

**Primary Battery File**

**National Archives, Washington D.C.**

**Record Group 77**

**Correspondence of the Chief of Engineers**

**Entry 103**

**File, Fort, Battery:**

**16485**

**Ft. Taylor**

**Btty Seminole**

## United States Engineer Office.

*Key West, Fla.,* June 15, 1898.

Brig. Gen. John M. Wilson,  
Chief of Engineers, U. S. Army,  
Washington, D. C.

General:-

I have the honor to submit the following project and estimate for repairs to be made to the gun and mortar batteries at this place to prevent leakage in certain rooms and passages.

1. The Mortar Battery.

An inspection of this battery made June 11 after a heavy rain developed the fact that of the two magazines, one is entirely dry, and the other leaks badly just inside the entrance from the main gallery; that of the two small shell rooms, one leaks; that of the two large shell rooms, both leak; that in the storage battery room, and in the two relocater rooms, especially in one of the latter, there are several bad leaks.

The method of construction followed was to put a layer of asphalt about two feet above the ceilings and to slope this layer to the air spacers. On top of this layer there is from three

to eight feet of concrete.

As the sand cover is not yet placed, the easiest way to prevent the leakage which now occurs will be to cover the roof concrete with a layer of asphalt. In Fort Taylor no deterioration of the asphalt has taken place, although the sand cover rests directly on the asphalt. It is thought therefore that the layer of mortar or concrete suggested in mimeograph No. 26 as sometimes advisable, is not necessary at this place.

Estimate of Cost.

850 square yards of asphalt 1-2 to 3-4 inches thick  
at \$1.75, - - - - - \$1,487.50

2. Gun Battery.

Almost all the walls in this battery show damp spots after a rain, and in the magazines of emplacements 1 & 5 and the shell room of No. 6 there are leaks in the ceiling.

Before going to the length suggested in the mimeograph, viz: repairing with Portland or asphalt cement to the depth of an inch or two, I would ask to be allowed to try some less expensive method such as painting the upper surface with grout or with "asbestine" paint. All the rooms in question are located under traverses, the upper surfaces of which have good slopes. Making



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1st indorsement.

Office Chief of Engineers,

U.S. Army, June 21, 1898.

Respectfully returned, before expending further money in attempting to secure water-tight magazines in the mortar battery by the use of asphalt, the Chief of Engineers desires to be informed as to the probable cause of the failure of the asphalt sheet already placed for this purpose by the contractors; and the composition and character of the asphalt proposed to be placed directly on the concrete by Lieutenant McKinstry.

By command of Brig. Gen. William B. Franklin, Captain, Corps of Engineers.

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Respectfully returned to the Chief of Engineers, U. S. Army, August 11, 1898. The worst leak in the Mortar Battery occurs along a vertical joint in the concrete. An effort was made by the contractors to stop the leak by the use of asphalt. The fact that the

joint was imperfect was not discovered until after the concrete cover had been placed. It did not occur to me at the time to test the water-tightness of the asphalt, which could easily have been done by playing water on it. The asphalt was put on in two layers, its half an inch thick, and gave at the joint referred to above. I can assign no reason for its failure, except poor workmanship and inefficient inspection. The asphalt should have been tested.

The estimate within is based on the supposition that the entire surface of the battery is to be covered with a layer of asphalt. Probably it will not be necessary to cover the entire surface. As the concrete cover above the asphalt averages five feet thick, it cannot be stated how much of the top should be covered to keep water from traveling obliquely downward to the leak in the interior course of asphalt. Trial, however, will determine this point. For the purposes of an estimate it may be assumed that half the battery will have to be covered. The total amount estimated as required to stop the leaks in the Mortar Battery and to try various remedial measures at the Gun Battery is according to the revised estimate, \$875.00.

The leaks in the Gun Battery are probably due  
1. In the case of the magazine sand other rooms of the left 8-inch

gun, to the fact that no mortar was used on top of the roof concrete, the asphalt being laid directly on the rough concrete.

2. In the case of other leaks, a rain storm having caused the deterioration of the joints in the first floor concrete structure, the plan of construction was changed to the extent of covering the roof concrete with mortar and laying the asphalt on the smooth surface so formed. Unfortunately, no severe rain occurred after this change until the concrete of the battery was finished, and no tests of the efficiency of the covering were made.

Dampness of side walls at both batteries is caused by the fact that the asphalt leads to and stops at the rear face of the air space, and that mortar was not used on this face.

The composition proposed for the asphalt cover suggested for the Mortar Battery is that mentioned in Memo-graph 26, viz: 4 parts asphalt, 1 part sand, 1/2 part coal tar.

Wm McKinstry  
1st Lt., Corps of Engineers

is a slight covering of sand.

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This coal formation is very porous and it was therefore considered very desirable to determine what the seepage through it amounted to. In the case of the two sites of batteries now under consideration, it was necessary to settle this question before fixing the reference of the magazine floors, bottom of pits and foot of slopes. For the purpose indicated holes were dug on the reservation and in each case the water rose and fell with the tide. On one day the range extended from 0.6 feet below M. L. W. to 1.1 feet above, though the average range was found to be but slightly over 1 foot.

The mean elevation of the rocky surface at the north end of the reservation including the salt pond is about 1.4 feet above M. L. W. and at the site of the South battery it is about 3 feet above same reference.

In regard to the height of water due to storm tides, there appears to be a record of one in 1846 fifty years ago, that went above the reference 6 feet, as fixed by the Board for the floors of the magazines of the Matar battery. I have been unable to find any authentic record of water having arisen to any such height since, and there-

fore assumed the same reference as that fixed by the Board.

In the mortar battery construction, it is suggested that the concrete wall at the base of the outer slope be replaced by one of rubble. This is done as a matter of economy, as the estimated cost of the concrete wall is about \$35000, that of the rubble about one fourth that amount.

The brick wall in the south battery is left in its present position.

The reference of the floors of the magazines, <sup>of this battery,</sup> is placed at (10) the same as fixed by the Board.

The Board considered the possible lines of approach as only from the southward, leaving out any prospective approach from the north west and the defence with artillery and sub-marine mines was carried out on three lines. - From the southward, beginning along the south shore ~~bank~~ and going to the west and north west the channels of approach are the south east channel: the main ship channel; the south west channel and the west channel, the latter two being practically one. The first entrance is so shallow as not to admit of the entrance of deep draught ships. The main ship channel

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carries at least  $28\frac{1}{2}$  feet throughout its length while the southwest has a least depth of 30 feet. The report of the Indivicta Board referring to these channels states that the main ship channel is the best. Inquiring among the pilots and boatmen of long experience in these waters seemed to verify this statement, the principal reason being that the distance to sea by the main ship channel is only about one half that by the southwest channel and that on entering by way of the former the ships would be obliged to run at half speed a shorter time than when making the passage through the latter. However the main ship channel beginning at a point  $4\frac{1}{2}$  miles from Fort Taylor and continuing to a point  $2\frac{1}{2}$  miles from the fort is comparatively narrow and difficult to navigate, and part of this narrow channel (where it runs through the "triangles") requires the most careful piloting for deep draught vessels. The southwest channel while it has a minimum depth of  $1\frac{1}{2}$  feet greater than that found in the main ship channel is yet more winding and tortuous than the latter and the point where it reaches the deep sea is  $10\frac{1}{2}$  miles from Fort Taylor.

The project of the Board of Engineers for the defence of these channels contemplates the building of sun-

placements for 4-10" and 2-8" in the South battery: two mortar batteries: modification of the Martell towers and 2-12" guns in Fort Taylor. For economical reasons the mounting of these latter two was changed from lifts as originally projected, to disappearing carriages.

The sectors of fire of the guns in the South battery have been increased as shown on the drawings so as to accord with the suggestions indicated on the lithographic sheet of June last as applicable to the 10 inch guns.

The general lines of the interior crests of the two faces of this South battery are the same as those proposed by the Board.

The presence of many of those coral formations known as "yellow heads" on the front <sup>ward</sup> seems to preclude the approach of deep draught vessels, other than by the channels above designated. To approach any near area where the coast survey charts seem to indicate the absence of these formations would bring the vessels under direct and heavy fire from the batteries. It is considered from these conditions and from the general lines of the work that no danger might be apprehended from slant rouse fire from the Southward.

In its report of April 3<sup>d</sup> 1894. The Board states  
"Unfortunately the near vicinity of deep water both  
"on the north and south would render it impossible  
"at reasonable expense to give absolute security against  
"bombardment, if the port were made a  
"great naval station offering a sufficient inducement  
"to an enemy possessing a superior fleet to incur the risk of serious loss to effect its destruction. All that can be judiciously attempted therefore  
"is to provide fortifications sufficient to make  
"the port a place of refuge to the limited extent  
"set forth above."

"There is a very large area in the North West  
"Passage and Man of War Harbor having a depth  
"of 18 feet or more, but existing conditions forbid  
"an attempt to afford reasonable security against  
"bombardment through this whole extent. There is  
"however a harbor area of 250 acres northward of  
"an east and west line drawn through Fort Taylor  
"in which the depth of water is 24 feet or over,  
"and no point of which is less than five miles from  
"the nearest position which could be occupied by a  
"bombarding fleet lying in the Gulf of Mexico north  
"of the Shoals. This harbor area is two miles long  
"and its middle point will be six miles from an

"enemys fleet in that position. x x x x x But the Board  
 "does not consider that the importance of Key West  
 "will justify an expenditure sufficient to keep at a  
 "distance of five miles from Fort Taylor or any dis-  
 "tance approaching it; and it accordingly limits its  
 "recommendation to an armament which it believes  
 "will be able to inflict injuries exceeding the advanta-  
 "ges."

With this view the works projected cover all channels of  
 approach from the southward. The 10" gun on right gun  
 of the south battery (No 1) is the only one that bears  
 upon the north west channel. In the present condition  
 of the improvement nothing but very light draught ships  
 can cross the bar at the northward entrance to this canal,  
 and it is presumed that no decided change will  
 take place in the near future. No doubt the possibility  
 of direct attack from the northward <sup>with deep draught ships</sup> were duly consid-  
 ered by the Board and with that view protection was  
 given from the Southeast around by west and opening  
 into the north west. At the time of the consideration of the  
 project for defence the project of the improvement of the  
 north west channel had been under way under specific  
 appropriations.

If it be considered that the opening of the north west chan-  
 nel will be an accomplished fact an admitting the e-

chance of deep draught over vessels, there will be no  
 protection for the batteries now proposed from direct de-  
 fence fire, and a revision of the project for defence  
 under the conditions will be necessary. An inspection  
 of the little chart showing proposed fortifications at Key  
 West will explain this reference.

The drawings and estimates herewith appear to be in ac-  
 cordance with the project of the Board. The works being  
 adapted, or at least so considered to their respective  
 sites.

On account of the expense attending the construction of  
 the main battery, due to the extensive embankments re-  
 quired (that is of fill over the excavation) and the fact that  
 the proximity of the rocky surface, enabling the walls to be  
 well founded, has caused me to keep the reference of the  
 floors as low as was consistent with safety.

The following estimates for construction are presented.

### Gun Battery

Excavation in sand etc	1750 yds at 40¢	700.00
" " old concrete	320 cu. yds. " 3.00	960.00
Concrete including boulders	29309 cu yds @ 8.00	234472.00
Sand in excess of excavation	72771 cu yds @ 40¢	29108.40
Gravel	44500 cu yds at 10¢ per 1000	4450.00
Steel Beams, plates &c.	66676 lbs at 3¢	2000.28
Sundries, including doors, opening tubes, bolleys, bolts, railing, lifli lighting plant		1500.00
		<u>282685.68</u>

Carried forward  
Contingencies 10%

282685.68  
282685.7  
\$ 310,954.25

## Mortar Battery

Sixteen - 12" Mortars.

Excavation Sand	350 Cu Yds @ 40 <sup>c</sup>	140.00
"	Coral rock 825 " " " \$2	1650.00
Fill	sand 180,326 " " @ 40 <sup>c</sup>	72130.40
"	Loam 2,274 " " @ 40 <sup>c</sup>	909.60
Concrete	16,750 " " " \$8	134,000.00
Rip Rap	2,953 " " " \$3	8,869.00
Steel Branes	81,500 lbs " 3 <sup>c</sup>	2,445.00
Brick	21,000 @ \$10 per M.	210.00
Sundrys, including Lighting Plant, Drainage, Speaking tubes, wiring, Doors, Cut Stone &c &c		15000.00
Anchor Bolts	58,067 lbs @ 6 <sup>c</sup>	<u>3484.00</u>
		238,838.00
		<u>23883.00</u>
Contingencies 10%		262,721.00
Total, Mortar Battery		

## Gun Battery

Total, Gun Battery &amp; Mortar Battery,

310,954.25  
\$ 573,675.25

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There are forwarded herewith drawings specifications & plans and it is respectfully requested if the plans etc. meet with approval that blue prints be furnished me, as I have had no facilities here for doing the work. If however they be sent under register-ed cover to me at St. Augustine I have facilities there for taking any number of copies.

I enclose also in case of approval requests for printing specifications and advertising in certain news papers.

I am indebted to Lieut. Meyle and Lieut. Johnston for assistance in the preparation of the plans &c.

Very Respectfully  
Your Obedt. Servt.

A. H. H. B. D. B. B.  
U. S. Corps of Engineers

12 inclosures  
(Maps drawings etc  
in separate packages)

1077  
SUBJECT: Gun battery, Key West, Fla.



Office of the Chief of Engineers,  
United States Army.

Washington, D. C. October 31, 1896.

Lieut. Col. W. H. H. Benyaurd,  
Corps of Engineers,  
St. Augustine, Fla.

Colonel:

Your plans for a gun battery at Key West are approved.

The design for a mortar battery submitted by you, is being modified in this office to reduce cost and to permit a portion of the battery to be built at a time if necessary, and the new design will be sent to you as soon as practicable, and in time for inspection by authorized bidders. Your specifications are being modified to suit these changes. They will be so drawn as to permit the construction of all or a portion of the battery, according to the amount of the bid and the funds available.

The advertisement should be inserted in the authorized papers without delay and the specifications printed as soon as practicable after their receipt back by you.

The date for opening the bids has been set at November 24, 1896, in accordance with the wishes of the Secretary of War and by his authority.

Very respectfully your obedient servant,

*[Signature]*  
Acting Chief of Engineers.

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Inclos. 5 & 6 in sep. roll.



Key West Barracks, Florida,  
July 7, 1899.

The Adjutant General,  
Department of the Gulf,  
Atlanta, Georgia.

Sir:

In compliance with G.O.No.68, A.G.O., 1897, and in compliance with Department Circular, August 18th, 1898, I have the honor to submit the following Quarterly Report:

The defenses of this place comprise the "South Battery", Mortar Battery, Fort Taylor and "North Battery".

The South Battery contains the disappearing mounts, two (2) Crozier-Buffington and four (4) U.S., and two (2) Q.F. Armstrong 4.7".

The Mortar Battery contains eight (8) XII" B.L. Mortars on U.S. Carriages.

Fort Taylor has been razed and emplacements for two (2) XII" Barbette have been completed. The mounting of these guns and carriages is to be accomplished by this command. The material for this work is now awaited. This battery has not yet been turned over.

In the North Battery there are three (3) VIII" M.L.R. in barbette and alongside is an uncompleted emplacement for two (2) R.F. Guns. Emplacement for two (2) R.F. Guns is contemplated on the right of the XII" Battery in Fort Taylor.

"South Battery":

General Condition: The construction is far from being completed. A small part only of the exterior slope has been filled in. This work is being done by contract and is executed by fits and starts. Some filling will be done upon the Mortar Battery for a few days and then that will be left to itself and filling will then be done upon the South Battery. Such periods of activity are followed by periods of rest during which nothing is done. Not a wheel has been turning for some days. A construction railroad is laid upon the superior slope of the South Battery. This prevents any use of the guns. A stationary engine is fixed near the North X" Rifle and a locomotive runs along the aforementioned track. Both these engines cause much dirt and annoyance to Gun Commanders.

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



Magazines: No thorough inspection can be made of the magazines as electric lights are not yet in place. I have already reported the state of affairs in the magazine containing smokeless powder.

Communications: The emplacements of the disappearing guns are completely isolated from one another. There should be a suspended iron foot-way around each traverse. The sketch below, not drawn to scale, shows the rear communications. To pass from E to E one has to descend a flight of steps to a side-walk, then down a flight of four or five steps, then along a walk to the foot of a flight of steps, then up to the platform at E. These raised parts of the side-walk are inconvenient and in half the cases unnecessary. The object of this raised walk is to reach a door X leading indirectly to the observing stations, R. As these observing stations are in alternate traverses only, the raised walks in the other cases are unnecessary and are obstructions. The doors at the foot of the steps at X' open outward and thus shut off passage along the walk. These doors have to be open when the cranes are used and in that case communication by the walk is cut off.

Storerooms: There is an absence of suitable storage place for spare materials and for sponges and rammers. We are now using the so-called Guard Room for sponges and rammers. In some cases these rooms are too short and in all cases they are unsuitable to this purpose and are also useless as Guard Rooms. The shape of these rooms is like a section of an annulus. See figure. Doors are at A and B. No window. Too narrow for men to sleep in. The curved walls cannot be used for brackets to hang rammers, etc. In some instances these rooms are filled with storage batteries. How many are to be so used I shall not be able to say until the electric lighting plant is declared completed. The rooms constructed for storage batteries have proved unsuited for that purpose.

Oil-house. A suitable house for the storage of oil is needed. At present a room is used in each emplacement and in spite of every care the oil is fouling the place. I learn from the Inspector of this Light-house District that glass is the only material that is oil-proof. With a suitable oil-house I see no reason why our oil supply may not be kept in glass carboys.

Ammunition Hoists: These are not in working order and have not been turned over to the Artillery for use.

General Construction: The concrete work is the poorest I have seen. It is full of cracks and seams and slight blows will loosen large fragments in some places. To prevent leaking there are patches of asphalt on the superior slopes.

Interior Stairs: These lead from the loading platform to the lower galleries, etc. The edges of the steps are very ragged in many instances. Over the steps leading from No.6 emplacement the head space is only four feet, two inches. This is ridiculously inadequate.

Water Supply: There is no water supply introduced and I understand none is contemplated. It is absolutely necessary that

a supply of fresh water should be piped to the guns for the washing of the bores and for the supply of troops. Drainage from the slopes and platforms could not be used as the oil would render it unfit for drinking.. Cisterns with a power pump must be provided.

Drainage: There should be a drain with an ample grated cover so situated as to allow the slush and dirt from the bore to fall into it.

Speaking Tubes: These are of the common hotel pattern with whistle attachment. It seems to me that it would have been wise to adopt a megaphone mouth-piece with base flush with wall. This would do away with the necessity of having alternately to cock the ear and mouth to the tube. The speaking tube system is superior to the telephone in clearness and simplicity where installed in the present case.

Observing Stations: These are inconveniently planned. The speaking tubes are located less than breast high in the wall on the side of the pedestal from the observer. There are no draw-out tubes and so the observer will have to step from his instrument and assume an awkward and cramped position while sending or receiving a message. An assistant continually at the speaking tubes would probably be in the way of the observer and his instrument. The present arrangement is therefore unsatisfactory.

Electric Plant: Not yet installed. Workmen are engaged in boring holes for conduits and brackets. A 32-horse power oil engine is in place for use with dynamo but this engine has not been accepted and it has failed to attain the horse power claimed for it.

Range Finders: Two of type B on hand. The screws for setting the instrument for height grind against the barrel and prevent the corrections at either extremity of the scale. No action has been taken on plans submitted from this Post over a year ago on the subject of a Range Tower for a type "A" Position Finder.

Plotting Boards, etc: As yet there are no plotting boards, tables, shelving, brackets for instruments, or other accessories and necessities. I am unable to say what is contemplated in this direction.

South Q. F. Battery:

This is continuous with the South Battery and I think is pronounced finished. The magazines and fuse-rooms are dry but lack furniture. No brackets for the fixed ammunition or implements are provided and the cases and projectiles have now to be kept in the rough boxes in which they were shipped.

Re-Loading Tools: Are entirely wanting.

Primers and Cases: Some empty cases and spare primers are needed for instruction purposes. There are no means at hand, for testing the electric firing apparatus.

Sub-Calibre Practice: Should be provided for that the use of these guns may be learned.

Armament: Two (2) VIII" B.L.R. on Crozier-Buffington carriages; Four (4) X" B.L.R. on disappearing mounts; two (2) Q.F.4.7" Arm-

strongs en barbette. The VIII" and X" guns have a breech mechanism that opens with two cranks, a system now rather out of date.

## Emplacement No. 1:

Armstrong Q.F. 4.7" No. 11002.

Electric firing circuit not in contact at brackets because the spring pin does not reach lower bracket. A spring cotter is missing from traversing wheel. The lower right hand shelf below the dry battery and spare cable is empty. Do not know what belongs there and the pamphlet does not explain. No night sight seems to be provided.

## Emplacement No. 2:

Armstrong Q.F. 4.7" No. 11003.

Magazine as in No. 1; no night sights:

## Emplacement No. 3:

X" B.L.R. No. 46. Bad rust spot, possibly a deep pit, in surface of bore, upper right side about middle of rifling. Casting of dust guard and traversing gear <sup>broken</sup> not important. Pitting from rust on threads of breech.

## Emplacement No. 4:

X" B.L.R. No. 65. Very deep pits from rust on lower seven lands at muzzle where temporary tompon was fitted for transportation. Rust stains on rifling. Burr on thread of breech block; does not interfere with working of block.

## Emplacement No. 5:

X" B.L.R. No. 64. Link of left retracting chain pulled open June 8th, 1899. Steps to lower galleries very imperfect. Right stop screw too long.

## Emplacement No. 6:

X" B.L.R. No. 34. Bolt missing from front sighting platform on cylinder. Fine pitting on breech block. Wire netting of gunners platform never set up; had been broken off—circumstances not known. Only four feet, two inches, of head space over steps leading to lower galleries. Stuffing box on left cylinder leaks slightly. Roof of lower gallery and small room showed leakage after a light rain. No "Guard Room" provided. See "note" below.

## Emplacement No. 7:

VIII" B.L.R. No. 40. Retraction gear not in place; has been sent off for adjustment as it would not perform its office. Steps to lower gallery imperfect. Roof of gallery or passage leaks. Glacis in front of muzzle has a sudden turn up to cover muzzle, making the interior crest weak at this point.

## Emplacement No. 8:

VIII" B.L.R. No. 39. Slight rust stains in some of the grooves. Ratchet teeth 5, 6 and 7, left side, bruised—no importance—probably done in assembling carriage. Retraction gears as in Emplacement No. 7. Glacis as in Emplacement No. 7. "Guard Room" so short that door cannot be closed when staves are in it. Gun does not depress easily.

Sights: Open sights had to be filed down to fit brackets. Two on hand. Three telescopic sights on hand and are defective. In moving the eye laterally the vertical wire passes over one whole division on the deviation scale.

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NOTE:- Emplacement No. 6, X" B.L.R., in salient angle, is very cramped. The gun can be loaded when the breech is opposite the steps only. Even in this position the rammer staff extends beyond the guard-rail so far that the handles can not be grasped by the cannoneers.

GRADUATIONS of the Azimuth circles are not numbered in any emplacement in this battery.

Mortar Battery-

General Condition: Work upon this Battery is being accomplished by contract. A large pile of coral mud has been dumped in front of the magazines and galleries but much of the concrete work remains uncovered. No work whatever is in progress at the present writing as regards filling in.

Pits: Are two in number and contain 4 mortars each. These pits are so small that the mortar beds lack but two feet of tangency with each other. To load the mortars requires that the breeches of the two forward mortars be pointed toward the center of the pit while the two rear mortars are placed parallel with the sides of the pit. In the case of the first pair the position necessary for loading brings the rear end of the sponges and rammers towards each other and thus necessitates some care in running up the shell trucks. There is just room for two trucks to pass the mortars abreast provided the traversing gear is not in operation.

Brackets for sponges, etc: These are greatly <sup>needed</sup> against the side walls. There is no room in the pits for placing these implements on the floor. There must be a place to hang them out of the way when not in use. This is a necessity.

Storage Room: No convenient place has been provided for the <sup>chest and armament</sup> tool chests. At present they are placed in the passage under the trolleys where they are in the way of the trucks. This lack of convenient and necessary storage space seems a failing in all the modern batteries of which I have knowledge. A ship of war, constructed with as little circumspection, would be compelled to leave most of her equipment on the dock when she sailed away. Sponges and rammers are at present hung in makeshift racks in the passage to the plotting room. This passage is not suitable for the purpose as the presence of these implements very seriously obstructs it, being only wide enough for the easy passage of one man.

Water Supply: There is no provision for fresh water supply. As in the case of all batteries this is essential for drinking and cleaning purposes.

Drainage: Is defective. Emplacements have to be frequently bailed out. The tide appears to have some effect. There are no strainers provided for the drain holes.

Electric Plant: Not yet in working order. A storage battery, ten-horse power oil engine and dynamo are in place.

Plotting Boards are not in position and no "furniture" provided, such as shelves, racks, etc.

Armament: Eight XII" B.L. Mortars on U. S. carriages.

Azimuth Circles: Graduations not numbered, and verniers not attached.

Right Pit-

Emplacement No. 1: XII" B. L. Mortar No. 41. Breech-block much pitted by rust.

Emplacement No. 2: XII" B. L. Mortar No. 42. Two bruises in lands near muzzle. Slight rust stain in chamber. Breech-block crank handles and translating screw all badly pitted from rust.

Emplacement No. 3: XII" B. L. No. 44. Breech-block very badly pit-

ted with rust stains. Rust pit in bottom of forcing cone.

Emplacement No. 4: XII" B.L.Mortar No.40. Breech-block and appendages thereto very badly pitted from rust.

Left Pit-

Emplacement No.5: XII" B.L.Mortar No.25. Breech-block rust stained in a few places. Lands near muzzle and extending about a foot from the muzzle have a file-like appearance. No gas check.

Emplacement No.6: XII" B.L.Mortar No.43. Slight bruise on lands near muzzle. Breech-block rust pitted.

Emplacement No.7:

XII" B.L.Mortar No.26. Breech-block in excellent order. Lands have rough surfaces. No gas check.

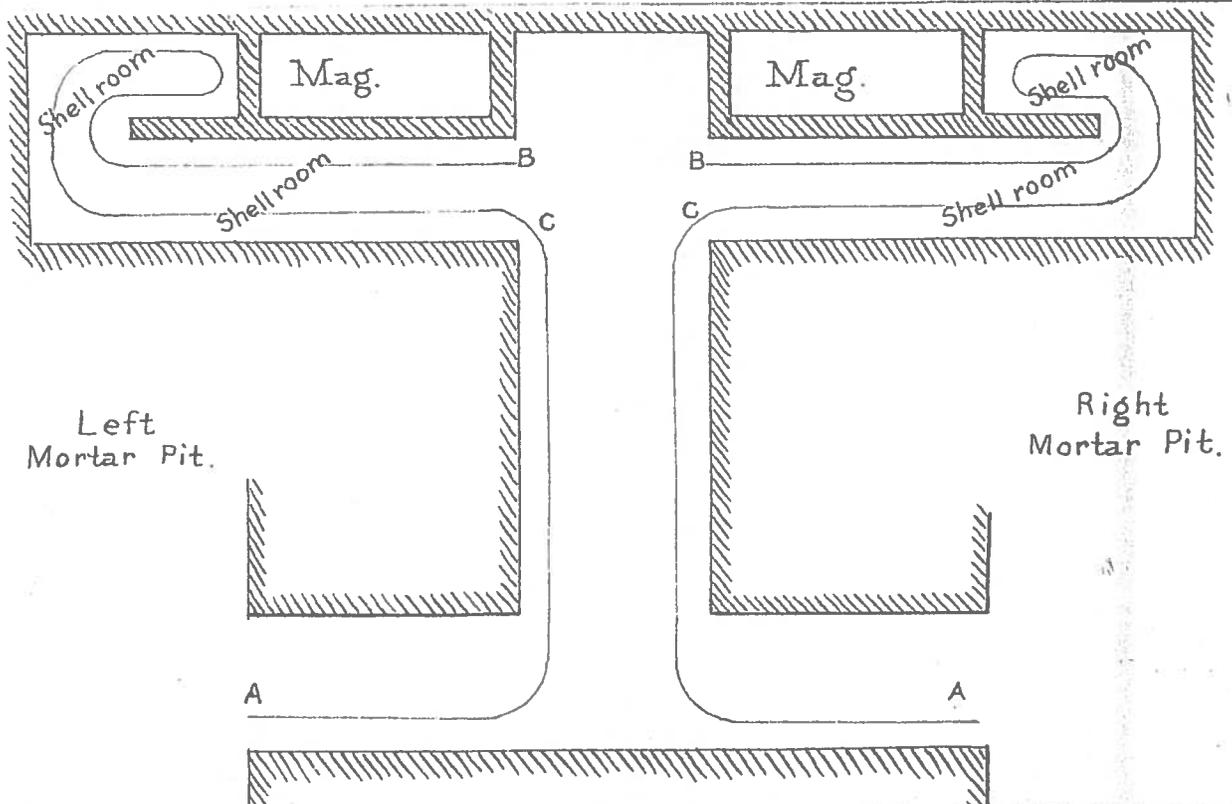
Emplacement No.8: XII" B.L.Mortar No.24. Lands have file-like surface for about two feet from muzzle. Threads of breech-block slightly pitted and mushroom head also. No gas check.

Magazines: Have a disagreeable atmosphere due to dampness or lack of ventilation. On account of darkness thorough examination is impracticable.

Observing Stations: Not yet constructed.

Re-Locating and Plotting Rooms: Poorly ventilated. Electric fans will be absolutely necessary in these rooms.

Trolleys: The trolley tracks extend from "A" and terminate at "B". To reach the point "C" the trolley must pass completely around two galleries. This is ridiculous. There should be connection between "B" and "C", with a switch at "C". See sketch, which is not drawn to scale. The red line shows the plan of the trolley track. This



passage is the only cover provided for the ninety six men comprising the detachments. That number will find little room in this space.

Recommendations: I would recommend that shallow upright closets with sliding doors be built just inside the entrance to the magazine traverse against the wall and opposite the trolley track. If the closets were planned to hold the contents of the "tool-chests" and the "armament chests" (omitting the buckets) it would do away with these chests which are now in the way and ~~would~~ seriously so. Or there is still time to construct storage rooms behind the plotting rooms.

Oil House: Is needed for the storage of oil, oil waste, cleaning materials and the greasy rags used about the pieces.

Latrines-

No provision has been made for urinals or water-closets in either the Disappearing Battery or the Mortar Battery. Nor have I observed any provisions of this nature about the XII" Battery at Fort Taylor. But as the latter has not yet been turned over and as I have not seen the plans I cannot speak positively. After the magazines, suitable latrines are of next importance. That they should be omitted is incomprehensible.

Respectfully submitted,

Hamilton Rowan

Captain 1st Artillery,  
Commanding Post.

16485  
162 (Copy)

For West Bks.  
Sta.

July 7, 1899.

Comdg. Officer  
(Capt. Hamilton Rowan).

Submits quarterly re-  
port of inspection of  
defensive works at Key  
West.

(See [unclear])

Original returned by Capt. of Eng'rs,  
informally, to officers of the station,  
July 5, 1899.

Placed in [unclear] file, Aug. 9, 1899.