

Fort Hancock Historic Hike

Route Map of Key Sites to be Visited



NPS Dispatch:
(732) 872-5900

#8 - Fire Control
Cable Hut

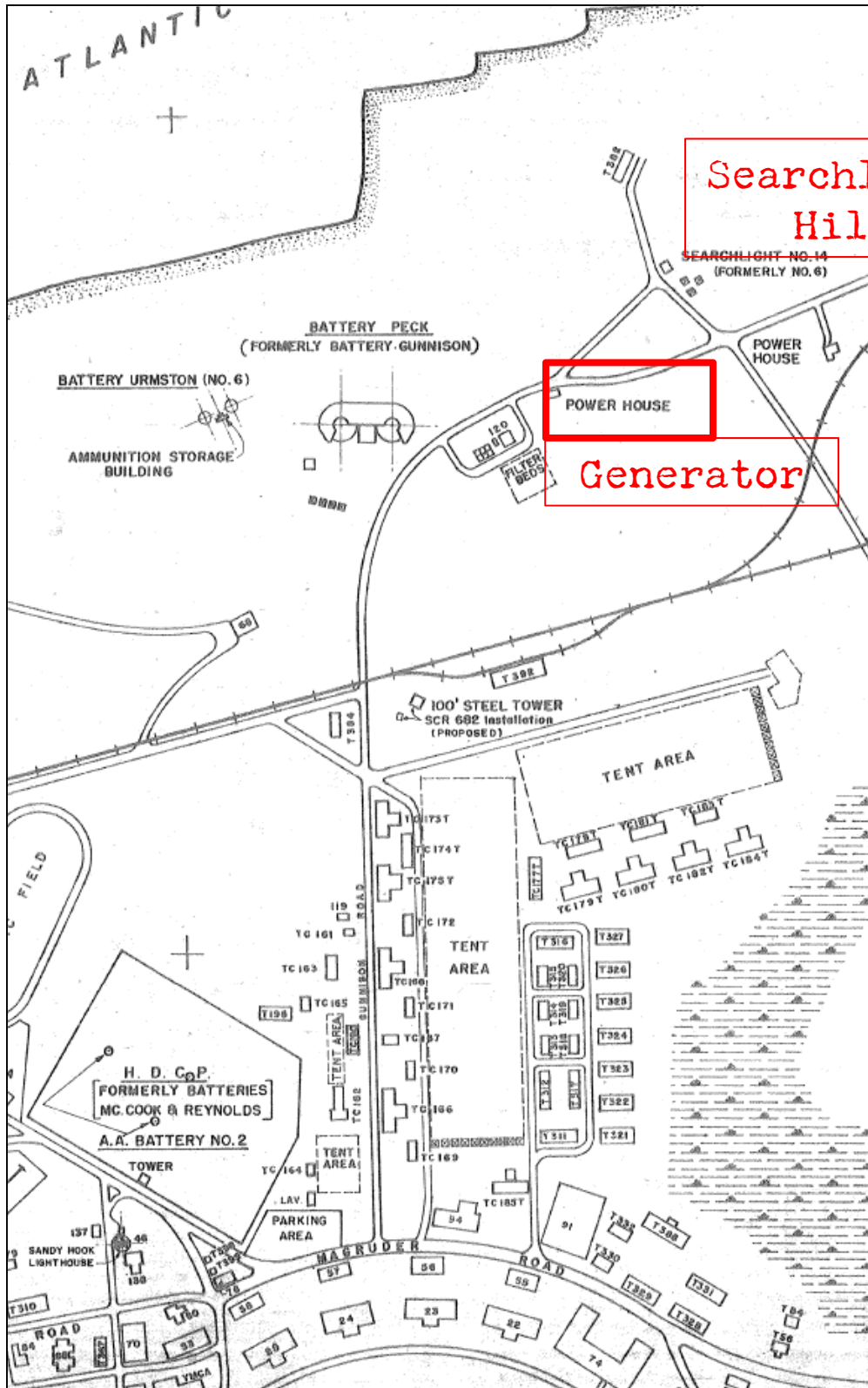
#7 - TNT Magazine,
station, Radar Site,
Porta John

Arrive:
1215 Hrs

Fort Hancock Historic Hike

Building 350 - Generator

Stops #1 to #2



Map section above is extract from 1944 Fort Hancock General Fortifications map

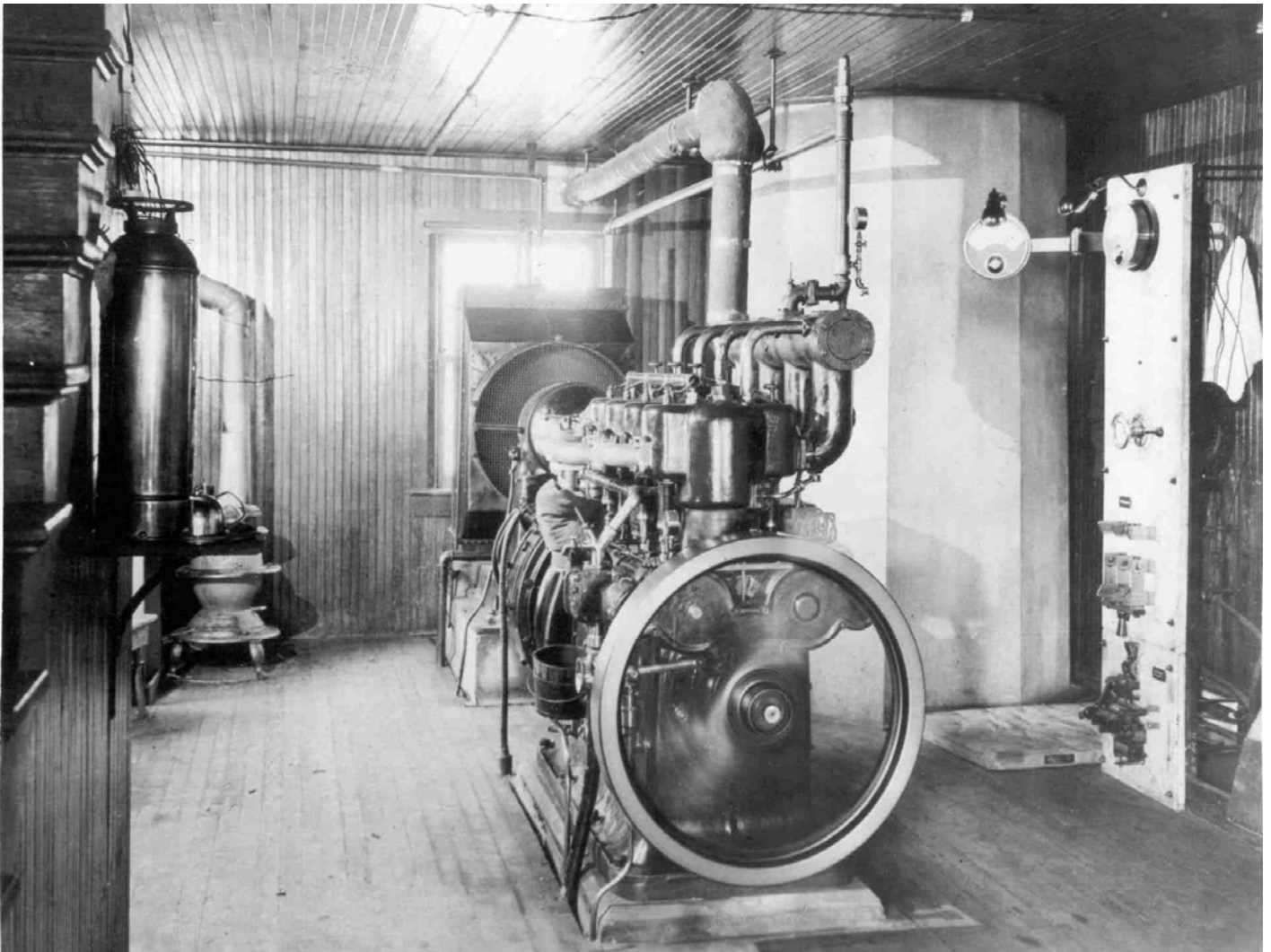
Fort Hancock Historic Hike

Building 350 - Generator

In the event that the forts central power plant was knocked out during fighting, each of the forts major gun emplacements was provided with its own source of electrical power in the form of a gasoline generator. This building once housed a single General Electric 25kw model GM-12 engine and generator set which was first developed for use by the Army in 1908. The model GM-12 consisted of a four-cycle, four-cylinder, vertical gasoline driven engine direct connected to a 115-volt DC generator. The engine had a rating of 54 horsepower and weighed nearly three tons. For comparison the 2016 Honda Accord 4 cylinder produces roughly 185 horsepower and weighs about 500 pounds.

The Power Plant here supplied power to Battery Gunnison as well as a nearby 60" searchlight and would have been in continuous operation anytime the guns or searchlight was manned for use. This interior photograph below is actually of a different power station at Fort Hancock as no photographs of the interior of this building have yet to be located. While the location is different, the equipment shown in the photograph was identical.

The actual generator from this building is currently on loan from NPS to Fort Macarthur Military Museum in Los Angeles, CA. We are helping plan for its return to Fort Hancock in the future.



Fort Hancock Historic Hike *Disappearing Search Lights*



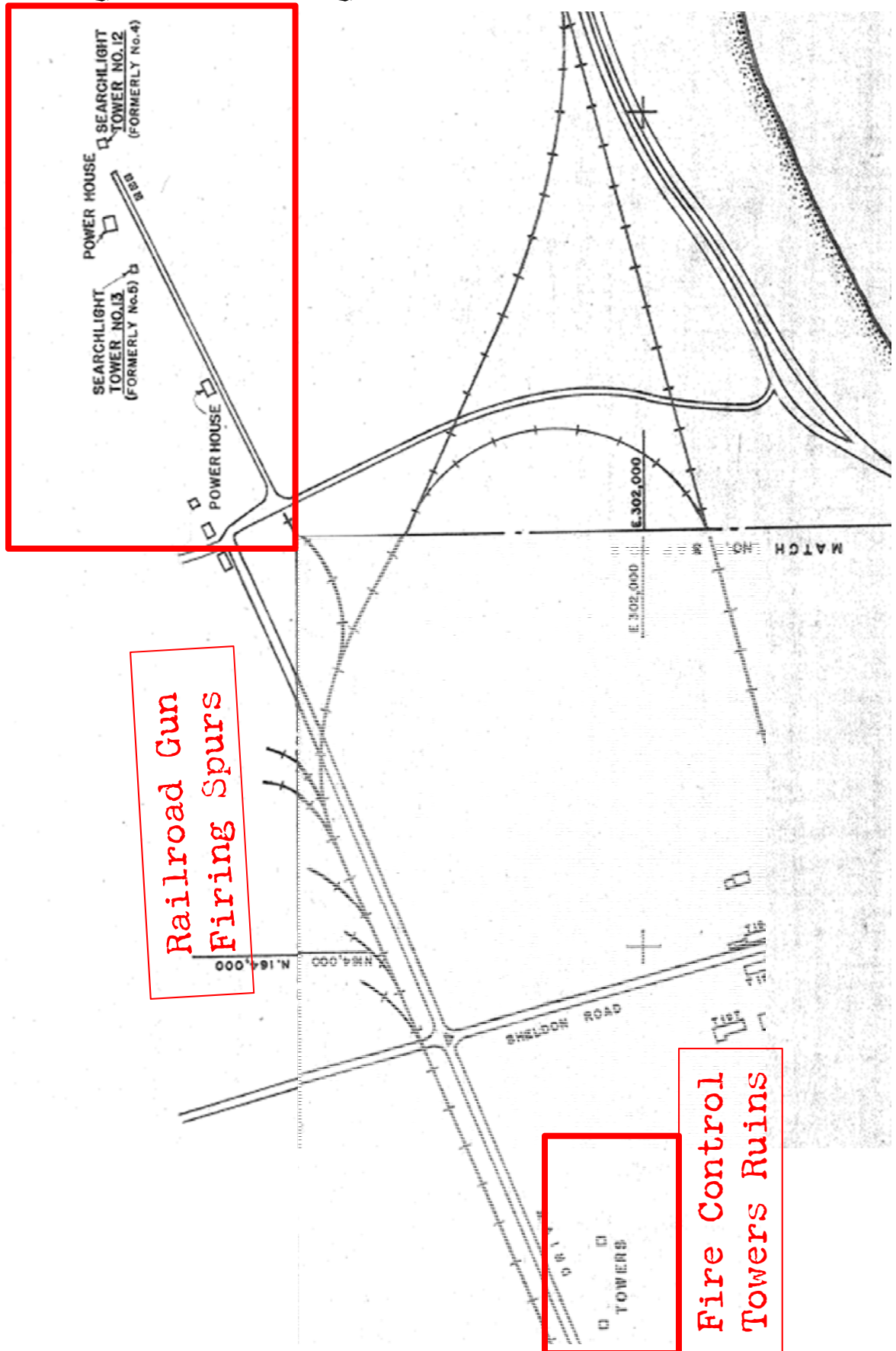
The 60" searchlight is seen here. It has about 800 million candlepower, and is effective at pinpointing targets up to five miles away. The wooden building was actually a storage shed. As seen in the bottom image, the light would be rolled in and out of the shed on rails. This location is south of the beach access trail.



Fort Hancock Historic Hike

Disappearing Search Lights & Fire Control Towers

Two fire-control observation towers once stood here. Each tower was for one of the 12" long range gun batteries here at Fort Hancock, named Batteries Kingman and Mills.



Map section above is extract from 1944 Fort Hancock General Fortifications map

Arrive:
1245 Hrs

Fort Hancock Historic Hike

Stop #3

Fire Control Towers Batteries Kingman & Mills

As seen here, each tower was an open-frame, iron-legged structure with an enclosed "Base-End Station" at the top. This was where Soldiers would view targets through azimuth instruments and depression position finder telescopes and send fire-control data to the Plotting Room of the Battery. The large, square smoke-stack looking portion in the middle of the tower is a concrete "pillar" on which the primary instrument was mounted. The concrete provided a robust mount that would remain essentially immovable over time and ensure the long term accuracy of the survey location of the instrument. This ensured location accuracy when viewing targets through the fire control instrument's telescopes. The cement also dampened the vibration from the big guns firing.



Fort Hancock Historic Hike

Fire Control Towers for Batteries Kingman & Mills

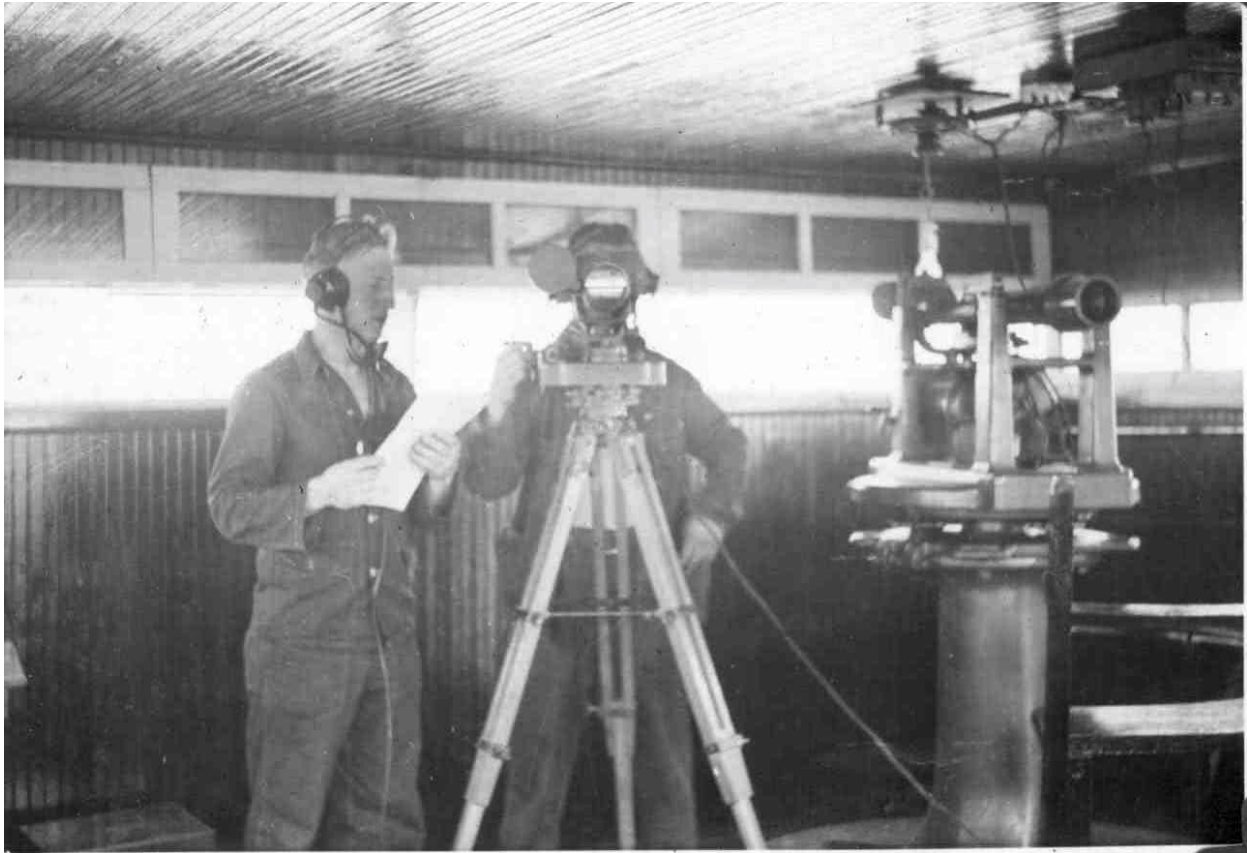
Both towers are seen here. Each tower provided fire-control information for an individual battery, each of which was armed with two 12" M1895 rifles on long-range carriages. Each gun had a range of 30,000 yards, which is 18 miles. The towers were located behind the beach, and nestled into the trees and brush of the peninsula to camouflage them.



Fort Hancock Historic Hike

Fire Control Towers for Btrys Kingman & Mills

The inside of a Base-End Station is a busy work environment. Each tower had several soldiers and multiple fire control instruments. These Soldiers were the eyes of the guns. Movement was constant, multiple telephones ran to different batteries, Time-Interval Bells would chime every 15 seconds, information would be relayed to the plotting room. The two photos below show one station at Fort Hancock (top) and another in the Philippines. Both appear to be from the 1930s.



Arrive:
1315 Hrs

Stop #4

Fort Hancock Historic Hike *Railroad Gun Firing Positions*

Fort Hancock was the home of the 52nd Coast Artillery Regiment (Railway) and its M1918 12-inch mortar and M1918 8-inch rifle railroad guns. The photo below shows an M1888 8-inch gun on M1918 Railroad carriage in firing position. Notice the cars on either side of the gun - one held powder, the other shells. The 8-inch M1888 guns fired a 200 lbs. High Explosive shell using 80 pounds of powder to a range of 21,000 yards. The gun also fired a 260 lbs. Armor Piercing shell using 84 pounds of powder to 23,000 yards. The bottom picture shows 8-inch shells ready for target practice. These are most likely 260 pound blank loaded cast iron shell bodies of the same weight and dimensions of the armor piercing type. Most of the High Explosive shells used point detonating fuses. The armor piercing shells used base detonating fuses.



Fort Hancock Historic Hike *Railway Gun Firing Positions*

The top photo provides a good overall view of the M1918 railway carriage with M1888 8-inch guns at Fort Hancock. The 8-inch M1888 guns fired a 200 lbs. High Explosive shell using 80 pounds of powder to a range of 21,000 yards, and a 260 pound Armor Piercing shell using 84 pounds of powder at 2,100 feet per second to 23,000 yards. Notice in the top photo all the men braced for the concussion of firing with arms out, legs shoulder width apart, mouths wide open to prevent collapsing of the ear drum.

The M1918 Railway guns were replaced by M1 Army Railway carriages armed with Navy 8-inch guns in 1941. These guns had a significantly longer range (up to 32,000 yards). The bottom photo taken in 1943 is a rare color picture. Notice the soldier's field gear, weapons and helmets on a rack at the bottom of the picture.



Fort Hancock Historic Hike *Railroad Gun Firing Positions*

The M1918 railroad carriages with M1888 8-inch/35 caliber guns were replaced by MK-IV 8-inch/45 caliber Navy guns on M1 railroad carriages in 1942. The Mk-IV 8-inch gun fired a 240 lbs High Explosives projectile using 107 lbs of powder to a muzzle velocity of 2,850 feet per second to a maximum range of 32,000 yards. It also fired a 260 pound armor piercing projectile with 107 lbs of powder at 2,750 feet per second to a range of 31,000 yards.

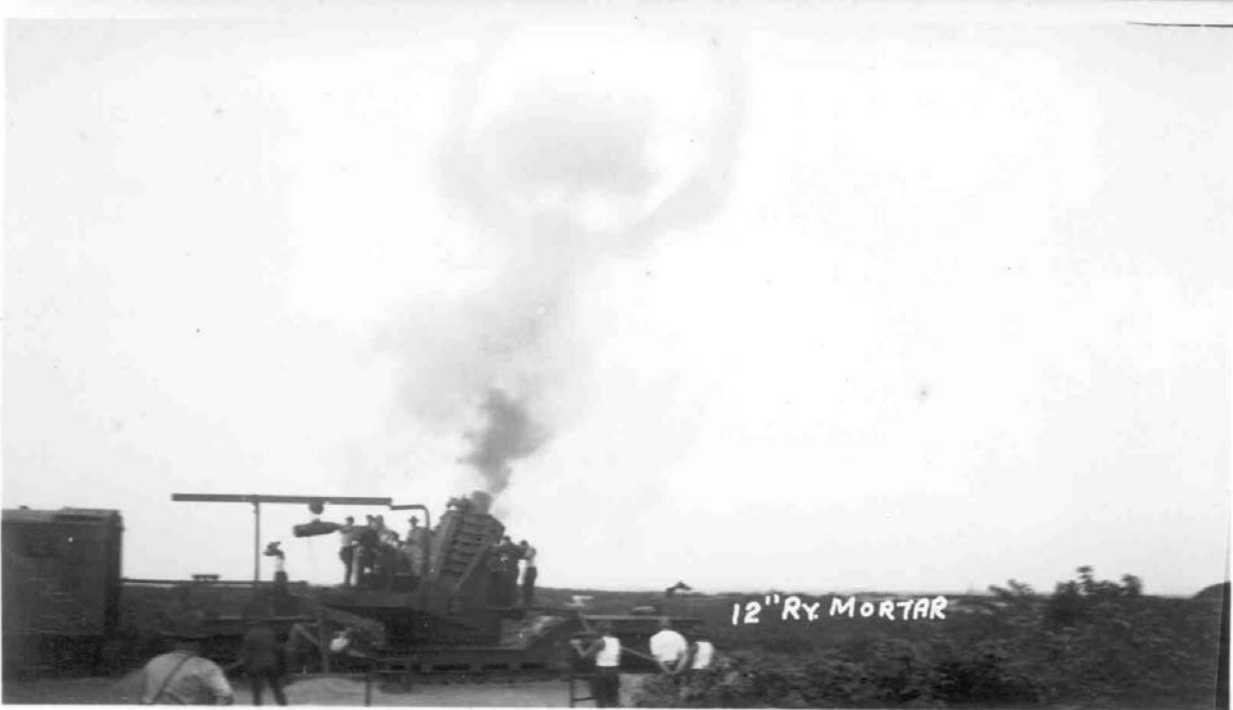
The photos below show soldiers on the left in "chow line" with a Mk-IV gun tube behind them and the soldiers on the right are loading a Mk-IV gun on M1 railroad carriage. Notice the breach block is open. The large rectangular object surrounding the breach block is the counterweight to balance the gun when elevating.



Fort Hancock Historic Hike

Railroad Gun Firing Positions

The M1918 railroad carriages also mounted 12-inch M1890 mortars. The 12-inch mortars were in use at Fort Hancock from the early 1920's until 1941 when they were replaced by Mk-IV 8-inch/45 caliber guns on M1 railroad carriages. The 12-inch mortar below has just fired its projectile. The 12-inch mortars fired 1,046 lbs. deck piercing shell to a range of 11,000 yards, a 824 lbs. deck piercing shell to a range of 12,200 yards, and a 700 lbs. deck piercing shell to a range of 14,600 yards. There was also a 700 lbs. high explosive shell fired to the same range.



Arrive:
1330 Hrs

Stop #5

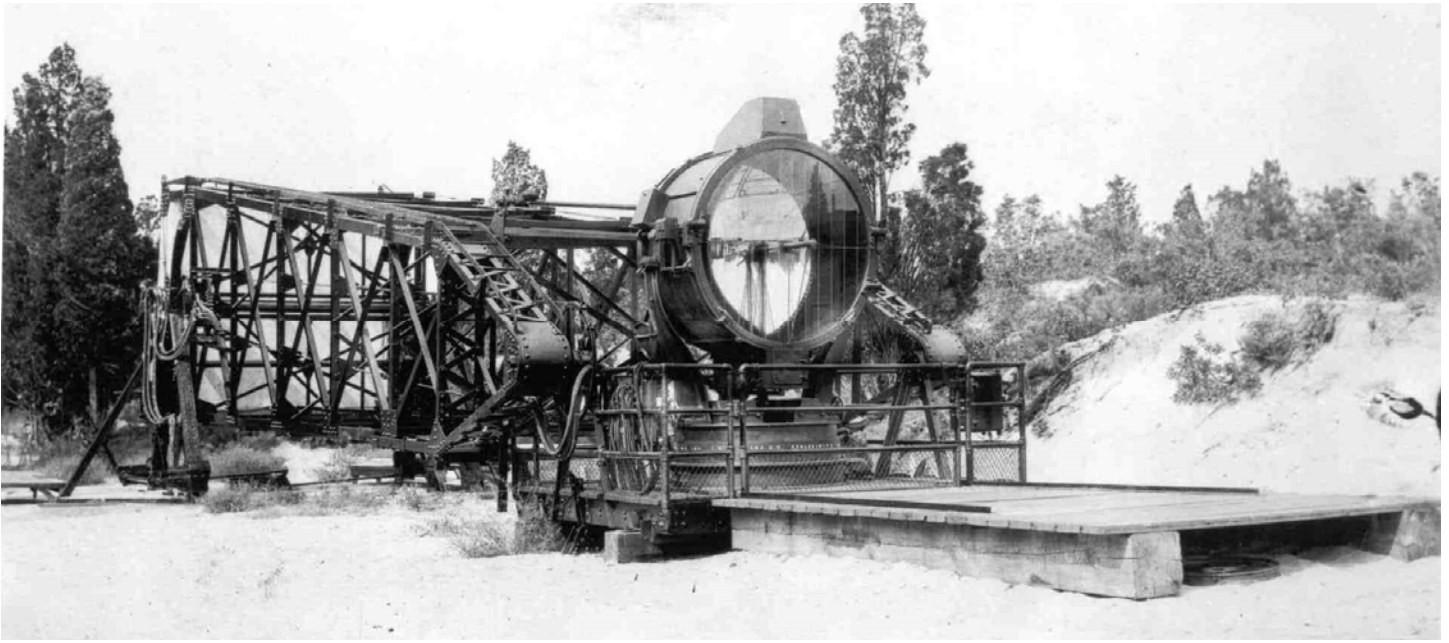
Fort Hancock Historic Hike *Disappearing Search Lights*

The Bascule-type disappearing searchlights were installed in 1918 and operational through 1945. This view was taken from atop one of the searchlights while it was in the raised position. The generator buildings for both searchlights and the other tower are all visible from this position, which is seen looking to the north.

Notice the generator building in the far left of the picture. This is the first building pad we will see on the South Dune Trail. All that remains is its foundation and the adjacent communications and power conduit system. The counterweight block that we will visit is part of the elevating search light we see between the two generator buildings. The generator building in the foreground appears to be totally missing in the area. The building foundation is likely under one of the dunes.



Fort Hancock Historic Hike *Disappearing Search Lights*



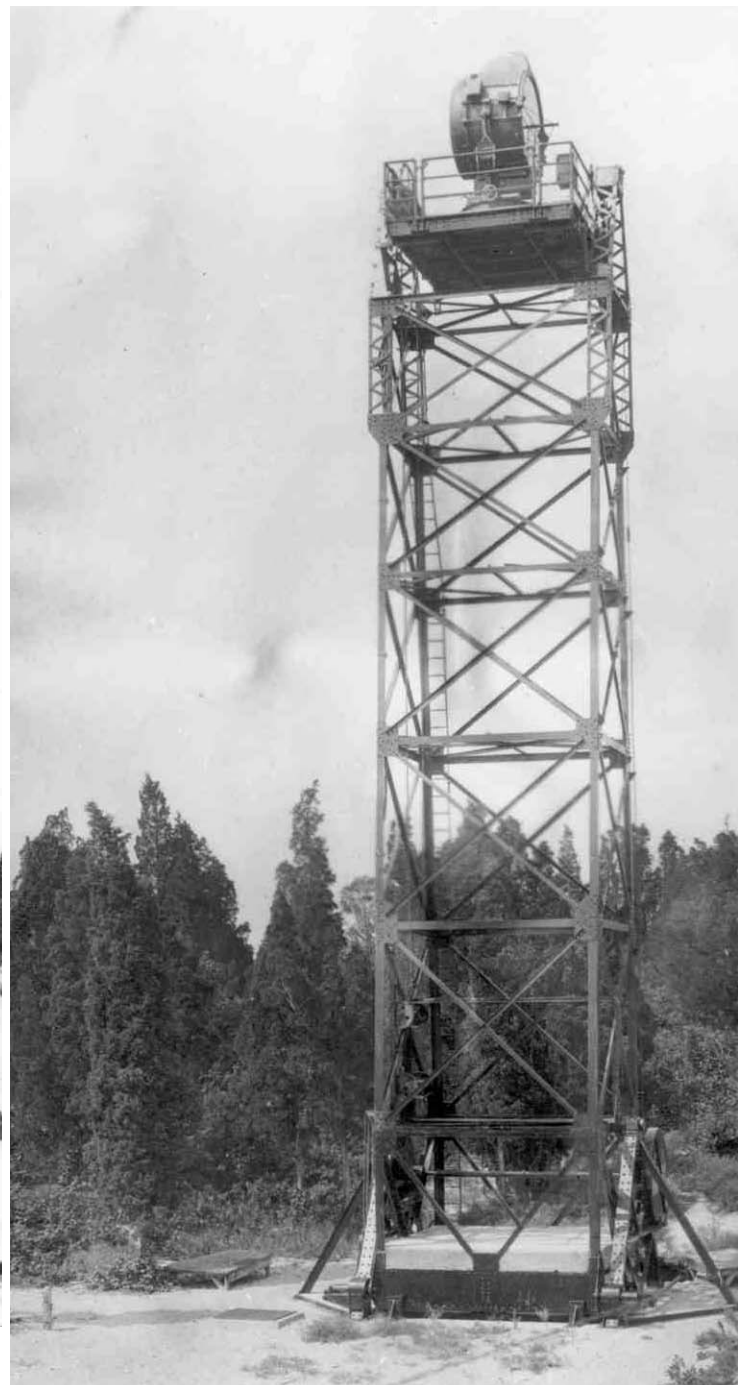
One of the towers is seen here in it's retracted, or hidden position. The wooden shed in the lower photo was a shelter that would protect it from the elements. Wooden components of the shelter can be seen on the ground today. The search light would be removed from the shelter when the light was ready to be used.



Fort Hancock Historic Hike *Disappearing Search Lights*

These are Bascule-type searchlight towers. Operating on a counter-weight system, these lights could be hidden and camouflaged within the dense underbrush of Fort Hancock until needed, and then could disappear again, just as quickly.

Notice as you look at the remaining counterweight steel that it is all riveted. This is because custom steel could not be manufactured in the 1918-1930s time period. It was far less expensive to manufacture plate and then use rivets to connect the steel into custom configurations.

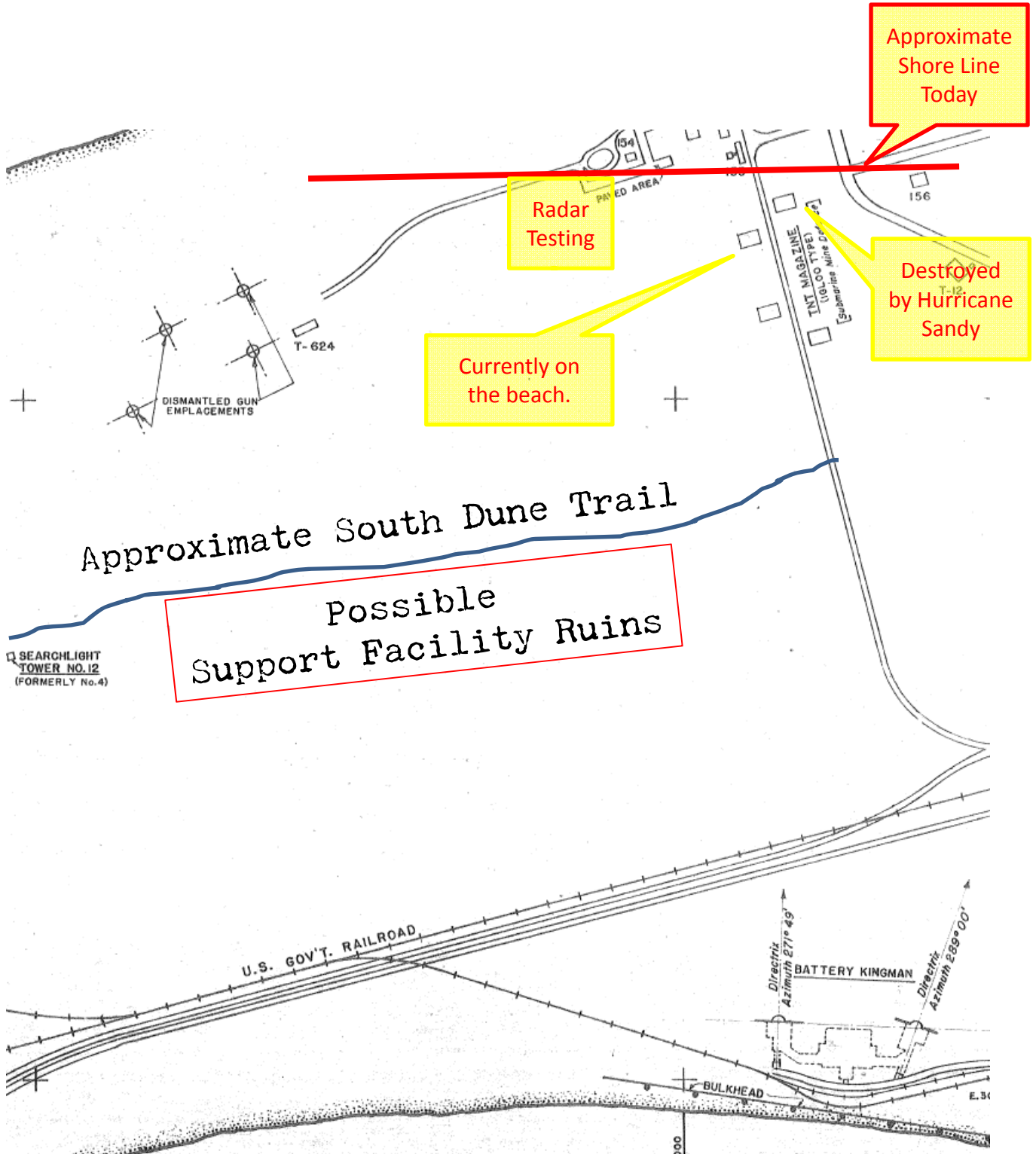


Arrive:
1400 Hrs

Stops #6 to #9

Fort Hancock Historic Hike Fishing Beach and Radar Testing Area

Notice the change in the shoreline - much of it is now "out at sea". Additionally, the radar testing area is shown on this map - it is now totally absent and much of it is in the surf. This was a highly secret area in the late 1930s and was where the Army conducted much of its early radar testing.



Map section above is extract from 1944 Fort Hancock General Fortifications map

Fort Hancock Historic Hike *Fire Control Cable Manhole*

Below Soldiers wearing the distinctive blue denim work uniform, two wearing OD wool trousers and khaki shirts, and a civilian foreman in a fedora hat are performing maintenance on a cable manhole. Notice there are at least three senior sergeants which indicates this is a very important job. They are using a gasoline-powered pump to remove water from an in-ground cable hut. Each cable held between 50 and 200 pairs of individual telephone lines to support the Fort's fortifications communications infrastructure. Also notice the Coleman 500 Speed-Master gas stove to the left with a pot on top. That pot is full of lead which was used to seal the cables. The cables themselves are lead covered, with paper insulated 22 gage copper wire. Most of these cables have over 50 pairs of wire - to support 50 fire control telephone lines. The large bulges in the lines are called "splices" and this is where cables are joined together. And all these cables go back to one place - the fire control switchboard room inside the Harbor Defense Command Post in the former mortar battery, located next to the Sandy Hook Lighthouse.



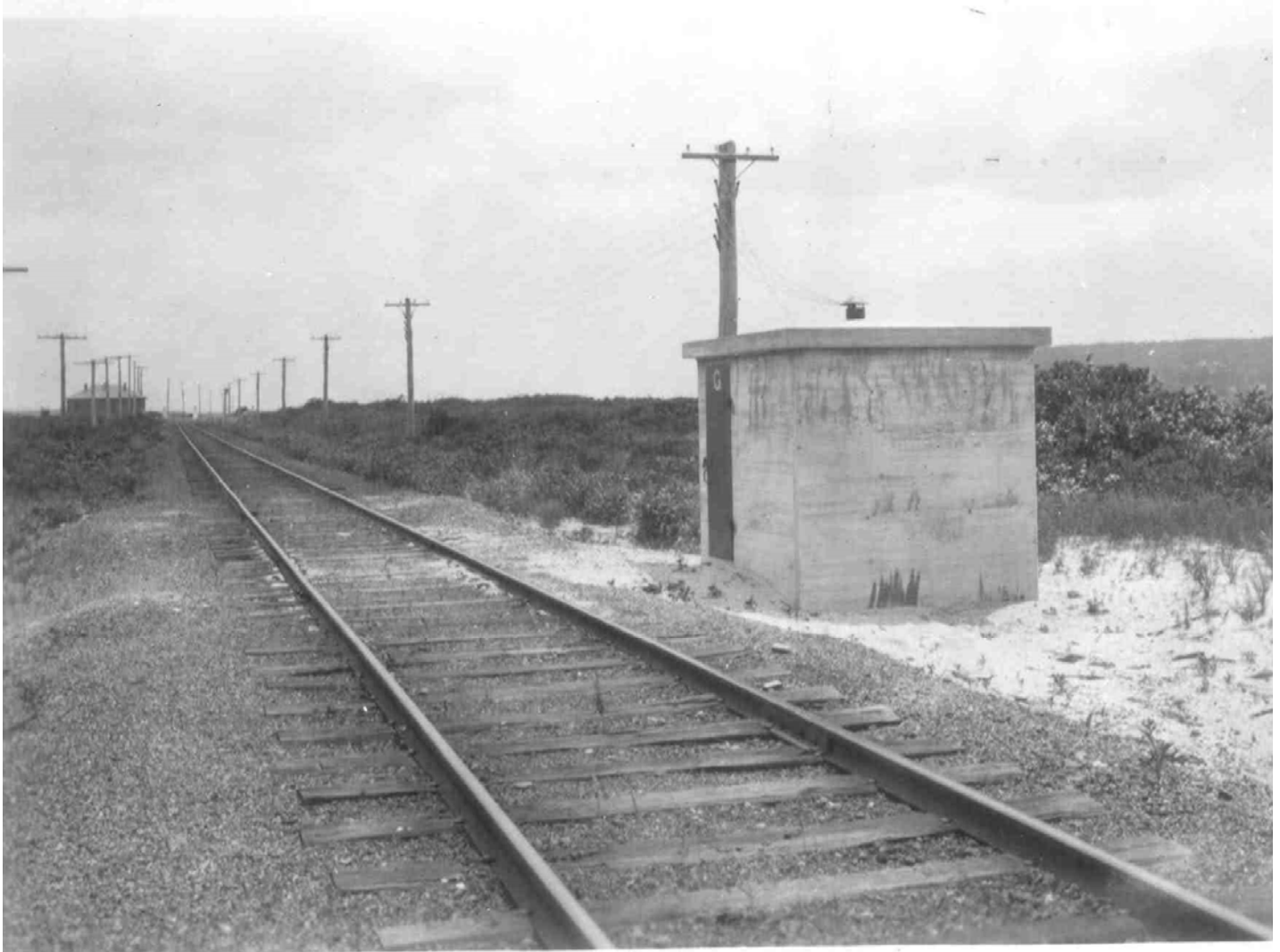
Arrive:
1420 Hrs

Stop #8

Fort Hancock Historic Hike *Fire Control Cable Hut near Btry Kingman*

An above ground cable hut is shown below. This hut is similar to the two huts we will see during our hike. This particular one is a large hut and probably has at last six 100 or 200 pair cables entering it and multiple 26 and 50 pair cables headed out to batteries and fire control stations. Today we will see one with an open door that we can look inside. This will help us understand how telephone communications depended upon these concrete huts.

These "cable huts" enable the physical "connecting" and "routing" of telephone cables across the installation. Inside the hut are normally six to ten "terminal boxes" where 100 to 200 wire pair cables terminate. Then connections are made between cables via the terminal boxes and short lengths of wire. These connections can be changed as updates and adjustments are made to the defenses and telephone uses.



Arrive:
1430 Hrs

Stop #9

Fort Hancock Historic Hike *Battery Kingman & Mills*

Batteries Kingman and Mills were the last and most powerful batteries installed at Fort Hancock. They were constructed from 1917-1919 and were "casemated" in 1941-42. Below one of the 12-inch M1895 rifles on an M1917 long range carriage sending a 975 pound shell 16 miles (29,000 yards) out to sea. The gun is captured a moment after firing, showing the massive fireball of the muzzle flash, and is half-way into recoil. Note how the Soldiers are standing in protective stances. The second photo, taken in 1919, shows the gun in full recoil. The top photo was taken in 1940, the bottom in 1919.



Fort Hancock Historic Hike *Battery Mills*

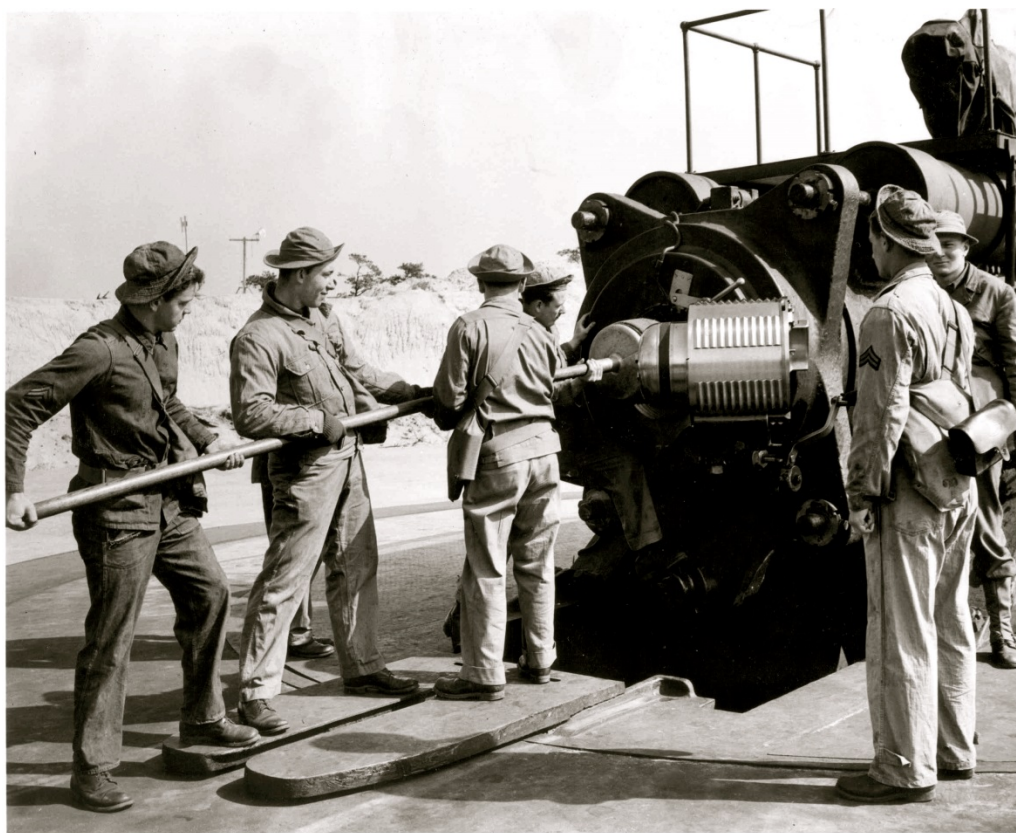
The massive size of the M1895 12-inch rifle is shown below. As built, the guns were capable of traversing, or spinning, 360 degrees in any direction. These photographs were taken in 1938. These photos were taken at Battery Mills which is south of Kingman.



Fort Hancock Historic Hike *Battery Kingman and Mills*

In the photos below a gun crew loads a 12-inch gun at either Battery Kingman or Mills. The large pile of earth next to the gun suggests Casemating is to begin shortly, placing the date of this picture in the late 1941 time frame.

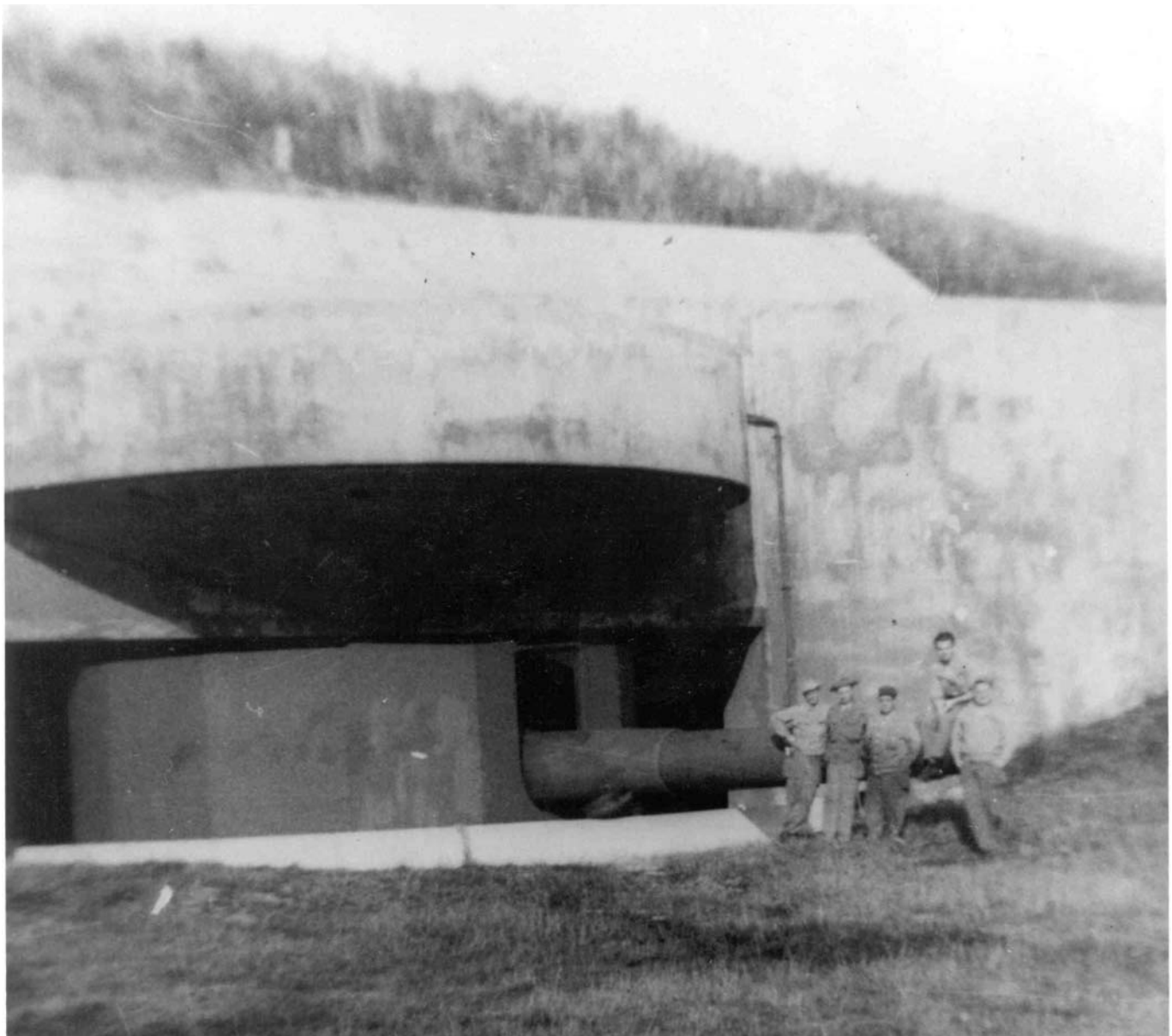
Notice the uniforms of the soldiers. The darker ones are Blue Denim. The lighter color are green Herringbone Twill (HBT). The HBT uniforms are either one piece coveralls or separate jackets and trousers. Notice the soldier next to the breach of the gun is wearing leggings.



Fort Hancock Historic Hike *Battery Kingman*

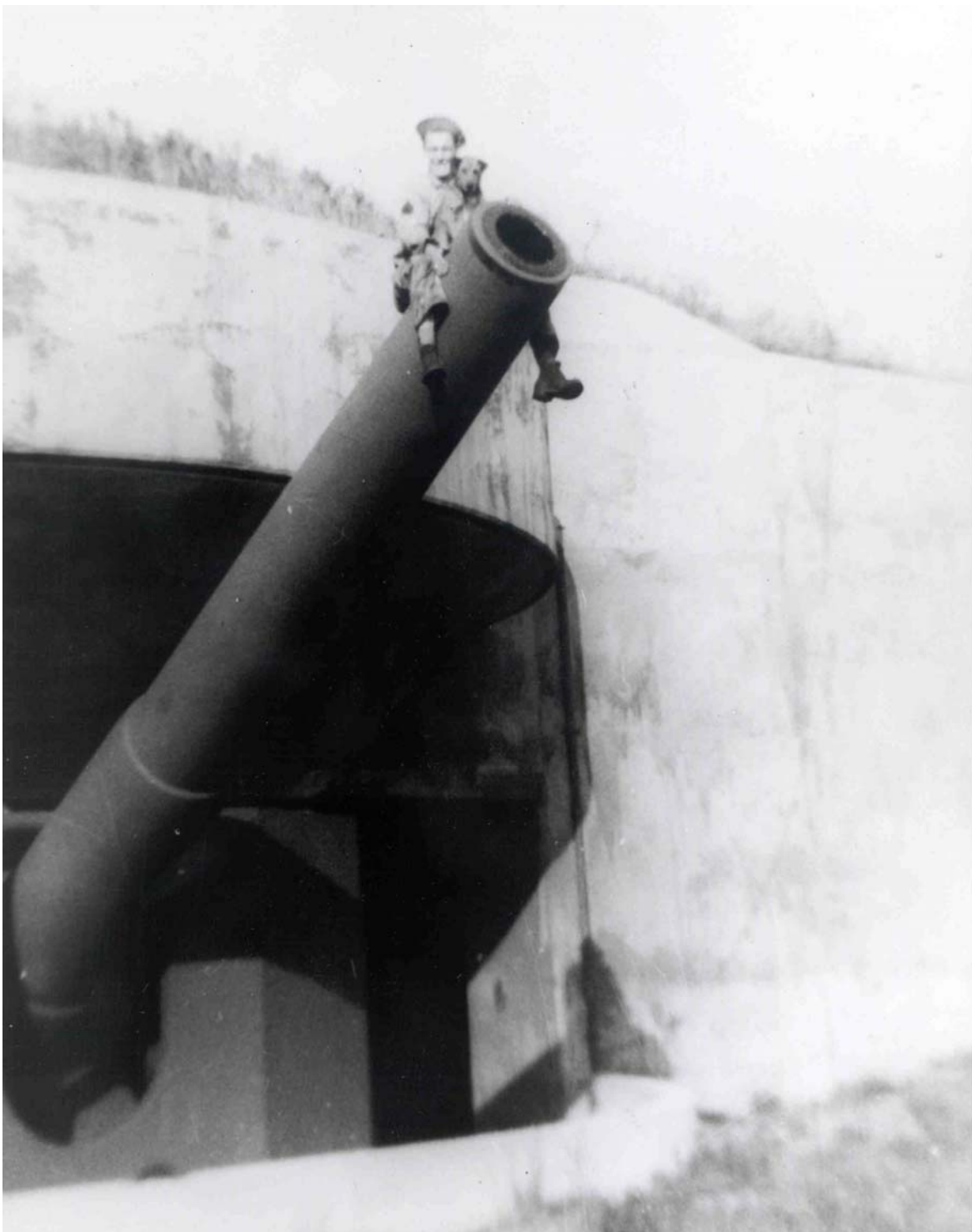
Batteries Kingman and Mills were given special bomb-proof coverings, called "casemates" in 1941 and 1942. These reinforced concrete structures made the guns and their supporting elements like ammunition storage, power generators and plotting room nearly impervious enemy gunfire or air dropped bombs.

Even the mighty 12-inch gun barrel is dwarfed by the size of the casemate. Also seen in this photo is a heavy steel blast-shield around the gun carriage, making the emplacements impervious to all but a direct hit from large caliber naval guns.



Fort Hancock Historic Hike *Battery Kingman*

Artillerymen are a unique breed of Soldier - and the Coast Artillerymen stationed at Fort Hancock were no exception. Here, a gun crewman from Battery Kingman perches at the muzzle of the 12-inch gun at full elevation. If you look closely, you'll notice he has his pet dog cradled in his arms. This photograph was taken the day the war in Europe ended on May 8th 1945. This soldier knew he would soon be going home.



Fort Hancock Historic Hike *Battery Kingman*

The same Soldier - and dog - pose with the 12-inch gun, this time at ground level. The dark looking smudges around the muzzle of the gun is actually a protective substance known as "cosmoline" - one of the best rust inhibitors of all time...and we use it extensively at Battery Gunnison/New Peck.



Fort Hancock Historic Hike *Battery Kingman*

The Plotting Room. where information from the observation and tracking stations is processed to generate firing data for the guns. This is the nerve center of a seacoast artillery gun battery. Seen here, is a plotting room from one of the batteries at Fort Hancock around the 1943 time period.

The instruments from left to right, are the Spotting Board, Deflection Board, Range Percentage Correctors, and the Plotting Board, which is located against the wall and has a semi-circular appearance. Each of these instruments was used to calculate components of the firing solution. They use the range, speed and bearing of the target as well as the time of flight of the projectile, wind and atmospheric impacts, powder temperature, erosion of the gun barrel, weight of the shell, height of tide and in some instances, rotation of the earth to determine the exact point in the future where the target and shell will meet. This is manual mathematical calculation in the pre-computer era, and it was extremely accurate. The Coast Artillery used this system from the 1900's until the introduction of radar and gun data "gear driven analog" computers beginning in early 1943.

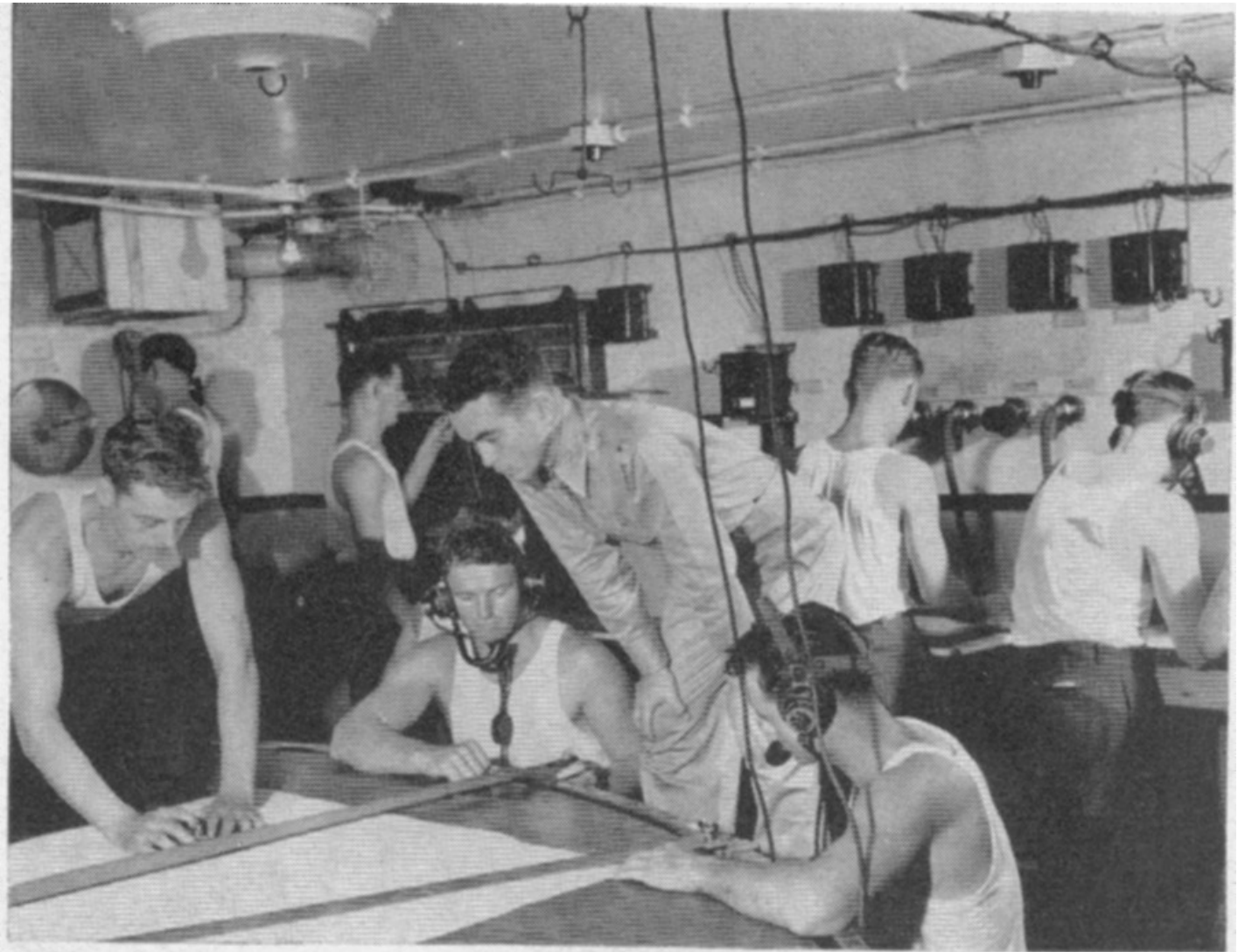


Fort Hancock Historic Hike *Battery Kingman*

The plotting room below is actually Battery Hearn on Corregidor in Manila Bay, Philippine Islands. The room proper was almost identical to Battery Kingman and Mill's plotting rooms and much of the same equipment in 1941.

The setting of the Philippines is very apparent given the men are all in T-Shirts and the officer is absent a tie.

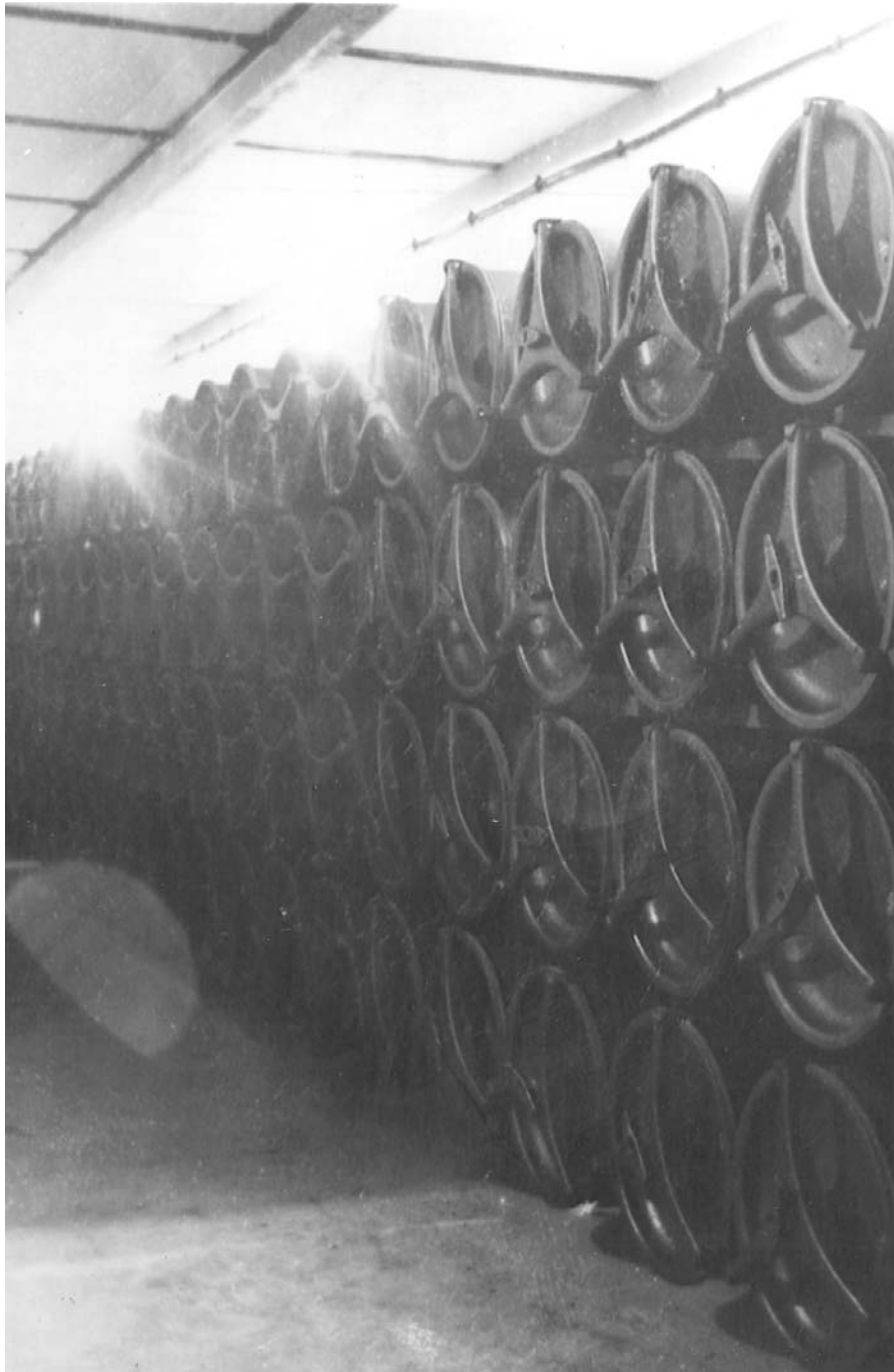
The telephones on the wall are WWI period EE-74 plotter's telephones (five square boxes on the wall - four together and one farther left). A new mid-1930's vintage EE-91 is mounted between the four EE-74s and the single EE-74. The soldiers at the plotting board are wearing EE-70 head telephones (head sets) from the WWI time period.



Plotting room for directing heavy artillery fire against invaders is buried far underground. As can be seen, these men are all U. S. Army regulars, listening on headphones to observer's data.

Fort Hancock Historic Hike *Battery Kingman's Powder Magazine*

Battery Kingman's Powder Magazine... Each 12-inch 975 lbs. armor piercing shell required a 270 pound charge to fire it. The 700 lbs. HE shells had a propelling charge of 220 lbs. Each charge was made of a volatile chemical compound called "nitro cellulous." Each charge was sewn in a combustible muslin or silk bag, and was stored inside of a sealed metal canister, called a "powder can." Some 70 canisters are shown here. For perspective, this is roughly half the powder in only one magazine. And there were two powder magazines per gun.



Depart:
1515 Hrs

Stop #9

Fort Hancock Historic Hike *Battery Kingman's Shell Magazine*

A short distance away inside the casemate is the Projectile, or Shell Magazine. Each armor piercing projectile is 12-inches in diameter, roughly four feet long, and weighs 975 pounds. These are Armor-Piercing shells, designed to punch through up to a foot of solid steel plate on an enemy ship before exploding, at a range of up to 18 miles.

The device in the background is a shell hoist, hanging from an overhead rail-system, which is out of view in the photo. The rails extended the entire length of the gun battery as well as throughout the shell storage rooms. This overhead trolley was used to lift and move the shells for loading into the guns in preparation for firing.

The guns also fired a 700 pound high explosive shell to approximately the same range of 29,000 yards. The majority of the projectiles in the magazine were armor piercing.



Arrive:
1600 Hrs

Stop #10

Fort Hancock Historic Hike

Gunnison Tower - Battery Harris

Fort Tilden, NY

Not every fire-control tower at a specific fortified installation was organic to its own use. The tower seen here was used as a base-end station for Battery Harris, located eight miles away across the harbor in Queens at Fort Tilden, NY. Fort Tilden was armed with two M1919 16-inch rifles, firing 2,340 pound shells to a range of almost 30 miles. Due to this extended range, the Army sought to make the guns as accurate as possible, using other Army locations as "eyes." By placing an observation station at Fort Hancock, it increased the visual range of the observers, giving them a better view of the southern approaches to the Harbor.

This tower was called "Gunnison Tower" and the remains of the foundation and the cable hut can be seen at the exit to Gunnison Parking Lot. This tower was built in 1927 and modified during WWII to add another station and a radar unit.

This final fortification location marks the end of our tour.

