

COAST ARTILLERY JOURNAL



NOVEMBER-DECEMBER, 1945

SAVE

HEADQUARTERS
ARMY GROUND FORCES
OFFICE OF THE COMMANDING GENERAL
ARMY WAR COLLEGE
WASHINGTON 25, D. C.



To all members of
Army Ground Forces:

At this, our first peacetime holiday in five years, may I wish every soldier in Army Ground Forces a Christmas rich with memories and a New Year abundant with continued peace, prosperity and contentment.

Sincerely,

Jacob L. Meyers
JACOB L. MEYERS,
General, USA,
Commanding.



ARMY SERVICE FORCES
OFFICE OF THE COMMANDING GENERAL
WASHINGTON 25, D. C.



To all members of
The Coast Artillery Corps:

On behalf of the officers and members of the Executive Council of the United States Coast Artillery Association, may I extend to each and every Coast Artilleryman throughout the world congratulations upon your significant contribution to the great victories attained during the past year, and best wishes for a Merry Christmas and a Happy, Healthy New Year.

LeR. Lutts

LeR. LUTTS
Lieutenant General, GSC
President, Coast Artillery Association

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CONTENTS



COVER: <i>Antiaircraft Machine-Gun Position along the Ledo Road. AAF Photo.</i>	
HELIGOLAND. <i>By Major M. R-C. Nanson</i>	2
FROM THE FIGHTING FRONTS:	
BATTLE OF SUNG SHAN MOUNTAIN. <i>By Lieutenant Frank W. Hofstatter</i>	8
ACK-ACK TURKEY SHOOT. <i>By Captain John Thornton</i>	11
225th SEARCHLIGHT BATTALION IN THE ETO	13
AAA ON THE VILLA VERDE TRAIL. <i>By Lieutenant Perry R. McMabon</i>	17
THE ENEMY SEEKS OUR LIGHTS. <i>By Captain Roger C. Stroud</i>	21
FORTY-EIGHT HOURS WITH AN AIRBORNE BATTERY. <i>By Lieutenant John R. Coiner</i> ..	23
JAP PARATROOP ATTACK ON LEYTE	24
M-16s SPEARHEAD CAGAYAN DRIVE. <i>By Lieutenants C. W. Despain and Don C. Talbott</i> ..	26
SEARCHLIGHTS ON LUZON. <i>By Lieutenant Horace J. Dussault</i>	28
231st SEARCHLIGHT BATTALION	31
EXCERPTS FROM GENERAL MARSHALL'S REPORT	34
THEY WERE THERE!	38
ANTIAIRCRAFT ARTILLERY TRAINING UNDER COMBAT CONDITIONS.	
<i>By Lieutenant Colonels Donald T. Michael and Benedict M. Holden</i>	41
AZIMUTH FOR 40MM GUNS. <i>By Lieutenant Colonel James D. Caulk, Jr.</i>	42
LOCAL DEFENSE FOR SEACOAST ARTILLERY. <i>By Lieutenant Colonel Rowland K. Bennett</i>	43
THE GLARE BARRAGE. <i>By Lieutenant Colonel Russel K. Havighorst</i>	48
OVERLOADING? <i>By Colonel William B. Johnson and Mr. W. A. Combe</i>	50
THE TARGET-PRACTICE ANALYZER, M1. <i>By Lieutenant Colonel R. D. Heintz, Jr.</i>	53
FOR THE LONG HAUL. <i>By Colonel M. R. Thompson</i>	56
ONE ROUND—ONE PLANE. <i>By Captain Anthony B. Knollman</i>	58
THE FIRST ARMY'S AAA. <i>By Colonel C. G. Patterson</i>	59
COAST ARTILLERY CITATIONS AND COMMENDATIONS	62
SEACOAST ARTILLERY TEST SECTION NOTES	66
NEWS AND COMMENT	68
NEWS LETTERS	80
BOOK REVIEWS	83
INDEX	92
BOOK LIST	94

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HELIGOLAND

Heligoland is an island worn by the seas into two isles about twenty-eight miles from the German North Sea Coast.

Great Britain seized the Heligoland islands from Denmark in 1807 to counter a hostile act of Napoleon Bonaparte, which was made possible by his domination of the other European powers which he had defeated with his French armies, or had frightened into docility through his greatness.

In 1890 Great Britain ceded Heligoland to Germany, who made it into a strongly fortified destroyer and submarine base in time for World War I, 1914-1918. By the Peace Treaty of 1919 Germany retained the islands, but being compelled by the terms of the treaty to destroy their fortifications and naval utilities, she reconstructed them more thoroughly than before and in time for World War II. Germany began redefining Heligoland as a submarine and naval air base in 1936. Most of the larger Frisian islands from Borkum to Sylt were also heavily fortified.

It may seem to have been weak of Great Britain to have let go her control of such a dominating island position before the entrances to Germany's leading ports and to her Kiel canal. Was Great Britain's judgment at fault in her estimate of the value of Heligoland? Would Heligoland in Great Britain's possession have been a deterrent to warfare? Would its possession have eased Britain's task? Some fuller details of its history and of events connected with it may help to give the answers.

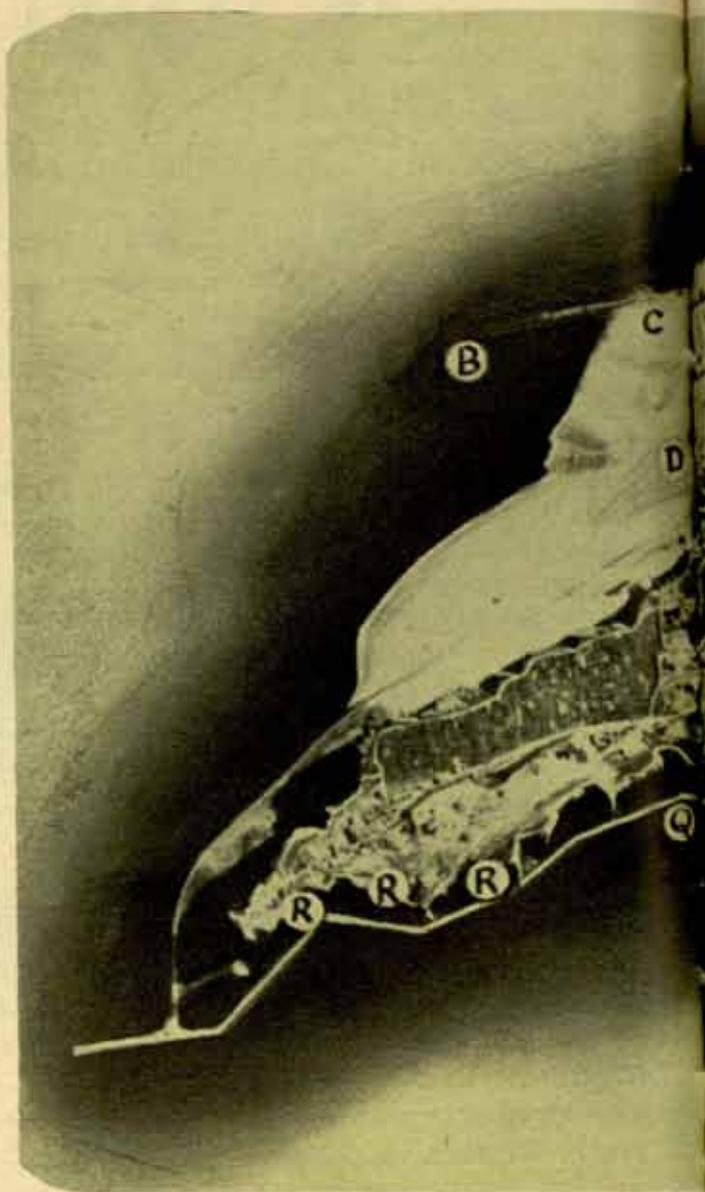
HELIGOLAND'S POSITION

Figure 1 shows the position of Heligoland in regard to Germany's 180-mile-long North Sea seaboard, and to that of the adjoining countries of Denmark and Holland. In half this length Germany's four North Sea ports and the entrance to the Kiel ship-canal are clustered. One of these, Wilhelmshaven on the Jade Bay (or river) has been her naval base.

The battle of Jutland (or in German of "Skager-Rak") of May 30, 1916 in World War I took place to the northwest of the piece of Denmark shown in figure 1. From it the German High Seas Fleet steamed southeast to Jade Bay. The earlier battle of Heligoland Bight of August 29, 1914 took place from five to twenty miles westward from Heligoland between Britain's cruisers and destroyers and the German destroyers on patrol from Heligoland, supported by cruisers from the Jade River. In World War I Heligoland's defenses were never engaged; and, in World War II only its anti-aircraft defenses were engaged, but these on many occasions.

THE ISLES AND ISLANDERS

Figure 2 shows the small size of Heligoland; Rock Island, which has 130 acres, averages 198 feet high; it has steep red cliffs and the Canal slopes to the southeast where there is a sandy spit. This was the home of Frisian fishermen but

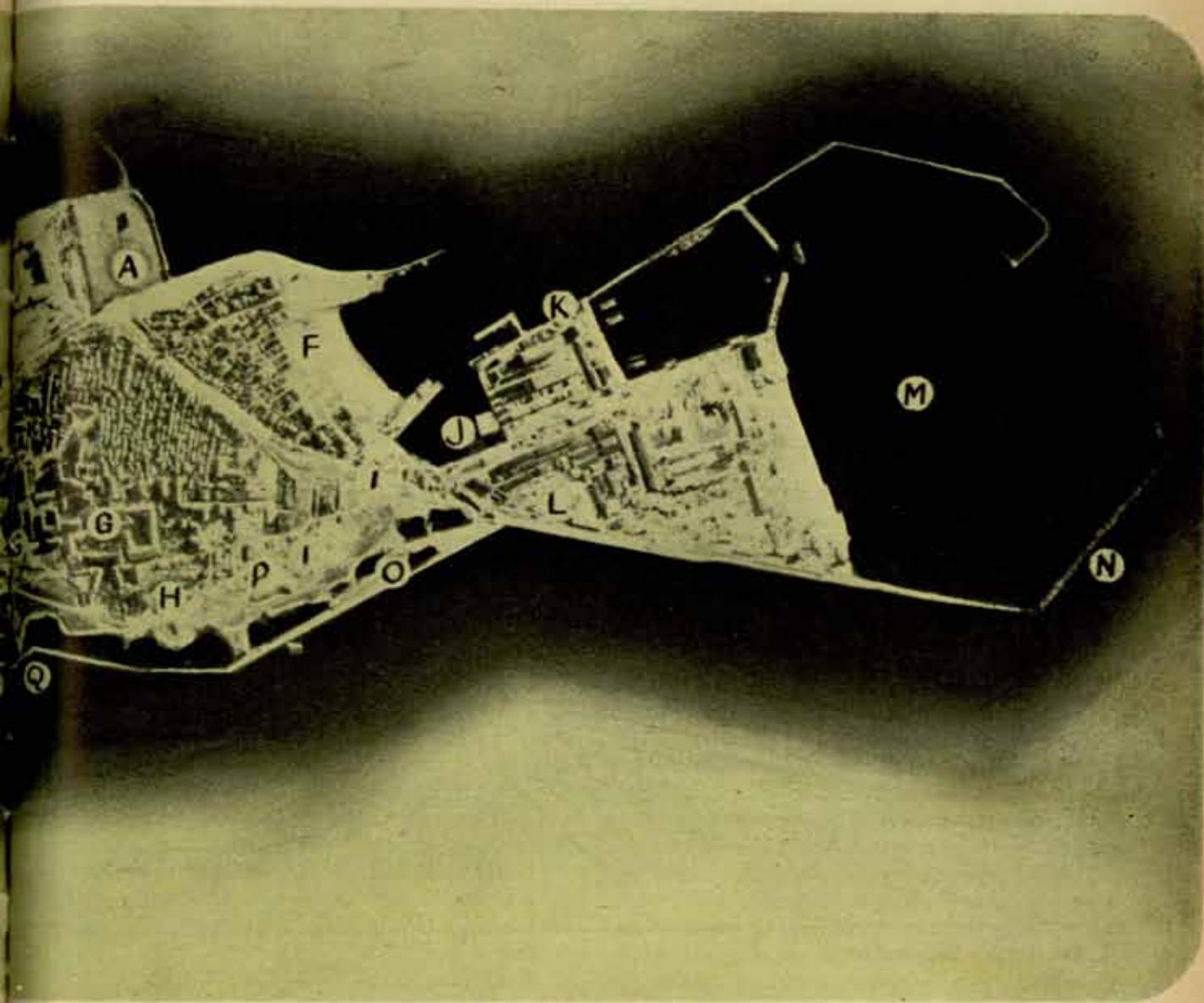


Air view of Heligoland: (A) new harbor; (B) mole; (C) pipeline pumping silt; (D) area being reclaimed; (E) Oberland, or Hightown; (F) Unterland, or Lowtown; (G) Barracks; (H) Lighthouse; (I) entrances to tunnel connecting Oberland and Unterland; (J) war vessels; (K) hangar; (L) naval stores; (M) outer harbor; (N) old mole destroyed after the last war; (O) an AA battery; (P) tunnel entrances to harbor; (Q) sea wall (erosion protection); (R) gun positions.

the smaller island became the bathing resort for people from Hamburg and Bremen. The two islands were united until about 1720; earlier the island had been five times the size of the present two isles. The sea was then rapidly eroding them.

Frisians inhabit Heligoland; this race is also found on other islands, Danish, German and Dutch, of this coast and on the coast itself, which, including that of Schleswig-Holstein is the part whence came the Anglo-Saxon in

HELGOLAND



By Major M. R-C. Nanson, Royal Artillery (Ret.)

...nders of Britain 1,500 years ago. Frisians, dwelling on Eng-
land's Hampshire coast, were employed by Alfred the Great
in 893 to man 60-oar long-boats for the attack on the war-
ships of the Darrish invaders of England at that time. The
names Frisian and Friesland applied to islands and coast-
land of the Heligoland Bight and the survival of differing
dialects of a Frisian language and the winning of their live-
hood from the sea has preserved for the Frisian a racial
unity without a national cohesion. This was expressed by
the islanders of Heligoland when they made in 1919 a
claim for independent nationality to the Peace Conference
which was striving to settle the boundaries of the European
nations on an ethnographical basis. Heligoland's claim,

quoted below, was not accepted: "We Heligoland, on
our little island in the middle of the sea, far from all the
world's commotion, form the very smallest nation which has
for centuries maintained its independence and local cus-
toms. We seek neither wealth nor ostentation, but desire
and hope to live our lives in our lonely home upon the
rocks, in peace and contentment as our forefathers did be-
fore us."

GREAT BRITAIN AND HELIGOLAND

In February 1807, Napoleon Bonaparte defeated Rus-
sia's army and so completed his conquest of Europe except
for England, Spain and Sweden. The Czar of Russia in

June 1807 agreed to unite his warships with the Danish fleet at Copenhagen, and to cooperate with the other conquered countries to keep British trade out of Europe's mainland. England's reply was in August that year the seizure and the holding in pledge of the Danish fleet by a naval and military attack on Copenhagen, and in September the capture by a naval squadron of the island of Heligoland for use as a depot for British merchandise from which to facilitate the continuance of commerce with the willing businessmen of the continent in spite of Napoleon's customs guards.

In 1810 Napoleon annexed this German coast of Schleswig-Holstein and Oldenburg, and in 1814 after Napoleon's defeat by the resuscitated Allies his faithful supporter, Denmark, formally ceded Heligoland to Great Britain.

In 1890 Great Britain ceded the islands to Germany without consulting the inhabitants and against their wishes, but in terms of a treaty which secured that the inhabitants should not be liable for conscription into the German armed forces. The cause for this cession takes us to another scene, for it is involved with the need to restrain German forcible methods for the acquisition of territorial possession in Africa.

Prior to the treaty which ceded Heligoland, Great Britain had not an East African Colony of the Crown. For hundreds of years she had been friendly with the Sultans of Zanzibar who ruled much of this coast and she was concerned together with France and Germany in the guarantee of the Sultan's independence. There was, however, a trading colony controlled by the British East-Africa Company.

In 1888 Germany began an attack on the Sultan of Zanzibar's territory from the south with troops and warships. This followed the voyage of Dr. Peters, sent out by Germany in 1887 to acquire colonies in Africa. It was necessary for Great Britain to limit German progress by agreement rather than to copy her methods, for which Britain was not prepared.

In contrast, when the French in the nineties began ringing Nigeria in West Africa with military posts of effective occupation, British native troops did the same, interlacing too, and this without war—but pending agreement. When the French in 1898 planted a detachment of troops on the white Nile on the line of progress of the Anglo-Egyptian

Force for the recovery of Egypt's Soudan provinces, lost to the Mahdi in 1883, Kitchener removed the French post peaceably, and this seems to have terminated this provoking system. The danger of this system to British trade in East Africa and its injustice to the Sultan of Zanzibar was removed by the cession of Heligoland.

To the stay-at-home Germans British generosity appeared great, yet Great Britain is said thus to have acquired 650,000 square miles in East Africa; a western boundary to expansion there was also fixed. The Kaiser was so pleased that he gave his Chancellor the Order of the Black Eagle; and, the *British Times* newspaper said that the cession of Heligoland had given them all a gigantic task, which of course was the need to develop Africa with order and justice, the so-called "white man's burden."

In 1890 Germany was a second-class naval power. She was then building her commercial fleet and the Kiel canal; at the end of the nineties she decided to build a great fleet strong enough to protect her increasing commerce and colonial empire. The acquisition of Heligoland fitted in with these plans. Nevertheless its cession had received the approval of the British Admiralty. The strategic duty of the Admiralty is to protect the coast line of Great Britain and her colonies, and to safeguard her trade routes in time of war. Heligoland was not on any important trade route and by being fortified it would become an additional burden, while being an uncertain protection to what was of little value—a post from which to watch German ports.

GERMANY AND HELIGOLAND

To Germany Heligoland became, when fortified, a useful outpost to the commercial and naval harbors of her North Sea coast. It was a means of observation of and delay to any enemy force which would closely harass exit from her ports, or assail her coastal shipping.

The fortification of the Frisian Islands of Sylt, Heligoland and Borkum has given Germany command in some sea-room outside her North Sea ports, useful for naval exercises and trials, and coastal shipping; Heligoland as a base for seaplanes, submarines, mines and destroyers has made penetration into this area somewhat dangerous to her enemies' surface craft.



If Great Britain had not ceded Heligoland to Germany in 1890, she would have lost it to Germany in 1914, because it would not have been practical to supply a suitable naval force to support it early enough. But Germany's naval base in Jade Bay was near enough to render support to her destroyers based on Heligoland when in 1914 in the battle of Heligoland Bight a British cruiser and destroyer force was employed to bring about the interception of German destroyers when sent out on patrol from Heligoland. In spite of fog which created some difficulties for the British, the German light cruisers in Jade

Bay received early information and joined the battle; but the presence of British battle-cruisers in close support caused the Germans to withdraw with the loss of three cruisers and one destroyer to the British loss of one cruiser and three destroyers before the German battle-cruisers could come up.

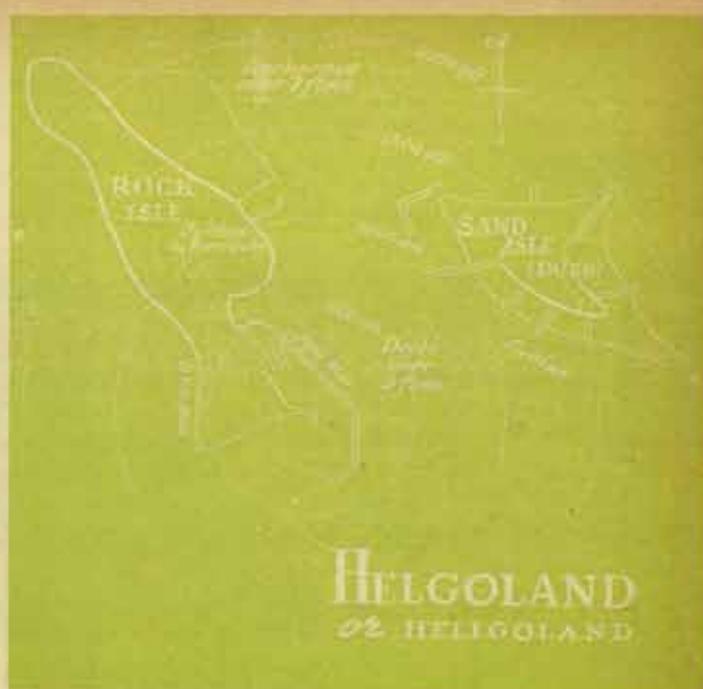
Germany's fortification of Heligoland caused her to strengthen the island against the sea's erosion, and to improve their harbor shelter; these were undoubted benefits to the islanders. In 1910 Germany built a sea wall twenty-five feet high of ferro-concrete at a cost of thirty million dollars. The harbor southeast of the southern extremity of Rock Island was about the size of that of the island itself and was used for submarines and seaplanes; there was a U-boat dock and there were also hangars. In the lee of the island an anchorage for large ships existed. The small sandy island, Duen, was protected with groins.

By the outbreak of war in 1914 the gun and mortar defense of the island was complete. After World War I 2,400 guns were found in Heligoland ranging from 12" naval guns in twin turret mountings down to machine guns. They included 11" Howitzers, 8" and lighter guns, and AA guns. There were searchlights. The island's defenses cost 2½ million pounds, but in the 1914-18 war they fired no rounds in defense of the island. Some concrete emplacements were fifty feet thick; some casemates were of 3" armor. Rock Island was honeycombed with passages, magazines, living quarters, etc.; some compartments were 100 feet below sea level.

Although the terms of the Armistice of the 10th November 1918 decided that forts, harbors, etc., were to be dismantled by German labor under Allied control, on 13th March 1919 unsundered units of the German Navy still held Heligoland, but by September the evacuated islanders returned and the dismantling began. Demolition consisted of cutting through gun barrels, removing breeches, blowing up emplacements, establishments, underground works, etc. Harbor moles and breakwaters were demolished to three feet below mean low-water level and the harbor choked by the masonry from the breakwaters. In 1922 the demolitions were completed and inspected by the Allies. Only the inner harbor was left with depths of ten to thirteen feet for use of fishing boats; the main industry of the island was fishing, and in the summer months the tourist trade; war stopped these and evacuated the civil population.

The Versailles Treaty of 1920, besides ordering the above destruction, forbade reconstruction of a similar kind; it allowed Germany to retain Heligoland. In 1935 the British government, by the Anglo-German Naval Treaty on Tonnage, acquiesced in a great measure to German rearmament because she could not stop it. This did not imply rearmament of Heligoland, which the Germans began to rearmament in 1936. Most of the larger Frisian Islands from Borkum to Sylt were also heavily fortified. The British government knew of this, but regarded it as a minor matter compared with negotiations for a general settlement with Germany.

Various proposals for the disposal of Heligoland were advanced after the close of hostilities in 1917, including its retrocession to Great Britain, its cession to Denmark and its being placed under the League of Nations. When the question was considered by the Supreme Council, the last of these solutions was found to be unacceptable and the



future of the island was therefore discussed on a purely strategic basis.

The view of the British government was that the retrocession of Heligoland to Great Britain would merely create a military embarrassment and that its acquisition by a small Power would probably result in its seizure by Germany in the event that country went to war again. In the circumstances the decision which was taken, to hand it back to Germany, appeared to be best.

HELIGOLAND'S INFLUENCE

In World War II, Heligoland surrendered on 5th May 1945; no information has been disclosed of its second fortification, except that on 18th April 1945 the dropping of 4,500 tons of bombs from the air is said to have completely destroyed it, with the exception of the U-boat pens which survived this bombardment more or less unscathed. The resistance of U-boat pens to bombardment on Heligoland, at Bergen in Norway and at St. Nazaire in France is a significant fact.

Lacking information on this form of fortification for Heligoland, I quote from a description which has been given of U-boat pens at Bergen:

"The Bergen bunker is built above water level on the dockside and is not cut into the side of the fjord. The whole bunker is about the height of a three- to four-story building and is made in the shape of a solid rectangular box. Already the roof is eighteen feet thick and up to the time of surrender work was still in progress on the top of the bunker. Laborers were carrying up a layer of rocks which, when cemented in, implied another three feet of thickness, or perhaps more. It appeared that twelve U-boats could be refitted at a time in safety under the heaviest air attacks. There were seven pens within the bunker where were established overhead transporting cranes and floodlighting. Other pens were being completed. There were machine shops, stores, canteens and rest rooms; also blackout curtains for the waterway apertures. There was abundant power for machinery and diverse equipment. All was intact."

Heligoland's U-boat pens were apparently forerunners of



Bombed Heligoland surrendered to the Allies.

Fox Photo

those elsewhere, hence this home-sited base probably played an important part in the development of their design. The U-boat bunker (or war-housing for submarines) is a feature of World War II but in World War I Heligoland as a U-boat base played its part and that free from serious bomber interference, which together with the reconnaissance capacity of Coastal Command's flying boats has been so much feared by the U-boat in this second war with Germany. All developments of giving means of protection to U-boats from air attack must then be regarded as an important contribution to Germany's U-boat campaign on which so much depended in these two wars. It is then readily seen how much more important in War II the harbor protection afforded by bases such as Heligoland became as a contribution to naval operations.

Too late for her success Germany began to establish methods capable of evading the attentions of aircraft, the actions of which have been constantly adjusted to her tactics. Thus the Allies have had time to establish military superiority on land, and to win the war against Germany. The U-boat bunker has been Heligoland's main contribution to operations in World War II.

Though we regard Heligoland's function as a submarine base the more important, that of outpost to Germany's North Sea ports has been her part in both wars, though this duty was only demonstrated in World War I by the battle of Heligoland Bight, already described in outline. Naturally that duty has facilitated the primary function, and vice versa. The water inside the Frisian islands' defenses has

been called Germany's "wet triangle," indicating thus both her need and her command of it. Her need was shown by the late arrival of her battle cruisers, delayed for five hours by the Jade River bar owing to a low-water period; her command is measured by the fact that she preferred to keep her ships inside the bar. British submarines could penetrate the Heligoland Bight; submarines reported the habits of the German destroyer patrols there.

The German conception of defense in harbor is a sound one, for with the multiplicity in mechanism needed in war and the increased value of trained men with operational experience and with workshop skill, the replacement of casualties is a more serious matter than formerly; immediate protection in harbor is therefore a manpower and a physical fitness necessity.

What of the future? Heligoland might prove of more value to the Allies to control a disarmed Germany than to watch her when armed. Concrete and armor for harbor defense may alter ship design and prove a restorative to naval bases on seas turned into canals by aircraft, as the Mediterranean Sea was described by one historian after World War I. Heavy coastal defenses will still be needed; for otherwise, though these harbor defenses may withstand the bomb, heavy high-velocity artillery would the more easily wreck them.

Some measure of the U-boats' success compared with other means of sinking, namely by raider, mine and aircraft, is shown for World War II by recent figures published to be in the ratio 7 to 4 for British, American, other Allied



Typical U-boat pens.

British Official

which it would be easy to get lost for days.

Some of those bays were used as living spaces, but most of them were storerooms, and in a few of them are stowed more than 200 torpedoes.

Almost in the middle of the western side of the rock is the "Spirali." This is a double spiral tunnel leading up to the Oberland.

The tunnels are fitted with three tiers of bunks all the way up, and here the whole civilian population of the island used to sleep.

This raid obliterated the old town on the Oberland and the residential quarter on the flat land below, and yet only three civilians were killed. The total casualties in the great raid were only twenty-three and the other twenty were men manning the batteries.

At the extreme northwest of the Oberland is the Schroder battery, consisting of three 12-inch guns, each gun being in a separate turret

much larger than the two-gun turret of a battleship.

The southeast corner of these three sustained a direct hit from a heavy bomb which has clearly penetrated the armored turret and burst inside close to the breech of the gun.

The gun and all its loading arrangements have been completely wrecked and the turret has been ripped up and one-half of its armor-plating flung back like the lid on an open sardine tin.

The other two guns have not been hit, but their ammunition supply arrangements have been wrecked by our bombing.

Here there are craters 60 feet across, which had penetrated into the tunnels connecting the gun positions and supplying the ammunition. At this end of the island, too, there is a big radar station. But only parts of the outside equipment still exist.

On the southeast corner of the Oberland, there was a battery of 5.9-inch guns, which could also be used against aircraft. There were also batteries of 4.5-inch flak guns and a very large number of light flak weapons such as Bofors. All these have been demolished either by our bombing or by demolition, since the surrender.

All the batteries were connected to the underground tunnel system. The only structure on the Oberland which is intact is the control tower of the great fort.

It is faced with brick the same color as the rock of the island, but its walls are of three-foot thick concrete, reinforced by a tremendous strong internal structure. This tower is thirty feet square and about eighty feet high.

In it are living quarters for the personnel on duty, and at the top a square room with slit openings below, which used to house the instruments controlling every weapon in the fortress.

When our naval party took over Heligoland there was not a soul on the Island. The Germans had abandoned it owing to its destruction and to lack of water.

and Neutral shipping combined, and in the ratio 5 to 1 for American shipping only. It is reckoned not on tonnage sunk but on numbers of ships sunk. The number of sinkings by U-boat which were given were British 1,360, American 440, other Allied 670, and Neutral 300.

* * * * *

EDITOR'S NOTE: The following is extracted from an article in the London Daily Telegraph of 18 September, by Commander Kenneth Edwards, R.N. It throws additional light on the armament of Heligoland and the island's U-boat pens.

The top of the island, known to the Germans as the Oberland, is almost flat, and is about a mile long and half a mile across at its widest point.

In this great rock there are more than eight miles of tunnels. Some of these are old, and the lowest of them was made when Heligoland was a British colony, and is lined with English brick.

All the German tunnels are lined with concrete, and the most modern was only made in 1940. The German Todt Labor Organization took 25,000 slave laborers to the island to do this work.

I spent some hours today walking through the tunnels and clambering about in the wreckage on the Oberland. The dockyard and the residential quarter on the low-lying land to the east and southeast of the rock is a shambles.

Apart from that, there are only the U-boat pens, which have been hit several times by bombs but are only dented and chipped, and the power station, which is in a great concrete bunker nestling under the cliff so that it would be almost impossible for it to be hit by a bomb.

First, I explored the newest of the tunnels—that built in 1940. It is wide enough to take a light railway and is about ten feet high.

Off it run numerous deep bays and tunnels connecting with other parts of this vast underground system, in

from the FIGHT



Battle of Sung Shan Mountain

By Lieutenant Frank W. Hofstatter, Coast Artillery Corps

(EDITOR'S NOTE: This is a story of how an AAA MG Battery, Airborne, supported the Chinese Army at the siege of Sung Shan Mountain. Lieutenant Hofstatter was not assigned to this organization, but was a member of a unit that helped supply this battery.)

When General Stilwell's Chinese and American forces started their drive in North Burma, Generalissimo Chiang Kai-shek's Chinese forces crossed the Salween River in a simultaneous effort to push the Japs out of Burma and Western China. The main objective was to reopen the Burma Road, or that section toward which the Ledo road was driving.

For several weeks, the campaign went well, and many

bridgeheads were established along a 200-mile section of the river. Advances were made up to twenty miles in depth in all sectors along the old Burma Road. Then, there was a snag!

The Chinese advancing over the 14,000-foot Koligong mountain range cut off about 2,000 Japs in an encircling maneuver, and these Japs dug themselves in on one of the knolls of the 12,000-foot peak of Sung Shan Mountain. This is on the Chinese side of the Salween River, just where the Burma Road crosses. In fact, the Burma Road in a vast series of hairpin turns winds up and around the mountain. Those Japs had to be dislodged in order to open this section of the Road. Thus began the siege, or battle of Sung Shan Mountain.

As a reminder, the Burma Road starts in Kunming, China, and thence runs southwest to Rangoon in Burma. In this section of the world, there was only one road, with virtually no cut-offs, or side roads. The area in which the battle took place drops from the 7,000-foot Paoshan Plateau down into the deep Salween gorge at a point about 2,000 feet above sea level. This is where the road crosses the stream and literally claws its way up Sung Shan. In some places the way it is cut into solid rock cliffs makes it one of the engineering feats of all times. So great are the sharp turns and switchbacks, it takes about thirty miles of road travel to make a vertical distance of two miles, and a horizontal distance of about one.

The country was wild and extremely mountainous, and through it ran the deep gorge of the swiftly flowing Salween. It was a country in which it was terrifically hard to wage an offensive war, yet ideal for those who wished to hole up on the defensive on the tops of those wild, desolate Himalayas.

Not only did the Japs cover the upper portion of the road with fire from all weapons, but it was full of road blocks consisting of everything from engineless Lincoln Zephyr



Remains of the knoll on the top of Sung Shan after the blast.

WING FRONTS

to broken-down Armstrong-Vickers tanks, which had been abandoned by the retreating Chinese Armies when the Salween River bridge was blown out by the Japs in 1941.

After about seven years of defensive war with three years of total blockade, the little artillery and armor that the Chinese had started with had either worn out, or had been captured and destroyed by the enemy. So with about one in every four soldiers armed with a German Mauser rifle, a Czech Bren gun, or an American Tommy gun, supported by a few 60mm mortars, plus a tremendous amount of will power and plain guts, the Chinese crossed the Salween on makeshift bamboo ferries and pushed the Japs back and up onto the Sung Shan.

By means of the ferries and their own backs the Chinese ferried and carried their ammunition and food supplies upward to the attack. This was during the monsoon season when every step was a potential landslide, and worse yet, when the rains soured their rice in twenty-four hours.

So far, the Chinese had made their first objectives, the capture of Lungling and Tengchung, on time, but here they were stalled by those Japs on Sung Shan.

An American Troop Carrier squadron flew every minute of clear weather in an attempt to keep the Chinese in the fight, but the monsoon weather kept them grounded most of the time. The Chinese equivalent of the Quartermaster Corps, using cows, mules, and pack coolies, carried some supplies in over a twelve-inch mountain trail that took eight days for the trip. In other words, great was the necessity to clear the Burma Road past Sung Shan to Lungling.

With the above as an introduction, we will now take up the part an AAA MG Battery, Airborne, played in this campaign. The battery had been hastily organized at Fort Bliss, Texas, early in 1942. In addition to its regular training, it did receive some scanty infantry training before being shipped to India. For almost two years the men sat in their gun pits in Assam, India, where the action was negligible and the few high altitude targets made their machine guns ineffective. While their morale was high, their physical conditioning and field tactics had deteriorated because of the necessity of being kept close to their guns in a purely defensive position.

Then, the battery was shifted to the Salween Bridge area and given the mission to protect the bridge and the engineers from air attack. Shortly afterwards, a 40mm battery was flown in over "The Hump," which was then ordered by the CG of the Operational Staff to assist the Chinese forces besieging Sung Shan.

The Battery Commander, Captain Craighton B. Olson, CAC, checked with the Chinese commanders and American liaison officers and made his initial reconnaissance. By now, the Japs had been pushed into an area

square. The front lines were about 150 yards apart, open territory with steep slopes that ran all around the besieged area, and it was all covered by carefully concealed Jap MG's that could put down a withering cross fire.

The Chinese had tried again and again to climb that la bit of hilltop to dislodge the Japs, but they had been cut down with tremendous losses, and had probably inflicted very little damage on the Japs. These Japanese machine guns had to be neutralized.

Captain Olson moved his unit as far up the mountain as possible and established a base camp. The water-cooled fifties with M2A1 AA mounts and "mountains" of ammunition were loaded on the backs of GI's, coolies, and mules and hauled up to a position on the side of a small knoll facing the Japs about 300 yards away. The guns were dug in at night, and the forward ones were emplaced in covered pits for use as infantry support weapons. The remainder were left in open pits for AA protection. The first morning the battery was in position the "war" started for them.

Until now the Japanese planes, which had never before run into opposition from the Chinese during the past several years, brazenly attempted to drop supplies on the beleaguered Jap forces. They used old model "Val" dive bombers that came in low and slow with their flaps down. The element of surprise caught them with more than their flaps down, and this supply flight lost three of its planes to the battery's guns; others were damaged, and no supplies were landed within the encircled area.



Sung Shan is in the center background. Stretches of the Burma Road may be seen in the picture.

That must have caused the Jap generals to do a little thinking about air tactics, and doubly so when they undoubtedly noted the presence of fifty-caliber holes in the returned planes.

A few days later another flight of supply and cargo planes came in at about 2,000 yards altitude and began to make lazy figure eights over the area. Every gun opened up on those planes, regardless of the slight chance of their hitting anything. To add to the noise and confusion, the Jap ground troops started pounding at our lines with everything they had. Their main fire points were the old AA gun positions; fortunately the battery had moved to alternate positions after the first air attack—especially so as the Jap mortar fire had also plastered the old pits quite effectively. But those supply planes floating aimlessly about overhead were what attracted everyone's eyes.

And that's when the Japs fooled us. During the commotion, other Jap planes sneaked in behind us just over our heads and strafed our lines on the way to the knoll top. That flight of planes managed to drop its supplies successfully.

Learning the lesson of not being caught napping, the gunners immediately decided to keep watch behind them. Only a few moments later the noise of another plane coming around the mountain was heard. As his nose came in sight, guns began to blast him—for just a few seconds!

It turned out to be a P-40, but with the exception of a few wing bullet holes, the plane and the pilot were not damaged except for the pilot's feelings. That we heard about later.

During the small-arms barrage started by the Japs, the Chinese and American officers had been on the alert and had picked out a large number of the Japs' positions on the hill opposite them. These were first marked on a map, and then the positions further checked by a 20-power telescope.



Section of the Burma Road.

The Chinese were losing no time in their attempt to dislodge the Japs, and they issued orders to form for an attack. Their officers selected the most strategically located pillboxes for targets and assigned them to the battery.

The first method of assigning targets within the battery was to choose a "locator" gun. The particulars were phoned to the other guns and the target described as much as possible by the telescope observer. This locator gun then opened up with a few bursts and the other guns would add their sheaf of fire.

At first, the guns used long bursts of around 100 rounds, but the gunners found out the guns became hot too quickly, too much ammunition was used, and lastly, too much ammunition was "off target." Later on, range estimations were made, and such ranges were set into the ground sights, while the bursts were reduced to short, aimed bursts of five to ten rounds. This was a slow process, but it got results.

Most of the Jap pillboxes had log roofs, and it was soon found that by firing thousands of rounds of ammunition (loaded 2-2-1) that the roofs could be cut, collapsing them on the Japs. One pillbox that contained about twenty Japs was caved in in this fashion at a range of about 200 yards. The Japs began piling out of this wrecked works of theirs, and attempted to climb up to the "safe" Jap lines farther back. Not one of them made their home team!

On one occasion, one Jap .25 caliber bullet pierced the water jacket of one of our guns. Steam poured out of the jacket like a New England teapot, sounding off and filling the dugout. One of the men quickly whittled a plug from a piece of wood off an ammunition case, and calmly rammed it into the hole. The gun was back in action in a few moments. But, in spite of this small attack, the Japs were still there!

A week later, the Chinese grouped for the "main attack." The MG's were to fire over the heads of the attacking troops to keep the Japs' heads down. The attack was late in starting, since many of their troops were poorly trained, and while some gains were made, the Japs stopped them. Instantly, the Japs launched a counterattack, but that also failed, probably because of the open terrain and the beautiful fields of fire for the guns. There wasn't even a dent in the Chinese lines.

Everyone realized that time was essential. The Chinese forces on the other side of the mountains were held up, and the supply problem still remained to be solved. Things must be speeded up! Yet here this little dab of Japs was stuck as smugly as ever on the highest knoll of Sung Shan, holding up the Chinese forces as effectively as a dam.

A young American engineer captain made a suggestion that won the battle of Sung Shan and ultimately the Salween River campaign. Under cover of night, literally thousands of Chinese dug a tunnel a quarter of a mile long straight into the mountain beneath the knoll top, and placed 6,000 pounds of TNT under the Japs. At another dawn, an attack was launched, and at the height of the fight, the TNT was exploded and the whole top of the mountain was blown off. The Chinese followed through, and after about two days of mopping-up operations, the fight was over.

Of the 2,000 Japs who held the knoll and who had supplies on hand for another six months of fighting, only a

handful and a dozen women were captured. It was estimated that possibly some twenty-five Japs managed to slip through the Chinese lines.

The siege of Sung Shan lasted ninety-three days, although the main Chinese Army reinforced by two divisions

had attacked this place for over two months. The battery was in the vicinity for a month and a half. It fired over 73,000 rounds of ammunition and burnt out most of the guns' barrels. It was estimated that between 300 and 400 Jap troops were killed by the fire of the battery's guns.

Ack-Ack Turkey Shoot

By Captain John Thornton, Coast Artillery Corps

In the light of the swift and sudden climax of the war against Japan, it is now apparent that the last great anti-aircraft battle of the war was fought over the Ryukyu Islands of Okinawa and Ie Shima late last May.

In the vernacular of the Navy's carrier pilots, it was an anti-aircraft turkey shoot.

It is the story of the night of May 24, 1945; a night which the Army and Marine anti-aircraft artillery units from the Tenth Army Anti-aircraft Command of Brigadier General Charles S. Harris and the 53rd AAA Brigade of Brigadier General Morris C. Handwerk will long remember. It was a show about which all anti-aircraft artillerymen dream.

During this past year in the Pacific, as Japanese air power crumbled under the devastating allied air attacks, the work of anti-aircraft artillery had become for the most part a sniping job. This meant long hours on the guns waiting for a chance to fire at one or two bombers or a few straggling fighters which had managed to penetrate the fighter screens around important installations.

Yet there were occasions in every campaign when the embarrassed Jap, struggling to save his "honorable face," hurled a sizable force of aircraft against the most newly won American base in a frantic effort to restore the long-lost prestige of the Japanese air force.

On Okinawa the Nip waited until the last week in May to make his most spectacular ground strike.

Actually, on the evening in question, from the large underground anti-aircraft artillery operations room at General Handwerk's command post (located on a tomb-studded hill overlooking the vital Kadena air strip) it did not appear that the evening raid would be any different from the other night attacks which had been going on since early April. The routine had been a simple one; suicide planes diving at the shipping in the harbors during the daylight and a few bombers striking at Yontan and Kadena airfields at night.

Just after dark on the 24th of May, the first alert sounded. In the AAOR of the 53rd AAA Brigade there was the familiar pattern of colored arrows on the operations board, indicating the approach of the "bogies" and always boring in from the Kyushu airfields to the North. The arrow tracks started a hundred miles away, first picked up by the courageous little radar picket ships of the Navy which enveloped Okinawa in a double ring. The plots began to jump toward the island with the rapid pace which indicated that it was not a friendly air patrol returning to land.

Then, suddenly, on the large plotting board, it became apparent that this was no usual raid of four or five bombers. New raids appeared and then more and more, until the metal raid stands were jammed up like a forest of Christmas trees.

To the Japanese pilots approaching the Ryukyus all must have looked peaceful below. And it was peaceful, except that on the tiny, outlying island of Ie Shima, the crack gun crews of Lt. Col. William Vail, Jr.'s 93rd AAA Gun Bn had been alerted and were silently tracking the incoming raiders with their 90mm equipment.

At 2101 the first enemy plane came within fuze range of the 93rd's 90's on Ie Shima.

Instantly, sixteen 90mm guns barked as one. What followed in the next six minutes was an example to anti-aircraft artillerymen for all time of the latent power in a well-trained anti-aircraft unit.

At 2101, Battery C of the 93rd drew first blood and watched its first flaming Jap plane of the evening twist like a burning leaf into the ocean; at 2104, Battery B splashed a second; at 2105, Battery D added a third Jap plane to the watery boneyard of the East China Sea, and in the next minute in a spectacular exhibition of sniping, Battery C added its second and third flaming Jap planes to the violent six-minute action.



Signal Corps Photo
An AA half-track at Machinato, Okinawa.



Signal Corps Photo

AA Operations Room on Okinawa.

Total: five destroyed by three batteries. And the make-shift Jap armada had not even reached the main gun defense of Okinawa.

It was small wonder that the remainder of the attacking bombers rapidly revised the plan of approach to the target from the Northwest. The change in course, however, only prolonged the pain. Eleven minutes after the attackers had been so severely shattered over Ie Shima, the first gun battery of Brigadier General Handwerk's brigade flashed "in action." Shortly the sky was studded with bursts and for forty minutes the guns of Okinawa thundered.

At 2200 the first wave of Jap bombers limped back out to sea, staggering home to Kyushu. Four more had been destroyed, one probably destroyed and five damaged.

Antiaircraft gunners in the Ryukyus could well have rested on their laurels for that particular night. But there was no rest for the weary on the 24th of May. The Jap was determined to make his desperate bid for the destruction of the huge Yontan airfield.

The 90mm's were waiting. Within the next hour the 93rd AAA Gun Bn had become the "hottest" outfit in the Pacific. Seven more Jap planes were sent plummeting into the sea and two more damaged.

However, it turned out that this second wave was only a feint, for at the same time the Ie Shima unit was chalking up its amazing score, over the main target, Okinawa, approaching from the North and Northeast came a formation of eight Sally's, large, two-engine bombers, used sometimes by the enemy for transporting troops.

Inside each Sally were from twelve to fourteen members of the Japanese Special Attack Corps, cream of the enemy's suicide troops. These airborne raiders were bent on a mission which included a crash landing on Yontan airfield and the destruction of adjacent installations, a mission which if accomplished could cripple the American air effort on Okinawa for many weeks.

The Sally's were drifting in low, motors cut off, silently boring in, ready to hit the runway. But at a Marine searchlight position on the edge of Yontan field, a section of Colonel K. W. Benner's 1st Provisional Marine AAA Group heard the first plane, not more than 100 feet overhead.

The time was 2220. Now it was the automatic weapons' turn.

In a matter of seconds, the spray of tracer bullets and exploding Jap aircraft lighted up the Okinawa landscape with a blaze which eclipsed any old-time Fourth of July fireworks display. Within sixteen minutes, the devastating cone of fire from Army and Marine units on Okinawa had exploded six of the attacking Nip planes in mid-air. The seventh Sally was so demolished that only six of the fourteen passengers were able to crawl out. The eighth Sally, damaged, departed from Okinawa in a hurry, not stopping to look around; the crew apparently decided that they were not cut out after all for the Suicide Corps.

Total result: seven more Jap flags chalked up for sixteen minutes work.

The antiaircraft in the Ryukyus had thoroughly embarrassed the Japanese Air Force. All the carefully laid

plans for destruction, infiltration, and regroupment with other remnants of the Jap 32nd Army, suddenly dissolved in smoke and tracer fire.

Yet the Jap would not give up, and all through the rest of the night and early morning of May 25th he continued to strike his special blow for the advancement of the Greater East Asia Co-Prosperity Sphere. To be sure, he came a little half-heartedly, but until 0330 on the 25th, Ryukyus gun crews had plenty of Jap planes on which to fatten their averages.

Between 0001 and 0330, four more destroyed, two probably destroyed and one damaged were added to the total.

Little wonder it was that in the morning, as the tired gun crews wearily swabbed the tubes, the "WELL DONE" was flashed down from the Naval Task Force Commander in the Ryukyus to all troops under the command of General

Harris and General Handwerk. These combat veterans included units of Col. Benner's 1st Prov. Marine AAA Gp, Col. L. W. Clayton's 97th AAA Group and Col. Harry Martin's 136th AAA Group.

The final count for the six-hour attack was twenty-seven Japanese aircraft destroyed, two probably destroyed and ten damaged. Add to this the finishing touch of nearly 100 dead members of the Special Attack Corps, who met their ancestors before they could set foot on Okinawa.

Had the attempted landing been successful, it is impossible to estimate the damage which the enemy could have inflicted upon Okinawa's air installations. Suffice it to say, in this single action the antiaircraft in the Ryukyus had paid its own way.

And it was a turkey shoot to warm the heart of any artilleryman.

225th Searchlight Battalion in the ETO

Total Homings	1,922
Night Homings (Night Fighters)	1,658
Day Homings (Miscellaneous) .	260
Searchlight Homings	4
Planes Homed	3,844 (Est.)
Average Number of Lights	4
Attacks by Enemy A/C on Installations Defended by Searchlights	7
Enemy A/C Engaged	28

eight aircraft definitely identified as hostile have been illuminated and many others have been engaged by the lights which, although they were not definitely identified, may be presumed to have been hostile due to evasive action or other suspicious and unusual conduct observed. The battalion has one confirmed Category I to its credit.

The comparatively infrequent appearance of the German air force, however, has, without minimizing the primary defensive rôle of the searchlights, made it possible to develop the secondary rôle of assistance to the Air Corps to a greater and greater extent.

HOMINGS

Of the various types of assistance which the 225th has been able to offer, unquestionably the most frequently called for and the most important has been the homing of friendly aircraft. These searchlight homings have come to be so valued that they are now regularly used not only in the cases of lost or disabled aircraft but also in almost all routine night landings at airstrips around which this battalion's searchlights are deployed.

The homings have been given in a number of different ways including canopies, beacons, indirect homings, radar homings, the illumination of runways and the use of lights during daytime hours to illuminate the ends of runways during bad weather. Since reaching France, a total of 1,922 homings of all types have been given. No accurate data has been maintained as to the number of aircraft which landed safely under each homing, but incomplete figures show an average of about two planes a homing, giving a total of approximately 3,844 friendly aircraft brought safely back to base with their crews totalling approximately 12,000 valuable pilots, radiomen, aerial photographers and gunners.

From 18 June, when it landed in France, until the present date (3 March 45) the 225th AAA Searchlight Battalion has performed many assignments, including the defense of airports, the defense of seaports and the defense of bridges. The 225th is attached to the 51st AAA Brigade.

The greater part of these assignments has been the defense of airstrips, ranging from the first strips constructed on the Normandy beachhead to those now operating near the present front line in Northern France and Belgium.

The battalion's rôle has been a dual one, consisting first in the discovery and engagement of hostile aircraft operating over or near objectives which it had been assigned to defend and second to assist the allied air force in the performance of its mission by means of homings, alerts and a multitude of other services through which its lights and radars have been able to be of assistance.

Airstrips which it has been defending have been directly attacked by hostile aircraft on seven occasions. Twenty-

TYPE OF HOMINGS

Canopy

Searchlight Deployment—The standard deployment for lights of the 225th when assigned to an airstrip is such that four lights (the number normally employed in a canopy) are situated in an approximate square around the strip, one light near each end of the strip and one a short distance off to each side near the middle of the strip. The lights at each end of the strip are placed approximately 350 yards from the end of the runway and fifteen degrees off from a direct line with the runway, the offset being made to opposite sides at the two ends of the runway so that a direct line between the lights crosses the runway diagonally. (See Figure 1.)

Procedure—All light sections are given previously prepared azimuth and angle charts which permit them to form an intersection over the center of the airstrip at heights of from 300 to 10,000 feet. It has been found advisable to form the intersection as close as possible to the cloud base. If the returning plane is coming in under the cloud base, the lights are then clearly visible while if he is flying above the clouds, the intersection on the cloud base has been found to create a glow above the base which can be seen by pilots at a distance of approximately fifteen miles.

Normally, the canopy is called for by light control as a result of radio contact with the returning plane, which requests the assistance. As stated by Colonel Lewis in the previously quoted commendation, the night fighter squadrons also make a practice of ordering a canopy formed when they lose radio contact with a plane and have reason to believe he is in trouble. A number of badly crippled planes have been saved by this method. Occasionally a plane at some distance from its home base will be observed by searchlight sections to give distress signals. In such cases, flight control is immediately notified and usually orders a canopy formed immediately. Thus alertness on the part of searchlight sections has saved several planes, an outstanding example occurring near airstrip A-58 on the night of 2-

The homings have proved of particular value to night fighters which normally return to base during the hours of darkness. The second platoon of Battery A became the first searchlight unit in this theater to work with night fighters when, early in August, 1944, it was assigned to the field on which the 422d Night Fighter Squadron was operating. It has remained with that squadron without interruption since that time. A month later the first platoon of Battery A began working with the 425th Fighter Squadron and has continued to function with that unit ever since.

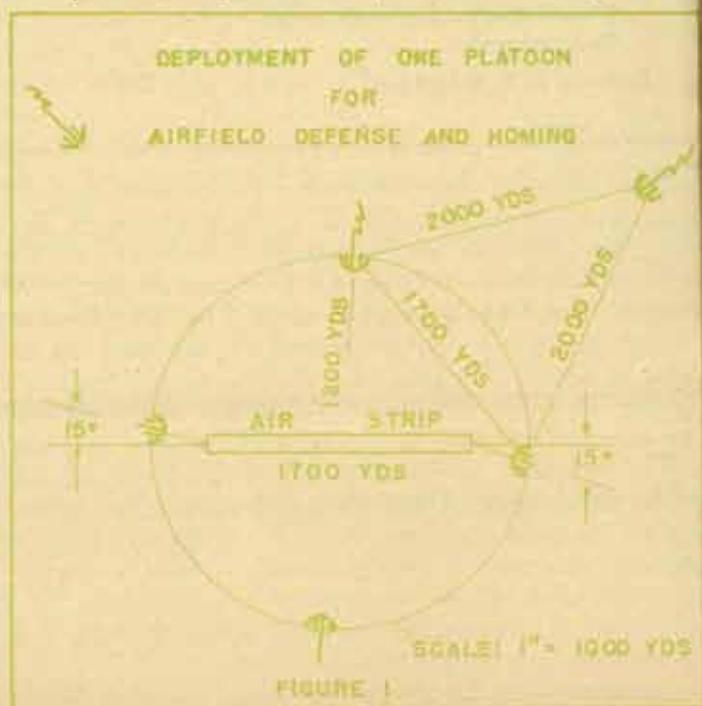
The value which these two squadrons place on the assistance given by the homing lights is reflected in commendations received by the searchlight platoons from the commanding officers of the squadrons. In commending the second platoon of Battery A, Lieutenant Colonel Oris B. Johnson, commanding officer of the 422d Night Fighter Squadron says in part: "It is believed that the squadron operations would have been cut down at least 25% without the searchlights. The platoon has enabled the squadron to fly in much worse weather than would have been possible without the lights. In addition they have materially aided in the landing of aircraft when the weather has turned bad unexpectedly." In later official statements Colonel Johnson has revised his estimate upward, stating that if the platoon were taken from him, his combat efficiency would be decreased 50%.

In his commendation to the first platoon of Battery A, Lieutenant Colonel Leon G. Lewis, commanding officer of the 425th Night Fighter Squadron, writes: "The aircrew members of this squadron take this opportunity of expressing their gratitude for the aid and full cooperation extended by the 225th AAA Searchlight Battalion. The aid and cooperation have proved of inestimable value both in material and psychological benefits.

"On return from operational missions in several cases, the searchlight canopy has been proved necessary for the safe return of our aircraft. It has been the policy to illuminate the field when planes are expected to return but have not yet contacted the airdrome by radio. In one instance, the plane suffered flak damage which destroyed the radio. The pilot headed in the general direction of the base and was able to find the airdrome by sighting the canopy. The pilot was particularly grateful because he was returning with one engine inoperative and could not afford to remain aloft for any length of time orienting himself by other means.

"Due to weather conditions on the continent there have been innumerable instances of our aircraft being airborne when the ceiling has dropped below safe operating conditions or fog has obscured the landing strip lights. The searchlight canopy has been our only means of exactly locating the airdrome and completing a successful mission."

Although night fighters, due to their tactical employment, offer more opportunities for the lights to give homing assistance, homings have proved valuable to other types of Air Corps units. Photo reconnaissance squadrons, and other units whose aircraft frequently return from operational missions after the hours of darkness, have made use of the homings regularly while aircraft of all types have been assisted in individual instances when they have been lost or in distress.



September 1944 when section 4 of the first platoon of Battery A picked up a plane showing no IFF. Upon illumination the plane proved to be a C-47 which immediately flashed an SOS on his downward recognition lights. A canopy was immediately formed and the plane landed safely. Lieutenant Potter of 9th Air Force Headquarters, pilot of the plane, called from Flight Control a few minutes later and stated that he wanted to thank every member of the searchlight platoon for their assistance, because he had been completely lost and had only thirty minutes fuel supply left.

Under extremely unfavorable weather conditions, the normal canopy can be implemented by the use of additional lights as waving beacons. If the planes desiring a homing are unable to see the canopy through the cloud base, other available lights play over the clouds, seeking a thin spot where they can break through. This technique was successfully employed by the 2d Platoon of Battery B on 18 February at A-64 when four P-47's asked for a homing during very bad weather and could not see the canopy. The waving beacons were then employed and were seen by the planes which landed safely with their assistance. In this instance, the pilots were so grateful for the homing that they called each chief of section of the searching platoon personally to thank them.

Beacons

In forward areas, when there has been any indication that hostile aircraft are operating in the vicinity, it has been found inadvisable to pin-point the airstrip by the forming of a canopy. In such cases, when homing assistance is needed, either one or both of the searchlights which, under normal deployment are placed near the ends of the runways, are exposed vertically as beacons. While these beacons do not indicate the exact location of the strip as accurately and have not so great a range of visibility as a canopy they have been found to be satisfactory substitutes under most conditions and have been used as a homing aid more than any other method except the canopy.

Homing on adjacent airstrips

A less frequently used method of homing but one which has been found invaluable in emergencies is offered by those lights of the 225th which have been deployed around objectives other than airstrips and thus have not been able to form any canopies when planes have indicated, by distress signals or by other means, that they are in need of assistance.

Such cases fall roughly into two classes, the first in which the plane, by means of radio contact with an airstrip which does not have searchlights deployed around it, indicates that it needs help in finding a field on which to land and the second in which the plane, either because its radio is out of order or because it has been unable to contact an airstrip, is first able to make known its need of assistance by means of distress signals which are observed by searchlight sections. The first is known as an indirect homing and the second as a direct homing.

Each platoon of searchlights designates two or more lights as those to give such homings and furnishes them with the azimuths of all fields on which planes in distress in that area

might be expected to land. The homing lights are selected so that a homing can be given to any desired field without having the light give undesired illumination to an airstrip, a city or any other high priority area.

In the case of an indirect homing, the air corps officials contacted by radio, determine to which field the plane will be homed and order the lights to home on that field. Certain fields are designated by the Air Corps as standard homing fields and in the case of a direct homing, the lights observing the distress signal immediately begin homing on the nearest of these standard fields, in the meantime informing the field of the distress signals, and their homing action, so that it will be ready to receive the plane.

In order to make these homing beams more easily visible to the pilots, a standard practice has been developed which has given excellent results. The beam is first exposed as nearly horizontal as possible in the direction of the desired airstrip for a period of thirty seconds. In order to catch the pilot's eye, the beam is then elevated to forty-five degrees and depressed again three times quickly without being extinguished. These two procedures are then repeated until the order to douse has been received from the AAOR or the airstrip commander of the homing field.

While the demand for this type of homing has been infrequent due to the fact that usually the searchlights are deployed around an airstrip where a canopy is quicker and more exact in bringing in the plane, it has been called for on eighteen occasions. Its importance as a method of homing becomes greater when it is considered that each of these eighteen calls came from a plane actually lost or in distress from combat damage and that, except for the availability of this type of homing these particular aircraft had little or no chance of finding a safe landing place.

Radar Homings

Plots sent from SCR-268's to flight control and there used to vector planes in to the field have also been used as a homing device. Occasionally when heavy hostile air activity makes the use of even beacons dangerous, this method has proved the only one available. This proved particularly valuable on the night of 23 December at airstrip A-82 when a plane returning to base, through error in using the field's homing vector began to fly directly away from the strip. Personnel at the SCR-268's who, through the searchlight operations officer regularly work in very close liaison with the airstrip, immediately noted the error in the plane's course and sent plots to flight control which enabled the officials there to correct the course of the plane and bring it in safely. The plane, a P-61 night fighter, had so little gasoline with which to continue its efforts to return to base that it ran out of fuel on the landing runway.

Runway Illuminations

Low-hanging fog and haze which have frequently closed in on strips on the continent while planes are still airborne sometimes are so heavy that even canopies and beacons cannot illuminate the field sufficiently to make landing possible and the regular airstrip runway lights are entirely invisible. In such cases, lights of the 225th are prepared to illuminate the runway itself by having one of the lights at the end of the strip expose its beam horizontally along the runway. In

doing this, care must be taken that the light selected for the illumination be the one at the end of the strip from which the plane will come in to land so that the pilot will not be blinded. This procedure is used not only on foggy nights but during daylight hours when heavy fog or ground haze have closed in suddenly. Several aircraft have been brought in safely during daylight hours by this method. On the night of 15 September 1944 at A-33 three planes returning to base after a heavy fog had set in made three unsuccessful attempts to land and their pilots were prepared to bail out when the Flight Controller called on newly arrived lights of the 225th for assistance. The strip was illuminated from the approach end of the field and all three planes landed safely. Captain Strickland telephoned profuse thanks to the searchlight officer for this timely aid in saving three valuable planes.

MISCELLANEOUS USES OF SEARCHLIGHTS

Ceiling Checks

Searchlights are prepared to give airstrips, weather stations and automatic weapons units accurate and almost instantaneous data on ceiling heights during the hours of darkness. This information is made available by having one line expose its beam perpendicularly. A second beam then forms an intersection at the cloud base and from previously prepared angle charts, the ceiling height is immediately available.

Illumination of Crashed Aircraft

Recently, one of the 225th's lights was put to a valuable emergency use when a plane crashed at A-64 while attempting a take-off during the hours of darkness. The crash occurred only about 100 yards from a searchlight section and the light immediately turned its beam on the wreckage, furnishing illumination which made it possible to rescue the crew without delay.

Illumination for Night Ground Work and Loading and Unloading of Supplies

Searchlights of the 225th have frequently been called upon by airstrips around which they were deployed to furnish nighttime illumination to permit ground crews to complete emergency work at airstrips and give light by which supplies might be loaded and unloaded from cargo planes.

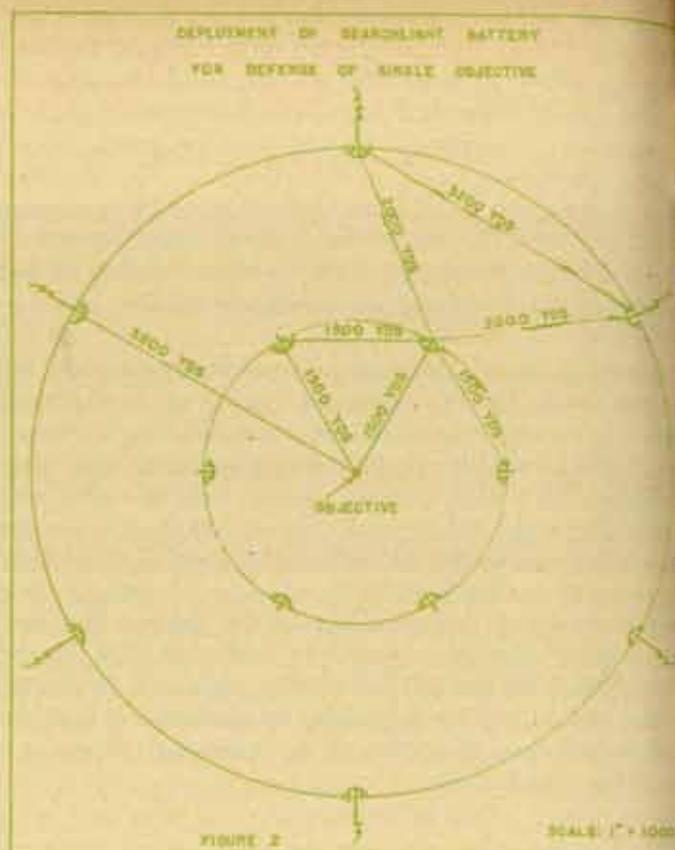
Check of Aircraft's Landing Gear

On one occasion a pilot coming in for a landing reported that he was not certain whether he had been able to lower his landing gear. A quick illumination by the lights around the strip revealed that the landing gear had been lowered and the plane was able to come in.

MISCELLANEOUS USES OF SCR-268's

Warning against intruders

A number of airstrips have placed great reliance and dependence on the searchlights SCR-268 to give warning in case intruders seek to follow friendly aircraft into base. Intruders have, on a number of occasions, made such attempts and it is standard practice on such occasions to douse all canopies and beacons which may be exposed at the time



and to make an effort to engage the intruders with the lights. Usually, if the intruder has not come within searchlight range, he will reverse course and leave the area as soon as the dousing of the canopy leads him to believe that his presence has been discovered. No intruder which has been engaged by the lights has made a further attempt to approach the defended area and on all the airstrips defended by units of the 225th, no intruder has pressed home an attack on the defended airstrip.

Vectoring Night-Fighters

The practice of using SCR-268's to vector night fighters has been employed frequently by both the 422d and 425th Night Fighter Squadrons. When the -268's pick up a target whose conduct is suspicious but which does not come within searchlight range, flight control is notified of the approximate position of the suspected hostile and, if the flight control officer thinks it advisable, one or more night fighters is scrambled. The Radars then send continuous data to flight control by which the flight control officer directs the night fighter toward the suspected hostile until it is able to make a contact with its own radar. In all cases where this method has been used the suspected hostiles have been driven from the area. Although no definite kills have been reported from such vectored flights, the night fighters have been able to engage the enemy aircraft on at least two occasions.

Checking IFF on Friendly Planes

Airstrip 64 frequently uses the SCR-268's to check the IFF on planes leaving the field. As a flight leaves the field, each plane circles individually, transmitting IFF. The radars check the planes one by one and the aircraft are not finally released by the strip until word has been received

their IFF signal has been received. This practice has materially reduced the number of planes picked up by not showing IFF in this area.

COMMUNICATIONS AND OPERATIONS ROOMS

It has been found that maximum efficiency in searchlight defense around airstrips is obtained when the AAOR is located in the flight control room. This location reduces the problems of liaison and greatly reduces delays in passing information from the lights and radars to Air Corps officers and information and orders from the Flight Controller to the searchlight sections. A separate searchlight plotting board is established in this room on which data received from the SCR-268's are translated from polar to grid coordinates for the use of Air Corps, AW and searchlight controllers. Two plotters are used for this purpose.

The searchlight platoon's hot loop is terminated at the platoon CP and from this point a line is run direct to the AAOR. A second administrative line is also run from the platoon CP to the AAOR and the hot loop can be transferred to this line immediately in case of failure in the first line. Data lines are run directly from the radars to the AAOR.

An amplifier unit is connected on to the platoon hot loop so that the searchlight operations officer can hear all information from the sections without the use of a telephone or head and chest set and is thus available for constant and immediate liaison with AW and Air Corps.

If it is impossible to locate the AAOR in the same room with flight control certain additions and modifications are necessary. A line is run from the searchlight duty officer to the flight control officer. A second line is run to flight control on which data received from the SCR-268's is reread to flight control where it is available to the flight control officer. If the searchlights are working with night fighters, a radio transmitter is placed in the AAOR by the Air Corps

and in case it is desired to vector night fighters toward hostile planes the Flight Control Officer comes to the AAOR and reads vectors over the transmitter from the data appearing on the searchlight plotting board.

COÖPERATION WITH AUTOMATIC WEAPONS

For best results in coöperation with automatic weapons for illumination of high-speed, low-flying targets, two or more batteries of searchlights should be deployed from around a point objective with a grid spacing of from 2,000 to 3,000 yards depending on terrain and atmospheric conditions. Where not enough searchlights are available for this deployment as was the case in this battalion, a battery defense of a point objective may be best accomplished with a deployment as shown in Figure 2. In location SCR-268's for illumination of low-flying planes, extreme care had to be taken to avoid mask and still have the necessary screening from fixed echoes. The angle of elevation of antennas should be 150 mils and the sector of search 90 degrees or less in surveillance work against low-flying planes for satisfactory results.

The spread beam has been found to be of value only in assisting in initial pickups. If the radar controlled lights fail to illuminate an incoming plane, the nearest light to the plane when it passes the outer ring of lights goes in action with spread beam in the general direction of the plane. The other lights watch for the plane's silhouette against this spread beam and pick it up with pencil beams. When the pickup is made, the spread beam changes to pencil beam. We have found in this theater that when spread beams are exposed on a plane, so many moisture and other suspended particles in the air are illuminated that neither the searchlight nor gun crew personnel can see the target through them. This has even been found to be true on bright moonlight nights when the enemy plane could be seen well enough to be identified without the use of lights.

AAA On the Villa Verde Trail

By Lieutenant Perry R. McMahon, AUS

Antiaircraft automatic-weapons fire proved itself highly successful as Infantry support in the battle for the Villa Verde Trail, and again demonstrated in the Luzon Campaign the diversity of use to which the AAA may be employed in modern warfare.

The Villa Verde Trail rises through the foothills of the Maraballo mountains in Central Luzon in the vicinity north of San Felice, winding northward and east some twenty miles to join with Highway No. 5 as it emerges from Balete Pass near Santa Fe.

The terrain in places reaches altitudes in excess of 10,000 feet—the trail winds tortuously upward—sometimes as many as four spirals of roadway can be seen downward as the traveler, clinging closely to the cliffsides, glances back to view with some apprehension the ground he has so far successfully traversed.

A mere footpath, it carried little traffic other than the wandering tribes of the mountains, but it was an alternate route into the Cagayan Valley, and thus north to Aparri 200 miles away.

It was not defended as well in the original plans of General Yamashita as was Balete Pass, for it is doubtful if this doughty leader of Japan's forces in the Philippines knew before he had actual experience that American engineers can build a roadway anywhere, anytime to any place.

Besides, ridges on either side offer favorable defensive terrain militarily, and long stretches of the trail are exposed to the heights on both sides, from which the Japs could and subsequently did drop artillery, mortar and small-arms fire at the Americans as they thrust their spearhead through.

The ensuing battle gave our Antiaircraft Artillery another



Signal Corps

An M-16 leaves a few calling cards.

opportunity to prove themselves as sterling support for the Infantry, and speeded up in no uncertain way our ultimate break-through into the Cagayan Valley.

By thrusting through, the Americans could flank the Pass from the west, threatening to trap the Japs in the more heavily fortified Balete Pass area, shutting off this all-weather escape route—the only one in Central Luzon by which the Jap could withdraw his war machine and supplies north—if not saving face, at least saving something more material.

The Jap realized his predicament in very short time. He threw what force he could along the trail, deployed along both sides, and dug into the mountainsides to hold on doggedly and delay the American advance as much as possible.

How many men he committed to the battle we do not know. We know from the bodies counted that he lost 8,189 killed in action. The number of dead sealed in caves, and dying of wounds after being carried back, or his total casualty figure may never be known. It was a tough battle in tough terrain.

Clouds hampered our seeing the target area at times. The supply line was difficult. The bulldozed road was for the most part cut through thick yellow clay, and mounted upward in grades in excess of 70 to 80 per cent.

The roadway had to be cut out of the mountainsides as the fighting progressed. Speed was essential. The battle had to be won before the rains came. While our infantry might fight and win in the deepest of mud, mechanized equipment, tough as it is, will bog down.

First tactics on Luzon had been to clear the Lingayen Valley south, to retake Manila, and to prevent the Jap remnants from escaping north.

Now the second phase of General Walter Krueger's Sixth Army's task in the Luzon campaign was under way. It would keep the enemy continuously off balance, cut him up in sections, force entry into the Cagayan Valley, and sweep General Yamashita's hordes up Northern Luzon into the sea.

A JOB FOR THE ANTI-AIRCRAFT AUTOMATICS

The Jap is stubborn. He may be outgeneraled, outnumbered, and facing hopeless defeat but he fights. He dug in along the Villa Verde Trail and began his usual stubborn defense. His caves were deep and branched off at angles in the interiors of the mountainsides. They either had to be approached by the Infantry and neutralized by firing bazookas directly into the openings, or by using flame throwers, both procedures necessitating the exposure of our forces at close range to the enemy's more favorable positions with the consequent high loss of lives.

High trajectories of our artillery and mortar fire made it difficult to neutralize these positions, although our artillery performed wonders in obliterating concentrations in the open, and was effective in preventing any large-scale attacks.

But it was necessary to clean out the area completely. A handful of Japs in one cave, plentifully supplied with food and ammunition—which in this area they had—might weeks later cause havoc to our troop concentrations and supply trains using the roadway.

Use of AAA had been discussed at Sixth Army headquarters and deemed feasible.

As a result of this policy, Battery A, 209th AAA Battalion was sent to the Villa Verde Trail. Its Bofors 40's and multiple 50's were mounted on half-tracks improvised in Australia. Commanded by Captain T. Russell Rooney, the battery had the usual T/O of eight Bofors 40mm guns with crews of seven, and eight quadruple .50 caliber guns with crews of five men. Each unit was self-sufficient, carrying a unit of fire in the ammo chest and another unit in the trailer, where tentage and personnel equipment were also stowed when in movement. "They give us a ton trailer to haul two tons of equipment, and we do," said one of the crewmen.

Tracks were made of rubber, which sometimes slipped sideways in the mud despite the use of chains, and crew members complained they were not satisfactory. Fuel tanks were made puncture-proof, and the armor was light one-quarter-inch material, which the crews also thought was not heavy enough.

Early in April, five Bofors and five multiple 50's were deployed on Villa Verde Trail. They remained there until the trail was cleared of Japs approximately eight weeks later. Their mission was to move close to the Japs and fire directly into the caves.

Due to the strenuousness of mountain fighting, the necessity of keeping guards up at night, with only two messes a day, crews were relieved periodically for rest, but the same guns remained through the operation.

Targets of opportunity were not as plentiful for the AAA as they were for the 90mm's which were at the same time being employed in the drive through Balete Pass. Although both passes were mountainous, they differed in terrain fe-

Whereas in Balet Pass our forces flanked Highway 5, taking the high ground, here on the trail, the Americans were forced to thrust straight ahead, being flanked by the Japs on both sides.

The zone of greatest enemy activity was on the ridge north of the trail, dubbed by the doughboys, "Yamashita Ridge." The enemy had so painstakingly dug in that mortar and artillery fire (indirect) as previously pointed out was not too effective. On the south, the enemy held similar high ground.

As the Infantry advanced, with the artillery keeping the Japs holed up, the engineers pushed their road as close to the front as possible. Thousands of tons of earth were bulldozed off the trail and the roadway began to take shape, narrow, steep, and winding upward until it met the clouds.

Along this road advanced A Battery of the 209th. At the beginning most of the shooting was at the heights above, but later as the battle progressed the 40's and multiple 50's were able to fire almost on the same level as the Japs.

"When our sections first moved up we were instructed to fire at targets of opportunity in designated sectors. The lightest activity in the enemy's sector met with a hail of 40mm cannon and .50 caliber fire from our M16's. Results were indeterminate in most cases as patrols did not reach all the positions. However, the Jap is becoming more cautious on Yamashita Ridge," reported Captain Rooney, soon after his battery moved in.

On one occasion the battery received an urgent visit from a major of the 127th Infantry. He was concerned as the Japs were then in process of emplacing a mountain gun (presumably 87mm) on the ridge opposite and only some 1,000 yards away from the regimental CP. In fifteen minutes two guns of the battery were pulled into position and began firing point-blank at the target.

Thirty-nine rounds of 40mm were fired squarely into the target area, and then the terrain immediately adjacent was sprinkled with .50 caliber machine-gun fire in hopes of locating the supply dump. Suffice to say, that gun which might have caused considerable damage to our installations was never heard to fire.

Observation was obtained by L-5 planes hovering continuously over the ridges watching for movement and Jap patrols, and the work of our own patrols which were invaluable in finding targets by the simple process of going out and contacting them.

Lieutenant William B. Crabbe, a member of Headquarters Company, 127th Infantry, where he was a leader of the Intelligence and Reconnaissance platoon, led many patrols and selected many targets.

"We did quite a bit of work with the Bofors," he said, "and I think it is a crackerjack at a range up to 2,700 yards firing direct. On several occasions I saw heavy log pillboxes blown up and Japs scattered all over the hill.

"For patrol work," Lieutenant Crabbe added, "you can't beat it. Our procedure was to report where we were going before we left the lines, then keeping in touch with the gun sections by radio. When we ran into machine-gun nests, we pulled back, ordered fire, and then those 40's would plaster hell out of them. I give the Bofors credit for

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Signal Corps

Rugged country for the SP "40."

knocking many of them out. Besides this, for morale purposes it is absolutely invaluable in support. The crews were well trained and placed the fire just where we wanted it."

Lieutenant Colonel Frank W. Murphy, executive officer of the 127th Infantry, also praised the work of the AAA automatic weapons. "They were definitely of great use to us," he said. "In one instance they knocked out a machine-gun position which was harassing our hospital area. The Japs opened up on this area and really had the range, one slug went through the operating table, and, of all places, the Chaplain's tent was riddled. A few rounds destroyed his air mail envelopes, and the boys tell me one went through the Bible. We called for the AAA in a hurry. It takes no time at all to get those weapons in position. In fifteen minutes you can bring them up and have them firing away," Colonel Murphy explained.

Once on Hill 502, the gun crews got a taste of the Japs' infiltration tactics. They had seen him continuously for days, sniped at him as he foraged for potatoes (Filipino comotes) on the forward slopes, and often chased the Japs across the ridge with a stream of tracers.

Sergeant Earl Watson, chief of section, tells of night.

"It was about 2 o'clock in the morning, some of the boys were awake for changing the guard. Filipino guerrillas were out on the perimeter, and most of them do not have watches, so they constantly came up to find out what time it was—that's how the Japs got through I guess, and weren't challenged until they were on top of us. Then our guard yelled, 'Halt!' but one of the Japs threw a grenade, wounding him.

"He fell but emptied his tommy gun at the Japs. The



"Their mission was to move close to the Japs and fire directly into the caves."

Signal Corps

other Japs had lugged demolition charges and tossed them at the guns. Then they threw hand grenades, hoping to keep us down until the demolition charges went off. But I guess we were lucky.

"The next morning," Sergeant Watson continued, "we found one charge of thirty sticks of TNT wrapped together about six feet from one of the Bofors. The fuse was so corroded that although it had been pulled, it didn't go off. About fifteen feet away we found a similar charge but the fuse hadn't even been pulled—maybe they got too excited to carry out their mission—you can't figure the Japs. In the excitement they all got away," added the sergeant.

On another occasion, however, the perimeter defenses were not so lucky. The Japs had been shelling the area one night but had ceased fire about midnight. Then at 3 o'clock a Sherman tank caught fire and blew up, the 75mm ammunition exploding inside for more than 1½ hours. How it caught fire was a mystery, but the perimeter defenses were tightened up after that.

Generally though, the rapidity of movement of the M-15 special mounts made them difficult targets. If the enemy fire got too hot they could be speedily moved to another location.

One afternoon a Jap 151mm mortar, his answer to our 4.2-inch chemical mortar, was firing on the AAA gun emplacements. He shelled the area for more than an hour as the artillery and mortars couldn't get at him. As he began to zero in on the AAA sections, they moved out. No damage was done.

But it was the compliments of the Infantry that pleased the boys. When the messages began to pour in from the companies and battalions, the AAA crewmen collectively began to puff out their chests. Following are some of the compliments which the men have pasted alongside their favorite pin-up girls.

"I was on patrol on Yamashita Ridge when a Jap heavy machine gun opened up on us. We immediately fell back and asked for supporting fire, after first throwing a smoke grenade to give the enemy's position. Immediately the M-15 Specials cut loose with a few rounds. The position was knocked out and we were able to complete our mission. We take our hats off to the AAA boys for that job," wrote Pfc. Martis S. Scott, 126th Infantry.

Another infantryman, Technical Sergeant Welsbey L. Allen, also of the 126th, wrote:

"When our perimeter was being raked with Jap heavy

machine-gun fire, our commanding officer called for supporting fire. After pointing out the target to them, the 40mm Bofors and the quadruple .50 caliber guns quickly directed their fire and with their rapid fire power the enemy's machine guns were destroyed. The boys on the searchlight were very much pleased with the fire of the AA

weapons. Our compliments to the AAA for their speed and accuracy."

Captain Everette Q. Walters, S-3 of the 3d Battalion, 126th Infantry, said, "The tremendous fire which the 40mm Bofors can deliver on a target on short notice has proved invaluable to the Infantry."

The Enemy Seeks Our Lights

By Captain Roger C. Stroud, Coast Artillery Corps

This is the story of a searchlight battalion whose war experiences, I believe, are unique. It took part in the initial landing at Leyte. Some of its lights were the first equipment on the beach, and one of its batteries was torpedoed at sea. Furthermore, it had the distinction of being so capable in illuminating enemy planes that the enemy deliberately sought out and attacked the lights. Lastly, it had the pleasure of knocking down a couple of planes in its own local defense without the assistance of other arms. All of which adds up to the reason why I think this battalion of lights had an unusual career.

The battalion, consisting of Headquarters Battery and three lettered batteries, A, B, and C, was scattered all over the Southwest Pacific. We had been overseas for thirty months—except C, which had been out there only thirteen months—prior to the Philippine invasion. C Battery, my unit, received notification of its part in the coming show two days before we were to set sail. The other batteries, landing on A day, were given more time. Obviously, because of our scattered locations, we were to load as separate batteries with Headquarters and A going together. These two units were to hold over a little at Hollandia.

C Battery, with its head start, almost stole the show from the rest of the battalion. It landed at H plus three hours. It was still flying around the Leyte beachheads, and the Cavalry Division had already started its galloping stride, pushing ahead like the proverbial bat.

C's mission for the first two days was to illuminate the Black and White beaches, after which it was to go into positions around the Tacloban airstrip and the town area. The transport carrying C with other troops was allowed only two hours to unload. At the end of that time, there was still a small amount of equipment left on the transport. The loading schedule of other ships made it necessary for the transport to pull out with three of C's lights, a few trucks, and the personnel records still on board. The absence of the battery's personnel records later proved a great nuisance. It is difficult to handle casualty cases and evacuations without records.

After the initial phase of lighting up the beaches, C Battery carried out the second part of its mission by going into tactical positions to cover the airstrip, the town, and the area between Tacloban and Palo. We were extremely fortunate to have our radars unloaded and with us. Our difficulties, despite the stuff left on the transport, were not problems of matériel.

One searchlight in particular was set up 100 yards away from the northwest corner of the strip where forties and nineties were also in position, and was in operation 24th October. This light proved to be so successful in its operation and ability to pick up Jap planes that the Japs themselves deliberately picked it out as an objective for one of their raids. They did get the radar and wounded four men.

Here was one lesson we learned at this place. We knew that all types of gun batteries must plan on using alternate positions, and to use them whenever possible in case the enemy located them. Searchlights must do the same thing.

It was the 24th of October, just four days after A day and the light's first day in position at the airstrip, when an Oscar came in strafing low along the strip. We were fortunate, for a water-cooled fifty with this light knocked the Oscar down. Incidentally, this was either the first or second enemy plane shot down by our AA at Leyte.

Up to this time, the weather was pretty good, and enemy raids were light. Then the fun began. The big Philippine naval battle was in progress the 24th, 25th, and 26th, and Navy planes that were short of gas began to use this uncompleted airstrip that we were helping to defend, instead of trying to locate their carriers. On the 27th some P-38's arrived, and now we had our own land-based air force basing on the airstrip. But the big typhoon that hit us on October 29th probably delayed the expected enemy air attacks in force.

On the 1st of November, their air raids started. The Japs kept at it for three days, attacking about every half hour between seven at night and seven in the morning. We had no trouble at all in making pick-ups. We were further assisted by the extreme capabilities of one control operator who seemed able to pick up planes whether the radar was already "on" or not. These attacking planes were coming in at all levels from between a few feet off the deck to 10,000 feet in altitude. They used all types of planes including slow "float" jobs. Jap planes were being shot down all over the place.

Of course, there was the heartbreaking case of our own planes being fired at by our own personnel. Not regular AA in most cases, but AA weapons manned by other troops and gun crews aboard the small landing craft. There was one instance of some P-38's being on the tail of a Jap who was also being fired at by 20mm's from landing craft. The P-38's were forced to hold back and make altitude to miss this fire. The fire, unfortunately, set off a gasoline dump

on the beach, and, what was worse yet, the Jap got away.

On the morning of November 4th, when we were at breakfast, some Jap dive bombers managed to sneak in. No one heard them above the noise of tractors, earth movers, and trucks. Again, the Japs were after our lights which had proved to be such a hindrance to them on their night raids. Four of these dive bombers picked out one light and went after it.

We had our revenge during a raid shortly afterwards. All the AW was blasting away at some raiders who were attacking from about 3,000 feet. An Oscar sneaked in at 100 feet to do his dirty work. No one noticed it except the gunner on a fifty at one of our lights. This gun got the Oscar.

To go back to the morning of the 4th, when the dive bombers managed to sneak in. It was a crucial period, which showed a fault in our warning system. Although the lights and guns' radar were on at night, it was not deemed necessary to leave them on during daylight hours, that is from 0700 to 1900. Even so, how these planes got through the fighter screen, past the radars and visual observers of the AWS is a mystery. The AWS up to that time had been the best encountered in this theater.

I am sold on the idea that AAA must always set out its AAIS, both visual and radar on a 24-hour basis, with a warning system either in conjunction with, or separate from the AWS.

Things quieted down after November 4th. There were still plenty of air attacks, but they became further and further apart, and fewer and fewer in number. On the 5th or 6th, however, I forget the exact date, another huge attack was made by some 52 dive bombers. The Japs suffered extreme losses. Half of the enemy planes, or 26, were shot down by our patrol planes before they were able to come within reach of the beaches and airstrip at Tacloban. Of the remaining half, the ship and shore AA fire got another dozen. In other words, the Japs had about 75% of their planes totally destroyed.

Between the 10th and the end of November we had 24 inches of rain, but we did not complain too much because we had little air opposition in bad weather.

I do not know whether or not other lights have pulled the same stunt we did at Leyte. We hooked up our inner lights with the gun radars. This simple scheme worked extremely well. Briefly, all you need is a "double plug hookup" at the radar's present position data system. "Our" Captain Dillinger thought that one up.

We also noticed that the lights had a great deterrent effect. Time after time when we illuminated Jap planes, they would quickly dump their bombs and turn tail. So much for C Battery.

Headquarters and A—to repeat—were together on one transport, and got a little rough treatment. On their way up in convoy they were attacked by torpedo planes. In one way, these two batteries were fortunate, for none of their men were killed or drowned. Destroyers came to the rescue and saved all. Then started a small hegira for this personnel.

Being on the beach at Leyte, I wanted to make arrangements to meet these destroyers. How I got the ships' names is another story. But no one seemed able to tell me where

they were coming in. No headquarters seemed to know anything about them. Then finally one naval headquarters informed me that they would land at Tuloa. So I "jeeped" to that small port only to find out that there were no destroyers and no Headquarters and A batteries. Coming back, I ran into them at White Beach.

They were ashore and looking rather helpless. All their equipment was lost. Naturally, no one sits around waiting and doing nothing in a campaign, and they were formed into two MP detachments with 150 in one and 50 in the other. The larger detachment was assigned to a prisoner-of-war camp at San Quentin near Palo. They continued on this MP work through most of December.

The remaining battery, B, was originally slated for the Mindoro campaign. It was to stop off at Leyte simply for staging. It was my job to find out when B would arrive and where, so that a bivouac area could be assigned to it. Again no one seemed to know anything about it. The beaches were crowded, the campaign was swift, and no one was much worried about a little searchlight battery! But finding a bivouac area for a searchlight battery in crowded, wet and muddy jungle country is no small problem, as any AA person knows. Higher headquarters, not knowing when B would arrive, did not trouble itself much about B's bivouac and staging area, but was expecting another AAA Group and had picked out an area for it. At that time I did not know B was included in this Group.

Then B arrived. They had to get off the ship and off the beach in one fast move. I just happened to run into them after they cleared the beach. Their trucks were parked wherever they could find standing room. But we soon ironed out their problems and got them tucked away in their section of the bivouac area.

One light was borrowed from B battery to help C, which was still missing the three lights lost on A day. This light was set up near the mouth of the Palo River to assist in illuminating enemy planes as well as to cover water areas near the coast and protect against sneak raids.

On one occasion, a suspicious group of bancas (native dugouts) was picked up late at night, and the Navy was notified. They then became a problem for the Navy patrol to solve. The same thing occurred a few nights later near the Tacloban airstrip. One light illuminated three bancas loaded with natives including two women. The MP's took them in custody for questioning.

I might add that we depended primarily on radios for communication. There was very little wire used for field telephones, since with so much construction work going on they probably would be ripped out as fast as they were installed.

We did try a Fighter-Searchlight defense team a couple of nights. But those nights turned out to be hazy, and nothing was accomplished. This experiment was agreed upon between the local AA and AF commanders. It was not the intended policy during the campaign, and was probably not a fair test since, because of the shortage of available lights, we tried it with only eight.

AAA outfits and their searchlights can well expect to be the object of enemy attacks. As an example, we shot down two enemy transport planes one night only to discover that a thwarted Jap paratrooper attack had been leveled against

One plane crashed on land killing all troops. The second crashed at sea, one man only, the pilot, being rescued by the Navy. On inspection of the land-crashed plane, we saw that all of the jump ropes had been connected. A second or two later, those paratroopers would have been in the air and we were the most obvious objective at hand.

To show what AA can do—one time an enemy plane was illuminated and shot down in the space of three seconds! We claim the record on this score.

CONCLUSIONS

These are the conclusions that might be drawn, based on my view of the Leyte campaign:

1. If searchlights are successful, they can expect enemy

attacks. Therefore, they should be prepared to change positions.

2. S/L machine gunners must be good men. These outfits are no place to palm off the Weary Willies and nit-wits.

3. Inner S/L's should be hooked up with the guns' radars wherever possible.

4. Even if there is a good AWS system, the AAIS including visual observers should be set up on a 24-hour basis.

5. AA crews on small boats need more target recognition training.

6. S/L's are an excellent bombing deterrent.

7. Better liaison is needed between GF and TCC.

Forty-eight Hours with an Airborne Battery

By Lieutenant John R. Coiner, Coast Artillery Corps

EDITOR'S NOTE: Lt. Coiner was not a member of this battery, but he was very well acquainted with them before this action. Later on, he again served in their vicinity where he collected these notes.)

The 706th AAA MG A/B Battery was being held in reserve at Jorhat, Assam, when "hurry up" orders hit them with an assignment. Instructions that the battery was to be streamlined, by cutting down the twelve gun sections from six to three men each, called for a little fast planning. Photographs of an airstrip to be defended were handed to BC, Capt. Jack Culbertson, CAC, and from these he made his initial "reconnaissance," and tentatively staked out the guns' positions.

It was the beginning of the siege of Myitkyina, Burma. Merrill's Marauders, after their long jungle trek, had captured the Myitkyina airstrip at about 1000 of a certain morning. Only a few hours later the freshly streamlined AAA MG A/B battery was loaded hurriedly on transport planes and flown to their new positions on this airstrip, landing after dark. The planning had been good, however, and each gun section was set up in its predetermined position by 2200 and ready to go in the defense of this vital landing strip. The Marauders had passed on the information that there were Japs in the vicinity, but the battery was already convinced of that probability and was taking precautions.

It was fortunate they did, for action started immediately. The Japs began a predawn counterattack without even giving Captain Culbertson a chance to make a daylight inspection of his unit. Luckily it turned out to be chiefly a nuisance raid, consisting mostly of heavy harassing mortar and artillery fire. The antiaircraft machine guns around the

airstrip seemed to be the main objective of the Japs.

The action kept up a stiff pace for a couple of hours, but shortly after daybreak the ground troops in the area chased the Japs back and Captain Culbertson started checking immediately on conditions at the gun positions. One gun crew was out of action with two men wounded; a second position was completely knocked out and the gun damaged; and a third, which had received the worst punishment, had been attacked directly by an infiltrating Jap patrol and all the gunners killed.

The BC reformed his battery immediately, and saw to it that the three damaged guns were repaired and put back into action. The men settled down around the guns for a smoke and what they hoped would be a bit of rest before the next attack, which they figured rightly would not be long in coming.

There was barely time to evacuate the wounded men by plane before the airstrip was attacked by a flight of several Jap low-level strafers. The crews jumped to their guns and what they slammed up at the Japs showed that they were plenty resentful over that predawn reception by the Jap ground troops. They shot down two planes and drove the others off before they could do any damage.

After this action, Captain Culbertson decided he ought to make an immediate reconnaissance of the area to get a little better acquainted with the local conditions with which they were faced. But he had hardly started out in his jeep before he was stopped by a lone Marauder who informed him that Japs were "in the vicinity," but that they were "lousy shots and couldn't hit anything!"

At that a couple of Jap bullets snarled over their heads, and Captain Culbertson and the Marauder hit the dirt. The Marauder got up with a red face and protested that his

action was purely involuntary and that he really still felt the same about the Jap snipers' ability.

To prove his contention, he started down the trail in an upright position, obviously taking very little regard for cover. Bang! The sniper whanged away again, and followed with a swift second shot. The Marauder was hit and spun around by both. Captain Culbertson, now thoroughly a "believer," went back to using available cover and managed to drag the Marauder out.

The next morning the airstrip was again attacked by Jap planes, and the battery kept up its average by bringing down two of them in burning pyres. Two others, which

were hit, hightailed it for home, leaving burning air trails behind them.

The 706th apparently convinced the Japs with this last bit of action, for there were few and negligible attempts on the part of the enemy to retake the field after that, and the battery merely settled down to hold, until relieved, what they had helped to win. The importance of that intense first forty-eight hours was not, however, forgotten. The battery was commended by the 10th Air Force for their successful and efficient accomplishment of their first mission, and a majority of the members were awarded the Bronze Star.

Jap Paratroop Attack on Leyte

On 6 December 1944, the Japanese made a desperate but unsuccessful night attempt to land a force of paratroops on Leyte, P. I., to seize U. S. airstrips and pave the way for subsequent landings, either by air or water, which were to secure a beachhead for further Japanese operations. The initial targets of these Japanese paratroops were the airstrips of Leyte, where they expected, after a successful night drop, to destroy grounded Allied aircraft so that Japanese convoys might land the next day at Ormoc without being subjected to Allied air attack. To reinforce this proposed landing of Jap paratroops, a Jap land force from the mountains west of Burauen was to infiltrate through the U. S. lines to help the paratroops secure a beachhead in the Dulag area.

About 150 Japanese aircraft, including fighters, transports, and bombers converted to air-troop carriers, were involved in this operation. U. S. antiaircraft artillery units either destroyed or drove off the majority of the aircraft which came within range of their guns. In the isolated instances where the transports effected a landing, the antiaircraft gunners decimated the Japanese airborne troops as they stepped from their aircraft. Two automatic weapons sections, separated from other U. S. positions and surrounded by Jap ground troops infiltrating down from the mountains, had to retire from their positions but they returned with reinforcements to destroy the Japs and reoccupy their former positions.

The attack began at 1800, when an estimated forty to fifty Jap transports carrying about 700 paratroops and airborne infantry, with fighter and bomber escorts making a total of about 150 enemy aircraft, attacked the San Pablo airdrome area. The attacking flights numbered sixteen to eighteen aircraft each. The bombers dropped smoke and antipersonnel bombs, paving the way for the landings.

The attack converged at Burauen at about 1830. Gun batteries in the Burauen area observed three formations of seventeen planes each approaching from the southwest, with fighter cover. The first flight, made up of bombers, had started gliding in from 15,000 feet when it was engaged by 90mm guns which destroyed several of the enemy aircraft. The remaining Jap aircraft in this group blasted

the airstrip area with delayed-action bombs, and attempted to cover the landings with smoke bombs. The transports and bomber-transport flights swept in a few minutes later, driving from the southwest, at altitudes of less than 1,000 feet.

Although the automatic weapons gunners were blinded somewhat by the screen thrown out by the smoke bombs which had fallen on the strip, they destroyed a considerable number of the transports before the enemy troops could be unloaded and deployed. Throughout a twenty-minute period the transports and bomber transports wheeled around and over the area, attempting to discharge their troops. Once landings had been begun, the Japs made no further attempts to bomb or strafe the airstrips.

While the Burauen attack was in progress, other attacks were being made at Dulag and Tacloban. Nine enemy aircraft were blasted from the skies over Dulag, and no Jap paratroopers lived to reach the ground. At Tacloban three bomber-transport loaded with demolition squads attempted to land on the strip, prepared to destroy the Allied planes and installations in the area. Two of these enemy bombers were pulverized by antiaircraft fire and fell into the sea, while the third was so badly damaged that it was forced to flee the withering hail of antiaircraft fire, and staggered off to the west.

It is estimated that only about 200 paratroopers reached the ground alive. Some who succeeded in jumping from their damaged troop carriers were caught by .50-caliber fire and destroyed. About 100 Jap paratroopers were wiped out near the San Pablo strip, and about seventy paratroopers were found on the Buri strip.

Some of the aircraft which were driven off discharged their airborne cargoes at random, for there were some reports of scattered paratroops at many distant points, away from regular objectives. Some Japanese landed in the town, and along the road east of Burauen. These troops stormed an Air Force Headquarters and made a vicious attack on the headquarters of an Airborne Division during the night, inflicting some casualties in their disorganized raid. Supporting the paratroops were some 200 Jap Infantrymen, the last of the Japanese 16th Division, who had infiltrated the Burauen strips from the west.



A "40" position on Leyte.

Signal Corps Photo

During the remainder of the night there was little activity as the Japanese gathered their forces north of Buri strip and prepared to attack at daylight. Flares were discharged by the Japs in the area in an attempt to illuminate the only combat troops in the vicinity, who were AA units in tactical positions in defense of the three airstrips.

At daybreak the next morning, the Japanese advanced south on a wide front, attacked the Buri and Bayug strips and the west end of the San Pablo strip. They were first noticed by a 40mm gun crew, who saw them scuttling up to advance across the Buri strip. The antiaircraft crew opened fire with their 40mm guns, .50-caliber machine guns, and small arms, killing an undetermined number of the attacking Japs. At that moment intense rifle and small-arms fire broke out on all the Burauen strips, as the Japs closed in to the attack.

The enemy advanced first upon two automatic weapons positions at the west end of the Buri strip. In the first position they attacked, the gunners met them with a hail of fire, killing many of the attacking Japanese before their ammunition was exhausted. Out of ammunition, the position was untenable so the crew evacuated the area, taking their few wounded with them.

The other section attacked was overrun by Japs, and after a brisk fight in which three of the section were wounded, the position was ordered evacuated and the section withdrew into the swamps which lay close to the strip.

When communications to higher headquarters were disrupted, the battery commander decided to assemble his troops for a coordinated stand against the enemy, who was systematically attacking the isolated automatic weapons sections. He ordered his troops to render their 40mm guns inoperative, and to assemble at one of the sections with

their machine guns, small arms, and remaining ammunition. After a perimeter was established, and ammunition had been parachuted to the besieged battery, it held out against more or less continuous and uncoordinated attacks until it was relieved about thirty-six hours later. An isolated gun battery north of Buri strip established a perimeter and repulsed a number of minor attacks during this same period.

By the evening of 7 December, infantry elements combined with the antiaircraft troops had cleared the area, and had forced the Japanese off Bayug strip for another seventy-two hours, while fighting north of Buri strip and across the Burauen-Dagami road continued for several days.

By 12 December, approximately 350 Japanese dead had been counted, and the enemy threat to the Leyte strips had been eliminated. Approximately 200 of these Japanese casualties were claimed by the antiaircraft artillerymen who had so stubbornly defended their positions.

As a tactical operation, the Japanese paratroop attack was a failure. The plan was well conceived technically, but apparently failed to take into account the fact that this area was so well defended by antiaircraft artillery. Transport aircraft are very vulnerable to antiaircraft fire, and our AAA fire units were well disposed for surprise fire along the routes of approach as well as around the objective area, and their fire was most effective.

The large numbers of aircraft and personnel lost in this action made it impossible for the Japs to carry out their plan to shuttle reinforcements into the area, and their attack collapsed.

This action on Leyte was but another example of the magnificent work by antiaircraft artillerymen in front-line combat, firing on both air and ground targets, driving ahead to the final victory over Japan.

M-16s Spearhead Cagayan Drive

By Lieutenants C. W. Despain and Don C. Talbott, Coast Artillery Corps
(As told to Lieutenant Perry Reed McMahon)

In the vast unexplored regions of Northern Luzon, Anti-aircraft Artillery followed along mountain trails to search out remnants of Japs—the remainder of the once mighty horde which spread so rapidly over the Philippines and South Pacific.

The action ended the campaign on Luzon, and it proved again the versatility of American mechanical ability—speed and fire power, a versatility Japanese militarists thought impossible three years ago.

By now the Japs know what American automatic fire can do. They learned something about it in Balete Pass, and along the Villa Verde Trail, and the lesson was driven home even more powerfully in the Cagayan Valley blitz.

Here where Major General Robert S. Beightler's 37th Division drove 200 miles in thirty-one days, antiaircraft self-propelled automatic weapons platoons spearheaded the way, supporting the infantry, medium tanks, and tank destroyers, and accomplished their missions in a way that brought unanimous commendations from regimental commanders down to riflemen in the lines.

General Beightler commended the "perfect" support of the M-16s mounting quadruple .50 caliber heavy machine guns on half-tracks, used for the first time in such a tactical situation.

General Beightler's tactics required a swift dash up Highway 5 through the heart of the fertile Cagayan Valley, with the half-tracks, tanks, and tank destroyers blocking for the fast-moving infantrymen.

The tactics were to disorganize and demoralize the enemy by leaving him no time to reorganize his defense and his forces. The gamble was won, although stiff Japanese counterattacks were often a threat to the long supply line.

"We drove so fast they never had a chance to set their defenses," said General Beightler. "We chased them out of the northern breadbasket. The remainder of the Japanese can starve in the hills."

The front was described as 200 miles long and twenty feet wide, which does not greatly exaggerate the spearhead through the long valley, disjointed by the 15-mile-long Orioung Pass where the Americans were delayed because the enemy was able to establish a temporary stubborn defense along the winding mountain roads.

The 103rd Japanese Division planned a major stand there but the American spearhead moved so fast the Japs were unable to bring up their strength, and the U. S. 145th Infantry cracked through this strong point in three days. At the beginning the Japs threw in as much resistance as possible, gathering an improvised brigade of mixed arms, air corps, engineer and service troops, marching them sixty miles in one day—to slaughter.

"The Cagayan Valley drive proved again that the Japs can't fight in the open country," General Beightler said later, "they ran away. Our speed was all the more remark-

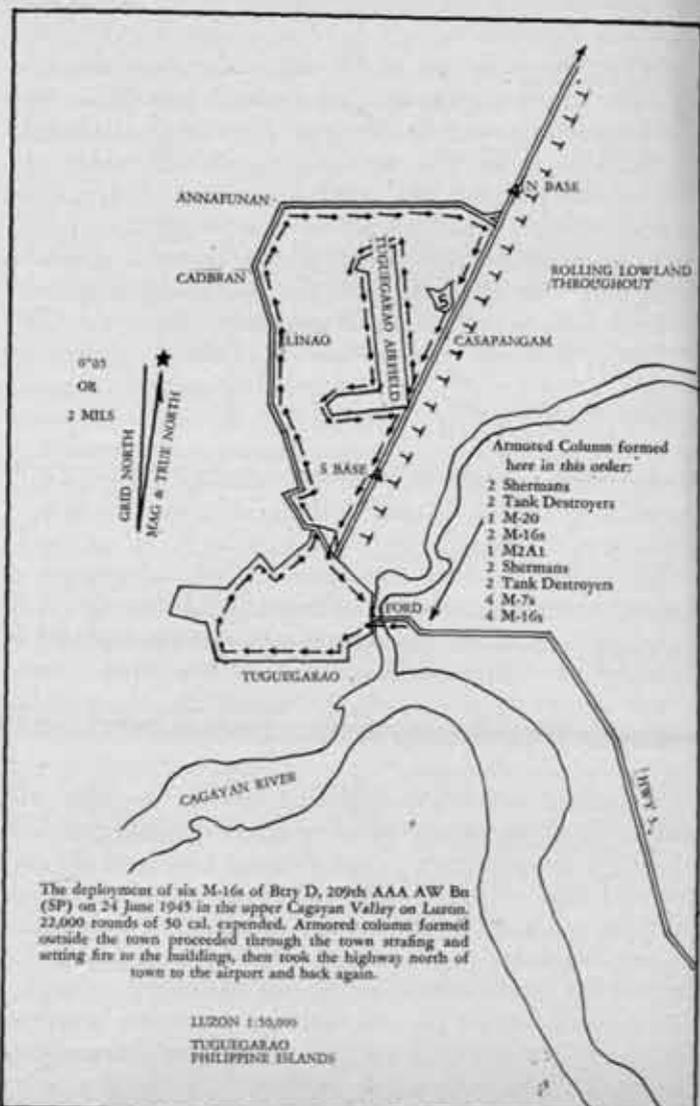
able because we had to build 200 bridges as we advanced—bridges that had been knocked out by our own air force in earlier stages."

The drive which started 31 May out of Balete Pass, where AAA 90mm guns had been used to seal caves, was over for all tactical purposes by July 1, and then the armored force was divided into prongs combing deep into the mountains, mopping up remnants.

At least fifty-eight Japanese tanks were destroyed, practically none in motion, but camouflaged along the roads in armored pillboxes. This was probably due to Jap gasoline shortages and lack of transport.

Soldiers suffered from intense heat in the valley with temperatures ranging up to 104 and 110 degrees, with humidity at 90.

It was not until after the Lingayen Gulf invasion of Luzon that Antiaircraft weapons began to be used as artillery to any great extent in the Pacific war, but once brought



to use there was an increasing demand for their high-velocity, flat-trajectory fire. The M-16s were used in support of the 1st Cavalry in the fight for Manila, used in support of the 43rd Division at Ipo Dam, and again the M-16s with the Bofors 40mm guns were used with the 33rd and 37th Divisions in the attack on Baguio, besides the noted performance along the Villa Verde Trail and Balete Pass in support of the 32nd and 25th Divisions.

However, this was the first time AA was used to lead an initial armored column. After the necessary conferences and planning at General Walter Krueger's Sixth Army, the 209th AAA AW Battalion, part of Brigadier General Charles A. French's 68th Antiaircraft Brigade, was chosen for the task using D Battery with part of A Battery attached.

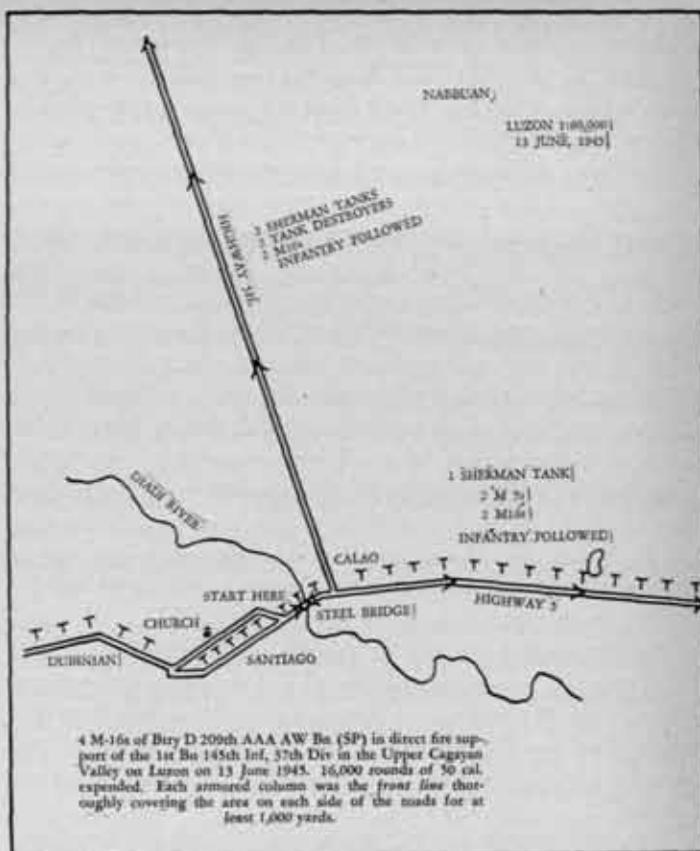
The battalion, commanded by Major Bergen B. Howell, was experienced in this type of work. Captain T. Russell Rooney, commanding Battery A, had demonstrated the fire power of the multiple .50s and Bofors 40mm guns along Villa Verde Trail, and Captain Harry M. Fisher, commanding Battery D, had experience from New Guinea to Luzon, his battery taking an active part in the capture of Novaliches Dam and Balera Water Filters, source of Manila's water.

On 31 May, Lt. Charles W. Despain, leader of the 2d Platoon, Battery D, 209th AAA AW Battalion (SP) was ordered to take his eight M-16s and command 'track to Santa Fe on the north side of Balete Pass and report to the 37th Division's 129th Infantry.

He was shown the first mission—a wooded hillside along which the column would be forced to pass. The armor was to line up with a Sherman medium tank in the lead, followed by two M-7 tank destroyers, then an M-16. Subsequently this order was changed as commanders learned more of the value of the M-16s and often they were in lead of the column on special missions.

Highway 5, up which the column was to advance, is a hard-surfaced road much of which is rough cobblestoned and in bad repair.

As the armored spearhead moved into Jap occupied territory, missions rapidly developed for the quadruple .50s. They fired on draws, ditches, gutters, wooded areas, huts, houses, bridges, machine-gun positions, field pieces, snipers,



AA positions (a Jap 75mm AA gun was located and destroyed four miles south of Bagabag) and any troop bivouac or concentration area discovered by the infantry advancing on the flanks.

Incendiaries were used to advantage in setting fire to the flimsy Nipa huts made of palm with straw thatch, and even more substantial wooden houses, also usually thatched with straw. The tracers were excellent for burning off grass areas in which the Japs were dug in, often revealing machine-gun nests and strong points which were perfect targets for the tanks and heavier weapons.

It was expected that 30,000 Japs would be encountered in the valley, a considerable force should they elect to fight to the last.

The second day when going through a deep defile the infantry was pinned down with Jap fire. M-16s were called to the head of the column to spray the high grass on the forward slopes. The cannoner on a half-track saw a puff of smoke, and the guns fired into that area. As the grass burned away, eight holes were exposed from which enemy mortar and automatic fire had been coming. With the M-16s keeping the Jap fire down, the M-7s raked the area, blowing up the caves. The column pushed on and advanced twelve miles before bivouacking for the night.

The M-16s were kept within the regimental CP perimeter during the night since it was difficult and impractical to dig them in. Frequently unsuccessful small banzai and infiltration attacks were made by enemy troops carrying demolition charges. Throughout the campaign no enemy troops reached the M-16 guns.

The spearhead proceeded a few miles and began to draw quite a bit of rifle fire from the hills overlooking the road. The Japs had let some armor through before they fired,



Signal Corps

An M-16 fires at Japs in a wooded area near Route 5, between Yangiran and Bone Barrios, Northern Luzon. The half-track is from the 209th AAA AW Battalion.

then opened up with tanks they had dug in and camouflaged, and also with artillery. The Jap shells were hitting the sides of the ravine and the bursts sprayed the road. The tanks withdrew so that the M-16s could move into position to strafe this area. Tank destroyers and M-16s went out on the point to shoot, although the enemy's exact position had not yet been discovered. After spraying the general area the Jap fire ceased, but the column had no sooner started to move than the Japs opened up forcing another withdrawal. The tanks spotted the Jap positions and the M-16s added strafing fire in the resultant bombardment. The Jap tanks caught fire and exploded and the crews died as they tried to escape through the American fire.

The congested road conditions and heavy enemy fire made the evacuation of casualties extremely hazardous. The M-16 half-tracks were frequently used to carry wounded men out of range of enemy fire to aid stations. On numerous occasions seriously wounded men were given emergency treatment with a tank and an M-16 forming a "V" to protect them from enemy fire.

At Bayombong the M-16s went in with the infantry on a wide front in attacking the town. That night the column got through the town and decided to load as much of the infantry as possible on the armored vehicles to speed the advance. It was decided to turn the M-16s around as they

had been backing most of the way because of the difficulty of firing over the cab at close range during the attack on Bayombong.

North of Bayombong the M-16s, primarily an anti-aircraft weapon, engaged and knocked out a Jap 77mm AA gun. The Jap piece was firing air bursts over the infantry, and wasn't located until a sergeant on one of the "tracks" saw a flash from the muzzle. Lieutenant Despain ordered him to fire at 1,800 yards range. After the multiple .50s fired 800 rounds enemy fire ceased. Later inspection revealed the gun riddled with .50 caliber slugs, and hastily abandoned after the recoil mechanism was destroyed.

Accompanying the 148th Infantry Regiment, the M-16s continued their usual missions of strafing buildings in which enemy troops were observed, knocking out machine-gun nests, and placing fire in areas along the road likely to have enemy snipers. The towns of Dubran, Cordou, and Santiago were taken with little effort as the Japs hurriedly retreated in the face of our advancing armored columns.

As our rapid advance continued the enemy retreat became more chaotic and resistance became only sporadic. It was therefore possible to use the M-16 half-tracks as reconnaissance vehicles to scout ahead of the main column as far as ten miles to detect possible enemy strong points and strafe ditches and covered areas.

At the Cagayan river crossing brief but intense resistance was encountered when the retreating enemy attempted to set up defensive positions with several field artillery pieces and machine guns. After four hours of fire from tanks, tank destroyers and one platoon of M-16s, the enemy gun positions were eliminated and two ammunition dumps were destroyed.

The M-16s proved their versatility during the Cagayan Valley advance. Such rapid advance was possible only because fast-moving, hard-hitting armored vehicles allowed the enemy no time to turn around and prepare to fight. The Japs found that their usual practice of leaving snipers and small groups of men to harass our advance was costly and futile in the face of withering machine-gun fire from M-16s.

In the Balete Pass and Villa Verde Trail areas, gateway to the Cagayan Valley, the Japs had time to prepare defenses and 16,000 troops had to be dug out and killed. Once in the Cagayan Valley, however, the advance was rapid because the enemy never had a chance to get ready.



Signal Corps

A still-smoking Jap tank lines the road along Route 5.

Searchlights on Luzon

By Lieutenant Horace J. Dussault, Coast Artillery Corps

The campaign to liberate Luzon saw unique uses of anti-aircraft weapons, some heretofore not generally known in this theater, but the greatest breach from convention was supplied by a searchlight battalion. Early in May, higher brass asked for searchlights to support the 43d Infantry Division's operation in the Bocaue-Bigtì-Norzagaray sector, northeast of Manjla, intent on recapturing Ipo Dam from an elusive and well dug-in Jap force. They wanted moon-

light on moonless nights; moonlight on cloudy nights; and moonlight on stormy nights.

And moonlight they got! During one period of the mission as much as twelve billion, eight hundred million candle power was thrown over the Division front, using 60-inch Sperry and General Electric AA searchlights.

This ground illumination—artificial moonlight—came into play as an important factor in speeding up and easing

the strain of night operations for the Doughboys. Although used once or twice in Bougainville and in some sectors of ETO, little was known here of technique, application and dispersion of units at first. Reconnaissance and tactical study dictated in whole where and how the lights were to be used. Then, with the trickling in of bits of information on past performances, especially with the 9th Army in ETO, specific reassuring factors were established and with little change from the original plan, artificial moonlight as provided by the 227th AAA Searchlight Battalion established itself as an integral part of the ground-troop advances bent on liquidating Nip concentrations.

To Battery A, 227th, commanded by Captain George T. Macklin, went the job of initiating this work with the 43d Division. When it was learned that the area under attack, through which our advance had to be made, was a large triangle which was accessible at one point only, dispersion of lights due to mountainous and irregular terrain was an immediate problem. To follow the swath cut by ground troops along the only road meant too great a concentration so they were necessarily spaced as far away from the road as possible. Ridges and defiles were sought out for positions, some still untouched by friendly troops, leaving them open to attack.

It was a bold stroke for units trained and aged in anti-aircraft tactics alone, and some close calls were encountered. On one of the first nights, when the Division front was still quite compact, Lieutenant Francis J. Graziani, Battery A, and a detachment of men, making up the forward Searchlight O.P., came to the stark realization that they had established their O.P. just a little too far. The quiet blackness was broken by mortar and machine-gun fire barking at each other, using the O.P. as a conversion point for their cross fire. During the first few hours of darkness, the doughboys had fallen back a little and the O.P. was in no-man's land. Lesson one had been learned to be well remembered. By noon the next day, the 43d had moved forward leaving the O.P. and adjoining light section safely behind.

As the operational front spread in all directions of the mammoth triangle more lights were needed to blanket the ever-expanding area with sufficient illumination. With ten lights already in position, six more from Battery C, 227th were brought up and dispersed along the road parallel to the line of advance of our troops. In many instances, light positions were established within shouting distance of bypassed groups of hidden Japs, but the all-important distance factor was given first consideration. One afternoon an hour after one Battery C section had moved in and set up equipment east of the Chalk Cliffs on the road to Ipo, 77mm artillery fire descended in the area and pock-marked the immediate area with 33 rounds before subsiding, causing very little damage but much concern among the men.

At mess shortly after that one of the men remarked to an officer of a Field Artillery unit that, "Your artillery fire was falling mighty short this afternoon, sir, kept us in holes for nearly an hour."

The officer grinned.

"Hell, man, that was Jap stuff coming your way. We spotted it."

The section man gulped and was a little wiser.

By the middle of May, Ipo Dam had been retaken by

American and Filipino forces and with moonless nights ahead, a new request was submitted by the 172d Infantry Regiment—direct illumination over the Dam area. Two Battery A light sections were brought up to within 2,500 yards of the dam and positioned astride high ridges in plain view of all troops in the area, friendly and enemy alike. Used but a few times, they nevertheless helped greatly in minimizing Jap supply movements and kept the Nips in their mountain caves, dead targets for night-firing artillery. As will be shown later, the fear of Jap suicidal Banzai attacks was greatly reduced with the reassurance that at a moment's notice the whole area could be flooded with light from behind.

On May 22d the 38th Infantry Division, working east toward Wawa Dam along the San Mateo Road and surrounding mountain range in a great pincer movement to trap remaining Jap concentrations, asked for searchlights to support their operation, and the next day Battery C, 227th, Captain Dwight C. Gill commanding, arrived at the San Mateo area. Platoons commanded by Lieutenants Sherwood J. Evans and Theodore P. Jones were immediately dispatched to the 151st Infantry Regiment and 152d Infantry Regiment respectively.

Using four searchlights, Lieutenant Evans set up his sections in and around Montalban and covered 4,000 yards of front flanking Wawa Dam, some 5,000 yards away. After the first night's illumination, reports filtering back from Infantry patrols showed that effectiveness of lights was excellent. Carrying parties supplying Infantry troops with rations could proceed at night; casualties could be evacuated driving "black out" and outposts settled down at night feeling a little easier about sudden attacks. One Infantryman returning from the front the next day stopped at the first light section he saw and told the men that when the lights had come on the night before he spotted a Jap fifteen feet away from him that he hadn't known was there. A quick shot and there was no more Jap near by.

Lieutenant Jones and his first platoon were dispatched to the mountainous area surrounding Mt. Purro along a chain of ridges stretching from what later became called Banzai Hill and the hills south of Wawa Dam. Employing five 60-inch searchlights the platoon was set up for the dual



Signal Corps Photo

A searchlight position at Ipo Dam.



Signal Corps Photo

Artificial moonlight thirty miles north of Manila.

purpose of creating artificial moonlight over the operation zone and supplying direct illumination for any area suddenly attacked by Nips at night.

The second night the sections had been installed, a short telephone message came in asking for immediate illumination of Banzai Hill. The Japs were coming up in droves armed to the teeth. Already heavy firing could be heard in that direction.

Then out of nowhere there was moonlight on Banzai Hill. Taking full advantage of the unexpected innovation the doughboys dug in below the crest of the hill and picked off brightly silhouetted Japs as they charged madly to the top. In no time, the remaining Nips had scurried back to their valley hide-outs, and a position had been defended with slight loss to the Infantry, and over 150 dead Japs accounted for. That same night a sergeant called Lieutenant Jones' C.P. and told the men that he would actually kiss the first searchlight man he saw. He was certain the fast action of the lights had saved many lives that night.

By the end of May, the twenty searchlights supporting the two Divisions had settled down to routine illumination, and after establishing better liaison with the Infantry units desiring support it became no trick to go into action at specified azimuths and elevations that would give best results.

It might be explained here that the chief purpose of

artificial moonlight is to direct powerful beams of light over friendly installations so that "spilled over" light from the beam is reflected on the ground. This prevents silhouetting of equipment and men. When cloudy conditions are encountered the light reflected from the clouds becomes more intense on the area immediately below the cloud, therefore, giving greater advantage to troops located between the base of light and the bright area. In direct illumination only the area occupied by enemy troops is flooded with light. The blinding intensity of light leaves advancing enemy troops practically helpless, and perfect targets.

During the first week in June a change in positioning of regiments came about and Lieutenant Richard S. Wilson, Battery A, established four positions east of the Mariquina River basin in support of the 169th Infantry which had replaced the 151st Infantry. The 151st in turn moved to positions in the valley facing Mountains Mapatad and Tayahasan and Domier on the right flank of the 38th Division's zone of operation. Lieutenant Evans soon positioned four of his 2d Platoon sections atop Mt. Caymayuman and from there they were capable of covering the whole 151st Regimental front with solid illumination. As the operation proceeded to a smashing close, Lieutenant Jones and three remaining light sections moved east along

the mountain ridges toward Wawa and remained there for the rest of the mission protecting night patrols and portage parties.

During the initial phase of these operations, which because of the rapid pace set by Infantry advances necessitated much moving, redeploying and adjusting of light positions, the problem of local security and area defense against raids, sniper and artillery fire was given due consideration. There were but few instances at first of Japs invading nearby areas, but during the month of June, after a Jap POW had stated that raiding parties headed for our searchlight positions had been dispersed or slaughtered in every case, both batteries became "perimeter-minded" and much work was put into local defense and security. White phosphorus and fragmentation grenades, concertina and apron barbed-wire works were set out to best advantage. Some of the Battery C sections even installed sheet tin around the searchlights in such positions that areas behind the light were illuminated to prevent sneak raids on bivouacked personnel; the light being a reflection from the powerful searchlight beam on the mirrorlike sheets of tin.

Security patrols were organized and almost daily sorties were made in unoccupied areas. Civilians on several occasions reported the presence of Japs in near-by hide-outs and guided our patrols to them. In one instance, a truckload of evacuees pointed out a grassy area to a light section indicating that Japs were huddled there. A patrol was immediately dispatched and before they had travelled seventy-five yards away from their section areas they ran head-on into five Nips, liquidating all of them at once.

During the eight weeks of the operations, the men of the 227th demonstrated beyond a doubt that they were capable of adjusting themselves and their tactics to any situation. Many Bronze Star medals were awarded.

At the close of the campaign, the two batteries had accounted for 101 enemy killed and captured with not a single casualty in the unit.

Originally designated as the 3d Battalion, 513th CA (AA), activated 1 September 1942 at Fort Bliss, Texas, the unit was redesignated 227th CA Sl Bn on 20 January 1943, and further redesignated as 227th AAA Sl Bn on 20 March 1943.

After thirteen weeks of basic training followed by desert missions in both radar and searchlight tactics, the unit moved to Orlando, Florida, in May 1943 and for five months participated in the newly established fighter-searchlight training program at Army Air Forces School of Applied Tactics.

Commanded by Lieutenant Colonel John W. Squire, the 227th embarked for overseas 6 November 1943 and 15 days later landed at Sydney, Australia. After two weeks the unit moved by rail to Townsville, Australia and early in March 1944 prepared to embark on its first tactical mission. The three lettered batteries were dispatched to different commands and staged in Finschhafen and Good-enough Island.

In April 1944, with the invasion of Hollandia, Dutch New Guinea, the batteries were attached, one to each of the three task forces striking at Ataipe and Hollandia.

With the invasion of Luzon Island, Philippine Islands, the unit, then commanded by Major Harlin A. Moore, less Battery B, was reattached to the Sixth Army. Battery C landed at Subic Bay on D-Day with XI Corps, and Battery A landed at Lingayen Gulf some time later.

With the completion of this new-type mission, battlefield illumination, a twofold purpose for searchlight units has been established.

231st Searchlight Battalion

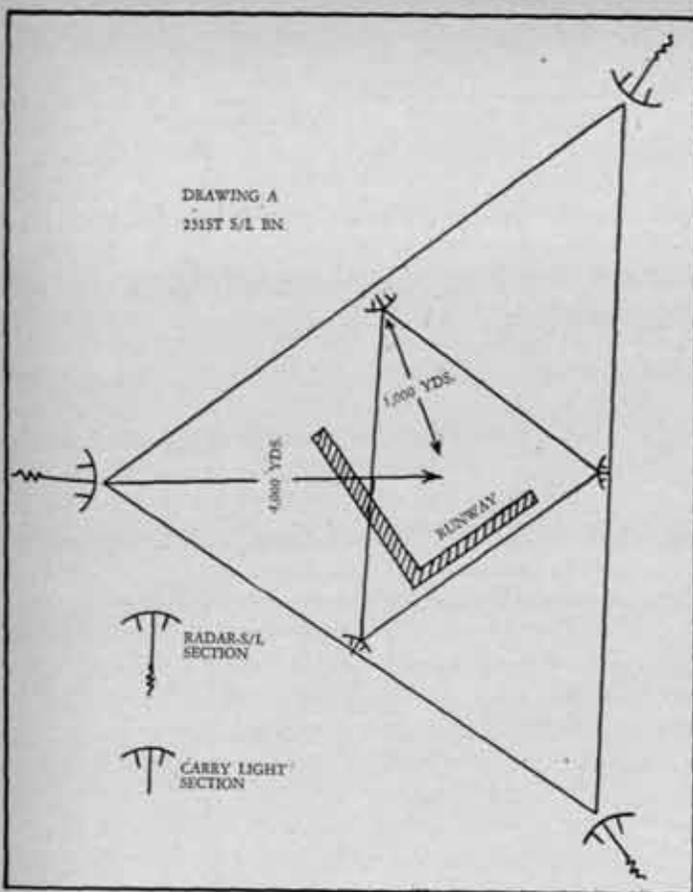
Total Homings . . .	309 (as of 28 March 1945)
Aircraft Homed . . .	2,500 (as of 28 March 1945)
Night Homings . . .	283 (as of 28 March 1945)
Day Homings . . .	26 (as of 28 March 1945)
Average Number of lights	3
Average Altitude of Canopies	2,400 feet
Enemy Air Attacks	9
Enemy air attacks Engaged with Searchlights	5

Since 1 October 1944, the 231st Searchlight Battalion has provided aircraft homings and AAA Searchlight defenses on IX Air Force airfields as summarized above.

Organization: The equipment is disposed on the airfield and its immediate vicinity in the form of two triangles, the points of which offset each other. The inner triangle consists of three carry lights placed near the ends and/or intersections of runways and parking strips. The outer triangle is composed of radar-searchlight (pickup) sections.

All lights and radars are controlled from the AAA Operations Room on or near the airfield over a "hot loop" wire communications net upon which is superimposed an emergency radio net of SCR-284's.

The AAA Operations Room is tied in by direct lines with both Bomb Group Operations and Flying Control. When a homing is desired, Flying Control notifies the AAA Operations Room. The required number of lights may be put in action at any desired altitude within a minute's time. Searchlights may remain in action for any length of time. When it is necessary to recarbon a light, it is relieved by another light. The height of the canopy and the number of lights being used may be altered to meet the needs of the situation while a homing is in progress upon the re-

DRAWING A
231ST S/L BN.

of pointing out the runway itself once the airfield has been located. Pilots have frequently stated that finding the runway itself presents a more difficult problem than locating the airfield. The use of searchlights during the daytime has permitted returning flights to effect a safer and speedier completion of landings than could have been possible without them. In a sense, they serve as a means of traffic control.

The following variations have been used and are in use at the present time:

Normal 3-6 light canopy at various altitudes.

One or more lights depressed horizontally along the runway, indicating its edges.

One or more lights in action vertically to mark the beginning and/or end of the runway. The haze obscures the beam frequently, but a bright disc of light is clearly visible.

The use of colored cellophane filter screens placed over the front window of the searchlight. The colors are selected for identification of upwind-end of runway as well as their ability to penetrate the haze. Tests run in conjunction with the Air Force have revealed that the amber and yellow filters are the most successful.

c. *Adjacent Airfields:* A form of indirect homing is available, but has thus far not been requested by the Air Force. This type of homing directs an aircraft from one airfield to another by pointing out the direction of the second airfield. A single beam is depressed to an angle of 45 degrees for 15 seconds and returned to a vertical position for 45 seconds. The process is repeated as many times as necessary to indicate to the aircraft the course it must fly to reach the desired airfields. Platoons have been supplied with the azimuths to all surrounding airfields.

d. *Radar Homings:* The radar homing procedure developed by this headquarters for the emergency homing of aircraft when searchlights are either ineffective or their use restricted has been tested at A-58. When Flying Control reports on aircraft lost, an SCR-268 is directed to search for it. As soon as a contact is reported, Flying Control causes the "lost" aircraft to effect a 90-degree change in course; if this change is reflected on the plotting board, the aircraft being tracked is identified as the aircraft reported lost. By the use of a circular protractor and a plotting arm the course which the lost aircraft must fly to reach the airfield is quickly determined and forwarded to Flying Control for transmittal by radio to the aircraft. The test conducted revealed that between 10 to 12 minutes are required to effect this type of homing. In an effort to reduce this time factor, identification by means of the IFF distress signal rather than a change of course is being tried. Tests are reported to be generally satisfactory.

MISCELLANEOUS EMPLOYMENT

a. *Airfield Identifications:* Airfield identification from the air at night and during conditions of haze is made possible by the use of colored filters placed over the face of the searchlight. This organization is able to provide six different colors: red, amber, yellow, blue, green, and white. These colors are at present being used singly and in pairs. Each one of the airfields being defended has been assigned a color. Owing to the limited number of colors two lights of the same color are being used at A-55 and A-73, forming an intersection at 1,500 feet directly over the center of the

quest of the Flying Control Officer. These adjustments may be made in the matter of a few seconds. Lights are put out of action on the orders from the Flying Control Officer.

HOMINGS

Several procedures have been developed and successfully employed to accomplish aircraft homings under varying weather conditions both at night and during the day. These procedures are described below:

a. *Night Conditions:* The most frequently called for type of homing has been the nighttime canopy formed directly over the center of the airfield by the intersection of clear white beams of three to six searchlights at altitudes varying from 1,000 to 7,500 feet.

b. *Fog Conditions:*

Aircraft have been successfully homed under conditions of haze, fog, and low overcast. During conditions of limited visibility, the normal canopy is employed as described in above. Under certain conditions the beams will penetrate the overcast and form a recognizable, but somewhat less distinct, apex above the ceiling. This intersection of beams, while not visible from the ground, may be clearly seen by the aircraft. On occasions of heavier overcast, a distinct intersection cannot be formed, but a very noticeable splash of light is apparent for a considerable distance.

At A-61 it was accidentally discovered that searchlights could successfully home aircraft during the daytime when low overcast or heavy ground haze obscured the airfield or runway. Experiments in this type of homing were immediately begun and very satisfactory results have been obtained. This form of homing has divided itself into two types; that of guiding a lost aircraft to the airfield and that

airfield. At airfields where only one light is being used for this purpose, the beam is vertical. At A-69, the 9th Bombardment Command has instructed that the yellow identification light be put in action for 30 seconds and turned off for 5 minutes. This process is repeated until notification is received from the local Flying Control to put the light out of action. Even under the most favorable conditions, the colored beam is not visible as a beam for more than five or six miles. When viewed from a position nearly above the light, however, the color is very apparent and serves as ready identification for the airfield.

b. *Other Uses:* Searchlights have been called upon to perform numerous other duties of a miscellaneous nature. These uses are listed below:

To illuminate obstructions on the runway.

To illuminate the runway indirectly by directing one or more beams above it at a low angle of elevation. This procedure has been employed at A-61 to facilitate night take-offs.

To provide illumination for runway repair and snow-removal operations.

To determine the base of cloud ceilings. This procedure has been used frequently at A-55, A-60, and A-75.

To effect blind landings at times when fog has settled on the runway. By using the searchlights, which appear only as a bright disc of light, as reference points and runway markers, a pilot is able to land on a runway that cannot be seen until the moment of contact. This employment of searchlights has been tested at A-60 and A-74.

As pylons to facilitate night landings and aid in traffic control. These lights are used as stationary vertical beams.

CAPABILITIES

The battalion is at present (29 March 1945) capable of expanding its activities to provide homings and AA searchlight defenses at additional airfields without seriously impairing its tactical efficiency. Personnel for the maintenance and operations of fourteen additional searchlight units can be obtained by reducing by two EM, the present strengths of searchlight and radar sections in the battalion.

By employing four searchlights at each airfield, the battalion could provide illumination for a total of twelve airfields with its assigned personnel. Radar equipment could be redistributed to provide two radars on each of five airfields. (At this time one radar and two searchlights of the battalion are employed in the Harbor Defenses of Cherbourg.)



Packages Overseas

An increase in the size and weight limitations on parcels which may be mailed to American troops stationed outside the continental limits of the United States will become effective November 15.

Under this relaxation of the overseas package size and weight limitations, it will be possible after that date to mail packages upon request from the soldier up to 42 inches in length or 72 inches in length and girth combined, and 11 pounds in weight.

The present regulations provide a size and weight limitation of 15 inches in length, 36 inches in length and girth combined, with a maximum weight limit of five pounds.

It will still be necessary to have a specific request in writing from the soldier overseas in order to send any package weighing in excess of eight ounces, the first-class weight limit on overseas mail. There has been no change in the policy with respect to the sending of articles up to eight ounces as first-class mail without a request from the soldier.

Excerpts from General Marshall's Report*

PREPAREDNESS

In good conscience this Nation can take little credit for its part in staving off disaster in those critical days (1942). It is certain that the refusal of the British and Russian peoples to accept what appeared to be inevitable defeat was the great factor in the salvage of our civilization. Of almost equal importance was the failure of the enemy to make the most of the situation.

* * *

Not only were the European partners of the Axis unable to coordinate their plans and resources and agree within their own nations how best to proceed, but the eastern partner, Japan, was working in even greater discord. The Axis, as a matter of fact, existed on paper only. Eager to capitalize on the preoccupation of the western powers in Europe, Japan was so greedy for her own immediate conquests that she laid her strategy, not to help Germany defeat Russia and Great Britain but to accumulate her own profit. Had the way been open Germany and Japan would have undoubtedly joined their armies in Central Asia, but to Japan this objective was secondary to looting the Far East while there was no real force to stop her.

* * *

The discovery of American scientists can be man's greatest benefit. And it can destroy him. It is against the latter terrible possibility that this nation must prepare or perish. Atomic power will affect the peaceful life of every individual on earth. And it will at the same time affect every instrument and technique of destruction. But the atomic bomb is not alone among the scientific advances that make the possibilities of the future so terrifying. The development of aircraft and rockets and electronics has become equally incredible.

* * *

It will be said that to protect itself this nation need only rely on its machine power, that it will not need manpower.

This doctrine will be closely akin to the doctrine of negative defense which destroyed France. The folly of the Maginot Line was proved early in the war but too late to save France. The folly of the new doctrine which has already begun to take shape in the thinking of many Americans would also be proved early—but probably too late to save America.

The only effective defense a nation can now maintain is the power of attack. And that power cannot be in machinery alone. There must be men to man the machines. And there must be men to come to close grips with the enemy and tear his operating bases and his productive establishment away from him before the war can end.

* * *

This Nation's destiny clearly lies in a sound permanent security policy. In the War Department's proposals there are two essentials: (1) Intense scientific research and development; (2) a permanent peacetime citizen army. The importance of scientific research is the most obvious to the civilian, but the importance of a peacetime citizen army based on universal military training is of greater importance in my opinion.

* * *

EUROPEAN THEATER

Two weeks later (18 February 43) he (General Devers) again reported:

"Replacements allocated to this theater are not adequate to sustain operations in Italy on the present scale. At the present time the United States part of the Fifth Army has an effective net shortage of 13,072 officers and men."

This shortage of men needed so desperately in our battle line resulted from the inability of the Selective Service System to meet the Army's call for manpower the previous summer. In July, Selective Service had delivered 194,000 men of the Army's call of 235,000. In August and September the Army had requested 175,000 men a month and received 131,000 in August and 122,000 in September.

* * *

Radar bombing technique, first employed in the fall of 1943, improved constantly. All-weather bombing approached reality; our bombers used the cover of darkness and inclement weather to achieve surprise, yet still hit their target with precision.

* * *

General Bradley was able, on 25 July, to mount the offensive which broke out of the beachhead at St. Lô and Avranches and carried the lines swiftly forward to the Meuse River. Preceding the ground attack 1,500 heavy bombers and hundreds of other combat aircraft dropped more than 3,390 tons of bombs on enemy positions on a narrow front. The crushing power of the air attack and its paralyzing effect on the enemy's movement blasted the way for rapid penetration of German lines. While observing preparations for the attack, one of the Army's outstanding soldiers, Lt. Gen. Lesley J. McNair, was killed by misdirected bombs of our own air force. Though his loss was a tremendous shock to our divisions, which he had organized and trained, he undoubtedly died in the way he preferred—in battle. General McNair was utterly fearless.

* * *

The following extract from a report by General Eisenhower indicates the severity of the campaign in France and illustrates the tremendous needs of our armies during this campaign, in addition to the routine consumption of huge quantities of gasoline and rations:

"Losses of ordnance equipment have been extremely

*Biennial Report of the Chief of Staff of the United States Army, 1 July 43 to 30 June 45, to the Secretary of War.

For instance we must have as replacement items each month 36,000 small arms, 700 mortars, 500 tanks, 2,400 vehicles, 100 field pieces. Consumption of artillery and mortar ammunition in northwestern Europe averages 8,000,000 rounds a month. Our combat troops use up an average of 66,400 miles of one type of field wire each month. The AEF during the entire First World War expended less than 10,000,000 rounds of artillery and mortar ammunition."

* * *

On 16 December (1944) von Rundstedt attacked with a force of twenty-four divisions. He had been able, because of heavy fog which continued for days, to assemble his force in secrecy in the heavily forested foreground. When the blow came, eight panzer divisions broke through our VIII Corps line on a 40-mile front. Diversionary attacks in other sectors and considerable air and artillery support assisted the main offensive in Luxembourg.

General Eisenhower reacted promptly and decisively and subsequent results have proved the eminent soundness of his plan. All available reserves in the Central Army Group were used to strengthen the northern and southern flanks of the penetration and the XXX British Corps of the Northern Army Group was deployed to hold the line of the Meuse and the vital Liège area. With communications seriously disrupted, Field Marshal Montgomery was charged with the operation of forces north of the penetration, involving temporary operational control over most of the U. S. First and Ninth Armies while General Bradley coordinated the effort from the south. The 82d and 101st Airborne Divisions were brought up from theater reserve to retard the momentum of the enemy thrust, with the 101st reinforced by armor and artillery, holding the important road center at Bastogne. The shoulders of the penetration at Monschau and Echternach were stubbornly held by infantry divisions moved in from the north and from the south, outstanding among which were the 1st, 2d, 4th, and 9th Divisions.

* * *

ASIATIC-PACIFIC THEATER

Of all the battle fronts of the global war, the situation in East Asia two years ago was the bleakest for the United Nations. In seeking to capitalize on the preoccupation of the Western Powers in Europe and the sneak attack on the American fleet at Pearl Harbor, the Japanese had established an immense perimeter of conquest in the Far East. By July 1942 it extended more than halfway across the Pacific, southward almost to Australia and westward to the mountain barriers of the India-Burma front. The advance eastward of the Japanese had been halted in the critical battles of Midway and the Coral Sea. But Japan still held tremendous areas replete with the natural resources essential to the conduct of modern warfare.

So far, our advance back over these areas taken by the Japanese in their initial stride had been slow and painful. It seemed to many Americans that if we had to repeat again and again the bloody struggles for Guadalcanal and the Papuan Coast of New Guinea by what was popularly termed "island hopping," the decision in the war with Japan was distant many years. Army and Navy command-

ers were well aware of the difficulties and paucity of means. Nevertheless, we had undertaken offensive operations in the Pacific and Far East with only the small forces then available because it was imperative that the Japanese be halted and placed on the defensive.

* * *

The mission that the Joint Chiefs of Staff had given General Stilwell in Asia was one of the most difficult of the war. He was out at the end of the thinnest supply line of all; the demands of the war in Europe and the Pacific campaign, which were clearly the most vital to final victory, exceeded our resources in many items of matériel and equipment and all but absorbed everything else we had. General Stilwell could have only what was left and that was extremely thin. He had a most difficult physical problem of great distances, almost impassable terrain, widespread disease and unfavorable climate; he faced an extremely difficult political problem and his purely military problem of opposing large numbers of enemy with few resources was unmatched in any theater.

Nevertheless General Stilwell sought with amazing vigor to carry out his mission exactly as it had been stated. His great efforts brought a natural conflict of personalities. He stood, as it were, the middleman between two great governments other than his own, with slender resources and problems somewhat overwhelming in their complexity. As a consequence it was deemed necessary in the fall of 1944 to relieve General Stilwell of the burden of his heavy responsibilities in Asia and give him a respite from attempting the impossible.

* * *

No American officer had demonstrated more clearly his knowledge of the strength and weakness of the Japanese forces than General Stilwell and the steps necessary to defeat them in Asia. He was brought back to the United States to reorient the training of the Army Ground Forces for the war against Japan. Then after the death of General Buckner on Okinawa he was returned to the field to command the U. S. Tenth Army.

* * *

It had always been the concept of the United States Chiefs of Staff that Japan could best be defeated by a series of amphibious attacks across the far reaches of the Pacific. Oceans are formidable barriers, but for the nation enjoying naval superiority they become highroads of invasion.

Japan's attack on our fleet at Pearl Harbor gave her a tremendous but, nevertheless, temporary advantage. The Japanese had reckoned without the shipyards of America and the fighting tradition of the United States Navy. Even before parity with the Japanese fleet had been regained, the Navy successfully maintained communications with Australia and had undertaken limited offensives in the Solomons to halt the enemy advance. A desperate courage stopped the Japanese before Australia in the now historic battle of the Coral Sea and then shortly afterward utterly smashed the Japanese advance toward the United States itself in the decisive action at Midway.

* * *

It has been declared axiomatic that a nation cannot suc-

cessfully wage war on two fronts. With a full appreciation of the difficulties and hazards involved, we felt compelled to wage a war not only on two fronts, but on many fronts. Thus we arrived at the concept of global war in which the vast power of American democracy was to be deployed all over the earth.

* * *

Fighting in the tunnels built by Americans in an attempt to make Corregidor impregnable prior to World War II, the Japs continued their suicidal resistance for nearly two weeks. Toward the end there was a series of terrific explosions on the islands as the Japs destroyed the tunnel system and themselves with it. Americans sealed up remaining caves and an estimated 300 Japs. A total of 4,215 Japs were killed on the island, an unknown number blown up. Of the 3,038 Americans who took back Corregidor, 136 were killed, eight were missing, and 531 wounded.

* * *

From California to the coast of China the vast Pacific abounded with American power. In the Philippines, the Marianas and the Ryukyus, our forces under steadily increasing reinforcements from the European continent massed for the final phase of the Pacific war. The enemy's shipping had been largely sunk or driven from the seas. The few remaining fragments of his once powerful naval force were virtually harbor-bound and the industries and communications of Japan were rapidly crumbling under the mounting tempo of our aerial bombardment. Lord Mountbatten's forces in southeastern Asia were closing in on Malaysia and the Netherlands East Indies. Chinese armies, newly equipped, trained, and determinedly led, were gradually assuming the offensive.

The day of final reckoning for a treacherous enemy was at hand.

* * *

MATÉRIEL

During the past two years the United States Army was well-armed and well-equipped. The fact is we dared to mount operations all over the world with a strategic inferiority in numbers of troops. Were it not for superiority in the air and on the sea, in mobility and in fire power, we could not have achieved tactical superiority at the points chosen for attack nor have prevented the enemy from bringing greater forces to bear against us.

From the time of the landing in France to the time the Allies had reached the German frontiers, the German armies of the West exceeded numerically the attacking forces. General MacArthur invaded the Philippines with a lesser force than that with which the Japanese held the islands. In the immediate strategic area Japanese strength far outnumbered us. By no other criterion can the quality and quantity of our weapons better be judged. Yet we were in some instances outdone by both Germany and Japan in the development of specific weapons. It is truly remarkable that our superiority was as general and as decisive as it proved to be.

* * *

Another noteworthy example of German superiority was

in the heavy tank. From the summer of 1943 to the spring of 1945 the German Tiger and Panther tanks outmatched our Sherman tanks in direct combat. This stemmed largely from different concepts of armored warfare held by us and the Germans, and the radical difference in our approach to the battlefield. Our tanks had to be shipped thousands of miles overseas and landed on hostile shores amphibiously. They had to be able to cross innumerable rivers on temporary bridges, since when we attacked we sought to destroy the permanent bridges behind the enemy lines from the air. Those that our planes missed were destroyed by the enemy when he retreated. Therefore our tanks could not well be of the heavy type. We designed our armor as a weapon of exploitation. In other words, we desired to use our tanks in long-range thrusts deep into the enemy's rear where they could chew up his supply installations and communications. This required great endurance—low consumption of gasoline and ability to move great distances without breakdown.

But while that was the most profitable use of the tank, it became unavoidable in stagnant prepared-line fighting to escape tank-to-tank battles. In this combat, our medium tank was at a disadvantage, when forced into a head-on engagement with the German heavies. Early in 1944 it was decided that a heavy American tank, on which our Ordnance experts had been continuously experimenting since before the war, must be put into mass production. As a result the M-26 (Pershing) tank began to reach the battle lines last winter. This tank was equal in direct combat to any the Germans had and still enjoyed a great advantage in lighter weight (43 tons), speed, and endurance. At the same time work was begun on two new models, the T-29 and T-30, which weighed 64 tons, one mounting a high-velocity 105mm rifle, the other a 155mm rifle.

* * *

In most respects, our battle clothing was as good as can be supplied to any soldier of any country. The "layering" principle saves the greatest possible protection and at the same time the greatest freedom of movement. The rubber-bottomed, leather-topped shoepac, worn with heavy ski socks and a felt innersole, overcame the heavy incidence of trench foot among our troops fighting in cold and extremely wet climates. No clothing has ever been invented that will make the exposure men must endure in combat pleasant. It has been possible only to develop sufficient protection to prevent large-scale casualties from such exposure. This we accomplished both in Europe and in the battlefields of the East. The principal difficulty in meeting this problem was control of the wasteful habits of our men in their use and misuse of the clothing and equipment issued.

* * *

The appearance of an unusually effective enemy weapon, or of a particularly attractive item of enemy equipment usually provoked animated public discussion in this country, especially when stimulated by criticism of the Army's supposed failures to provide the best. Such incidents posed a very difficult problem for the War Department. In the first place, the morale of the fighting man is a matter of primary importance. To destroy his confidence in his

weapons or in the higher command is the constant and intense desire of the enemy. The American soldier has a very active imagination and usually, at least for the time being, covets anything new and is inclined to endow the death-dealing weapons of the enemy with extraordinary qualities since any weapon seems much more formidable to the man receiving its fire than to the man delivering it. If given slight encouragement, the reaction can be fatal to the success of our forces. Commanders must always make every effort to show their men how to make better, more effective use of what they have. The technique of handling a weapon can often be made more devastating than the power of the weapon itself. This was best illustrated by the correct, the intended, tactical employment of the United States medium tank.

* * *

The German infantry rocket, the *Panzerfaust*, had greater hitting power than the United States bazooka which had been developed first. We believe that our use of massed heavy artillery fire was far more effective than the German techniques and clearly outclassed the Japanese. Though our heavy artillery from the 105mm up was generally matched by the Germans, our method of employment of these weapons had been one of the decisive factors of our ground campaigns throughout the world.

* * *

Radar equipment developed by the United States and Britain was superior to the electronics devices of either Germany or Japan. Our radar instruments, for example, which tracked aircraft in flight and directed the fire of anti-aircraft guns was more accurate than any possessed by the enemy. American radar detection equipment, which picked up planes in the air and ships at sea, had greater range than the German. Japanese radar was greatly inferior.

* * *

MANPOWER

The Army's manpower balance had been disturbed in the fall of 1943 by shortages in deliveries of inductees by the Selective Service System, which amounted during one 3-month period to about 100,000 men. A second factor was the miscalculation after North Africa that resulted in too many men being trained for the armored forces, the artillery and special troops, and too few by far for the infantry.

* * *

Even with two-thirds of the German Army engaged by Russia, it took every man the Nation saw fit to mobilize to do our part of the job in Europe and at the same time keep the Japanese enemy under control in the Pacific. What would have been the result had the Red Army been defeated and the British Islands invaded, we can only guess. The possibility is rather terrifying.

* * *

I present the following comparisons of the battle deaths we have suffered in all our wars so that there can be no misunderstanding of the enormous cost of this conflict, for which we were so completely unprepared:

	Number of months duration	Total battle deaths	Average battle deaths per month
American Revolution	80	4,044	50
War of 1812	30	1,877	62
Mexican War	20	1,721	86
Civil War (Union Losses)	48	110,070	2,293
Civil War (Confederate Losses)	48	74,524	1,551
Spanish-American	4	345	86
World War I	19	50,510	2,658
World War II	44	201,367	4,576

* * *

Only by universal military training can full vigor and life be instilled into the Reserve system. It creates a pool of well-trained men and officers from which the National Guard and the Organized Reserve can draw volunteers; it provides opportunities for the Guard and Reserve units to participate in corps and Army maneuvers, which are vital preparations to success in military campaigns. Without these trained men and officers, without such opportunities to develop skill through actual practice in realistic maneuvers, neither the Regular Army, the National Guard, nor the Reserve can bring high efficiency to their vital missions.

* * *

An unbroken period of one year's training appears essential to the success of a sound security plan based on the concept of a citizen army.

* * *

To those who fear the Army might militarize our young men and indoctrinate them with dangerous conceptions, to those who express doubts of the Army's capacity to do the job, I submit the evidence of our present armies. The troops have been trained sufficiently to defeat a first-class enemy. Their minds have not been warped—quite the contrary. The American people are satisfied, I am confident, that their Armies are, in fact, armies of democracy. They know that the men composing those Armies are far better physically than they otherwise would have been, that their general health has been better than at home, except for those serving in the tropical jungles. The officers who trained our Armies were largely citizen-soldiers. They did have the initial guidance of Regular officers, but only two per cent of the entire officer corps was professional. Only slightly more were of the National Guard; 25 per cent were products of the Officers' Reserve Corps, 12 per cent more were men commissioned direct from civil life because of certain professional qualifications. The great majority of the officers came up from the ranks, 59 per cent of the total, which guaranteed the democracy of the Army.

* * *

If this Nation is to remain great it must bear in mind now and in the future that war is not the choice of those who wish passionately for peace. It is the choice of those who are willing to resort to violence for political advantage. We can fortify ourselves against disaster, I am convinced, by the measures I have here outlined. In these protections we can face the future with a reasonable hope for the best and with quiet assurance that even though the worst may come, we are prepared for it.

They Were There!

Coast Artillery Officers in the Philippines, 7 December 41

The following roster of Coast Artillery Officers on duty in the Philippines on 7 December 41 was compiled from the best possible sources, but is not guaranteed free from error. The code below indicates what is known about the officers listed; the last entry for each officer is his present status as far as known. The officers marked "October Ship" and December Ship" were known to have been on these Japanese ships which were lost in 1944; their final fate is not known in every case.

CASUALTY CODE

Killed in Action KIA
 Died of Disease DOD
 Declared Dead DED
 Wounded in Action . . . WIA
 Missing in Action . . . MIA
 Prisoner of War POW

Alive and Well ALW
 Returned to Duty RET
 Returned to Military Control RMC
 December Ship D.S.
 October Ship O.S.

Serial Number	Name	Rank	Early Information	Latest Information
FORT SANTIAGO				
0-278283	Hankins, Stanley H.	Capt.	POW	RMC
NICHOLS FIELD				
0-354801	Mickelsen, Henry E.	1 Lt.	MIA	KIA
0-409560	James, Andy M.	2 Lt.	POW	DEAD
0-385896	Markham, Warren H.	2 Lt.	POW	D.S.
FORT STOTSBERG				
0-171863	Sage, Charles G.	Col.	POW	RMC
0-232299	Cain, Memory H.	Lt. Col.	POW	RMC
0-219022	Luikart, John C.	Lt. Col.	POW	D.S.
0-163234	Peck, Harry M.	Lt. Col.	POW	DEAD
0-253307	McCullum, Virgil O.	Maj.	POW	RMC
0-332453	Witten, Oliver B.	Maj.	POW	DEAD
0-238678	Baca, Eugene B.	Capt.	ALW	
0-309031	Compton, Robert J.	Capt.	POW	RMC
0-333330	Dorris, Winnifred O.	Capt.	POW	RMC
0-331480	Ely, Clyde E. Jr.	Capt.	POW	DEAD
0-341331	George, Anthony R.	Capt.	POW	RMC
0-360326	Greeman, Gerald B.	Capt.	POW	RMC
0-325929	Grimmer, Frank H.	Capt.	MIA	DEAD
0-276050	Hazlewood, James H.	Capt.	MIA	KIA
0-331782	Melendez, Alfonso	Capt.	POW	D.S.
0-232770	Miller, Henry M.	Capt.	POW	KIA
0-277800	Reardon, William B.	Capt.	POW	RMC
0-285521	Sadler, James E.	Capt.	POW	D.S.
0-219317	Schurtz, Paul W.	Capt.	POW	DEAD
0-367966	Sherman, Frederick S.	Capt.	POW	DEAD
0-376015	Smith, Burney H.	Capt.	DOD	DEAD
0-222502	Stump, Claud W.	Capt.	POW	RMC
0-267724	Turner, John W. Jr.	Capt.	POW	DEAD
0-400039	Vinette, Dallas P.	Capt.	POW	RMC
0-405941	Ashby, Jack G.	1 Lt.	POW	DEAD
0-360327	Bayne, Alvin L.	1 Lt.	POW	DEAD
0-405953	Beall, John F.	1 Lt.	POW	DEAD
0-405871	Beyers, Melvin A.	1 Lt.	WIA	RMC
0-405201	Bond, Dow G.	1 Lt.	POW	RMC
0-398138	Boyer, Jack K.	1 Lt.	POW	RMC
0-404367	Brown, Charles M.	1 Lt.	POW	RMC
0-410867	Bryant, Otis C.	1 Lt.	POW	DEAD
0-404601	Donaldson, James W.	1 Lt.	POW	RMC
0-405928	Field, Albert K.	1 Lt.	POW	DEAD
0-316249	Gonzalez, Reynaldo F.	1 Lt.	MIA	KIA
0-385001	Henfing, George W.	1 Lt.	POW	RMC
0-398176	Hutchison, Russell J.	1 Lt.	POW	RMC
0-406387	Jeffus, Hubert P.	1 Lt.	POW	DEAD
0-311760	Jordan, Fred H.	1 Lt.	POW	DEAD
0-375155	Kemp, Eddie T.	1 Lt.	MIA	KIA
0-385794	Lucas, Marvin H.	1 Lt.	POW	RMC
0-405955	McMinn, James	1 Lt.	POW	RMC
0-369233	Parker, Ted E.	1 Lt.	POW	D.S.
0-385499	Sawyer, Tom J.	1 Lt.	POW	RMC
0-405185	Schroeder, Karl W.	1 Lt.	POW	DEAD
0-346756	Schuetz, William C.	1 Lt.	MIA	KIA
0-405165	Shamblin, Otho L.	1 Lt.	POW	DEAD
0-405949	Shimp, Neil B.	1 Lt.	POW	DEAD
0-400642	Skarda, Cash T.	1 Lt.	POW	RMC
0-406990	Taggart, Thomas R.	1 Lt.	POW	RMC
0-353379	Thwaites, James R.	1 Lt.	MIA	KIA
0-402000	Turnier, Frank M.	1 Lt.	POW	RMC
0-414597	Bailey, Glenn E.	2 Lt.	POW	KIA
0-416657	Craft, Dean H.	2 Lt.	POW	DEAD
0-367967	Darling, Gerald L.	2 Lt.	POW	DEAD
0-416556	Ellis, Jack L.	2 Lt.	POW	DEAD
0-413748	Hunter, James E.	2 Lt.	POW	DEAD
0-416655	Irish, Clayton E.	2 Lt.	POW	DEAD
0-417823	Jopling, Daniel W.	2 Lt.	POW	RMC
0-417261	Lingo, Edward F.	2 Lt.	POW	RMC
0-413737	McCartney, Dan A.	2 Lt.	POW	RMC
0-414888	McKinzie, William J.	2 Lt.	POW	DEAD
0-411617	MEEK, Douglas L.	2 Lt.	DOD	DEAD
0-401443	Millard, Melvin R.	2 Lt.	POW	DEAD
0-419983	Montoya, Antonio A.	2 Lt.	POW	KIA
0-413002	Remondini, Robert J.	2 Lt.	POW	KIA
0-419678	Skiles, Leonard W.	2 Lt.	DOD	DEAD
0-353521	Thorpe, Joseph D.	2 Lt.	POW	DEAD
FORT MILLS, CORREGIDOR				
0-001897	Bunker, Paul D.	Col.	DED	DEAD
0-002629	Chase, Theodore M.	Col.	POW	RMC
0-002790	Cottrell, Jos. F.	Col.	POW	RMC
0-003206	De Carre, Octave	Col.	POW	RMC
0-002047	Holcombe, John Lee	Col.	RET	RMC

Serial Number	Name	Rank	Early Information	Latest Information	Serial Number	Name	Rank	Early Information	Latest Information
0010777	Amoroso, Arnold D.	Lt. Col.	POW	RMC	0-019027	MacNair, Thomas K.	Capt.	POW	D.S.
0007898	Ausmus, Delbert	Lt. Col.	POW	RMC	0-018749	Massello, William Jr.	Capt.	POW	RMC
0007554	Barr, Elvin L.	Lt. Col.	POW	DEAD	0-250077	McCarthy, Joseph L.	Capt.	POW	D.S.
0006607	Biggs, Lloyd W.	Lt. Col.	DOD	DEAD	0-018754	Mellnik, Stephen M.	Capt.		RMC
0006335	Bowler, Louis J.	Lt. Col.	POW	RMC	0-285858	Nirdlinger, Eugene	Capt.	POW	D.S.
0007972	Braly, William C.	Lt. Col.	POW	RMC	0-312499	O'Toole, John H.	Capt.	POW	RMC
0007357	Crews, Leonard R.	Lt. Col.	POW	RMC	0-220618	Owen, William H. Jr.	Capt.	POW	DEAD
0006185	Foster, Valentine P.	Lt. Col.	POW	RMC	0-018151	Peterson, Arthur C.	Capt.	POW	RMC
0005860	Kohn, Joseph P.	Lt. Col.	POW	RMC	0-241168	Petrie, Malcolm O.	Capt.	POW	DEAD
0009816	McCullough, Samuel	Lt. Col.	DOD	DEAD	0-021159	Rosenstock, Edgar S.	Capt.	POW	DEAD
0009037	Rutherford, Dorsey J.	Lt. Col.	POW	RMC	0-019033	Schenck, Harry W.	Capt.	POW	DEAD
					0-021234	Shiley, Earle M.	Capt.	POW	DEAD
0021391	Abston, A. A.	Maj.	POW	RMC	0-266302	Shumate, Harold M.	Capt.	DOD	DEAD
0015314	Breitung, Howard E. C.	Maj.	DOD	DEAD	0-018734	Somerville, Erven C.	Capt.	POW	DEAD
0016442	Conzelman, Clair M.	Maj.	POW	DEAD	0-305163	Starr, Warren A.	Capt.	POW	RMC
0015409	Field, Girvelle L.	Maj.	DOD	DEAD	0-268185	Steiger, George E.	Capt.	POW	RMC
0015795	Graves, Reed	Maj.	POW	DEAD	0-299540	Thompson, William G.	Capt.	MIA	KIA
0016083	Hopkins, Armand	Maj.	POW	RMC	0-318258	Waid, Arthur D.	Capt.	MIA	DEAD
0015709	Kirkpatrick, Lewis S.	Maj.	DOD	DEAD	0-248617	Weaber, Ivan J.	Capt.	POW	DEAD
0015670	Miller, Albert D.	Maj.	POW	DEAD	0-129541	White, Robert J.	Capt.	MIA	DEAD
0015535	Mitchell, Floyd A.	Maj.	POW	D.S.	0-319806	Wilcox, Albert P.	Capt.	POW	DEAD
0022378	Satterwhite, David S.	Maj.	POW	RMC	0-021387	Wood, John D.	Capt.	POW	DEAD
0012196	Sawtelle, Donald W.	Maj.	POW	RMC	0-311860	Wright, Harold B.	Capt.	POW	DEAD
0015471	Short, William B.	Maj.	KIA	DEAD					
0015914	Simmonds, Norman B.	Maj.	POW	DEAD	0-225747	Aikman, Robert P.	1 Lt.	POW	DEAD
0012553	Smith, James W.	Maj.	ALW	RMC	0-334997	Aston, Terence F.	1 Lt.	MIA	MIA
0015995	Stennis, Will K.	Maj.	POW	DEAD	0-301982	Augur, Robert F.	1 Lt.	POW	RMC
0015253	Stubbs, Guy H.	Maj.	POW	RMC	0-332146	Backstrom, Bert H.	1 Lt.	POW	RMC
					0-298071	Barros, Russell D.	1 Lt.	MIA	RMC
0020671	Ames, Godfrey R.	Capt.	POW	DEAD	0-277052	Boggs, Kenneth L.	1 Lt.	POW	RMC
0250131	Amos, Frederick C.	Capt.	POW	RMC	0-329357	Bovee, Frank W.	1 Lt.	POW	DEAD
0021171	Baldwin, Lawrence C.	Capt.	POW	DEAD	0-023078	Britt, Chester K.	1 Lt.	POW	RMC
0018984	Ball, William H.	Capt.	KIA	DEAD	0-021113	Brown, Burton R.	1 Lt.	POW	RMC
0302634	Benson, Roger S.	Capt.	POW	DEAD	0-328563	Bruns, Stockton D.	1 Lt.	POW	RMC
0018039	Bosworth, Lawrence A.	Capt.	POW	DEAD	0-317041	Bryan, Thomas S.	1 Lt.	POW	DEAD
0270185	Bull, Harcourt G.	Capt.	POW	RMC	0-344787	Bucher, Charles A. Jr.	1 Lt.	KIA	KIA
0021404	Byrne, Jerome S.	Capt.	POW	RMC	0-366299	Byars, Stephen M. Jr.	1 Lt.	POW	DEAD
0019085	Crawford, George H.	Capt.	POW	DEAD	0-324788	Callaway, Robert W.	1 Lt.	POW	DEAD
0021109	D'Arezzo, Alfred J.	Capt.	POW	RMC	0-365221	Calvert, Wilbert A.	1 Lt.	POW	DEAD
0309836	Darcy, Albert C. Jr.	Capt.	POW	DEAD	0-205998	Carle, Earl R.	1 Lt.	KIA	DEAD
0216507	Dewey, Leland K.	Capt.	MIA	DEAD	0-022894	Cooper, Robert G.	1 Lt.	POW	DEAD
0018192	East, Joe C.	Capt.	POW	DEAD	0-021156	Cornwall, Paul R.	1 Lt.	POW	RMC
0018786	Edison, Dwight D.	Capt.	POW	DEAD	0-355672	Cosper, Duane L.	1 Lt.	POW	DEAD
0021160	Gerlich, Frederick J.	Capt.	POW	DEAD	0-023162	Cullen, Augustus J.	1 Lt.	POW	DEAD
0018730	Glassburn, Robert D.	Capt.	POW	DEAD	0-022059	Davis, Thomas W. 3d	1 Lt.	POW	RMC
0273873	Gray, Harry McR.	Capt.	POW	DEAD	0-021774	Davis, John H. Jr.	1 Lt.	POW	DEAD
0287535	Grow, Neville Leo	Capt.	POW	RMC	0-362149	De Lano, William N.	1 Lt.	POW	KIA
0020669	Gulick, John McM.	Capt.	POW	RMC	0-358605	Dewey, Fred S. Jr.	1 Lt.	POW	O.S.
0304723	Guyton, Benson	Capt.	POW	RMC	0-375885	Doane, Leslie O.	1 Lt.	POW	RMC
					0-375886	Dronberger, Charles S.	1 Lt.	POW	RMC
0018085	Haggerty, Robert F.	Capt.	POW	DEAD	0-306558	Durie, Albert E. Jr.	1 Lt.	POW	DEAD
0021355	Hauck, Herman H.	Capt.	POW	DEAD	0-337519	Eddington, Harold F.	1 Lt.	POW	RMC
0021195	Holmes, James R.	Capt.	POW	DEAD	0-370677	Erhardt, Charles W.	1 Lt.	POW	RMC
0285187	Huff, Arthur E.	Capt.	POW	DEAD	0-350213	Farley, Philip H.	1 Lt.	POW	DEAD
0306255	Hultquist, John C.	Capt.	MIA	DEAD	0-022022	Farris, Stephen C.	1 Lt.	POW	RMC
0225802	Jimerson, Harold A.	Capt.	POW	DEAD	0-341515	Ford, Ralph P.	1 Lt.	POW	D.S.
0018999	Julian, Harry	Capt.	POW	DEAD	0-340841	Fortney, Thomas Hays	1 Lt.	POW	RMC
0021124	Kappes, George	Capt.	POW	DEAD	0-335877	Freiman, Edward P.	1 Lt.	POW	D.S.
0275671	King, Ben E.	Capt.	POW	RMC	0-327699	Fullmer, Don B.	1 Lt.	POW	DEAD
0262897	Langworthy, Alonzo E.	Capt.	POW	RMC	0-297375	Gibbon, Beverly R.	1 Lt.	POW	RMC
0019036	Lawlor, Robert J.	Capt.	POW	RMC	0-328571	Greer, Sydney R.	1 Lt.	POW	DEAD
0267808	Lewis, Harold S.	Capt.	MIA	DEAD	0-365174	Hackett, Thomas A.	1 Lt.	POW	RMC

Serial Number	Name	Rank	Early Information		Serial Number	Name	Rank	Latest Information	
			Early Information	Latest Information				Early Information	Latest Information
0-349343	Haven, Charles V.	1 Lt.	DOD	DEAD	0-385792	Bliss, Raymond W.	2 Lt.	POW	RMC
0-239299	Hawes, Milton D.	1 Lt.	POW	RMC	0-396738	Bode, Carle R.	2 Lt.	POW	DEAD
0-354465	Hill, Ralph O.	1 Lt.	POW	RMC	0-392308	Buchman, Arthur H.	2 Lt.	POW	DEAD
0-361864	Holton, William E.	1 Lt.	POW	DEAD	0-389545	Chamberlain, C. H. Jr.	2 Lt.	POW	RMC
0-362485	Humphrey, Bernice F.	1 Lt.	POW	DEAD	0-376296	Charles, Robert G.	2 Lt.	POW	DEAD
0-021116	Ivey, Richard G.	1 Lt.	POW	RMC	0-380494	Chevaillier, Lewis B.	2 Lt.	POW	RMC
0-362228	Jonelis, Frank G.	1 Lt.	POW	RMC	0-394659	Crandell, John P.	2 Lt.	POW	KIA
0-327394	King, Leslie W.	1 Lt.	POW	D.S.	0-384477	Crawford, John P.	2 Lt.	DOD	DEAD
0-344706	Kwiatkowski, Joseph D.	1 Lt.	POW	RMC	0-375550	Cullison, Shelby J.	2 Lt.	POW	DEAD
0-353221	Layton, Buxton L. Jr.	1 Lt.	POW	RMC	0-401480	Dawe, Harry J.	2 Lt.	POW	DEAD
0-343741	Le Brun, Cecil G.	1 Lt.	POW	RMC	0-395683	Efird, Walter G. Jr.	2 Lt.	POW	KIA
0-021841	Lehr, Philip H.	1 Lt.	POW	D.S.	0-395717	Esatow, Theodore R.	2 Lt.	POW	RMC
0-368130	Lloyd, Tony B.	1 Lt.	POW	DEAD	0-389550	Friedline, Stanley	2 Lt.	KIA	
0-021952	Madison, Samuel A.	1 Lt.	POW	DEAD	0-413510	Fulmer, Richard P.	2 Lt.	POW	RMC
0-348833	Massie, Roy W.	1 Lt.	POW	D.S.	0-408833	Gay, Burt C.	2 Lt.	WIA	DEAD
0-242496	Maxfield, George G.	1 Lt.	POW	RMC	0-386664	Gulden, Royal S. Jr.	2 Lt.	POW	DEAD
0-337521	Mayhew, Allen E.	1 Lt.	MIA	DEAD	0-404536	Haile, Ernest S.	2 Lt.	POW	KIA
0-342105	McCluskey, John B. Jr.	1 Lt.	POW	DEAD	0-389552	Hamilton, William A. Jr.	2 Lt.	POW	RMC
0-021126	Miller, Frederick A.	1 Lt.	POW	DEAD	0-392110	Harding, Harry J.	2 Lt.	POW	RMC
0-379576	Minogue, Raymond D.	1 Lt.	POW	KIA	0-418574	Hardt, Frank T.	2 Lt.	POW	KIA
0-352385	Minsker, Harry C.	1 Lt.	POW	D.S.	0-387674	Herr, Melvin H.	2 Lt.	POW	KIA
0-350587	Monteith, Charles F.	1 Lt.	DOD	DEAD	0-410304	Hey, Robert W.	2 Lt.	POW	DEAD
0-354624	Moore, George M.	1 Lt.	POW	RMC	0-395714	Hinson, Sedgie V.	2 Lt.	POW	RMC
0-376230	Morehouse, Paul D.	1 Lt.	POW	D.S.	0-395960	Hodgson, Welles G. Jr.	2 Lt.	POW	DEAD
0-312311	Oyen, Alvin O.	1 Lt.	POW	RMC	0-393415	Irish, Howard H. Jr.	2 Lt.	POW	KIA
0-022914	Pace, Herbert E. Jr.	1 Lt.	KIA		0-418576	Kalbleish, Edwin Jr.	2 Lt.	POW	RMC
0-351734	Pearcy, George W.	1 Lt.	POW	DEAD	0-410309	Kasler, Charles L.	2 Lt.	POW	RMC
0-362700	Pullen, Richard T. Jr.	1 Lt.	POW	RMC	0-366983	Keating, Dean B.	2 Lt.	POW	DEAD
0-363182	Roper, Charles E.	1 Lt.	POW	DEAD	0-396747	Kilduff, William C.	2 Lt.	DOD	DEAD
0-311487	Rose, Fred Elezior	1 Lt.	POW	D.S.	0-373986	Langeler, Albert B.	2 Lt.	POW	DEAD
0-355686	Rouze, Robert E.	1 Lt.	POW	D.S.	0-374947	Lawrence, Ray Goodman	2 Lt.	POW	RMC
0-310757	Schnicke, George	1 Lt.	POW	DEAD	0-393420	LeClar, Francis E.	2 Lt.	POW	RMC
0-356082	Scrivener, Willis A.	1 Lt.	POW	DEAD	0-395693	Leonard, John T.	2 Lt.	POW	D.S.
0-323095	Sense, George Andrew	1 Lt.	POW	RMC	0-379574	Levagoood, George E.	2 Lt.	KIA	KIA
0-022973	Shoss, Morris L.	1 Lt.	POW	RMC	0-394519	Lewis, William E. Jr.	2 Lt.	POW	RMC
0-364297	Shupp, Clayton C.	1 Lt.	POW	DEAD	0-419367	Marvick, Thomas Jr.	2 Lt.	DOD	DEAD
0-023054	Simpson, Harry T. Jr.	1 Lt.	POW	RMC	0-395697	Moore, John I. 3rd	2 Lt.	POW	DEAD
0-367977	Snell, David M.	1 Lt.	POW	RMC	0-360860	Muir, Robert W.	2 Lt.	POW	DEAD
0-021971	Snoke, Donald R.	1 Lt.	POW	DEAD	0-340533	Nixon, John B.	2 Lt.	POW	D.S.
0-350224	Stecker, William W.	1 Lt.	POW	RMC	0-418579	Obourn, Robert L.	2 Lt.	POW	RMC
0-347705	Swain, Roger W.	1 Lt.	POW	DEAD	0-398810	Pace, Charles A.	2 Lt.	POW	DEAD
0-354912	Taylor, Jack W.	1 Lt.	DOD	DEAD	0-375896	Peterie, Lester L.	2 Lt.	POW	RMC
0-355207	Traw, James C.	1 Lt.	POW	KIA	0-389567	Pipkin, Carl H.	2 Lt.	DOD	DEAD
0-319226	Treacy, George J.	1 Lt.	POW	DEAD	0-413657	Preble, Clayton H.	2 Lt.	DOD	DEAD
0-335974	Verde, Robert J.	1 Lt.	POW	DEAD	0-373560	Ramsey, Kenneth W.	2 Lt.	POW	RMC
0-355314	Vetesnik, Irwin A.	1 Lt.	POW	DEAD	0-393426	Rowden, Donald A.	2 Lt.	DOD	DEAD
0-328575	Vick, Roy M. Jr.	1 Lt.	POW	O.S.	0-340119	Saunders, Wilburn R. Jr.	2 Lt.	POW	D.S.
0-022918	Wheat, Robert I.	1 Lt.	KIA	DEAD	0-387039	Schuey, Leonard	2 Lt.	MIA	MIA
0-021779	White, Charles E.	1 Lt.	POW	KIA	0-380507	Schutte, Henry J. Jr.	2 Lt.	MIA	DEAD
0-346080	Wiser, Darwin E.	1 Lt.	POW	KIA	0-379582	Scott, Walter E.	2 Lt.	POW	RMC
0-354444	Winstead, Elton D.	1 Lt.	POW	RMC	0-395703	Sharp, Felix C. Jr.	2 Lt.	POW	RMC
0-023057	Wright, John McN. Jr.	1 Lt.	POW	RMC	0-374774	Shoup, William H.	2 Lt.	WIA	DEAD
0-023127	Yates, Jules D.	1 Lt.	POW	RMC	0-412202	Smith, Francis G.	2 Lt.	DOD	DEAD
0-366997	Zimmerman, Joseph W.	1 Lt.	POW	RMC	0-398762	Smith, John S.	2 Lt.	POW	DEAD
					0-377670	Speck, Jefferson W.	2 Lt.	POW	RMC
					0-380280	Taylor, Richard F.	2 Lt.	RET	RMC
0-351611	Arvin, Charles R.	2 Lt.	POW	RMC	0-396758	Ulanowicz, Emil M.	2 Lt.	POW	RMC
0-408462	Barton, Robert D.	2 Lt.	POW	RMC	0-384890	Wandel, Hugh E.	2 Lt.	POW	RMC
0-393983	Blackmore, Ernest R.	2 Lt.	POW	KIA	0-384879	Weeks, Carl G.	2 Lt.	POW	RMC

Antiaircraft Artillery Training Under Combat Conditions

By Lieutenant Colonel Donald T. Michael, CAC, and
Lieutenant Colonel Benedict M. Holden, GSC

During 1944 the arrival of new Antiaircraft Artillery units into the Southwest Pacific Theater resulted in the accumulation of an uncommitted theater reserve. For the first time it became possible to conduct training for uncommitted units, better to qualify them for the operations on which they were to be used. Many organizations of nearly two years' experience in the theater were in urgent need of refresher training, necessitated by the receipt of equipment developed since they had embarked from the United States. Newly arrived units needed special training to meet the particular requirements of the Southwest Pacific Theater.

Toward the end of June, 1944, the 14th Antiaircraft Command established a unit training center in New Guinea. Plans called for the concentration of all uncommitted units for the purpose of conducting refresher training. Accelerated operational requirements in the theater initially prevented the full realization of the training program, because the training center was required to meet close operational deadlines in accordance with commitment plans. A rapid influx of units late in 1944 relieved the pressure on the training center and permitted a carefully planned comprehensive training program to be instituted.

The 14th Antiaircraft Command training center operates four ranges. An antiaircraft range located on the shore provides facilities for the conduct of fire at all types of aerial and water-borne targets. A ground impact area provides training in field artillery tactics, using forward observers at ranges of about 12,000 yards and aerial observers at greater ranges. An automatic weapons ground impact area is utilized to conduct training in the utilization of the automatic weapons at ground targets at ranges up to 2,000 yards. A small-arms range provides firing points at 100, 200 and 300 yards.

The training program at this training center is directed not so much toward the training of individuals, but in the overall preparation of complete units for operational commitments. The training program starts with a technical inspection of all equipment to insure that it is complete, serviceable, properly adjusted and maintained. A unit cannot be expected to function at maximum efficiency unless its equipment is in perfect condition. Following this inspection, a brief period is devoted to individual and sectional training to polish drill procedure and to instruct in the latest gunnery tactics.

Normally a period of one week is devoted to the terrestrial firing range for both gun and automatic weapons battalions, conducting ground firing at appropriate targets. One week is devoted to antiaircraft firing with a small portion provided for water-borne targets. Towed target facilities have been very limited and for that reason many expedients were used.

OQ2A radio-controlled target airplanes were utilized for gun targets and were flown close to the maximum range of guns by using the stereoscopic height finder for the pilot to follow the plane. This target was not completely satisfactory for that purpose but it provided preliminary training so that maximum utilization of tow target time could be realized. Automatic weapons training concentrated on night practice with spread beam searchlights because the vast majority of raids in this theater consist of night nuisance raids conducted at low altitudes. Night targets included the small planes and rockets.

One interesting innovation was included in the training program. The firing range was located near a large base and considerable air and naval traffic was encountered. This situation provided an excellent opportunity for the establishment of an AAIS system for warning the chief safety officer of aircraft and boats approaching the field of fire. This situation was developed to the extent that the firing range became a simulated defended area and a unit going on the range was required to set up an effective Antiaircraft Artillery Intelligence System with an operations center to control its fire in exactly the same manner as it would in combat. As operations detachments became available they were incorporated into the control system. Liaison was established with the local Air Corps, and meteorological information was exchanged in exactly the same manner as in the field. An effect of realism not normally achieved in training centers resulted from this program.

Prior to the establishment of the training center, the introduction of new equipment required the training of all units in tactical position and in widely separated areas. The solution to this problem was the development of the training team, which consisted of specialists who traveled through various locations to stay as long as required to complete training of all units. The M-9 director and multiple gun carriage M-51 were introduced by this procedure.

Toward the end of 1944, training teams were organized in the United States to bring the latest technical methods to the various theaters. This plan fitted perfectly into the existing training organization in the Southwest Pacific Theater, since it provided a method of bringing expert training to units dispersed over several thousand miles. Training teams have arrived from the United States and are accomplishing outstanding results with units which have been away from training centers from one to three years. The result of this training program was realized to the fullest extent in the advances which culminated in the invasion of the Philippines. Outstanding records were achieved in the percentage of planes destroyed, probably destroyed or damaged.

Azimuth for 40mm Guns

By Lieutenant Colonel James D. Caulk, Jr., Coast Artillery Corps

EDITOR'S NOTE: *There are objections to the method described. The scale is small and would require a light to be seen at night; use of the scale would require more time for laying the gun than the use of stakes in the side of the revetment, which is the present approved method (Par. 86, FM 44-60); and while greater accuracy could be obtained by use of the scale rather than with stakes, the degree of accuracy obtainable with stakes is satisfactory for barrage fire.*

One of the minor problems of the AA 40mm units is that of laying the 40mm gun in correct azimuth for barrage firing or for anticipating the direction of approach of enemy aircraft as reported by the early warning system. When the director is used correct azimuth can be read by orienting the director on true North. However, here on the Continent in Army, Corps and Division AW units, directors have been used very little because of the mobility required.

The Indicator, Azimuth Assembly D-44114, which was originally termed the Blackout Dial, and which remains in position on the gun even though directors are stored, makes an excellent instrument for laying the gun in azimuth. It is easily converted and when this conversion feature is added it does not interfere with the future operation of the instrument if directors are used later.

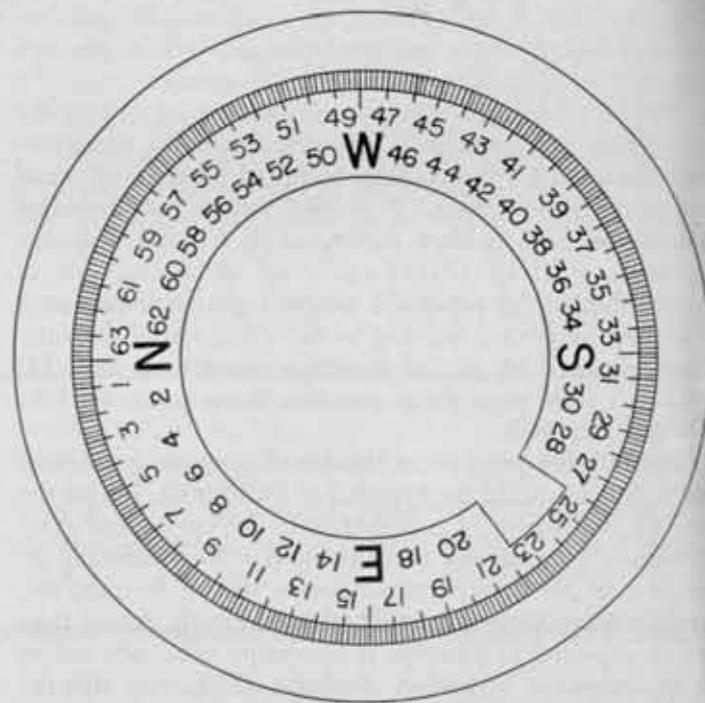
Take off the glass cover and rim by removing the six set screws. Be careful not to damage the jacket which makes the dial watertight. With rubber mounting cement touched in spots on the outer dial, stick on a piece of 4½-inch diameter heavy paper or light cardboard with a 6,400-mil or 360-degree graduated scale inked on it—the circular scale to measure four inches in diameter. The inner selsyn disc does not need to be disturbed as it is not used in this conversion. The center of the graduated paper scale can be cut out the size of the selsyn disc so as not to interfere with matching pointers when using director control. Now, cut a small pointer from a piece of black metal, or light metal painted black, and screw this to one of the set screws holding the glass in the underneath side of the lens and rim. The pointer is to remain stationary in the 12 o'clock position.

Since the large movable disc in the dial turns 360 degrees when the gun is moved through 360 degrees, accurate azimuths can be measured—the accuracy of which will depend on the smallest graduation you can make on a circle of approximately 4 inches in diameter. Personally, I believe

that a crew member will never be able to read closer than 20 mils or about 1 degree, which is sufficient for early warning and barrage firing. The principal compass directions can also be added to the graduated paper disc toward the center of the disc so that OP early warning reports can be accurately set, such as N, NE, E, etc. When the gun is traversed to the right, or clockwise, the dial also turns clockwise, therefore the disc has to be graduated counterclockwise in order to read azimuths from the North.

In order to orient on true North all that is necessary is to push in the clutch on the instrument, rotate the dial until the stationary pointer reads zero and while still holding the clutch in, bore sight the gun on a true North stake. Or, orient the gun on true North, push in the clutch and rotate the dial until it reads zero. Either orientating method will work. I believe the latter will be more accurate since it is not necessary to hold the clutch while bore sighting.

I suggest that a master graduated scale be drawn on tracing paper and then be reproduced by the off-set printing or photostat process in order to obtain black and white prints. Thus a whole battalion can be supplied with the necessary materials with only a few hours work.



Local Defense for Seacoast Artillery

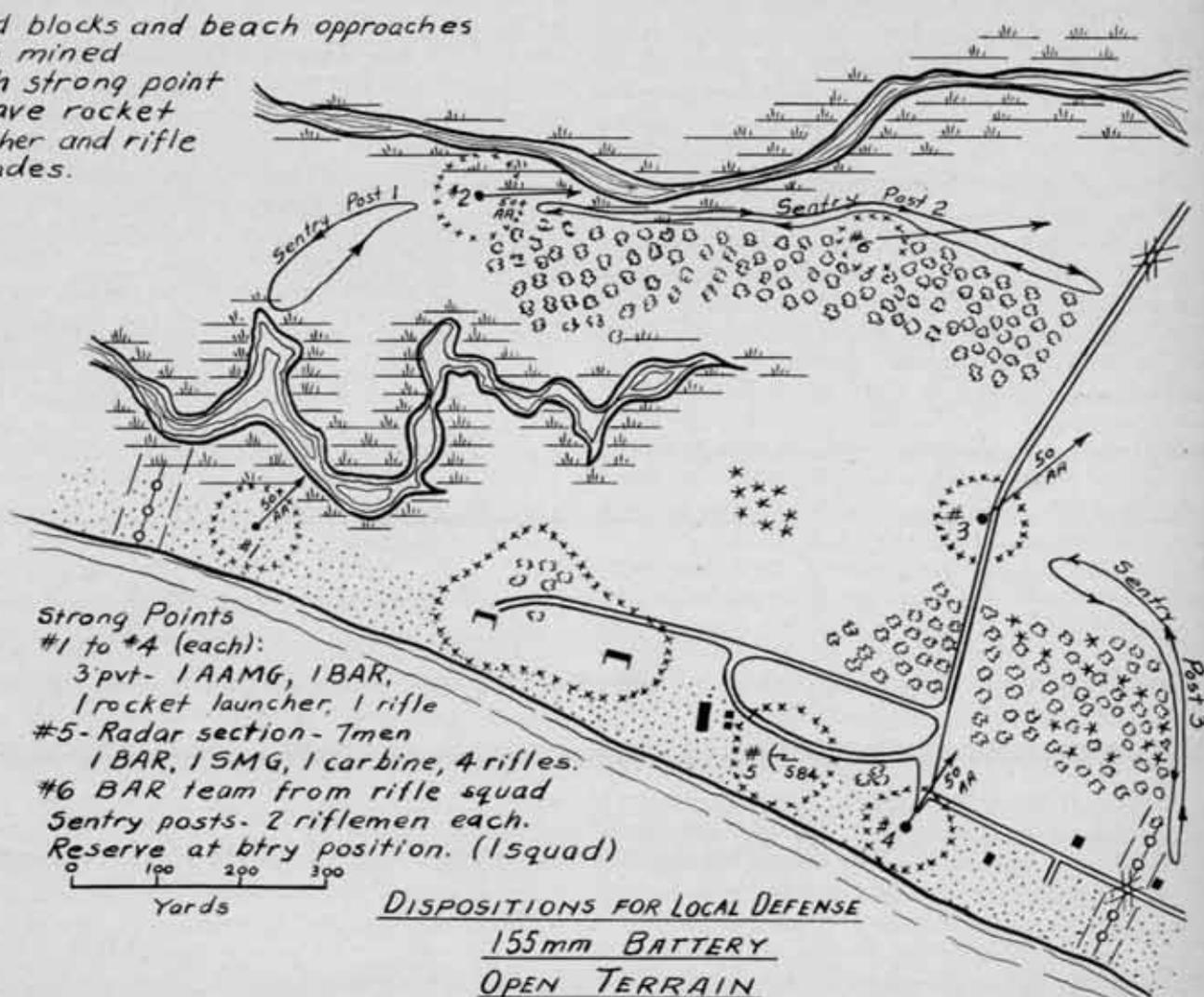
By Lieutenant Colonel Rowland K. Bennett, Coast Artillery Corps

"Self-preservation is the first law of nature," or to express the same thought in the words of the Field Manual, "Every commander, regardless of how large or small his command may be, is responsible at all times for the local security of his unit." This rule, automatically obeyed by every infantryman, is frequently neglected in Seacoast Artillery, both in training and in the field, until its importance is driven home by enemy action. The reasons for this neglect are obvious. First, the Seacoast Artillery is organized and trained for its primary mission of firing on naval targets, and secondary mission of firing on land targets. Second, the Harbor Defenses in which most Seacoast Artillery units were trained were perfectly secure against enemy land at-

tacks. Third, the security doctrine set forth in FM 4-5 was based generally on the situation in which Seacoast Artillery, as part of a force of all arms, was defending itself against major attack.

The war in the Pacific has developed a security problem for Seacoast Artillery and similar units, in which the situation was not in the book, and for which many units were unprepared. As the war has moved toward Japan, our forces have captured many islands, reported them "secured," and then moved on to the next objective, leaving the local defense in the hands of garrison troops. Although nominally secured, many small enemy parties have remained, and local units have had first the problem of protection of their own

Road blocks and beach approaches to be mined
Each strong point to have rocket launcher and rifle grenades.



installations and second the problem of organizing patrols to mop up small enemy groups. This would be a routine matter to an Infantry organization, but to a 155mm battalion it poses a problem in manpower, weapons, organization and training which is not covered by the 4-series of Field Manuals. The reason for this appears when we compare the Infantry Rifle Company with its Seacoast Artillery counterpart, the 155mm Battery.

Infantry Company		155mm Battery	
6	Officers	7	
187	Enlisted men	169	
28	Carbines	24	
146	Rifles	128	
2	Light machine guns	—	
—	.50 AA machine guns	4	
1	.50 HB machine guns	3	
6	Submachine guns	9	
5	Rocket launchers	8	
3	60mm mortars	—	
15	Automatic rifles	15	

On the face of it, the 155mm battery seems to be well provided with defensive means, and appears to be almost as good a ground fighting unit of the Infantry company. It has nearly as many men; it has the same number of automatic rifles and more machine guns and rocket launchers. It has no light machine guns or mortars, but has plenty of .50 machine guns. However, the Infantry Rifle Company has ground fighting as its reason for existence, and is organized and trained for this. The 155mm battery is organized and trained for its job of firing its guns; it has no ground defense organization as such, and anything of this kind that it does must be in addition to its other duties. Except for the machine-gun section, its weapons are scattered through the organization and handled by men whose primary duties have nothing to do with ground defense; thus the BAR's of the battery, which in the Infantry furnish the base of fire for the squad, are allotted to observers, clerks, telephone operators and readers. The .50 machine guns are primarily antiaircraft weapons; their mounts are too high to deliver grazing fire and they are not provided with means for laying in either azimuth or elevation. The battery has no light machine guns or mortars to provide a base of fire and further lacks the general support of a Heavy Weapons Company. Lacking the specialized weapons and training for ground defense, the battery must use its available means to the highest efficiency to insure its own survival. It does possess one important advantage—it will usually have time for thorough study and organization of its position.

The Infantry Company is organized into a Headquarters, 3 Rifle Platoons and a Weapons Platoon. Each Rifle Platoon is organized into a Headquarters and 3 squads, each squad consisting of squad leader and assistant, 2 scouts, automatic rifle team of 3 men and a maneuvering element of 5 men. The Weapons Platoon, which provides the base of fire for the Company, is armed with 3 60mm mortars and 2 light machine guns. Thus every element of the Company, from the squad up, has the essentials of a fighting team—a headquarters, a reconnaissance echelon, a base of fire and a maneuvering force. A Seacoast Artillery unit, if it is thrust into an infantry rôle, either for offense or defense,

should be organized along the same lines, but its basic organization does not readily lend itself to such a revision. In the 155mm battery, the only personnel directly available for local defense are in the machine-gun section, which consists of 1 Sergeant, 1 Corporal and 12 privates who man the 4 AA machine guns. Any other personnel for local defense must be borrowed from various elements of the battery, the number available depending, of course, on the situation.

As a concrete example, consider a 155mm gun battery which has moved into positions from which it must be ready to fire at any time on naval targets. It must provide its own antiaircraft defense during the day, must protect itself from minor ground attacks at all times, and may in addition be required to send out patrols. It has been in position long enough to have completed the most urgent jobs required for organizing its position. It is organized into 2 firing units, has a radar and is manning 4 OP's. For the sake of argument it will be assumed that the battery is at full strength, and that it is not required to furnish details for running the motor pool, unloading vessels or doing miscellaneous fatigue work. This is perhaps a Utopian condition, but it will furnish us with a basis for estimating the situation.

To meet the requirements for local defense, the battery commander will have to decide on the number of men that can be spared. He knows that the 12 machine gunners will be tied down to their armament in any event. The radar and the OP's will be expected to protect themselves at least until help can be sent them. Looking over his organization, he might decide that he could use the following personnel for local defense:

2	2d Lieut.	Asst. Executive
1	Sergeant	Machine gunner
1	Sergeant	Motor
1	Corporal	Agent
2	Corporals	Ammunition
1	Corporal	Machine gunner
1	T/4	Mechanic, tractor
2	T/5's	Driver, tractor
2	T/5's	Driver, truck
1	Private	Bugler
12	Privates	Cannoneers
1	Private	Driver, truck
12	Privates	Machine gunner
2	Privates	Reader
8	Privates	Basic

With his machine gunners, this gives him a total of 2 officers, 2 Sergeants, 4 Corporals, 1 T/4, 4 T/5's and 37 privates, armed with 4 AA MG's, 2 BAR's, 7 submachine guns, 5 carbines and 36 rifles. The number of men suggests organizing them into a command echelon, a machine-gun section and 2 rifle squads, something like this:

LOCAL DEFENSE HEADQUARTERS

	Grade	Duty	Armament
1	2d Lieut.	Commander	Carbine
1	Sergeant (Machine gunner)	2d in command	Rifle
1	T/4 (Mechanic, tractor)	Platoon guide	Sub MG
1	Private (Bugler)	Messenger	Sub MG
1	Private (Basic)	Messenger	Rifle

MACHINE-GUN SECTION

1 Corporal (Machine gunner)	Commander	Rifle
4 MG squads of 3 Pvts each		4 AA MG 4 Rifles 4 BAR (from tel. operators) 4 rocket launchers

(The small size of each machine-gun squad is justified by the fact that it will generally remain in one position.)

RIFLE SQUAD

1 Sergeant (Motor)	Squad leader	Carbine
1 Corporal (Ammunition)	2d in command	Rifle
1 Private (Reader)	BAR team	BAR
2 T/5's (Driver, tractor)	BAR team	Sub MG
10 Privates (Cannoneer)	Riflemen	Rifle

RIFLE SQUAD

1 Corporal (Agent)	Squad leader	Carbine
1 Corporal (Ammunition)	2d in command	Rifle
1 Private (Reader)	BAR team	BAR
2 T/5's (Driver, truck)	BAR team	Sub MG
2 Privates (Cannoneer)	Riflemen	Rifle
1 Private (Driver, truck)		Sub MG
7 Privates (Basic)	Riflemen	Rifle

An organization of this kind has some definite advantages. It is close enough to an infantry platoon to be trained along standard infantry principles, using the Able-Baker-Charlie squad organization, as outlined in TC 3, 29 January 1945. It is also a flexible organization, which can be used in a number of ways—as a platoon, if necessary, or with one squad on duty and one in reserve. It can be employed either as a unit or as individual squads on defense of the battery area or as a patrol.

The dispositions for defense of the battery position will depend on a number of factors, such as terrain, enemy capabilities and location of friendly troops, and each case must be decided on its own merits after a personal reconnaissance. In any case, the defense must be based on protecting the battery in its primary mission, and must therefore be organized around the gun positions. The defense can never withdraw from the gun positions, even if they could be retaken by counterattack. The position should be organized first to protect the battery in its primary mission, to give timely warning of enemy approach, to provide local reserves to drive out any enemy penetration, and to provide proper relief for personnel.

The first sketch shows possible dispositions for defense of a battery in open country, where protection must be provided against both ground and air attack. The gun position is organized as the main strong point of the defense, and

other strong points are located at each machine-gun position and at the radar, each strong point being protected with defensive wire to keep an attacker beyond grenade range. The machine guns are sited where they can provide both ground and AA defense, which usually requires the selection of a compromise position, and requires that the guns be dug in for grazing fire. As the artillery requires machine guns for close defense, so do the machine guns require riflemen to protect them against flanking attack, and no machine-gun position should be without this protection.

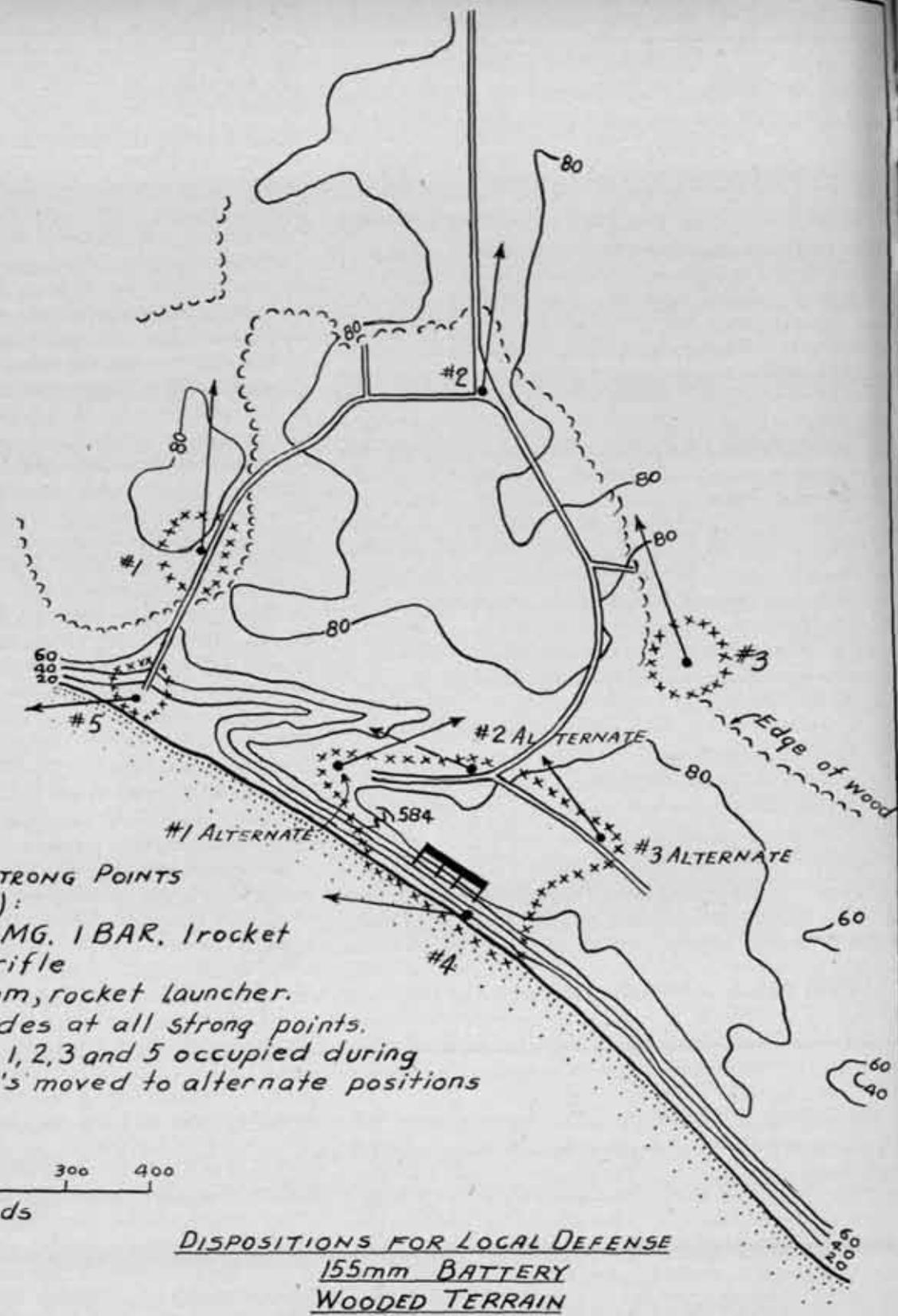
The strong points should be mutually supporting, and the machine guns should be sited so that they can lay down a band of grazing fire in front of the position, a final protective line. The .50 machine gun is not readily adapted for this; however, aiming stakes can be set out so that the gun can be laid on this line at any time, either day or night. Each machine gun should be provided with a range card so that fire can be brought on important points in its sector, and means should be improvised for laying the guns in elevation. If ground attack is a serious threat, and the 4 machine guns cannot properly cover the area, the defense may have to be thickened with additional mutually-supporting strong points. These may be armed with automatic rifles and rocket launchers, or, if time permits, with heavy-barrel machine guns taken from trucks and placed on ground mounts. In any case, all avenues of approach must be covered by fire. At night it may be necessary to connect the strong points by sentry posts or patrols. Alternate positions will be prepared for occupation to meet changes in the situation.

If mechanized attack is possible, routes of access should be protected by road blocks and mine fields, and these in turn covered by the fire of rocket launchers and rifle grenades from the strong points.

The reserve will generally be located at the battery position, where it can be available either for defense of the position or for counterattack. In the event of an all-out attack, all the personnel of the battery will of course be used in the defense of the position, leaving the reserve free for employment at the point of greatest danger.

In heavily wooded country, the problem is somewhat different, and the local defense force might be disposed as shown in the second sketch. In this situation, air attack is likely to be a less serious threat than infiltration, and the defense, instead of being dispersed as in open terrain is pulled together into a tight perimeter. All the battery installations may be concentrated in a relatively small area, so that a close watch can be maintained around the boundary of the perimeter to prevent infiltration, especially at night. During the day, the machine guns may be pushed out to protect routes of approach and serve as outposts, but these positions would be difficult to defend at night. For this reason, the outposts will be pulled in to the perimeter at night, so that the boundary can be properly covered by fire. This will usually require some cutting of fire lanes.

In either type of defense, telephone communication will be required between the outposts and the battery position, so that due warning may be given of any type of attack. In either case, all positions are organized for all-around defense. Positions are organized in accordance with proper principles of cover and concealment, the organization of the ground



GARRISON OF STRONG POINTS

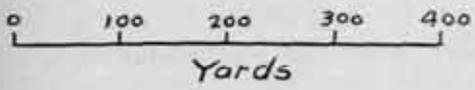
#1 to #4 (each):

3 pvt. - 1 AAMG, 1 BAR, 1 rocket launcher, 1 rifle

#5 - BAR team, rocket launcher.

Rifle grenades at all strong points.

Strong points 1, 2, 3 and 5 occupied during daylight - MG's moved to alternate positions at night.



DISPOSITIONS FOR LOCAL DEFENSE
155mm BATTERY
WOODED TERRAIN

beginning as soon as the position is occupied, and progressing as long as the battery remains there.

The dispositions outlined above are not designed to protect the battery position against an attack in force. To meet this kind of attack, the outposts will have to be drawn in to the battery position and all personnel used for defense. The small local defense force will protect the position against

the action of small enemy parties and will give timely warning of the approach of a large force. When enemy forces are present in an area in sufficient strength to launch a serious attack—by a company or larger unit—friendly troops will usually be present to take over the defense. However, small enemy parties may be present in an occupied area for months after organized resistance is crushed, and the disposi-

sions outlined above are designed to meet this type of threat. The training of the local defense organization will follow the principles laid down in the various Infantry Field Manuals and in the publications of The Infantry School. The use of the Able-Baker-Charlie squad organization is given in Training Circular 3, 29 January 1945. Much other valuable material on training, especially as applied to the situation in the Pacific, can be obtained from the *Infantry Journal* and the *Marine Corps Gazette*.

In addition to training his local defense organization in the occupation and defense of the battery position, the battery commander must also see that they are properly trained in scouting and patrolling. He may frequently be called upon to send out combat patrols to hunt out small enemy parties. The platoon organized as outlined would be excellent where that much strength is required, or a single squad might be used where a smaller party is sufficient. Regardless of its size, any patrol should contain the same elements—a command echelon, scouts, a BAR team as a base of fire and a maneuvering element. Most of the patrolling will probably be done in daylight, but as it may have to remain out overnight, training should also cover night scouting and local security. Details of this type of training are given in

the various Infantry Field Manuals, and especially in FM 21-75. The publications of The Infantry School also contain much valuable teaching on this subject. This training should stress control, and should include problems at night and in close terrain.

Local defense for seacoast artillery is based on the general principles that apply to any organization, and the responsibility for local defense, as always, rests with the local commander. The defense organization for seacoast artillery must be based on protecting the battery in its primary mission. This requirement fixes the location of the area to be defended, and often puts it in a position which is by no means ideal for close defense. The battery commander must adapt his dispositions as best he can to protect the battery in its primary mission, to secure due warning of attack, to provide a reserve for counterattack and to provide for proper relief of his personnel. To do this successfully requires a careful study of terrain, enemy capabilities, and weapons and manpower available, together with thorough training in the tactics of Infantry small units.

A proper estimate of the situation, based on these considerations will develop the proper means for protecting the unit against any type of attack which it may encounter.



RIGHT GUYS ••use tools right

Keep Tools Clean
Keep them Oiled
Put them Away



Use the Right Tool • Use the Tool Right

The Glare Barrage

By Lieutenant Colonel Russel K. Havighorst, Coast Artillery Corps

From experiences of Automatic Weapons organizations which underwent low altitude bombing and strafing attacks in the Mediterranean and European theaters there is a definite possibility that all communications may fail when a low altitude searchlight defense is attacked.

If this should be the case, and large numbers of planes are attacking, a glare barrage, similar in some respects to an artillery barrage, might be desirable.

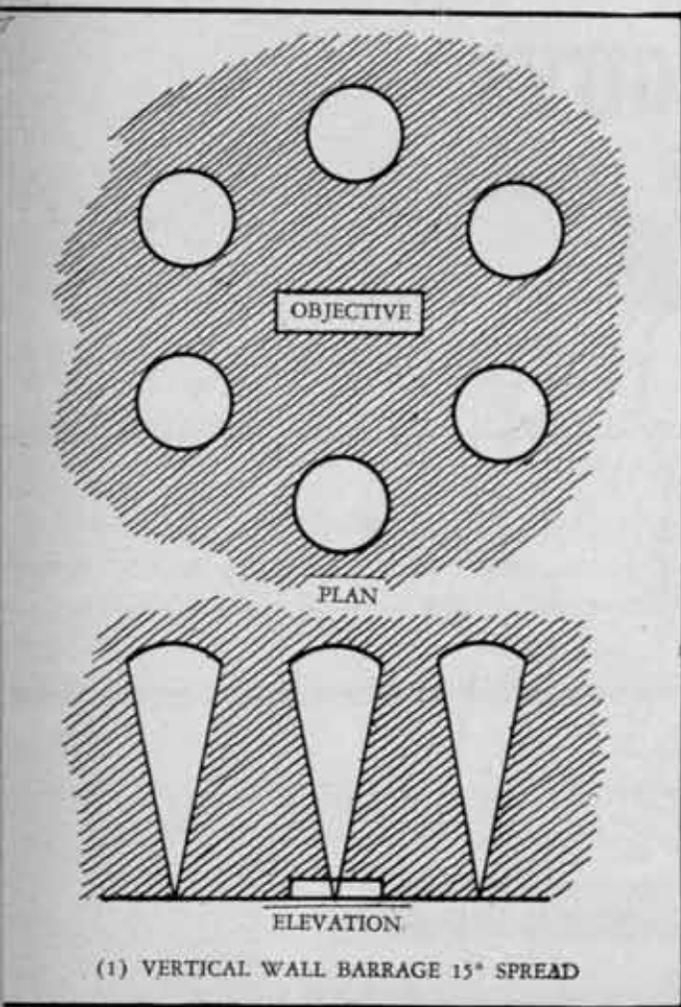
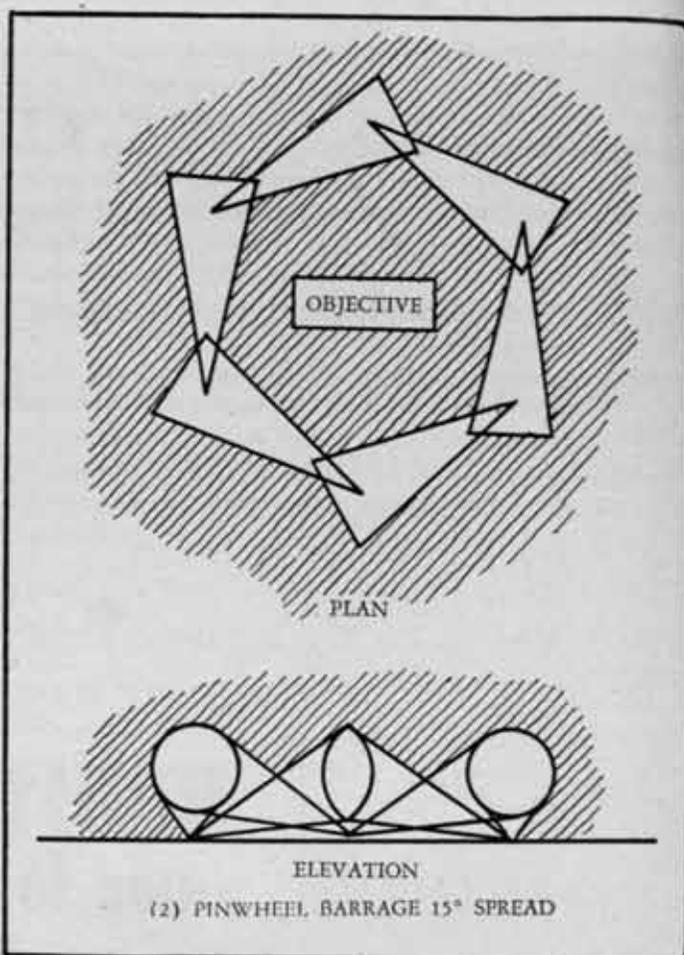
The requirements would be:

a. Complete coverage of the area over and adjacent to the target.

b. Blanket illumination of large numbers of fast low-flying planes for automatic weapons gun sections even though individual tracking be impossible.

c. Blinding of pilots and confusing their orientation to prevent accurate spot attack.

The protective glare barrage for a small objective is recognized as applicable only to certain rare specialized situations, but continuous training and experimental arrangements were carried out in one battalion during a part of each mission with the objectives of investigating improved



techniques; sustaining interest by introducing new phases in what might come to be monotonous repetition; and encouraging coordination between searchlight sections.

Such investigations were the more valuable because of the interested cooperation of the pilots who flew the night missions and of the opportunity afforded for observation by battery and staff officers who flew with them.

There are, of course, an infinite number of combinations of azimuth elevation and beam spread angles which may be tried. The following figures represent only those which have shown at least two of the three necessary characteristics:

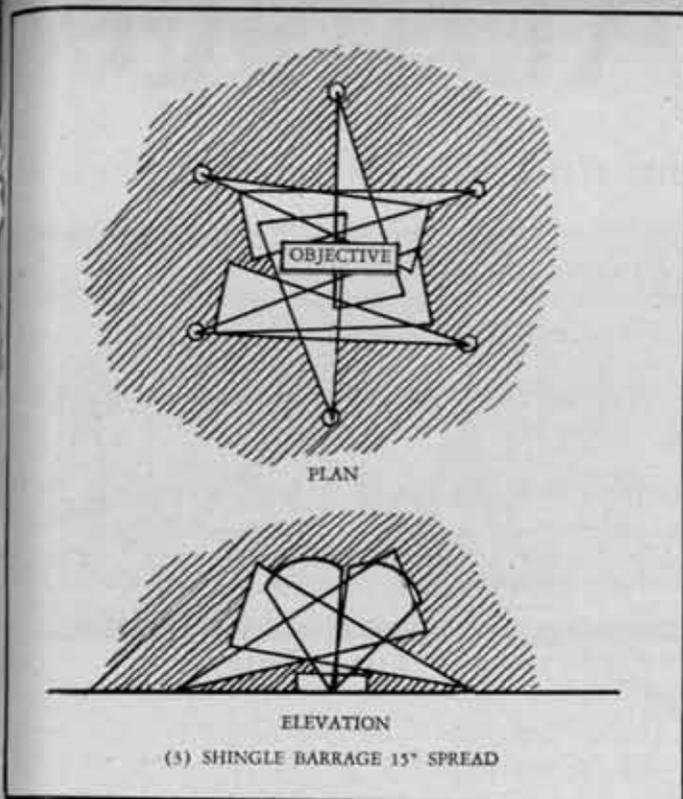
a. Satisfactory blinding effect from all directions of possible approach.

b. A "light barrier" of maximum concealing effect.

c. Minimum illumination of near-by terrain and particularly of defended objectives.

The observation made with reference to various types of barrage illustrated in figures 1 to 4 are as follows:

a. Vertical wall barrage as described in T 31, FM 4-106, 30 June 1943. This is listed only to indicate that for air-strip protection such a barrage violates all but the last of the basic requirements and partially violates that by providing



tion per second. It has been tried from pinwheel, shingle and other directional arrangements. This is regarded by both ground and air observers as by far most effective of any, either for spread or in focus beams. While it is true that the human eye can look straight into a searchlight beam with 15° angle of spread, it is also true that all outside visibility is obliterated and even after the beam is removed its persistency precludes accurate observation or sighting for a period of at least five seconds. This is as true for a bare flick as for a carrying period. Further, the kaleidoscopic effect of a group of rapidly oscillating light beams is reported by pilots and observers alike as an obstacle which wholly confuses all perspective and sense of location.

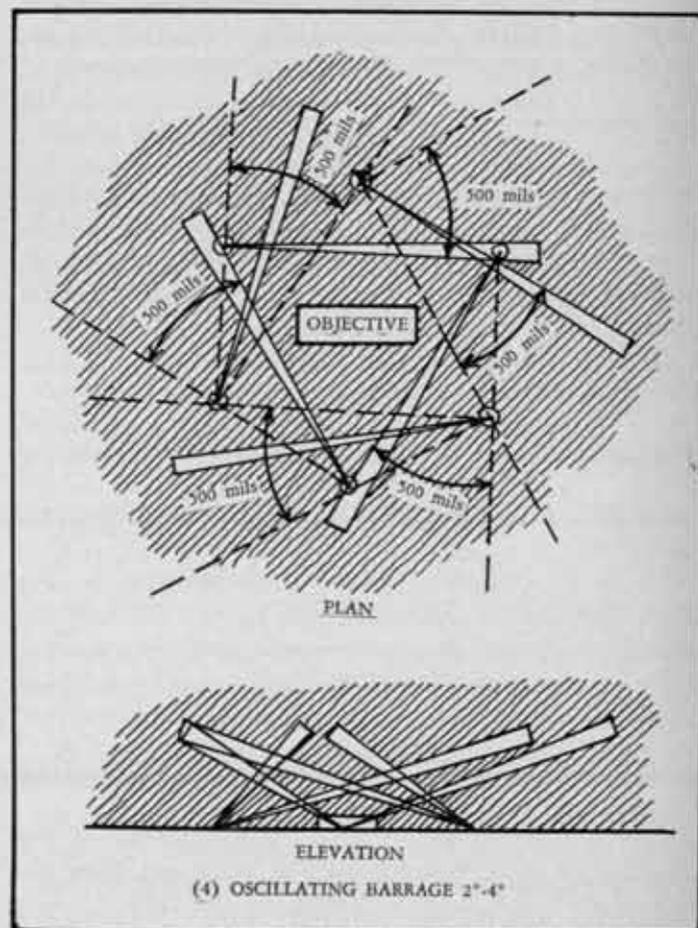
It is repeated that the mission of providing a glare barrage is one of the least important of the legitimate missions of a searchlight unit. Probably the necessity for such use would not occur more than a few times throughout a long period of hostilities. The primary missions of illuminating for fighters or for automatic weapons will also introduce the contingent weapon of glare. However, the magnitude of the formidable threat of glare either in a subsidiary or direct capacity should be fully recognized by every Antiaircraft Artilleryman.

a perfect outline of the defended area while leaving huge gaps in the wall even with full 15° beam spread. Blinding effect is at a minimum because the nose of the attacking plane is never struck squarely by any beam.

b. Pinwheel barrage: This variation of the wall barrage is obtained by directing the beam of each light upon its nearest adjacent light always in the same direction and then adjusting the elevation and spread of each beam until the most desirable wall has been obtained. This adjustment eliminates the gaps caused by the vertical barrage and threatens direct glare to planes approaching from any direction. It has, however, the same weakness of outlining the objective.

c. Shingle barrage: The azimuth, elevation and spreads are chosen in such a manner as to form an overlapping mass of light beams directed along a horizontal line parallel with the airstrip and at an altitude varying from 1,000 to 2,000 feet. The result desired is a sort of "circus tent" effect over the airstrip. It meets all three of the requirements reasonably well since the exact location of the airstrips is not disclosed. It is, however, still outlined by the light positions.

d. Oscillating barrage: This involves an entirely different manipulation of lights used in any formation best suited to the individual problem. The best results seem to be obtained by maintaining a constant altitude of about 2,000 feet above the airstrip, oscillating the beam through an angle of 500 mils azimuth at the rate of about one oscilla-



OVERLOADING?

By Colonel William B. Johnson and Mr. W. A. Combe

Get a load of this first!

This article is not intended to condemn the practice of overloading *per se*. When handled properly, overloading of transport vehicles can be a successful means of stepping up the transportation of matériel. But it must be done only with a knowledge of the pitfalls it may incur—for the operating techniques of "normal" conditions frequently become abusive techniques when the conditions change. It is this abuse which must be watched for and avoided.

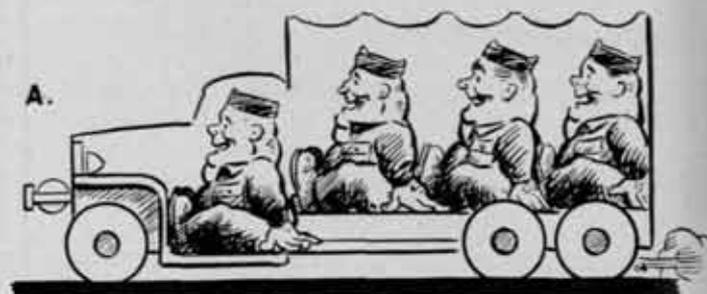
The straw that broke the camel's back would play hob with a military transport vehicle, too. It would break the frame, axle housings, springs, torque rods, propeller shafts, axle gears, differentials and axle shafts, in addition to ruining the wheel bearings, tires, clutch, transmission, engine, brakes and many other parts. If you happened to be the guy who gave the camel a raw deal, it probably wouldn't have been especially serious, and you could have passed it off by giving him a nice funeral. But when your truck breaks down because it's been overloaded and abused in driving cross-country, over bad roads or no roads at all, it's a different story. The funeral might be yours—or your buddies!

The payload capacities that have been assigned to military vehicles are not arbitrary ratings. They represent definite, safe carrying capacities for cross-country operation, and they have been established by scientific engineering methods. Therefore, it is only logical that loads which exceed these ratings will cause breakdowns if not properly handled.

Because the dangers of abused overloading are hidden ones, something else often gets the blame. Joe says the axle shaft was faulty. It wasn't, though, until his truck was overloaded a few times and driven over ground that would rattle the treads off a heavy tank. Taking an overload over severe terrain will wind up an axle shaft like a corkscrew, on the same principle that a wire bent back and forth a few times will "wind up" and snap.

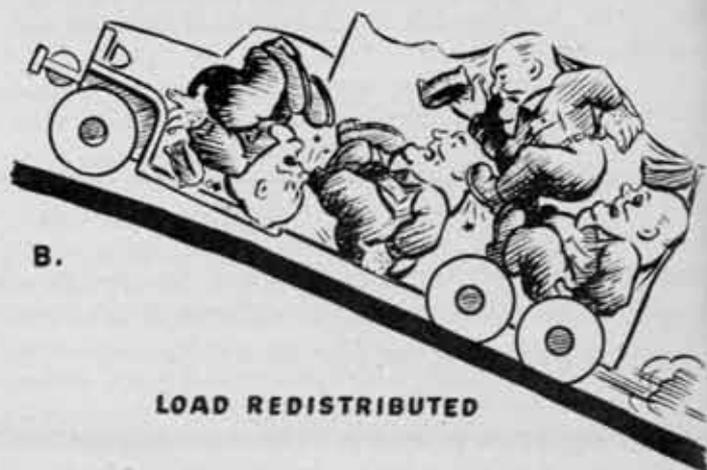
In addition to bad terrain, which is number one on the list of hidden evils to watch out for, there are other unknown factors that have a bearing on the subject. The speed with which certain phases of operation are made is vitally important, for the heavier the load, the greater the strain on every part when turning or stopping the truck, and excess speed increases this strain even more. The skill of the operator is also important. Proper handling of a vehicle can save untold damage, by preventing jolting, skidding, swaying, etc.

Let's take a typical 2½-ton 6 x 6 over an imaginary trip and see how these factors affect the vehicle. . . .



LOAD EVENLY DISTRIBUTED

The specified rating of the truck, 2½ tons, is the weight established for cross-country operation, which allows ample safety factor for practically all conceivable conditions of cross-country terrain. Actually, in terms of "normal" operation of vehicles on typical American highways, the truck has a 5-ton capacity. Suppose, then, the truck is loaded to the 5-ton limit for "normal" operation. As the vehicle starts out, it is moving along a level highway. The weight of the truck and its load is distributed in the proper ratio, with 5,400 pounds on the front axle and 7,800 pounds on each rear axle. Remember, the safety factor has been used up. Now, suppose the road conditions were not known before the vehicle began its trip. There happens to be a steep hill along the line. This is what happens



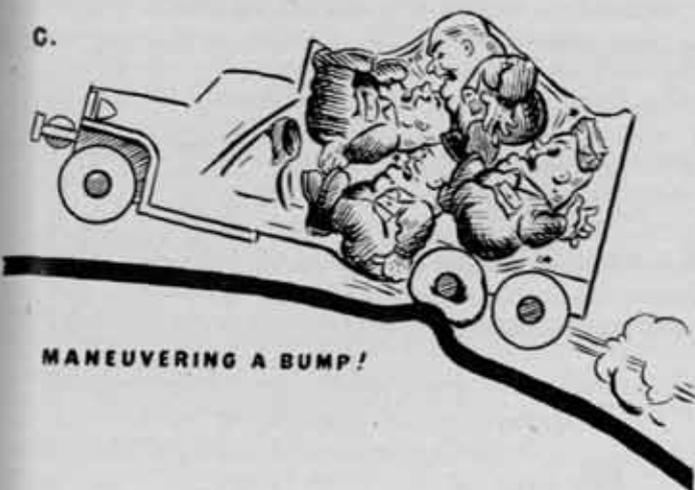
LOAD REDISTRIBUTED

If the grade is steep enough, the front wheels may actually be lifted off the ground during a quick pick-up, and all the weight, 21,000 pounds will shift to the rear axles! This serves as an example of the fact that, even on lesser grades, when the truck hits an incline, the load is completely redistributed and, with no factor of safety to fall back on, the trouble begins.

Though the breakdown may not occur on this first hill,

parts may be weakened, and three or four more such hills during the course of the trip may cause one or more of the weakened parts to break down. And remember, the vehicle we are using as an illustration is a 6 x 6, with two rear axles to share the load. On a 4 x 4 in the same situation, the entire vehicle weight and its overload would be transferred to *one* axle.

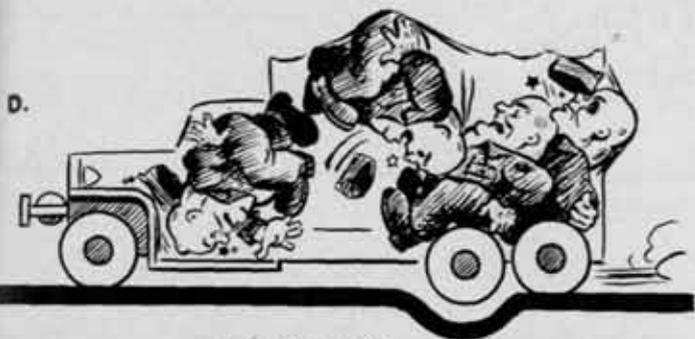
C.



MANEUVERING A BUMP!

Supposing the hill has been crossed without mishap. Now we start running into badly bombed terrain, recently taken from the enemy. It's strewn with debris—rocks and logs and piles of earth. Going over a partially covered log, of which there are many in the area, represents a real hazard to the overloaded truck, for at one moment in the maneuver the entire weight of the truck and its load, 21,000 pounds, is shifted to the intermediate axle, with its *maximum* capacity of approximately 16,000 pounds. With the 5-ton load, there is a sudden thrust of about three times the normal axle load on this axle. The safety factor has been used up—something has to give way.

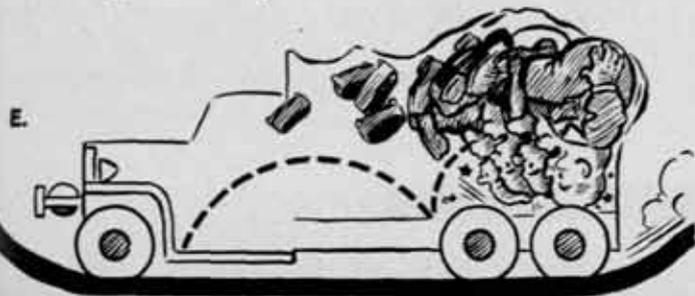
D.



WEIGHT SHIFT

Suppose a shell hole has to be crossed. Again, the weight shift is a quick one—a jolt—this time on both the front and

E.



A DITCH

rear axles. And the intermediate axle won't be able to touch bottom all the way across the hole, so the rear axle takes a double overload during the course of the maneuver.

Next, the driver finds he has to turn off what's left of the road and cross a ditch. Because the ditch is wider than a shell hole and doesn't look so deep, he doesn't slow down. Result—a terrific strain on the vehicle as the weight is shifted rapidly from front to rear—with no safety factor to take the shock.

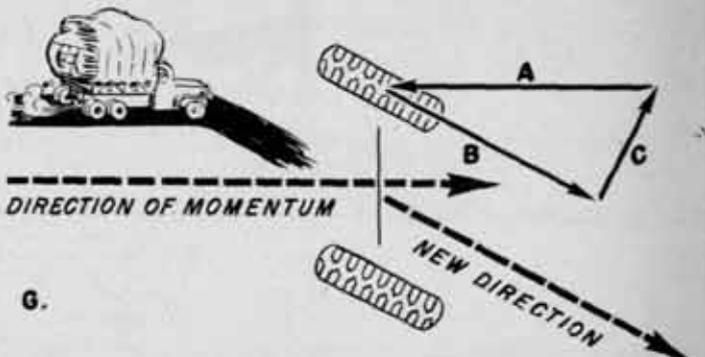
Any one of these conditions may cause a failure or weaken something to the point where it will give way on the next trip. And the one extra load of matériel that got through will be paid for with a deadlined truck and the consequent delay in shipping other equally vital matériel.

Not the least of the dangers of overloading are the accidents it may cause, especially when the driver fails to reduce his speed and drives as he does with a normal load. A very common plea of drivers who have gone into a ditch when rounding a curve with an overloaded vehicle is, "My brakes locked." The brakes didn't lock, though. This is what happened:

F.



As the overloaded truck moves forward, the wheels rotate easily and naturally. But as the driver attempts to turn, and the front wheels try to guide the truck in a new direction, the momentum of the overloaded truck pushes straight

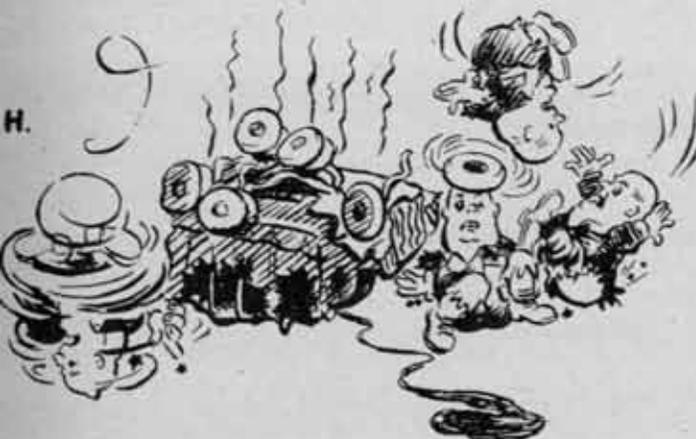


G.

ahead. When the brakes are applied to slow the truck for the turn, the reaction of the road against the front wheels is in the direction of the arrow "A," while the reaction of the brakes through the wheels is in the direction of the arrow "B." This sets up the force "C," which represents the reaction to wheel rotation that is due to the turning angle. The farther the wheels are turned, the more the brake reaction tends to skid the wheels. Were it possible to turn the wheels 90°, they would skid of their own accord, without application of the brakes at all. Since the braking power of the front wheel brakes is in direct ratio to that of the rear wheel brakes, and since the majority of an overload is carried by the rear wheels, the front wheels have a tendency to go into skid much quicker.

In other words, the front wheels slide sidewise, rotate slower—may stop. Tires drag, steering becomes increasingly difficult, as when a truck is standing still on flat tires. The side pressure causes king pins and bushings to

H.



bind, front wheels to lock. The vehicle skids. Satan takes a holiday, and there's hell to pay for it.

Slamming on brakes, frequent use of emergency brakes instead of power brakes, with the resultant strain on the front axle, and, in slippery weather, use of chains on rear wheels only, are common causes of accidents which are greatly aggravated by overloads.

Remember, unless all conditions of terrain and operation are known, and unless vehicles are handled with a thorough understanding of the effect of an overload under these conditions, overloading is a shining example of inefficiency and false economy. The temptation to succumb to its promise of getting something done beyond the normal possibilities of the vehicle is a mirage equal to anything in the desert, you'll be better off with a crippled camel the desert has to offer. And if you're going to fuss around than a fleet of deadlined trucks. At least the camel will keep you company. . . .



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TM 21-305
WAR DEPARTMENT TECHNICAL MANUAL

**DRIVER'S
MANUAL**

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"Here's how"
to keep vehicles
OFF THE DEADLINE

OPERATE AND MAINTAIN EQUIPMENT PROPERLY!

The Target-Practice Analyzer, M1

By Lieutenant Colonel R. D. Heintz, Jr., U. S. Marine Corps

It was a busy morning in the year 1950 at headquarters of the Steenth Antiaircraft Battalion, and the adjutant wrestled with the usual welter of conflicting orders, battalion memoranda, strength reports and service-records books. Peace, he reflected, while it might have blessings, surely set the typewriters humming. Stung by a sentence on his tickler pad, he turned to the "squawk box."

"Sergeant Major!"

"Sir?"

"Where am I going to get that ten-hand working party for the Police Officer? You know, that detail to whitewash the stones in front of the Colonel's tent . . ."

"Well, Lieutenant, from what it says here in this letter from the Quartermaster General, I think we can use the Target Practice Records people."

"The Records People? What letter from the QMG? What in hell are you talking about, Sergeant Major? I asked about that detail for the Police Officer."

"Yes, sir, I know what the Lieutenant asked about."

"It's this letter that just come in about the new . . . uh . . . Target-Practice Analyzer, M1, it says here. We get one of them, and it looks from that like the Target Records gang will be strictly available for working details from now on. I'll send the runner up with the letter, sir."

With an attached battalion routing slip still fluttering, the letter skated into the adjutant's "Incoming" basket. He picked it up, lit a cigarette and commenced reading, half aloud:

"From . . . The Quartermaster General, U. S. Marine Corps. To us. Subject? Analyzer, target practice—just like the sergeant major said. One per defense battalion; one per separate antiaircraft battalion; plus two each Marine Defense Forces, Peleliu, Truk, Yap, Nagasaki and Tokyo . . . Marine Schools on requisition as required. Shipment will be made via U.S.S. *Chaumont*. Signed, R. B. Warye, by direction."

He looked out over the bay for a moment.

"Why, the *Chaumont* got in yesterday. Better find out about this from the S-4. The Old Man will want to know."

Down in the quartermaster sheds, a pair of gunnery sergeants, a supply sergeant, a marine gunner and two captains provided expert supervision while one Pfc. slammed away with nail puller and pinch bat at a crate roughly the size of a Japanese boxcar. Besides the shipping stencils of every depot quartermaster from Philadelphia westward, it bore in large inverted letters the warning, "INSTRUMENT—THIS SIDE UP DELICATE." As the adjutant walked in, one panel of the box came free, the Pfc. eased delicately toward a water cooler, and the supervisory group crowded front and center.

"It looks like some kind of radar to me," opined the short captain.

"Well what's that big set of lenses built into the front of it for?" asked the gunner.

"Captain, I think it's a director. Or a fire-control instrument, anyhow," contributed the talkative gunnery sergeant.

"Here's some manual that come with it," said the

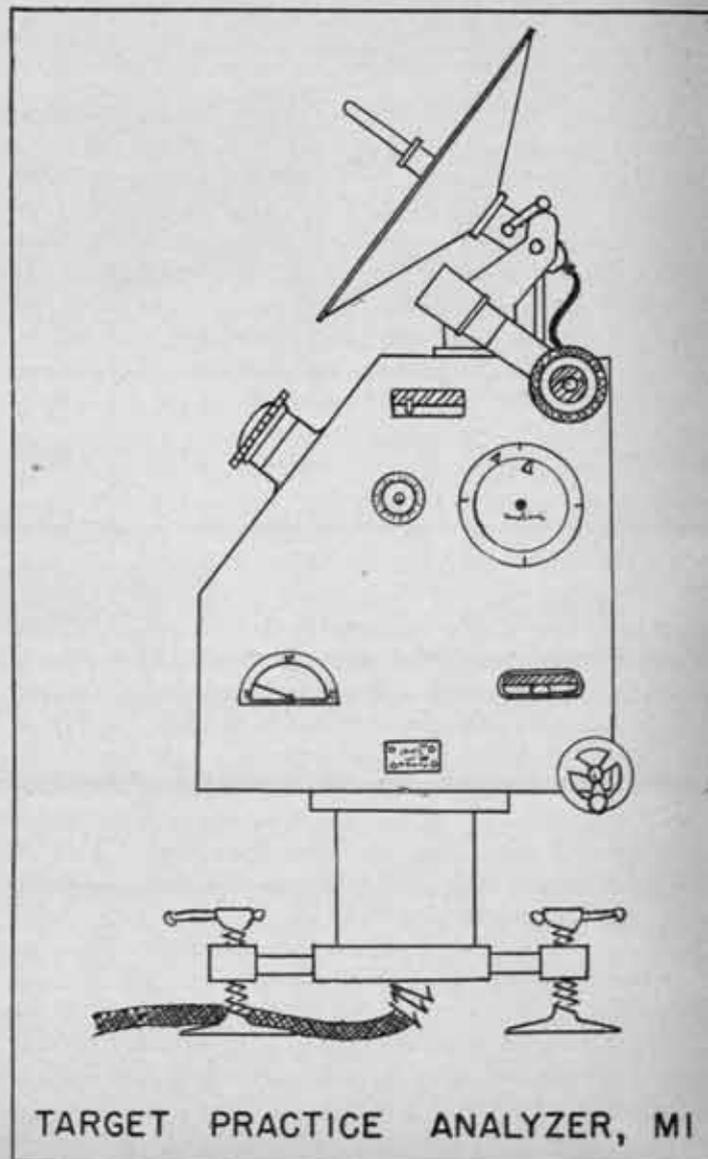
supply sergeant, who paused and darted a glance at the Pfc. "Jones, if you got nothing better to do than look at that Superman book, there's ten cases of field shoes to be uncrated. Over there." Returning his attention to the manual, he read, "Operating Instructions, Part Three, Analyzer, Target Practice, Antiaircraft Artillery, M1. Restricted." More goddam property to clutter up the ordnance storeroom. I better let the quartermaster know."

The tall captain, who had been crouched over a name plate on the instrument, straightened up in time to hold out his hand and receive the manual from the supply sergeant.

"I know what this thing is," he said. "They were just talking about it when I went through Camp Davis during the war. I was a major then, and they mentioned it in their advanced course. This'll do away with the Target Records Section—"

"That's just what the sergeant major said," put in the adjutant, as a runner hove in sight.

"Lieutenant, sir, the sergeant major wants to know about that working party for the Police Officer."



TARGET PRACTICE ANALYZER, M1

"Oh-oh! Let's see . . . Tell him to use the Records gang." He gave a hasty look into his loose-leaf notebook, snapped it shut, and turned to the tall captain. "Now, John, give us the dope on this thing. The colonel will be interested."

"The idea, in a nutshell," responded the tall captain, "is to provide a mechanical means of obtaining, analyzing and scoring the results of an entire antiaircraft gun target practice—that is, instead of having a whole platoon of flank and firing-point observers on each end of a base line, to obtain all the data you want with a single instrument, which will also save you and the Records Officer the chore of checking, computing and doctoring the resultant figures by longhand."

"That sounds like a big order to me, John," said the adjutant, "it took us a week to figure out last year's 90mm scores—and then the damn things weren't worth the effort, if they really reflected what we did. I know 'D' Battery's photographic records with that theodolite were so fouled up that we ended by dreaming up where the bursts should have been—and for all the pictures told us, we may have been right, because we sure didn't get any help from the visual data off the BC scopes."

"Well, Captain," put in the marine gunner, "can you tell me what this thing—this analyzer—actually does, what goes in and what comes out of it?"

"If you don't press me too hard, I can try."

He lit a cigarette and placed the operating manual in easy reach.

"To begin with, there are two things you need to know in order to analyze a target practice: first, where the target was at any instant during the firing (that is, target-position records), and second, where your bursts were, so you can see how you came out in relation to the position of the target at the moment of burst. As you probably understand, we locate all of these positions (both of target and bursts) in terms of altitude, slant and horizontal range, and angular height. And we also measure the deviations of the bursts in mils, vertically above and below the target; laterally to right and left; and in range, short or beyond it along the line of sight. This instrument here can obtain all of that dope by a moving-picture-camera theodolite synchronized with the special radar they have mounted on top of the box. The movie camera is just below, where you see those lenses sticking out, but it's actuated by electrical fields set up in the radar. I won't go into the details, because I don't know enough about these new radars to talk, but, as I understand it, whenever a fresh, or initial, burst is picked by the radar—it looks like the new SCR-1536A, I think—the slant range of that burst is electrically read and recorded, together with the slant range and angular height of the target. At the same instant, the camera photographs the burst, thus showing the vertical and lateral deviations. That is, the radar obtains what used to be our O-2 data, the range dope, and the camera gets the O-1's."

"That's pretty good," put in the short captain, "but what does the thing compute? What does it do with all these figures?"

"From the book here, so much as I could look it up just now, it seems that there is a data-recording system built right inside which will grind out all your data onto four tapes just like the ones you get out of a cash register. Here

it is right in the book—you can read it for yourself."

The short captain pushed his cap off his forehead, and began to read aloud:

Tapes, data-record: From the foregoing paragraph, it can be seen that the Analyzer, M1, through the systems, synchronizing and data-recording, must supply four sets of data, two for target position, and two for analysis of bursts. These data are recovered on four tapes as follows:

a. *Target-position tape 1:* supplies present angular height (E_0) and azimuth (A_0) of target.

b. *Target-position tape 2:* supplies present slant range (D_0) of target.

c. *Center-of-burst tape 1:* supplies vertical and lateral deviations of center of burst from target in terms of $d\theta$ and dA in mils.

d. *Center-of-burst tape 2:* supplies range to center of burst (R_{00}). The system, synchronizing (see paragraph 31(c), page 54), ensures that all the foregoing readings are synchronously and simultaneously taken, whereas the system, data-recording, automatically imprints the tapes . . ."

"That should make it clear, fellows, as far as it goes, but it still doesn't answer my original question about how this thing computes. What about it, John?"

"Look," answered the tall captain, "look at that bank of keys and stops on the left side plate."

"For my money, it's a Monroe calculator and an adding machine all scrambled up," the adjutant observed.

"What the book calls it," rejoined the expert, "is . . . ah . . . the system, analysis and resolution. You put all the dope from the tapes back into the machine with those keys, and it gives out your complete target position and burst analysis. What's more, it computes your score. Just like that."

"For any kind of practice? Don't you score a night practice differently from day, and so on?" asked the gunner.

"Sure you do. That's why they send you all these extra sets of cams. When you change your type of practice, you put in a different set of scoring cams. Incidentally, the book says that these are the new plastic cams which require no machining. Made of soybeans, I think."

"And another thing, Captain—" the gunner was persistent. "Where do you get your power? I know anything this complicated won't run on squirrel-cage power."

"It sure doesn't, Gunner—they give you a special cable and adapter for taking power right off the firing battery's data-transmission system." The tall captain turned to the adjutant, whom he addressed solicitously.

"I realize, of course, that the mass of technical detail which I have just presented must offer difficulties to a chair-borne artilleryman like yourself—definitely ducking a high-velocity clod which the adjutant had let fly—"but"—another pause to return the fire—"in order that our colonel can be accurately and succinctly informed by his staff representative as to the gist of this conference, I have here in *layman's* language, a summation from the operating manual of the component units of the analyzer. I'll read, and you can jot them down. It wouldn't do for the Old Man to get bad dope—I mean, it wouldn't do a damn bit of good for you . . ."

He thumbed open the operating manual and read:

Component units: The principal components of the analyzer, M1, are as follows:

Radar, SCR-1536A, essentially a modification of the set, SCR-1069 (see TM 51-3960), is mounted on the top-plate, and provides the following data: present angular height (E_0), azimuth (A_0), and slant range of target; slant range to center of initial and each successive burst (R_{eb}).

Camera, motion-picture, with developer and photoelectric projector screen, supersensitive, photographs initial and successive bursts, thus supplying the vertical and lateral deviations from the target. The developer and photoelectric projector screen (see TC 214-1949) develop exposed photographic records, and by means of light-sensitive cells and screen, convert graphic deviations into numerical values which are recorded by action of a system of electrical amplifying tubes.

System, visual-tracking, similar to that found in the conventional anti-aircraft directors in use by the Service, enables the entire analyzer to be positioned in azimuth and elevation as may be necessary to track movements of targets.

System, synchronizing, by a number of electrical time-interval devices, ensures that photographic and radar data on each burst and on target position are simultaneously recorded. A secondary purpose of the system is to record for scoring purposes the time interval between first and last discharges of the firing battery. This data is

directly transmitted through a series of differentials and irreversible drives to the system, analysis and resolution.

System, visual-tracking, similar to that found in the an electric computer into which data obtained by other components are manually fed, "hits" being resolved with number of rounds fired and time-interval data, to provide the final score.

"Thank you," acknowledged the adjutant, "I couldn't want anything better. It's as clear as a stack of Technical Manuals . . ."

The tall captain grinned. He set down the manual and called out to the supply sergeant, who was bending over another crate, "Nash—here's your manual. Don't let me get away without signing up for it."

The supply sergeant looked up.

"You'd better not put the book away just yet, Captain. It looks like I've found another box that goes with this analyzer. According to the stencil, it's a Computer, M79, whatever that is."

"Wait a second—I'll look it up."

The group closed in, while the adjutant peered over the tall captain's shoulder. The latter ran his forefinger down the appendix. "Here it is," he said, turning the pages. "I'll read."

" . . . the Computer, M79 (formerly designated as the Instrument, Alibi, Battery Commander), may be used to prepare the battery commander's narrative report and recommendations appropriate to and based upon data provided by the analyzer. . ."



FOR THE LONG HAUL

By Colonel M. R. Thompson, Coast Artillery Corps

With the possible exception of the Air Force, the future of no arm is the subject of so much discussion as that of the Antiaircraft Artillery. There are several camps sincerely convinced that they have the solution, but each has a different one. Perhaps a little discussion on the subject will shed a little light. I shall try to keep from adding to the heat.

There are four solutions that have more or fewer adherents. These are:

- a. Antiaircraft Artillery should be part of the Air Forces.
- b. Antiaircraft Artillery should be an integral part of the Field Artillery.
- c. Antiaircraft Artillery and CA should remain combined.
- d. The Ground Forces, Air Forces and Navy should each have its own Antiaircraft Artillery.

If you wished to sell any one of these you could build up a pretty fair case for it. Let's take them in order.

The function of Antiaircraft Artillery is defense against aircraft. The best defense against aircraft is other aircraft because they can conduct that defense by offensive means; i. e., they can go after the enemy aircraft. The Air Forces, therefore, constitute the primary means of defense against aircraft and the Antiaircraft Artillery is an accessory, an essential one perhaps, but an accessory none the less. The winning of air superiority is the first requirement in any modern war. If air superiority is to be won, our air power led by our Antiaircraft Artillery must win it. There must be complete coordination between these two, a coordination that can be had only by the complete combination of their efforts. The Air Force must have control of all direct means of countering the enemy air forces, to insure the defeat of the latter with the least expenditure of lives and matériel.

Those who suffered through the prewar years when buying aircraft were so hard to find will see another advantage. If the Antiaircraft Artillery is part of the Air Forces, the latter, being responsible for training, will provide the necessary aircraft more readily and in more nearly adequate quantities than under any other circumstances. There are other advantages also in the training field. The problem of targets in three dimensions is common to both Field and Antiaircraft Artillery gunners and much combining of facilities will be possible, thereby insuring better training. To suggest that the Antiaircraft Artillery will be neglected is to discount the experiences of the thousands of our men who have acquired a very healthy appreciation of the abilities of flak over enemy territory. They are never going to neglect an arm as potent as they know Antiaircraft Artillery to be.

We learned the hard way that the enemy's first objective is to destroy our Air Forces. And to the extent that they can do this on the ground they can do it cheaply and quickly. Our airfields must, therefore, be our first priority for defense. To the extent that Antiaircraft Artillery can take

over this defense it frees our aircraft for more efficient employment away from its fields. The Antiaircraft Artillery, therefore, is an extension of the air defense and should be under the same command.

The Antiaircraft Artillery defense of industrial and naval establishments must be determined on a priority basis, determined by the highest command. Some of these defenses may be active but many if not most will be so dull as to be destructive to both morale and technical ability. Since the Air Forces have the largest front Antiaircraft Artillery units can be shifted from active to inactive locations to the benefit of all the units.

Any Antiaircraft Artillery required by the field armies can be placed under their command. Again, changes in units can be made as required for battle fatigue, training or refitting with new equipment. The Air Forces will have in every army area the facilities for gunnery training. And even in Army areas the tie-in between Antiaircraft and the Air Forces must be very close to insure the safety of friendly aircraft and the invariable engagement of enemy targets. This will not in any way preclude the use of Antiaircraft Artillery in a ground rôle to the extent made possible by the lack of enemy air effort.

For the personal side of the question, there are also advantages. Antiaircraft Artillery officers can look forward to promotions up to at least two stars in command of Air Defense Commands, if they are a part of the Air Forces. And they will have available to them the superior facilities of the Air Forces for going places. Opportunities will also be open in the other ground activities of the Air Forces, as well as in certain of its aerial activities as observing, gunnery, etc. Also, excellent material in the form of pilots who can no longer get by the flight surgeon but are still more healthy than the average officer will be available to augment the Antiaircraft Artillery ranks as required, bringing with them a valuable knowledge of air warfare lacking sadly in the officer personnel of our heretofore earthbound Antiaircraft Artillery.

If we must be mercenary, consider that the Air Forces will unquestionably take from the Navy the first call on appropriations after the war. Antiaircraft Artillery is going to require sums for development that would appear colossal to any ground arm but will be in a reasonable perspective in the Air Forces. Only in the Air Forces can we hope to get anything resembling adequate funds for research. Further, our research in radar must be combined with Air Force research in the same direction. Our radars must complement those of the Air Warning Service.

Proponents of the Air Force control of AAA can perhaps advance additional arguments but no others seem necessary to make the case real. If you doubt its reality, talk to Antiaircraft Artillery officers who have been with the Air Forces most of the war.

Where, now, does the Field Artillery angle come in? Officers in the Antiaircraft Artillery have always thought they,

too, were artillerymen. It was no little shock to a lot of them to learn when this war got under way, that we were considered Coast Artillerymen and as such not a combat arm, generally ineligible to command combat arms, and with rare exceptions, frozen in that limited field. Junior officers in the Antiaircraft Artillery, have observed how few of the Coast Artillery Corps officers who have reached General's rank have gotten divisions, corps or armies (name three!). And for that reason many of these junior officers, including the better ones, are now planning on transfers to Infantry, Field Artillery or even Cavalry unless the Antiaircraft Artillery shows more promise of being integrated into the army as the combat arm it should obviously be. Combining with the Field Artillery will keep these excellent officers in the Antiaircraft Artillery and will insure the future of all the best officers in the branch.

The problems of Artillery fire are basically the same whether the gun engages aerial or terrestrial targets. Only the gunnery problem differs and then only in degree. Also, the fact that Antiaircraft Artillery with the Army lacks targets most of the time, under any conditions, makes the development of dual purpose weapons so desirable as to be almost mandatory. It would simplify ammunition supply, maintenance and, especially in overseas operations, would save enormously on shipping space. The firing of guns from ground mounts is an artillery problem, whatever the target, and setting up several different agencies to deal with it is an obvious duplication and scattering of effort and funds that cannot be justified. The question as to the Seacoast Artillery phase arises, since Antiaircraft Artillery officers are still CAC. The reasons alleged to exist at the time of the separation of Seacoast and Field Artillery can be shown to have no real weight now, if, indeed, they ever did. The Seacoast Artillery should also be returned to the fold and there should be only one branch of artillery. If the Navy desires, the harbor defenses can be turned over to them, but all mobile artillery and all Antiaircraft Artillery, mobile or fixed, outside of harbor defenses should be combined. As for training aircraft, the Field Artillery has air-OP planes, the Antiaircraft artillery has radio-controlled aircraft, and faster combat aircraft can be obtained from the Air Forces who are now aware of the necessity for, and efficiency of the Antiaircraft Artillery. Gunnery is the principal qualification required of Antiaircraft Artillery officers, as it is of Field Artillery officers and they should get it together. The ability to work with the Infantry is the watchword of the Artillery. For the Antiaircraft Artillery in forward areas this is also a vital requirement. The Antiaircraft Artillery weapons are playing an increasing rôle in direct support by ground fires. Previous Field Artillery training would have made such coöperation possible from the beginning, and therefore much more effective now. Since Field Artillery is never held in reserve and very seldom moved to rest areas during combat, rotation of units on dual purpose weapons between forward and rear areas would be a solution to battle fatigue and rear area boredom alike.

For the high level thinkers who revel in abstract principles this thought is offered: Within their areas, Division, Corps and Army Commanders are responsible for their all around defense, within the limit of their means. This should be extended in the vertical direction, also, on the

same principle. If these ground force commanders are to have this responsibility, they must not be dependent on any source outside Ground Force control for the furnishing training or employment of the Antiaircraft Artillery unit required for their Antiaircraft defense, nor for the determination of their requirements in Antiaircraft Artillery. We must remember that not only the air war at the beginning but the ground war all the way must be won. Antiaircraft Artillery as necessary can be supplied by the Field Artillery for airfields, industrial establishments and ports secure in the knowledge that they are artillerymen and still members of the team. Proponents of the Field Artillery theory can continue the argument from here. To prove that statement, start the discussion with one of them.

By now it has become apparent that there are sound requirements for Antiaircraft Artillery in both the Ground and Air Forces. And unless one of them will undertake the Antiaircraft defense of the Navy's ports, the Navy has a real need for ground antiaircraft defense that differs materially from its ship antiaircraft defenses. Maybe the Antiaircraft Artillery can remain most usefully just where it has always been, with the Coast Artillery.

The similarity between the relationship of Antiaircraft Artillery to air power and that of Coast Artillery to Navy power must have occurred to many. The solution in both cases can be the same. The Coast Artillery, with the Antiaircraft Artillery still an integrated part of it, can provide the necessary ground antiaircraft and seacoast defense and free the Air Force from airfield protection as it frees the Navy from port protection, without worrying either about the matter. Similarly it can provide protection for such industrial, financial and political installations as are given a sufficiently high priority by the highest command. As for the field armies the Coast Artillery can train the necessary units and provide the Armies with complete, integrated and flexible means for ground antiaircraft defense as required. The Coast Artillery has done a magnificent job of Antiaircraft Artillery to date. It can continue to do so. No adequate reason exists for any change. And the Oozlefinch emits again its inimitable scream.

Now is the time to square off from the situation and try to observe *at once* its many facets. Obviously *no one* agency can adequately perform a task so varied as that involved in ground Antiaircraft Artillery defense if it is to be continually pulled this way and that by the Navy, the Air Forces, the Armies and the politician who wants Podunk protected by three fifties and a barrage balloon until after election. The problem is not one that can properly be integrated, nor is integration, *per se*, desirable. If any one agency is charged with Antiaircraft Artillery defense, none of the using agencies will have a defense really suited to its requirements. The weapons, crews, and training will represent a compromise between the varied requirements. Only by requiring the Ground Forces to protect themselves from air attacks with their own means can they be expected to develop the types of weapons, of training, of coöperation with the other arms that is the key to the most advantageous employment of Antiaircraft Artillery with the Armies.

It must be apparent, too, that this applies to the Air Forces and the Navy. Manifestly the problem of defense of airfields, of ports, and of cities differs materially from the

problem of defense of a mobile field army, as much as it differs from the Antiaircraft Artillery defense of ships. Let the Navy, therefore continue to defend its ships and take over defense of its ports; let the Ground Forces defend themselves in the field; and let the Air Forces defend all else, their airfields, the industrial and financial centers deserving protection and the political centers requiring it. This will give the Air Force an integrated defense over all territory as such. The air over the ocean the Air Force and Navy Air can divide to suit their requirements. But the land and sea mobile striking forces, the armies and the Navy, will handle their own Antiaircraft Artillery defense, coördinated, of course, with air power, wherever they

may be. Each of the three Services, Army, Navy and Air, can concentrate on the solution of their special problems in Antiaircraft Artillery defense. Probably a joint Board of Development, Testing and Research would provide for the needs of all three in Antiaircraft Artillery matters. Of course the Antiaircraft Artillery remaining with the army would have no alternative but to become a part of the Field Artillery. The Coast Artillery could go to the Navy, or remain what it was before Antiaircraft Artillery brought this schism that has so disturbed it.

Before we choose up sides, further discussion might provide a solution better than any offered here. I anxiously await it.



One Round - One Plane

By Captain Anthony B. Knollman, Coast Artillery Corps

When the powerful German counteroffensive began in December 1944, the 110th AAA Gun Bn. (Mbl) was in its normal rôle as antiaircraft artillery protecting a vital installation. As the surge of German armor threatened to overrun the thinly scattered American troops, it was imperative that all available guns be employed as tank destroyers. The Ack-Ack outfits proved their versatility when they too were assigned to a TD rôle. Attached to a Tank Destroyer unit for orders, the 110th assumed the positions assigned them by the TD's in the Stavelot-Malmedy Sector.

This AA Battalion was in its TD position (the range equipment, with only enough personnel with it for maintenance, was sent to a safe position well in the rear of the American lines) with only the 90mm guns and the M51 quadruple mounts. A quad .50 was set up at each 90mm for local defense against infantry. The gun crews had dismissed AA from their minds and were concentrating all their efforts in the particular rôle they were in. This was the third rôle the Battalion had been employed in: antiaircraft, field artillery, and now Tank Destroyers.

On January 1, 1945, the *Luftwaffe* made an unexpected appearance over the Stavelot-Malmedy Sector with a considerable force. Either the German pilots could not see our guns because of the camouflage or they were exhibiting the skill and daring they had previously proved. After two or three ME 190's had buzzed one of the guns of B Battery, the gun crew became restless because they couldn't engage the German planes that were giving them the jitters. About this time, S/Sgt. Frank J. Lucid, a gun commander, suggested to the officer in charge of the gun section at the time, 1st Lt. Robert A. Wilson, that perhaps they might take on some of these low-flying planes with a barrage-type fire.

It was decided that the camouflage net should be re-

moved from the gun and the gun readied for any plane that might become annoying again. In the meantime, the M51 assigned to the gun was "getting in his licks" and Jerry didn't like it a bit. Finally, Sgt. Lucid spotted an ME 109 headed for home and it looked like it would be a perfect crossing course. Given the general direction of the plane, the azimuth and elevation trackers got on target and proceeded to track the plane with the antimech sights. The plane was relatively close so the elevation tracker tracked on the plane while the azimuth tracker led the plane as he would a tank. Lt. Wilson suggested a two-second fuze which was being held by ammunition men standing by with several pre-cut rounds of different values. The round was loaded and the gun was ready for firing. When the plane had reached the mid-point, Sgt. Lucid fired while the trackers continued to track the plane. When the round burst, the elevation tracker reported the bust at the same elevation as the plane while the azimuth tracker reported it just forward of the plane and so close to the target that the plane had no chance to get out of the path of the fragments.

Immediately, as was attested by many Field Artillerymen in the vicinity in their written statements, the plane began to smoke and lose altitude. The plane was seen to fall just after it reached the German lines which were quite close at the time. The pilot was not seen to get out of the plane before it crashed. The Battery was given credit for destroying an enemy plane and the particular gun crew became the subject of much writing and discussion. The Battalion headquarters was astounded as was the Battery Commander who was not present at the gun at the time of engagement. From all reports, this was the first time that an enemy plane had been completely destroyed with one round of 90mm ammunition and without benefit of the range equipment.

The First Army's AAA

By Colonel C. G. Patterson, Coast Artillery Corps

While the First Army learned some new lessons in the employment of antiaircraft artillery during the last few months of the war in Europe, the principles that had been used from the time of the assault landing to 23 February 1945, the starting date of this report, proved their validity. From late February to 8 May, results indicated that the principles were sound.

The results attained through flexibility of employment, concentration of fire power, maximum employment of radar, close coordination with fighter aircraft, a high state of alert at weapons, and adherence to sound gunnery principles speak for themselves. Of the 1,053 enemy aircraft reported over the First U. S. Army zone of operations, 132 (11.58%) were confirmed as destroyed by antiaircraft fire, with an additional 99 (10.36%) confirmed as probably destroyed. During the eight critical days in establishing the Remagen bridgehead (7-15 March), 99 (26.61%) of the 372 attacking enemy aircraft were confirmed as destroyed or probably destroyed by antiaircraft fire. The damage caused to the western approach to the Ludendorf Bridge by the one bomb dropped close to the bridge was repaired in fifteen minutes. Aside from a strafing attack on one floating treadway bridge, this was the only damage inflicted on the bridges by enemy air attack.

FLEXIBILITY

The most important principle in the employment of antiaircraft was flexibility. Since there were never enough units to protect every objective, or for assignment to every major subordinate unit, missions and attachment of units were always predicated on priority of necessity. Retaining antiaircraft units as separate battalions assigned to army, attached rather than assigned to AA groups, AA brigades, divisions and corps permitted rapid and efficient concentration of units around priority targets. The guiding factor was the employment of antiaircraft in its primary or secondary rôle based on the over-all situation with a command decision indicating the priority of missions. The result was an adequate density of defense for the highest priority targets, rather than dispersal of units throughout the entire zone of action, which could result only in a defense weak everywhere and strong nowhere.

When the enemy air strength deteriorated to the point where it was no longer considered a major threat to our operations, or when the necessity for employment of AA in a secondary rôle warranted the calculated risk involved in leaving important targets undefended, antiaircraft units were used in the ground-support and security rôle. The organization, training, equipment, and fire power of antiaircraft units, particularly of self-propelled automatic weapons battalions, proved to be entirely suitable for this type of mission.

Antiaircraft artillery units were an integral part of the First U. S. Army, habitually employed so as to further the offensive mission of the army, whether in the primary

antiaircraft rôle or in a ground-support or security rôle.

While the supply services were responsible for the logistic support of operations, the organic transportation of antiaircraft units proved suitable and valuable in the movement of supplies required over the long distances involved in a rapidly moving situation.

CONCENTRATION OF FIRE POWER

While no mathematical formula was used to determine the amount of antiaircraft required for each type of objective, sufficient densities were provided for priority targets, such as the Roer River and Rhine River bridges, to make the cost of enemy air attack prohibitive. The principle of concentrating fire power around the most vital targets resulted in greater attrition in the *Luftwaffe*, since air attacks were directed primarily against those targets which were vital to our mission. The advantages to be gained by dispersal of antiaircraft units throughout the area were greatly outweighed by the results attained through concentration of fire power. The scale of defenses must be based on enemy capabilities plus the importance of the objective to the enemy and to our uninterrupted efforts, rather than on a standard scale of assignment to subordinate commands.

COMMAND AND CONTROL

Even when units are attached to corps and divisions of an army, over-all coordination and control of AA fire action must be exercised at army level. Such control is necessary to obviate duplication of effort, waste of fire power, and to assure maximum coordination with fighter aircraft, and to permit rapid concentration of fire power when and where needed.

COORDINATION WITH FIGHTER AIRCRAFT

The best results are attained by close coordination of antiaircraft and fighters in air defense. Maximum use of the capabilities of each is dependent on utilizing all available methods of warning, and a combined fighter-antiaircraft operations center with fighter controller and antiaircraft operations officers at this center exercising direct control over all fighters and antiaircraft in the area in the name of their respective commanders.

AA PLANNING

Since the enemy air force is limited in choice of targets only by its ability to pick out targets on the ground, each echelon from division to army must include antiaircraft in planning an operation. AA must be in position before, not after, an air attack. To bring up the antiaircraft after the situation has stabilized is frequently too late. Commanders should use their AA staff officers (AA Bn C.O. in a division, AA group C.O. in a corps) to prepare the AA plan, and fit it in to the entire operation—rather than trust to luck that somehow the AA will be there when needed.

MOBILITY

All antiaircraft artillery with a field army must be mobile. All AA automatic weapons should be self-propelled when operating with corps or divisions in mobile warfare. Self-propelled automatic weapons, in addition to being able to keep up with supported forces, are much more suitable than towed automatic weapons for employment in the ground rôle or in the security rôle.

AA IN SECONDARY RÔLE

When the air situation permits, 90mm AA guns can furnish valuable fire support to medium and heavy caliber artillery. The high rate of fire and high muzzle velocity are a distinct advantage in harassing and interdiction fires at ranges from 11,000 to 19,000 yards.

The multiple mount cal. .50 AAMG (M51 and M16) can be effectively employed in defense of river crossings against swimmers, mines, barges, and other forms of demolition attack.

AA searchlights with a field army are of greater value in the ground than in the AA rôle. Searchlights can be advantageously employed to provide artificial moonlight for patrol actions, limited-objective attacks, preventing infiltration of enemy patrols, illumination for bridgebuilding and clearing mine fields, general illumination to facilitate black-out driving, and for river surveillance against water attack.

Antiaircraft artillery units with their versatile fire capabilities and searchlights, augmented by such ground and water patrols and traffic control personnel as are required to keep saboteurs from approaching bridges, can efficiently provide security for river crossings. The elaborate communications net employed by AA units permits instantaneous control and coordination of effort along the entire river line.

AA units, placing major armament on a maintenance basis, and employing self-propelled automatic weapons can be advantageously employed to occupy enemy territory. Provisional truck companies organized out of battalions on this mission should be employed to support the logistic requirements of the army.

AA SMOKE

Smoke produced by smoke generator units must be under the operational control of the antiaircraft commander. If not thus employed, smoke may and frequently does, interfere with antiaircraft automatic weapons fire as well as traffic circulation and bridge construction.

RADAR

The employment of radar in detection, tracking and fire control has brought antiaircraft artillery gun fire (90mm) to a higher degree of accuracy than ever achieved by any other system. Constant improvement of equipment based on combat experience should more than double the effectiveness of AA guns in the near future.

The employment of radar for other than aircraft control, detection and AA fire control is in its infancy. Radars were employed in taking accurate meteorological messages through the operation. Experiments carried on in combat indicate that radar has tremendous potentialities in combat for: locating enemy mortars and artillery, adjusting artillery

bursts, locating ground targets, furnishing the location of units as well as detecting and tracking supersonic speed-guided missiles. Utilization of radar and development of smaller, less cumbersome sets can solve many present-day problems.

EFFECTIVENESS

Antiaircraft artillery employed in sufficient densities, maintained on an alert status, closely coordinated with ground and air forces, can render enemy air attacks so expensive in aircraft losses and inaccuracy in bombing or strafing as to preclude repetition of attacks. No air force can sustain the continual loss of over 20% of its aircraft in protracted operations.

THE RÔLE OF ANTIAIRCRAFT

Antiaircraft artillery guns, automatic weapons and searchlights must be an integral part of a field army in mobile operations. All units operating in the army zone of action must be under the control of the Army Commander, regardless of the assigned target or mission. Only in this manner can the maximum effectiveness and economy of force be attained in mobile operation.

All commanders from gun crew to highest echelon must understand and utilize to a maximum the capabilities of antiaircraft fire power in both the primary and secondary rôles.

FIRST U. S. ARMY RÉSUMÉ OF AAA ACTION

6 June 1944 to 082400 May 1945

(337 Days)

1. Raids—Daylight Hours	925
Number E/A	3,000
Raids—Night	1,435
Number E/A	2,372
Total Raids, Day and Night	2,360
Total E/A over First U. S. Army Area	5,372
Average Sorties Per Day	16
2. E/A Destroyed or Probably Destroyed.	
a. Category I by:	
90mm	167
90mm (Pozit)	25½
40mm	382
37mm	104
Cal. .50	118
Barrage Balloon (VLA)	1
Total	797½
b. Category II by:	
90mm	100
90mm (Pozit)	17
40mm	177
37mm	81
Cal. .50	74
Total	449
3. E/A Destroyed or Probably Destroyed by Types:	
a. Category I:	
Me 109	280

FW 190	251½
Ju 88	75
Do 217	3
Me 110	5
He 111	6
Ju 188	4
Me 410	2
Ju 87	14
Ju 52	4
Me 262	3
Ar 234	1
Ar 96	1
Fi 156	1
Me 108	1
Unknown	146
Total	797½

b. *Category II:*

Me 109	153
FW 190	104
Ju 88	34
He 111	4
FW 200K	1
Me 262	29
Me 410	2
Ju 52	1
Ju 188	1
Ju 87	2
Unknown	118
Total	449

4. *Ammunition Expenditure (AAA Rôle):*

90mm	60,720
90mm (Pozit)	5,935
40mm	191,525
37mm	64,736
Cal. .50	5,915,737

5. *Effectiveness of Weapons:*

Rounds per E/A destroyed (Cat. I):

90mm	364
90mm (Pozit)	233
40mm	501
37mm	622
Cal. .50	50,133

6. *AA Ammunition Expended Other than against E/A:*

a. *Ground Rôle:*

*90mm	31,912
90mm (Pozit)	324
40mm	22,246
37mm	2,949
Cal. .50	1,115,396

*Includes 3,270 rounds AA Marker Plan—16 Nov 44.

b. *PAC Rôle:*

90mm	4,610
40mm	12,580
37mm	20
Cal. .50	165,260

7. *Ammunition Expenditure Experience.*

a. *Average Daily Expenditure (all rôles):*

90mm	372.4
90mm (Pozit)	43.4
40mm	673.7
37mm	201.5
Cal. .50	21,417.8

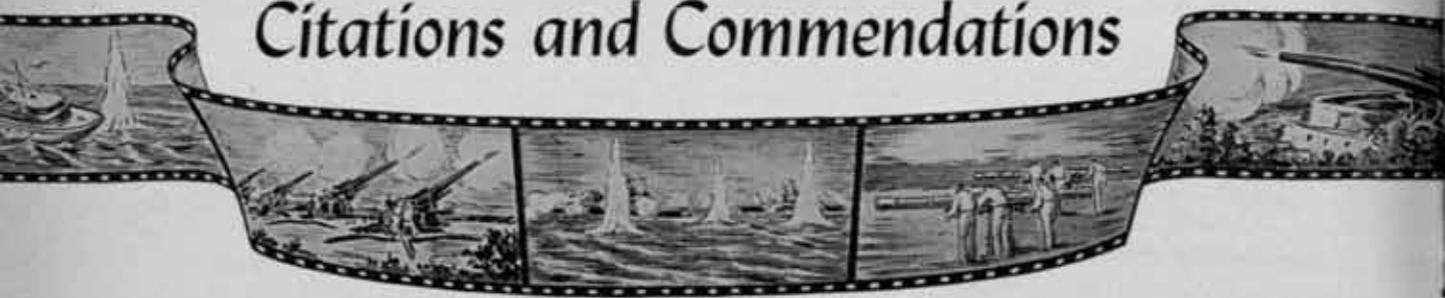
b. *Average Rds/Gun/Day:*

90mm (Incl. Pozit)	2.53
40mm	1.16
37mm	1.04
Cal. .50	6.76



COAST ARTILLERY

Citations and Commendations



Distinguished Service Medal

TO: LEROY LUTES, Lieutenant General, U. S. Army, 39th Street and Cathedral Avenue, N.W., Washington, D. C.

FOR: While serving as Director of Operations and Director of Plans and Operations from March 1942 to April 1945 and as Chief of Staff and Deputy to the Commanding General, Army Service Forces, from April to October 1945, he displayed outstanding foresight and astute judgment in long-range planning and in the direction of current operations for overseas supply and Zone of Interior activities. His keen analytical ability and direct, decisive leadership were of exceptional value to the Commanding General and to the theater commanders in the solution of their logistical and other supply problems. As Chief of Staff of the Army Service Forces he served with distinction during the particularly turbulent period following the conclusion of both the European and Pacific conflicts, and guided with rare vision the formulation of initial plans and policies to provide simultaneously for the continued support of our Armies of Occupation, the rapid demobilization of industry and personnel, and the continuance of combined military and civilian research in connection with weapons, war materials and advanced logistics to insure a lasting military supremacy essential to our national security in the postwar period. In positions of great responsibility, General Lutes performed services of unusual significance to the successful conclusion of a world conflict; services consistent with the highest traditions of the United States Army.

TO: RICHARD DONOVAN, Major General, U. S. Army, 3601 Connecticut Avenue, N.W., Washington, D. C.

FOR: Distinguished services from November 1940 to June 1945 as Commanding General, Eighth Corps Area, and subsequently Commanding General, Eighth Service Command. Under his far-sighted and inspiring leadership, the tremendous task of reorganizing from corps area to service command was accomplished with marked success, outstanding service was rendered to many installations and troops, and personnel was prepared for movement overseas with great efficiency. He devoted himself to the varied activities of his command, inculcating into all elements a determination, perseverance and pride of organization which carried the Eighth Service Command to a record of unusual performance. General Donovan's exceptional executive and administrative ability, sound judgment and initiative contributed materially to the war effort.

TO: STANLEY R. MICKELSEN, Brigadier General, U. S.

Army, 4701 Connecticut Avenue, N.W., Washington, D. C.

FOR: He served with distinction from November 1944 to June 1945 as Chief of the Displaced Persons Branch, G-5 Division, Supreme Headquarters, Allied Expeditionary Force. With exceptional foresight he supervised the drafting of plans for the repatriation of more than 5,000,000 United Nations nationals displaced from their homes in eastern and western Europe during the war years. His energetic action went far to insure the success of a work which helped support the over-all military government in occupied territories. Immediately preceding the collapse of Germany, when tens of thousands of displaced persons were being discovered daily, he spent most of his time in the field devising means to meet every emergency. So efficiently did his program function that more than half of the European displaced persons had been returned to their own countries by rail, motor or air transport one month after VE-Day. Through his expert planning and untiring devotion to his highly responsible task he made an important contribution to the success of the combined command in Europe. ♦

Oak Leaf Cluster to Distinguished Service Medal

TO: WALTER K. WILSON, Major General, U. S. Army.

FOR: Outstanding services as Executive Director, Army Emergency Relief, from January 1944 to September 1945 and as the Secretary of War's Liaison Officer with the American Red Cross from June 1944 to September 1945. In the latter assignment, he was responsible for scrutinizing all War Department and Army policies related to Red Cross activities, and was given the duty as representative and under the direction of the Secretary of War of resolving questions of doubt, difficulty, or conflict of mission. With keen foresight, superior judgment, initiative, diplomacy, knowledge of sound business organization and outstanding leadership, he administered Army Emergency Relief and brought about a very close relationship between the American Red Cross and the Army in rendering emergency financial assistance to hundreds of thousands of soldiers and their dependents, which aided materially in achieving high morale not only within the Army but also among the dependents of Army personnel.

Legion of Merit

TO: LEROY LUTES, Lieutenant General (then Brigadier General), U. S. Army.

FOR: Exceptionally meritorious and distinguished service while in a position of great responsibility as Executive Officer of the Supply Division of the General Staff from 7 January 1942 to 8 March 1942. During this period he was charged with matters pertaining to the supply, transportation and housing of the Army and the simultaneous reorganization and expansion of the Supply Division of the War Department General Staff to meet wartime conditions. General Lutes carried out his duties with energy, foresight and marked efficiency, and his accomplishments contributed greatly to the war effort.

TO: ROBERT W. BERRY, Brigadier General, U. S. Army.

FOR: Outstanding service to the Army while serving in the Personnel Division, War Department General Staff from August 1940 to February 1944. In various important positions during this period he took a major part in the development of many important War Department personnel policies affecting the entire Army. At all times he demonstrated exceptional judgment and ability. By his keen analytical approach to complex and intricate problems, he made rapid and sound decisions possible. As Chief of the General Officer Branch he was instrumental in the selection of general officers and discharged this heavy responsibility with distinction. As Executive Officer of the Personnel Division he was a bulwark during a difficult period, exercising unusual initiative and voluntarily assuming heavy responsibilities. His imaginative and energetic supervision of the operation of War Department personnel policies has proved invaluable. His service in the intense and difficult years from 1940 to 1944 constitutes a significant contribution to the war effort.

TO: OLIVER B. BUCHER, Brigadier General, U. S. Army.

FOR: Exceptionally meritorious conduct in the performance of outstanding services as Commanding General, Trinidad Base Command, from 1 July 1944 to 18 September 1945. General Bucher commanded organizations of a wide range of activity and interest. He directed the second largest supply depot in the Antilles Department and exercised General Court-Martial jurisdiction in his command in the Guiana bases. When the Air Transport Command moved 60,000 veteran troops from the European Theater through Waller Field, Trinidad, it was General Bucher's indefatigable energy, close coordination and supervision that insured the success of all maintenance problems. General Bucher did much in sustaining and cultivating cordial relations and harmony with the foreign governments represented in the Caribbean Area. Diplomatic, possessing broad military knowledge and vision, he performed duties of great responsibility in an outstandingly meritorious manner. His efforts reflect great credit upon himself and upon the military service.

TO: RALPH C. TOBIN, Brigadier General, U. S. Army.

FOR: Meritorious service in daily close support of combat activities between 21 November 1944 and 21 March 1945.

TO: HAROLD F. HARDING, Colonel, G.S.C., U. S. Army.

FOR: Exceptionally meritorious conduct in the performance of outstanding services from 25 September 1944 to 2 September 1945. As Chief of Staff, Headquarters, Replace-

ment Training Command, United States Army Forces, Pacific Ocean Areas, subsequently Middle Pacific, Colonel Harding organized, trained, and directed the staff which provided the replacement support for operations against the Japanese. No precedent existed for the formation of such an organization, but he expeditiously coordinated the necessary factors into an efficient and extensive theater replacement system. Through his qualities of foresight, diplomacy, military proficiency, and continuous devotion to duty, Colonel Harding was of material importance to the victory of our forces in the Pacific.

TO: ANDREW H. HARRISS, JR., Colonel, CAC.

FOR: Exceptionally meritorious conduct in the performance of outstanding services as Commanding Officer, Post of Port of Spain, from 18 March 1944 to 20 January 1945, and Commanding Officer, Antilles General Depot Number 2, from 21 January 1945 to 20 September 1945. Colonel Harriss through his able leadership, energy, and keen foresight developed the efficiency of the Post of Port of Spain, Trinidad, British West Indies, to an outstanding degree. His sound administrative judgment, executive ability, and extraordinary fidelity were directly responsible for the operational success of the Antilles General Depot Number 2. His accomplishments reflect great credit to himself and the military service.

TO: EARL W. HEATHCOTE, Colonel, CAC.

FOR: Exceptionally meritorious conduct in the performance of outstanding services from 18 December 1944 to 20 September 1945. As Executive Officer and S-4 of the Trinidad Base Command, he proficiently and energetically guided important property negotiations between the United States Government and the British Colonial Government in Trinidad. He contributed much to the maintenance of efficient relationship between the United States Army and the United States Navy; and also contributed to the friendly relations with local naval and military authorities and the local civilian government in Trinidad. His zealous efforts and desire for high standards of efficiency and conduct of personnel were important factors in the successful performance of the mission of the Trinidad Base Command. His accomplishments are a great credit to himself and the military service.

TO: JOHN C. HENAGAN, Colonel, CAC, Dillon, S. C.

FOR: Exceptionally meritorious conduct in the performance of outstanding services in Italy from 21 September 1943 to 11 June 1944. As Commanding Officer, Fifth Anti-aircraft Artillery Group, Colonel Henagan by his untiring efforts, leadership, foresight, and judgment, brilliantly led his unit during vital operations in Central Italy. Chiefly through his superior tactical knowledge and clear insight into the problems presented, a policy of Light Antiaircraft Artillery protection for Corps Field Artillery was developed and crystallized into a highly successful tactical doctrine. This doctrine was subsequently accepted and used by all similar units in the Fifth Army. Later, Colonel Henagan again formulated and developed a policy of direct Light Antiaircraft Artillery support of front-line infantry troops which gave the greatest possible tactical and technical cor-

rol. This likewise was adopted by Fifth Army. During the winter periods of continued cold, snow, and rain, Colonel Henagan, disregarding his own comfort, spent long hours in the field inspiring the men with his sincere interest in their welfare, urging them to a high state of efficiency and bolstering their morale.

TO: ROBERT B. LEWIS, Colonel, CAC.

FOR: Exceptionally meritorious conduct in the performance of outstanding services from 4 February 1942 to 20 September 1945. As Commanding Officer of various Coast Artillery units, through his persistent effort and devotion to duty, he was responsible for superior training attained by both Continental and Puerto Rican troops. As the Commanding Officer of Fort Read, Trinidad, British West Indies, he developed an efficient organization in the face of great difficulties and through tact and intelligence contributed to the development of friendly relations between the United States Armed Forces and the peoples of the British West Indies. His enthusiasm and loyalty, his firmness and initiative in constantly raising the standards of proficiency of his units, and his outstanding administrative and executive ability were responsible for the efficient functioning of the post of Fort Read as a lend-lease base.

TO: CHARLES THOMAS-STAHLE, Colonel, CAC.

FOR: Exceptionally meritorious conduct in the performance of outstanding services from 26 August 1941 to 2 September 1945.

TO: WALTER E. JOHNSON, Lt. Col., CAC.

FOR: Exceptionally meritorious conduct in the performance of outstanding services from 24 April 1944 to 2 September 1945.

TO: GORHAM B. WALKER, JR., Lieut. Col., CAC. 443 Woodland Avenue, Lynchburg, Virginia.

FOR: Service while assigned to the Personnel Division, War Department General Staff, from January 1942 to September 1945. As a member of the Enlisted Branch, he was responsible to a large extent for the policies developed to govern the utilization of manpower and the enlisted personnel of the Army, both male and female. As Assistant Executive Officer he took final action for G-1 in many cases on projects affecting the welfare and morale of the entire Army. In April 1945 he was selected for duty in the General Officers Branch of G-1. The shift of the war effort from Europe to the Pacific necessitated the reassignment of hundreds of general officers in this critical period. He discharged his responsibilities with unusual tact and distinction. His aggregate service has been characterized by exceptionally skillful performance of duty.

TO: EDGAR R. C. WARD, Lt. Col., CAC. Bucksport, Maine.

FOR: Services from December 8, 1941 to June 30, 1945. As Mine Commander and Commanding Officer, Little Creek Mine Base, he personally planned and supervised not only all operations incident to the loading, planting and maintenance of the controlled submarine mine field in use by this country, but also the development of the Mine Base at Little Creek and the other shore installations required for

the maintenance and operation of the mine field. Working under the most adverse conditions of winter weather with officers and men untrained by previous experience with these conditions, he by his personal example, professional knowledge, leadership, energy and resourcefulness inspired his men to the completion of their task in the most efficient and expeditious manner and maintaining high morale and esprit among his men during their 2½ years alert, thereby making possible the use of Hampton and Lynnhaven Roads as a convoy collecting point without fear of successful enemy attack. He not only gave to the utmost of his energies in the accomplishment of his primary mission but also took an active and valuable part in furthering tests and developments of the Coast Artillery Board and the Submarine Mine Depot. Endowed with direct supervision over the installation and repair of all submarine cables in the waters between Cape Henry and Cape Charles, he developed plans for cooperative action with the Navy and carried these plans into effect with unflagging endeavor so that combat readiness was not interrupted through any failure of underwater installation.

TO: JOHN B. OTERO, Captain, CAC.

FOR: Exceptionally meritorious conduct in the performance of outstanding services from 17 June 1944 to 2 September 1945.

TO: JOHN G. CAROLIN, Lieut., CAC.

FOR: Meritorious service in daily close support of combat activities between 21 November 1944 and 21 March 1945.

Oak Leaf Cluster to Legion of Merit

TO: PAUL W. RUTLEDGE, Brigadier General, U. S. Army, 4218 Walnut Street, Philadelphia, Pennsylvania.

FOR: He served meritoriously as Commanding General, 45th Antiaircraft Artillery Brigade, from July to November, 1944, in Italy. During this period, his brigade was converted into infantry troops to be operated as a task force. The problem initially confronting him involved the rapid conversion of British and American antiaircraft troops into provisional infantry and the welding of that infantry and its supporting arms into a unified and coordinated striking force. His skillful execution of the attack on Mount Belvedere was an outstanding tribute to his ability to weld the Brazilian, British, and American troops into a well-knit team able to strike as quickly and as effectively as if it were composed of troops of only one nation. It was his outstanding ability as a coordinator and executive that was directly responsible for making the diversified Allied troops of his task force into an excellent combat unit.

Bronze Star Medal

TO: ALFRED ASHMAN, Colonel, CAC, 365 N. Arizona Ave., Changled, Arizona.

FOR: Service from March 24 to April 15, 1945, as an observer for the War Department with the Naval task force which accomplished the amphibious combat operations at Okinawa. He made a close and thorough study of the logistical aspects of Marine Corps operations and presented a report of great value to the Supply Division, G-4, War Department General Staff. In addition to his duties as

observer, he became attached to the staff of the amphibious corps' commanding general and distinguished himself by the vigor and judgment he displayed in carrying out his tasks. Through his extensive technical knowledge and initiative, he made a material contribution to the successful prosecution of the war.

TO: MATTHEW K. DEICHELMANN, Colonel, 2021 Allen Place, N.W., Washington, D. C.

FOR: As Assistant Chief of Staff, A-3, IX Air Defense Command, Colonel Deichelmann supervised the operations of antiaircraft units engaged in the defense of vital air force installations. It was largely as a result of his untiring efforts to maintain a high degree of efficiency within antiaircraft units and close coordination with the air force that damage inflicted by enemy air attacks was negligible. The leadership, ability, and devotion to duty displayed by Colonel Deichelmann reflects great credit upon himself and the United States Army.

(Citations for following Bronze Stars not available):

ERIC A. RUNDQUIST, Lt. Col., CAC.

JOHN W. GREEN, Major, CAC. CLIFTON S. BROWN, Major, CAC.

GEORGE K. ANDERSON, Captain, CAC. WARREN H. FOSTER, Captain, CAC. JAMES C. GALLOWAY, Captain, CAC. LEWIS J. KENDRICK, Captain, CAC. HAVEN PUTNAM, Captain, CAC.

GUSTAF DANIELSON, Lieut., CAC. EDWARD R. FILLMAN, Lieut., CAC. ROBERT E. HARTLAND, Lieut., CAC. FRED L. LEVERENZ, Lieut., CAC. ROBERT A. LITTLE, Lieut., CAC. GEORGE A. WARREN, Lieut., CAC.

RAYMOND J. HENNEBERRY, C.W.O. BERNARD L. NEVILLE, C.W.O.

EDWARD J. AUGUSTINOWITZ, M/Sgt., CAC. DELBERT K. HAMILTON, M/Sgt., CAC. ALFRED K. JOHNSON, M/Sgt., CAC. ROBERT C. SCOTT, M/Sgt., CAC. JOHN BRITZKI, M/Sgt., CAC.

ELMER S. ATTONEN, T/Sgt., CAC. JACK A. BACON, T/Sgt., CAC. DONALD E. ENGLE, T/Sgt., CAC. ALLEN T. WEBSTER, T/Sgt., CAC.

FRED B. DILLALE, S/Sgt., CAC. WILLIAM W. EASLEY, S/Sgt., CAC. FREDERICK T. KEVALYAK, S/Sgt., CAC. LEON T. MATULA, S/Sgt., CAC. MILTON J. SROMEK, S/Sgt., CAC. JOSEPH W. STEELE, S/Sgt., CAC.

PAUL D. HOPPES, Sgt., CAC. FRANK LUSCIK, Sgt., CAC. LEE L. MARSELEK, Sgt., CAC.

RALPH J. FROST, T/4, CAC. OSCAR PIUNTI, T/4, CAC. MAYNARD G. PROSE, T/4, CAC. WARREN W. RANDALL, T/4, CAC. ALBERT H. ROSENFELD, T/4, CAC. ALFRED SPEKIS, T/4, CAC. DONALD TRUNK, T/4, CAC. FRANKLIN G. WHITMAN, T/4, CAC.

KYLE W. ALEXANDER, T/5, CAC. JOSEPH H. JANNEY, T/5, CAC. WILLIAM A. LENNON, T/5, CAC. EMIL E. SKORNICKA, T/5, CAC. JAMES E. MILLER, Cpl., CAC.

PETE LUCERO, MARCUS ULVESTAD, Pfc, CAC.

Commendation

HEADQUARTERS FIFTH ARMY

Subject: Commendation.

TO: Commanding Officer, 5th AAA Group.

1. It was with deep regret that I noted the departure of your excellent unit from my command.

2. During its period with Fifth Army, your group rendered outstanding service, first with VI Corps in its advance to the Gustav Line and later with the New Zealand Corps in the Rapido River Crossing. At Anzio, again in support of the VI Corps, your group successfully planned and executed the mobile antiaircraft defenses of the advance forces in the defeat and pursuit of the enemy to the North of Rome. In all these tasks your officers and men exhibited the highest efficiency, courage, determination and devotion to duty.

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

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

HEADQUARTERS XXI CORPS

Subject: Commendation.

TO: Commanding Officer, 5th Antiaircraft Artillery Group, U. S. Army.

1. The operations of the XXI Corps in the Colmar area have been successfully completed. Colmar has been liberated and the enemy has been driven to the east of the Rhine.

2. The success of these operations has been due to the loyalty, the gallantry and the unselfish devotion to duty of the many thousands of officers, and enlisted men of the units that constitute the XXI Corps.

3. The 5th Antiaircraft Artillery Group was particularly outstanding in these operations. It performed its assigned missions with great enthusiasm. It completed these missions successfully, contributing materially to the great victory achieved by our units.

4. I wish to commend you, the officers, and the enlisted men of the 5th Antiaircraft Artillery Group for the superior manner in which they performed during these operations. Their actions were superb, and they reflect the finest traditions of the Armies of the United States.

F. W. MILBURN,
Major General, U. S. Army,
Commanding.

Croix de Guerre

RALPH C. TOBIN, Brigadier General, U. S. Army. WILLIAM M. HAMILTON, Colonel, CAC. EDWARD E. SCOVILL, Lt. Col., CAC. LINCOLN T. MILLER, Major, CAC. GEORGE K. ANDERSON, Captain, CAC. JAMES C. CALLOWAY, Captain, CAC. THOMAS J. HICKEY, Captain, CAC. HAVEN PUTNAM, Captain, CAC. BEAUVAIS DUFFY, Lieut., CAC. GEORGE A. WARREN, Lieut., CAC. RAYMOND J. HENNEBERRY, C.W.O. BERNARD L. NEVILLE, C.W.O. JACK A. BACON, T/Sgt., CAC. ALLAN T. WEBSTER, T/Sgt., CAC. JAMES E. MILLER, Cpl., CAC.

SEACOAST SERVICE



TEST SECTION

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 Seacoast Service Test Section, Army Ground Forces Board No. 1, or to present any new problem that may properly be considered by the Section. Communications should be addressed to the President, Seacoast Service Test Section, Army Ground Forces Board No. 1, Fort Monroe, Virginia.

Items pertaining to Antiaircraft Artillery should be sent to the Antiaircraft Test Section, Army Ground Forces Board No. 1, Fort Bliss, Texas.

COLONEL R. E. DINGEMAN, President

LT. COL. JAMES T. BARBER
LT. COL. ANDREW W. CLEMENT
LT. COL. WILLIAM R. MURRIN
MAJOR AUSTIN E. FRIBANCE

MAJOR DALE W. OLSEN
CAPTAIN FOSTER A. HINSHAW, S.C.
CAPTAIN W. P. G. HALL
CAPTAIN C. W. ZIEGLER, O.D.

Gun Data Computer M8N. The Seacoast Service Test Section has recently completed an extended service test of the Gun Data Computer M8N mounted in Semitrailer M26 for 155-mm M2 gun batteries. This computer, which was designed by the Bell Telephone Laboratories and manufactured by the Western Electric Company, is intended for use in the primary fire control system of such batteries and has been standardized for that purpose. It is an electrical computer similar in principle to the Directors M9 and M10 for antiaircraft batteries. A complete description of the computer is given in War Department Technical Manual 9-669, Gun Data Computers M8 Series, dated 23 October 1944.

Many of the computers have already been manufactured and are awaiting assignment to the using arm. All of these computers have incorporated in them many minor modifications which the Seacoast Service Test Section recommended during the first part of its test.

The Seacoast Service Test Section concluded as the result of the service test that the Gun Data Computer M8N is superior to other existing fire control systems performing a similar function. It recommended that a program of research and development be instituted to increase still further the effectiveness of the computer and indicated certain directions along which it is believed this program should proceed.

Overload switches for seacoast fortification power plants. In certain fixed fortification motor installations, important fractional horsepower motors have been burning out because of the lack of protection for the individual motors. Steps are now being taken to provide thermal overload protection for each motor in addition to the branch circuit protection now provided.

Seacoast Target T13. A small high speed target to be towed by JR boats for automatic weapons target practice has been tested by the Section. With the addition of minor modifications it was found satisfactory in its performance at speeds up to 30 miles per hour and suitable for issue. It

is both a visual and radar target so visual verification of radar data can be obtained if desired.

Navy Model SO-12N Radar Equipment. Tests of the Navy Model SO-12N radar equipment have been completed. This is a highly mobile microwave surveillance set with excellent accuracy and resolution up to a maximum range of 160,000 yards. The unit including two power plants and spare equipment is mounted in two small trailers whose total weight is less than 5,000 pounds.

During tests this unit participated in all Coast Artillery School exercises and demonstrations for officers' refresher courses including amphibious as well as overland operations. The set favorably impressed all who observed its personnel by its ease of installation and by the rapidity with operation and aroused great enthusiasm in its operating which it could get on the air. With very little training, the unit can be placed on the air from its traveling position in fifteen minutes although during one amphibious operation the set was on the air in seven minutes from the time it was released from its towing vehicle, and it was fully oriented three minutes later.

During tests of the unit it simultaneously operated two precision plan position indicators, one Army type, the other a Navy type. It was found that the precision plan position indicator enhanced the value of the set many fold by making the location and identification of targets easier and quicker.

Navy Radar Indicator Equipment Model VG (Skiatron). Tests have indicated that the VG is a highly desirable addition to any command post. It operates from any conventional surveillance radar. The signals are projected from a cathode ray tube by optical means to a horizontal viewing screen twenty-five inches in diameter. The cathode ray tube used is persistent so that moving targets leave a definite trail and are easily distinguished from stationary targets, which is of considerable assistance when the targets are plotted on the translucent plotting paper over the screen. This unit does not supersede the conventional operation

map but is a valuable supplement to it. The map-in-motion presentation on the screen of the VG unit is an extremely valuable means of keeping an operation map up to date and free away with the possibility of confusion of various targets as reported by two or more separate observers.

A sketch of the coast line with fixed targets that return radar signals such as lighthouses, channel markers, buoys, etc., can be superimposed on the viewing screen. This not only provides a quick method for checking orientation of the set and the parent radar, but provides a valuable method for guiding ships through dangerous waters when visibility is low.

It has been recommended that the VG be made a standard part of all fixed harbor defense.

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

The following tabulation shows the number of projects and subjects which were handled by the Seacoast Service Test Section during September and October:

Number on hand 1 September	42
Received during September and October	78
Total	<u>120</u>
Completed during September and October	83
Number on hand 1 November	<u>37</u>



Coated Optics

Everybody who uses binoculars, telescopes, height finders and the like should know about the new infinitely thin coating of magnesium fluoride that is being applied to the lenses and prisms of such equipment. Light transmission is greatly increased by the coating. The "seeing" ability of telescopes is increased as much as 50 per cent, and targets can be identified 15 to 30 minutes later at night and earlier in the morning. Glare, halos and ghost images are eliminated. Standard binoculars which are coated have a 20 per cent greater range of vision at night.

Instruments which have coated lenses can be identified by visual inspection. Hold the instrument at an angle to a natural or artificial source of light and observe the reflected light. If the optics are coated, the reflected light will have a distinctive purplish tinge. This purplish tinge is often observed by personnel when they are cleaning a lens. It usually leads them to believe that the lens is dirty or discolored whereupon they proceed to remove the film. Naturally, this should never be done.

Coated instruments should be handled with even greater care than uncoated instruments. They should be given the utmost protection against dust and dirt so they won't have to be cleaned more frequently than is absolutely necessary. The use of ethyl alcohol, grade 1 and lens cleaning liquid soap will not affect the coating unduly (see TM 9-850 for cleaning instructions). But, excessive rubbing will remove the fluoride film and must be avoided. Removal of the coating from the objective or eyepiece, either partially or completely, does not render the instrument useless. It does, however, destroy the benefits of the coating. This makes it necessary to reapply the film, which is a complex job for higher echelon shops to restore the advantages of coating.

To be able to see farther and more clearly is an important advantage in military operations. To enjoy these benefits, it is important that coated instruments, which provide the benefits, be treated with the best possible care.

Coast Artillery Journal

Fifty-fourth 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.

The United States Coast Artillery Association

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

News and Comment

General Moore Honored

Major General George F. Moore, Commanding General of Corregidor prior to its fall on May 6, 1942, and recently liberated prisoner of war, was the guest of honor at a reception on October 22 at the Shoreham Hotel, sponsored by the Coast Artillery Association.

During his visit to Washington, General Moore also spoke at a Victory Loan luncheon held at the Mayflower Hotel on October 25.

Assuming command of Corregidor in January, 1941, General Moore immediately started to place the fortress on a wartime basis. Barbed wire was constructed on the beaches, mining of the entrances to Manila Bay was completed, and gun batteries were placed on permanent alert.

At the outbreak of the war, Corregidor had a garrison of 5,000 American and 3,000 Filipino troops; a force barely sufficient to adequately man the available guns. Heavy artillery pieces were of World War I vintage, with the latest model dated 1918, antiaircraft artillery was not of heavy enough caliber to successfully defend the fortress against air attacks for long.

Preparations were so thorough, however, that a four-hour Japanese air raid on December 29, 1941, did little damage beyond burning wooden houses and small boats.

Corregidor also was the base of supplies for the defenders of Bataan, although it was only stocked with enough food to feed its own garrison for six months on a half ration.

For his actions on Corregidor, General Moore was awarded the Distinguished Service Cross and the Distinguished Service Medal by General of the Army Douglas MacArthur.

Fort Monroe, Virginia.
29 October 1945.

Lt. General LeRoy Lutes
President, U. S. Coast Artillery Assn.,
631 Pennsylvania Avenue, N.W.,
Washington 4, D. C.

My Dear General Lutes:

I deeply appreciate the hospitality extended to Mrs. Moore and me by the United States Coast Artillery Association during our recent visit in Washington.

The reception tendered us by the Association was an occasion which will always be one of our most cherished memories. To an old Coast Artilleryman who had been out of circulation for such a long time, the opportunity to see and greet so many old and dear friends was a privilege and pleasure never to be forgotten.

Very sincerely yours,

GEORGE F. MOORE,
Major General, U.S.A.

Unit Histories

Since the JOURNAL is one of the most accessible sources of Coast Artillery Corps history, many units are wisely sending copies of their unit histories to us to be filed.

Among those received thus far are: *34th AAA Brigade History*, a 6x9 book of 44 pages, with a good assortment of pictures, a roster, and an attractive colored map.

The Forty-Niners, of the 49th AAA Brigade, 8x10, 95 pages, a very attractive cover, good pictures.

56th AAA Brigade, 6x8½, pictures, fine etching-type drawings, roster.

Hawaiian AAA Command Scrapbook, 11x8, practically all pictures, drawings, and paintings. A professional-appearing booklet.

133d AAA Gun Battalion, 7½x10½, the only one received thus far with a cloth binding, 109 pages, excellent pictures, roster, exceptionally good make-up.

March Order, 567th AAA AW Battalion, 6x8, 64 pages. The outstanding feature is a number of excellent woodcuts which reproduce beautifully on the newsprint-type paper.

Normandy to the Elbe, 548th AAA AW Battalion, 8½x11, 39 pages, roster, roster of men decorated, outstanding art and make-up.

History of the 109th AAA, 4¼x5, roster, beautifully done colored drawings and maps.

It is the JOURNAL's intention to publish portions of these histories at a later date when stories suitable for our *Fighting Fronts* section begin to drop off. Other units with published histories are urged to send copies to the JOURNAL.



More Ribbons

All members of the Armed Forces of the United States or of the Government of the Philippine Islands who served honorably on active duty at any time between December 7, 1941, and the termination of hostilities in the present war—as determined by the President or Congress—are eligible to wear the new World War II Victory Medal, the War and Navy Departments have announced.

The announcement added that all members of the United States Forces who served honorably on active duty within continental United States for an accumulative period of one year during World War II, between December 7, 1941, and a date to be announced later, are eligible to wear the American Theater Ribbon. Previously, the ribbon was awarded only to those serving in certain designated areas in the Western Hemisphere.

Distribution of the World War II Victory Ribbon to Army personnel in lieu of the medal will be made by the Army in limited quantities late this month at all separation installations. Production of the ribbon started this week. Plans for distribution of the ribbon to personnel of the armed forces who already have been discharged will be announced later. Plans for distribution of the ribbon to Navy, Marine Corps and Coast Guard personnel being discharged also will be announced later. Meanwhile, purchase of the ribbon from civilian sources will be possible within a few weeks.

BALLOT
UNITED STATES COAST
ARTILLERY ASSOCIATION
INSTRUCTIONS AND
INFORMATION

The new Vice President and four members of the Executive Council are to be elected on this ballot, to replace officers whose terms of office expire December 31, 1945.

1. Please record your vote by making an "X" in the appropriate square or indicate your choice by writing in the name of your candidate. Ballots received with signatures, but with no individual votes recorded, will be considered proxies.

2. Each candidate was considered in connection with the geographic location of his residence. It is considered advisable to have at least five members of the Council resident in or near Washington in order to facilitate the transaction of business.

3. Ballots received after January 31, 1946, cannot be counted.

4. Ballots may be collected by Post, Battalion, or other unit commanders and forwarded under one cover.

5. Locally prepared ballots, cast by those who do not wish to mutilate their JOURNALS, will be accepted if they are signed.

For Vice President (1946-1947)

- Brigadier General Aaron Bradshaw, Jr.
[]

For Members of the Executive Council (1946-1947)

(Vote for Four)

- Brigadier General Hobart Hewett
Brigadier General Ralph C. Tobin
Colonel William I. Brady
Colonel John F. Cassidy
Colonel E. Graham Martin
Colonel Andrew P. Sullivan
Colonel Seth L. Weld
Colonel Robert J. Wood

Signature

Rank and Organization

Address

The World War II Victory Ribbon reflects the design of the Victory Ribbon awarded after the first World War. The second World War ribbon has a red center with narrow, vertical, white borders, which are flanked by double rainbows in juxtaposition. The ribbon will be worn immediately after the campaign ribbons for World War II.

The medal was authorized by Congress July 6, 1945. The design and method of distribution of the medal will be announced at a later date.

Posthumous award of the Victory Medal to one relative will be made when the medal becomes available. When so given, it will be presented according to the following priority: widow (provided she has not remarried), eldest son, eldest daughter, father, mother, eldest brother, eldest sister, eldest grandchild.

Consolation Prize

The War Department has announced that qualified officers of the Reserve components except colonels and above who have not received a promotion while on active duty will be promoted to the next higher grade at Separation Centers as they go on terminal leave.

These officers must have served at least two years in their present grade since September 16, 1940, and must have an efficiency index of at least 35 in order to be eligible for the promotion.

These promotions are in the nature of a reward for services already rendered. This is a departure from the established policy of providing rank commensurate with the responsibilities assumed by an officer. It is designated to rectify any possible injustice that may have been done due to assignments held by officers. The possibilities for promotion may not have always been equal in all types of positions and an excellent officer may, due to his value in a particular assignment, not have had the opportunity for reassignment to a position which could carry a higher grade.

The new provision covers officers who are members of the National Guard, the Organized Reserve Corps and those who have been commissioned only in the Army of the United States during the war.

By receiving the promotion just prior to going on terminal leave, the officers will wear the new insignia of rank at any time during terminal leave when they wear the uniform.

At the end of their terminal leave, the officers who request and receive a commission in the Organized Reserve Corps will revert to inactive status with the new rank on the reserve rolls subject to recall to active duty in that rank in the event of an emergency.

Those officers already placed on inactive duty status who were not promoted while on active duty and who are qualified under the new order will also be promoted. In the case of Reserve or Army of the United States officers, they will be tendered an appointment in the Organized Reserve Corps. A National Guard officer may be appointed in the Organized Reserve Corps, if he so elects. However, there will be an automatic termination of his National Guard of the United States commission since he cannot occupy a dual status. He may accept a commission in the Army of the United States, should he prefer, since this will not re-

quire him to vacate his National Guard commission. His Army of the United States commission, however, is temporary and terminates automatically at the end of the emergency plus six months.

Officers who are at present on an inactive status will be notified by the War Department of their eligibility for these higher commissions. Should any officer who believes he is qualified, fail to be so notified by January 1, 1946, he may inquire of The Adjutant General, Washington, D. C. as to his eligibility.

Advanced ROTC Resumes

The War Department has lifted its suspension of the Advanced Course, Reserve Officers' Training Corps, and announced a new "interim" ROTC program which initially affects 129 colleges and universities throughout the Nation. The program offers liberal financial inducements to World War II veterans desiring to qualify as Reserve officers while attending college.

At the same time the War Department revealed tentative plans for the permanent postwar ROTC program, which must remain in abeyance until Congress has determined the size and nature of the postwar Army. Meanwhile, the interim program will be in operation.

Veterans who can qualify for the new Advanced Course will be offered liberal financial inducements while enrolled as ROTC students. During the two-year period covered by the course, they will be paid a money allowance of approximately \$370, based on the present daily cash value of the garrison ration. In addition, they will receive between \$70 and \$75 pay while attending a six-week ROTC camp, which will normally come during the summer following completion of the first year of Advanced ROTC. A distinctive uniform and military textbooks will also be furnished without cost to the student.

Enlistment in the Regular Army

Under the Armed Forces Voluntary Recruitment Act of 1945, recently passed by Congress and signed by President Truman, enlistments are authorized for the following periods, at the option of the man enlisting:

1. Three years.
2. Two years.
3. Eighteen months.

In addition to these enlistment periods, any qualified and acceptable enlisted man who is now in the Army and who has performed active service for a period of not less than six months is authorized to enlist for a one-year period. This applies also to men who are in the Regular Army who wish to reenlist under this provision provided they are not serving an unexpired enlistment contracted after June 1, 1945.

To qualify for enlistment a man must be a citizen of the United States. The Regular Army will now accept him between 17 and through 34 years of age. However, if he is 17 written parental or guardian consent is required. Under certain conditions older men may be enlisted who have had prior service in the Army.

All men presently in the Army who enlist in the Regular Army are given a reenlistment furlough at the rate of thirty days for every year of service but not exceeding ninety days. Like reenlistment furloughs will also be granted to men who enlist in the Regular Army within twenty days after their honorable discharge. For the purpose of computing total service in determining the amount of furlough to be granted, overseas service of an individual will be counted as double time. In the case of men enlisting in an overseas theater the furlough begins at the port of debarkation on his arrival in the United States and ends on his return to the port of embarkation for departure to whatever overseas theater the man chooses.

In the instance of the man who is now serving in an enlisted status, performance of full military duty will be accepted as conclusive evidence of physical qualifications for the purpose of enlistment.

Men presently in the Army who accept a discharge to enlist or reenlist in the Regular Army will retain their grade held at the time of discharge. Retention of highest grade held at time of discharge also holds true in the case of men who enlist within twenty days after discharge. Other applicants will be enlisted in the grade of Private with the exception of those who have six months prior active service in the Army and who will be enlisted in the grade of Private First Class. Hereafter all men who enlist in the grade of Private will be promoted to Private First Class in a maximum of six months providing their service has been satisfactory.

Every man who enlists or reenlists in the Regular Army for a period of three years now has his choice of any component of Army Ground Forces, Army Air Forces, or Army Service Forces as well as overseas theaters in which he wishes to serve. These include the European, Pacific, and China Theaters, the Caribbean Defense Command and the Alaskan Department. Men who enlist for periods of less than three years will be assigned in accordance with current Army requirements. The overseas pay for military personnel while serving on sea duty or on duty outside the conti-

ental limits of the United States or in Alaska has been continued indefinitely.

For the first time also the man who is accepting discharge may, upon his own option, take his mustering-out pay in a lump sum instead of by installments. This provision is applied to men who enlisted in the Regular Army after June 1, 1945, who were entitled to but did not receive mustering-out pay at that time.

Travel pay within the continental United States for furloughs is one of the big items under the new Act. Five cents per mile is allowed each man, with minor exceptions, entitled to reenlistment furlough upon enlisting in the Regular Army, to be paid in advance at the time his furlough becomes effective. This five cents per mile travel allowance is given him for travel to his home for his furlough, and then, when his furlough is over, from his home to the place where he is ordered to report for duty. He may elect to spend his furlough where his family or parents are located in which case he will be given the same travel allowance to spend his furlough with them and paid travel allowance to report to his place of duty.

In addition to his mustering-out pay, if he enlists while serving in the Army or if he enlists within a period of three months from the date of his discharge, he is given a reenlistment allowance of \$50 for every year of honorable service since inducted or the date he commenced his last enlistment, payable in advance.

But his mustering-out pay and reenlistment allowance are not the only advantages offered the man who decides to make the Regular Army his postwar career. All men who enlist or reenlist in the Regular Army prior to July 1, 1946, if entitled, may receive family allowances for the entire period of their new enlistment. He is also permitted to choose monetary allowance in lieu of quarters for dependents, if he is in the first three enlisted grades, or should he choose he may elect to have his dependents receive family allowance.



Two views of the new 75mm recoilless rifle. Note the simple "carriage," and the vents in the propelling charge.

Signal Corps



Battery C, 485th AAA AW Battalion, marks its score: eighteen kills, four damaged, three probables.

✦ ✦ ✦

Atomic Energy Discussion

Secretary of War Robert P. Patterson on 20 October issued the following statement:

"Public discussion of great issues such as the dissemination and regulation of knowledge of atomic science is one of the basic principles on which democratic government is founded. In it all citizens have a right to participate. American scientists in particular, because of their knowledge of the technical matters involved and because of their comprehension of the full social significance of the achievement, can contribute powerfully to it. Security, of course, still requires that nothing beyond the specific subject matter contained in the Smyth Report be brought into discussion, and the use of due care that matters outside the content of this report and still under security regulations be not inadvertently encroached upon. With this sole restriction, however, which applies to all citizens, our scientists should feel that it is proper for them as citizens to join actively in public consideration of this question."

✦ ✦ ✦

Radar and Meteorology

Radar instruments developed for war purposes may play an important part in future weather forecasting and also make permanent records relative to the nature of storms and their movements for use in the science of meteorology. The entire progress of the recent September hurricane in its gradual curve up Florida was accurately plotted on film by Army radar war equipment. Photographs of each radar scope were taken each fifteen seconds by electrically operated cameras.

The use of radar to detect storms began at least as early as August, 1943. Before that, Army radar technicians had noticed "ghost echoes" on their relatively primitive scopes but did not realize at first that they were caused by thunderstorms. Later they did, and Army weather observers soon learned how to use radar to plot other storms and they later

developed better techniques of detection. But the size and violence of the September 15 storm, and its closeness to the radar station, resulted in new findings about the nature of hurricanes.

Throughout the hurricane the general shape of the disturbance was plainly seen on the micro-wave set, whose energy was reflected excellently from the rain carried by the storm. The storm was seen to be in the shape of a figure six with clockwise spiralling tails. At one time six distinct tails were observed, three of which were detached and were moving northward ahead of the storm's center. These tails were deduced to be rain-bearing storm clouds, or line squalls eight to ten miles in width and from three to five miles apart.

When the hurricane was abreast of the radar station, and only ten miles away, the radar revealed that the eye of the storm, the low pressure area in its center, was twelve miles in diameter, and the lack of echoes proved that there was no precipitation within it. The height-finding radar set revealed that the dense cloud deck surrounding the eye extended up to an average height of 18,000 feet.—*Science News Letter*.

✦ ✦ ✦

Report on Combat Fatigue

Approximately 90 per cent of the combat exhaustion cases in the European Theater of Operations prior to the collapse of Germany returned to duty as a result of prompt and skilled handling. This announcement was based on a report made by a commission of civilian psychiatrists appointed by the Office of Scientific Research and Development at the suggestion of the Army's Surgeon General.

Members of the commission meeting with Colonel William C. Menninger, director of the Neuropsychiatry Consultants Division of the Surgeon General's Office, shortly after their return from Europe praised the work of psychiatrists in ETO. They spent 11 weeks in the theater studying conditions in the field.

In summarizing the observations of the committee members, Dr. Leo H. Bartemeir stated that Army psychiatrists had displayed great courage, ingenuity, and had made some notable accomplishments. He also stated that coöperation between medical, surgical, and psychiatric officers in the Army is highly commendable. High quality of personnel, better methods and techniques, and the fact that psychiatrists are getting to their patients more rapidly are some of the reasons that combat fatigue was treated more successfully in this war than shell shock was in the last war, the commission reported.

Battle-weary soldiers are treated by various methods. Sedation, narcosynthesis, hypnosis, and the new techniques of group psychology are some of the treatments observed in Europe by the commission. Results of group psychotherapy were reported as most encouraging.

Another member of the commission, Dr. Menninger, pointed out the fact that an alert officer or noncommissioned officer could in many instances anticipate a case of combat exhaustion and prevent serious complications. Symptoms were found to be increasing irritability, lack of interest in letters from friends or family, lack of interest in comrades,

and the wasting of equipment and food. Rotation of personnel so as to give them rest and relief from the stress of battle was discovered to be the best method to bring to normal, soldiers in this category.

Dr. John C. Whitehorn, Johns Hopkins authority, reported that there is a direct ratio between the number of exhaustion cases and the intensity of combat. Cases of combat fatigue are usually about one-fifth the number of wounded casualties. The psychiatrists also discovered that every man has his breaking point, depending on the amount of stress and strain and the length of the period of time.

A factor reported contributory to combat exhaustion is the martyr situation, Dr. Whitehorn contends. When men are unavoidably marooned from the main body of troops so that their plight seems hopeless, or when they are on a mission which they do not understand and which seems futile, or when they are isolated and lose their leader, the average soldier is more likely to become subject to combat fatigue.

The report stresses the fact that the presence of combat exhaustion is no indication of lack of courage. It points conclusively to the fact that soldiers do reach the point when their systems can undergo no more.

Battery Pennsylvania

A monument to the men who died defending Pearl Harbor on 7 December 1941 is Battery Pennsylvania, the triple-gunned turret from the U.S.S. *Arizona* which protects the windward shore of Oahu.

Sunk without firing a round during the first hour of the war, these 14-inch rifles roared again the day Japan announced acceptance of the terms of the Potsdam ultimatum.

At the outset of the conflict the coastal defenses of this rampart in the Pacific were in urgent need of additional ordnance and the Army quickly accepted the Navy's offer to salvage guns from the *Arizona* to strengthen the island's fortifications.

Divers cut the turret and guns from the sunken hull. New cranes were built to lift the assembly from the depths of Pearl Harbor. Special barges were constructed to carry the guns and the turret to the northern shore of the island and more cranes were erected to raise the tremendous tubes and the turret to the position selected for this battery by the Hawaiian Seacoast Artillery Command.

The full story of the engineering, ordnance study, artillery calculations and other work, requiring a variety of skills, is a heartening chapter in the scientific phase of the war. The screaming 1,500-pound projectiles fired from these three rifles beyond the horizon announced completion of a gigantic job.

Battery Pennsylvania is serviced from a subterranean steel and concrete structure equal in size to a six-story office building. The position, including ammunition magazines, plotting rooms, and fire control center, is air-conditioned.

Imported Booby Traps

With the increasing number of captured enemy weapons being brought into this country by returning servicemen, the War Department today is warning against their use as firearms.

Major General Henry B. Saylor, recently appointed Deputy Chief of Ordnance in Washington, newly returned from Europe where he was Chief Ordnance Officer in the ETO, declared, "The Germans made some good small-arms



Battery Pennsylvania rocks Oahu.

weapons, but during the war relaxed manufacturing standards in some instances with the result that many guns picked up by our soldiers and brought home had never been proof-fired. Also, European weapons are not always provided with the numerous safety devices built into American small arms."

General Saylor's statement follows closely a similar warning issued recently by Secretary of War Patterson regarding the proper disposition of so-called "war trophy or souvenir" guns.

Returning veterans are cautioned that although a gun is complete and seems suitable for immediate firing that is no guarantee of its safety. General Saylor added, "It is dangerous for anyone but a skilled gunsmith to attempt to use these captured enemy weapons."

Fear against use of these foreign arms is based on the following cited reasons: In general, the proper ammunition to fit the weapons is not usually manufactured here; American ammunition of approximately the same size will many times go into the chamber and fit sufficiently well so that the cartridge can be fired. However, if the bullet is only slightly larger than proper, excessive pressures and poor gas check conditions will probably result in fatality to the firer.

Even though suitable ammunition were available, there is no way of knowing whether or not the foreign gun is made of inferior substitute material, ever passed final inspection or been proof-fired, or whether it was a reject.

Since many foreign guns are poorly designed from a safety standpoint, the War Department urges the acceptance of the solemn warning of the expert: Be sure the war weapon is empty; then hang it as a decorative souvenir, out of the reach of children; never use it as a firearm.

Trophies Available

Four thousand obsolete U. S. guns, howitzers, tanks, and other Ordnance items of war equipment, as well as U. S. caliber .30 rifles, M-1917, will soon be released to communities and certain organizations for trophy purposes, the War Department announced today. These Ordnance items are being made available to replace the many cannons, guns, and other field pieces which were donated by communities to the nationwide scrap metals drive during the war years.

U. S. rifles, caliber .30, 1917 model, have now been declared obsolete by the Army. Organizations and communities will be authorized to request not more than ten of these rifles for ceremonial purposes. Under existing regulations, rifles may be requested by writing the Field Service Office of the Stock Control Division, Office of Chief of Ordnance, Issue Branch, Room 2C521, Pentagon Building, Washington, D. C. A donee certificate will be mailed to the applicant and after it has been signed and returned, the rifles will be made available.

Communities and organizations may now apply for items of obsolete combat matériel which the Ordnance Department is authorized to scrap, according to a policy recently announced by Major General Henry B. Saylor, Deputy Chief of Ordnance, in Washington. This policy does not extend to items of captured enemy equipment, which is governed by other regulations. No policy on captured ma-

teriel has been announced as yet. None of the items made available by the Ordnance Department can be purchased and private individuals or private enterprise cannot make application for them.

Although communities and eligible organizations of a non-profit nature can secure objects described without compensation, they must pay the transportation charges from Army Ordnance depots. For large and weighty objects, such charges are a factor which communities and organizations should carefully consider before making application for an obsolete weapon.

Applications for this equipment will be accepted by the Chief of Ordnance, War Department, Washington, D. C. Applicants are responsible for all packing, handling, and freight charges from the nearest depot to destination. Howitzers weigh from approximately 12,000 pounds upward; big guns from 26,000 pounds upward; and light tanks from 33,000 pounds upward.

Last London Stars & Stripes

The British edition of *Stars & Stripes*, the newspaper of the United States armed forces in Europe, appears for the last time today (15 October 45). In its short life—it was first published as a daily newspaper in England on November 2, 1942—it has fully kept its promise to provide readers with the news of the world at war.

This compact and readable daily record of the events that began with the Eighth Army's break-through at El Alamein and the American landings in North Africa was the product of an Anglo-American partnership and, incidentally, of lend-lease in reverse. It was written and edited by American journalists who were members of the armed forces, and it was printed and published at the office of *The Times*.

The size of the paper varied from the four pages of the normal issue to eight pages and more when special sections were included. In the early days of publication the circulation was about 50,000 copies daily, but by August 1944, it reached a figure of nearly 700,000. Then, with the advance in France and the appearance of Continental editions of *Stars & Stripes*, the British edition, the pioneer, began to lose readers. But there was no decline in the vigor of the newspaper. Its last issues were as bright as any in its career.

The men who have written and directed *Stars & Stripes*, in paying tribute to the equipment and standards of production they have found in the office of *The Times*, say that the most important thing they received was understanding; and the men who produced *Stars & Stripes* for them say that these alert American soldier-journalists were always ready to understand a printer's difficulties. There is an anecdote, wholly apocryphal, no doubt, which exists to show how much they were at home in Printing House Square. One of them was heard to say in a Fleet Street restaurant, "*The Times?* Oh yes, it's produced in our building."—*London Times*.

Oozlefinches in Australia

Australia
11 August 1945

I have much pleasure in advising receipt of two "Oozlefinches" which arrived packet post this week.

They arrived in good condition and after a feed of gun-cotton and a drink of buffer oil were no worse off for their long trip.

Thanking you and wishing the JOURNAL every success.

CAPTAIN F. W. SHEARMAN.

First Army Takes Over

General Courtney H. Hodges' First United States Army, which spearheaded the invasion of Europe, has changed over to a peacetime mission.

The First Army will absorb all Ground Force units formerly assigned to the Second Army in the eastern and southeastern United States. All training and administration of the absorbed units will be a First Army responsibility.

A number of states along the eastern seaboard of the United States come within the territory of the First Army, and it will have control of most Army Ground Force troops in five large army camps, including Camp Rucker, Alabama, Fort Benning, Georgia, Camp Butner, North Carolina, Fort Jackson, South Carolina, and Fort Bragg, North Carolina. Headquarters of the First Army has been established at Fort Bragg.

The VT Fuse

Additional information on the VT radio proximity fuse has been released by the War Department.

With the lessening of flying bomb attacks in England, VT teams were able to concentrate upon the Continent. Christmas Day of 1944 was the date selected for the original presentation of VT to the enemy. When the Germans launched the Ardennes offensive, however, plans were immediately changed, and the fuses were committed to battle.

U. S. artillery projectiles, fitted with the pint-sized fuses which cause the projectile to explode when it reaches within seventy feet of its target, helped halt Von Rundstedt's offensive. This was disclosed in a report cabled from General Eisenhower's headquarters to the War Department on January 17, 1945. It read:

"According to our observers the timely release of VT artillery fuses has vastly multiplied the lethal effect of interdictory and harassing fire. By the unprecedented effectiveness of unseen fire at all hours of day and night, the enemy has been severely upset as confirmed by prisoner-of-war reports."

Already described as secondary in importance only to the Atomic Bomb, the VT fuse also was employed in the Army's airborne 4½-inch rocket.

Mass production of VT fuses for Army rockets was started in the summer of 1942 and by the middle of 1943 nearly a million were placed on the shelf for insurance in the event the enemy might threaten to regain control of the air.

Another use of VT-fused rockets centered upon soldiers



BRITISH TEST V-2

The picture on the left shows a German V-2 rocket at Cuxhaven, being fueled for the test. The second picture catches the rocket as it begins the flight.

in foxholes or gun emplacements, or airplanes parked in revetments. Practical tests showed a twenty-fold increase in the number of casualties compared to a rocket fused to detonate on contact with the ground. Rockets bearing the VT fuse detonated just above the target, blanketing the immediate area with a hailstorm of high velocity fragments.

Under Secretary of War Robert P. Patterson praised U. S. scientists and industrial concerns who succeeded in developing the tiny radio, employing the principles of radar, which could operate after being shot from a gun.

The Ordnance Department was charged with the responsibility of supplying the Army with the new fuses, and by January 1, 1944, they had been manufactured in sufficient quantity to permit their employment in combat. General use, however, was temporarily withheld in deference to the safety of Allied aircraft.

The high degree of secrecy which surrounded the VT project made it necessary to avoid the normal channels of supply. Therefore the Army Service Forces supervised the transportation of great stocks of fuses to isolated and well-camouflaged depots in the British Isles, France, Italy, and certain Pacific bases.

With the problem of supply solved, the indoctrination of artillery personnel to the peculiarities of VT was the next step. This job went to Major General G. M. Barnes, Chief, Research and Development Service, Office of Chief Ordnance.

General Barnes organized a detachment of technically qualified officers and men, arranged for their training in development laboratories, and subsequently sent them to theaters of operation all over the world. Nearly 200 of these newly trained VT specialists went to Europe and the Pacific.

The first of these teams embarked for England in March, 1944. Its mission was to aid theater personnel in maintaining security, expedite the movement of supplies, and indoctrinate ordnance and artillery personnel in the technical nature of the fuse.

Both U. S. and British Army personnel were taught to shoot VT-fused shells to obtain maximum effectiveness. The results now are known to the world. VT helped save London. It increased the destructiveness of anti-aircraft fire at least fivefold.

More than 2,000,000 VT fuses for rockets and bombs were developed and produced by hundreds of scientists and thousands of factory engineers and workers.



Wind-Driven Generator for VT

Development of a tiny wind-driven electric generator no larger than a pocket watch, designed to fit into the nose of an aerial bomb or rocket projectile, was described as a major step in the perfection of the VT proximity fuse.

The proximity fuse consists of a very small but incredibly rugged radio transmitter and receiver, the size of a man's fist. Installed in a bomb or projectile, it sends out high-frequency radio waves which cause the detonation of the explosive charge when they bounce back from enemy aircraft, vehicles, or the earth itself.

A major hurdle in Army development of the fuses was the problem of supplying electric power for the minute

radio. This was tentatively solved by development of a tiny dry-cell battery which, although no larger than the cap of a fountain pen, supplied adequate voltage for the few seconds it had to function.

This power source worked well in laboratory and proving ground tests, but Signal Corps engineers realized it would be undependable in combat because the batteries would fail in the extreme cold of high altitudes at which modern bombers fly. The limited "shelf-life" of the batteries was another objection, for they soon lose potency in warm climates.

Under Signal Corps supervision, a development program was established at the National Bureau of Standards in Washington to perfect a generator to replace the batteries. A development model was completed in late 1943, utilizing a propeller recessed in the nose of the projectile as a windmill to drive a tiny generator.

Whirling at the rate of 100,000 revolutions per minute—fifty times faster than the spin of an airplane propeller—the windmill supplies sufficient power to the generator to create a continuous radiation of radio waves from the bomb or projectile.

To prevent the proximity fuse from detonating the explosive upon receipt of wave echoes from the aircraft which launched it or from other near-by planes, the connection between the fuse and the detonator is left open until after the projectile has been launched. The first few spins of the windmill turn a worm gear which closes the connection and completes the arming of the projectile.

Problems of adapting the laboratory model to mass production techniques necessitated repeated redesigning of the generator unit, but research technicians worked at the side of production engineers under the supervision of Signal Corps officers until the first large order of generator fuses came off the assembly lines just one month before the invasion of Normandy.

Little David

The War Department has revealed details of the giant 914mm (36 $\frac{1}{4}$ -inch) mobile mortar, largest and most destructive weapon of its kind, capable of hurling a 3,650-pound projectile a distance of six miles.

Dubbed "Little David," the giant mortar has a rifled, 22-foot, muzzle-loading tube which, with its firing mechanism and other parts making up the tube assembly, weighs approximately 80,000 pounds. The mortar's base assembly, on which the tube rests, is constructed like a huge box and weighs 93,000 pounds.

While traveling, the mortar's tube and base assemblies each make up separate tractor loads. A complete "Little David" unit also includes a bulldozer and crane with bucket shovel to dig the emplacement. The huge mortar can be emplaced in twelve hours, while the largest (820mm) known German artillery weapons were hauled on twenty-five railway cars and required three weeks to put in firing position.

No freak weapon, "Little David" has been rigidly tested at the Ordnance Department's Aberdeen Proving Grounds and has proven capable of producing terrific explosive effect on the most resistant targets. The weapon had been

cheduled to be used in the proposed assault against Japan. In June 1944, the Ordnance Department devised a secret design for testing bombs which was given the name "Little David" for security purposes. The design was shown to Army Ground Force officers who immediately recognized it as having all the qualifications of a heavy mortar which they had been seeking.

The mortar's base assembly contains the elevating and traversing mechanisms and all control equipment. The base is 18 feet long, nine feet wide and 10 feet high. It has six built-in hydraulic jacks for installation and removal and contains the pump which supplies hydraulic pressure for all jacks and mortars and for the traversing and elevating mechanism.

Various methods for emplacing the giant mortar were tried and the ramp system was found most satisfactory. This requires a deep pit with a ramp leading to the surface. The base assembly is driven into the pit and earth packed around the base until it is flush with the surface.

The tube assembly is then driven on steel runways over the top of the base and lowered into position by hydraulic jacks.

The mortar's 3,650-pound projectile is brought to the emplacement by truck. In loading, the doughnut-shaped propelling charges, consisting of a 136-pound powder base and two equal increments weighing 41 pounds each, are placed in the tube.

Then the projectile, containing a 1,550 bursting charge made of Picratol, is lifted by means of a lightweight sling around its girth and placed in position at the muzzle of the tube.

With the tube in a horizontal position, two or three men start the projectile on its way about six or eight inches into the muzzle. After the tube is raised, the projectile slides down to a seat at the front of the powder chamber in about 20 seconds. Unlike small mortars where the projectile is fired as it strikes a firing pin at the base of the tube, the "Little David" projectile rests in the chamber. Then, after the range has been checked, the mortar is fired by use of a conventional lanyard.

A three-quarter caliber aluminum windshield attached to the projectile to improve flight characteristics gives the shell the appearance of a huge top.

✓ ✓ ✓

Maintenance Still Needed

The end of the war has not meant the end of maintenance activity in the Army, it is pointed out by Maintenance Division, ASF. In fact, for the time being, maintenance has become even more important. This is because the procurement of new replacement equipment has ceased, which means that equipment now in use must be kept in working order, come what may. If soldiers want to ride, they'll have to continue taking care of their vehicles.

Furthermore, vast quantities of matériel which is to be disposed of must be protected against damage and deterioration by periodic maintenance services while in storage or shipment.

It is hoped that Army personnel will continue to be maintenance minded—for maintenance of equipment will always be as much a part of Army life as payday.



Radars and AA position on a beach in southern France.

Artillery Offensive*

By Engineer Colonel Pavel Zverev

In the years preceding the Second World War, military minds were as much occupied with the problem of a breakthrough of fortifications as with the mass employment of tanks and aircraft. This was dictated by the experiences of the First World War and the tendency to build such powerful fortified areas to protect borders as the Maginot, Siegfried and Mannerheim Lines. In addition, the development of fortifications showed that the construction of field defenses would also be based on the principle of many-lined fortified areas.

These forecasts were confirmed in the majority of Red Army offensive operations during 1942-1945, which invariably began with a breakthrough of the German defenses. It should also be borne in mind that the farther the Germans were forced westward, the stronger their resistance became. But now that the powerful East Prussian defenses have been shattered, the dozens of fortifications situated between the Oder and Berlin have been overcome by Soviet forces, and under the blows of Allied armies the Siegfried Line collapsed, we may draw the indisputable conclusion that the problem of blasting fortified zones has been solved.

Considering the experience of the Red Army, we may assert that this solution was reached in a new way by the artillery offensive.

There are examples in the First World War when the concentration of artillery was not far below the average of this war. But there can be no comparison in the results achieved in the First and Second World Wars. In those days with the pounding of the enemy's defense zone continuing for days, the breakthrough operation was protracted and therefore did not yield the desired result, whereas now, as displayed by the Red Army artillery, the preparation continued for no more than ninety minutes or two hours, but the quality of fire was so highly superior that tanks and infantry negotiated the main defense lines in a single day. This was achieved not only by an increasing density of fire, but also by a skillful conduct of barrage—a tactic in which Soviet gunners have reached perfection.

In spite of the fact that in a majority of cases the number of Soviet artillery regiments on the sector of the breakthrough highly exceeded the number of infantry regiments, the artillery never hindered the operations of the infantry. On the contrary, its fire was completely subordinated to the objectives of the infantry.

Artillery offensive was composed of three main periods: artillery preparation, creeping barrage, and shifting fire deep into the enemy's defense zone.

The first stage is the most intensive.

An original interesting example of the organization of artillery preparation was provided by the Army of the First Ukrainian Front when German fortifications on the Vistula south of Sandomierz were blasted in January 1945. The main feature was that as a preliminary to the offensive, a short sham artillery preparation was started with only one-tenth of the available guns in action, and a feint attack was begun by a few battalions. The Germans mistook this for

the real thing, bringing in all the forces at their command and the attack was easily repulsed.

But soon the Soviet artillery, 250 pieces for every kilometer of the front, began again to pound the enemy. The barrage went on for over ninety minutes and was so effective that Soviet tanks and infantry made a wide gap in the entire depth of the enemy's defense zone.

Referring to this battle, Colonel Schtresner wrote in his diary: "The Russian artillery fired with amazing precision. In a matter of fifteen minutes, communication was completely disrupted. I could not raise my head at the C.P. It was quite impossible to direct the operations of the regiment. All my units sustained heavy casualties from gunfire. Those who survived, scattered."

It would be a mistake, however, to think that this was the only method used during the preliminary bombardment. There were hundreds of variations.

But no matter how effective the preparatory barrage may be, there always remain enemy firing points capable of inflicting heavy casualties on the attacking force, or even of checking the advance. For this reason the importance of artillery fire becomes even more significant when the attack is finally launched. If during the period of preparation the fire of each gun is directed to a certain target, then with the attack in progress the batteries can move their fire in strict coordination with the movement of the infantry and tanks.

The change of depth of fire is accomplished either by concentrated action or by setting up a barrage, or by combining the two. But whatever the method employed, Soviet infantry and tanks always moved just ahead of the creeping barrage and crushed every resistance. This wall of fire accompanied the troops for approximately 700 to 1,000 meters from the enemy front-line defenses and continued for about thirty minutes. That brought the second stage of the artillery offensive to an end, and then followed the third period.

This division of the artillery offensive into periods is theoretical, of course, for artillery fire was constant. While the wall of fire was being shifted from the first to the second trench, regimental and antitank guns had already begun to move forward and, following in the ranks of the infantry and firing direct, they silenced the surviving firing posts, knocked out counterattacking tanks or infantry parties of the enemy. Immediately afterward divisional artillery went into action.

Under this method of organization, the Soviet infantry always had the support of the artillery. Every enemy attempt to counterattack was frustrated by the concentrated fire of the divisional and corps artillery.

At the beginning of an offensive the artillery pounded the enemy defense zone to a depth of eight or ten kilometers, but with the advance of the infantry the fire zone naturally diminished, while the number of guns in action remained unchanged. This enabled the attacking force to deal ever stronger artillery blows and retain the superiority of fire power.

The long range of the corps and Army artillery groups, the mobility of the regimental and divisional guns, enabled the gunners to concentrate fire on the entire tactical depth of the enemy's defense zone and thus to paralyze resistance.

*Information Bulletin, Embassy of USSR.

Quotes from Letters

"I appreciate the *COAST ARTILLERY JOURNAL* very much and want to congratulate you on the splendid job you are making of it."

BRIG. GEN. T. R. PHILLIPS.

* * *

"I have found the *JOURNAL* an excellent means of keeping abreast of changes in the Coast Artillery throughout the past five years."

CAPT. RALPH R. HENNIG.

* * *

"When I have established my permanent home I will again become a subscriber as I have been for the past twenty-eight years."

"Congratulations on your present efforts in presenting an interesting service *JOURNAL* and best wishes for the postwar period."

COLONEL LE ROY A. WHITTAKER.

* * *

"At this time I want to take this opportunity to say that in two and a half years overseas, the *JOURNAL* has at all times reached me and it has been doing a grand job of reporting and keeping us informed at all times. Because I was detailed to the Air Corps, the *JOURNAL* was my real link with the CAC and as such, did a remarkable job of keeping me up to date."

"Whatever the outcome will be, it is my intention always to keep my subscription active. Keep up the good work; in the *JOURNAL*, the CAC has every reason to be proud of a fine organization."

LT. COL. R. A. SAN SOUCL.

Ground-Air Control Radios

Two radio sets which were used to a high degree of efficiency in both the European and Pacific Theaters of Operation by ground troops in the control of tactical aircraft have been released from the "secret list" by the War Department.

The equipment carries the alphabetical-numerical designation of AN/VRC-1 and AN/TRC-7.

The letters in the case of the AN/VRC-1 mean that it was designed for use by the Army and Navy; that it is installed in a vehicle when in use; it is a radio, and is used for communications. The number indicates it is the first of its series. The AN/TRC-7 is different in that the "T" means it is a portable set to be carried by dismounted troops and the "7" means that the set is the seventh of its series.

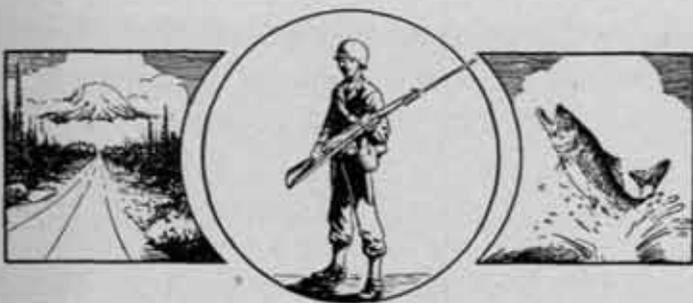
Designed for operation from a jeep off the vehicle's storage battery, the AN/VRC-1 is a combination of high-frequency and very-high-frequency radio with a variable distance range of 20 miles for voice, 40 miles for tone and 60 miles for continuous wave when the high-frequency transmitter is used. The output of the very-high-frequency transmitter was found to vary from 30 miles for a plane at 1,000 feet to 180 miles for a plane at 20,000 feet altitude.

The light, portable AN/TRC-7 for use by dismounted troops in maintaining radio contact with aircraft was introduced in the Pacific Theater. It weighs approximately 100 pounds and often was dropped by parachute to the ground troops. Normally broken down into four parcels when dropped from an airplane, it is designed to be carried and operated by three men when assembled. The set is a very-high-frequency transmitter and receiver. The equipment includes a 30-foot antenna mast of very light material and a hand-operated generator for power. The set may be operated from dry cells.



The USS *Bunker Hill* passes through Gatun Locks.

Coast Artillery News Letters



Northwestern Sector

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

On 15 September Northwestern Sector was reorganized. In the Harbor Defenses of Puget Sound the 14th, 169th and 170th Battalion Headquarters and in the Harbor Defenses of the Columbia the 171st and 249th Battalion Headquarters were inactivated. The lettered batteries of the battalions were redesignated as lettered batteries under HDPS and HDC, respectively.

In accordance with instructions received from Ninth Service Command a Separation Point was established at Fort Worden, Harbor Defenses of Puget Sound, effective 15 September. The separation point is designated as the Fort Worden Separation Point, under the command of the Commanding Officer, 1914 SCU, for the separation of male officers and enlisted personnel who become eligible for separation in the Harbor Defenses of Puget Sound.

Alert duties have been curtailed in both Harbor Defenses since VJ-Day. In the month of October training schedules were reduced so as to permit the removal of barbed-wire entanglements and barricades, the filling of all slit trenches and dugouts and to maintain a high standard of armament maintenance.

In both Harbor Defenses more attention is being given to organized athletics and recreation. One-half day each week is devoted to organized sports such as football, softball, volleyball, bowling, swimming, badminton, basketball, fishing, baseball, archery, horseshoes, golf and tennis. In October in each harbor defense a handicap golf tournament was held. For those who desire less active fields of recreation, handicraft and photography programs and contests are being conducted. Also, discussion periods are being held on subjects of interest to soldiers about to return to civilian life. The GI Bill of Rights has been thoroughly explained in orientation sessions so that every soldier may be familiar with its benefits. At the same time, a drive is being made in both harbor defenses for enlistments and reenlistments in the Regular Army.

During September a 6-inch regular radar practice was held in each harbor defense. Position finding and spotting were by radar and in both practices difficulty was encountered in spotting. One practice was conducted by firing trial fire at a trial shot point and in the other practice trial fire was conducted at a moving target. The M10 radar target was used in each practice.

On 1 October 1945 sixteen ground type mines were fired in the mouth of the Columbia River. These mines, part of the interdiction defenses of the Columbia River, could not be recovered as they were heavily "sanded in". The mines were fired from an L boat using the M4 (Jep) control system. Five thousand feet of cable was laid from the selection assembly and the L boat was anchored at the end of the cable. The firing was not only of particular interest to Coast Artillery personnel but also to the State Game Authorities of Oregon and Washington, who feared that many valuable fish would be killed by the explosions. Between the firing of the first and second mines there was an interval of ten minutes to permit fish to shift away from the danger area. Thereafter mines were fired at four-second intervals. After the firings it was determined that no salmon were killed, although some other less valuable types died.



The fourth second of the explosion of an M-1 mine.



Harbor Defenses of San Francisco

Antiaircraft automatic weapons training was conducted during October and November at the Harbor Defenses of San Francisco AA Range at Bolsa Point, fifty miles south of San Francisco. This range has complete facilities for quartering troops and conduct of training, and offers minimum interference to and from air and water traffic.

All AW units of the Harbor Defense underwent a two-week period of instruction and firing. The value of a schedule of concentrated training, uninterrupted by garrison duties and details, has been demonstrated clearly during these training periods. Owing to discharge and transfer of experienced personnel, many of the units arrived at the range with crews composed almost entirely of men previously untrained on antiaircraft weapons. Nevertheless, at the conclusion of the period, all units exhibited remarkable progress and displayed ability to deliver prompt, rapid and accurate fire.

The value of this training lies principally in experience for officers and men desirous of remaining in the service and in the organized reserves. It is also considered an important morale factor for those awaiting discharge.

The use of radio-controlled target planes has proven an invaluable training aid. In addition to providing a more realistic and more maneuverable target than offered by a towed sleeve, the problems of delays incident to towing

and the safety measures imposed for protection of towing planes are eliminated.

The HDSF played host to elements of Major General Terry Allen's 104th (Timberwolf) Division when they paraded in San Francisco for the Victory Bond Campaign. Selected troops of the division were quartered at Fort Cronkhite after their arrival from Camp San Luis Obispo.

For "superior performance of duty," the 4th Coast Artillery Mine Planter battery, Fort Baker, was awarded the Meritorious Service Unit Plaque by Major General H. Conger Pratt, Commanding General, Western Defense Command, at an impressive Harbor Defense presentation ceremony at Fort Winfield Scott recently. Battery commander Captain Frank Jacott accepted the plaque from General Pratt on behalf of his men.

Hundreds of HDSF soldiers helped battle a huge Marin County brush and timber blaze which ravaged the wooded lands for several weeks. Many of the fire-fighting soldiers were veterans recently returned from overseas.

A reorganization of the Harbor Defense units has been effected. In anticipation of reduction of personnel to peacetime strength, the HDSF disbanded its four battalions and replaced them with a new streamlined HDSF regiment.

Artillerymen from this garrison marched with more than usual pride when they led a gigantic parade down the streets of San Francisco in honor of returning General Jonathan M. Wainwright. A similar honor befell the Fort Scott Military Police who were detailed to escort the war-prisoner general and various other returning officers, formerly imprisoned, when they landed at Hamilton Field.



The Coast Artillery School

BRIGADIER GENERAL L. B. WEEKS, *Commandant*

Seacoast Artillery played a vital part in the defense of our country in the early phases of the war. During this time it was found that the enlisted operators of Diesel-Electric power plants employed in the 6-, 12-, and 16-inch seacoast batteries were required to have a good working knowledge of the principles of Diesel engines and electric machinery.

With this requirement in mind, a course was proposed to teach enlisted men these principles. With the approval of Army Ground Forces, the first class for Diesel-Electric power plant operators commenced on 10 April 1944 and twelve classes with a total of 211 enlisted men have satisfactorily completed the course since that date.

In the beginning procurement of equipment necessary

for the course, was difficult due to war priorities. It therefore became necessary to utilize the equipment employed in the Harbor Defenses of Chesapeake Bay, for instructing students. The first six classes made use of this equipment and, despite the limited equipment in the school itself, the students received proper instruction, and were fully qualified as power plant operators.

As time went on the Diesel laboratory at the School was improved. Diesel engines of all types were procured through Army channels and through the cooperation of the Navy. In May 1944, a plant for a 12-inch Barbette Seacoast Artillery Battery, less one Diesel engine, was installed in the Diesel laboratory for the instruction of enlisted students. Today, the laboratory has a variety of two- and four-stroke cycle Diesel engines and a complete power plant.

The course consists of ten weeks of instruction. The first four weeks are devoted to basic electricity, principles of alternating and direct current machinery and laboratory work, under the supervision of Captain E. C. Brill, CAC, of the Electrical Department, Department of Engineering. The remaining six weeks of the course are devoted to principles of the Internal Combustion engines, a study of Diesel engine fundamentals, and the development of pumps, nozzles, injectors, coolers, governors, starting systems, lubrication and fuel systems employed by manufacturers of all types of modern Diesel engines, under the direction of Lieutenant A. C. Skinner, CAC, assisted by Master Ser-

geant W. A. Forsyth and Tec. Sergeant C. R. Page, CAC.

In addition, detailed instruction on the switchboards employed in 6-, 12-, and 16-inch batteries is presented, giving students ample opportunity to fully understand the electrical principles involved and switchboard operating technique.

The course as presented at the Coast Artillery School gives the student knowledge which is beneficial to the service and experience which may be utilized as a background, by the student in a further study of Diesel engines in civilian life.

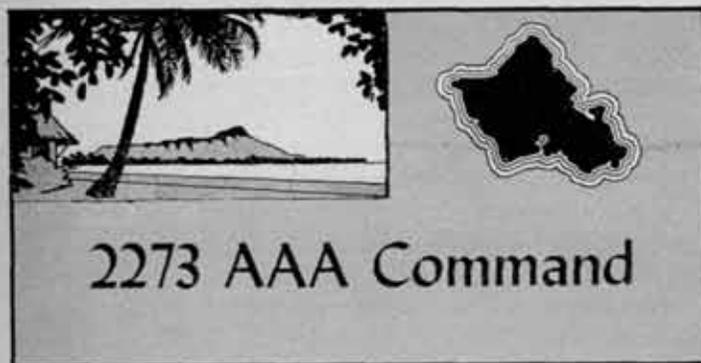
It is proposed to have a peacetime course for Regular Army personnel which at the present time is in the planning stage but will materialize in the near future.

The Department of Engineering, currently under the direction of Lt. Colonel Roger A. MacArthur, CAC, continues to train Enlisted Specialists in Diesel and Motor Maintenance, radio and harbor defense communications, searchlights, Master Gunnery, the M-8 Gun Data Computer and the gun-laying radar set AN/MPG-1. About the middle of September, the security classification was removed from existing seacoast radar equipment, and while the Special Equipment Course will retain its name, it is

no longer necessary to conceal the fact that this course trained all but a very few of the operators and first and second echelon maintenance men assigned to Harbor Defense and Mobile Seacoast radar.

On VJ-Day, the number of students from Harbor Defenses had decreased considerably, as the threat from Germany and Japan had disappeared, but the M-8 Data Computer and AN/MPG-1 classes were operating at full capacity to meet expected overseas demands. With the Japanese surrender, the requirements for graduates of these latter courses have been reduced and the Staffs and Faculties of the courses are turning much of their attention to the preparation of schedules, work sheets, lecture notes and information topics for the projected long peacetime courses.

The Department of Training Publications is completing manuscripts on FM 4-8, Coast Artillery Landward Firing; TM 4-245, Preservation and Care of Seacoast Defense Materiel; and CATB Vol. 4 No. 11, The War Games Board. CATB Vol. 4 No. 9, Results of Coast Artillery Target Practice, Calendar Year 1944, has been printed and distributed; and CATB Vol. 4 No. 10, Notes on Coast Artillery No. 3, has been approved and will be sent to the printer shortly.



BRIGADIER GENERAL W. W. IRVINE, *Commanding*

Brigadier General W. W. Irvine assumed command of the 2273d AAA Command (HAW) shortly after VJ-Day, highlighting the many changes in the command brought about by the end of the war. General Irvine previously commanded the 48th AAA Brigade when it was part of the Eastern Defense Command. More recently, he led the 70th AAA Brigade on Oahu. Both brigades are now a part of this command.

Brigadier General R. M. Perkins, the former Commanding General, returned to the mainland after continuous service on Oahu since 1939. He was with the antiaircraft on Oahu since early 1942.

An education program was initiated in September with the objective of preparing returning soldiers for civilian life by offering basic and refresher courses. More than 8,000 antiaircrafters have participated. Classes within the command are conducted on a battery or battalion level, but special courses at the Antiaircraft Artillery Training Center, located at Camp Malakole, and at the University of Hawaii

are also open to the students. Soldiers who expect to continue their schooling upon return to civilian life may obtain scholastic credit for courses completed under the Army program. Most popular subjects are blueprint reading, auto mechanics, small business management, bookkeeping and accounting, beginning radio, beginning electricity and review arithmetic.

Military training has been reduced to ten hours per week, leaving the remainder of the time for recreation and education. Nevertheless, a high degree of efficiency is being maintained throughout the change to a peacetime program. Target practices and competitive firings form an important part of the training program. New men are being assimilated into the command to replace in part the large number of veterans who are homeward bound.

The best news to many of the antiaircrafters following the war's end was the reduction of alert status and the withdrawal of units from field positions into centralized bivouacs. For at least one battery, the 53d AAA Intelligence Battery, it was the first time since December 7, 1941, that it has been possible to gather all the battery together in one location. The only battery of its kind, its members have been stationed at observation posts on strategic vantage points around Oahu on continuous alert since the war started.

Throughout the war AAA troops at the many isolated field positions on Oahu benefited from the policy followed in this command of prompt and full dissemination of information on current policy changes. The Information and Education Office broadcast a series of radio presentations over the AAAS tactical radio network, and offered explanations of rotation and furlough policies, the GI Bill of Rights, business loans, veterans' problems and other information of timely interest.

BOOK REVIEWS

The JOURNAL can supply any book in print,
at the usual Association discount.

HISTORICAL

Straight From Headquarters

GENERAL MARSHALL'S REPORT: THE WINNING OF THE WAR IN EUROPE AND THE PACIFIC. New York: Simon and Schuster, 1945. 123 Pages; Illustrated. Paper: \$1.00; Boards: \$2.50.

Since General Marshall's Biennial Report covering the period July 43 to 30 June 45 has already been discussed so completely in the daily newspapers and in the news magazines and popular magazines, much information about it in this review would be superfluous. Some surprises appear in the report; probably the most notable to Coast Artillerymen is the estimate of the German "88":

"In two of these basic items the German Army held an advantage almost to the end of the war. The first was the triple-breast 88mm rifle. . . . Even at that time (*North Africa*) the U. S. Army had a similar weapon, the 90mm rifle, with greater penetrating power but the Germans had theirs on the battlefields and in quantity, with the 'bugs' worked out in previous battle experience over a period of years. The United States forces did not have the 90mm in quantity at the time and were compelled to work out its shortcomings in opposition to a proven weapon.

"As a result the 88 was a powerful German weapon, ahead of ours in quantity and technique almost to the end of the war.

A single 88 could fire several rounds of armor-piercing shells at our tanks, then suddenly begin firing air-bursting fragmentation shells at our infantry following their tanks, and a few minutes later throw up antiaircraft fire at planes supporting the ground operation. The 90mm rifle had no such flexibility. It could not be depressed low enough for effective antitank fire. . . ."

Other surprises include: an admission that German powder was superior to ours in that it was more smokeless and flashless; the fact that the Infantry received 34.5 per cent of all decorations exclusive of the Air Medal and the Purple Heart, while the Air Forces received 34.1 per cent; and that the landings in North Africa were at least a strategical surprise in spite of Kesselring's fears that the landing would be made.

This Report should be read by every citizen. Some extracts appear on Page 34.

Best-Supplied Army

48 MILLION TONS TO EISENHOWER. By Lt. Col. Randolph Leigh. Washington: Infantry Journal, 1945. 179 Pages; Index; Illustrated. \$2.00.

To a person conditioned to eight-column adding machines, the accomplishments of the Services of Supply in the ETO are almost impossible to visualize. Not only are astronomical tonnages involved; in addition there are almost infinite numbers of man-days spent in planning, in physical labor, and in supervising and inspecting. There are no figures in this book to indicate the acre-feet of honest perspiration that helped to supply General Eisenhower's army, but that figure also must have been tremendous.

Engineers built everything from bridges to latrines; Ordnance supplied and maintained "everything that rolls, shoots, is shot, or is dropped from the air." Chemical Warfare Service was prepared not only to discourage the use of poison gas by the enemy, but to do it by giving him better than he got; in addition there were other chores like making smoke and acting as short-range artillery. Quartermaster truck companies spearheaded the army; even in front of the airborne troops in one instance; the QM supplied everything from shoestrings to mooring hawsers. The roster of the SOS goes on through the medics to the Special Services, not forgetting the Signal Corps and the I&E program. The job was bigger than any one man can grasp; it was done well.

Even the statistics in this volume read like the wording of a citation—which they are, a citation for the SOS in the ETO.

Current History

THE WAR: FIFTH YEAR. By Edgar McInnis. New York: Oxford University Press, 1945. 332 Pages; Appendix; Index; Maps. \$2.50.

In reviewing the four previous volumes of this series, the JOURNAL exhausted its supply of superlatives. This fifth volume, carrying the war to 30 September 1944, is of course a continuation of the work that has gone before. The skill of the author is such that he is able to juggle the time and distance factors of the late far-flung war in a manner that permits him to present a logical sequence of events without confusion as to chronology or area. The bare bones of what, when, where, and why, are presented objectively—but "objectively" does not pre-

clude a certain amount of necessary interpretation. Brevity is not attained by telegraphic style, but by good writing.

Professor McInnis was awarded the Governor-General's medal for the best book of non-fiction written by a Canadian during 1944, for the previous volume of the series.

* * *

First Out

HISTORY OF WORLD WAR II. By Francis Trevelyan Miller. Philadelphia: The John C. Winston Company. 937 Pages; Chronology; Illustrated. \$5.00.

In this popular history of the war, Dr. Miller seems to have won the race to offer a complete history including the surrender of the Japs. Since it is a huge volume, with hundreds of pictures on pages that are not included in the 937 noted in the heading of the review, the lack of an index is more than a minor fault. As it is presented, the book is more valuable as a narrative history than as a reference work—it could have been both.

Covering not only the battles on land and sea, the book takes in such essential sidelights, among others, as short biographies of Hitler and Mussolini, the German concentration camps, and the story of De Gaulle.

Military students, accustomed to objective histories, will not find this volume suited to their needs, but as a popular volume for those who want a record of the world's most destructive war, the book serves a definite purpose.

* * *

Last-War Snafu

AMERICAN SOLDIERS IN SIBERIA. By Sylvian G. Kindall. New York: Richard R. Smith, 1945. 251 Pages. \$2.75.

It is probable that there will never be a satisfactory answer to many of the questions about our expeditionary force to Siberia in 1918, not even to the question about why the expedition took place. General Graves, the American commander, in his book, *America's Siberian Adventure*, published in 1931, explains that even he was in the dark about the purpose of the campaign.

It is small wonder then that Colonel Kindall, then a lieutenant, found the adventure confusing. Our official enemies were our best friends; the Japs, officially our allies, were our worst enemies. With platoon-sized detachments strung out along the length of a railroad, surrounded by Reds who attacked the railroad, Whites who attacked the Reds and the Americans, and Japs who attacked the Americans and the Reds and encouraged the Whites, the lot of the lowly lieutenant was not a happy one—the more so since even Topsy'de did not really know what they were supposed to be doing there.

The climate was harsh, the people "different," and the multiplicity of enemies embarrassing, especially since the Americans knew little of the reasons why they were in Siberia. As the story ended, the Americans detested the Japs (who were inhuman and untrustworthy even then), tolerated some of the Whites and fought others, and had an ill-concealed liking for the Reds.

This book, while not well-written, tells us much of the worm's-eye view that was missing in General Graves' book. Through it all appears the sterling quality of the American soldier, who can take care of himself almost anywhere, either within the regulations or outside them, as the situation requires.

Railfan Special

RAILROAD AVENUE. By Freeman H. Hubbard. New York: Whittlesey House, 1945. 367 Pages; Index; Illustrated. \$3.75.

If there is a man past thirty years of age whose pulse does not quicken at the sight of a locomotive trailing a plume of smoke, he must be a very unsentimental person indeed. The same urge that causes fathers to buy their sons (and daughters) electric train sets, and that causes people to invent business in distant cities, will make this book welcome in many men's libraries.

Mr. Hubbard, editor of *Railroad Magazine*, has collected true stories and legends of railroading since he was very young and this book is the cream of his crop. The true stories of Casey Jones, the wreck of the '97, the theft of the *General* by Northern spies during the Civil War, some of the great rail disasters, forest fires, famous runs, and many other exciting tales are interspersed with homely little accounts of railroad dog hoboos, and railroad poetry.

The James Brothers' escapades and those of other celebrated train robbers are here side by side with sentimental little stories of trackside graves. Kate Shelley, the little girl whose courage and determination saved a passenger train from certain destruction, provides a beautiful change of pace from the story of "The Crane with the Broken Neck," the watermark that is said to have been a secret blackball in the careers of many railroad men. A glossary of railroad slang makes Army talk seem pale by comparison.

* * *

Czar's Horsemen

THE COSSACKS. By Maurice Hindus. New York: Doubleday, Doran and Company, 1945. 321 Pages. \$3.00.

The Cossacks, those famed horsemen whose fighting qualities have been legend for centuries, have faced many changes since the days of the Czar. Their brawling, free living, free loving, and much of their distinctive way of life has been lost under the Soviets—but against the Germans they proved that the Cossack training and the Cossack way of life still has its place in a military force. As guerrilla fighters, as cavalry in shock charges, and as scouts, the Cossacks fought bravely and effectively. In at least one instance they destroyed a German armored column superior in strength—horses against tanks. There was nothing like a horse-to-tank charge; brains, courage, and speed did the job.

The Cossacks in the old days, centuries ago, lived to fight. If there was no formal foe to engage, they fought their neighbors. In quiet periods they fought among themselves. The Poles, the Turks, and the Russians themselves felt the blow from these free and wild warriors. Twice Cossack-led revolts almost overthrew the Russian government. Later the Cossacks became the paid mercenaries of the Czar, inflicting his will upon the rest of Russia. It is this period of the Cossacks' history that is best known to Americans, but it is not a fair sample of their story.

Under the Soviets the Cossacks have become a farming people, and good citizens, as well as superb fighters. They live in a rich section of the country, they produce the things Russia needs, and they live well in comparison to the rest of the countrymen. The war shook their homeland and destroyed much of it, but they are recovering and their spirit is as gay as ever. They have come a long way from the days of the eastern Polish raids.

For Pre-Draft-Agers

YELLOWSTONE SCOUT. By William Marshall Rush. New York: Longmans, Green & Co., 1945. 184 Pages. \$2.00.

KEEP MY FLAG FLYING. By Mary Tarver Carroll. New York: Longmans, Green & Co., 1945. 281 Pages. \$2.50.

SQUARE SAILS AND SPICE ISLANDS. By Laura Long. New York: Longmans, Green & Co., 1945. 247 Pages. \$2.50.

Yellowstone Scout is that perfect book for older boys, the one that combines adventure, lessons in character, historical information, and propaganda for the preservation of forests and game—all without a preachy phrase or coy sentiment. Kean, the scout, preserves the land, the forests, and the game of Yellowstone Park from a varied assortment of evildoers including poachers, railroad magnates, squatters, and desperadoes. With his companion, Smiley Cooper, Kean has adventures that prove how artificial are the nightmare deeds of comic-book heroes.

Keep My Flag Flying is a fictionalized biography of Daniel Webster, an American whose life and accomplishments lend themselves to this sort of biographical treatment. The author writes down to her readers in a fashion that is a bit irritating to adults and older children, but that might be satisfactory to those in the early teens. Preachy in spots, the book still apparently does no harm to the Daniel Webster of more formal history.

Square Sails and Spice Islands is another biography with fictional treatment, this time a dual biography of Oliver Hazard Perry, the hero of Lake Erie, and Matthew Calbraith Perry, who first opened the ports of Japan to American ships—which may or may not have been a good idea. Matthew's more plodding excellence did not begin to be recognized before Oliver's death, but both made their mark in the story of our Navy. The high level of Laura Long's writing is such that adults will not find the book poor reading, and older children will enjoy it the more.

PERSONAL EXPERIENCES

Desert Dash

THE GOLDEN CARPET. By Somerset de Chair. New York: Harcourt, Brace and Company, 1945. 237 Pages; Index; Illustrated. \$3.50.

The book jacket compares this book with *Revolt in the Desert*, but the comparison is fair neither to de Chair nor Lawrence. *The Golden Carpet* can stand on its own, and the likeness between the two is merely the fact that both concern fighting in the desert.

De Chair was Intelligence Officer for *Kingcol*, the column (about British brigade size) that dashed from Palestine to Baghdad in 1941 to quell a German-inspired revolt against the British in Iraq. Commanded by Brigadier Joe Kingston, the column was a motley assemblage of armored and other units, hastily brought together, and started across the desert with no support and little else. An Indian division, supposed to support the operation from another direction, never did seem to start, and came into the picture after *Kingcol* had accepted the surrender of the Iraqi dissidents.

After settling matters in Baghdad, the column started for Damascus and Palmyra for a tangle with the Vichy French. The French had air support, and plastered *Kingcol* unmercifully.

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fully. De Chair was wounded by one French plane while tempting to take pictures of it, and then wounded again another while in an ambulance.

The book is delightfully written. The snafu that accompanied a hastily formed unit heading into the unknown without adequate intelligence and support from the rear, the bickering between the Regulars and the amateur soldiers (de Chair was an amateur), the courage and ability to do much with little that characterize the British soldier, and the adventure and strangeness of the desert are handled skillfully by the author who takes it all without bitterness, and with pride in his unit.

The Brigade Major, a Regular, insisted that de Chair's chief duty was to remain at Headquarters and "be available." De Chair had different ideas; he felt that the Intelligence Office should go out and collect intelligence. The Brigadier seemed to side with the Brigade Major, but was pleased on the few occasions when de Chair's information was helpful—information which he collected almost in defiance of the Brigade Major.

The book describes an interesting military operation, and is written by a participant in the operation who knows how to write.

Bougainville

A RIBBON AND A STAR. By John Monks, Jr.; Illustrated by John Falter. New York: Henry Holt & Co., Inc., 1945. 242 Pages. \$2.75.

It is easy to forget that a battle or a campaign is not a sweep of armies across a section of terrain, but that it is a multiplicity of individual actions; one American shoots one Jap, or one German knifes one American, or one artillery shell throws one fragment into one man's kidney. In this story of the Third Marine Regiment at Bougainville, Monks writes only incidentally about units as large as battalions; this is the story of the individual man—the man who opened up on the Jap chow line, or the man who was so surprised to see a Jap in front of a foxhole he forgot to fire, and begged the mystified Jap to go away; or the man who got the sniper; or any of the two thousand sand men who make up a regiment.

It is a literary craftsmanship that knits these individual actions into a gripping story of the toughest kind of action, but we must admit that Monks had good material to work with. The Marines are good fighters in anybody's war; Monks' thinly veiled contempt for the Army does not detract from the story the book tells of how ground was taken and how Japs were killed on Bougainville. The Marines took their losses, but they killed Japs and gained ground. And individual men did it, in the way Monks tells it. Some men planned, others led, some did both, but Monks never lets us forget that the Regiment is a group of individuals.

Supplies for China

THE BUILDING OF THE BURMA ROAD. By Tan Pei Ying. New York: Whittlesey House, 1945. 200 Pages; Illustrated. \$2.00.

With almost no mechanical equipment the Chinese built the Burma Road through some of the most difficult terrain in the world. What the Chinese lacked in machinery and resources they made up in manpower, courage, and willingness. Using black powder for blasting, baskets for moving earth, hammers for rock-crushers; training Dark-Age people in group sanitation; the use of tools, and the need for cooperation; and fighting

from the Japanese, death from disease, and death from being an engineering miracle without proper equipment; the road was built.

political organization of China, the economic factors, backwardness of the people in the vicinity of the road, the pressing imminence of the Japanese threat, and the lack of engineers were definite obstacles. Most of the problems solved by the mass use of manpower (including woman- and baby-power), and by ingenious expedients. Pumps and pipelines were made of bamboo; local gods were invoked to control the fears of the natives; ferries capable of handling several trucks at once were made from discarded fuel

The Burma Road served as China's last supply route until the route over the Hump was opened—the Ledo Road, built as a feeder to the then-disrupted Burma Road, was in operation a short while before the Jap surrender. The Road served its purpose to a great degree, and will remain a monument to those who triumphed over almost insurmountable obstacles.

Chaplains at Work

CHAPLAINS OF GOD. By Christopher Cross, with Maj. Gen. W. R. Arnold. New York: E. P. Dutton & Co., 1945. 230 Pages; Index; Illustrated. \$2.75.

In the hundreds of little stories of chaplains in action that appear in this book, the reviewer was most impressed with the ease with which denominational lines were crossed by both the chaplains and the troops. Rabbis held Easter services for Catholics, Protestants held Rosh Hashana services for Jews, and Catholics "doubled" all around the lot. It is hard to believe that the worshipers at these services are the same Americans, or the sons and brothers of the same Americans, who sneer at each other's faith back home. Perhaps a new feeling of tolerance will be one of the fruits of the war.

Chaplains' official duties were few; but not many, if any, adhered to the letter of their duties. The chaplain was often the busiest man in the unit, acting as welfare officer, "con- veyer," unofficial ambassador, first-aid man, and of course, always providing a convenient shoulder to weep upon. They took many casualties, some in situations that did not require their presence for any reason except that the chaplains felt they should be close to their men.

The book is full of amusing anecdotes, like that of the young Jewish soldier offering the Methodist chaplain a post in a synagogue in the Bronx if the Methodist Church did not "treat him right" after the war; or that of the slightly "potted" group singing Christmas carols to a Jewish colonel early in December, in the presence of a priest.

Behind the Wire

BEHIND THE WIRE. By Guy Morgan. New York: Whittlesey House, 1945. 226 Pages; Illustrated. \$2.50.

Starved and neglected by the Italians more through inefficiency than malice, and then imprisoned by the Germans much more efficiently but no more happily, Guy Morgan endured his captivity intelligently. A British naval reservist captured while leading partisans behind the German lines, Morgan draws a different picture of prison-camp life than we have had before. Boredom seemed not to bother him too much; Allies prisoners are very good at organizing self-contained communities to take up the slack in a prisoner's time. The Red Cross food packages, which seemed to be received regularly, allayed the

ATOMIC ENERGY for MILITARY PURPOSES

By H. D. SMYTH

Consultant, Manhattan Engineer District

(Prepared at the Request of Maj. Gen. L. R. Groves, U. S. Army)

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Histories and Insignia of the . . .

FIGHTING DIVISIONS

By

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and

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✓ ✓ ✓

An authentic compilation of short histories of the fighting divisions of World War II, expertly told by two competent soldier-authors. No division, whether infantry, cavalry or armored, is greater than the men who make it up. The short histories in this volume are the stories, not merely of units, but of the hundreds of thousands of foot soldiers to whom a casually named town may have been a week of agony. Many men have worn these division insignia, some only briefly, some for months or years. Whoever they are, and wherever they are, they will always be a part of the divisions with which they have fought.

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✓ ✓ ✓

The Coast Artillery Journal

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worst of the hunger—but it would have been horrible without them.

The guards became more human as the light of German success paled; some of the guards were even decent. Morgan's main indictment of the Germans was for just plain blood-headedness—they could not understand the fact that people in other countries were not driven sheep, stunned by the Hitler myth.

The book is as unbiased and dispassionate as a story of the sort could possibly be. His feeling toward the Germans was more of contempt than hatred. POW life was not attractive, but neither was it the hell others found it.

✓ ✓ ✓

Guerrilla Organizer

RENDEZVOUS BY SUBMARINE. By Travis Ingham. New York: Doubleday, Doran and Company, 1945. 248 Pages; Index. \$2.50.

There have been several books lately by and about Americans who helped to lead the guerrilla movement in the Philippines during the Jap occupation. Somebody supplied the guerrillas with information and matériel, and somebody acted as General MacArthur's representative in controlling the guerrillas. This is the story of the man who traveled back and forth from SWPA Headquarters to the Islands, who organized and scattered guerrilla units into cooperating units of a huge underground army, and who supplied the irregulars with radios, arms, comforts, and direction.

Commander Charles Parsons, a Reserve naval officer who had lived in the Philippines for twenty years, was the "somebody" who was the link between the Islands and MacArthur. Traveling by submarine to the different islands, and by foot when he got safely ashore, Parsons dodged Japanese, reconciled guerrilla factions, organized and equipped the coast-watchers, radio stations, helped evacuate Allied civilians, and in general directed the guerrilla movement so that its efforts were spent in a way that aided the invasion of the Philippines. Unarmed, often posing as a native and getting away with it, Parsons had many narrow escapes, even a failure or two in his missions, but the results of his work were evident once the landings were made.

The author makes us proud both of Parsons and the other Americans who worked with the Filipinos, and the Filipinos themselves, who risked their lives, the lives of their families and their property, for the ultimate goal of freedom from the Japs.

✓ ✓ ✓

TEXTS

Topic Number 1

ATOMIC ENERGY FOR MILITARY PURPOSES. By Henry D. Smyth. Princeton: Princeton University Press, 1945. 254 Pages; Index; Illustrated. \$1.00.

ATOMIC ENERGY IN THE COMING ERA. By David Dietz. New York: Dodd, Mead & Company, 1945. 180 Pages; Illustrated. \$2.00.

The Smyth Report, the official report on the development of the atomic bomb, contains (in the words of General Groves who headed the project) "All pertinent scientific information which can be released to the public without violating the need of national security . . ." The book was written by a scientist for scientists, and is authoritative, complete, and well organized—but by no means light reading.

Dietz's book, on the other hand, was written for the layman in popular style. It details the history of atomic research from the days of the early Greeks, mentions those whose discoveries aided in the history-long search for a means of transmuting elements (which incidentally, cause the release of energy), and explains the broad theories and problems of atomic fission in language that the layman can understand. There is much opinion and other editorial-type material in this book as well as prophecies of future uses of our new found source of energy. Dietz does not overlook the opportunity to encourage the reader that the discovery is a mixed blessing, if we choose to use it in war, rather than in peace.

* * *

U N O

UNITED NATIONS GOVERNMENT. By Amos J. Peaslee. New York: G. P. Putnam's Sons, 1945. 172 Pages; Index. \$2.00.

The author, a Coast Guard Commander in the present war, presided at the recent United Nations Conference at San Francisco as the representative of the American Society of International Law—this fact indicates his familiarity with the subject of international coöperation for peace.

In this book the author analyzes the United Nations Charter, describes the San Francisco Conference from the standpoint of an informed observer who wanted to produce results, and presents a summary of the present status of international organization.

Mr. Peaslee wants more than a United Nations Government, he wants one that will work. He believes that it is possible to have such a Government, and that the playing of power politics will continue to produce wars and injustices.

* * *

It's Possible

TALKING RUSSIAN BEFORE YOU KNOW IT. By Morris H. Swadesh. New York: Henry Holt and Company, 1945. 134 Pages; Illustrated. \$1.75.

Americans who have learned to stumble their way around in such foreign languages as French, German, Spanish, and Italian throw up their hands in horror at the idea of learning Russian—probably because the alphabet is so different. There are six more letters in the Russian alphabet than in the English, but they are very useful letters and it is doubtful that the Russians would want to change at this late date.

Mr. Swadesh has based his book on the likeness of Russian to English, rather than on the differences between them. By teaching pronunciation, then a few words, then more pronunciation and the use of the Russian letters, then a few more words, it is easy to understand how the student's confidence can be built up to the point where he is soon speaking Russian—in elementary fashion to be sure, but still speaking Russian. The style of the book is faintly reminiscent of the familiar Army Language Guides, in style and format, but the teaching method has some important differences.

* * *

The Times

THE NEWSPAPER: ITS MAKING AND ITS MEANING. By Members of the Staff of The New York Times. New York: Charles Scribner's Sons, 1945. 186 Pages. \$2.00.

The Times has an enviable reputation among the newspapers of this country for integrity, objectivity, accuracy, and general

Up Front

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Soldiers the world over will welcome the opportunity to have the best of Bill Mauldin's cartoons collected under one cover. Those who chuckled with Mauldin through the mud and misery of the Italian campaign will be doubly interested. An agreeable surprise to almost everyone is the accompanying 30,000 words of text, carrying the same biting humor, the same clear insight into what makes a Combat Infantryman tick, which characterize the drawings. Ernie Pyle called Mauldin "the finest cartoonist the war has produced." There are not many who will dispute Ernie's appraisal.

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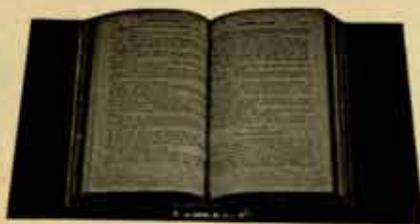
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competence. The executive members of its staff are recognized leaders in their respective fields; one can understand why one would read this series of lectures to the school teachers of the City of New York. From the Publisher to the Drama Critic, the two staff members are unanimous in explaining what makes a good newspaper, as differentiated from an ordinary newspaper.

The good newspaper keeps editorial opinion and bias on the editorial page, news on the news pages; and "background" material, on whatever page, must be plainly labeled as such. The criterion of publication is not who will be hurt, or who wants an item published, but merely, is it newsworthy and in the public interest? This becomes a matter of interpretation. Even *The Times* has been wrong in its evaluation and interpretation.

The book tells how news is gathered, how it is presented, how it is evaluated—and why integrity and objectivity are so important (and so often missing). Readers of some of our more biased newspapers would profit from reading this book.

A Man's Castle

HOW TO MAKE MONEY IN REAL ESTATE. By Stanley L. McMichael. New York: Prentice-Hall, 1945. 323 Pages; Appendix; Tables; Index. \$5.00.

As many have learned to the damage of their bank accounts, there are numerous pitfalls in dealing in real estate—even in such a simple transaction as buying a house to live in. Those who intend to make money in real estate would do well to learn to recognize the booby traps and obstacles before they begin to sign papers or checks.

Mr. McMichael explains how the real estate business operates; the uninformed will be amazed as he unfolds the details of appraising, of title troubles, of escrowing deals, of gauging trends in growth, of handling insurance on properties that are changing hands, of "trades," and of financing, to name just a few of the points touched upon. The babe-in-the-woods who moves into real estate investments with the same carefree abandonment that he enters a night club is due for some sad experiences. Even lending your money on a mortgage or deed of trust can be fraught with peril.

The author insists that anyone who has average intelligence, an average education, and who will work, can make money in real estate—if he learns the ins and outs of the business before he leaps in with his own money. Mr. McMichael is almost amusing as he walks the tightrope while insisting that most real estate brokers are reputable and honest people, but warning that the buyer must keep his eyes open at all times because there is an excellent opportunity, in almost any deal, for the unwary to find trouble.

This book will be valuable, not only for the person who has ideas of investing or speculating in real estate, but for the prospective home-buyer as well. A few wrong moves in buying your own home can wipe out your savings or mortgage your future, or both. The author does not discourage the person who intends to deal in real estate, but he does impress the fact that it is not a "game," but a business.

Seagoing Science

SCIENCE OF THE SEVEN SEAS. By Henry Stommel. New York: Cornell Maritime Press, 1945. 199 Pages; Bibliography; Index; Illustrated. \$2.50.

Mr. Stommel's book tells in simple language such things as how waves are formed, why icebergs are free from salt, why

islands have disappeared, the effect of the Kennelly-side layer, what a coral atoll is, what causes mirages, and hundreds of other questions that might occur to the reader at sea. The explanations are so easy to understand that in many cases it appears that the author is "writing down" to the reader; the illustrations are particularly well done. The book is divided into three large sections: The Sea, the Sky, and Life.

* * *

Hidden Aches

IS IT EASY. By Arthur Guy Mathews. New York: Sheridan House, 1945. 239 Pages. Illustrated. \$2.98.

The tragedy of the neurasthenic is that although his illnesses are terribly real to him, they are often amusing to others because "there is really nothing the matter with him." A nervous disorder is much more difficult to cure than is a physical disorder, because physical troubles may be taken care of with medicines or surgery. Nervous disorders, since they exist in the mind of the person, require much more subtle treatment, and much more effort on the part of the patient. Since qualified practitioners are scarce, and "reasonable" nervous patients are scarce, cures are difficult.

In this book Mr. Mathews attempts to describe what nervousness is, how it is caused, and how to get relief. There is often a conflict in the emotional life of the patient that takes outlet in physical symptoms because the true difficulty is unconsciously hidden. When the conflict can be found and indicated, physical symptoms often disappear in short order. Good living habits, too, help the nervous system resist the effects of conflicts.

* * *

Log Tables

TABLE OF ARC SIN X. Prepared by the Mathematical Tables Project. New York: Columbia University Press, 1945. 121 Pages. \$3.50.

TABLES OF ASSOCIATED LEGENDRE FUNCTIONS. Prepared by the Mathematical Tables Project. New York: Columbia University Press, 1945. 303 Pages. \$5.00.

These volumes were prepared by a staff under the direction of Dr. Arnold N. Lowan. The work was sponsored by the National Bureau of Standards, was begun under the WPA, and completed with the support of the Office of Scientific Research and Development.

* * *

MISCELLANEOUS

Nasty Nazi

LITTLE SUPERMAN. By Heinrich Mann. New York: Creative Age Press, 1945. 317 Pages. \$2.75.

Almost more interesting than the book itself is the fact that *Little Superman* was written by a German, in Germany, in 1911 under the title *The Patrioteer*. It is not hard to see why the man who could write a book like this could not live in Germany under a Nazi regime; Mann became an exile in 1933.

Diederich Hessling would have made a perfect Nazi. Oppressed by a tyrant father and molded by the German school system, he learned early in life that Power is a fine thing—for those who have it. Parlaying his slightly elevated position in life which came because his father was a small manufacturer,

Hessling pulled himself up a few notches in the hierarchy of power by ruthlessly stamping on those less powerful, and by fawning on those slightly more powerful. Where the normal man would have been tortured by conscience, Hessling could always salve any such feelings by disguising his actions, even to himself, as patriotism of the peculiar German type.

It was patriotic, in the German sense, to remove political rivals by goading them into statements that might be considered disloyal to the brilliant young Emperor-Kaiser Bill, to us. It was patriotic to oppress his workmen and to pry into their private affairs, because the Emperor wanted efficient workers who knew their places. It was patriotic to marry for money, so he could use the money for patriotic purposes—that is, to make more money for the greater glory of the new Germany that was to be built on blood and iron.

Diederich Hessling does not make a pretty picture; but neither do his logical successors, the Supermen of the Nazi regime.

* * *

Lariar's Latest

BEST CARTOONS OF THE YEAR 1945. Edited by Lawrence Lariar. New York: Crown Publishers, 1945. 128 Pages. \$2.00.

For the past few years we have been reviewing each new edition of *Best Cartoons*. There comes a time when a reviewer runs out of bright new things to say, so we'll leave it like this: if you like comic cartoon compilations, there are many worse than this, few better; and if you don't enjoy more than half of the gags in this volume, it's probably your fault.

* * *

Call of the Wild

THE WOLF. By Sgt. Leonard Sansone. New York: United Publishers, 1945. \$1.00.

If any JOURNAL readers are not familiar with Sgt. Sansone's amorous cartoon character, they are not even trying. Every camp newspaper and many other army publications have published these cartoons of the soldier with the wolf's head whose main interest is "Topic Number One," and *Life* magazine ran a feature article about the cartoonist and his indefatigable character. Anyhow, here are eighty-eight of the cartoons, with a foreword by Milton Caniff, who draws a luscious feminine figure himself.

* * *

No Rhyme or Meter

WHO'S PAYING FOR THIS CAB? By Alan Dunn. New York: Simon and Schuster, 1945. \$2.50.

We still don't know who's paying for the cab, but we do know that cartoon fans will pay for the book and like it. All of these cartoons have appeared in the *New Yorker*, and with good reason. There is a delightful, airy quality to the humor that makes laughter effortless. A few of the older gags are included, such as the man repairing a tow-truck that is towing a tow-truck, and the firemen arguing about who is to smash the veddy veddy Victorian cabinet, but even Dunn's treatment of these makes the lapses forgivable. The soldier testing the water with his finger before leaving the landing craft, and the shoemaker's disgust at what passes for a woman's shoe illustrate better than any of the others the basis of Dunn's appeal—it isn't so much the gag or the situation, but how the artist makes use of them.

Coast Artillery Journal Index

Volume LXXXVIII, 1945

Jan.-Feb., 1—March-April, 2—May-June, 3—July-Aug., 4—Sept.-Oct., 5—Nov.-Dec., 6
2-22 Indicates Page 22, March-April Issue.

AUTHORS

Aycock, Frank B., Jr.	4-52	Martin, A. E.	3-2
Badger, George M.	5-11	Mazzei, John C.	1-14, 2-30, 3-1
Barker, M. E.	1- 8	Meigs, George A.	5-1
Bennett, Rowland K.	6-43	Mellnik, Stephen M.	2-
Bleier, Richard M.	3-37	Merriam, K. G.	4-
Blotcky, Myron H.	2-52	Meyer, G. Ralph	4-
Boughton, Roland W.	1-38	Michael, Donald T.	6-4
Bryan, Oliver J.	1-42	Miller, Charles B.	3-
Caulk, James D., Jr.	6-42	Morozov, Vasili	2-5
Clemens, George R.	1-25	Moses, Frank B.	2-12
Coiner, John R.	6-23	Nanson, M. R-C.	6-
Combe, W. A.	6-50	Nikoforov, N.	1-2
Conlin, Paul A.	2-12	Orman, Leonard M.	2-22, 5-40, 5-6
Dallmeyer, A. R., Jr.	5- 2	Patterson, C. G.	6-4
Dalziel, Lance	2-32	Peyer, Gustave A., Jr.	3-3
Daniels, Harold R.	2-27	Philbrick, Edwin W., Jr.	3-22
Dayharsh, Theodore J.	5-39	Prugh, George S., Jr.	1-3
Despain, C. W.	6-26	Roicki, Stanley A.	4-51
Ducey, D. L.	3-28	Schomborg, Kenneth	3-2
Dudichum, George A.	3-55	Schwager, Oscar	3-53
Dussault, Horace J.	6-28	Sheldon, Paul W.	5-32
Eddy, Archibald D.	3-43	Slowter, Edward E.	2-4
Eddy, Welles	5-41	Solomon, Frank E.	5-27
Edgar, William, Jr.	5- 8	Stilwell, J. W.	2-6
Engel, Russ	1-46	Stroud, Roger C.	6-2
Fass, Martin	3-13	Talbott, Don C.	6-26
Fitz-Richard, Arthur C.	2-23	Taylor, James A., Jr.	3-36
Fredin, Conrad M.	5-21	Thompson, M. R.	5-51, 6-56
Gregory, S. S., Jr.	5-56	Thornton, John	6-11
Hardman, Thomas C.	4-20	Treat, C. H.	3-51
Havighorst, Russel K.	6-48	Turner, E. Hamlin	3-20
Hawkins, Hamilton S.	2-44	Tyson, Warren G., Jr.	4-55
Heini, R. D., Jr.	6-53	Vaughan, George C.	1-53
Henagan, John C.	3- 2	Vendetti, E. G.	4-43
Hofstatter, Frank W.	6- 8	Waterman, Bernard S.	1-19, 3-46
Holden, Benedict M.	6-41	Watkins, E. S.	5-43
Hungerford, E. V., Jr.	1-63	Worth, John	2-29
Jemison, John H.	3-30		
Johnson, William B.	6-50		

TITLES

A

Kingman, John J.	4-23	AA Defense of Remagen Bridgehead, <i>Turner</i>	3-20
Kintner, William R.	1-22, 3-17	AA Weapons Support the Infantry, <i>Philbrick</i>	3-22
Knollman, Anthony B.	6-58	AAA In Ground Rôles	1- 2
Koskela, Martin E.	1-16	AAA Notes, ETO	4-55, 5-60
Krzton, William J.	4-35	AAA on the Villa Verde Trail, <i>McMabon</i>	6-17
Light, Everett D.	1-58	AAA Planning for the Invasion of Southern France, <i>Gregory</i>	5-56
Linderman, John C.	1-56	AAA Planning for Waterborne Invasion, <i>Thompson</i>	5-51
Lutes, LeRoy	2-67	AAA vs. the Luftwaffe: 1 January 1945	5-47
McCormick, John P.	1-18	AAA With the First Army	2-25
McKinstry, William B., Jr.	2-50	AAA With the 4th Armored Division, <i>Sheldon</i>	5-32
McMahon, Perry Reed	4-4, 5-34, 6-17	Ack-Ack Turkey Shoot, <i>Thornton</i>	6-11
		Alternate Methods of Fire Control for AMTB Batteries, <i>Peyer</i>	3-39

- Aircraft Artillery Training under Combat Conditions, *Michael and Holden* 6-41
- Aircraft Operations in the CBI Theater, *Meigs* 5-14
- Bank Mission, *Roicki* 4-31
- Antwerp X, *Dallmeyer* 5-2
- Coast Garrison Force, *Orman* 2-22
- Special Moonlight 3-16
- Battalion with an Infantry Division, *Miller* 3-8
- Ground Targets in France, *Henagan* 3-2
- in Europe, *Kintner* 3-17
- Coast Defenses, *Pictures* 2-42
- Depth Determination in the Southern Hemisphere 2-55
- Depth for 40mm Guns, *Caulk* 6-42
- B**
- Battery B's Revenge 4-32
- Battle of Sung Shan Mountain, *Hofstatter* 6-8
- Bombardment of Japan, *Dayharsh* 5-39
- Book Reviews 1-86, 2-89, 3-87, 4-88, 5-88, 6-83
- British View of the American Soldier 1-44
- C**
- Battery Fights to the Last Gun, *Fredin* 5-21
- Coast Artillery Board Notes 1-64, 2-64, 3-67, 4-71, 5-76
- Coast Artillery Citations and Commendations 1-60, 2-62, 3-63, 4-67, 5-72, 6-62
- Coast Artillery Report from Eniwetok, *McCormick* 1-18
- Combating the Universal Enemy—Disease, *Orman* 5-40
- Combined Correction Chart, *Orman* 5-69
- Convoy Interval Guide, *Dudichum* 3-55
- Corregidor Recaptured, *Pictures* 2-18
- CXP Night Drill, *Prugh* 1-30
- D**
- Demonstration of Air Defense at the AAA School, *Eddy* 3-43
- Director M5A2, *McKintiry* 2-50
- Drop on Corregidor, *Hardman* 4-20
- E**
- Electronic Gunsight 1-53
- Employment of Half-Track Multiple 50s, *Clemens* 1-25
- Enemy Seeks our Lights, The, *Stroud* 6-21
- Everything but Combat, *Schomborg* 3-24
- Excerpts from General Marshall's Report 6-34
- F**
- Field Artillery Firing on Waterborne Targets, *Linderman* 1-56
- Fifteen Days on the Griddle 4-42
- First Aid to the Infantry, *Mazzei* 1-14
- First Army's AAA, The, *Patterson* 6-59
- First Requirement of a Citizen Army, The, *Hawkins* 2-44
- For the Long Haul, *Thompson* 6-56
- Forty-eight Hours with an Airborne Battery, *Corner* 6-23
- From Connecticut to the Philippines, *Eddy* 5-41
- Future of the Coast Artillery Corps, The, *Meyer* 4-2
- G**
- Genesis of Fort Drum, *Kingman* 4-23
- Glare Barrage, The, *Havighorst* 6-48
- Graphic Method of AA Analysis, A, *Treat* 3-51
- Ground Defense Plan: Antwerp X, *Edgar* 5-8
- Ground Fire Mission with Task Force D, *Solomon* 5-27
- H**
- Heligoland, *Nanson* 6-2
- Hitting Ground Targets, *Blotcky* 2-52
- How the Japs Took Corregidor, *Mellnik* 2-2
- I**
- I Have Returned, *Moses and Conlin* 2-12
- Incredible Patrol, The, *Engel* 1-46
- In Front of the Infantry, *Kintner* 1-22
- Inner Ring, The, *Pass* 3-13
- J**
- Jap Barges at Peleliu, *Worth* 2-29
- Jap Paratroop Attack on Leyte 6-24
- Journal Newsreel, *Pictures* 1-54
- K**
- Keep 'Em Firing, *Bleier* 3-37
- L**
- Last Message From Corregidor 2-11
- Let's Get Acquainted, *Boughton* 1-38
- Light on the Searchlights, *Daniels* 2-27
- Little Known Facts About Tracking Rates, *Merriam* 4-48
- Local Defense for Seacoast Artillery, *Bennett* 6-43
- M**
- M-16's Spearhead Cagayan Drive, *Despain and Talbott* 6-26
- Morale Situation of an Overseas AW Battery, The, *Koskela* 1-16
- More Aid to the Infantry, *Mazzei* 3-10
- Muzzle Brake, The, *Schwager* 3-32
- N**
- News and Comment 1-66, 2-66, 3-70, 4-74, 5-78, 6-68
- News Letters 1-77, 2-78, 3-83, 4-82, 5-84, 6-80
- Normandy Fortifications 2-37
- O**
- One AA Man's Infantry Experience, *Vendetti* 4-41
- One Round—One Plane, *Knollman* 6-58
- Orientation Data for Trial Shot Problems, *Light* 1-58
- Overloading?, *Johnson and Combe* 6-50
- P**
- Pictures 1-45, 1-54, 2-18, 2-42
- R**
- Retaking the Harbor Defenses of Manila and Subic Bays, *McMabon* 4-4
- S**
- Seacoast Artillery Test Section Notes 6-66
- Seacoast Methods with the FA Trainer M5, *Vaughan* 1-51
- Searchlights on Luzon, *Dussault* 6-28
- Secret Phase of the Flying Bomb, *Watkins* 5-43
- Secrets of the Sea Forts, *Dalziel* 2-32
- Service with Colored AAA Troops in New Guinea, *Jemison and Taylor* 3-30
- Smoke in Defense of a Vital Port, *Barker* 1-8
- Some Secondary Missions, *Mazzei* 2-30
- Some Sidelights on Antwerp X, *Badger* 5-11
- Soviet Artillery in Battle, *Nikoforov* 1-28
- T**
- Targets of Opportunity, *Fitz-Richard* 2-23
- Target Practice Analyzer, M-1, The, *Heiml* 6-53
- Their Own Medicine, *Pictures* 1-45
- They Were There! 6-38
- Tracking with the M5 Director, *Aycock* 4-52
- Training Chinese Troops, *Ducey* 3-28
- Training of Red Army Officers, *Morozov* 2-54
- Trends in Antiaircraft Artillery and Coast Artillery and Coast Artillery Organization and Equipment, *Hungerford* 1-63
- Triple Threat Troops, *Martin* 5-29
- Turnabout, *Waterman* 1-19
- Turning on the Heat 4-45
- U**
- Universal Trial Shot Chart for AAA, *Slawter* 2-46
- V**
- V-2, *Pictures* 1-43
- W**
- Weather vs. Supply Lines 5-19
- Webfoot Artillery, *Waterman* 3-46
- Weissight Training Aids, *Bryan* 1-42
- 90mm Guns at Balete Pass, *McMabon* 5-34
- 90mm Sniper, The 4-27
- 105th AAA Battalion, The 5-50
- 225th Searchlight Battalion 6-13
- 231st Searchlight Battalion 6-31
- 863d AAA AW Bn in the Battle of the Bulge, *Krzon and Tyson* 4-35

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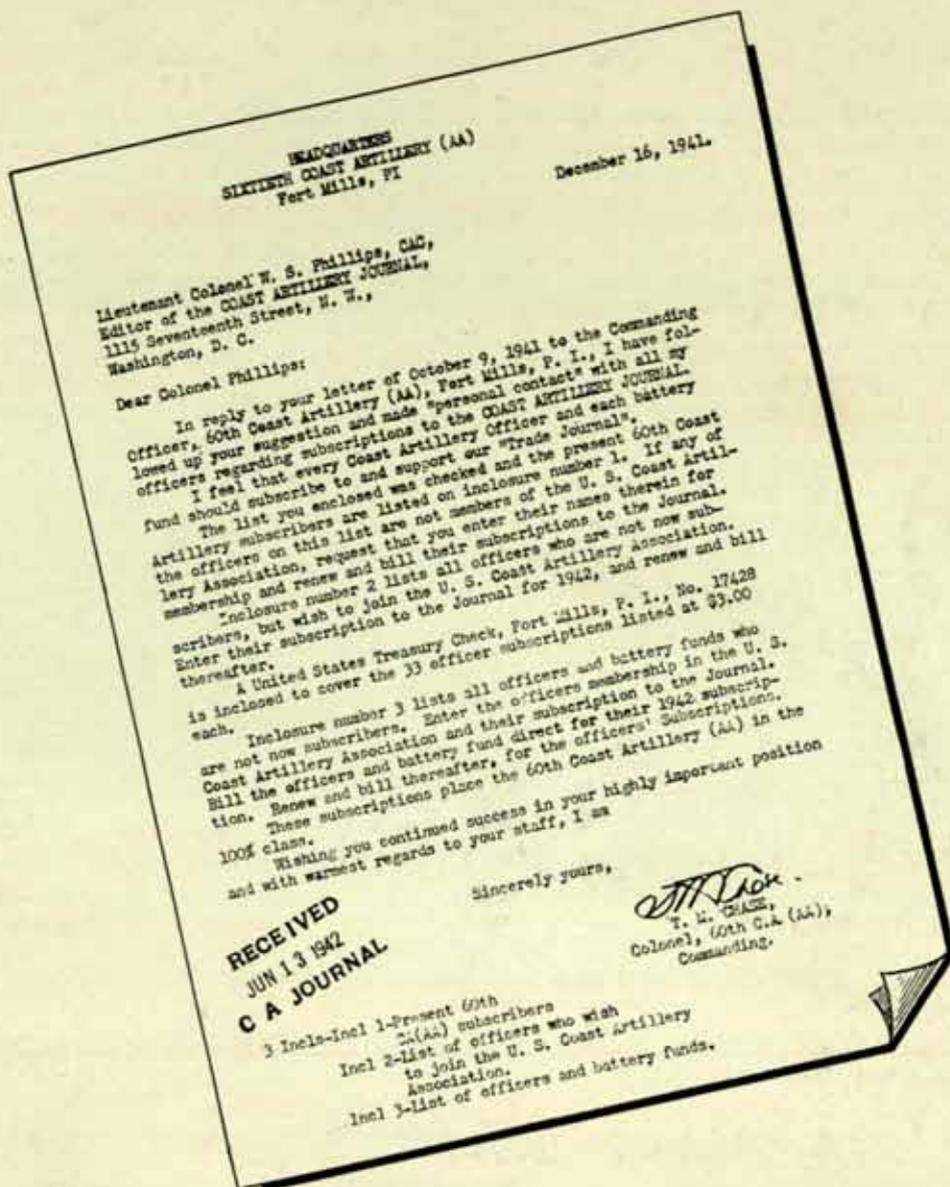
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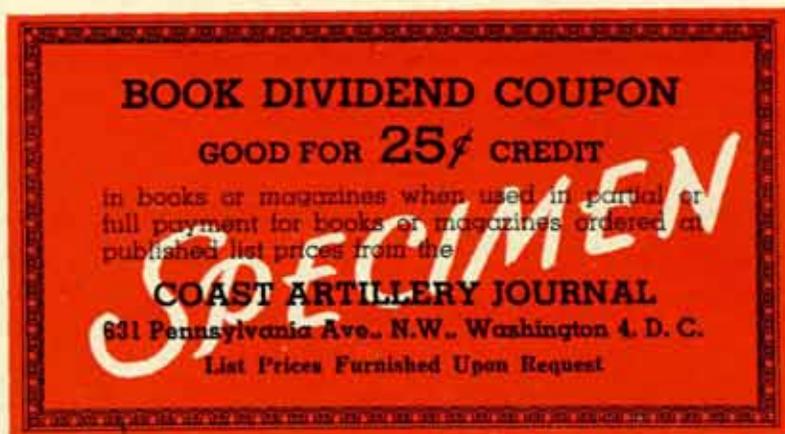
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