

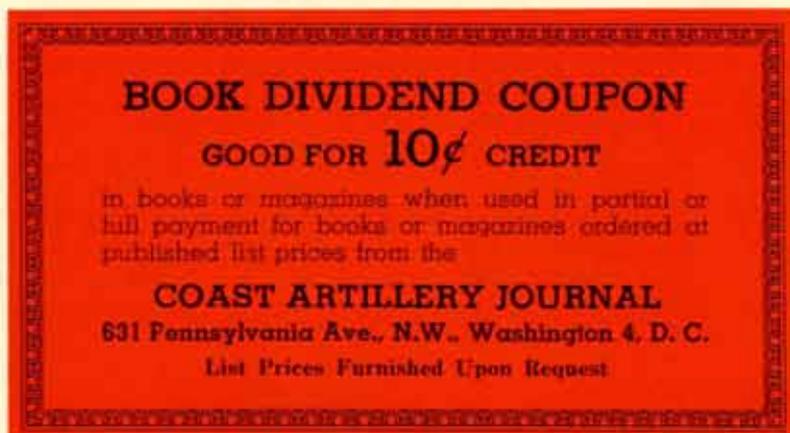
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MARCH-APRIL, 1945

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How the Japs Took



Looking West toward Fort Mills, Kindley Field at lower right.

Air Corps

By
Colonel Stephen M. Mellnik
Coast Artillery Corps*

*This article is based on Colonel Mellnik's report after his escape from a Japanese prison camp, and could not be published until Corregidor was recaptured.

Corregidor

ACTIVITY ON CORREGIDOR BEFORE FIRST ENEMY BOMBING

Prior to 29 December 1941, when Corregidor was bombed for the first time, activity on the island was centered on the protection of matériel. Units had been at battle positions for weeks prior to the war. Warehouses were emptied and supplies moved to protected storage insofar as possible. It was found, however, that the amount of supplies far exceeded the available protected storage space.

Beach defense units improved the system of field fortifications then in existence by sandbagging pillboxes and constructing barbed-wire beach entanglements. The cancelled mine project in the north channel, which had been completed in August 1941, now required maintenance only. The boat *Neptune* had been purchased and converted into a mine planter. Supply of mine equipment on hand was sufficient for one year of operation. The Navy mine field in the south channel had been installed prior to the war. Headquarters, USAFFE (United States Army Forces in the Far East), came to Corregidor on 24 December. It was housed on Topside until the bombing of the 29th, at which time the Commanding General, USAFFE, almost

became a casualty. After this event, headquarters was moved to one lateral in Malinta Tunnel. Such assistance as it required in personnel and matériel did not interfere with activities of the Harbor Defense. [ED. NOTE.—At this time the reporting officer was on duty with the Philippine Coast Artillery Command, with additional duties at the Harbor Defense (H) station, Harbor Defenses of Manila and Subic Bays, at Fort Mills on Corregidor.]

The evacuation of Manila and the movement of all supplies from Manila to Corregidor was materially facilitated by the transfer of the Army Transport Service to Corregidor. The volume of supplies arriving and the limited personnel and facilities available produced a nightmare that the S-4 office of the Harbor Defense was glad to see come to a close.

Occasional flights of enemy bombers passed close to the Harbor Defense during this period. The bombers were



Middleside and Topside, looking south.

Air Corps



Disappearing carriage gun at Corregidor.

Signal Co.

usually returning from bombing missions over Clark or Nichols Fields (on Luzon). Enthusiastic battery commanders occasionally opened up at maximum fuze range with no effect.

There were five AA gun batteries on Corregidor, only one of which was equipped with mechanical fuze ammunition. There were two organic AA machine-gun batteries, while all seacoast batteries were organized and equipped to assist in machine-gun AA defense. Sufficient mechanical fuze ammunition was brought in by submarine in February 1942 to equip a second gun battery.

EARLY AIR AND LAND BOMBARDMENT

On 29 December, Corregidor received its first and most severe bombing and strafing. Fifty-four two-motored bombers and an unknown number of low-flying craft were used. The bombers flew at altitudes between 18,000 and 23,000 feet. Damage to seacoast matériel was slight. Battery Smith (12-inch gun, barbette carriage) was hit on the racer, putting the gun out of action for six hours. Battery Way (12-inch mortars) was out of action for twenty-four hours.

Bombing was resumed on 31 December and continued through 7 January 1942. At the end of this period, only eight of the original fifty-four planes were left. Damage to seacoast installations during the entire period was unusually small. AA units suffered casualties and some damage to communication nets and data lines between height finders, directors, and guns. The enemy was apparently "area

bombing," since bomb craters were uniformly scattered over the entire island. A crater could be found within a radius of twenty-five yards at any point on the island. Ammunition expenditure reports and planes brought down showed that it took about 120 rounds to bring down one plane.

Damage to buildings was extensive. Most of the warehouses and barracks were hit. Two water tanks were destroyed; the Middleside reservoir was hit; the Diesel oil fuel tank at Bottomside was punctured; numerous barges were hit; and fifty per cent of all wooden buildings were destroyed. Most of the damage to buildings was caused by fire. The fire department at Fort Mills had been barely adequate during peacetime; under bombing conditions ceased to exist. Much matériel (chemical warfare; Q supplies such as lumber and hardware; and medical supplies such as instruments, bandages, and mattresses) which was not needed for immediate use and for which no protective storage was available, was destroyed by fire. One Ordnance building containing five height finders was burned, though the bomb causing the fire had hit some distance away. Concrete structures such as the Ordnance instrument shop did much to limit damage resulting from bombing. Topside concrete quarters, though hit many times, were standing and serviceable after the bombing, suggesting that all buildings on a fort should be constructed of reinforced concrete. Too often a building put up as a temporary shelter becomes a permanent storage place.

The personnel casualties caused by the bombings were

surprisingly small. A partially completed air-raid shelter at Battery Geary (12-inch mortars) was hit, resulting in twenty-seven dead. The magazines at Geary were too full of ammunition to provide personnel with shelter. A searchlight CP was hit, causing ten casualties. Other casualties resulted from failure of personnel to seek adequate cover and from curiosity.

Following the bombings, all units began to dig in. Tunnels of all types, sizes, and shapes were constructed. These air-raid shelters proved exceedingly valuable in the last month of the campaign, when shelling from Bataan was continuous. Matériel which was salvageable or untouched by bombs was distributed in small lots over the island. Considerable 75mm ammunition, bombs, airplane motors, etc., which had been shipped from Bataan to Corregidor, were likewise distributed in dispersed open storage. Damage to communications was easily repaired. The electric railroad, however, was hit in so many places that no attempt was made to put it back in operation. The main airplane gasoline storage depot was given an additional cover of reinforced concrete.

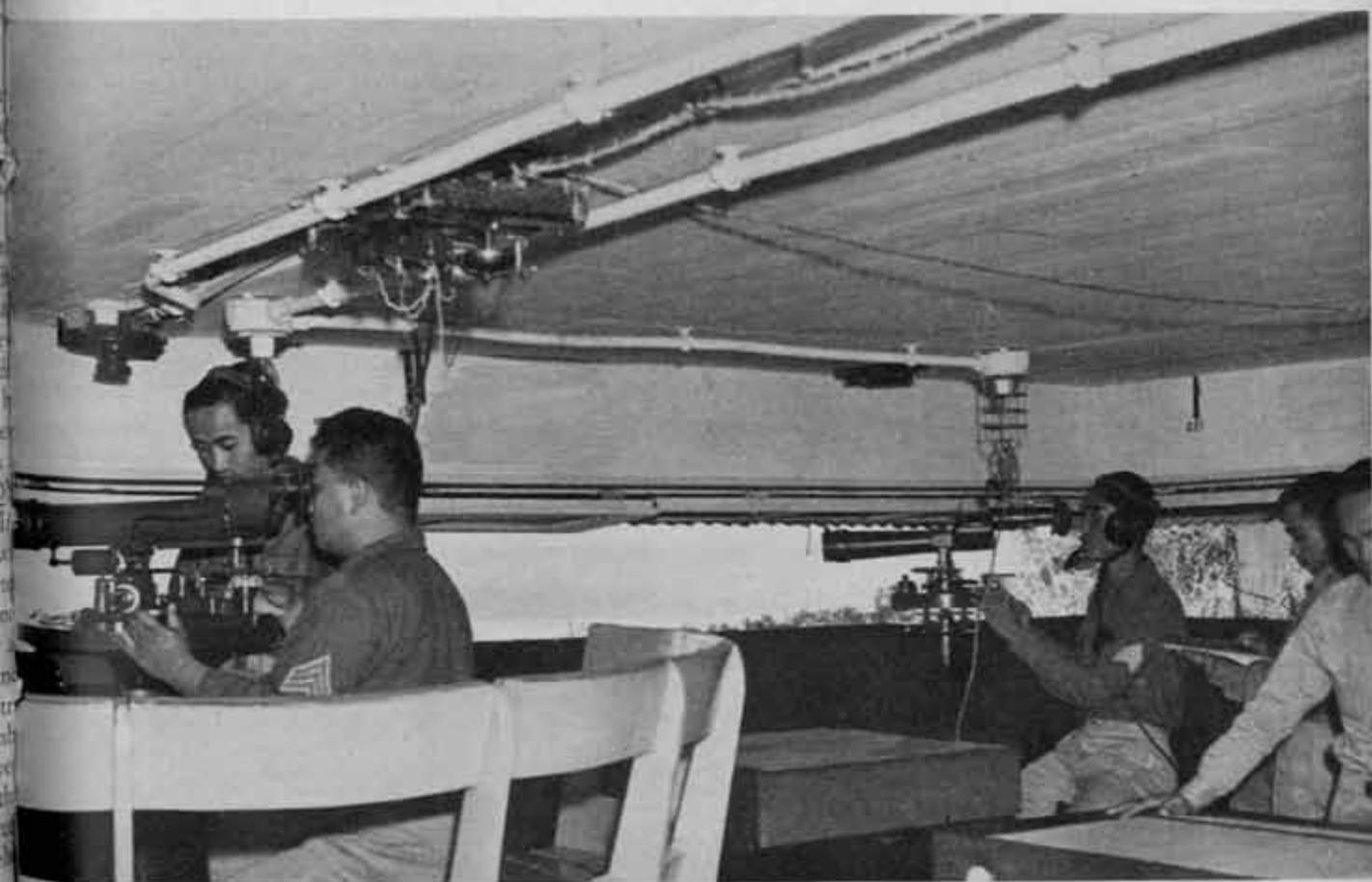
Prior to the war, seacoast batteries had bombproofed vulnerable points, such as entrances to powder magazines, ammunition galleries, and powder plants. The overhead cover of seacoast battery ammunition galleries was ample to stop bomb penetration. AA gun batteries got protection from bomb fragments by building up around gun, director, and height finder platforms. Materials used for this purpose were powder cans filled with sand and stood up on end.

One AA battery, which was in an exposed open position near Battery Cheney, dug itself into the ground so that the gun trunnions were below ground level. After the first bombing, gun batteries placed all data lines in open trenches about one foot deep. The bombs quickly destroyed all the camouflage around AA gun batteries. A Navy quadruple-mount 1.1-inch pompom gun was taken off an Inshore Patrol boat and installed on top of Malinta Hill.

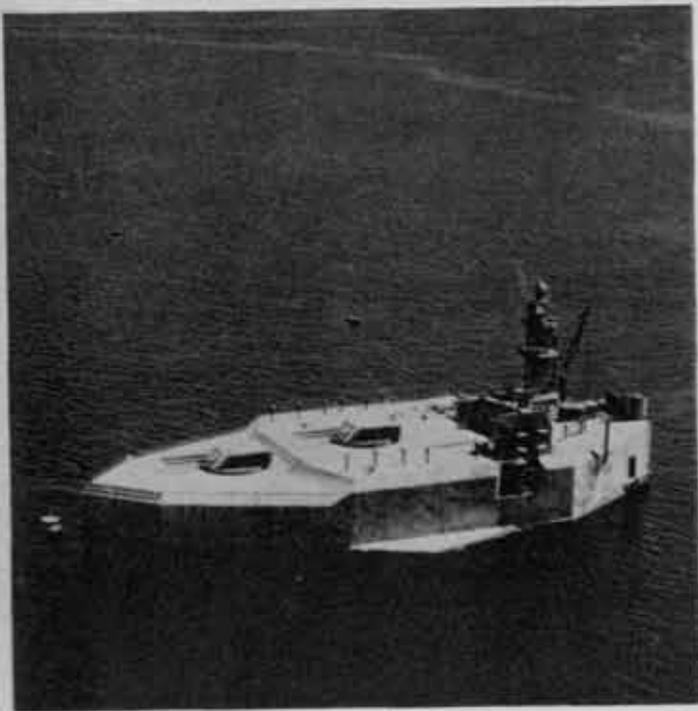
With the bombers flying at 20,000 to 23,000 feet, it was found that gun batteries were able to get in about ten salvos before the planes were out of fuze range. Initial data had to be accurate, since there was no time for adjustment of fire. Much attention was given to height finder operators. Operators worked in two-hour shifts. The RCS (range corrector setting) was checked every half hour. Planes brought down were usually the lead planes of the formation.

Night movement of supplies to and from Bataan caused considerable confusion in the dock area. Working parties frequently became lost, traffic jams occurred, and much time was lost due to working at night without lights. It became obvious that an extremely efficient military police force was absolutely essential under war conditions to straighten out the confusion resulting from night operations.

Total effect of the heavy bombing during this period can be summed up as follows: destruction of most of the nonessential wooden structures, the railroad, a fuel oil tank, and some barges; partial damage to twenty-five per cent of the concrete structures, the water supply system, and telephone and power lines; slight damage to artillery matériel,



BC station.



"The 14-inch turrets at Fort Drum . . . were still firing five minutes prior to the surrender."

all of which was quickly repaired; and about 100 casualties, the majority having been caught in inadequate air-raid shelters.

During the period 8 January to 23 March 1942, no determined enemy air effort was made. Air activity was limited to occasional dive-bombing of the outlying forts and shipping anchored in the vicinity of these forts. The sporadic nature of the bombing indicated that the planes were usually returning from other missions. There was no bombing of Corregidor proper.

In February an attempt was made to use the 12-inch mortars for antiaircraft fire. Data for several points within the critical zone along the axis of attack were computed. A few 670-pound personnel shells were modified to take an AA fuze. Neither the powder train AA fuze nor the 155mm shrapnel fuze would cause the 12-inch shell to burst. The mechanical AA fuze was tried; it worked well with a 155mm shell, but would not work with a 12-inch shell. The surrender came before it could be determined whether the failure of the 12-inch shell to explode was due to the fact that the low rotational velocity of the shell failed to arm the fuze or whether the booster charge in the fuze was too small to set off the bursting charge in the shell. It was felt that a salvo of 12-inch shells bursting in the middle of a plane formation would have discouraged mass bombing of the island.

About the end of January, enemy artillery began to shell Corregidor from the vicinity of Ternate, in Cavite Province. Intelligence reports had indicated that the enemy was active in that area and was installing artillery. The fire was extremely inaccurate. Duds proved that the guns used were of 105mm caliber. The enemy fired in the morning only, thus having the sun for a background. Attempts to locate the enemy guns by the smoke or flash failed—the enemy put up smoke rings to coincide with the firing of the guns, and no flash was visible in the daytime. A system of gun

location which used the travel of sound waves through the ground was finally devised, but the system proved too complicated and delicate. Best results were obtained by taking the line of fall of duds and studying a fire-control map of the area. The fire of the 12-inch mortars from Fort Frank forced the enemy artillery to fall back from its original positions close to the beach. Later enemy fire was devoted almost exclusively to Fort Drum and Fort Frank.

Damage to matériel on Corregidor from shellfire was limited to an occasional building or motor vehicle. After the surprise of the initial shelling had worn off, personnel ignored the fire unless it was falling in their immediate vicinity. The beach defense units made more foxholes and put more overhead cover on their machine-gun positions. It was surprising how quickly the fear of shellfire disappeared.

Starting about 15 February, enemy fire was concentrated on Fort Drum and Fort Frank. The shells used were 105mm and 150mm. In April, 240mm shells were used. In one day, Fort Drum was hit by 700 shells. Its cage mast was hit several times, rendering the depression position finder on top useless. All AA guns were destroyed, although parts were salvaged. Throughout all this shelling, the 14-inch turrets were never out of action. Over fifteen feet of the reinforced concrete deck of Fort Drum was whittled away by the time of the final surrender, but this fort suffered few casualties and did excellent work.

Fort Frank was a larger target and proved more vulnerable to enemy shelling. All of its surface guns which were visible from Cavite were destroyed. These included four 3-inch AA guns and four 155mm guns on Panama mounds. The depressed 12-inch mortar battery and the two 14-inch disappearing guns were able to stay in action until the surrender. In April a 240mm shell penetrated a power plant ventilator shaft and burst inside the tunnel where men were standing in line waiting to get inoculated. Considerable casualties resulted from this lucky hit. No appreciable damage was done to Fort Hughes by enemy shellings.

From the volume of enemy fire on Fort Drum and Fort Frank during the latter part of March and the beginning of April, it was expected that the enemy would try to take those forts. Attempts to silence the enemy batteries on Cavite were futile, particularly after he put his batteries behind hills. This was due to the lack of sound-ranging equipment and of a sufficient number of personnel shells for the 12-inch mortars. All seacoast guns in the Harbor Defenses (except the 155mm's) were equipped with armor-piercing, fixed, delay-fuze ammunition. This ammunition



Topside Barracks

carried a small bursting charge in proportion to its weight. There were on hand about one thousand 12-inch shells (670 pounds) with a point instantaneous fuze. Since the enemy was invariably hidden behind a mask and no howitzers were available, only the 12-inch mortars were effective. In view of the limited number of personnel shells available and the possibility that some of them would be needed against the enemy on Bataan, it was necessary to limit the expenditure of 12-inch ammunition against the enemy on Cavite.

In February the enemy made a landing on the west coast of Bataan in rear of the MLR. Battery Geary (12-inch mortars) took under fire these enemy troops on Longaskawayan Point in a joint Infantry, CAC, and Navy action. The 670-pound personnel shells with instantaneous fuze proved very effective. The prisoners stated that they had thought the shells were bombs. All seacoast batteries capable of firing on Bataan had oriented fire-control maps of Bataan on their plotting boards.

During late March and early April, enemy air attacks against Corregidor were resumed. The enemy planes flew at 27,000 to 31,000 feet. Only two of the five AA gun batteries on Corregidor had the ammunition to reach them. Enemy formations were much smaller: three and six planes, well scattered, attacking simultaneously. Bombs were scattered uniformly over the island. The enemy artillery, though inaccurate, did much to harass the AA batteries. Little damage and few casualties resulted from this effort. All units were well provided with air-raid shelters.

THE FALL OF BATAAN, 9 APRIL 1942

The fall of Bataan had been expected for a week prior to the surrender. Morale on Corregidor was high, and the

officers and men all showed concern that Corregidor would surrender with Bataan. More seacoast and anti-aircraft batteries were in operation on the island than at the beginning of the war. About 3 April, when the situation on Bataan began to appear serious, units were directed to lay in a reserve supply of water. Twelve-inch powder cans were used for this purpose. All units were supplied with food to be kept at battery positions. It was felt that the enemy would concentrate his fire on roads, powder plants, water tanks, and the pumping plant. Staple food supplies on hand were sufficient to feed the Harbor Defenses until 30 June 1942, allowing 40 ounces per ration, with an 80-ounce ration for 1,500 hospital patients. Gasoline would last until August; Diesel fuel until 30 June.

One AA gun battalion with four 3-inch AA guns and five searchlights was evacuated from Bataan. One battery of its personnel was assigned to Battery Way, a 12-inch mortar battery which was not being manned; one took the four 3-inch AA guns; one was assigned with the five searchlights to beach defense; and the fourth battery was distributed among other AA units which were short of personnel. Prior to the fall of Bataan, it had been requested that in case of surrender certain matériel be shipped from Bataan to Corregidor—particularly M4 directors, M1 height finders, self-propelled mounts, and 37mm AA guns. The equipment listed above, however, was all that could be brought over.

THE SIEGE OF CORREGIDOR, 10 APRIL TO 5 MAY 1942

On 10 April large columns of enemy and USAFFE troops were visible on the road from Cabcaben to Mariveles. Enemy artillery was already in action from the vicinity of Cabcaben. The tempo of enemy fire increased daily,



"The electric railroad was hit in so many places that no effort was made to put it back in operation."

with little counterbattery fire in opposition, through 13 April. By 14 April all seacoast gun batteries on the north shore of Corregidor were out of action or destroyed. Battery Rock Point (two 155mm guns), Battery Sunset (four 155mm), Battery James (four 3-inch), and Battery Hamilton (two 155mm) were out. AA gun batteries were badly shot up. Directors and height finders were particularly vulnerable. The gun positions of the three AA batteries visible from Bataan were practically ruined. AA matériel was shifted around to new locations, and it was possible to salvage fifteen out of the original twenty-four AA guns. The battery position at Kindley Field was abandoned, since it was too exposed. Other seacoast batteries were shelled, but since the enemy had no direct observation, his fire was not very effective. It consisted principally of 150mm shells, some 240mm shells, and a smaller amount of 105mm. Estimates of the number of enemy gun batteries varied from 80 to 150. Jap fire was concentrated initially on those batteries visible from Bataan, and was then shifted to blanketing fire on the entire north shore.

On 14 April the artillery available for effective counterbattery work against the enemy on Bataan consisted of the following:

(1) Eight 155mm guns. Sufficient ammunition was available, and there were about ten tractors for moving the guns.

(2) Battery Way (four 12-inch mortars) and Battery Geary (eight 12-inch mortars) on Corregidor. Thousands of rounds of deck- and armor-piercing ammunition with the base detonating, 5/100-second delay fuze were available, but a total of only 400 rounds of the 670-pound personnel shells.



Infantry Barracks, Middleside

(3) Batteries Hearn and Smith (12-inch barbette guns) on Corregidor. The trajectory of this type of gun was too flat to reach the enemy guns hidden behind hills.

(4) The 14-inch disappearing gun and the 12-inch mortar battery at Fort Hughes. These had the same limitations as the mortar batteries and 12-inch batteries at Corregidor.

(5) Two 14-inch turreted guns on Fort Drum.

(6) Two 14-inch disappearing guns on Fort Frank.

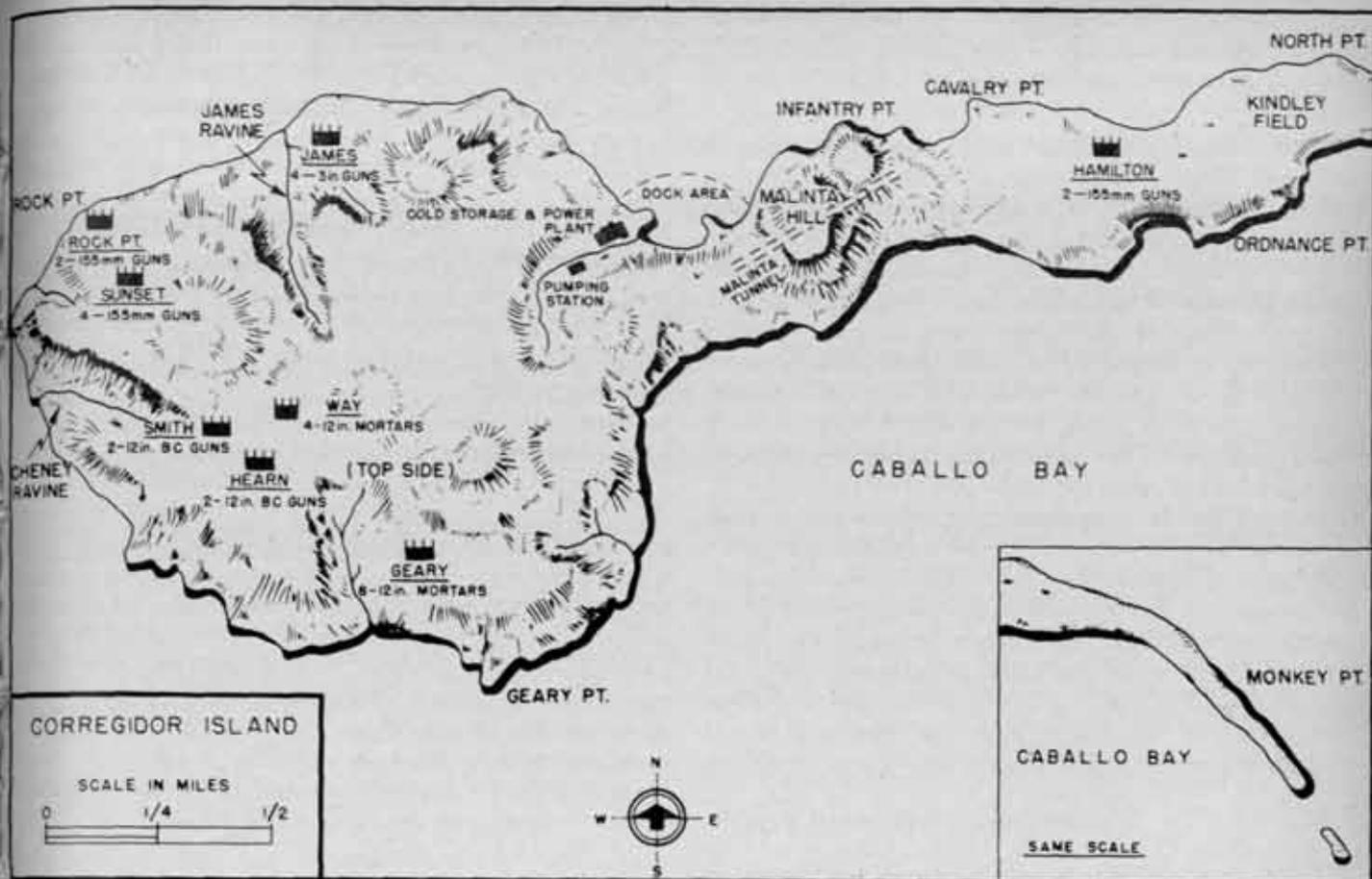
Investigation showed that the delay fuze of the armor-piercing shell could be modified to explode on impact with no delay. Ordnance was directed to put all available men on that work, and was able to modify twenty-five shells per day.

All 155mm guns were ordered out of exposed positions and were distributed in one-gun units in defiladed positions on the island. These guns would normally have time to fire twenty salvos before being blanketed by mass artillery from Bataan. The guns were moved whenever enemy fire began to bracket the position. Telephone communications were always out after the initial shelling prior to 1000 each day. Communication sections would repair the lines by midnight, and by 1000 the following day the lines would be out again.

The outlying forts had normally been supplied with water by barge from Sisiman Cove on Bataan. At this time, the barge could be filled only at the north mine dock on Corregidor facing Bataan; the barge was then towed around Monkey Point and to the forts. The water situation at the outlying forts became critical when damage to the outlet pipe at the dock and a hit on the water barges stopped the shipment of water. Reservoir reserves totaled three million gallons of water on Corregidor on 10 April 1942. Enemy shelling caused numerous leaks, which, with normal consumption, reduced the reserve of water to a 3-day supply on 6 May, the day of surrender. The pumping plant was able to pump only one day during April. Either the pumping plant, the power line leading to it, or the power plant itself was out of commission at various times. All three elements were on the north shore of the island facing Bataan.

Trucks and automobiles rapidly disappeared. The disposal of the Commonwealth silver reserves was seriously hampered by the lack of transportation. Ordnance repairmen were working day and night. It is not an exaggeration to say that but for the trained Ordnance personnel, Cor





regidor's fire power would have become nonexistent long before this time.

Severe enemy shelling continued from 14 April, increasing daily. When the north shore batteries were neutralized, the enemy put up an observation balloon and adjusted fire on the interior and south shore batteries. Counterbattery fire from the batteries on Corregidor was a hit-and-run affair: After they had located a target and laid down a barrage, the enemy promptly blanketed the entire area surrounding the firing batteries. The roving one-gun units would move to new positions when the enemy barrage lifted and repeat the process. Coördinated fire, with stand-by batteries to harass enemy counterbattery positions, was tried. The limited matériel available was promptly silenced by enemy fire. The enemy apparently had allocated several batteries to each of the fixed installations, and at the first sign of fire from them, he laid down an accurately adjusted barrage.

The most effective counterbattery units were Geary and Way (12-inch mortars), which used instantaneous fuze, 670-pound personnel shells. The enemy finally located these batteries, concentrated his 240mm howitzers on them, and by constant shelling, succeeded in reducing Battery Way from four guns to two. At Battery Geary, the 240mm shells literally cut through the magazine section separating the two mortar pits. The battery commander was aware of the danger and attempted to empty the magazines. Time was too short, however, and the magazine was blown up—the 10-ton mortars were found later 100 yards away from their home station.

Fire from the 14-inch guns at Fort Frank was sporadic,

since enemy artillery on Cavite blanketed the open disappearing-carriage batteries. The same situation held at Fort Hughes. The 14-inch turrets at Fort Drum kept up a continuous fire on Bataan. They were still firing five minutes prior to the surrender. The value of the turret guns can be appreciated when it is realized that, at one time or another, all guns on the fortified islands were rendered inoperative with the sole exception of the 14-inch turrets on Fort Drum. In one day Fort Drum received over 1,000 direct hits on its deck.

Enemy bombing continued in conjunction with the shelling. At times only one height finder was in working condition among the five AA batteries. Interbattery telephones, however, kept all units informed of the altitude. AA batteries were harassed by enemy artillery during bombing raids. The raids increased to such frequency that the "all clear" was seldom heard. Damage due to bombs was slight, since all surface buildings had already been destroyed.

About 1 May, enemy artillery fire was intensified, and certain sections of the island were hit more heavily than others. The James Ravine area and the part of the island east of Malinta Hill were hit with more shells than were needed for counterbattery work. That distribution of fire was the first hint of impending landing operations. The firing continued in intensity from dawn until midnight. On 4 May it was estimated that over 16,000 shells hit Corregidor in twenty-four hours. Lack of telephone communication seriously hampered the gathering and dissemination of information. On 5 May the bombardment became intense all over the island. Enemy boat concentrations at

Cabcaben were taken under fire by all guns. The 14-inch guns of Fort Drum and Fort Frank (barely within range) were kept quite busy, and caused considerable damage to the enemy.

By this time it was evident that surrender was just a question of time. The number of wounded had taken a rapid rise in April. Three additional laterals in Malinta Tunnel were evacuated and turned over to the hospital. Guns were being damaged and destroyed more rapidly than the Ordnance could repair them. Beach defense positions were being whittled away daily. The topography itself was being altered. The north shore road north of Malinta Hill was literally blown into the Bay. Battery commanders were reporting an increasing number of shell-shocked cases daily. They could not be hospitalized. Kitchen installations, necessarily out in the open, were being blasted. Water pipes had been punctured to such an extent that, to avoid the loss of all the water, only a limited number of outlets was available—this meant water distributing points. With the enemy fire from the Cavite shore increasing in intensity, there were no safe roads to be used. The heavy shelling made it necessary to have breakfast at 0400 and the second meal of the day about 2200. Beach defense 75mm guns were kept out of action by order so as not to disclose their positions until a hostile landing was attempted.

THE FALL OF CORREGIDOR, 6 MAY 1942

Beach defense installations prior to the war had consisted of entrenchments in James Ravine, Kindley Field, Geary Point, and concrete pillboxes at a few points. In April 1941, numerous machine-gun positions were constructed out of sandbags and salvaged lumber. No funds were available for the construction of reinforced concrete pillboxes. Armament available was supplemented by modifying the 37mm subcaliber guns for 155mm guns and putting them on swivel mounts. Twelve of these guns were so modified by the Ordnance machine shop. All approaches to the island had been covered with barbed-wire entanglements prior to the war. At the outbreak of the war, all units began to improve the field fortifications. By the end of the campaign, all machine-gun positions had been splinterproofed. During March the beach defenses had been further strengthened by the placing of land mines in the dock areas. These mines were wired, but prior to the surrender, practically all the mines were blown up by enemy artillery. At the entrances to James and Cheney Ravines, sliding chutes were prepared in order to drop 30-pound fragmentation bombs on the beaches.

Tactical command of beach defense units was held by the CO of the Marines, who worked with the Executive for Beach Defense on the Harbor Defense CO's staff. All forces on Corregidor were available for beach defense. Defense positions were manned by the Marines and miscellaneous units evacuated from Bataan. CAC units were generally in beach defense reserve. Civilian employees were given definite sectors. The Naval Inshore Patrol was in direct touch with the Harbor Defense (H) station and the beach defense CP. By 4 May, practically all of the vessels of the Inshore Patrol had been destroyed either by bombs or shells.

On 4 May, the Executive for Beach Defense reported extensive damage to beach defense installations, particularly searchlights; this was due to the positions literally being blasted out. The lightly sandbagged positions were extremely vulnerable to 150mm shells. Severe enemy shelling continued throughout the day and night of 4 and 5 May. At 2100, 5 May, it became evident from the volume of shelling in the Kindley Field area that a landing would soon be attempted. Enemy boat activity in the Cabcaben area in previous days indicated the point of departure. Orders were issued to all batteries which were able to reach Cabcaben to shell that dock area. All units were alerted for beach defense.

About 2200, reports from the beach defense CP indicated barges approaching the tail of the island from Cabcaben. The 75mm and 37mm guns, which had not been used until this time, took the barges under fire at ranges seldom in excess of 300 yards. Beach defense officers at the scene reported that the slaughter of the Japanese in their barges was sickening. Searchlights on Corregidor were being knocked out as rapidly as they went into action. The 14-inch guns at Fort Hughes, Fort Frank, and Fort Drum were concentrated on the Cabcaben dock area. The smaller guns took the barges. Numerous landings were reported between Infantry Point and Cavalry Point. The beach defense units were in position and promptly limited the advance to not more than fifty yards inland.

By 0300, 5 May, the situation was under control, with the Japs pinned to the ground at the beach. In order to accomplish this, however, it was necessary to throw in the last of the beach defense reserves, including the Navy battalion. Intense shelling of the island continued throughout the night. It was extremely heavy in the dock area, which looked like a 4th of July celebration all night long. Reserves from the main part of the island crossing the fire-swept dock area to reinforce the troops resisting at the beachhead suffered heavy casualties.

At dawn another flotilla of barges began to approach the north dock area. The two 155mm guns on Stockade level which had not been used up to this time, took the barges under fire. About half of these barges were sunk, and the rest turned around and headed for Mariveles Harbor. The enemy had landed three tanks during the night. At 1000 on 6 May, the situation was unchanged, with the Japs pinned to the ground, and with all U. S. reserves committed in the area. Severe shelling continued over the main part of the island. All units were then instructed to destroy their guns and were informed that Corregidor would surrender at 1200 that day.

My opinions as to the reasons for the surrender follow:

- (1) Water supply on Corregidor was sufficient to last for not more than three days. Enemy shelling prevented any repairs to water facilities. We had only two trucks able to run. Enemy artillery was effectively pinning us to foxholes. Our artillery (three 155's on the island and six 14-inch guns on the outer islands) was able to operate only sporadically.

- (2) Enemy artillery had reduced our fighting morale to a low point. Men simply could not stand the shelling. Numerous shell-shocked cases were reported. Units were

The Last Message from Corregidor

They are not near yet. We are waiting for God only knows what. How about a chocolate soda. (Pause.) Not many. Not near yet. Lots of heavy fighting going on. (Pause.)

We've only got about one hour twenty minutes before. . . . (Pause.)

We may have to give up by noon, we don't know yet. They are throwing men and shells at us and we may not be able to stand it. They have been shelling us faster than you can count. . . . (Pause.)

We've got about fifty-five minutes and I feel sick at my stomach. I am really low down. They are around now smashing rifles. They bring in the wounded every minute. We will be waiting for you guys to help. This is the only thing I guess that can be done. General Wainwright is a right guy and we are willing to go on for him, but shells were dropping all night, faster than hell. Damage terrific. Too much for guys to take. Enemy heavy cross-shelling and bombing. They have got us all around and from skies. (Pause.)

From here it looks like firing ceased on both sides. Men here all feeling bad, because of terrific strain of the siege. Corregidor used to be a nice place. But it's haunted now. Withstood a terrific pounding. (Pause.)

Just made a broadcast to Manila to arrange meeting for surrender. Talk made by General Beebe. I can't say much. Can't think at all. I can hardly think. Say, I have sixty pesos you can have for this week end. The jig is up. Everyone is hauling like a baby. (Pause.)

They are piling dead and wounded in our tunnel. Arms weak from pounding key long hours, no rest, short rations, tired. . . . (Pause.)

I know now how a mouse feels. Caught in a trap waiting for guys to come along finish it up. Got a treat. Can pine-apple. Opening it with signal corps knife. (Pause.)

My name Irving Strobing. Get this to my mother. Mrs. Minnie Strobing, 605 Barbey Street, Brooklyn, N. Y. They are to get along O.K. Get in touch with them soon as possible. Message. My love to Pa, Joe, Sue, Mac, Garry, Joy, and Paul. Also to my family and friends. God bless 'em all, hope they be there when I come home. Tell Joe wherever he is to give 'em hell for us. My love to you all. God bless you and keep you. Love. Sign my name and tell mother how you heard from me. (Pause.)

Stand by. . . .

living on nerve alone. The incessant machine-gunlike chatter of artillery resulted in a feeling of complete helplessness.

(3) With the major part of our beach defense troops on the east side of the island cleaning up the Jap beachhead, and with the Jap artillery concentrating on James and Cheney Ravines, it was obvious where the Jap attack would hit that night (6 May). Elements in these two ravines were down to two companies, with no reserves. A Jap push through James Ravine would put them in the center of the island. We did not have the force to stop them. During the night, the Japs would be able to indulge in wholesale slaughter. I think General Wainwright's decision to surrender was most influenced by this thought, and by the realization that by surrendering at noon on 6 May, while the Japs had no freedom of action on the island, he would sacrifice only one day of freedom in exchange for several thousand lives.

(4) I feel that if the Japs had continued their bombard-

ment for another week, the lack of water would of itself have forced us to surrender. The island outposts were in a similar state.

On 8 May, I was taken by a Japanese staff officer to tour the island. The latter was interested in knowing why Corregidor had failed to capitulate with Bataan. He remarked that Corregidor's failure to surrender with Bataan had caused the Japanese great inconvenience. On being questioned as to the size of the attacking force, he refused to answer. He admitted surprise at the resistance encountered—he said that he had not expected to find any opposition. He admitted that two-thirds of the landing barges leaving Bataan were sunk but stated that only 50 per cent of the occupants were drowned. During the night of 7 May and the day of 8 May, one American detail of 500 men carried about 3,000 wounded Japanese from the fighting area to the north dock, from which place they were taken to Cababean. Numerous oil fires in the fighting area on 7 and 8 May indicated the burning of Japanese dead. It is estimated that the enemy lost 5,000 men killed or drowned and 3,000 men wounded in the landing operation on Corregidor. U. S. casualties during the 15-hour action were between 600 and 800 killed and about 1,000 wounded.

REPORTING OFFICER'S CONCLUSION

My conclusions on the action at Corregidor follow:

(1) The antiaircraft defense of five 3-inch batteries was barely adequate. Lack of sufficient mechanical fuze ammunition to equip all batteries was a serious handicap. AA guns on a fortress should be dual-purpose, of the largest practicable caliber, and turreted.

(2) Seacoast artillery emplacements were well designed and well built. The numerous bombings (corresponding to enemy naval bombardment) failed to reduce the efficiency of these guns. The controlled mine project was in constant operation, and the enemy made no attempt to force the mine field.

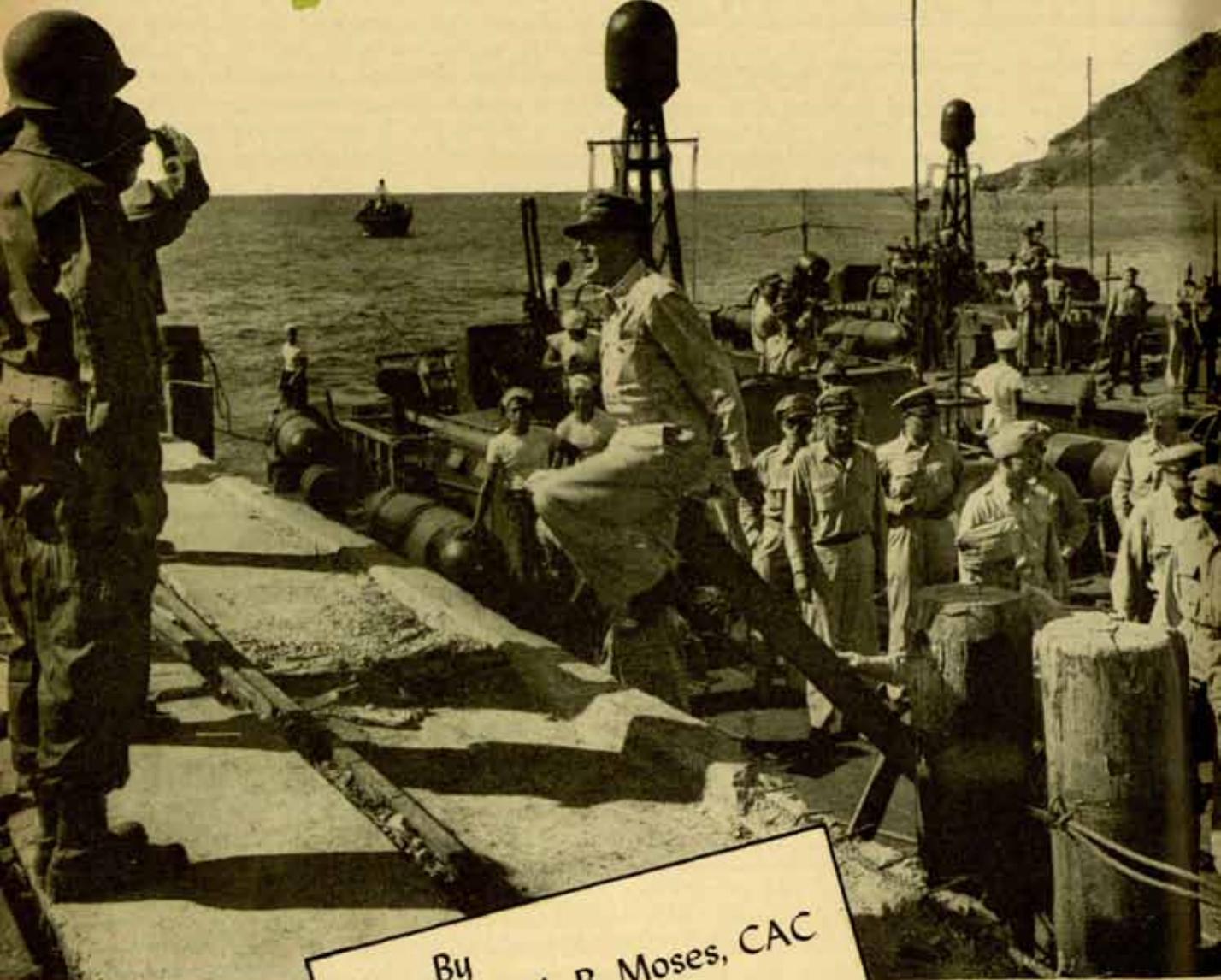
(3) Telephone communications proved extremely vulnerable. All telephone cables should be laid at least ten feet underground. Main switchboards should be placed in protected locations, and provisions should be made for numerous spare cables.

(4) Night bombing was tried only twice. Both times the planes were picked up by searchlights; as soon as they were illuminated, they dropped their bombs. Our Signal Intelligence Service, which listened in on the Jap plane-to-ground operations frequency, heard a pilot reporting that he was illuminated and blinded, and requesting instructions. When the Jap operations officer ordered, "Complete your mission," the plane dropped its bombs in the water and went home. The SCR-270 located near the lighthouse on Corregidor gave excellent service throughout the campaign. AA batteries had at least one-half hour's warning before raids. The SCR-268 located on the island was out of action most of the time.

(5) Enemy air activity over Corregidor was not worth the cost in planes shot down, unless the Japs were trying to find out the effectiveness of our AA fire. Artillery installations were practically untouched. After the fall of Bataan we had more artillery in operation than we had

(Continued on page 17)

"I HAVE RE



By
Major Frank B. Moses, CAC
and
Major Paul A. Conlin, AUS

Signal Corps

"Four U. S. Navy PT boats carried the General and his party back to Corregidor shortly after ten o'clock on the morning of March 2-

TURNED"

The flag flies again on Corregidor and in the fullest sense the pledge, "I shall return," has been fulfilled. Thirty-eight months ago General Douglas MacArthur made that forthright declaration and on March 2, 1945, he saw the colors gleam once more from the battered steel mast over the Topside Parade Grounds. MacArthur had kept faith with the legion of gallant men whose unforgettable struggle made possible the redemption of democracy in the Southwest Pacific.

This was a new garrison that snapped to attention for the Commander-in-Chief as bugles heralded the emblem of victory. But with the echo from the shattered barracks across the way there seemed to come the ghostly tread of the old defenders—"MacArthur's Magnificents," they were called, those men living and dead who purchased with their bravery and blood the priceless time that MacArthur needed to regroup his forces in the dark days of 1942.

MacArthur's return was clothed in drama and significance. "Hoist the colors to its peak and let no enemy ever haul them down," he ordered on this historic March 2, 1945. Up went the flag. The men of the new garrison were ready to carry on, proud of their heritage. It was as though they harkened back to that black May afternoon almost three years ago when MacArthur said:

"Corregidor needs no comment from me. It has sounded its own story at the mouth of its guns. It has scrolled its own epitaph on enemy tablets. But through the bloody haze of its last reverberating shot, I shall always seem to see a vision of grim, gaunt, ghastly men, still unafraid."

On the eleventh of March, 1942, General MacArthur had departed from The Rock under War Department orders to gather together the forces which were to reclaim the Philippines and establish the bases from which the war against Japan might be prosecuted to a glorious conclusion. His return brought back memories of Major General George F. Moore, the last commander of Corregidor, and of Lieutenant General Jonathan Wainwright, who assumed command of the theater and the Filamerican forces who fought so gallantly against military might and malnutrition until overwhelmed.

Four U. S. Navy PT boats carried the General and his party back to Corregidor shortly after ten o'clock on the morning of March 2, 1945. Almost three years before, the famous commander and his party had departed from The Rock aboard the same number of Navy PT's.

As the speedy craft approached the South Dock, MacArthur stood on the forward deck and critically scanned the scene he had known so well. He was silently reminiscent.

There stood Corregidor, scarred and ravished by air, sea, and land attack of contending military forces, a mere specter of its former military grandeur, yet still of defiant aspect in its position across the entrance to Manila Harbor. Smoke curled out of tunnels and caves where the bat-

tered remnants of the Japanese invaders had taken final refuge before the onslaught of America's fast-striking troops. Ghostlike apparitions appeared at points where once impressive structures were silhouetted against the tropical sky. Deep gashes made by aerial bombing were everywhere apparent. Charred ruins came into view as the boats drew nearer and detailed vision developed. On the tail of the island there was still firing in the final mopping up process.

Yes, there was Corregidor groggy and wounded under military assault the violence of which beggars description. Twice the stalwart bastion had bowed to conquerors, but each time it had taken its toll of the bestial Japanese barbarians who sought to render it impotent. More than 5,000 Japs paid the penalty of death for attempting to hold it against its rightful owners. Thousands more had died in the early stages of the war before the American and Filipino defenders collapsed from sheer fatigue. Both times the weary old fortress had held out in a time-consuming effort that furthered the cause of the Democratic armies. In both instances control of the entrance to Manila Harbor had been denied until this stalwart veteran had been subdued. Hopelessly battered as it was, somehow Corregidor gave the impression that, under different conditions and with more support, it could still come back like a real champion.

General MacArthur's party consisted of the following:

Lieutenant General Walter Krueger, whose Sixth Army troops conducted the operation which regained Corregidor.



Major General George F. Moore. "The splendid efficiency and dogged determination of the garrison was largely based on the efficiency, tenacity, and individual courage of General Moore."



General MacArthur at the east entrance to Malinta tunnel. Riflemen and tommy gunners keep a sharp lookout.

Signal Corps

Lieutenant General Richard K. Sutherland, the devoted Chief of Staff who was the Chief of Staff of the Military Mission under General MacArthur in the prewar days.

Major General Richard J. Marshall, logistics expert, who also was a member of the Military Mission before the war.

Major General Spencer B. Akin, Signal Officer of GHQ.
Major General Charles P. Stivers, now Deputy Chief of Staff of USAFFE, who has held several general staff positions under General MacArthur.

Major General Hugh J. Casey, Chief Engineer, GHQ, who had been a member of the Military Mission.

Major General William F. Marquat, staff adviser on Coast Artillery and Antiaircraft Artillery matters, who is now Antiaircraft Officer, GHQ, and commands the 14th Antiaircraft Command. He was a member of the Military Mission also.

Brigadier General Charles A. Willoughby, now G-2 of GHQ.

Brigadier General LeGrande A. Diller, Press Relations Officer, GHQ.

Brigadier General Carlos Romulo, Resident High Commissioner, Philippines.

Brigadier General Courtney Whitney, Philippines Affairs Officer, GHQ.

Colonel Sidney L. Huff, of the Civil Affairs Section.

Colonel Lloyd A. Lehrbas, Aide-de-Camp.

Colonel Roger Egeberg, Aide-de-Camp.

Colonel Andres Seriano, Aide-de-Camp.

Colonel Royal G. Jenks, Finance Department.

Colonel Stephen M. Mellnik, CAC.

Colonel H. F. Smith, Public Health Service, who formerly operated the Public Health station at Mariveles.

Lieutenant Colonel Joe McMicking, former member of General MacArthur's staff.

Lieutenant Paul B. Rogers, long-time member of the GHQ staff.

Of this party, Generals Sutherland, Marshall, Akin, Stivers, Casey, Marquat, Willoughby, and Diller, Colonel Huff, Lieutenant Colonel McMicking, and Lieutenant Rogers accompanied General MacArthur when he left Corregidor. Others of the original party who could not present were: Mrs. MacArthur; their son, Arthur MacArthur; General Harold George, deceased; Colonel Joe Scherr, deceased; Colonel C. H. Morhouse; Colonel F. H. Wilson; Admiral Francis Rockwell, and Captain H. J. Ray, USN.

Colonel Mellnik was a prisoner of war in Japanese hands but escaped and returned to the GHQ staff in Australia. He was also a member of General Moore's staff in the early days. Several other Coast Artillerymen who had served previously on Corregidor were on hand.

As General MacArthur put foot on the battered concrete deck, he was greeted by Major General C. P. Hall, Commanding General of the XI Corps, who directed the Corregidor operation; Admiral D. E. Barbey, commander of the Seventh Amphibious Forces; Admiral A. D. Struble, whose Navy Amphibious Group 9 supported the assault; and Colonel George M. Jones, commander of the 503d Parachute Regiment, who led the assault troops in the operation.

By coincidence, General MacArthur's return to Corregidor came on the third anniversary of the formation of the 503d Parachute Infantry Regiment, the backbone of the reconquering force. In his address to Colonel Jones at the flag-raising ceremony, the General stated:

"The capture of Corregidor is one of the most brilliant operations in military history. Outnumbered two to one, your command by its unflinching courage, its invincible determination, and its professional skill overcame all obstacles and annihilated the enemy. I have cited to the orders of the day all units involved and I take great pride in awarding you as their commander the Distinguished Service Cross as a symbol of the fortitude, the devotion and the bravery with which you have fought."

After observing the deep pitting of the landing beach where the Japanese had planted many land mines to interfere with the Infantry amphibious operations, General MacArthur proceeded to the west entrance of the famous Malinta tunnel. It was partially closed by a landslide and smoking lightly. All semblance of the former road and electric railway approaches had disappeared. The bare face of the cliff into which the tunnel had been constructed showed the effects of air and artillery action.

The itinerary carried General MacArthur around the Malinta Hill road to the east entrance to the tunnel. The General dismounted and entered the tunnel, climbing over high piles of debris while members of the assault force covered his action with tommy guns against the appearance of Japanese soldiers trapped within. The tunnel had not been cleared by the troops up to that time because of the raging fires and devastating explosions that had persisted throughout the past few days and nights. Notwithstanding the inferno that would seem to make the underground tube

inhabitable for humans, hostile soldiers had been killed attempting to escape from all entrances and exits.

The situation was tense as General MacArthur walked deeper into the tunnel, pausing amid a heap of some 200 charred skeletons of Jap defenders. He glanced at a pile of 12-inch seacoast gun shells, still hot. He surveyed the scene with a calculating glance, kicked aside some Japanese food near his feet, peered deeply into the darkness of the inner main shaft, turned and walked out.

Continuing across the Monkey Point battlefield where a fierce assault had raged a few days before, his attention was attracted by General George Kenney's Air Force elements blasting Fort Hughes, on Caballo Island, with accurate fire-bombing, the technique of which was superb. Bomb after bomb was hurled into gaping caverns in the precipitous hill where the enemy was making a last-ditch stand. Apparently well satisfied, he proceeded on toward Lindley Field, then turned back and drove to the site of the Monkey Point officers' quarters where he had lived while on Corregidor. The row of once-attractive buildings had been razed completely and General MacArthur stood for a brief moment in the pile of rubble that once furnished shelter for Mrs. MacArthur, little Arthur, and for the General himself.

The party proceeded to the "hospital entrance" to Manila tunnel. This was completely closed by a landslide precipitated by air action. Only the very top of the entrance was visible, above which the U. S. Army Engineer insignia is affixed in the keystone. The General looked at the ruins which represented a little special "shack" where the General spent his time when not at his office desk and where sometimes his meals were served. The old stove and cooking utensils were strewn around in evidence of the little personal area, which contributed a measure of tranquility to the situation during those days of duress when things looked darkest.

The General went to Topside via the hospital level route, pausing here and there to identify a ruin which had been an important contribution to the defense or to post life in the prewar days. In the extreme end of the famous "Topside Barracks" he visited the rooms which had been General Headquarters immediately after the move out of Manila when the latter was declared an open city, to protect its noncombatant population and to preserve its architectural grandeur. The Topside barracks had been left in various stages of ruin, but the GHQ section had been demolished completely.

Past the "Topside Ciné," the old headquarters building, and the parade ground officers sets, the party proceeded to Battery Wheeler, once a formidable 12-inch disappearing battery, now a wreckage of steel and concrete. All around were the parachutes of the 503d Paratroop units that had dropped in the very midst of the defending Japanese so skillfully as to surprise them completely and give the U. S. troops a firm initial foothold. As the General's party departed, a shot rang out and another Japanese who had taken refuge in the powder magazine under the battery earned his many associates in death.

The General was conducted to the old post flagpole with its top blown off, its mainstays ripped and dangling. The flag ceremony was held before assembled troops of

the magnificent assault forces which had performed so well in reclaiming the island. Colonel Jones drew his troops to attention, presented arms and turned over the Fortress of Corregidor to the Commander-in-Chief.

The next visit was to the old quarters of the Commanding General where MacArthur had stayed immediately upon his arrival on the post. It was here that the Japs' first intensive bombardment sent a fragment through the wall, wounding his orderly on the hand and barely missing the General.

As he approached the quarters, after climbing over gaping shell craters and piled debris, General MacArthur said:

"General Moore turned over these quarters to me. How I wish he could be with me today to enjoy the thrill of returning to the old post, battered though it is, that he had commanded through its baptismal hostile action. I wish that all of those splendid officers and soldiers of the former garrison who are now prisoners of the enemy could be here today. May God permit that they may one day again stand on the ground that they have hallowed."

Three years earlier, General MacArthur had awarded the Distinguished Service Cross to General Moore for extraordinary heroism at Fort Mills, Corregidor, during the terrific developments of March and April, 1942. The splendid efficiency and dogged determination of the garrison, General MacArthur said at that time, was largely based upon the efficiency, tenacity and individual courage of General Moore as Commander of the Harbor Defenses of Manila and Subic Bay.

MacArthur paused at the house once occupied by the late Colonel Paul D. Bunker, who commanded the seacoast defense elements of Corregidor until the very end and was awarded the Distinguished Service Medal for his courageous and incessant devotion to duty. He mentioned Colonels Chase, Cottrell, Kohn, Bowler, Braly, McCullough, and many others who went about their assignments under hostile bombardment with calmness of purpose and clear thinking that drew the admiration of all.

The General shook his head as he looked at the remnants of the houses once occupied by High Commissioner

Battery Wheeler as the Americans found it.

Signal Corps



Francis B. Sayre and his family and by the late President Manuel Quezon, of the Philippine Commonwealth. Amid the ruins of the Commanding General's quarters on Topside which he had occupied, the General mentioned that since his return to Luzon he had stood upon the ruins of five former residences, all completely obliterated by war action. These were the Manila Hotel, No. 1 Military Plaza, in Manila, and the three military quarters assigned to him on Corregidor.

En route again to headquarters on the PT boats, the General and his party passed between many American freighters that had lately cast anchor in Manila's North Harbor. These carried loads of supplies for rebuilding the necessary facilities for continuing without the least delay the push to final victory and the total destruction of the elements of barbarism which have no place in a Christian world. The scene brought to mind the tribute that the General had paid Corregidor and Bataan recently.

"Bataan, with Corregidor the citadel of its integral defense, made possible all that has happened since," he said. "History, I am sure, will record it as one of the decisive battles of the world. Its long-protracted struggle enabled the United Nations to gather strength to resist in the Pacific. Had it not held out, Australia would have fallen with

incalculable disastrous results.

"Our triumphs of today belong equally to that dead army. Its heroism and sacrifice have been fully acclaimed but the great strategic results of that mighty defense are only now becoming fully apparent. The Bataan garrison was destroyed due to its dreadful handicaps but no army in history more thoroughly accomplished its mission. Let no man henceforth speak of it other than as a magnificent victory.

The ruins of once beautiful Manila after wanton and unnecessary destruction by the Japanese had previously brought from the General the terse assertion: "They have set the pattern for their own annihilation."

And as General MacArthur stepped ashore, Corregidor loomed in the far distance as the backdrop of this epochal event born on the second day of March, 1945. Whatever may be the future of this once proud sentinel of American fortitude and military might, it is firmly established as the hub about which has revolved the most dramatic, the most vicious, and the most unforgettable developments of the War in the Pacific. Corregidor once more has the American flag flying from the old post flagpole. It is an indestructible monument to the supreme fighting qualities of the men, living and dead, who have fought in its defense and for its reclamation. It is still Corregidor.



This is a

SPECIAL CORREGIDOR ISSUE

A limited number of extra copies of this issue have been printed in anticipation of requests from those who have served at Corregidor, and from friends and relatives of those who have served there.

We suggest that friends and relatives of Corregidor veterans order extra copies early. Personnel serving overseas, officers and men who are prisoners of the Japanese, and Coast Artillerymen everywhere will want copies of this issue as a keepsake—as a remembrance of a great moment in the history of the Coast Artillery Corps.

Order now. The price is 75¢ a copy, postpaid.

(Continued from page 11)

at the start of the war. On the other hand, the low-flying planes used by the enemy on 29 December were very effective, principally with their machine-gun fire, which caused damage to AA installations, motor vehicles, and fuel tanks. Low-flying planes appeared, however, in only one action.

(6) Wooden structures were very vulnerable to air attack. Bomb fragments started fires which destroyed 75 per cent of the wooden buildings. Fire was a much more potent weapon than concussion. Reinforced concrete structures were scared by bombs, but otherwise unharmed. Light reinforced concrete barracks stood up unusually well under bombing; only direct hits were effective, and in such cases damage was localized. Ordnance magazines with four feet of reinforced concrete on top stood up under direct hits. A bomb (estimated to weigh 1,100 pounds) caved in the 4-foot reinforced concrete roof of one magazine and exploded, but failed to harm the millions of rounds of small-arms ammunition contained there. Point targets on Corregidor which enemy bombers should have destroyed—such as the power plant, cold storage plant, pumping plant, and water tanks—were either only slightly damaged or untouched by air attacks. The bomb pattern on Corregidor was rather uniform. Casualties from bombings were low—about two per plane shot down. When foxholes were available, personnel soon lost the fear of bombing. Bombing, on the small scale we encountered, was a temporary affair, seldom lasting over two hours.

(7) The effect of massed artillery fire, on the other hand, was tremendous. Whole areas were blasted out. One day's shelling did more damage than all the bombing put together. James Ravine, which was heavily wooded before the war, looked completely bare after the shelling. In the area where the Jap landing was made, there was not a stump or blade of grass showing. The topsy-turvy appearance of the sandbagged machine-gun positions reminded me of moving-picture versions of No Man's Land in World War I.

COMMENTS REGARDING THE JAPANESE IN ACTION

(1) Generally, throughout the fight on Bataan and Corregidor, there was a considerable time lag between Jap reverses and their corrective measures. As a general rule, when the Jap is in doubt and in difficulty, he will continue with the job he's been told to do. Lacking instructions, he will mark time by adopting routine measures of local security. This time lag was brought out in Bataan during the first major Jap push in January 1942. The road system was poor—he had only one main road along which he could bring in his artillery. Our forces had a number of GPF's (French 155mm guns) covering this road. When the Jap began to bring in his artillery, the GPF's wiped out two batteries in the same place within half an hour. After the loss of six batteries in two days, the word got back to Jap headquarters, and a road was built through the jungle out of sight of our observers.

The time lag mentioned above and the Jap determination to push through is shown in the history of the fifty-four two-motored bombers which attacked Corregidor on 29 December 1941. About fifteen planes were lost the first

day, about ten the second day, and so on until only eight planes were left on the seventh day of bombing. There was no decrease in the volume of AA fire to warrant a continuance of the bombing. There was likewise no change in the Jap altitude of attack or in the "V" formation until the last day. At this time the eight planes appeared scattered all over the sky, coming from different directions and at different altitudes. It took them six days to decide on a change in attack tactics, in spite of relatively high percentage losses.

(2) The Jap attacks all the time. If his main forces are stopped, he will infiltrate small units to disturb his enemy. In all cases he will send out snipers. He will use any weapon, however ineffectual, in his attack, but at all times he will force the issue. His is never a static defense. He invariably attacks to cover his retreat. When he retreats, he goes the whole way.

At the battle of Aglaloma Bay in February 1942 on the west coast of Bataan, when the Jap reinforcements were wiped out before they could reach shore, Jap planes dropped messages to their troops on shore instructing them to withdraw. The withdrawal was completed, although it meant the Japs had to swim twenty miles of ocean to get back to their lines. Practically all the Japs in Aglaloma who attempted to rejoin their forces were drowned. In February 1942, he attempted to shell Corregidor for three days with a single 105mm howitzer at a range of 20,000 yards. The gun's existence indicated to the Jap that it should be used.

(3) A Jap unit assigned to a mission will usually continue in action until the mission is accomplished, the unit has been dissipated, or the mission is changed by higher authority. Local commanders apparently are not free to make changes in plans without consulting higher authority. A Jap officer's diary was picked up on Bataan, one day after he made the last entry. It indicated that his unit was going into action at Longaskawayan Point (west coast of Bataan) and that he knew the unit faced annihilation. He had cautioned his men not to surrender, and to sell their lives dearly. He held no hope of being relieved, expressed resignation at the thought, and wondered in an abstract way if higher headquarters realized the unit's predicament.

(4) Jap troops on Corregidor had a good working arrangement with their attack (dive-bomber) planes. Flags were used for signaling. All Jap soldiers felt free to make themselves known to their airmen by waving the Jap flag.

(5) The Jap 240mm shell was of standard make. The fuze was a base-detonating type and was simple in construction and adjustment—much cruder than the U. S. Ordnance would make. The fuze had a dial-type setting to vary the time delay—the delay setting could be changed with a twist of a screwdriver. About 50 per cent of the 240mm shells were duds.

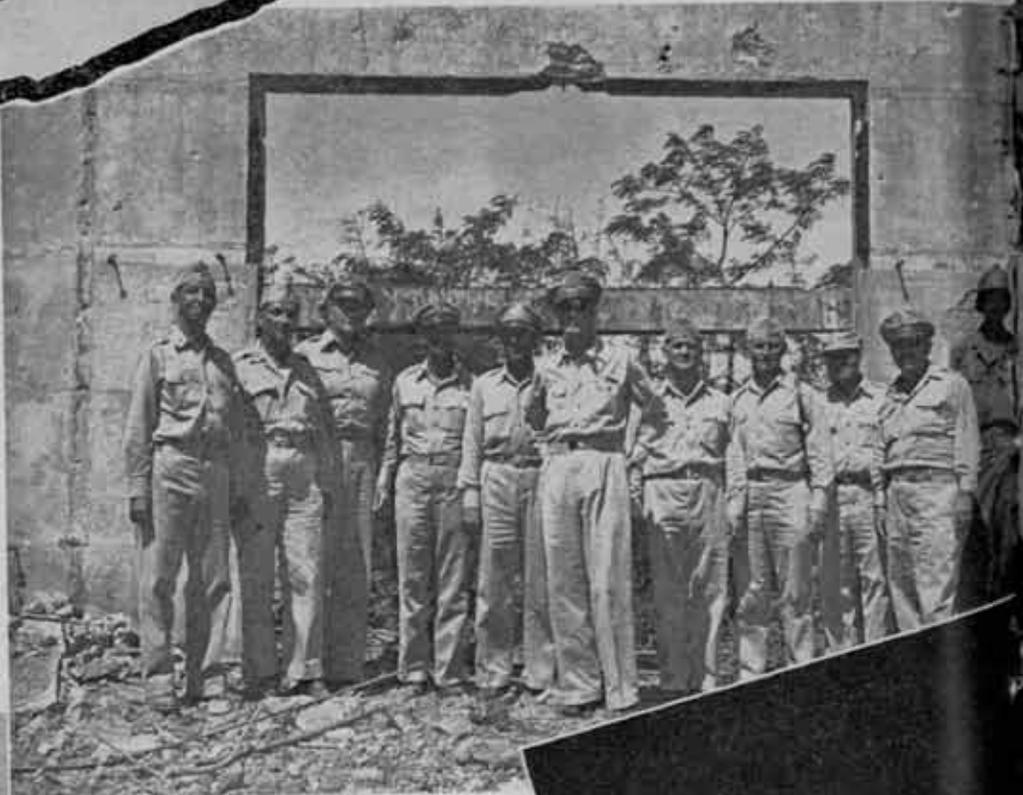
(6) Jap troops appeared familiar with the use of artillery support. Their attack forces were able to shift their artillery at will by means of Very pistol signals. Artillery reacted very quickly to attack force signals. On the other hand, they seemed unable to cope with our artillery. They acted as if they had never encountered opposing artillery. Their use of roads (which were covered by our artillery) for troop, truck, and gun movements during daylight hours indicated either stupidity or disregard for losses.

CORREGIDOR RECAPTURED

Old-timers will regret the damage to The Rock, but Americans and Filipinos everywhere rejoice that the American flag flies there again. Speaking of General George F. Moore and his officers and troops, General MacArthur said, "May God permit that they may one day again stand on the ground that they have hallowed." Coast Artillerymen echo this wish.

Signal Corps

General MacArthur returns to Corregidor with some of his officers. *Left to right:* Brigadier General LeGrande A. Diller; Major General Charles P. Stivers; Brigadier General Charles A. Willoughby; Major General Spencer B. Akin; Lieutenant General Richard K. Sutherland; General MacArthur; Major General Richard J. Marshall; Major General Hugh J. Casey; Colonel Sydney L. Huff; Major General William F. Marquat; and Lieutenant Colonel Joe McMicking.



Left: The 503d Parachute Infantry land on the island.

Signal Corps





The flag goes up on the main flagpole.



Air Corps

Amphibious forces head for San Jose barrio.

Below: Topside barracks, taken from the lighthouse.

Signal Corps



Fort Drum, after being battered by both Japs and Americans, still shows its guns.

U. S. Navy Photo

Power and cold storage plants.

Signal Corps



CORREGIDOR RECAPTURED

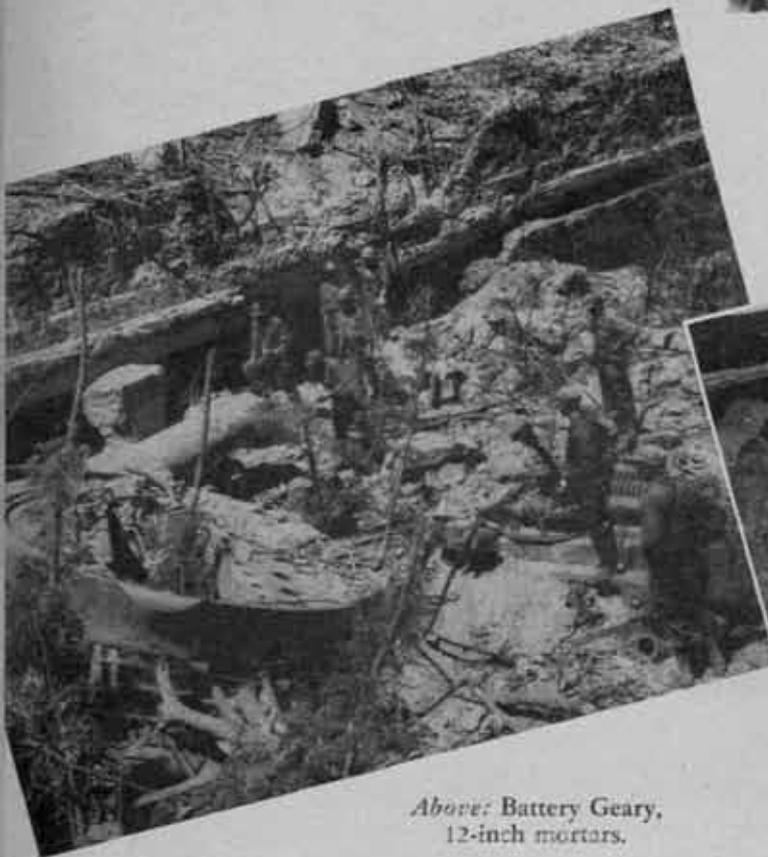
Continued



Topside carries memories of the old days.
Note the soldiers at rest.



West entrance to Malinta tunnel.



Above: Battery Geary,
12-inch mortars.



Right: A 12-inch mortar from Battery Geary,
blown twenty-five feet under the parapet.



Above: A long-shot view of Battery Geary.

Right: Battery Crockett, 12-inch D.C. battery, did not seem to receive as much damage as some of the others.



Below: 12-inch barbette, Battery Hearn.



Battery Way, 12-inch mortars

from the **FIGHT**



Army Garrison Force

By Lieutenant Colonel Leonard M. Orman, Coast Artillery Corps

This article is written in the hope that someone will be able to profit from our experiences. Our Battalion is one organized on a Seacoast T/O and T/E 4-155 complete with a medical detachment and locating unit. Our two gun batteries had been in an Army Garrison Force before on a Pacific Island but this is the first experience of movement we have had as a battalion.

Our biggest problem is one of supply. In a place like this there are no Engineers available to pipe water into our camp or to wire it for electricity. I think in a static situation such as this every battery including Headquarters should be equipped with pumps and water trailers. A ten-kilowatt generator should be included for lighting the camp area, for running such refrigeration as may be issued, and for movie projectors. Water purification units and water tanks are also desirable. A movie projector is almost a must. Projectors have meant so much to us as they are almost the only source of amusement. Each of our batteries bought one from battery funds but with priorities and other difficulties they should be T/E equipment for a garrison force. One of our batteries bought an ice-making machine and really is the envy of all other units. We are getting ice from the QM now but with long hauls and small allowances we could use a lot more. Although we were authorized a bulldozer blade for our TD-18 tractor, we left before our requisition could be filled and have had to borrow bulldozers from adjacent Sea Bee and Marine units. A bulldozer is essential.

For islands of coral bring lots of explosives. The allowances are inadequate. Metal tent stakes are desirable for use in coral. Extra tents (at least 10%), bronze screen, plywood, and folding tables are items we're glad we brought with us. We wish that we had some dump trucks, and that someone would trade us a jeep for our recon. Economy could

be effected also by the substitution of one 1½-ton truck in each battery for one of the 2½-ton trucks. All vehicles should have winches. You'll need extra Lister bags and Coleman lanterns especially for base-end, radar, and search-light positions. Aiming poles, extra platens and one clinometer per battalion would be very useful. Battalion Headquarters needs an extra jeep. For emplacing guns in coral a jack hammer and an air compressor would save many hours. Of course the securing of any of these is an administrative problem and applies only to garrison status.

But all is not complaint. We like the immersion heaters, the field ranges, 10-1 rations (except crackers), the 808, 828, 543 radios, mosquito-repellent vitamin pills, and salt water soap in the 10-1 rations. You should have some of the soap available for use on the boat.

Officers' Equipment. Leave good luggage behind as it takes a beating. Suggest that baggage be cut to a minimum. You'll be surprised how basic your needs become. Leave low shoes and pajamas behind. Shorts may not be permitted but short-sleeved shirts are nice. Canvas folding chairs are handy. A mattress on a canvas cot makes a comfortable bed.

En route. Bring plenty of reading material; have motion picture projectors available. We were able to run recognition school for officers with our 35mm still projector but didn't try to do any of that sort for the men. Issue every one one day's ration for use the first day ashore as things may be a bit hectic on debarkation.

Training. In training, field sanitation should be emphasized. We did, and think it paid dividends in our low sickness rate. Mosquito and water discipline should be stressed. Your master gunner section must be well versed in surveying as it is likely that you will have to establish your own coordinate system with little or no help. Train

ING FRONTS

our drivers in the use of the winch and in driving over rough, muddy terrain. Also teach them that salt water is harmful to vehicles. We've seen outfits drive their trucks into the ocean to wash them. Whether your primary mission is seacoast or not you may come in for some patrol duty. Review thoroughly *Scouting and Patrolling*, and *Map Reading*. Teach your sentries not to be "trigger happy."

Before You Leave. Sell your men all the Insurance, War Bonds, Allotments, and Soldier's Deposits that you can, for money is of no value out here. Unless you gamble, ten dollars per month is ample for most men.

Packing. This is important. Waterproof everything. Pack solidly. It will pay dividends. If a box breaks open (and rest assured it will get a rough handling) kiss the contents good-bye. Always mount your own guards over your equipment. Trust no one.

Special Service Equipment. Bring athletic equipment and fishing tackle. Although we've been much too busy to use it yet, I think it will come in handy. We also sold a number of the boys on Army Extension Courses and took the opportunity to organize classes for our illiterates.

T/O. We think it is more than adequate. We feel that a staff of this size could easily handle two more gun batteries in a static situation. Under our present setup with all our officers present for duty with us we could combine the jobs of Executive and S-3 and the ones of Communications Officer and Radar Officer. We used our Ammunition Officer as Transportation Quartermaster. We keep our S-2 busy by giving him charge of the master gunner and meteorological sections. The battery T/O should have a place for a P.X. steward (T/5th) as this is a full time job. A T/5th

motion picture projectionist might also be desirable. Battery supply sergeants need an assistant; suggest a T/5. Our Ammunition Officer is also our Motor Transport Officer and this is the more important and more time-consuming than his ammunition job. Your S-4 will need all the rank he can get. Pick a good man for that job.

Liquor. You will find that in the barter system a glass of something will oil a lot of wheels. Sometimes mighty useful for trading or good will.

Morale. Our morale is high in spite of some of the conditions we are living under. However, 60% of our men had been overseas over two years before they came into this new setup. It would have been better to our way of thinking if they had been furloughed home as a unit and then sent out again. Some have as much as forty months overseas and although we're not in a combat area sometimes I think that's harder on a man's mental set-up than actual combat.

Emplacements. We are using Kelly mounts for our guns but other units are using M-1, Fubar, and CPA mounts. We have had no opportunity to compare them but will state that the Kelly mount is proving satisfactory.

A Final Word. Get rid of your psychoneurotic cases before you leave. If they caused you trouble in the rear areas you'd be better off that many men short in a forward area.

I think we all enjoy our experiences because we do feel that we are contributing something more concrete to the war effort and we can see visible signs of the effort we expend in our daily work. The consequent reduction in paper work has raised most of our officer's personal morale a great deal.

Targets of Opportunity

By Captain Arthur C. Fitz-Richard, Coast Artillery Corps

The night was dark and reasonably quiet. Up toward the front guns were thumping, but here in the bivouac area chosen for the FDC and headquarters battery of the armored field artillery battalion nothing much seemed to be stirring.

Still, Captain Shaw wasn't taking any chances. The enemy situation was in doubt. He climbed out of the M16 [4.50 cal., half-track] and stood for a moment in the road, remembering how the bivouac area had looked on his map

before he struck out to place his M2 machine guns for local protection.

Then the hair on the back of his neck lifted slightly. Some distance up the road he could make out the squat, blocky outlines of a tank—a German tank, he thought.

The M16 was concealed in the hedgerow at the side of the road. Shaw told his men to stay put and pushed through to the other side of the hedgerow. Moving quietly up opposite the tank, he crawled through the shot-torn growth—and

looked. The black crosses painted on the side were unmistakable. Furthermore, he heard movement inside the tank. Captain Shaw withdrew hastily to organize a little offensive action.

With Sergeant Johnson covering him from the rear, and Privates Forhan and Magdelinski covering him from the side, Shaw returned and placed a No. 12 charge of TNT on the tracks of the tank. But just as he was about to ignite the fuze, the tank commander stood up in the turret to take a look around. The tank commander had a machine pistol.

Shaw yelled to Forhan; Forhan was up on the tank in an instant, swinging at the Jerry's head with a hand axe. It was impossible to tell which of the struggling bodies was which as Shaw jumped to help Forhan. Then the machine pistol clattered and the Jerry slumped. He had shot himself.

The tank's gunner was up and out next. He fired a full clip from a machine pistol as the tank started to move. Luckily all his shots missed. The captain and Forhan closed with him, Shaw managing, with some difficulty, to drop an incendiary grenade through the hatch of the tank. Then he and Forhan jumped for the ditch.

Sergeant Johnson threw a fragmentation grenade on top of the tank. Magdelinski got a rifle grenade off. The turret of the tank swung around as the gunner sought to bring his cannon on them. Then the incendiary exploded inside the tank—and the crew came out in a hurry.

They got the gunner in the melee that followed, but the rest of the crew escaped. However, there was an even bigger bag, uncomfortably close by. In the light from the tank they could see other enemy vehicles in an adjoining orchard.

Bringing up one of his two M16s, Shaw poured eight hundred rounds of caliber .50 ammunition into the orchard at the vehicles and enemy personnel who were trying to mount them. Tremendous fires were started by the incendiary bullets.

A count, in the daylight, showed that they had destroyed one Mark IV tank, one armored half-track, three trucks loaded with gasoline and ammunition, two motorcycles, two personnel carriers, and one building containing some type of enemy headquarters. Abandoned were five trucks, two motorcycles, two radio and reconnaissance cars, one sedan, and a field kitchen complete with flour and meat. Five Germans were killed, seven wounded, nine captured, and an unknown number fled.

And that, gentle reader, is not exactly atypical of actions in which AA units find themselves in the European Theater. Just an adventure of an SP automatic weapons battery commander while peacefully engaged on a night reconnaissance.

This episode, and others which follow, have been taken from operations reports in which hair-raising events are related in an extremely matter-of-fact manner. For reasons of security some details must be withheld but we are using names wherever we can, to give credit where credit is due. The stories mostly concern ground actions. Not that AA in France doesn't shoot at airplanes any more; for instance, after the break-through at St. Lô, there was the brigade protecting the line of communications for the Third Army

in the Avranches Funnel. The Germans were fully aware of the importance of the numerous objectives here, and launched more than 600 raids with single aircraft or small groups over a period of about ten days. Despite thousands of bombs dropped, the volume of anti-aircraft fire was so intense and accurate that no bridge, dam, defile, dump or other critical point was hit. Plenty of GAF aircraft failed to go home, as well. And the mass of men and supplies concentrated in the north was able to pass unhindered through the bottleneck and to continue hammering the retreating enemy. The Commanding General was pleased with his AA support and said so, in some of these very words.

Sure, we still shoot at airplanes. And robombs, too. The ground actions reported here are just in addition to our normal mission.

How do you like this one?

A few weeks earlier, another battery of the same half-track outfit we mentioned before was working with another field artillery battalion. During the night German infantry and tank elements infiltrated through the point and advanced guard of our spearhead, and up to the outskirts of the SP battery position. At daybreak Corporal Tracia, squad leader of an M15 [1-37 and 2-50 cal., half-track] crew, caught sight of a small infantry patrol supported by a track-laying assault gun moving up near a farmhouse about seventy-five yards from his position.

The light was dim and the early morning fog was swirling about, so Tracia couldn't make out just who the newcomers were. He hiked over to the western boundary of his field and gave voice. The answer was a burst of machine gun fire. Tracia dove for the cover of a hedge and got back to his M15 in a hurry.

Tracia was sore. He hadn't slept all night and this was before breakfast. He and his men opened fire on the patrol, which promptly moved south and east of him. There was another farmhouse over there. Tracia went after them, moving his 'track over to a new position near where they had first opened up on him.

Then he discovered that a Mark IV tank was lurking behind the second farmhouse. This was more than he had bargained for, but he settled down for a scrap. He put men of his squad out to cover his flanks, and for more than an hour he kept firing intermittently, dividing his ammunition between the tank and the patrol. He pinned the patrol down by sweeping the hedgerows with his machine gun and firing 37mm HE into the trees to secure air bursts. The tank never did come out in the open to trade slugs with him. All the Jerries were able to do was set fire to the farmhouse to the west, and burn up a friendly ammo truck in the field beyond it, and that *before* Tracia went into action.

The sound of the firing brought help. Lieutenant Hall, Tracia's platoon commander, came up with a patrol of infantry under command of a doughboy lieutenant. Hall found Tracia was doing all right. The infantry formed a firing line and sent back for the rest of the doughboy platoon. When it came up, they moved to the next hedgerow under cover of Tracia's fire. Then a 57mm AT gun arrived and the Mark IV was knocked out.

Tracia was all for continuing the fight to a personally satisfactory conclusion, but when more AT guns came y

Lieutenant Hall pulled him out of it as the high steel bucket of the M15 made too good a target. The little corporal spluttered down, though, when he got some breakfast.

Of course half-track outfits, often operating in close support of infantry or armored FA, more frequently engage in ground actions and have a greater incidence of these "targets of opportunity." There was the M15 crew, for instance, which dropped out of convoy near a little French railroad station and paused for a while to shoot up an entire German train which happened, for its own purposes, to be going the wrong way on the track. However, just to curl your wig a little, here's a yarn about a plain 40mm outfit.

Not so long ago, a platoon of Bofors supported elements of an infantry division in an attack upon one of the forts in the Metz group. The platoon mission was to fire in front of the advancing infantry, shifting later to the fort to force it to button up.

The weather was nasty, the mud about a foot deep. Reconnaissance was made at night under considerable difficulty, but finally defiladed positions were selected about 200 yards to the rear of the infantry line of departure. The four 40s were emplaced on a line about forty yards apart. Only one M51 [4.50 cal., half-track, towed] mount could be winched into position because of the heavy mud.

The original targets in the fire plan, says the report, were abandoned "due to limited visibility," so you can imagine the wet and clammy job it was sloshing around in the gun pits serving those weapons. Data was taken from a map and the guns were laid using a gunner's quadrant and a lensatic compass. The positions were occupied for two days, and

targets included two observation towers in the fort, which were "destroyed," as well as call missions on pin-point targets requested by the infantry.

The platoon was credited with killing a considerable number of the enemy and "encouraging the surrender" of others (a nice way of putting it, to our mind) as the infantry pressed on to reach its objective. Twenty prisoners were taken directly by AA personnel. Enemy artillery dropped some forty shells in the platoon area, and a Jerry machine gun about 300 yards from the position made the lads keep their heads down, but neither damage nor casualties resulted.

Reading between the lines, you get a picture of this action that is hardly luscious. But the combat cake was taken by a couple of privates who volunteered to man the observation post in a strategically located house. The house was darn near shot away from around them. On one occasion a shell burst in the very room where they were working! But they stayed on the job and directed fire like the gutsy Trojans they were—and they got a couple of extremely well-deserved Silver Stars out of it, too.

We only wish we could give you their names and their battery designation. As a matter of fact, it would be a pleasure to name other men as well, such as the men who backed up Corporal Tracia in his little fracas. But we don't have the information, or security forbids letting it out.

These stories concern automatic weapons men. That doesn't mean that other antiaircrafters aren't doing equal deeds in just as gallant a manner. We'll try to tell you about the others in later issues.

AAA With the First Army

Their 90mm antiaircraft gun had just knocked out a Tiger tank at thirty yards. Then the Germans laid on mortar fire and their 90mm was knocked out. These men of the 143d Gun Battalion's Battery C then fought as infantry with doughboys of the 30th Division in Staumont, when the German counteroffensive plunged deep into Belgium.

Four more tanks were on the road, and Germans with machine guns and rifles were about the tanks. The tanks impeded the American infantry, and two members of the knocked-out antiaircraft gun crew (Private First Class Roland Seamon, of Shinnston, West Virginia, and Private Gilbert M. Darago, Jr., of 7805 Oak Ave., Parkville, Md.) volunteered to go after them with bazookas, although they had never fired the rocket guns.

An Infantry lieutenant gave them a quick lesson and followed them as far as the safety of a farmhouse. The two volunteers with bazookas crept forward in the snow under mortar and small-arms fire. Though exposed to the enemy, they crept to a hedge and fired at two tanks. They then slipped back to the safety of the house and the Infantry lieutenant reloaded their bazookas and they returned to the hedge and fired again.

They knocked out two tanks.

The story of the blunting of the German counteroffensive, the fierce fighting which held off German armor long enough for General Hodges to move his more powerful units, can be told largely in the action of the small units, the little men who stood up and fought despite the odds. Many of the stories can be told of First Army antiaircraft units such as the story of the two men with bazookas in Battery C, commanded by Captain (then 1st Lt.) Leon E. Kent, of 826 South Hobart Blvd., Los Angeles.

The story of Battery C does not end with the bazooka incident. Shortly afterward, at Staumont Station, the Battery fought more tanks. One approached a gun position which had no protection, for armor and infantry had pulled out. But the 90mm opened up and knocked out the tank.

Another tank approached and the gun crew fired at it, knocked it out. The two destroyed tanks made an effective roadblock.

The Battery accounted for five German tanks and unnumbered personnel. Its own cost was a knocked-out gun, one man killed, two injured.

Several days later the Battery was setting up its position when two ME 109s rushed over at deck-level. Crews fired at them. One crashed in flames, the other left, trailing smoke.

The Battalion has another battery which knocked out tanks. Battery B, commanded by First Lieutenant Stanley A. Roicki, of 834 Cutler St., Schenectady, N. Y., was near Roanne. Three Tigers and a German-operated Sherman were observed in camouflage 2,000 yards away. The battery pumped shells into them. One tank exploded at the fourth hit; three rounds got another. Forty-two rounds destroyed all.

Crews of the 143d Gun Battalion accounted for 13 German tanks during the counteroffensive.

There is the story of Task Force Stone:

Pulling back from the front on December 18 Lieutenant Colonel Robert O. Stone, 212 W. 6th St., Aberdeen, Wash., and the ninety other officers and men of headquarters, 440th AW Battalion, reached an American railhead. They found the ration dump afire, 350 German prisoners in cages, and a quantity of abandoned Ordnance and Engineer vehicles, and officers and men from other units.

Colonel Stone took charge. The road he followed toward St. Vith was cut, anyway, so he decided to hang on at the railroad. His force was augmented by such diverse strength as a few officers and men of the 89th Quartermaster Railhead Company; some officers and men of the 92d Ordnance Medium Maintenance Company; three men of a prisoner of war interrogation team, seven light tanks, and three self-propelled mortars, with crews, from the 7th Armored Division; and a dozen stragglers from the 2d Infantry Division. Battery C of the 965th Field Artillery Battalion was in position to lend support.

Four outposts were established about the railhead, linked by telephone. The rest of the personnel went to work, putting out the fire in the ration dump.

Next day, December 19, Colonel Stone received a message from the 7th Armored Division which ordered: "Imperative that town be held. Force being assembled to support you. Some artillery."

On that day, too, he continued distributing rations from the dump which had been set afire. In three days he distributed 45,000 rations to elements of the 7th Armored Division, the 112th Infantry, the 106th Division, and others.

Fire fights with approaching enemy developed the next day. And on the 21st a prisoner was brought in. He was from a reconnaissance unit preceding the 2d SS Panzer Division by an hour.

Colonel Stone distributed the rest of the rations—35,000—to the 7th Armored Division. Next day he and his accumulated force pulled out, on orders, but taking with them the thirty abandoned vehicles.

An award for Colonel Stone is in the mill.

The 863d Automatic Weapons Battalion was attached to the 99th Division and was holding Kalterherberg, which in the fluid fighting suddenly became a front. Once it was pitted against 500 German infantrymen, but it drove them off, with the devastating fire of its machine guns.

In between spasms of front-line fighting, the battalion fought as antiaircraft and as artillery. On December 17 its guns brought down one of three strafing ME 109s, and delivered plunging fire on specified targets. Several days later a trio of ME 109s strafed roads leading to Eupen. The bat-

alion's guns held their fire, then let go. The three planes were destroyed.

The 143d and 110th Gun Battalions helped contain German armor in the Stavelot-La Gleize area, so direct bombers could pick them off. They got planes, too.

Staff Sergeant Frank F. Lucid, of 547 W. 42d St., Chicago, a gunner in the 110th, picked off a JU 88 one afternoon with one shot. He aimed at it sighting along the barrel.

First Division veterans of campaigning in Africa, Sicily and all the fighting on the western front have commanded two First Army antiaircraft units.

Colonel John F. R. Seitz, of the 26th Infantry, has commanded elements of Batteries A, B and C of the 639th AW Bn. On December 18, he reported, an officer from the unit offered to join the 26th and "fight it out." Colonel Seitz accepted the offer, tied the unit along the Butgenbach-Malmedy route—the main route by which the Germans expected to supply the 1st SS Panzer Division—and the unit played a tremendous part in holding the hot corner of the Americans upper shoulder.

The 197th AW Bn., the first of such ashore on D-day, was also in Butgenbach area and has been commended by Colonel W. E. Waters, of the First Division, by the Division commander, Major General Leonard T. Gerow, commander of V Corps, and General Hodges. These officers echoed the commendation of Colonel Waters who, reporting that the battalion was holding positions alone when the 1st moved into the Butgenbach area from a rest camp to help stem the Germans, said:

"It was a source of inspiration to 1st Division troops."

And there is the story of Captain William R. Olcott, of 1090 Ashland St., St. Paul, Minn. He recaptured an American hospital from German SS troops.

On the morning of December 18 Captain Olcott was told, by an ambulance driver, that Germans had taken the 47th Field Hospital at Waimes. The Captain CO of Battery C quickly assembled a task force of his own half-track and two half-tracks armed with quad mount machine guns.

Warned by civilians that Americans were on the way, German troops who had been loading hospital personnel into trucks fled. Four sped off in a jeep as the Captain's task force came in sight, and two, one of them an officer, covered between two trucks. Captain Olcott and the German officer demanded surrender of each other, both speaking in German. They then started shooting. Captain Olcott wounded the officer with his M1, but the Germans escaped. The task force held the town until the hospital was evacuated. Olcott got Silver Star.

First Army antiaircraft units scored heavily in their assigned rôle as plane destroyers, as well as in their secondary rôle as antitank weapons. During December 1,207 enemy planes came over First Army territory and of these antiaircraft units claimed 276 destroyed and 164 probably destroyed. The high day was December 3, when 74 planes came over, 45 were destroyed and 13 damaged so badly they probably never reached their bases.

During the German counteroffensive, First Army antiaircraft units claimed 295 planes destroyed, 157 damaged of 1,178 over the area plus 20 tanks.

Light on the

By Captain Harold R. Daniels, Coast Artillery

The author of this article, who is a Public Relations Officer, wrote in his letter of transmittal, "I am submitting another article which I hope you will use. I sincerely believe, although I am not a searchlight officer, that the men who man the lights deserve more recognition than they are getting."

We agree with Captain Daniels that the Searchlights deserve more recognition—but they will have to do something about it themselves. The JOURNAL has not yet received one article from a Searchlight unit overseas.

On a Ninth Air Force fighter strip, the heart-stopping flutter of an aircraft in trouble is heard. Low on fuel, fuel-damaged, radio shot away, a pilot tries to find a place to set his aircraft down. On the ground, a controller checks—the plane is friendly. He seizes a telephone and says one word. As if by magic, from four corners of the field glaring pencils of light shoot into the night, emerging directly over the runway, lighting the way to safety. A few minutes later the reprieved pilot sashes through the mud to shake the hand of the section chief on the nearest light. Dramatic—but an everyday occurrence to the searchlight men of the IX Air Defense Command. Long before D-day the planning that made it possible was carried to a conclusion by General William L. Richardson, Commanding General, and his staff. The IX Air Defense Command, largest operational AA unit in the United States Army, was assigned the mission of protecting all Ninth Air Force installations behind the Armies, as well as all vital targets such as communications centers, etc. Later the responsibility of the Command was increased to include the defense against air attack of all the liberated areas in the American sector, plus the advanced air strips of the magnificent Ninth Air Force, including AA, night fighters, smoke and some brand-new fighters besides. How they accomplished this mission is a story in itself. Searchlights played a great part in it—and on a secondary mission the searchlight battalions of the Command have "homed" 3,000 allied aircraft—brought them safely to earth. It is a fair and qualified assumption that at least ten per cent of these aircraft would have come to grief otherwise, some authorities say as high as fifty to sixty per cent. It is safe to say that more than 300 valuable aircraft and 300 priceless crews will fight again due to the efforts of these "forgotten men."

It has not been easy. The air strips themselves are usually desolate and incredibly isolated. For the flying and operating personnel there is the congeniality of numbers in the searchlight sections, by the nature of their task, are required to live at the sites. They started in shelter halves, where there was no time for any task beyond that of getting

the light in and operating. Being old timers, most of the sections have built extremely ingenious living quarters for themselves—in several cases utilizing dug-in German gun positions for storage, living quarters, and mess facilities.

The battalion commanded by Lieutenant Colonel W. G. Root has one of the finest messes on the continent. Serving seven men—one crew—it was built of German bricks, painted with German white paint, has a floor laid with German concrete by the men in the section. On it, T/4 Walter Bezold turns out beautiful dinners on—you guessed it—a German stove!

The entertainment problem is solved, in the case of two veteran battalions, by a rotating moving-picture projector. And to aid these men who often don't see each other for months at a time in keeping contact, Battalion newspapers are circulated—full of pertinent items. As for instance the following item from *Flick*, published by the Headquarters, — Battalion.

* * *

LEVENDUSKY'S LEGIONNAIRES

Things are happening out here. Sec. 5 appreciated their foxholes when a plane zoomed over their position less than two feet above the ground. "I would have to draw the hole full of muddy H₂O," griped Chirik.

"Hows about news for the *Flick*," asked reporter Reidy, "anybody fall into a foxhole and come up with 5,000 francs?" At that moment Private Newman, covered with mud came up. "Fell into a foxhole," he explained. "But," he added brightly, "look what I found—5 francs!"

T/5 Bogus (Sec. 2) is known as "Champ" in the hills-camp collection of enemy firearms. Says Bogus, surveying his arsenal, "I'm a one-man-army—let me at 'em."

Sergeant Moskel agrees that Sec. 5 is on the windiest spot in France. The latrine blew away while he was sitting on it.

* * *

It is not these factors that make morale high however—it is the tremendous gratification of seeing the tangible results of their work, of hearing the thanks of a newly landed pilot—of turning their light into the murk and "finding" a friendly aircraft. As Sergeant Marion Tanner, Tampa, Florida, says, "It's like fishing—you never know what you'll get."

The value of the job that these searchlights have done is a matter of record—in terse official requests for lights at a newly constructed or captured airfield. In letters of thanks from airmen such as the following, the names of the authors and recipients of which we must regretfully omit:

* * *

"It is with a great deal of pleasure and sincerity that I write this letter of appreciation to you, and through you, to the men that you command.

"Your men who occupy the remote corners of our airfield in position for defense against enemy attacks



A Searchlight Operations Room at a Ninth Air Force fighter strip.

are too often forgotten in the course of our everyday operations. This is even more true since the bombing raids of the *Luftwaffe* have become memories.

"Just a short while back, however, we had occasion to be reminded of their presence when your searchlights came to the aid of some of our aircraft. Fourteen Havocs from another Group, returning from a mission, were caught in a furious rainstorm. They called our field for an emergency landing. Our field lights were completely blanketed from view by the heavy rain clouds. Only the beams of your lights were able to cut through to guide the aircraft overhead. They were an invaluable help in saving the aircraft and the lives of the men in them.

"This is just one example among many when you have come to the aid of our aircraft. The men in my command join me in expressing most sincere appreciation for the fine work you have done."

* * *

"The platoon of your organization stationed at this airfield have rendered this group invaluable assistance in our operations. On several occasions aircraft returning from combat missions have been directed to this field by the searchlights of this platoon. They have at all times exhibited a maximum of cooperation with us in carrying out our combat operations as well as night-flying training. Such cooperation is indeed commendable. It is such cooperation on the part of all units that will bring the war to a speedy finish.

"It is desired that this letter be brought to the attention of all personnel of this platoon so that they may be aware of my appreciation as well as that of every combat crewman of this organization for the assistance they have rendered to us, enabling us to complete our common mission."

"It is a distinct pleasure for me to extend the thanks of all the combat personnel of this Group for the cooperation that we have received from your men stationed on our field. At this time, when we must have night flying, not only the cooperation, but also the sincere effort and the immediate steps you take in giving us the full benefit of your lights, is a matter of deep concern to us and appreciated by us. The cone that you place over the field at our disposal on request is a welcome beacon for our aircraft to return to. The fact that we know that within two seconds we may have a beam centered down our runway upon request or a cone over our field is a comfort that is unexplainable.

"Although these do not seem to you to be directly aiding the war effort, you are indeed doing an excellent job for us and aiding us to carry the war to the enemy. You are giving us your direct support and it is warmly appreciated. The work that you men have done in this field has been of the highest caliber. It is particularly reassuring to know that we have your lights at our disposal in the event that the enemy should decide to pay us a night visit—which is not improbable now that jet-propulsion has reached its day. Your assistance is sincerely appreciated by this Group."

* * *

The contents of these letters and more like them have been published for the men in the searchlight units concerned.

Technically the job is an easy one for these men who have previously had such difficult targets as buzz bombs to track. Various predetermined altitudes and the angles of elevation necessary to cause intersections thereat are permanently plotted at each position. From the time the pilot radios in for a cone, until the lights go up is a matter of less than two minutes. In addition to the cones, the lights sometimes illuminate the strips themselves. When hostile aircraft are in the vicinity, two lights are shone in previously arranged patterns.

Two night-fighter pilots, Lieutenants Walter Stacey and Francis Loctanswicz, have brought their aircraft in successfully where these beams were used. The landing strip lights were obscured by heavy fog and both pilots declare that they would have had to abandon their ship had it not been for the lights.

Night fighters find the lights particularly useful. Another night fighter Squadron Commander, Major Leon Lewis made several unsuccessful attempts to land a flight on a particularly thick night, the heavy ground weather blacking out the field completely each time. A searchlight was horizontally exposed at the end of the runway. With its assistance all three aircraft, Black Widows of the IX Air Defense Command, landed safely. Major Lewis credits the safety of the aircraft entirely to the searchlight "assist."

Night fighter operations were mentioned recently by Brigadier General N. A. Burnell II, in a letter to a searchlight unit under his command:

* * *

"I wish to convey to you, and to the personnel of your Platoon my commendation for the excellent man-

ner in which you have performed your tactical duties at Ninth Air Force Field A-78.

"This commendation is prompted by a recent conversation with the Commanding Officer of the — Night Fighter Squadron, who stated that due to the efficient tactical handling of your searchlights, he has been able to increase his missions by thirty-three and one-third per cent. I realize the difficulties and inconveniences under which you operate. I hope that you and your men will feel compensated in the realization that your job is being done well and that your efforts have a direct bearing on the efficient prosecution of the war."

* * *

The appreciation of the pilots is summed up by the statement of Captain Hussell Glasser, operations officer of a night fighter squadron. "I do not believe that there is a pilot in this squadron who would not be as willing to go out without his radio as without the assistance of the searchlights in getting back home. The psychological value alone is tremendous, for the pilot is relieved from the continual worry that if radio goes out, he has no way of getting back home. The searchlight canopy can be seen up to fifty miles and the pilot is always oriented enough by radio checks to get that near to base. When a plane's radio fails to answer a check, we know that he'll be on his way home and there will be a canopy waiting for him. Furthermore the pilot then knows the exact location of the strip. He can circle right down—he doesn't have to worry about terrain and his flying time is cut many minutes compared to coming back on a radio vector. If the aircraft is in any sort of difficulties, those minutes can be important!"

Searchlight units working with Air Corps Personnel

have found many ways of developing teamwork. Often they give quick weather information—determining the height of cloud ceilings and checking the amount of ground fog. The ceiling check is made by directing one light vertically and having a second light intersect it at cloud base. A previously prepared angle chart gives the ceiling at a glance. Ground fog checks consist merely of exposing a light horizontally.

Deployed as they are over a wide area, Searchlight personnel have encountered and dealt with several hostile and fifth-column agents. Recently, a platoon on a remote site observed flares from the ground during a raid. Immediate action was taken and twenty-eight collaborators were rounded up as a result.

Life has its humorous moments. On a recent trip to one of his sections Lieutenant Bob Forsythe drove his jeep onto the runway. A Flying Fortress, just brought in in daylight by the section, mistook the jeep for the lead vehicle, used to guide aircraft to dispersal areas. Down it thundered, straight at the embarrassed Lieutenant. "Everywhere I went," he says, "that goddam boxcar followed. Just like Mary's little lamb." As a last resort, he drove the jeep into the woods. Forsythe, former extemporaneous speaking champ of the United States was, for once, at a loss for words. He didn't know what to say to that Fortress.

The life is hard, the cold severe and the task exacting. But it is neither thankless nor dull. Night and day there are aircraft, crippled, low on gas, lost, to be brought in through the night and fog. American, French, British, Canadian—huge Fortresses—tiny Ansons. Their safety on the ground is the responsibility of the IX Air Defense Command. Aid in getting them safely there is an additional duty—and one that has been quietly and expertly done, as it will continue to be.

Jap Barges at Peleliu

By Sergeant John Worth, Marine Corps*

Using normal methods of fire control in the fire direction center and adjusting on the target through forward observers, Marine artillery destroyed several Japanese barges laden with troops in an attempt by the enemy to land reinforcements on Peleliu during the battle for the island.

The barges were first spotted on the night of September 23, 1944, by Navy picket boats operating off the northern tip of Peleliu to forestall just such an attempt by the enemy to reinforce the Peleliu garrison. At 2140 Marine artillery extinguished a light observed on Akarakoro Point on Peleliu, and another on Kongauru Island about 1,200 yards farther north. These lights evidently were serving as navigational markers for the barges. Later the Japs managed to relight the one on Akarakoro.

Our Naval vessels sent up star shells and trained search-

lights on the barges as they were moving down under cover of darkness. LCI gunboats fired on them with 20mm and 40mm guns. One or more destroyers turned their 5-inch guns on the barges. Several barges were set afire and sunk. The rest scattered and either lay disabled or ran aground on the reef which spreads over a wide area to the north and east of Peleliu. Jap survivors spent the rest of the night wading toward Akarakoro and Kongauru.

At daybreak the Japs and six barges were spotted by forward observers of the Second Battalion, 11th Marines. One OP was situated on Ngabad Island and the other on Island 153. These small islands lie off the east coast of Peleliu below Akarakoro Point. At 0500, 24 September, the Second Battalion commenced firing on the barges with excellent effect. The Japs in the water were fired upon with a time fuse and practically all of them were killed. The Japs facilitated their own destruction by a tendency to cluster together in their desperate effort to reach shore. Some of them waded as much as 2,000 yards. One group was caught

*Although *Fighting Fronts* is usually limited to Coast Artillery Corps actions, this Marine Corps fight was believed of such interest to CAC forward personnel that arrangements were made for Sergeant Worth to describe it for JOURNAL readers.

by our fire close to Akarakoro and a few might have gained the shore.

It was estimated some 400 Japs were killed but the figure may be much higher. Twelve barges each with sixty troops had set out from Koror the night before. Aerial observers counted eleven barges sunk or wrecked on the reef.

On the night of September 24, the Navy picket boats discovered two more enemy barges heading toward the north tip of Kongauru. Instead of risking another landing on

Akarakoro Point, the Japs evidently decided to land on Kongauru, jump to Ngesebus Island and from there to Peleliu. These three islands are connected by foot bridges.

The Navy opened fire on the two barges which sought cover behind a tiny island just off the north tip of Kongauru. The Second Battalion had registered on this tiny island earlier in the day and opened fire on the barges. Forward observers made only one adjustment and hits were scored on the barges destroying both of them.

Some Secondary Missions

By Lieutenant Colonel John C. Mazzei, Coast Artillery Corps

Everyone knows what Antiaircraft units are capable of, and do, in their primary mission. Their successes against enemy aircraft and air operations have contributed considerably to the diminishing activity of enemy air power, the Luftwaffe in particular. The heavy toll exacted of the German Air Force in their sporadic efforts over France is sufficient proof of the pudding. So the question arises as to what the AA does when there are no hostile planes at which to shoot.

The versatility of the Antiaircraft troops has been exhibited in many ways. Whether this versatility results from the exigencies of the situation, the careful evaluation of the capabilities of AA weapons and matériel applied to ground roles, or just the plain old desire to get a crack at the Hun, does not matter. What does count, is the aggressive spirit shown by their whole-hearted cooperation with the other arms. The use of 90's as field artillery and antitank, and of automatic weapons as direct support weapons for the Infantry, are old stories now. The following anecdotes, gleaned primarily from ETOUSA's AA Notes and tales current in the Theater, show the true spirit of the diverse actions of Antiaircraft troops.

From the very beginning, the D day landings, this spirit of versatility showed itself. The self-propelled guns of several automatic weapons batteries were the first artillery ashore, closely followed by the 90mm's of some of the gun battalions. Their accomplishments helped establish the beachhead. When they were not firing at the Luftwaffe, they boldly tackled and neutralized the pillboxes on the beach. Their story still remains unsung, but was a glorious contribution to the success of the operation and elicited the commendation of the Corps Commander who directed the landing on Omaha Beach.

There is the Automatic Weapons battalion which made up a fifth provisional battery from light M-16B self-propelled mounts, which were issued to all the units arriving in the early D days. This unit was attached to a fast-moving Cavalry Group used as a screening and reconnaissance unit for one of the Corps. While this battery had several engagements against strafing planes, it was involved almost daily in ground action. During one afternoon, one of the Battery's M-16B mounts was on patrol with six or seven Cavalry vehicles. The patrol was at a village located at

the intersection of several roads, which were main escape routes for the Germans. While there, the patrol destroyed two small columns. Toward dusk, the commander decided to withdraw to safer ground, lest he encounter an enemy force too large for him to handle. Just outside the village, he did meet a large force. Badly outnumbered, the Cavalry vehicles and the M-16 mount charged down the road, raking the enemy as they passed. The damage they inflicted was considerable. The M-16 was hit and the driver wounded, but nevertheless, he continued on until the vehicle could no longer be operated. The crew extricated itself, mounted a Cavalry vehicle and escaped to safety.

And here is a typical example of conditions AAA units encountered in the hedgerow country. In the early hours of the morning, a 40mm gun was set up in the small field surrounded by hedgerows with sunken roads on the North and South ends. The gun was emplaced in the center of the field, and the section bivouacked against the Eastern hedgerow. Two men were on duty at the gun when noises were heard in the Northern hedgerow. Their challenges were met with rifle and machine pistol fire, and by hand grenades, killing one man and wounding the other. The crew, awakened by the shots, organized and cleared out the hedgerow, capturing sixteen prisoners and killing or wounding an undetermined number, undetermined since the section left before daylight. Despite the enemy's advantage of surprise, position and protection and fire power, the courageous and gallant action of the section broke up the attack.

On several occasions when the situation called for immediate action against enemy ground troops, Automatic Weapons battalions have employed their antiaircraft weapons against enemy foot troops deployed behind hedgerows. Prompt action on the part of the antiaircraft units performing these highly difficult maneuvers materially aided the advance of our own ground troops.

Many times, especially in the protection of bridges and bridge-building operations, AA gunners have forsaken their primary mission to engage enemy ground forces, thus protecting the constructing engineers and allowing time to proceed with their work without the necessity of protecting themselves. A typical example is when enemy machine

gun emplacements on the far side of a river fired on the Engineers during the initial preparation of a bridge site. The ever-present AW sections, which protect such operations from the earliest moment, turned their 40mm guns on the emplacement, neutralizing the position.

Night has been changed into day—or maybe that is too optimistic. Its more like black night becomes moonlight, by the clever use of AA searchlights for battlefield illumination. Artificial moonlight has been employed to blind the enemy, help avoid mine fields and booby traps; put the enemy in the light, while friendly troops use the shadows created; and for many other uses. Here again, the difficulties and dangers in emplacing the cumbersome searchlight equipment in forward areas can be appreciated. The lights are used under direct control of the infantry, and illuminated or put out of action as the doughboys required.

When the going was tough around Metz, a platoon of automatic weapons was used to support an Infantry battalion, assaulting one of the many forts surrounding the city. All weapons of the platoon were used, their mission being to fire in front of the advancing infantry for a time and then to shift fire to the main fort in front of them, forcing it to button up. Despite the fact the platoon in its open position drew both enemy artillery and machine-gun fire, the mission was completed. Counterbattery from an M51 neutralized the gun position and caused the surrender of one German officer and nineteen enlisted men. During the recent German break-through in Belgium, many AA outfits elected to stay and fight, rather than withdraw. Outstanding is the story of the AW battalion which

found itself directly in the line of attack as the Germans launched their powerful offensive. By a series of aggressive actions and by fighting their way out of pockets, the battalion was able to extricate itself, despite the speed of advance and the overwhelming forces against them. The first indication that one of the batteries had of the break-through was the appearance of enemy tanks near their positions, and in a very short time, their main escape route had been cut off. For four days they held their positions, destroying or causing the withdrawal of the enemy by fire from their 40mm and quadruple .50 calibers. When the positions became untenable, they broke through some minor resistance and fought a delaying action. Two other batteries, deployed in antitank positions, engaged several enemy tanks, and prevented the enemy from entering the town which they were defending. The Headquarters Battery deployed as infantry and dug in, remaining in position for forty-eight hours. The fourth battery, advised to withdraw by the battalion commander, elected to stand by the Field Artillery battalion they were protecting, and fight it out. The full story has yet to be told.

These instances are only a small part of the epic rôle that Antiaircraft Artillery units have played in the campaigns of Normandy, Northern France and Germany. There are many more tales, equally as heroic or ingenious. The brief mention in this article does not tell the complete story either. It just touches the high spots. The purpose of this article and the moral of this paragraph, is that those who can tell these stories in greater detail, should, so that the rest of the Corps may be proud of their achievement.



Letter From A Subscriber

* * *

I was on Corregidor when it surrendered May 6, 1942—spent 18 days in Bilibid Prison in Manila, and the rest of the time in Cabanatuan till January 30, 1945, when the Sixth Army Rangers came in and liberated us. I arrived in San Francisco this last March 8 and the good old U.S.A. sure looked grand.

Hoping to receive the back copies of the C.A. JOURNAL, the Associate Membership card, the list of publications, and the *Officer's Guide* soon, I remain,

Most respectfully,

CORPORAL JEROME B. LEEK,
DeWitt General Hospital,
Auburn, California.

P.S.: My address when I subscribed to the JOURNAL was in care of Headquarters, 60th CAC (AA), Fort Mills, Corregidor, P. I.

SECRETS

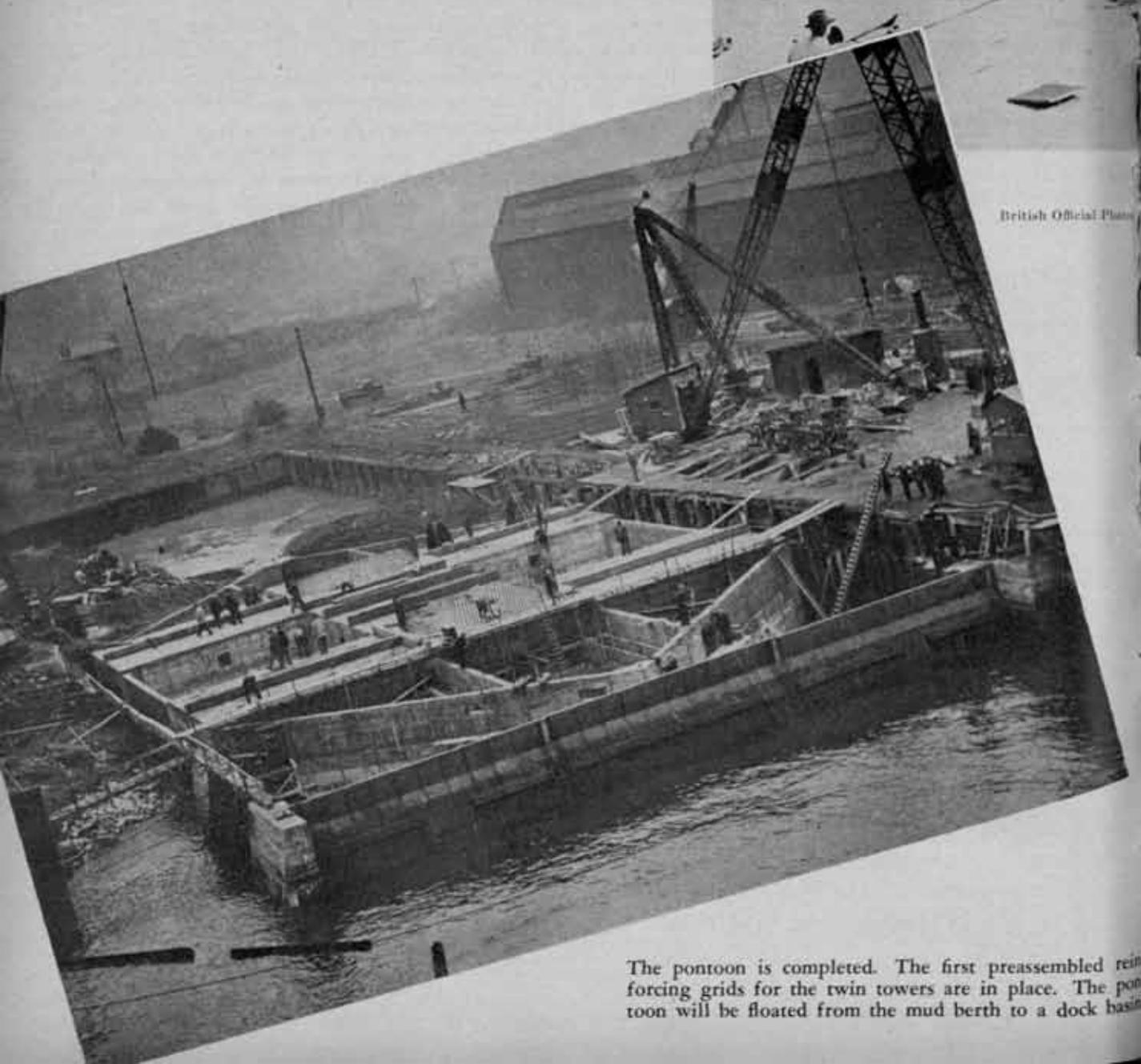
OF THE

SEA FORTS

By Lieutenant Lance Dalziel, RNVR



British Official Photo



The pontoon is completed. The first preassembled reinforcing grids for the twin towers are in place. The pontoon will be floated from the mud berth to a dock basin.



...ing the preassembled cage to reinforce the pontoon floor.

As the battle for Germany reaches its climax, the veil is being lifted for the first time on some of the secrets of the battle of Britain—of those grim days when “the Few” immortalized by Mr. Winston Churchill, defended their island fortress against the attacks of a then powerful *Luftwaffe* and its waters against the menace of the German boats.

Of the stories which, for security reasons, can only be related as the curtain rises on 1945, perhaps the most fascinating concern the sea forts of the Thames Estuary.

Each of them was a reinforced concrete structure about the size of the Arc de Triomphe and their invention, design and construction are a tribute to British engineering's imagination and courage.

The forts were built to meet special needs for the defense of the estuary and the construction of them brought into use for the first time many novel features of design and construction.

No structures of any size had previously been built so far from the shore and any work of that kind, built in open water, has taken years to complete, with the construction usually being carried out inside temporary caissons or dams. It was obviously hopeless to attempt to carry out such work off the south-east coast of England with the enemy only a short distance away across the open sea.

The design of the forts was entrusted by the Admiralty Civil Engineer-in-Chief, in 1941, to Mr. G. A. Maunsell, British Civil Engineer, who had previously gained experience of a somewhat similar kind during the construction of such projects as the Storstrom Bridge in Denmark—the

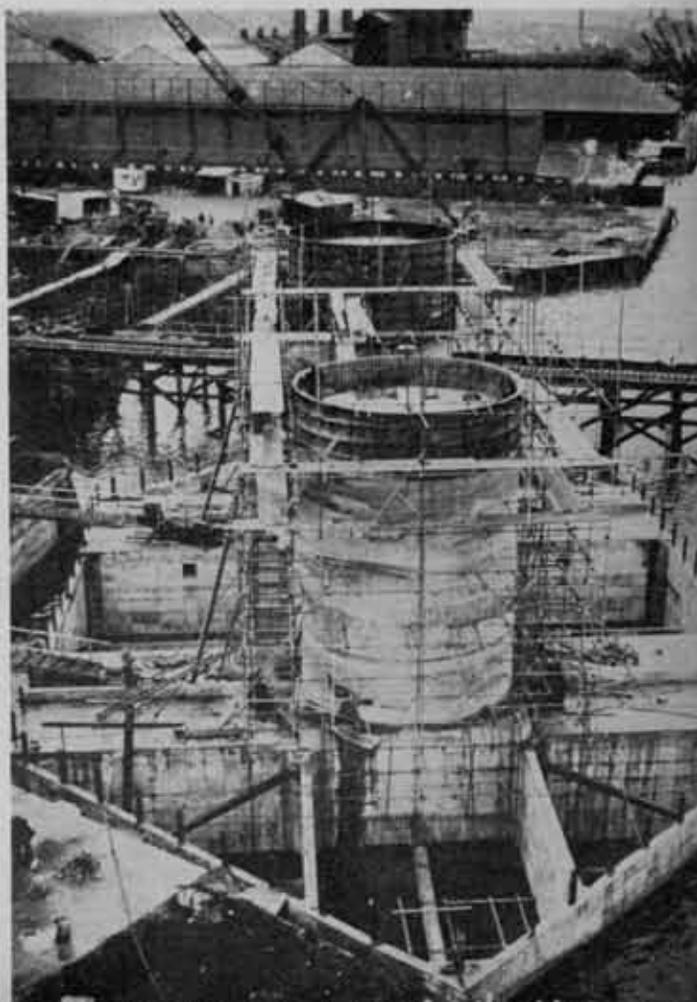
longest road and rail bridge in Europe. His proposal was to build the forts beforehand complete in every detail at a site up-river and afterward to tow the finished structure to the selected position at sea, and there sink it onto the sea bed.

It must be admitted that the idea of floating a reinforced concrete structure about the size of the Arc de Triomphe far out to sea and there sinking it onto the sea bed without damage to itself or its intricate equipment, presented a formidable proposition.

The construction was carried out in three stages, at three berths which were occupied successively by each fort; to do it use was made of prefabrication and mass-production methods coupled with a high standard of performance in civil engineering practice and skill.

Each fort consisted of a boat-shaped reinforced concrete pontoon, 168 feet long, 88 feet wide and 14 feet deep, from which arose two cylindrical reinforced concrete towers 24 feet in diameter and 60 feet high. On the top of these towers a four-deck steel superstructure was erected. The whole fort, completely equipped with its heavy and light armament, ammunition, stores and living accommodation for the crew of 120 officers and men, was then secretly towed, ready for action, to its predetermined position in the sea, where the fort was sunk in its correct position and orientation onto the sea bed. On one occasion a fort was in

Now in the dock basin, concrete is being poured between the permanent inner wooden wall and an outer steel shell. The steel shell will be moved up for the next cast.



action against the enemy within half an hour after being sunk. The pontoon was designed so that the operation of sinking the fort should be swift, yet at the same time, controlled.

There were two main longitudinal bulkheads and four main transverse bulkheads within the pontoon, which besides giving strength to the structure, provided baffles during the sinking operation. Some of the spaces between the bulkheads were decked over to form buoyancy chambers. During the sinking of the fort these chambers could flood slowly through comparatively small openings in the bulkheads, the entrance of the water being additionally delayed by the opposing pressure of the trapped air which gradually escaped through small holes left for the purpose in the roof.

Large sections of the reinforcing steel were prefabricated into cages, weighing six or seven tons each by spot welding the intersections of the bars. The shuttering was also prefabricated into large sections, and the concrete was arranged to eliminate as far as possible horizontal joints, which always require special attention in concrete structures that have to be watertight. The floor of the pontoon was nine inches thick and the walls and bulkheads twelve inches or fifteen inches thick. The pontoon alone weighed 2,300 tons and it was completed in a specially built dry

dock in six weeks, and then floated to a second berth for the construction of the towers and superstructure.

The towers were 60 feet high and 24 feet outside diameter, with walls 12 inches thick.

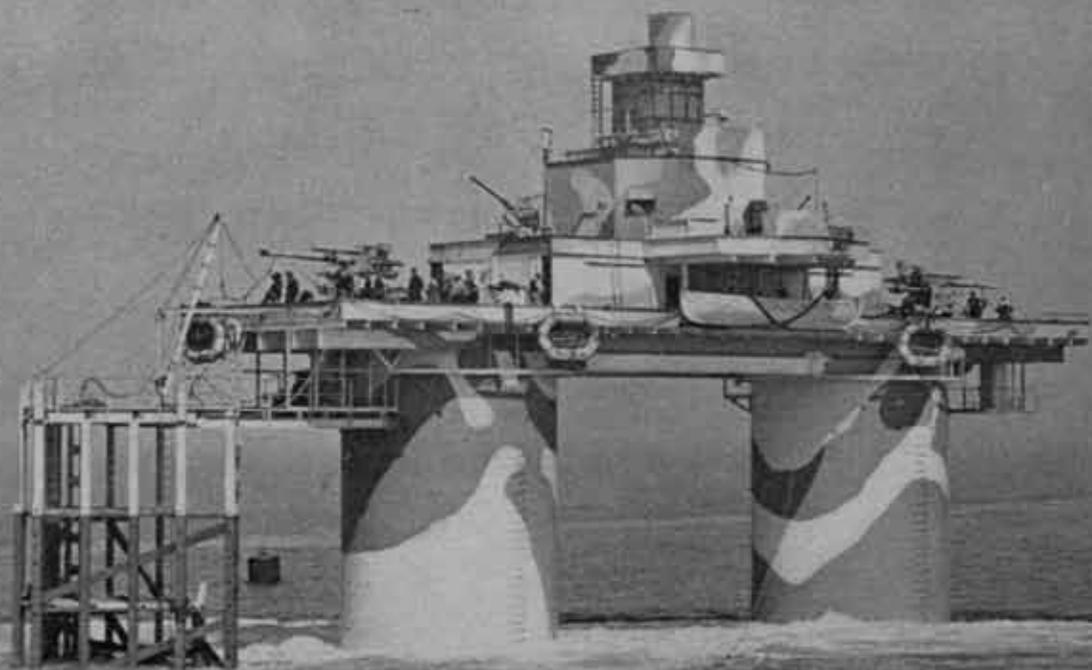
Each tower contained seven decks, to accommodate the living quarters for the men, the magazines, store rooms, and electrical generating stations. Some of these decks were underwater at all states of the tide, and, apart from watertightness, special attention was paid to ventilation, anticondensation measures and temperature control. The reinforcement was again prefabricated in cylindrical cages, eight feet high. The steel exterior shuttering was preassembled into cylindrical drums and the interior shuttering of wood, was also made up in drums, 7½ feet in height and 22 feet in diameter, strengthened with segments of steel angles. A cage of reinforcing steel was lifted into place by derricks, followed by the internal and external shutters.

A 3-inch diameter solid steel column, fitted with flat plate ends 2 feet in diameter and ¾ inches thick was erected axially at the center of the base of each tower.

The decks were each 7 inches thick, the lower part consisting of a reinforced concrete precast circular "biscuit" 22 feet 2 inches in diameter and 3½ inches thick. These "biscuits" were cast in stacks, one upon another, separated



Diving to the sea bed takes about fifteen seconds.



In position and ready for action. Air is still escaping from the sea cocks.

by a layer of paper, and each one was provided with six internally threaded steel-lifting sockets. Two timber framed poles were left in each slab, one being five feet square and the other three feet by two feet, which eventually accommodated the stairway and the electric hoist. Each "biscuit" weighed about seven tons and was lifted by the derrick with the aid of a steel "spider" connected by bolts screwed into the six sockets. When lowered into position, the slab rested upon the upper edge of the internal drum shutter all round its outer edge and also rested upon the steel stanchion at its center. As soon as it was placed in position, the first lift of concrete was deposited, after which an additional mat of reinforcing bars was laid on top of the precast slab, the bars projecting into the wall reinforcement, and the central steel stanchion, for supporting the second deck, was set in position. Three and a half inches of concrete were then laid over the surface of the slab. Immediately after this the second internal drum shutter was lowered to rest upon the surface of the concrete into which it was prevented from sinking by placing wedges under a few points in its periphery. Another wall reinforcement cage and a section of outside steel shuttering were fixed in position and a second precast circular floor slab could then be lowered into place.

The succeeding floors were constructed similarly and

both towers were completed within a fortnight. The internal timber shutters were left in position after concreting the walls, and they formed an insulation lining to the towers. The towers contained eight messing and living rooms, two magazines, two store rooms and two electrical generating rooms.

As an additional safeguard against leakage a waterproofing bituminous compound was applied to the outside of the towers.

The steel superstructure was prefabricated into sections weighing five or six tons, which were lifted into place by derricks, the main supporting joists being concreted into the tops of the tower. The four decks of the superstructure accommodated the offensive weapons with their ancillary equipment, and the officers' quarters, the galley, wash-rooms, large fresh water storage tanks, offices and Control room.

A dolphin was also provided at one end of the fort for facilitating supply.

At this stage in the construction the fort was moved to its third berth for the installation of the domestic and operational electrical circuits, the plumbing services, ventilation trunking, speaking tubes, telephones, painting and camouflaging.

The guns and other "warlike" equipment were mounted



Waiting for "business," the crew is alerted around a Bofors.

on special levelling devices, enabling them to be levelled to an angle of 5° in any direction. These were incorporated as it was considered likely that due to unevenness in the sea bed when the fort grounded, the decks might not be level and, furthermore, due to scouring action of the tides, it might alter its level after it was grounded.

When a fort was finished, the crew with its R.N.V.R. Commanding Officer came aboard. The equipment was maintained by Petty Officer Mechanics and the guns were manned by Royal Marines. They were instructed in the working of the fort at the building yard, a necessary expedient, as the fort might have to go into action almost immediately it was grounded, which did happen on one occasion.

At an agreed date and time when tide and weather were suitable, the fort, now displacing about 4,000 tons, set sail from the building yard in convoy. Three tugs each approximately 1,000 H.P. were used to tow the fort. Ahead of the fort, four minesweepers swept the route to the grounding site, which had previously been selected by the hydrog-

rapher and a small area in its vicinity was swept of mines. In addition, two naval motor launches came with the fort and once the Outer Boom of the Thames Estuary was passed, a "flak" ship joined the convoy to give additional protection from enemy aircraft.

On reaching the grounding site, the fort was held in position by the tugs, and a 12-inch valve in the bow of the pontoon was opened, thus admitting water to the fore compartments. After about fifteen minutes, the tops of the concrete pontoon walls were awash at the fore end, and the sea then quickly flooded the pontoon up to the foremost baffle bulkhead. The fort then dived bow first down to the sea bottom, the water rushing over the roofs of the buoyancy chambers and successively flooding the open compartments of the pontoon. The plunge from sea level down to the sea bed some forty-two feet below took fifteen seconds, and thirty seconds later the stern grounded. At the moment when the bow hit the sea bed, the fort was at an angle of about 30° with the horizontal. For some minutes after the stern had grounded the buoyancy chambers continued to flood, the gradually expelled air bubbling to the surface, and thus the stabilizing weight at the base of the fort was applied.

These forts have been extremely successful in the attainment of their purpose, bringing down many enemy aircraft and to their presence has been attributed the absence of enemy minelaying in the outer approaches to the Port of London since they appeared on the scene. They have had many other uses which may not yet be disclosed.

Shortly after the construction of these first forts had been undertaken, plans were prepared for an even more difficult undertaking of similar character.

The design was entirely different from that of the naval forts but many of the prefabrication methods, so successful in the first set of forts, were utilized in this second set. In the new design each fort consisted of seven separate towers, about 100 feet apart and linked by light steel bridges.

Each tower consisted of a hollow reinforced concrete cruciform base from which arose four hollow reinforced concrete legs surmounted by a concrete cap into which was embedded the main joists supporting a two-floor steel house on the roof of which the main armament or equipment was cited.

These forts built by Britain's Admiralty for the Army were more heavily armed and more comfortably fitted out as regards crew accommodation than were the first series of forts.

There is still much to be told of the remarkable feats of skill and ingenuity displayed by British engineers during the years Britain has been at war, and the future will show that wartime necessity has brought about a renaissance of her pioneering instinct in the engineering field.



Normandy Fortifications

German seacoast fortifications along the Normandy coast did not live up to their pre-invasion advertising.

Perhaps the advertising of the "Atlantic Wall" so in-
hastriously circulated from Nazi sources through neutral
and other channels was part of a plan of bluff made neces-
sary because of shortage in manpower, matériel, and time.
At any rate, the Allied Navy did not have to face the long-
range fire of heavy artillery that Coast Artillerymen usually
associate with coast and harbor defense. However, railway
placements were found that indicated that heavier and
longer range artillery was in prospect in some areas.

The map indicates the positions which could be located
at least approximately from information available to the
JOURNAL.

A list of the armament so far found along the coast
shows the following:

(1) *Fort de Chavaignac*. Height above sea level, 15
meters.

Four 19.4 French guns M1876, unserviceable;
these guns had not been used. Four 2cm A.A.
guns. One 150cm searchlight.

(2) *Fort de l'Ouest*.

One 5cm fixed coastal gun in casemate.

Two 2cm A.A. guns.

One 60cm searchlight.

(3) *Fort Central*. Height above sea level, 13 meters.

Three 3.7cm Flak 18.

(4) *Fort de l'Est*.

Light (2cm) A.A. guns.

(5) *Fort Pelec*. Height above sea level, 15 meters.

One 5cm fixed coastal gun in casemate. Three 3.7-

cm Flak 18. Two 19.4cm French guns M1876,

unserviceable; these guns had not been used.

One 150cm searchlight. One sound locator.

Two heavy concrete constructions were being

built; possibly these were to be casemates.

(6) *Montagne du Roule*. Height above sea level, 100
meters.

Four 10.5cm S.K.C./32U. Guns in casemates at

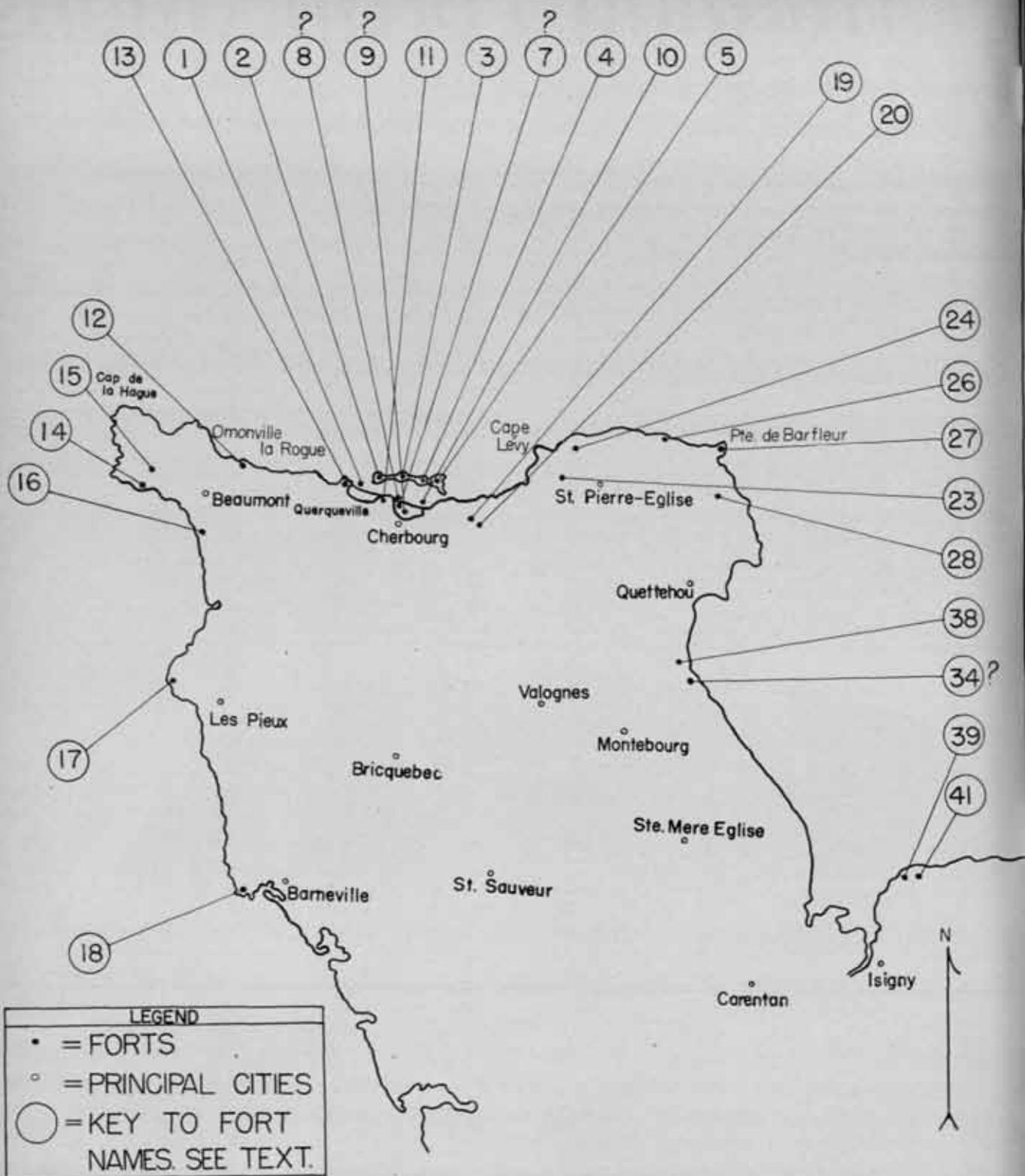
tunnel openings. Concrete O.P. between No. 2

and No. 3 casemates. Secondary armament: 2cm

A.A. guns in Fort du Roule.



A German gun blown out of its emplacement. This gun was in Western Normandy.



(7) *Cherbourg Ramparts.* Height above sea level, 10 meters.

Four 10.5cm S.K.C./32U. Guns in casemates. O.P. on left flank of battery. Three 2cm A.A. guns, one 60cm and one 150cm searchlight near battery position.

(8) *Cherbourg North.* Height above sea level, 10 meters.

Six 8.8cm A.A. guns in open concrete emplacements. Light A.A. secondary.

(9) *Cherbourg.* Height above sea level, 10 meters.

Four concrete positions, evidently for German portable railway turntables.

(10) *Cherbourg Piers, Quay, and Fort des Flamands.*

2cm, 5cm and 75mm guns in casemates and open positions firing as single units; coast defense strong points.

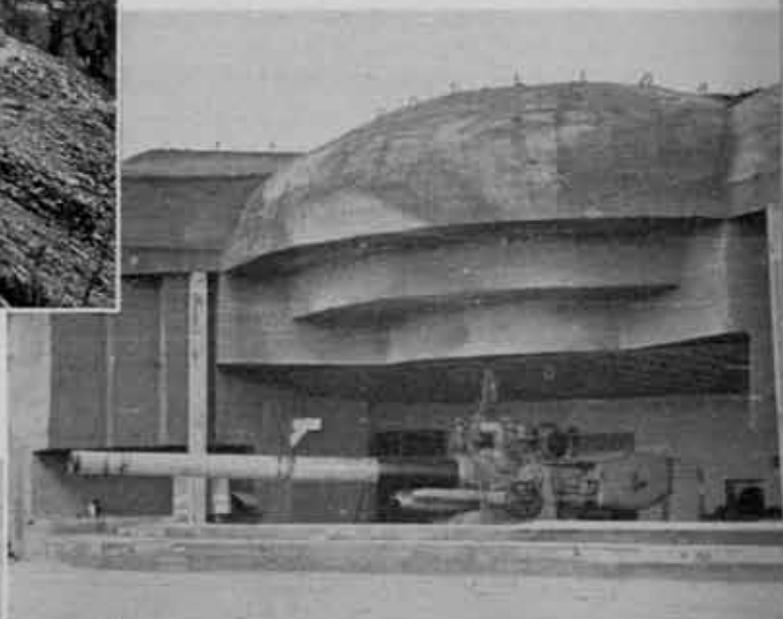
WEST OF CHERBOURG

(11) *Equetdeville.* Height above sea level, 40 meters.



Above: Battery at Montagne du Roule (No. 6 in text). Number 3 casemate at left; path to Number 4 casemate at right.

Below: Close-up view of one of Cherbourg Ramparts' guns.



Below: La Pointe de Hoe (No. 40 in text). Showing O.P. after hit by artillery shell.

Above: Cherbourg Ramparts (No. 7 in text) 10.5cm battery.



Above: Tourlaville (No. 19 in text) 15cm battery, showing one gun. There were more than one type of casemate with this battery, but only one is shown.





The crew of this German coast defense gun on the Cherbourg Peninsula did not escape the naval and artillery fire that put it out of action.

AP Photo

Eight open emplacements and four casemates for 155mm guns. Five open emplacements and no casemate occupied when captured.

(12) *Gruchy.*

Four 15cm S.K.C./28. Guns in casemates. 2cm and 75mm A.A. guns gave more than customary secondary armament.

(13) *Querqueville.*

Four 17cm S.K.L./40. Guns in casemates. OP and BC station to rear of No. 2 casemate. Small OP on right flank of battery position.

(14) *Auderville.*

Six open concrete emplacements and four casemates for 15.5cm Stg. Gr. 423 F.M.H., Ladg. Gr. Four guns in open emplacements, one in casemate, and one in open when captured.

(15) *Auderville (Jobourg).*

Two 20cm S.K.C./34. Guns on railway carriages, mounted on what appears to be German portable turntable in concrete emplacement.

(16) *Vauville.*

Four 105mm guns, French, M1913 (Schneider) in casemates.

(17) *Flamanville.*

Four large casemates under construction. No. 1,

floor poured; No. 2, floor ready to pour; No. 3, excavated; No. 4, ready to excavate.

(18) *Carteret.*

Four medium casemates under construction.
EAST OF CHERBOURG.

(19) *Tourlaville.* Height above sea level, 85 meters.

Four 15cm S.K.C./28v. Guns in casemates.

(20) *Digosville.* Height above sea level, 125 meters.

Four 155mm howitzers, French, M1917 (Schneider) in casemates. Four 155mm howitzers, French, M1917 (Schneider) in open positions. Four 155mm howitzers, French, M1917 (Schneider) well concealed in heavy hedge row.

(21) *Les Landes.* Height above sea level, 71 meters.

Four dummy guns (about the size of 105mm) in open concrete emplacements.

(22) *Val Bouroin.* Height above sea level, 20 meters.

Four 105mm French guns in open emplacements. Possibly to be transferred later to casemates under construction at Carneville.

(23) *Carneville.* Height above sea level, 65 meters.

Four casemates under construction.

(24) *Fermanville.* Height above sea level, 60 meters.



Fort Nationale, off St. Malo, under American artillery fire. This was one of the St. Malo forts that did not surrender until 17 August 1944.

OWI

Four 24cm S.K.1/40. Guns in casemates, uncompleted but able to fire.

- (25) *Les Sens*. Height above sea level, 35 meters. Four dummy guns in open emplacements.
- (26) *Pointe de Neville*. Height above sea level, 3 meters. Four MTG3.7 in A.A. Mk. II/L/ Vickers. Guns mounted in casemates.
- (27) *Gatteville*. Height above sea level, 12 meters. Six open emplacements and four casemates for 155mm guns, French, M1916. Three open emplacements and three casemates occupied when captured.
- (28) *Montfarville*. Height above sea level, 22 meters. Four gun emplacements. All guns had been evacuated.
- (29) *La Parnelle*. Height above sea level, 110 meters. Six 105mm guns, French, M1913 (Schneider) in casemates. Indications of casemates having been started. No guns in evidence. Heavy bombing in area. Dummy battery (field guns) found northwest of this position.
- (30) *La Pisseterie*. Height above sea level, 90 meters. Four circular concrete emplacements. Label from ammunition box indicates guns were 15.2cm Sprgr. FEW (Russian). The guns had been evacuated.



Signal Corps

"Clear of Booby Traps," says the sign. The MP evidently has discarded caution as he inspects this German emplacement in Normandy.

- (31) *Tronquet*. Height above sea level, 90 meters. Same as La Pisseterie.
- (32) *Morsalines*. Height above sea level, 70 meters. Six open concrete emplacements. Ammunition remaining was for 155mm guns, French, M1916. The guns had been evacuated.
- (33) *La Fesse*. Height above sea level, 80 meters. Four 105mm fixed guns, French, M1913 (Schneider) in casemates.
- (34) *Lestre (La Motte)*. Height above sea level, 40 meters. Four open emplacements for field artillery weapons. Appeared to be for 155mm guns or howitzers. All weapons and ammunition had been evacuated.
- (35) *Mont Coquerel*. Height above sea level, 40 meters. Four dummy guns similar to 155mm field howitzers. Four 105mm fixed guns, French, M1913 (Schneider) in casemates.



Signal Corps

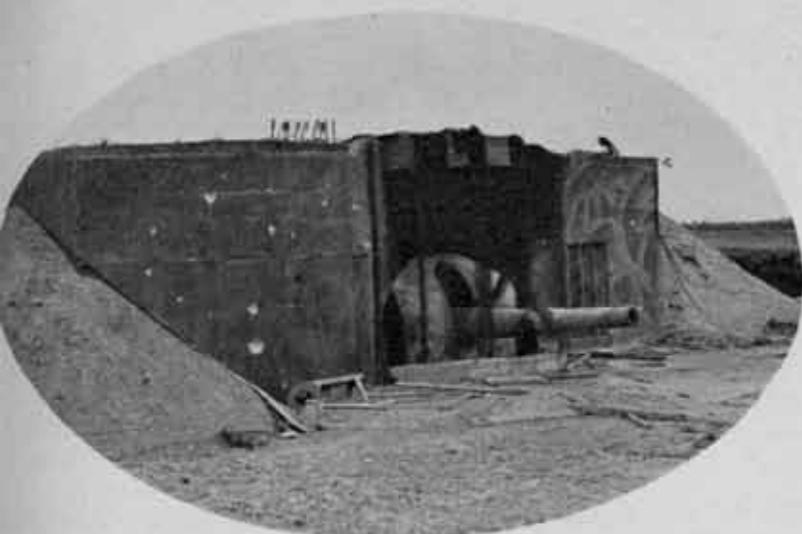
This seems like a lot of emplacement for a very small gun.

- (36) *Crisbecq*. Height above sea level, 30 meters. Four casemates under construction. Nos. 1 and 2 almost completed. Two 21cm K.30 (or 21cm K.39/40) guns mounted in Nos. 1 and 2 casemates. Heavy A.A. battery on right flank of battery.
- (37) *Azeville*. Height above sea level, 20 meters. Four 105mm fixed guns, French, M1913, in casemates. 2cm A.A. guns on top of Nos. 1 and 2 casemates. Four dummy guns in hedgerows.
- (38) *St. Martin de Varreville*. Height above sea level, 20 meters. Four casemates under construction. It appears that guns had been evacuated. Heavy bombing and artillery fire in vicinity.
- (39) *Maisy II*. Height above sea level, 20 meters. Four 10cm I.F.H. 14/19 (t) field gun howitzers in casemates. No. 1 casemate still under construction.
- (40) *La Pointe de Hoe*. Height above sea level, 30 meters. Four casemates and six open emplacements for 155mm French guns, GPF. All guns had been evacuated.
- (41) *Maisy I*. Height above sea level, 20 meters. Four open emplacements for 155mm howitzer, French, M1917. One howitzer found overturned in the emplacement. No other found.



A battery of 105s near Toulon doesn't offer the attackers much in the way of silhouettes. Note the range-finder behind the gun in the foreground.

A X I S C O A S T

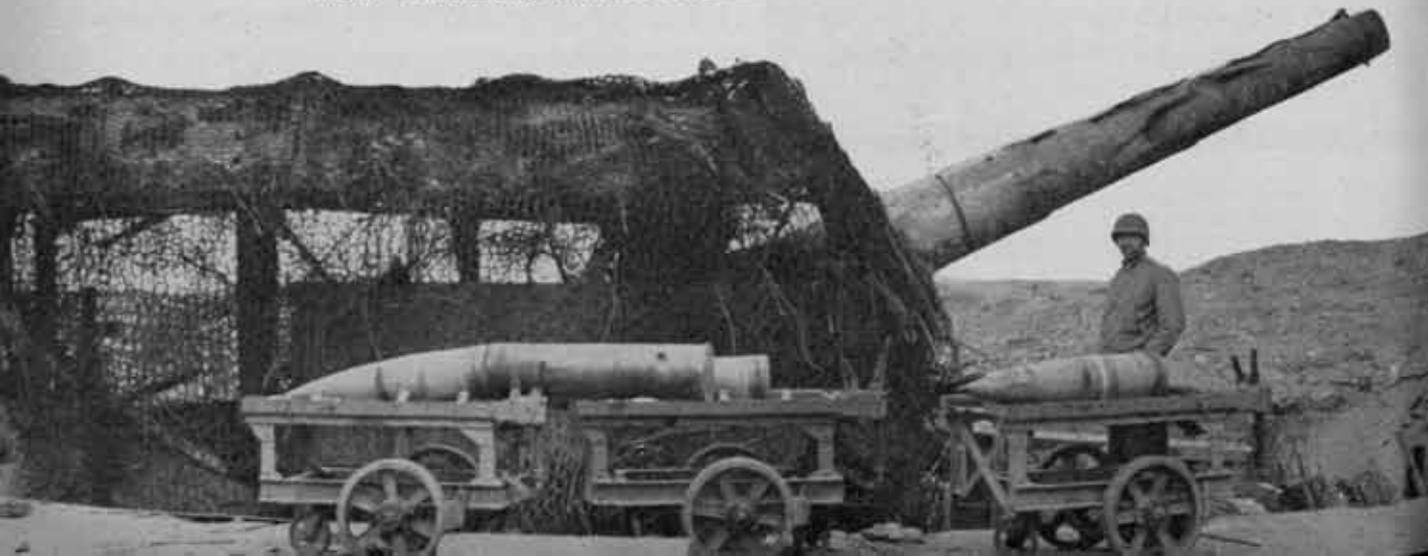


The Germans used ingenuity and variety in their coast defense installations. The full story of how the Allies overcame these defenses has not been released, so the time is not ripe to judge the effect of this coastal artillery.

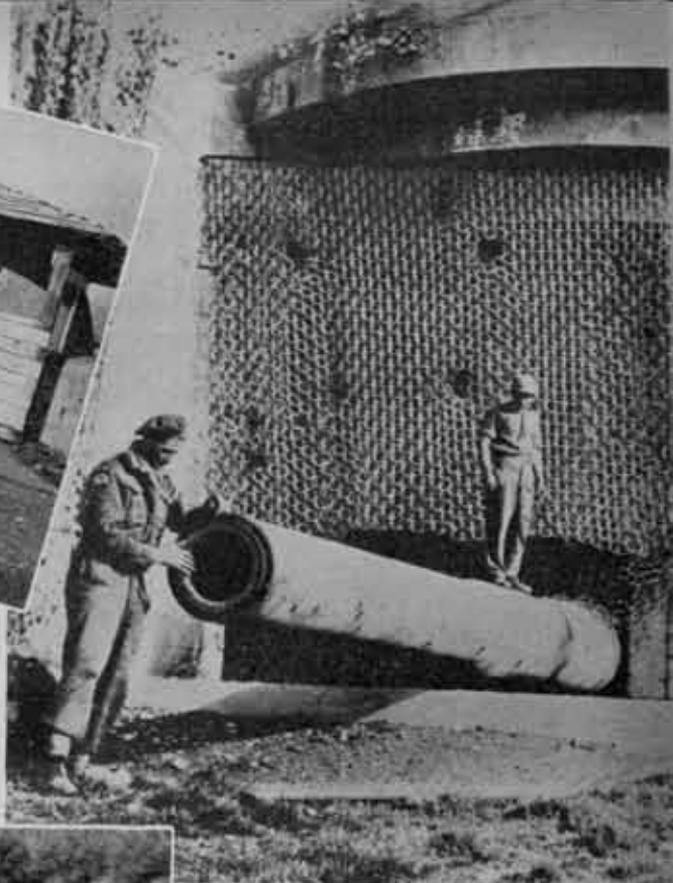
Signal Corps Photos

This was a naval gun, emplaced near Brest. The emplacement was not completed.

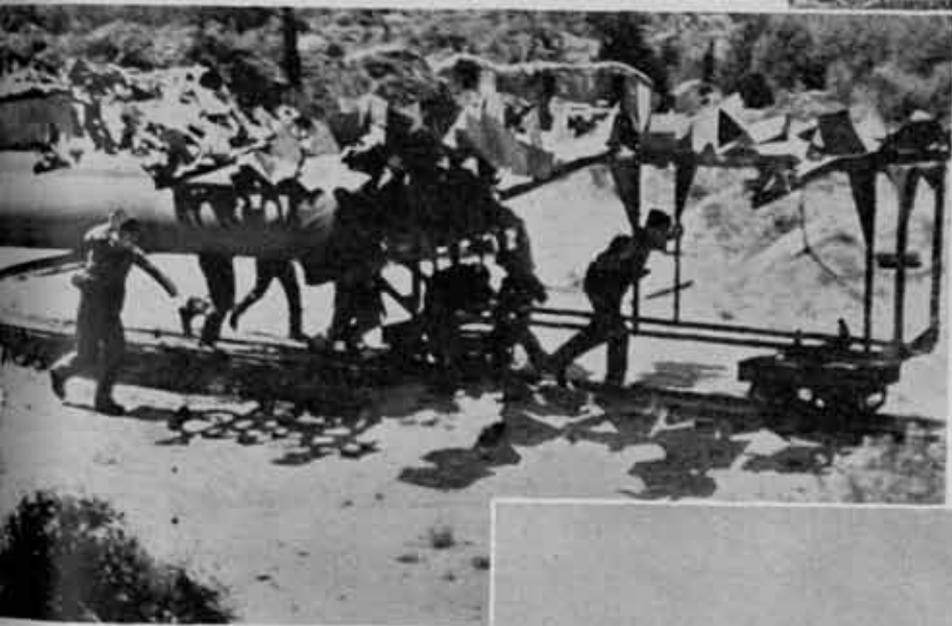
Below: Another naval gun, also near Brest. The powder cases seem to be metal. It is believed that the breech had to be elevated to load each round.



The Germans used this pillbox at Nettuno. The camouflage is simple, and probably effective.

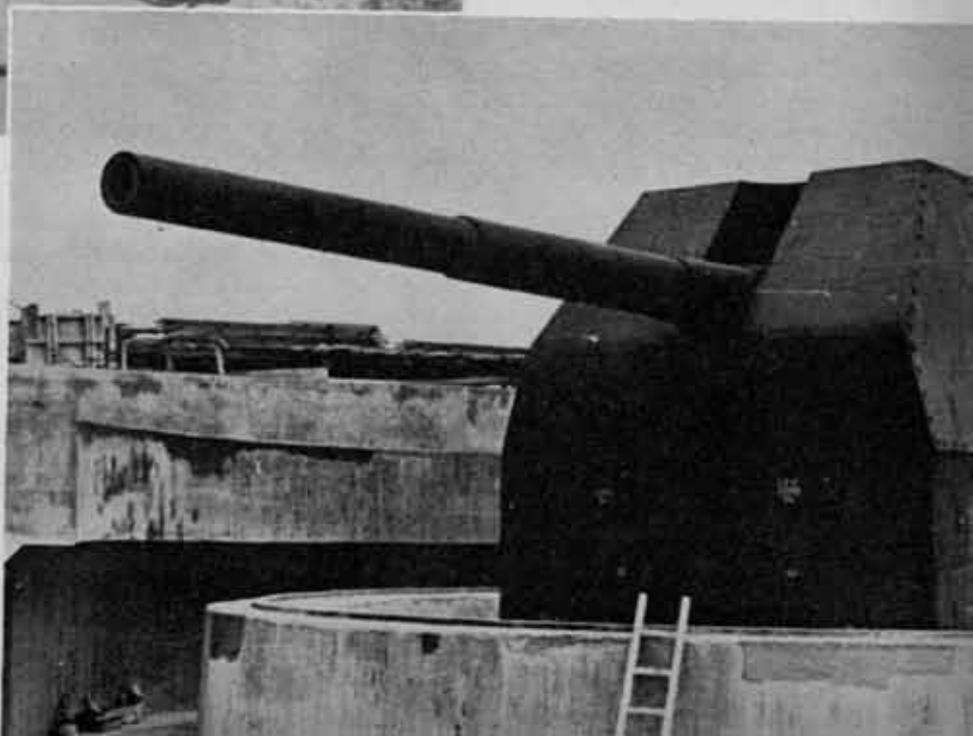


DEFENSES



Above: The chain-mail net protecting the interior of this 14-inch emplacement seems to be slightly moth-eaten. The gun is one of the famous channel pieces that bombarded England.

Above: In southern France, the Germans broke up the outline of their twin-gun installation with futuristic camouflage on rails.



Right: This emplacement, on one of the Channel Islands, was still under construction when the picture was taken.

The First Requirement of a Citizen Army^{*}

By Brigadier General Hamilton S. Hawkins U.S.A. (Ret.)

Note: Italics by Editor of *Coast Artillery Journal*

In the issue of the *Saturday Evening Post* for December 23, 1944, there appears an article written by Brigadier General John McA. Palmer, U.S. Army, entitled "General Marshall Wants a Citizen Army." This article is exceedingly well written and interesting. General Palmer has been well known for many years as a student of American military policy and a writer on the subject.

In the current article, General Palmer has set forth a theory to which he has held for a long time and which he claims General Marshall has approved as published in War Department Circular No. 347, dated 25 August, 1944.

The plan for a postwar military structure as advocated by General Palmer, he states, is the simple plan for a Citizen Army which President Washington submitted to the First Congress in January, 1790, but which was overlooked and forgotten in all of the subsequent plans and projects as expressed in the various studies and proposals through the years until he, General Palmer, dug it up out of the Washington Papers in the Library of Congress shortly after World War I. At that time, it is believed, General Palmer submitted his Washington plan to General Pershing, who approved it. As had always been the case, however, the plan was opposed by certain officers and congressmen who believed in another plan described by General Palmer as the Expansible Regular Army Plan.

In a very interesting way in his brief article, General Palmer describes the two opposing plans—the Citizen Army Plan based on universal service, and the Expansible Regular Army Plan. The first of these plans as proposed by Washington is the plan which General Palmer wants adopted now for the future, and, recommends it in a very convincing way.

My object in writing this article is to recommend the reading of General Palmer's article and to call attention to some problems which would have to be solved if Citizen Army Plan is adopted.

Universal service, including military training of all suitable young men between the ages of 19 and 22, would be approved probably, by the majority of our people at this time. So far, so good. General Palmer says, however, that the army of the future would be composed of a "relatively small regular army," reinforced when necessary from a "great citizen army reserve composed of trained citizen officers and soldiers." He states many times in his article that *highly trained professional officers would be necessary in sufficient numbers to leaven the whole when it became necessary to expand the army to moderate or great proportions.* It is not explained just how these highly trained professional officers would be obtained in sufficient numbers. What number would be considered sufficient?

A man cannot become a highly trained professional officer simply by going for a few years through the course at a military school. The school is the A B C of his training. After graduation in such a school he needs experience in handling troops. He needs experience in training and leading small units, then larger units, and then great units. Staff officers also need both schooling and practice. The training of a professional officer never ends during his entire active service. He must keep abreast of the changes wrought by new weapons, new inventions and new ideas. And experience through all the grades of rank is desirable if not always possible.

It would be impossible for the regular officer to obtain this training and this experience unless he has many opportunities to serve with troops and in staff work. There must be enough troops in the regular army to afford the necessary training and experience for a "sufficient number of professional officers." If a great proportion of the professional officers spend most of their time in supervising the basic training of groups of the citizen army reserves, they will never become highly trained officers. They need training in leadership of well trained regular units up as high, certainly, as the regiment. They need to participate in many tactical exercises for all these units.

The regular units themselves need to be trained, and to be fully officered and fully manned in order to give regular officers the necessary experience. Otherwise, when regular officers are training the citizen reserves it will be the blind leading the blind.

The size of the regular army must, therefore, be predicated upon the number of troops necessary in the regular army to give this experience-training to a sufficient number of professional officers. First of all, however, an estimate must be made of the number of professional officers needed.

Now, if universal service is established, a great number of regular officers of lower grades—trained in the regular army, not merely in schools—will be necessary to supervise the elementary training of the citizen officers and soldiers. Therefore, *many more professional officers will be needed than merely those required to officer fully all the units in the regular army. These regular units must be fully officered at all times.* They must not be left to do the best they can with insufficient officers and men in the units. *The units must be kept at war strength.* Otherwise, the training of officers and noncommissioned officers in the army will not only be insufficient, but absolutely wrong or false in many respects.

During the years after World War I, and up to World War II, the regular officers were dispersed among the Organized Reserves, the R.O.T.C., and the National Guard to such an extent that the regular units in the army were

^{*}From the *Coast Artillery Journal*, by permission.

pitifully under-officered. The policy was to let them "get along" with far too few officers to carry out properly a tactical exercise of the simplest character. Of course, the army did not have the necessary number of men either. Both were necessary. The result was that many officers got no troop training for periods of ten and fifteen successive years at a time.

If this plan of a citizen army and universal training is to be a success, these problems must be solved or the people will be deceived as to the competence of the professional officer and the correctness of the training he is giving to the citizen soldiers and officers.

Training citizen soldiers in basic courses for the individual will not require the highest order of professional ability and knowledge. But leading those soldiers in collective training and battle is another matter. The professional officer must know far more than how to train recruits individually.

The training of the officers of the citizen army, who are not professional officers, presents still another problem. *Our system for training reserve officers during the twenty-odd years after 1918 did not work out too well.* The best part of it was found in the R.O.T.C. which provided for military training of young men in colleges and schools. But these schools did not always go about it with enthusiasm. The time devoted to it was much too small, and the number of students so trained was very limited. Military training in all high schools, academies and colleges should be compulsory for all students. The graduates of colleges who have qualified for commissions as officers in the reserve army must also be required to devote several years of their lives to the basic training of the citizen soldiers in local units. If this is not done, too many regular officers will be required for citizen training, and this will interfere too much with their own training in the regular army. As stated before, such was the case in the twenty-year period after World War I, even though the number of reserve officers and soldiers receiving training was many times less than is contemplated in the universal service idea.

Furthermore, the training of students in schools for qualification as reserve officers is not enough. These young men will need the additional training and experience that will be afforded by their assignment to duty as officers of the local units of citizen soldiers. Thus it appears that drastic changes in the training of our citizen officers must be adopted if the universal service plan is put into effect.

It becomes more apparent, therefore, that the universal service idea does not mean that we shall be able to "get along" with a small regular army. It may be true that, as General Palmer says, *a relatively small regular army may be sufficient. But, as compared with our ideas of the past, the regular army must be very large.* A sufficient number of "highly trained professional officers" is not to be obtained by our methods of the last quarter of a century.

One of General Palmer's ideas is that the citizen army plan, based on universal service, will enable us to put a trained army in the field in much less time than ever before. No doubt this is true—but even a comparatively small expeditionary force would require valuable time to organize and be made ready. A sufficiently large regular army from which such a force could be drawn instantly is necessary if

such a force is not to be considerably "too little and too late."

Any force of any size, needed in the field at once, must be a trained force. Then while that force is carrying out its mission in the field, a sufficient number of the local units of the citizen army can be concentrated and organized into predetermined large units commanded and staffed mostly by officers drawn from the Regular Army, the National Guard, and the most experienced officers of the Reserve Officer's Corps. With the soldiers already fairly trained, the large units can be made ready for the field in about one-sixth the time it has heretofore taken to activate and train a large army. This, of course, could be done only if equipment earmarked for the contemplated units has been kept up to date in various conveniently located store houses.

Now, the principal difference between this Citizen Army Plan and the Expansible Regular Army Plan is that, in the former plan, there would be universal service and predetermined units into which the citizen soldiers would be placed; and in the latter plan, there would be no universal service and, therefore, no large citizen corps of trained officers and soldiers to call upon for immediate service.

In both plans, a Regular Army larger than we have ever had before is necessary.

And so, by all means, let us have universal service. By all means, let us have General Marshall's citizen army as advocated by General Palmer—if the plan includes a regular army large enough to produce highly trained professional officers in such numbers as may be determined necessary by a careful study of the subject.

Certainly, the futile system used for twenty-odd years after 1918 should not be perpetuated nor duplicated. In that system a number of officers were trained fairly well for staff duty, but very few regular officers had enough service with troops. Even when they were assigned to troop duty they found the ranks so depleted of soldiers that they could not, in most instances, begin to gain the experience and practice in troop leadership that they sorely needed. To fit an officer for combat leadership, he should have for some years experience in command of small combat units. He should not skip over this training. It is most important if he expects ever to be a competent leader of large combat units. In the past, many officers have attained high rank and have been assigned to command large units—from a regiment up to an army—without having had any really sufficient training in command of a platoon, a company or battalion of combat troops. The results have not been fortunate.

An officer who took the courses in a Special Service School, the so-called Command and General Staff School, and the War College was deemed a trained officer, whether he had had long experience with troops or not. Most of them had no such experience.

Universal service without a proper system for training professional officers is only a half measure. It is not necessary to have a standing army large enough to fight a serious war by itself. But it is necessary to have an army large enough to train professional officers with full strength units. To have a standing army which is not adequate for that purpose is to waste at least half the money that supports it.

In this sketch, the ϕ line is perpendicular to the line of position as is now current practice. The ΔE and ΔR of a typical CB are shown. According to present practice a $d\phi$ is applied, equal in magnitude to ΔE and opposite in sense. This correction brings the burst to point A, producing a change in range and altitude. The range effect may be called $\Delta R_{\Delta E}$, of the change in range caused by the ΔE deviation. The distance in yards that the CB is above the line of position is equal (by the mil relationship) to: ΔED (where D is expressed in 1,000's of yards). In figure 1, the angle labeled E of the small triangle at the CB is equal to the angular height (E), since the sides of the two angles are respectively perpendicular. Since this small triangle is a right triangle:

$$\Delta R_{\Delta E} = (\Delta E \cdot D) \sin E$$

However, in the large right triangle:

$$D \sin E = H$$

and, hence:

$$\Delta R_{\Delta E} = \Delta EH$$

where ΔE is expressed in mils and H in 1,000's of yards.

The sum of the ΔR determined by the conventional method and this range effect ($\Delta R_{\Delta E}$) are added algebraically. The relationship of this total to the range (R) at which the problem was fired gives the % H correction for the M7 director directly. This can be easily determined from the simple computing chart which will be described in detail later. The $d\phi$ and dA corrections are determined exactly as at present, i.e., they are the reverse of the observed deviations (converted to the horizontal in the case of azimuth).

In the case of the M9 director, a similar method is used, with modifications because range adjustments are made by means of muzzle velocity (MV) corrections instead of altitude corrections. In this method certain assumptions must be made which should be evaluated in the light of their effect on the calculation. In figure 2, it is assumed that the change in slant range caused by 100 f/s change in MV is equal to the distance labeled ΔD_{100MV} . The error introduced by this assumption is of the order of from zero to a

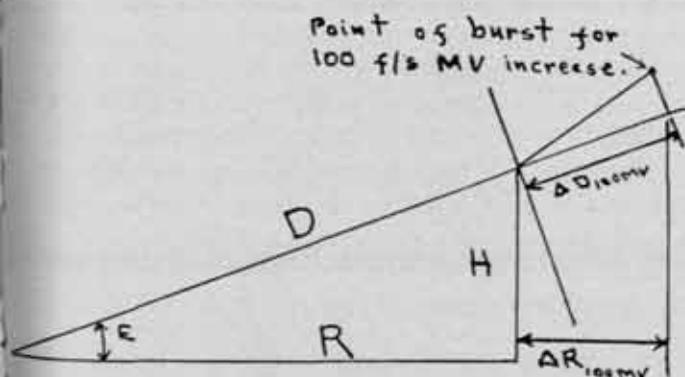


Figure 2

maximum of a few yards which is negligible. If this quantity (ΔD_{100MV}) is multiplied by $\cos E$, the horizontal range effect corresponding to the muzzle velocity effect along the slant range line is obtained. This new quantity may be termed ΔR_{100MV} . It must not be confused with the

range effect of 100 f/s which is a different quantity and is given by the standard firing tables. This quantity ΔR_{100MV} has the peculiar property (most noticeable with the ballistics of FT 90AA-B-3) of varying in a manner almost solely dependent on R and practically independent of H, as can be seen in Table I.

TABLE I
 ΔR_{100MV} For FT 90 AA-B-3
(In Yards)

RANGE—1,000's of Yards

	1	2	3	4	5	6	7	8	9	10
Altitude 1,000's of Yards										
10	37	74	110	145	180	214	250			
9	27	74	110	145	178	211	244	274		
8	37	74	110	145	178	211	241	269	297	
7	37	73	110	145	179	211	240	267	292	315
6	36	73	109	144	179	210	238	264	287	308
5	36	72	108	143	177	209	238	263	284	303
4	36	72	107	141	175	207	236	262	282	298
3	36	71	106	140	173	205	233	258	278	293
2	36	71	106	139	172	202	230	254	272	286
1	35	71	104	138	170	199	225	248	265	279

For FT 90AA-B-3, the maximum error introduced, at long ranges, by assuming that ΔR_{100MV} is independent of H is approximately ± 6 f/s which, while not negligible, is insignificant in comparison with the fact that the muzzle velocity can only be set at the director to the nearest 20 f/s and round-to-round variations in muzzle velocity may easily be 10-20 f/s.

Now taking any burst (A, B, C, or D) into consideration as in figure 3, it can be seen that by adding algebraically the ΔR of the CB, as determined by conventional methods and the $\Delta R_{\Delta E}$ (previously discussed) a direct measure of

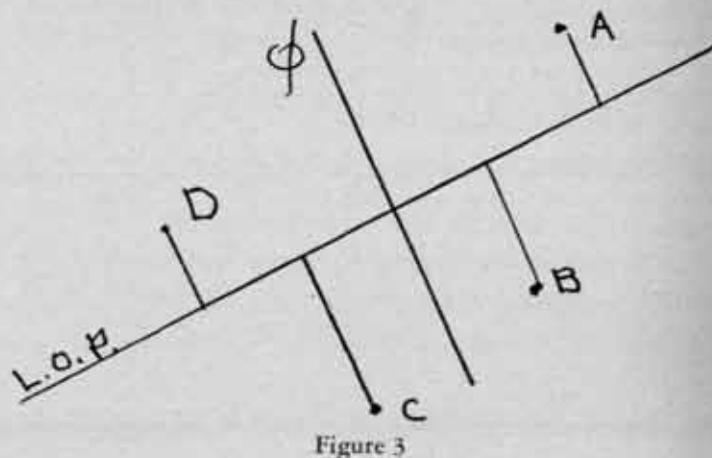


Figure 3

the muzzle velocity deviation from that assumed as existing can be had.

In the case of muzzle velocity corrections, a corresponding effect is produced upon E which may be termed ΔE_{MV} . For practical purposes this effect may be considered to be an average value which is only dependent upon the muzzle velocity deviation or the total ΔR determined above. (Actually, of course, the effect is dependent upon H and R, as shown in Table II.)

TABLE II

ΔE_{MV} For 100 f/s Change in MV FT 90 AA-B-3
(In Mils)

RANGE—1,000's of Yards

	1	2	3	4	5	6	7	8	9	10
Altitude 1,000's of Yards										
10	0.6	1.3	2.0	2.8	3.6	4.6	5.8			
9	0.5	1.1	1.7	2.4	3.1	4.0	5.1	6.4		
8	0.4	0.9	1.4	2.1	2.8	3.6	4.6	5.8	7.1	
7	0.4	0.8	1.2	1.8	2.5	3.3	4.2	5.3	6.4	7.7
6	0.3	0.7	1.1	1.6	2.3	3.0	3.8	4.8	5.9	7.1
5	0.3	0.7	1.1	1.5	2.1	2.8	3.5	4.4	5.5	6.6
4	0.2	0.6	1.0	1.5	2.0	2.6	3.3	4.1	5.1	6.2
3	0.2	0.5	0.9	1.4	1.9	2.4	3.1	3.9	4.8	5.9
2	0.1	0.4	0.8	1.3	1.8	2.3	2.9	3.7	4.6	5.7
1	0.0	0.3	0.7	1.1	1.6	2.2	2.8	3.5	4.4	5.5

This assumption may produce a maximum error of about 1.5 mils at extreme values of H or R. However, the director will only accept $d\phi$ corrections to the nearest 2 mils (up to 10 mils), so it will be seen that this assumption will produce no serious error. Thus, the $d\phi$ correction may be determined directly from the total ΔR and the observed ΔE .

USE OF NOMOGRAPHIC CHART

As has been pointed out, all of the computations involved in the procedures described above are simple multiplication or division which may be easily accomplished by means of a nomographic chart, a simple mechanical device (similar to a slide rule) for performing such work rapidly and easily. The chart actually used is shown as Figure 4. It will be understood, of course, that this chart has been prepared according to the principles already discussed but that the details of the construction are not included. The preliminary operations in using the chart are identical, regardless of the director used, so these will be described together, but the determination of the actual corrections will be described for the respective directors.

Determination of Range Effects:

1. Determine the range deviation in the conventional manner by use of the M-1 slide rule. This deviation is the difference between the RCB and the R of the TSP.

2. Determine the range effect of the observed ΔE . This quantity ($\Delta R_{\Delta E}$) equals ΔE (in mils) multiplied by H (in 1,000's of yards). The algebraic sign is the same as that of ΔE .

3. Add, algebraically, the ΔR and $\Delta R_{\Delta E}$ found in the above two steps. Mark this total on the ΔR scale of the nomograph. This total gives a measure of the MV or %H correction necessary.

4. Connect the mark on the ΔR scale with the range of the TSP (in 1,000's of yds.) on the R scale. Use either the M7 or M9 scales, depending upon the director which is being used.

Determination of Corrections for M7 Directors:

1. The $d\%H$ correction may be read directly from the corresponding scale on the nomograph. It has a sign opposite the total ΔR . It is applied in the conventional manner.

2. The $d\phi$ correction is equal to the observed deviation (ΔE) and is of opposite sign.

3. The dA correction is equal to the observed deviation converted to the horizontal plane and is of opposite sense.

Determination of Corrections for M9 Directors:

1. The correction to the muzzle velocity used at the director for trial fire is read from the dMV scale. This correction has the same sense as the total ΔR . It is applied in the conventional manner.

2. The effect of muzzle velocity on angular height is read from the ΔE_{MV} scale opposite the mark on the ΔR scale. It has the same sign as the ΔR sum.

3. The $d\phi$ correction equals the observed deviation (ΔE) less the ΔE_{MV} and is of opposite sign. This is an algebraic operation and the signs of ΔE and ΔE_{MV} must be observed, of course.

4. As with the M7 director, the dA correction is equal to the observed deviation converted to the horizontal plane, and is of opposite sense.

LIMITATIONS

When used for M7 director calculations, this chart makes no assumptions other than those made at present so it is fully as accurate as present methods. With the M9 director, certain basic assumptions are made but these produce errors which appear inappreciable in any practical sense. The chart has been checked directly against fifty problems (spread throughout the field of fire) computed in the standard manner. Differences in $d\phi$ never exceed one mil and in only one case did the difference in dMV reach the maximum of 6 f/s. Usually the dMV difference was only 1 to 3 f/s.

The above comments apply to FT 90AA-B-3. With the B-1 and B-2 firing tables it is either necessary to tolerate approximately twice the error in MV for the M-9 director or to increase the chart to accommodate one further operation. The latter can easily be done, and a chart of this type has actually been used. However, since the B-1 and B-2 firing tables are being eliminated, it does not appear worthwhile to present such a chart.

A similar chart can be prepared for the 120mm gun. It is slightly less accurate in MV than the chart for FT-90AA-B-3 but more accurate than the simple chart for FT-90AA-B-1 and B-2.

Other than the limitations previously mentioned, such a chart as that described has the usual limitation imposed by scale factor, width of lines for reproduction, distortion of chart paper by weather, etc. These are all shared by the conventional charts, of course.

CONCLUSIONS

A simple, universal trial shot chart of this type may be used to great advantage in the following cases:

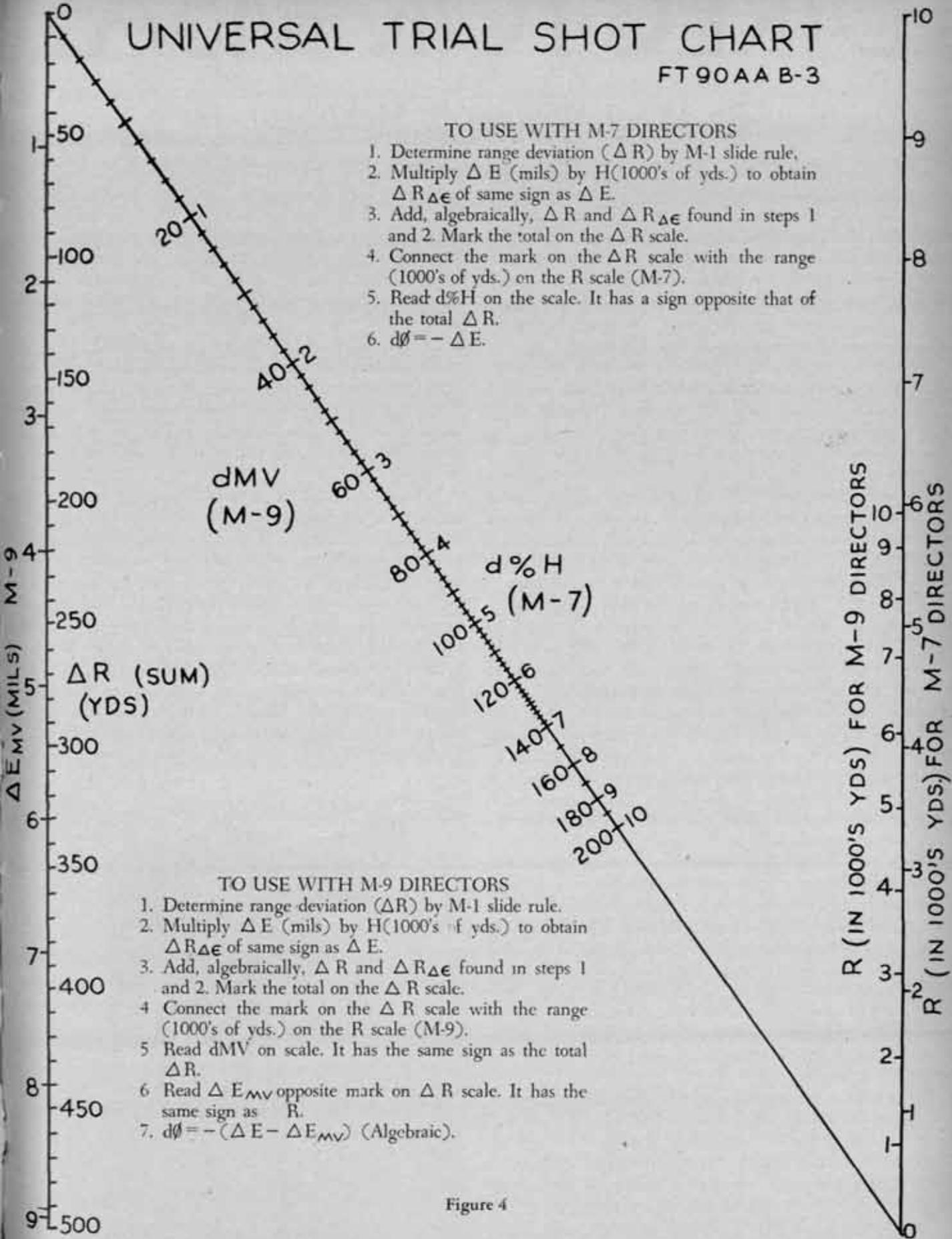
1. For students, it may be used as a check on the conventional chart. The conventional chart is valuable in that it provides a graphic picture of the burst. The universal chart may be used to check results obtained from any conventional chart.

UNIVERSAL TRIAL SHOT CHART

FT 90AA B-3

TO USE WITH M-7 DIRECTORS

1. Determine range deviation (ΔR) by M-1 slide rule.
2. Multiply ΔE (mils) by H(1000's of yds.) to obtain $\Delta R_{\Delta E}$ of same sign as ΔE .
3. Add, algebraically, ΔR and $\Delta R_{\Delta E}$ found in steps 1 and 2. Mark the total on the ΔR scale.
4. Connect the mark on the ΔR scale with the range (1000's of yds.) on the R scale (M-7).
5. Read $d\%H$ on the scale. It has a sign opposite that of the total ΔR .
6. $d\phi = -\Delta E$.



TO USE WITH M-9 DIRECTORS

1. Determine range deviation (ΔR) by M-1 slide rule.
2. Multiply ΔE (mils) by H(1000's of yds.) to obtain $\Delta R_{\Delta E}$ of same sign as ΔE .
3. Add, algebraically, ΔR and $\Delta R_{\Delta E}$ found in steps 1 and 2. Mark the total on the ΔR scale.
4. Connect the mark on the ΔR scale with the range (1000's of yds.) on the R scale (M-9).
5. Read dMV on scale. It has the same sign as the total ΔR .
6. Read ΔE_{MV} opposite mark on ΔR scale. It has the same sign as R .
7. $d\phi = -(\Delta E - \Delta E_{MV})$ (Algebraic).

Figure 4

2. For the practicing artilleryman, such as a range officer, the universal chart may be used without any reference to the conventional chart.

For effective use, as outlined above, a chart of this type should be included with each firing table which may be used in trial fire.

DIRECTOR M5A2

By Major William B. McKinstry, Jr.

With the appearance in combat of faster and faster, low-flying, bombing and strafing airplanes, the antiaircraft automatic weapons gunnery problem has become more and more difficult. Engagement time is at present only a fraction of what it was at the start of the war. This decreased engagement time has resulted in a smaller number of rounds being fired on any one target, and fewer adjustments being made on any one course. Because of increased speed fly-through time is of a shorter duration.

The directors M5 and M5A1, for use with the 40mm gun, were a very important advancement, and considerably increased the accuracy of 40mm fire. Directors of the M5 series need only two elements of data which are: (1) the angular rate of travel of the target, (2) the time of flight of the projectile. By means of various mechanisms, the director uses these elements of data to compute leads which are automatically applied to the gun. If the elements of data are accurate, the director will compute accurate leads. It is a foregone conclusion, however, that the output of any director is only as reliable as the accuracy of the data set in, so let's investigate the source of this data. The angular rate of travel of the target is obtained by tracking the target with the azimuth and elevation telescopes. With experienced trackers, the information on angular rate of travel of the target is reliable, and therefore is likely to be the more accurate of the two. The time of flight of the projectile is set into the director by the range setter. The range setter observes the target and sets in an estimated range through which he believes the target will pass. The graduations on the range scale correspond to time of flight and therefore when the target reaches the range set in, rounds fired at that time should have correct lead. A good range setter can secure a maximum of two or three fly-throughs or correct range setting per course. With fly-through time as short as it is, this means that from two to four rounds will be fired with correct lead and have a chance of hitting the target. To have any or all of these rounds hit, they must also be fired with correct direction of lead, or, in other words, be line shots. A good crew, with the gun and director accurately oriented, can get approximately 30 per cent line shots. It can be seen therefore that the probability of getting a number of hits on any one target is not large.

Almost every person who has watched 40mm director-controlled fire has thought or remarked, "If we only had some way of setting accurate range continually, what we wouldn't do to that target!" Well, gentlemen, it's here. A director, which will do just that, has been developed and standardized. It's the M5A2 (see figure 1).

The M5A2 is the M5A1 with an attached range finder and a servo mechanism for setting continuous present slant range into the director. The range finder is the superimposed coincidence type, with a 30-inch optical base and has a

maximum range of 2,500 yards. It is attached to the director so that it traverses and elevates with the director telescopes. The range finder has two telescopes, one on the right end for the range adjuster, and one in rear for the range spotter. Just above the range adjuster's eyepiece are two knobs, the range correction knob and the height correction knob, for making preliminary adjustments. On the rear panel of the director is a range adjustment lever, a fixed correction knob, and the range servo mechanism. On the range servo mechanism is the altitude adjustment knob, the range finder and director range switches, and a light rheostat. There is also a place where a range handwheel can be inserted so that the director can be used in the same manner as an M5A1 director in the event the range finder is out of order.

When the director is on target two images of the target are seen in the range adjuster's eyepiece. The images are formed by two mirrors. The right mirror has the selective property of reflecting blue light and transmitting orange light, suppressing all other colors. The left mirror is an ordinary mirror which reflects light of all colors. The right mirror receives light from either the left or right window but the light paths are so arranged that they reach the mirror from opposite sides. The light splits into two paths after reaching the right mirror thus causing two images, one orange, the other blue, in each telescope. By merging the two target images, a voltage proportional to slant range is obtained, which by means of a potentiometer, is multi-

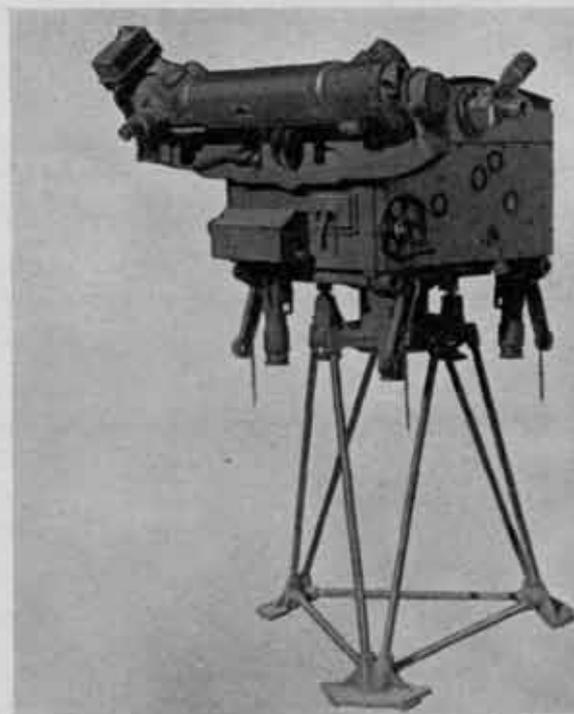


Figure 1—Director M5A2.

plied by the sine of the angular height giving a voltage proportional to altitude. This voltage is compared with a voltage proportional to the altitude set on the altitude scale. When the two voltages proportional to altitude are equal, correct altitude is obtained. The range finder uses the angular height of the target taken from the elevation telescope, and the altitude, set in when the two target images are merged, to compute slant range.

Starting from altitude and angle of elevation, the slant range is electrically computed and set into the director by the use of three types of electrical devices: amplifier tubes, potentiometers, and "shaded pole" motors. An altitude converter solves for the actual slant range of the target, and supplies a proportional voltage from the slant range potentiometer. Another similar voltage is supplied from a range servo potentiometer. The range servo potentiometer is related to the director mechanism in the same manner as the range handwheel, so that its position reflects the reading of the range dial. If both voltages are equal, they cancel each other. The voltages are equal when the slant range scale of the range finder reads the same as the range dial of the director. If they are not equal, the voltage difference is picked up by an amplifier and the amplified current drives the shaded pole motor in the range servo box. This motor takes the place of the range handwheel, and moves until the voltages are equal. When the motor stops, the same range is set in the director and shows on the range dial as is shown on the slant range scale of the range finder.

The operation of the M5A2 director is simple and any M5A1 crew can quickly learn to operate it. Four operators are required. They are two trackers, whose duties are the same as on the M5A1, a range adjuster who is normally the number 4 in the M5A1 crew, and a range spotter who was formerly the range setter. The range spotter puts the director on target just as the range setter does with the M5A1. To help in doing this, a new type pick-up sight is provided which consists of an eyepiece with a series of concentric circles. This new sight permits a faster and easier pick-up of the target. The range adjuster looks through the eyepiece on the right end of the range finder and when the trackers are on, he sees two images of the target, one orange and the other blue. He turns the altitude adjustment knob and moves the images until they coincide exactly, giving a neutral color, thus setting in altitude so that the range finder can compute slant range. The computed slant range shows on a scale in the range adjuster's eyepiece, and when the director range switch is on, it also is sent automatically to the director and shows on the range scale on the rear of the director. After the range spotter has put the director on target, he observes the director range scale. When he sees that the target is at the range to open fire he gives the command to fire and looks through the range spotter's eyepiece to observe tracers. He will see two tracer images for each round fired. The reason he sees two images is that, as seen from two dif-

ferent points, a projectile can appear at the same lateral and vertical location, relative to the target, only when it is at the range of the target. This principle operates with the range finder on the M5A2 even though the observing points are only 30 inches apart. Because of the fact that the light paths entering the windows are filtered to produce one blue and one orange image, and because these two colors are complimentary, the two tracer images can be distinguished. They appear close together, converge, causing an area of increased light intensity momentarily, cross over, and diverge as they pass across the field of view of the tele-

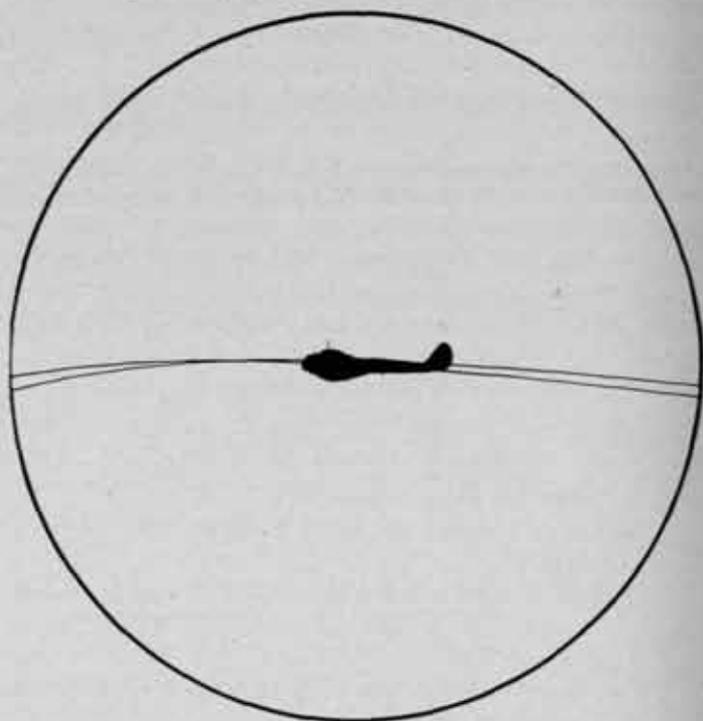


Figure 2—Crossing course showing two tracer paths as seen in range spotter's eyepiece. Here tracer convergence point is ahead of target indicating too much range is set into director.

scope (see figure 2). The area of increased light intensity of the tracer is at the range set into the director. Since the projectile is observed in the plane perpendicular to the line of sight, the range spotter can use the tracer information to make any necessary range adjustments. For example, on a crossing course, if the area of increased light intensity or tracer convergence point is ahead of the target the range set into the director is too great. The range spotter therefore would decrease range accordingly by turning the range adjustment lever. If the rounds are constantly ahead or consistently astern a fixed correction can be made by means of the fixed correction knob.

The M5A2 director has not been seen very much in the States as yet, but is in limited quantities in the combat areas. Preliminary combat reports indicate that it's the automatic weapons fire control system we have been hoping someday to have.



Hitting Ground Targets

(Sight Control, 40mm Guns)

By Lieutenant Colonel Myron H. Blotcky, Coast Artillery Corps

Record target practices recently conducted against observed stationary ground targets brought to light two problems which have probably confronted other units in similar situations. The target practice was conducted as prescribed in Training Memorandum No. 11, Headquarters 4th Antiaircraft Command, 8 June 1944.

Each 40mm firing section moved into a designated firing position, emplaced the gun and fired upon an observed stationary target at an unknown range not less than 1,000 yards nor in excess of 3,500 yards. On-carriage sights were employed in the gun laying. Adjustment of fire was by tracer observation. The target consisted of a framework, eight feet high and twelve feet wide, faced with target cloth.

Firing sections were scored as follows:

$$S = \left(\frac{N}{A_s} \times \frac{R}{T} \right) \times H$$

S—Score for the firing section.

N—Total number of rounds fired (not to exceed fifteen).

A_s—Total number of rounds fired in making adjustment (Fire is adjusted when the Chief of Section orders "Fire for effect").

R—Range to the target in thousands of yards (to the nearest tenth).

T—Total net time of action in minutes (taken to the nearest minute) from the time the gun drawbar is dropped until "Cease firing" is given.

H—Number of hits obtained.

The battery score is the average of all firing section scores.

During preliminary practices some gun sections emplaced their guns with the outriggers pointed in the general direction of the target while other gun sections emplaced their guns with the longitudinal girder pointed in the general direction of the target. None of these gun sections staked their outriggers down, with the consequent results that each round fired displaced the gun rearwards due to recoil. Fifteen rounds would displace the guns six to eight inches to the rear. This displacement action necessitated continual adjustment in the gun playing and minimized the possibility of obtaining successive hits. (NOTE: Although the displacement of the gun caused by the shock of firing would not cause an error if the gun sights were properly aligned with the bore of the gun in simulating combat conditions, the guns were towed onto the firing

line, emplaced against time and firing immediately conducted. No time was taken to collimate the sights, as they would have been collimated while in the previous tactical location. The small amount the sights get out of collimation is due to jarring while traveling or to unduly rough handling of gun and sight covers. It is supposed that all SOP's include checking collimation at the first practical opportunity. Thus the procedure to follow compensated for any slight disalignment of sights and bore.) The problem was solved by emplacing the guns with the longitudinal girder pointed in the general direction of the target to be fired upon and firmly staking down the outriggers. By so emplacing and staking the gun, the rearward displacement of the piece was reduced to less than one inch for fifteen rounds fired. Although staking the gun down with the outriggers pointed in the general direction of the target reduced the rearward displacement, fifteen rounds fired would move the piece about three inches. The additional time required for driving the outrigger stakes (before going into action) was more than compensated for by the highly increased accuracy of the shooting. (See scoring formula above.)

Following the above procedure it was now possible to conduct rapid and accurate fire for adjustment, however the consistency of hits during fire for effect continued to be highly erratic.

A conference with the lateral gun pointers (No. 8's) and vertical gun pointers (No. 9's) revealed that the vertical gun pointer was experiencing difficulty in repositioning the target in his sight so as to repeat a hit after having obtained a hit on the previous round fired. This difficulty was due to the vibration of the fired gun which caused the tracking handwheels to be displaced, moving the sight. At the ranges fired, a very slight displacement of the sight would move the burst enough to change a hit to an "over" or a "short" on the targets fired upon. Additional difficulty was encountered since there is a lack of pips or "wires" on the forward sight element to use as accurate reference marks for definitely positioning the target in the sights. Instead, the gun pointers have to position the target on an estimated point in space somewhere within the inner circle of the forward sight element. This method of gun laying precluded consistent or accurate positioning of the target in the sight.

The problem thus resolved itself into two factors: (1) To provide some method whereby the gun pointers could reposition their sights and aim exactly where they in-

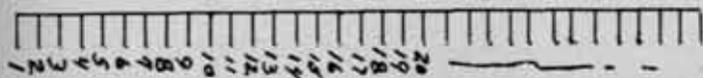


Figure 1

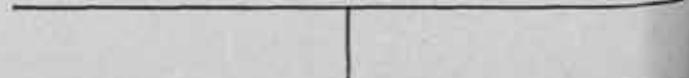


Figure 2

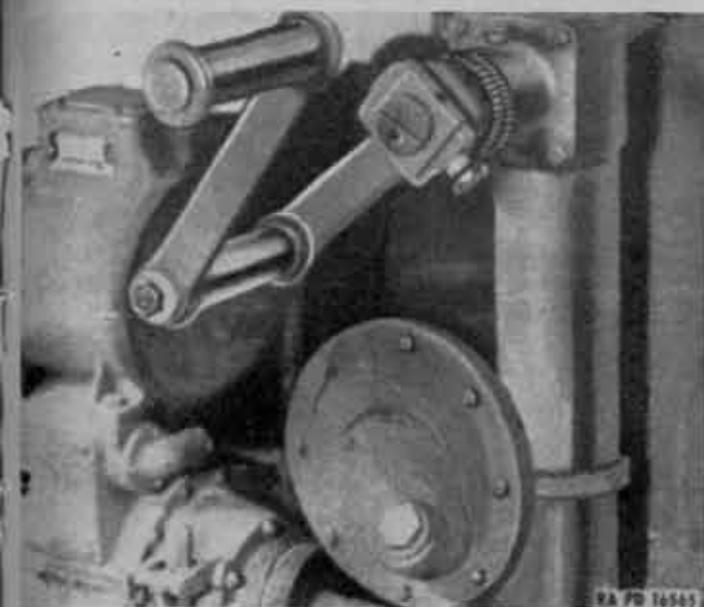


Figure 3

tended, and (2) to provide some means of sighting adjustment whereby small changes in azimuth or range could be effected.

An improvised scale was prepared on an adhesive tape strip (one-half inch wide and ten inches long) by placing lined graduations one-eighth inch apart along the entire length of the tape. These graduations were then numbered consecutively beginning with 1 (See Figure 1). These scales were then placed on the elevating and traversing hand operating mechanism sleeves. (SNL Part B198381) (See Figure 3).

Another similarly sized strip of adhesive tape was prepared with a single reference graduation line (See Figure 2). These tapes were then placed on the elevating and traversing mechanism gear bearing caps (SNL Part A223957). The reference graduation should be located so that it is readily seen by the gun pointer (See Figure 3).

Because of the backlash in the elevating and traversing gear train mechanisms it is of primary and paramount importance that the gun pointers always sight on to the target from one direction to eliminate this backlash. It was arbitrarily decided to use left to right for traversing and down to up for elevating.

Both gun pointers now position their sights on the target in accordance with prescribed on-carriage sight control procedures. When each gun pointer is "on target" he observes the numbered graduation on the scale opposite the index reference mark (See Figure 3). Fire adjustment is then effected by using the number on the scale as a reference for moving the gun left or right or up or down for future shots.

Having positioned their sights as above and called "on,"

the gunner orders the first round fired. The burst is "spotted," and for this example, let us assume that the burst was "short" and to the right. After the initial round is fired the gun pointers disregard their sights and apply ordered corrections by means of the graduated scales. Having observed the burst, the gunner would order a correction, "Left 1, Up 3." Both gun pointers sight off the target and then reposition the bore (left to right and down to up) using the scale readings noted above. The lateral gun pointer would traverse until he moved the bore by one scaled graduation to the left. The vertical gun pointer would elevate the bore by three scaled graduations. When repositioning has been accomplished each gun pointer calls "On."

The gunner orders a second round fired and it is spotted as "short" and "line," but on the right half of the target. He then orders another additional correction, "Left 1, Up 2." The gun pointers follow the procedure described in the above paragraph and move the bore the required amounts in the proper directions. The third round is fired and is a hit, low and in the center of the target. The gunner now corrects, "Lateral Zero, Up 1." The lateral gun pointer repositions the bore using the graduation number he set for round number three. The vertical gun pointer elevates the bore one more scaled graduation. Round four is a hit practically in the center of the target. The gunner now orders "Fire for effect." Both gun pointers reposition the bore using the scaled graduation numbers they used for round four. Rounds five through fifteen will all be hits if the gun pointers use the same graduations and position the bore left to right and down to up.

It takes but a few minutes to "modify" the guns with adhesive tape scales as described above while you are on the firing range, and gun crews find it very easy to learn this simple method of adjusting fire. The need for some such method is further emphasized by the fact that corrections in sighting, required to adjust for hits, move the gun barrel so slightly as to be hardly noticeable to the naked eye.

Having convinced yourself and your gun crews, on the range, that this method will work, metal scales can be graduated to replace the adhesive tape. Metal baling wire or shim stock provides good material. The metal scales should be ten and one-half inches long to allow overlap—the bands can be secured to the gun parts by soldering together the overlapping ends. If desired, with a little computation, the spacing between graduations can be calculated to give one-mil changes in azimuth or elevation. (NOTE: If this is contemplated, bear in mind the current MWO A50-W19 which provides increasing the gear ratio on the traversing side.) A few minutes work per gun by your artillery mechanics will provide your guns with an accurate means of fire adjustment and enable your gun crews to hit repeat hit ground targets.



**Don't Forget To Notify The Journal When
Your Address Changes**

Training of Red Army Officers

By Lieutenant General Vasili Morozov, Director General of Education, Red Army

The Red Army training program was based upon the assumption that a future war would be a war of motors and machines, requiring a large personnel trained in all army skills. Guided by Marshal Stalin's statement to the effect that trained personnel—people who have mastered the techniques of their professions—are in everything the deciding factor, the Red Army established schools covering all branches of military knowledge.

In the training of officers, the Army also took into consideration Marshal Stalin's injunction that the Army school is only the first stage of training; that the real work is done outside the school in the struggle to overcome difficulties and obstacles. The Red Army Educational Department, basing itself on these principles, developed a contingent of officers which has grown into the present officer corps—whose strength, skill, and initiative have been revealed in the war against the German invaders. Each battle has proved that for Soviet soldiers fighting in accordance with Stalin's science of war, there are no insoluble problems or insuperable obstacles.

Following are the various types of schools and colleges maintained by the Red Army for the training of its officers:

1. *Officers Training School for subalterns (platoon commanders)—the largest section of officers on the Red Army rolls—and junior technical specialists for all arms of the services.*

The Officers Training School draws its students from the ranks: noncommissioned officers and men who have served at the front and who are in good physical condition, who have been graduated from a secondary school (or, in exceptional cases, a seven-year school), and who have good service records. Many are soldiers who have already been decorated.

The length of the courses depends upon the nature of the school. The students have a stiff schedule—nine hours in class daily, plus two hours of independent study under the guidance of an instructor. The curriculum is designed to turn out loyal and disciplined officers who will make the highest demands upon themselves and their subordinates; who are determined, persistent, courageous, and capable of initiative; officers who can command a platoon under all conditions of modern warfare, who know all weapons of the platoon and are themselves able to use them; who have mastered the technique and tactics of fighting at close quarters; who are capable of training noncommissioned officers and men, and who, if necessary, can replace their company commander during a battle.

The greater part of the instruction is given in the field, or in specially equipped quarters; 25 per cent of the training takes place at night. Special attention is paid to the co-operation of all arms.

The best officer instructors available—men who have fought at the front in the present war—are selected. After completing the course, the students are placed on proba-

tion in the regular Army (the technical personnel go to factories), and take their final examinations only when their superiors have reported favorably upon them.

2. *Special military Schools under the People's Commissariat of Education, and Suvorov Cadet Schools.*

The first type of school is for boys who have received exemplary reports on completion of their seventh year in the secondary schools. They are given three years' training in special military schools, as candidates for artillery, aviation, and naval colleges.

The Suvorov Cadet Schools were established during the present war to prepare boys for military service, giving them a complete secondary education and the training befitting an officer of the Red Army. In these schools the pupils are boarded, clothed, and maintained at State expense; they are sons of Red Army officers and men and of guerrillas, or orphans who lost their parents at the hands of the Germans.

3. *Officers Refresher Courses and Officers Colleges.*

These institutions provide additional training for captains and field officers. They are attended by officers who have had experience at the front and good records, and who have been marked for promotion, but require extra training in their particular branch of the service. Length of the course depends upon the officer's specialty. The study of the Red Army's operations in the present war is the central feature in these colleges and courses.

4. *Military Academies and Higher Schools for Officers.*

These are for the training of field and other high-ranking officers in all branches of military knowledge. The most outstanding officers are selected, who must be graduates of Officers Training Schools, have a full secondary or higher education, and exemplary records. Entrance to the academies is by competitive examination. Length of courses depends upon the nature of the academy. Instructors are drawn from the country's leading scientific workers in various fields of military knowledge, many of whom have received Stalin Prizes for notable work or inventions.

The aim of the academies is to develop higher ranking officers who have not only a thorough knowledge of their professions, but also a very broad military, social, and political outlook. Considerable time is allotted to study of the history of warfare and the art of conducting operations.

In academies which train Army engineers, the students have a period of probation in factories. Officers with a more general specialty serve their probation in the regular Army. Only when a candidate has successfully passed his final examination, defended his thesis and received a favorable report for the officer under whom he served his probation, is he considered a graduate of the academy. He then receives a diploma from the Committee on Higher Schools of the Council of People's Commissars.

Special attention is paid to the political training of Red Army officers, with the aim of developing officers of exemplary patriotism, ready without hesitation to give up their lives for their country.

Azimuth Determination in the Southern Hemisphere

Major M. R.C. Nanson, Royal Artillery (Ret.) has questioned a statement that appeared in an article, titled as above, which was published in the JOURNAL in our July-August (1944) issue. Major Nanson wrote:

"I believe that the author's statement which I quote from page 48 of that number is a 'lapsus calami!'

"If the declination of the star is less numerically than, and of the same sign as, the latitude of your position, the bearing line from your position to the star will be toward the equator and away from the pole in which case the angle to the star (i.e. from the pole) will be more than 90°."

"Now, on the meridian this obviously is true; on the horizon this obviously is not true for the East-West line through the observer which is known as the Prime Vertical passes through the equator at an angle of altitude from the observer of zero degrees. . . . Accordingly the Azimuth may be either less, or greater, than 90° with latitude and declination of like sign; when of opposite sign, than, as stated, the angle is greater than 90° for the star does not cross the prime vertical."

Major George M. Hays, CAC, the author, replied as follows:

"The letter from Major Nanson contains some very interesting information and unfortunately, his disagreement with the rule in question is correct. There are certain combinations of declination, latitude and altitude of a star which will give an erroneous result by following the rule as stated. A table was made up to give the actual altitude at which the bearing changed from over 90° to under 90° for given combinations of declination and latitude. This table was incorporated in this method to prevent an error in these borderline cases.

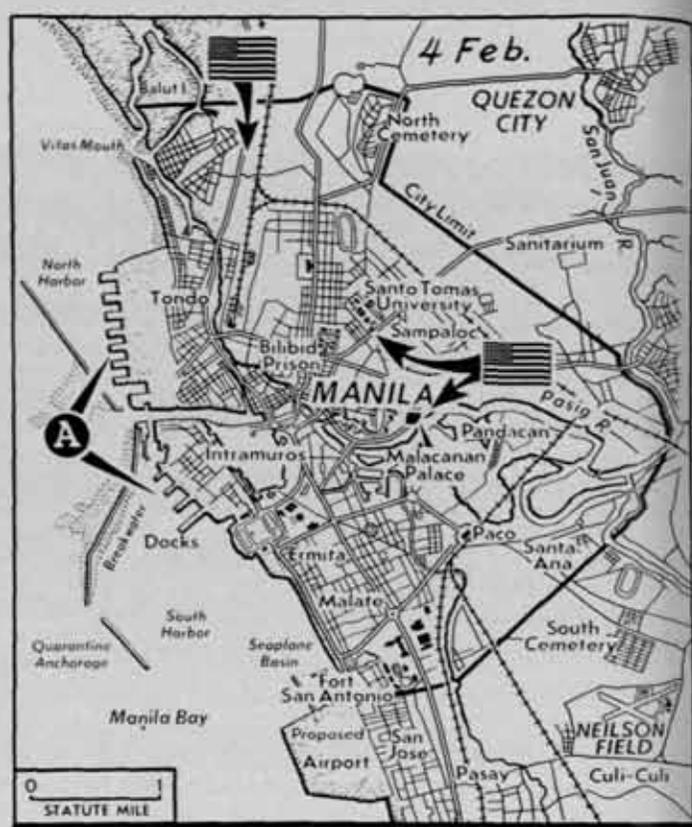
"The rule that should be used is as follows:

"A comparison of declination and latitude will always correctly indicate the bearing as being under 90° when the declination is *more* than the latitude of the position. However, when the declination of a star is *less* than the latitude, and both are in the same hemisphere, the altitude of the star determines the bearing in some cases. The table below lists the lowest altitude at which a bearing will be *greater* than 90° for combinations of latitude and declination of the same sign. In other words, an altitude lower than the one listed for a given declination and latitude will yield a bearing *less* than 90° from the elevated pole."

Tabulation of the lowest altitude of star in degrees, at which a bearing will be greater than 90°, when declination of star is less than latitude of position.

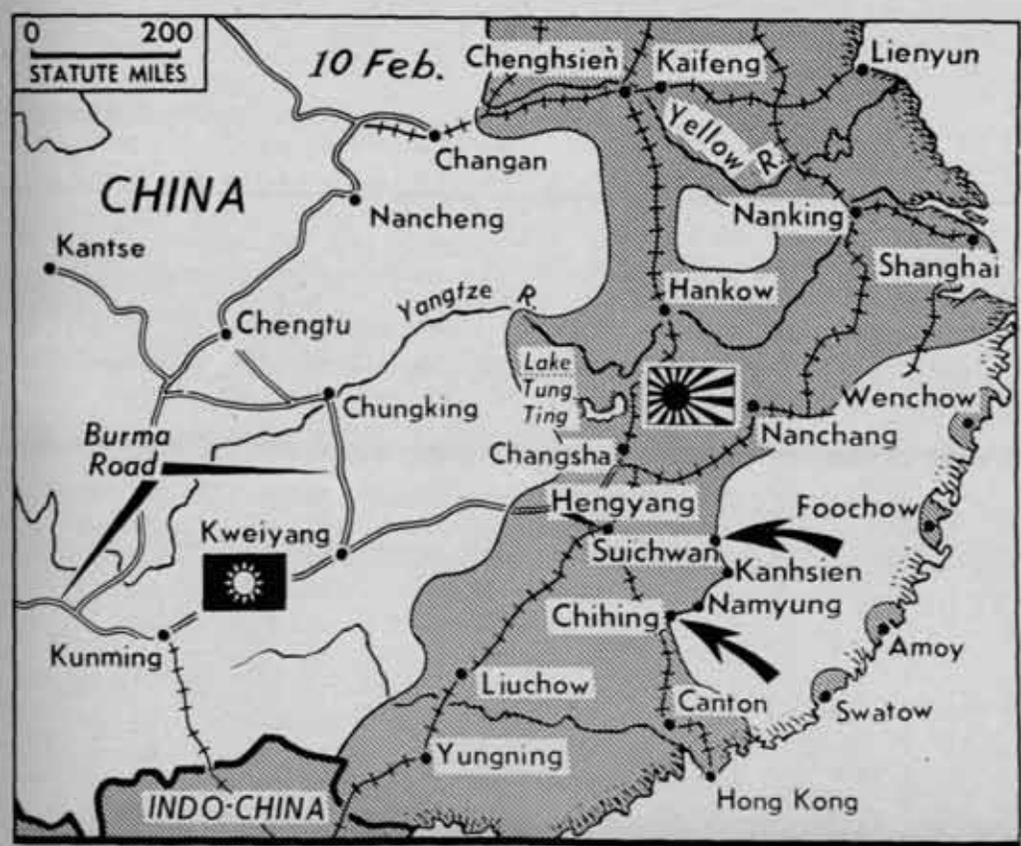
		DECLINATION IN DEGREES																					
		0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42
LATITUDE IN DEGREES	2	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
	4	0	30	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
	6	0	19	42	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
	8	0	14	30	49	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
	10	0	11	24	37	53	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
	12	0	10	19	30	42	56	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
	14	0	8	17	26	35	46	59	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
	16	0	7	15	22	30	39	49	61	90	90	90	90	90	90	90	90	90	90	90	90	90	90
	18	0	7	13	20	27	34	42	51	63	90	90	90	90	90	90	90	90	90	90	90	90	90
	20	0	6	12	18	24	30	37	45	54	65	90	90	90	90	90	90	90	90	90	90	90	90
	22	0	0	11	16	22	28	34	40	47	56	66	90	90	90	90	90	90	90	90	90	90	90
	24	0	0	10	15	20	25	31	36	42	49	57	67	90	90	90	90	90	90	90	90	90	90
	26	0	0	9	14	18	23	28	33	39	45	51	59	68	90	90	90	90	90	90	90	90	90
	28	0	0	9	13	17	22	26	31	36	41	47	53	60	69	90	90	90	90	90	90	90	90
	30	0	0	8	12	16	20	25	29	33	38	43	49	54	61	70	90	90	90	90	90	90	90
	32	0	0	7	12	15	19	23	27	31	36	40	45	50	56	62	70	90	90	90	90	90	90
	34	0	0	7	11	14	18	22	25	30	33	38	42	46	52	57	63	90	90	90	90	90	90
	36	0	0	7	10	14	17	21	24	28	32	36	40	44	48	53	58	64	72	90	90	90	90
	38	0	0	6	10	13	16	20	23	26	30	34	38	41	45	49	54	59	65	73	90	90	90
	40	0	0	6	9	13	16	19	22	25	29	32	35	39	43	47	51	55	60	66	73	90	90
	42	0	0	5	9	12	15	18	21	24	27	30	34	37	41	44	48	52	57	61	66	74	90
	44	0	0	0	9	12	14	17	20	23	26	29	33	36	39	42	46	50	53	58	62	68	75
	46	0	0	0	8	11	14	16	20	23	25	28	31	34	38	41	44	47	51	55	59	63	68
	48	0	0	0	8	11	13	16	19	22	25	27	30	33	36	39	42	45	49	52	56	60	64
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52	0	0	0	8	10	13	15	18	21	23	25	28	31	33	36	39	42	44	47	51	55	57	
54	0	0	0	8	10	12	15	17	20	22	25	28	30	32	34	38	41	42	45	49	52	53	
56	0	0	0	7	10	12	15	17	19	22	24	27	29	30	33	36	39	41	44	46	50	51	
58	0	0	0	7	9	12	14	17	19	21	23	26	29	29	31	34	38	39	42	44	47	49	
60	0	0	0	7	9	11	14	16	19	21	23	25	28	29	30	32	36	38	41	42	44	46	

THE WAR IN THE PACIFIC

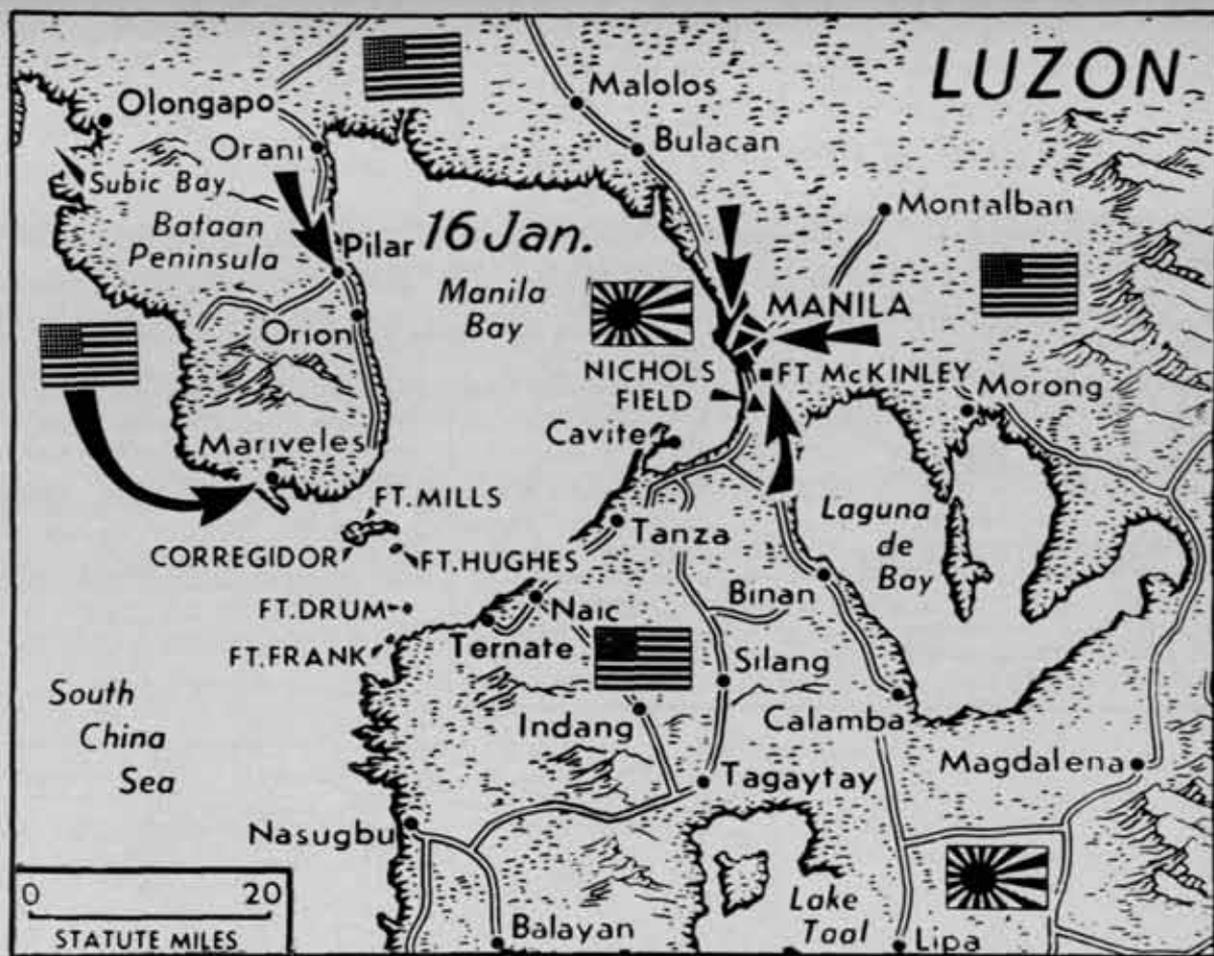


A landing at Nasugbu, Southwest of Manila, was announced 1 February; this landing was the third on Luzon. The second landing had been made on 29 January near Olongapo, securing the naval base there. The Sixth Army drive to Manila from the North is indicated by the open arrow.

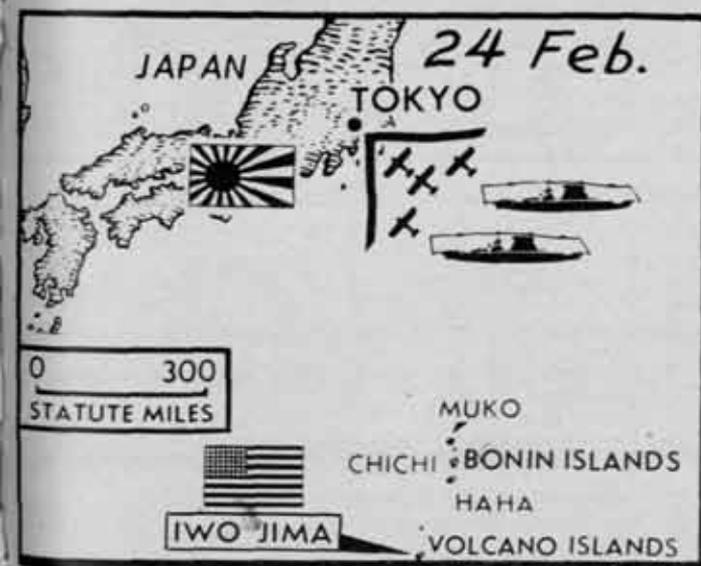
By 4 February Americans from the East had liberated the prisoners at famed Santo Tomas internment camp. Other U. S. units were driving from the North. The dock areas were burning.



On 10 February Chinese counter-attacks (arrows) were reported to have recaptured Chihing and to have reached Suichwan, the U. S. air base recently captured by the Japs. Shaded area is Jap-dominated territory.



Combined landing-craft and paratrooper landings on Corregidor were made on 16 January. The situation on Bataan and in Manila is indicated by the arrows, which show American drives. Americans landed also at Mariveles. In the battle for Manila, one force (probably the one that landed at Nasugbu 1 February), had reached Fort McKinley.



A new carrier-plane attack on Tokyo was announced 24 February by Admiral Nimitz. Marines landed on Iwo Jima 19 February, and met the fiercest resistance in the history of the Corps.

→
A landing at Zamboanga was announced 12 March. Shaded areas are American-held.



THE WAR IN EUROPE



On 4 February the situation on both fronts was looking brighter. The Russians had captured Barwalde, were gaining north of Königsberg, and took Landsberg; 38 miles was the distance to Berlin. The Americans on the west drove near Gemund, and cleared Colmar.

On the Italian front on 7 February Fifth Army troops launched their first attack since October against German positions south of Bologna. Gains of 600 yards were reported with Germans resisting determinedly.



By 20 February the Canadian First Army had virtually cleared Goch, but was meeting heavy counterattacks. The U. S. Third and Seventh Armies were advancing in the Saar basin. The Russians were driving again toward Berlin and Dresden, and toward Ratibor in the south. B-29s pounded Nuernberg.





The shaded area indicates territory won between 23 February and 26 February in the Western front. The broken line is an approximation of the new front.

The two-front picture was still brighter on 28 February. The Russians were almost at the Baltic, Canadians and Americans were working a pincers play in the north, other Americans were approaching Cologne, Bitburg was captured, and Trier was in danger. The shaded lines are Germany's prewar boundaries. The bomb insignia indicates where American bombers plastered five large rail yards.

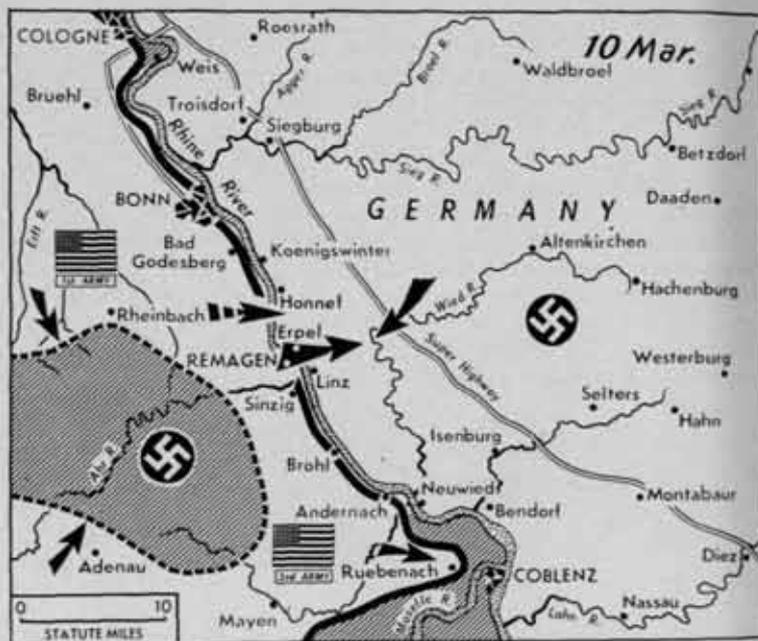


On March 7 Berlin reported attacks on both sides of Kuestrin toward Berlin, the Baltic had been reached by the Russians, and the RAF bombed Sassnitz. Stettin was being threatened.

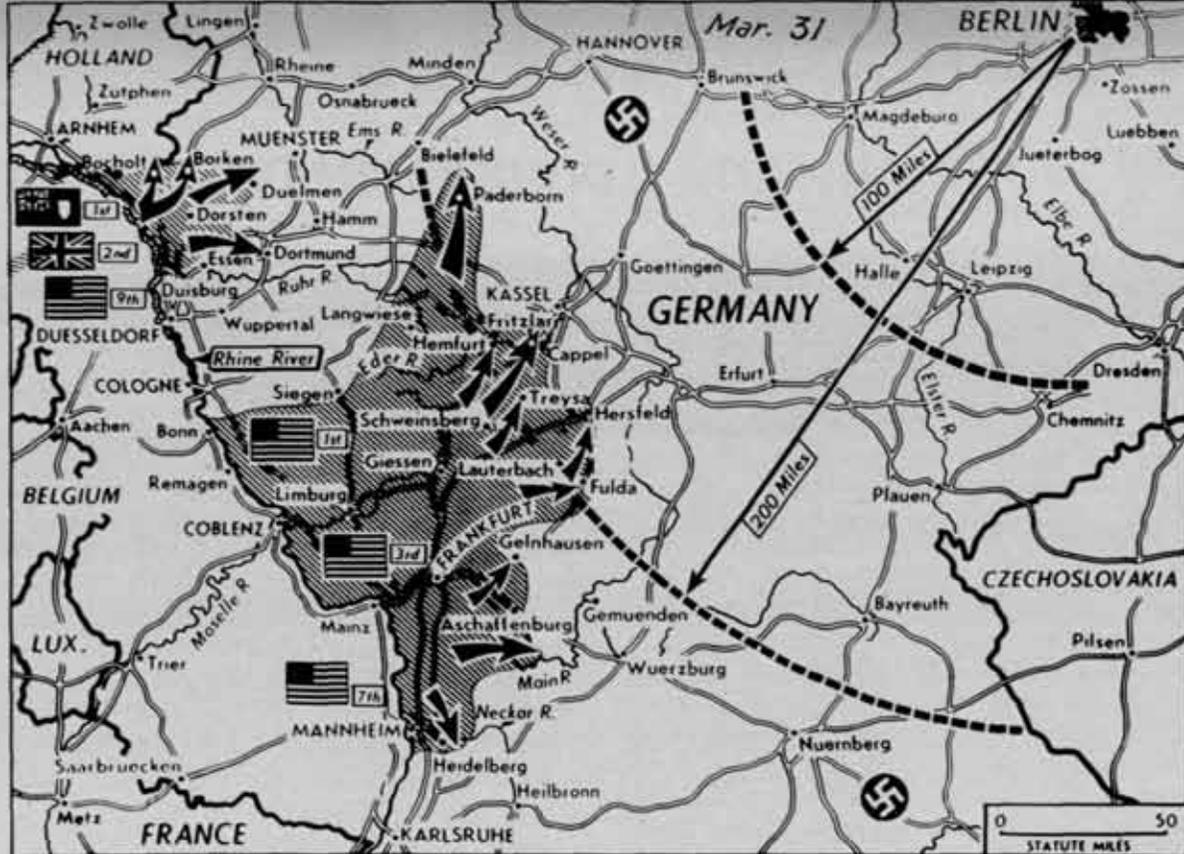


In Italy on 7 March Fifth Army mountain troops captured Castel D'Aiano in the biggest advance on that front in weeks.

The big event of early March was the capture of the bridge at Remagen on 7 March. The shaded area was ground still held by the Germans on 10 March. Broken arrow shows where Germans said Americans were crossing the Rhine in boats. The solid arrows at the river indicate the American drive to expand the Remagen bridgehead and the German attempts to counter the drive.



On 12 March the Russians announced the capture of Kuestrin; Soviet forces drove on Stettin, reached the Gulf of Danzig, and drove on Danzig. The Americans were able to expand the Remagen bridgehead. American bombers attacked Stettin and Swinemuende in support of the Reds.



Large arrows indicate the major drives of the Allied forces as of March 31; small arrows indicate other columns advancing east of the Rhine. Shaded area is Allied-held territory east of the Rhine. In the North a trap was being closed around the Ruhr, while other units drove to within 175 miles of Berlin south of Kassel and below Hersfeld. To the South, Americans were pushing beyond the Main River and below Heidelberg.



American forces on March 30 had invaded Negros Island (A) from Guimaras, and had taken Bago, Bacolod Airfield, and Pontevedra. American forces on Cebu (B) drove north of the Capital city.

COAST ARTILLERY

Citations and Commendations

Legion of Merit

TO: FRANK A. BOGART, Col., GSC (CAC), 553 Arlington Village, Arlington, Va.

FOR: Service as assistant to the Chief of General Plans Branch, Chief of Special Operations Section; Chief of Theater Branch and Deputy Director, Planning Division, Army Service Forces, from March, 1942, to November, 1944. During the initial period of the organization of Headquarters, Army Service Forces, he aided materially in the preparation of procedures for overseas supply. At the time U. S. Forces were being concentrated in the United Kingdom he ably assisted in the establishment of procedures and the organization of the Service of Supply for the European Theater of Operations. He played an important part in all phases of planning for supply for the invasion of North Africa. As Chief of the Theater Branch and Deputy Director, Planning Division, by skilful staff work he was instrumental in insuring the timely provision of service troops and supplies to meet the requirements of worldwide tactical operations.

TO: FRANCIS P. HARDAWAY, Brigadier General, U. S. Army, 4535 Maryland Ave., St. Louis, Mo.

FOR: Service as Commanding General of the Antiaircraft Replacement Training Center, Camp Callan, California, from December 11, 1940, to April 24, 1943. Throughout this period of construction, activation and extensive operation of Camp Callan, he displayed exceptional administrative and executive ability. Under his forceful leadership, training reached high standards while the morale and discipline of this Replacement Training Center were noteworthy. His personal character and his unfailing courtesy and tact were such that he won the respect and cooperation of the adjoining civilian communities.

TO: NORMAN E. HARTMAN, Colonel, CAC, Middletown, Pa.

FOR: Exceptionally meritorious conduct in the performance of outstanding services in Sicily and Corsica from 20 May 1943 to 31 March 1944. Colonel Hartman was instrumental in the plans for the assault landing of the antiaircraft artillery on the Gela beaches. He landed early in the morning of D-day and throughout the Sicilian Campaign performed his mission with outstanding success, pioneering in the operational procedure of an AAA Group with a tactical Corps. Plans formulated by him and recommendations made, provided a basis for AAA Groups assigned to tactical

Corps in future operations. Later, upon landing in Corsica ahead of all United States Army antiaircraft artillery, Colonel Hartman established his headquarters to receive the arriving units. By skillful planning he deployed the new units over almost impassable roads to meet the requirements of the Air Corps and the Allied Navies. His tact and complete understanding of human nature permitted the harmonious deployment of French, Royal Air Force and U. S. antiaircraft artillery, barrage balloons and smoke around the ports and airfields of Corsica.

TO: GEORGE M. HAYES, Major (then Captain.), CAC, 1654 Union St., Indianapolis, Indiana.

FOR: While on duty with the Division of Training Publications, the Antiaircraft Artillery School, from August 1, 1942, to August 1, 1943, in addition to his normal duties he devised nomographic methods of computing bearings of celestial bodies, and also of determining safe bridge loads from the size of the members. By his continuous application and remarkable ingenuity he produced devices which are of great value to the service in solving the problems of orientation, land navigation and route reconnaissance.

TO: WILLIAM D. HOHENTHAL, Col., GSC (CAC), 3714 Ingomar St., N.W., Washington, D. C.

FOR: Services from October, 1942, to February, 1944, as military Attache of the United States in Portugal and later in Spain.

♦ ♦ ♦

Bronze Star

EDWARD E. JORDAN, 1st Lieut., CAC, Robeline, Louisiana.

RUDOLPH F. NIEMI, Tech. 5th Gr., CAC, RFD 1, Tripoli, Wisconsin.

EDWARD N. SCHWEICKHARDT, 1st Lieut., CAC, 5216A Sutherland Ave., St. Louis, Mo.

♦ ♦ ♦

Commendations

HEADQUARTERS FIFTH ARMY

"The 68th AAA GUN BATTALION (then 1st Battalion, 68th CA (AA) Regiment) is commended for meritorious performance of duty in action, during the period 23 January 1944 to 31 May 1944, near Anzio, Italy. Landing on the Anzio Beachhead under shell fire and air attacks, the 68th AAA GUN BATTALION formed the nucleus of the antiaircraft defenses of the beachhead. Repeatedly sub-

ected to intense and sustained air bombardments and simultaneous artillery fire which caused heavy casualties, this battalion engaged the enemy in 223 separate flights, and was officially credited with forty-six enemy aircraft destroyed, twenty-three probably destroyed and three damaged. In addition, the 68th AAA GUN BATTALION fired thousands of rounds of ammunition in terrestrial support of ground troops, on two occasions aiding materially in stopping German tanks, infantry and air assaults. The battalion was instrumental in capturing 150 German prisoners in one engagement and twenty-five more prisoners in another engagement. Many times batteries engaging in terrestrial fire were interrupted only in order to fire at attacking aircraft. Officers and men of the 68th AAA GUN BATTALION consistently distinguished themselves by prompt and aggressive action, exceptional initiative and individual courage. As a result of this battalion's tenacious and heroic action, repeated attempts by the German air force to attack beachhead installations and ground troops failed, being continually turned back and dispersed. The contribution of the officers and men of the 68th AAA GUN BATTALION reflects the highest traditions of the Military Service of the United States."

MARK W. CLARK,
Lieutenant General, U. S. Army,
Commanding.

HEADQUARTERS FIFTH ARMY

Office of the Commanding General

8 September, 1944.

SUBJECT: Commendation.

TO: Commanding Officer, 534th AAA AW Battalion.

1. I deeply regret that your battalion is leaving my Fifth Army command.

2. During its period with Fifth Army, as one of the first AAA battalions to land in the initial invasion force, later with II Corps in its difficult advance to the Rapido River, and finally with VI Corps in its break-out from the Anzio Beachhead, your organization performed all its assigned missions in an outstanding manner. Throughout this period your officers, and men exhibited the highest efficiency, courage, determination and devotion to duty.

3. Your battalion contributed greatly to the efforts of your fine arm, which has consistently done so much to prevent the German Air Force from ever materially interfering with any of our combat operations. Please convey to your officers and men my sincere thanks and appreciation for their outstanding services and my best wishes for their future welfare and continued successes.

MARK W. CLARK,
Lieutenant General, USA,
Commanding.



An M-15, somewhere in Germany.

Signal Corps



Any individual, whether or not he is a member of the service, is invited to submit constructive suggestions relating to problems under study by the Coast Artillery Board, or to present any new problem that properly may be considered by the Board. Communications should be addressed to the President, Coast Artillery Board, Fort Monroe, Virginia.

Items pertaining to Antiaircraft Artillery should be sent to the Antiaircraft Command, Fort Bliss, Texas.

THE COAST ARTILLERY BOARD

COLONEL LEON C. DENNIS, C.A.C., *President*

COLONEL R. E. DINGEMAN

LIEUTENANT COLONEL ANDREW W. CLEMENT

LIEUTENANT COLONEL O. K. MARSHALL

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MAJOR JULES M. DU PARC

CAPTAIN FOSTER A. HINSHAW, S.C.

CAPTAIN W. P. G. HALL

CAPTAIN C. W. ZIEGLER, O. D.

Target Towing Kit T24. Present regulations concerning the use of the JR boats in harbor defenses state that the boat will not be fired upon except during advanced target practices where the battery has exhausted the training possibilities of firing at towed targets at normal ranges. The JR boat is at present the only craft assigned to harbor defenses which has a speed better than fourteen knots and which can simulate the speed and maneuverability of modern naval vessels. For this reason, various targets have been designed for use with the JR boat to make use of its speed and maneuverability both in training and in target practice. Although towing imposes excessive loads on the JR boat and increases maintenance, the use of towed targets is much more economical than the use of the boat as a target.

The JR boat at present has no towing fixtures or equipment. Recent action by the Board has initiated the procurement of a service test model of a Target Towing Kit T24 by the Ordnance Department. Towing equipment used by the Board was taken as a basis for the kit. The kit at present includes an Air Corps Type C4 windlass, less electric drive and fitted with suitable deck mounts, 2,000 feet of stainless steel 3/16-inch airplane tow cable, cable guide and clamp, and twelve feet of soft brass pipe, 1-inch outside diameter, to be fabricated locally into cable scuff bars.

The Type C4 windlass is provided with a hand brake by which cable payout can be controlled. This brake can be set to hold the reel when necessary. A hand crank is provided for reeling in cable, and the lay of the cable is controlled by a level wind. The reel holds 1,700 feet of 3/16-inch stainless steel cable. This cable is capable of standing loads up to 2,100 pounds, which is sufficient when using standard or well designed targets, as the loads usually encountered average about 1,000 pounds.

Additional shelter for Radio Set SCR-682-A. Recent action of the Board has added an additional shelter of the HO-23 type to the Radio Set SCR-682-A. This shelter will be used to house the RC-282 and BC-1365() and their accessories and spare parts both during periods of move-

ment and for operation. With this arrangement, the SCR-682, except for tower, Shelter HO-22, and power units, will be packed complete in one shelter and the RC-282 and BC-1365 in the other. The tower extension parts for the RC-282 will be packed in the additional shelter. It is planned that the BC-1365() will be located for operation against the front wall of the new shelter, similar to the location of the indicator unit for the SCR-682, and the RC-282 will be located against the right wall next to the BC-1365 so that one man can operate both. Suitable power and other interconnecting cables are being provided with the shelter.

Azimuth scales for mobile seacoast searchlights. Information from some of the harbor defenses has indicated that there are instances of new mobile seacoast searchlight equipment being supplied without azimuth scales of any type. This has resulted in locally improvising scales for both the controller and the searchlight which are of questionable accuracy. It was known that as early as 1942 definite steps were taken by the Coast Artillery Board and approved by the War Department to provide suitable (degree) azimuth scales for all mobile seacoast searchlights and controllers, both those already in service and those to be procured. Recent investigation of the modification program thus set up has disclosed that these degree azimuth scales were manufactured for all mobile seacoast searchlights and control stations believed to be in the various harbor defenses. Scales for certain units; viz., Sperry 1942 and some Sperry 1941-A and General Electric 1942-A, already have been shipped to certain harbor defenses; however, the remainder were shipped to Schenectady Depot. Harbor defense commanders concerned should initiate requisitions through supply channels to procure these azimuth scales for mobile seacoast searchlights and controllers not now so equipped.

Information to be furnished the Coast Artillery Board when requesting charts and scales. Attention is invited to the instructions for requesting charts and scales for seacoast fire control instruments from the Coast Artillery Board contained in Appendix VII, FM 4-15 (5 November 1943).

and Changes 1 thereto (7 July 1944). Requests continue to be received which do not provide the items of information listed in the above reference which are necessary to identify the charts and scales required. Items of information most frequently omitted are the model designations of the gun carriage, the height of site of the trunnions of the gun, and complete data with regard to the projectile, fuze, charge, and firing tables being used. Other items frequently omitted are the model designation of the gun and the units of elevation and azimuth employed by the battery (*i.e.*, mils, degrees, or yards). Since each chart or scale is constructed for a particular combination of the above factors, the omission of any one of the required items of information may result in loss of time and waste of material. In view of the above, all concerned are urged to prepare requests for charts and scales with careful reference to Appendix VII, FM 4-15 (5 November 1943) and Changes 1 thereto (7 July 1944).

Transmission considerations in the employment of the base-end data transmission system. The base-end data transmission system described in FM 4-32 requires that two interconnecting pairs be provided for its operation. Each of these pairs must be metallic throughout (continuous with respect to direct current) and no sources of power other than those within the system itself may be connected directly to the lines. One pair is used for the meter circuit and the other pair for the potentiometer circuit. In a number of locations where the base-end data transmission systems are to be installed, there are not enough cable pairs available to assign the two additional pairs required while retaining the existing fire control circuits to the base-end stations (observer's, reader's, and spotter's telephones and time interval signal). To overcome this difficulty, means have been provided for utilizing the time interval circuit for the meter pair and superimposing the reader's telephone on the potentiometer pair. The time interval bell is not required when the data transmission system is being used but must be available for use in an emergency. The reader's telephone is used in synchronizing the transmitter and the receiver to the nearest whole degree, as explained in FM 4-32.

Superimposing talking circuits on the potentiometer

pairs is accomplished by the use of Repeating Coils C-111 and Condensers CA-60. This involves certain transmission considerations such as circuit loss, limitation of noise, etc. A series of transmission-frequency measurements have recently been made to obtain a quantitative measure of these factors. It was determined that in order to keep the added loss and noise to a minimum the coils must be connected in a particular manner, which is explained in installation instructions now in preparation. The loss, or impairment, due to the addition of the coils and condensers is about 2 db at 1,000 cycles, increasing to approximately 3 db at 2,000 cycles and 6 db at 3,000 cycles. The loss in the superimposed circuit increases rapidly below 150 cycles, thereby attenuating a certain amount of the low frequency noise. It was also determined that the maximum length of circuits over which satisfactory telephone circuits can be superimposed is approximately:

19 miles of 19-gauge nonloaded cable
25 miles of 16-gauge nonloaded cable
55 miles of 19-gauge H88 loaded

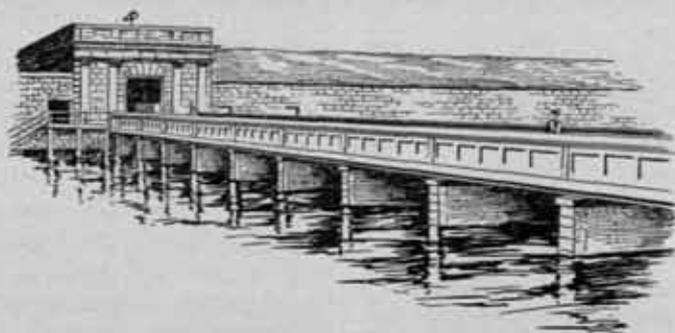
Tests were made also to determine whether the data transmission system could be used on circuits containing voice frequency repeaters. A voice frequency telephone repeater package (Signal Corps Stock No. 4B3198.1) was used in these tests, and it was determined that the direct current potentiometer circuit could be satisfactorily carried around the repeater by means of the composite sets, and that the talking currents would be correctly amplified by the repeater.

* * *

It is desired to point out that the majority of subjects handled by the Board are classified and that information pertaining to them cannot be published in the JOURNAL.

The following tabulation shows the number of projects and subjects which were handled by the Board during January and February:

Number on hand 1 January	41
Received during January and February ...	125
Total	166
Completed during January and February ..	119
Number on hand 1 March	47



Coast Artillery Journal

Fifty-fourth Year of Publication

COLONEL E. B. WALKER, Editor

L.T. COL. ARTHUR SYMONS, Associate Editor



The JOURNAL prints articles on subjects of professional and general interest to officers of all the components of the Coast Artillery Corps in order to stimulate thought and provoke discussion. However, opinions expressed and conclusions drawn in articles are in no sense official. They do not reflect the opinions or conclusions of any official or branch of the War Department.

The JOURNAL does not carry paid advertising. The JOURNAL pays for original articles upon publication. Manuscripts should be addressed to the Editor. The JOURNAL is not responsible for manuscripts unaccompanied by return postage.

The United States Coast Artillery Association

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The purpose of the Association shall be to promote the efficiency of the Coast Artillery Corps by maintaining its standards and traditions, by disseminating professional knowledge, by inspiring greater effort towards the improvement of matériel and methods of training and by fostering mutual understanding, respect and cooperation among all arms, branches and components of the Regular Army, National Guard, Organized Reserves, and Reserve Officers' Training Corps.

News and Comment

In Appreciation



Master Sergeant Charles R. Miller

Master Sergeant Charles R. Miller was retired because of physical disability on 28 February 1945.

Transferred from the 166th Company, CAC, to the Coast Artillery School detachment he was assigned to duty with the COAST ARTILLERY JOURNAL in 1915. He made the JOURNAL his life work and continuously served it and its readers for twenty-nine years.

He will be remembered by numerous officers who visited the offices of the COAST ARTILLERY JOURNAL at Fort Monroe and in Washington. He was responsible for the publishing of the COAST ARTILLERY JOURNAL during a period in World War I when no officer was with the JOURNAL.

He was always a diligent worker and did much toward keeping the JOURNAL alive during trying times.

In expressing appreciation for the years devoted by M/Sgt. Miller to the COAST ARTILLERY JOURNAL and the good of the Coast Artillery, the present Editor believes that he is voicing the sentiments and regards of all the editors for the past thirty years.

We wish him a successful and long enjoyment of the retirement he has earned.

The New President

This is the first time in the history of the Association that the President of the Association has not also been the Chief of Coast Artillery. When the Coast Artillery Association was formed Major General Gulick was Chief of Coast Artillery and because he was largely responsible for the creation of the Association he was elected as its first president. In accepting this honor General Gulick stated:

" . . . In accepting the office of President of the Coast Artillery Association I do so with a full sense of my responsibilities and limitations. *It is my view that the office of President of the Coast Artillery Association (italics by editor) should not be held by the Chief of Coast Artillery.* However, I recognize that there were good reasons for so honoring the present Chief of Coast Artillery during the organizational period. . . . As soon as the organizational period has been successfully passed, it is my intention to relinquish the office of President. I believe that my position in this matter is sound in principle and should be carried out to the letter.

It is our desire that the JOURNAL become an open forum for the discussion of our problems. . . ."

Notwithstanding this statement by General Gulick the office of President was always vested in the Chief of Coast Artillery and the JOURNAL became largely a semiofficial mouthpiece for the Chief of Coast Artillery. Articles were rigorously censored in that office.

The war situation and policies laid down by the War Department still exert considerable censorship but the intent of the Association as expressed by General Gulick finds fair to be realized in full.



Civilians from the Philippines

The State and War Departments announced that General of the Army Douglas MacArthur has commenced the evacuation of civilians from the Philippine Islands and that it will take place as rapidly as the military situation there permits, and as space becomes available over and above military needs in the limited transportation facilities equipped to carry civilian passengers.

The next-of-kin of persons being repatriated will be notified when their relatives reach the United States, but in order to meet security requirements and to insure the safety of the repatriates as they return, it will be impossible to give out information in advance regarding dates of arrival, ports of arrival or names of vessels on which repatriates may travel. The American Red Cross will meet the repatriates as they arrive and with the cooperation of other appropriate agencies will undertake to give any needed emergency assistance as well as assist in putting persons promptly in touch with their relatives.

It is particularly emphasized that relatives of persons liberated in the Philippine Islands should not attempt to travel to port of debarkation in the hope of meeting the repatriates at the port of debarkation, since it will be impossible to determine where debarkation will be effected and it is not that a repatriate might arrive home at the very moment that his relatives are traveling to meet him.

TO THE MEMBERS OF THE UNITED STATES COAST ARTILLERY ASSOCIATION:

I am deeply appreciative of the honor and privilege of serving my old Corps as President of the Coast Artillery Association. I yield to no one in my affection and admiration for the Coast Artillery Corps, and shall do my best to further its interests for all components of the Corps—Regular, National Guard, and Reserve.

At this stage of the war our forces have supremacy on the sea and in the air. For this reason the battle requirements for antiaircraft and harbor defense artillery are diminishing, but this must not cause us to forget the accomplishments of harbor defense artillery at Corregidor, nor the superior job of the antiaircraft artillery in the Pacific Areas, North Africa, Italy, England, and Europe, in the earlier stages of the war. Nor should we ignore the lessons taught us by the enemy harbor defense artillery in the English Channel ports and the enemy "flak" encountered daily by our Forces.

Units and personnel of the Coast Artillery Corps have fully demonstrated the worth of our Corps, but unless we keep alive these memories, keep a high *esprit* in our Corps, believe in its value, and maintain a sufficient measure of unity, many of the great accomplishments of the Corps will be lost sight of.

When the history of this war is written and the postwar reorganization of the Army is undertaken in the high levels, the Coast Artillery Corps can and must point with pride to its accomplishments—we must not let down those who have worked, or fought, or died, in the service of the Corps. For these reasons, as well as others, and regardless of any differences in opinion we may have regarding the course reorganization should take, we should maintain comradeship and unity within the Coast Artillery Corps until this war is won. May I ask your support of the Coast Artillery Association to that end.

Major General, USA.

Group Subscriptions

Chief Warrant Officer William D. Kaufman sent in thirteen subscriptions for members of the 439th AAA AW Battalion; Captain Anderson G. Moffett submitted eight from members of his battery, B of the 868th AAA AW Battalion, and Lieutenant R. J. Patterson transmitted nine subscriptions for units at PO 851. Lieutenant Francis J. Koenig, commanding Battery C, 868th AAA AW Battalion, sent in eight subscriptions. The total is not impressive—other units do not seem to be pulling their weight.

Lost—Coat of Arms

From time to time the JOURNAL receives inquiries concerning the coat of arms of the Coast Artillery Corps. According to the Heraldry Section of the Office of the Quartermaster General, the arms and services do not have official coats of arms. There is reason to believe, however, that there may be an unofficial device for the Coast Artillery Corps—but nobody the JOURNAL has been able to contact knows if there is such a thing, or what it is if it does exist. Even the origin of the device in the lower-right corner of the Contents page of this issue seems lost.

Can some expert (or amateur) in heraldry bring some light in the darkness?

Rolling Barrage

By Sergeant Bill Ross

IWO JIMA (Delayed).—Marine artillery experts pulled an old World War I trick out of their sleeve, modernized it for the Pacific fighting, and used it against the fiercely resisting Japanese here.

It was the so-called "rolling barrage," a continuous hail of artillery shells falling a scant 100 yards ahead of our advancing ground troops during an attack.

"To my knowledge, it was the first time the old tactic has been used out here," said Marine Lieutenant Colonel Raymond Crist, Jr.

Bliss AAATC Closes

The AAATC at Fort Bliss is scheduled to close 31 March, 1945.

♦ ♦ ♦

Firing Tables

Firing Tables for the 8-inch Howitzer M1 and the 155-mm Gun M1 may be used for the M2 models of these weapons.

♦ ♦ ♦

Red Army's Twenty-Seventh Birthday

On 23 February, the Red Army celebrated its twenty-seventh birthday. The Soviet Union is to be congratulated on the growth of its force into the great, efficient machine that is now fighting on German soil and which is playing so great a part in the defeat of Germany.

We are proud of our Ally.

♦ ♦ ♦

Unclaimed Baggage

According to reports received by the War Department, the carriers in the United States (exclusive of Alaska) have in their possession at various places a large quantity of unclaimed baggage belonging to personnel of the Armed Forces. For further information on this subject see W. D. Circular 61, 26 February 1945.



M-16's guard the Rhine bridge at Remagen. AA fire at the bridge downed an average of a German plane each hour in the first few days.

To the Officers and Men of the Coast Artillery Corps

As commander of the Ground Forces, I want to assure all officers and men of the Coast Artillery Corps that we are proud of the part you are playing in the war. In your rôle as seacoast artillery, you have been limited by the locale and nature of the conflict, but where the opportunity offered, as at Corregidor, you have proven the value and efficiency of the arm. We hope a wider test on our own shores will never be made, but if it comes, I know it will be met successfully. In your rôle of Antiaircraft Artillery you have had a wider opportunity and made the most of it. Not only have you fulfilled your primary mission of combatting the enemy air force; you have also fought as field artillery in ground support, in anti-tank rôles, and as Infantry. One of our responsibilities in future planning is to take full advantage of this flexibility of use. The high morale and good state of training of antiaircraft units converted to infantry have been noted by all officers who have been associated with them, and have helped to make the Coast Artillery Corps a welcome and valued member of the ground team.

I hope that all of you will feel as I do, that we are pursuing a common purpose and that we all have a common part and interest in achieving it.

J. W. STILWELL,
General, U.S.A.

Overseas Air Mail Curtailed

With insufficient cargo space on aircraft available to carry the air mail load, the War Department in an announcement recently emphasized that the affixing of air mail postage on overseas mail will not guarantee the transmission of air mail by air from the United States to overseas destinations.

Of all categories of overseas personal letter mail only V-Mail will be assured of overseas dispatch by aircraft, it was pointed out, a condition which has been brought about by the large increase in the number of troops overseas and the consequent up-swing in the volume of outgoing overseas mail which has now reached the unprecedented volume of some forty-five million individual pieces per week.

Seeing Snakes

Some of the difficulties Coast Artillerymen meet these days were not anticipated by the writers of the manuals or by the makers of training schedules. From New Guinea Captain Edgar Cox writes:

"Several days ago while waiting for a practice target assignment our range section, which had its plotting room back in the jungle, was at its post keyed to a high pitch, when an eight-foot python came waltzing across the tent floor. It maneuvered its way quite leisurely over and around the feet of the men and disappeared out the other side of the tent and on into the jungle. About that time, naturally,

we got our target assignment. The course was slightly erratic at first, but straightened out and proved to be a very good course.

"Just another unforgettable instance for the men—one of many during their overseas assignment."

Postwar Research

Establishment of the Research Board for National Security by the National Academy of Sciences was announced in a joint statement by the Honorable Henry L. Stimson, Secretary of War, the Honorable James Forrestal, Secretary of the Navy, and Dr. Frank B. Jewett, President of the National Academy of Sciences.

The objective of the Board will be to continue, pending final consideration by Congress on creation of an independent agency, the close cooperation between civilian scientists and the Armed Services which has proven to be such a vital element in the prosecution of the war.

Composed of high-ranking officers responsible for the needs and plans of the Army and Navy, together with an equal number of distinguished representatives of science, engineering, medicine, and industry, this Board includes many of the features of the Office of Scientific Research and Development, which has proven so successful as a war-time agency in mobilizing civilian scientists and coordinating their work with the requirements and operations of the Armed Services.



A German 15-inch howitzer, mounted on a Tiger tank chassis, captured by Americans. AP.

British Fleet in the Pacific

WELLINGTON (N. Z.), Feb. 6—Admiral Sir Bruce Fraser, Commander-in-Chief, British Pacific Fleet, who arrived at Auckland on Monday on a visit to the Dominion, said that his fleet, operating as a separate British unit under American operational control, would constitute the fourth fleet fighting the Japanese. Aircraft carriers constituted approximately half the strength of the big ships in the British Pacific Fleet.—*London Times*.

What's In Those Names?

ABOARD A TRANSPORT OFF IWO JIMA (Delayed)—Haha Jima isn't a hearty laugh in Japanese nor Iwo Jima a Tokyo tango tune, but Japan's government gave fantastic names to its Volcano and Bonin Islands in the early 1850's, names that may be Americanized in the future.

Key target of the Marine Corps' greatest Pacific invasion on Japan's front doorstep, 660 nautical miles south of Tokyo, is the Volcano chain (Kazan Retto), southernmost islands in the Nanpo Shoto group, stretching south from Tokyo bay.

Largest and most important in the Volcanos is Iwo Jima (Sulphur Island), named for its sulphur earth features.

To the south is Minami Iwo Jima (South Sulphur Island) and northward toward the Bonin group is Kita Iwo Jima (North Sulphur Island).

The Bonins, likewise volcanic in origin are known to the Japanese as the Ogasawara Islands, named for Sadayori, Prince of Ogasawara, who, Japan claims, first discovered the islands in 1593.

Bonin stems from Munin, meaning "empty of men" of which Bonin is believed a corruption.

Ten largest of the Bonins were oddly named after various members of the family and are sometimes referred to as the "Family Islands."

Largest of the group is Chichi Jima (Father Island). Others are Haha Jima (Mother Island); Ani Jima (Elder Sister Island); Ani Shima (Elder Brother Island); Ototo

Jima (Younger Brother Island); Mei Jima (Niece Island).

Three others are Yome Shima (Bride Island); Muka Shima (Bridegroom Island); the latter two islands separated by Nakadachi Shima (Go-Between Island). The go-between who finds a mate for a daughter or son is regarded almost as a member of the family in Japan.—*Cheriton*.

In Addition to Other Duties

By Private Milton E. Moore

When Lieut. Ralph F. Reuter's first platoon of Battery "A," 534th AAA (AW) Battalion was set up in a northerly position, the boys decided that manning the M51 didn't keep them busy enough, so they took up a sideline of counterespionage.

One day Private First Class Raymond G. Boulanger, manning the M51, saw a civilian walking toward a near-by village and eyeing the guns like an ack-ack man would eye a bonafide American blond. When Boulanger shouted for him to stop, he replied that he was on his way to the barber shop. That was OK, except for one thing: he didn't need a haircut!

Later Corporal Kenneth Behm of the same gun section, spotted him again. This time he claimed that he was going to a friend's funeral. The ack-ack boys began to wonder if they shouldn't arrange the same kind of a ceremony for him—on the spot!

Sergeant Florian Weber, chief of Section 4 organized a four-man patrol to make like Sherlock Holmes and find out what was what with this man who got his hair cut when he didn't need to and went to funerals when nobody was dead.

A line of footprints turned up in the snow one dark night. Boulanger mashed across the snow until he saw where the footprints led up to a solitary farmhouse. This, he decided, was "nichts goot." So he went back to the section for a four-man patrol. It was agreed that asking for schnaps at the house was a good excuse to get a look inside. If they found something suspicious, good! If they didn't, so much the better, they'd get a drink for their trouble!

When they came to the place, two members of the patrol remained outside to "cover" their buddies who entered and found two men in the front room. One was their traveling friend who tried desperately to hide something behind his back. It was a small, but forceful battery-powered seal-beam. They began to see the light!

Just then the men outside sighted a light signalling directly toward the house from the Kraut side of the front lines—possibly inside Germany. Assuming that it was more than a firefly they had seen, the patrol quickly notified Lieutenant Agis L. Mihalakis, who set out with a few of his men to make the arrest.

The man with the blinker signal was pro-Nazi Conrad Meyer. His assistant was Herr Mueller.

From now on Meyer won't have to go to a village for haircuts—he'll get them GI or FFI style. But the next funeral he attends is likely to be his own.—*Gunpit News*.

British Methods of Selecting Officers

The composition of a War Office Selection Board, of which there are now nearly a score in the United Kingdom, with others abroad, is as follows:—President (colonel), deputy president (lieutenant-colonel), senior military testing officer (major), four military testing officers (captains), specialists psychiatrist (major, R.A.M.C.), and psychologists (captain or lieutenant assisted by sergeant testers). The work of the board is to collate the results of various tests. The military testing officers supervise "group" tests and other tests for practical ability for which, however, no special military knowledge is required. The work of the technical staff—a team consisting of a psychiatrist (i.e., a medical psychologist) and lay psychologists—may be mentioned in a little more detail. Three types of psychological tests are used.

First, *questionnaires* are completed by the candidate, one on military training, occupation, education, and social activities, available for the president of the board, and another giving facts of medical and family history which are confidential for the use of the psychiatrist. Secondly, there are intelligence tests of three varieties. Thirdly, there are more psychological tests designed to throw light on the candidate's personality from which are derived what are called "personality pointers." From all these tests, with an interview by the psychiatrist if necessary, the technical staff constructs a comprehensive report on each candidate. The final decision on a potential officer, rests with the president of

the board, but in reaching it he is assisted by his whole team.

It is generally agreed that the new method secures a better selection than the old one, although for security reasons it is not possible to publish a scientific analysis of the results obtained.

The object of the W.O.S.B. is essentially to eliminate unsuitable candidates, while at the same time passing as many potential officers as possible.—*London Times*.

Ambulance Planes

Cargo-carrying planes can be rapidly converted into flying ambulances through the installation of web straps from which to suspend litters. The new web strap suspension system takes the place of rigid metal framework that formerly hampered loading operations and presented a definite hazard to medical personnel moving about the plane in flight. Straps are more economical in weight and space.

Originally designed for use on the C-82 Packet cargo plane by Michael Cozzoli, project engineer of the Fairchild Engine and Airplane Corporation in cooperation with the Air Technical Service Command, Wright Field, the new method of litter suspension is now standard equipment in all large military ambulance planes, including the C-46 Commando, C-47 Skytrain and C-54 Skymaster.

Using the strap method, 34 litters can be set up in the C-82.—*Science News Letter*.



Jap 12-inch gun captured near Rosario, on Luzon. Gun camouflaged by hut on rollers.



Signal Corps

American Kachin Rangers use a bazooka against Jap trucks on road-block operations behind enemy lines.

Fortbuster

By Nat Kudatsky, Ordnance Department

More than two years ago our intelligence reported that the Germans were building an inner fortress in Europe so strong it would be impervious to our artillery. Its pillboxes would remain impregnable, they said, even after hours of pounding from our biggest guns.

This was midsummer of 1942. Rommel was at El Alamein. Heroic, mighty Sevastopol had fallen and the costly Dieppe raid had failed miserably. But the Army, nevertheless, began to plan for the day we would assault these inner defenses of the enemy.

Ordnance went to work on a new concrete-piercing shell, unparalleled in history, that would smash these super-bastions. While our ordinary armor-piercing shell could tear through the concrete, the charge it carried was too small to destroy the fortification. And our powerful high-explosive shells merely exploded on the outside. There was no time to design a new-type shell and tool up for its manufacture—the solution must lay in a combination of these two.

Day and night the wise and experienced laboratory technicians of Aberdeen Proving Ground estimated, probed and discussed the problem. At length they thought they had the answer—the "Fortbuster," or Concrete-Piercing Fuze, no bigger than a large-sized hen's egg.

The fuze would keep the shell from collapsing upon impact and drill a path through for the explosive-filled casing to follow, explode and demolish the concrete. Easy to manufacture, the "Fortbuster" would give maximum destructive effect against both thin and massive concrete structures. Moreover, it could be screwed directly into the nose of any existing standard shell (75mm to 240mm) except the 120mm.

On the flats of Gunpowder Neck at Aberdeen Proving Ground, Ordnance engineers constructed replicas of German pillboxes that were even stronger than the specifications sent in by our agents in Europe. Their walls of carefully mixed concrete reinforced by criss-crossed steel rods and thicker than the height of a very tall man, had a compressive strength of almost 7,000 pounds per square inch. Those walls would withstand the impact of a locomotive going over 100 miles an hour.

On a bleak January day, little groups of Aberdeen Ordnancemen braced themselves against the biting, snow-laden

wind that swept in off Chesapeake Bay and swirled around the "German" pillboxes. At a signal the artillery, from 75's to 240mm howitzers, crashed against the fortifications. They watched the smoke clear for breathless minutes, then the Ordnancemen slapped each other on the back. The "impregnable" forts were a heap of twisted rubble.

"Fortbusters" smashed the concrete fortifications in Normandy on D-day. Today they are doing spectacular smashing duty wherever there is tough concrete or similar resistance on the roads to Berlin and Tokyo.—*Firepower.*

M-10 Range Finder

WASHINGTON—(ANS)—A new type range finder, the M-10, which gives deadly accurate control of 40-mm anti-aircraft fire, has been announced with Army approval.

The new finder uses two telescopes to give two target images, one red and one blue. The gunner gets his bead by superimposing the two images until a natural color target is spotted.

A four-man crew operates the finding device which is mounted on a special director. All of the firing data is supplied electrically, and the entire battery of guns is aimed automatically.

The time lag, present in the older types where fire data had to be plotted by observing tracer shells, has been eliminated.

At the present time the new finder is mounted on only the 40mm guns and is used against low-flying strafing attacks. Eventually, however, it will be adapted to other weapons including defensive armament against robot bombs, an Ordnance spokesman said.

First Jet Combat Plane

The Army Air Forces' first jet-propelled combat plane, the P-80, built by Lockheed has been announced by General of the Army H. H. Arnold, Commanding General of the Army Air Forces. Only a few details about the new plane, to be known as the "Shooting Star," are now available. It is believed to be the fastest fighter in existence.

Carefully guarded development flights of the plane have been confined to remote Army airfields. The airplane is powered by a single gas turbine engine. Air is drawn through the intake ducts and screened. It then flows through a compressor of the turbine into a chamber where it is heated by a burning fuel similar to ordinary kerosene. The rush of hot gas revolves the turbine to turn the compressor. Gas rushing out through a huge nozzle at the rear of the fuselage propels the plane.

The "Shooting star" is extremely maneuverable through use of an hydraulic aileron boost and electrically operated flaps. It can carry heavy loads of ammunition, photographic equipment, bombs, and fuel. The pressurized cabin, unique among production fighters, is equipped for pilot "G" suits to ease the discomfort of sharp turns and pull outs.

Extremely important is the simplicity of design and construction of the P-80. With the propeller, radiator, cool-

ing system, superchargers, carburetor and all the complex controls of these items in a conventional model absent, the result is a plane that is remarkably easy to build, service, and repair. Typical of the maintenance ease is the fact that the engine can be replaced completely within 15 minutes, compared to the eight or nine hours required for engine change on the standard fighter. The cockpit arrangement of the P-80 is actually easier to check than that of light trainer-type airplanes.

Less Time and Labor for Jets

Jet propulsion engines for propellerless airplanes, like the P-59 Airacomet require less than a fifth of the time and labor necessary to maintain a conventional motor, reports Staff Sergeant Earl Kohler, a jet crew chief at Air Technical Service Command headquarters, Wright Field.

The jet engine has only about one-tenth as many moving parts as does the conventional airplane motor. This explains much of the savings in maintenance.

"Most mechanics are surprised to learn that there are only eleven bolts holding the engine in place," Sergeant Kohler commented.

He pointed out that it is possible to take one of the jet engines off the P-59 in thirty-five minutes, and that four men can remove both jet engines and install new ones in a day.

"Where we used to spend five days doing a certain job on a conventional plane, we can do the same thing for a jet in a day."—*Science News Letter*.

Photo-Flash Tube

The amount of light that would be forthcoming from 4,000,000 forty-watt bulbs is equivalent to the amount of light used by AAF photoreconnaissance pilots to make low-altitude pictures of enemy installations at night without the use of parachute flares or flash bombs.

Secret of the system for taking aerial photos at night is a quartz helix flash tube in which stored electrical energy from the airplane's 24-volt DC electrical system is discharged through the rare gas xenon. Krypton, argon and neon gases may also be used, but xenon gives the whitest light, most desirable for photography.

Flying at 5,000 feet, the new equipment, developed at the Massachusetts Institute of Technology by Dr. Harold Edgerton in cooperation with the Air Technical Service Command, takes 200 pictures in less than seven minutes, on a roll of film 150 feet long.

The unit consists of a K-29 aerial camera, flash assembly, and a control box. The camera shutter is synchronized with the flash assembly, so that each picture is snapped at the instant the xenon flash bulb reaches its greatest sun-like brilliance. In operation the process is similar to that of taking regular flash pictures, except that the single bulb lasts for several hundred flashes and does not have to be replaced after every picture is taken.

The xenon bulb fits in a large reflector, 30 inches in diameter and 24 inches deep, made of spun aluminum, treated to produce a mirror-like finish.

The camera unit weighs 460 pounds and is suspended from a bomb rack.—*Science News Letter*.



Dam No. 5, one of the Roer River dams which was captured by the 9th Division on 4 February. Bomb and shell craters may be seen at the foot of the dam.

Signal Corps

Quotes from Letters

New Guinea.

"Although a magazine on tractor-trailer trucking would probably be more appropriate at this time, I am anxious to keep in touch with changes in the Coast Artillery."

CAPTAIN PAUL F. INGELS.

* * *

"It is hard to take care of all copies of the JOURNAL over here and I would like to have it for future reference. Will you please send one copy of the JOURNAL to my home address for one year, and of course continue the subscription at the above APO."

LIEUTENANT JAKE M. WILLCOX.

* * *

Camp Maxey, Texas.

"I find myself in a peculiar situation. I am still retaining my status as CAC but I am training Infantrymen. I am a speck of red in a sea of blue. However, I am continuing my subscription to the CA JOURNAL."

LIEUTENANT ROBERT R. HAWKINS, JR.

* * *

"Though I've changed branches temporarily I'm still CAC. I'm still doing AA work as this is Ship and Gun Crew Command. Perhaps with some AA training these Ship Crews can build up their percentage of hits. We think so."

LIEUTENANT ROBERT SHIMOFF.

* * *

Somewhere in Belgium.

"I enjoy reading the magazine very much; it's the only way we have of getting some of the latest information on AAA training and new additions for the Ack Ack, especially over here. Some of the ideas that are published are very interesting and very helpful to us."

CAPTAIN JAMES W. SHOCKLEY.

* * *

"I have had a subscription to the JOURNAL for a couple of years and I have learned quite a bit from it. I have been receiving it this year but usually a lot later than anyone else. You have the wrong address for me but I know it is my fault. I must have forgotten to notify. I'd like to add before I close that I have ordered quite a few things through the magazine and I have always been well satisfied."

LIEUTENANT FRANCIS W. FOLEY.

* * *

"Although I am in the Field Artillery I will remain a Coast Artilleryman and the JOURNAL is always welcome."

SERGEANT R. M. HUBBARD.

* * *

Sorry to have delayed payment on my JOURNAL, but sometimes the situation over here fails to recognize such an important thing as even payment for a swell help, THE COAST ARTILLERY JOURNAL.

If I were to enumerate the many, many times the JOUR-

NAL has helped me, well, I would be shouting my praise forever and a day. So I'll just keep on subscribing as I have these past few years knowing it's the best three dollars a man can lay out of his pocket.

LIEUT. JAMES D. MACK, CAC.

✓ ✓ ✓

Science Shorts

Air Position Indicator. About the size of a quart milk bottle, mounted on the instrument panel of a B-29 Superfortress, a new air position indicator gives continuous readings of latitude and longitude in flight. This is the first device to give such readings in the history of navigation on the sea or in the air.

Stink Bomb. A new "stink bomb" for sharks chase them away from Army Air Force flyers downed in shark-infested waters. The new chemical weapon is obnoxious to the olfactory sense of sharks, keeping them away from flyers who use it. Dissolved in water, the repellent forms an inky black cloud that is almost odorless to humans but to sharks it smells like decaying sharks' bodies, causing them to turn tail and swim off.

Spitfire XIV. The Spitfire XIV, newest fighter of the Royal Air Force, is also the fastest Spitfire in service, attaining a speed of 450 miles an hour over a tactical range of 300 miles.

Equipped with a five-bladed propeller and a 2,000 h.p. Rolls Royce Griffin engine, the plane has been in operation since D-day last June. The P-47 and P-61 are the only American fighter planes equipped with 2,000 h.p. engines.

Tool Steels. Harder tool steels for faster production of the wares of war and more efficient reconversion to the works of peace are promised in a new U. S. patent. The process is a variant of the sintering method, wherein metallic powders are molded into the desired form and then heated until they become solid. The new steels are made by mixing into powdered iron or steel an excess of powdered carbides of tungsten, vanadium, or other hardening alloy metal. When the sintering heat is applied, part of the hardening material blends with the iron, and the rest of the diamond-like particles remain unchanged, firmly embedded and bonded into the mass of the steel.

Insulating Plastic. Undersea electric cables may, in the future, be insulated with polythene plastic, it is predicted because this material has excellent insulating qualities, is not attacked by sea water, resists penetration by moisture and is unusually insoluble and inert to chemical reagents. It may be used also for protective coatings on machinery in or near salt water, to prevent corrosion. Polythene has very largely replaced all other materials in the insulation of military wires for high-frequency use.

Diesel Fuel. A new development in the diesel engine field permits the use of either gas or oil as fuel without an electric sparking device, saves from 20 per cent to 25 per cent in fuel consumption, and enables the change from one fuel to another without the necessity of a shutdown. It is a development of the Cooper-Bessemer Corporation.

Antiexposure Suit. Airmen dunked in near-freezing arctic waters in subzero weather after ditching their plane

at sea may owe their lives to a new all-nylon antiexposure suit that is coated with a substance to make it both watertight and airtight. Information regarding the substance itself was not revealed.

The protective cloth of the suit covers everything but the face. Under ordinary conditions an airman's survival in water 15 degrees above zero is a matter of minutes. It is reported to be one of the worst situations that a man can face.

During tests, airmen wearing the suit have spent an hour in water at very low temperatures. By use of thermocouples, scientists observed that at no time was any part of their bodies more than a few degrees below normal. The men themselves reported experiencing no real discomfort from cold.—*Science News Letter*.

Antidrowning Mask. To ocean-flying airmen, one mental hazard is the fear of being trapped in a submerged plane after a crash landing at sea—as many an airman has been trapped and drowned. Last week the Army's Air Technical Service Command announced an ingenious device to help trapped flyers: an oxygen mask for breathing under water while they fight clear of the plane.

Captain W. C. Kulesz, of A.T.S.C.'s aero-medical laboratory at Wright Field, had a bright idea; why not use an ordinary portable oxygen cylinder and mask, such as bomber crews wear in high-altitude flight? The captain promptly donned a mask, jumped into a swimming pool. It worked. Further tests showed that with such a mask a man could breathe for 6 minutes at ten feet under water, or three and one-half minutes at 50 feet. Normally this should give a man, unless he is too badly injured, time to break out of a plane cabin or turret.

War-horn Alloy. By FBI: a war-born alloy so magnetic (it can lift 4,000 times its own weight) that FBI plans to use it to fish in rivers and ponds for criminals' discarded weapons and other metallic clues.

Barge-like Floating Iceboxes. By a group of manufacturers: barge-like floating iceboxes, fleets of which are to be used in the Pacific, for carrying fresh meat, vegetables, milk, etc., to battle fronts. Each one holds 1,000 tons of food, can make 500 gallons of ice cream a day.

"Gasparcolor." By the Army's Air Technical Service Command: a rapid photographic printing paper called "Gasparcolor," which is sensitive to red, green, and blue light in a single exposure, should make production of colored prints from colored transparencies easy in home darkrooms.—*Time*.

The Siege of Dunkirk

21st ARMY GROUP H.Q., Feb. 6—For five months an allied force, principally Czechoslovak, but with British, Canadian, and French elements, has been besieging in Dunkirk the German garrison of some 11,000 men. The perimeter of the German defenses is some 45 miles long, enclosing the beaches from which the British evacuation took place in 1940.

The front line varies from ruined houses of a village shared by Czechoslovaks and Germans to vast areas of wooded fields where the armies watch each other across a

waste of water. By day there is no cover. Hence by day allies and Germans sleep and by night they patrol and fight. The German garrison show great spirit and are constantly improving their positions. There has been very little desertion, partly because only officers and n.c.o.s are aware of the location of minefields, and anybody wishing to desert has to make his way through thick belts of mines surrounding the town.

The commander of the garrison is Rear-Admiral Frisius, and his officers include Hauptmann, an infantry captain, and Tuerke, who commands all the *Volks* units and runs an assault course at the same time. He is known to his men as "old brandy bottle" by reason of his habits, and is generally seen going about with a bottle of brandy under one arm and a bazooka under the other. Candidates passing out from his assault school have to do a one-man patrol on their own through the allied lines before they receive a diploma signed by Tuerke or any promotion or decorations which Admiral Frisius distributes generously to maintain morale, failing adequate supplies of food. The civilian population were plundered before all but 500 out of 15,000 were sent through the allied lines under a flag of truce last October. Now, however, there is only enough food for one hot meal a day. Aircraft occasionally get through with mail, medical supplies, and more mines, but it is an uncertain service, and cargoes destined for the Germans frequently end up in our lines. The 500 civilians who elected to remain are nearly all French or Flemish collaborators.

The German garrison has about 100 guns, exclusive of *Flak*, ranging in size from captured French 75s to 11 in. railway guns originally built for German battleships.

A British major with whom I talked, who had got out from Dunkirk in 1940 and who is now fighting there again, praised the Czechoslovak troops in warm terms, particularly their artillery and engineers. By harassing fire the artillery had, among other things, prevented the Germans from completing work on an aerodrome which they had begun behind the lines, and which the Germans had expected to have ready at the beginning of December. Czech sappers, he said, had worked with fearless energy in cleaning up field upon field of mines, notably of the Teller pattern, which cannot be disarmed but must be pulled out and exploded.—*London Times*.

Skymarker Bomb

A new skymarker bomb which trails colored smoke through the air has been developed by the Technical Command of the Chemical Warfare Service.

The "pathfinder" bomber of an Allied formation, guided over the target by means of special instruments, drops one or more skymarker bombs. While falling toward the enemy installation, the skymarker bomb leaves a bright trail of red or yellow smoke which persists for at least one minute and which is clearly visible to planes flying five miles to the rear.

The succeeding waves of bombers drop their bombs at the point where the colored smoke breaks through the clouds, and their explosive and incendiary bombs follow the same course down to the target.

Steps for Increasing the Effectiveness of Machine Gun Firing With Antiaircraft Mount M3

(From the AAA Command)

1. General.—This training bulletin prescribes means of increasing effectiveness of firing the Browning machine gun, caliber .50, M2, water-cooled, flexible, mounted on caliber .50 machine gun antiaircraft mount M3. Improved results may be attained by:

- a. Balancing gun and mount.
- b. Proper lubrication of socket bearing and cradle pivot bolts.
- c. Accurate sight alinement.

2. Balancing Gun and Mount.—The caliber .50 machine gun on the antiaircraft mount M3, when equipped with the speed ring sight, is not balanced. The extent of muzzle

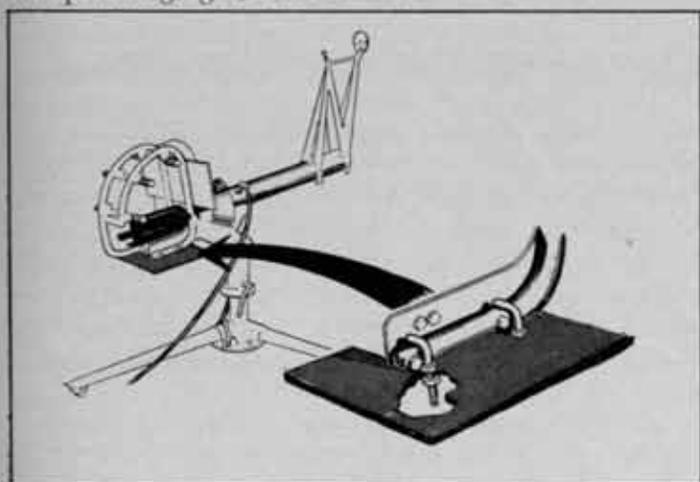


Figure 1

heaviness varies for different guns and mounts. Guns must be balanced by a trial-and-error method, using the available material best suited for the individual requirements. Satisfactory results are obtained by clamping a thick steel plate or similar concentrated weight to the mount under the trigger frame. (It has been found that proper balancing may be accomplished by using a metal plate 3/8" x 13 1/2" x 20", weighing approximately 34 pounds.) When attached as shown in figure 1, the steel plate serves the secondary purpose of holding parts and tools during field stripping. When properly balanced, the weapon can be elevated and depressed smoothly and with little effort, thereby allowing the gunner to devote his attention to the fire control problem.

3. Lubrication. — Unnecessarily sluggish tracking is found to exist frequently because of stiffness at the socket bearing in the pedestal and at the cradle pivot bolts in the trunnion bracket. Bearing surfaces must be properly lubricated to allow free horizontal and vertical movement of the machine gun (see par. 31 and 32, TM 9-226, dated 2 August 1943).

Counterweight for machine gun mount M3.

4. Alinement of Sight.—In many cases, insufficient attention has been given to the alinement of the speed ring sight. Improper superelevation setting is a particularly common fault. Unless all provisions of paragraph 112, FM 4-155 are satisfied accurately, the advantages of the speed ring sight cannot be fully utilized.

Thirty Months with the 432d AAA Battalion

WITH THE FIFTH ARMY, ITALY—Overseas 30 months, 15 with frontline troops, the Fifth Army's 432d AAA Battalion is still in action up in the mountains of northern Italy. Looking at their half-tracks parked out on an Appenine ridge where they are guarding the skies over elements of the II Corps, men of the veteran outfit recently calculated that they have spent over 750 days watching and waiting at their guns.

Immediately after landing at Oran, Algeria, in late November, 1942, the 432d took up its primary assignment for the North African campaign—antiaircraft defense of vital ports and air fields. Frequently the battalion was split up in detachments from the coast inland to the edge of the desert and east to the Tunisian front, protecting Allied shipping and Flying Fortress and P-38 bases. La Senia Airdrome at Tafaroui, the ports of Philippeville, Bone and La Calle and airfields at Jemmapes, Navarin and St. Donat were some of the strategic points where the 432d repeatedly went into action against Jerry's Junkers.

Early in July, the battalion moved into Bizerte to protect shipping then massing for the invasion of Sicily. Later the unit returned westward to Ain Temouchent in Algeria where it was reequipped with the self-propelled weapons it is still using.

The 432d arrived in Italy in early October, going into action with the Fifth Army in the Mignano sector on November 1, 1943. This marked the beginning of the long stand in the mud and snow of the mountains of Italy—10 months, through two winters, of constant vigil against the Luftwaffe, protecting various service and infantry units of the Fifth Army. Hottest period was before Cassino, where the unit's alert gunners destroyed three Messerschmidts in one sneak raid.

On May 11, 1944, when the Fifth Army began its offensive on Rome, the 432d Battalion crossed the Garigliano River with the French Corps, supporting the hard fighting Goums and Moroccans of the French Infantry in their rapid push north through Castelforte, Valmontone and above Rome. At the end of this drive, the French Command commended men of the battalion for their outstanding soldierlyship. The unit's commander, Lieutenant Colonel David S. Keisler of Leesville, South Carolina received the Croix de Guerre and the Bronze Star.

Reassigned to II Corps, the battalion moved north again in the fall, crossed the Arno River and continued its support of Fifth Army troops as they pushed on through the Gothic defenses.

Through the African and Italian campaigns, members of the 432d have received 26 awards for heroic action and outstanding service. Seventy-nine of the men wear the Purple Heart for wounds received in action against the enemy.

The unit was activated in March, 1942, at Camp Hulen, Texas, trained for five months along the south Texas coast and embarked for overseas duty in August. In Scotland and southern England, the battalion received further intensive training before sailing for North Africa.

Fifth Army Fighting Trench Foot

Despite the tough going on the Italian front—days upon days in which troops found themselves virtually immobile in mud, driving rains, sleet, snow and in subfreezing temperatures—figures released today by the War Department show that during January, 1945, the Fifth Army had only 23 cases of trench foot as compared with 1,490 cases during January of 1944.

A year ago, the Fifth Army was fighting in the vicinity of Cassino, far to the south of its present battle lines in northern Italy. Consequently, temperatures during last winter's campaign were appreciably lower. The decrease in the number of trench foot cases, therefore, is encouraging.

Although responsibility for the improved conditions in Italy can be traced in large measure to better foot gear for the tough slogging along the muddy, mountainous terrain, Fifth Army officers place greater emphasis on discipline.

The hard school of experience has resulted in the adoption of unit responsibility as a means of exterminating the disease which has ravaged our troops in past campaigns. Officers and men have been instructed in preventive measures and now are successfully applying them.

Figures prepared by the Fifth Army throw additional light on the campaign against trench foot.

During the week ending January 14, 1944, 46 per cent of all casualties were the result of trench foot. During the overall period between November, 1943, and March, 1944, 23 per cent were due to the disease. However, from

October, 1944, to the first of February, 1945, only 8 per cent of all casualties could be charged to trench foot.

Experiments on the Italian front have disclosed that foot gear alone will not lick trench foot if troops do not follow through with instructions passed down the line.

Burn Treatment

The Medical Department of the Navy has accepted human serum albumin as a therapeutic agent in the treatment of shock and burns.

It is now the consensus in both the Army and Navy that Tannic Acid does not give as good results as ointments, plain vaseline or petrolatum, plus an occasional occlusive compression dressing.

The common practice now is to merely cover the burned area with sterile vaseline, or petrolatum-soaked fine mesh gauze strips, placing over this a single layer of sterile gauze and then applying even pressure over the entire burn. For the outer dressing sterile machinist's cotton waste with a light superficial bandage is satisfactory and practical.

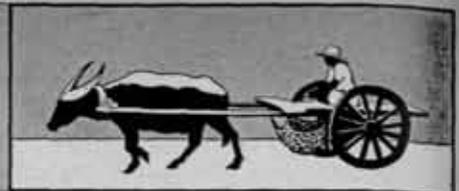
The former practice of taking down burn dressings practically every day to follow the course of the burn lesions has now been relegated to those few cases in which marked and obvious sepsis requires such treatment. It is common practice in the Navy to leave the initial dressing undisturbed for the first ten to fourteen days.—From an article in the *Military Surgeon*.



A line of Marine rocket trucks fires a barrage at the Japs on Saipan.



Corregidor



BRIGADIER GENERAL GEORGE F. MOORE, U. S. Army,
Commanding Philippine Coast Artillery Command
 By Lieutenant Burton R. Brown

Change of command designation, tragedies, near tragedies, celebrations, and distinguished visitors have been as much a part of Corregidor during August and September as the rain. Orders from Headquarters, United States Forces in the Far East, have created the Philippine Coast Artillery Command with Brigadier General George F. Moore as Commanding General.

The Headquarters is a part of the quarter.

The first of the trips to the past morning to Fort rolled off a few minutes. Winter work of all extent of Hultquist F. W. when they rolled down with them in a boat. It kept all before them. By slow while, our own missing beach and a street have no busy road.

A message engaged in the regiment.

especially gratifying to Colonel Bunker since this is the third time he has commanded this regiment and is justly proud of it. Lieutenant Colonel Valentine P. Foster, who was with this organization at its inception and served with it all during World War I in France reviewed the history of the regiment from his own personal experiences with it. General Moore, who in one of his previous tours at Corregidor, had also served in

the regiment, complimented the regiment on its past and present achievement. On this same occasion the newly authorized regimental band made its first public appearance.

On September 3d, Lieutenant General Douglas MacArthur, Commanding General of the United States Forces in the Far East, accompanied by Brigadier Gen-

er General, made an ent, involving at Corregidor it much his deity but itly ap- id little re vast a doing

been ac- an ap- instructors' In- batteries Lieutenant of the outdoors defense over the in, and all regi- cord of firings for any st come e train- oticed a d in his

back are



Signal Corps

Tec 5 Frank Guy Arrige and Pfc. Clyde L. Bates of the 503d Parachute Regiment raise the American flag over Corregidor for the first time since the surrender of the island.

made by all units. During these marches the organizations engage in gas defense and extended order problems. The improved physical condition of the personnel is very noticeable. Meanwhile several officers and non-commissioned officers are detailed for a short time with the Philippine Army to assist in their training. During this same rainy season, Mine Command of Lieutenant Colonel Kohn's regiment has worked day and night, in



Corregidor



COLONEL GEORGE M. JONES, *in Charge of Combat Operations*

By Major Frank B. Moses

The American Flag flies again on the old post flagpole, but Corregidor is but a phantom of its former self. For oldtime Coast Artillerymen it consists of merely a collection of memories. But *what* memories. Tales of the courageous defense of "The Rock"—of the privations undergone—of the daring recapture will find their way into historical narrative for many years.

The Malinta Tunnel still holds mysteries as yet unsolved. Undoubtedly records of the past will be uncovered that will throw light on the dark days of the siege. One of the earlier papers recovered was the diary of Colonel "Bill" Braly, G-3 of Fort Mills until surrender.

The first Coast Artillery troops to reoccupy Corregidor after its recapture are members of Battery A, 950th AAA AW Bn, which were part of the amphibious assault wave. This unit is commanded by 1st Lt. John J. Trotman. The organization accounted for many Nips on the ground during the fierce combat, but did not have any opportunity to operate against Japanese air elements.

Major General "Bill" Marquat, AAO of GHQ and Commanding General of the 14th Antiaircraft Command of Southwest Pacific Area, was the first individual of the pre-capitulation garrison to set foot on "The Rock" after its recapture. During the opening stages of the operation Gen-

eral Marquat flew over the island in a "cub" airplane observing the progress of the battle. While operations were still in progress he landed by PT boat and was a ground observer during some of the intensive ground fighting. The General also conferred with Major General C. P. Hall, commanding the XI Corps, and Colonel Jones, commanding the 503d Paratroop Regiment prior to the operation where he contributed valuable information of installations, routes and potentialities of the Jap defenses. During prewar days General Marquat was stationed on Bataan with the forward echelon of GHQ, but he made frequent trips to Corregidor with information for General MacArthur and General Moore. At that time he was Chief of Staff of the Philippine Coast Artillery Command, commanded by Major General George Moore. Colonel Joseph Cottrell was Chief of Staff of the Corregidor defenses.

General Marquat said:

"From the air it just didn't seem right for naval vessels to be shelling the Old Rock, even if the shells were coming from our own magnificent Navy. As the battle progressed, however, it became apparent that nothing could withstand continuously the marvelously coordinated attacks of our Air, Naval and amphibious forces. *A lot of lessons have been learned which should be of great value in the future,*



Water tanks, Topside.

many of which are going to surprise the skeptics on the value of harbor defense installations. Old Corregidor went down, but it succumbed like a thoroughbred."

The Japs collected much of the metal from elements of the defense destroyed by American troops prior to their capitulation and sent it to Japan, according to reports. A surprising amount of ordnance, however, can be reclaimed by the replacement of vital parts.

The number of Japanese killed by the Infantry Task Force in reclaiming Corregidor exceeded the number of Americans employed in the whole operation.

The paratroop landing on Topside was a daring effort and one which should claim a high position in the history of tactical surprise. Although the paratroops landed actually in the heart of the Jap garrison, the surprise was so great that initial opposition was not properly organized. Operational losses were heavier than combat casualties for the paratroops.

The Japanese started fires within Malinta tunnel which were veritable infernos and yet after the explosions and conflagration had died down, more Japs emerged to be picked off by wary infantry.

The Far East Air Forces support of the operation was terrific. In spectacular and effective passes at the vital defensive elements, the Kenney airmen mowed down the enemy at such a rate that he could not recover in time to block our efforts. Then the airmen hovered around begging for other tasks to perform. They worked on the sides of vertical cliffs, on tunnel entrances, on dug-in defenses with speed and accuracy.

The Naval Support Vessels came within small-arms range of the defenses at many points. By maneuver they were able to pour fire into defiladed positions which could not be reached from land or air. Admiral Struble's forces earned a big share of the credit for the recapture.

The paratroops operations had to be supported entirely by air for several days and the Air Support command performed outstandingly. Veterans at dropping munitions, supplies and reinforcements these C-47 units wrote another glowing chapter in the annals of their performances during this war.

And there is still the perpetual cloud over Mariveles Mountain. It seems that the Lady of the Mountain is happy to hide her face from the ghastly doings on The Rock.



Southeastern Sector

MAJOR GENERAL DIRWARD S. WILSON, U.S.A.,
Commanding

Every effort is being made to do as much practical training in these Harbor Defenses as possible. A very interesting demonstration was presented to members of Battery "C" by selected personnel of that unit, in Camouflage. These selected men made their own uniforms from burlap bags, some being painted green and black, green and tan, and tan, depending upon the surrounding terrain in which they were to conceal themselves. The balance of the unit was divided into groups of six and directed through the area where these men were concealed. At logical locations were planted booby traps which made the exercise more realistic. It is felt that this type of training will better prepare men for whatever may confront them. It must be added that these men were very hard to locate and that they had an open field of fire on the approaching groups which means they wouldn't last long in combat. This exercise impressed the men with the importance of camouflage and at the same time pointed out to them the correct way to conceal themselves.

Another very interesting exercise in Map Reading is being conducted by the S-2 Section. Groups of men are taken to the outlying islands and given different problems. The toughest problem is to follow a traverse by use of compass and strides through mangroves. In most cases the results are very good.

During the past two months, considerable seacoast, anti-aircraft, and small-arms firing has been conducted. All

company grade officers fired a three-inch seacoast practice.

Battle-hardened veterans who have seen and smelled the actual smoke and fire of enemy guns are finding in Fort Monroe a distinct change of scenery as the processing program for returning soldiers progresses at the historic old fort.

Fort Monroe, due to its central location and facilities, was designated by the commanding general of the Southeastern Sector as the distributing agency for replacement in the various Harbor Defenses of the Sector.

For the past several weeks these veterans, all of them up



this time former Coast Artillery or Antiaircraft personnel, have been sent to Fort Monroe from the several redistribution centers in the country to be reassigned.

Fresh from a furlough after returning to this country and the large majority of cases eager to get back into the swing of things, these men show signs of having seen the world and not through rose-colored glasses. All, however, have an air of confidence and efficiency. . . . all seem glad to be back and none would have missed the opportunity to serve overseas.

The program will include a complete indoctrination period in Coast Artillery for those who have not been employed as such, and a review for those who have been away from it too long.

It is planned to process approximately 125 of these returning veterans every three weeks and assign them to various Harbor Defenses within the Sector. The program is being conducted by a staff of officers under the direction of General Tilton.

Breaking the routine of training have been several presentation parades, one of which was held at Fort Monroe in honor of four warrant officers and one first sergeant who were presented with Certificates of Merit from Major General D. S. Wilson, commanding general of Southeastern Sector.

Another was also held at Fort Monroe in honor of First Sergeant Case Roberson who was retired after thirty years' service and who received a Certificate of Merit.

The Noncommissioned Officers' School of the Harbor Defenses of Chesapeake Bay graduated its seventh class. Since it was organized in April 1944, the school has graduated approximately 140 men. The graduation returns the men to their outfits and they become instructors in the basic knowledge gained at the school.

Orientation centers in every outfit in the command have been the topic of much conversation and no little rivalry. Each unit commander has made an effort through his Information and Education Officer to outdo the other in preparing for the use of the men of his organization a center that would be both attractive and at the same time serve the purpose of an over-all orientation program.

At the Harbor Defenses of Charleston, under command of Colonel L. W. Goepfert, CAC, Fort Moultrie, S. C., another angle on the high-speed target situation has been worked out and tested successfully. The target itself (see photo) is a modified version of a pontoon target which was originally built at Fort Macon, N. C. Basically, it is composed of three Navy airplane wing floats, approximately four feet in length by one foot in width, attached to a T-shaped steel frame. The frame, when originally constructed, was made up of heavy angle iron welded together to form the outlines of a large letter "T," the crossbar of the "T" being the front or bow end of the target sled. Three mast sockets made of two-inch pipe were then set into the frame, one at the center of flotation, one at the bow, and one at the stern. When it was desired to use the target as a pyramidal, a single 16-foot mast, with reflector at the top, was set into the center socket and three shroud lines from the peak were fastened, two at the extreme ends of the crossbar of the sled and the third at the stern. The target cloth was then sewed onto these shroud

lines to form the pyramidal target. In the event that the target was to be used as a rectangular 40mm-battery target, the pyramidal mast was removed and two shorter masts were used, one installed in the socket at the bow, and one in the socket in the stern. The mast at the bow was guyed laterally to the ends of the crossbar of the "T" and an adapter, in the form of a dismountable crossbar, was bolted across the stern to which the stern mast was laterally guyed. The rectangular target was then formed by stretching target cloth between the two masts.

Upon completion of the first tests with this target, it was found that the rigid metal frame of the sled had too little flexibility. Towing through rough water resulted in many breaks in the frame. Accordingly, the frame was reconstructed of flat band iron, instead of angle iron, and was trussed vertically and laterally to insure strength with the greatest degree possible of flexibility. It was also found in initial testing that the angle of incidence of the floats made a great difference in the speed of the target and caused the floats to plough into the water rather than plane on the surface at high speeds. The correct angle was finally determined after a month of test-towing and readjustment of the floats until a planing effect was obtained with a minimum of wake and spray.

Tests were then made using the pyramidal target and employing the normal rope bridle and five hundred yards of rope tow line. The towing vessel used was a 550 horsepower J-boat and the tests showed a maximum speed of fifteen miles per hour. As eighteen to twenty miles per hour was the speed required, it became necessary to develop some other form of tow line. It was found to be a much greater task to tow the five hundred yards of tow line than it was to tow the target. Some scrap aircraft target tow cable was procured and spliced together into a five-hundred-yard tow line. This tow cable is seven-strand, tempered-steel cable approximately three-sixteenths of an inch in thickness. A check at the Ordnance Shop proved that it would lift the front end of a half-ton weapons carrier with ease. Because of its size it was found very difficult to handle, so a power wire reel, with auxiliary hand cranks in case of power failure, was rigged on the stern of the J-boat. This made for fewer men on the tug detail, and greatly eased the job as compared to the usual handling of wet hawser.

Test towing with this steel cable produced a speed of eighteen miles per hour when travelling with the wind, and speeds of sixteen and seventeen miles per hour when travelling either against the wind, or cross-wind. Accordingly, the pyramidal target was removed, and a triangular sail rigged in its stead. This increased the speed of the target to twenty miles per hour when towed by the J-boat.

Detailed blueprints and pictures of the target may be obtained upon application to the CO, HD of Charleston; the floats may be obtained from the scrap pile at any naval air station; cable may be obtained from the nearest Army airfield having a tow-target squadron, and the entire target constructed in approximately twenty hours from materials available at any post ordnance shop.

The following points relative to the target and tow line are worthy of consideration and are a result of three months of experimentation:

1. It can be towed at twenty miles per hour in a rough

- sea by a 550 horsepower boat without damage to the target.
2. It is quickly adaptable for either pyramidal or rectangular targets.
 3. As a pyramidal target, it presents to the guns only a one-inch pipe mast and three one-half-inch ropes which must be hit in order to collapse the pyramid during a shoot.
 4. As a rectangular target, it presents only two one-inch pipes to the guns, either of which must be hit to collapse the target during a shoot.
 5. Precaution must be used as to the type of ammunition

used. High-explosive ammunition should not be used with this type target as shell fragments will puncture the floats.

6. Personnel for tug details are substantially reduced through the use of the improvised power winch on the boat.

Three AMTB target practices have been fired by the Harbor Defenses of Charleston employing this target. The speed attained with the target was 22.7 miles per hour and the performance of the target under all conditions has been excellent.



Northwestern Sector

BRIGADIER GENERAL JAMES H. CUNNINGHAM, *Assistant Sector Commander for Harbor Defense Matters*

Intensive Coast Artillery and Infantry training has been carried on during January and February in both harbor defenses for the primary purpose of training replacements for enlisted men transferred during this period. Calibration shoots, regular and special target practices and surprise shoots were conducted in both harbor defenses. In order to emphasize the importance of Coast Artillery training, a Sector conference and refresher course was held at Fort Worden on 20 February, attended by Gunnery and Radio Officers from both harbor defenses. Demonstration shoots were held, as part of this conference, at a target towed by a radio-controlled JR boat and at smoke bombs dropped in the water by a HD boat. This Sector Conference and the demonstrations were also attended by visiting staff officers from the Operations Division, War Department, and from the Western Defense Command and Northwestern Sector, WDC, who also visited the Harbor Defenses of the Columbia.

Intensive Infantry instruction, including schools and demonstrations by mobile troops, made available by the Sector Commander, was conducted, emphasizing instruction in Infantry tactics, patrolling and command and leadership of small Infantry units. This instruction was given

in the Harbor Defenses of the Columbia under the leadership of Colonel Peter K. Kelly and in the Harbor Defenses of Puget Sound by Major Thomas E. Spaulding, both of whom have had intensive Infantry training in the past; Colonel Kelly having been an Infantry officer of the Regular Army for ten years and Major Spaulding being a graduate of the Infantry School at Fort Benning.

The Sector Commander visited the Harbor Defenses of Puget Sound on 23-25 February and witnessed the Infantry demonstration in connection with the school, surprise firing by AMTB batteries at smoke pots and at a maneuvering target towed by the radio-controlled boat, and also firing at radio-controlled airplanes. During the same period, these harbor defenses were also visited by a party of four Canadian officers, under the guidance of the HD Canadian Liaison Officer, Major Diespecker.

Both harbor defenses are expecting, during the next few weeks, new 63-foot towing vessels capable of towing targets at high speed, which will supplement the use of the radio-controlled target boat and provide better targets representing AMTB attacks.

In addition to the above, both harbor defenses conducted tactical exercises and command post exercises during this period.



Radio-controlled JR boat.



Hawaiian Antiaircraft Artillery Command

BRIGADIER GENERAL ROBERT M. PERKINS, *Commanding*
By Major John H. Warner

The mission of the Hawaiian Antiaircraft Artillery Command is to provide protection against enemy air attack for important ground installations in the Hawaiian area, and when not so engaged, to provide support in the defense against all forms of enemy land or sea action. While not functioning officially as a theater antiaircraft artillery command, one result of the conditions peculiar to this area has been the assumption of the responsibility for providing adequately equipped and trained units for combat in the forward areas. The process by which units newly arrived from the mainland are prepared for combat operations found only in the Pacific, includes many specialized types of training.

Organizations newly arrived in the Hawaiian Islands from the mainland are sent to the Unit Jungle Training Center, maintained by the Central Pacific Base Command, for the purpose of physically preparing them for the rigors of jungle warfare. This training is designed to condition troops for battle by processing them through a training center which is situated in a typical tropical jungle. Courses include combat firing of small arms, sniping, construction of hasty field fortifications and wire entanglements, scouting and patrolling, assault of Jap pillboxes, ambushing, infiltration, mine demolition, and jungle living.

In order to maintain a high state of training among all units of this command, an Antiaircraft Artillery Training Center has been established on Oahu. Units newly arrived from the mainland or from forward areas, as well as units that have been in tactical positions in the command, are processed through the Center's four-week refresher course.

The AAATC Headquarters and the headquarters of the organizations in training have their offices in one building, nicknamed "The Mongoose Pentagon." Other buildings contain equipment required for the training of specialists, such as: radio operators, radio repairmen, linemen, message center chiefs, and M-9, M-10 Director operators. Additional courses conducted are Photo Interpretation, Recognition Instructors, Map Reading, and Chemical Warfare. Mark 1 Polaroid Machine Gun Trainer, an M-9 Machine Gun Trainer, and a Range Estimation Trainer are installed. Qualified instructors are furnished by the AAATC for all of these facilities. There are a total of fifteen classrooms and lecture halls available for training. A supply of various War Department Training Aids, pertinent to the training of AAA troops, is maintained at the training center. The AA range is adjacent to the barracks and school area. Classes in range estimation for automatic

weapons personnel are held in conjunction with firing missions. The Antimechanized Range, providing moving and fixed targets for both 40mm and 90mm guns is located less than a mile from the AAATC proper.

To take care of the religious and recreational requirements of the troops in training, there are a chapel, an Officers' Club, a Noncommissioned Officers' Club, an outdoor theater, a War Information Center, an excellent Post Exchange, and a beer garden.

An electronics school with classes in basic electricity and basic radio, is conducted on the island by Signal Corps personnel of the Army Air Forces. More than half of the students come from this command.

Army Ground Force Proficiency Tests for antiaircraft artillery units are given, usually at the conclusion of the period of refresher training. While lack of sufficient suitable maneuver area precludes the concurrent testing of a whole automatic weapons battalion on the Tactical Proficiency Test, it can be done by first testing the Headquarters and Headquarters Battery with two lettered batteries and then testing the other two lettered batteries. Inasmuch as automatic weapons batteries may be called upon to operate individually, this situation presents a realistic problem. The terrain provides a variety of missions: protection of a beachhead, air strip, ground support and support of Field Artillery or protection of other Divisional installations.

When recently arrived units move into tactical defense positions and become an integral part of the Hawaiian Antiaircraft Artillery Defense, additional training is carried on constantly from these positions in order to keep the units at a high training standard. Battalions are rotated throughout the many tactical positions of the AAA defense and through the AAATC as long as they remain under the control of HAAAC. Frequent moves, by infiltration, from one tactical position to another under closely simulated combat conditions, night and day firing, rotation of personnel throughout sections of the batteries, through preparation of fire, split-second target recognition, and preparation for secondary missions of field artillery and seacoast support all combine to insure that the AAA which depart from the HAAAC for advance areas are well-trained combat troops.

The monotony of constant training is broken by opportunities to compete in athletic programs provided within the command. Indicative of the spirit with which HAAAC teams enter competition are their two major championships won in January. The basketball team was crowned champion of the Central Pacific Base Command after competing with teams representing the fourteen major echelons in Hawaii. The HAAAC quintet is now beginning a campaign for the Central Pacific All-Service Championship in which they will meet the top Army, Navy, Marine, and Coast Guard teams in the territory.

The second championship won by the command was a team trophy earned by its runners who finished third, fourth and fifth in five-mile marathon. The course for the distance test was around Diamond Head at Waikiki Beach. Hawaiian weather is ideal for baseball, and HAAC softball and hardball teams will compete in this sport and in all other athletic activities throughout the year to provide recreation and entertainment for members of the command.



BRIGADIER GENERAL EVANS R. CROWELL, *Commandant*
By *Captain Herbert B. Warburton*

Machine-gun and 40mm fire, bursting rifle grenades, and the smoke of phosphorus grenades gradually obscuring the figures of advancing infantrymen and the hulls of half-tracks, mark the concluding demonstration of the new Officers' Refresher Course added to the School curriculum on January 27.

The four-week course is designed to refamiliarize the antiaircraft artillery officer with all antiaircraft weapons, a feature which has been found to be of particular value for many officers who have recently dealt with only one type of weapon in overseas or domestic installations. Within the time limits of the course, the student officers receive instruction on light and heavy AA weapons, searchlights, and communications. A part of the schedule is devoted to instruction in the methods of teaching target recognition, and in the prerequisites that make a good instructor. The second objective of the course is to indicate the newest developments in tactical employment of matériel, with particular emphasis placed on the ground support rôle. The practical application of the instruction is the two-day demonstration at the end of the course.

The first morning's problem indicates the use of light AA in direct support of infantry. Laid in a canyon of the Franklin Mountains near Fort Bliss, the problem centers about the assault on, and clearing, by infantry of enemy forces denying the pass through use of seven mutually supporting concrete and log pillboxes, with barbed-wire entanglements and antitank mines in the forward area. The zone of action is an area of about 600 square yards.

Prior to the actual assault, the defending installations are subjected to a ten-minute period of softening-up fire by 40mm guns, and M15 and M16 half-tracks. At its conclusion, the assault by the infantry troops, armed with bazookas, hand grenades and rifle grenades, rifles and sub-machine guns, and bangalore torpedoes, under supporting fire of the half-tracks, begins. Phosphorus grenades and antitank mines discharged electrically from a central control tower simulate bursting shells and screen the assaulting troops.

The students, with a panoramic view of the action zone from a grandstand on the side of the canyon, are further aided in following the problem through the use of a large-scale area map, upon which the conducting officer outlines the action. The problem, which is still in the process of development from the standpoint of devices to be added for further realism, was designed by Major William H. Lindsay, of the Tactics Department.

Following the ground-support problems, the students witness a firing demonstration of all AA matériel at the Hueco Firing Range. Remaining on the desert overnight,

they participate in the firing of a field artillery problem during the second day.

Continuing the administrative and instructional consolidation announced in an earlier News Letter, the 20th AA Group, School Troops, has been withdrawn from the School organization. The three battalions composing the Group have been replaced by the School Detachment composed of gun, automatic weapons, and searchlight units. Although the new organization will have its own headquarters, it will be primarily organized to perform tactical firing missions required by School instruction, with the bulk of routine administrative work performed by the School personnel section. It is estimated that a saving in personnel approximating the strength of three battalions will be effected by the change.

On February 15 the School initiated the first course ever given solely for the benefit of its civilian employees. A weekly activity, the course is designed as an orientation program intended to indicate the rôle of the individual employee in the war effort by acquainting him with the mission of the School and its departments, as a unit and in relation to the Army as a whole, and by keeping him abreast of the general foreign and domestic situation. The first phase is illustrated by discussions of the missions of the departments and inspection of matériel and demonstrations of its uses. The second phase is realized by round-table conferences on the latest news developments, accompanied by appropriate training films and slides of the various theaters revised weekly to within twelve hours preceding the conference. The program is under the direction of Lieutenant Homer Hilton, Jr., School Information and Education Officer.

The School participated in the Army Air Forces *Show From the Sky* demonstration on February 14-15, with a display of searchlight and gun matériel. Staged by the Air Forces under auspices of the Treasury Department as part of the current war-bond drive in El Paso, the Air Forces exhibit included displays of United States and enemy air force equipment. From the antiaircraft standpoint, civilian reaction pointed toward a better understanding of the antiaircraft mission as a result of the display in conjunction with its primary targets.

Brigadier General Evans R. Crowell, Commandant, presented two members of the School Staff and Faculty with decorations at a ceremony on February 3. Lieutenant Colonel William R. Kintner received the Oak Leaf Cluster to the Bronze Star Medal for achievement in connection with military operations against the enemy near Wallendorf, Germany, on September 19-20, 1944. Major William Z. Brown received the Bronze Star Medal for achievement in combat from June 30, 1944, to February 19, 1944, as executive officer of an AAA Battalion which participated in the invasion of New Georgia Island.

Under Section 3, FM 21-6, *List of Publications for Training*, indicating that antiaircraft publications originally in the "4" series, are now in the "44" series, it is pointed out by the School Training Literature and Visual Aids Department, the renumbering system affects not only new manuals but also revisions of existing "4" series manuals applying to AA. Thus, the revision of manual FM 4-15 has the new number FM 44-51, the revision of FM 4-10 will have the new number FM 44-4, and so forth. Of the new series the revisions already published are FM 44-



Northern California Sector

BRIGADIER GENERAL RALPH E. HAINES, *Commanding*

Major General H. Conger Pratt took over command of the Western Defense Command the early part of the year following Major General Charles H. Bonesteel.

In becoming acquainted with the tactical set-up of the command General Pratt made thorough inspections of both the North and South Bay installations of the Harbor Defenses of San Francisco. Inspecting artillery installations was just one phase of the general's visit; he paid close attention to troop formations, housing, dayrooms, supply rooms, post exchanges, and all facilities and conditions that contribute to the morale of the soldier.

During General Pratt's visit of the North Bay Region, a 40mm gun crew of the 6th Coast Artillery Battalion demonstrated its prowess by shattering a fast-moving target with well-placed shots.

On his tour of the Harbor Defenses of San Francisco installations General Pratt was accompanied by Brigadier General Ralph E. Haines, commanding general of the Northern California Sector; Colonel William F. Lafrenz, commanding officer of the Harbor Defenses of San Francisco, and Colonel Arthur E. Rowland, post commander.

Training throughout the fortifications has been in high gear for several weeks with emphasis placed on command and leadership, bayonet fighting, grenade training, firing of all small arms, and transition firing.

The Command and Leadership School at Fort Cronkhite has been regarded as conducting one of the finest training courses of its kind. Officers and enlisted men selected from various organizations in the command have been assigned to the school for the purpose of developing aggressive leadership and to teach the soldier how to care for himself under all conditions of combat.

Among the training subjects have been judo, scouting and patrolling, swimming through burning oil, hand-to-hand combat, attack of a fortified area, and the reduction of a pillbox.

A mechanized cavalry group is now stationed at Fort Winfield Scott. The unit, formerly an all-Ohio outfit, now comprises a number of overseas veterans from all theaters of war.

Recent newcomers to the Harbor Defenses of San Francisco, most of whom are overseas veterans, have been as-

signed to a special "Reorientation" school at Fort Barry. A one-week course, the school staff gives instruction in the introductory phases of seacoast gunnery and other phases of harbor defense operations.

Cameramen from Paramount Pictures, Inc., recently took scenic shots in the Fort Scott area for use in feature productions.

Greater efficiency in the handling of automotive parts was the purpose behind the special instruction given almost a score of soldiers from various motor pools at Fort Winfield Scott and subposts by Mr. E. M. Anderson of the Chevrolet Motor Co. The latest improvements in auto maintenance and techniques were some of the things brought to the soldiers' attention.

The Sixth War Loan Drive was oversubscribed in the defenses.

Fort Winfield Scott and Subposts have designated "Tax Consultants" to aid soldiers and civilian employees with their tax problems.

Pfc. Fannie Cox, comely WAC of the Fort Baker Station Hospital, is one of the leading contenders in the Purple Heart Queen blood donor contest sponsored by the *Call-Bulletin* of San Francisco. In the six weeks of the contest Private Cox has accumulated well over 200 votes, each vote representing one pint of blood plasma or whole blood donated by a soldier, sailor or civilian stationed within the Harbor Defenses of San Francisco.

Blood donated by Harbor Defense troops is said to be reaching wounded soldiers in the Philippines within forty-eight hours from the time donations are made. This is accomplished by the Navy with the aid of newly designed refrigerants.

The Information and Education offices of the command have recently been using as their text, "Infantrymen—the Fighters of War," an article written by Brigadier General W. H. Wilbur, chief of staff of the Western Defense Command, which first appeared in the August issue of the *National Geographic Magazine*.

Nearly \$250 in prize money and meritorious service awards for suggestions and improvements in government jobs were presented to civilian employees of the command.

Troops of the Harbor Defenses of S. F. and SCU 1932 contributed upwards of \$550 to the March of Dimes.

Seasoned AA units from the Harbor Defenses, including those from all battalions, received special recognition recently for their excellent work at the Antiaircraft Training Range area at Bolsa Point. Training was completed by 40mm fire units using airplane and sleeve targets.

After almost forty years of service in the Harbor Defenses of San Francisco, the 72d Army Ground Forces Band moved en masse to take up its tempo at Camp McQuade, California. CWO William E. Hershenow, after seven years in the HDSF, still leads the unit.

Employment of AAA Automatic Weapons; FM 44-57, Service of the Piece, Multiple Machine Gun Mounts; FM 44-60, Service of the Piece, 40mm Fire Unit; and TM 44-260, Meteorology for Artillery. FM 44-61, Service of the Piece, Air Transportable 40mm Fire Unit, is a new publication.

Eight other publications now in the final stages of writ-

ing will be added to the "44" series in the next few months. Revisions of existing "4" series manuals are FM 44-1, Organization and Tactics of Antiaircraft Artillery; FM 44-4, Employment of AAA Guns; FM 44-6, Employment of AAA Searchlight; FM 44-10, AAA Gunnery; FM 44-21, Fire Control, AAA Guns; FM 44-75, Service of the AA Searchlight; FM 44-23, AAA Target Practice.



The Coast Artillery School

BRIGADIER GENERAL L. B. WEEKS, *Commandant*

The Department of Artillery at the Coast Artillery School has reorganized its course of instruction for the Officers' Refresher Courses of eight weeks' duration. The periods formerly devoted to a review of basic mathematics have been deleted. Consequently, officers selected to at-

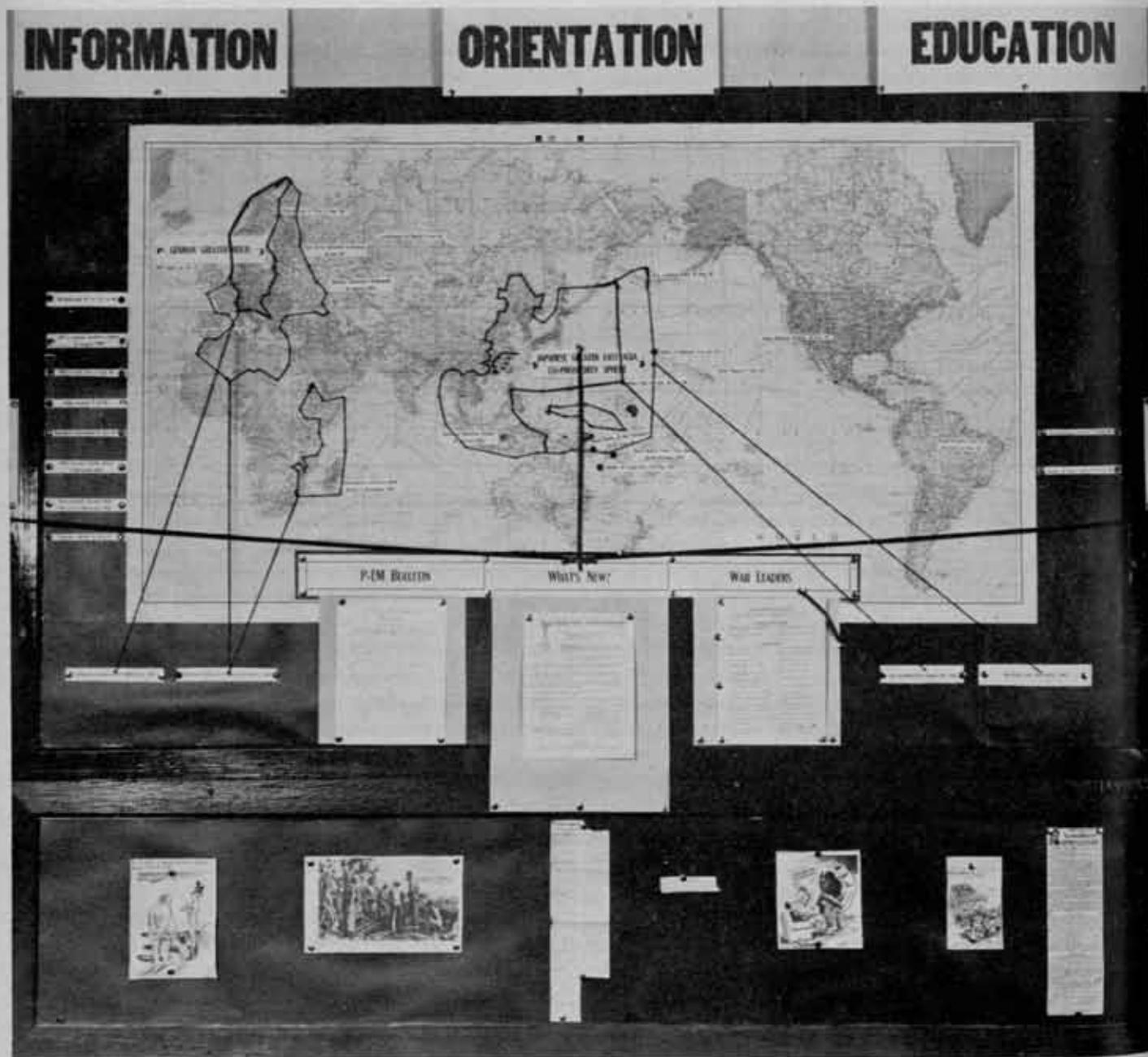
tend the new Refresher Course must have a working knowledge of mathematics to include algebra, trigonometry and logarithms, and familiarity with the construction scales and charts together with their application to Seacoast Artillery. No time will be spent reviewing these subjects. The Department has fitted some of the seaward and landward firing problems into the field problems conducted as part of the new course so that actual firing will be conducted under simulated combat conditions. In the M8 Data Computer Course, the Department of Artillery is now teaching fifty-two hours of theoretical work and conducting two full weeks of firing 155mm guns (M1) with the Data Computer M8N.

The Department of Engineering continues to train a reduced number of officers and enlisted men in the Special Equipment Course. Several of the faculty have just returned from a manufacturer's plant where new equipment was studied. This new equipment is planned for issue to certain Seacoast Artillery organizations and the

INFORMATION

ORIENTATION

EDUCATION



Orientation Board, Headquarters Battery, Coast Artillery School Detachment.

Instructors are now preparing instructional material. The instructors of this course have been collaborating with the Coast Artillery Board on several problems of a classified nature, and are currently investigating several suggestions in the field in collaboration with the Department of Training Publications on the scenarios of various training problems on special equipment.

The Enlisted Communication Course of the Department of Engineering recently demonstrated the use of 155mm radio equipment for the Officers' Data Computer Course. This demonstration included radio telephone communication employing the SCR-808 and SCR-543 sets.

The Master Gunner students of the Department of Engineering have applied their instruction in surveying to special problems organized by the Department of Tactics and the Department of Artillery for the Officers' Refresher Course. These students have established basic orientation data for field set-ups at Fort Eustis, Grand View, and Camp Wallace. A target practice was conducted for the Master Gunner students during their course in gunnery in order to give them practical experience in recording and analyzing the firing. The Master Gunner Course Instructors of the Department of Engineering no longer instruct students of the Officers' Refresher classes in Orientation. The Department, however, does conduct instruction on the M8 Data Computer in the Officers' Refresher Course consisting of twenty-four hours of theory and eight hours of practical work. This is in addition to the courses on the M9 Director, the M5 Director, and the courses in Special Equipment formerly presented in the Officers' Advanced Course.

The Department of Tactics, in condensing and streamlining its course, has developed its tactical situation around two continuous problems. The first problem involves Mobile Seacoast Artillery in Joint Army and Navy Operations in the Pacific, culminating in a field problem with the active participation of the Army, Army Air Forces, and the Navy. Wherever possible each phase of the problem ends with actual firing problems conducted by the Department of Artillery under simulated combat conditions. The second problem deals with the Harbor Defense Tactical Organization. For the added interest of the students, the scene is laid in the Manila Bay area. By centering the Tactics Course around these two problems, worked out in detail by Lieutenant Colonel Rowland K. Bennett under the direction of Lieutenant Colonel Henry G. Fowler, Director of the Department of Tactics, the students in the Officers' Refresher Course are familiarized with typical situations encountered by Seacoast Artillery, and time is saved by eliminating the necessity of reorienting the class on a new situation for each subcourse.

The Department of Training Publications has completed a number of new bulletins and changes to field and technical manuals. During the month of February the Coast Artillery School printed and distributed a Coast Artillery Training Bulletin, Vol. 3, No. 15 (classified), prepared by the Department of Training Publications. This bulletin contains a wealth of information and should be very useful not only commanding officers but plans and training officers of battalions, groups, and harbor defenses. The

School has a limited stock of these bulletins and will supply additional copies for organizations on request.

Changes have been submitted to Army Ground Forces for approval and printing on FM 4-24, *Service of the Piece, 155mm Gun, M1*; FM 4-25, *Service of the Piece, 155mm Gun (G.P.F.)*; FM 4-95, *Service of the Radio Set SCR-296-A*; FM 4-96, *Service of the Radio Set SCR-582*. There has also been submitted to Army Ground Forces a proposed War Department Training Circular on *The Adaptation of the Radio-Optical Height Finder SCR-547 to Seacoast Artillery Use*. These changes and publications should all make their appearances in the field very shortly.

During the month of March the Coast Artillery School will print and distribute Coast Artillery Training Bulletins with the following titles: *Emergency Methods of Conducting Fire, Diesel Electric Plants for 6-, 12-, and 16-Inch Gun Emplacements, Courses for Enlisted Men at the Coast Artillery School, and An Index to Coast Artillery School Publications and Visual Aids*.

Widespread interest has been shown in the Illustrated Instructor References which are printed by the School. These references are made from film strips and bear the same titles. They are produced in poster form containing reproductions of all the frames in the film strip, and they offer a means to the training officer of conveniently studying and planning his film-strip presentation. Also, the Illustrated Instructor References can be posted at appropriate places and enables the enlisted man to review previous instruction conducted with film strips and study points which were not too clear at the time of initial presentation. The School has a limited supply of these Illustrated Instructor References and will fill requests so long as the references are available. References have been prepared and distributed on the following subjects: *Nonstandard Ballistic Conditions; Meteorological Message; Range Correction Board M1A1; Percentage Corrector M1; Deflection Board M1—Description; Deflection Board M1—Case III; Deflection Board M1—Case II; Spotting Systems; M3 and M7 Spotting Board; Fire Adjustment, General Principles of; Lateral Fire Adjustment; Fire Adjustment by the Bracketing Method; Fire Adjustment by the Magnitude Method; Installation and Operation of Field Switchboards; and BD-95 Switchboards*.

In the Department of Submarine Mining, located in the Submarine Mine Depot, the Officers' Refresher Course Group No. 1 has received an introduction to matériel, tactical planning, and tactical control of underwater harbor defenses. Enlisted Submarine Mine Maintenance Course No. 12 started February 12, 1945, and will continue until May 19. In the absence of the regular Officers' Submarine Mine Course, both officers and enlisted men may now be assigned to the Maintenance Course. The next mine course starts on May 28, 1945. The Department of Submarine Mining is offering a Submarine Mine Property Officers' Course of the Conference type which consists of three courses of ten-day duration each. The first course starts on the 19th of March, 1945, the second course will begin on the 9th of April and the third course will open on 30 April. These courses have been prepared to acquaint Mine Property Officers and Assistant Mine Property Officers with new techniques and policies that have been

established for storage, care and preservation, and accounting of mine projects.

The Coast Artillery School has developed its Army Orientation Program in accordance with recent directives from Replacement and School Command and Army Ground Forces Headquarters. Under the direction of Lieutenant James R. Brown, School Information and Education Officer, orientation boards have been placed in every battery day room in all units belonging to the School Troops Detachment. These boards all have a map of the world, a map of the European Theater with phase lines and battle lines clearly marked, and a map of the Pacific Theater with present and past island campaigns clearly noted. In addition to these three basic maps, battery orientation boards have copies of the latest Newsmag, blow-ups of sections where current military operations are taking place, news clippings and pictures of current interest. The boards are kept neatly posted and up to date by an enlisted man in each battery assigned to that duty. In some of the batteries elaborate displays have been constructed including

indirect lighting on the boards. All this is part of the overall School program. In addition, a central Orientation Center is maintained in the Fort Monroe Army Y.M.C.A. and a War Room is kept posted in Murray Hall. Weekly meetings are held in the latter for the officers and men of the School and every effort is made to provide the School Troops with the latest and best Orientation material. In conjunction with the Post of Fort Monroe and the Harbor Defenses of Chesapeake Bay, off-duty classes are being planned in Automotive Mechanics, Welding, Bookkeeping, Accounting, and kindred subjects. These classes are to be held in facilities provided by the School, to be taught by personnel drawn from both School and Post as well as Harbor Defense Troops, and supervised by a committee composed of the Information and Education Officers of the School, Fort Monroe, and the Harbor Defenses. The off-duty education program is presented as part of the Army Information and Education program and is in accordance with the policy of the United States Armed Forces Institute at Madison, Wisconsin.



Parachutists of the 503d Paratroop Regiment landing on Corregidor.

Signal Corps



BOOK REVIEWS

The JOURNAL can supply any book in print,
at the usual Association discount.

HISTORY AND BIOGRAPHY

AGF's First Commander

McNAIR: EDUCATOR OF AN ARMY. By Chief Warrant Officer E. J. Kahn, Jr. Washington: Infantry Journal, 1945. 64 Pages; Illustrated; \$2.00.

Mr. Kahn, whose *New Yorker* reputation was assured long before the Army assigned him a serial number, has written a tribute to one of America's foremost soldiers. General McNair's work in training the ground army has paid off in results from Africa to China. That the job was done with a small headquarters staff, with a minimum of personal publicity, and with maximum success was due in large measure to the personality and capacity of one man—Lieutenant General Lesley James McNair. Because General McNair shrank from personal publicity, Mr. Kahn's book is that much more valuable; the ground had not been tilled before.

The years of training and study that made McNair the logical choice for the job of training the Army are touched upon lightly, but the work the General did during his time with AGF and AGF is described in a manner that makes any one who served with General McNair in either headquarters proud to have been a member of the team.

Mechanically, the book is a printing and binding job unusual in these days of lackadaisical workmanship. It was believed that the biography of a fine man deserved better than average workmanship—the \$2.00 price for the completed product is not as far out of line as it may seem at first glance.

1600 Pennsylvania Avenue

GENERAL IN THE WHITE HOUSE. By Dorothy B. Goebel and Julius Goebel, Jr. New York: Doubleday, Doran & Co., 1945. 276 Pages; \$2.75.

Nine American presidents were former generals: Washington, Jackson, the two Harrisons, Taylor, Pierce, Grant, Hayes, and Garfield. But lest the military angle be too heavily emphasized, only one of the nine, Taylor, could be considered a career soldier. Grant might be included, but he had left the army and came back into it from civil life. The rest were politicians and in most cases, their stars came from their political efforts. Washington, of course, was a farmer before he was a general or a political figure. All of which seems to in-

dicating that the mere fact of being a top-ranking general is not of itself a key to the door of the White House. In fact, Hancock was defeated in his race for the presidency in part because he was a *professional general*, not like his opponent Garfield, of whom it was written, "How much more credit is due the man who leaves his home, his family, and his friends at the first call of duty to fight and perhaps to die, for his country." Hancock, as a professional, merely did his duty.

Some of the political generals were good military leaders, others were not. In practically every case their stars came not because of their experience or worth, but because of their politics. Thus their entry to the White House was as politicians primarily, and as generals merely for the glamor and the vote-catching power of the word.

Grant, one of the best generals and one of the poorest presidents, was hampered by his political inexperience and his rigid concepts of honesty. Taylor was better than average at both assignments.

Not the least valuable section of this book is the first three chapters, which discuss the prejudices of Americans against the military. The authors are fair to the Army in their appraisal of the condition. There is a bit of mud to be scraped off both by the military leaders and by the politicians.

The theme of the book is that a good general is not necessarily a success as president, but neither is he necessarily a failure. A good war record may help him to be elected—but remember Hancock.

Brass

THE GENERALS AND THE ADMIRALS. Portraits by T. H. Chamberlain; Biographies by the Editors of *Newsweek*. New York: Devin-Adair Company, 1945. 63 Pages; Illustrated; \$4.50.

Thirty of our top-flight American military and naval leaders are covered in this book, each with a black-and-white portrait and about 750 words of biography. The book itself is a beautiful printing job, pages 9" x 12", and a striking black and blue cover. The officers treated are Arnold, Bradley, Clark, Doolittle, Eisenhower, Halsey, Hewitt, Ingersoll, King, Kincaid, Kreuger, Lockwood, MacArthur, Marshall, McNarney, Mitscher, Nimitz, Patton, Smith (Holland), Somervell, Spaatz, Spruance, Stark, Stilwell, Towers, Turner, Vandegrift, Waesche, and Wainwright.

Capsule Dose

A MINIATURE HISTORY OF THE WAR. By R. C. K. Ensor. New York: Oxford University Press, 1945. 153 Pages; \$1.50.

In 153 pages, each 4" by 6", Professor Ensor has managed to compress the salient points of the history of the present war up to the liberation of Paris without making his effort read like a telegram. In fact, the book is printed in type larger than that on this page, and still contains interpretations of the course of the war as well as the bare bones of history. In one place, the author mentions that during the defeat of the *Graf Spee* off the Plate, HMS *Ajax* had a spotter plane aloft, which gave the British an advantage, a fact the reviewer had never heard before.



Yorktown

WHEN THE FRENCH WERE HERE. By Stephen Bonsal. New York: Doubleday, Doran and Company, 1945. 252 Pages; Index; \$3.00.

As much as any other battle of the Revolutionary War, Yorktown decided the issue in favor of the Colonies. Although we are inclined to look upon Yorktown as an American victory, the fact is that without the aid of a French army and a French fleet, the battle could never have been fought, much less won. Rochambeau's soldiers and de Grasse's fleet provided the weight that tipped the balance. The French admiral's fighting seamanship is particularly noteworthy, since the British of those days had already gained their reputation for being invincible afloat. De Grasse fought and whipped a British fleet that was at least equal to his own, took station in a location that the British knew was the key to the campaign, and held station while rumors of a second British fleet might have frightened off a lesser man.

Colonel Bonsal went to little-known sources for much of his material. This hitherto unpublished information, and the author's skillful weaving of little details into the "big picture," make the tale of Rochambeau's progress from France to Rhode Island to Yorktown read like a historical novel, without the substitution of fancy for fact that make historical novels dangerous to students. Washington loses none of his stature at Bonsal's hands, although Lafayette has some of his luster dimmed. Everything considered, the French got along well with our civilian population, cooperation between the French and Colonial forces left little to be desired, and the collaboration was better than might be expected because both Washington and Rochambeau were big enough to see the goal instead of looking no further ahead than the ball.



Wings in a Hurry

TWO HUNDRED THOUSAND FLYERS. By Willard Wiener. Washington: Infantry Journal, 1945. 222 Pages; Illustrated; Index \$2.75.

On 1 July, 1939 our army had 1,600 planes, about 1,300 Air Corps officers, about 18,000 Air Corps enlisted men, with an Air Corps reserve of 2,800 officers and 400 enlisted men. The figures today read like portions of an astronomer's worksheet. The job was not done with mirrors—and it was done well, as the Luftwaffe and the Japs will agree.

The job was done because General Arnold could see ahead, and because America's civilian air executives were willing to gamble everything they had to carry out General Arnold's

plans. Before Congress appropriated any money or even the plan legal, a group of old-timers in aviation began to gear men and equipment to make the Civilian Contract schools possible. These operators of flying schools saw the need, and their patriotism over-ride their commercial good sense. They took the chance. America won . . . 110,000 pilots a year. Civilian flying schools gave the cadets their primary instruction; the Army took it from there. Many cadets of our Allies went through these schools.

Mr. Wiener tells the story well—when it threatens to be dry and factual, he throws in an incident or two of the interesting. These incidents illustrate a point, and describe the part of instructors and students who helped make the AAF what it is today.



Missionary to Okie

THE SALINAS. By Anne B. Fisher. New York: Farrar Rinehart, 1945. 304 Pages; Bibliography; Index; Illustrations \$2.50.

Even though it must be admitted that Mrs. Fisher had very finest material to work with, she has produced a superb piece of work in this history of the Salinas Valley. From the days of Portola, the explorer, and Junipero Serra, the missionary, to the days of the Okies, the Valley has been the scene of fortunes made and lost, of prodigal wealth and dire poverty, of dry seasons and floods—but always, a place of beauty. The author captures the flavor of the Spanish days, and does a masterly job of describing the slow but steady change brought about by the Gringo penetration.

The book unfolds like a pageant—first soldiers, then soldiers and missionaries, then the big landowners, then the inevitable parceling of the big estates, then the legal trickery and providence that dispossessed the Spanish and Mexican landowners in favor of Yankees, then the big corporations, always the crackpots. From the days when the rancheros hid boxes of gold under their beds for the benefit of stray passers-by to the Okie riots in 1936 the Valley has made great strides and not necessarily for the better.

Here is history as it should be written, with the color and adventure left in.



THE PEACE

Setting Sons

WHAT TO DO WITH JAPAN. By Wilfrid Fleisher. New York: Doubleday, Doran and Company, 1945. 178 Pages; \$2.00.

When we are thinking of what to do with Japan, we must not forget that there is more to the problem than the big islands. Manchuria, Korea, Singapore, Thai, Java and Sumatra, Russia, China, even the Philippines, come into the picture because the whole Pacific area must be made stable before we can look forward to any long period of peace. Mr. Fleisher offers some suggestions, and even more problems for consideration.

As for Japan herself, to withdraw her sting is more than a matter of disposing of her fleet and disbanding her army; the method of government must be changed to give the people a voice in their government. As the government is run now, the Emperor is a figurehead; his actions are dictated by the powerful Army and Navy through some trick clauses in

Constitution. To eradicate permanently the power of the belated few, and to educate the masses in how to make friends and keep out of the international cockpit will take more knowledge of the Japanese heritage and mentality than our man-in-the-street has. And yet, the average American, through his representatives, will have a large share in the decisions that will decide peace or future war in the Pacific.

The other nations, European and Asiatic, which have a stake in the Pacific will have ideas different, no doubt, from the usual American view. All we, as citizens, can do is to attempt to learn as much as we can as a basis for intelligent thought about the subject. This book is as good a starting place for our learning as any.

Deep Welles

GUIDE TO THE PEACE. By Sumner Welles. New York: The Dryden Press, 1945. 369 Pages; Maps; \$3.75.

Take the eighty most important nations, write a fact-packed summary under the headings of *The Land and the People*, *The Nation's Economy*, *History: 1914-1944*, and *Stakes in the Peace*, add clearly-drawn and well-conceived maps, have it checked by an editor who was one of our State Department's top men—and you have a valuable reference book to aid in formulating your ideas about the kind of peace you want. The coming peace is something all of us must think about unless we are to have World War III come along on schedule. Unless our thinking is based on facts, our thoughts are bound to be fuzzy. Greece is something more than a spot on a map—it is a place of fertile valleys, bare mountains, rich metals, and it has people. Other countries too have people, and resources, and history. A just peace, one that is to last, must be based on the resources, the aspirations, and the legitimate claims of not just a few countries, but of all.

Much study and research has gone into this book. The result is a large preponderance of fact, and the rest intelligent and informed opinion. Since the book is available, there should be no excuse for any voter not knowing why, for instance, there has always been trouble in the Balkans; or how Haiti makes its living; or who inhabits the Union of South Africa.

Rise of the Supermen

GERMANY BETWEEN TWO WARS. By Lindley Fraser. New York: Oxford University Press, 1945. 179 Pages; Index; \$2.50.

Subtitled *A Study in Propaganda and War Guilt*, this book comes out at a fortunate time. Very shortly Germany will again be suing for peace, and if we let her get away with the same things she perpetrated last time, we will have nobody but ourselves to blame. The Army prepared its alibi (the stab in the back) before the surrender, even though the exact phrase was suggested to Ludendorff after the Armistice, by a British General who used the phrase skeptically.

The book traces Germany's wriggings through easy Armistice terms, poor enforcement of what terms there were, rearmament under the noses of the occupying powers, avoidance of financial penalties, and finally the rise of National Socialism and the inevitable end—war. The ability of Germany to nullify her defeat in 1918 is amazing, but really no more amazing than the errors of omission and commission of the Allies that made the nullification possible.

The thousands of incidents mentioned in the book which constitute the chapter and verse of Germany's guilt are inter-

esting (and would be interesting even if they were fiction, which they are not), but of more value than their mere interest is their indication of what Germany may try again.

PERSONAL EXPERIENCES

No Summer Resort

GREEN ARMOR. By Osmar White. New York: W. W. Norton, 1945. 288 Pages; Maps; \$3.00.

The personal-experience books on the Pacific war have emphasized the Japs; Mr. White emphasizes the jungle. His point, and he seems to prove it, is that the jungle makes more men ineffective than do the Japs. In the New Guinea fighting before the arrival of the Americans, and even during the early days of our 32d Division's participation, the Allied soldiers were untrained, not so much in fighting Japs, but in fighting the jungle.

The New Guinea Volunteer Rifles, those few men who had lived in the country before the war, knew the jungle, could live in it, and could outsmart the Japs in it. They protected themselves from disease, cared not if they were outflanked (White makes much of the idea that there are really no flanks in jungle fighting), and were not subject to the mental depression that is as real a cause of casualties as malaria, infections, pneumonia, or bullets. The pity was that the NGRs were so few.

White does not malign the bravery or the physical condition of the troops, both Australian and American, who fought the Japs in New Guinea. But he does insist that in the early days at least they had no real training to prepare themselves for the terrors of stealthy stalking, for the eternal dampness that literally rotted their feet, for the ulcers that came from scratches, for malaria, for poor rations, for enervating heat, for fighting people who were effective in the jungle because they were unintelligent and unimaginative and thus were not prey to the mental hazards of jungle warfare. It was more than training these brave men needed, it was complete jungle conditioning—which can be obtained only in the jungle. Their packs were too heavy and their breath too short, their bloodstreams too clean, to do the job they were sent to do.

White's long book is almost completely a detailed story of the rigors of the jungle. Those of us who are prone to criticize the men who failed in this type of warfare may become much more tolerant if we learn just what they were up against.

American Guerrilla

LEYTE CALLING. By Lt. Joseph F. St. John. New York: Vanguard Press, 1945. 220 Pages; \$2.00.

Many of us have just learned that there were Americans in the Philippines ever since the capitulation in 1942 who worked with the guerrilla forces, and who were in communication with General MacArthur's headquarters. The Japs did not have the country districts in as tight a grip as the larger cities, and in many areas the guerrillas did valuable work in softening up the occupation troops for the Leyte and Luzon landings.

Lieutenant St. John, an Air Corps enlisted man who was in Mindanao when the American position became hopeless, took to the hills rather than surrender (after attempts to reach Australia), and finally drifted into contact with a guerrilla band which was sponsored by the American army. It was the organi-

LEE'S LIEUTENANTS

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zation of Colonel Kangleon, on Leyte, who is now known to Americans everywhere.

The guerrillas printed their own money (which was worth more than the Jap occupation money), killed Japs with slight expenditures of men and ammunition, and provided information for the American army and navy. In the early days guerrilla bands had some resemblance to the American guerrillas which plagued the borders during our Civil War, but with organization and supplies, the "legal" groups gradually took hold of the situation and proved to be a valuable force in preparing the way for reinvasion.

The Americans in the Philippines who were not captured had a hard time of it, not as bad as the prisoners of the Japs, but bad enough. Protected and respected by the Filipinos, they proved again that Americans and Filipinos were united by their love of liberty and in their hatred of the Japs. The few Filipino quislings did not last long. The Japs failed in their attempts to make the Americans lose face—the Filipinos are not that kind of Oriental. Face is not nearly so important to them as liberty and fair dealing.

From Trousers to Politics

SECRET MISSION SUBMARINE. By Lieutenant N. L. Jewell, R. N. New York: Ziff-Davis Publishing Co., 1945. 159 Pages; \$2.00.

H.M.S. *Seraph* was the submarine that took General Clark to North Africa during his famous mission to pave the way for the invasion, and it was also the vessel that took General Henri Giraud from France after his escape from a German prison. Along with these secret missions, and a few odd chores that took in landings in German-held territory and some tricky reconnaissance tours, *Seraph* did its share of the never-ending job of making life miserable for Axis shipping in the Mediterranean. Lieutenant Jewell tells the story well, with much of the British humor and understatement that we Americans are beginning to enjoy.

Lieutenant Jewell's stories of both the Clark and Giraud missions tell a few more facts than we have had before, plus the intimate picture of parts of the events as they occurred. American slang was fun to Jewell and his crew, and they became quite adept in its use. Giraud's supposed lack of knowledge of English provided a few embarrassing moments when it was learned he could handle himself quite well in the language. Jewell offers, also, a few more sidelights on the famous story of General Clark's trousers.

The book is not all fun and wisecracks. Jewell's stories about sub actions make good adventure reading.

FICTION

Manila Interlude

THE OPEN CITY. By Shelley Smith Mydans. New York: Doubleday, Doran and Company, 1945. 245 Pages; \$2.50

Mrs. Mydans lived at Santo Tomas under the Japanese, but was released on an exchange long before the internment camp was liberated. The book is a novel, based of course on her experiences as an unwilling guest of the Japs.

As a novel, we have read better—and many worse. There are too many fuzzily-drawn characters, and too little suspense, to make the book a gripping tale as a work of fiction. But since in the main the book is not fiction but a description of the life

of the Americans and others who existed as prisoners of the Japanese, it would be a cynical reader indeed who felt that the time spent in reading the story was wasted.

The loyalty and bravery of the Filipinos, the adaptability of human beings under adverse conditions, and the wildfire spread of rumors are probably the three most impressive topics covered. Mrs. Mydans is a good reporter, and has the reporter's habit for choosing a minor happening to describe a trend or a larger picture. One particularly well done bit concerns an instance in which one of the internee police officials was dismissed for neglect of duty. Heartbroken because of his dismissal, the man presented a pitiful case as he defended himself in an attempt to retain a comparatively minor job—and in the days before the war he was one of Manila's most successful businessmen.

During the period covered by the book, Japanese brutality seemed motivated by inefficiency rather than by sadism. The internees had many privileges that were surprising in view of the conduct of the Japs elsewhere.

Foreign Correspondents

TELL SPARTA. By A. C. Sedgwick. Boston: Houghton Mifflin Company, 1945. 342 Pages; \$2.50.

Mr. Sedgwick's novel travels from New York to Paris to the Balkans to the Middle East and North Africa in great strides, just as the present war's flame traveled the same route. Using a group of correspondents as his contacts with the war, the author presumably gets a few things off his chest. Blasting the isolationist press and its supporters, lauding the Greek resistance, and libeling the general run of correspondents, the book is a peculiar combination of preachiness and excitement, overdrawn characters and well-described battle scenes. Mr. Sedgwick's white characters are a bit too white, and his black characters a bit too black, to ring true.

Barbary Pirates

WRITTEN IN SAND. By Josephine Young Case. Boston: Houghton, Mifflin Company, 1945. 162 Pages; \$2.00.

The story of William Eaton's expedition against the Barbary pirates is familiar, at least in outline, to most military students. Eaton, eight Marines including the famous O'Bannon, and a motley army of Arabs, Greeks, and assorted soldiers of fortune finally took Derna on the way to Tripoli to free 300 Americans who were held by the Barbary Pirates, and incidentally to place a more friendly Bashaw on the throne.

Mrs. Case's fictionalized account adds little to the story as known, and seems on the whole, uninspired.

MISCELLANY

SPlicing WIRE AND FIBER ROPE. By Raoul Graumont and John Hensel. New York: Cornell Maritime Press, 1945. 114 Pages; Illustrated; Glossary; Index; \$2.00.

Profusely illustrated with almost perfect photographs and drawings, this book will interest those having to work with either wire or fiber rope, and the professional rigger, sailmaker, or those desiring to know something of the subject without having to work at it.

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SCARNE ON DICE

Do You Know . . .

- that only one or two Crap players out of a hundred know the correct odds and percentages on dice?
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- that center and flat bets are not even-money bets although everyone plays them that way?
- that there are thousands of pairs of crooked dice in the pockets of honest players who don't know they have them? That the pair you own may be crooked?
- how to detect crooked dice?
- that fair dice can be controlled and how it is done?
- that throwing the dice against a board is not a hundred per cent guarantee against cheating methods?
- that dice can be made crooked in many ways beside loading? Did you ever hear of Bricks, Shapes, Edgework, Bevels, Slick dice, Trips, Heavy Paint Work, Capped dice, Bust-outs?
- what percentage you are bucking when you play Chuck-a-Luck, Hazard, Klondike, Crown and Anchor?
- that a fast action, double-dealer, Open Crap table can earn \$2,829.16 and more per night?
- what the difference is between the expert dice player and the dub, and why there are so few experts?

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The arrangement could be improved for the general reader and beginner if the glossary and chapter on terminology were made the leading chapter, and the second chapter could be on the sailmakers art to include a better description of materials and methods used with suitable illustrations. For instance, the various serving mallets, how to use them in connection with the serving material, worming, parceling, and on. These are not adequately covered in the glossary and terminology.

A professional job, including many splices not heretofore described in print.

You and the Government

VETERANS RIGHTS AND BENEFITS. By Colonel Mariano A. Eraña and Lieutenant Colonel Arthur Symon. Harrisburg: Military Service Publishing Co., 1945. 288 Pages; Index; Illustrated; \$1.00.

Veterans are people who were fighting a war while they were making themselves eligible to become veterans, and thus could not be expected to become experts on the subject of veterans rights and benefits. There is really no need for the average veteran to put too much time on the subject—especially when this book can tell him what rights and benefits he has earned and the Veterans Administration can help him get them.

The book does not attempt to go into the minutiae of procedures—its main stress is to explain to the veteran what his rights are. In almost every case, once the veteran knows what he has coming, he can get it by going to the nearest office of the Veterans Administration and asking for it. If his claim is meritorious, the VA will give him all possible assistance. In matters like Government and National Service Life Insurance where the veteran must make his own decisions, the book goes into more detail to help him make the decisions.

Other chapters on such subjects as *What About Farming Your Military Assignment and a Job*, and *Personal Affairs of Military Personnel and their Dependents*, go a bit further.

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field, but should be helpful to both veterans and men and women still in the service.

The book is written in every-day language, and is meant to be understood, rather than legally foolproof.

Postwar Confusion

WELCOME HOME. By Gregory D'Alessio. New York: Robert M. McBride, 1945. 64 Pages; \$1.00.

There were, of course, many humorous situations when millions of civilians went through the mill to become members of the armed forces. When these same members of the armed forces begin to readjust to civilian life (note that no date is suggested) there will be more humorous situations. This cartoon book presents fifty-five possible points of conflict, drawn by one of our better cartoonists. Our favorite depicts a man in white tie and tails, defending his right to wear buck sergeant's chevrons with that outfit, because he worked hard for those stripes.

Here Comes Thurber!!

THE THURBER CARNIVAL. By James Thurber. New York: Harper and Brothers, 1945. 369 Pages; Illustrated; \$2.75.

There may be people who can read five consecutive pages of Thurber without chuckling even once, but their lives must be very grim. Thurber has his own special brand of lunacy, both in text and pictures, that is funny as much because deep-down it's really serious, as for any other reason. This book contains material that has been selected from the author's many books and magazine articles. Even though you read the New Yorker regularly, you will be pleased, rather than irritated, to see your favorite Thurberiana once more.

If you like Thurber's writing and drawing, we need say no more. If you don't like it, we're sorry for you. If you have never read anything by Thurber, you'll be doing yourself a favor by starting with this book. Of course, if you prefer Field Manuals...

VETERAN'S RIGHTS AND BENEFITS

By COLONEL MARIANO A. ERANA and LT. COLONEL ARTHUR SYMONS

Every veteran and every serviceman should know at least as much about his rights as a veteran as he does for instance, about income tax. In addition to describing and explaining your rights to financial aid, education, hospitalization, and other benefits, this book is helpful while you are still in the service because it covers insurance, dependent's benefits, Civil Relief Act, and many other subjects.

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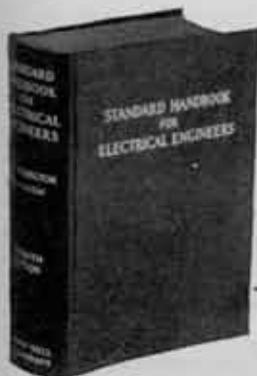
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A Reference Book for Practical Electrical Workers. Contains practical information to aid men in intelligently selecting, installing, and operating electrical apparatus and materials. By Terrell Croft. 1,600 pages, 1,177 illustrations, 64 tables, \$5.00.

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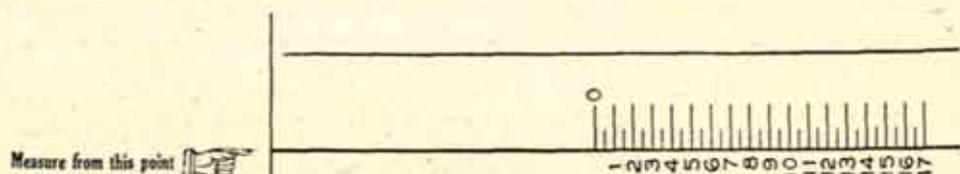
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