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FURNISHING PLAN

for the

Fort Moultrie HECP-HDCP

Fort Sumter National Monument

South Carolina

prepared by

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ILLUSTRATION

I

The concrete splinterproof and gasproof HECP-HDCP structure at Fort Moultrie, S.C., constructed during the winter of 1943-1944, and occupied in March 1944. Courtesy U.S. Army, SC 294506.

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A. DEFINITION OF INTERPRETIVE OBJECTIVES

The restoration of the combined Harbor Entrance Control Post and Harbor Defense Command Post structure, built near the east bastion of Fort Moultrie during 1943-1944, will serve to interpret the role of the fort during World War II. This concrete installation symbolizes the ultimate in the development of seacoast defenses erected on Sullivan's Island since the palmetto log fort withstood the British attack of June 28, 1776. The remains of that first fort have long since disappeared but today's visitor at Fort Moultrie may presently see impressive evidences of more than a century of military architecture, and of the striking contrasts of techniques employed in coastal defenses since the era of muzzle loading cannon.

Interpretive media at the restored HECP-HDCP building should attempt to clarify for the visitor the distinctive missions of the Harbor Entrance Control Post and the Harbor Defense Command Post. Emphasis, however, should be placed on the structure as having been the "nerve center" for the defenses of Charleston harbor, and where the HECP and HDCP worked jointly in the fulfillment of their respective missions. Nor should it be neglected to point out to the visitor the role of the combined HECP-HDCP in the overall picture of the coastal defenses during World War II and that there were similar installations at other ports.

The Eastern Defense Command was responsible for the defense of the eastern seaboard states from the Canadian border to Key West, Florida. It prepared plans for the defense of these states against a possible enemy invasion or air attack, cooperated with the Navy in antisubmarine activities, administered a program for excluding enemy aliens from certain areas, trained ground combat units not assigned to the Army Ground Forces, and collaborated with the Federal Bureau of Investigation, Office of Civilian Defense, and other Federal, State, and local, agencies in internal-security activities. The coastline of the Eastern Defense Command was divided into Frontier Defense Sectors -- New England, New York, Philadelphia, Chesapeake Bay, and the Southern Sector which included Charleston. In 1944 they were consolidated into the Northeastern Sector and the Southern Sector. Each sector, within its area, supervised the operations of Army Air Corps units and mobile land units, and participated with the Navy in the operation of harbor defenses and harbor entrance control posts at each major harbor.[1] Sectors were divided into Sub-Sectors. The Carolina Sub-Sector, which included Fort Moultrie, extended from Wilmington, North Carolina, to Brunswick, Georgia. Sub-Sector headquarters was located in the Fort Sumter Hotel at Charleston.

The Harbor Entrance Control Post, established at Fort Moultrie in 1941, was one of about sixteen located at fortified harbors in the United States, its possessions, and leased bases. Fortified harbors with HECP's were designated as "controlled ports." The HECP was a

joint Army and Navy watch keeping station whose mission was to "collect and disseminate information of activities in defensive sea areas; control unescorted merchant shipping in the defensive coastal area; and take prompt and decisive action to operate the elements of the harbor defenses; in order to deny enemy action within the defensive coastal area."[2]

At each HECP an Army and Navy officer were continuously on watch. They were, respectively, the representative of the Army harbor defense commander, and the naval officer directly responsible for the cooperation of the local naval defenses of the harbor.[3]

The Harbor Entrance Control Post Signal Station was an integral part of the HECP. At Charleston the two were physically combined but this was not feasible at all controlled ports, and at San Francisco there were two signal stations.[4]

The Harbor Defense Command Post, staffed entirely by the Army, was the tactical headquarters for the commander of the Charleston harbor defenses and his tactical staff, assisted by enlisted personnel of

the Harbor Defense Section, Headquarters and Headquarters Battery, Harbor Defenses of Charleston, Eastern Defense Command. Their mission was to protect harbor facilities and shipping from gunfire in event of an attack, to prevent the enemy from entering the harbor, and to support defense against an enemy amphibious assault. Cooperation with the Navy was obtainable through the Navy watch officer on duty at the HECP.[5]

The tactical control of the harbor batteries and searchlights rested with the Harbor Defense Commander, who in 1944 was Colonel Lloyd W. Goeppert, a 50-year old veteran Coast Artillery officer from California.[6]

Colonel Henry W. Ulmo, an officer in the Coast Artillery since 1920, was Executive Officer of the Charleston harbor defenses. During World War I he had been a second lieutenant in the Aviation Section, United States Army Signal Corps. Colonel Ulmo, unlike Goeppert, was attached to Headquarters and Headquarters Battery, Harbor Defenses of Charleston, at Fort Moultrie. He was no stranger to the post, having been stationed there for some time before World War II. When the war broke out he was there with the 13th Coast Artillery.[7]

A partial refurnishing of selected rooms in the restored combined HECP-HDCP structure should impart to the visitor a better understanding of the building's function in the harbor defenses of Charleston. The rooms designated for refurnishing are the Signal Tower, Observation Post, Duty Officers' and Operations Room, Message Center Room, and the Power Room. A complete restoration of furnishings in these rooms is not envisioned, at least for the present. Only the basic furniture and equipment necessary to interpret the use of each room will be acquired.

A tape recording of the crackling and wireless code sounds which emit from receiving sets is recommended for the Radio Room. To be most effective the recording should be barely audible. The device should be placed in the radio cabinet, utilizing one of the speakers which are seen on the panel: see Illustrations X and XI.

The Signal Tower will be maintained as a public contact station. It is to be the only refurnished room into which visitors will ordinarily be permitted to enter. Should a Living History program be implemented, the interpreter here will be attired in the uniform worn by Navy signalmen who were constantly on duty at this station. The interpreter should be familiar with HECP-HDCP operational procedures and naval communications, especially visual signaling. Included in the

exterior restoration of the HECP-HDCP structure will be the observation deck next to the Signal Tower, and the platform and signal mast above the tower. Communication searchlights (blinkers) are to be installed, and it is also proposed to acquire signal flags and pennants to display from the mast.

The walls of the corridor will be refinished to their original appearance. If the locations of wartime bulletin boards, signs and other furnishings in the corridor are ever determined, they will be restored.

The experience of a tour through these areas of the building should convey a visual impression of the means by which the HECP-HDCP operated to fulfill its mission of controlling shipping and providing for the defense of Charleston harbor.

[1] General Services Administration National Archives and Records Service, Federal Records of World War II Volume II Military Agencies, Washington, 1951, pp. 716-717.

[2] Edwin C. Bearss, Special History Study Fort Moultrie HECP-HDCP, Fort Sumter National Monument, South Carolina, Denver, 1974, p. 96.

[3] Bearss, op. cit., p. 96.

[4] Bearss, op. cit., pp. 115-116.

[5] Bearss, op. cit., pp. 33, 41.

[6] Lloyd W. Goeppert, now deceased, was born in California on August 26, 1893, and graduated from the University of California in 1917. He was commissioned in the Organized Reserve Corps as a second lieutenant of field artillery on August 15, 1917, but transferred in November 1917 to the Coast Artillery. He resigned as captain (temporary rank) October 14, 1919. In 1920 he was commissioned as a captain in the Coast Artillery, and in 1923 graduated from the Coast Artillery School Battery Officers Course. Goeppert was promoted to major in 1935, to lieutenant-colonel in 1940, and on December 24, 1941 to colonel. Adjutant General's Office, Official Army Register 1 January 1945, Washington, 1945, p. 355.

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Colonel Ulmo, who died within the past few years, was born in Georgia on September 24, 1884. After service during World War I in the Aviation Section, U. S. Army Signal Corps, he was discharged as a second lieutenant on May 16, 1919. He was a first lieutenant in the Coast Artillery in 1920, and on May 1, 1922 was promoted to captain. In 1926 Ulmo graduated from the Coast Artillery School Battery Officers Course, and in 1939 was promoted to major. He was promoted to lieutenant-colonel in 1941, and to colonel on August 21, 1942. In 1945 he was retired from the service. The Adjutant General's Office, Official Army Register January 1, 1939, Washington, 1939, p. 766 Official Army Register 1 January 1946, p. 1069.

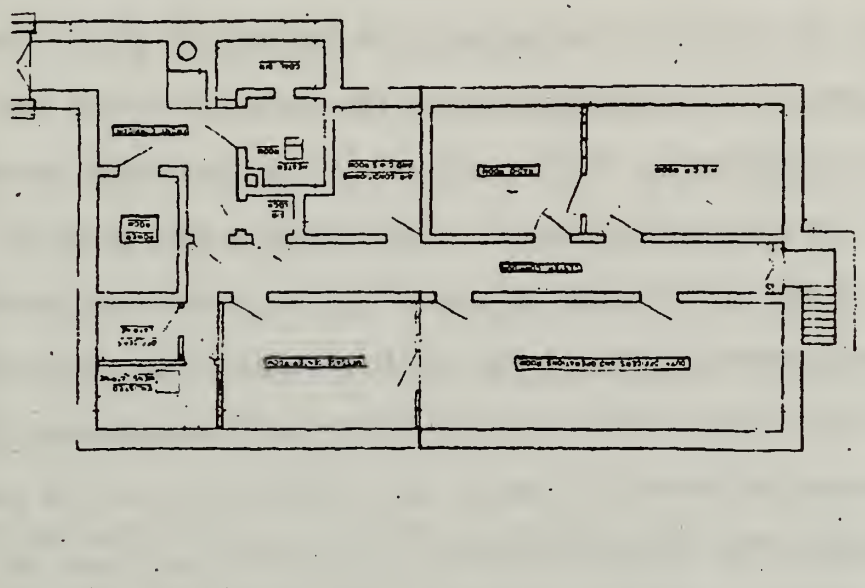


Illustration II

Floor Plan

Fort Moultrie HECP-HDCP, 1944-1945

B. OPERATING PLAN

The restored HECP-HDCP will function as an integral part of the regular tour of Fort Moultrie. From the Visitor Center on the old parade ground north of the fort, the tour will lead through the sally port, bombproofs, and to the HECP-HDCP. From the World War II installation the tour route will allow the visitor to retrogress into the history of the fort and the development of seacoast defenses. The route will guide the visitor through gun emplacements of the Endicott-Taft period which extended from 1890 until after World War I, to a 15-inch Rodman which is representative of the guns mounted when the fort was modernized in 1872. On the southwest seafront, the visitor will encounter types of armament mounted at the fort in 1863, and then on the northwest bastion, guns of the ante-bellum period. Finally, the visitor will see the 1809 powder magazine, the oldest structure in the fort, and leave by the postern gate.

The Signal Tower will be manned daily throughout the year. Here will be the principal point in the interpretation of the combined HECP-HDCP by an interpreter and visual experience. From the Signal Tower the visitor is afforded the opportunity of seeing the site in its relationship to Charleston harbor and of viewing from above the historical periods of Fort Moultrie. On leaving, the visitor will return down the steps from the Signal Tower, by the Observation Post, to the doorway entering the ground floor of the HECP-HDCP.

For security reasons and visitor safety the ground floor will be opened only when manned or for special guided tours. Inside, visitors will be free to move along the corridor and look into the rooms. Waist-high barriers in the doorways will control access to the rooms. Guided tours of small groups might be permitted to enter the rooms if they desire. However, the partial refurnishings of the room will be designed so as to appear complete from the doorway. Labels placed on the barriers will identify each room and carry a brief statement on its use during World War II. The rear door to the ground floor, near the Power Room, will necessarily be kept closed to maintain control of visitors within the ground floor.

The rooms and corridor will have to be kept immaculate so as to maintain the atmosphere of their wartime occupancy by Army and Navy personnel. The floors will need to be swept daily and frequently waxed. Dusting should be frequent and the windows in the Signal Tower and Observation Post should be washed whenever needed. Details on the cleaning and maintenance of furniture and equipment will be found in Part F.

Living History interpreters assigned to the HECP-HDCP should be especially careful to attire themselves in authentic Army or Navy uniforms of World War II, paying particular attention to the proper insignia and minute details of dress. Visitors will no doubt include veterans who are apt to place the uniformed interpreters under close scrutiny.[1]

1 Roger L. Bouchillon, who served as a radioman at the Fort Moultrie HECP-HDCP, recalled that Army personnel there always wore khaki or olive drab uniforms; Roger L. Bouchillon, Greenville, South Carolina, by telephone to Lee A. Wallace, Jr., September 4, 1974. Medicus Rentz, who was an Army visual signalman detailed to the HECP from Headquarters and Headquarters Battery, 263rd Coast Artillery, remembered that the Class A uniform was usually worn but that it was not required; Medicus Rentz, Burton, South Carolina, by telephone to Lee A. Wallace, Jr., December 10, 1974. Photographs of a Navy radio operator and a signalman taken 1941-1943 indicate that naval personnel often wore the working or fatigue uniform while on duty; see Bearss, Fort Moultrie HECP-HDCP, Plates IV and XII.

C. ANALYSIS OF HISTORICAL OCCUPANCY

The combined Harbor Entrance Control Post and Harbor Defense Command Post for Charleston harbor was originally housed in a refurbished two-story frame building of World War I vintage on the northwestern bastion of Fort Moultrie. On March 7, 1944 the new concrete splinter-proof and gasproof HECP-HDCP structure on the east flank of the fort was accepted and subsequently occupied. Navy personnel continued to use the old HECP-HDCP building as quarters until the end of the war. The older building was demolished after the acquisition of Fort Moultrie by the National Park Service in 1962.

Harbor Entrance Control Post (HECP)

The authorized staff of the Harbor Entrance Control Post included four "watch keeping" Army intelligence officers, a major and three captains, from the Harbor Defense Section of Headquarters and Headquarters Battery, Harbor Defenses of Charleston; and four Navy lieutenants or lieutenant commanders from the Sixth Naval District.[1] At the time the new HECP-HDCP structure was occupied in March 1944, the Army watch keeping officers assigned to the HECP were Colonel Joseph T. Pugh, First Lieutenant James C. Nicholson, First Lieutenant William W. Whittaker, and Second Lieutenant James P. Williams.[2] Only one of the naval officers during 1944 has been identified, Lieutenant Commander Miles Bernard Lanker, USNR, who reported for duty on June 3, 1944, four months after the new building was occupied.[3] These officers directed the operation of the combined HECP-HDCP in the surveillance of the harbor and its entrance. Two of the four, one Army and one Navy, were always on duty.

Naval personnel with the HECP included one chief radioman, two radiomen first class, one radioman second class, six radiomen third class, one chief signalman, four signalmen first class, and four signalmen second class. Army communications personnel included one staff sergeant (radio), four radio operators, four signalmen, one message center clerk, six clerks or messengers, four code clerks, and eight telephone operators.[4] Some of these men were drawn from the 13th Coast Artillery Regiment (HD) (Type A), and others were from the 263rd Coast Artillery Regiment (HD) (Type B), a South Carolina National Guard Regiment federalized and sent to Fort Moultrie in January 1941.[5] Elements of the 13th Coast Artillery had been stationed at the fort since 1924. In all, the authorized strength of the HECP totaled 60 officers and enlisted men of which 32 were assigned from the Navy and 28 from the Army. Veteran Navy signalmen recalled in 1973 that the actual naval strength was generally less than the number authorized, and indications are that Army personnel were also below authorized strength.[6]

The HECP occupied a room of its own on the east side of the ground floor corridor. It is not planned to refurnish this room. The HECP Signal Station, in the Signal Tower above the Observation Post, was manned exclusively by Navy signalmen. Their principal duty was to clear vessels in and out of the harbor, and to alert net tenders when to open and close the anti-submarine net. This was done by signalling the men at a station built on pilings out in the harbor.[7]

They were probably among the busiest men at the HECP-HDCP throughout the war. The Observation Post was the station of the watch officers who were assisted by observers, signalmen, a telephone operator, and a switchboard operator, from the Observation Post detail (HECP) of the Harbor Defense Section, Headquarters and Headquarters Battery, Harbor Defenses of Charleston.[8] HECP Army and Navy radio operators manned the Radio Room.

Harbor Defense Command Post (HDCP)

The Harbor Defense Command Post was operated by the Harbor Defense Section, Headquarters and Headquarters Battery, Harbor Defenses of Charleston. Less the Observation Post detail, which served as part of the HECP, the Harbor Defense Section, with an authorized strength of 51 officers and enlisted men, was subdivided into the operations and intelligence detail, radar detail, radar operating team, metereological detail, radio operating detail, teletypewriter detail, and the JR boat detail.[9] HDCP work was largely centered in the Duty Officers and Operations room and the Radio Room. Although the metereological details' duties were connected with intelligence work in the Duty Officers and Operations Room, their work was primarily done outside the building. This team consisted of one sergeant and a corporal who were theodolite observers and a technician fourth grade and a private first class who were metereological plotters. The radar team would have been located at the Signal Tower with their equipment. Obviously not located within the HECP-HDCP structure were the men assigned to the JR boat.[10]

This all seems to reflect a beehive of activity at the Fort Moultrie HECP-HDCP, but such does not appear to have been the case, at least during the occupancy of the permanent structure. German U-boat and mining operations off the Atlantic coast had ceased before the structure was completed, and activities at the HECP-HDCP during 1944-1945 were largely confined to rescue work and clearing vessels in and out of the harbor.

Army veteran D. D. Fagg recalled in 1975 that when he was reassigned to the HECP-HDCP in June 1944 "Activities in that area were beginning to slow down by then, so it seems that most of our operations in that building were confined to the Radio room, and the adjoining /HECP/ room."[11]

Signal Tower

Here was located the Harbor Entrance Control Post Signal Station. Constantly manned by Navy signalmen, the station was responsible for communicating with vessels by visual means, and challenging vessels approaching Charleston harbor. Vessels nearing the harbor were picked up by radar, and visual contact with them was by signal flags and pennants, blinker searchlights, and yardarm blinkers. Veteran signalmen also recalled the presence of semaphore flags. The signalmen also alerted tenders, at a station built on pilings out in the harbor,whenever it was necessary to open and close the anti-submarine net.

Blinker lights were used in preference to flag hoists. For one thing, messages could be transmitted, day and night, more rapidly and at greater distances. On the other hand, flaghoist signalling insured greater accuracy. Light signals, which carried for long distances, had to be used with care lest they be observed by the enemy at sea. This danger, however, was all but over when the new HECP-HDCP structure was occupied.

Flashing light signalling involved two kinds, directional and non-directional; both were used at the Fort Moultrie HECP Signal Station. The former employed blinker searchlights, aimed at the receiver. Non-directional signalling was by lights placed near the ends of the yardarm on top of the signal tower, and operated, presumably, from a key inside the tower. The advantage of the yardarm blinkers was that messages could be transmitted simultaneously to a large group of ships or even aircraft within visual distance.

Observation Post

From this station, protected from the elements by long narrow horizontal windows, the watch keeping officers were able to observe and direct the control of vessels entering and leaving Charleston harbor. Inside the Observation Post were instruments used for the observation of maritime traffic and for observing the conduct of fire by the Examination Battery (Battery Lord) on the southwest front of Fort Moultrie.

The responsibilities of the Army and Navy watch keeping officers were clearly defined in the established instructions for the examination and entry of vessels into controlled ports. Ships entering the harbor were admitted by the HECP through its signal station by the proper exchange of visual recognition signals. Major warships, including battleships, cruisers, destroyers, submarines, and Navy operated transports, were challenged when they came within visual signal distance of the HECP. After a satisfactory "reply" from the ship, the naval watch keeping officer at the HECP notified the Army Commander of the Harbor defenses through the Army watch keeping officer, the Captain of the Port (Coast Guard), the local Senior Naval Officer, and the Examination Vessel, of the warships approach.

Unless otherwise directed, the naval watch officer, after receiving a report that the controlled mine fields were set at "safe" and the batteries had been instructed not to fire, directed the signal station to grant permission for the ship to enter. If a warship made an improper "reply" the HECP Signal Station immediately hoisted the "stop instantly" signal and informed the naval watch officer who, through the Army watch officer, informed the Army commander of the harbor defenses, the local Senior Naval Officer, and the Examination vessel. If the ship failed to obey the signal to stop, she was assumed to be hostile. The responsibility for opening fire with the shore batteries rested with the Army.

When minor warships and merchant vessels entered the harbor they were admitted by the Examination Vessel after proper identification. Minor warships included submarine chasers, patrol vessels, harbor tugs, and mine sweepers. Should any of these ships disregard the signals of the examination Vessel, the HECP through the Army watch keeping officer, requested the Army Commander, Harbor Defenses, to have the Examination Battery "bring-to" the vessel with a shot across her bow. When necessary, the naval watch officer also, and through the Army watch officer, made arrangements with the Captain of the Port for providing and placing armed guards on board suspicious vessels.[12]

These in brief were the procedures. Hundreds of ships went in and out of Charleston harbor during the war, but only on one occasion did the Examination Battery actually fire a shot to "bring-to" a vessel. That was in 1943 when after a ship had been cleared for entrance, her radio operator failed to give the proper signal of recognition. The shot across the bow so unnerved the crew that the Navy had to assist in bringing the ship into port.[13]

During a night and day service practice in 1944 it was assumed that an unidentified vessel, represented by an Army "J" boat towing a red target for the day practice and a white target for the night practice, was entering the harbor. The Navy watch officer in both exercises requested the Examination Battery to fire a "bring-to" shot. These "bring-to" shots were assumed to have been ignored by the vessel and destructive fire was delivered on the targets by Battery Lord's two 3-inch rapid fire guns (M1902M1). These exercises were believed to be unique in that the HECP, HDCP, and the Examination Battery were utilized with the searchlights illuminating the target in the night practice.[14]

The watch keeping officers were assisted by enlisted personnel comprising the Observation Post detail, Harbor Defense Section, Headquarters and Headquarters Battery, Harbor Defenses of Charleston.

The authorized strength of the detail was: six observers, a technical sergeant, a sergeant, a corporal, and three technician grade privates; two switchboard operators who were privates; two telephone operators who were also privates; a private who served as an orderly; and three signalmen who were privates.[15] This was the authorized strength, but as there were only 29 enlisted men in the entire battery in February 1944 it is most likely that the detail operated considerably below its authorized strength, during this period of the war at least.[16]

Duty Officers' and Operations Room

This room was designated for use by the HECP-HDCP watch keeping officers on duty, and for the conduct of operations by HDCP intelligence personnel. Presumably, fire control data, if needed, for the Examination Battery (Battery Lord) would have been computed here. The room may well have served, as its designation implies, as the principal station for the Army watch keeping officer on duty. This appears logical as the functions of the Operations and intelligence detail (Type 1), Harbor Defense Section, Headquarters and Headquarters Battery, to which he belonged, were assigned to this room.[17]

Nothing specific has been located about the operations which actually went on in this room. Indications are that it was not used to a great extent as a "Duty Officers and Operations Room." One veteran HECP Navy signalman in 1974 believed the room was seldom used.[18] An Army veteran, who was a code clerk, wrote in 1975 that "one of the rooms across the hall /from the Radio Room/ we used for a conference room, and for classes."[19] This could have been either the Duty Officers and Operations Room or the Message Center Room.[20]

On the assumption that the room was once utilized as a "Duty Officers and Operations Room" it would seem that intelligence work was centered here, judging from the classification description of the Army watch keeping officers.

The authorized major and three captains were all intelligence staff officers with the same classification number and description, that is, as far as T/O & E 4-260-1 was concerned. With their assistants, a technical sergeant and a staff sergeant, they were part of the Operations and intelligence detail of the Harbor Defense Section, Headquarters and Headquarters Battery.[21] Their work appears to have been chiefly concerned with surveying and mapping, judging from the range poles, level, stadia, rules, transit, and other authorized equipment.[22] More than likely their work would have entailed the preparation and maintenance of maps or charts of the Charleston harbor area showing the location of batteries, anti-submarine nets, and other defenses. The Navy veteran who remembered the room as seldom being used did recall that it contained a number of desks, maps, and one or two long tables. But, were these the tables the Army veteran recollected as conference and classroom tables?

The computation and transmission of fire control data for the harbor Examination Battery was the responsibility of the Harbor Defense Command Post. This work would have been done under the direction of the Army watch keeping officer, with the assistance of a technical sergeant (operations), a sergeant (operations), and a sergeant and corporal who were plotters.

Message Center Room

The message center, under the charge of a staff sergeant, who was message center chief, was responsible for the receipt, routing, and transmission of messages. It made use of the various available means of communication: telephone, teletype, radio, and messenger. The duties of the message center chief included keeping a record of all messages received and delivered, and directing the delivery of official messages.[23]

Telephones in the room connected the message center with the Marshall Reservation, the Post telephone system, and very probably with military and naval installations at Charleston.[24]

Not one of the veterans contacted in connection with this study could recall anything about message center operations in this room, or its furnishings and equipment. One veteran did indicate that it might have served as a conference and class room.[25] Perhaps the reduction of operations at the HECP-HDCP by 1944 did not justify a message center.

Radio Room

HECP Radio Station WVEP was transferred into the new HECP-HDCP structure in March 1944. The radio equipment was installed under the direction of Master Sergeant Harold R. Browne, Communications Chief, Carolina Sub-Sector, Eastern Defense Command.[26]

Radio communications linked the HECP-HDCP with Army, Navy, and Coast Guard installations in Charleston and its environs. A teletypewriter in this room was on a loop circuit connecting the HECP with the following installations at Charleston: U. S. Navy Section Base, Captain of the Port, Port Director, U. S. Navy Operational, and Navy Intelligence.[27]

Roger L. Bouchillon Greenville, South Carolina, joined Battery D, 13th Coast Artillery in January 1941, and was assigned to the Fort Moultrie HECP as a radio operator in December of the same year. Bouchillon, who was on duty at various times in the old and new HECP-HDCP structure, recalled in 1974 that he was the first to establish radio communications with the Navy and Coast Guard at Charleston on December 8, 1941, the day after Pearl Harbor.

Navy and Army radio operators manned Station WVEP, and Bouchillon recalled that late in 1944, when he returned from an assignment elsewhere in the Carolina Sub-Sector, there was only one Navy radioman and one Army radio operator besides himself on duty. His recollection was that the radiomen also operated the teletypewriter which was in the Radio Room.[28]

Power Room

This small room near the south entrance to the ground floor housed a fixed power plant unit which provided electricity for the HECP-HDCP in emergencies. Locally generated power was ordinarily used.

[1]Bearss, Fort Moultrie HECP-HDCP p. 13; T/O & E 4-260-1 (April 11, 1944), Part II - Intelligence and Operations, Section I - Organization.

[2]Roster of Officers, Headquarters and Headquarters Battery, Harbor Defenses of Charleston, Fort Moultrie, S. C., March 9, 1944. These battery officers, and four others, were under orders for transfer to Camp Rucker, Alabama. However, they were still at Fort Moultrie on March 13, 1944, under the same orders for transfer.

[3]Miles Bernard Lanker, USNR, was promoted to lieutenant commander on June 15, 1942. He retired from service in April 1959 at the age of 60. Navy Bureau of Personnel, Register of Retired Commissioned and Warrant Officers, Regular and Reserve of the United States Navy and Marine Corps, 1 July 1960, Washington, 1960 p. 166.

[4]Bearss, Fort Moultrie HECP-HDCP, p. 13.

[5]A Type A harbor defense (HD) regiment consisted of a headquarters and headquarters battery, a band, searchlight battery, and three battalions of three firing batteries each, with medical personnel and a chaplain attached. The Type B harbor defense regiment had only two battalions of three firing batteries each. The headquarters and headquarters battery and the medical detachment were smaller than those in the Type A regiment, but the searchlight battery and the band were of the same organization and strength.

6 Bearss, Fort Moultrie HECP-HDCP, p. 13; statements by Army HECP-HDCP veteran Roger L. Bouchillon, Greenville, South Carolina, by telephone to Lee A. Wallace, Jr., September 4, 1974.

7 Bearss, Fort Moultrie HECP-HDCP, p. 14.

8 T/O & E 4-260-1 (April 11, 1944), Part II - Intelligence and Operations, Section I - Organization.

9 T/O & E 4-260-1 (April 11, 1944), Part II, Section I.

10 Two men, a coxswain and a radio operator, from Headquarters and Headquarters Battery were authorized by T/O & E 4-260-1 for each JR boat operated by harbor defense headquarters. "J" indicated an Army boat, but a precise identification of a "JR" boat is undetermined. An Army "J" boat was reported to have towed seacoast targets during night and day service practice conducted by the Harbor Defenses of Charleston in 1944; see "Southeastern Sector," Coast Artillery Journal, LXXXVII (September-October, 1944), p. 85.

11 D. D. Fagg, Anderson, South Carolina, to Lee A. Wallace, Jr., January 21, 1975.

12 See "Instructions for the Examination and Entry into United States Ports in Time of War, " in Bearss, Fort Moultrie HECP-HDCP, pp. 93-114.

13 Colonel C. E. Singleton, U.S.A., Retired, to Edwin C. Bearss, September 17, 1974; personal interview. Colonel Singleton was captain of Battery G (searchlight battery), 263rd Coast Artillery in 1943. He presently resides in Greenville, South Carolina.

14 "Southeastern Sector," Coast Artillery Journal, LXXXVII (September-October, 1944), p. 85.

15 T/O & E 4-260-1 (April 11, 1944), Part II, Section I.

16 Pay Roll of Headquarters and Headquarters Battery, Harbor Defenses of Charleston, Fort Moultrie, South Carolina, for the month of February 1944. The battery strength at the end of the month was 29 enlisted men, including 1 first sergeant, 3 master sergeants, 1 technician third grade, 6 sergeants, 3 technicians fourth grade, 5 corporals, 2 technicians fifth grade, 7 privates first class, and 1 private.

17 There were three types of operations and intelligence details. The type, authorized by the War Department, depended upon the size, number of entrances, and category of defense for the harbor. T/O & E 4-260-1 (April 11, 1944), Part II, Section 1.

18 J. J. Vitalis, Pontiac, Michigan, to Lee A. Wallace, Jr., by telephone, September 23, 1974.

19
D. D. Fagg, Anderson, South Carolina, to Lee A. Wallace, Jr., by letter, January 21, 1975.

20
On a ground floor plan of the HECP-HDCP structure, Mr. Fagg represented the Message Center Room as the room for conferences and classes. In his letter, however, he wrote that the conference table was in "one of the rooms across the hall," and also that "to remember ..., and exact locations, it does become rather vague after 30 years." D. D. Fagg to Lee A. Wallace, Jr., January 21, 1975.

21
War Department Technical Manual TM 12-406. Officer Classification Commissioned and Warrant, Washington, 1943, p. 199; T/O & E 4-260-1 (April 11, 1944), Part II, Section L.

22
T/O & E 4-260-1(April 11, 1944), Appendix - Fire Control Equipment and Accessories.

23
In essence the functions of a message center were the same for all branches of the Army; see the Dictionary of United States Army Terms (1950), p. 142.

24
Note the placards near the telephones of the Message Center and underground emergency Message Center in the old building; see Illustrations VI and VII.

D. EVIDENCE OF ORIGINAL FURNISHINGS

Since no property lists of HECP-HDCP furnishings and equipment have been located, it has been necessary to proceed with this plan on less reliable sources.

All of the known U.S. Army Signal Corps photographs of the old and new HECP-HDCP installations were included in Edwin C. Bearss' Fort Moultrie HECP-HDCP Special History Study. Some of these photographs have been included in this plan, principally the interior views of the old HECP-HDCP buildings. No interior views of the new structure were located, either official or private. Security measures during the war restricted the use of cameras on the Fort Moultrie reservation. Some pictures have turned up, but, with one exception, they have proved of no value.[1] The interior views of the old HECP-HDCP have been of assistance, but they have had to be used with considerable caution, since it was learned that not all of the furnishings were transferred from the old building into the new structure during March 1944.

The Table of Organization and Equipment No. 4-260-1, Headquarters and Headquarters Battery, Harbor Defense, April 11, 1944, was the authority for the requisition of equipment by headquarters and headquarters batteries of all sizes and composition. In it are found the personnel and equipment allowed to the battery details at the HECP-HDCP.

25
D. D. Fagg to Lee A. Wallace, Jr., January 21, 1975.

26
Harold R. Browne to Lee A. Wallace, Jr., by telephone, September 17, 1974. Mr. Browne was a master sergeant in Headquarters and Headquarters Battery, 2nd Battalion, 263rd Coast Artillery Regiment, before his transfer to Headquarters, Carolina Sub-Sector, Eastern Defense Command. He is now Superintendent, Commission of Public Works, McCormick, South Carolina.

27
Bearss, Fort Moultrie HECP-HDCP, p. 47.

28
Roger L. Bouchillon to Lee A. Wallace, Jr., by telephone, September 4, 1974, and December 4, 1974.

However, like the photographs, care has to be exercised in using this source as some of the equipment, such as radios, issued to the Fort Moultrie HECP-HDCP before 1944 continued in use until the end of the war, even though these items were not on T/O & E 4-260-1, which also did not include desks, chairs, tables, and other articles accountable as post property.

A number of veterans who were connected with the Fort Moultrie HECP-HDCP have provided some helpful details. Their recollections, however, after almost thirty years were admittedly vague. They could recall their particular duties and some details concerning the types and locations of equipment with which they worked, but only a few had any recollections of the HECP-HDCP rooms which did not directly concern them.

Signal Tower

In October 1942 the Chief of the Bureau of Ships prepared a list of equipment which the Navy was responsible for supplying Harbor Entrance Control Posts. This list, our best known guide to the furnishings of HECP Signal Stations, included these articles:

Searchlight (24-inch)

Searchlight (12-inch)

Blinker gun (for searchlights)

Addis lamp

Blinker, yardarm, complete with controller, and wiring.

Telescope

Spyglass

Binoculars

Flags

Halliards

Blocks

Snap hooks

Signal equipment (Very signal pistol, and cartridges and rockets.)[2]

Most of this equipment was located outside the Signal Tower on the old HECP-HDCP building. A photograph of the building in Edwin C. Bearss' study of the Fort Moultrie HECP-HDCP shows two searchlights on top of the Signal Tower, and another view reveals a telescope mounted on a stanchion just outside the tower.

Former Navy signalmen in 1973 recalled they did their paperwork inside the tower on a sloping desk, or shelf. Under it was a cabinet in which signal books were stored. A flag bag, and a case with semaphore flags, were also recalled as being inside the tower.[3]

J. J. Vitalis, a Navy signalman who was on duty in the new HECP-HDCP structure for about nine months during 1944, recalled in 1974 that the tower contained a table, a few chairs, semaphore and yardarm flags, and a number of books identifying vessels and aircraft.[4]

There are remains of a hexagonal concrete base for a depression position finder in the southeast corner of the floor. However, Mr. Vitalis was rather positive in 1974 that there was no instrument of this kind in the Signal Tower, at least during his tour of duty there.

Radar was apparently installed at the Fort Moultrie HECP-HDCP, and Roger L. Bouchillon, who was communications chief of the Carolina Sub-Sector, remembered in 1974 a radar set in the Signal Tower.[5] The Table of Organization and Equipment No. 4-260--1. Headquarters and Headquarters Battery, Harbor Defense, April 11, 1944, provided for a radar operating team. However, J. J. Vitalis had no recollections of a radar set in the tower.

Illustration III

Observation Post in the temporary HECP-HDCP at Fort Moultrie, circa 1942. A 1910A1 azimuth instrument with a Type A tripod stands on the left. In the center is a Swasey depression position finder with an observer's bench. These instruments were relocated in the Observation Post at the new HECP-HDCP in March 1944. Courtesy U.S. Army, SC 294503.

Observation Post

From a photograph (Illustration III) we know that the furnishings of the Observation Post at the temporary HECP-HDCP structure included telephones, a time interval system bell, an M1910A1 azimuth instrument mounted on a wooden tripod, and a Swasey depression position finder mounted on a heavy metal pedestal, with a semi-circular bench which had a back rest for the observer and reader. These equipments, all authorized by T/O & E 4-260-1, were presumably relocated in the Observation Post at the new HECP-HDCP during March 1944.

Remains of the octagonal concrete base on which the Swasey depression position finder was mounted are evident in the southeast corner of the room. The base was destroyed when the room was renovated for use as the Park administrative office. The Swasey depression position finder was especially apt in providing data rapidly; and simple for the fire control system of 3-inch rapid fire guns as were mounted in Battery Lord, the Examination Battery for Charleston harbor. The instrument was designed to measure horizontal angles and to measure ranges by the depression angle. It could be used in either the horizontal or vertical system of position finding.[6] No evidence has been found that would indicate whether or not the same observer's bench was used with the instrument in the permanent HECP-HDCP building.

The azimuth instrument M1910A1 was designed for the measurement of azimuths or horizontal angles in degrees, and not to measure vertical angles. Thus, it could be used only in the horizontal system of position finding. This instrument was also used for "spotting" which was the observation of the hits of rounds fired at targets, or "splashes" as the hits were called in the Coast Artillery.[7] While both instruments were designed for "tracking" moving targets at sea, there was no scale for spotting on the reticule in the telescope of the depression position finder.

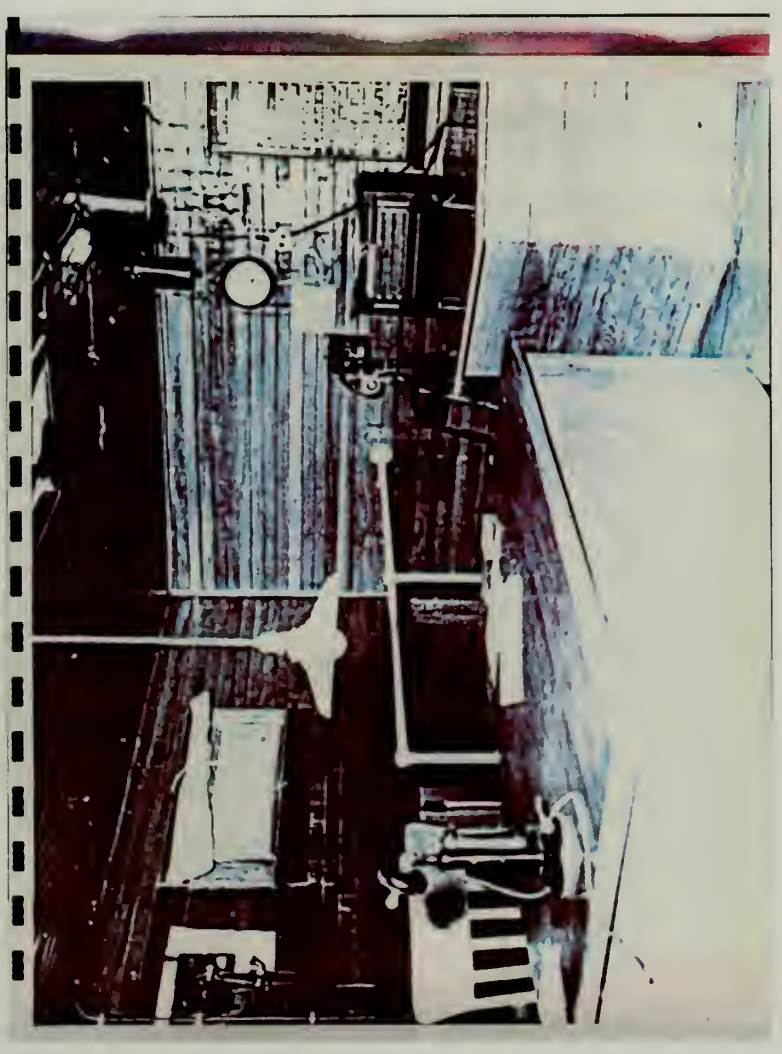
Three MC-153 time interval system bells were authorized for HECP-HDCP installations, and one of them, assuredly, was installed in the Observation Post. Otherwise, as will later be explained, the coordination required for accurate fire by Battery Lord would have been impossible.

An unidentified type of telephone with a handset, and what appears to be another telephone, are evident in the circa 1942 photograph (Illustration III) of the Observation Post in the old HECP-HDCP building. There would likely have been two telephones, one for the reader and observer at the depression position finder and another for those at the azimuth instrument.

Other furnishings probably included an electric wall clock, a table as seen in Illustration III, and a number of chairs.

Illustration IV

The Harbor Defense Command Post, Harbor Defenses of Charleston, in the temporary Fort Moultrie HECP-HDCP building. This photograph was apparently made early in the war as some of the gun batteries shown on the bulletin board were removed by the time the new structure was occupied in 1944. Note the blackout curtain at the window. The furniture and equipment in this room were relocated in the Duty Officer and Operations Room at the new HECP-HDCP. Courtesy U. S. Army, S. C. 294501.



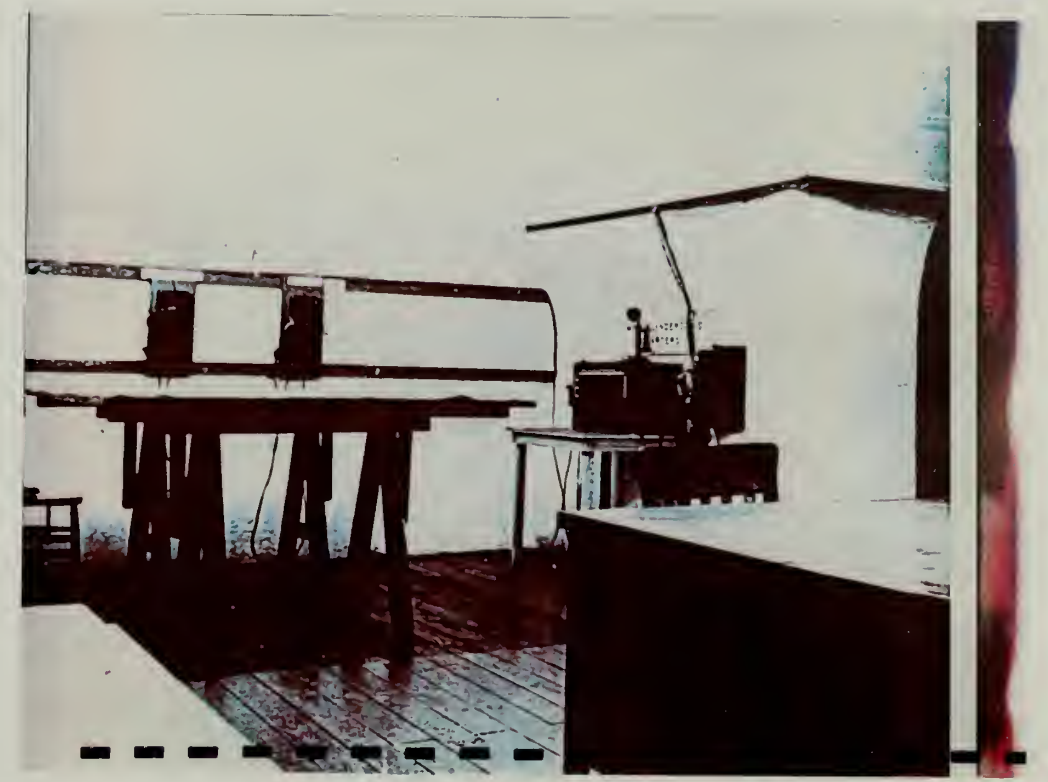


Illustration V

Emergency Harbor Defense Command Post, in the Fort Moultrie principal magazine, circa 1943. Fortunately, this room was never put to use. Communications from this room to the quarters of a Major Anderson were by the desk-type telephone which rests on what appears to be a radio, but none of the interviewed HECP-HDCP veterans were able to identify or recall this piece of equipment. The old wall box telephones were not installed in the new HECP-HDCP during March 1944.

Duty Officers and Operations Room

An interior view (Illustration IV) of the Harbor Defense Command Post in the temporary building shows a desk, several chairs, telephones, and other furnishings which are believed to have been moved into the Duty Officers and Operations Room in the new HECP-HDCP structure in March 1944. Some of the furniture shown in the circa 1943 view (Illustration V) of the underground emergency HDCP is also thought to have been transferred into the new structure. One desk, at least, would have been in this room, for the use of the duty, or watch, officer. There is also evidence that the furnishings included one or more conference tables. J. J. Vitalis, veteran Navy HECP signalman, remembered seeing "One or two long tables," and an Army veteran, D. D. Fagg, recalled that a "long table" was in a conference or class room which was either here or in the adjoining Message Center Room.[98]

Two large bulletin boards were in this room, one centered on the south wall and the other on the west wall near the south end of the room. Part of a bulletin board appears in a view of the Harbor Defense Command Post room in the old building (Illustration IV). On it was data relating to the harbor defense batteries during the early part of the war. If such a board was one of the two in the new building, it would probably have been a modified version as eight harbor defense batteries armed with obsolete guns had been dismantled by March 1944.

There was also a 7' x 12' map board in this room, on the west wall. In 1953 the Navy removed the then existing sheet metal from it, and recovered the board with 76-gauge galvanized iron. This board has since been removed. Mr. Vitalis, in 1974, recalled seeing a large map in this room; and this was probably it. [9]

As a drawing table on trestles was in the underground emergency HDCP (Illustration V), a similar table would most likely have been in the HDCP room in the frame HECP-HDCP building. Presumably, such a table would have been used in the computation of firing data. Although the 42" x 60" table (Illustration V) was an item of issue to the HECP Observation Post detail, it may have also been used by the HDCP. On the other hand, a drawing table could have been locally made for use by the HDCP.

The HDCP computed firing data only for the two 3-inch rapid fire guns of the Examination Battery (Battery Lord). The fire control system for 3-inch guns, to be effective, had to furnish data rapidly and simply. The vertical base system, which required but one observation post, or spotting station, was used to determine the position or predicted future position of a moving target at sea. The operation of giving the guns a designated elevation and direction was accomplished by what was called the Case II method of gun pointing. [10]

Readings on the target from the Swasey depression position finder in the Observation Post were sent by the observer to the operations personnel in the Duty Officers and Operations Room. There, ballistical and travel corrections were applied, and the corrected range and deflection data was transmitted by telephone to the gun pointers. After the guns were fired, no corrections were made except by the observer spotting the fired rounds from the Observation Post. This was far more rapid than the systems employed in firing the heavier seacoast guns.

Two arms, scale M1906, were authorized to the HDCP, and were used in constructing the firing data chart which provided ballistical corrections. The arms were identical in appearance, but with different scales on the bevelled edge, one being 1: 80,000, and the other 1: 62,500. A pivot and pivot plate at one end of the arm allowed it to be fastened to a drawing board. Thus, at the HDCP we would not find the distinctive M3 and M4 plotting boards used in the computation of firing data at many seacoast artillery command posts. The HDCP would have probably used a locally-made drawing board or, perhaps, the 42" x 60" board mentioned earlier. On the fan-shaped firing data chart the battery's sector or field of fire was divided into subsectors, each covering about 30° in azimuth and about 3,000 yards in range. Ballistical corrections, including corrections for muzzle velocity, drift, and metereological corrections, were computed for the central point in each of the subsectors.

device known as the percentage corrector was authorized for use
th 3-inch guns. It transformed the corrected range into data
itable for pointing the guns in elevation. Range ballistical
rrections from the firing data chart were applied to the percentage
rrector when the subsector in which the target was to come under
re became known. Just before opening fire, a range correction
r the travel of the target during the time of the projectile's
light plus dead time was added algebraically to the ballistic
rrection on the percentage corrector. Angular or lateral correc-
ions for deflection were computed just before firing, with the
id of a stop watch and the azimuth M1910AI instrument in the
bservation Post. [13]

eacoast guns were required to deliver simultaneous and accurate
ire on rapidly moving targets. Since there was a lapse of time
etween the observation of the moving target and the firing of the
uns, a timing system had to be used so that the guns would fire
n the target's new position. This was in essence the function
f the time interval apparatus designed for use in permanently
nstalled fire control systems of fixed seacoast artillery. It
as an integral part of the fire control communications system, and
oordinated the functions of personnel at the Observation Post,
uty Officers' and Operations Room, and at the Examination Battery.
he time interval apparatus simultaneously transmitted electrical
mpulses to bells at the Observation Post, Duty Officers' and
perations Room, and the gun position at set time intervals.

Two systems were used in sounding the time interval bells. One system was to sound the bell three consecutive times on the last three seconds, and the other was to sound the bell four times, one five seconds before the end of the interval and the other three on the last three seconds consecutively. In either system, all but the last bell were warning bells. In a 20-second interval the final bell was exactly twenty seconds apart from the final bell of the next interval. 14

The sound of the bell in the Observation Post signalled the observer to stop tracking the target and send the azimuth reading of the target to the Duty Officers' and Operations Room, and, at the same time alerted the battery position to stand by for firing data about to be transmitted to them. Thus, for example, in a 20 second interval, the observed data on the target was sent to the Duty Officers' and Operations Room where the firing data was calculated and sent to the guns, which were loaded, pointed, and fired. All of this had to be accomplished within 20 seconds, otherwise the target would be beyond the range computed for the guns at a given time. Some of the operations, involved during the 20-second time interval could take place concurrently while some of them could not be done until certain others had been performed. The interval chosen depended on the type and caliber of the gun and the efficiency of the gun crew. 15

/hile the EE-86 Time Interval apparatus was specified in T/O & E -201-1 for the HECP-HDCP, the actual model used was the EE-86-A. lone were ever made under the nomenclature EE-86, the first production having been designated as the EE-86-A. This apparatus with ts associated MC-153 bells was especially designed for use in ermanently installed fire control systems of fixed seacoast artillery, nd produced electrical signal impulses for bells to sound at 1-, -, 10, 15-, 20-, 30-, 40-, and 60-second intervals. The EE-86-A pparatus, a 30 volt battery supply (storage batteries), a BD-74 or 5 switchboard and the MC-153 bells, completed a series circuit. (16)

he location of the EE-86-A apparatus and batteries is uncertain. t may well have been in the Duty Officers' and Operations Room. he apparatus was usually convenient to the fire-control switchboard, ut as there was only one gun battery (Battery Lord), the switchoard may have been eliminated, and the apparatus connected directly ith the bells. Either the BD-74 or BD-75 switchboard could have een used with the time interval apparatus, but neither of these oards was authorized for the HECP-HDCP. Three BD-95 switchboards ere allowed, but whether or not this type could be, or was, connected ith the apparatus is uncertain. (17)

en EE-91 wall mounted box telephones were authorized for the Harbor efense Command Posts. Four of these telephones were equipped with S-12 handsets which had hangers to engage the switch-hook on the

telephone, and six were equipped with headsets HS-30 and chest set TD-3. Two of these, at least, must have been in the Duty Officers' and Operations Room near the firing data chart (see Illustration V). Telephone head and chest sets would have ordinarily been used by personnel computing firing data. There were probably other phones with head and chest sets in this room. Two EE-91 telephones with head and chest sets appear in a view (Illustration IV) of the HDCP in the old building, and three appear in the circa 1943 photograph (Illustration V) of the underground emergency HDCP.

The desk telephone shown in the photographs of the old HDCP and the emergency HDCP are believed to have been tied in with the Fort Moultrie post telephone system. These phones would not have been included in T/O & E 4-260-1 allowances.

Illustration VI

Message Center Room, Fort Moultrie HECP-HDCP, 1941-1944. Note the blackout curtains at the window and door. The old wall telephones shown here were in use before World War II and were not re-installed in the new HECP-HDCP structure in 1944. The routing box for incoming and outgoing messages is seen on the table in the center of the room. Courtesy U.S. Army, SC 294502.

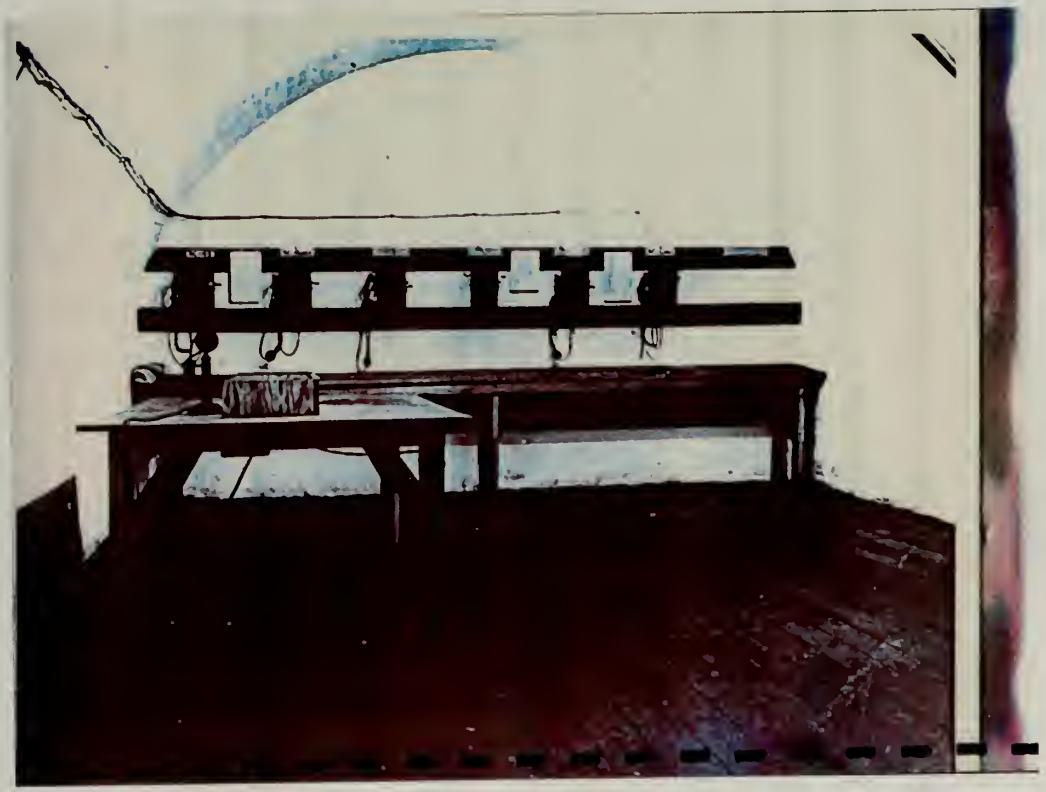


Illustration VII

Underground Emergency Message Center, Fort Moultrie HECP-HDCP, 1941-1944. The six wall telephones in the background are a fair indication that the same number were also found in the Message Center Room (Illustration VI). Courtesy U.S. Army, SC 294505.

Message Center Room

hotograph (Illustration VI) of the Message Center in the old
P-HDCP building indicates the room was sparsely furnished. In
center of the room was a table with a routing box and a desk
lephone on the top. The telephone subset was fastened on the
de of the table, and nearby were two wooden stools.

ur wall telephones are visible in Illustration VI but there were
obably more, as a view (Illustration VII) of the Emergency Message
nter shows six telephones evenly spaced along the end wall of
at room. The emergency facility also included a table with a
aller routing box and a desk phone. Placards above the wall tele-
ones in each of these rooms designated the party to which the line
s connected. They were apparently connected with the gun installa-
ons on Sullivan's Island and at Fort Moultrie. The placard above
e telephone on the left of the door to the Message Center Room
battery at the
dicated that it led to the Marshall Reservation on the extreme
d of the island ~~where there were two guns which had formerly been~~
~~[illegible]~~. The desk telephone is believed to have been connected
lth the post telephone system. The wall telephones were old and
d been in use at Fort Moultrie for at least ten years before
orld War II. They were not relocated in the new HECP-HDCP structure
n 1944.[18] The wall phones installed in the new HECP-HDCP were
pparently the EE-91 phones with head and chest sets.

Beneath each of the wall telephones in the old Message Center Room was a slanted writing shelf. The operators were probably seated, although only two stools and a chair appear in the photograph of the room. Presumably, there was a stool for each shelf. Beneath the row of six wall telephones in the Emergency Message Center Room there was a long locally-made writing table. The chairs and stools in the old Message Center Room were possibly moved into the new installation in 1944, but it is doubtful that the writing shelves were removed. However, some kind of writing surface for the telephone operators was probably included in the furnishings for the new Message Center Room.

For the present, we should not discount the probability of this room's use for conferences and classes in 1944. Although D. D. Fagg wrote in 1975 that "one of the rooms" across the hall from the Radio Room was used for conferences and classes, he drew, on a ground floor plan of the structure, a representation of a long table and chairs in the Message Center Room.[19]

Illustration VIII

Army and Navy Receiving and Transmitting Station, Fort Moultrie HECP-HDCP, circa 1942. Seated at the table is a Navy radio operator. The radio equipment appears to be Navy, and differs from the Army sets in Illustrations IX, X, and XI.

Courtesy U.S. Army, SC 294575.

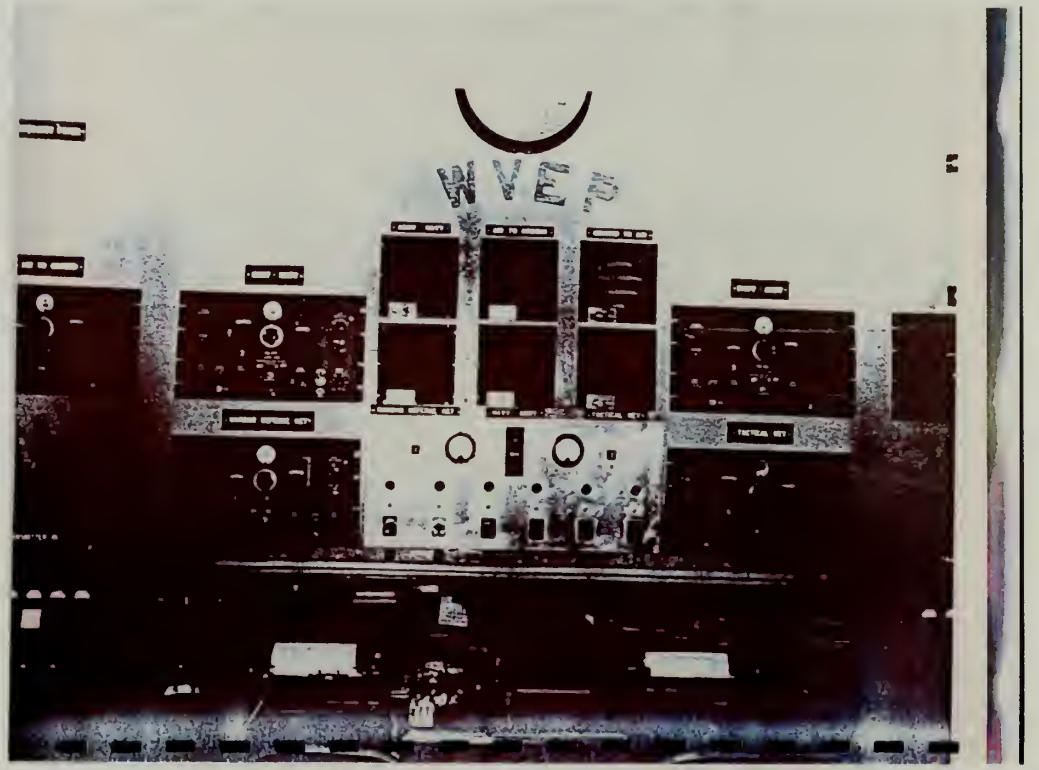
Illustration IX

Underground Emergency Harbor Defense Receiving and Transmission Station, Fort Moultrie HECP-HDCP, circa 1942. A Hammarlund receiver is at the far end of the shelf, and in the center is a Collins transmitter. The set near the telephones is identified as an SCR-281 one-unit receiver and transmitter. None of this equipment seems to have been transferred into the new HECP-HDCP structure in 1944. Courtesy U.S. Army, SC 294572.

Illustration X

ort Moultrie HECP-HDCP Radio Station WVEP as it was set up in the

ld frame building. Courtesy of Harold R. Browne.



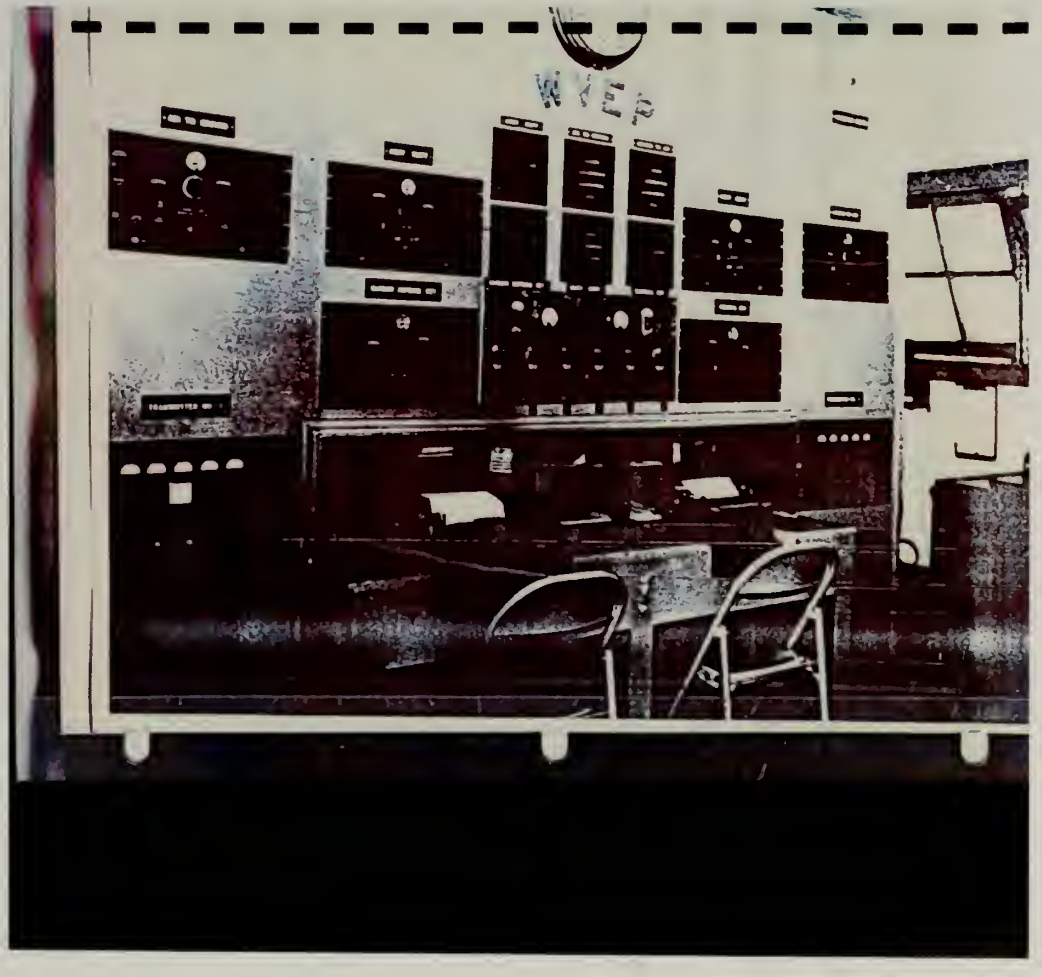

WKEP

Illustration XI

Another view of the radio cabinet at Station WVEP in the old building. The equipment was relocated in the permanent HECP-HDCP structure in 1944.

Courtesy of Harold R. Browne.

Illustration XII

Rear view of the radio cabinet designed and constructed by Master Sergeant Harold R. Browne who is standing beside it. He is presently Superintendent, Public Works Commission, McCormick, S. C., and supplied this photograph as well as the other views of Station WVEP.

Radio Room

In October 1941 it was announced that the Navy would provide visual signal gear and radio equipment for the Harbor Entrance Control Post. The radio sets to be furnished were to consist of two Navy type TCR 125 watt transmitters and three Model RBJ Hammarlund receivers. The transmitters, manufactured by Radiomarine Corporation of America, were of the channel quick shift type using crystal control only. Crystals were to be provided with these transmitters for the Army frequency of 2240 kilocycles, the Coast Guard frequency of 2670 kilocycles, the Navy frequency of 2256 kilocycles, and crystals for two frequencies for communication with the harbor circuits of the American Telephone and Telegraph Company. Power requirements for the transmitters were 110 volts (alternating current) 60 cycles, and 60 watts.[20]

A circa 1942 photograph (Illustration VIII) of the "Joint Army and Navy Radio Receiving and Transmitting Station" in the temporary HECP-HDCP structure reveals three receivers with panels similar to the Hammarlund Army SCR-244 and SCR-704 sets.[21] Presumably, the two transmitters which appear in the photograph are the TCR 125 watt transmitters. These are believed to be the Navy-supplied transmitting and receiving sets. On the same shelf with these sets is a set which appears to be an Army SCR-281 one unit-receiver and transmitter, two of which were later authorized by T/O & E 4-260-1 (April 11, 1944), one of them for temporary installation in target towing vessels.

Other photographs (Illustrations X, XI, and XII) of the HECP-HDCP radio station in the frame building reveal entirely different equipment, furnishing, and personnel, and we know from the former communications chief of the Carolina Sub-sector, Master Sergeant Harold R. Browne, that this was the radio equipment moved into the new structure in March 1944. These photographs, with the circa 1942 photograph, suggest that the Army and Navy equipments were operated in the old building concurrently and in separate locations, or that the Navy sometime between 1942 and 1944 ceased radio operations at the HECP-HDCP. Browne in 1974 could not recall seeing any Navy radio operators in the new structure when his duties took him there during 1944-45.[22]

Six Hammarlund receivers, all identical in appearance, are in the cabinet which was built under the direction of Sergeant Browne. They all appear similar to the Army Hammarlund receivers BC-779, BC-794, SCR-244, and the SCR-704, which differed only in power requirements and frequency ranges. These sets, all of which received voice and telegraphic transmissions, were intercept receivers for communications and monitoring purposes.[23] Two Collins transmitters, B-22 or 32-RA, appear in the photographs, one at each end of the operators' table. Both of the Collins models were used for point-to-point, ground-to-air, and airport control transmission.[24] The speakers for the six receivers are grouped in the center of the cabinet beneath the station's call sign WVEP. Below the speakers is what appears to

be a control panel for the six receivers. When Station WVEP was moved into the new structure in March 1944 the radio cabinet was placed about 2½' from the north wall of the Radio Room. The radio equipment was removed at the end of the war, but the cabinet remained until 1953, or after, when the structure was renovated by the Navy.[25]

Other radio equipment on hand before the move into the new HECP-HDCP in 1944 was located in the emergency underground radio room (Illustration IX). The equipment included a Collins transmitter similar to the Army 32RA; a Hammarlund receiver resembling the Army Hammarlund receivers BC-779, BC-794, SCR-244, and SCR-704; and a SCR-281 one unit-receiver and transmitter which was provided with an ordinary telephone handset.[26]

Two TP-6 telephones combined handsets, one of which was dial, are also shown among the equipment of the emergency station. Mr. Browne believes this to be Navy equipment and does not recall seeing any of it in the new HECP-HDCP.[27]

Interestingly, the T/O & E 4-260-1 (April 11, 1944) made an almost entirely different allowance of radio equipment for use at HECP-HDCP installations. The SCR-281 one unit-receiver and transmitter appears to have been the only one of these sets used at the Fort Moultrie HECP-HDCP. Three SCR-543 sets were allowed and although they appear on a diagram of the radio communication net for the Charleston harbor defenses there is no direct evidence that these sets were actually used.[28] The SCR-543 was especially suited for use by Coast Artillery firing batteries, barrage balloon units, and anti-aircraft units.[29]

Besides the L. C. Smith and Underwood standard typewriters seen in Illustrations X and XI, there was, we know, a teletypewriter at the HECP-HDCP. Veteran Roger L. Bouchillon recalled in 1974 that it was located in the Radio Room, against the wall by the door leading into the corridor.[30] However, D. D. Fagg and others seem to have had no recollections of a teletypewriter in this room.

Other furnishings were remembered by D. D. Fagg: a small table, filing cabinets, and chairs.[31] He did not recall the exact number of filing cabinets or chairs.

Power Room

The salient feature of this room was the fixed power plant PE-95-K which may be our only surviving piece of original equipment from the HECP-HDCP. Soon after the National Park Service took over the structure in 1970 a PE-95-K power unit was removed from this room and taken to Fort Sumter for use in power failure emergencies.

It appears unlikely, however, that this was the unit originally installed in 1944, and it probably replaced an earlier model at an undetermined date. War Department Technical Manual TM 11-904 published in July 1945 includes power units PE-95-A, -B, -C, -F, -G, and -H. It is not until the supplement to TM 11-904 dated January 8, 1952, that we find published data on the PE-95-K which was essentially the same as power units PE-95-G and -H. Onan, the manufacturer of these models, questions the use of PE-95-K during 1943-1944 when the HECP-HDCP was constructed and occupied.[32] More than half of the total number of electric plants used by the allies in World War II are reputed to have been produced by D. W. Onan and Sons of Minneapolis, Minnesota.

The exhaust flue and concrete base for the power unit are intact, and a number of switch boxes on the west wall of the room are still in place.

[1] The single exception was the three photographs of the radio cabinet at Station WVEP which were supplied by Harold R. Browne, McCormick, South Carolina; see Illustrations X, XI, and XII.

[2] Bearss, Fort Moultrie HECP-HDCP, p. 12

[3] Bearss, Fort Moultrie HECP-HDCP, p. 14

[4] J. J. Vitalis, Pontiac, Michigan, by telephone to Lee A. Wallace, Jr., September 23, 1974.

[5] Roger L. Bouchillon, Greenville, South Carolina, to Lee A. Wallace, Jr., September 4, 1974.

[6] War Department Coast Artillery Field Manual FM 4-15. Seacoast Artillery Fire Control and Position Finding, November 5, 1943, p. 53.

[7] War Department Technical Manual TM 9-2675 Instruction Guide Azimuth Instrument, M1910A1, November 17, 1941, p. 3.

[8] J. J. Vitalis, Pontiac, Michigan, by telephone to Lee A. Wallace, Jr., September 23, 1974; D. D. Fagg to Lee A. Wallace, Jr., January 21, 1975.

[9]Bearss, Fort Moultrie HECP-HDCP, p. 48; "Rehabilitation of HECP, Fort Moultrie, Sullivan's Island, S. C., Plans, Elevations and Details /1953/ , " Files, Fort Sumter National Monument, South Carolina; J. J. Vitalis, by telephone to Lee A. Wallace, Jr., September 23, 1974. In 1974, Al Dosher of Charleston, S. C. recalled the map board was completely covered with sheet metal, which was badly rusted when the Navy renovated the building in 1954. Mr. Dosher was a civilian employee there at the time.

[10]FM 4-15, pp. 6, 12, 294, 407.

[11]FM 4-15, p. 294.

[12]Standard Nomenclature List No. F-251 Addendum for Arms, Scale M1906, Ordnance Department, Washington, D. C., April 9, 1943.

[13]FM 4-15, pp. 294-295.

[14]FM 4-15, p. 34.

[15]FM 4-15, p. 35.

[16]War Department Technical Manual TM 11-433 Time Interval Apparatus EE-56, EE-85, EE-86-A Line Connector Unit EE-87 Time Interval Signal BE-65 and Bell MC-153, August 17, 1942, p. 2.

[17]TM 11-433, pp. 20-21.

18 Harold R. Browne to Lee A. Wallace, Jr., Oct. 16, 1974.

19 D. D. Fagg to Lee A. Wallace, Jr., January 21, 1975.

20 Bearss, Fort Moultrie HECP-HDCP pp. 9-10.

21 War Department Technical Manual TM 11-227 Signal Communications Equipment Directory Radio Communication April 10, 1944, Washington, G. P. O., 1944, pp. 45, 116.

22 Harold R. Browne to Lee A. Wallace, Jr., September 30, 1974.

23 War Department Technical Manual TM 11-487 Electrical Communications Systems Equipment 2 October 1944, Washington, 1944, pp. 450-451 (Fig. 1493); TM 11-227, pp. 45, 116.

24 TM 11-487, pp. 455, 463 (Fig. 1507).

25 "Rehabilitation of HECP, Fort Moultrie, Sullivan's Island, S.C. Plans, Elevations and Details [1953];" Files, Fort Sumter National Monument; D. D. Fagg to Lee A. Wallace, Jr., January 21, 1975.

26 TM 11-487, pp. 455, 463 (Fig. 1507-Collins 32RA), 450, 451 (Fig. 1493 - Hammarlund BC-779); TM 11-227, pp. 45 (SCR-244), 116 (SCR-704); TM 11-487, pp. 442, 444 (Fig. 1485 - SCR-281).

27
Harold R. Browne to Lee A. Wallace, Jr., September 30, 1974.

28
Bearss, Fort Moultrie HECP-HDCP, p. 47.

29
TM 11-227, p. 81.

30
Roger L. Bouchillon to Lee A. Wallace, Jr., September 4, 1974.

31
D. D. Fagg to Lee A. Wallace, Jr., January 21, 1975.

32
Virgil C. Gilbertson, Advertising Department, Onan Corporation, Minneapolis, Minnesota, to Lee A. Wallace, Jr., October 24, 1974.

E. RECOMMENDED FURNISHINGS

Every effort should be directed to the acquisition of original furniture and equipment. With the possible exception of the two optical instruments needed for the Observation Post, the procurement of the required articles should not be too difficult. Much of the military equipment of the World War II period has long since been disposed of as war surplus and is now available through civilian outlets. Desks, chairs, clocks and other office-type furnishings are probably still available from the Federal government, through the Utilization Branch, Personal Property Division, General Services Administration, Washington, D. C. (202-963-4394). Also, within the National Park Service there may well be some World War II period office furniture which could be utilized.

The radio cabinet, tables, and other furnishings locally made at Fort Moultrie during the war will have to be reproduced. They should be carefully based on the examples which appear in the wartime photographs accompanying this plan. The exact dimensions of these furnishings are no longer available, but an experienced carpenter should be able to reproduce them with acceptable accuracy.

In addition to the furnishings enumerated with each room in this part of the plan, other articles should be acquired and dispersed among the various rooms. These accessories may include any of the following:

Ash trays	Coffee Cups (U.S. Army China cups without handles)
Packages of cigarettes	Metal pitchers (U.S. Army issue)
Pipes	Field and Technical Manuals
Tobacco containers	Calendars
Life, Look or any of the other popular magazines of the period.	Pin-ups from Esquire
Trash baskets	Post newspaper
Paper	Uniform caps
Pens and pencils	

Care should be taken to select only those articles which date from the World War II period. Most of them are usually found in flea markets and shops which handle "nostalgic Americana."

Signal Tower

The hexagonal concrete base for the depression position finder, in the southeast corner of the room, is to be reconstructed. However, the installation of a depression position finder should be deferred until we have sufficient evidence that this instrument was mounted in the room.

A small wooden table should be placed against the south wall of the room. At least three metal folding chairs are recommended, one of which should be placed beside the table.

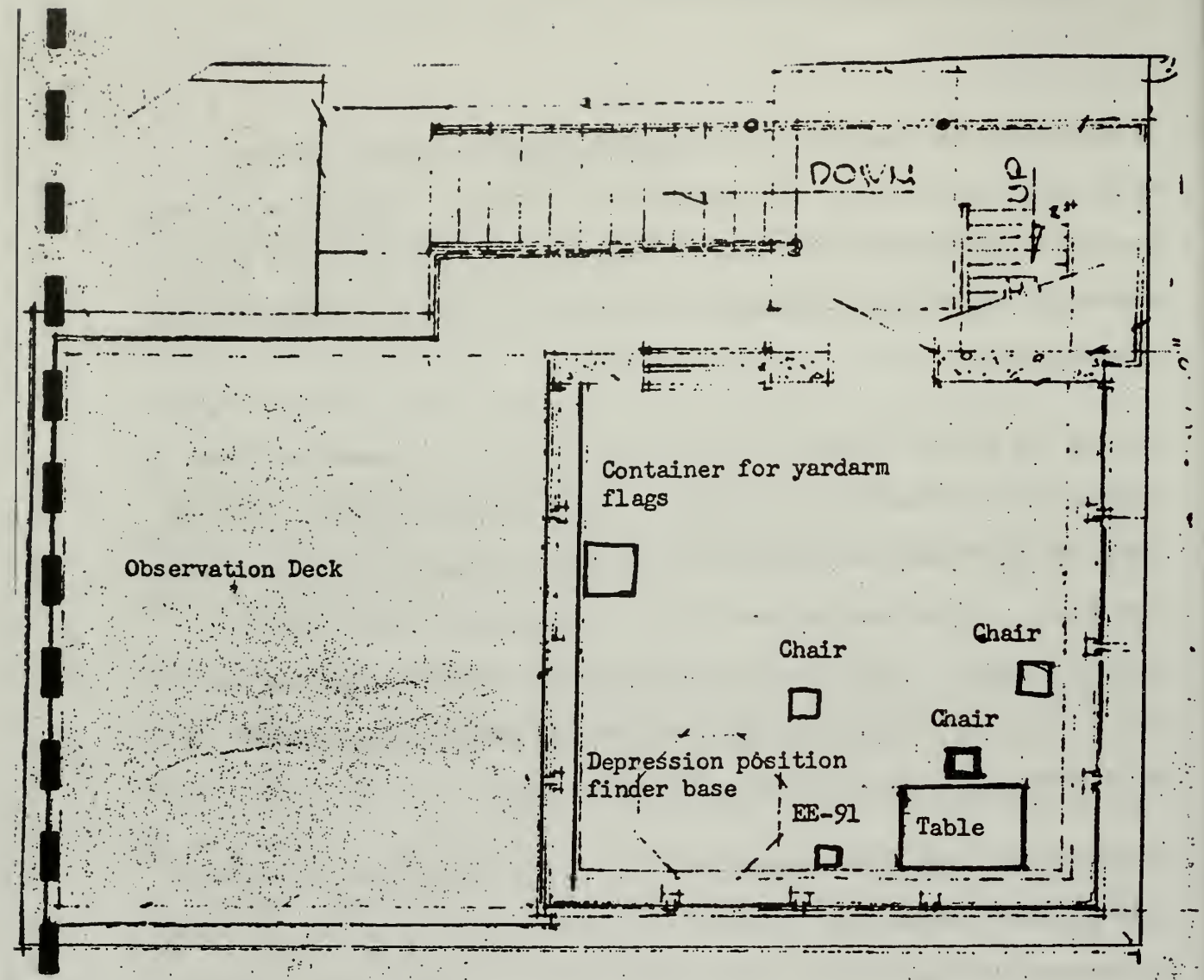
Although one veteran recalled, almost 30 years after World War II, a flag bag in the old Signal Tower, there remains the possibility that the yard-arm flags were kept in a storage locker or cabinet, especially constructed for this purpose. When sufficient evidence on this point has been learned, the container, whatever the kind, should be reconstructed and placed in the room. A set of semaphore flags, and a case for them, should also be procured.

Additional articles to be obtained for the interior of the Signal Tower will include some publications identifying ships and aircraft of the World War II period, Navy binoculars, telescope, a blinker gun for controlling the yard-arm blinkers, and an Addis lamp. No particular placement for these portable items can be foreseen at the present. As this room will be utilized for public contact, security measures for their protection will have to be considered and worked out, when the articles have been acquired and the room opened to the public.

An electric clock should be placed in the room, the precise location to be determined when the furnishings are installed. Although we have no positive evidence of a wall clock in this room, there was a clock in all the others, and it seems logical that the Signal Tower would have not been an exception.

Most of the signal equipment listed by the Chief of the Bureau of Ships in 1942 was utilized outside the tower. Two blinker-searchlights, a 24-inch and a 12-inch, should be procured and mounted on stanchions on the observation deck. A close examination of the deck might well reveal their precise location. The telescope, mounted on a stanchion just outside the Signal Tower in the old HECP-HDCP building, presumably was relocated on the observation deck of the new structure in 1944.

The yardarm on top of the Signal Tower is to be refurbished, and equipped with yardarm blinker lights, blocks, halliards, and snap hooks. The yardarm flags have been acquired, on an indefinite loan basis, from the Office of the Curator, Department of the Navy, Washington, D.C.



XIII

Illustration ~~XIII~~

Floor Plan

Signal Tower

Observation Post

An azimuth instrument M1910A1 (Illustration XV) is to be placed in the ~~southeast~~ northeast corner of the Observation Post. Preferably, the instrument should be one which reads azimuths or horizontal angles in degrees rather than in mils. During World War II many of the instruments using the mil system were converted to read in degrees, so the selection of the appropriate instrument may not present any difficulties. The M1910A1 azimuth instrument complete includes the M1910A1 telescope, the instrument base or mount, and the Type A wooden adjustable tripod. The telescope contains an optical system consisting of an objective lens, erecting prisms, reticule and eyepiece. Two eyepieces were furnished, one giving 10-power and the other 15-power magnification. On the reticule are etched horizontal and vertical lines. A deflection scale on the horizontal line was used when the instrument was used for spotting. The base consisted of a yoke to hold the telescope, the traversing mechanism, the azimuth circle, and a leveling mechanism. Lamps provided artificial illumination of the scales in the telescope and on the base. The instrument was provided with a case for carrying the telescope, a cover to protect the instrument from the weather, and packing chest for storing and transporting the base and accessories. A leather strap was also provided for carrying the tripod.[1]

The Swasey depression position finder (Illustration ~~XV~~ XVI) will be mounted on an octagonal concrete base which is to be reconstructed on its original site in the ~~southwest~~ southeast corner of the room. This instrument consisted of a telescope, a cradle, and a heavy metal stand bolted to a concrete base. The telescope optical system was similar to that of the M1910A1 azimuth instrument, but it had a larger field and more illumination by lamps. Eyepieces were furnished for 12- and 20- power magnification. There was no spotting scale on the reticule. The cradle, which supports the telescope, provides means of moving it on horizontal and vertical planes, and making necessary adjustments for reading ranges and azimuths, which are read in degrees.[2] The traversing and leveling mechanisms are similar to those of the M1910A1 instrument. Presumably, the Swasey depression position finder was provided with a case for the telescope, a box for the cradle, and a cover, similar to those which came with the M1910A1 instrument. An observers bench is to be made for the depression position finder as seen in Illustration III.

A locally-made table about 25" x 32" should be placed between the depression position finder and the M1910A1 azimuth instrument. The table, about 36" high, should be made of dressed pine with "two by fours" as legs, and 3/4-inch boards for the braces, sides, and top.

No paint or stain should be applied until there is evidence that it was done after the 1942 photograph was taken.

Two EE-91 box telephones (Illustration ~~XVI~~ XVII) with HS-30 headsets and TD-3 chest sets should be mounted on the south wall below the row of windows, one by each of the observing instruments. Another EE-91 telephone with a TS-12 handset should be mounted on the opposite or north wall of the room. The EE-91 (Stock No. 4B8191) was a wall mounted box telephone operated by a common battery. It had a ringer and a hand generator for signaling other telephones on the line.[3] The handset TS-12 (Stock No. 4B1112) was used with the EE-91, but it was not actually a part of this telephone. It had a "press-to-talk" switch, a 9-foot cord which plugged into the phone, and a hanger to engage the switchhook on the telephone.[4] The headset HS-30 (Stock No. 2B830) was double insert type receiver headset with ear inserts (M-300), and the chest set TD-3 (Stock No. 4B417-3) was a unit which fastened a microphone on the operator's chest, thus allowing him the free use of both hands.[5]

An MC-153 time interval system bell should be placed on the north wall of the room, and connected with the EE-86-A Time Interval apparatus in the Duty Officers and Operations Room.

he Observation Post should also have at least four metal folding

hairs as pictured in Illustrations X and XI, and an electric clock

west
n the ~~north~~ wall of the room.

Illustration XIV

Azimuth Instrument, M1910A1; see

also Illustration III. From

TM 9 - 2675

Illustration XIV

Azimuth Instrument, M1910A1; see also Illustration XIV. From TM 9 - 2675

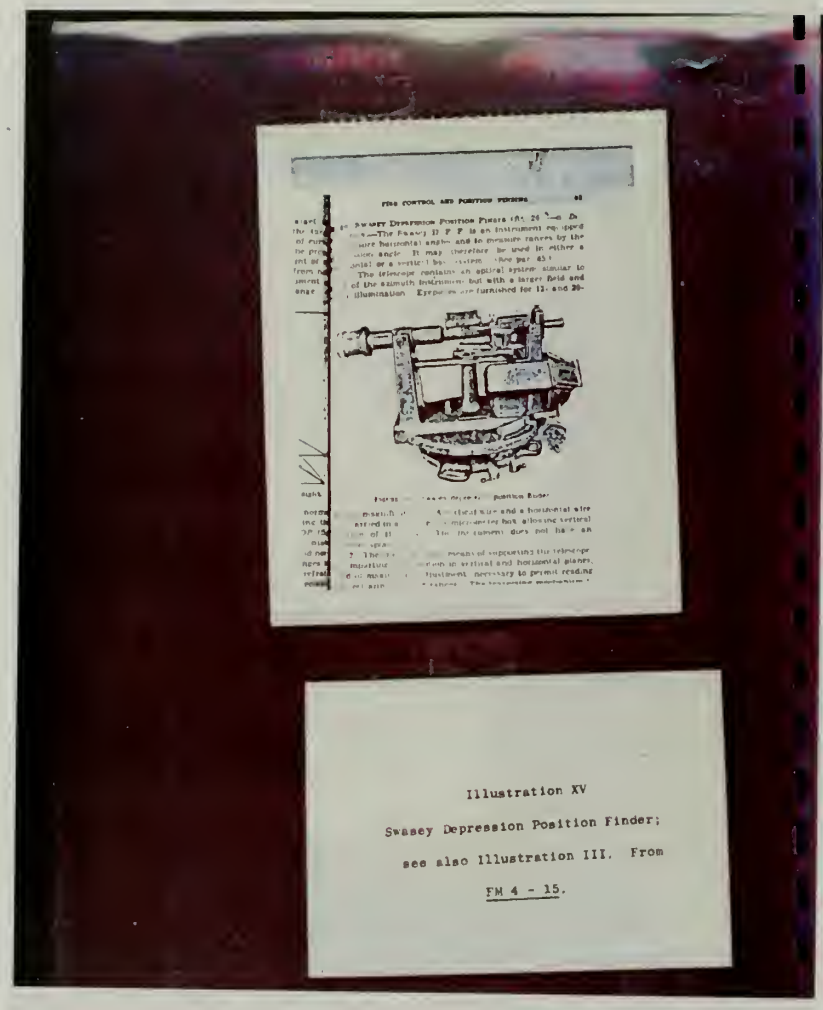


Illustration XV

Swasey Depression Position Finder;

see also Illustration III. From

FM 4 - 15.

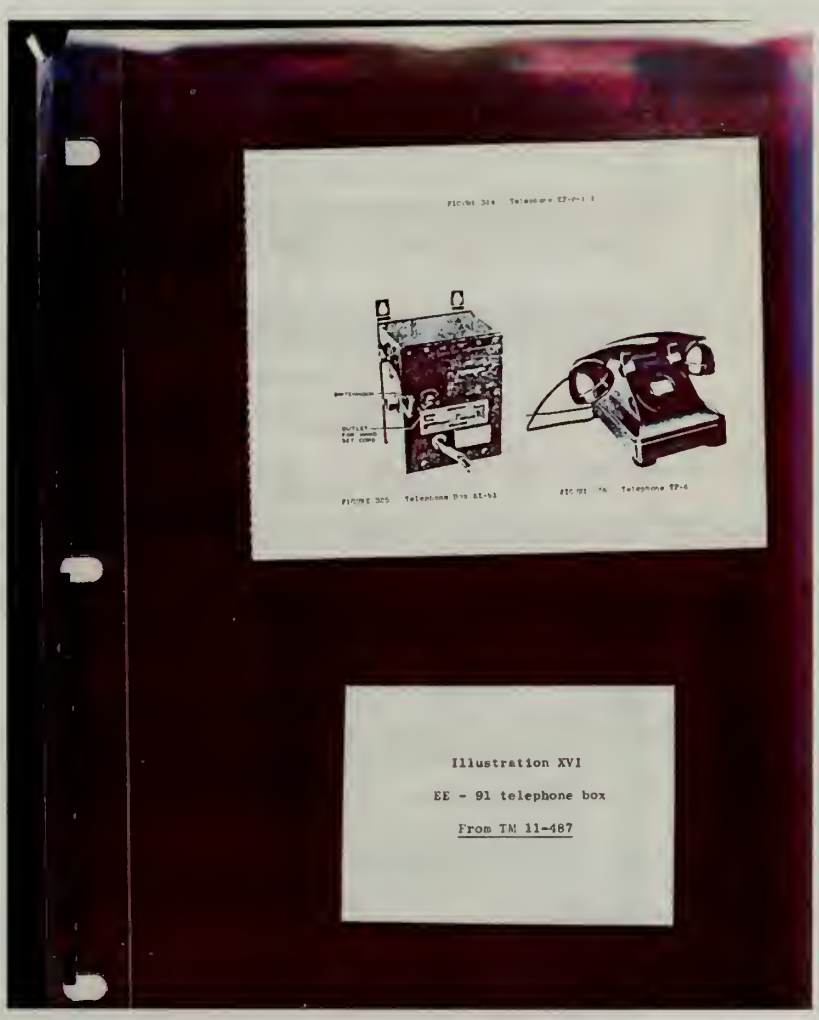


Illustration XVI

EE - 91 telephone box

From TM 11-487

Duty Officers and Operations Room

A flat top wooden desk is required for this room. It should be of the varnished light-oak stain kind that was commonly seen in military installations and Federal government offices until recent years (Illustrations III and IV). The desk should have a center top drawer and three storage drawers on each side. These desks were approximately 30" in height and had a top surface about 65" x 35". A matching oak swivel chair (see Illustrations IV and V) will be at the desk.

There should be one drawing board with double trestles as seen in Illustration IV, with a surface of 42" x 60". Fastened on top of the board there should be a scale arm, M1906 (Illustration ~~XVIII~~ XVII), and a sheet of heavy drawing paper. Should the surface of the board be plainly visible from the door, a firing chart should be reconstructed on the paper; see FM 4-15, p. 297. Drawing pencils, erasers, thumb-tacks, etc. should be lying on the board. The drawing board also seems to be the logical place for the percentage corrector M1 (Illustration ~~XIX~~ XX). Its dimensions are undetermined but the device appears to have been of such size as to permit its use either on top of the board or on the lap of the operator transmitting firing data to the Examination Battery.

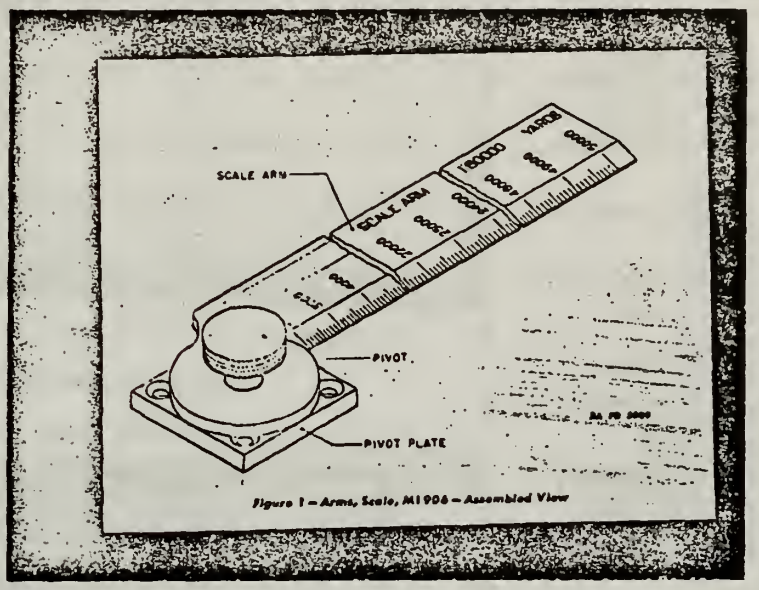


Figure 1 — Arms, Scale, M1906 — Assembled View

Illustration XVIII

Arms, Scale, M1906 - Assembled view. From

Standard Nomenclature List MO. F - 251

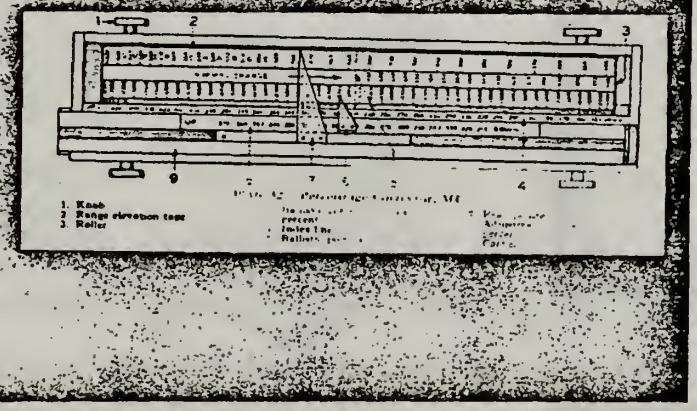


Illustration XIX

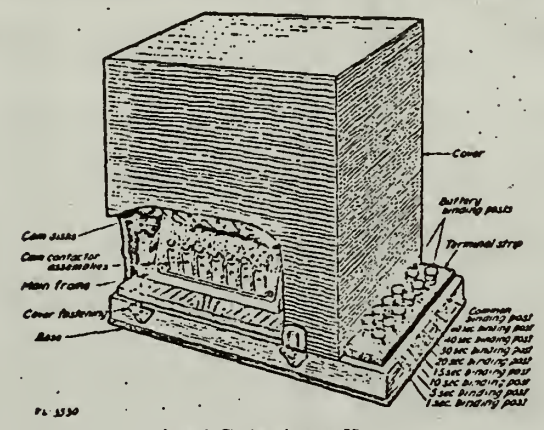
Percentage Corrector, M1, From Bond,

Military Science and Tactics

Coast Artillery Basic Course

and the ends of the tines are each fitted with slotted brass pieces. The entire fork is fastened securely in a black metal case which has apertures to make it possible to look through the slots of the fork.

(2) A master 1-second timing-contact cam is driven through another worm gear by the same worm which drives the cam-arbor



worm gear. This cam operates the master timing contact which acts as the make contact of all time interval circuits.

(3) Additional disks and an improved method of spacing the drilled and tapped holes are used in the cam-arbor assembly of the EE-86-A. Seven disks are mounted in the same way as the four disks of the EE-56. The eighth cam disk is pinned to a secondary spindle mounted on an extension of the arbor shaft. This secondary spindle is driven from the forward spindle through a two-stage spur gear

Illustration XX (part 1)

Time Interval Apparatus EE-86-A. From TM 11 -

disk, which is located on the 1½-revolution [illegible]-minute spindle, is drilled and tapped at eight equidistant [illegible] around its periphery. Cam groups of the eighth cam disk are [illegible]-gable with those of the other six drilled and tapped disks.

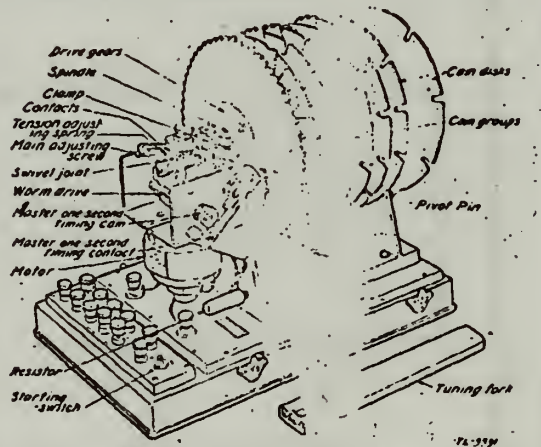


Illustration XX (part 2)

Time Interval Apparatus EE-86-A. From TM 11 - 433.

NOTE: Time interval apparatus EE-86-A is normally assembled so that cam groups are arranged for 1-, 5-, 10-, 15-, 20-, 30-, 40-, and 60-second synchronized intervals on successive disks from the front of the apparatus. The projections are cut into the periphery of the 1-second disk, and the 5-second disk has twelve single-projection cams equally spaced at 30°. The 10-second disk has six three-projection cam groups equally spaced at 60°, each producing the firing signal and 1- and 2-second warning signals. The 15-second disk has four three-projection cam groups equally spaced at 90°, the 20-second disk has three at 120°, the 30-second disk has two at 180°, the 40-second disk has one, and the 60-second disk

Two EE-91 box telephones, each equipped with a HD-30 headset and a TD-3 chest set, should be mounted on the west wall between the bulletin and map boards. Another EE-91 telephone, with a TS-12 handset, is to be mounted on the wall at the south west corner of the room. An up-right, or desk, telephone should be placed on the desk as seen in Illustration III. The telephones will have the appearance of being actually installed.

A EE-86-A Time Interval apparatus should be procured and placed in this room, with an MC-153 bell mounted on the wall near the telephones and drawing board. As the exact location is uncertain, it might be placed temporarily on a small locally made table similar to the one seen in Illustration II.

Two bulletin boards are contemplated for this room, one on the south wall and the other on the west wall. A floor plan detailing the Navy's proposals for rehabilitating the structure in 1953 indicates the boards were approximately 6' in length. There was no indication of the height but it is believed to have been from 3' to 4'. These boards were probably made of plywood on a frame of heavier material. It is suggested that they be painted green or black, and left blank until we have more information on their original appearance. A 7' x 12' map board is planned for the southwest wall, but its installation should be postponed until more data on its construction and the maps have been determined.

A conference table should be procured and placed in the center of the north end of the room. This table should be of the light oak stain style, and about 30" high with a top approximately 72" x 36".

Eight steel folding chairs should be placed around the table. If it is ever satisfactorily determined that conferences and classes were held in the Message Center Room, the table and chairs can be transferred to that room.

A round electric wall clock as seen in Illustration IV should be placed on the west wall of the room above the two telephones.

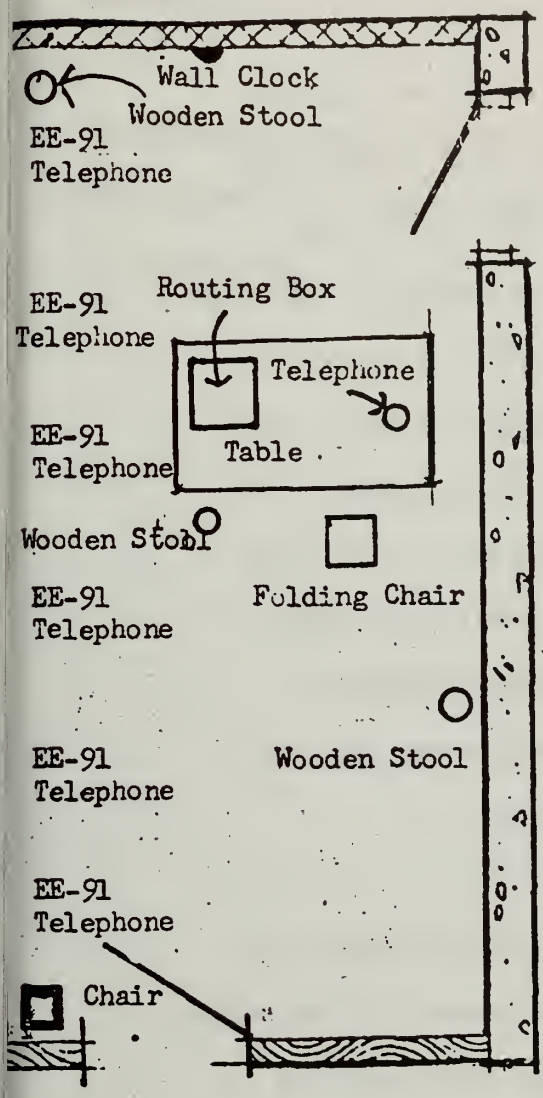


Illustration XXI

Floor Plan

Message Center Room

Message Center Room

A locally-made table, as similar as possible to the one seen in Illustration VI, should be placed on the left of the doorway from the corridor. The table appears to have been made of 3/4-inch dressed pine, with a top of about 3' x 5½'. The height is estimated at 30½" and the legs appear to have been made from "two by fours" narrowed toward the bottom. The outside dimensions of the wooden routing box, placed at one end of the table, are estimated at 28" long, 12" high and 12" deep. The box is divided by two 12" x 12" partitions into three equal compartments. The table and routing box should be left unpainted as they appear in the photograph. However, they should be painted if it is ever determined this was done when the new HECP-HDCP structure was occupied.

Seating arrangements should include a wooden chair and three four-legged wooden stools, of the same style as those shown in Illustration VI. A folding metal chair as recommemded for the Radio Room and Duty Officers and Operations Room should be placed by the table.

Six EE-91 telephones, equipped with HD-30 headsets and TD-3 chest sets, are recommended for installation along the west wall of the room. A long table, constructed similar to the one in Illustration VII should be placed beneath the phones. A desk-type phone should be placed on the table beside the door, with the subset fastened to the side of the table as shown in Illustration VI.

Hand-lettered placards should be placed above each telephone denoting the station to which each was connected; see Illustrations VI and VII.

An electric clock is proposed for the north wall of the room. Like the clocks in the other rooms this one should be in running order and connected.

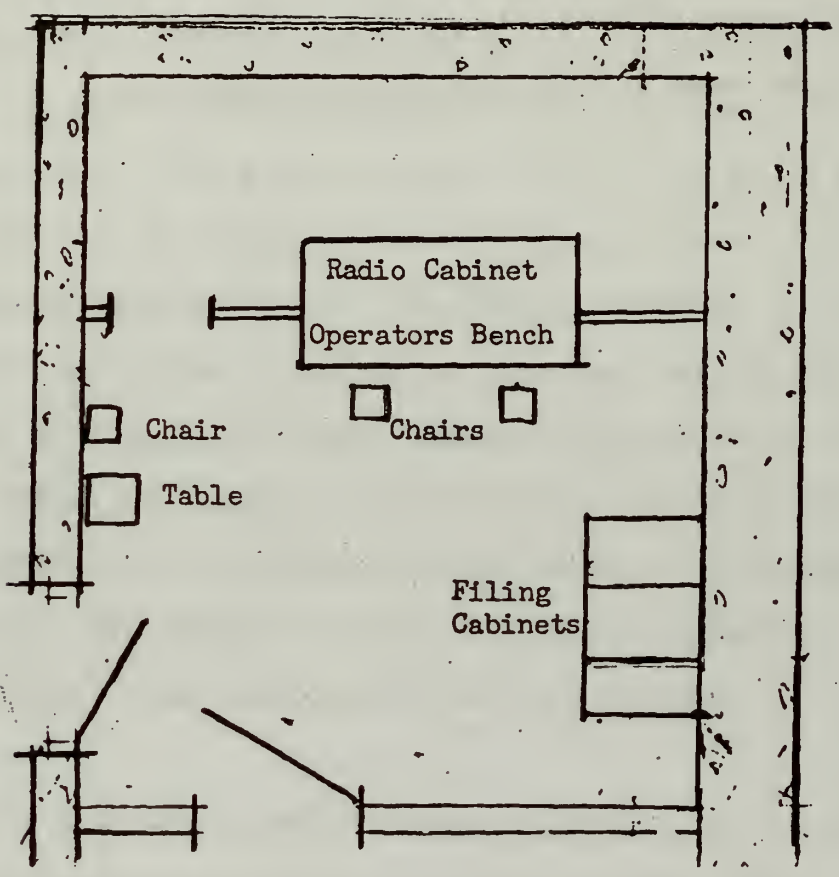


Illustration XXII

Floor Plan

Radio Room

Radio Room

The most prominent feature of this room will be the radio cabinet and operators' table similar to the set up as seen in the circa 1944 photographs of Station WVEP (Illustrations X, XI, and XII). The cabinet, which will have to be made, is to be placed parallel with the north wall of the room. There is to be a working space of approximately 3' between the cabinet and the wall. The cabinet should be 8' in length, about 3' in depth, and 9' in height, which is from the floor to the ceiling. On each side of the cabinet are partitions (one with a doorway) which will also extend to the ceiling. The cabinet and partitions will be constructed of 1/2" plywood and 2" x 4" materials.

Six Four Hammarlund receivers complete with power units should be procured. As we do not know exactly which models were used during 1944-1945 any of the following would be acceptable; they all have the same appearance, with slight variations in dimensions:

BC-779 (Stock No. 2C4779). Width, 24", depth, 24", height, 12"; weight, 1000 lbs. Includes two units, receiver and power supply RA-94. Instruction book: TM 11-866. See TM 11-487, pp. 450, 451 (Figure 1493).

BC-794. Width, 24"; depth, 24"; height, 12"; weight, 100 lbs. Includes two units, receiver and power supply RA-94. The set is the same as BC-779 except for frequency range. Instruction book: TM 11-866. See TM 11-487, pp. 450, 451 (Figure 1493).

SCR-244. Width, 23", depth, 16.5", height, 12.25", weight, 70 lbs. Power unit is 13" in width, 8.5" in depth, 13" in height, and weighs 70 lbs. See TM 11-227, p. 45.

SCR-704. Width, 23"; depth, 16.5"; height, 12.25"; weight, 70 lbs. Power supply unit is 13" in width, 8.5" in depth; 8.25" in height, and the weight is 30 lbs. See TM-11-227, p. 116.

Two Collins transmitters, with telephone handsets and telegraph keys, will be needed. They should be the 32-RA model, capable of voice and telegraphic transmission. The dimensions of the 32-RA were about 12" in height, and 23" in width. See TM 11-487, pp. 455, 463 (Figure 1507).

Ideally, complete operative transmitting and receiving sets should be installed. If this cannot be done, sets without their inner parts could be adequate, so long as the panels are complete with their tuning knobs, switches, and other devices.

The radio operators' table should be made to duplicate as much as possible the table seen in Illustrations X and XI. Estimating from known approximate dimensions of the folding chairs, the table appears to have been about 5' 7½" in length and between 30" and 34" in height. Its width, or depth, appears to have been about 30".

The cabinet and table should be painted gray, the same shade as prescribed for the walls and woodwork.

Furnishings for the operators' table and radio cabinet will include two typewriters, an L. C. Smith and an Underwood, and two metal folding chairs; see Illustrations X and XI.

Three steel filing cabinets, either five or four drawer units, are needed for the southwest corner of the room. Dark green steel cabinets are preferred, but brown or gray would also be appropriate. Wooden file cabinets may also be used if steel ones cannot be had. Other than the fact that there were filing cabinets in this room we have no information as to their number, color, or if they were steel or wooden.

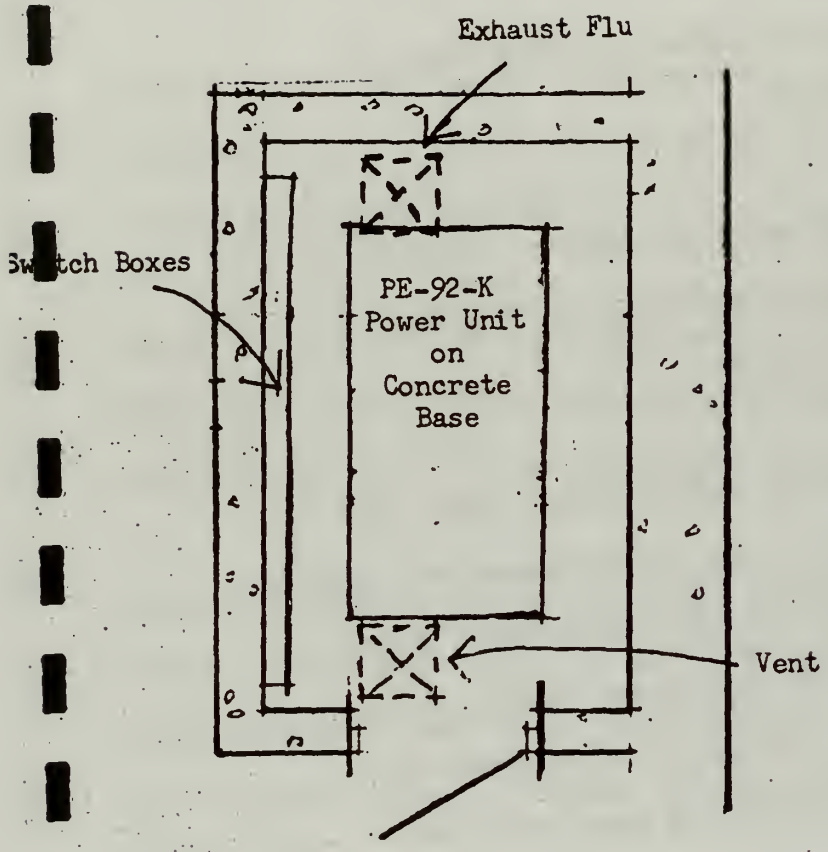


Illustration XXIII

Floor Plan

Power Room

Power Room

The emergency fixed power plant unit, PE-95-K, manufactured by D. W. Onan & Sons, Minneapolis, Minnesota, is to be removed from Fort Sumter and re-located in this room, connected with the original exhaust flue. Mounted on the same concrete base from which it was removed in 1970, the unit, which weighs 1,682 pounds, is 70 5/8" in length, 29¼" in width, and 40" in height. The control panel, battery, and fuel tank, are all enclosed in the metal casing with removable sides.

Although this unit was probably installed at Fort Moultrie sometime between 1945 and 1952, it is similar enough in appearance to earlier models to be used in this context.

1
War department Technical Manual TM 9-2675 Instruction Guide Azimuth Instrument, M1910A1 November 17, 1941, Washington, 1941, pp. 2-8.

2
FM 4-15, pp. 53-54.

3
TM 11-487, pp. 47, 48

4
TM 11-487, pp. 32, 46

5
TM 11-487, pp. 30, 39, 41, 42, 45

SUMMARY OF REQUIRED FURNISHINGS AND COST ESTIMATES

Approximate values of articles are given here although some of the items ~~may~~ will be acquired through donations or by transfer of Federal property procedure. Costs of communications equipment were determined by consultation with electronic specialists of the Smithsonian Institution and local commercial outlets. The cost of locally-made furnishings such as the radio cabinet, bulletin boards, and tables, are based on current lumber prices in the northern Virginia area plus labor. Future increases in the cost of lumber and hourly wages have also been taken into consideration.

Signal Tower

One (1) wooden table	$25.00
Three (3) metal folding chairs	$30.00
One (1) storage bag or cabinet for yardarm flags	$50.00
One(1) EE-91 telephone and handset	$16.00
One (1) set of semaphore flags with case	$30.00
One (1) pair Navy binoculars with case	$50.00
One (1) Navy 50-power telescope	$75.00
One (1) blinker gun	$30.00
One (1) Addis lamp	$50.00
Identification books (vessels and aircraft)	$25.00
One (1) electric wall clock	$10.00
One (1) set of yardarm flags	(on hand)
Halliards, blocks, and snap hooks for yardarm	$30.00
Blinker-lights for yardarm	$50.00
One (1) searchlight (24-inch)	$75.00
One (1) searchlight (12-inch)	$75.00
Three (3) stanchions (for searchlights and telescope)	$200.00
Total	$821.00

Observation Post

One (1) M1910A1 azimuth instrument with Type A tripod	$800.00
One (1) Swasey depression position finder complete with telescope, cradle, and heavy metal stand	$500.00
One (1) observers' bench with backrest	$200.00
Three (3) EE-91 telephones	$90.00
Two (2) HS-30 headsets	$25.00
Two (2) TD-3 chest sets	$25.00
One (1) TS-12 handset	$15.00
One (1) MC-153 time interval system bell	$10.00
Four (4) metal folding chairs	$25.00
One (1) locally made wooden table 25" x 32"	$50.00
One (1) electric wall clock (round)	$10.00
Total	$1750.00

Duty Officers and Operations Room

One (1) flat top wooden desk with double row of drawers	$30.00
One (1) drawing board with double trestles	$150.00
(This will have to be made if one cannot be located.)	
One (1) arms, scale, M1906	$50.00
One (1) sheet of drawing paper	$ .25
Six (6) drawing pencils	$ 1.00
One (1) eraser	$ .25
One (1) box of thumb tacks	$ .25
One (1) percentage corrector	$ 10.00
Two (2) bulletin boards 4' by 6'	$160.00
One (1) map board 7' x 12'	$300.00
Three (3) EE-91 telephones	$90.00
One (1) desk telephone with subset (no dial)	$40.00
Two (2) HD-30 headsets	$25.00
Two (2) TD-3 chest sets	$25.00
One (1) TS-12 handset	$10.00
One (1) EE-86-A time interval apparatus	$50.00
One (1) MC-153 time interval system bell	$10.00
One (1) conference table 36" x 72"	$60.00
Eight (8) metal folding chairs	$50.00
One (1) wooden swivel desk chair	$25.00
Total	$1086.75

Message Center Room

One (1) locally made table 3' x 5½'	$50.00
One (1) locally made wooden routing box 22" x 28"	$10.00
One (1) wooden chair	$10.00
One (1) metal folding chair	$6.00
Three (3) four-legged wooden stools	$15.00
One (1) locally made table 2' x 20'	$135.00
Six (6) EE-91 telephones	$180.00
Six (6) HD-30 headsets	$75.00
Six (6) TD-3 chest sets	$75.00
One (1) desk telephone with subset (no dial)	$40.00
One (1) electric wall clock (round)	$10.00
Total	$606.00

Radio Room

One (1) radio cabinet	$175.00
~~FOUR~~ Six (4) U.S. Army Hammarlund receiving sets	$200.00
(Can be either the BC-779, BC-794, SCR-244, or SCR-794)	
Two (2) Collins transmitters complete with telegraph keys and handsets	$200.00
(Can be the B-22 or 32-RA)	
One (1) radio operator's table	$85.00
One (1) L.C. Smith typewriter	$25.00
One (1) Underwood typewriter	$25.00
One (1) electric wall clock (round)	$10.00
Three (3) four drawer unit steel filing cabinets	$60.00
One (1) small table	$20.00
Four (4) metal folding chairs	$24.00
Total	$824.00

Power Room

One (1) PE-92-K Onan fixed power plant unit .....(on hand)

**** ****

Accessories (ash trays, magazines, etc.)..... $100.00

Total furnishings for all rooms ~~$4,366.75~~ 5,187.75

Related expenses (salary, travel) 5,000.00

Total ..... ~~$9,366.75~~ 10,187.75

F. SPECIAL MAINTENANCE AND PROTECTION RECOMMENDATIONS

Much of the specified furnishings will require careful handling and maintenance. The rooms with their equipment and furniture will have to be kept neat and clean so that an atmosphere of military tidiness prevails. Particular attention will have to be given to frequent dusting of the large surface areas of the desks, drawing board, and table in the Duty Officers and Operations Room. The electric wall clocks should be periodically checked to see that they give the correct time.

The depression position finder, while solidly mounted on a heavy pedestal and concrete base, is a delicate instrument. Its telescope and cradle mount are very apt to be damaged by rough handling, especially by those who are unaware of the fragility of instruments of this kind Even greater precaution must be taken for the protection of the M1910A1 azimuth instrument. Mounted on a wooden tripod, it could be knocked over, resulting in serious damage. In setting up the tripod the wing nuts clamping the legs should be tight to avoid collapse when the instrument is mounted. The telescopes on both instruments are easily damaged by shocks and by dropping them. Dust and dirt will cause deterioration of lens surfaces. Lens tissue should be used to wipe dirt, oil, and grease from the lens which can be cleaned with alcohol. Screws and gears on the mounts should be kept lubricated.

A barrier at the door of each room, including the Observation Post, will be required if fragile telescopic instruments, radio equipment, and telephones are to be adequately protected. Plans and details for relatively unobtrusive barriers are available from the Branch of Reference Services, Harpers Ferry Center, Harpers Ferry, West Virginia. Labels on the barriers will have a brief explanation of the use of each room.

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APPENDIX

Recollections of Fort Moultrie HECP-HDCP Veterans

Of all the responses to inquiries sent to several Fort Moultrie veterans of World War II, only the following replies from Harold R. Browne and D. D. Fagg contributed substantial information on the furnishings of the HECP-HDCP.

Mr. Browne: We would much appreciate your indicating on the attached floor plan (ground floor) of the new HECP-HDCP building locations of furnishings in the radio room and any other rooms that you recall. We are interested in the location of radios, telephones, teletypewriters, desks, wall-clocks, chairs, etc.

Do you remember anything at all about the H.E.C.P Room?

Were the radios you installed in the room indicated as Radio Room?

There were supposed to have been some Navy radio operaters somewhere in the building - do you have any idea of where they might have been located?
I do not recall any Navy Radio Operators being in the building at the time that I was there.
Attached are some extra sheets for your files. I'll probably be able to send you better copies later.

Lee Wallace

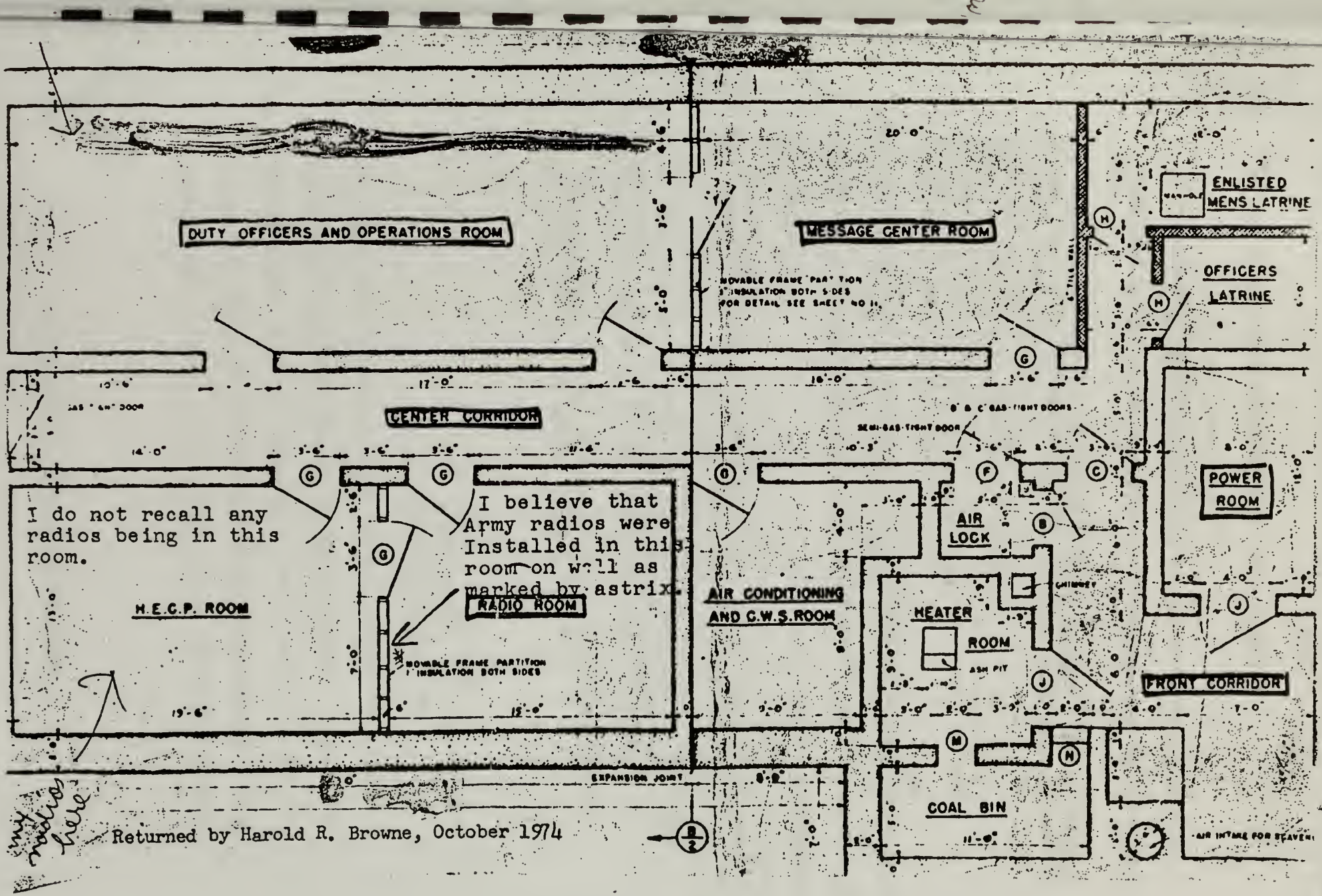
Mr. Wallace: I'm enclosing three photographs that were made in the old Wooden Building on Top of the Old Fort that was used for the radio room until it was moved into the New H.E.C.P. Room.

I'm sorry I don't have more information. I would like to make a trip to Charleston in the near future. Mabye seeing the H.E.C.P. Room will help to refresh my memory.

I do have an old 1944 Fort Moultrie Phone Directory that might help you locate some personnel that might have information concerning the New H.E.C.P.

If you have any other questions I will be glad to try to answer them.

Harold R Browne
Harold R. Browne


DUTY OFFICERS AND OPERATIONS ROOM
MESSAGE CENTER ROOM
MOVABLE FRAME PARTITION 1" INSULATION BOTH SIDES FOR DETAIL SEE SHEET NO 11
ENLISTED MENS LATRINE
OFFICERS LATRINE
CENTER CORRIDOR
I do not recall any radios being in this room.
I believe that Army radios were Installed in this room on wall as marked by astrix.
H.E.C.P. ROOM
RADIO ROOM
MOVABLE FRAME PARTITION 1" INSULATION BOTH SIDES
AIR CONDITIONING AND C.W.S. ROOM
AIR LOCK
POWER ROOM
HEATER ROOM
ASH PIT
FRONT CORRIDOR
COAL BIN
EXPANSION JOINT
Returned by Harold R. Browne, October 1974

I don't know where they got the information for the caption, but do you recall if this equipment was really set up in the new building?

I don't recall any of this equipment in the building. Looks like it might be all Navy Equipment.

Harold R. Browne

September 23, 1974

The above statement was returned by Mr. Browne with a copy of Illustration IX, Underground Harbor Defense Radio Receiver and Transmitting Station, Fort Moultrie, S. C., circa 1942.

(O) 10/16/1974

United States Department of the Interior

NATIONAL PARK SERVICE
5256 PORT ROYAL ROAD
SPRINGFIELD, VIRGINIA 22151

LY REFER TO:

Are these radio-telephones I have encircled? If so, do you recall if they were moved into the new HECP-HDCP building? I haven't found anything like this equipment in the various Army technical manuals I've consulted, and they don't appear on the table of authorized equipment for the HECP-HDCP. Do you know if these box wall telephones were moved into the new building? I suspect they were obselete by 1944 but am not sure. No need to return the copied photographs.

Lee A. Wallace Jr.

Lee A. Wallace, Jr.

Mr. Wallace,

The telephones in the pictures are just old wall telephones- not Radio telephones. None of these phones were ever used in the new H.E.C.P. These are the phones that were used in the old guns implacement, plotting rooms and outpost. We used this type phones when we were at Ft. Moultrie during National Guard Camp. I was in the National Guard ten years.prior to World War 2 and went to Ft. Moultrie each summer.

I would like to see a better picture of the Photo- Especially the parts which I have marked.

Harold R Browne

Harold R. Browne

The telephones in question were the wall phones which appear in Illustrations V and VI. The " radio-telephones " appear in Illustrations IV and V. Mr. Browne noted on machine copies of these photographs that he did not believe they were radio-telephones, and " I don't recall any equipment like this in HECP."

JOHNNY HORIZON '76

Let's Clean Up America For Our 200th Birthday

Do you recall if these were the radios, table, chairs, clock etc. that were moved into the Radio Room of the new building. The table for the radio sets appears to have been made locally for them.

Canyou identify the transmitters marked (in center of photo)

T can get you a better print of this later on.- keep the duplicate copy.

You may see in the Photo that I have enclsoed , the difference in the chairs, clock, radios, etc., . The operating table is very similar to the picture that I'm emclosing. I do recall the type of equipment that the Army was using at that time.

The above statement was returned by Harold R. Browne with a copy of Illustration VIII, Army and Navy Radio Receiving and Transmitting Station, Fort Moultrie HECP-HDCP, circa 1942. The photographs enclosed by Mr. Browne were machine copies of Illustrations IX, X, and XII.

United States Department of the Interior

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REPLY REFER TO:

16 January 1975

Dear Mr. Browne:

Some while ago you mentioned that you had a 1944 Fort Moultrie telephone book. We are trying to identify a Major Anderson who was there circa 1943 - 1944, and I am wondering if your telephone book would give a clue as to his first name and assignment.

Sincerely,

Lee A. Wallace, Jr.

Dear Mr. Wallace:

In checking the Fort Moultrie Telephone Book, the only Anderson listed is:

Archie W. Anderson 2nd. Lt. CAC
Btry F 263 C A

There were a number of Officers that lived off the post and in BOQ . He was probably one of these officers.

I'm planning a trip to Charleston in March or April and I hope to be able to visit Fort Moultrie while there.

Sincerely,

Harold R. Browne

D. D. Fagg
Anderson, S.C. Rt 4 5
Jan. 21, 1975

Mr Lee A. Wallace Jr.
National park Service
Springfield VA.

Dear Mr Wallace

In Response to your letter of Jan. 15 requesting information about Fort Moultrie, S.C. I recall my days there quite well, but to remember first names of people, and exact locations, it does become rather vague after 30 years.

I entered the army at Fort Moultrie in 1941, With the 263rd. Coast Artillery. (National Guard). When the war started we manned the Artillery Implacements there.

After taking a course in Radio and as a code clerk, I was transfered to ~~the~~ Headquarters of The Carolina Sub Sector of the Eastern Defenses in Charleston S.C. When this outfit was moved to North Car., I came back to Fort Moultrie in June of 1944, and worked a While in the Structure you asked about. Activities in that

area was beginning to slow down by then, so it seems that most of our operations in that building were confined to the Radio Room, and the adjoining room.

As I remember, the Radio Room had the radio cabinet, with four or five receivers and a couple of transmitters. The room had a small table, filing cabinets and chairs. Perhaps the adjoining room, which was occupied by the chief operator, was furnished with a desk, cabinets and chairs. One of the rooms across the hall we used for a conference room, and for classes. I believe it had a large table and several chairs, and maybe some other equipment that I don't recall.

As for names of officers, a Col Smith was commanding officer of the 263rd. A Col Bonnell was next in command. In later years a Col Stewart was commander of the post.

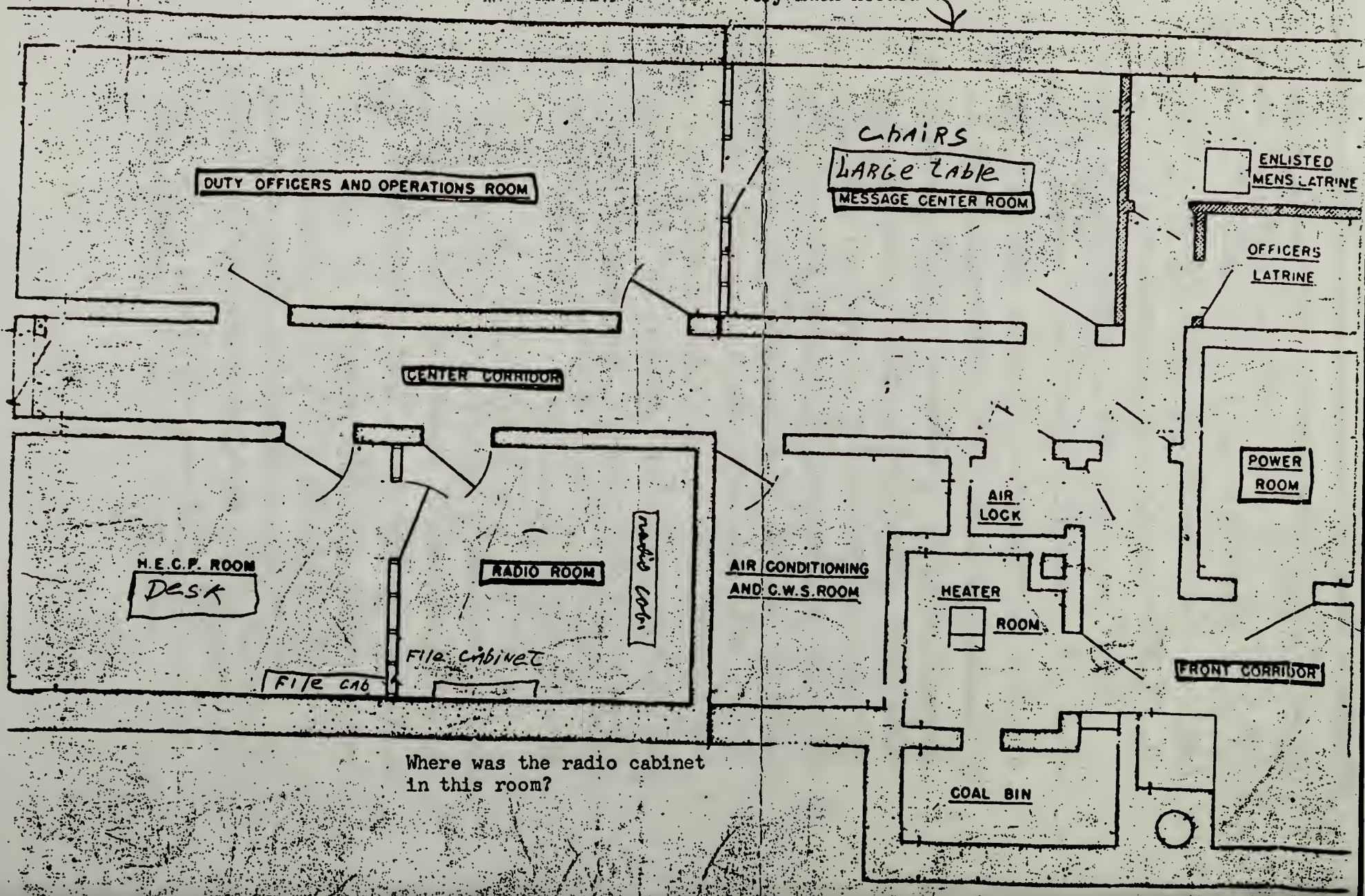
I'm sorry that I can't give you more real information. I am interested in your work, and I hope to visit Ft Moultrie again soon.

Sincerely yours

D. D. Hogg

Do you recall any furnishings (tables, etc.) here? location of wall clocks, drawing boards, telephones, etc.

Any info on location of telephones, tables, very much needed-



Where was the radio cabinet in this room?