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PART ONE: JAPAN

Section I. DEFENSE OF BETIO ISLAND

1. GENERAL

The following information about the Japanese defense of Betio Island is based on a joint study made by Marine Corps, Army, and Navy intelligence personnel.¹ The fundamental points brought out by this study are presented in the Intelligence Bulletin so that they may be widely disseminated, particularly among junior officers and enlisted men of the Army.

That the Japanese organized their Betio defenses for an all-around, decisive struggle to keep United States forces from reaching the beaches is borne out by a study of the map on pages 34 and 35. This map, drawn to scale, is designed to show an over-all picture of the enemy defensive setup. The insets show important areas in detail.

The Japanese beach defenses consisted of well-emplaced and well-sited weapons, various types of obstacles, and mines. The weapons included grenades,

¹A short preliminary discussion of the Japanese defense of Betio Island was carried in *Intelligence Bulletin*, Vol. II, No. 6, pp. 19-38.

mortars, rifles, light and heavy machine guns, 13-mm dual-purpose machine guns, 37-mm guns, 70-mm infantry guns, 75-mm mountain guns (Model 41), 75-mm dual-purpose guns (Model 88), 80-mm antiboat guns, 127-mm twin-mount, dual-purpose guns, 140-mm coast-defense guns, and 8-inch coast-defense guns.

The obstacles included pyramid-shaped, reinforced concrete obstacles, which were placed about halfway around the island on the coral reef; an antiboat barricade, made of coconut-palm logs; double-apron barbed wire; a perimeter barricade, constructed chiefly of coconut-palm logs; and antitank ditches, dug a short distance back of the perimeter barricade.

Antipersonnel and antiboat mines were laid on the fringing reef—frequently between the concrete obstacles—and on the beaches.

Several Japanese flame throwers, were found.

Appropriate fire-control equipment was installed for the coast-defense and antiaircraft batteries, including range finders, directors, and searchlights. The weapons, as a rule, were mounted in strongly constructed emplacements made of coconut-palm logs, reinforced concrete, and revetted sand.

The Japanese employed the 13-mm (approximately .50 caliber) machine gun as their basic beach-defense weapon along the entire north coast and on both sides of the eastern tip. Along the western and southwestern coasts, the 7.7-mm heavy machine gun was the basic weapon.

The organization for defense inshore was haphazard. Beaten on the beaches, the Japanese fell back to bomb-proof ammunition shelters and personnel shelters inshore from the beaches, and fired from the doors of the shelters. These were blind to attack from several directions; they were not designed as blockhouses, and had only a few firing ports.

2. OBSTACLES

a. Reinforced Concrete Pyramids (tetrahedrons)

Almost up to the time United States Marine forces landed on Betio, the Japanese were working rapidly to surround the island with pyramid-shaped, reinforced concrete obstacles on the fringing reef. The process was approximately half completed at the time of landing. Figure 1 shows how the enemy had been molding these obstacles on the beaches. Before concrete was poured into the inverted forms, the angle irons which formed the corners and horns were driven into the ground.

The actual size of the obstacles varied. Their bases usually were about 4 feet wide and their height was determined in accordance with the average height of the water over the reef. The center-to-center distance between the obstacles varied from 6 to 20 feet, on different beaches.

Located about midway out on the reef, these obstructions were just high enough to break the water at high tide. They were designed to obstruct landing boats or

to canalize them into predetermined areas which could be swept by the fire of antiboat guns, ranging from 13-mm machine guns to twin-tubed 127-mm guns.

In addition to the reinforced concrete obstacles, the Japanese rounded out their reef defenses by using



Figure 1.—How Japanese Molded Concrete Obstacles.

wire, barricades, mines, and fairly large piles of coral rocks, which in some areas were staggered among the pyramids and strewn about the reef. The rocks were from 6 to 18 inches in diameter, and the piles were 4 to 6 feet high.

b. Wire

The Japanese used three types of wire obstacles: high double-apron fences, low double-apron fences, and single-apron fences.

The high double-apron wire was placed inshore of the pyramidal obstacles and below of the high tide mark. It was constructed to canalize assaulting troops into direct enfilade fire from emplaced light and heavy machine guns and into trip wire.

Immediately inshore from the beach, high double-apron wire was placed directly in front of tank ditches, and low double-apron wire was placed behind the ditches.

Low double-apron wire was placed above the high-tide mark, and was employed to canalize or obstruct assaulting troops in front of covered machine-gun emplacements.

Single-apron wire was erected in front of some portions of the log barricades. The wire was strung from the tops of vertical logs to stakes in the sand forward of the barricade.

c. Antiboat Barricade

On the south beach of Betio, the Japanese constructed an antiboat barricade with coconut-palm logs (see fig. 2). The barricade, which was 10 feet high, was shaped like a wide V, with one leg 700 yards long and the other 300 yards long. The logs were secured in place with wire and soft steel fasteners, $\frac{1}{2}$ inch in diameter.

The barricade was planned to divert landing boats to the east and west of the center of the beach, and into areas which would receive flanking fire from emplaced heavy machine guns, dual-purpose guns, and heavy antiboat guns.

d. Perimeter Barricade

The Japanese constructed a barricade of coconut logs around virtually the entire perimeter of the island (see fig. 3). There were a few unbarricaded spaces, but these were protected by antitank ditches. Many of the perimeter-defense emplacements, because of the nature of their construction, were in themselves good barricades. (These are described later.)

Each coconut-log barricade followed one of three general designs: (1) Log barricade with built-in rifle or



Figure 2.—Japanese Antiboat Barricade.

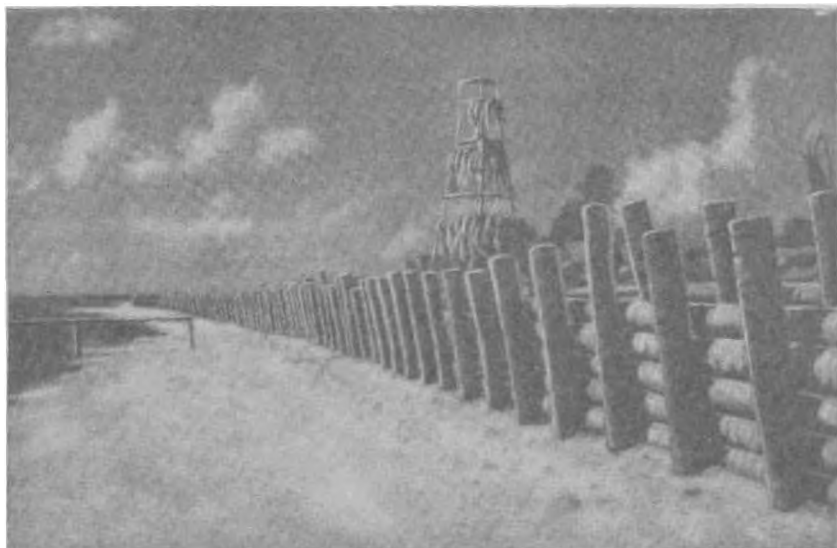


Figure 3.—Japanese Beach Barricade.

light machine-gun emplacements (see fig. 4); (2) log barricade without built-in weapon emplacements (see fig. 3); and (3) tree stumps laid with their bottoms facing the sea.

That portion of a barricade which did not have built-in and covered rifle or light machine-gun emplacements had, instead, open sandbagged emplacements behind the barricade for these weapons.

e. Antitank Ditches

Antitank ditches on Betio were only 5 to 7 feet deep—because the water table was about 8 to 10 feet below the surface—and were 12 to 14 feet wide. Only one ditch was revetted—with coconut-palm logs on the opposite side of the expected tank approach.

Wire obstacles were placed on a road at points where antitank ditches formed a junction. Covered machine-gun emplacements were sited at the ends of some antitank ditches. Apparently antitank-gun fire was to be supplied by 37-mm, 70-mm, and 75-mm guns.



Figure 4.—Japanese Beach Barricade (with built-in rifle or light machine-gun emplacements).

On the south beach, one antitank ditch was located about 10 yards inshore from a line of coconut-palm stumps. Machine guns emplaced under cover and 37-mm guns emplaced without overhead protection were located inland to provide direct covering fire for the antitank ditch. At other points along the south beach, short sections of antitank ditches took the place of barricades.

3. MINES

Four types of mines were used by the Japanese on Betio: Model 93 antivehicle mine, Model 99 armor-piercing mine (magnetized), an antitank mine, and an antiboat mine.

The Model 93 was used primarily against personnel. This mine is usually placed in patterns of diagonal rows, with the mines about 30 inches apart. The brass plug on top of each mine is generally at ground level. The device is activated by pressure on the plug.

The Model 99 (magnetic) mine was used primarily against tanks and armored cars.

The antiboat mine was found in large numbers on the south and west coasts. It is believed that the Japanese were in the process of encircling the island with these mines at the time the United States Marines landed. Along the south beach the mines were located between the double-apron wire and the shore. Laid in a double lane paralleling the beach line, they were placed about 20 yards apart. In some places the mines were covered by 2 to 3 feet of water at high tide, while in others they were dry both at high and low tide.

Only a few of the antitank mines were found. These were buried in the sand, with their necks exposed.

4. GRENADE DISCHARGERS AND GRENADES

The Japanese used Model 89 grenade dischargers and two types of hand grenades against landing boats and personnel. The grenade dischargers apparently

were assigned by sections throughout the beach-defense system. In addition, several sections were placed behind antitank ditches in the eastern portion of the island.

5. RIFLE AND LIGHT MACHINE-GUN EMPLACEMENTS

a. General

Light machine-gun emplacements and rifle emplacements (or pits) were constructed to accommodate these weapons interchangeably. Most of the emplacements were located directly in the beach barricade. Some of these were protected by a strong cover, while others were open. Located close to the beach barricade were several light machine-gun emplacements made of concrete.

b. Covered Type

The covered emplacements in the beach barricade were topped with at least one layer of coconut-palm logs about 10 inches in diameter and with loose sand and coral at least 1 foot thick (see fig. 4). Inside, these emplacements were 4 feet long, 4 feet wide, and 4 feet high. The occupant or occupants were protected by a thick blast wall, located so close behind the emplacements that entrance was difficult (see fig. 5).

Each of these emplacements had a small firing port, 12 inches long and 6 inches wide, which permitted little more than frontal fire. Inside, under the firing



Figure 5.—Rear View of Japanese Rifle or Light Machine-gun Emplacements (showing type of construction, blast walls protecting entrances, and the spacing between each pit).

port, there was a small fire step or shelf on which a light machine gun could have been placed.

Some of the covered rifle emplacements connected at the rear with communication trenches, which were revetted with vertical logs, boards, wire drums, and corrugated sheet steel. Some of these trenches were covered.

c. Open Type

The open emplacements in the barricade system were mere slots behind the log wall, protected on the sides by logs bracing the barricade, by sand, and by a board

revetment (see fig. 6). Only rifles and light machine guns could be fired from these emplacements.

Some of the open-type emplacements were located a few feet behind, and above the top of, the barricade. These emplacements were constructed of sand and were revetted with corrugated sheet steel and logs.



Figure 6.—Japanese Open-type Rifle or Light Machine-gun Emplacement.

d. Concrete-pillbox Type

Figure 7 shows a light machine-gun emplacement made of reinforced concrete and provided with three firing ports. Most of these emplacements were built just forward of the beach barricade, and were sited so as to provide frontal fire to cover tactical wire, and

flanking fire to cover the front of the barricade. Since other emplacements in the vicinity of the concrete pillboxes provided flanking and frontal fire, the pillboxes may have been designed primarily for firing on targets of opportunity.

The tops and sides of the concrete emplacements had an average thickness of 14 inches; they were reinforced by steel rods $\frac{1}{2}$ inch in diameter.

Although these emplacements were independent of the beach barricade emplacements, they were connected with the barricade by tunnels, communication trenches, and blast bays made of logs and concrete.



Figure 7.—Japanese Reinforced-concrete Emplacement (provides both frontal and flanking fire for light machine guns).

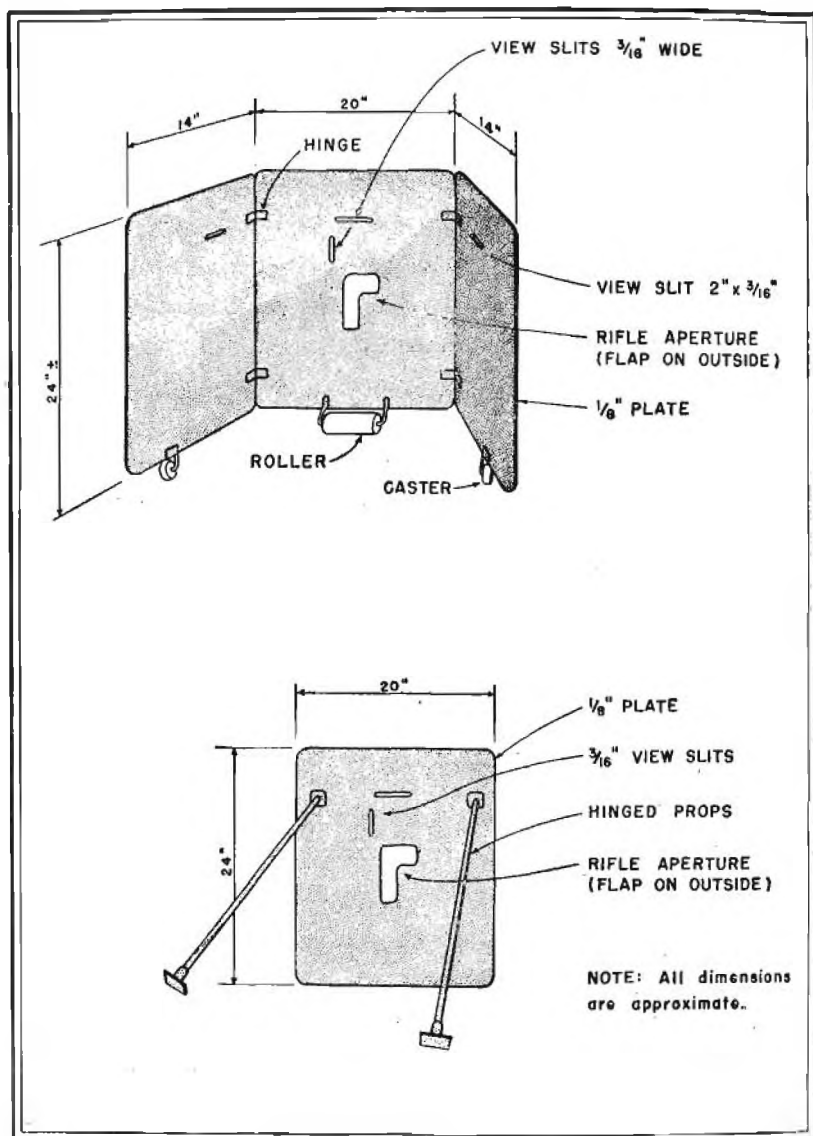


Figure 8.—Japanese Rifle Shields (top view—for use on runways or other hard-surface areas; bottom view—for use on soft ground).

e. Shields for Riflemen

Figure 8 shows details of two types of shields for riflemen. The shields, found near the main runway of the Betio airfield, are light and easy to carry; therefore, in effect, they are mobile rifle emplacements which afford some protection. They are only $\frac{1}{8}$ inch thick, but are made of hardened steel. They were painted a dull brown.

6. HEAVY MACHINE-GUN EMBLACEMENTS

a. Built into Beach Barricade

Most of these were encountered in the strongly organized and well-constructed barricade system on the west and southwest coasts. Within this system, the heavy machine-gun emplacements were spaced at fairly regular intervals, and were separated by covered rifle and light machine-gun emplacements, which afforded local protection.

Roughly, the built-in emplacements were of two types: those with a single firing port, for frontal fire, and those with two firing ports, for flanking fire. Both types were made of logs and sand, and were an integral part of the beach barricade.

The single-port type provided frontal fire over the reef and covered the approaches to machine-gun emplacements which were sited for flanking fire.

Most of the single-port types were well designed and constructed (see fig. 9). The sides and top consisted of two or three layers of coconut logs and a layer or

two of sandbags covered with sand and coral. The sides were banked with sand to add protection and camouflage.

The outside width and length of these emplacements were 18 to 20 feet. Inside, they were divided into compartments, one or more of which were used to store and protect ammunition—these were always in the rear.



Figure 9.—Japanese Heavy Machine-gun Emplacement (as an integral part of a beach barricade).

Most of these emplacements were connected with bomb shelters, rifle and light machine-gun emplacements, command posts, and ammunition dumps by means of revetted communication trenches.

The two-port type of heavy machine-gun emplacement could mount two heavy machine guns (7.7-mm)

and could possibly mount 13-mm machine guns. The firing ports in nearly all cases were sited for flanking fire along the tactical wire entanglements and boat obstacles. In fact, the design of the emplacements prohibited frontal fire.

The top and sides consisted of two, and sometimes three, coconut logs, which were covered by two layers of sandbags and rounded off at the sides with sand and coral. The finished structure, except for the entrance and connecting communication trenches, appeared from the top as a large sand mound within the barricade.

The outside length and width of these emplacements measured approximately 24 feet. Inside, they were divided into compartments to give added protection to both personnel and ammunition. The latter was kept in a separate, well-constructed room in the rear of the emplacements (see fig. 10).

A second type of twin-port heavy machine-gun emplacement (or casemate) was made of concrete. Only two of these were found. Each had two ports, for flanking fire, and each had two adjoining anti-aircraft emplacements. Although this type of emplacement apparently was designed for the use of 13-mm machine guns, indications are that 7.7-mm machine guns were used in the two found on Betio.

b. Outside of Beach Barricade

Open-type heavy machine-gun emplacements in the interior of the island consisted of simple circular pits



Figure 10.—Rear View of Japanese Heavy Machine-gun Emplacement (showing ammunition storage room in rear; entrance; and rifle or light machine-gun emplacement to left).

dug into the ground and revetted with boards, corrugated sheet steel, and sandbags (see fig. 11). Logs and oil-drum pedestals were used as mounts for guns. These emplacements obviously were designed primarily for antiaircraft fire (probably 7.7-mm machine guns). They were located at irregular intervals around the airfield and inshore of the barricades.

Apparently the Japanese did not construct any single-port, covered heavy machine-gun positions inshore of the beach barricades. However, as the situation developed, the enemy made full use of the



Figure 11.—Japanese Open-type Heavy Machine-gun Emplacement (primarily for antiaircraft).

entrances to bomb-proof shelters as machine-gun firing positions.

7. 13-MM MACHINE-GUN EMPLACEMENTS

a. General

In defense of Betio, the Japanese employed both single- and twin-mount 13-mm dual-purpose machine guns. All were pedestal-mounted, and were located in open emplacements to permit antiaircraft fire, as well as fire on ground troops. Most of these guns were sited so that frontal or flanking fire could be placed on the beach and reef. Several were located on top of high structures, such as the magazines near the 127-mm dual-purpose guns.

b. Single Mount

Emplacements for the single-mount gun were approximately 4 feet deep. The gun pedestals generally projected almost to the ground level; thus the gun itself was only 1 to 1½ feet higher (see fig. 12).

In construction, these emplacements varied as follows:

(1) Six-sided emplacements, 10 feet in diameter, with the retaining walls consisting of a layer of horizontally placed logs, or boards and logs, or sandbags, and a sandbag parapet. In many of these emplacements, the parapets were two or three sandbags higher than others—presumably for protection against blast



Figure 12.—Emplacement for Japanese Single-mount 13-mm Machine Gun.

and fire. In at least one position, communication trenches led to the emplacements.

(2) Ten-foot-square emplacements, with log and sand-constructed shelters $6\frac{1}{2}$ feet high and 10 to 15 feet wide. These emplacements had coconut-log retaining walls which were banked with sand.

(3) Square or six-sided emplacements, raised about 3 feet above ground level. Walls (2 feet thick) of sand and sandbags were contained by corrugated sheet iron, posts, and so forth. The inside diameter was 10 feet; the exterior diameter, 14 to 15 feet. (One gun was provided with a $\frac{3}{8}$ -inch-thick steel shield.)

(4) Twin, eight-sided concrete emplacements, which were part of a ground machine-gun and antiaircraft machine-gun casemate (already described in par. 6a).

(5) Emplacements on top of buildings and revetments; these were circular and simply constructed of sandbags.

c. Twin Mount

Two types of emplacements for the twin-mount guns were noted:

(1) Slightly pear-shaped emplacements, 10 feet across at the rear and slightly less at the front; 3 feet high at the rear and sloped forward to a height of 2 feet at the front; walls made of sandbags 3 feet thick, and further banked by soft sand.

(2) Square emplacements atop ammunition magazine; 10 feet across on the inside; walled by boards



Figure 13.—Pedestal for Twin-mount Japanese 13-mm Machine Gun.

and banked with sandbags and loose sand to a thickness of 3 to 4 feet; 2 feet high.

Figure 13 shows one of the three known types of pedestals for the twin-mount machine gun.

8. FIELD GUNS AND EMPLACEMENTS

The location of emplacements for the three types of field guns used by the Japanese on Betio indicates that their primary mission was antiboat defense. Some of these guns—75-mm mountain gun (Model 41), 70-mm battalion gun (Model 92), and 37-mm rapid-fire gun (Model 94)—were used as support weapons after our beachheads had been established.

Emplacements for all three guns were roughly of the same type. The interior was arrow-shaped or, in a few cases, egg-shaped, with the entrance in the broad end and the firing port in the narrow end (see fig. 14). The walls consisted of a single layer of logs, laid either horizontally or vertically. In some cases they were lashed to retaining posts or were joined at the corners with steel rod fasteners. The walls were banked outside with mounds of sand, which were 4 to 5 feet in width at the base.

Most of the emplacements were roofed with a single layer of logs, covered to a depth of 2 to 2½ feet by loose sand. A few emplacements had no roofs (see fig. 15).

All emplacements had an unroofed entrance passageway in the rear, 5 to 6 feet wide and 5 to 10 feet long. In most cases the passageway was curved so



Figure 14.—Emplacement for Japanese Field Gun.



Figure 15.—Open Emplacement for Japanese Field Gun (probably for 70-mm battalion gun).

that a second rear wall could protect the rear of the emplacement from blast or fire.

The firing ports of all emplacements except those on the northwest coast were sheltered from blast and small-arms flanking fire by means of log- and sand-banked wings. These were 5 to 8 feet long and opened at an angle of about 100°. Some emplacements on the beach were protected by low double-apron wire.

These emplacements, although obviously not designed for small-caliber weapons, in many cases were used as last-ditch positions for riflemen and machine gunners. In a few instances, the guns were removed from the emplacements, turned around, and fired inland from the rear.

9. DUAL-PURPOSE GUN EMPLACEMENTS

a. For 75-mm, Model 88, AA Guns

Eight of these guns were emplaced on Betio. Four were sited as a battery near the northwest corner of the island, and the other four were arranged in pairs, one each on the north and south coasts of the eastern tip.

Except for minor variations, all emplacements for the Model 88 were similar. Dug to a depth of about 5 feet below the ground level, they had five sides, which were revetted with empty oil drums and with 1-inch-thick boards secured by vertical coconut logs or by solid coconut-log walls. Ammunition ready-boxes of varying sizes were built into one or more of the side walls. In some cases a communication trench con-

nected the emplacement and a nearby bomb-proof coconut-log shelter. The revetments for all emplacements were higher on the inshore sides than on the seaward sides, permitting low-angle antiboat fire on beach approaches. Sandbags secured the fill on top of the revetments.

The guns were mounted on spider-leg pedestal mounts.

Each group of guns was provided with fire-control equipment consisting of a range finder with a 2-yard base and a small (Model 1930) sound locator with four horns. Searchlights (150-cm and 90-cm) were located so as to serve both the antiaircraft and nearby coast-defense guns.

b. For 127-mm Twin-mount Guns

These guns, designed for coastal defense as well as antiaircraft defense, were emplaced in pairs in two locations. Their emplacements were constructed of concrete and were banked from the ground level to the brim of the concrete parapet with coral and sand. The distance between emplacements, center-to-center, was 40 yards.

Spaced at equal intervals around the side of the parapet were 10 ready-boxes, each holding 12 rounds of ammunition. Ammunition stores were kept in four concrete, sand-covered, bomb-proof buildings in the vicinity. Apparently the ammunition was carried from the main storage buildings to the ready-boxes.

A fire-control position for the battery of two twin mounts was located on a sand-covered concrete structure, 30 feet square and elevated 15 feet above the ground. A range and altitude finder and a director were mounted on this. The electrical and communication equipment for the installation was placed inside this structure, which was protected by four 7.7-mm machine guns placed at each of the four top corners. Additional protection for the entire installation was provided by two twin-mount 13-mm machine guns on top of the ammunition storage structures on the flanks.

A 150-cm Model 1933 searchlight was located 100 yards out on each flank of the installation.

10. COAST-DEFENSE GUNS

Japanese weapons on Betio emplaced solely for coast defense included six 80-mm guns, four 140-mm guns, and four 8-inch shielded naval type guns.

a. 80-mm Guns

These guns were found in batteries of three. There were two such batteries, one located in the center of the west beach and the other on the eastern part of the south shore. The latter battery had a secondary mission of covering the south reef antitank barrier with flanking fire.

The emplacements were constructed of logs and sand, and were open at the top except for palm-branch canopies provided for camouflage. They had six sides,

with a rear entrance. Double walls, made of logs, formed the six sides. Each log wall was laid horizontally, and was three logs, or 3 feet, high. The space between the double walls was about 3 feet and was filled with sand.

The front side of the emplacements paralleled the beach. Built into the two rear walls were concrete ammunition shelters, each capable of holding three ammunition boxes of 12 rounds.

Japanese standard-type bomb-proof shelters, each capable of holding 12 men, were located to the rear and to one side of each emplacement.

An observation tower, 15 feet high and constructed of logs, stood just behind, and to one side of, the central gun of each battery.

b. 140-mm Guns

Two of these weapons were located on the northwest point, and two on the east point. They were mounted in circular concrete pits which rested on the normal ground level. The floor parapet and ready-boxes of each pit were made of reinforced concrete and banked with sand. The pits, or emplacements, in each battery were about 60 yards apart.

The fire-control arrangement for each pair of guns included an observation tower, 80 feet high, which was erected on a sand-covered, bomb-proof shelter. The latter housed a power distribution board for supplying electricity to the guns and a communication or control center for the battery.

c. 8-inch Shielded Guns

Four of these guns were found on Betio, two on the southwest corner and two on the southeast coast.

The two guns on the southwest corner were mounted in a tandem arrangement in concrete emplacements, which were banked all around with sand and coral.

Ammunition was stored in a heavily constructed bomb-proof shelter, 75 yards from the gun position. A narrow-gauge railroad track led from the storage shelter to an ammunition ready-room which separated the two gun positions. Small hand-drawn cars were used on the track.

The fire-control system for this installation included a plotting room in a lower level of the upper gun emplacement, an observation tower (70 feet high), and the necessary wire and voice-tube communication between these elements and the guns.

The two guns on the southeast coast were located in circular concrete emplacements about 10 feet above the ground. The two emplacements were about 100 yards apart.

Ammunition and powder, and the personnel to handle them, were sheltered in four magazines situated a few yards to the rear of each emplacement. A ready ammunition-handling shack also was situated behind each emplacement.

A fire-control tower, 45 feet high, was situated behind the two guns.

11. TANKS

The Japanese had 14 Model 2595 (1935) light tanks on Betio. They were camouflaged in dug-in revetments, the tops of which were flush with the ground. The camouflage generally consisted of palm leaves.

Nine of the tanks were held around the air-defense command post near the lagoon shore.

12. COMMAND POSTS

The rifle and machine-gun positions, which formed the primary beach defense, were controlled from steel pillbox-command posts, spaced at intervals of about 300 yards around the perimeter of the island.



Figure 16.—Japanese Steel-pillbox Command Post (side view showing firing port).



Figure 17.—Japanese Steel-pillbox Command Post (upper—rear view showing entrance; lower—top view looking down into hatch).

These pillboxes were prefabricated, six-sided, truncated pyramids with double walls made of steel (see fig. 16). Both the outer and inner plates were $\frac{1}{4}$ inch thick, and the space between them was filled with sand. In most cases the exterior of these pillboxes was banked with sand or camouflaged with palm fronds.

Inside, these pillboxes were divided into an upper and a lower compartment. The upper compartment was designed for an observer or commander. It had an observation seat, a voice tube, and a hatch, which opened outwards from near the sides. The voice tubes led down into the lower compartment, which apparently was designed to house two machine guns. This compartment had two large ports, one on the left flank and one on the right, and a small peep sight to the front. The large ports were equipped with bracket supports for machine guns, but apparently no machine guns were used in any of the pillbox-command posts on Betio.

One steel pillbox on the south beach was capped with 12 inches of concrete.

The largest reinforced concrete structure on the island was believed to have been the main headquarters. It housed the terminal facilities of radio and telephone equipment, as well as administrative personnel. The reinforced concrete was very thick. The structure was additionally protected by a thick layer of sand on the roof, on which two 13-mm machine guns were emplaced. Apertures were provided in the

walls of the building for the firing of small arms and light automatic weapons, but the primary purpose of the building apparently was to provide shelter for personnel and equipment.

13. SHELTERS

The shelters found on Betio can be broadly divided into two groups: those located in barracks and headquarters areas and those located to serve beach-defense.

Those in the barracks and headquarters areas were designed to protect large groups of personnel during air or surface bombardment. They were constructed of alternate layers of coconut logs and coral sand. Side walls and roofs averaged 5 to 7 feet in thickness. Ventilation shafts were provided, but there were no gun or rifle ports.

Those in the beach-defense areas were designed and used, during bombardment, as standby shelters for personnel who were waiting to man beach positions. These shelters were smaller and not as heavily constructed as those inland. They were located immediately adjacent to defensive positions. Several were constructed of reinforced concrete 12 to 16 inches thick and covered with sand. Others were constructed of logs and sand. They varied in size and design to suit the particular needs of an area. Like the larger structures, the beach-defense shelters were designed for protection, not as prepared defensive positions.

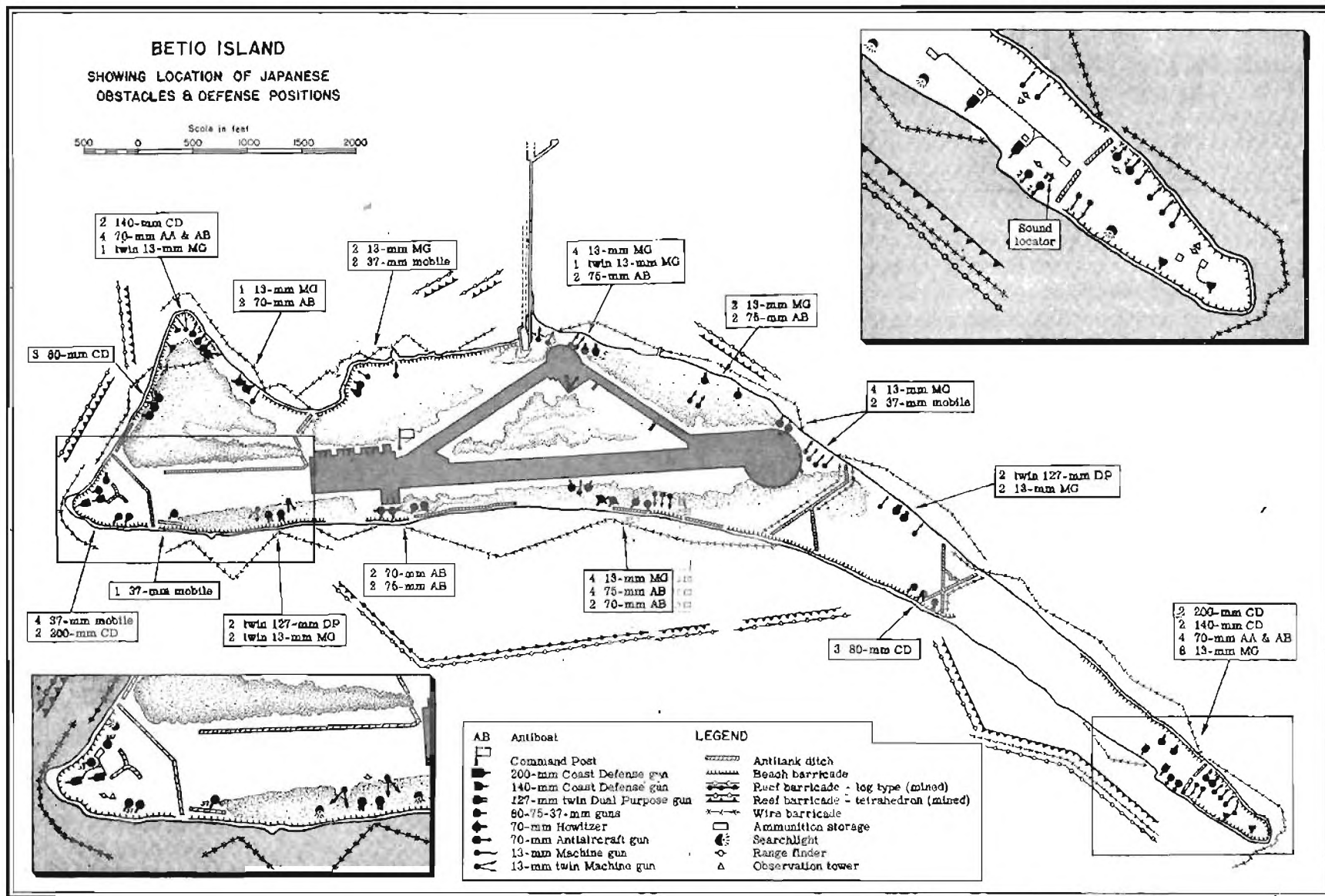


Figure 18.

Section II. HOW JAPANESE DEFENDED HILLY JUNGLE COUNTRY

1. GENERAL

The following notes on Japanese warfare are based on the experiences of United States officers and enlisted men while fighting the enemy in the hilly and mountainous jungle terrain of New Guinea. While these notes should not necessarily be regarded as Japanese tactical doctrine, they should be helpful to United States forces who may meet the enemy on similar terrain in the future.

Generally speaking, in this campaign the Japanese were highly defense-minded except for a few local counterattacks, which were usually staged by a platoon or company. On one occasion the enemy dispatched a raiding party of 100 or more men to infiltrate through the United States lines and demolish artillery positions. The mission failed, with considerable loss to the enemy, after a night-long fight.

As a rule, the Japanese patrolled very little during the campaign, and seemed content to remain concealed

in defensive positions or to stick close to their supply trail.

Most of the Japanese troop movements, reliefs, and withdrawals were executed at night, usually about an hour before daybreak.

2. SECURITY

The Japanese, in this campaign, were frequently careless with regard to security measures. Along their rear trails, they tended to move freely, and with little or no security. United States patrols could often hear enemy groups talking and jabbering several hundred yards away.

Many instances were reported in which Japanese sentries were caught asleep or dozing. Many small outposts of four to eight men were discovered in huddles without lookouts, and groups of two or three walking unarmed along trails near their positions were often taken unaware by United States patrols. When caught off guard under such circumstances, the Japanese were slow to react; they frequently stood or sat for 10 to 15 seconds without moving.

3. POSITIONS

Observers agree that the Japanese did a tactically sound job of selecting and organizing defensive positions. They organized many high ridges, access to which could be gained only by single-file movements. Such ridges, or knolls, were organized with deep dug-

outs for the protection of personnel, and were connected with weapon emplacements by tunnels or trenches.

The emplacements, featuring a generous supply both of light and heavy machine guns, were so well camouflaged that often they were visible only at distances of from 5 to 10 yards. The weapons were sited for cross fire at short ranges along the knife-edge ridges which connected positions.

4. DEFENSE

As had been reported in other campaigns, the Japanese were tenacious in the defense of dug-in and protected positions.

In defending organized positions, the enemy primarily employed grenade dischargers, hand grenades, and machine guns. The latter were usually fired down prepared lanes, and rarely were used for traversing or searching fire. As a rule, the enemy withheld his fire until United States troops were within 10 to 30 yards of his position.

The Japanese usually employed their mountain guns singly, and more than two guns rarely engaged a target at the same time. In these exceptional cases, only a few rounds were fired at a time.

It is interesting to note that in the hilly and mountainous country most of the enemy snipers were found on the ground—comparatively few in trees.

5. WITHDRAWALS

To cover withdrawals from organized positions, the Japanese often fired a large number of mortar shells during the night or just before dawn. They also left the barrels of rifles and machine guns sticking out of emplacements to make it appear that the latter still were occupied.

6. COUNTERATTACKS

The Japanese almost invariably counterattacked when driven out of a position, and when forced to give up terrain vital for the protection of their rear or their supply lines. These attacks were usually made at dusk or shortly after darkness.

As a rule, the Japanese counterattacks were accompanied by wild firing of machine guns and rifles, and by howls, screams, and other noises. The apparent purpose of such tactics was to frighten United States troops, draw rifle and machine-gun fire in order to locate our positions, and to cover the main attack. The latter usually was made by stealth from another direction, with the Japanese crawling as quietly as possible with fixed bayonets to our emplacements or foxholes. Sometimes the enemy tossed grenades at our positions before assaulting with the bayonet, and on other occasions they stormed the positions in waves, led by sword-brandishing officers giving commands. Also, in a few instances, 30 to 40 Japanese made daylight bayonet attacks by simply rushing our posi-

tions. The number of attacks at night varied from one to nine. Intervals between each attack varied from 30 minutes to 1 hour.

7. BOOBY TRAPS

The Japanese left very few booby traps, and these were crudely constructed.

A few grenades, with their fuzes adapted for instantaneous activation, were found buried in emplacements and tunnels. These grenades projected about $\frac{1}{2}$ inch above the ground. The door of one captured truck was wired on the inside to a grenade.

Section III. MOLOTOV COCKTAIL EMPLOYING A FUZE

1. DESCRIPTION

The Japanese have a type of Molotov cocktail which differs from other similar weapons in two main respects, namely:

- a. It has a fuze.
- b. It will fire when thrown against ordinary ground as well as against hard objects.

The weapon consists of a 12-ounce glass beer bottle (which is 9.5 inches high, 2.4 inches in diameter at the base, and 1 inch in diameter at the top), an inflammable liquid compound, and a combined burster and igniter fuze.

The fuze will activate the weapon at any position the weapon may strike a surface—it is called an “all-ways” fuze for this reason. The burster and igniter fuze combination comes in a separate cylindrical metal container, which is 2.45 inches high and 1.4 inches in diameter. It is sealed with gum paper. The fuze is threaded to screw into a metal lining which fits inside the neck of the bottle. A rubber washer enables the bottle to be liquid sealed. The fuze also has a safety pin with an attached string—which is used to extract

the pin before the Molotov cocktail is thrown—and a protective cover.

The Japanese have used at least three kinds of explosive in this weapon. Besides an “inflammable compound,” some have been found with 91-octane gasoline and some with a gasoline and oil combination—75 percent gasoline by volume and 25 percent heavy oil by volume.

2. OPERATION

The following instructions on operation were translated from Japanese sources.

a. Assembling

Fill the bottle with inflammable chemical compound.

Remove the fuze from the fuze container, and, with the fuze-cover still on, screw the fuze tightly onto the bottle.

b. Using

Immediately prior to taking up the approach march for the attack, throw away the protective cover for the fuze.

When about 10 yards from the objective, pull out the safety pin in the fuze, and throw the weapon against the upper section of the motor [presumably of a tank].

The effect will be greater if two or three bottles are thrown in succession.

c. Precautions

After pulling out the safety pin, do not drop the bottle or hit it against a hard surface.

If there is no target after pulling out the safety pin, throw the weapon a considerable distance away, or find some other way of disposing it, as a safety measure.

Section IV. INTELLIGENCE NOTES

1. INTRODUCTION

This section contains information, from Japanese sources, about enemy counterintelligence measures and about enemy methods of handling intelligence. The counterintelligence measures were prepared for a Japanese antiaircraft unit.

2. REGARDING COUNTERINTELLIGENCE

The purpose of the counterintelligence measures outlined by this particular source was "to facilitate our [Japanese] Army's operations by exposing and eradicating Fifth Columnists in the vicinity of antiaircraft-unit positions."

The Japanese issued the following instructions:

- a. Select an officer to take charge of counterintelligence (he may be the unit adjutant or its chief intelligence officer).
- b. Strictly supervise officers' and men's speech and behavior, especially their personal communications.
- c. Strictly abide by regulations concerning private correspondence, and see to it that there are no leaks.
- d. Work for thorough moral training in counterintelligence.
- e. Keep a vigilant watch for fifth-columnist activities, such as raids and infiltrations.

f. Try to secure information from natives about enemy infiltrations by submarine, by parachute, or by air-landing.

g. Keep a strict watch over the activities of neutral foreigners and of Axis nationals in particular.

h. Give guidance to the natives, mainly in order to keep them friendly. Guard against activities of native enemy sympathizers.

i. Watch for even the slightest change in conditions in areas where the enemy drops propaganda leaflets. Keep rumors strictly under control.

j. Properly safeguard (or burn) classified military documents. Be especially careful in handling maps or sketches on which troop dispositions are indicated.

k. Take precautions as to the types of documents carried by aircraft crews, patrols, liaison men, and so forth.

l. Limit printed matter to the minimum number of copies required.

m. Make certain that misprints, original stencil sheets, and waste paper are burned.

n. Report any type of disorder to headquarters, and notify the nearest MP.

3. REGARDING INTELLIGENCE

a. Reliability

The Japanese, according to an enemy source, rate the reliability of intelligence as follows:

A—undoubtedly reliable;

B—probably reliable;

C—for reference, although authenticity is undetermined.

b. Collection

In their "plans for collecting intelligence," the Japanese require that the following points be covered:

- (1) Data for estimating hostile offensive plans;
- (2) Shifts in aircraft units and their movements;
- (3) The state of newly established airfields and their equipment;
- (4) The situation with regard to warships and the movement of supply transport forces;
- (5) The state of signaling and broadcasting;
- (6) Hostile unit numbers;
- (7) The state of airborne raiding forces;
- (8) Propaganda strategy and counterintelligence data;
- (9) The attitude of the natives;
- (10) Activity of hostile elements, especially the source of this activity;
- (11) Men and articles dropped by parachute;
- (12) Existence or nonexistence of hostile radio waves and signals;
- (13) Emphasis on reconnaissance of suitable landing places for airborne raiding forces, suitable airfields, and suitable debarkation points;
- (14) State of communications system; conditions conducive to local self-sufficiency;
- (15) Nature of soil, resources, and land suitable for cultivation; and
- (16) General terrain and weather and atmospheric data.

"Try to capture and make use of hostile natives and prisoners," this Japanese source adds.

Elsewhere certain Japanese units were told to use "enemy methods in the accumulation of intelligence, particularly with regard to taking prisoners and examining abandoned corpses."

With regard to prisoners, a Japanese Army treatise reads:

The capture and questioning of prisoners is a profitable way to collect intelligence. By direct action on our part, we can capture hostile forces with comparative ease.

Therefore, all units—especially those on the front line, as well as sentries and patrols—will take advantage of opportunities to execute surprise attacks, feint attacks, and ruses in general in an effort to take prisoners. If abrupt challenges are unavoidable, prevent the escape of opposing forces by endeavoring to wound or mortally injure them with a sudden blow. Show originality and daring in action. High ranking officers must lead the way and encourage the taking of prisoners.

With reference to searching corpses and handling captured items, a Japanese Army order says:

There are various items on enemy corpses, which are to be searched immediately after battle. The items taken from the corpses—especially documents, diaries, and maps—must be collected for study.

Although, in general, all units have considered the collection of such profitable material, lower units have not yet given it their full consideration. Only abandoned weapons and provisions are being collected. Thus collection of the most valuable intelligence material is being sadly neglected. It may be necessary to detail men from a reserve unit to collect this material.

Captured matériel, except items to be used immediately by front-line units, must be sent back for study, repair, and preservation for future use.

Section V. CAMOUFLAGE NOTES

1. GENERAL

In many respects Japanese camouflage doctrine is similar to ours. Basic points emphasized by the enemy in his camouflage work are presented below. The source is a Japanese Army manual.¹

The introduction to the manual states that:

“The essence of camouflage lies in harmonizing it with the natural conditions of the terrain; therefore it is most important to pay attention to shadows and colors, and to avoid any change from the usual conditions.

“When camouflage methods are inadequate, they sometimes do more harm than good, in that they draw the attention of the hostile forces * * *.

“Since hostile shelling, weather, and the seasons change camouflage or its immediate surroundings, it is most important that it be repaired constantly and kept in good condition.”

The manual recommends that natural camouflage material, such as weeds, vines, trees, branches, and so

¹ Japanese use of camouflage on Attu, as seen by U. S. observers, was described in *Intelligence Bulletin*, Vol. II, No. 2, pp. 39-43.

forth, be used as far as possible. Artificial materials used by the Japanese include nets, screens, canvas, and paint.

2. USE OF ARTIFICIAL MEANS

a. Nets

In arranging nets, the Japanese try to make them conform to the contour of the land. "When hanging out nets," an enemy source states, "do not leave gaps where each net touches the edges. To avoid casting shadows under nets, set up canvases under them * * *. Frames for nets should be as low as possible. Where nets touch the ground, they must be sloped gently."

Particularly in jungle areas, the Japanese have been using nets extensively, not only for personnel, but for weapons, installations, and horses and mules. These nets usually have been garnished with local vegetation so as to blend well with the surroundings.

b. Screens

Screens are regarded by the Japanese as "simple equipment used principally for concealment against ground reconnaissance * * *. Screens also are used to cut off the flash of weapons at night."

In screening long stretches of terrain, installations, or equipment, the Japanese manual warns against connecting the screens into one rigid whole. "Divide the screening at appropriate places in order to localize damage by shell fire," the manual states.

c. Paint

In using paint to camouflage objects, the Japanese manual stipulates that the principal colors should "approximate as nearly as possible the predominant colors of the terrain. Usually the objects should be painted somewhat darker than the color of the surrounding terrain."

d. Miscellaneous

The manual recommends the use of camouflage net frames over peepholes and loopholes when the latter are not being utilized. These holes also are sometimes covered with grass.

Periscopes and similar equipment are camouflaged to represent natural objects.

Before using wire for camouflage purposes, the Japanese recommend that it be smoked in a straw fire to remove its shine and make it more pliable.

3. USE OF NATURAL MEANS

Natural means of camouflage must conform in size and texture to the surroundings, the Japanese manual states, so that they will not "present a peculiar appearance" after being arranged in place. "Before digging into the ground or covering ground with spoil, cut away and preserve the grasses and weeds for future camouflage use."

The manual adds that grass may profitably be hung on wire as a disguise of a grass thicket.

In many instances the Japanese have camouflaged pillboxes, bunkers, dugouts, and other similar installations with live grass, which was sown or transplanted. Several times it has been reported that the enemy has used rice-straw bags filled with fertile dirt for defensive covering, and has planted unhulled rice seeds, or seeds of a similar plant, on top of the bags to secure a green growth which blended well with the surroundings.

4. USE OF DUMMIES

“Dummy installations,” the Japanese manual states, “are built to present the same external appearance as real construction, and camouflage is always applied.

“In simulating trenches, and so forth, make them look as real as possible. Their depth must be at least 2½ feet. Make the sides steep, and spread dark-colored grasses on the bottom.

“In simulating an open-air shelter, construct it in generally the same way as a real shelter; if necessary, imitate only the external shape, or hang out a camouflage net and lead dummy traffic paths to it.

“Dummy covered shelters and dugouts should have such real features as loopholes, peepholes, covering, and entrances.”

PART TWO: GERMANY

Section I. MILITARY LEADERSHIP, AS THE GERMANS SEE IT

1. INTRODUCTION

Several months ago the commanding officer of the Third Panzer Grenadier Division assembled extracts from two German Army manuals, one dealing with military leadership and the other pertaining to the training of officers, and ordered that they be distributed as a single booklet to the officers of his command. In a foreword the commanding officer said, "This booklet should always accompany my officers. It should become an indispensable possession. I expect them to take it out again and again, and study it until its contents have become a guide for their lives and actions. It should force them to test themselves, over and over, to see whether they are adequately prepared to meet the high—and often merciless—demands which will be made upon them.

"The longer the war lasts, and the more difficult conditions become, the more decisive the work of the officer will be, and the greater his responsibilities.

“In full recognition of this, and with the recollection of our oath and the example of our comrades who died at Stalingrad, it can no longer be difficult to find the surest expression of our duty: to show our men how to live, which means, after all, to show them how to die.”

In any attempt to gauge the enemy, it is particularly useful to know the broad principles with which he has been indoctrinated. The extracts which follow are therefore of the utmost significance.

2. THE GERMAN VIEW

“a. Warfare is an art, free and creative, based on science. It demands the utmost of each person.

“b. Warfare is subject to continuous development. New technical devices give it a continuously changing form. Their introduction must be recognized ahead of time, their influence properly evaluated and quickly applied.

“c. Situations in war have unlimited variations. They change frequently and suddenly, and cannot always be properly anticipated. Incalculable factors are often of decisive influence. One's will is opposed by the independent will of the enemy. Friction and mistakes are daily occurrences.

“d. The science of warfare cannot be compiled exhaustively in rules and regulations. The principles which form this science must be applied as conditions require. Simple actions logically executed are the best way to success.

“e. War taxes and tests an individual’s physical and emotional powers most rigidly. Therefore, in wartime, character is more essential than pure mental ability. Many a man, overlooked in peacetime, has become great on the field of battle.

“f. Leadership in the German Army, and particularly in lower units, must be entrusted to personalities who are capable of sound judgment and clear perception of immediate and possible future situations—men who are self-reliant and firm in their decisions, persevering and energetic in executing them, indifferent to the vicissitudes of war, and intensely aware of the high responsibility resting upon them.

“g. The officer is a leader and educator in all fields. Aside from having the ability to size up his men, he must possess superior knowledge and experience, a sense of moral responsibility, and a sense of justice. He must excel at self-discipline and courage.

“h. The example and personal bearing of the officer and soldier in charge of men are of decisive influence on the troops. Officers who show coolness, resolution, and daring in face of the enemy carry their men with them to success. But they must also find the way to the hearts of their men and win the prize of their confidence by untiring care and an understanding of their thoughts and feelings. Mutual confidence is the safest guarantee of discipline in moments of emergency and danger.

“i. Every leader must commit his whole self in all situations, without fear of responsibility. This cheerful acceptance of responsibility is one of a leader’s most noble qualities. However, it must not be interpreted as a license to make independent decisions without regard for the unit as a whole, to neglect carrying out orders with painstaking exactness, or to substitute for obedience an attitude of the ‘know-it-all’. Self-reliance must not be corrupted by mere arbitrary judgment. Exercised within the proper limits, it can become the basis for great success.

“j. The value of a man is still decisive in spite of all technical inventions. Present-day tactics of scattered fighting have increased his significance. Modern battle requires fighting men who can think and act for themselves, who exploit each situation resolutely and boldly after due consideration, and who are permeated by the conviction that success depends on each individual.

“Great physical endurance, ruthlessness with oneself, will power, self-confidence, and daring enable a man to cope even with the most difficult situations.

“k. The value both of leader and man determines the combat efficiency of the unit. The efficiency is augmented by a high standard of quality, care, and condition of arms and equipment. Superior combat efficiency can outweigh numerical superiority. The higher the combat efficiency of units, the greater the possibility of conducting forceful and mobile opera-

tions. Superior leadership and combat efficiency of a unit are the most reliable guarantees of victory.

“l. Leaders must live with their troops and share with them their danger and hardships, their joys and sufferings. Only in this way can they gain from their own experience a sound judgment of their combat efficiency and their needs and requirements. Every man is responsible, not merely for himself, but also for his comrades. The more capable and enduring must lead and direct the weak and inexperienced. Such is the basis from which a feeling of genuine comradeship may develop. This is as important between the leader and his men as it is among the men themselves.

“m. A unit which has been formed only superficially, and which has not been welded together by hard training and education, may easily fail at critical moments or under the impact of unexpected events. Therefore, from the outset of a unit's training, extreme importance must be attached to promoting and preserving strong community ties, as well as to discipline.

“It is the duty of every commander to counteract immediately—and severely, if necessary—any laxity of discipline, and any tendency toward riotous conduct, plundering, panic, or other harmful influence.

“Discipline is the main pillar of the German Army. Its strict enforcement is a blessing for all.

“n. The fitness of a unit must be preserved for those decisive situations which require supreme effort.

Leaders who exert their troops unnecessarily, impair their own chance of success. In combat, any expenditure must remain in proper proportion to the desired objective. Objectives which are impossible to attain should not be set, for they lower the confidence of the men in their leader and are detrimental to the morale of the unit.

“o. From the youngest soldier on up, every individual must commit his entire emotional, physical, and mental strength to the mission at hand. Only this endeavor can insure the utmost efficiency of the unit in coordinated action and can create men who will, in the hour of danger, lead the weak to bold action.

“Thus, determined action remains the foremost requirement in warfare. Everyone, the highest commander and the youngest soldier, must always be conscious of the fact that the burden of negligence weighs more heavily than a mistake in the choice of means.”

Section II. A PREPARED DEFENSIVE POSITION IN ITALY

A German prepared defensive position near Sipicciano, in Italy, affords a useful illustration of certain methods currently employed by the enemy. A force estimated to be a battalion occupied the position, in the preparation of which a number of German defensive principles had been observed.

The position, which covered a road leading from the village of Cici to the Garigliano River, was protected to its front by two double-apron barbed wire fences, 30 yards apart, running through an olive grove. Tellermines and wooden box mines had been laid between the fences and in a strip about 50 yards wide immediately in front of the forward fence. The road, which ran through the position, also was mined with Tellermines and wooden box mines.

Nearly all the individual enemy positions faced in one of two directions, east or southeast. There was a definite and surprising lack of any attempt at all-around defense, and positions had unprotected sectors ranging from 90 to 100 degrees.

For the most part, the individual positions were mutually supporting. They had excellent fields of

fire, which were easily obtained because of the nature of the terrain. Some positions were in the olive grove, while others faced pasture land. There was very little scrub growth or other hindrance to vision. In the olive grove the positions were sited so as to afford an unobstructed field of vision between the ground and the lowest branches of the trees.

Individual positions were protected against frontal attack by means of short narrow belts of antipersonnel mines and trip wires 30 to 40 yards forward of the positions and just beyond effective hand-grenade range. [In a number of other instances, however, the Germans have been known to place a belt of mines within hand-grenade range so as to take advantage of any confusion which might result from the detonation of the mines.] These defensive measures did not cover the flanks or rear of the positions.

Elaborate precautions had been taken to protect the defenders against bombardment by aircraft or artillery. Firing positions were from 3 to 4 feet deep, and were well camouflaged overhead and to the front. Several small-arms positions were of the trench type, while others had overhead cover and a rear entrance. Shallow crawl trenches connected most of the firing positions with dugouts, which served as living quarters. These dugouts were well constructed, and were roofed with tree trunks, planks, and sandbags filled with earth. In some instances the entrances were zigzagged. Revetting was generally very good. Barbed wire, of the type employed for apron fences, was also used in revetments and to support camouflage material.

Grenades, both the stick-type and the egg-type, were kept on the parapets. Many of the grenades were still in place when the position was taken. The caps of the stick-type grenades were unscrewed, and the china marbles were exposed and ready to be pulled.

A mortar had been emplaced in a circular emplacement, protected by breastworks. It was situated behind a clump of low trees. Ammunition, which was plentiful, had been stored in a separate dugout about 10 yards from the mortar emplacement.

Antitank guns were well camouflaged and had excellent fields of fire. They were emplaced in shallow dug-in positions. Dugouts for the crews were nearby, and the men also had short trenches, about 3 feet deep, next to their guns. Ammunition was stored partly in shallow trenches near the guns and partly in caches dispersed in the vicinity of the dugouts. Antitank-gun positions were usually protected by machine-gun sections (two guns each) covering the areas to the front and at the flanks, but not to the rear. It is probable that alternate machine-gun positions covering the rear had been chosen, but no prepared alternate positions were found. Antitank guns were sighted so as to fire down the probable axis of advance, rather than the flank.

Company headquarters had a wire connection with headquarters. The wire, approximately a mile and a half of which had been laid, was in an open trench about 6 to 8 inches deep and 4 inches wide. In places the wire had been covered with stones.

Apparently the enemy had not used any of the buildings in the vicinity. Track discipline, incidentally, had been good.

United Nations forces avoided frontal assault on this strong position by attacking and seizing high ground on which a flank of the enemy defense area had been anchored. After capturing this hill, the United Nations forces struck for the Garigliano River to cut off the enemy in the prepared defensive position. They were successful in seizing the crossings, but the Germans escaped by swimming the river. The hasty nature of the retreat is substantiated by the German failure to evacuate equipment and supplies. Eight antitank guns, some undamaged, were left behind. Further evidence of haste is shown by the enemy's failure to carry out prepared demolitions of bridges along the road leading from the position to the river.

To summarize:

1. Minefields, covered by small-arms fire and anti-tank fire, and supplemented with barbed wire, were used to block the expected axis of attack.
2. Positions were dug in, and were well camouflaged to the front and overhead.
3. Antitank-gun positions were protected by anti-personnel mines and small arms.
4. Protected sleeping quarters were provided.
5. No provision was made for all-around defense.
6. Fields of fire were excellent.
7. The flanks of this strong defensive position constituted its chief weakness.

Section III. A GERMAN COMPANY IN THE DEFENSE

1. INTRODUCTION

Recently a Panzer Grenadier company commander, troubled by the loss of life and matériel that his unit had been suffering in Italy, made an effort to alter certain methods that his men had been employing in the defense. His attempt is significant, in that it is an instance of a German commander undertaking hastily to revise his company's practice, in the light of experience freshly acquired in fighting United Nations forces. Much has been said about the rigidity of German junior leadership in the field, and not enough, perhaps, about its adaptability. The illustration at hand shows how a German junior officer tried eleventh-hour measures in the hope that his unit might avoid further reverses.

2. THE COMPANY COMMANDER'S INSTRUCTIONS

a. It was stated that, since a creeping barrage always preceded an attack, this type of fire was to be a signal for each man to go at once to his alert station and make a further brief check of his weapons.

b. Even during the barrage, every man was to keep a continual lookout, frequently raising his head above the parapet. This was described as particularly important when the fire moved, or "lifted", because, it was said, a hostile advance would follow the barrage closely, and the opposition would use mortar fire and grenades for purposes of deception.

c. When the attackers arrived in close proximity to the position, special attention was to be paid to any cover or dead space within hand-grenade range. Hand grenades were to be used against any hostile soldiers who might succeed in reaching such places.

d. The first section to discover that a hostile attack was in progress was to send a reliable, speedy runner to platoon headquarters by the safest route. It was stressed that speed was essential if the heavy weapons were to give proper support.

e. It was ordered that the position be held at all costs. Every man was to stay at his post and fight. A single well-aimed rifle shot was to be regarded as more worthwhile than a badly placed burst of machine-gun fire.

f. The dispatch of a runner was not to be considered necessary when a Very pistol was available. The following signals were to be employed:

Red.....	Attack by hostile force.
Green.....	Artillery barrage has lifted.
White.....	We are here.
Violet.....	Tank attack.

[It should be remembered, of course, that all German signals may be changed frequently.]

g. It was stated that platoon headquarters should have sufficiently good observation to enable the platoon commanders to keep up with the situation and to insure against any hostile attack achieving surprise.

h. Platoon headquarters were to be turned into strong points, so that a hostile force could be engaged at any time from the depths of the position. A reminder as to the effectiveness of enfilade fire was added.

i. It was ordered that, if the next hostile attack were to be made at night and with armor, the forward sections were to fire with everything they had, while the best hand-grenade throwers were to be assigned for this specific duty. It was pointed out that the resulting damage to the opposition's morale might serve to halt the advance.

Section IV. SOME NOTES ON GERMAN MOUNTAIN WARFARE

1. INTRODUCTION

An article entitled "Combat in High Mountains and Extreme Cold," which appeared in *Intelligence Bulletin*, Vol. I, No. 2, discussed certain aspects of German mountain warfare; the material presented below, however, is of much more recent origin, and includes methods not discussed previously.

2. THOROUGHNESS OF PREPARATION

German Army units trained in mountain warfare are committed to the principle that thorough preparation is the key to success. All possible information regarding terrain is obtained and evaluated in ample time before an operation. Local inhabitants are not overlooked as sources of information. Maps are studied with the greatest care, and altitude differences, wooded areas, and trails and short cuts are noted particularly. In studying the objectives, and the routes leading to them, the Germans make every effort to choose "unexpected" ways of reaching an objective,

so as to insure the element of surprise. (This idea was employed with remarkable success in Norway, where the Germans deliberately chose to move by routes locally regarded as almost impassable.)

3. RECONNAISSANCE

In mountain warfare the Germans believe in holding a higher unit, such as a battalion or regiment, responsible for reconnaissance. It is generally performed on foot. The Germans, recognizing that it must necessarily be slow and that guerrillas are likely to be encountered, send out reconnaissance patrols large enough, and appropriately equipped, to engage in combat. Sometimes units as large as a company are sent out for this purpose. The exact size is, of course, determined by the nature of the mission. It is interesting to note that in general the Germans believe in restricting reconnaissance to paths, trails, and other "passable" terrain, even though routes of an "improbable" type may later be considered for tactical surprise. Reconnaissance patrols are equipped with radio.

4. COMBAT NOTES

a. Dispositions and Tactical Movement

(1) In mountainous terrain the Germans assign more troops for defense action than they assign for offensive action.

(2) The Germans believe in a wide front subdivided into areas assigned to assault groups (where attack is

contemplated) or strong points (where defense is contemplated).

(3) Personal resourcefulness is stressed. Noncommissioned officers are encouraged to act decisively, since it often happens that the smallest unit is faced with the necessity of determining a course of action.

(4) The Germans give a great deal of thought to the placing of reserves. They realize that the task of sending reserves where, and when, they are needed is almost certain to be complicated by the terrain factor. Therefore, they try to prepare for all possible eventualities when they place their reserves.

(5) In the attack, the units are strongly organized in depth. They advance sector by sector. Units are told that once such moves have been made, withdrawal cannot be undertaken.

b. Heavy Weapons

(1) "Fewer heavy weapons and more ammunition" is a German principle in mountain warfare.

(2) It is a German policy, after a penetration, to avoid moving heavy weapons forward until proper positions for effective fire in the new situation can be determined.

(3) Heavy weapons are used on the flanks of the forward lines.

c. Fire

(1) The German view is that forces can be concentrated for the main effort only by means of signal communication.

(2) Since ammunition supply presents a difficult problem in mountain warfare, the usual German procedure is to fire only on orders. Single rounds are aimed with the greatest care, for considerations of economy as well as effect.

Section V. GERMAN CLOSE-ORDER DRILL

Figure 19 illustrates the methods of executing a number of commands in German close-order drill, which differs in a number of respects from that used by the United States Army. All German soldiers are accustomed to these commands, which are listed below, together with a pronunciation guide. The unit depicted in figure 19 is a basic German squad of nine men (usually commanded by an *Unteroffizier*, a rank roughly equivalent to the U. S. corporal).

THE COMMANDS

HOW TO PRONOUNCE THEM

- | | |
|--|--|
| <i>"Marschordnung rechts ohne Tritt—
Marsch!—Im Gleichschritt!"</i> | 1. "Marsh-órd-noong REKTS oh-neh
tritt, MARSH! Im glýke-
shritt!" |
| <i>"In Linie zu einem Gliede links
marschirt auf—Marsch!
Marsch!— Im Gleichschritt!"</i> | 2. "In léen-yeh tsoo éye-nem glée-
deh linx mar-shéert owf,
MARSH-MARSH! Im glýke-
shritt!" |
| <i>"Reihe rechts!"</i> | 3. "Rý-uh REKTS!" |
| <i>"Links schwenkt—Marsch! Gerade
aus!"</i> | 4. Linx shvenkt, MARSH! Gráh-
deh owss!" |
| <i>"In Marschordnung links mar-
schirt auf—Marsch! Marsch!"</i> | 5. "In marsh-órd-noong linx mar-
shéert owf, MARSH-MARSH!" |
| <i>"Links schwenkt—Marsch!—Gerade
aus!"</i> | 6. "Linx shvenkt, MARSH! Gráh-
deh owss!" |

THE COMMANDS

"Reihe rechts!"

*"In linie zu einem Gliede rechts
marschiert auf—Marsch!
Marsch!—Im Gleichschritt!"*

"Links um!"

"Abteilung halt—Links um!"

HOW TO PRONOUNCE THEM

7. "Rý-uh REKTS!"

8. "In léen-yeh tsoo eýe-nem glée-
deh rekts war-shéert owf,
MARSH-MARSH! Im glýke-
shritt!"

9. "Linx OOM!"

10. "Opp-tie-loong HAHLT! Linx
OOM!"

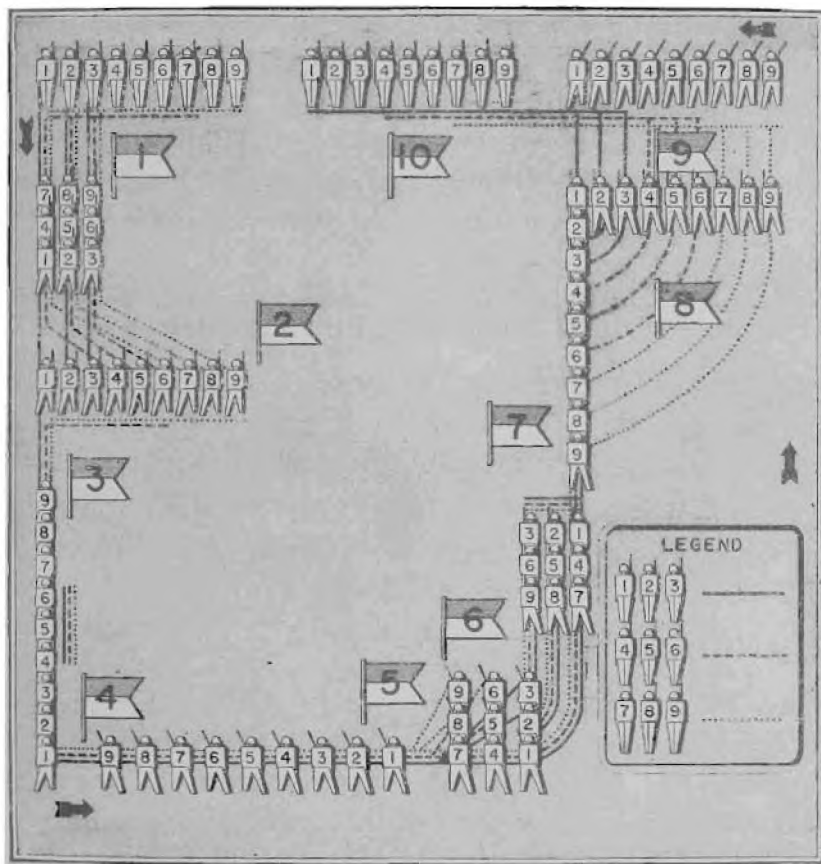


Figure 19.—German Close-order Drill.

Section VI. MORE GERMAN OBSTACLES

Outstanding types of barbed-wire obstacles and concrete antitank obstacles now used by the Germans in continental Europe were discussed in *Intelligence Bulletin*, Volume II, No. I, pp. 40-50. It is believed that the following additional information regarding German defensive preparations in Europe similarly warrants attention.

1. WIRE AROUND PILLBOXES IN WOODS (see fig. 20)

Pillboxes in woods are likely to be protected by wire obstacles about 50 yards in depth, with plain and barbed wire irregularly interwoven among the fences. Also, pillboxes in woods may be screened by wire netting, about 7½ feet high, with firing apertures at the level of the pillbox embrasures.

2. ANTITANK DITCHES

a. The antitank ditch shown in figure 21 serves as a delaying obstacle or as a trap, depending on the depth. The Germans have been tending to increase the width and depth of such ditches. Many ditches in France now exceed the 13-foot width illustrated in

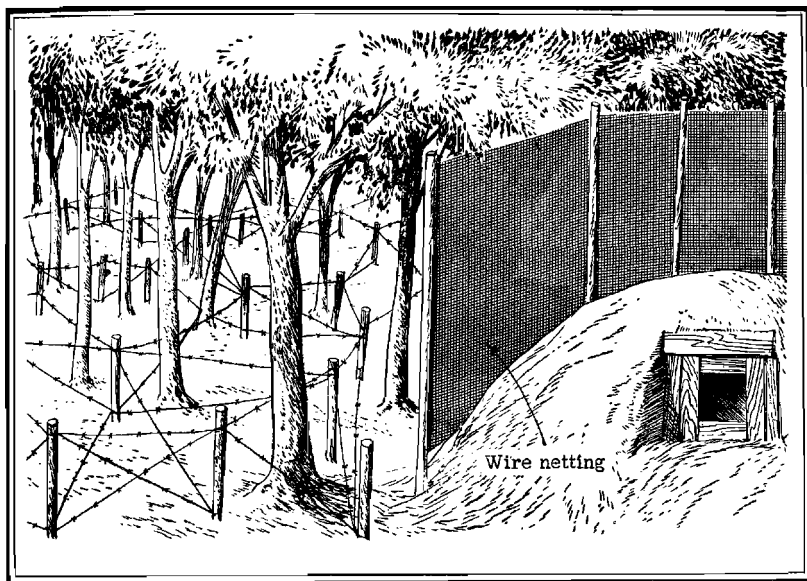


Figure 20.

figure 20. The sides of these ditches are sometimes revetted.

b. The Germans consider “asparagus ditches”—or “fishbone ditches,” as they are also called—useful in ground which is likely to be rather moist (see fig. 22). It is a German principle to mine the spoil used in the parapets.

c. The type of ditch illustrated in figure 23 is revetted with logs. The spoil is used to form a parapet on the German side, while the depression itself is filled with an apron-type barbed-wire fence.

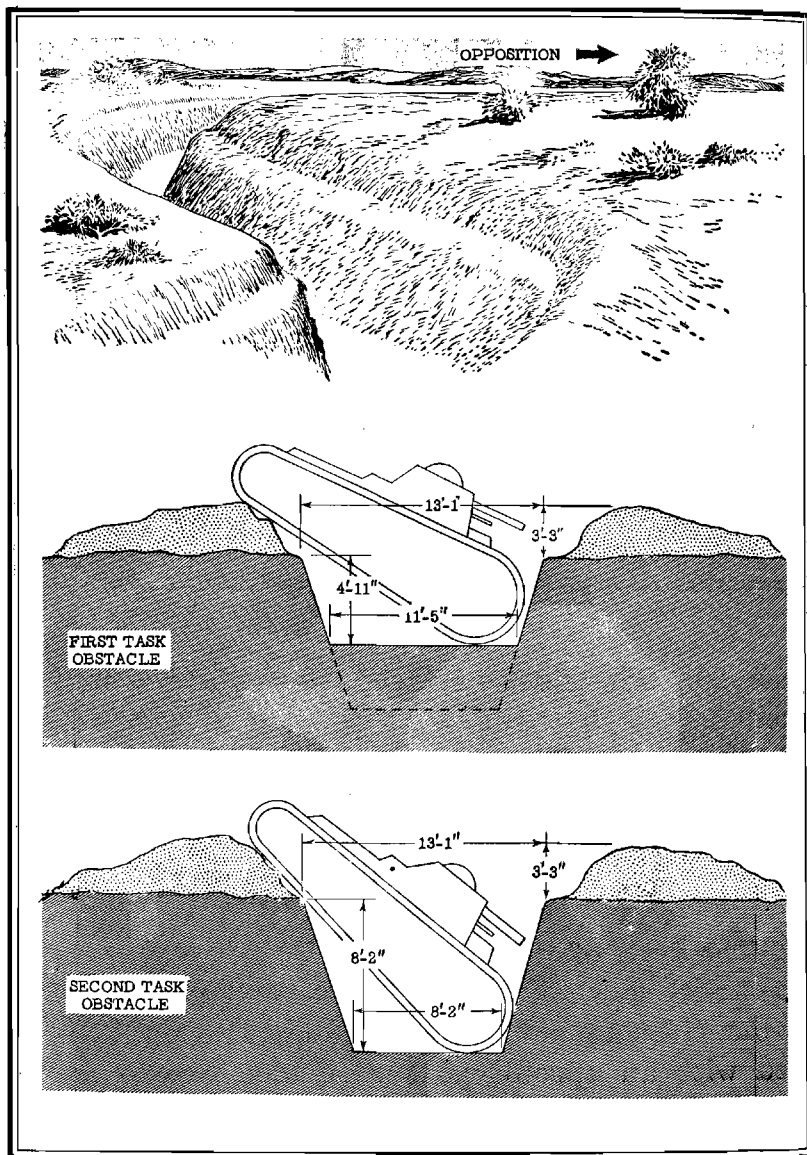


Figure 21.

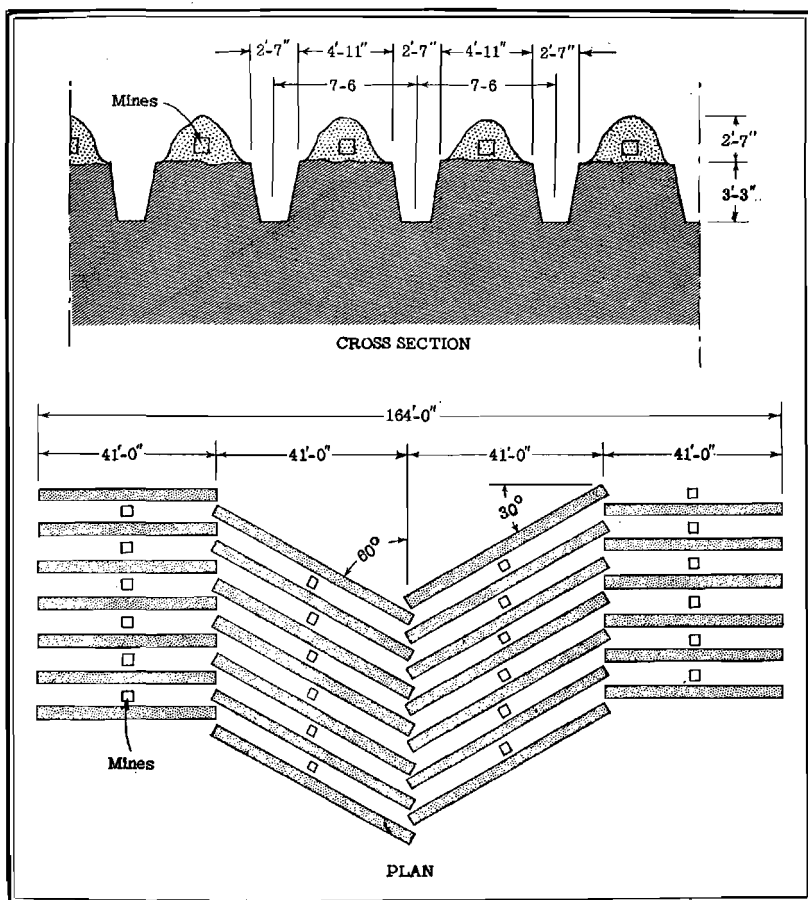


Figure 22.

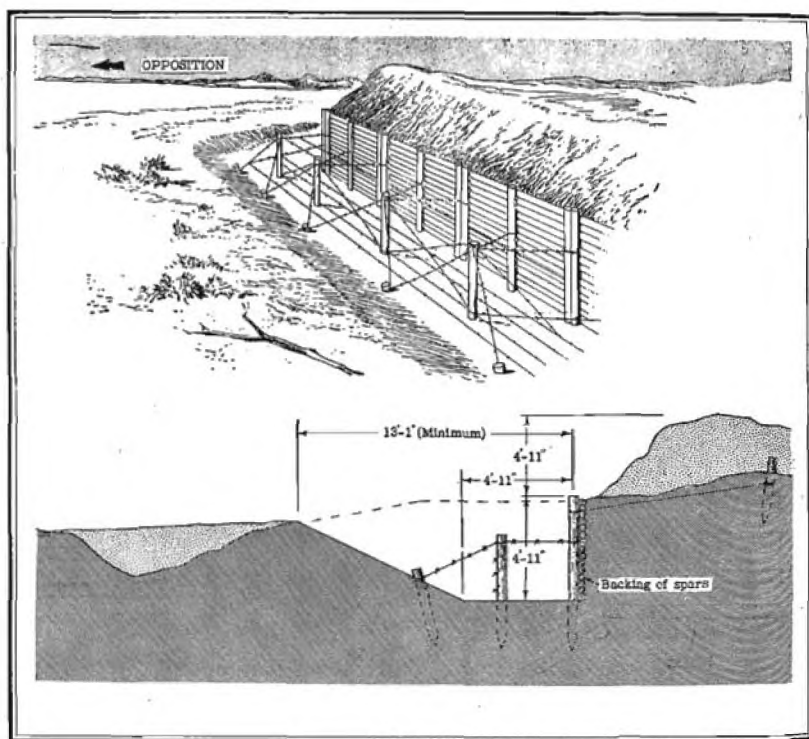


Figure 23.

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C and H (2).

(For explanation of symbols see FM 21-6.)



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