

U.S. CHIEF OF ENGINEERS

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WAR DEPARTMENT

Charleston, S.C.,
Dec. 31, 1909.

MAJ,
CAPTAIN E. M.

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REPORT OF COMPLETED BATTERIES, ETC.,
 Defenses of the Coast of South Carolina,
 December 31, 1909,

In charge of Captain E. M. ADAMS, Corps of Engineers, U. S. A.

Name of Har- bor.	Name and armament of battery	Date when turned over to Artillery	Total cost to that date	Remarks.
CHARLESTON HARBOR, SOUTH CAROLINA.	<u>FORT MOULTRIE, S. C.</u>			Garrisoned.
	<u>Battery Capron:</u> Mounted	June 28, -98	\$92,678.76	Electric light plant has been installed. In- sulation of in- side wiring good. Magazine very damp.
	8 12-inch B.L.mortars; model 1886, Nos. 2*, and 28, and mod- el 1886 M, Nos. 32, 33, 45, 51, 57 and 62, Builders Iron Foundry.			Projectile hoists installed; specia ly designed hy- draulic lifts; motors 110 volt, speed 800, of 1 1/2 H.P.; have not yet been transferred.
	8 12-inch Mortar Carriages, model 1891, Nos. 35 and 36, Builders Iron Foundry; Nos. 37, 58, 60, 61, 62 and 65, Rob- ert Poole & Sons Co.			
	Pit A: Platf. 1, Mortar 62, Car. 58 " 2, " 51, " 60 " 3, " 28, " 65 " 4, " 32, " 61			
	Pit B: Platf. 1, Mortar 33, Car. 62 " 2, " 45, " 36 " 3, " 57, " 37 " 4, " 2*, " 35			
	<u>Battery Pierce Butler:</u> Mounted	June 28, -98	92,678.75	Magazine very damp.
	8 12-inch B.L.mortars, model 1890 MI, Nos. 1, 2*, 3, 4, 5, 6, 7, and 8, Watervliet Arsenal.			Projectile hoists same as Battery Capron.
	8 12-inch Mortar Carriages, Nos. 74, 75, 76, and 79, West Point Foundry; Nos. 80, 81, 82, and 83, Watertown Arsenal.			
	Pit A: Platf. 1, Mortar 7, Car. 74 " 2, " 3, " 75 " 3, " 2*, " 76 " 4, " 8, " 79			
	Pit B: Platf. 1, Mortar 5, Car. 81 " 2, " 6, " 82 " 3, " 4, " 83 " 4, " 1, " 80			
	1 Cable Tank,	May 2, 1901	1,032.50	To be used as a cistern.

Harbor.

Name and armament of battery	Date when turned over to Artillery	Total cost to that date	Remarks.
<p><u>Battery Jasper:</u> ✓ Mounted 4 10-inch B.L.rifles, model 1888 MI, No.33, and model 1888 MII, Nos.58, 60, and 62; Watervliet Arsenal. 4 10-inch disappearing carriages, model 1896; Nos.24, 25, 26, and 30; Bethlehem Iron Co. Empl.1, Rifle 33, Car.30 " 2, " 58, " 26 " 3, " 60, " 24 " 4, " 62, " 25</p>	<p>May 4, 1898</p>	<p>\$238,100.00</p>	<p>Electric light plant installed. Insulation of interior wiring good. Magazine damp. Carriages are equipped with motors. Four Taylor-Raymond, back delvry. projctl.hoists installed, Nos.42, 43, 44, & 45; motors 110 volt, speed 1200, 5 H.P., transfrd. July, 1904</p>
<p><u>Battery Thomson:</u> ✓ Unmounted 2 10-inch B.L.rifles, model 1900, Nos. 3, and 7; W.A. 2 10-inch disappearing carriages, Nos. 2, and 3, model 1901, Watertown Arsenal. Empl. 1, Car. 2 " 2, " 3</p>	<p>Sep.10, 1906</p>	<p>\$115,000.00</p>	<p>Electric light plant installed; condition good; carriages not equipped with motors; magazine dry. Two Taylor-Raymond, back delvry. projctl.hsts. Nos.3 & 4; motors 110V. speed 1200, 5 H.P. transfrd. Mch., 1904</p>
<p><u>Battery Gadsden:</u> ✓ Mounted 4 6-inch guns, Nos. 64, 15, 62, and 63, model 1903, Watervliet Arsenal, 1906, on disappearing carriages, model 1903, No.26, William Seaver Morgan Co., 1905, and 13, 14, and 16, Morgan Engineering Co., 1904. Empl.1, Gun 64, Car. 26 " 2, " 15, " 13 " 3, " 62, " 14</p>	<p>Sep.10, 1906</p>	<p>\$88,200.00</p>	<p>Electric light plant installed; condition good; magazine dry; carriages equipped with motors.</p>
<p><u>Battery Logan:</u> ✓ Mounted 1 6-inch R.F.gun; model 1897, No.3; Watervliet Arsenal. 1 6-inch disappearing carriage model 1898, No.4; Watertown Arsenal. Empl.1, Gun 3, Car. 4</p>	<p>Sep.25, 1899</p>	<p>\$34,618.07</p>	<p>One gun dismantled. One Hodges, back delvry. projctl. hoist, No. 1, motor 110 volt, speed 1060, 3 H.P., transferred 1904.</p>
<p><u>Battery Bingham:</u> Mounted 2 4.7-inch R.F.guns, Nos.11687, and 11008, Armstrong Works, England. 2 4.7-inch pedestal mounts, Nos.11013, and 11017, Armstrong Works, England. Empl.1, Gun 11008, Car.11013 " 2, " 11687, " 11017</p>	<p>Nov. 3, 1899</p>	<p>\$6,000.00</p>	

Harbor.	Name and armament of battery	Date when turned over to Artillery	Total cost to that date	Remarks.
	<u>Battery Lord:</u> Mounted 2 3-inch R.F.guns, Nos. 26, and 27, model 1902; Bethlehem Steel Co. 2 3-inch pedestal mounts, Nos. 26, and 27; Bethlehem Steel Co. Empl. 1, Gun 26, Car. 26 " 2, " 27, " 27	Dec. 31, 1903	\$12,995.85	
	<u>Battery McCorkle:</u> 3 3-inch R.F.guns, Nos. 6, 13, and 14; Driggs-Seabury Co. 3 3-inch balanced-pillar mounts, model 1898, Nos. 6, 13, and 14; Driggs-Seabury Co. Empl. 1, Gun 13, Car. 13 " 2, " 6, " 6 " 3, " 14, " 14	Jul. 16, 1901	\$9,390.79	
	1 Torpedo store-house,	Mch. 1, 1902	\$5,759.66	On parade ground in rear of old fort
	1 Cable tank,	May 18, 1903	\$1,610.00	On parade ground in rear of torpedo storehouse.
	2 2.24-inch R.F.guns, Nos. 27, and 28, Driggs-Seabury Co., model 1898, with carriages Nos. 27, and 28.			
	1 Building for three primary base end stations,	April 13, 1906	\$6,200.00	Site of station 17', and axes of instruments 40' above m.l.w. On 2nd story, 3 observing rooms, each 14' X 18', and 3 platting rooms, each 16' x 18'; on 1st story 3 rooms, each 30' x 18'. Frame building. Inconspicuous from usual channel of approach at distance of 4 miles.

No.	Name and armament of battery	Date when turned over to Artillery	Total cost to that date	Remarks.
	3 Buildings for three temporary secondary base end stations,	Apr.13,1906	\$4,275.00	Site of station 45', and axes of instruments 52' above m.l.w. Three observing rooms, each 10' x 11' (1 in each building) and be- sides in 1 bldg. 2 extra rooms, 6' x 11' and 9' x 10'. Frame buildings. As lo- cation is on top of mortar battery conspicuous from usual channel of approach at dist- ance of 4 miles.
	1 Mining casemate,	Jun.22,1906	\$2,927.22	Frame building; 4 rooms: Storage btry.rm., 8' 2" x 21' 9" Engine room, 12' 4" x 21' 9" Operating room, 16' 4" x 21' 9" Bed room, 21' 4" x 21' 9"
	1 Torpedo loading room,	Jun.22,1906	\$3,267.84	Frame building. 45' x 22'
	1 Boathouse,	Jun.22,1906	\$1,221.80	Frame shed, 23' 8" x 58' 7 3/4"
	1 Planting wharf (iron pile),	Jul.23,1907	\$12,100.00	Condition at time of transfer very good.
	1 Tramway,	Jul.23,1907	\$5,480.00	" " "
	1 Double primary range finder station (mine field),	Jul.23,1907	\$3,766.17	Site of station 21.26', and axes of instruments 33.738'(west) & 33.725'(east) above m.l.w. Two plating rooms, each 16' x 18'; two observing rms each 14' x 16', an one vestibule 5' x 10'. Wooden frame with thin re-enforced con- crete covering and metal roof. Inconspicuous fro usual channel of approach at dist- ance of 4 miles.

Harbor.	Name and armament of battery	Date when turned over to Artillery	Total cost to that date	Remarks.
	1 Double secondary range finding station (mine field)	Jul. 23, 1907	\$1,508.58	Site of station 12.6', and axes of instruments 22.168' (west) & 22.154' (east) above m.l.w. Two rooms, each 10' x 10'. Wooden frame with thin re-enforced concrete covering and metal roof. Inconspicuous from usual channel of approach at distance of 4 miles.
	1 Cable tank and cable-tank house complete with 5-ton traveling crane,	June 5, 1908	\$3,559.02	Condition when transferred, good.
	1 Tide gauge,	Aug. 21, 1908	\$398.26	Located on wharf, front beach, Sullivan's I.; condition when transferred, serviceable. Self reading gauge; disc dial actuated by a float.
	<u>FORT SUMTER, S. C.</u>			
	Battery Isaac Huger: ✓ Mounted	Jun. 15, 1899	\$97,200.00	Garrisoned by a detachment from Fort Moultrie.
	1 12-inch B.L. rifle, model 1888 MII, No. 30, Watervliet Arsenal.			Electric light plant has been installed. Insulation poor.
	1 12-inch B.L. rifle, model 1888 MII, No. 22, Watervliet Arsenal.			Two Hodges projectile hoists, back delivery, No.
	1 12-inch non-disappearing carriage, model 1892, No. 14, Morgan Engineering Co.			; no motors, hand power, transferred June, 1899.
	1 12-inch disappearing carriage, model 1896, No. 17, Bethlehem Iron Co.			
	Empl. 1, Gun 30, Car. 14 " 2, " 22, " 17			

Name and armament of battery	Date when turned over to Artillery	Total cost to that date	Remarks.
<u>FORT FREMONT, S. C.</u>			
<u>Battery Jesup:</u> Mounted	Sept. 2, 1899	\$124,293.85	The electric light plant has been installed. Insulation fair. Three Taylor-Ray- mond projectile hoists, front de- livery, Nos. 99, 100, & 101; motors 110 volt, speed 1200, 5 H.P., transfrd. Jan., 1905
3 10-inch B.L. rifles, model 1895, No. 9, Watervliet Ar- senal, and model 1888 MII, Nos. 34, and 15, Bethlehem Iron Co.			
3 10-inch disappearing ear- riages, L.F., model 1896, Nos. 32, and 52, Watertown Arsenal, and No. 56, Beth- lehem Iron Co.			
Empl. 1, Rifle 9, Car. 52 " 2, " 34, " 32 " 3, " 15, " 56			
<u>Battery Fornance:</u> Mounted	Sept. 2, 1899	\$6,000.00	
2 4.7-inch R.F. guns, Nos. 9423, and 9424, Armstrong Works, England.			
2 4.7-inch pedestal mounts, Nos. 9084, and 11005, Arm- strong Works, England.			
Empl. 1, Gun 9423, Car. 9084 " 2, " 9424, " 11005			
1 Cable tank,	Sept. 2, 1899	\$2,662.78	Leaks badly; house badly de- cayed.
1 Tower for range finding station,	May 31, 1905	\$6,652.05	Site of station is 16', and axis of instrument 62' above m.l.w. Two rooms 15' x 15' and 8' x 8', respectively; tower is of steel; from usual channel of approach is in- conspicuous at distance of 4 mi.

E L E C T R I C P L A N T S

Defenses of the coast of South Carolina.

Charleston Harbor.

FORT MCULTRIE, S. C.

At Batteries Capron and Pierce Butler:

Located in building in rear of battery.

No boiler.

The engines: - One 50-horse power, gasoline actuated engine, General Electric Co. make, purchased about June, 1909;
One 13-horse power Horsnby-Akroyd oil engine, purchased about April, 1899. (Auxiliary plant)

The generators: - One 115 volt, 25 k. w., compound wound, inner pole, direct connected, purchased about June, 1909; General Electric Co. make;
One 110 volt, 9 1/2 k.w., Westinghouse, compound wound, direct current, purchased about April, 1899. (Auxiliary plant)

No transformers.

No storage batteries.

Current used for inside illumination; telephone booths; three temporary secondary base end stations; and for ammunition service; not used for manoeuvring guns, nor for post lighting; no searchlight operated.

Kilowattage required for:

Inside and outside illumination,	7.6
Motors,	6.6
Searchlights, - no project for searchlights;	
Telautographs,	2
Post lighting, - too far from post to be used.	

Not designed to permit of installation of additional units.

No record of cost kept.

Date of transfer to Artillery: - One set not yet transferred; one set transferred May 4, 1898.

At Battery Jasper:

Located in rear of right flank of battery.

No boiler.

The engine is a 50-horse power, gasoline actuated engine, General Electric Co. make, purchased about June, 1909.

The generator is 115 volt, 25 k. w., compound wound, inner pole, direct connected, General Electric Co. make, purchased about June, 1909.

No transformers.

No storage battery.

Current used for inside illumination, four 10-inch emplacements, Battery Jasper, group of three primary base end stations, mining casemate, and torpedo storehouse; ammunition service and for manoeuvring guns; power for Ordnance Department machine shop; not used for post lighting, and no searchlights operated from this plant.

Kilowattage required for:

Inside and outside illumination,	12
Motors,	62.5
Searchlights, - no project for searchlights	
Telautographs,	4
Post lighting,	60

Is designed to permit of installation of two parallel units.

No record of cost kept.

Not yet transferred to Artillery.

At Battery Thomson:

Located in room underneath loading platform of emplacement No. 2.

No boiler.

No engine.

Motor generator set consisting of direct current motor at 550 volts, and direct current generator at 110 volts, built by the C & C Electric Co., New York, 1905; purchased February, 1906.

Motor:

20 H. P.
550 volts
40 amperes
1440 speed
Type S

Generator:

20 K. W.
110 volts
182 amperes
1440 speed
Type S

No transformer.

No storage battery.

Current used for lighting two emplacements, Battery Thomson; four emplacements, Battery Gadsden; power for ammunition service, Battery Thomson; power for ammunition lifts, and inside lighting in day time at batteries Capron and Pierce Butler; not used for post lighting; no searchlights operated.

Kilowattage required for:

Inside and outside illumination, defensive works, 15	
Motors,	31
Searchlights, - no project	
Telautographs,	2

Not designed to permit installation of additional units.

Total cost \$1,200.00

Date of transfer to Artillery September 10, 1906.

At Old Fort Moultrie:

Located in one of the old covered passages.

No boiler.

The engine is a 13-horse power Hornsby-Akroyd oil engine, and was received from the Engineer Depot, Willets Point, N. Y., in May, 1898.

IX
The generator is 110 volts, direct current, 7 1/2 k. w., General Electric Co., makers; it was received from the Engineer Depot, Willets Point, N. Y., in May, 1898.

No transformer.

No storage battery.

Current used for operating one 24-inch searchlight.

Kilowattage required for:

Inside and outside illumination,	0
Motors,	0
Searchlights, one 24-inch projector,	7
Telautographs,	0
Post lighting,	0

Not designed to permit of installation of additional units.

Received from Engineer Depot, Willets Point, N. Y.

Transferred to Artillery August 26, 1898.

FORT SUMTER, S. C.

At Battery Isaac Huger:

Located under right flank of the 12-inch battery.

The boiler is an upright fire tube boiler, 22-horse power, built by Ames Iron Works; purchased February, 1909, from Bailey - Lebbey Co., Charleston, S. C.

The engine is a steam engine, marine type, made by the General Electric Co., and was purchased about December, 1899.

The generator is a compound wound, direct current, 110 volt, 10 k. w., direct connected; General Electric Co., makers; purchased about December, 1899.

No transformers on hand.

No storage battery.

Current used for inside illumination, two 12-inch emplacements, Battery Isaac Huger; retracting disappearing gun, emplacement No. 2; not used for post lighting; no searchlights operated from this plant.

Kilowattage required for:

Inside and outside illumination, defensive works,	6
Motors,	22
Searchlights, - no project for searchlights	2
Telautographs,	4
Post lighting,	

Not designed to permit installation of parallel units.

No record of cost kept.

Transferred to Artillery with Battery Isaac Huger, June 15, 1899.

SEARCHLIGHTS.

There is one searchlight at old Fort Moultrie, 24-inch projector, General Electric Co., makers; it was received from the Engineer Depot, Willets Point, N. Y., in May, 1898; it is both electrically and hand controlled; current received from plant located at old Fort Moultrie; the projector is capable of being moved 1,000 feet from the engine, on a truck; the plant is fixed.

Transferred to the Artillery August 26, 1898.

Returns rendered to the Engineer Department.

There is also at this post one portable searchlight outfit (No. 14), 36-inch projector, General Electric Co., makers; it was received from the Artillery, Fort Totten, N. Y., in June, 1908; it is both electrically and hand controlled; current furnished by its own plant; the projector is capable of being moved 1,000 feet from the engine, on a truck; the plant is movable.

Transferred to the Artillery July 10, 1908.

Returns rendered to the Engineer Department.

On hand and not needed.

Engine and dynamo.

Location:- Stored in Engineer warehouse, Fort Moultrie, S. C.

No boiler.

The engine is a Harrisburg "Ideal," high speed, #1601, 6" x 12", with two driving pulleys and one automatic governor; condition good.

The generator General Electric Co. make, #20274, class 4- 30- 1050; form H, 240 amperes, 1,050 revolutions; voltage, no load, 118; full load 125. Repairs required:- One slate block 3" x 6", for field connections, and one handle for rocker arm adjustment. Otherwise condition good.

Switchboard consists of angle iron frame with marble slab 3' x 4', with one Weston ammeter, one Weston voltmeter, two 300-ampere knife switches, and three lamp sockets.

Received by transfer from Artillery December 16, 1902.

Port Royal Harbor.

FORT FREMONT, S. C.

At Battery Jesup:

Located under right flank of Battery Jesup.

The boiler is a horizontal fire tube boiler; 30-horse power; purchased in May, 1908, from H. Channon Co., Chicago, Ill. (\$584.53)

The engines: - One steam engine, marine type, made by the General Electric Co.; about 15-horse power; purchased in November, 1899; one steam engine, marine type, General Electric Co. make, purchased about July, 1897. (transferred from Fort Moultrie)

The generators: - One is a compound wound, direct current, 110 volt, 10 k. w.; direct connected, made by the General Electric Co.; purchased in November, 1899; one direct current, compound wound, 80 volt, 4 k. w., direct connected; purchased about July, 1897. (transferred from Ft. Moultrie)

No transformers.

No storage battery.

Current used for inside illumination, three 10-inch emplacements; one primary range finding tower; for ammunition service, one emplacement, Battery Jesup; not used for manoeuvring guns, nor for post lighting; no searchlights operated from this plant.

Kilowattage required for:

Inside and outside illumination,8
Motors,	47
Searchlights, - no project for searchlights	
Telautographs,	3
Post lighting,	20

Not designed to permit installation of additional units.

No record of cost kept (except boiler, which see).

Transferred to Artillery June 28, 1898, and July 26, 1901.

Oil engine plant.

Located in frame building, north of Battery Jesup.

No boiler.

The engine is a 25-horse power Horsnby-Akroyd oil engine, and was received from the Engineer Depot, Willets Point, N. Y., in June, 1898.

The generator is compound, direct current, 110 volt, 10 k. w., manufactured by the General Electric Co., and was received from the Engineer Depot, Willets Point, N. Y., in June, 1898.

No transformers.

No storage battery.

Current was used for one 36-inch searchlight; temporarily out of use.

Kilowattage required for searchlight, 15.

Not designed to permit installation of parallel units.

Received from Engineer Depot, Willets Point, N. Y.

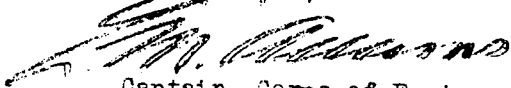
Transferred to Artillery July 26, 1901.

SEARCHLIGHTS.

There is at this post one portable searchlight outfit (#32), 36-inch projector, General Electric Co., makers; it was received from the General Electric Co. in November, 1907, by purchase under contract; it is both electrically and hand controlled; current furnished by its own plant; the projector is capable of being moved, on a truck, 1,000 feet from the engine; the plant is movable. Transferred to the Artillery March 20, 1908.

Returns rendered to the Engineer Department.

Respectfully submitted,



Captain, Corps of Engineers.

REPORT OF COMPLETED BATTERIES, ETC.,

Defenses of the coast of South Carolina,

December 31, 1914.

In charge of Major G. A. Youngberg, Corps of Engineers, U.S.A.

Name of Harbor.	Name and armament of battery.	Date when turned over to Artillery.	Total cost to that date.	Remarks.
CHARLESTON HARBOR, SOUTH CAROLINA	FORT MOULTRIE, S.C.			Garrisoned.
	<u>Battery Capron:</u>			
	Mounted	Jun. 28, 1898	\$92,678.76	
	8 12-inch B.L. mortars; model 1886, Nos. 1, 2, and 28, and model 1886 M, Nos. 32, 33, 45, 51, 57 and 62, Builders Iron Foundry.			
	8 12-inch Mortar Carriages, model 1891, Nos. 35 and 36, Builders Iron Foundry; Nos. 37, 58, 60, 61, 62, and 65, Robert Pauls & Sons Co.			
	<u>Pit A:</u>			
	Platf. 1, Mortar 62, Car. 58			
	" 2, " 51, " 60			
	" 3, " 32, " 61			
	" 4, " 28, " 65			
	<u>Pit B:</u>			
	Platf. 1, Mortar 33, Car. 62			
	" 2, " 45, " 36			
	" 3, " 2*, " 35			
	" 4, " 57, " 37			
	<u>Battery Pierce Butler:</u>	Jun. 28, 1898	\$92,678.75	
	Mounted			
	8 12-inch B.L. mortars, model 1890 M, Nos. 1, 2, 3, 4, 5, 6, 7, and 8, Watervliet Arsenal			
	8 12-inch Mortar Carriages, Nos. 74, 75, 76, and 79, West Point Foundry; Nos. 80, 81, 82, and 83, Watertown Arsenal Model 1891.			
	<u>Pit A:</u>			
	Platf. 1, Mortar 7, Car. 74			
	" 2, " 3, " 75			
	" 3, " 8, " 79			
	" 4, " 2*, " 76			
	<u>Pit B:</u>			
	Platf. 1, Mortar 5, Car. 81			
	" 2, " 6, " 82			
	" 3, " 1, " 80			
	" 4, " 4, " 83			
	1 Cable Tank,	May 2, 1901	\$ 1,032.50	To be used as a cistern.

R677/225/Box 8 48927

Electric plant installed; condition good. Magazines very damp. Plans for Ammunition Service under consideration.

Name of Harbor.	Name and armament of battery	Date when turned over to Artillery	Total cost to that date	Remarks.
CHARLESTON HARBOR	<u>Battery Jasper:</u>	May 4, 1898	\$238,100.00	Electric plant installed, condition good. Magazines damp. Four Tayler-Raymond, back-delivery, projectile hoists installed, Nos. 42, 43, 44, & 45; motors 110 volt, speed 1200, 5 H.P., transferred July, 1904.
	Mounted			
	4 10-inch B.L. rifles, model 1888 MI, No. 33, and model 1888 MII, Nos. 58, 60, and 62; Watervliet Arsenal.			
	4 10-inch disappearing carriages, model 1896; Nos. 24, 25, 26, and 30, Bethlehem Iron Co., with retracting motors and lights.			
	Empl. 1, Rifle 33, Car. 30;			
	" 2, " 58, " 26;			
	" 3, " 60, " 24;			
	" 4, " 62, " 25;			
	<u>Battery Thomsen.</u>	Sept. 10, 1906	115,000.00	Electric light plant installed, condition good; magazines dry. Two Tayler-Raymond, back delivery, projectile hoists, Nos. 3 and 4; motors 110 volt, speed 1200, 5 H.P., transferred March, 1904.
	Mounted			
SOUTH CAROLINA	2 10-inch B.L. rifles, model 1900, Nos. 3 and 7; W. A.			
	2 10-inch disappearing carriages, Nos. 2 and 3, model 1901, Watertown Arsenal, with elevating, retracting, and traversing motors, and lights.			
	Empl. 1, Car. 2, Gun 3			
	" 2, " 3, " 7			
	<u>Battery Gadsden:</u>	Sept. 10, 1906	88,200.00	Electric lights installed, condition good. Magazines dry.
	Mounted			
	4 6-inch guns, Nos. 64, 15, 62, and 63, model 1903, Watervliet Arsenal, 1906, on disappearing carriages, model 1903, No. 26, William Seaver Morgan Co., 1905, and 13, 14, and 16, Morgan Engineering Co., 1904, with electric lights.			
	Empl. 1, Gun 64, Car. 26			
	" 2, " 15, " 13			
	" 3, " 62, " 14			
	" 4, " 63, " 16			

Name of Har- bor.	Name and armament of battery.	Date when turned over to Artillery	Total cost to that date.	Remarks.
CHARLESTON HARBOR, SOUTH CAROLINA.	<u>Battery Logan:</u>	Sept. 25, 1899	\$34,618.07	Electric lights
	Mounted			installed in
	1 6-inch R.F. Gun; model 1897MI			ammunition
	No. 3, Watervliet Arsenal.			rooms Emplace-
				ment No. 1, and
	1 6-inch disappearing carri-			power supplied
	age, model 1898, No. 4; Water-			to hoist; condi-
	town Arsenal; with electric			tion good. Mag-
	lights.			azines dry.
				Battery constr-
	Empl. 1, Gun 3, Car. 4			ucted with two
				emplacements,
				but only one
				gun mounted.
				One Hedges back
				delivery hoist;
				motor 110 volt;
				speed 1060, 3
				H.P.; transfer-
				red 1904.
	<u>Battery Bingham:</u>	Nov. 3, 1899	6,000.00	Electric
	Mounted			lights install-
	2 4.7-inch R.F. guns, Nos 11687 and			ed; condition
	11008, Armstrong Works,			good. Magazin-
	England.			es dry.
	2 4.7-inch pedestal mounts,			
	Nos. 11013 and 11017, Arm-			
	strong Works, England.			
	Empl. 1, Gun 11008, Car. 11018			
	" 2, " 11687, " 11017			
	<u>Battery Lord.</u>	Dec. 31, 1903	12,995.85	Electric
	Mounted			lights insta-
	2 3-inch R.F. guns, Nos. 26 and			lled; condi-
	27, model 1902; Bethlehem			tion good.
	Steel Co.			Magazines
				dry.
	2 3-inch pedestal mounts, Nos.			
	26 and 27; Bethlehem Steel			
	Co.			
	Empl. 1, Gun 26, Car. 26			
	" 2, " 27, " 27			
	<u>Battery McCorkle:</u>	Jul. 16, 1901	9,390.79	Electric
	Mounted			lights insta-
	3 3-inch R.F. guns, Nos. 6, 13,			lled; condi-
	and 14; Driggs-Seabury Co.			tion good.
	model 1898.			Magazines
				dry.
	3 3-inch balanced-pillar			
	mounts, model 1898, Nos. 6, 13,			
	and 14; Driggs-Seabury Co.			
	Empl. 1, Gun 13, Car. 13			
	" 2, " 6, " 6			
	" 3, " 14, " 14			

Name of Har- bor.	Name and armament of battery.	Date when turned over to Artillery.	Total cost: to that date.	Remarks.
CHARLESTON HARBOR, SOUTH CAROLINA.	1 Torpedo Storehouse,	Mar. 1, 1902	\$5,759.66	On parade ground in rear of old fort.
	1 Cable Tank,	May 18, 1903	1,610.00	On parade ground in rear of torpe- do storehouse.
	1 Building for three prim- ary base end stations.	Apr. 13, 1906	6,200.00	Site of station 17' and axes of instru- ment 40' above m. l. w. On 2nd story, 3 observing rooms, each 14' x 18', and 3 plat- rooms, each 16' x 18'; on 1st story, 3 rooms each 30' x 18'. Frame building. Incon- spicuous from usual channel of approach at distant ce of four miles.
	3 Buildings for three tem- porary secondary base end stations,	Apr. 13, 1906	4,275.00	Site of station 45' and axes of instrument 52' above m. l. w. Three observing rooms, each 10' x 11' (1 in each building) and besides in 1 building 2 extra rooms, 6' x 11' and 9' x 10'. Frame buildings. As location is on top of Mortar Battery conspic- uous from usual channel of approach at dis- tance of four miles.

Name of Har- bor.	Name and armament of battery.	Date when turned over to Artillery.	Total cost to that date.	Remarks.
CHARLESTON HARBOR, SOUTH CAROLINA.	1 Mining casemate,	Jun. 22, 1906	\$ 2,927.22	Frame building; 4 rooms; Storage battery room, 8' 2" x 21' 9". Engine room, 12' 4" x 21' 9". Operating room, 16' 4" x 21' 9". Bed room, 9' x 21' 9".
	1 Torpedo loading room,	Jan. 22, 1906	3,267.84	Frame building 45' x 22', with testing tank and crane.
	1 Boathouse,	Jun. 22, 1906	1,221.80	Frame shed 23' 8" x 58' 7 3/4"
	1 Planting wharf (iron pile)	Jul. 23, 1907	12,100.00	Condition at time of transfer very good.
	1 Tramway,	Jul. 23, 1907	5,480.00	Condition at time of transfer very good.
	1 Double primary range find- er station (mine field)	Jul. 23, 1907	3,766.17	Site of sta- tion 21.26', and axes of instruments 33.738' (west) and 33.725' (east) abv. m.l.w. Two platting rooms each 16' x 18'; two obser- ving rooms, each 14' x 16', and 1 vestibule 5' x 10'. Wooden frame with thin re-inforced concrete cov- ering and metal roof. Inconspicuous from usual channel of approach at distance of four miles.

Name of Har- bor.	Name and armament of battery.	Date when turned over to Artillery	Total cost to that date	Remarks.
CHARLESTON HARBOR, SOUTH CAROLINA.	1 Double secondary range fin- der station (mine field),	Jul.23,1907	\$ 1,508.58	Site of station 12.6', and axes of, instruments 22.168 (west) & 22.154' (east) abv. m.l.w. Two rooms each 10' x 10'. Wooden frame with thin re-en- forced concrete covering with me- tal roof. Incon- spicuous from usual channel of approach at dis- tance of 4 miles.
	1 Cable tank and cable-tank house complete with 5-ton traveling crane.	June 5,1908	3,559.02	Condition when transferred, good.
	1 Tide gauge,	Aug.21,1908		Self reading staff gauge. Located on planting wharf, front beach, Sulli- vans Isl., condi- tion when trans- ferred, serviceable
	1 Power house, with installa- tion,	Mar.21,1910	1,600.00	In rear of Mortar Battery.
	1 Power house, with installa-	Mar.21,1910	1,800.00	In rear of Battery Jasper.
	FORT SUMTER, S.C.			
	Battery Isaac Huger: Mounted	Jun.15,1899	97,200.00	Garrisoned by a de- tachment from Fort Moultrie.
	1 12-inch B.L. rifle, model 1888 MII, No.30, Watervliet Arsenal.			Electric light plant installed; condition good.
	1 12-inch B.L. rifle, model 1888 MII, No.22, Watervliet Arsenal.			Two Hodges pro- jectile hoists, back delivery; no motors; hand power; transferred June, 1899.
	1 12-inch non-disappearing carriage, model 1892, No.14, Morgan Engineering Co.,			
	1 12-inch disappearing car- riage, model 1896, No.17, Bethlehem Iron Co., with retracting motor and electric lights.			
	Emple. 1, Gun 30, Car. 14 " 2, " 22, " 17			

PORT ROYAL HARBOR, SOUTH CAROLINA.

ELECTRIC PLANTS.

Defenses of the coast of South Carolina.

Charleston Harbor, S.C.

Fort Moultrie, S.C.

At batteries Capron and Pierce Butler:
Located in building in rear of battery.

No boiler.

Engines:- One General Electric Co., 50 H.P., gasoline, direct connected to 25 k.w. generator, purchased about June, 1909.

One Hornsby-Akroyd, 13 H.P. oil, direct belted to 9-1/2 k.w. generator, purchased about April, 1899.

Generators:- One General Electric Co., 115 volt, 25 k.w., direct current, compound wound, inner pole, direct connected to 50 H.P. engine, purchased about June, 1909.

One Westinghouse, 110 volt, 9-1/2 k.w., direct current, compound wound, purchased about April, 1899.

No transformers.No storage batteries.

Current used for lighting batteries Capron and Butler, and three temporary range finder stations on Battery Pierce Butler; also for power and lighting at batteries Thomson and Gadsden, over transmission line. Not used for post lighting, or for searchlight.

Kilowattage required for:

	Mortar Bty.	Bty. Thmsn.	Bty. Gdsdn.
Inside and outside illumination,	7.2	6.0	9.0
Motors,	0.0	31.0	0.0
Searchlights,	--	--	--
Telautographs,	--	--	--
Post lighting, - not used,	--	--	--

Not designed to permit of installation of additional units.

Cost \$1,600.00

Date of transfer:- The 9 1/2 k.w. set transferred May 4, 1898; the 25 k.w. set transferred March 21, 1910.

At Battery Jasper:

Located in rear of right flank of battery.

No boiler.

Engines:- Two General Electric Co., 50 H.P. gasoline, direct connected to 25 k.w. generators, purchased about June, 1909, and October, 1910.

Generators:- Two General Electric Co., 115 volt, 25 k.w., direct current, compound wound, inner pole, direct connected to 50 H.P. engines.

No transformers.No storage battery.

*see supp. sheet
submitted
with 38961
162
filed h/w*

Current used for lighting and power at Batteries Jasper and Logan, lighting at Batteries Bingham, McCorkle, and Lord, and triple primary R. F. Station, double primary mine field station, cable tanks, and one (1) 30" searchlight.

Kilowattage required for:

	Batteries.					
	Jasper	Logan	Bingham	McCorkle	Lord	R.F.Stations.
Inside and outside illumination,	10.8	3	.5	.7	.6	2.6
Motors,	38.0	2	-	-	-	-
Searchlights,	12.0	-	-	-	-	-
Telautographs,	-	-	-	-	-	-
Post lighting,	-	-	-	-	-	-

Not designed to receive additional units, but at present two are arranged for running in parallel.

Cost \$1,800.00

One set transferred to Artillery March 21, 1910; one set transferred December, 1910.

At Battery Thomson:

Electrical power obtained from plant at batteries "Capron and Pierce Butler".

Kilowattage required for:

See batteries "Capron and Pierce Butler".

FORT SUMTER, S.C.

At Battery Isaac Huger:

Located under right flank of the 12-inch battery.

The Engine is a 25 H.P. Hornsby Akroyd oil engine, double belted to two generators; originally received at Fort Fremont, S. C., from the Engineer Depot, Willets Point, in June 1898, transferred to Fort Sumter, September, 1912.

The generators are 1 Westinghouse, 125 volt, 11-1/2 k.w., direct connected, compound wound; and 1 General Electric Co. 110 volt, 10 k.w., direct current, originally received from the Engineer Depot, Willets Point, N.Y. in June, 1898; transferred to Fort Sumter September, 1912.

No transformers on hand.

No storage battery.

Current used for illumination, two 12-inch emplacements, Battery Isaac Huger; retracting motor on disappearing gun, emplacement No. 2; not used for post lighting.

Kilowattage required for:

Inside and outside illumination, defensive works,	4
Motors,	6
Searchlights,	0
Telautographs,	0
Post lighting,	0

Not designed to permit of installation of paralalled units.

No record of cost.

Transferred with Battery Isaac Huger to Artillery, June 15, 1899.

S E A R C H L I G H T S.FORT MOULTRIE, S. C.

There is one 24-inch searchlight at old Fort Moultrie; General Electric Co., makers; it was received from the Engineer Depot, Willets Point, New York, in May, 1898; it is both electrically and hand controlled; not mounted, stored in Artillery Engineer Storehouse.

Transferred to the Artillery August 26, 1898.

Returns rendered to the Engineer Department.

There is also at this post one 36-inch portable searchlight outfit (No. 14), General Electric Co., makers; it was received from the Artillery, Fort Totten, N.Y., in June, 1908; it is both electrically and hand controlled; current furnished by its own plant; the projector is capable of being moved 1,000 feet from the engine, on a truck, the plant is movable. The projector is now mounted on a temporary wooden tower at the eastern end of the sea wall in front Officers quarters.

Transferred to the Artillery July 10, 1908.

Returns rendered to the Engineer Department.

There is at Old Fort Moultrie, one 30" Searchlight, General Electric Co., makers; It was received Oct. 28, 1910, from the District Artillery Engineer, Fort H. G. Wright, New York. It is both electrically and hand controlled. Current received from the Power Plant at Battery Jasper. The projector is located on the right flank of the old fort, on a temporary wooden tower, about 40 feet above m. l.w. It is operated at a distance of about 1000 feet from the engine.

Respectfully submitted,

G. J. Langley
Major, Corps of Engineers.

wjf

S U P P L E M E N T A L
 REPORT OF COMPLETED BATTERIES, ETC.,
 Defenses of the coast of South Carolina,

In charge of Major G. A. Youngberg, Corps of Engineers, U. S. A.

Name of Har- bor.	Name and armament of battery.	Date when: turned over to artillery.	Total cost: to that date.	Remarks.
	FORT MOULTRIE, S. C.			
Char- les- ton	<u>Battery Jasper.</u>			
Har- bor,	1 - Latrine,	Dec. 3, 1915.	\$800.00	In rear of Battery Jasper.
S.C.				Condition: Good.

Respectfully submitted,

G. A. Youngberg
 Major, Corps of Engineers,
 U. S. Army.

Charleston, S. C.
 December 10, 1915.

Forts. C. H. 143.
 GAY/wjf.

S U P P L E M E N T A L
REPORT OF COMPLETED BATTERIES, ETC.,
Defenses of the coast of South Carolina,

In charge of Major G. A. Youngberg, Corps of Engineers, U.S.A.

Name of Har- bor.	Name and armament of battery.	Date when turned over to Artillery.	Total cost to that date	Remarks.
Char- les- ton	PORT MOULTRIE, S.C. <u>Battery Thomson.</u>			
Har- bor, S.C.	1 - 25 k.w. gas generator set,	Aug. 13, 1915.	\$4,650.00	Condition: Very good.

Respectfully submitted,

G. A. Youngberg
Major, Corps of Engineers.

Charleston, S. C.
August 16, 1915.

FORTS. C. H. 119.

GAY/wjf.

S U P P L E M E N T A L

REPORT OF COMPLETED BATTERIES, ETC.

Defenses of the coast of South Carolina.

In charge of Major G. A. Youngberg, Corps of Engineers, U. S. A.

Name of Har- bor.	Name and armament of battery.	Date when: turned over to Artillery:	Total cost: to that date.	Remarks.
	FORT MOULTRIE, S. C.			
	<u>Battery Marshall Reservation:</u>			
Char- les- ton	Sullivans Island, S.C.			
	1 - 25 k. w. gas generator set,	Feb. 24,)		Condition:
Har- bor,	1 - 60-inch searchlight,	1916.)	\$11,164.	Good.
S. C.		do)		do

Respectfully submitted,

G. A. Youngberg
Major, Corps of Engineers.

Charleston, S. C.
February 28, 1916.

Forts. C. H. 119.

wif.

E L E C T R I C P L A N T .

Defenses of the Coast of South Carolina,

Charleston Harbor, S. C.

FORT MOULTRIE, S. C.

At Battery Marshall Reservation:

Located in building constructed for same.

No boiler.

Engines: - One General Electric Co., 50 H.P., gasoline, direct connected to 25 k.w. generator, received May 1915.

Generators: - One General Electric Co., 115 volt, 25 k.w., direct current, compound wound, inner pole, direct connected to 50 H. P. engine, received May 1915.

No transformers.

No storage batteries.

Current used for operating 60-inch searchlight and lighting plant, only. Not used for post lighting.

Kilowattage required for: above, 22.

Plant not designed for additional units.

Cost of plant and machinery: - \$7,403.50

Date of transfer:- February 24, 1916.

SEARCHLIGHT.

FORT MOULTRIE, S. C.

There is one 60-inch searchlight, General Electric Co., form D-4, No. 11556, for illumination of targets at sea. It was received from Engineer Depot March 1915. It is both electrically and hand controlled, with electric controller in tower 400 yards away. It receives current from plant installed for it at same site. The plant is fixed, the projector, on a truck is hauled 150 feet up an incline to top of hill for operation at elevation of 40 feet above M. L. W. The installation is at eastern end of Sullivans Island, Battery Marshall reservation.

Returns rendered to the Engineer Department.

Cost of projector and accessories, - \$3,760.50

Transferred to the Artillery February 24, 1916.

S U P P L E M E N T A L

REPORT OF COMPLETED BATTERIES, ETC.

Defenses of the coast of South Carolina,

In charge of Major G. A. Youngberg, Corps of Engineers, U. S. A.

Name of Har- bor.	Name and armament of battery.	Date when: turned over to artillery.	Total cost: to that date.	Remarks.
Char- les- ton	FORT MOULTRIE, S.C.			
	<u>Fort Moultrie Reservation.</u>			
	Sullivan's Island, S.C.			
Har- bor,	1 - Radio Station,	Oct. 9, 1916.	\$1,276.85	Condition: Good.
S.C.				

Respectfully submitted,

G. A. Youngberg
Major, Corps of Engineers,
U. S. Army.

Charleston, S.C.
October 13, 1916.

Ports. C. H. 137.

wjf.

REC'D. E. S. E. DIV. OCT 16 1916