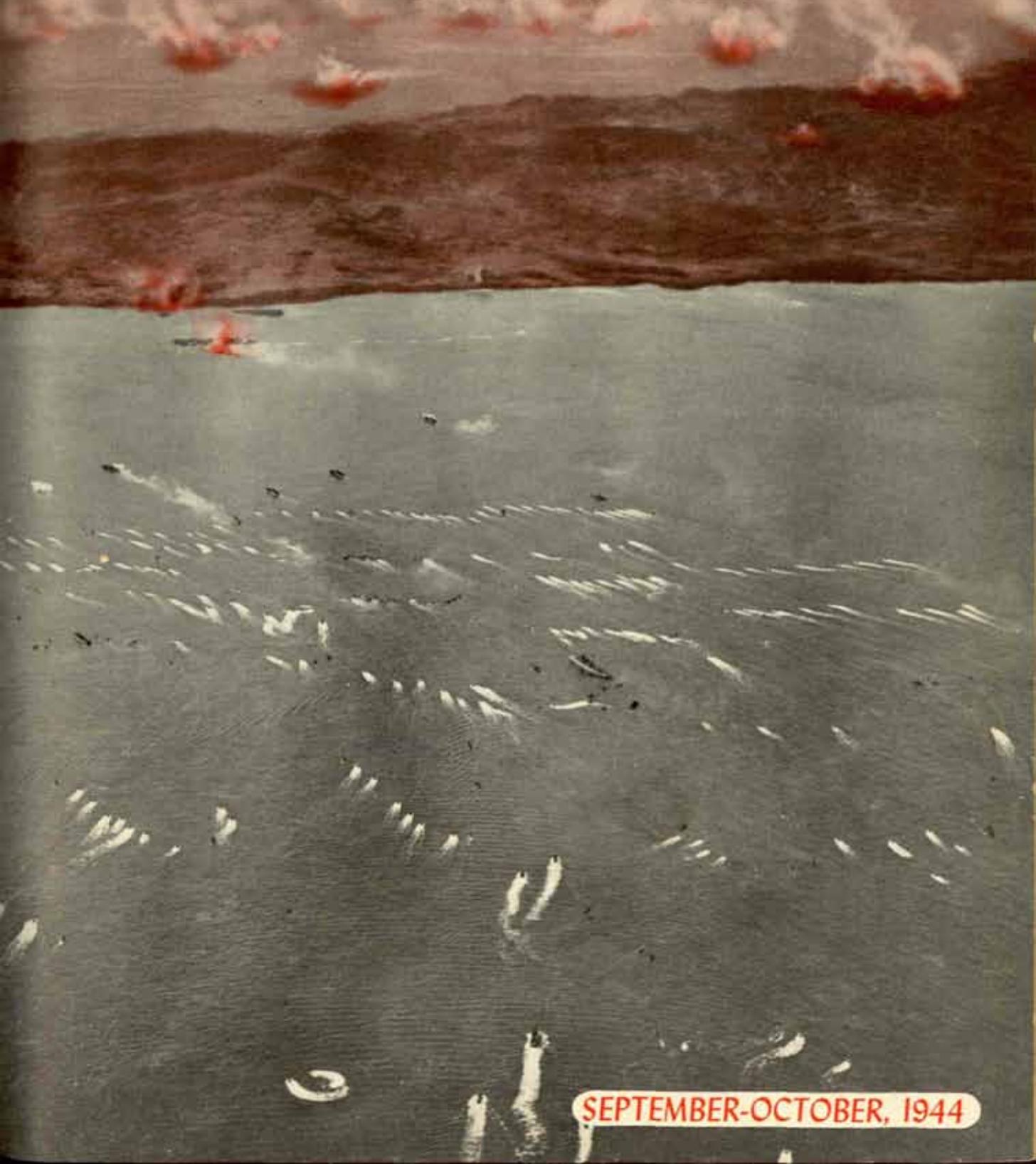


# COAST ARTILLERY JOURNAL



SEPTEMBER-OCTOBER, 1944

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## CONTENTS



COVER. <i>The Landing at Guam. U. S. Navy Photo.</i>	
SALERNO TO ROME. <i>By Brigadier General Aaron Bradshaw, Jr.</i>	4
COAST ARTILLERY ACTION IN NORWAY. <i>By Captain Brynjolf Bjorset</i>	10
FROM THE FIGHTING FRONTS:	
LOOKING DOWN ON CASSINO. <i>By Corporal Ralph "Pat" Roussell</i>	18
SOMETHING NEW HAS BEEN ADDED. <i>By Staff Sergeant Jac Bowman</i>	21
SINKING A JAP TRANSPORT. <i>By Captain James O. Murphy</i>	24
ALL ROADS LEAD TO BERLIN. <i>(Associated Press Wirephoto Maps)</i>	26
PREVENTION OF FLY-BORNE DISEASES IN ISLET AND ATOLL WARFARE. <i>By Lieutenants Louis Shattuck Baer and Ralph F. Allen</i>	32
NOT GOOD ENOUGH. <i>(Pictures)</i>	36
TEN PER CENT HITS WITH THE DIRECTOR. <i>By Lieutenant Frank B. Aycock</i>	38
THE ROLE OF TACTICAL AIR POWER	43
USE OF A DEFLECTION OBSERVER. <i>By Staff Sergeant Tadeus Patla</i>	46
THE JOURNAL NEWSREEL. <i>(Pictures)</i>	48
CALIBRATION OF 90MM GUNS FOR FIRING ON GROUND TARGETS. <i>By Major Victor G. Hines</i>	50
FAREWELL TO CAMP DAVIS. <i>By Captain John E. Slater</i>	53
MESS ECONOMY. <i>By Staff Sergeant Anthony Lofaro</i>	56
IMPROVISING INFINITY. <i>By Major Ralph W. Cooper</i>	57
CHART FOR ARTILLERY MET STATIONS. <i>By Technical Sergeant Donald E. Twitchell</i>	58
COAST ARTILLERY CITATIONS AND COMMENDATIONS	59
COAST ARTILLERY BOARD NOTES	64
NEWS AND COMMENTS	68
NEWS LETTERS	77
BOOK REVIEWS	87

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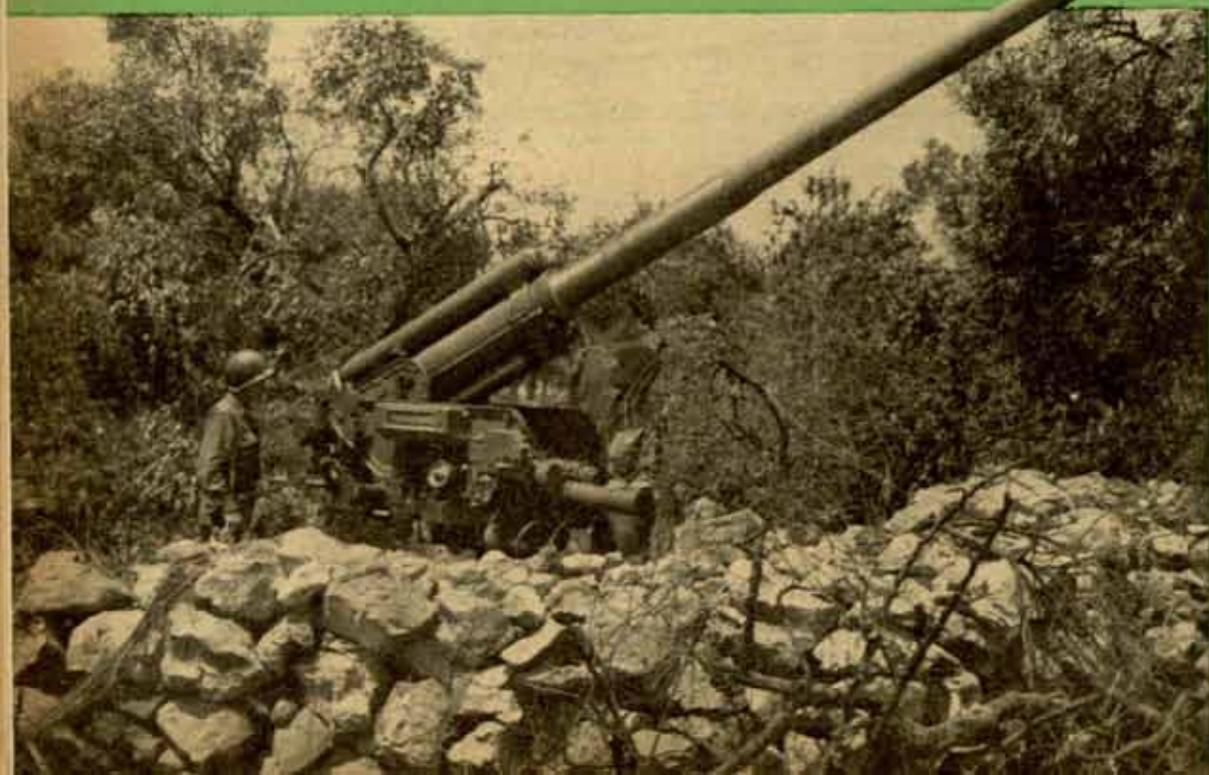
# SALERNO

Barrage balloon at Anzio.

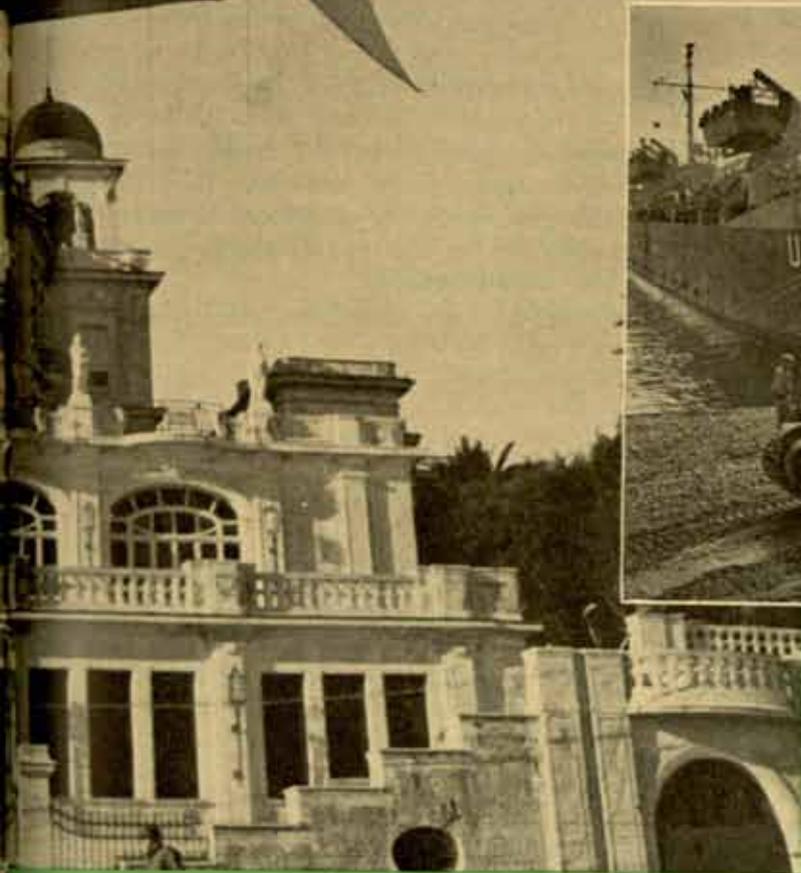


German "88" captured in Italy. The 88 is good, but our 90 is better.

Signal Corps Photos



# to ROME



Unloading tanks at Anzio. Shipping was the choice target of German bombers.

## By Brigadier General Aaron Bradshaw, Jr.

### SUMMARY

Since the Fifth Army landing at Salerno to the present date, 24 June 1944, antiaircraft fire with the Fifth Army has destroyed 462 planes. These planes have been seen to crash. Three hundred three planes have been probably destroyed—in other words, were hit, burst into flame, but the wreckage was not found or the plane not actually seen to hit land or water. Since 9 September at Salerno, some 670 sorties have been flown in 635 attacks against Fifth Army troops and installations.

Facts and figures are self-explanatory. They tell their own story. But there is a story, a great story behind the brilliant achievements of the antiaircraft forces in Italy. It's a story of a combination of things, of splendid leadership, devoted officers, of troops who stuck to their guns—stuck to their guns and beat the *Luftwaffe*. We have mentioned leadership, the devotion, the loyalty of the troops; now the third combination, a great partner, the equipment with

which we were enabled to so effectively support the Fifth Army. The antiaircraft equipment which is today rolling forward in close support of General Clark's forces north of Rome can be described in no other way than as superb, outstanding, a great tribute to the inventive genius of our Allied forces. More of that later.

I might speak at length of the numerous feats of heroism which have been performed by AA troops in the Battle of Italy. I could tell you of their gallantry under fire, the hardships which they endured in all the great battles with which you are familiar, but I do not feel that is necessary. It should suffice to say that they are American soldiers in the best tradition and the exploits of American soldiers from Tarawa to Rome to Normandy speak for themselves. However, as this is a report of the AA forces in Italy, I wish to convey strongly at this point, that as far as mud and blood and guts are concerned—*antiaircraft troops are not rear-area soldiers*. In the push up the Italian Peninsula,

the infantryman, the artilleryman, the man in the tank have come to know well the AA soldier. From Salerno, through the bloody fighting in the bitter winter at Cassino, to Anzio to Rome, the AA soldier has been with the leading elements.

### AAA, A NEW ARM

The problem of defense from air attack is a difficult one—the best way to describe it is to say that the air is a mighty big place. It covers a lot of ground, and our job is to protect the ground soldier from air attack from the front line to the most remote point in the rear. To protect as well his lines of communication, thus insure his supplies of food, munitions, etc.

Now, keep in mind, too, that the antiaircraft is a comparatively new branch of the service. A comparatively new arm which was rushed into service, designed to protect the American ground troops from the *Luftwaffe*, then the most powerful air arm we had yet seen. Practically since its birth Ack-Ack has been shrouded in a cloak of mystery. Some equipment when first produced was so secret that most AA officers were prohibited from viewing it—even from a distance. Armed guards watched it night and day. When it was discussed, it was talked of in hushed whispers. This was as short a time ago as three years. In three years, this arm has been organized—organized under pressure. The initial problems it had to face were immense. They were staggering. We had theories. Theories are a dime a dozen. But here we were designing a gun, a static piece firing a large- or small-caliber shell which was supposed to reach out with three-dimensional data and destroy an enemy raider which was coming in to attack at almost unheard-of speeds. For a comparison, you have the field artillery. Their praise need hardly be sung by anyone. They are the starch, the backbone of your attack. But, they fire on well-planned data. They usually have plenty of time to compute it. They fire on fixed lines. They have every conceivable piece of data, every detail worked to a fine point. They fire in one direction. They have a known target.

### AA PROBLEM

Now for a moment consider your problem with Ack-Ack. There are no fixed routes up there in the sky. You have clouds, clouds give wonderful cover. A plane travels at tremendous speeds. If he comes in company, he can have his number-two man, or if it is a squadron attack, he can have five to eight others attack from other directions, from other altitudes. In other words, he has, or he *had* the prerogative to attack from every conceivable angle. He could move. The gun could not. The gun had to sit there, sit there like a bull's-eye. In other words, just like someone throwing darts at a stationary target.

More of that later, but right now let's keep this discussion on the table—all our cards showing. The first question you should ask is:

Question One: "Has the antiaircraft artillery fulfilled its mission?"

Question Two: "Don't you believe that this was only possible because of a weakened German Air Force?"

### ANSWER, QUESTION ONE

All right. The first question. Mind you, this is not on an ideological basis but on a basis of cold fact. Bear in mind as well that we are *never satisfied*, that we are always striving for the next higher level. However, the antiaircraft artillery with the Fifth Army has gone above and beyond all that even we as the most severe critics of AA have expected. In its primary mission in some 85 per cent of all the engagements with enemy aircraft, the antiaircraft has decisively defeated the enemy's effort, and has forced him to pay heavily in destroyed and probably destroyed aircraft. "Probably destroyed" means the aircraft has at least been heavily damaged. In its secondary rôle, firing against ground targets, the 90mm gun proved its tremendous value in the assault on the Gustav Line and in our break-through from the Anzio beachhead.

All right, here are your facts. And the best example we have of the effectiveness of AA fire is the battle between the AA and the German Air Force at Anzio.

### ANZIO

For those of you who might have been there or who read the reports, official and unofficial, you know that we fell short of our objective and were left with a beachhead about fourteen miles in length and about seven in depth, or about 90-odd square miles of flat land. Every square inch of the beachhead was under observation by the enemy. You know that we had one port into which we crowded many ships and craft as we possibly could. And in the days of the heavy attacks, when we were literally with our backs to the wall between the 16th and 19th of February, the harbor was constantly jammed with some eight Liberty ships packed close together and the water was alive with DUKWs and landing craft furiously unloading supplies.

There you have the target—vital, small, concentrated—within easy reach of enemy fighter and bomber fields. You know as well that the enemy was determined not to harass us but to *destroy our forces and drive us into the sea*. For the first time in our campaign in Italy, he heavily supported his ground attacks from the air. His bomber strength in Northern Italy and Southern France came down with a mission, first of destroying the port of Anzio and its shipping and secondly, to simply pound one end of the beachhead to the other. Keep in mind that we are not trying to take any credit from the Air Corps. The support of the Air Corps was magnificent. But, as we described the air in setting up our Ack-Ack problem, we said it's a mighty big place, and to throw up a cordon and screen up there and say that, "You will not pass, you will not enter," cannot be done. You will see here how the Air Corps and the men on the ground, the AA soldier, cooperated one hundred per cent. Maybe the best way that I can say it is to say that without the Air Corps we would have been swamped with planes, but without the AA the enemy could have bombed almost at will, sunk our shipping and would have reduced Anzio and Nettuno to rubble.

Seven days after the landing, on 29 January, sixty aircraft, Ju88's, Do217's and He177's came down to smash the shipping in Anzio port. Ninety-millimeter fire caused the formation far out at sea, forced the aircraft to strike

single harassing attacks and succeeded in destroying five planes. Had the planes been able to attack at will, we would have lost ships, numerous ammunition dumps which were so badly needed, and our lines of communication would have been seriously disrupted. However, on that night when the score was taken, the German Air Force had raided the beachhead fifty-three times in seven days, and we had destroyed thirty-eight planes with ten probably destroyed.

On 15 February, the day before the big attack, the enemy mustered the *strongest consistent attacking force* yet seen in the Italian theater, and for seven consecutive days the German Air Force, trying every known trick, using everything from fighters to heavy bombers, struck again and again at the port of Anzio. In those seven days he lost twenty-five planes which were seen to crash and burn and twenty-three more which are listed as probably destroyed. Thus, for the period 22 January to 22 February we destroyed sixty-three planes—sixty-three planes which were seen to crash. Our damage was slight in matériel and personnel. The shipping still unloaded smoothly. The supplies poured into the port and over the beaches by thousands of tons. On the 16th, timed with the enemy drive from Carroceto, flights of thirty-five to forty fighter-bombers rained over the area practically all night for several consecutive nights. Timed with the air attack, long-range, heavy-caliber guns, 170's and 210's, crashed into the port area, splattered the AA in the open pits with shrapnel.

Well, the AA stood firm, stood firm through eighty-nine consecutive attacks, bringing the total number of raids to 178, and in seven days we knocked down more planes to bring the total number of aircraft shot down to 102.

The days rolled by. The tempo of enemy air activity fluctuated. Then he tried to raid in definite patterns. *His every attempt was smashed.* In his effort at early-morning raids he lost thirty per cent of his force in destroyed aircraft. The attacks were not continued. He tried it in the afternoon in an engagement on 29 March, twenty planes coming directly out of the sun, dove on the harbor. Eight planes—forty per cent of the raiding force—were destroyed by AA fire and the wreckage of all planes found.

To sum it up, *on every occasion that the enemy employed eight or more planes he lost at least one plane destroyed, and in some cases felt thirty to forty-five per cent losses in destroyed aircraft in a single raiding force. He was forced to abandon his large-scale attacks.*

#### FORWARD AREA ATTACK

Giving up the attack on the port the enemy figured that our concentration was strongest there we would be weak in the forward area, and because of the size of the target and the perfectly flat terrain he would raise havoc with artillery, dumps, forward troops and lines of communication. In one or two attacks he succeeded in coming in low under the fire of the 90mm guns and bombed the Field Artillery. We were faced with an immediate problem which had to be solved and solved so that we would destroy him and not just deter him. We must force him to abandon the attacks altogether. Up till now we had relied primarily on our heavy guns. But the heavy gunfire was extremely dangerous to friendly troops when it burst at very low

altitude. Therefore, we worked with what we had—the light guns, the 37mm and the 40mm. We had a tremendous concentration of light fire power spread out over the beachhead and we divided the entire beachhead for forward defense into *three areas*, going from left to right. The areas were marked Red, White and Blue. Each area was designed to throw up a light controlled barrage designed to catch the aircraft as it entered the area. We would first obtain our firing data. That information, assembled and evaluated, was given out from a central point called the Gun Operations Room at the port. So, when enemy aircraft entered the Red sector only the Red sector opened fire.

Now, a barrage to the ordinary man means just a group of guns pointed practically at any angle throwing up as much ammunition as they can and then maybe stopping when they think they have enough up there. Well, such is not the case. An AA light barrage is designed so that every single light piece will fire at a definite angle, at a definite azimuth and a definite number of rounds of ammunition. It is so designed that when the officer in the Gun Operations Room says, "Fire," every single gun will open fire at the same time. Therein, you have a sudden intense and accurate volume of fire designed to give you cover effective to about ten thousand feet. Above that the 90mm takes over and your target is then between the frying pan and the fire, so to speak. Well, the German Air Force found how effective it was. *It was so effective that they finally practically ceased to attack the beachhead.* Because it was so highly organized, the light AA fire at night had a tremendous demoralizing effect on the pilot. In other words, he saw that if he attacked in the Red sector all the way over on the left that only the Red sector opened fire *and not the entire beachhead in helter-skelter fashion.* He could see from our fire that *we knew exactly where he was* and that we were not firing hit or miss.

Now, another point from the standpoint of the tremendous importance of strict fire control is conservation of ammunition. Ships were our lifeline at Anzio. The field artillery, tanks, infantry, etc., in repelling the three large-scale German attacks, were consuming unheard-of quantities of ammunition. If strict discipline had not been exercised and if we had not had the equipment which enabled us to bring about that discipline and control, like the AA defenses of Malta, our ammunition would have been spent, and we would have been strictly rationed. This would have been disastrous. In all, when the beachhead was finally broken AA fire had destroyed 204 planes and probably destroyed 133. Some 2,500 sorties were flown in 291 attacks against Anzio.

#### 90MM FIRE AGAINST THE GUSTAV LINE

The secondary rôle of the 90mm gun as a field artillery piece was accomplished brilliantly in the Army's assault on the Gustav Line. In preparation for the attack the heavy gun batteries were moved up so that they could closely support the infantry. From previous experience in the campaign it was found that the 90mm was most effective, particularly with air burst, against ground troops and, because of its rapidity of fire and accuracy, was quite deadly against enemy infantry concentrations, particularly those

close up, forming to attack. From previous experience as well, we learned the value of the gun in a counterbattery rôle. We knew also that the Germans feared the weapon and prisoners taken several months before during the winter campaign called the gun "Ratsch-Bum." PW's said that they could hear the crack of the gun and almost instantaneous with the sound of the gun the shell struck and burst. They said that it had a great demoralizing effect on the troops. Therefore, in the assault on the Gustav Line 90mm guns were assigned some 218 missions, fired some 40,000 rounds of ammunition. The heavy gunfire, firing rapidly in heavy concentrations, neutralized enemy artillery, caught enemy infantry concentrations forming to attack, denied the enemy use of important road junctions, and by spraying shrapnel over his pack trails on which he hauled supplies we helped to disrupt some of his important lines of communication in the mountains. Batteries of Nebelwerfers were also engaged and silenced.

#### 90MM FIRE IN THE BREAK-THROUGH FROM ANZIO

Preparatory to the offensive launched from the Anzio beachhead on 23 May 1944 four AA gun battalions, or sixty-four heavy guns on the beachhead, were organized for ground fire under one fire-direction center. The batteries were registered on ground targets, and prior to D-Day and H-Hour conducted heavy preparatory fires on troops, machine-gun positions, mortar positions and against enemy artillery. Shortly after H-Hour on the day of the attack some one thousand rounds of 90mm ammunition were brought down on seventeen enemy locations. Hundreds of German soldiers ran through our fire to surrender.

As the attack progressed, and our infantry moved forward, the 90's continued to give close support to the advance. For five days, during the critical stages of the battle, this continued. In all, some 24,650 rounds of heavy ammunition were fired.

#### ANSWER, QUESTION TWO

Now, as to the second question which we said previously should naturally be asked, that is, about the weakness of the opposition. Unquestionably, were we faced by a force in the air as overwhelming as our own, our job would have been made vastly more difficult. However, in citing the situation at Anzio, I believe that we have proven conclusively the tremendous value of antiaircraft fire. As we pointed out, Anzio was small, concentrated, and we were faced with a desperate and skilled enemy. As we pointed out, and as is on record, we defeated him. As for the quality of opposition, the opposition which we faced was skilled, highly skilled.

#### AA INTELLIGENCE

It might be interesting to know how closely we work in studying the quality of enemy opposition, the type of plane that he is most likely to employ, the number of sorties which we estimate as is his maximum and the tactics which we believe he will employ. We know at all times the bases from which he operates, planes which are based there and their probable routes of approach. Our defenses are planned accordingly.

For example, at Anzio, in planning our barrage fire, we studied closely his tactics based on previous experience

We knew that he would use decoys, that is planes which do not attack but simply fly out of range and make half-hearted attempts at the target in an attempt to occupy the guns and detection devices while the main force attacks from another direction. Skilled, experienced staff officers briefed the officers and the men on the equipment accordingly. We were prepared. We knew that he would attempt to confuse our observers. You have all heard during our campaign in North Africa, of the Stuka dive bomber. The Stuka, you know, earned its reputation in its support of the German forces when they overran Poland and the rest of Europe. Some time in April the enemy pulled some fifteen Stukas out of Yugoslavia and brought them into Italy. We knew that he would not dare use them in daylight because they would be duck soup for the Spitfire or any other of our pursuit planes, but that he would use them at night. We were quite certain that when picked up by the observer the Stuka would have a very slow track. Now the whole importance of this is that ordinarily a slow track is indicative of some sort of a decoy or neutralizing trick. Ordinarily the crews disregard this type of target, do not engage it. However, the crews were briefed to be prepared for this slow track and to open fire. The track was picked up for the first time on the night 28 April at Anzio. The heavy guns engaged and destroyed a Ju87. The enemy then for several nights tried to use the 87 in dive-bombing. Field artillery flashes at night. His effort was completely smashed. In one particular engagement three planes out of seven were destroyed by heavy gunfire.

#### ENEMY ATTITUDE IN THE AIR

About the middle of March, a definite change in enemy attitude was evident, indicating either a change in briefing because of the intense flak encountered, or the use of less skilled pilots. Previous to this, enemy pilots exhibited marked skill, determination and daring in avoiding flak to press the attack. As the AA defenses were strengthened and improved, the enemy became less daring, frequently during night attacks at Anzio was easily deterred, and in many cases jettisoned bombs and abandoned the attack when first engaged by heavy flak. However, on several occasions highly skilled pathfinders, by extreme evasive action, would break through the heavy flak and accurately drop their flares on Anzio port. The supporting bombers all the while under heavy AA fire, would not coordinate the attack with the dropping of flares but would circle over their own lines just out of heavy gunfire, apparently hesitant because of the heavy flak. Those that finally attacked usually did so long after the flares had burned out. Later on, in April, and going into the first of May, a great percentage of the enemy aircraft who were engaged by heavy AA would abandon the attack completely and jettison their bombs on their own troops.

#### AA AND THE AIR CORPS

As we have stated before, AA has no intention of grabbing all the credit for destroyed aircraft at Anzio or anywhere else in Italy. What we wish to stress is the excellent control and the excellent cooperation which has existed between the two arms. It's as simple as to say, "What the miss up there we get down here." We work together.

se partners—part of a great team. In the numerous sorties flown by our Air Corps, both day and night, in the density of the area of the Anzio beachhead, and with the anxiousness of everyone because of the frequency of enemy air attacks *during my command at Anzio not a single friendly plane was brought down by friendly flak.*

To give you another example of the close cooperation between both arms, for the Anzio port we operated what we call an *inner artillery zone*, an area of so many yards radius around the port, access to which is denied friendly aircraft. However, on many occasions, the Beaufighters circling out of the zone would pick up a target, radio to their ground station, who would in turn contact our Gun Operations Room immediately and request that we hold fire while he chased the target into the zone. In nearly all cases permission would be granted by the AA Com-

mander who was in complete control of the zone, and the Beaufighter would be permitted to finish his work.

#### THE BATTLE CONTINUES

Ordinarily, the conclusion should come here. I have given you the facts, the figures, and the story. I have told you some of the exploits of the antiaircraft forces with the Fifth Army. But, the battle still continues. I can draw no conclusions other than that which I have already drawn—that we have beaten the German Air Force in Italy all the way from Salerno to Rome and that we shall continue to defeat it until the final victory. We have a great, hard-hitting team built around this new weapon. A strong force of well-disciplined, experienced officers and men that will prove more than a match for any attacker, whether he come by air or ground.



An AA gun dominates the landscape at Anzio.

U. S. Navy Photo

# Coast Artillery Action in Norway

By Captain Brynjolf Bjorset, Norwegian Coast Artillery

EDITOR'S NOTE: *At the request of the COAST ARTILLERY JOURNAL, this article has been prepared by an officer of the Norwegian Coast Artillery. The article is based on a few unofficial reports only, and does not pretend to give any complete or irrevocable picture.*

At the time of the German invasion of Norway on the 8th and 9th of April 1940, the coastal forts were only partly manned. The Navy was mobilized but the Army was not.

Fig. 1 shows the coast defenses of Norway at the time of action. All the fortresses were attacked by enemy forces on

the night of the invasion. As typical examples we will consider two actions: one at Oscarsborg, Inner Oslo Fiord, an instance of an action in a narrow channel; the other at Odderoya, Kristiansand, an example of an ocean-front action.

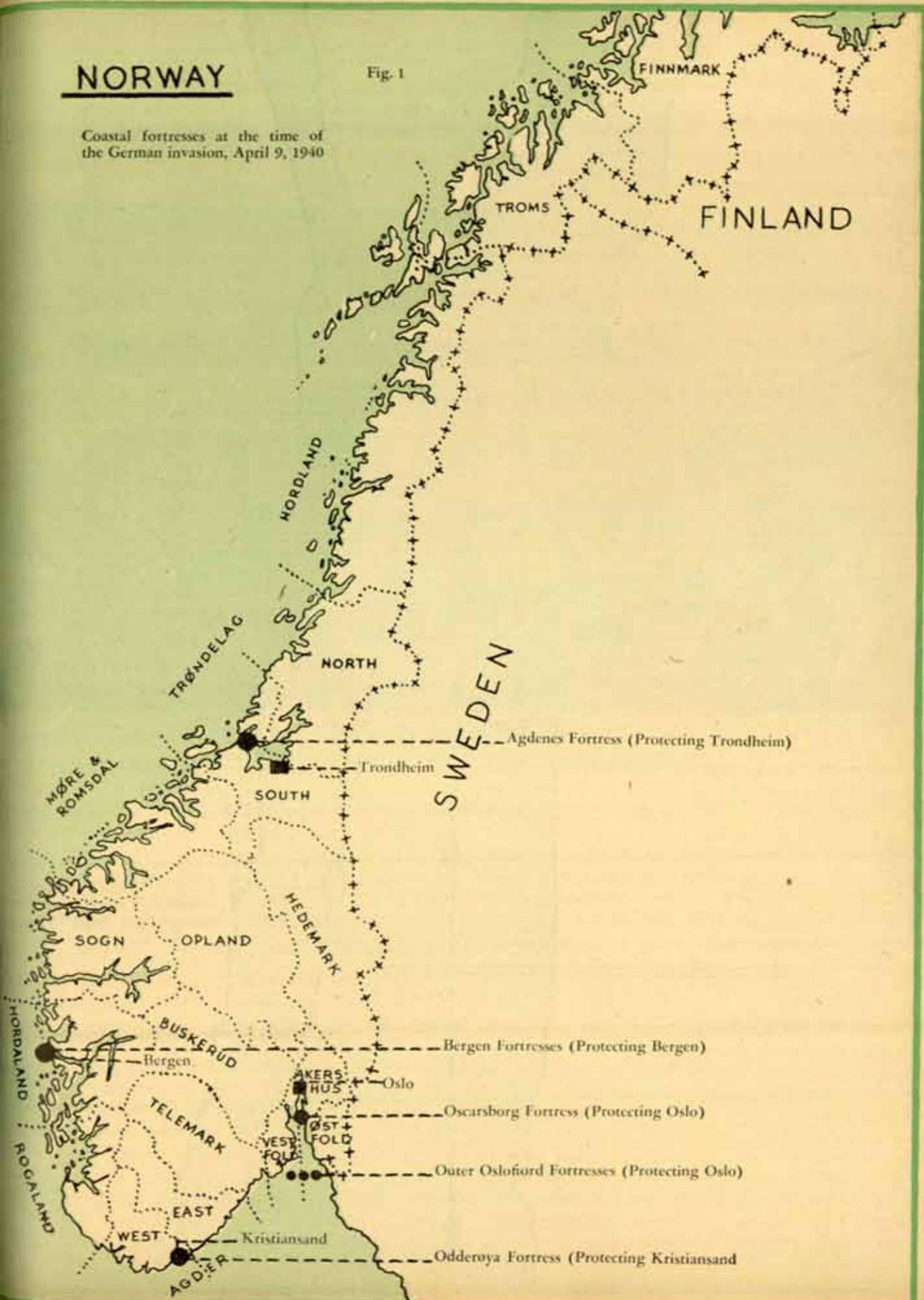
Fig. 2 shows the layout of Oscarsborg. On April 8th, 1940 at 2315 a patrol vessel in Outer Oslo Fiord reported the approach of unknown warships, opened fire and hit one of them, and was then destroyed by enemy fire. The fortresses of Outer Oslo Fiord then engaged the enemy. April 9th at 0030 the warships were identified as German

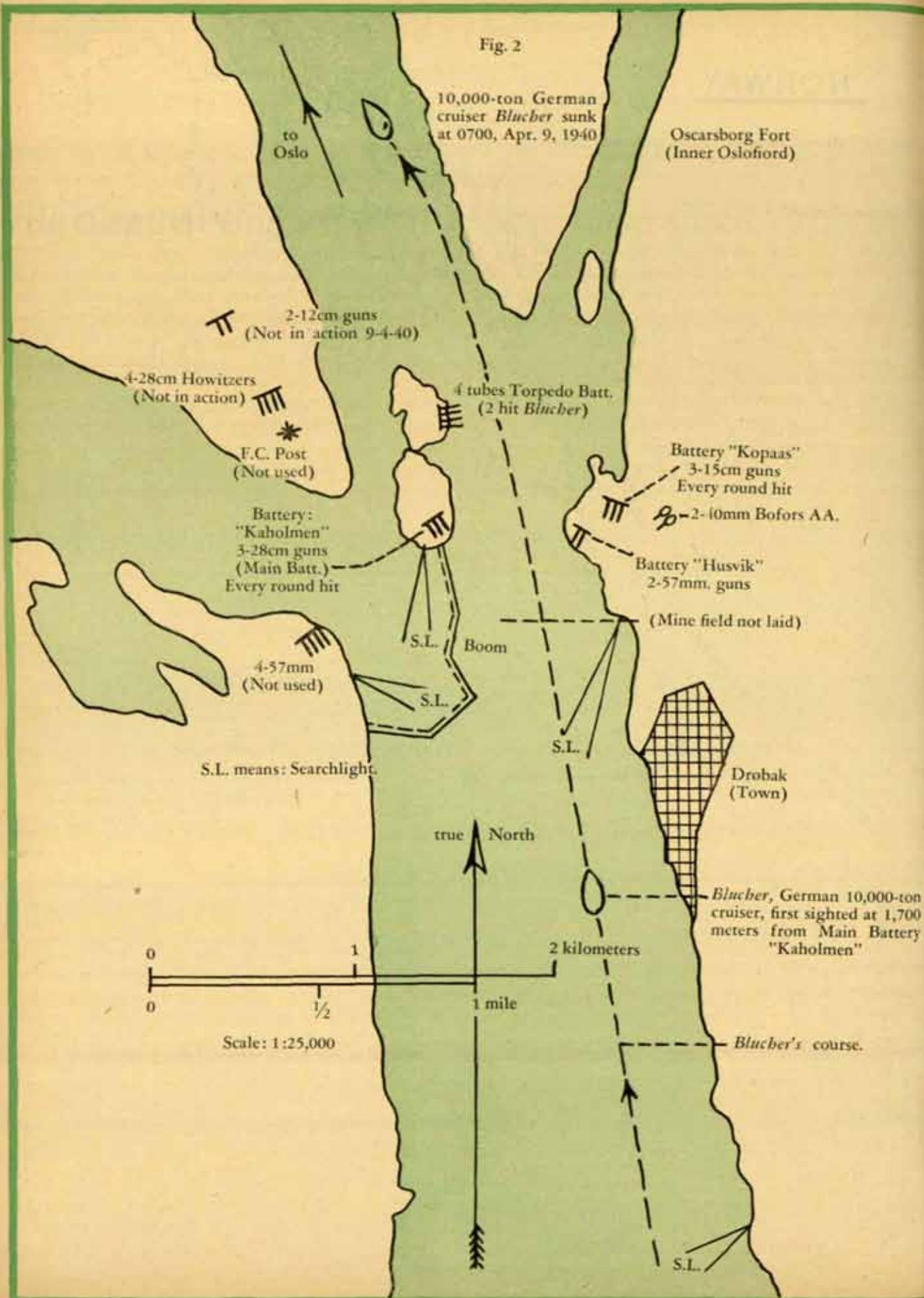


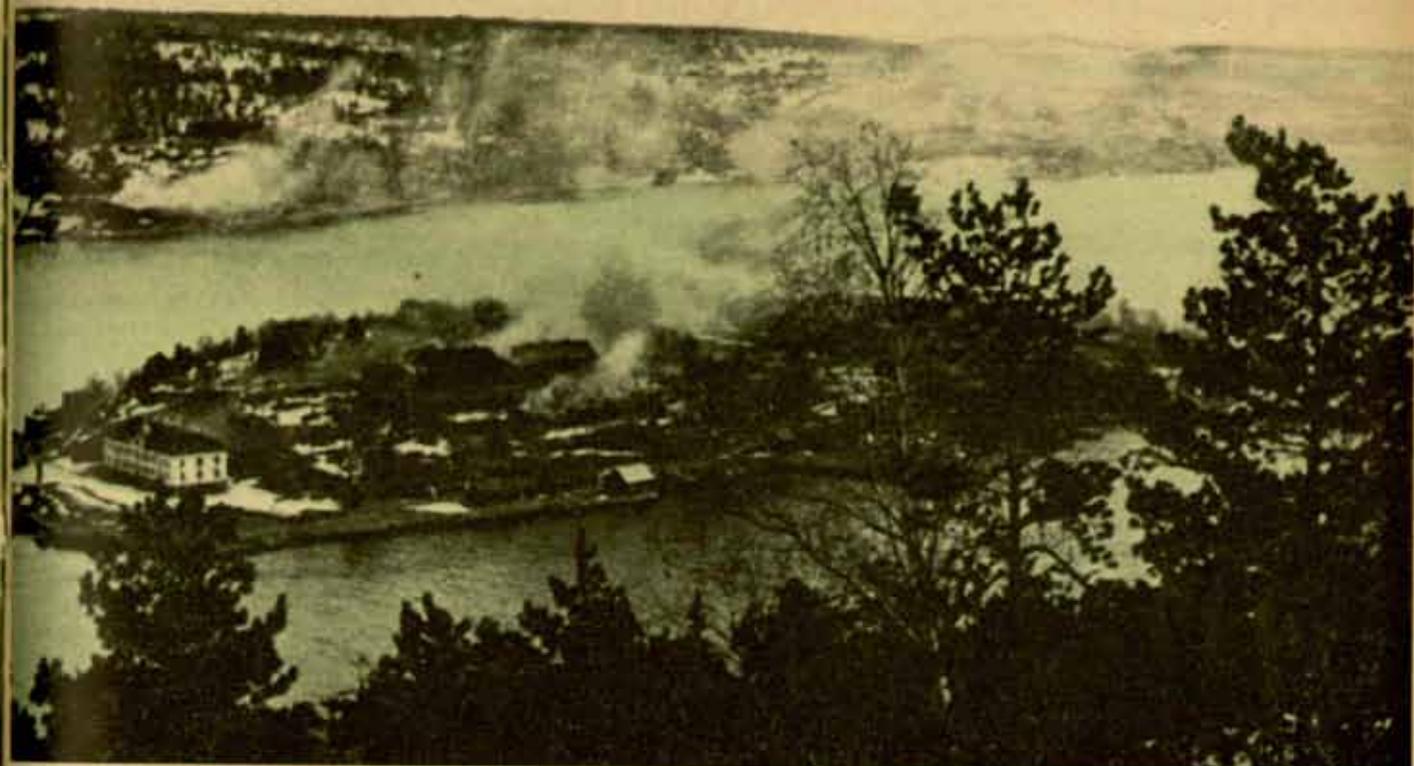
# NORWAY

Fig. 1

Coastal fortresses at the time of the German invasion, April 9, 1940







Oscarsborg Castle, in Oslo Harbor.

Norwegian Official Photo

The weather was foggy and the fortresses could not observe the fall of shots. Enemy ships kept their searchlights trained on the batteries, which further hindered observation. It was later reported that the fire from Outer Oslo Fiord forts had damaged some of the enemy ships.

Oscarsborg sounded the alarm and the batteries were manned upon receipt of the report at 2315. At 0330 the lookouts saw the first warship approaching. One searchlight on the eastern shore went into action, sweeping the ship from bow to stern, pausing for a moment on the German naval flag, then was doused. At that moment the 28cm battery fired its first round (armor-piercing shell) at 1,900 yards. It hit the cruiser just abaft the bridge and, according to later reports, destroyed the fire direction center for the big guns. (According to one report the first hit was in the foremost gun turret on the lower deck.) The target was the 10,000 ton German cruiser *Blucher*. At that moment no other ships could be seen in the fog, but it was later reported that eleven vessels were approaching. Among them were the pocket-battleship *Lutzow* and, according to reports, the cruiser *Emden* and the artillery training ship *Brummer*.

The 15cm Kopas battery also opened fire on the *Blucher*, with H.E. shell. The first round hit the bridge, part of which was shot down. The debris covered the gun turret on the fore deck.

The only fire encountered from the cruiser was from

smaller guns, estimated to be of about 12cm caliber. The enemy fire damaged buildings and other establishments, but did not interfere with the fire of the Norwegian batteries. The 28cm battery aimed at the water line of the cruiser just below the bridge while the 15cm battery continued to fire on the superstructure. The speed of the cruiser was estimated by observers on the eastern shore at three knots as she approached the fort. When she passed the Northern Kaholm Island, the speed was estimated at seven knots by observers on the island. After some additional hits by the 28cm and 15cm guns, fire and smoke were seen pouring from holes just above the water line below the bridge, and several fires were raging on deck. When the cruiser came within range of the torpedo battery on Northern Kaholmen, two torpedoes were fired, one hitting the engine room and one the torpedo room of the cruiser. Thunderous explosions were heard and a pillar of fire and smoke shot up combining and "eating up" the smaller fires. *Blucher's* engines stopped and the vessel began to list. A band on board played *Deutschland Deutschland Uber Alles* (the German national anthem). Crew and passengers jumped overboard and began swimming ashore, but many drowned on the way. Soon after this the ship turned over 90 degrees and men were now seen running along the horizontal side and jumping into the sea. A little later the ship sank. The fuel oil on the sea caught fire, and Norwegian rowboats put to sea

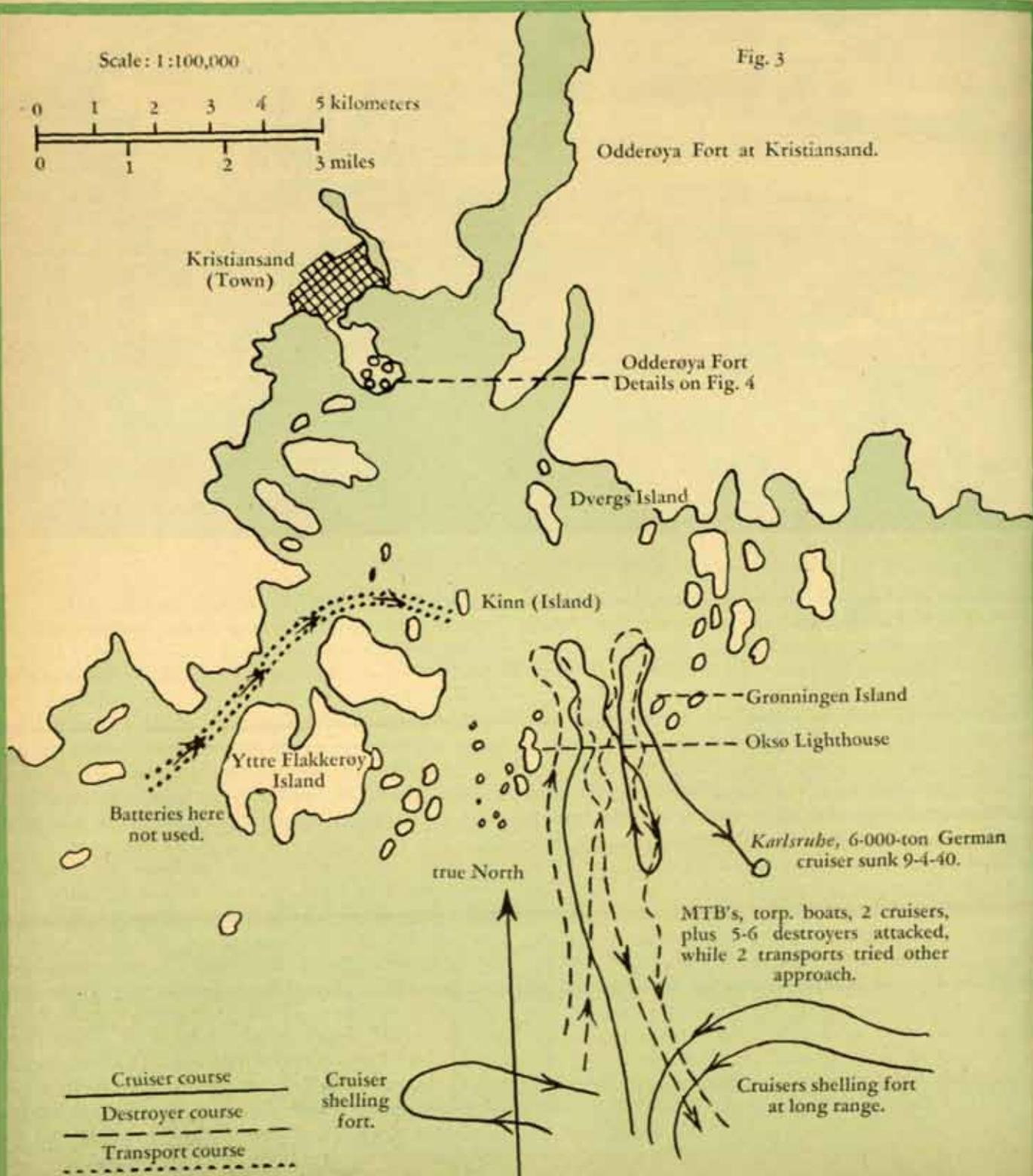
to rescue the Germans perishing in the fire. Many of the boats came out burning.

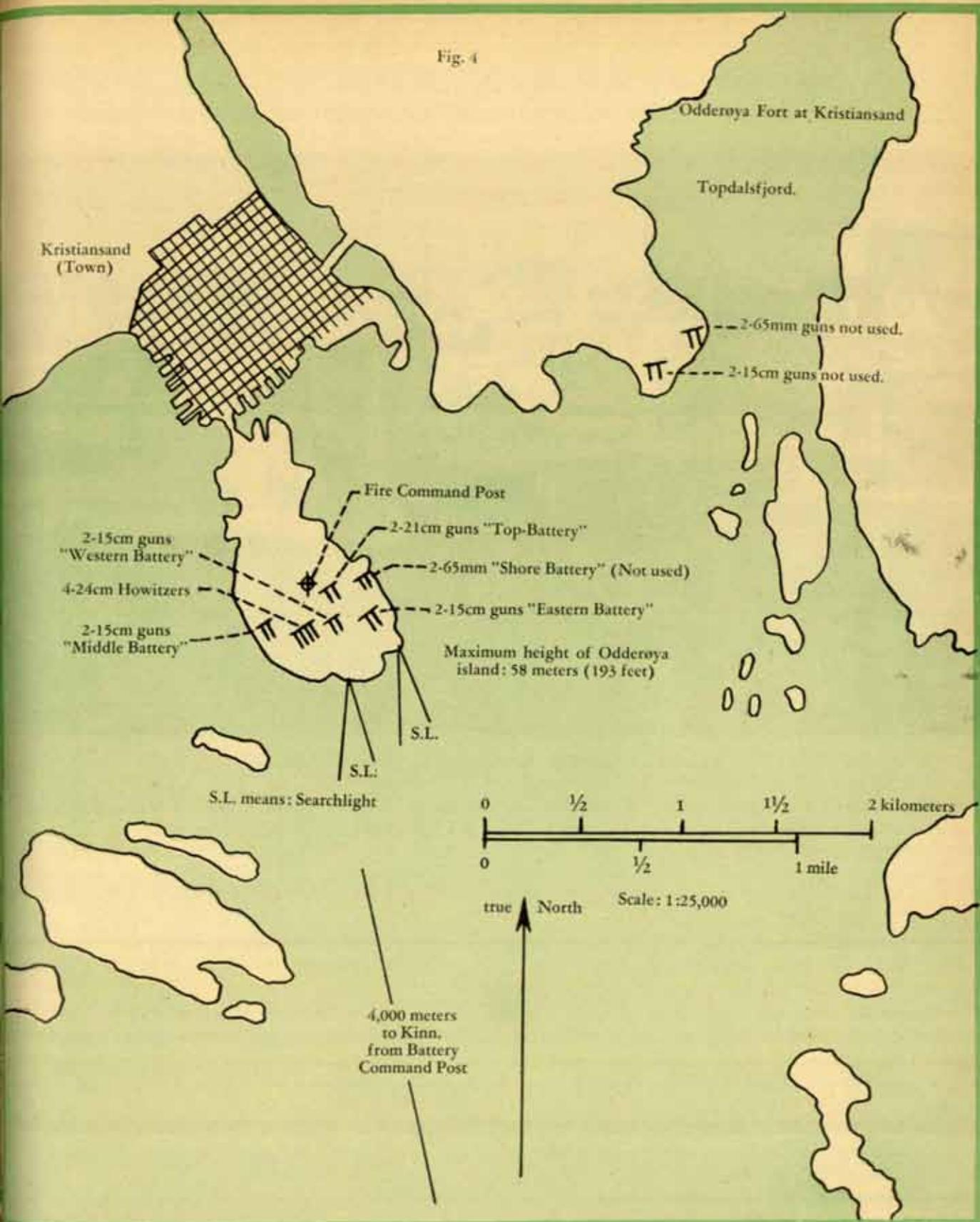
After *Blucher* had been hit by the torpedoes, the 15cm battery fired at the next target, the artillery training ship, 2,400 ton *Brummer*, at 2,200 yards. The first round hit the superstructure and fire and smoke burst forth. Then the *Brummer* and the other ships were seen to turn. Accordingly "cease fire" was ordered.

At 1000 about fifty planes came to bomb the fortress. The bombing went on throughout the day until 1730 with

a lull of one hour between 1300 and 1400. About 500 bombs weighing 200 to 400 pounds are reported to have been dropped. No battery was put out of action. The two Bofors guns of the fort are reported to have shot down four planes outright and damaged ten others.

At different intervals during the day the pocket battleship *Lutzow* shelled the fort with heavy guns from 11,000 yards range, while other ships landed troops at Soon, 19,000 yards south of the fortress. The shells did not damage the guns of the fort.

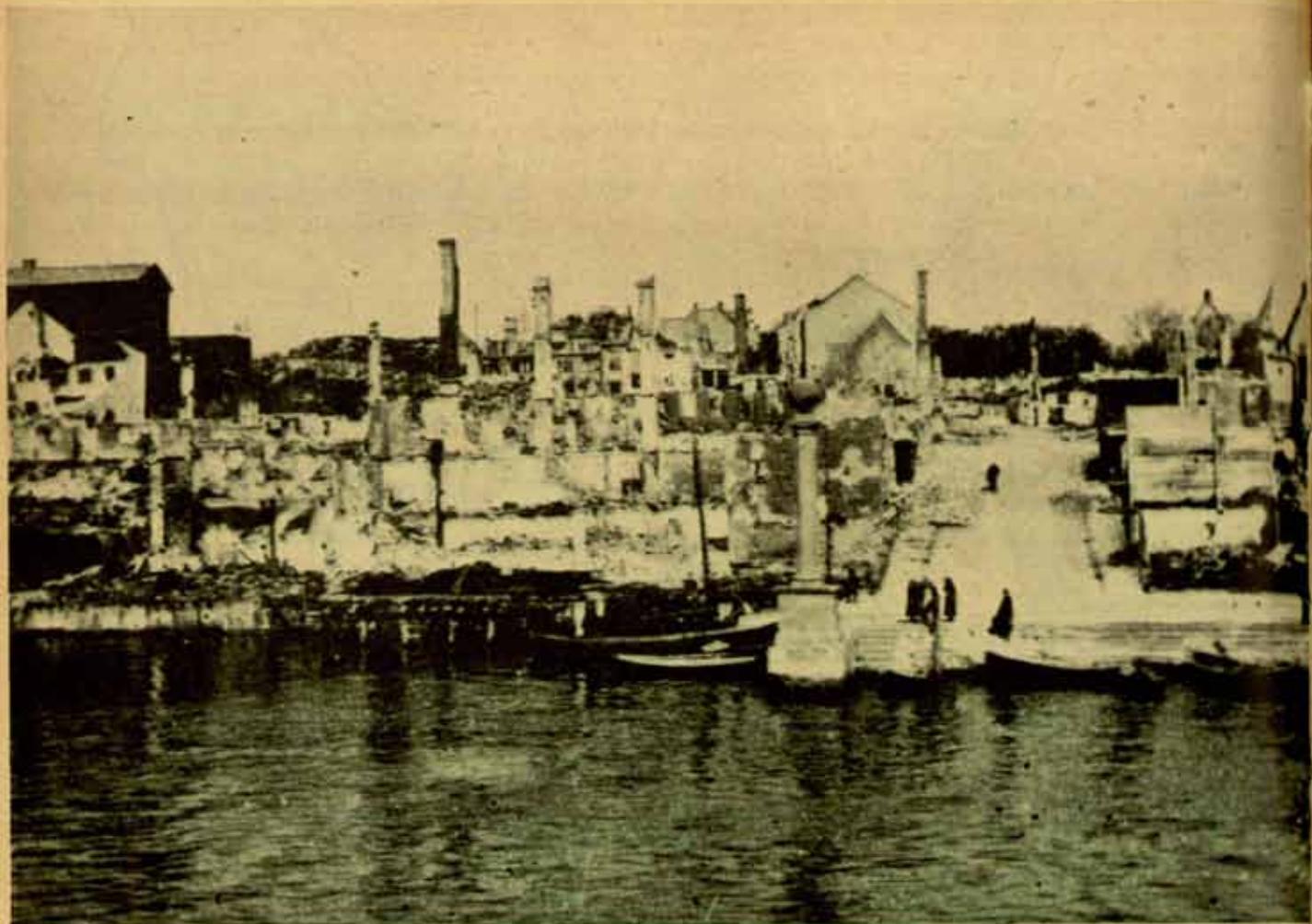




From the landing beaches south of the fort the Germans were now marching on Oslo. But the delay caused by the action at Oscarsborg had made it possible for the Norwegian King and Government and the military and naval headquarters to leave Oslo and to save the gold bullion of the Bank of Norway. Further, the sinking of the *Blucher* killed a number of German high officials and Gestapo

agents who, according to reports, were supposed to take over the administration of Norway, and thus created havoc in the German plans. Without the Oscarsborg incident it may be doubtful whether Norway would have been in a position legally to declare war on Germany and offer organized resistance.

Figs. 3 and 4 show Odderøya fort at Kristiansand. On



Kristiansand, showing the effects of the German bombings.

Norwegian Official Photo

April 9th at 0300 it was reported that warships were approaching in Outer Oslo Fiord and all guns were loaded with H.E. shell. At 0500 the Norwegian Navy and Air Force gave warning of warships approaching Kristiansand. The alarm sounded. Through the telescope were seen one cruiser (*Karlsruhe*, 5,000 tons), seven destroyers, ten E-boats and some unidentified vessels. The fort fired a bring-to-round, and *Karlsruhe* then turned right and fired a full broadside. The first enemy rounds were shrapnel, giving a clear, blue smoke, presumably to facilitate ranging. The 8-inch and 6-inch "Middle" battery opened fire on the cruiser. The fourth 8-inch shell and the third round from the 6-inch were hits. The fifth or sixth shot hit between the funnels slightly above the water line. A further hit at the stern was observed. From then on smoke from exploding enemy shells and from our guns greatly hindered observation. Firing was continued.

At 0525 planes appeared at about 5,000 to 6,000 feet, dropping pamphlets to the effect that the Germans came as friends and protectors. The fortress continued firing, and then H.E. 111's and 110's came at 2,000 to 3,000 feet dropping incendiaries and H.E. bombs weighing 100 to 500 pounds. The fleet of cruisers and destroyers turned and steamed seaward. On the fortress only machine guns were available for AA defense.

One of the incendiaries hit an ammunition dump causing an explosion with a 250-foot-high column of fire. Splinters

from additional explosions continued to rain throughout the day, handicapping the men at the guns.

Some observers report they saw the *Karlsruhe* being towed outward in a damaged condition. Enemy vessels now were zigzagging in and out of the main approach while firing at the fortress. Two destroyers were observed to be hit effectively. One of them began to list.

From the narrower western approach two transports appeared, one 5,000 tons, the other 1,200 to 1,500 tons. They ran up and anchored behind Kinn island. The 6-inch "Western" battery engaged the transports, and soon afterwards fires started aboard them and they had to be beached.

The enemy shells destroyed barracks, mess buildings and other installations but the fortress batteries remained undamaged. The telephone switchboard was destroyed. A crack was blown in one of the mountain cave shelters, but no serious damage was done to it.

The enemy disappeared seaward in a new smoke screen and now a report came over the radio that reinforcements were coming and these words were repeated several times. "Don't shoot at approaching British warships." The Norwegians consequently expected British help. When actually a fleet again approached it was seen, however, that the ships were not British. But several independent observers reported that they saw the French tricolor waving from the gaff of the leading vessel. Fire was withheld accordingly. The leading ship was believed to be French, so were the

ships crowding into the Fjord at speeds up to thirty knots. It was too late when it was realized that the soldiers being landed were Germans.

Asked why they had entered the Fjord with a French flag, German officers answered, "That was a war strata-

During the engagement the 8-inch battery had fired about twenty rounds, the 6-inch "middle" battery about sixty, the 6-inch "eastern" battery two, the howitzers twelve to fourteen rounds. Two Norwegians were killed and several injured, all of them victims of bombs. The batteries were in fighting condition at the end of the engagement, thanks to the large extent to the gunsmith who, during the engagements as well as during the bombings had walked around to all the guns repairing them and keeping them in order.

A few incidents at other fortresses may be included:

At Bergen, fortress gunners left their guns and fought the landing troops (in the absence of infantry units). One Norwegian unit was captured and made to march in front of the Germans attacking other Norwegians. The Germans then shouted, "Don't shoot or you will hit your own men." Norwegian sharpshooters, however, shot Germans behind the Norwegian prisoners.

At Agdenes fortress a Norwegian force of twenty-five gunners held a German infantry force of 500 at bay for the greater part of a day.

Reports so far available indicate that German losses due to Norwegian Coast Artillery action were: *Blucher*, *Brummer*, *Albatross*, *R-17*. *Karlsruhe* was damaged by Norwegian guns, sunk by a British submarine. *Konigsberg* was damaged by Norwegian guns, sunk by British planes. Some destroyers were damaged and some may have been sunk.

The Germans admit the sinkings of *Blucher*, *Karlsruhe*, *Konigsberg*, *R-17* and two heavy hits on *Lutzow*.

As mentioned before, when counting the enemy's losses, account has also to be taken of the killing of important German officials with the sinking of the *Blucher*, and of the delay caused by the Oscarsborg incident, making it possible for the Norwegian authorities to leave Oslo, organize the resistance and legally declare war.

The coast artillery action in Norway demonstrated anew the helplessness of any one unit not properly supported by other arms, the vulnerability of coast artillery against landing troops, and, on the other hand, the efficiency of coast artillery against seaward attack, and the relatively meager effect of bombing.



Norwegian Official Photo

Another view of Kristiansand during the attack.

# from the **FIGHT**



## Looking Down on Cassino

By Corporal Ralph "Pat" Roussel, Fifth Army Field Correspondent

The Antiaircraft Artillery captain making a night reconnaissance for prospective gun sites in the vicinity of Cassino, prior to the Fifth Army assault on that town, might have felt imposed upon. His assignment, ordered by the Fifth Antiaircraft Artillery Group Headquarters, governing body of all United States Antiaircraft units supporting the New Zealand Corps assault on Cassino, was a tough one. But the captain's outfit proved capable of the task.

Most of the American troops under Fifth Army had been relieved and replaced by other Allied troops. The Group had been retained for the vital job at Cassino. During the period of preparation, the captain of Battery C of an antiaircraft battalion made a forward reconnaissance with a patrol of New Zealand Infantrymen.

The night was bitter-cold and rainy. Several weeks of rainfall had turned the terrain into a sea of liquid mud, which sloshed noisily beneath the patrol's feet as they trudged along. Heavy artillery duels were in progress. Loud reports and bright flashes from the big guns gave the illusion of an electrical storm. The patrol welcomed the thunder of the guns because it hushed the noise of sloshing muck beneath their feet, but they cursed the flashes which silhouetted their forms against the horizon as they passed open spaces. Near their objectives and off to the west a thousand yards or more the patrol stopped as the captain inspected a likely spot for a gun position. From here they could see the proposed site of one of the Fifth Army bridges to be built across the Rapido River, one of the captain's first-priority objectives for antiaircraft protection. German small-arms fire began and the patrolmen crouched low to the ground for protection. They could hear the German machine pistols' throaty vibrations, loud and terrifying. The whistling of Screaming-Meemie shell overhead added to the eerie effect.

Although the captain was having an exciting but discouraging experience, much trouble and forethought had

been put into this defense plan before his battery had been selected for the job by the Fifth Group operating under Lieutenant General Mark Clark's Fifth Army.

It was one of the most peculiar assignments ever given a forward area ack-ack unit, which units usually had the entire front as their scene of action. Here they were limited to the protection of three vital bridges on important lines of communications—which could mean the success or failure of the campaign. The three Fifth Army bridges were to be constructed over two rivers within a radius of one thousand yards. Therefore the antiaircraft had to be disposed so as to secure the maximum effect from each weapon. The total number of gun sections was limited to six because of natural terrain obstructions and unavailability of other suitable gun sites which had been flooded by the swollen Rapido, aided by the German demolition units. This required much study and detailed work by the Fifth Antiaircraft Artillery Group. The Group Commanding Officer and his staff coped successfully with these details as they presented themselves. The work was not new to these men who had been setting up tentative plans since their arrival with the Fifth Army at Salerno.

This was just another job, and just another tentative plan of defense that had to be worked out. Even after many hours of tedious planning had been completed, natural elements seemed to have been at work against their efforts.

Continual rains caused an operational delay of several weeks, until Wednesday, March 15th, when Cassino was bombed and shelled incessantly throughout the day. At dusk, five sections, each composed of one 40mm cannon and one multiple-gun mount carrying four .50-caliber machine guns, moved into a Fifth Army assembly area behind Mount Trocchio. Some of the personnel of the gun crews were sent forward with the combat engineers to prepare gun positions at the selected sites. The remaining personnel were caught in an intense heavy-caliber enemy artillery

# WING FRONTS

average of short duration. The work crews found the road number eight gun section site impassable. Bombs dropped that day had left two huge craters which blocked the approach to Highway 6 bridge. A new position had to be selected. At 3:10 a.m., indications were that the Fifth Army bridge would be opened for traffic at dawn. The gun crew members continued their work.

On the other side the New Zealanders under Fifth Army were not meeting with much success. Liaison reports stated that the Express Bridge would not be completed soon. A bomb crater at the approach of that bridge had to be spanned with the Bailey Bridge equipment intended for use over the second Rapido River crossing. The first platoon was then ordered back to its bivouac area.

German patrols were reported at the opposite end of the newly constructed Highway 6 Bridge. The forward infantry observation posts, directly aligned with number six gun section, reported their entire left flank entirely exposed to the enemy, leaving the intended position under intense

mortar and small-arms fire. A decision was made by Fifth Group. Personnel of the section were ordered to retire to the rear for the night. This proved to be a timely and wise order. The first rays of morning sun fell upon the shell crater that was lined with the rim of the parapet of the former gun position. While digging in the gun crew of section seven had their gun pit cave in and block one of the main roads of access. This section also was sent rearward. They set up, temporarily, at the battery's forward command post, for the night.

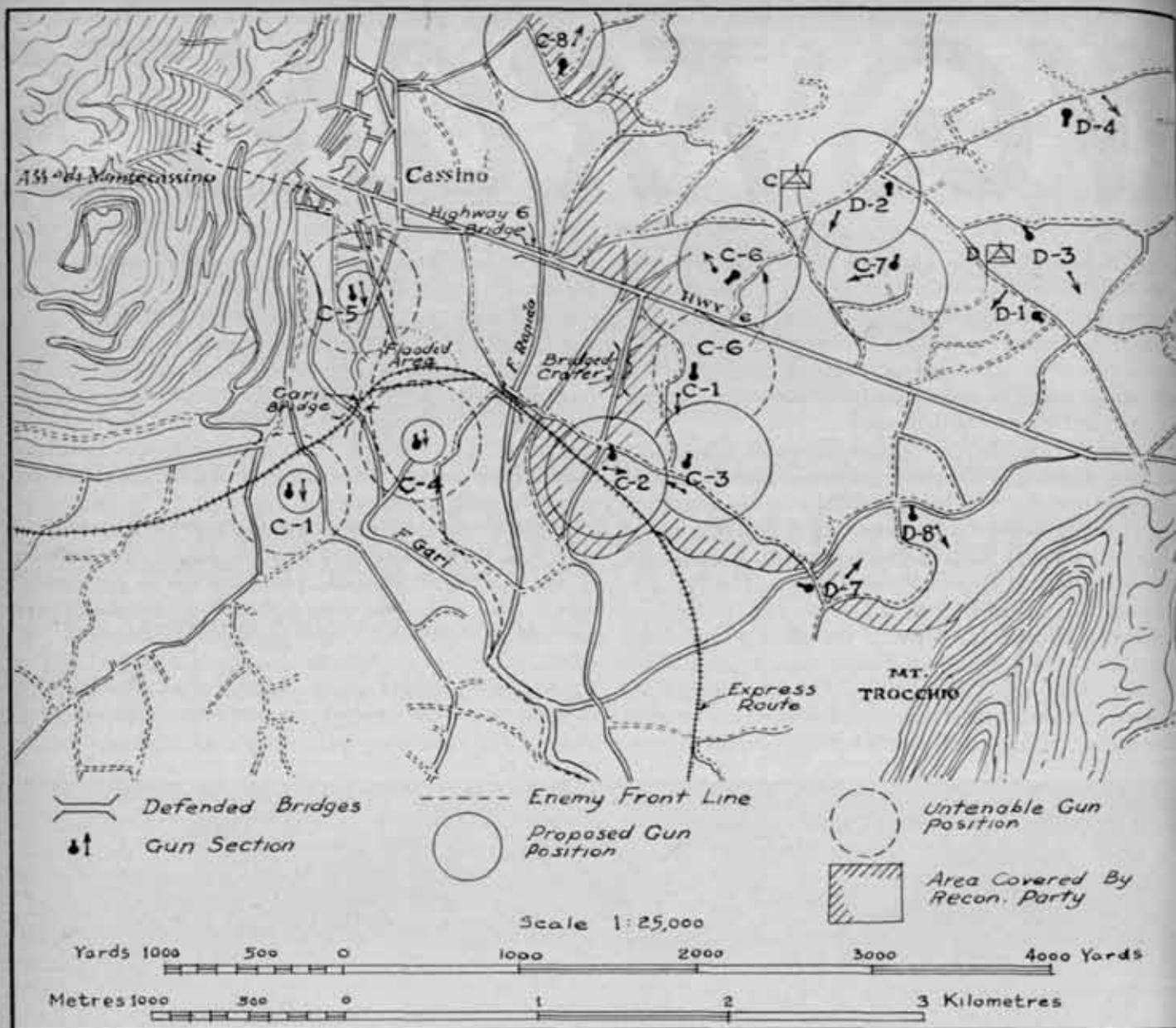
A three-hundred foot bridgehead had been established across the river by the New Zealand Infantrymen. Break of dawn saw artificial smoke come into use as a screening agent. The Germans were maintaining an observation post about 20,000 yards away atop Mount Cassino.

All men except two security guards were ordered off the guns because of direct enemy observation and the difficulty of spotting planes through the thick haze of protective smoke. The remaining men, not too soon, sought shelter



Signal Corps Photo

W.P. shells burst in Cassino. Remains of the castle can be seen in the background.



Night of March 15th, 5 complete sections of Battery C were to take up positions. Front lines had not been extended and C-6 was withdrawn. C-2 and C-3, also, retired because Express bridge was not constructed. Night of March 17th, section C-6 took up new position. Express bridge completed. Bofors gun of C-3 emplaced. Small-arms fire of enemy made other position untenable. Nights of 18th and 19th—Section C-1 emplaced gun in position evacuated by C-6, two nights before, because Gari bridge had not materialized. The M-51, section C-3 and section C-2 were emplaced to complete the six sections defense. Six sections from Battery D, were located between Battery C and Mount Trocchio to add depth to the original defense.

in slit trenches and other places of comparative safety. After a few hours the engineers were ordered to the rear because of heavily concentrated mortar fire. They awaited the further extension of the bridgehead.

No traffic was permitted to use the bridge this day. The same orders were to apply the following day and the engineers were not to work on the highway. However, shelling had subsided greatly in the early morning hours and the engineers were ordered back. The AA guns were manned. That night repairs were started on the road which had hampered the emplacement of number seven section. Meanwhile number six section, which failed to gain its initial position because of enemy small-arms fire, had started work on a new position several hundred yards north and across the road from its former site. Verified statements were received that the Express Bridge was started and

would be finished late the following night or early morning. Group Headquarters ordered the planned defenses be set up.

As the situation now stood, it seemed that the Gari Bridge, the third bridge, because of heavy enemy resistance in that sector, would not be started soon. Therefore, another, the sixth gun section, was allotted to the defense of the two usable bridges. Here again work crews found the approach to this bridge inaccessible. Two trucks had bogged hopelessly in the mire. After several hours of back-breaking labor, the approach to the bridge was made usable. Arriving at the prospective gun position they found it untenable. Here, too, the front lines had not been extended far enough forward. Small-arms fire at that time was concentrated on and around the railroad bed and the pre-bosen gun position sites of sections one and two were in German

wards. In view of the existing situation only the Bofors gun of section three was emplaced that night and camouflaged before morning. Sections one and two and the M-51 section three were withdrawn. The emplaced guns and the surrounding areas were shelled, spasmodically, throughout that day. A dud fell into the gun pit of section number seven, and though members of the crew were in the pit it caused neither casualties nor damage.

During that day the antiaircraft skeleton battery broke up five attacks of the Luftwaffe which tried to penetrate the defenses and bomb the bridges. Though bombs were dropped the Fifth Army ack-ack crews kept the planes at an altitude too high for accuracy and their bombs missed their targets. Out of fifty-one enemy sorties that day, bombing and strafing, all the formations were broken up and dispersed successfully, without damage or casualties to our side. Two planes were listed as probably destroyed. Next day the six gun-section defense was completed.

Developments the following day showed that the planes were following a given routine route of approach; circling Mount Trocchio, and flying in a westerly direction to Highway Six, which they followed to the bridge. To counteract this situation the Group ordered six more gun sections to augment the six already in position. They were placed north and south of Highway Six, situated between Battery C and the base of Mount Trocchio. The first platoon and sections seven and eight established positions without incident and reported "ready," early in the evening.

The following day section three of Battery C had to evacuate its positions because of heavy observed mortar fire. This position was changed that night under cover of darkness, to a place which afforded better concealment. Section seven, also, had to move because of intense enemy shelling.

During the seven-day period these Fifth Army antiaircraft batteries broke up and dispersed thirteen formations of enemy planes which had flown 159 sorties. In spite of being bombed, strafed and shelled constantly, no damage was done to the bridge or installations in the area. The crews scored four hostile craft destroyed, six more probably destroyed, and many more damaged. AA casualties were three killed outright, two from bombing, and one from shelling during a night delivery of rations. Four were wounded, two seriously and two slightly.

The intricate communication system played an important role in the defense. Communications between Batteries C and D, battalion headquarters, and Group Headquarters

were maintained constantly by radio and telephone. An early warning system forwarned the defenses about three minutes before the planes came into view. At times the warning interval was as long as ten minutes. This proved invaluable to the individual guns bordering the outer rim of the defense. It enabled the larger guns to break up many hostile formations before they penetrated the inner ring.

A subsidiary to the communications system was an observation post atop Mount Trocchio, an excellent point of vantage for terrestrial observation, and affording a good view of Cassino and the defenses.

The operating personnel of the observation post performed in an outstanding manner under most adverse circumstances to keep a constant flow of information to the firing batteries. Their position was under constant shellfire and each transmission brought on the possibility of detection by the German radio detectors. The areas had been heavily mined as enemy forces withdrew, but wire communications had to be maintained at all costs. The threat of hidden mines, booby traps, snipers and enemy patrols was constant. In spite of these obstacles and natural terrain difficulties the communications net never ceased to function, day or night. While on a night mission to repair a line broken by shellfire, one of the linesmen received a serious leg injury when he stepped on a hidden mine.

From a vantage point atop Mount Trocchio, the ack-ack observation men saw Cassino destroyed for the third time in its history. Before the destruction started nothing of importance seemed to be happening.

Every now and then a shell from one of our guns would hit among a group of Germans and they would scurry off to their foxholes. Below them lay the town, quiet and peaceful except for an occasional tank which darted across the road seeking a better vantage point. One of our infantry would answer rifle fire from a German sniper.

About nine o'clock in the morning a small flight of bombers came over and unloaded their bombs over the target. They were followed by more bombers, light, medium, and heavy, escorted by fighters, for the next three hours. After the bombing had stopped, everyone of the several hundred guns in the valley opened up with a barrage which lasted nearly an hour. Throughout the afternoon the guns continued to fire spasmodically. By dusk the pall of smoke and dust blended into evening shadows as day turned into night.

Next morning the men in the observation post looked down on the ruins of Cassino.

# Something New Has Been Added

By Staff Sergeant Jac Bowman, Coast Artillery

Yes, something new was added when an antiaircraft gun was removed from its battery position and so placed on the perimeter defense that extremely accurate fire from a high muzzle velocity gun could be fired point blank at enemy positions. The 90mm AA Gun M-1, which has proved its

efficiency in the destruction of enemy aircraft, has now added a new accomplishment to its already enviable record.

On March 12, 1944, four days after the Nipponese started their counterattack against the Empress Augusta Bay Beachhead, thus starting the Second Battle of Bougain-



Signal Corps Photos

90mm AA gun, damaged by a direct hit from a Japanese bomb on Bougainville.

ville, this gun was moved under cover of darkness to Snuffy's Nose, one of the hills on our perimeter defense. The gun was oriented so it would be prepared to begin its mission the following morning. The gun was emplaced to give a clear field of horizontal fire of 2800 mils and also allow the gun to depress to its minimum elevation permitting the gun to fire into the valley below. Ammunition at the gun was high explosive with mechanical time fuze and point detonating fuze.

The following morning and the ensuing days proved somewhat of a catastrophe to the Nipponese forces. The enemy forces attacking our perimeter consisted mainly of the 17th Japanese Army of which the 6th Imperial Infantry Division (which participated in the rape of Nanking) was a part.

During the bloody eighteen-day battle that followed, our 90 and three others placed on different hills around our perimeter were firing at any enemy installations that could be spotted. After the attack was over the XIV Army Corps commanded by Maj. Gen. O. W. Griswold had accounted for some 7,000 dead Japanese. One of the contributing factors in the failure of the Nipponese counter-attack against our perimeter was the destruction of enemy field pieces, machine-gun nests, observation posts, bivouac areas, and ration and ammunition dumps by the 90mm anti-aircraft guns around the perimeter.

During the three weeks the 90 was atop the hill, the gun position was subjected to enemy fire only three times. This may sound unusual as the muzzle of the gun protruded beyond the front line barbed wire entanglement and was

in plain view of the opposite hills, but the Nips quickly learned it was suicidal to have the 90 spot flashes from their own guns. In one particular instance which enhanced their appreciation of our gun an enemy field piece opened fire from the far side of Hill 1111 at our air strips. The 90 immediately retaliated with time-fuze ammunition hoping to silence the enemy gun although they could not see it. While the 90 was firing, some 500 mils to the right and on the forward side of Hill 1111 another enemy field piece saw a probable chance of destroying the 90. It opened fire figuring it would take considerable time for our gun to traverse and adjust fire on them. Their figuring was the fatal mistake for in a matter of a few seconds the gun was traversed, lowered in elevation, the time-fuze ammunition replaced with point detonating, and the Nipponese force had one less howitzer and a few less men. A prisoner of war captured the following day confirmed the destruction of the gun and said the one officer and nine enlisted men were killed, again proving the versatility of the 90.

Concerning the enemy firing at the 90, the first time Tojo fired but three rounds and these three rounds were sailing over the position and landed some 200 yards behind the gun. No damage or casualties were sustained. The second time three more rounds were fired and although they did not land near the gun, three Infantrymen bivouacked near the area were injured. The third and final time the Nipponese fired seven rounds and their improvement was noted by Lieutenant Eugene C. Camp who was in command of the gun. He exclaimed when the firing ceased, "Three short, two over, and two too damn close."

Although the rounds bracketed the gun only one man was injured. This man instead of taking cover in his foxhole merely stepped into the hollow of a large tree, the only fault with his new foxhole was that part of his anatomy extended beyond the protection of the tree and a piece of shrapnel found its mark. Indeed this man received a Purple Heart but he always blushes when asked where he was hit.

On another occasion the Nips tried to set up a 90mm mortar within 800 yards of our gun hoping to destroy that way but an Infantry Cannon Company quickly neutralized the area, but good, before they were even settled. That was the final attempt of the Nips to silence the 90 with artillery. Only one other attempt was made and that was the day preceding the return of the 90 to its battery. An enemy machine-gun nest opened fire on the position and threw a few rounds into the trees around the gun. This attempt was short-lived also as the gun was quickly destroyed.

Perhaps at this time you are wondering how the enemy managed to emplace guns and equipment in the valley and on the opposite enemy-held hills, Hill 1111 and Hill 600. It was a difficult and painstaking task, so difficult at times that it led to the capture of a few Japanese prisoners who deserted. The large field pieces and all other equipment were moved piece by piece over treacherous mountain trails and through the dense jungle undergrowth under the cover of darkness with the individual Nipponese soldier the sole means of transportation. When the guns were assembled in the dugout then came the arduous task of supplying ammunition, also accomplished by the sea

method with one man carrying one or two rounds from the ammunition dumps to the revetments. This is when some of the soldiers deserted because of overwork and undernourishment. Some of the prisoners when taken weighed as little as seventy pounds.

This should give you some idea of the existing conditions—so now to the gun itself and its mission. Available to the gun were two methods of fire control, one being usual by means of a Battery Commander's Scope oriented with the gun and with one man searching the terrain in hopes of finding some sign of enemy movement. The other method was data received from Field Artillery Operations, whose information was based on aerial observation and friendly patrol activity. This method of fire generally consisted of area fire. One more example of the gun's accuracy before I continue with the mission. A friendly Infantry observation post could not search a certain sector of Hill 111 because of a tree whose branches obstructed their view of the ridge. The 90 was asked if it could lend any assistance. One round was fired, and the Infantry thanked the gunners for the removal of the tree. I might add that this tree was some three thousand yards away. Yes, it's a great gun.

On March 14, 1944, the 90 went into action at 0710 and for the thirteen days that followed fifty-one different mis-

sions were fired and 648 rounds of ammunition were expended. The results were just short of remarkable, as the following were destroyed: six enemy howitzers, four machine-gun dugouts, one pillbox being used as an observation post, one camouflaged position believed to be a bivouac area, one ration dump, one ammunition dump, at least thirty-five enlisted men, and one officer. That was the score when the gun was removed from the Hill. On a later date, when our patrols could move freely about the area previously occupied by the Nips and where the 90 had fired, other casualties and destruction of equipment were confirmed.

Following are the more unusual missions fired during the thirteen day period. On March 14, a pillbox was observed firing at our planes who at the time were dive-bombing and strafing enemy troop concentrations and bivouac areas. Eighteen rounds were quickly fired at the position, destroying the machine gun and pillbox, blowing up the ammunition, and neutralizing the area. An ammunition dump was spotted March 15, thirty-two rounds were fired covering the area completely and starting a fire which burned for four hours. On the same day four enemy soldiers were spotted in the valley digging in. The first round fired landed squarely among the four killing all of them. On 17 March, thirteen rounds were fired in a demonstration of how area was covered, for the Commanding General



Another view of the same gun.

of the 93rd Division. Flashes from an enemy gun started the day right on March 18. After forty rounds had been fired, one Nip howitzer had been destroyed, the ammunition set afire and the position demolished. The area had so many furrows in it a hasty glance would give the impression someone was starting a victory garden.

Other distinguished visitors who stopped by the 90 to see demonstration fire of the accuracy of gun included Lieutenant General Harmon and Admiral Halsey. The following day, March 19, was nicknamed Ancestor day because numerous stray Nip soldiers joined theirs. Hill 1111 was a gradual slope facing our lines but the opposite side of the Hill was exceedingly steep. Therefore when enemy troops had to move anywhere in this area they were forced to travel along a narrow trail on top of the Hill. It so happened that along this trail for a distance of some twenty yards there was no foliage and anyone passing this area would be silhouetted against the sky beyond. On five

different occasions the Nips found it necessary to travel across this area. On the five occasions mentioned the total enemy troops killed were eleven. The particular spot was later nicknamed Nip Heaven. That afternoon one shot was fired in memory of Lieutenant Francis M. Bryant, A.U.S., killed in action the previous night while training the 90 he was commanding on an enemy gun firing at his position.

The reason I have not related the details of all the missions fired is really because there are no unusual details to be described. The enemy position was spotted or gun flashes were sighted, the 90 opened fire after laying the gun on the area, the enemy was destroyed and those are the details in their entirety.

Thus concludes the mission of what we of the Antiaircraft here consider the U.S. Army's greatest dual-purpose gun. Now 90mm AA gun No. 3 is back with its battery looking for more enemy aircraft till someone again needs a high muzzle-velocity gun whose dexterity is unsurpassed.

# Sinking a Jap Transport

By Captain James O. Murphy, Coast Artillery Corps

November 15, 1942, was a great day for Battery F, 244th Coast Artillery (TD). We sank an enemy transport.

Our advance party had arrived on Guadalcanal on October 29, the battery on November 2, and up to the 15th we had fired many hundreds of rounds "in anger." Our mission was primarily field artillery, with a principle objective of eliminating the constant enemy artillery attacks on Henderson Field. These attacks were holding up our use of the field in a serious manner, as no heavy bombers or transports could be based there without inviting extensive trouble and damage.

To satisfy this mission we emplaced our 155mm G.P.F.s, on the north side of the Lunga River, with a directrix that split the possible area in which the enemy could maneuver its large-caliber field pieces. This directrix also allowed us to bring fire to bear on the beaches controlled by the Japs, and provided for a water area of about ten degrees at maximum range.

On the morning of November 14, we were advised that a strong force of Japs was moving south from Bougainville, and that their destination was probably Guadalcanal. Condition "BLACK" (invasion) was given to all troops, and we prepared for the enemy by shifting two of our guns so that they covered the most vital water area, off Henderson Field. We supplemented our observation stations with sufficient personnel to provide twenty-four-hour watch at each station with at least two men awake. During the night of the 14th, we had several fire missions, one of which was counterbattery, which started out when the Japs shelled Henderson Field with a six-inch gun. The missions ended at about 2300, and the gun crews assigned to the field artillery platoon retired. The coast artillery platoon slept at their guns. Occasionally during the night we could

hear distant naval firing, and we knew that our Navy was on the job.

The night was pitch black. No moon or stars were visible, and we were afraid that if the Japs succeeded in getting past our Navy we would never know it until it was too late. The first rays of light on the 15th showed that our worries had been justified, as our Lunga Point OP reported a Jap transport about nine hundred yards off Tassafaronga Point, coming in toward shore apparently in an effort to beach itself. Some rapid decisions were made. The two guns that had been left in the field artillery positions were the only ones whose fields of fire included the Tassafaronga water area. In three minutes those guns were manned and ready to fire, and the second platoon had been given march order, and ordered back to its original positions. The men had all slept with their clothes on, their tents were within sixty yards of the guns, and as soon as the words "enemy transport" were heard, they were as wide awake and ready as if they had had a full night's sleep in a hotel bed. This was our destiny. We had been trained as coast artillerymen for years. Every man in the battery had been with the unit for over twenty months, and to hear the order "Target, Tassafaronga, Transport," sent a shiver of anticipation up every spine.

The decision was made to use the Lunga Point OP for adjustment, with OP No. 14 as a check, to open fire at a range 500 yards short of Tassafaronga Point, on which we had registered many times before, with an azimuth (corrected from a net message taken at 0400) to Tassafaronga Point. Our OP reported the ship about 400 yards offshore when we opened up. Time from target reported to first salvo was about five minutes. We knew that if we couldn't get the *Yamasuki Maru* before she was beached, we would

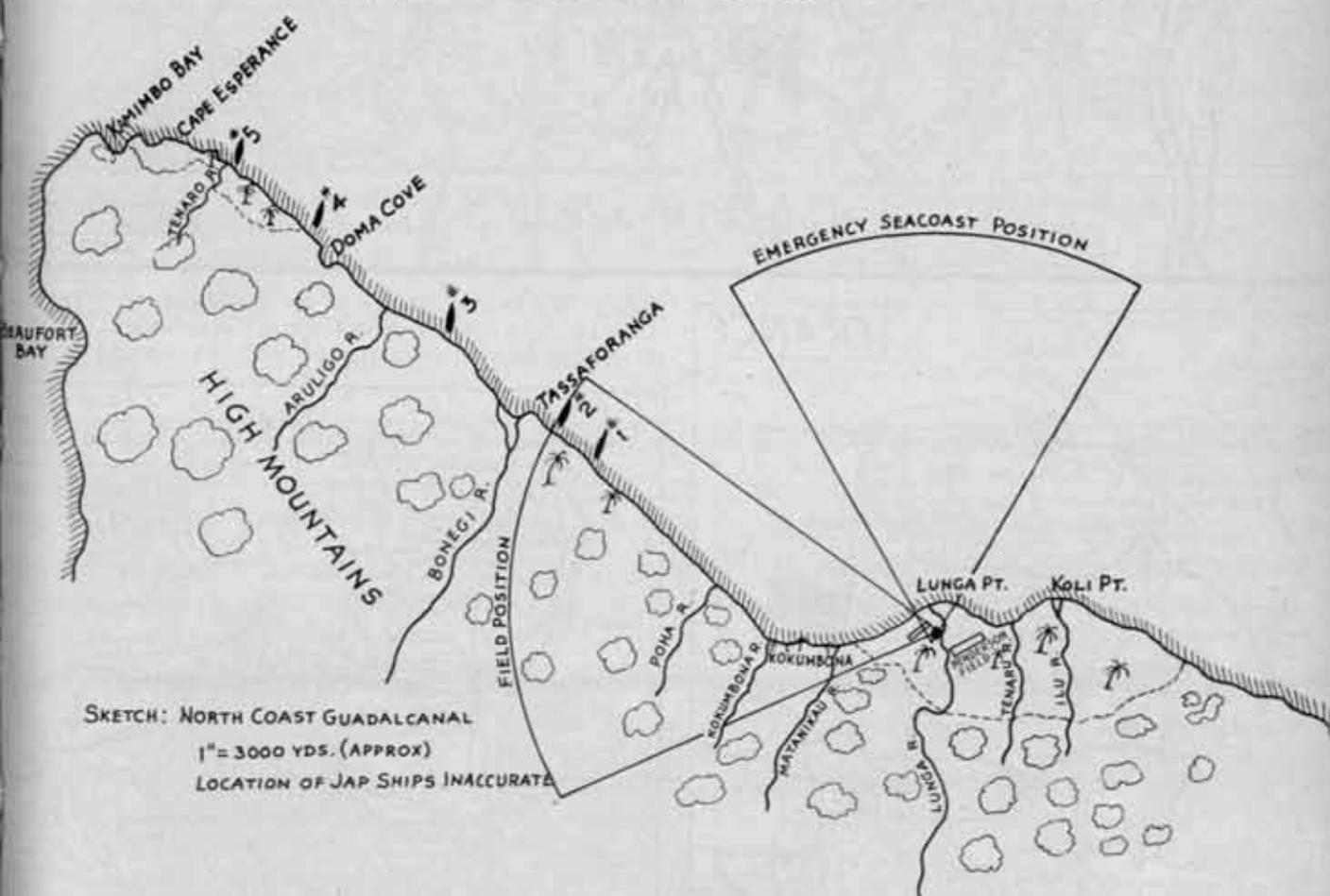
et her after, but with more trouble and with less result. The first salvo was short, but on in azimuth. The second salvo, up one fork, was also short. The third, up another fork, could not be seen so we presumed overs, split the fork and opened fire for effect.

The first salvo in fire for effect gave a hit, and the excited OP informed us that the mainmast had come down on the ship. From then on it was duck soup. We poured about thirty rounds into the vessel (she made the beach). One round hit her forward five-inch gun battery, and the cradle and barrel flew into the air. Japs could be seen attempting to unload the ship, and gave no sign of being interested in their own safety. Time after time a shell would land on the deck and bodies could be seen hurling through space. On the twenty-sixth hit, the battered and bent and burning ship shuddered frightfully, as though she was attempting to shake off her attackers, rose slowly at the fore end, hung for a couple of seconds, and then tumbled over on her left side and settled to her watery grave. The *Yamasuki Maru* was no more.

Interesting facts gleaned from this action were many. Fires that started during the shelling of the ship burst through the sides, and the ship, though only a part of its hull was above the water, burned for almost two weeks with tremendous billows of smoke. Adjustment of fire was

conducted with a superquick fuze so that the splashes could be more readily seen in the haze of dawn, and when fire had been adjusted, the delay fuze was used to get into the bowels of the vessel. A beached ship is a difficult target to destroy completely, which accounts for the number of hits required to sink it. A ship anywhere near a beach should be kept under fire as long as it offers a source of supply or help to the enemy.

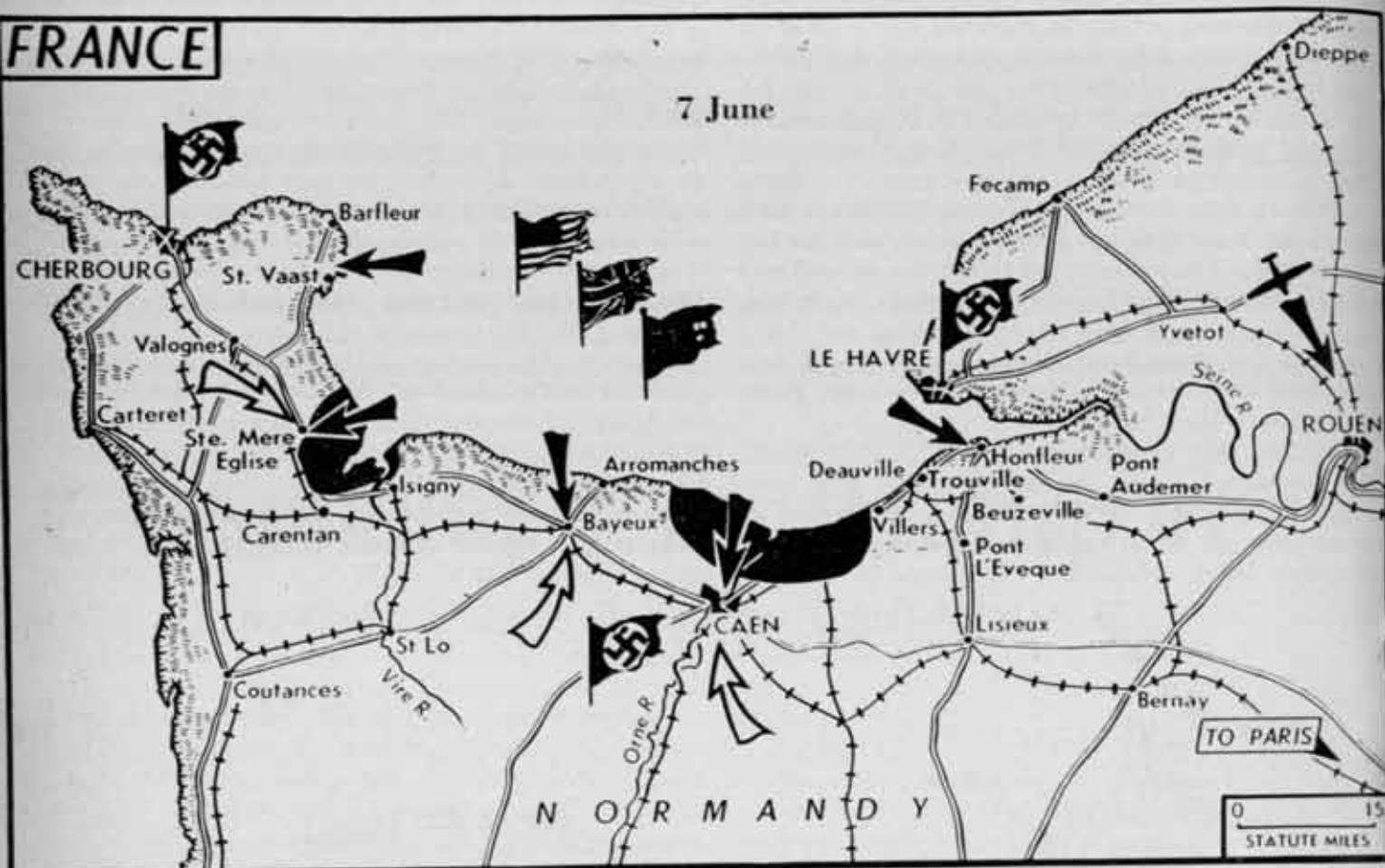
Later on the 15th we were oriented on the whole action that had taken place. Our Navy had succeeded in destroying all save five of the approximately twenty transports in the Jap convoy. These five transports had realized it was hopeless to attempt to return to their base, and had decided to attempt to deliver their troops and cargos to Guadalcanal. At different points in Jap-held territory, from Tassafaronga to a point about 1,000 yards south of Cape Esperance, they had succeeded in beaching these five ships. Our battery was assigned the nearest, and the marine pilots took on the other four. An interesting sidelight here was the fact that none of the other transports was sunk, but they were well gutted and remain to this day a monument to the air forces. A day later Japs were seen on the second transport, and we fired on this one, and eliminated its potential use to the Japs who were apparently attempting to salvage supplies.



# ALL ROADS LE

FRANCE

7 June

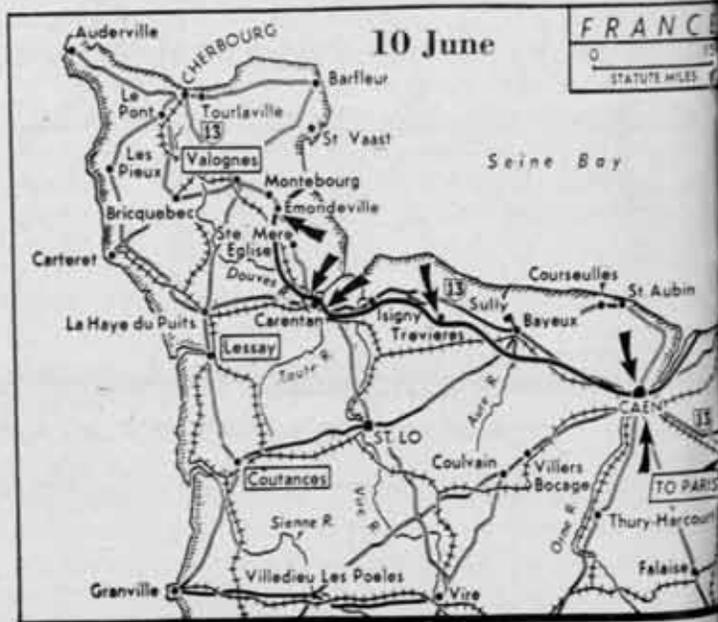


FRANCE

20 June

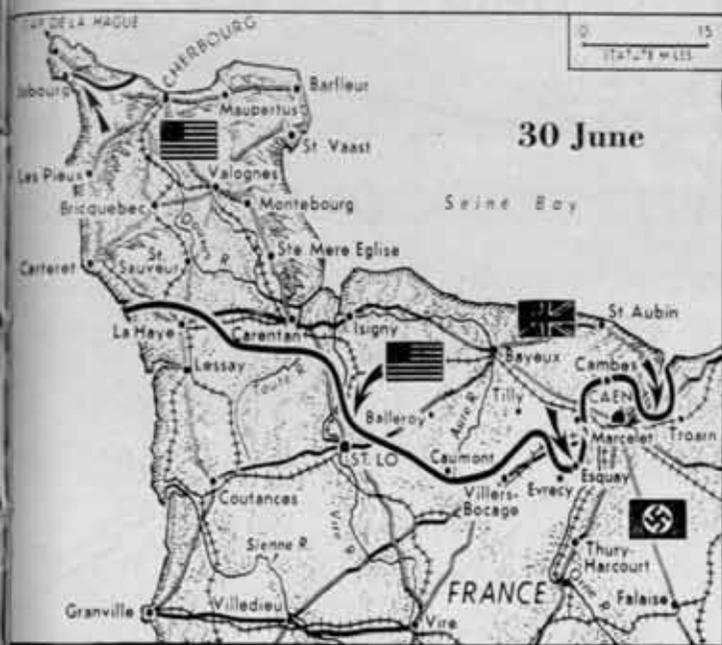


Map 1: The German version of the beachheads on 7 June. The white arrows purport to show German counterattacks. There was no confirmation of the supposed airborne landing at Rouen.

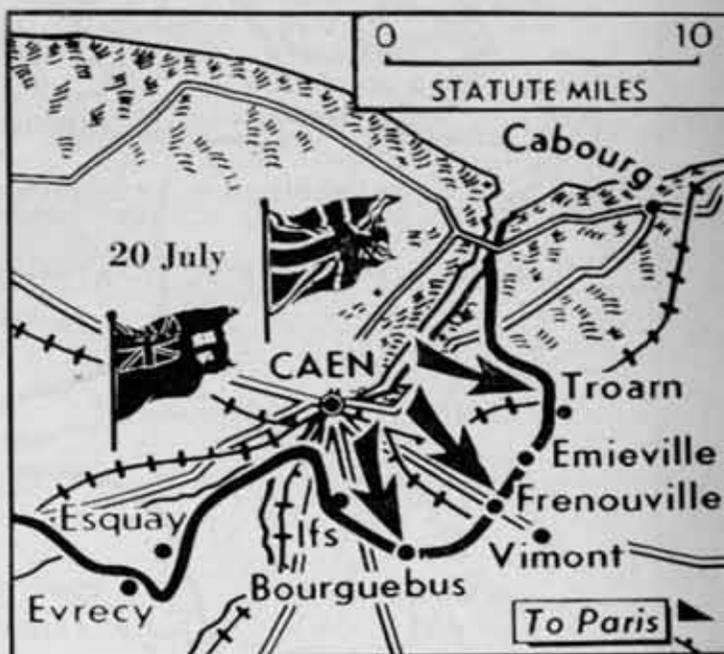


Map 2: On 20 June, the Cherbourg peninsula had been captured. The solid line marks the Allied beachhead on 10 June. Black arrows indicate Allied thrust; boxed towns are sites of German reported Allied paratroop landings.

# AD TO BERLIN



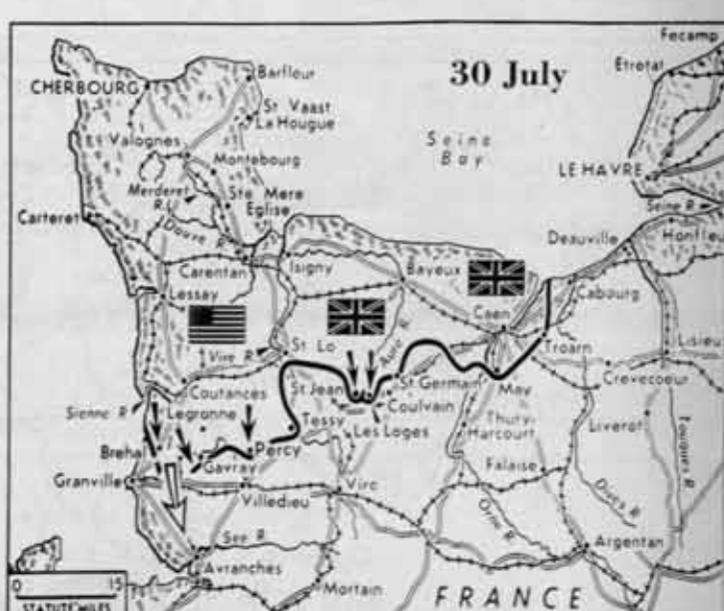
Map 4: By 30 June the Americans had Cherbourg, and the British had thrust past Caen on both sides.



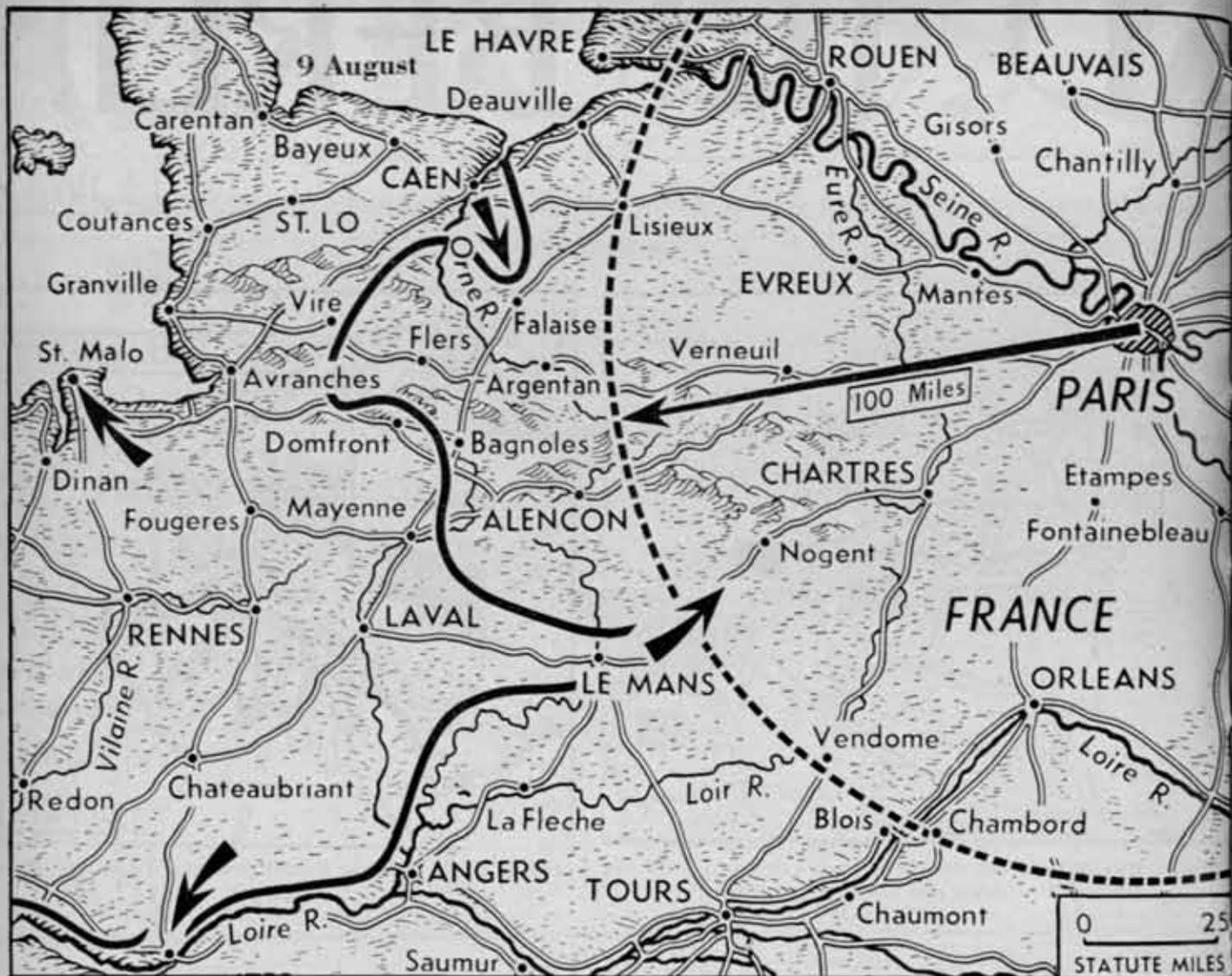
Map 6: By 20 July the British push past Caen was developing power.



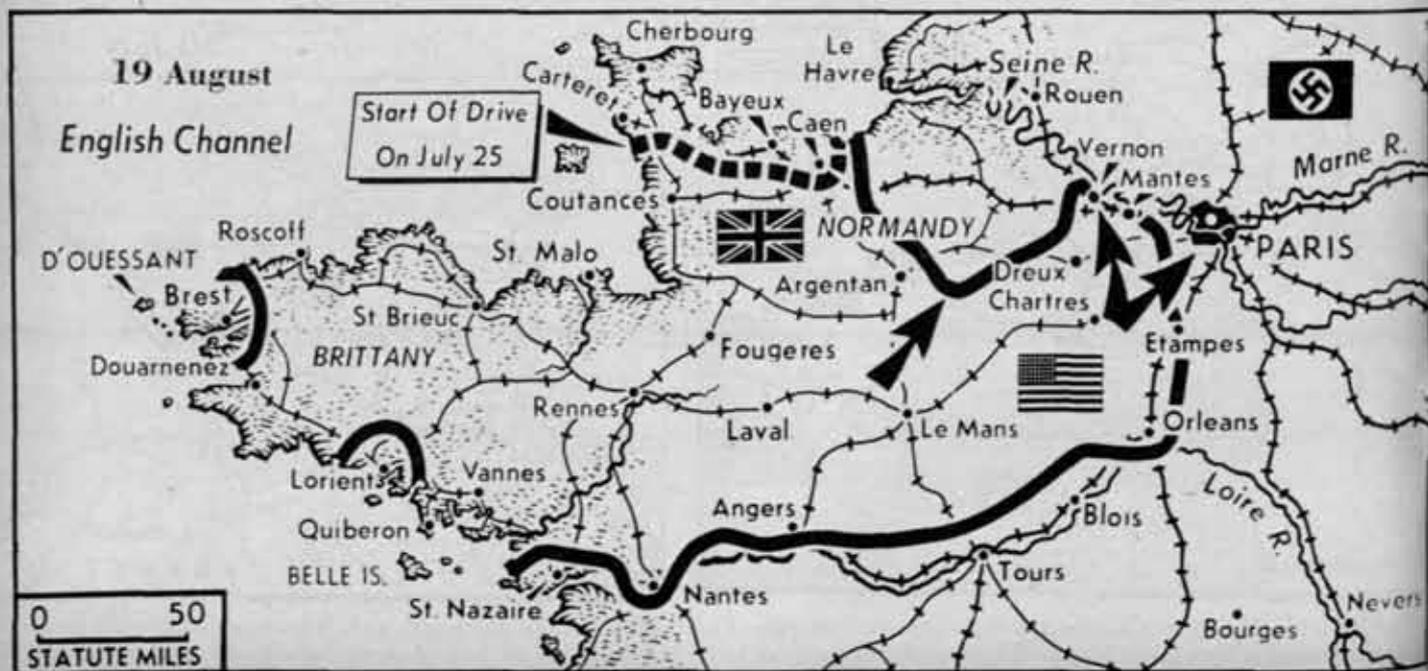
Map 5: The British and Canadians had Caen by 10 July. The last resistance at Cap de la Hague had ceased. Shaded area indicates German-held territory.



Map 7: The Germans were advancing backward over a broad front on 30 July. Arrows indicate the major Allied pushes.



Map 8: On 9 August, the Americans had taken St. Malo, were reported near Nantes, and were said to have driven past Le Mans to within 100 miles of Paris.



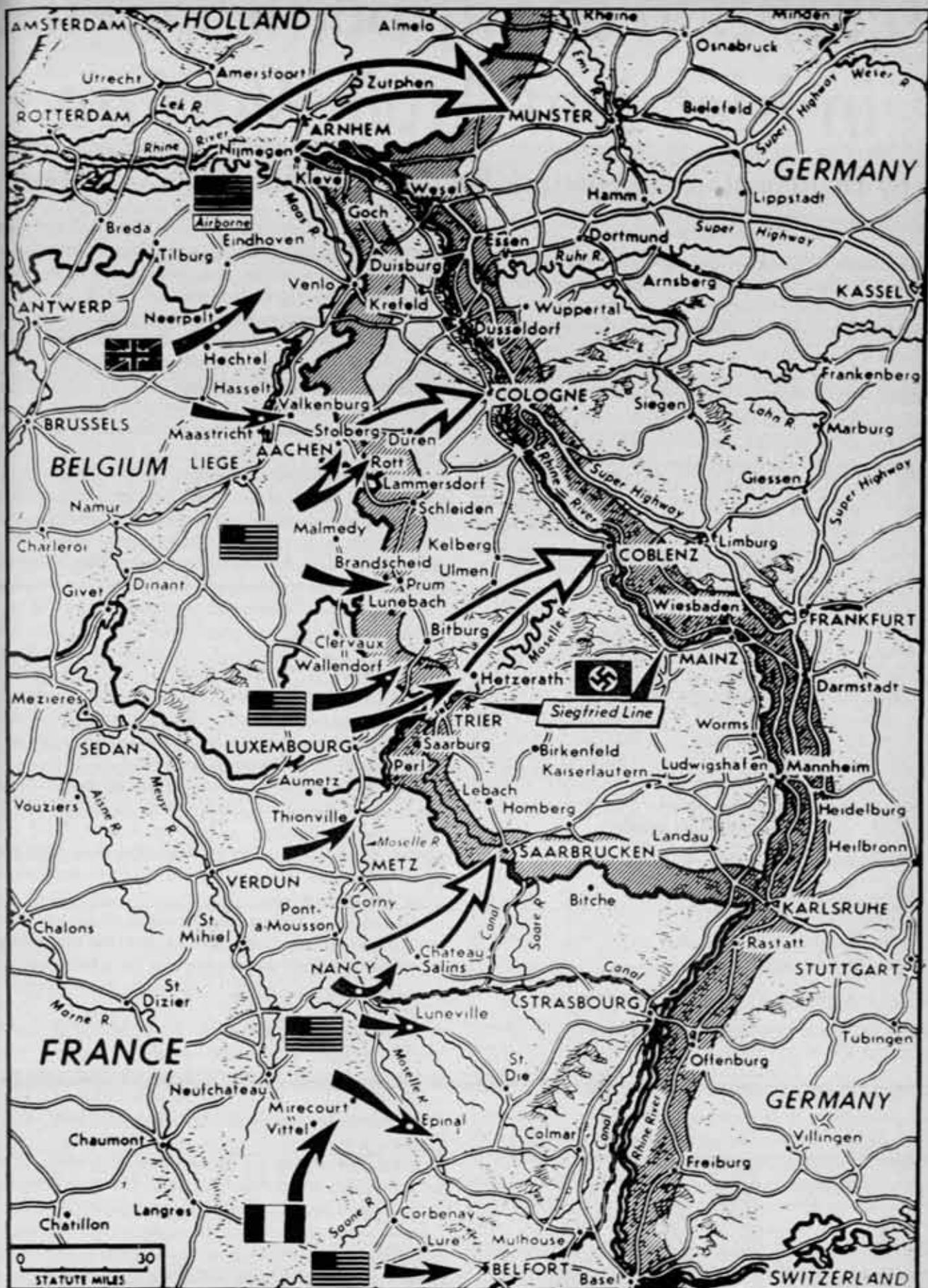
Map 9: By 19 August, Americans were near the suburbs of Paris, and almost at the Seine at several points.



Map 10: In the south on 29 August, the Seventh Army (which landed 15 August) was reported nearing Annemasse. General Bradley's forces were fighting in territory which brought back memories of World War I.



Map 11: By 8 September, the First Army had taken Liege, the Canadians had taken Ostend, Americans had crossed the Moselle, and the Seventh Army had passed through Besançon.



Map 12: As The JOURNAL went to press on 18 September, the Siegfried Line had been breached in several places. Open arrows indicate the industrial centers toward which our troops are driving; solid arrows indicate the points of attack. The situation in Holland was kept secret, but it was known airborne troops were very active there.

# Prevention of Fly-Borne Diseases in Islet and Atoll Warfare\*

By Lieutenants Louis Shattuck Baer and Ralph F. Allen, U. S. Navy

## INTRODUCTION

This article is based on the experiences we have had at advanced bases in the central Pacific war theater. We offer it as a guide to medical officers engaged in future amphibious warfare in this and similar areas.

The heavy concentrations of troops attempting to make camp on an islet where a fierce battle, resulting in large numbers of dead, has just been concluded produces sanitation problems which are not usually seen in the more familiar types of military operations. In this kind of warfare troops cannot move away from the litter strewn battlefield to make their camp; rather at the battle's end a *permanent camp* must be made *right on the battlefield*. Fly breeding areas created by the battle must be used for making camp; there is no "moving away" for there is no place to move.

Furthermore, the weather in the central Pacific favors fly breeding so that measures that might suffice to keep breeding at a minimum in colder climates will be of no avail in this area.<sup>1</sup>

Military construction and operations usually make such heavy demands on the available labor supply that sanitation will not have the men assigned to it that are needed. The only way to overcome this vital problem is to have additional men assigned to the unit whose duties will be strictly those of constructing the necessary sanitation facilities. This is the *only* way to meet the problem.

## ENTOMOLOGICAL FACTS ABOUT THE FLY

Two important facts to remember are that fly larvae can burrow upwards through a foot or more of untreated soil; and secondly adult flies avoid dark places and will always fly from the dark to the light.

## GENERAL PREPARATORY MEASURES

Long before a unit embarks for occupation of an islet or an atoll the senior medical officer should designate one of his staff to be a sanitation officer. Preferably he should be a lieutenant commander (major), so that his rank will help give weight to his opinions and suggestions. It must be this man's duty to make certain that the supplies for the occupation forces carried in the first echelon include sufficient quantities of all types of material for essential sanitary needs. In particular this means lumber and screening for galleys, mess halls and latrines; water distillators, orthotoluidine, and lactose broth; fly paper, fly swatters, pyrethrum aerosol "bombs" and knapsack oil sprayers.

The sanitary officer must know where all of this material is being stowed aboard ship, so if it is not promptly gotten ashore he knows where it is and can initiate necessary measures for getting it. It is realized that this is the job of the supply officer (or quartermaster), but during and immediately following a battle the "best laid plans gang a-gley," and if the sanitation officer possesses the above information it may prove invaluable.

Active, intelligent and enthusiastic backing by the "line" is an absolute essential to the success of any sanitary program.

Military regulations make the "use of all proper means to preserve the health of the men" the direct responsibility of the commanding officer. However, it is the duty of the medical officer to give technically sound and *practicable* advice. He must convince the commanding officer of the soundness of his proposals and long before the invasion the two men must "understand each other" and have their plans made.

## SPECIFIC MEASURES TO PREVENT FLY BORNE DISEASES

1. *Disposal of the dead.* This is the *first* sanitation task facing the victorious forces. However from the standpoint of fly borne disease prevention, it is no more *important* than the measures to be discussed later on.

Neither cremation nor burial at sea are practicable methods of disposing of the dead. Burial in the ground is the only workable method.<sup>2</sup> There must be a detail of men specifically assigned to this task; it should be large enough to bury the anticipated casualties within seventy-two hours after the battle is won.

According to Herms, the breeding of fly larvae in the dead can be greatly diminished by spraying the bodies with a sodium arsenite solution prior to their burial. We have had no experience with this method, but it seems worth trying.

The majority of our dead can be buried in temporary marked graves. The bodies should be covered with tarpaper or oil-soaked burlap, and the overlying ground oiled and rolled. This will prevent such fly larvae as do develop from burrowing to the surface and increasing the adult fly population.

Enemy dead may be buried in bomb craters. The use of a bull dozer expedites this task. The crater made by a 1,000-pound bomb will usually hold 40 to 60 bodies. The "dozer" can rapidly cover the craters with dirt once they are filled with bodies.

The job of extricating the dead from pillboxes is often

\*Reprinted from *The Military Surgeon*, by permission of the editors.

<sup>1</sup>One of the authors (LSB) was present shortly after the occupation of a typical Aleutian island and the contrast in the fly population under somewhat similar field conditions was great.

<sup>2</sup>Note: The use of deep pit latrines plus the burial of the dead will contaminate the ground water of an atoll so that all distilling units should bring enough pipe and hose to draw water from the sea rather than from wells on the islet.

the most difficult, time consuming and disagreeable of tasks. Because of the construction of the entrances to these pillboxes only one body at a time can be removed. The stench is overpowering and for this type of work it will be found that the natives are willing and useful helpers. For a small bonus over their normal wage of \$7.00 a month, they will undertake work that few of our men could do for more than two or three hours a day.

2. *Galley and mess hall construction.* Screened galleys and mess halls are the most important structures to prevent fly borne disease. This construction must be begun the day the battle is over and must be completed before any non-military structures such as wooden tent decks, ship's service building, permanent wood water tower, shower building, elaborate bomb proof shelter and the like are begun. It is the duty of the sanitation officer to "sell" the commanding officer on this supremely important point long before the battle. If these two structures are erected within four days after the battle is over it will effectively break the fly to stool to food "chain."

Once galleys and mess hall are erected it will be the sanitation officer's duty to see that they remain properly screened. Cracks in the boards, warped and loose joints, open knot holes and defective screening turn a building from a fly proof structure into a large fly trap. Wire screening will rot in the humid sea air of the central Pacific within four months so that if the plastic type screening can be procured it should be used.

3. *Latrines.* Deep pit covered and screened latrines of standard army quartermaster design continue to be the best field method of sewage disposal. Their construction is second in priority only to the galleys and mess halls.

Over-the-water latrines are not satisfactory because of their inaccessibility to the majority of men (who work and are camped away from the shore), and because the vast numbers of troops produce a fecal load that this type of latrine can not handle. The beaches, which are an important morale factor, being the only place for bathing and recreation (swimming), are quickly polluted by the use of over-the-water latrines. Furthermore, though the knowledge of where to place these latrines so that the wind, waves, tides, and currents carry feces out to sea is known to the natives, we make many errors in judgment when we try to emulate them. Accordingly the beaches become littered with human feces.

Until deep pit latrines are built, slit straddle trenches must be dug and properly maintained. The commonest errors we have seen in the construction of straddle trenches are digging them too broad and not digging them deep enough. The purpose of digging the trench deep and narrow (one foot wide and two to three feet deep), is to keep the bottom of the pit in the shade. Flies disliking the dark will not see feces that is deposited at the bottom of a well made slit trench. It is essential to keep a shovel at each trench to facilitate the covering of feces after a person has evacuated.

Prefabricated latrines are of greatest value in atoll warfare. It saves the delay of many days that is entailed when one has to wait for a carpenter shop with power saw to be erected in order to fashion finished latrine elements out of crude lumber.

Some practical points to remember in constructing deep pit latrines on atolls are: (1) The pit should be dug down to water which is usually six feet below the surface; (2) As much of the soil on the atolls is sandy and tends to cave in easily it is best to take two or three oil drums welded or wired together end to end, with their tops and bottoms knocked out, and sink them into the ground beneath each latrine hole. Where the latrine is dug in coral this will not be necessary.

4. *Garbage disposal.* This is a difficult and important problem. Once the dead have been buried, our own garbage frequently becomes a greater source of fly breeding than were the bodies. This will occur every time garbage disposal is improperly handled; the job is difficult but the problem will not solve itself if handled by the *laissez-faire* method. A workable plan must be prearranged and put into action as soon as galleys are set up.

There is disagreement as to the best method of temporary garbage disposal during the weeks that must pass before a permanent disposal system can be instituted. All are agreed that ultimately, when a dock that will support a truck is completed, when roads are finished and when a garbage truck and scow can be made available, that dumping garbage three miles out at sea is the disposal method of choice. However, until such time as the above method can be utilized (and due to military operations this may be many weeks), a practicable temporary plan must be instituted at the time the galleys are opened. The following plan is in our opinion the best:

(a) Until regular messes are established, field rations only should be eaten.<sup>1</sup> This rule must be strictly enforced and all food dumps guarded by an armed sentry. This will prevent the rifling of large cans of fruit and fruit juices from the stores, and the establishing of hundreds of unauthorized and unorganized messes. It is these undisciplined messes, which become rapidly surrounded with half empty cans of food and undisposed garbage, that are responsible for most of the fly breeding in the early weeks after the conquering of an atoll. The personnel most apt to be at fault in this particular are the defense and construction and operating groups, not the "field trained" assault battalions. Strict food discipline in the three or four days that will elapse before galleys are functioning, will go far toward minimizing fly breeding.

(b) Small messes feeding up to 250 people can adequately incinerate their garbage in the well-known barrel and trench incinerators. (Figure 1.) We have proven this to our satisfaction under combat field conditions at the most advanced bases.

There are several practical suggestions about the opera-

<sup>1</sup>K and C rations; preferably just the former.

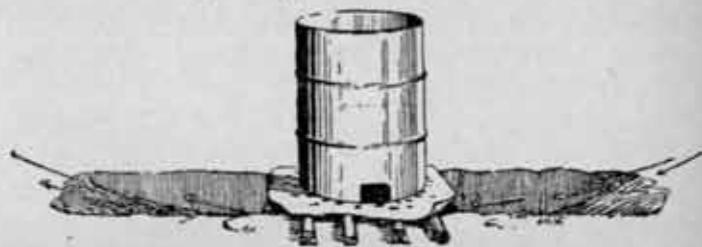


FIG. 1

tion and construction of these incinerators that are worth recording. (1) As the wind in the Central Pacific prevails from one direction it is not necessary to build cross trenches; one trench running in the direction of the prevailing wind is sufficient. This gives the incinerator greater strength and durability. (2) To further increase the strength of the pit and prevent the walls from caving in, they may be reinforced with slabs of the concrete from bomb-shattered pill-boxes. (3) The supporting grate and the perforated sheet metal should be made from the heaviest available scrap because the heat of the fire will melt lightly constructed incinerators allowing them to bend and sag. (4) Oil barrels are always available and it is an easy matter to knock the top and bottom out of them with a mallet and cold chisel. (5) Cutting a window in the bottom allows the man attending the garbage to agitate it from time to time; this insures more rapid and complete incineration. (6) Fuel in the form of palm fronds and scrap lumber which can be soaked with Diesel oil is always available in abundance the first few weeks after a battle. The fire should be started before breakfast and kept going all day so that the heat of the barrel, grate and trench will help to dry quickly the garbage of the evening meal. This will insure the burning of the garbage of the evening meal and the extinguishing of the fire before enemy bombers pay their evening call. (7) The single most important feature in the successful operation of this type of incinerator is to have a willing, conscientious, intelligent man assigned to operate it all day long.

(c) Garbage disposal from large messes feeding 1,500 to 2,000 men presents a different and far more difficult problem. It is *our* opinion that incineration of large amounts of garbage is not practicable under field conditions.

Burial plus oiling of the garbage with an attempt at surface burning can only be used on an islet where the concentration of troops is small. It cannot be used where the troop concentration is so heavy that every square foot of land is at a premium for construction of airfield, gun emplacements, camp sites, etc.

Feeding garbage to native pigs creates more instead of less fly breeding. It is to be condemned.

Dumping the garbage on the edge of the atoll reef at mid outgoing tide, on the lee side of the islet is a simple and satisfactory method of *temporary* disposal. The garbage can be hauled to the reef's edge once daily by truck or amphibious tractor (alligator), and there dumped. There are several disadvantages in this method which should be known. Sea water will soon play havoc with the vehicle used to haul the garbage. The constantly changing time of the tide prevents the establishment of a permanent garbage collection schedule. When the outgoing tide occurs after dark this method of disposal is eminently unsatisfactory. At times the garbage may be washed ashore instead of being carried out to sea. This will create a fly breeding area very difficult to control.

Nevertheless it is our opinion that all of these disadvantages are more than offset by the practical difficulties of trying adequately to incinerate, in the field-type incinerator, the large amount of garbage from mess feeding 2,000 men.

5. *Killing of adult flies.* In spite of every precaution there is certain to be an increase in the fly population of

an atoll following a battle and occupation by victorious troops. Therefore every possible method of killing adult flies, and thereby preventing them from laying eggs and producing another generation, must be used.

(a) Fly traps are very effective. Until one has seen a fly trap filled with at least one thousand flies only an hour after it has been set outside a galley he does not appreciate its value.

To insure having adequate numbers of fly traps quickly available it is necessary that sufficient lumber, *previously sawed into correct lengths*, be on hand. Again it is important to emphasize that the lumber should be sawed before the invasion force weighs anchor, and the sanitation officer must know where it is stored.

The proper construction, baiting and placing of traps should be common knowledge among the men at large. Demonstration traps should be set up at training camps so that such errors as leaving traps unbaited, failing to cut a hole in the conical screen element, or placing traps flush on the ground so that no fly could possibly enter the trap does not occur.

A few practical lessons that we recently learned are: (1) A useful place for a fly trap is firmly attached to the side

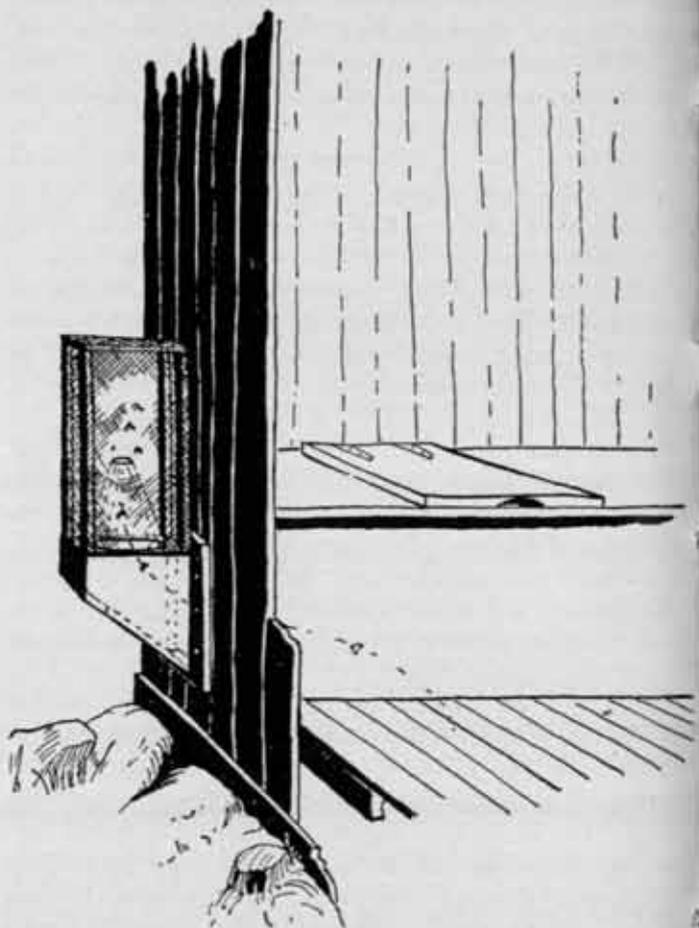


FIG. 2

of a latrine as shown in Figure 2. (2) Placing traps near a fire is the best way to kill the trapped flies; the dead flies can then be removed by opening one corner of the screen. Killing flies with an insecticide renders the traps useless for several days as flies will not enter them. (3) An effective and exceptionally sturdy trap, which can be burned out

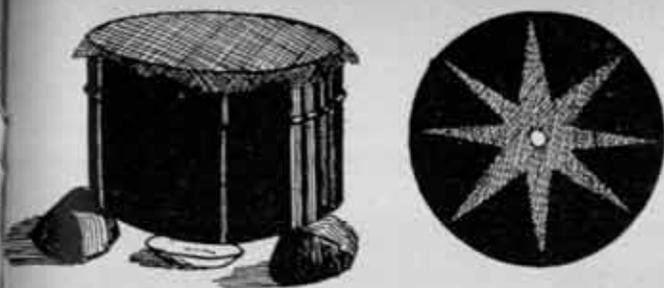


FIG. 3

easily made of half an oil drum as shown in Figure 3.

(b) Fly swatters, if hung in latrines, galleys and mess halls, can be of real value in killing many adult flies at strategic locations. They must be purchased (or made), and taken along with the unit, for it will be impossible to get a man assigned to so humble a task as making fly swatters on an island that has just been wrested from the enemy.

(c) Fly paper, in ample supplies, should be readily available. The commercially prepared rolls are best for use in the tropics.

(d) Fly sprays are of value if properly used. There is a great temptation to use sprays and aerosols indiscriminately in foxholes, open tents, outside of galleys, etc. A certain number of flies are always killed and temporary (30 minutes), relief from their annoyance is afforded. However this

is grossly wasteful of our critical supply of pyrethrum and tends to mitigate against the prompt establishment of permanent antily measures. It should therefore be a rule that fly sprays and aerosols are only to be used inside screened quarters and buildings.

(e) Large scale spraying with power sprayers is not recommended for fly fighting. Although this works well against mosquitoes, adult flies are so quick on the wing that they rapidly fly beyond reach of any out of door spraying done on a large scale. Prevention of breeding is the best method of "killing" large numbers of adults.

6. *Miscellaneous measures.* (a) General "clean up." In the hot, moist tropical climates there is much opportunity for fly breeding in the destroyed and rotting vegetation that is scattered everywhere after a battle. General "policing" of the area, for which native labor is excellent, is of real value in eliminating important fly breeding areas.

(b) Native camps. When these are of a temporary nature they are the worst fly breeding areas on the island. It should be a policy that no native laborers are brought onto an island until a permanent camp has been made for them. An understanding, but firm line officer should be assigned to the camp to see that it is kept clean. Once natives have settled in an *unprepared* camp site the only way to clean it up is to evacuate all the natives long enough to bring a bull dozer to the camp site, level everything and start anew.



## FITCAL

The Signal Corps has "coined" a new word, and if you have anything to do with maintenance of communications equipment, especially radios, it's a word you should know about. The word is "FITCAL," and it's made up of the first letters of "Feel, Inspect, Tighten, Clean, Adjust, Lubricate." These preventive maintenance services are vitally important in radio maintenance. If performed regularly and carefully, they will enable maintenance personnel to keep their equipment in good working order at all times with a minimum of effort.

The system is described in detail in TM 11-1424, a relatively recent Signal Corps preventive maintenance manual (SCR-584). It is intended mainly for second echelon personnel, since the first echelon, particularly in radio maintenance, is confined to operations which do not require access to interiors of sets. Briefly, the services involve the following:

**FEEL**—Feel for overheating and loose connections. If bearing housings or trunnions on rotating machinery become unbearably hot to the touch in less than ten seconds something is wrong. Terminals and connections which overheat indicate poor contact or poor soldering. Incidentally, remember to take precautions against electric shock and corrosive acids before you start to work.

**INSPECT**—Look for mildew, discoloration, excessive moisture, blistering, bulging, leakage, oxidation of con-

tact surfaces, dirt, corrosion, fungus growth, loose clamping rings and connections, cracked or charred insulators, broken or loose wires, loose mounting bolts or screws. Touch parts gently so you don't displace them. And *be thorough!*

**TIGHTEN**—Tighten vacuum tube shields, fastenings, cable connectors, fuses and other parts. Handling and transit may jar them loose, and firm mountings and connections are extremely important to successful operation of communications equipment. Be especially careful not to jiggle vacuum tubes in their sockets to find out whether or not they are loose. Instead, press them *straight down* in their sockets. Jiggling may crack their seals. Be careful not to tighten other parts *too* much. You're apt to damage them or cause misalignment.

**CLEAN**—Keep parts clean but remember that the less they are handled the less chance there is that they'll be loosened or bent or thrown out of line. Don't wash and wipe equipment unless it *needs* to be cleaned.

**ADJUST**—Adjustments must be made by first echelon personnel only in emergencies, or when they are authorized to do so. Don't make adjustments just because you like to "tinker."

**LUBRICATE**—Lubricate only in accordance with log sheets and War Department Lubrication Orders. *Do* lubricate faithfully. *Don't* lubricate too much or too often.



German coastal defenses in France were the subject of many a pre-invasion horror story, but they just weren't good enough to stop the Allies' D-Day power.

Signal Corps Photos

**NOT GOOD ENOUGH**

A 219mm gun near St. Marcouf that caused Allied troops plenty of trouble until it was silenced.



→  
Fortifications at St. Malo, with our flag taking the center of the stage.

A coastal gun at Cherbourg after an Allied air bombardment.



Another Cherbourg fort, looking the worse for wear.



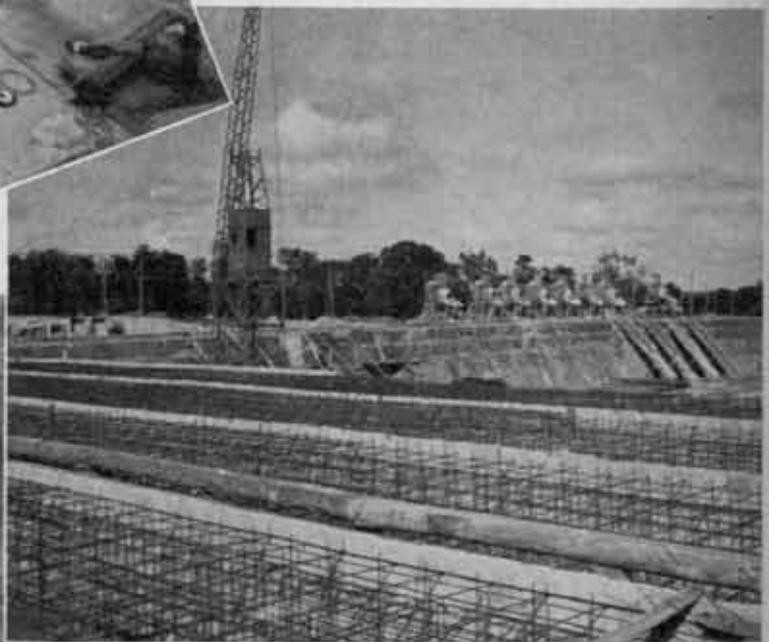


Beach at Dinard, showing underwater obstacles.



← Three *Herrenvolk* and a white flag. Cherbourg.

This heavy construction in Northern France is believed to be an uncompleted rocket-launching platform. Note the battery of eight cement mixers.



← Underground sleeping quarters at Cherbourg. The caption

# Ten % Hits With the Director

By Lieutenant Frank B. Aycock, Coast Artillery Corps

EDITOR'S NOTE: Lieutenant Aycock has obtained outstanding results in training director crews. This article should be of assistance to officers desiring to get the utmost from their directors.

Does your outfit get an average of about 3 per cent hits? During most firings, does some section get "hot" and make up to 8 per cent hits? Would you like to see the average for all sections go up to 8, or even 10, per cent hits?

To bring this about is easily possible. Precautionary measures involve: (1) having the equipment in shape; (2) emplacing, leveling, and orienting with understanding and painstaking care and thoroughness; (3) making intelligent range settings. These precautionary measures are executed cheerfully by men who have confidence in the equipment, and who appreciate that the allowable tolerances are extremely small.

The bottleneck in the problem of getting hits is emplacing, leveling and orienting—especially orienting in elevation. Your troops can learn how to remove this bottleneck. After proper training, on the average firing line, the average gun section can produce all the conditions necessary for consistent hitting within 40 minutes. What is more important, these conditions also bring hits in combat.

Aiming tolerances, especially in elevation, are very small. The only safe rule is to work for perfection in emplacing, in leveling, in azimuth orienting, and especially, in elevation orienting.

The Director M5 (or M5A1) will obey the necessary tolerances if you will tie it in to the gun properly. Azimuth and elevation reference planes for the gun must be the same as those for the director. Satisfy this condition by expert emplacing, leveling, orienting. Train your trackers. Then, on any target practice course, you will get a practically continuous series of line shots. With continuous line shots you are bound to get hits. If you get continuous line shots and hits in target practice, you can feel confident that your outfit will distinguish itself in combat.

If you are not getting line shots, do not blame the director. Persistent failure to get line shots is *not the fault of the director*. Neither is it the fault of the range setting, since only the most unreasonable range setting could possibly affect line shots. **LOOK FOR THE TROUBLE.** There is something which you have forgotten, or something which you have not done well enough. The hints given in the remainder of this discussion may help you to discover what you have been neglecting to do, and what you may not have been doing with sufficient precision.

It is likely that you know how to keep your equipment in perfect condition. You run the usual director tests, keep the gun carriage well lubricated, and have your power plant operating properly. You check the equilibrators adjustment, and are sure that there is sufficient oil in the oil gear units. You know how many rounds have been fired through your tube and that you cannot get hits with a worn-out gun barrel.

It is possible, however, that you may not know all the tricks of the trade relating to emplacement. Let's consider some of them.

First, the equipment needs extra support on most types of ground. Not much extra support, but some. The covers from four ammunition boxes are generally sufficient, if used as auxiliary jack pads. You can easily make auxiliary jack pads from scrap lumber.

Level the ground under these auxiliary pads and have the pads horizontal and on the same level. Emplace the gun so that the jack pads are centered on top of the auxiliary pads. Dig out under the wheels, and under the carriage if necessary. Level the gun with the gun-level bubbles using a minimum runout of the jacks. A good rule is to have the gun level with not more than two turns of any jack handle. After you have done this you will understand why the jack pads must be on the same level. Drive the stakes all the way in.

The above is only approximate leveling. To do the real job use a gunners' quadrant after the stakes are in. Let No. 9 take his seat and hold the gun rigidly at some convenient elevation, say 20 or 30 degrees. Traverse the gun until it is over the longitudinal girder. Place the gunner's quadrant on the quadrant seat provided and get the bubble perfectly centered. Traverse the gun 180 degrees. If the bubble moves in the slightest degree, make sufficient correction on the quadrant to bring the bubble **HALFWAY** back to center. Then by use of the jacks in line with the quadrant, bring the bubble back to center. You can make half the usual correction given in the drill by raising or lowering two adjacent jacks the same amount. Now traverse 90 degrees and repeat. If the jack notches are too far apart to get perfect level, use the maul on the high stakes until the gun is absolutely and perfectly level.

Now comes something very important. No. 9 thinks his jack is tight. No. 7 thinks his jack is tight, but neither one knows how tight the other's jack is. So the gunner should check the tightness of the jacks at this time by raising the handle and pulling up just a little, backing off and relocking. **DON'T CHECK PRESSURE BY KICKING THE PADS.** Unless the pressure is equal you won't get continuous line shots. If pressure is equal, recheck the level again. If pressure is unequal, tighten one jack until all pressure is equal, and releve. This is not hard to do but it is important.

Turn on the oil gear units and let them warm up. This is not so essential with the M3 but it is particularly necessary with the M1.

In the meantime, the director is emplaced. Be sure it has a good footing. Don't allow any dirt against the horizontal bracing or the director will rock due to the vibration when firing. Level the director until the bubbles will not change position at all when the director is traversed 180 degrees. You will note that this reduces tolerances, prescribed in manuals, to zero. It is easy to do and takes only a few more seconds.

Select a distant point at least 3,000 yards away and collimate the scopes perfectly.

Take out the deflections carefully and exactly. The movement allowed in the fine dial while running the range wheel from minimum to maximum and back to minimum is the width of the index mark on the fine dial. Experience has shown that the range section fails more often in this important detail than in any other. The range wheel must always be run up whenever deflections are zeroed. Never trust, under any circumstances, that pulling out the clutch will automatically give zero deflections.

After the oil gears have warmed up thoroughly, adjust creep and dither. Creep is a simple matter but it is hard to say what rule to follow about dither. It has been observed, however, that the gunner generally puts in too little dither rather than too much. It is better to have too much rather than too little. A distinct tremble should be felt with longer tips not only in the output coupling but at the end of the barrel. However, the movement should not be visible.

If not emplaced in a fortified position, turn off the oil gear units and turn the gun and director around so that the gun is pointing underneath the azimuth scope. Tie a loop in one end of a string and tie a weight on the other end. Hang the loop over the azimuth scope. Be sure that the string is hanging directly under the center of the azimuth scope. If the scope has a small hole at the bottom of its body just in front of the objective lens, you won't need the loop. Tie a knot in the string, push it through the hole and stick a pin, nail, or match through the string. Then it will hang perfectly.

Send a man with a pole out 100 yards to the rear (50 yards is sufficient if you are very careful) along the gun-director line. No. 2 should place his vertical hair on the pole. The gun should be sighted on the pole by the range setter with the pole perfectly in the center of the bore. If the string is not hanging so as to appear precisely on the face of the pole, the pole is not on the gun-director line. Have the pole moved over, and track the pole with the gun and director until string and pole are perfectly lined up in the center of the bore of the gun and at the same time so that the director azimuth telescope is on the pole.

At this point, the pole is on the gun-director line. Ram it in the ground and use the gunner's quadrant to plumb it. You can paint a 1/2 inch white band around the porter bar as your orienting point and dispense with having to plumb the pole. One or the other must be done.

Now with power on, orient on this pole or the white band on the pole. Split the backlash so that, if after orientation, the director is traversed right and comes back on from right to left without overrunning, the gun lags slightly to the right. When traversed left and brought from left to right it must lag an equal amount on the left. In splitting backlash it will help if this one fact is remembered: if during orientation the gun is brought on from right to left, and the director is brought on from right to left, then after unlocking the orienting clutch, the gun will come on the point from right to left but from left to right the gun will lag slightly behind the director.

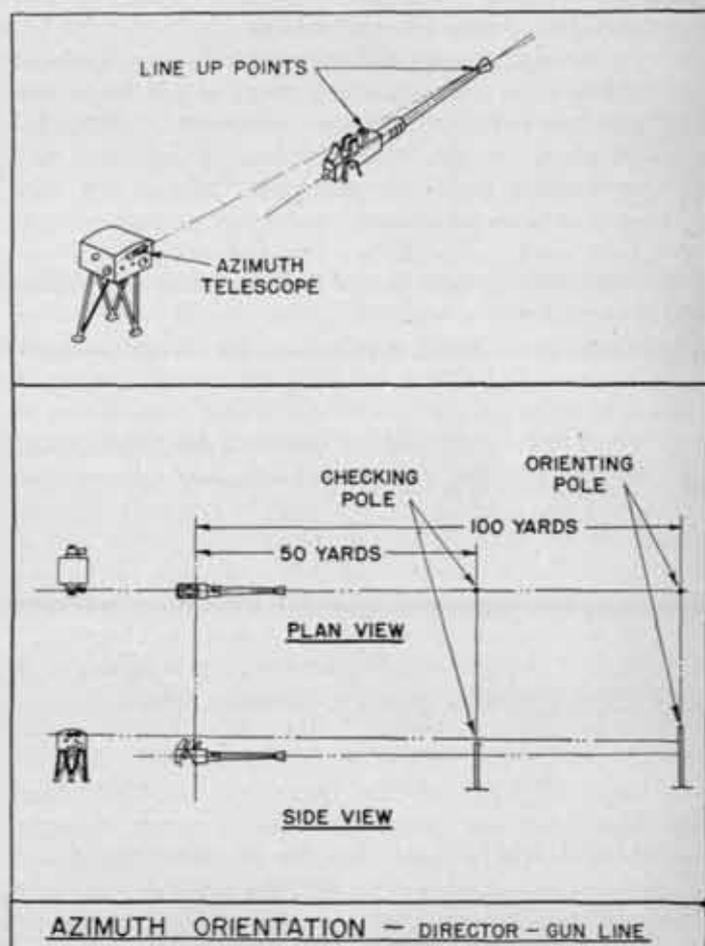
Carry a ruler out to the pole, and by sighting through the bore, measure the amount of this lag or backlash on the ruler. It should not exceed two mils. If your orienting point

is 100 yards away (3,600 inches) the lag to right and left should not exceed 3.6 inches. If more, make the backlash adjustment in the helical gears, retest and reorient. If still too much, check dither and check for wear in spline connections at flexible coupling to gun.

This test is not in any manual but it is believed that the tolerance given above is reasonable. With the M3 oil gear the lag should be considerably less, not over one mil.

If you orient in the above fashion, the azimuth angle between director telescope axis and gun barrel should not be more than .1 mil. This brings about almost perfect parallelism.

If in an emplacement, as you would be in a combat area, it will be necessary to establish the front gun-director line. Raise the gun, sight over it with the director azimuth scope lining up the (1) vertical cross hair in the scope, (2) the center of the front cartridge guide, and (3) the scribe mark on top of the barrel next to the flash hider. (See Figure 1.) You can get a fairly good focus at this short range by holding the eye about 4 inches from the telescope eyepiece. Depress the gun and set a pole 100 yards out in front in line with the vertical hair in the scope. Place another pole 50 yards out in line with the vertical hair and the 100 yard pole. If both poles line up not only in the scope but in the gun also, then the farther pole is on the gun-director line and can be used for an orienting point. Probably they will not line up because optical parallax will prevent you from accurate alignment on the cartridge guide and scribe mark. Make such adjustments of the poles as



Top: Figure 1. Bottom: Figure 2.

are necessary so that the two are precisely in line for both the gun and director. (See Figure 2.) Use a long power plant bar for the 100 yard pole and a short one for the 50 yard pole so that you can see them both when lining up.

Orient in your usual manner in elevation by convergence on a distant point. This will be the last time you should have to do this, however, with this particular fire unit.

Now let us check our backlash and lag in elevation. Select a point and bring the scopes down without overrunning. The orienting point will do very well for this. Set the gunner's quadrant on its quadrant seat and adjust the bubble to center. Now depress 3 or 4 degrees and come back up to the point without overrunning. Note the original setting on the quadrant and adjust the bubble back to center. Note the setting. The difference in reading is a combination of backlash and lag. Such a test is not given in any manual but experience has shown that most guns should come to 1.5 mils or less. Some guns equipped with M3 oil gears will come to  $\frac{1}{2}$  mil or even better. This method is fast and simple. It checks not only the director and oil gear units but also the gear and spline backlash in the gun which other tests do not check.

As a final refinement, check elevation orientation through the whole field of fire. In this way you are testing for combined errors involved in elevation orientation, leveling of gun, and leveling of director. If you vary  $2/10$  mil check everything and *find the trouble*. By following this procedure you take into account any individual peculiarities of the equipment, and you can always open fire with line shots.

In fact, you should now be able to get 75 to 90% line shots on average courses without track-off. Any deviation from line will be due to tracking errors or will be because your gun has moved. Check this constantly until the gun stays in place. If you emplaced low enough and used auxiliary support under the jack pads, the gun will settle down within two courses and, on average ground, will not move more than  $1/10$  mil for a day of shooting.

We are ready to shoot except for instructing our trackers and range setter. The azimuth tracker should track the center of the target. On the approaching leg he will naturally make his error in tracking by going too far and getting his cross hairs ahead of the center. He should not reverse his handwheel but should hold his rate until the target catches up. On the receding leg he will naturally take out rate too rapidly and get behind. Holding the rate will allow the director to catch up. Watch his movements and be sure he does not twitch his handwheel back and forth. If he only realizes it, the target will make all corrections necessary, whereas if he tries to correct he will introduce false rates.

This same thing is true in elevation but is harder to do since the rate reverses twice on a crossing course.

Now for the range setter. Add one rule to your list. **DON'T CHANGE RANGE UNLESS YOU KNOW IT MUST BE CHANGED.** Don't think, **KNOW!** More hits have been lost because the range setter "thought" something should be done, than for any other one reason. Almost anyone can set a range that the target is coming to. That will not do any good however unless you leave it alone until the proper lead has been generated.

The range setter has three ways of "knowing."

First, he can know the range should be changed from observation of overs, hits and shorts. If these can be readily seen, this is the most reliable method. Unfortunately a great many line shots cannot always be identified as over or short. The sun or white fleecy clouds for a background sometimes prevent the range setter from seeing any tracers.

It is worthy of note that overs and shorts can be distinguished more readily on combat courses than on target courses principally because of the better contrast between tracer and target.

A second method is to set range in accordance with his judgment of range, based on a simple mil reference. If the range setter holds a cigarette at arm's length, a medium bomber of the type that tows our targets will be approximately 1,600 yards away when it just covers the end of the cigarette, at about 800 yards when it extends over twice the width of the end of the cigarette, and so on. In other words, the range setter can use the end of a cigarette at arm's length as a crude stadia range finder. By noting the position of the towing plane he will know when the target is about 1,600 yards away. By noting the angle of approach, with a little training he can get a fairly good idea of the range on other parts of the course. The range setter must realize however that his judgment of range based on this method is only approximate and he must wait longer between changes in order to guarantee the opportunity for a hit.

Finally, the range setter sees the lead as the gun is fired. He knows approximately how far ahead of the target the gun is pointing. A good range setter has some idea of what lead angle should be applied and when all other methods fail he may have to rely on this. Unless a range setter is very observant, he may think that the angle between gun barrel and line of sight is larger than it really is. Largely for this reason, this method is the least reliable of the three methods mentioned.

Above all things, the range setter must realize that he cannot set the right range for all rounds. He must set a range and allow the target to fly until the director generates the right lead. No range setter ever lived who could creep a range wheel and place round after round in the target. It can't be done. If the range setter attempts it, he is almost certain to be consistently astern or ahead of the target.

Finally, the range setter should not increase range setting at midpoint. If he does so, he admits in effect that he has already made a bad mistake: he was short at midpoint. A moment's thought will show that if he had the right range before midpoint he would have it again after midpoint.

We are ready to shoot. Have a sheet prepared with pairs of parallel lines running across the page. Call highs, lows, and line shots to a recorder. He places dots above the two lines for highs, dots below the two lines for lows and dots between the two lines for line shots. If you have too many highs or too many lows, estimate how many mils it will take to bring the gun on target perfectly, bring the director on a distant point, bring the scopes down without overrunning, block the wheel, place the quadrant on the gun, set the bubble to center, read the quadrant, adjust the quadrant the required mils up or down and adjust the gun to the new position by bringing it **DOWN** to the reading on the quadrant, raising it above this point first if necessary.

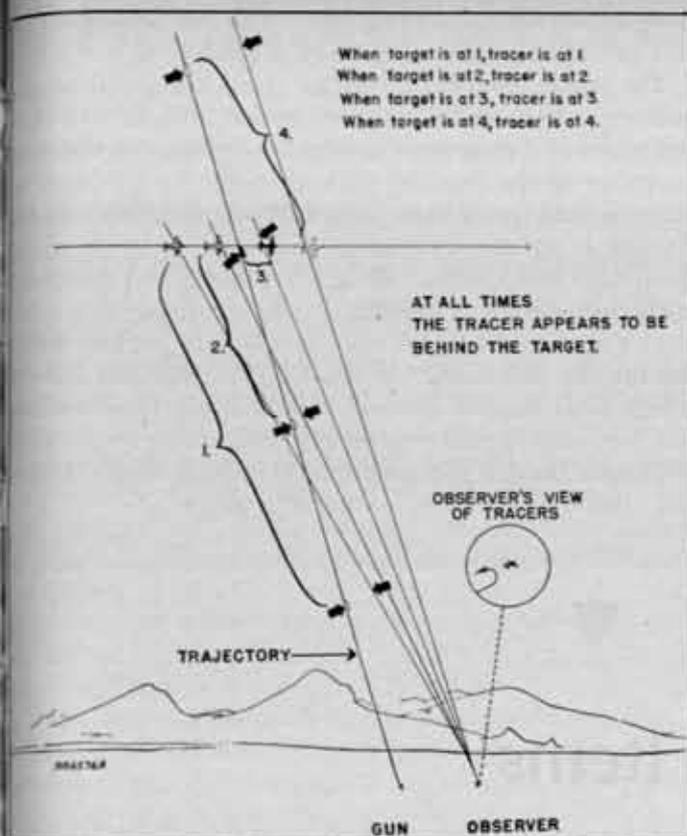


Figure 3.

This adjustment after orientation will probably be necessary because all guns have a certain amount of "jump" caused by looseness of the tube and vibration of the barrel at the time it is fired. This varies from gun to gun despite the extremely small tolerances allowed in manufacture.

It is possible that you will open fire the first time with line shots. If you do not, however, the gunner's quadrant furnishes the best means of adjusting up or down a measured amount. On the average target course with, for instance, a flag target two yards wide, if you fire one target width above the target at midpoint, one thousand yards range, you would want to lower your point of impact three yards or three mils. The gunner's quadrant will enable you to do this much more precisely than you could do it by reorienting on a distant point.

Open fire and do any readjusting necessary.

When you are getting very nearly perfect line with as many close highs as lows, place the quadrant, set at zero, on the elevation telescope. In the absence of a machined quadrant seat, you will need three references so that you can always place the quadrant precisely in the same position each time. Use the plate on top for one reference by pushing the quadrant back against it. Place the quadrant so that the front and rear feet are lined up along the axis of sight with the front foot sitting solidly on the barrel of the scope. Use the screw holding the plate for a second reference for the rear foot and mark the barrel around the front foot for the third reference. Bring the scope DOWN until the bubble is centered. Don't overrun. Block the hand wheel and place the quadrant on the gun and read the elevation of the barrel. From now on, orient in this manner by placing the quadrant at zero on the scope, come down until the bubble is centered, block the wheel, set the

quadrant at the correct, predetermined barrel elevation, place it on the gun and bring the gun UP or DOWN to center the bubble.

Now we are ready to give the range setter some special instruction. Estimate the speed of the target and the slant range at midpoint. Multiply the speed in miles per hour by midpoint slant range in thousands of yards. Place a spotter on each flank at this distance in yards. For example, 800 yards slant range and 150 miles per hour, would place the spotters 120 yards (120 paces will be close enough) from the gun on each flank, parallel to the course. At that point, the spotter on the down-course flank can sense lead. The spotters observe on alternate courses. All rounds will seem to approach the target from the rear. Imagine vertical planes between the eye and the tail of the target and between the eye and the nose of the target. If a round never pierces the tail vertical plane, it had too little lead. (See Figure 3.) If it pierces the tail vertical plane but not the nose vertical plane it had the correct lead. If it goes in front of the nose vertical plane it had too much lead. (See Figure 4.) If the range setter sets range properly, the spotter on the receding flank will see on the approaching leg, short, short, short, correct lead, over, over, short, or some similar series. The spotters can be used first to coach the range setter by field phone or hand signal and later to check what he is doing on his own.

The same system can be used on incoming courses, the altitude of the target, of course, being used for slant range at midpoint. The "flank" in this case is along the projected ground course of the target. Shorts will never rise above the target, while overs will go considerably higher than the target as seen from the spotting position.

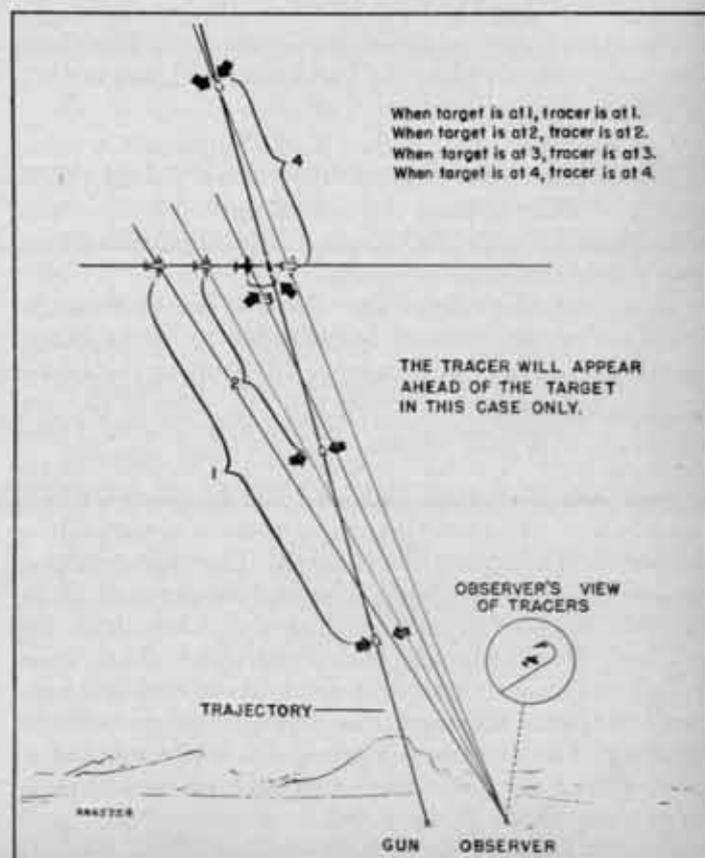


Figure 4.

If you have the opportunity to shoot incoming courses, remember that you are oriented almost perfectly. No. 2, because of this, can estimate the distance from the gun line of fire to the director line of sight for each course and pick up the target, tracking off a sufficient distance to account for this parallax distance. This will be the only time that you should ever track off, however, and even here, perfect orientation and level helps the rational track-off necessary.

If this work, as described in the foregoing paragraphs, is done properly you will get hits and many of them. It doesn't take large quantities of ammunition. Most of the preliminary work and training can be done with sub-caliber. Experience has shown that sections can make as high as 5% hits with the first firing of H.E. if sufficient work is done with subcaliber mounts. After a little practice

any gun section should run better than this and approach 10% on some days when visibility is good.

The whole matter is up to the gun section and officers in charge. If they will take the trouble to shoot well they can do it but if they want to blame everything on the characteristics of the director, then they are hardly likely to get more than two or three lucky hits per 100 shells. Hitting a target is an accomplishment that should rest on something more than chance. Make it a certainty and quit going to the firing point wondering if you are going to get any hits. You should KNOW you are going to get hits before you fire the first round. If you KNOW that you can get a high percentage of hits on target courses, then you can look forward to actual engagement with enemy targets with confidence because the same careful emplacement, leveling and orienting will bring comparable results.



## Medical Items

### PHYSIOLOGICAL EFFECTS OF HIGH TEMPERATURES

In this global war the soldier often encounters two enemies; one his human adversary, the other his environment. In some theaters of operation the environment has proven to be the more disabling opponent. The effects of environment on our fighting men has occupied the attention of a considerable portion of the staff of the Army Ground Forces Medical Research Laboratory, Fort Knox, Kentucky. Studies have been carried out in the Laboratory Hot Room in simulated desert (hot, dry) and simulated jungle (hot, humid) environments.

The major principles of the "jungle" study are in essential agreement with those of the "desert" study. This should be borne in mind throughout the following discussion, especially since the future will in all likelihood see more jungle than desert fighting.

That a consideration of the effects of hot environment on man is not an academic one is indicated by the experience of the 3d and 5th Armored Divisions at the Desert Training Center in the summer of 1942. The 3d Division arrived in the heat of the latter part of July, detrained from air conditioned trains and immediately and hurriedly began to make camp. A chart indicated the incidence of new cases of heat exhaustion hospitalized each day throughout the period of arrival of the division. The high incidence was obvious from the chart. The total incidence of all ineffectives was even greater, much greater. Only those who were very ill and vomiting were hospitalized. Many men, though less ill, were unable to continue on duty and were forced to their tents where they recovered on conservative handling. The division as a whole was ineffective and in terms of the Laboratory observer would have been "a push-over for any enemy at that time."

The 5th Division began to arrive in the same area two weeks after the 3d Division. The incidence of heat ex-

haustion was markedly reduced, even though the temperature was maintained at its high level. The lessons learned in the handling of the 3d Division were utilized with marked profit. Men were permitted graded exposure with graded work and water and salt were given in abundance.—*Military Surgeon.*

### COPPERPLATE FOR ATHLETE'S FOOT

Leathernecks and sailors are getting copperplated feet to stop athlete's foot, Sergeant Alvin M. Josephy, Jr., a Marine Corps Combat Correspondent in the South Pacific reports.

The copperplating is a form of treatment which Navy doctors have found so successful in banishing the troublesome fungus infection that they believe further use of the method is warranted.

The patient places his feet in a copper sulfate solution containing an ordinary copper plate. Copper bands, soaked in salt water for good contact, are fastened around the ankles and connected to six-volt storage batteries.

Treatment takes about six minutes and is repeated for six or seven days. Although copper particles temporarily adhere to the patient's feet, there is neither discomfort nor discoloration.—*Science News Letter.*

### SULFA FOR GAS GANGRENE

A new sulfa drug effective against the kind of germs that cause gas gangrene in wounds has been developed and given extensive study, Dr. Theodore G. Klumpp, president of the Winthrop Chemical Company of New York, announces.

The new drug is sulfabenzamine. Winthrop calls it Sulfamylon. It is superior, Dr. Klumpp says, to other sulfa drugs in infections with anaerobic bacteria. These germs grow without air, include the group that causes gas gangrene, and are especially prolific in the soil of France.—*Science News Letter.*

# The Role of Tactical Air Power

To enable our readers to get a clearer picture of part of the rôle of the Air Force in securing the beachhead in France, we are publishing the following release from the U. S. Army Ninth Air Force.

**PRIORITY:** To prevent the movement of hostile troops and supplies (1) to the Theater of Operations, and (2) within the Theater of Operations.

The American air offensive, which was developed to carry out this order, began before D-day and was executed by medium and light bombers of the Ninth Air Force, fighter-bombers of both Eighth and Ninth Air Forces, Thunderbolts, Lightnings, and Mustangs, and heavy bombers of the Eighth, Fortresses and Liberators, diverted from strategic targets to participate in the communications strangle.

Although for months communiqués seemed an unrelated jumble of French placenames, the broad operation fits into a definite pattern that can now be revealed.

The original planning required delicate knowledge of the tangled communications lines through northern France and Belgium—directions and routes of travel, choke points, transshipping centers, and marshalling yards.

Above all, operations had to be diverse and scattered enough not to give the Germans any indication where our invasion forces would strike. In addition to isolating Normandy, the air forces carried out many attacks of smaller tactical value to confuse the German strategists.

The campaign is divided into five phased-in offensives, which together drew a tight barrier around German communications. To understand the pattern, think of Brittany and most of Normandy separate from the rest of France. This area is bounded by the Seine on the north, by the gap between Paris and Orleans on the east, and by the Loire on the south.

The five phases were:

**PRELUDE:** Attacks in April and May on rail yards, tracks and bridges around the French eastern frontier and all the way into Germany, east of both Cherbourg and Calais, the two most likely invasion coasts.

**PHASE ONE:** Operations, beginning May 7, against the Seine bridges.

**PHASE TWO:** Operations against bridges, embankments, and choke points in the Paris and Orleans Gap and bridges crossing the Loire from Orleans to the Bay of Biscay.

**PHASE THREE:** Attacks, starting on D-day, on enemy traffic within this blocked off area, including operations against troop and supply movements in the immediate fighting zone.

**PHASE FOUR:** Strafing and bombing of all rail and road traffic by which the Germans tried to move supplies and reinforcements from the Calais region and elsewhere in northeast France and Germany to the battle area.

This interdiction campaign prohibited or delayed the arrival of troops and supplies in the battle area; overtaxed motor transport and fuel supplies; created areas of troop and vehicle concentration suitable for strafing or dive-

bombing; and forced the Germans to send their tracked vehicles on long road trips under their own power, shortening their combat life anywhere from a third to a half.

## PRELUDE

The broad operation began without a hint of what was to follow. In April and May, the Eighth and Ninth Air Forces attacked railway yards in eastern France, the Lowlands and Germany, choke-points in the lifeline for the armies manning the West Wall forts and strong points.

In May, Liberators and Fortresses hit these roads at their sources, well behind the German frontier, while Marauders and Havocs attacked them at their mid-points, on both sides of the French border.

Attacks on big marshalling yards compelled the enemy to reroute traffic through smaller junctions like Cambrai and Arras, which soon became crowded, overtaxed, and easy targets for the Marauders and Havocs. Then bombers and fighter-bombers began experimental attacks on bridges crossing the Meuse, the Oise, and the Albert Canal, all near the Belgian frontier.

At the beginning of May, fighter-bombers were a comparatively unexploited weapon. In a few weeks, Thunderbolt, Mustang and Lightning pilots—carrying anything from 1,000-pound bombs to fragmentation and small general purpose explosives—learned how to topple bridges, seal off tunnels, sever tracks and block roads.

By D-day, the Eighth and Ninth wrecked 34 railway yards with their workshops, depots, warehouses and turntables, and forced the Germans to make hasty, expensive repairs on many others. Fighter-bombers destroyed servicing facilities in yards capable of handling thousands of locomotives, and kept up an incessant hunt for enemy traffic moving on railway lines and highways. Soon after D-day, these machine-gun attacks on vehicles covered so many roads and rail lines that the Germans had to travel by darkness even though the nights were shorter than at any other time of the year. Fighter-bombers often carried out double-edged missions: first, they would sever tracks; then machine-gun the trapped trains.

## PHASE ONE

A German division crossed the French border on June 15 and did not reach Normandy until July 8, after a 180-mile march across northern France. The soldiers arrived too footsore for immediate action.

The first phase of the campaign to isolate Normandy was the destruction of rail and road bridges across the Seine from Paris northwestward to the Channel. Dividing northern France almost in half, the Seine is a deep, wide river, impassable except when bridged, and crossed by all the main railway lines from northeastern France.

The Seine bridge campaign began May 7, D minus 30, but did not give away our invasion plans. The attacks could be interpreted either as a campaign to seal Normandy from the northeast or Calais from the southwest.

The job was assigned to the Ninth Air Force alone. Marauders, Havocs, and Thunderbolts knocked down the

23 largest bridges in 35 days. Armed reconnaissance squadrons, daily sweeping ruins of the bridges for signs of reconstruction, saw to it that they remained hopelessly damaged. In desperation, the Germans repaired many bridges simultaneously with the hope of keeping a few open—but even temporary, ramshackle structures were toppled back into the river soon after they were erected. Among the bridges destroyed were three within the city limits of Rouen and seven in the outskirts of Paris.

The Seine barrier forced the Germans to use clumsy, slow routes to move ammunition, tanks and troops where they were needed. In July, German ammunition was sent from Strasbourg and Metz to Paris by rail, then loaded on to barges and tugged up the Seine to Elbeuf, finally transferred to trucks and moved to the battle area. An infantry division cycled from Le Havre to the Seine, crowded on the bank, crossed by barge and motorboat, and marched to the front. As a result of the Seine operations, and earlier attacks along the frontier, no German replacement units were able to come all the way to the battle zone by train. Some had to detrain as far off as Nancy and Bar le Duc and go the rest of the way by truck or foot.

#### PHASE TWO

Two SS Panzer divisions being rushed up to the front from Poland had to detrain near Nancy and move up 400 miles by road to the battle area. It took them as long to get from Poland to Eastern France.

Once the Seine became a barrier, the Germans could still channel traffic to Normandy by a circuitous route south of Paris and up the Paris-Orleans gap or from the south across the Loire. At first, both the Eighth and Ninth were instructed to block these avenues, but soon after D-day the task fell to the Ninth alone, for all the targets were within tactical range of its medium and light bombers.

The two U. S. air forces knocked out all important bridges across the Loire by mid-June. In a spectacular operation, one Liberator combat wing came under an extremely low cloud cover to make their bomb run and leave the Blois bridge in the water. The Ninth pursued the same tactics it had used so successfully in the Seine campaign. One day reconnaissance pilots said the Germans were working feverishly to repair four bridges simultaneously. The Marauders let the construction continue for 24 hours, then knocked down all four bridges again.

Heavies, mediums, light, and fighter-bombers joined in the difficult task of blocking the 70-mile hole between the Seine and the Loire. Road congestion created by funneling almost all Nazi traffic through the gap set up juicy targets for the fighter-bombers. Within a fortnight, the going was extremely hazardous for the Germans in the daytime and slow and tortuous at night.

Railway experts located the main artery intersections in the Paris-Orleans gap, and heavies and mediums went after them day after day until almost every viaduct foot bridge, embankment, overpass and rail cut in the area was destroyed or damaged. As an example, the rails between Chartres and Dreux, a distance of about 25 miles, were cut in 29 places in less than 10 days. Bridges over every small river and stream in the gap were toppled. By the end of June, there

were so many obstacles between Paris and Orleans that the area between the Seine and the Loire had become virtually an isolated battlefield.

#### PHASE THREE

An officer and two privates, taken prisoner had traveled from Troyes to Carentan by way of Laval and Redon—like getting from New York to Albany by way of Baltimore. At several stages of the journey, the Germans moved almost in the diametrically wrong direction.

Next came the second priority of the Ninth Air Force order—"to prevent the movement of hostile troops and supplies *within* the theater of operations."

The wide Norman and Breton battleground had been isolated—for the Germans. Air power had insured that General Eisenhower's armies, with Channel lanes open and unmolested at their backs, could rapidly accumulate manpower, ammunition, transport and supplies. But there was still German movement *within* the isolated battlegrounds to be checked—and that on D-day became the third phase of the campaign.

The main railways in Normandy and Brittany were: (1) lines connecting the seacoast with Paris; (2) lines between the coast and industrial cities on both sides of the Loire; and (3) lines running from these cities—Nantes, Angers, Tours, Blois, and Orleans—back to Paris.

Reaching a furious pitch soon after D-day, the Eighth and Ninth concentrated on every communications axis and almost every open stretch of track between the Loire and the Seine. One indication of the violence of this campaign was the fact that, on July 6, Marauders and Havocs bombed 44 different railway targets, the greatest number of objectives in a single day in their history.

On the eve of the breakthrough at St. Lo, the Germans could hardly move 25 miles on any line without meeting an impassable block. Principal rail centers—like Rennes, Laval, Le Mans, Chartres, Evreux and Dreux—were bombed out on all sides before their capture by U. S. Armored forces and infantrymen. Not only was the entire battlefield surrounded by barriers, but within the area isolated pockets were created by the air forces in immediate support of the ground troops.

For instance, before the St. Lo offensive, the Germans tried to rush a division from Brest to stem the Allied force gathering on the Cotentin Peninsula. The two main-line railways from Brest to Normandy had been cut in many places, and the division cycled and trudged to the battle front.

Starting June 15, when the Ninth Air Force was dispatching fighter-bombers from four advanced landing strips in Normandy, the war against communications became heaviest on the fringe of the fighting zone. Armed reconnaissance planes attacked German lorries bringing food, ammunition and supplies to units actually in contact with our forces. They kept Nazi soldiers off the roads almost entirely in daylight. These operations caught almost every daylight movement within a 30-mile radius of the front line. One German officer said any vehicle had to have three on board—a driver and a fore and aft aircraft spotter. His own journey to the front was a nightmare of ditching the

## PHASE FOUR

... running for cover, being strafed, resuming the journey and having all this repeated every few miles.

As the fighting developed, alert reconnaissance pilots brought the Ninth's tactical air commands in the field news of the routes and the key centers the Wehrmacht was using in the immediate rear. The small town of Mezidon, for instance, became a top priority target during one phase of the fighting, for it dominated every railway and road coming up to the Caen sector from the south. Tactical targets in Mezidon were pulverized from the air, and so was every other crossroads and railhead which became tactically significant in relation to the changing ground situation.

During the phase of the battle when the front lines were static, the Coutance-Lessay-Periers road was the main supply line for troops on Germany's western flank. Until the break-through late in July, our fighter-bombers peppered this lateral road constantly and prohibited even the shortest distance communication between German field headquarters or command posts and fighting units. Before the capture of Caen, St. Lo, Rennes, Le Mans, every strong point which the Allied armies stormed, communications lines and transportation within the city were violently attacked.

In the course of these operations, the fighter-bombers of the Eighth and Ninth destroyed thousands of railway cars and trucks, hundreds of locomotives, staff cars, tanks, and barges. Our infantry and armored columns moving up found roads and rails reduced to rubble and lined with the debris of smashed or burned out vehicles, or rolling stock.

As the ground forces began to encircle the German troops between the Seine and the Loire, reconnaissance showed that the enemy was gathering transport in the Calais region to bring up reinforcements and supplies. Beginning August 7, the Eighth Fighter Command turned hundreds of fighter-bombers loose on rail lines and highways in this sector. After virtually all traffic in this area had been halted, the Germans tried to get supplies and reinforcements through from Belgium and Germany, moving trains by night and protecting them by day in marshalling yards where antiaircraft defenses were strong. Eighth Fighter Command attacked these concentrations day after day with 750 fighter-bombers. The fighter pilots bombed the packed yards, dived through intense flak to strafe trains and motor vehicles and cut rail lines with bombs. Within a week they immobilized 884 locomotives, destroyed 1,631 railroad cars and damaged 5,716, destroyed 461 additional oil cars and damaged 320, destroyed 187 additional ammunition cars, destroyed 598 trucks and damaged 446, and destroyed 128 other vehicles.

This then was the final stage of interdiction. The air forces first had battered the German supply lines at their sources; then cut them as they crossed into France; thrown barriers around Normandy and Brittany; choked intermediate points of communication within these provinces; caught the last trickle of German traffic in the day-to-day zone of operations; and thwarted last-minute efforts to bring supplies and reinforcements into the battle area.



Clearing the beach of mines, St. Tropez area, France, during the advance of the Seventh Army.

Signal Corps Photo

# Use of a Deflection Observer

By Staff Sergeant Tadeus Patla

In any position-finding system where a plotting board is used mistakes made in azimuth during the plotting are often large enough to keep the shots from falling in the lateral danger space. Since the errors may be made by any one of a number of persons, such as the plotter, arm-setters, or platen operator, and are rarely constant no amount of lateral adjustment will place the center of the lateral deviations on the target.

C Battery, 53d Coast Artillery, has put into operation a system which has increased its accuracy to such an extent that in a Case III practice fired at an average range of 15,900 yards, eleven bow-on hits and nine broadside hits were obtained as compared to a previous Case III practice at an average range of 12,800 yards where only one bow-on hit and four broadside hits were obtained.

This system requires the following men and materials: an observing detail placed as close to the gun-target line as possible (the primary stations readings may be used providing the station is near enough to allow corrections for azimuth difference), a set-forward chart, an azimuth set-forward box and an operator.

The set-forward chart is made from the formula  $T(TF+DT)$ , where T equals the travel of the target dur-

M

ing one observing interval, M equals the observing interval,

TF the time of flight, and DT the dead time. The chart is typed with the ranges for every two seconds time of flight across the top and bottom and the travel for every five hundredths of a degree along the sides. (Figure 1.)

The azimuth set-forward box has an azimuth tape covering the field of fire, a set line, a read pointer and a scale whose normal of "O" is at the set line from which it increases to the right and left for offsetting the read pointer. (Figure 2.)

## OPERATION FOR CASE III

The observing detail sends an azimuth reading of the target to the set-forward devices operator at each T. I. bell. The operator subtracts the smaller of the first two consecutive readings from the larger and obtains an angular travel. The operator then applies this angular travel to the set-forward chart at the proper range and obtains the angular difference corrected for dead time and time of flight. The operator offsets the read pointer on the set-forward box in the proper direction (to the right if the target is traveling left to right, to the left if the target is traveling right to left). At each T. I. bell thereafter he sets the azimuth of the target on the set line and reads the set-forward azimuth at the read pointer to the deflection board where wind and drift corrections are applied.

SET-FORWARD CHART

	1750	3350	4800	6050	7200	8300	9300	10250	11100	11900	12630	13330	14000	14660	15275	15875	16460
.05	.05	.06	.06	.07	.07	.08	.08	.09	.09	.10	.10	.11	.11	.12	.12	.13	.13
.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27
.15	.16	.18	.19	.21	.22	.24	.25	.27	.28	.30	.31	.33	.34	.36	.37	.39	.40
.20	.22	.24	.26	.28	.30	.32	.34	.36	.38	.40	.42	.44	.46	.48	.50	.52	.54
.25	.27	.30	.32	.35	.37	.40	.42	.45	.47	.50	.52	.55	.57	.60	.62	.65	.67
.30	.33	.36	.39	.42	.45	.48	.51	.54	.57	.60	.63	.66	.69	.72	.75	.78	.81
.35	.38	.42	.45	.49	.52	.56	.59	.63	.67	.70	.74	.77	.81	.84	.87	.91	.94
.40	.44	.48	.52	.56	.60	.64	.68	.72	.76	.80	.84	.88	.92	.96	1.00	1.04	1.08
.45	.49	.54	.58	.63	.67	.72	.76	.81	.85	.90	.94	.99	1.04	1.08	1.12	1.17	1.21
.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	1.00	1.05	1.10	1.15	1.20	1.25	1.30	1.35
.55	.60	.66	.71	.77	.82	.88	.93	.99	1.04	1.10	1.15	1.21	1.26	1.32	1.37	1.43	1.48
.60	.66	.72	.78	.84	.90	.96	1.02	1.08	1.14	1.20	1.26	1.32	1.38	1.44	1.50	1.56	1.62
.65	.71	.78	.84	.91	.97	1.04	1.10	1.17	1.23	1.30	1.36	1.43	1.50	1.56	1.62	1.69	1.75
.70	.77	.84	.91	.98	1.05	1.12	1.19	1.26	1.33	1.40	1.47	1.54	1.61	1.68	1.75	1.82	1.89
.75	.82	.90	.97	1.05	1.12	1.20	1.27	1.35	1.42	1.50	1.57	1.65	1.72	1.80	1.87	1.95	2.02
.80	.88	.96	1.04	1.12	1.20	1.28	1.36	1.44	1.52	1.60	1.68	1.76	1.84	1.92	2.00	2.08	2.16
.85	.93	1.02	1.10	1.19	1.27	1.36	1.44	1.53	1.61	1.70	1.78	1.87	1.95	2.04	2.12	2.21	2.29
.90	.99	1.08	1.17	1.26	1.35	1.44	1.53	1.62	1.71	1.80	1.89	1.98	2.07	2.16	2.25	2.34	2.43
.95	1.04	1.14	1.23	1.33	1.42	1.52	1.61	1.71	1.80	1.90	1.99	2.09	2.18	2.28	2.37	2.47	2.56
1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70

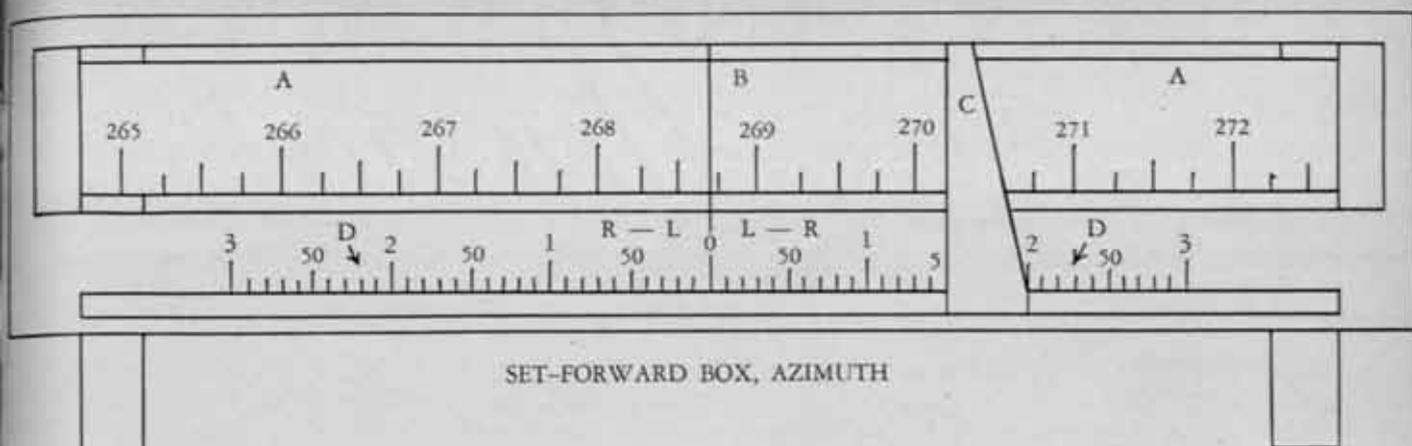
$T(DT + TF)$

DT = 20 seconds

FT 155-S-1 Part 2b

M

M = 20 seconds



- A AZIMUTH TAPE
- B SET LINE
- C READ POINTER
- D OFFSET SCALE

Figure 2

The operator having direct communication with an observer has the advantage of learning of any change of course immediately and can make a change in the set-forward difference in a few seconds and information flows on with no loss of time or ammunition.

#### OPERATION FOR CASE II

Since all that is needed is a deflection and not a set-forward azimuth, the set-forward devices are set aside and the observer sends the azimuths direct to the deflection board.

EDITOR'S NOTE: The operation of this system may re-

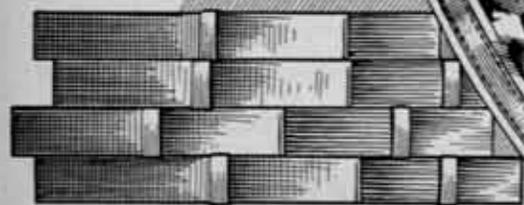
quire extra personnel; the set-forward chart would be bulky (the set-forward ruler might be used). Azimuth differences should be obtained mechanically as distinguished from pad-and-pencil methods where large and numerous errors are possible; and an azimuth difference chart might be necessary depending on which base-end station is to be used for obtaining azimuth. The number of extra men required is to be considered. The system appears to have advantages when used in an emergency or with a C.R.F. and a time-range board when no plotting board is used. Such methods are not new.



Marines at Saipan with Jap AA gun.

# THE JOURNAL

## Newsreel



Press Association Photo

**NORTHERN FRANCE:** German flak towers, near Angers. One has been flattened completely, three have been damaged.



↑ **SAIPAN:** Japanese planes burn on the ground after attack by Navy planes.  
U. S. Navy Photo



← **ENGLAND:** British Bofors gunners answer a robot bomb alert on the Southern coast.  
British Official Photo

↓ **WAKE ISLAND:** American soldiers come ashore at Wake, getting our own back again.  
U. S. Navy Photo





U. S. Navy Photo

**SOUTHERN FRANCE:** The Allied invasion armada off the Riviera.



Signal Corps Photo

↑ **GUADALCANAL:** Conducted tour of an AA installation is enjoyed by natives who have assisted our troops.

← **ESPIRITU SANTO:** A modern airfield lends a metropolitan touch to the far-off New Hebrides.

U. S. Navy Photo



**ADAK, ALEUTIANS:** Twenty-one guns salute Army and Navy dead on Memorial Day, 1944.

U. S. Navy Photo

# Calibration of 90mm Guns for Firing on Ground Targets

By Major Victor G. Hines, Coast Artillery Corps

Those calibration corrections you computed so carefully last month won't hold for Field Artillery Firing! If you apply your antiaircraft corrections and fire at the usual terrestrial targets, nine chances out of ten your shots will be scattered in range and your time (air burst) fire will be ineffective. Logical analysis will show the reason for this and suggest a possible solution.

The difficulty arises as the result of two considerations:

1. Our method of computing antiaircraft calibration corrections.
2. The fact that range to the normal antiaircraft target is much less than the range to the normal terrestrial target.

Although we presume that antiaircraft calibration corrections hold all over the sky, *this is not true*. Calibration corrections for antiaircraft fire are theoretically perfect for only one range and altitude and we presume that the inaccuracies at other points will not be so great as to cause misses. This is the best presumption we can make under the circumstances and is valid so long as we are not shooting at ranges greatly different from that of the calibration point. However, the corrections will not hold when we are shooting at ground targets at the longer ranges. We ordinarily calibrate at combinations of 6,000 R and 5,000 H or 8,000 R and 3,000 H or 8,000 R and 4,000 H, etc. Our normal ground targets will be anywhere from 9,000 up to 19,000 yards with most of our shooting in the vicinity of 12,000 yards. Let us see why the wide variances between normal ranges will cause our calibration corrections to be in error.

Consider, for example, two guns calibrated at  $R = 6,000$  and  $H = 5,000$  and shooting on a terrestrial target at a range of 12,000 yards. Before calibration corrections were applied their trajectories were as shown in figure 1 below.

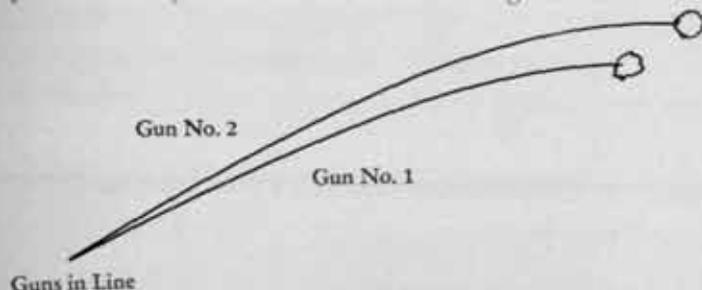


Figure 1.—Uncorrected trajectories.

If we were to make the center of impact of Gun No. 2 coincide with that of Gun No. 1, we would compute calibration corrections of, say, minus four mils in Q.E. and minus .3 in fuze. We would apply the corrections and say that we have caused the two trajectories to become parallel. Such is *not* the case. The calibration corrections only cause the vertical traces of the two trajectories to *intersect* at the

point of calibration. Actually gun No. 2 will now be laid at a Q.E. four mils less than gun No. 1 and the vertical trace of the trajectory of the two guns will intersect at only one point—they will in no sense be parallel. Figure 2 below illustrates the trajectories after calibration corrections are applied.

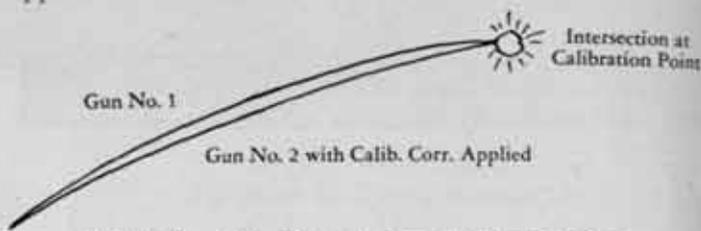


Figure 2.—Gun adjusted for a particular point.

Now with the calibration corrections applied let us continue the trajectories and see what happens when we fire at a point 12,000 yards from the guns. Although the two guns converged their fire vertically at the calibration point X, as we continue their trajectories we can see that they will immediately commence to diverge beyond that point. See figure 3 below for diagrammatic explanation.

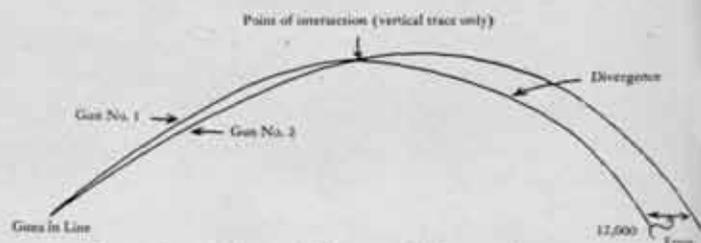


Figure 3.—Adjusted Guns—Firing at long range.

This divergence may not cause us to get a poor pattern when shooting at planes because the amount of the divergence is not very great when we are shooting at ranges close to that used in calibration. However, when we greatly increase the distance from a slant range of 7,810 to a horizontal range of 12,000, the divergence becomes serious and will cause us to have an erratic range pattern on the ground. Therefore, the Q.E. correction arrived at by antiaircraft methods cannot be used when firing at terrestrial targets!

Let us consider now the fuze calibration correction. Probably the greatest cause of error is the difference in muzzle velocity between the two guns (as is the cause of Q.E. error). If the two guns are fired at exactly the same time at the same point and one gun has 20 f/s greater muzzle velocity, its projectile will arrive at a point of equal slant range sooner than the other. The amount of difference between instants of arrival is measurable and is corrected for by a calibration correction. At different points the differences in instant of arrival are of varying magnitude. For example, Figure 4, if one projectile will arrive at point X ( $R = 6,000$ ,

H = 5,000) .3 second before the other projectile, the same projectile will arrive at point Y (some other point such as R = 8,000, H = 4,000) perhaps .5 second before the



Figure 4.

other projectile and at point Z (vicinity of R = 10,000, H = 2,000) perhaps .8 second before arrival of the other projectile. In other words, the difference in instant of arrival will be greater as the fuze time increases. It is not a flat difference but is rather a variable difference. Therefore the flat fuze corrections that we arrived at in calibrating at H = 5,000 and R = 6,000 will not hold when firing time fire (air burst) 12,000 yards at terrestrial targets.

The error described above will cause your projectiles to strike the ground before the fuze functions, in which case you will probably have a dud\* or will cause your burst to be so high in the air as to be ineffective (any burst above 50 yards in the air is considered wasted—20 yards is the most desirable).

At the firing point where the writer was stationed we applied our usual antiaircraft calibration corrections and fired about fifteen hundred rounds at ground targets in the vicinity of 12,000 yards range. We found that our bursts when firing impact fuzes were quite erratic in range between individual guns and when we fired time fire our height of burst was spread too far between guns to get a good adjustment. We correctly diagnosed the problem as one of calibrations and decided to fire another antiaircraft calibration at an R of 11,000 and H of 500. We found, however, that with the particular atmospheric conditions at our camp, observation was so inaccurate at this long range as to give us unreliable results. We then went back to our field artillery range and after trial and error the following method of calibration was evolved.

Using the methods outlined in FM 6-40 or WD T. C. No. 23 (they'll both give the same answer), we computed ballistic corrections and fired a base point registration from each gun at the same base point and with the least delay in time possible. This gave us an adjusted azimuth and an adjusted elevation for each gun. Our target was at a range of 11,190 yards and the results were as follows:

Gun No.	Adjusted Azimuth	Adjusted Elevation
1	5,695	202
2	5,698	198
3	5,701	202
4	5,705	204

Our calibration in elevation was computed by choosing gun No. 3 as a base piece and comparing adjusted elevations. Gun No. 1 needed no correction since it hit the base point, with the same elevation as the base piece. It was obvious that gun No. 2 had a greater muzzle velocity since it hit the same point with four mils less elevation. We therefore applied a Q.E. calibration correction of minus four to gun No. 2. Gun No. 4 on the other hand, must

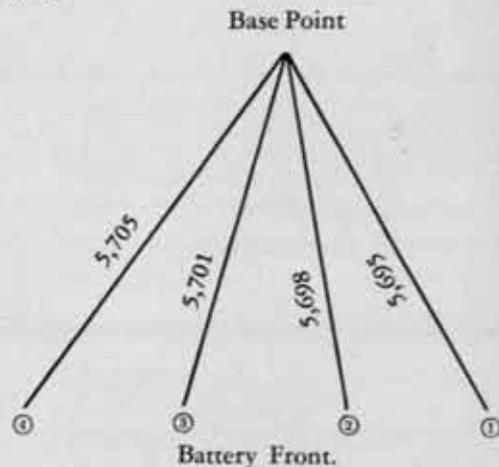
have had a lower muzzle velocity since it took two more mils elevation to hit the same point, so we gave it a boost with a Q.E. calibration correction of plus two. Corrections would be applied on the clocks the same as antiaircraft calibration corrections or would be applied by the gun commander each time an elevation was announced if the gunner's quadrant was being used. It is true that with this method we have also intersected the trajectory of the base piece the same as in antiaircraft fire but the advantage is that the correction has been applied at the range where we expected to shoot so that as we increased or decreased ranges within K transfer limits the inaccuracies would not be of a great magnitude.

Now for the fuze corrections. We compared the time of flight as given in FT B-3 for each of the adjusted elevations.

Gun No.	Adjusted Elevation	Time of Flight
1	202	24.2
2	198	23.9
3	202	24.2
4	204	24.4

It is apparent that it takes gun No. 2 .3 second less time of flight to hit the base point than it does the base piece. Therefore, we want to shorten fuze range by that amount for gun No. 2 and we would apply a fuze calibration correction of  $-.3$ . The reverse is true for gun No. 4, it being necessary to give it a greater time to get to the target so we applied a fuze correction of plus .2 to that gun. These corrections were applied by putting the fuze setters out of orientation the desired amount. It is true here also that we have applied a flat correction and committed the same error as in antiaircraft calibration fire but once again the advantage lies in calibrating your guns at the point you expect to engage the enemy.

The guns are now calibrated in the vertical plane but how about azimuth? Figure 4 below will help us analyze the problem.



The guns converged on the base point with the adjusted azimuths indicated in the above diagram. All four guns were placed on line (normal for Field Artillery firing) and numbered from right to left. Inasmuch as the gun muzzles were 25 yards apart and the range was 11,190 yards, the mil rule tells us that we had a 2 mil convergence angle between our pieces. The guns had been laid parallel with the use of the aiming circle and a surveyed orienting line. Therefore

\*Points to the desirability of leaving a percentage of 90mm projectile specially fuzed for firing at ground targets.

if the the base piece, gun No. 3, had hit the base point with 5,701, then gun No. 1 should have hit it with 4 mils less azimuth or 5,697. Similarly, gun No. 2 should have been 5,699 and gun No. 4, 5,703. Compare these azimuths with those we actually got for adjusted azimuths when we shot and the following corrections are deemed necessary.

Gun No.	Should Have Been	Adjusted Azimuth Was	Calibration Correct
1	5,697	5,695	-2
2	5,699	5,698	-1
3			
4	5,703	5,705	+2

Azimuth calibration corrections are applied to the mechanical pointers in the opposite sense the same as in anti-aircraft calibration.

To summarize, the above method of calibration provides the following advantages.

1. It provides *accurate* corrections at range you expect to engage the enemy. The inaccuracies caused by use of anti-aircraft calibrations are not present.
2. It can be fired quickly in the field. We have calibrated a battery in thirty minutes with an expenditure of about fifty rounds. This may seem like a large expenditure of ammunition but it is much better to expend that amount on calibration than to fire twenty times that amount on ineffective concentrations.
3. The same information arrived at in the calibration shoot can be used for computing K factors for transfers or for prearranged fire.

We have fired about fifteen hundred rounds since using these new methods and have been well satisfied with the results. Our guns shoot parallel in azimuth, our range pattern is excellent, and our height of burst is effective. The Field Artillery had better look to its laurels!



The Allied landings in the South of France bagged this gun intact. Part of the invasion fleet in the background.

# Farewell to Camp Davis

By Captain John E. Slater, Coast Artillery Corps

As the curtain falls on another phase of this war, Camp Davis, its job completed, dims its lights and becomes but a memory to the countless officers and enlisted men to whom Camp Davis once was home.

In its short span of life, Camp Davis has seen antiaircraft artillery change from a defensive to an offensive arm. Through the foresight of its commanders, troops were trained to meet the changing situation. Thus, today, seasoned troops fighting in every theater of war are applying lessons learned at Camp Davis.

Camp Davis was born in 1938 and in the mind of Lieutenant General Brehon B. Somervell as he stood on the shores of Puget Sound waiting for the local fishing fleet to clear the danger area so the antiaircraft artillery batteries could fire a target practice. The need was quite apparent for a land range with 360 degrees field of fire. This in turn, suggested swamps, deserts, and unpopulated areas. Hence, on December 26, 1940, work was initiated on a \$9,000,000 camp to house 20,000 men, across the road from Hollyridge, a village of twenty-eight inhabitants.

This camp was known as the Miscellaneous Station, Hollyridge, North Carolina, and was planned to be operated as a replacement center and later as a training center.

On January 8, 1941, Brigadier General James B. Crawford, then a colonel, assumed command and established his headquarters in the basement of the post office building in Wilmington.

January 6, 1941, the camp site was named Camp Davis in honor of the late Major General Richard Pearson Davis, a native of Statesville, North Carolina, and a distinguished soldier of World War I.

The camp proper is situated on a 5,590-acre tract fronting Highway No. 17, approximately thirty miles north of Wilmington, N. C., and five miles from the Atlantic Ocean. The camp and its related installations, covering a total of 44,434 acres, were built at a cost of about \$40,000,000 under the supervision of the Army Service Forces.



The late Lieutenant General Lesley J. McNair inspects trainer at Camp Davis. Major General Joseph A. C. Brigadier Generals Cortlandt Van R. Schuyler, Robert C. Crichtlow, Bryan L. Milburn, George M. Badger, and C. McConnell look on.

Progress was greatly hampered during the early days of construction by heavy rains and complete lack of drainage in the sandy soil of the trackless swamp. At this time of the war the air force was small and inadequate and the need for training antiaircraft artillery troops was urgent, so on January 9, 1941, floodlights were obtained and construction crews worked around the clock. By April 29, 1941, the camp was about eighty per cent completed, and on that date General Crawford moved his headquarters from Wilmington and prepared to receive an advance detachment of 250 men, station complement of 500 men, eight regimental cadets totaling 1,900 men, and eight regiments of selectees of 2,200 men each. This was a total of 20,250 men, the designed capacity of Camp Davis.

The eight regiments were activated April 19, 1941, but due to lack of facilities, selectees did not begin to arrive until May 7, 1941. The first guns on the post were twenty-



On the range at Holly Shelter.

Signal Corps Photo



Signal Corps Photo

Hollywood film-makers visit Sears Landing to film portions of *There's Something About a Soldier*.

90mm guns which arrived from Camp Wallace on August 1, 1941.

Meanwhile it had become quite apparent to General Crawford that, due to the added range of new anti-aircraft artillery weapons (40mm and 90mm guns), a larger firing range was needed than that originally planned, so everything possible was done to expedite construction of a route to Sears Landing and of facilities at that point.

By May 27, 1941, Camp Davis had a total strength of about 7,000 men, and, while construction was not yet completed, the men were fairly comfortable. For recreation an outdoor theater was set up, pending the completion of the post theater, the service club, and the guest house about ten days later. It is interesting to note that in those days Wilmington was a very religious town, allowing no movies on Sunday, and forcing all Saturday dances to quit promptly at midnight. This added urgency to the problem of providing ample recreation facilities for the men at Camp Davis.

While the post had a Protestant chaplain, it was found that a large proportion of the men were Roman Catholics, so arrangements were made for a priest to come out from Wilmington to say Mass. Shortly thereafter, arrangements were made to take care of those of Jewish faith.

Mosquito control started about April 10, 1941, under the control of two C.C.C. companies, and has continued under control of the post engineer since July 1, 1943, at a cost of about \$5,000 per month.

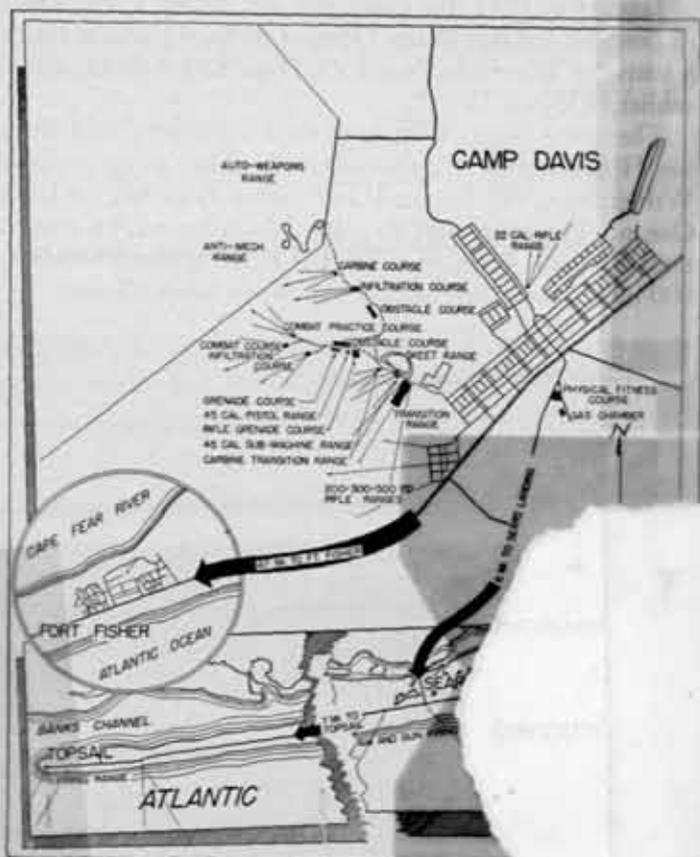
On May 1, 1941, the Barrage Balloon Training Center and School were activated at Camp Davis under the command of Colonel Robert Arthur. It remained there until January, 1942, when it became apparent that the constantly flying balloons were interfering with the coastwise air traffic, and it became necessary to move the Barrage Balloon Training Center and School to Camp Tyson, Tennessee. During this period, five Barrage Balloon Battalions were activated and trained.

April 21, 1942, the Antiaircraft Artillery School, under the command of Brigadier General Oliver L. Spiller, and

in 1942, the Antiaircraft Artillery Board under

the command of Brigadier General Robert W. Crichlow, then a colonel, moved from Fort Monroe, Virginia, to Camp Davis. This left the AAATC with only about one half the camp available for its use, and thus made it necessary to develop a new area known as Maple Hill (formerly "Buzzard's Roost") to accommodate six battalions. About this time money was also appropriated to develop Fort Fisher as an area suitable for housing two battalions.

On August 2, 1941, Major General Frederic H. Smith assumed command of Camp Davis and the Training Center, where he remained until February 19, 1943.



Sketch Map of Camp Davis.



Fort Fisher in 1941. The land is being cleared.

On January 22, 1943, the Camp Headquarters was divorced from the AAATC, with General Smith remaining in command of the AAATC, while Colonel Adam E. Potts assumed command of the Station Complement.

Under the command of General Smith, training facilities were greatly expanded. Existing rifle ranges were improved; and antimechanized range was added at Fort Fisher during the summer of 1942; Sears Landing was given to the School, and new antiaircraft artillery firing points were developed at Topsail Inlet and at Holly Shelter; an attempt was made to secure more bivouac areas; the capacity of Fort Fisher was increased to eight battalions.

February 18, 1943, Major General Homer R. Oldfield assumed command of the AAATC, Camp Davis, where he remained until April 17, 1943. General Oldfield perceived the need for better tactical and technical training of antiaircraft artillery troops, so he endeavored during his brief stay to obtain better firing ranges and more maneuver area.

In the early days, considerable confusion arose as to the name of the Training Center. At various times it was called officially a "Coast Artillery Training Center," a "Coast Artillery Unit Training Center," and an "Antiaircraft Training Center." This developed early in 1943 into its present name, "Antiaircraft Artillery Training Center."

On April 24, 1943, Brigadier General James R. Townsend assumed command of the AAATC, Camp Davis, where he remained until November 28, 1943. Among his contributions to training was a system of thorough inspections and tests to determine the progress and efficiency of a unit. During his command, the antimechanized range at Holly Shelter was completed; an antimechanized range was built at Sears Landing; the rifle range was modified to fit the needs of the carbine as well as the rifle; and combat courses were added.

In April, 1943, the Training Center reached its peak with 26,304 troops in training.

On December 4, 1943, Brigadier General Cortlandt Van R. Schuyler assumed command of the AAATC, Camp Davis, and remained to close the Training Center when the last battalion departed.

Under General Schuyler's command, the function of the Training Center changed to a large extent from unit training to refresher training as the necessity arose to prepare many units for the coming invasion. The success of this training is clearly recorded in the records of the Normandy campaign.

During its three and one-half years of existence, Camp Davis has been responsible for activation and training six brigades, nine groups, ten regiments, nine separate battalions, twenty-one automatic weapons battalions, twenty-one searchlight battalions, five barrage balloon operations detachments, one separate battery, one T.A. regiment (TD) (155mm). It has also been responsible for giving refresher training to two brigades, nine groups, two regiments, three separate battalions, three searchlight gun battalions, twenty-four automatic weapons battalions, and seven searchlight battalions.

While the War Department retained control of antiaircraft artillery training until March 9, 1942, construction of Camp Davis and administration of troops stationed thereat was under control of the Fourth Service Command (then known as Fourth Corps Area) from December 26, 1940, to January 22, 1943. During the period April 2, 1941, to February 15, 1942, the Training Center was attached to the First Army, but on February 16, 1942, it was detached and placed under direct supervision of the Chief of Coast Artillery. On March 9, 1942, AA Command was activated and took control of the Training Center, which control it retained until the Training Center closed.

Although October 1, 1944, found the AAATC doors padlocked, and the bivouac and maneuver areas deserted, Camp Davis is not dead. It continues to live in every shot fired at Axis planes; in high morale and combat efficiency of troops trained at Camp Davis; and forever will live in the hearts of all World War II antiaircraft artillerymen.



# Mess Economy

By Staff Sergeant Anthony Lofaro

Since arriving at Camp Stewart, Georgia, as a Mess Sergeant of a recruit training battery, I have been confronted by food saving programs, conservation lectures, fat-saving contests and several other drives in the same general direction, and by conservation speeches by all personnel, from generals down to tech set.

I therefore made up my mind that I was going to go to all the rules and regulations and see what we could do. With a mass of charts and cooks' work sheets, all issued by the Army (there is supposed to be conservation on the tin too; isn't there?) I went to work.

The following figures are based on the first ten days in May, in which the number of men fed by actual clock count was 2515. The number of rations drawn were 2188. The waste from the men's plates was 120 pounds. That was a saving of 327 rations for ten days. If multiplied by three it would give a total number of rations saved for the month of 981. At a cost of 60c per ration (using round figures), a thousand rations saved would amount to \$600.00. A post of one hundred mess halls would represent a saving of \$60,000 a month. Take all the mess halls in the United States and it certainly does add up.

But it can be done, even with the gargantuan appetites of recruits to satisfy, with the aid of the motto, "Take all you want but eat all you take."

Here is how I accomplished this saving. First, I had to be very conscientious even about the smallest things and, second, I have good cooks, so that all the food is palatable. I found that the cafeteria style of mess was necessary, and posting the menu on a blackboard outside the mess hall so that the men could decide what they wanted, helped a lot.

Starting out with good food, all I had to do was stand by the garbage pail as the men came by. The men, being forewarned, passed by me with clean plates. What exceptions there were, I made stand out of line and eat the quarter slices of bread or pieces of meat they had left on their plates. The men caught on quickly and the mess officer backed me up. The men had seconds if they wanted them, but the plates were clean.

Being the best soldiers in the world and the smartest, they adapted themselves to the system readily. Yes sir; those who ate with their eyes and took more than they could eat became very clever; what they could not eat was pushed off on the table, and everyone came up with a clean plate. Consequently, the next day everybody was eating out of mess kits. The men caught on quickly for the second time, and now there is no waste in my kitchen.

Now, choosing from the menu, the men could avoid the vegetables or whatever was necessary for a balanced meal. I had, therefore, to question each soldier individually and find out the whys and wherefores. They "just didn't like this or that," so I had to convince them to try a little. They did and they learned to like what they formerly thought they didn't like.

All right; it's coddling and chicken but the men were started off on the right foot and it is paying off in my mess hall. It will make it easier on all the other organizations these mess halls eventually be assigned to.

I save about eight to ten loaves of bread a day by cutting the bread in half, thus cutting down on bread waste in the garbage pail.

As for lard, in the last ten days my cooks haven't used an ounce of the eighty-two pounds of lard issued. All cooking and baking (and we do more than most outfits), was done with rendered fats. No, you're wrong. The bakers' products are good and besides, I am out to win the lard-saving contest prize of \$25. I think that a 50 per cent cut on issued lard wouldn't be noticed in any mess hall if rendered fat was utilized to the utmost.

Even by underdrawing rations, I find that I receive from 15 to 20 per cent too much boneless beef and potatoes and a little smaller oversupply of pork with the exception of pork loins for chops. When the loins are used for roasts instead of for chops, there is the same proportion of 15 to 20 per cent. For the excess in roast meats, I give credit to slow roasting and thin slicing.

On vegetables, I would have plenty with 30 per cent less with the exception of lettuce and tomatoes. Of course, if it comes in half rotten, as it sometimes does, the oversupply takes care of itself.

Underdrawing on my rations by from 25 to 30 a day brings up one difficult problem; namely, the fresh milk situation. Milk is one issue item of which I can use more.

One of the biggest savings in the mess hall is realizing that you get just as many rations for privates as you do for first sergeants. No one is allowed in the mess hall except at meal times and each man gets the same consideration with the exception that guards, naturally, are fed when they come off posts. There are no midnight snacks in the mess hall for anyone; after the supper meal the mess hall is cleaned and locked and no one is allowed in it till breakfast.

By checking my cooks' work sheets, I found that all the meals were being prepared too early. Now, most of my breakfasts are started from three-fourths to one-half hour before serving time. With the breakfast meals, the cooks almost serve to order. Thus, everything is piping hot and there is nothing left over. With dinner and supper, I found that I do not have to start as early as formerly. I have cut the time in some cases as high as one and a half hours, all of which gives me much more time to keep the mess hall clean, and, most important, allows me to serve better and more palatable dishes.

Two hundred and fifty men are being fed with 220 rations, and fed well. This is accomplished with a little preparation and concentration toward getting the best out of the menu.

Yes, it can be done and it is being done in this battery!

# Improvising Infinity

By Major Ralph W. Cooper, Coast Artillery Corps

The aiming rule sight is provided for the purpose of furnishing an aiming point in the immediate vicinity of the firing battery without the disadvantage of parallax caused by sight displacement. There are times when a distant aiming point is either not visible or is unavailable. These occasions will most likely find the battery without an aiming rule sight. The following simple method of providing an aiming point with the advantages of an A.P. infinity is offered.

## CONSTRUCTION

Construct two identical scales having clearly defined and easily read graduations. Scales shall be slightly longer than total lateral sight displacement expected.

These scales are each mounted on boards which in turn are fastened to uprights approximately six feet in length, thereby forming two tees.

The tees are then planted in the ground so that the pintle center of the gun and the midpoint of each scale is approximately in line. The scales must be approximately normal to the pintle center of the gun and the nearest scale should be just below the farthest scale as seen from the sight. The scales may be located at any convenient distance from the gun and it is suggested that the distance from the gun to the first scale be approximately the same as the distance between scales. This system has been operated satisfactorily using 75 feet for each of the above distances. The placing of the scales can be done entirely by eye.

## THEORY

We now have two identical parallel scales both visible from the gun sight and in line with the gun sight. Any series of lines passing through matched graduations on the two scales will be parallel and therefore of the same azimuth. This azimuth does not change so long as the scales are not moved. If the scales are matched from the gun sight (the cross hair directed on the same graduation on both scales) the sight is on the above-mentioned azimuth.

## OPERATION

- Place the scales as outlined in above.
- Determine the azimuth of the bore of the gun.

- Rotate the sight head until the same reading is obtained on both scales.
- Adjust the sight to read the azimuth of the bore.  
Note: The piece is now oriented.
- To fire at any azimuth, set the desired azimuth on the sight and traverse the gun until the same reading is obtained on each tee scale.

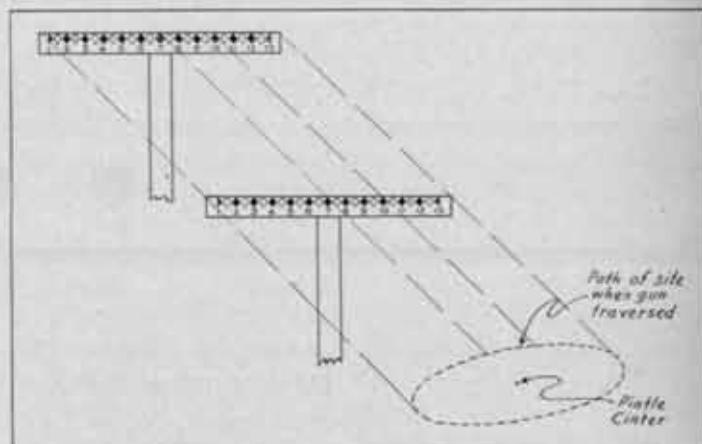
## ADVANTAGES

The tees can be made quickly by anyone with materials on hand. They can be placed quickly in the field by estimation only. The system is accurate—well within tolerance allowed.

## DISADVANTAGES

The tees would require illumination for night firing. The set-up would require additional training on part of gun pointer in order that he can match readings quickly on the two scales, and would probably lengthen slightly the time required by the gun pointer in getting "on target."

**EDITOR'S NOTE:** *The tees should be aligned by use of the sight rather than by eye. Since considerable parallax is experienced with the M8 sight on objects closer than 150 feet, the first tee should not be closer than that distance. Some method, such as luminous paint, should be devised to make the equipment visible at night.*



# Chart for Artillery Met Stations

By Technical Sergeant Donald E. Twitchell

In artillery meteorological stations the data in TM 11-420 has been required for plotting balloon courses. However, only some five per cent of such data is ever used and I designed a chart with the necessary data therefrom which has been in use for over a year. Aside from the obvious improvement of using a single sheet in lieu of a book it offered other advantages which might warrant its reproduction.

Having several copies of the manual on hand, we cut from one of them the first column of figures (denoting yards for each full degree of elevation) from certain pages and pasted such strips on a piece of light cardboard. This gave us a chart of approximately 9 x 13 inches with the degrees from 5 to 89 in columns down each side, and between them, sixteen columns of corresponding yards (horizontal distance) for the minutes, 1, 2, 3, 4, 5, 7, 9, 10, 14, 15, 19, 20, 24, 25, 29 and 30.

It might be well to mention that the tenths of degrees on elevation and azimuth are seldom, if ever, computed in tactical operation. The elimination of tenths of degrees from the proposed chart has no perceptible effect on the ballistic use of the met message.

Also, it is unnecessary to provide for the minutes other than those used for the zone plottings. The minutes 39, 40, 49 and 50 might be added to this type of chart, or the natural cotangents for each whole degree appear in an additional column.

Another advantage of this chart is that it can be mounted on a revolving cylinder with a stationary bar on which the minutes are inscribed over the corresponding columns of the cylinder. I constructed such a cylinder from a round balloon carton and various improvised fixtures so that it was attached to the wall directly above the first plotting board. This was a still greater improvement than the chart alone.

Following are sketches of both the chart and cylinder.

The table with this article, is merely a top left corner to illustrate the proposed chart. Actually it would be extended to the right to include the minutes, 30, 39, 40, 49, and 50, another column showing the degrees and perhaps another column showing the natural cotangents therefor, which might substitute for the last four suggested minutes as it does in TM 11-420.



EDITOR'S NOTE: Use of this chart is considered practical when zone winds of less than 30 miles per hour are recorded. The tables of TM 11-420 should be employed when zone winds above 30 miles per hour are recorded, or when extremely accurate instrumentation has been employed. The Coast Artillery Board will be glad to furnish upon request the charts described.

MINUTES ON WHICH BALLOON PLOTTED

Deg	1	2	3	4	5	7	9	10	14	15	19	20	24	25	29	3
5	2740	5260	7770	10170	12570	17140	21720	24000	33150	35430	44580	46860	56010	58290	67550	6
6	2280	4380	6470	8470	10470	14270	18080	19980	27590	29490	37110	39010	46620	4		
7	1950	3750	5540	7250	8960	12220	15470	17100	23620	25250	31760	3				
8	1710	3270	4840	6330	7830	10670	13520	14940	20630	22060	2					
9	1520	2900	4290	5620	6950	9470	12000	1								
10	1360															



It takes just as much equipment to win a battle as it does to lose it. So the fact that we are winning one victory after another does not lessen the need for strict attention to preventive maintenance of our equipment.

# COAST ARTILLERY

## Citations and Commendations

### Legion of Merit

TO: GEORGE M. BADGER, Brigadier General (then Colonel, CAC), U. S. Army, West Point, New York.

FOR: He served from October 28, 1940, until March 9, 1942, in the Officers Branch of the Personnel Division, War Department General Staff, and until July 15, 1943, successively as Chief of the Requirements Section, Chief of the Officers Branch and Deputy Director, Military Personnel Division, Army Service Forces. In the Personnel Division, he was responsible for the preparation of estimates of officer requirements and for the allocation of officer personnel. The success of the officer procurement program in meeting mobilization needs was due in no small part to the accuracy of his estimates and his ability to envisage future requirements. His allocations resulted in a proper distribution of experienced officers to commands within the United States and overseas at a time when a lack of balance in this respect might have impeded seriously mobilization and training plans. In each of the positions which he held in the Military Personnel Division, he met increasing responsibility and an increasing variety of personnel problems. His sound judgement and independent decisions were of material assistance both in the establishment and implementation of Army-wide personnel policies and in personnel operations pertaining to the Army Service Forces. By the application of his broad knowledge, energy, tact and patience, he made a measurable contribution to the war effort.

TO: AARON BRADSHAW, JR., Brigadier General, (then Colonel), United States Army.

FOR: Exceptionally meritorious conduct in the performance of outstanding services from 29 September 1942 to 22 July 1943. As Chief of the Antiaircraft Section, Allied Force Headquarters and later as assistant to the Major General in charge of all antiaircraft and coast defense, General Bradshaw displayed outstanding efficiency and foresight in building a superior antiaircraft defense for the many ports, and airfields and other important installations in North Africa, Sicily and Italy. Responsible for perfecting the coordination with the French and British on all antiaircraft matters, he moulded the fine spirit of cooperation with such singular efficiency that the accomplishments of the allied antiaircraft in meeting and punishing all enemy air attacks was a material contribution to the success of the allied nations in the North African Theater of Operations.

TO: GORDON DEL. CARRINGTON, Brigadier General, U. S. Army. Posthumous. Next of kin: Mrs. Jeanie G. Carrington, Widow, 1707 Columbia Rd., N.W., Washington, D. C.

FOR: Services from July 1, 1941, to June 26, 1943. As Assistant Chief of Staff, G-1, General Headquarters from July, 1941 to February, 1942, he played a major part in the formation of personnel policies and in the selection of suitably qualified officers for duty in key positions and throughout the Army. Later as Inspector of Training and then as Assistant Chief of Staff, G-3, Headquarters Antiaircraft Command, his service in these highly important positions was especially notable for his unceasing attention to duty and his professional skill in the staff supervision of antiaircraft training. Through his personal efforts, the programs governing the training of antiaircraft units and individual combat replacements were constantly kept abreast of the many changes in training requirements made necessary by the issue of improved equipment and by new rôles of employment of antiaircraft developed in various theaters of operation. His outstanding executive ability and administrative talent in staff procedure contributed to a great extent to the development of a training organization which insured adequate preparation for combat of all antiaircraft units activated in this command while he served on the headquarters staff. (General Carrington died August 21, 1944, at Walter Reed General Hospital, Washington, D. C.)

TO: EVANS R. CROWELL, Brigadier General, United States Army (then Colonel, CAC).

FOR: Exceptionally meritorious conduct in the performance of outstanding services from 11 November 1942 to 15 October 1943. He exhibited foresight, energy and professional ability of an exceptionally high order in carrying out numerous assignments for the antiaircraft defense of areas throughout the North African Theater. In many of the situations encountered, his services were of a pioneer nature, entailing integration of French antiaircraft defense with the American system. This he achieved with tact, judgment and skill. The air defense installations organized and commanded by him functioned so effectively that allied military installations suffered a minimum of damage, with costly results to raiding enemy aircraft. Entered service from Tennessee.

TO: HAROLD F. NICHOLS, Brigadier General, United States Army.

FOR: Exceptionally meritorious conduct in the performance of outstanding service as the Commanding General of the Hawaiian Antiaircraft Artillery Command during the period 21 December 1941 to 6 April 1944. Charged with the immediate expansion, reorganization, and coordination of the antiaircraft defenses of the Hawaiian Department, then disrupted by the attack on Pearl Harbor, he completed this task with remarkable smoothness and maximum of efficiency. General Nichols has produced an efficient and effective command, constantly on the alert, and by his exceptional leadership and organizing ability has maintained and improved the technical and tactical proficiency of the antiaircraft defenses of Hawaii.

TO: ALDEN G. STRONG, Brigadier General, United States Army.

FOR: Exceptionally meritorious conduct in the performance of outstanding service during the period 20 April 1941 to 5 July 1944. General Strong organized and developed the Bermuda Base Command in a period when the strategical situation of the allied cause was very critical. He applied himself to this task with the greatest ability and energy, and in the course of a brief period effected an efficient and well-organized defense. This was accomplished through the establishment of excellent relations with civil and military officials of Bermuda, and with the United States Naval authorities. His excellent leadership and demonstrated tact commanded the respect and confidence of all. By high professional skill and application to his task combined with the constant concern for the individuals comprising his command, the highest standards of training and morale were maintained throughout his service.

TO: JACK D. HUNNICUTT, Lieutenant Colonel, CAC, Box 1509, Midland, Texas.

FOR: Service while on duty as an instructor in the Antiaircraft Artillery School at Camp Davis, North Carolina, during the period August 14, 1942, to November 30, 1942. He devised a successful method of adopting theodolites for use in a system of conducting target practices for proficiency in antiaircraft gun firing at unseen targets through the use of the "Equiangular Method." Through his outstanding initiative and perseverance, untiring energy and high degree of technical ability he originated and designed the necessary technical and mechanical devices needed for incorporation into existing equipment. This method has proved a practicable and economical means of conducting antiaircraft artillery target practices and is being used extensively throughout the Antiaircraft Command.

TO: WILBUR M. SKIDMORE, Lieutenant Colonel, CAC, 4502 Elm St., Chevy Chase, Md.

FOR: Services in the Office of the Assistant Chief of Staff, Operations Division, War Department General Staff, during the period April 30, 1942, to May 15, 1944. In his assignment as member, Executive, and Acting Chief of the Projected Logistics Section of the Logistics Group, he individually and as Acting Section Chief, demonstrated ability, initiative, leadership and judgment of the highest caliber. His comprehensive appreciation of the logistical implications of the many diverse problems confronting the

War Department during this period of the war effort was of great value to the War Department and to the Joint Chiefs of Staff in arriving at the decisions which eventually lead to success in operations throughout the world. The services rendered by him in the solution of problems involving distribution of critical antiaircraft matériel to our theaters of operations, and to the entire problem of the French Rearmament Program were especially marked. His superior judgment, initiative, thoroughness and energy have contributed materially to the success of the war effort.

TO: HOMER R. OLDFIELD, JR., Captain, CAC, 3 Gilmore St., Belmont, Mass.

FOR: Services from April, 1942, to May, 1944. As a member and later head of the Electronics Section of the Antiaircraft Artillery Board concerned with the test of, study, and rendition of recommendations on radio and communication equipment for antiaircraft artillery use. He achieved outstanding results and exercised great influence in the development of effective equipment for use in the war. Under considerable pressure with respect to time, this officer tested equipment and rendered such wise recommendations in matters effecting the adoption of equipment that the effectiveness of our antiaircraft artillery matériel was materially improved.

TO: EMITT C. WITT, JR., Captain, CAC, 318 14th St., N.E., Washington, D. C.

FOR: Exceptionally meritorious conduct in the performance of outstanding services from November 20, 1943, to May 15, 1944, in the North African Theater.

TO: MORRIS BANDER, Chief Warrant Officer (then Warrant Officer, JG), 187 Lake Forest Parkway, Wilmington, N. C.

FOR: From January to March, 1944, he designed and constructed a differential recording unit for the tracking trainer and ran the first successful tests. This unit has provided a simple and practical method of measuring the errors of gun pointers under differing conditions of gun operation and proved itself of great value in tests of accuracy of tracking during firing of the 40mm automatic antiaircraft gun and in courses of varying difficulty.

TO: CHARLES W. MOHR, Master Sergeant, CA, Fogelsville, Pa.

FOR: Services from December 4, 1940, to July 1, 1942. In addition to his regular duties at the Coast Artillery School at Fort Monroe, Virginia, and the Antiaircraft Artillery School at Camp Davis, North Carolina, he voluntarily and on his own initiative designed and constructed several devices which have proved of the greatest value in instructional procedures at the above-mentioned installations.

TO: EDWARD B. HARRISON, Staff Sgt., CAC, Dolphin, Virginia.

FOR: As mess sergeant during the movement of his battalion from Algeria to Corsica he accomplished through personal endeavor and ingenuity the feeding of the large number of troops aboard the transport in a most outstanding manner. Upon landing in Corsica, he successfully accom-

lished the movement of his staff over difficult mountainous roads, serving tasty hot meals at least twice each day throughout the march. Through diligent effort, upon the loss of his kitchen truck, he designed and constructed a portable kitchen which could be dismantled in a short time and loaded on any available vehicle for future movements.

#### *Silver Star*

TO: JOSEPH A. MACNAK, Captain, CAC, Whiting, Indiana.

FOR: In action during the attempted crossing of a river in Italy, in January, 1944, he exposed himself to enemy fire to administer first aid to several wounded Infantrymen. He made several forward reconnaissances under fire to supervise emplacements of two guns and stop other guns and personnel from moving into proposed positions because of the increased enemy artillery and mortar fire. When the intense barrage drove him to cover he was informed by an Infantry soldier that two of his men had been wounded seriously about 200 yards forward. He crawled through an open area, exposing himself to the enemy to aid the two wounded men, only to find them dead. His action was an inspiration to his men and is in keeping with the highest traditions of the military service.

TO: JAMES F. HUGHES, Second Lieutenant, CAC, Posthumous. Next of kin: Mrs. Florence A. Hughes, Widow, Box 44, Yorktown Heights, New York.

FOR: On April 3, 1944, in Italy, he proceeded under shellfire to examine the radar which had been damaged. Learning that the battery communications were disrupted by fire, he left the radar in order to check for casualties in the area. He directed the removal of one wounded soldier from a gun position, a second wounded soldier from a foxhole near another gun, and supervised first aid to another. As he proceeded to the aid of two other men, he was killed by fragments from a further series of shells, approximately 24 rounds, which then exploded in the area. His courage, devotion to duty and selfless consideration for the welfare of his men reflect great credit upon himself and the military service.

TO: RAYMOND A. UTTARO, Corporal, CA, 72 Costar St., Rochester, New York.

FOR: On March 18, 1944, while manning a Field Artillery gun which was emplaced on an exposed hillcrest to silence enemy artillery at Bougainville, Solomon Islands, he was severely wounded by shell fragments but managed to extinguish fires which were started by exploding shells around the gun and in the ammunition pit. In so doing he sustained injuries from powder burns. His courageous action, at the risk of his life, saved valuable Ordnance materiel and prevented an explosion which would have endangered the lives of all troops in the vicinity of the gun position.

TO: ALBERT L. KAUFFMAN, Private First Class, CA, R.F.D., 1, Parkesburg, Penna.

FOR: On February 6, 1944, near Mount Trocchio, Italy, enemy shelling of a gun position resulted in a direct hit on

a loaded ammunition trailer. A fire was started and exploding ammunition wounded him and his gun sergeant. Although painfully injured, he removed the sergeant from the danger area. Finding the sergeant dead upon examination, he returned despite continued shelling to extinguish the fire. Only after doing all he could toward putting out the fire did he seek medical aid for himself. His conduct during this action exemplifies the highest standards of the military service.

TO: ROBERT W. RIDER, Private First Class, CA, Route 2, Dallas, Oregon.

FOR: On May 18, 1944, near Hollandia, Dutch New Guinea, he was a member of a searchlight unit stationed outside the defensive perimeter. The unit was subjected to continual sniping by enemy individuals and small groups. Realizing the need for local security measures he volunteered to go on patrol. With one other soldier he began his reconnaissance and quickly located the tracks of a group of enemy. Disregarding the possibility of ambush, he followed the tracks about 800 yards, at which point he came upon five enemy. He called to them to surrender, but when one of the enemy started to raise a rifle he killed four with his submachinegun. The remaining man escaped, although Private Rider pursued him. This entire heroic action, involving great personal danger, was voluntarily assumed by him as an action above and beyond the call of duty.

TO: HAROLD STERLING, Private, CA, Posthumous. Next of kin: Mrs. Jennie Sterling, mother, Moscow, Penn.

FOR: On April 3, 1944, during the Italian campaign, a soldier was wounded during an intense shelling of Private Sterling's antiaircraft battery position. Under shellfire he rushed to apply a tourniquet and bandages, and then carried the soldier to the command post. Returning to the field, he took shelter in a near-by foxhole. At this time another series of shells burst in the battery area and seeing another soldier fall to the ground wounded, he once more left his place of shelter to go to his aid. It was during this gallant act that he was killed by shell fragments. His courage and devotion to duty reflect great credit upon himself and the military service.

#### **Soldier's Medal**

TO: HARLEY A. STEWART, Captain, CAC, 207 Nehama, Seneca, Kansas.

FOR: At Bonita Point, Fort Barry, California, on March 18, 1944, the body of a soldier who had been missing from the battery was observed lying at the base of a sheer cliff 270 feet in height. It was not known whether the soldier was dead, or unconscious from injuries. Approach to the site by seas was impossible. At great personal risk, without ropes or other device, he voluntarily descended the cliff in the hope of rendering first aid. Finding the soldier dead, he ascended the cliff and procured Coast Guard assistance to recover the body.

TO: CHARLES C. WEISNER, Staff Sergeant, CA, 27 Columbus Ave., Hyattsville, Maryland.

FOR: On June 3, 1944, at Camp Haan, California, an airplane crashed and caught fire. The gasoline tanks were

exploding. Disregarding the intense heat and the danger he, assisted by another soldier, cut openings in the rear section of the plane and rescued the gunner who had been badly injured and was helpless.

TO: RAYMON W. SWIDERSKI, Technician Third Grade, CA, 546 Dickens Ave., Chicago, Illinois.

FOR: At Lakeview Firing Range, Camp Haan, California, July 4, 1944, a fragmentation grenade struck a parapet while still being held by a soldier, who, apparently dazed by the situation, released the safety lever, arming the grenade. At the risk of his life Technician Swiderski jumped from his position at the bottom of the pit and attempted to reach the grenade. His way being blocked by the soldier, he immediately pulled him down flat into the pit as the grenade exploded. His act saved the soldier from almost certain death or serious injury.

TO: VERNON R. GEYER, JR., Sergeant, CA, Box 244, Chatham, Virginia.

FOR: At Guadalcanal, Solomon Islands, on February 12, 1944, he dived into the ocean and swam 200 yards to rescue a drowning officer, who was caught in a strong undertow. He kept him afloat until a canoe arrived to take him to the beach. His courageous action was greatly responsible for saving the officer's life.

TO: NATHANIEL HOCKER, Sergeant, CA, 219 Moore St., Brooklyn, New York.

FOR: On March 24, 1944, when an airplane crashed and burst into flames near his gun position on the Island of Oahu, Territory of Hawaii, he rushed to the scene and at the risk of his life helped to remove the seriously injured pilot from the burning plane. In disregarding his own safety to save the life of the pilot, he displayed heroism reflecting the highest traditions of the military service.

TO: EMIL A. DEL GUIDICE, Corporal, CA, 736 N. Homan Ave., Chicago, Illinois.

FOR: An Army airplane crashed and caught fire April 25, 1944, near the Army Air Field, Santa Maria, California. Flames were beginning to envelop the plane, and there was imminent danger of explosion of the gasoline tanks. At the risk of his life, he jumped into the broken wing, tore open the canopy and assisted in removing the dazed and helpless pilot from the cockpit and in carrying him to safety.

TO: EARL W. HOUSE, Corporal, CA, Paris, New York.

FOR: On June 3, 1944, at Camp Haan, California, an airplane crashed and caught fire. The gasoline tanks were exploding. Disregarding the intense heat and the danger he, assisted by another soldier, cut openings in the rear section of the plane and rescued the gunner who had been badly injured and was helpless.

TO: ALLIE AVERY, Technician 5th Grade, CA, 5516 Haverford Ave., Philadelphia, Penna.

FOR: With complete disregard for the gasoline flames and the danger of unexploded bombs, he assisted in removing the pilot from a burning airplane that had crashed

near his gun position March 24, 1944, on the Island of Oahu, Territory of Hawaii. His courageous act in saving the pilot's life at great personal risk reflects great credit upon himself and the military service.

TO: GILBERT C. BRUNSON, Private First Class, CA, R.F.D. 1, Midland, Texas.

FOR: At Bonita Point, Fort Barry, California, on March 18, 1944, the body of a soldier who had been missing from the battery was observed lying at the base of a sheer cliff 270 feet in height. It was not known whether the soldier was dead, or unconscious from injuries. Approach to the site by sea was impossible. At great personal risk without ropes or other device, Private Brunson voluntarily descended the cliff in the hope of rendering first aid. Finding the soldier dead he remained with the body to assist in its recovery.

TO: MERLE L. LOMISON, Private First Class, CA, 739 2d St., Williamsport, Pennsylvania.

FOR: On the evening of May 9, 1944, near Castelturno, Italy, at the risk of his own safety, he crossed a mine field on the beach and swam to the aid of a pilot who had bailed out of his burning plane. Finding the pilot dead, he removed the entangled parachute and harness from the body and kept it afloat until a boat came to his assistance. His courage in the face of danger provided an inspiring example to his fellow soldiers and reflects credit upon himself and the armed forces.

TO: HENRY J. OEHLBERG, Private First Class, CA, 921 Niagara Ave., Sheboygan, Wisconsin.

FOR: On June 18, 1944, three civilians were swimming at Sears Landing, North Carolina, when one of them called for help and sank two or three times beneath the surface. One of his companions attempted rescue, but was unsuccessful because of the man's frantic struggles. At the risk of his life Private Oehlberg swam out and dived for the unconscious man, brought him to the surface and towed him to shore where he administered artificial respiration until the man regained consciousness.

TO: LEO E. SMITH, Private First Class, CA, 14803 Saratoga, Detroit, Michigan.

FOR: An Army airplane crashed and caught fire April 25, 1944, near the Army Air Field, Santa Maria, California. Flames were beginning to envelop the plane, and there was imminent danger of explosion of the gasoline tanks. At the risk of his life, he jumped into the broken wing, tore open the canopy and assisted in removing the dazed and helpless pilot from the cockpit and in carrying him to safety.

TO: RAYMOND P. DURAND, Private, CA, 28 Island Ave., Sanford, Maine.

FOR: On May 7, 1944, a woman swimming about 100 yards off shore at Pass-A-Grille Beach, Florida, became exhausted, sank and was in imminent danger of drowning. At the risk of his life, he plunged into the swift current and strong undertow and skillfully brought the hysterical woman safely to shore.

TO: JOHN E. HINDE, Private, CA, 2207 Flagler Ave., Key West, Florida.

FOR: At Cook's Bay, Alaska, on February 16, 1944, he saw a barge loaded with heavy Government machinery break loose from its moorings and start drifting toward the open sea. Realizing that if the barge reached open water the strong wind blowing at that time would probably blow it onto a rocky shore and cause destruction of the barge and equipment, he, without orders and without regard for his own safety, took a rowboat and started after the barge. The water was rough and extremely cold. With strenuous effort he was able to overtake the barge after it had drifted several hundred yards. Upon boarding it he tied some ropes onto three pulleys weighing about 1,000 pounds each. With extraordinary effort he pried, shoved and beat on the pulleys with a heavy timber until they fell overboard and anchored the barge. At the time the barge was stopped it was within a hundred feet of the rocks. His display of courage and initiative, without regard for his personal safety, reflects great credit upon himself and the military service.

TO: GERALD J. HURLEY, Private, CA, 1761 56th St., Brooklyn, New York.

FOR: In England on February 14, 1944, upon seeing that a horse attached to a parcel van had bolted from fright and had run away, thereby endangering the lives of many passersby, he, with complete disregard for his own safety overtook the vehicle, climbed through it to the shafts, secured hold of the reins and succeeded in bringing the frightened animal to a halt. His action reflects great credit upon himself and the military service.

#### Bronze Star

TO: CHARLES G. PATTERSON, Colonel (then Lieutenant Colonel.), CAC, 100 Melrose Ave., Hampton, Virginia.

FOR: (Information not released for publication).

TO: JOSEPH F. BAKER, Sergeant, CA, R.F.D. 1, Youngsville, North Carolina.

FOR: While serving as a chief of section in his battery in New Guinea on May 29, 1944, when his section was attacked by an enemy ground force, he immediately deployed his men to their positions and, showing utter disregard of the fact that the revetment was not completed, manned a machine gun and directed the fire of his men, thereby exposing himself from the knees up in order to do so.

TO: ALEX A. CRAPPS, Sergeant, CA, Fort Gaines, Georgia.

FOR: On the night of May 27, 1944, in New Guinea, during an attack on his gun section which lasted for approximately three hours and when the enemy came within 30 feet of his gun revetment, the coolness and good judgment he displayed in deploying his section and in his instructions as to the disposition of his gun's fire were a source of inspiration to his men.

TO: JOSEPH VIEIRA, Sergeant, CA, 469 S. First St., New Bedford, Massachusetts.

FOR: (Information not released for publication).

TO: DANIEL T. BAILEY, Technician 4th Grade, CA, Ava, Missouri.

FOR: (Information not released for publication).

TO: JOSEPH JENNINGS, Corporal, CA, Fairmont, West Virginia.

FOR: (Information not released for publication).

TO: SAMUEL L. GRAY, Corporal, CA, 25 Wolcott, Dorchester, Boston, Massachusetts.

FOR: On March 16, 1944, five miles east of Nettuno, Italy, when several 170mm shells struck a Quartermaster building, he, a member of a gun crew, left a place of shelter and assisted in the care and evacuation of the wounded. Although shells fell within 100 yards of him, and there were members of an aid station present, he voluntarily rendered valuable assistance, displaying extreme coolness and courage.

TO: EDGAR C. POLKING, Corporal, CA, Breda, Iowa.

FOR: (Information not released for publication).

TO: MARVIN E. DERRO, Private First Class, CA, R.F.D. 1, Rice Lake, Wisconsin.

FOR: (Information not released for publication).

TO: OLIVER W. FURGH, Private First Class, CA, Niagara Falls, New York.

FOR: (Information not released for publication).

TO: PAUL M. VAN DER LOOP, Private First Class, CA, R.F.D. 2, Box 88, Ladysmith, Wisconsin.

FOR: (Information not released for publication).



# COAST ARTILLERY



# BOARD NOTES

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, Richmond 10, Virginia.

## THE COAST ARTILLERY BOARD

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*Range Data Transmitter for Depression Position Finders M1 and M2.* At the present time means exist for transmitting azimuths continuously and automatically from a depression position finder to a Gun Data Computer M1 or a gun data computer of the M8 type, using the standard voltage divider type transmitter. The nonequicrescent range scale on the Depression Position Finder M1 has, however, discouraged any attempt to develop a range transmitter, and ranges must be transmitted by telephone. The Coast Artillery Board has learned recently that work has been done on certain noncircular gear generators which might possibly be used in the design of a range transmitter for the Depression Position Finders M1 and M2. The Board has recommended that the Chief of Ordnance be requested to comment on the feasibility of designing and manufacturing a range data transmitter for Depression Position Finders M1 and M2 in the light of the availability of a noncircular gear generating machine.

*Safety Shoes for Mine Personnel.* Under the provisions of paragraph 94 b, FM 4-20, personnel engaged in the handling of bulk TNT, such as is used in loading controlled submarine mines, are required to wear safety shoes while working in loading rooms or buildings, or wherever loose TNT is used.

In order to meet this requirement, it has recently been recommended that Table of Equipment No. 21, Section IX, be amended to include explosive operations (non-sparking) shoes for all personnel assigned to work in mine loading rooms.

*16-inch Gilmartin Shot Tongs.* The Coast Artillery Board recently completed tests of a pair of modified Gilmartin shot tongs for 16-inch projectiles. The projectile, clamped in the modified tongs, can be moved from the magazine to the loading tray of the gun, faster than when using the unmodified tongs, with little danger of its dropping from the tongs. The Board recommended that decision on the standardization of the subject modification be deferred pending completion of a service test of the new 16-

inch Shot Tongs T1 which were received recently. Preliminary tests of the T1 tongs, which are also a modification of the Gilmartin shot tongs, indicate that they are superior to both the Gilmartin tongs and the originally modified tongs tested by the Board.

*Cover for the Power Unit PE-183 for the SCR-682.* Power Unit PE-183 issued with the Radio Set SCR-682 is not provided at present with any means of cover or protection during inclement weather. As a result of action recently initiated, each Power Unit PE-183 is to be equipped with a fly tent wall, small, for protection of the unit during periods of transportation and as an overhead cover during periods of operation. The basis of issue will be two each.



Figure 1.



Figure 2.

fly tent wall, small, per Radio Set SCR-682, T/O & E 4-156, Headquarters and Headquarters Battery, Coast Artillery Battalion, 155mm Gun. A more suitable cover for use during periods of transportation will be procured at a later date. The tent fly to be made available at the present time is considered adequate protection under most conditions encountered in the field.

*High Speed Target for Seacoast Artillery.* The need for a suitable standard high-speed target has existed for quite some time. It is considered that a target which would combine the requirements for visual as well as nonvisual tracking would be the most logical solution to the problem. For this reason, the Coast Artillery Board has recommended that the Ordnance Department design and build a development model of a target which will meet the military and technical characteristics submitted by the Board. It is contemplated that the subject target will be capable of being towed at speeds of 22 knots or more with a low towline pull and that the target will be sufficiently sturdy to withstand the hazards of shellfire normally associated with a single target practice. It was recommended that the target be issued in a knock-down kit form and that maintenance materials sufficient for a period of six months of constant use of the target be provided. In addition, sufficient spare components to maintain the target for this period of continuous use were recommended. All available information at the Board on the design of high speed targets was forwarded to the Ordnance Department for information and possible use in the design of this target. Much of the material forwarded to the Ordnance Department was contributed by organizations in the field or by individuals through correspondence with the Coast Artillery Board. The development of this target is being conducted under Project No. 1267, Towed Targets for Seacoast Artillery. This project, in addition to including the subject target, will cover the design and use of all targets to be utilized by Coast Artillery organizations.

*Rotary Converter for Azimuth Instrument M2A1.* Aided tracking motors in the new Azimuth Instruments M2A1 operate from a 110-volt, 60-cycle, single-phase, alternating current source of power. Base-end stations assigned to mobile seacoast artillery units will, in general, have no 110-

volt alternating current power supply available except for a small engine-driven generator, which is normally used for continuously charging a standard 12-volt storage battery. This 12-volt direct current source is used to power the Radio Set SCR-828 installed in the station. The Board does not consider it practicable to run this battery charging generator over extended periods of time for the purpose of driving the aided tracking motor. Therefore, it has been recommended that one rotary converter be provided with each Azimuth Instrument M2A1 issued to mobile seacoast artillery organizations for transforming the available 12-volt storage battery direct current to 110-volt alternating current.

*Water Supply for 6-, 8-, 12-, and 16-inch BC Power Plants.* The Coast Artillery Board has recently made recommendations on the size and location of shop-assembled tanks to store an emergency supply of water for power plants serving 6-, 8-, 12-, and 16-inch BC installations. Recommended sizes and locations were as follows:

6-inch batteries (OCE Drawings 168-168-20D; 168-168-20A1). One 2,000-gallon tank installed in the corner of the rear corridor adjacent to the water cooler room.

6-inch batteries of the forward slope type (OCE Drawings 168-168-36; 168-168-38). One 2,000-gallon tank installed in the muffler gallery.

6-inch batteries 225, 282, 281, 263, 261, 284, 264, 262, 221, 222, and 302. One 2,000-gallon tank located as recommended by the individual harbor defense authorities concerned.



Figure 3.

8-inch batteries (existing). Location and dimensional requirements of the tank left to the discretion of the individual harbor defense authorities concerned.

12-inch batteries (modernized). Two 1,500-gallon tanks installed in the muffler galleries.

16-inch batteries (except Batteries Hamilton, Smith, and Ketcham). Two 2,000-gallon tanks located in the muffler galleries.

16-inch Batteries Hamilton, Smith, and Ketcham. Two 2,000-gallon tanks installed in the oil galleries in rear of the power room.

*Covers for 90mm Guns.* The first sets of production



Figure 4.

covers for the 90mm Gun M1 and 90mm Gun Mount M3 were tested recently. These covers included:

- Cover, Muzzle, M324.
- Cover, Gun Port M537.
- Cover, Breech, M228.
- Cover, Sight, M435.

These tests indicated that with certain minor exceptions, the subject covers were satisfactory. The gun port cover



Figure 5.

can be opened by zipper and fastened back by three men in an average of 20 seconds to permit either AMTB or AA fire. This feature is considered essential due to the dual mission contemplated for these batteries. All other covers are capable of practically instantaneous removal. Provision of rungs on the outer left vertical panel of the gun shield also was considered advisable to provide ready access to the roof of the shield to facilitate removal of the gun port cover. The Board concluded that the subject covers, appropriately modified, were suitable for service use and recommended that all 90mm Guns M1 and Gun Mount M3 be provided with these modified covers. At the same time, it was recommended that rungs be provided as discussed above to provide ready access to the top of the gun shield.

*Sighting Equipment for 155mm Guns.* Due to the offensive nature of our war in the Pacific, many seacoast artillery 155mm M1 gun batteries are being employed in Field Artillery missions. When assigned such a mission, these batteries must generally adopt Field Artillery adjustment methods and learn Field Artillery fire commands. Fire is often directed by Field Artillery units. For these reasons, the Board considered the use of a Field Artillery type panoramic telescope, graduated in mils, by these sea-

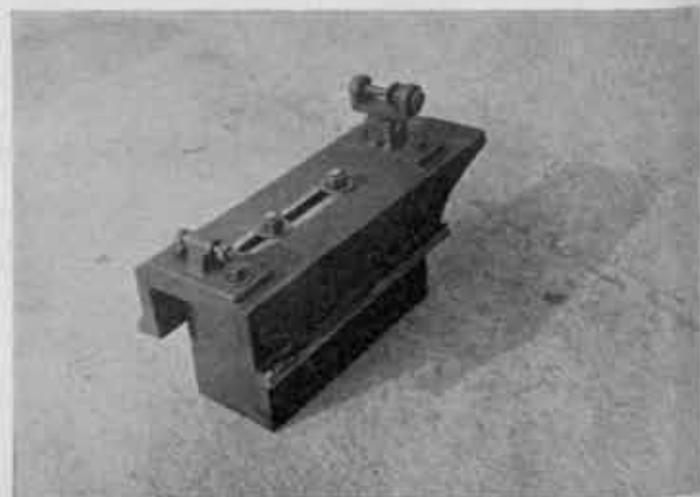


Figure 6.

coast artillery units employed in Field Artillery missions as essential for proper conduct of fire.

The standard Field Artillery Panoramic Telescope M12 will not fit the present Telescope Mount M43, presently used with the Panoramic Telescope M8 on seacoast artillery 155mm M1 guns. Therefore, a project has been initiated for the development of an adapter to make the Telescope Mount M43 suitable for use with either the Panoramic Telescope M8 or the Panoramic Telescope M12.

*Subcaliber Mount for 40mm Gun.* Several harbor defense commands have evidenced an interest in subcaliber mounts for the 40mm gun. Development of a production model Subcaliber Mount M15, has been recently completed, this development being carried on by the Antiaircraft Board (Figures 1 and 2) (M15 (T12E1)). Improved mounts have been generally constructed along the

same lines as the M15 and have given excellent service as training aids. The M15 has the advantage of providing foot-pedal control of the firing through a linkage which has not, as yet, been improvised. Recommendation has been made that the M15 mount be issued to harbor defense batteries having the 40mm gun.

Figures 3 and 4 show an improvised mount designed and used in the Harbor Defenses of Long Island Sound. This mount carries the caliber .50 machine gun far enough in front of the gun trunnions to warrant a block concrete counterweight which is shown mounted on the cartridge chute. Figures 5 and 6 show a novel design, known as the Glover Mount, used by the Antiaircraft Artillery School at Camp Davis. This mount requires no counterweight; however, the large casting which replaces the autoloader (Figure 6) is rather difficult to construct.



## Stop Starting Trouble

Winning a race may depend on getting off to a good start. So may winning a battle! For winning a battle depends a lot on having the right equipment in the right place at the right time. That's why maintenance of batteries is so important, and, as critical items, they must be conserved as much as possible.

Battery care isn't particularly hard work—it's mostly a matter of faithful checking for (1) cleanliness and (2) proper amount and condition of the electrolyte. A simple program of battery care involves the following steps.

First of all, the operator of a vehicle should learn that the practice of running down a battery with the starter when the motor won't "catch" is sure-fire ruination of the battery. If the motor won't start promptly there is something wrong, and the source of the trouble should be located and corrected before further starting attempts are made. The starter should *never* be engaged for more than thirty seconds at a time.

Keeping the battery clean is especially important due to the fact that fumes from the electrolyte cause rapid corrosion. This is a pretty steady process, too, inasmuch as the fumes are always there, and a certain amount will escape through the filler cap vent holes at all times. The carrier, as well as the battery itself, must be kept free from dirt and corrosion and corroded terminal connections should be cleaned and then protected with a fresh, thin coat of grease.

The cleaning process naturally involves checking of cables, vent caps, terminal bolts and battery mountings to be sure they are secure. Any tightening should be done carefully to prevent damage to the battery case. Leaks should be watched for and corrected. All of these services

should be performed at least once a week—sometimes oftener, under certain operating conditions.

Another check that should be made at least once a week is the hydrometer check of the electrolyte, which indicates whether the battery is properly charged. Also, wide variations in hydrometer readings of different cells indicate trouble, such as short circuits through separators, leakage of electrolyte through partitions between cells, worn out plates in one or more cells, or badly contaminated electrolyte.

In servicing the battery, distilled water is best, though water pure enough to drink will be found satisfactory. Acid should never be added except when the electrolyte has leaked or spilled out or when the battery has been overflushed. Adding of acid to raise the specific gravity *does not* increase the battery charge, and it *does* shorten the life of the battery.

Naturally, the man who knows how batteries are constructed and how they work will be far better equipped to take care of them. So it's a good idea to be acquainted with the relatively new War Department Technical Bulletin, TB ORD 67, on storage batteries. This bulletin is easy reading, and it tells how batteries are constructed, how they work and how they are maintained. It also gives instructions on battery care under both hot and cold weather conditions. Its use, in conjunction with the instructions given in technical manuals for specific vehicles, will enable responsible personnel to do their part in conservation and maintenance of batteries. It will help them and their fellow fighters to "get off to a good start."

# Coast Artillery Journal

*Fifty-third Year of Publication*

COLONEL E. B. WALKER, Editor

LT. 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.

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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

## Operations in Northern France

General Dwight D. Eisenhower has made the following report on the results of operations in Northern France between D Day, June 6, 1944, and August 25, 1944:

Five Panzer divisions have been destroyed and six severely mauled. Twenty Infantry divisions have been eliminated and twelve more badly cut up, including three crack parachute divisions. Also three divisions have been marooned in different sections.

Total enemy casualties amount to over 400,000 of which over 200,000 are prisoners of war.

One thousand three hundred enemy tanks, over 20,000 motor transports, about 500 assault guns and 1,500 artillery guns have been captured or destroyed. The enemy has suffered heavy losses in Coast Artillery equipment.

The German Seventh and Fifth Panzer Armies have been defeated and have drawn the bulk of the fighting strength of the First and Fifteenth Armies. Three Field Marshals, two Army Commanders, three Corps Commanders, 15 Divisional Commanders, and one Fortress Commander have been dismissed, wounded, killed, or captured.

Two thousand three hundred and seventy-eight German aircraft have been destroyed in the air, and 1,167 on the ground since June 6th, and 270 probably destroyed and 1,028 damaged in the air.

At sea, enemy attacks on convoys have been driven off in many cases and losses to Allied shipping have been small. Three hundred enemy vessels have been sunk or damaged as well as a number of enemy merchant ships. The Germans have scuttled large numbers of all types of shipping in their harbors.

Work of minesweepers in three months has resulted in a "minebag" off the French coast which totals one-tenth of all mines swept in five years in all theaters of war.

Allied teamwork has demonstrated its ability to overcome the most adverse conditions in defeating the enemy. The Command System has functioned smoothly in spite of difficulties due to distances and rapidly changing situation.

A few of the factors which brought about our victory are: care in planning and preparation supported by the Combined Chiefs of Staff; some degree of surprise involving place, timing and strength of attack; excellence and sufficiency of amphibious equipment; brilliant preparatory work by the Air Forces which reached its highest intensity at the moment of landing and without which the venture could not logically have been undertaken. Air support of the ground forces was most effective throughout the campaign. Supply and Maintenance services performed miracles.

But the greatest factor of all has been the fighting qualities of the Soldiers, Sailors and Airmen of the United Nations. Their valor, stamina, and devotion to duty have been beyond praise.

## Group Subscriptions

Group subscriptions for the past two months took a rather sudden nose dive. Let us hope it is not contagious.

Captain Luther G. Peevy, Hq. Harbor Defenses of Portsmouth, accounted for 21 subscriptions from his unit. Lieutenant Boyd McGinn forwarded 10 new orders from the 764th AAA Gun Battalion, and Lieutenant Bruce B. Warnock sent in 8 from the 518th AAA Gun Battalion.

That is the sad, but complete story. We would wager that a search would turn up a few more Coast Artillerymen who are not subscribers. Let's round them up!

## Christmas Mailing

Christmas packages going to men and women overseas this year must be mailed between September 15 and October 15. The maximum weight of a Christmas package is five pounds; the package may not be longer than fifteen inches, nor more than thirty-six inches, length and girth combined. Perishable materials, intoxicants, matches, lighter fluid, or materials injurious to persons or the mails, may not be mailed.

The parcel should be indorsed, "Christmas Parcel."

Not more than one parcel may be mailed in any one week to the same person by or on behalf of the same mailer.

Be sure that the address is complete, with name, rank, serial number, branch, organization, APO number, and the proper post office that serves the APO listed.

A recent ruling, *not* relating to Christmas mailing, forbids the mailing of foodstuffs to personnel overseas as first class mail at any time.

## Supply Discipline\*

### GENERAL

No plan of operations, however good, will succeed unless administration has been emphasized from the start. Supply discipline goes hand in hand with military discipline.

The production of our equipment involves enormous efforts on the part of workers in our homes in the United States and it all has to be transported across seas at great risk to our seamen and ships.

In any operation, transportation, whether by sea, rail, motor vehicle or air, will never be adequate to meet all our requirements.

To request more than you need is inefficient.

To waste what you have is sabotage.

### TRAINING

The training of the individual in Supply Discipline is as important as any other form of training. Your training program will set aside regular periods for this. Prepare what you have to say, your demonstrations, your practical work, as you would for any other training. The support of the men must be won. Ingenuity will be required. Empha-

size the protection of property in guard duty. Remind each man that he is a taxpayer, quoting prices.

**Food:** It is a standing order of the AGF that no one should help himself to more food than he needs nor leave any on his plate. Greases and bones are used in manufacturing explosives; teach your men the various uses for which garbage is saved.

**Clothing:** Impress your men that a "stitch in time saves nine," and that laundering socks, fatigues, etc., increases the life as well as the cleanliness of the clothing. In battle it is more important to use transportation for ammunition than for clothing.

**Weapons:** Teach your men that "for want of a nail a horse can be lost," and that in combat a missing rifle part means not loss of pay or of K.P., but immobilization of a weapon.

**Fuel:** Train all handlers of gasoline and oil to avoid spilling a drop when making transfers.

**Motor Vehicles:** Have your drivers do first echelon maintenance at stops and periods of waiting instead of only at "motor stables." As long as first and second echelon maintenance is kept up, our vehicles will keep rolling.

**Hygiene and Sanitation:** Get your men to observe the principles instinctively. The best fighter is no good if he gets sick; unnecessary sickness must be avoided.

Administrative directives are not the sole concern of the supply services. Learn about their contents yourself.

It is not sufficient to have a good S-4 or supply sergeant—every man must be something of an S-4 or supply sergeant, himself.

## IN COMBAT

The hoarding of supplies and equipment of individuals results in overloading of vehicles and undue wear and eventual breakdown of transportation.

Throwing away prescribed equipment by individuals to lighten personal loads involves resupply at a later date and unnecessary demands on transportation. To prevent this, give thought to confining personal loads to what is necessary for the mission.

The formation of unauthorized reserves and dumps at battery and other positions will result in shortages of supplies where most needed.

To abandon a supply of ammunition however small may be equivalent to disarming yourself or your fellow soldiers at a later date.

Vehicles, tools, and spare parts are always short of demand. Units which retain more than they are entitled to prevent the speedy reequipment of other units.

Cannibalization of tanks and vehicles prevents these tanks and vehicles from becoming available quickly as replacements, and disorganizes repair and replacement services.

There must be no unnecessary use of transportation.

Gasoline and oil represent a very large percentage of tonnage to be moved. Trucks and vehicles cannot advance a yard without it. Uneconomical use and spilling is sabotage.

It is of the utmost importance that damaged valuable equipment such as radio sets, weapons and spare parts be salvaged for repair and reissue. New stocks cannot be

\*Lieutenant General Ben Lear, Commanding General, Army Ground Forces, has indicated his desire that all officers under his command study these notes, which are adapted from a pamphlet issued to the First Army by Lieutenant General O. N. Bradley.

provided in sufficient quantities without efficient salvage.

It is important that captured enemy material and supplies of all sorts be reported and brought under centralized control, intact, without pilfering or cannibalizing. Such supplies may prove of the greatest value in assisting planning and speeding an advance.

Administration must win the confidence of troops by its efficiency; organizations and units, on their side, must show confidence in their administrative service. There can be no excuse for the forming of unauthorized reserves and dumps, holding of excess equipment, and hoarding and overloading of vehicles.

No matter how hard the fighting, our battles will not be won without good supply discipline.

### An Occasional Boost Does Help

APO —

COAST ARTILLERY JOURNAL

Dear Sirs:

I have received the ring I ordered in excellent condition. I am more than satisfied with the appearance, and its size is perfect.

I wish at this time not only to acknowledge its receipt, but to thank you for the fine service and cooperation I have received on this and all matters I have requested from your office.

Good luck and continued success in the fine work you are doing for our branch of the service. I know it is being appreciated more and more each day by the members of the Coast Artillery Corps.

Yours sincerely,

JOHN A. LEHNBERG,  
1st Lt., CAC.

### This Could Happen to You

Are your men prepared to *fight* as Infantry? They have all learned to march as Infantry, we know, and they have had bayonet drill, but how will artillerymen conduct themselves when the enemy gets close enough for you to count his buttons? Here is what a Marine artillery outfit did, as told in *The Chevron*:

By Sgt. Stanford Opatowsky, *Combat Correspondent*

SAIPAN (Delayed)—The blood-and-thunder story of a machine-gun section which killed nearly 300 Japs in the enemy's final counterattack was told today by Sgt. Ralph L. Conners of Seattle, Washington, chief of the section.

The gunners, members of an artillery unit's security watch and primarily concerned with guarding against snipers, suddenly were converted into front-line infantrymen when 3,000 screaming Japs broke through American lines in a mad, pre-dawn stab.

At 0200 the Jap patrols started filtering through. At 0430 a full-scale attack was launched, with ranking Japanese officers at the head of the column, wearing full dress uniforms complete with sabers.

"They charged like mad," Sgt. Conners said. "We waited until they were fifteen feet in front of us, and then we opened fire. We poured on everything we had. Finally our guns were just burned up, and we ran out of ammunition so we started throwing grenades. But still the Japs kept coming.

"All of them were screaming—many of them in English. They tried to make us think we were shooting up our own troops.

"There was no doubt that the Japs knew they were committing suicide. Many of them, as soon as they were even slightly wounded, blew themselves up with hand grenades."

### Compulsory Military Training

Compulsory military training of American youth in peacetimes was advocated by Secretary of War Stimson in a letter to Warren H. Atherton, national commander of the American Legion.

The Secretary said that such peacetime military draft would be "the strongest possible assurance to the rest of the world that in the future America will be not only willingly but ably be ready to take its part with the peace-loving nations in resisting lawless aggression in assuring peaceful world order." He continued:

"If we wish to protect our nation and our democratic way of life, we must have a state of military action in shortest possible time. This means that the youth of the nation must have had the greater part of its military training before mobilization.

"The alternative to this would be a large standing army. But it is traditional to our democracy to maintain a relatively small regular army and in a major emergency to depend, in the main on the citizen in arms."—*Army and Navy Journal*.

### Hitler's Invasion of Britain

The only portion of the British Isles upon which the Nazis have set foot, the Channel Islands, lies between the Cherbourg peninsula and Brittany. The islands themselves have had four years of enemy occupation. For over 700 years, attached to the English Crown they were perforce abandoned in our hour of weakness. The collapse of France made them untenable against a powerful enemy in possession of the coasts of Normandy and Brittany who could ignore the rocks and reefs which ring the islands and land airborne troops without interference.

Overnight these pleasant islands, thriving upon intensive agriculture and holiday traffic, became outposts of the *Festung Europa*. Hundreds of thousands, if not millions, of tons of concrete and the work of thousands of foreign laborers have gone to the building of coastal defenses and underground forts. New roads have been made, railways constructed, the airports on Jersey and Guernsey have been enlarged, buildings around the coasts demolished, beaches mined, and all the paraphernalia of defense have been applied to bring the islands within Hitler's dream of a thousand years of German dominance in Europe.—*London Times*.

### Gyro Gunsight

A far cry from the ordinary ring-and-bead sight used on both sportsmen's guns and aircraft weapons is the new British gyro gunsight. Air combat gunners may now open effective fire on their opponents with the speed of each plane around 400 miles an hour, at ranges of over 400 yards and angles of deflection which were considered impractical until a few months ago.

The gyro gunsight, designated the Mark 11-D, combines the best qualities of reflector and computer gunsight types. The new gunsight, like the T-1 bombsight, consists of a computer and a sighting head. It eliminates the need for lining up the gunner's eye, front and rear sights, and the target.

The sight itself actually projects an image on the enemy plane on a transparent glass screen or sight reflector, along with the aiming ring of six diamonds arranged in a movable circle around a center spot. This new aiming ring, instead of being fixed, can be made larger or smaller in diameter at the will of the gunner.

On going into attack, the aerial gunner adjusts the diameter of the aiming ring so that the wing span of the enemy plane is contained within the diamond circle. By

turning a lever on the computer he informs the sight of the type of aircraft he is attacking. By turning a twist grip on the computer he notifies the computer of the range at which he is attacking. This information is automatically fed to the sighting head by variable electric currents.

As he approaches the target, the gunner increases the size of the aiming ring. The sight is now correctly adjusted for the gunner to fire his guns and register hits.

Combat results, reports the British Air Commission, show that the fighter aircraft are now destroying nearly twice the number of Luftwaffe aircraft since the introduction of the new gunsight.

The Mark 11-D gunsight was conceived and developed at the Ministry of Aircraft Production Experimental Establishment in England.—*Science News Letter*.

### A Few Kind Words

APO —

"Material contained in JOURNAL has really helped over here. With such able leadership we can't go wrong."

FRED Z. NICHOLS, JR.,  
Lieutenant, CAC.



Press Association Photo

The rear of a German seacoast fortification on the Normandy coast provides an American general with a fine command post.

## British Flame Throwers



British Official Photo

The Crocodile.



British Official Photo

The Wasp.

WASHINGTON, August 25. The secret 41-ton Churchill "Crocodile," throwing a geyser of fire over 450 feet as the Allied armies blast their way through France, was revealed here tonight by the British Supply Council and the British Army Staff as the most powerful flame thrower in the world.

Designed by the British to burn out strong points of the Atlantic Wall and to save infantry lives in the assault on Hitler's Fortress Europe, the Crocodile uses a special new type of fuel which, from its powerful flame gun, can actually be fired around corners with "truly terrifying and deadly" effect.

In addition to the announcement of the Crocodile, which is fitted to a standard Churchill tank with a controlled fuel-carrying armored trailer, details were also revealed for the

first time of two smaller British-designed flame throwers, the "Lifebuoy," a man-carried weapon, and the "Wasp," which is fitted to a Universal carrier, an armored vehicle with tracks.

All three are officially said to be greatly superior in range and ferocity to anything similar the Germans possess; although when war broke out the enemy already had new and improved flame throwers.



## It's OK—They're Expendable

The Army Air Forces dropped twice as many tons of bombs during the first six months of 1944 as in the entire period from Pearl Harbor to December 31, 1943, and during the remainder of 1944 will require in excess of 700,000 tons of high explosive bombs, the War Department announced today.

The total tonnage of bombs dropped in all theaters of operation from Pearl Harbor to July 1, 1944, amounted to 677,012 tons, of which 472,054 tons were dropped during the period January 1, through June 30.

"Our logistical requirements for aerial bombs have been greatly revised during the last few months," Brigadier General R. C. Coupland, U. S. Army, Air Ordnance Officer, said. "We have met less fighter opposition than we originally expected, and our attacks on the German aircraft industry have been highly successful. Our losses have been lighter, and, owing to improved sighting devices, we have been able to bomb successfully under a wider range of weather conditions and hence have been able to go on more missions.

"In the European Theater of Operations, for example, since the intensification of air war on all Nazi industrial targets, there has been a 500 per cent increase in the tonnage of bombs dropped between January and June with an over-all of 405,212 tons for the six months period. Of this total, 243,402 tons were dropped by the 8th and 9th Air Forces operating from England and the beachhead in Normandy, while 161,810 tons were dropped by the 12th and 15th Air Forces in the Mediterranean Theater," General Coupland reported.



## Truck Drivers Aided Invasion

In the invasion of France, "GI truck drivers carved a well-earned place for themselves in the invasion, the greatest transportation maneuver in all military history," according to Major General Frank S. Ross, U. S. Army, Chief of Transportation in the European Theater of Operations. The "traffic manager" for the invasion explained that "without truck convoys speeding by day and night to points of embarkation we could not have been ready on time."

One company alone traveled 225,000 truck miles between D-Day and the end of June. On "D plus 2 days" a truck company in Normandy was attacked by a Nazi plane. As a man, the company began firing rifles and carbines, and ship guns blazed away from the harbor. The truckers saw the plane spin into the sea in flames and now claim to be the first truck company with a Jerry to its credit.

### Re-tire In Time

The acrobat's life depends on "timing." So does the life of a tire. And the comparison isn't so insignificant as it might seem at first glance, for the success of our armies depends in large degree upon the use of rubber-tired equipment. Our stocks of combat tires can be maintained only by making *all* tires yield the fullest service of which they are capable, so that tire production facilities are kept as much as possible from being overburdened.

An important factor in maintaining the tire supply is putting new treads on tires, and that's where "timing" becomes so vital. For, in order to conserve manpower and save precious time, it is essential that tires be sent in for new treads at the right time—neither too soon nor too late. This necessity is yet to be fully realized in the Army.

Reports from the field indicate that at present many of the tires which are sent in to the tire collection centers for new treads are removed from service *too soon*. A tire can, and should, be used as long as the tread is still raised slightly near the center. Any tires in this category which are sent in to the tire collection centers must be returned to the field and reinstalled. Thus, all of the handling necessary for sending them in, inspecting and classifying them, and returning them to service, becomes wasted motion and effort. It puts an unnecessary strain on the already overburdened collection centers. Only when the treads wear smooth in the center are tires ready for a "face-lifting" job.

The number of tires which are removed from vehicles too late, when the rubber has worn down to the cord body of the tires, also represents a serious condition, since the scarcity of tire carcasses is a more important factor in the

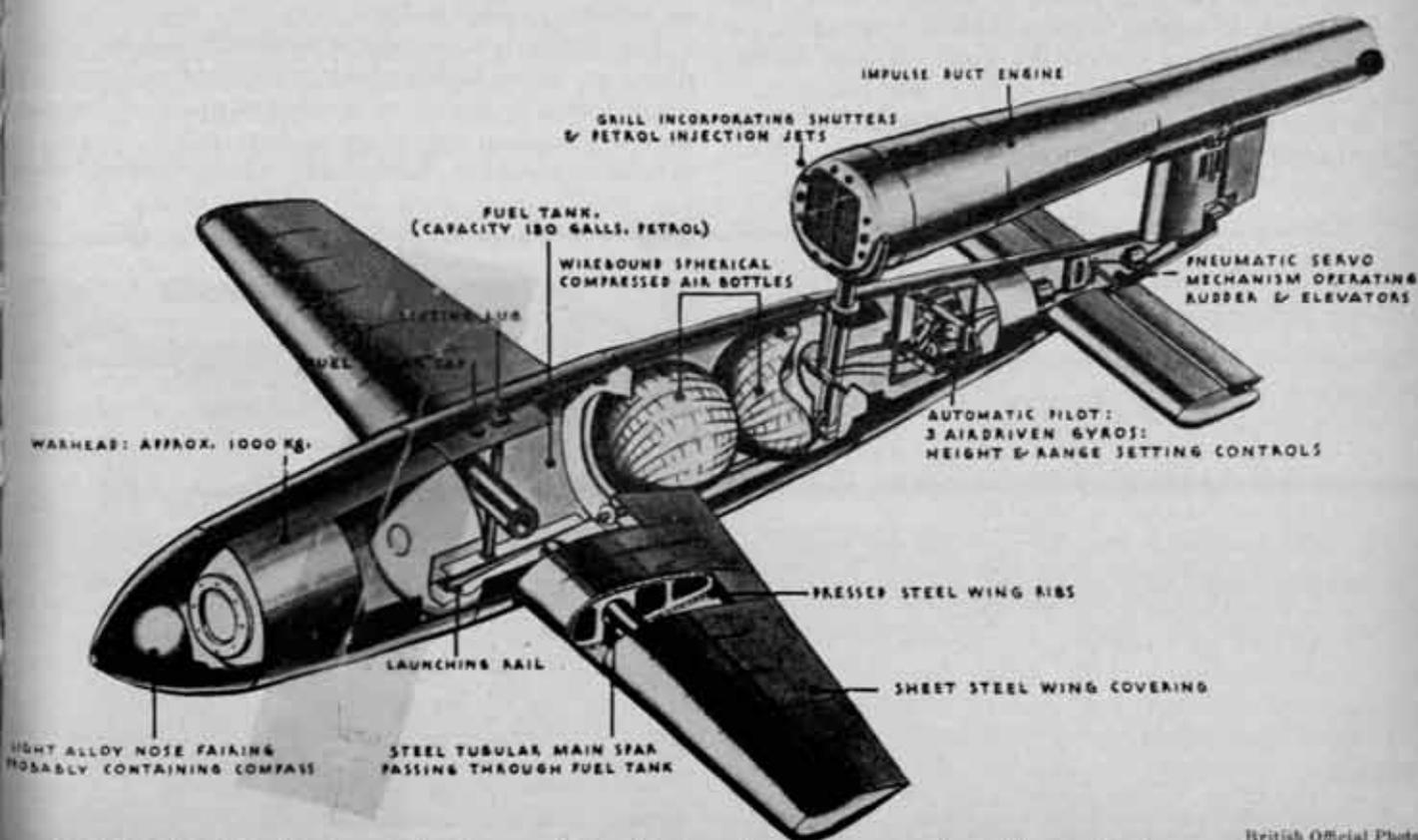
present task of supplying tires than the scarcity of rubber for new treads. This is due not only to the shortage of manpower, but also to the fact that synthetic rubber is far less satisfactory for use in construction of heavy truck tire casings than it is for use in new treads. The natural rubber casing dissipates heat and withstands far more abuse than the synthetic one. Therefore, it is extremely important that casings, many of which still contain natural rubber, be preserved to the maximum degree. For the natural rubber shortage is a very real one.

Responsible personnel must become increasingly conscious of this condition and take the necessary steps to overcome it. Inspections must be regular and thorough. The practice of rotating tires to different wheel positions when treads cup, or wear irregularly, must be followed. Irregular wear on front tires may be due to improper wheel alignment—this should be checked and corrected. When cuts expose tire cords, tires must be removed immediately and sent in for reconditioning.

In almost every military situation success depends to a large extent on acting at the right time. "Too soon" and "too late" aren't good enough. So it is with the process of putting new treads on tires, for though this is only one phase of preventive tire maintenance, it is an extremely important one. We *must* "re-tire in time"—the *right time!*

### Promotions

The promotions of Colonels Franklin Babcock, CAC, and Evans R. Crowell, CAC, to the temporary rank of brigadier general have been announced.



Provisional section drawing of the German flying bomb—the secret weapon that did not win the war for Hitler.

### Four Ounces of Prevention

A new rifle bore cleaner and a new lubricating, preservative oil, both in containers small enough to fit in a cartridge belt, are now being made available for issue to soldiers. They are designed to replace everything formerly used to clean and preserve small arms under average field conditions.



In military nomenclature they are Cleaner, Rifle Bore USA 2-117 (formerly RIXS-205) and Oil, Lubricating, Preservative, Special USA 2-120 (formerly AXS-777).

The containers in which they are being issued are smaller than a pack of cigarettes. To insure identification at night, the rifle bore cleaner comes in an oval shaped can, and the preservative oil in a rectangular can.

A characteristic of the rifle bore cleaner is its marked ability to absorb water. The lubricating and preservative oil, under most conditions, is effective for a week.

Both cans are plainly marked "Poison." This was made necessary by the lead with which the cans are lined. Their handy size would suggest to many soldiers a secondary use as containers for food or drinking water. If used in this way, the lining may be expected to cause lead poisoning.

The cans for individual issue hold two ounces of liquid each. Larger size cans are provided for shop use.

### Ordnance Wrinkles

#### 76MM GUN MOTOR CARRIAGE M18

In December, 1942, the Ordnance Department initiated a development project for the design and construction of a high speed, low silhouette, light weight tank destroyer, mounting the powerful new 76mm gun. Approximately ninety days later, the first pilot model was completed and ready for test. Large-scale production of the gun motor carriage M18 was started in June, 1943.

The M18 has shown itself to be so fast and maneuverable on tactical problems that it has been found difficult to provide reconnaissance vehicles which can keep up with it. Normal road speed is fifty miles an hour.

The new 76mm gun on the M18, with full 360-degree traverse, can knock out most German tanks. In addition, the vehicle is armed with one .50 caliber machine gun for anti-aircraft protection. This gun can also fire on ground targets.

The new gun motor carriage, with a crew of five and fully stowed, weighs about twenty tons and is powered by

the standard Continental air-cooled radial engine. It has a full 14-inch wide track, and uses the torsion bar type of independent suspension.

The necessary equipment to provide the vehicle with fording ability up to six feet of water has also been completed. Without accessories it will ford four feet of water satisfactorily.

#### JUNGLE MORTAR T18E6

The new Army Ordnance 60mm mortar consists of the 60mm mortar tube and a combination base cap and firing mechanism. It is a light-weight weapon, primarily intended for jungle fighting against the Japs.

It differs from the standard 60mm mortar, which it supplements, in that it can be carried by one man, together with a limited supply of ammunition. It is fired by a trigger and lanyard arrangement. It can be fired at angles of elevation outside the limits of the standard 60mm mortar.

The new mortar is based on a tree, log or other stable object and provides rapid fire against pillboxes, machine-gun emplacements, and other enemy strong points.

#### AIRBORNE TANK T9E1

A new combat vehicle which has made its appearance on the battlefields in Normandy, is the airborne tank carried by gliders to places which would ordinarily be inaccessible to tanks. The element of surprise gained by the appearance of a tank instead of troops when a glider lands has already had its effect on the successes of the invasion of Hitler's fortress in the west.

The new tank is familiarly known to troops as the "Locust" as a result of initial action scenes of huge gliders landing in battle zones disgorging tanks, which immediately blast positions where Nazis have been waiting to fire on advancing Allied soldiers.

The Locust is a compact, streamlined tank with a low silhouette. It is a highly mobile vehicle and will cross over rough terrain at fifteen to twenty-five miles an hour and travel on roads at speeds up to forty miles an hour. It mounts a rapid-fire, hard-hitting 37mm cannon, which fires both high explosive and antitank shells, and a .50 caliber machine gun.



Airborne Tank.

90MM GUN MOTOR CARRIAGE M-36

The fastest major caliber tank destroyer in the world, which has been busily engaged in knocking out German tanks in France, is being mass produced in rapidly increasing number by American industry in cooperation with the Ordnance Department. Knocked out German tanks numbered as high as the average of eighty a day during the push-through which cut off Brittany.

The principal weapon of the Gun Motor Carriage M-36 is a 90mm gun with a high muzzle velocity of more than half a mile a second and a range of approximately nine miles. The gun's 24-pound armor-piercing projectiles can rip through several inches of enemy armor and can knock out both the Mark V and Mark VI tanks. Mounted in a semi-open top turret, the gun has a 360 degree power traverse. A .50 caliber antiaircraft machine gun is mounted at the rear of the turret opening for use against aircraft and ground targets.

In pursuit of an enemy tank, this highly maneuverable vehicle can attain a speed of thirty miles an hour, can cross a 7 1/2-foot trench, ford small rivers and creeks, and climb grades far beyond the ability of most military vehicles. Operated by a five-man crew, it has a cruising range of 150 miles.



Blame the PRO

Somewhere in France,  
July 19, 1944.

Editor, COAST ARTILLERY JOURNAL:

On reading your article on the AA Halftrack Obstacle Course at Camp Edwards in your May-June 1944 issue I found a slight mistake I should like to correct. . . . The course was neither designed by nature nor rigged by Army Engineers, but by E.M. of this battalion. I know the engineers deserve credit-and they should get it, as I have seen some of the good work they have done here in France. . . . As I spent a couple of days with pick and shovel and axe

to help construct the course I think you should give a little credit to the AA for building a good course.

TEC. 5 THOMAS MCGRAW.



Army Losses

Losses to the Army of the United States through deaths and other causes from the beginning of the present war through June 30, 1944, totaled 1,279,000.

The latest available cumulative figures (to the nearest thousand) show losses from December 7, 1941, through June 30, 1944, to be as follows:

	Officers	Enlisted	Total
Total death (battle and nonbattle) . .	16,000	58,000	74,000
Honorable discharges	17,000	950,000	967,000
Prisoners of war and missing . . . . .	16,000	56,000	72,000
Other separations . .	4,000	162,000	166,000
Totals . . . . .	53,000	1,226,000	1,279,000

The foregoing figures do not include discharges of enlisted men to accept commissions in the Army of the United States. "Other separations" includes men who were placed in an inactive status, personnel given discharges other than honorable, retirements of Regular Army personnel and other miscellaneous separations.



Lighter Load for the GI

The individual soldier is carrying fifteen pounds less in clothing and equipment today than he did in 1941.

Reduction of the total load from 110 pounds to 95 pounds was accomplished by the Quartermaster Corps. Its experts reduced the number of items carried, and cut the weight of some of the individual items by redesign or substitution of lighter material, or both.



The British flail tank, which clears anti-personnel mines from its path by means of heavy chains attached to a revolving boom. Press Association Photo

Measured in terms of the average Infantry division, this saving means about 100 tons less material to be moved with the unit, releasing cargo and truck space, and eliminating dock squads for sorting and routing.

Under the system now in use, the soldier embarking for overseas walks up the gangplank with approximately 18.5 pounds of clothing and equipment worn, a 45-pound pack, including rifle, sleeping bags, gas mask, and medical supplies, and a duffle bag weighing from 25 to 35 pounds—depending on his destination and personal effects.

### Busy Naples

Blasted and crippled beyond recognition by methodical Nazi destruction last September, the Port of Naples in less than a year has emerged from a graveyard of twisted wreckage to become the foremost Allied military port in the world, the War Department announced today.

The speed and effectiveness of Allied reconstruction was such that a scant three months after the Germans fled the city on October 1, the port handled more tonnage than the huge New York Port of Embarkation, and in the six-month period from October to April, it handled 2,375,229 long tons of cargo—a figure just short of the previous peacetime record for that port during the full year of 1939.

Naples was a ghost harbor when the Allied commanders started their work of reconstruction on October 2. Not a single craft remained afloat in docks which sheltered as many as 500 varied types of vessels at one time. Thirty-two large vessels, including a cruiser and a hospital ship, and some 300 smaller vessels had been blown up or scuttled, debris littered the water and charred masts, booms, funnels and crane arms poked through the wreckage. Every berth, pier and quay was crippled, all thoroughfares, railway lines and passages in the port area were blocked with rubble, fires were still burning and power, sewer and water lines were demolished.

### Turkey Dinners Coming Up

The Army Quartermaster Corps has taken steps to insure that every American fighting man will have a generous portion of turkey on Thanksgiving Day, November 23.

As early as June, plans were drawn up for the procurement and distribution of supplies for the holiday feast, and more than a million pounds of turkey have been obtained. The total requirement has not been disclosed, but because of the greatly increased size of the fighting forces and a much wider disposition, the task of the Quartermaster Corps will be infinitely greater than last year.

Turkey now is being processed and packed in 12-ounce cans for shipment to American prisoners of war in Germany through the Red Cross. Efforts will be made to send some to American prisoners in Japanese camps by way of Valdivostok, but since Japan is not a signatory to the Geneva Convention there is no assurance that it will be possible.

### Air Defense Laboratory

A IX AIR DEFENSE COMMAND STATION, ETO—When the history of the invasion of Occupied France is written, this quiet seacoast city in Northern England will be remembered as the site of a mobile laboratory, where the air defense problems of the occupied territories were worked out in every detail.

In view of the increasing importance of speed and coordination in modern warfare, the air defense of conquered territories has become one of the major considerations of front-line commanders, who must have the assurance that their beachheads and lines of communications and supply are protected. Months before the invasion began, this area was occupied by units of the IX Air Defense Command, whose invasion mission is to protect our forces and installations from air attack.

Thus, as General Eisenhower's troops move forward from the beachhead, antiaircraft artillery units and fighter planes, combined with a system of aircraft detection and warning, will move into the areas behind the fighting front, and set up mobile defense systems geared to keep pace with the advance.

Characteristic of the units here were their high mobility, with everything on wheels: kitchen, communications centers, repair shops and entire operations rooms which could be collapsed and packed into boxes in less than two hours for quick movement. English farmers often went to sleep at night with army units camped on their doorsteps, only to awaken and find only slight evidence to assure them they had not been dreaming.

Moving into position, as though in the wake of a victorious army, the units were set up for operation in well-camouflaged positions. Aircraft entering the area were picked up by warning equipment, and the information relayed to fighter control stations, where their courses were charted and fighter aircraft guided to intercept them before they reached their objective. Approaches from the sea were protected by highly mobile reporting units, assuring adequate defense against counterinvasion craft and low-flying aircraft from over the water.

Receiving their first trial here were the movement liaison units of the Command. Born of the African and Sicilian campaigns, during which time several friendly planes were shot down by overzealous antiaircraft gunners, these units were responsible for the routing of all nonbelligerent aircraft to and from the battle areas.

Commanding General of the IX Air Defense Command, and director of the area, was Brigadier General William L. Richardson, a Coast Artilleryman.

### Where the Nylon Goes

The new lightweight, multi-purpose poncho made of water-proofed nylon fabric, developed by the Quartermaster Corps for use of troops in tropical combat areas, has successfully passed the test of six months of hard use in the Southwest Pacific and is now being manufactured in quantity and issued to troops.



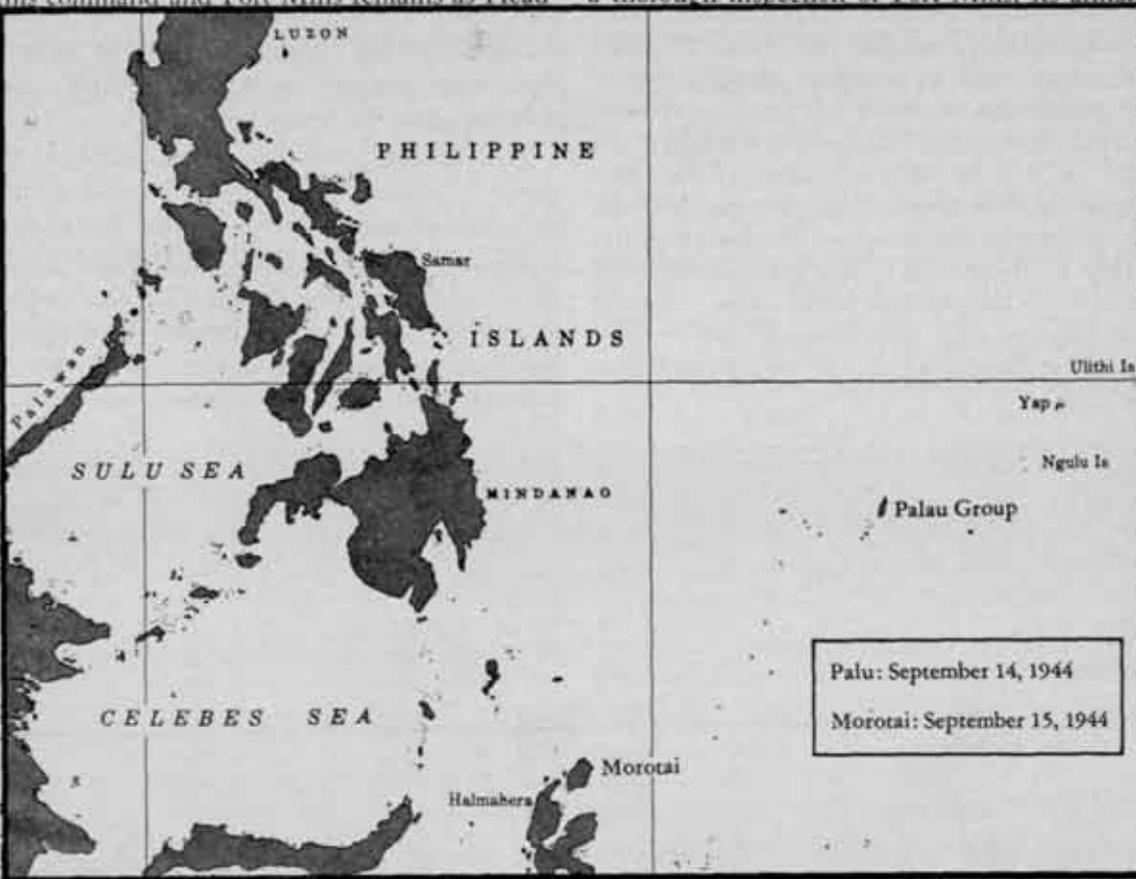
# Corregidor



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 Harbor Defenses of Manila and Subic Bays are a part of this command and Fort Mills remains as Headquarters.

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busy round of work at Corregidor. A month after this near-tragedy part of the post engaged in a celebration when Colonel P. D. Bunker's regiment celebrated its twenty-third anniversary. It was 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 General Richard K. Sutherland, his Chief of Staff, made a thorough inspection of Fort Mills, its armament, in-

ing and installations in the Harbor Defenses, noticed a vast improvement in all cases over that displayed in his last inspection.

Frequent "conditioning marches" under full pack are 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



BRIGADIER GENERAL H. C. ALLEN, *Commanding*

*By Major Prime F. Osborn*

August and September annually bring tropical storm warnings to Hulen soldiers, and this year is no exception. The hurricane season with its attendant blustery threats requires many precautions to guard lives and equipment against high winds and waters. Each unit must have its Hurricane Plan: an SOP for hasty evacuation of the camp with all equipment and matériel. The movements of all units must be coordinated and the plans designed to function as smoothly as those which any good commander would require to move his unit into battle action. Already Hulenites have had one such alert this fall, and are prepared for any further threats which the weatherman may conjure up for them.

Hot summer months made it very tempting to go about without shirts or fatigue suit "uppers." Particularly has the temptation been irresistible for troops in the field when the order of the day seemed to consist of nothing but digging and more digging. To tell the men that such "strip tease" practices was poor camouflage discipline and made them and their fire unit plump targets was "old stuff." So the training center put the problem to a practical test. A unit on a field exercise designated four of its gun sections as the "guinea pigs," and the test was made. One gun section wore complete green coveralls as it manned its gun, another wore khaki class "x" clothing; a third section took its positions stripped to the waist, and the fourth exposed white undershirts to the prying camera eye above. The photographs were enlightening and convincing. The bared waist and undershirt boys stood out like ducks in a shooting gallery; the fatigues and khakis blended indistinguishably with the terrain. Those who have seen the pictures are convinced—convinced by practical demonstration—that poor concealment is the result of such indiscretions and will cost dearly on the battlefield. These pictures will be circulated among all the units in the camp along with explanatory material to enable the unit commanders to elaborate upon the lesson learned.

The training center has almost completed the construction of a splinter-proof shelter to be used as the focal point of a demonstration area for troops. This shelter, designed to afford protection against a 200-pound bomb exploding only twenty-five yards away is at the concealment and camouflage stage of construction. It is partially dug in four feet being below the surface and four feet above. The exposed areas will be mounded over and landscaped.



Orientation material at Hulen.

Signal Corps Photo

blending the structure in with the surrounding terrain and providing necessary protection. The shelter has been built of salvaged lumber with the roof made of 8" x 8" railroad ties. The inside dimensions are about six feet by seven feet by fourteen feet, permitting operation of a complete battalion command post or similar installation. When completed it will be equipped with a gas-proof entrance, protective ventilation, and protective curtain. Demolitions will be placed by trained personnel, and exploded beside the shelter to give authoritative proof of its safety.

Gunnery officers have developed and put into experimental use a shield for the firing pedal of the 40mm Bofors, to keep shell cases clear of that all important mechanism. The shield is cut from sheet metal and merely bolted to the platform. Shell cases striking near the pedal are deflected by the cylindrical sides of the shield.

Special services has been busier than usual dishing up tempting orientation tidbits for the troops. Catering to the individual palate, they have prepared the foyer of the Service Club with maps, pictures, and articles on the cur-

rent war situation. Two large maps on stands and eight small maps detail the daily news. Each small map is covered with acetate, and the news kept up to date and interesting with cut-outs from daily papers, battle lines, and pictures. Semi-weekly Photo Wire pictures, add to the timeliness and pertinence of the material. Eye-catching colors and ribbons encourage the soldier to pause and read as he drops into his Service Club for coffee or milk shake. Another attraction, designed to satisfy an organization's appetite for What's What in the News, is the biweekly orientation play put on at the War Department theater. These plays are written, staged, produced, and acted by Special Services personnel. Actors are few in number, "props" are conspicuous by their absence, and the script is simple and direct—all this to demonstrate to unit commanders how they may put on similar productions when in the field. Each Group, Battalion, and Separate Battery is shown the play and, hand in hand with the entertainment provided, learns why it is fighting and what progress is being made toward that goal.



## Northern California Sector

BRIGADIER GENERAL RALPH E. HAINES, *Commanding*

The Harbor Defenses of San Francisco buzzed with activity recently when Major General Charles H. Bonesteel, newly appointed commanding general of the Western Defense Command, spent two days inspecting crack coast artillery troops at this station.

"Coast Artillery is a formidable force in the defense of these shores," General Bonesteel told the artillerymen. "Troops in Harbor Defense installations are performing a vital duty which must be performed well."

A few days later the general made another visit to the HDSF, this time to view graduation exercises of the Commando School at Fort Cronkhite. He saw soldiers throughout the command prove their hardiness and leadership.

Cannoneers are still talking about the remarkable exhibition of gunnery put on recently by Battery "B." The artillerymen scored a direct hit on a speed target boat which was four miles out at sea and moving approximately 25 miles an hour on a sinuous course. Earlier in the year the Battery "B" gunners had struck and destroyed a pyramidal target.

Softball players from Battery "K," of the local Coast Artillery, representing the HDSF in the Ninth Service Command softball playoffs, won the first round of competition by grabbing the Northern California Sector cham-

pionship, winning four games and losing none. The Mendell outfit edged the 122d Reconnaissance Troop in their first game, 5 to 3, but walked away with the second, 9 to 2. The HDSFers also dumped Hq-NCS, Presidio, 9 to 1, then won their second encounter by forfeit. Big guns on the HDSF team are Corporal Max Lewandowski, pitcher, and Corporal Ted Lipczynski, hard-hitting short-stop.

The Fort Barry Lions, baseball team made up of athletes from Battery "I" won the Northern California Sector title in the same NCS league, but the task was simple—they were unopposed.

Soldiers' Medals were presented to Captain Harley A. Stewart, battery commander of Battery "A," and to Private First Class Gilbert C. Brunson, Battery "F," for their attempt to rescue a fellow soldier who had fallen off a 270-foot precipice at Bonita Point, north of the treacherous Golden Gate. Brigadier General Ralph E. Haines, CG of the Northern California Sector, pinned on the hero medals.

Mine planters, often referred to as the "Army's Navy," broke into national headline print May 31 when they went to the rescue of survivors of the S.S. *Henry Bergh*, Liberty ship, that rammed into the tiny Farralalone Islands, forty miles outside the Golden Gate, in a thick early morning fog. The "sailjers" were among the first rescue parties on the scene and were responsible for saving over a hundred Army and Navy personnel. The "sailors in OD" won the praise of the Navy and Coast Guard.

Claude Parmalee, Winchester exhibition shooter and Canadian big-shot hunter, showed a large crowd of artillerymen how to fire an M-1 from the hip at a recent display at the Fort Barry rifle range. He also did some fancy shooting with the carbine; showed how to fire it with one hand, using his foot as a rest.

## Army Air Forces Tactical Center

During the past month, the Antiaircraft Artillery Department of the AAF School of Applied Tactics has been building an Antiaircraft Display to be set up in an exhibit of training aids being used by the AAF School of Applied Tactics. The purpose of this display will be to bring to the attention of all students attending the School the vital rôle played by Antiaircraft in the defense of Air Force installations and ground units.

In accordance with recent War Department directives, the Antiaircraft Artillery Department has undertaken the task of orienting units assigned to the Tactical Center and students attending the School of Applied Tactics in matters pertaining to AA. This is being accomplished by the use of the demonstration battery set up on the grounds of the School in such a manner that various types of Antiaircraft matériel, such as barrage balloons, automatic weapons, guns, searchlights, and other equipment, can be demonstrated properly.

One of the high lights of the Antiaircraft Artillery Staff Officers' Course is the skit given to dramatize an Antiaircraft Operations Room in action. The skit is enacted in such a manner as to enable all students to grasp problems and their solutions involving the employment of the three members of the air defense team, namely fighter aviation, Antiaircraft Artillery, and the Aircraft Warning Service.

Lieutenant Colonel Sexton, CAC, and Major Thorkilsson, CAC, representatives of the Commanding General of the Antiaircraft School, Camp Davis, N. C., visited the AAA Department on the 21st of August, 1944, for the purpose of observing the Tactical Air Force Demonstration given by the AAF School of Applied Tactics. One of the high lights of this demonstration was the employment of 40mm AA gun by the demonstration battery to point out the effectiveness of automatic weapons against a ground target.

Colonel Robert L. Anderson, CAC, AAA Liaison Officer with the Army Air Forces Board at the Tactical Center, visited the AAF Matériel Command, the AA Command, and the AA Board during the past month on matters pertaining to AAF Board developments involving Antiaircraft Artillery.

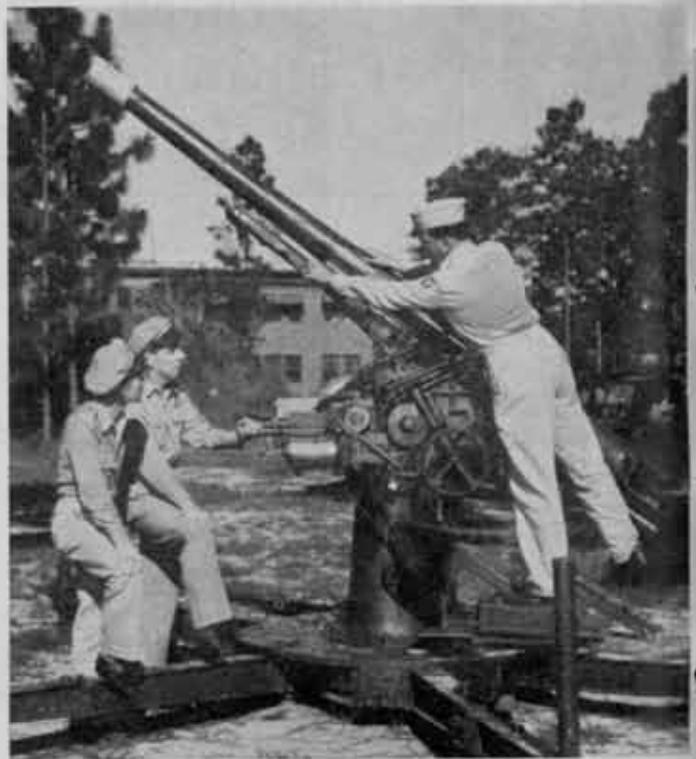
The 916th AAF Base Unit (AAADATU), AAFTAC, in addition to conducting the training of Searchlight Battalions as they arrive at Orlando, presents a series of special courses designed to fulfill specialist requirements in the searchlight groups and battalions undergoing training at AAFTAC.

These courses are: Fighter-Searchlight Course, Maintenance Course, Machine-Gun Course, a four-day course in

reading and plotting rectangular coordinate data, and a special field and classroom course in wire laying for searchlight units.

Extensive and detailed training is given to each battalion during their stay at AAFTAC in low-altitude, spread-beam work. Here, again, the cooperation of the Air Forces is superb in the number and types of aircraft allotted to the AAA for the low-flying night missions. Although the low altitude training is strenuous and the missions are held every night, including Saturdays and Sundays, the officers and enlisted men are absorbing the new type of searchlight training rapidly because they are fascinated by the spread beam operation and their extreme interest in learning low altitude tactics and technique.

A POM Detachment from Headquarters, Antiaircraft Command, Richmond, Virginia, commanded by Lieutenant Colonel J. S. Dwinell, has been at AAFTAC for the past few months. The detachment is now in full operation and has been a great help in bringing AAA Units at AAFTAC up to POM requirements. The facilities at AAFTAC have been utilized to the fullest extent and with the cooperation of the Air Forces at AAFTAC, under the command of Major General Edwin J. House, classes for training in camouflage, chemical warfare, and others have been held. The most recent is an armorers' course in which the students are assigned to the Ordnance Shops for specialized training.



Students at the AAFTAC learn the operation and capabilities of a captured Jap 75mm AA gun.





## Northwestern Sector

BRIGADIER GENERAL JAMES H. CUNNINGHAM, *Assistant Sector Commander for Harbor Defense Matters*

Both the Harbor Defenses of the Columbia and the Harbor Defenses of Puget Sound are in the midst of summer target practice schedules, with particular attention being given to surprise shoots, emergency methods of fire control and gun commanders' action. Officers' and Non-commissioned Officers' Schools are being held weekly in both harbor defenses with particular attention to the lessons learned at the Fort Monroe HD Conference.

Major General Charles H. Bonesteel, commanding the Western Defense Command, accompanied by his Chief of Staff, Brigadier General W. H. Wilbur, and the G-3, Western Defense Command, Colonel W. C. Ryan, visited both harbor defenses on 11-12 July 1944, and completed the tour with a visit to General Lewis, the Sector Commander. They also spent a half day at the Boeing plant at Seattle. General Bonesteel's visit to these harbor defenses completed his tour of the Harbor Defense Command.

The second anniversary of the shelling of Fort Stevens by a Japanese submarine on the night of 21 July 1942 was the subject of several editorials in the Oregon press. One editorial appeared in the Astoria, Oregon, *Budget* and was titled "How Times Change," comparing the accuracy of fire of our victorious forces in the South Pacific, with the inaccurate and harmless shelling by the Japanese submarine which fired nine 5-inch shells at Fort Stevens, none of which did any damage.

Nine Soldiers' Medals have been awarded during the last year to officers and enlisted men of the Harbor Defenses of Columbia. The most recent award was made in August at Fort Stevens by Colonel Doney, Harbor Defenses Commander, to the following personnel:

Second Lieutenant C. H. Bland, University City, Missouri; Second Lieutenant A. W. Schalk, Roselle, Illinois; Staff Sergeant B. J. Ridders, Albany, Oregon; Sergeant

E. W. Fieguth, Ashland, Oregon; Sergeant V. G. Riggert, Ashland, Oregon, for their attempt to save the life of a Navy flyer, Ensign W. B. Walsh, New Britain, Connecticut, who parachuted after his plane collided with another over the mouth of the Columbia River. The Army personnel who received the Soldiers' Medal risked their lives in attempting to rescue him from the jetty, but without success.

The Motor Pool at Fort Stevens ranked first among all the harbor defenses of the Western Defense Command as a result of a recent automotive inspection team's visit. The Harbor Defense Commander received a letter of commendation from the Sector Commander.

Women's Volunteer committees have been formed at Fort Stevens and at Fort Worden to assist the Harbor Defense Personal Affairs Officers in matters relating to enlisted men and their families. Both these volunteer committees are working under the energetic direction of Mrs. McCoach, wife of the Commanding General, Ninth Service Command.

Both harbor defenses went over the top during the 5th War Loan Campaign, military and civilian personnel purchasing a total of \$92,000 worth of war bonds.

The baseball teams of both harbor defenses have had an excellent season. The Puget Sound team defeated the strong Columbia River team in a home and home series, and later won the Northwestern Sector Championship by defeating the 123d Cavalry team from Fort Lewis. In an international series with Canadian Army and Navy teams from Victoria, the Puget Sound team won both games on its own grounds at Fort Worden but on the trip to Canada was in turn beaten by both the Canadian Army and the Canadian Navy.

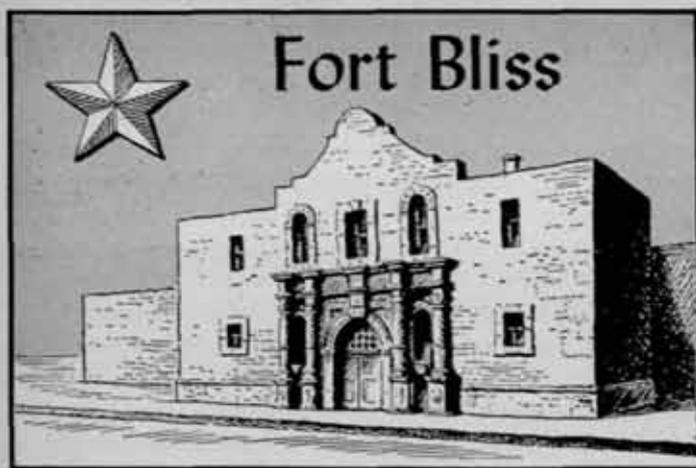


British and Canadian officers inspect a Coast Artillery battery.



## No JOURNAL?

It is sad, but true, that many people like the JOURNAL, but would rather not pay for it. They get YOUR copy, at YOUR old address, because YOU didn't notify us of your new address.



BRIGADIER GENERAL STANLEY R. MICKELSEN,  
Commanding AAATC  
By Major Paul V. Meyer

Modern battle lessons show more and more that non-commissioned officers must be well trained, able to shoulder responsibilities, and possess real leadership ability. In order to achieve these qualities in noncommissioned officers, this Training Center has instituted a thorough training program for NCO's. Each section and platoon leader has been made responsible for the men under his command. He must know them well, know what they are doing, how long they have been in the section, their capabilities, etc. In order to aid them, NCO's have been issued a card to be carried with them at all times, on which they have shown the name of each man in his section, his MOS, date of assignment to the section, the duty status, and what additional job in the section he can perform. In addition, the section or platoon leader is responsible for supervising the care and preservation of the clothing and equipment issued each man, for the necessary reports, for the police of their quarters, etc. Definite time is allotted in each unit training program for "noncommissioned officers' days." On these days, the noncoms take over full command responsibility in running the battalions and batteries, acting as C.O., E.O., B.S.O., etc. Noncommissioned-officer conducted parades are a definite part of this phase of the program.

The high light of the entire program is a tactical motor march for sections and platoons covering from three to five days; planned and executed by the noncommissioned officers. Requirements include the following: All orders, map routes, etc., will be prepared by the NCO's; battalion officers will not accompany or visit the section or platoon at any time while on this march; at least one bivouac must be made near a town and pass privileges will be granted as directed by the NCO in charge; necessary guards will be maintained at all times, and blackout discipline will be maintained in the bivouac area. The value of this training program has been shown already by the increased enthusiasm, interest, and efficiency shown by all noncommissioned officers in their duties.

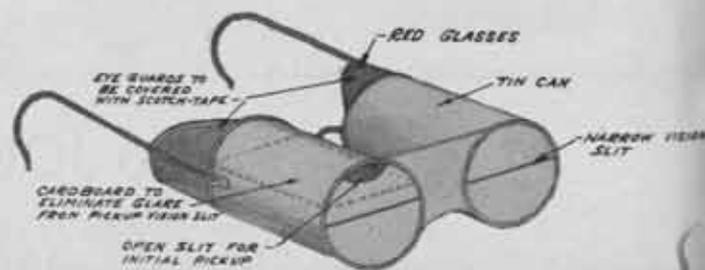
In a further effort to put more realism into field problems and tactical marches, the Tactics Section of this Headquarters has been scheduling Brigade and Group

problems for the defense of vital actual war industries in this area. Permission was obtained for employment of units for the defense of the oil refineries, smelters, colleges, and airdromes in the immediate vicinity of the Training Center. The interest of the men has been increased as a result of actually seeing the objective defended.

Preparations for the movement and arrival of the Army aircraft Artillery School and the Board from Camp Davis to Fort Bliss are in full swing. Certain battalions of this Training Center have been designated as school battalions.

Realizing the need for a method of presenting slides and movies in an open, well-ventilated, lighted classroom where the students can be comfortable and able to take notes, the Recognition Section of this Headquarters has made an adaptation of an old projection device by devising a simple projection tunnel. The tunnel itself answers almost all the needs of the average instructor in teaching airplane recognition or any other subject requiring the use of still or movie projectors. The tunnel consists of a double box with two corridors running side by side, connected at the end. In the front of the left tunnel is placed the projector, with the lens protruding through a small hole into the tunnel itself. At the end of the first (left hand) tunnel is placed a mirror set at a 45 degree angle, and at the end of the second (right hand) tunnel is placed another mirror set at a 45 degree angle, to reflect the image onto the screen set up at the front of the right hand tunnel. Acceptance of the tunnel has been 100% and properly used makes it possible for the instructor to also be the projectionist, thus saving time and the use of an enlisted assistant. The tunnel is easily transported, can be made out of scrap material, is capable of use any place where there is 110 volt current available, including the use of the power plants in the field. By removing the slides from the still projector and projecting only a beam of light, small scale model planes may be used, thus projecting a shadow on the screen, and making possible the projection of innumerable angles of approach of the plane.

The Gun section of this headquarters has found that the equiangular method of practice firing answers many of the needs for aerial targets. Such things as shortages of tow-cable or towing aircraft, and lack of PQ type targets have been overcome by use of equiangular targets. Equiangular targets are an adequate answer in the use of locating devices where a standard flag turret does not give a strong enough signal and the device tends to travel up the tow-cable to the tow plane. In emergency plotting, where inaccuracies of the system give errors large enough to jeopardize the tow plane, it was found that equiangular fire should be adapted for use. In addition there are such



GANTNER TRACER OBSERVATION GLASSES

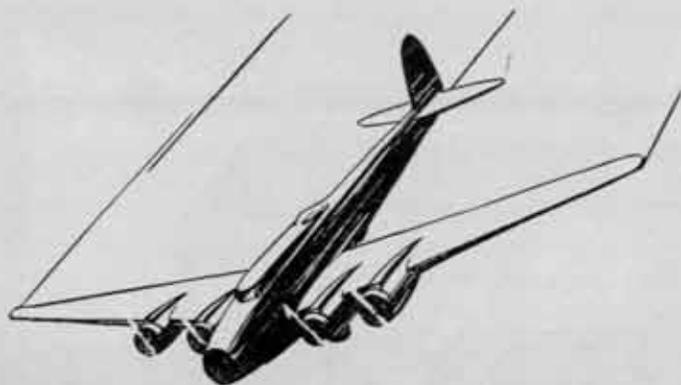
advantages as having a full speed target which can be flown in almost any type of weather and flown much more efficiently (that is, more firing courses can be flown per hour of mission time because of the gain in time on turns). Other advantages are the ability to fly multiple targets for firing, realistic maneuvering and low-flying courses. To help overcome the one big disadvantage of equiangular firing, which is the loss of morale of troops, this training center has developed several aids. One of these aids is the addition of spotting scopes to the "equicamera," the one sighting at bursts, so that optical deviations can be obtained by batteries immediately after they have fired a course. These deviations are presented as approximate ones and the scores are still obtained from camera records. Also a loud speaker system has been installed on the firing line and a bell system attached which can be controlled by record section personnel. There are two series switches in the bell-ringing circuit so that both switches must be closed before the bell can ring. A man listening to  $O_2$  deviations closes one switch when deviations are less than 10 mils, another man listening to  $O_1$  deviations closes a second switch when his deviations are less than 10 mils. If all deviations are less than 10 mils, the bell rings over the loud speaker system and everyone on the firing line knows that the battery is firing very close to the target. During night sessions using equiangular methods, two searchlights located on the base line between the equiangular cameras have been set up with azimuth reversal between control stations and searchlight, so that by tracking the equiangular target with the control station, the light tracks the target target on the other side of the base line. By having two such lights the intersection of the searchlight beams will indicate where the bursts should be. The battery thus has a visible indication of whether their firing is good or poor.

One of the most recent innovations of the AW Section of the training center has been the introduction at the firing point of red glasses designed and developed by Major Fred Ganter to assist the new, as well as the experienced, in the sensing of tracers. The original pair of glasses, illustrated here, was made from a standard pair of glasses (GI), two slitted baby-food tins, and several layers

of scotch tape. Cost—negligible. Results—overwhelming success. These glasses are so designed to afford the observer a limited field of vision right at the target. They eliminate the natural tendency to follow the full flight of the projectile from the muzzle of the gun to the target, and automatically frame the target so that inaccurate rounds cannot enter into the field of view where all tracers must be observed. The range setter or gunner can, as a result, make a range or lead change to bring the tracers onto the target and thereby increase the possibility of obtaining hits. This training aid has been used for several months and has proved highly satisfactory.

For many months at the Hueco Firing Point the range setters, lead setters, and trackers have been handicapped by the failure of 37mm and 40mm rounds to explode upon contact with the A6A flag targets. Captain C. J. Keese suggested wiring two flags together. The results of experimentation with this double-thickness towed flag have increased explosive hits by 100% and over. Where formerly 7 or 8 unexploded and 2 or 3 exploded rounds were found on a target, it is now common to find 6 or 7 exploded as against 3 or 4 unexploded on the new target. The Air Corps has encountered no trouble in towing the heavier flag, and the AW personnel can now experience the morale-building thrill of additional explosive hits. More importantly, the battalions are bettering their firing averages as the gun crews have more opportunity to observe hits when made and thereby mentally record the correct tracer picture for use in subsequent firing.

One of the biggest "headaches" 40mm units have on tactical exercises is the camouflaging of the shiny 40mm gun barrel. The AW inspection team worked on this sore point for many weeks, and despite the "It can't be done" attitude prevalent, has proved that gun barrels can be painted successfully. Two primer coats of red lead and four of OD paint were put on an experimental barrel. During the past five months, over 810 rounds have been fired through this barrel, and in addition, the weapon has been used in numerous field problems. The paint, which acts as a preservative also, has not blistered and the gun position is no longer given away by bright reflections.





## The Coast Artillery School

BRIGADIER GENERAL L. B. WEEKS, *Commandant*

The last issue of the COAST ARTILLERY JOURNAL published the award of the Bronze Star to Captain James O. Murphy, CAC, for the performance of meritorious services at Guadalcanal, Solomon Islands. Captain Murphy, now an instructor in the Department of Artillery at the School, received the medal from Brigadier General Lawrence B. Weeks, Commandant, at a formal presentation ceremony held in the Assembly Room of Murray Hall at 1130, Saturday 26 August 1944. Lieutenant Colonel H. G. Fowler, Director of the Department of Tactics, was in command of Captain Murphy's battalion when the action for which the Bronze Star was awarded took place. Colonel Fowler gave an appropriate address at the presentation ceremony, and in speaking of the event cited said in part, "On the night of November 13-14, a Japanese naval concentration approached Guadalcanal with the object of landing in overwhelming force for the recapture of the island. The battle lasted that night and most of the next day. The Japanese were dispersed and most of the twenty transports were sunk. However, five of the transports succeeded in escaping and in approaching the beaches of Guadalcanal, where they were observed on the morning of the 15th un-

loading. Captain Murphy's battery went to work on the only one within range of his guns and destroyed it. During the action, a Japanese antiaircraft battery opened up on the dive bomber providing observation for the battery. Fire was switched to the antiaircraft battery and it was silenced by direct hits on some of the guns. While that was going on 'Kokumbona Pete' opened up on the battery and the boys went to work on it. 'Kokumbona Pete' was the generic term for the 6-inch guns that the Japs used to cover Henderson Field. That was the objective that the batteries went to Guadalcanal for, and that was the first time they could get a good line on those Jap guns. What those boys did to them is best evidenced by the fact that Henderson Field was never again seriously threatened by Japanese fire, and by the end of the month bombers were coming in to base there."

The Department of Submarine Mining is glad to have two student officers from one of our "Good Neighbor" Republics. In addition to the ten weeks course which they are completing with Group No. 15, these officers will receive two weeks of special instruction. Captain William D. Franz recently left the staff to assume command of a mine planter. Another loss was suffered when Captain Francis C. Ashleman left the Department early this summer, after having completed the Mine Course at the Naval Mine Warfare School, Yorktown, Virginia. Captain Ashleman is now doing special work in controlled submarine mines at another Harbor Defense. TM 9-405, *Operation and Maintenance—Submarine Mine System M3* has been submitted to Ordnance for publication and is expected to be available soon.

The Department of Training Publications has completed several projects. The Coast Artillery School printed and distributed eight Coast Artillery Training Bulletins prepared by the Department: Vol. 3, No. 5, *General Information*; Vol. 3, No. 6, *Courses for Enlisted Men at the Coast Artillery School*; Vol. 3, No. 7, *Seacoast Artillery Targets*; Vol. 3, No. 8, *Training Film Instruction Guide, 12-inch Gun*



Major John Davis and Major H. E. Rice point out features of the CBI map in the Coast Artillery School War Room.

Battery, Barbette Carriage; Vol. 3, No. 9, *Ryan TVS Record and Lateral Deviation Rake*; Vol. 3, No. 10, *Employment of Seacoast Artillery in Antimotor Torpedo Boat Defense*; Vol. 3, No. 11, *Training Film Instruction Guide, Care and Maintenance of the 155mm Gun*; and Vol. 3, No. 12, *Training Film Instruction Guide, Controlled Submarine Mines*. The following seacoast artillery field manuals have been printed and distributed to Adjutant General Depots: FM 4-5, *Tactics*; FM 4-74, *Service of the Piece, 6-inch Gun M1903A2 or M1905A2 on Barbette Carriage, M1 and M2, 6-inch Gun M1 on Barbette Carriage M3 and M4*; FM 4-86, *Service of the Piece, 16-inch Gun Case-mated*; and FM 4-97, *Service of the Radio Set SCR 682-A*. The Department is finishing Coast Artillery Training Bulletins which the School contemplates getting out during the months of September and October. They are: *Matériel Improvements*; and *Training Methods*.

In the Department of Artillery, the development of training devices for gun batteries is being studied by Major Allen G. Davis and First Lieutenant George C. Vaughn. Major Davis is conducting experiments with a modification miniature range which can be used for the training of battery spotters. Lieutenant Vaughn is studying the possibilities of mounting one of the units of the Field Artillery Trainer M3 on a 155mm gun. If such an arrangement proves feasible, a miniature range set-up could be constructed which would afford training for spotters, gun pointers, and elevation setters.

In the Department of Enlisted Specialists, the Enlisted Special Equipment Course, Lieutenant Colonel Roger A. MacArthur in charge, had on 1 August 1944 completed the technical training of several hundred special students during the past five months in addition to the regular classes of the course carried on at the same time. The first group of students in the Enlisted Radio Repairman's Course graduated on 14 August 1944. This course, of six weeks duration, graduated seventeen students qualified as radio repairmen (M.O.S. 174) and qualified to perform second echelon maintenance on all the present radio communication sets issued to Coast Artillery units. Students in this course were either graduates of the twelve-week Enlisted Communication Course or had equivalent preparation for the course.

Eight students of the Enlisted Radio Repairman's Course participated in a test of employing an emergency radio fire control net in place of wire communication in the event of failure of the wire net. This test was conducted during an overnight demonstration of the Officers' Advanced Course. Frequency modulated voice sets, SCR-808 and SCR-828 were employed. CWO Marion G. Brashear was in charge of the enlisted students and the radio net on this field practice. The results permitted connections between base-end stations and plotting room to be switched from wire net to radio net without losing a single reading.

The Department of Tactics has taken over a large and important share of the Army Orientation Program at the Coast Artillery School. Officers of the Department have equipped a room in Murray Hall with maps, and files of news materials, designating the room, "The War Room." There is a lot of red tape in the War Room at the Coast Artillery School but it has a very functional purpose. At a glance, the changing thin red taped line of battle is presented in the light of latest reports. Salients and turning movements take shape on the detailed wall maps of each theater. Behind this pictorial presentation of the theaters are the tactical and logistical considerations. Herein lie the practical lessons and the military interest behind the news. Under the direction of Lieutenant Colonel H. G. Fowler, Director, each of the instructors of the Department of Tactics analyzes the reports and summaries concerning the particular theater which he then presents at the weekly briefing. The war fronts have been broken into six theaters.

The sources of information for this project have been the ONI Weekly, Reports from the Theaters, Military Attaché Reports, Intelligence Summaries, daily newspapers, and other documents which are distributed to Harbor Defenses. Most of the maps used are the AAF Aeronautical Charts of a scale of 1:1,000,000. This provides adequate detail for an over-all picture of the theater front and where a certain part of the battle line is of particular interest it is presented on a scale of 1:250,000 or larger. To facilitate the display of these maps, large wall-board panels were mounted in a frame on casters so they could be shifted as appropriate and both sides could be used.



## Southeastern Sector

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

The Harbor Defenses of Charleston recently conducted one day and one night service practice employing the Gun Commander's Action.

The practices are believed to be unique in that in both instances the HECF, HDCEP and the Examination Battery personnel and matériel were utilized with the searchlights illuminating the target in the night practice.

In both exercises it was assumed that an unidentified

vessel, represented by an Army "J" boat towing a red pyramidal seacoast target for the day practice, and a white target for the night practice, was entering the harbor. The Navy Watch Officer in both exercises requested the Examination Battery to fire a "bring-to" shot. These "bring-to" shots were assumed to have been unheeded and destruction fire was brought to bear on the targets.

The Harbor Defenses of Chesapeake Bay, commanded by Brigadier General Rollin L. Tilton, have featured 90mm Antiaircraft practice for the past two months, and already three preliminary firings and two record practices have been conducted.

Considerable enthusiasm has been shown by the troops

and it is expected that the anti-aircraft phase of the training will continue to prove valuable and interesting as the program progresses.

One battery marked up an unusual record during the exercises. In the seven practices fired for the entire year, the battery has shot down seven targets. Except for a single AA practice, at least one target has been destroyed at each firing. The practices included both seacoast and AA firing.

Small-arms firing is a large item on the training program, and with the fast moving events in the various war theaters, orientation has taken on a renewed interest.

The Harbor Defenses of Key West, commanded by Colonel Ralph E. Hill, has been conducting classes in all the Intelligence subjects, of which "Use of the Eyes at Night" was particularly stressed.

A demonstration was presented to the entire unit. A group of soldiers was stationed at distances from 100 to 500 yards apart and equipped with full-field equipment. During the course of the demonstration these troops lighted cigarettes, blinked flashlights, rattled mess equipment, opened and closed rifle bolts, and coughed and sneezed at these various ranges. An amplifying system had been installed and comments made throughout the demonstration.

As a finale to the program, a squad of soldiers deployed in the area and fired blank ammunition.

It is believed the demonstration accomplished more than all the theory as it clearly showed the necessity for discipline and the vital importance of avoiding disclosure of positions at night.

The personnel of the THD of Miami participated in a field problem with the Navy, and the Scouts and Raiders from Fort Pierce, Florida. The mission of the Army was to prevent infiltration of this area and deny any information to the Scouts and Raiders. The mission assigned the Army was successfully completed with the capture of quite a large force of "enemy."

During July, four Special Service target practices were conducted by 90mm batteries. One battery completely destroyed the target, making salvage impossible.

At the Harbor Defenses of Beaufort Inlet special emphasis has been placed on 90mm training and a review of basic military subjects. The problem of training headquarters personnel without disrupting the office procedure and schedule is being met by placing twenty-five per cent of the battery in training each week, during which time these men are relieved from their regular duties.



*When we think of the insane ambition  
and insatiable appetite  
which have caused this vast  
and melancholy extension of the war,  
we can only feel that Hitler's madness  
has infected the Japanese mind,  
and that the root of the evil and its branch  
must be extirpated together . . . .  
we have at least four-fifths  
of the population of the globe  
upon our side. We are responsible  
for their safety and for their future.  
In the past we have had a light which flickered,  
in the present we have a light which flames,  
and in the future there will be a light  
which shines over all the land and sea.*

WINSTON CHURCHILL, 8 December 1941.



# BOOK REVIEWS

The JOURNAL can supply any book in print,  
at the usual Association discount.

## TEXTS

### 104th and Others

**MILITARY LAW FOR THE COMPANY COMMANDER.**  
By Julian J. Appleton. Washington: National Law Book Company, 1944. 117 Pages; Index. \$2.50.

Company and battery commanders in these days of war are often relatively inexperienced, and the demands on their time are so great that they cannot be expected to become experts in military law in their spare time. And yet, the company commander is by necessity the basic source of discipline and punishment for the largest proportion of our army. The company commander's error may result in injustices to individuals and in upsetting the orderly processes of military justice.

Mr. Appleton's book was designed for company commanders. It discusses the all-important 104th Article of War, more serious offenses, preparation of charges, and the rest of the routine that is the province of the company commander. It omits the conduct of courts-martial, rules of evidence, and other items that are in the field of officers who sit on courts-martial. The book stays close to its subject—assistance to the company commander. Forms, procedures, and specific cases add to the clarity of the presentation.

### The Proper Conception

**RIFLES AND MACHINE GUNS.** By M. M. Johnson, Jr.  
New York: William Morrow and Co., 1944. 384 Pages; Illustrated; Index. \$5.00.

Captain Johnson's latest book analyzes and discusses in detail more than sixty light weapons, including the bazooka, the PIAT, the M1, the carbine, pistols, submachine guns, and others. His technical descriptions and operational procedure are very much the same as have appeared in other books, but his discussions on the capabilities of the weapons, the tactics that have brought about the changes in weapons, and the weapons that have brought about the changes in tactics, are worth the price of the book.

Captain Johnson is himself a manufacturer of firearms, and a captain in the Marine Corps Reserve who was considered a valuable producing arms than leading a marine company.

He knows his subject, and his writing skill, taking advantage of colloquialisms, irony, and plain horse sense, puts his ideas across with force. He is especially contemptuous of those who believe that because a carbine looks like a rifle, it is a rifle. Each arm should be used for the purpose for which it was developed, and preconceived ideas of employment detract from the value of the arsenal. It would be hard, after reading this book, to persist in retaining the wrong conceptions of the uses of the varied types of small arms and machine guns.

The author believes in good arms, excellent marksmen, and good judgment as to tactical employment of the weapons. Most of us believe the same thing, but cannot put it in words as well as does Captain Johnson, and cannot back it up as he does, chapter and verse.

### Sulfadiazine vs. "Wound Powder"

**COMBAT FIRST AID.** Washington: The Infantry Journal, 1944. 101 Pages; Illustrated. 25¢.

Making use of the same method of presentation of the subject that made *How to Shoot the U. S. Army Rifle* and *Map Reading for the Soldier* so valuable, *Combat First Aid* is a book that every man in uniform should study. Using pictures instead of words, and common sense instead of scientific terms, the essentials of combat first aid may be gleaned with little head-scratching and less confusion.

### How Far to Berlin?

**FOREIGN MAPS.** By Everett C. Olson and Agnes Whitmarsh. New York: Harper and Brothers, 1944. 222 Pages; References; Index; Illustrated. \$4.00.

The study of foreign maps is not something to be undertaken lightly. Soldiers of all ranks and grades, who are supposed to be able to read any standard American map, will undoubtedly run into trouble when they encounter foreign maps, even if they understand the language. Aside from differences in conventional signs, in reference points, and in other par-

ticulars, the very style and coloring of the maps may be confusing to a person who knows nothing but American products.

This book is a reasonably complete text, describing foreign maps, giving hints as to what languages may be encountered in maps of different parts of the world, and presenting translations of map features in practically every language of the world that may be encountered in the study. Technical discussions or mapping serve as the minimum basis for understanding the systems of foreign nations. For those who expect to deal with foreign maps, this volume is as good a starting point as any. It is not written in popular language, but it is understandable and clear to any person who has any real knowledge of map-reading.

\* \* \*

### New Edition

**A GUIDE TO NAVAL STRATEGY.** By Bernard Brodie. Princeton: Princeton University Press, 1944. 293 Pages; Bibliography; Index; Illustrated. \$2.75.

The previous edition of this book was reviewed in the October 1942 issue of the *JOURNAL*, under the title, *A Layman's Guide to Naval Strategy*.

This new edition, printed from entirely new plates, is completely revised. New maps and charts, new engineering data, and new battle actions including the D-day landings and Saipan, bring it up to date. The book is now about 15% longer than the original edition. Most of the additional material is accounted for by 1943-1944 naval actions.

The book does not hold itself strictly to strategy, but goes into some detail about the fleets that make strategy possible—without various types of ships and planes, men, guns, armor, merchant fleets, shore establishments, and other items there could be no strategy.

Although the book is deep and authoritative, it is not dry—it is interesting reading for any person who wants to know how and why navies operate, and just what sea power consists of, and what it can do.

\* \* \*

### Great Circles

**BASIC MARINE NAVIGATION.** By Bart J. Bok and Frances W. Wright. Boston: Houghton Mifflin Company, 1944. 422 Pages; Index; Tables; Answers; Illustrated. \$6.00.

To the old-time navigators and perhaps to some of our present ones who got their schooling in the "good old days" the reading and study of the new methods are not only interesting, but also profitably instructive.

To one who has solved the complicated problems of great circle and composite sailing courses, taken ante- and post-meridian sights and computed longitude by evening and morning sights, the newer methods should bring a sigh of relief.

*Basic Marine Navigation*, while it is basic and purposefully and profitably avoids long discussion of formulae and theory, nevertheless presents the fundamentals of navigation with a simplicity and clarity which will benefit the beginner and old timer alike.

Whether the navigator be "air" or "water" or merely interested, the book will be found instructive and practical. It is practically painless.

The arrangement is admirable and it is profusely illustrated with drawings, figures, sketches and photographs and includes sufficient extracts of tables to impart thorough instruction.

There are numerous problems with the answers included

separately to test the student's understanding and ability to apply what he has studied.

\* \* \*

**PHYSICS OF THE 20TH CENTURY.** By Pascual Jordan. New York: Philosophical Library, 1944. 185 Pages. \$4.00.

Those of us who completed our formal instruction in physics ten or twenty years ago and have not kept abreast of the new theories and experiments will find upon reading this book that the increase in human knowledge has left us far behind—so far behind that a large portion of this book will be unintelligible.

The combinations of the strides in research and the probably unnecessarily ponderous style of the author, put this book beyond the understanding of the person who has attempted to keep abreast of physics by keeping up to date with the most popular scientific publications.

The book is subtitled, "A systematic, complete review of the concepts of modern physics." The average non-physicist reader will not find it complete. There are too many gaps in the presentation to follow it readily. For instance, we quote:

"... today we know that the proposition that the velocity of (the) two trains relative to each other is equal to the sum of their (oppositely directed) velocities relative to the earth is not precisely correct. Actually the relative velocity is a little smaller than the sum of the two. In this example the difference is imperceptibly small; but . . . if each of the two trains were traveling at a speed of 200,000 kilometers per second (two thirds of the velocity of light) the relative velocity would only amount to 276,923 kilometers per second instead of 400,000. There is experimental evidence to confirm this."

What experiments? How? Why? In place after place, the book throws something fascinating out for inspection, and then drops the subject before it is barely explained. We might say that those who can understand the book will not need it.

\* \* \*

**EXPLOSIONS: THEIR ANATOMY AND DESTRUCTIVENESS.** By Clark Shove Robinson. New York: McGraw-Hill Book Company, 1944. 78 Pages; Charts; Bibliography; Index. \$1.50.

This booklet is based on lectures given to the authors of the Safety and Security Branch of the Office of the Chief of Ordnance, Army Service Forces. It is packed full of meat, describing the sequence of events that lead up to an explosion, the phenomenon itself, and the effects on the surroundings. Practical interest in explosions stems primarily from the desire to avoid the injury, loss of life, and damage to property which accompany them. This is the basis for safety regulations. Colonel Robinson suggests the somewhat unorthodox scheme of barricading surrounding buildings against blast and missiles rather than barricading the explosion itself. He presents useful charts, compiled from the records of 125 accidental explosions, covering a wide range of conditions and circumstances. They show the distances for serious and minor damage, for various quantities of explosives, both with and without barricades. The problem of safety from explosions may be studied and solved reasonably well from these charts. A study of this little book will give those who have contact with explosives a general understanding of the hazards involved, and a basis for estimating the potential damage that may be done. It should provide much thought provoking material and will prove a very valuable handbook for those concerned with the care and storage of explosives in large quantities. It does not deal with the specific characteristics nor comprise a catalogue of the various explosives in common use, but presents only the explosion itself.

## HISTORY AND BIOGRAPHY

## Authoritative Reports

**PRELUDE TO INVASION.** Based on Official Reports By Henry L. Stimson. Washington: Public Affairs Press, 1944. 332 Pages; Illustrated. \$3.25.

Colonel Stimson's reports to the Nation, from December 11, 1941 to June 8, 1944, cover an exciting and important period in our national history. By reading these reports (plus some reports compiled by the War Department to fill in the periods during which the Secretary made no statements), we get a straight from topside the picture of the war as it unfolded, from the dark days right after Pearl Harbor to our successful invasion of Normandy. Being human, we are apt to forget some of the graver days in our elation of the way things are going at this moment. We can understand both sides of the story by reading what the Secretary of War had to say about things as they were happening.

## Men on Horseback

**RANGER MOSBY.** By Virgil Carrington Jones. Chapel Hill: The University of North Carolina Press, 1944. 347 Pages; Index; Notes; Illustrated. \$3.50.

*Ranger Mosby* is the fascinating story of the operations of Mosby and his guerrilla band from the outbreak of the Civil War until after Lee's surrender. Organized as the 43d Battalion of Partisan Rangers in June 1863 it functioned independently and remained a constant threat and irritation to the Federal forces operating in northern Virginia.

Learning much from his apprenticeship under Grumble Jones, inspired by his ideal Jeb Stuart, Mosby developed to a high degree a mobile, stealthy, rapid-striking force whose adventures read more like fiction than fact.

However, author Jones has based his story of Mosby on a deep research into available records and has done a scholarly and most interesting work.

Notes on each chapter are appended in the back part of the book and indicate the evidence for the statements made.

Jones is an excellent storyteller.

## Frontier General

**FUSS 'N' FEATHERS.** By Laura Long. New York: Longmans, Green and Co., 1944. 227 Pages. \$2.25.

Winfield T. Scott was an important figure in our Army throughout the entire first half of the Nineteenth Century, and longer. It was not until the beginning of the Civil War that he stepped down and turned the Army over to younger men.

Tactless, fearless, a good leader, a rather poor subordinate, a fair diplomatist, Scott was the center of one controversy or another throughout almost the whole of his military service. Although the failings and selfishness of others brought on many of his troubles, his own failings, tactlessness and temper, accounted for the rest. He fought against the British, the Mexicans, the Indians, other American generals, and the President and the Secretary of War with the same fearlessness. His subordinates and the common people revered him as a glib general, a brave soldier, and as an honorable man. Other generals and certain political figures found him hard to handle.

We could find such a figure as Winfield Scott only in the period of the new republic's first growth, when men were

more important than precedent and laws, and then when the heroes were personal idols rather than the results of good public relations counsel.

## Walled City

**QUEBEC: HISTORIC SEAPORT.** By Mazo de la Roche. New York: Doubleday, Doran and Company, 1944. 203 Pages; Index; Illustrated. \$3.50.

Mazo de la Roche didn't do right by Quebec. This old-worldly city, the goal of hundreds of thousands of American vacationists, deserves better treatment than a 203-page book that doesn't get to 1782 until page 162. The long and numerous tales of Indian wars of the earliest days might well have given way to more material of the 19th century, and all the history could have been tied in much better with the city of today.

The author of the *Jalna* novels should have been able to impart the flavor of this most fascinating of North American cities—instead, we have a workmanlike job of factual writing, with just a bit of fancy thrown in.

But those who have the rest of the books of the *Seaport Series* will want this one, too—it might be considered satisfactory if it is not compared too closely with other items in the series.

## Our Forgotten War

**THE WAR OF 1812.** By Henry Adams. Washington: Infantry Journal, 1944. 361 Pages; Index; Maps. \$3.00.

Henry Adams' nine-volume *History of the United States, 1801-1817*, has long been considered one of the best sources for material on the War of 1812, but nine volumes is a formidable pile of books. Major Harvey A. DeWeerd, of the staff of the *Infantry Journal*, has turned out a superb job of editing, choosing the pertinent portions of the original work to give us a fairly complete military and political history of one of America's important wars, compressed into one volume of reasonable length.

The War of 1812 is probably the least known of America's conflicts. We suffered some severe (and unnecessary) defeats, and some history teachers would prefer to forget the whole affair. Soldiers cannot afford to gloss over this war because we learn more from our mistakes than from our successes, and this particular war is well-studded with mistakes from which we can profit. We were inept both in the political and in the military sense, and in many ways we deserved the beatings we took.

Henry Adams' style does not sacrifice fact to attain readability—the book has both.

## Better Days Are Here

**THE GRAVEDIGGERS OF FRANCE.** By Pertinax. New York: Doubleday, Doran and Company, 1944. 587 Pages; Appendices; Index. \$6.00.

A story goes the rounds about a ten-year-old who wrote: "Dear Aunt Margaret: The book about Indians you sent me is a very fine book about Indians. It tells more about Indians than I care to know."

Pertinax' book about the fall of France is a fine book, by a competent author, but a quarter of a million words about the fall of France at this late date are of limited interest to most of us. France, through incompetence among its military lead-

ers, weakness, and venality among its political leaders, treachery among its leaders of the press, and selfishness and lack of direction among the people, was ripe for a fall. It fell. Pertinax' details are voluminous, his observations are keen, his knowledge intimate, and his predictions uncannily true—but his chapter and verse indictment becomes boring after the first few hundred pages. Things were bad, obviously bad, but the French did nothing to make them better.

To one who wants a complete, reasonable, and documented story of France's decay, we cannot recommend a better book.

### School on the Hudson

WEST POINT. By E. D. J. Waugh. New York: The Macmillan Company, 1944. 238 Pages; Illustrated. \$2.50.

Mrs. Waugh's story of the Point brings forth little that is new from the standpoint of history, but it does bring us up to date on certain of the things that have come to the Academy since the war. She also presents some stories of certain newly famous Academy graduates, to add to the lore of the school and its products.

### Official Histories

1ST DIVISION SUMMARY OF OPERATIONS IN THE WORLD WAR. American Battle Monuments Commission. Washington: Superintendent of Documents, 1944. 108 Pages; Index. \$1.50.

2D DIVISION SUMMARY OF OPERATIONS IN THE WORLD WAR. 113 Pages; Maps; Index. \$1.50.

5TH DIVISION SUMMARY OF OPERATIONS IN THE WORLD WAR. 68 Pages; Maps; Index. \$1.25.

26TH DIVISION SUMMARY OF OPERATIONS IN THE WORLD WAR. 75 Pages; Maps; Index. \$1.25.

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82D DIVISION SUMMARY OF OPERATIONS IN THE WORLD WAR. 62 Pages; Maps; Index. \$1.00.

92D DIVISION SUMMARY OF OPERATIONS IN THE WORLD WAR. 39 Pages; Maps; Index. 75¢.

These nine new volumes bring the series to completion, or near it. The reviews in previous issues of the JOURNAL still stand—the books are factual, complete, and official.

### Official Pictures

OUR ARMY AT WAR. New York: Harper and Brothers, 1944. Illustrated. \$3.00.

When it was suggested by the War Department Bureau of Public Relations that this book be published, almost every large publishing house in the United States volunteered to do the job. The choice was made by lot, and Harper's won.

The book includes 482 photographs, practically all of them taken by Army agencies. The photographs are the best in the

War Department's files, and the reproduction is good. The captions, in the form of a running commentary, are particularly well done.

The book covers the first two years of our participation in the war, including the campaign in the Pacific and the Far East, the campaign in the Aleutians, the Mediterranean Campaign including North Africa, Sicily, and Italy (not quite to Rome), and the Air War over Europe. It's a volume that will be valuable in home libraries, and more valuable as time passes.

### The Big Picture

PICTORIAL HISTORY OF THE SECOND WORLD WAR. New York: Wm. H. Wise & Co., 1944. 1,024 Pages. 2 Volumes (Boxed); Illustrated. \$5.96.

These two volumes of text and pictures of the first four years of this war will bring back many memories to those of us who have lived in this stirring period. We have seen many of the pictures in the newspapers and magazines, and we have read of the events, but to have all the pictures, dated and captioned in one place is a great help in visualizing the sweep and scope of the war. By now we have forgotten the loss of the *Lamprocastria*, the British raids on Kiel, the Lofoten raids, the battle for Salonika, Hess' flight to England, the trenches in front of Leningrad, and many other events that decorated the beach lines—but here they are, in pictures.

General Wainwright in a campaign hat, Malta's 2,000th raid, American prisoners at Corregidor, the landing at Madagascar—any person who is interested in war, or history, or both, will appreciate these volumes of photographs. Some of the pictures have been retouched to the point of artificiality, but this is a minor fault in a collection as complete and wide in scope as this.

## PERSONAL EXPERIENCES

### Belden's War

STILL TIME TO DIE. By Jack Belden. New York: Harper and Brothers, 1944. 322 Pages. \$3.00.

Belden's *Retreat with Stilwell* is one of the better books about this war, and his stories in *Time* and *Life* have excited the interest and admiration of millions of readers. This book is something else. His tense writing about how troops act under fire, how plans are messed up both by war itself and by human incompetence, how war affects civilians who happen to get under the wheels, and how it happens that the accepted story of a battle is rarely the real story, make the book a valuable contribution to the study of war. But Belden's own conclusions are just one man's opinion, and even though he labels them as such, the label still does not take the curse off the fact. His writing is bitter (he has been following the sound of the guns since 1937, in China), vivid (he has seen front-line action, and has been badly wounded), and at times, slightly hysterical.

He describes actions in China, North Africa, Sicily, and Salerno. He writes sympathetically of the soldiers, not so sympathetically of the commanders. His pity for the common people runs through the entire book, as does his contempt for the higher-ups who make wars possible, and then bungle them.

The book is not pleasant, and possibly not easy to swallow in its entirety, but it is well worth reading, if only to chase the taste of the usual censor-approved dispatches.

### Pariah Correspondent

**ONE DAMN THING AFTER ANOTHER.** By Tom Treanor. New York: Doubleday, Doran and Company, 1944. 294 Pages; Illustrated. \$2.50.

Treanor was sort of a pariah among the galaxy of war correspondents who covered the Mediterranean and CBI theaters. Because he mailed his copy instead of using cable and radio, and because he represented a single powerful but not well-known newspaper instead of a syndicate or a press service, he took a bit of pushing around from his colleagues, and from certain Public Relations officers. He works out his bitterness concerning his treatment in the introduction, and doesn't ruin the body of his book with his complaints.

Being unaccredited and somewhat of an outcast, Treanor did things and saw things that were closed to the accredited writers, and although he was chased from theater to theater, and grounded by the RAF, his book covers items that the first-line men missed. From El Alamein to Burma and China he observed the fighting, talked to the civilians and the soldiers, and wrote penetratingly. The book is both salty and racy, since fighting men are that way, and Treanor's sometimes pixie humor lends itself to those aspects of war. He dismisses the problem of India as one he, at least, cannot solve, with reasons. He does not recommend Burma as a place to live or to fight.

The high spot of the book is the description of the Cassino battle. While the accredited correspondents took their news from the communiqués, Treanor managed to get right in the fighting. His eyewitness accounts are head and shoulders above the stories that have appeared in the newspapers.

Mr. Treanor was killed in France in August.

\* \* \*

### Romantic South Seas

**PACIFIC VICTORY, 1945.** By Joseph Driscoll. Philadelphia: J. B. Lippincott Company, 1944. 297 Pages. \$3.00.

Another war correspondent has written another book. After the first few chapters, in which the author gets off his chest a few pet gripes about Army-Navy cooperation and the garbled reports of the Pacific actions, the book becomes interesting. Character sketches of our military and naval leaders (and a few of the lesser lights), tales of ships and places, and anecdote after anecdote about the fighting and the men who do the fighting, combine to make a loosely knit but readable and interesting background picture of the Pacific war. We could do without his forced nicknaming and first-naming of the generals and admirals, but this minor irritation is not enough, even when combined with the no-less irritating newsman's omniscience, to spoil the book as a series of pictures that tell us of both the little things and the big things of a part of the war that is still too-little known to most of us.

\* \* \*

### Elite Troops

**WE JUMPED TO FIGHT.** By Colonel Edson D. Raff. New York: Duell, Sloan and Pearce, 1944. 206 Pages. \$2.50.

Colonel Edson D. Raff's name means "paratrooper" to many a man in uniform, and to many a boy who wishes he were in uniform. The idea of soldiers dropping in from the sky is one that the American imagination takes to readily, and the paratroopers themselves, with their half-boots and self-assured swagger, are their own best press-agents. Colonel Raff's battalion was in on the African invasion, and in spite of more than a

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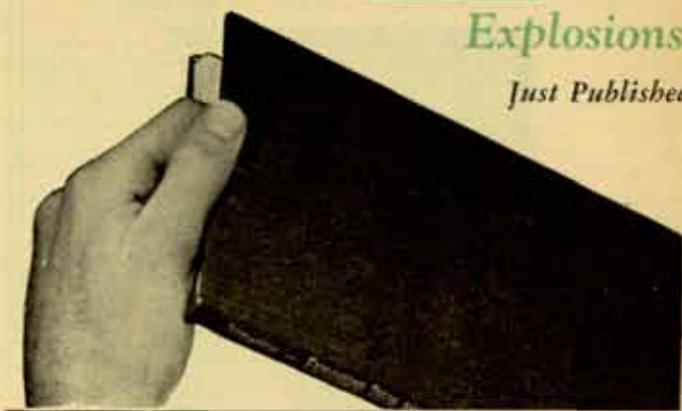
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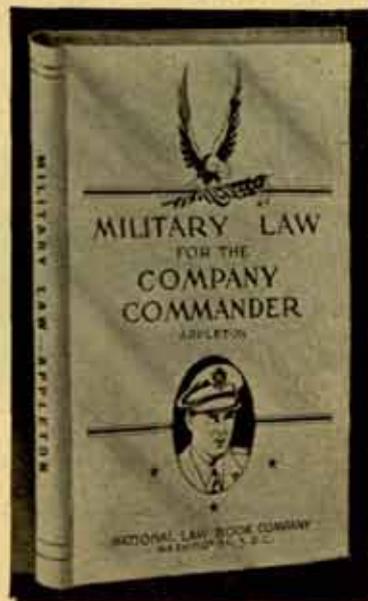
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\*In preparation.

## MILITARY LAW FOR THE COMPANY COMMANDER

By JULIAN J. APPLETON, B.S., LL.B.  
*Assistant to the Staff Judge Advocate  
Camp Sibert, Alabama*

Foreword by  
BRIGADIER GENERAL HAIG SHEKERJIAN



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normal amount of snafu, proved its value both as a shock action force and as a defensive force when defensive forces were needed. Things can go wrong in battle, especially the first few battles in which untried troops engage, but Raff's battalion and the auxiliaries it picked up from place to place did not let upset plans hamper the unit's efficiency.

From training at Benning to Tebessa, Gafsa, Faid, Sidi Bou Zid, Ferianna and Thelepte, the author describes how the unit trained, and then what it did with the training. The 2d Battalion, 503d Parachute Infantry, made quite a few headlines and even more feature stories. Colonel Raff tells how it happened.

### The Old Army

AS A CAVALRYMAN REMEMBERS. By George Brydges Rodney. Caldwell: Caxton Printers, 1944. 297 Pages; Illustrated. \$4.00.

In these days of LST's, flame throwers, incendiary bombs, robot bombs, and teller mines, Colonel Rodney's book of the Old Army is a refreshing memory. The colonel was commissioned during the Spanish-American War, and the service of which he writes carries on to the World War. It was a day of personalized war, when men had fewer machines to help with the fighting, and when their worst enemies were poor food, the weather, and poor equipment and housing.

The colonel has a delicious sense of humor, a memory for detail that is the more amazing when it is realized that memory stretches back forty years, and a love for the old-time United States soldier that is not disguised by the light style of his writing. The book, coming from an old soldier, and from a cavalryman at that, could have been mawkish and sentimental but it is not. Incident after incident, from a massacre in the Philippines to a blackjack game in Mexico, is portrayed with humor, pathos, or just plain good description, and then dropped without moralizing or preaching.

Not long ago the reviewer heard a young officer speak of the Old Army (of 1935!). The Old Army of 1900-1917 had a flavor of its own, compounded of romance, glory, hard service, and the love of good horses. Colonel Rodney's skilled writing imparts the flavor of the army of those days. That army wouldn't last long in modern warfare, but it must have been more pleasant service than we have today, in spite of the discomforts.

## WORLD PROBLEMS

### No Apples This Time

WHEN JOHNNY COMES MARCHING HOME. By Dixon Wecter. Boston: Houghton Mifflin Company, 1944. 558 Pages; Notes; Index. \$3.00.

Here is a book we wish every American, in or out of uniform, would read. Eleven million servicemen and women will be returning to civil life one of these days, and the prosperity and safety of the United States depends, in large measure, on how these veterans are accepted into the life of this country. Drawing upon the experience of the Revolutionary War, the Civil War, the World War, and to a limited degree, of this war, Mr. Wecter has written a thorough, complete, reasoned, and reasonable treatise on the problem of the returning veteran and how it was met.

If the author has missed any facet of the complex problem, it would be difficult to point out. From newspapers, books, magazines, personal letters, legislative records, service publications, veterans' publications, and other sources, he has

ought together facts, statistics, opinions, and statements that describe in great detail what happened to groups and individuals after our three great wars. He names names and places and the book reads like a fast-moving novel.

We have made many mistakes in our treatment of veterans in our nation's history, and we will make many more. Over-indulgence, neglect, sympathy, callousness, economic penalties, economic advantages—the pendulum has swung both ways. We have blamed veterans unjustly for crime waves, and slipped prohibition in on them while they were not looking. We have embittered some by being inconsiderate, and ruined others by pampering them. With the background of history that Mr. Dexter presents, perhaps we can do better this time.

### Six Feet Under?

**THE NAZIS GO UNDERGROUND.** By Curt Reiss. New York: Doubleday, Doran & Co., 1944. 201 Pages; \$2.50.

Mr. Reiss, whose books about Germany and the Nazis make interesting reading even though we must take his word for his sources, is a most prolific writer. This latest effort, *The Nazis Go Underground*, is an exposé of the postwar plans of the Nazi party. Still taking Reiss' words for the facts he marshals the thousands, we are assured that the Nazis have laid their plans carefully and well. Alibis for the men designated to treat with the victors (they weren't really Nazis, just victims of circumstances), organizations to keep in touch with the new government of Germany, organizations to take advantage of those in other countries who are in sympathy with the Nazis with Nazi aims—preparations are in an advanced state of completion.

The final chapter, titled *What Can We Do About It?* really isn't much help, being all generalizations.

### The Hard Way

**KEEP THE PEACE THROUGH AIR POWER.** By Allan A. Michie. New York: Henry Holt and Company, 1944. 192 Pages; Bibliography. \$2.00.

The first 102 pages of the book are a restatement of the evidence by now familiar to every reader who stays current with political writing, that Germany is already preparing for the next war, and that not only the Nazis are doing so, but that the bulk of the German people, commerce, industry, and agriculture are sympathetic with the aim of world domination. To prevent another German-sponsored war when another generation grows to troop age, measures must be taken.

Mr. Michie's solution, a Big Four combined air fleet, made up much as Eisenhower's force is composed (four different nations, but without loss of national identity) to blast recalcitrant industrial plants that persist in violating peace terms, is a direct outgrowth of the British method of controlling native tribesmen. The plan contemplates allied inspectors, who upon finding irregularities that indicate German rearmament, will demand surrender of matériel, the machines that made it, and the blueprints. If the surrender is not forthcoming, after due notice the plant will be bombed, after giving the workmen time to make their escape.

Why it is more economical to use an air fleet rather than an engineer demolition unit Mr. Michie does not say. He does say that there would be no obstacle in the way of an air fleet getting to the plant in question—but if a civilian inspector can get to a plant, a military unit also should be able to do it.

The plan may have its points, but not as he presents it.

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## MISCELLANY

## For Armed Services Only

- OUR ENEMY JAPAN. By Wilfrid Fleisher. 179 Pages. 25¢.  
 THE NAZI STATE. By William Ebenstein. 335 Pages. 25¢.  
 THE FIGHT AT PEARL HARBOR. By Blake Clark. 104 Pages. 25¢.  
 THE RUSSIAN ARMY. By Walter Kerr. 186 Pages. 25¢.  
 GAS WARFARE. By Brigadier General Alden H. Waitt. 221 Pages. 25¢.

All of these titles are those of books that have been published in more expensive editions, and are now made available to members of the armed services only at the twenty-five-cent price. *The Fight at Pearl Harbor* is considerably shorter than *Remember Pearl Harbor*, from which it was taken, but the other titles are complete and unabridged.

## Two-Bit Specials

- A SHORT HISTORY OF THE ARMY AND NAVY. By Fletcher Pratt. 262 Pages. 25¢.  
 THE WAR IN OUTLINE. Army Orientation Course. 211 Pages. 25¢.  
 SO YOU'RE GOING OVERSEAS. By Stockbridge H. Barker. 113 Pages. 25¢.  
 GERMAN DICTIONARY FOR THE SOLDIER. By Frank Henius. 239 Pages. 25¢.  
 FEAR IN BATTLE. By John Dollard. 64 Pages. 25¢.

The only excuse for lumping these five interesting titles in one review is that of saving space—each of these books, regardless of the 25¢ price, deserves a review of its own. Pratt's *History* presents some different (and proud) slants on the history of America's army and navy. Captain Barker's book contains many helpful hints, hints that might save time, embarrassment, and risk, for those going overseas. *Fear in Battle* is a scientific study of how men react to battle, prepared from interviews with 300 veterans of the Spanish Civil War. Reading this book might better prepare you mentally for your first battle.

## Chuckles

- BEST CARTOONS OF THE YEAR, 1944. Edited by Lawrence Lariar. New York: Crown Publishers, 1944. 127 Pages. \$2.00.

One of the few bright spots in the life of a book reviewer is the rare occasion when he can find a gem like this tucked away in the piles of books on *Why France Fell*, and *What We Should Do to Win the Peace After the Armed Forces Win the War*. Americans, at least, have not forgotten how to laugh, and other Americans have not forgotten how to make them laugh. The 1944 crop of Lariar's lunacies leans rather heavily to uniform gags, but it's a period of uniforms anyhow, and even cartoonists reflect the times. There are only two drawings in the collection you wouldn't care to show your 13-year-old daughter, and she probably would appreciate them if you weren't looking over her shoulder. One of our favorites shows a pair of sentries in a bleak storm, one saying, "God help the sailors on a night like this."

## Service Fiction

- FIGHTING WORDS. Edited by Warfield Lewis. Philadelphia: J. B. Lippincott Company, 1944. 317 Pages; Biographical Notes; Illustrated. \$3.00.

Twenty-five short stories and twenty-eight cartoons, prize winners in a contest sponsored by the Armed Forces Service League, should be some indication of what our service people are thinking. The short stories, with two exceptions, are about the service, and indicate that our enlisted and junior commissioned personnel are concerned with heroism, doing the job well, and with winning. A peculiar fact is that a fair proportion of the stories are about services other than those to which the authors belong.

## Rebirth of Alaska

- I GOT A COUNTRY. By Gilbert W. Gabriel. New York: Doubleday, Doran and Company, 1944. 432 Pages. \$3.00.

The JOURNAL reviews few novels, and finds few good of the ones it does review. This one is different. Mr. Gabriel knows soldiers, he knows men, he knows Alaska—and he can write. Every officer who has seen troop duty knows Tec 5 Hansen, Major Giesser, Captain Beauregard, and the rest of Gabriel's military characters.

The book concerns, primarily, Corporal Hansen, who found himself and Alaska. How he was transformed from a mood little bookworm to a man accepted as a man by the Alaskan themselves makes a good story, with characters who ring true in situations that could happen, and amid scenes that are described by an expert. The love interest is subordinated to a reasonable proportion.

## "Our Allies, Too"

- THE MARINE CORPS READER. Edited by Colonel Clyde H. Metcalf. New York: G. P. Putnam's Sons, 1944. 594 Pages; Index. \$3.00.

Colonel Metcalf has selected well in his purpose to present the past and the present of the Marine Corps through the medium of short articles that have been published throughout the years. The Marines have always had the advantage of color and glamor—the very nature of the Corps lends itself to good writing. The editor has given us just enough of the history of the Corps to explain the background of the present—the bulk of the book tells how Marines train and fight.

## Not Merely Subtraction

- VALLEY OF THE SKY. By Hobert Douglas Skidmore. Boston: Houghton Mifflin Company, 1944. 169 Pages. \$2.00.

This is fiction, about the crew of the *Harpie*, and the *Harpie* herself. Written by a staff sergeant in the Air Forces, the book shows evidence of the author's familiarity with the scenes he describes. The crew of the *Harpie* was a group of men just like the crew you might find on any other bomber—ten men of varying backgrounds, character, and emotions, who worked together as a team and took the good with the bad. There had been losses and replacements among the crew, and the same could happen again, up to the point where the *Harpie* herself made one trip too many. Here is fine writing, both because it is so descriptive and so sympathetic. There really is no plot, except the war in the Pacific is plot enough. When you finish this book, you will realize that "One of our bombers is missing" is not a phrase to be dismissed as mathematics.



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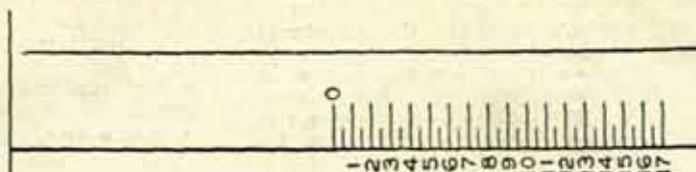
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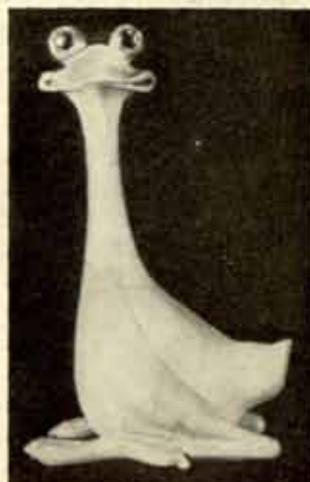
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