norton Point, corrected to June 21 1943.

109. Statement of Cost and Nature of Repairs of Fortifications, RCWs Battery Griffin and Livingston, September 1943.

110. RCWs, Storage Building for Portable Searchlights, corrected to November 15, 1943; Storage Building for Portable Searchlights, corrected to October 16, 1943.

111. RCW, Fire Control Station, Miller Field, corrected to 6 October 1943; SCR-296, Miller Field; Searchlight Platform, corrected to 26 January 1944.

112. "Reminiscence of Brigadier General Vernon F. Sikes," *265th Coast Artillery Selected Abstract Biographies World War II*, Florida Department of Military Affairs, Special Archives No. 119, State Arsenal St. Francis Barracks, St. Augustine, FL. *History of the New York-Philadelphia Sector*, p. 114.

113. Historical Data and Station List, 5th CA (HD) Regiment, NPRC.

114. *History of the Southeastern Sector of the Eastern Defense Command 1 March 1944 to 15 May 1945*, Appendix II, Elements of the Southeastern Sector: "The Harbor Defenses of New York," p. 7.

115. Ibid, p. 8.

116. Eastern Defense Command, *History of the Northeastern Sector, Eastern Defense Command, Historical Record, New England Sector – Northeastern Sector 11 December 1941—15 May 1945* (Raleigh, NC, 1945), p. 5. Hereafter: *History of the Northeastern Sector*

117. Historical Data and Station List, 5th CA (HD) Regiment Historical Data and Station List, 7th CA (HD) Regiment, NPRC. *History of the Southeastern Sector,* Appendix II, Elements of the Southeastern Sector: "The Harbor Defenses of New York," pp. 1-2.

118. *History of the Northeastern Sector,* pp. 5-6.

119. Historical Data Sheet and Station List, Headquarters and Headquarters Battery, Harbor Defenses of New York, NPRC.

120. "Report of the War Department Seacoast Defense Armament Board," Vol. I, pp. 1-24, Vol. II, Annex B, Inclosure 7, pp. 1-14.