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Section I. METHODS OF EMPLOYING TANKS WITH INFANTRY

1. INTRODUCTION

The following notes on German tactics in the Tunisian campaign have been compiled by the commanding officer of a U. S. armored infantry battalion. They deal with the German use of tanks with infantry in the attack, and with lessons learned and methods practiced by our troops. It should not be inferred, however, that either the German or American methods described here are standard. They were adapted to meet specific situations. As always, local factors and the decisions of individual commanders must be taken into account.

2. OPERATION 1

On one occasion we were defending some rolling country, with our front lines forming an L, our left flank anchored on a river, and our right flank anchored on a mountain.

¹ In line 2, page 44 of *Intelligence Bulletin* No. 8, for April 1943, "30-mm" (a typographical error) should read "50-mm." Also, it has been established that the No. 13 Company of the German infantry (and Panzer Grenadier) Regiment has six 75-mm infantry howitzers, as well as two 150-mm infantry howitzers. Therefore, "6" should be substituted for "9" in line 18, page 45 of the same issue.

The Germans, after several days of intermittent artillery fire, attacked the eastern part of our defensive line with wave after wave of infantry. When this did not succeed, they dive-bombed and strafed a secondary hill which was holding up their attack. This did not break our position, so they attacked with tanks (see fig. 1).

Twelve tanks began working between our left flank and the river, six tanks began working toward the bend in our lines, and 20 tanks began moving toward our right flank between the right of C Company and the mountain. The group of 20 divided itself into a group of 12, which continued to move ahead, and a group of eight, which worked around the left of C Company. All the tank movements were very slow and cautious.

I believe that the 12 tanks working between our left flank and the river succeeded in infiltrating to some extent. Earlier in the day, when elements of B Company were counterattacking to restore a part of A Company's position, they had occasion to fire at a haystack and out wobbled a Pz. Kw. 6. This tank was well behind A Company's lines. Actually, the group of 12 did no great damage; however, they threatened our flank, later causing us to withdraw A and B Companies.

The six tanks which attacked the bend in our lines apparently never got onto our position. Their mission seemed to be more one of diversion, to attract our attention. However, these tanks may have been stopped from coming onto our position when we placed the fire of our 75-mm assault gun on them.

The 20 tanks which approached our right flank, later splitting into groups of 8 and 12, moved at a good speed until they were within several miles of our position. The 12 tanks which approached our right flank moved cautiously to within 1,000 yards of our position, and then halted in line, facing us. Our artillery fired on them, and an artillery duel then took place. (These tanks, as events later proved, were endeavoring to decoy our tanks into the flanking fire of concealed and camouflaged 88-mm

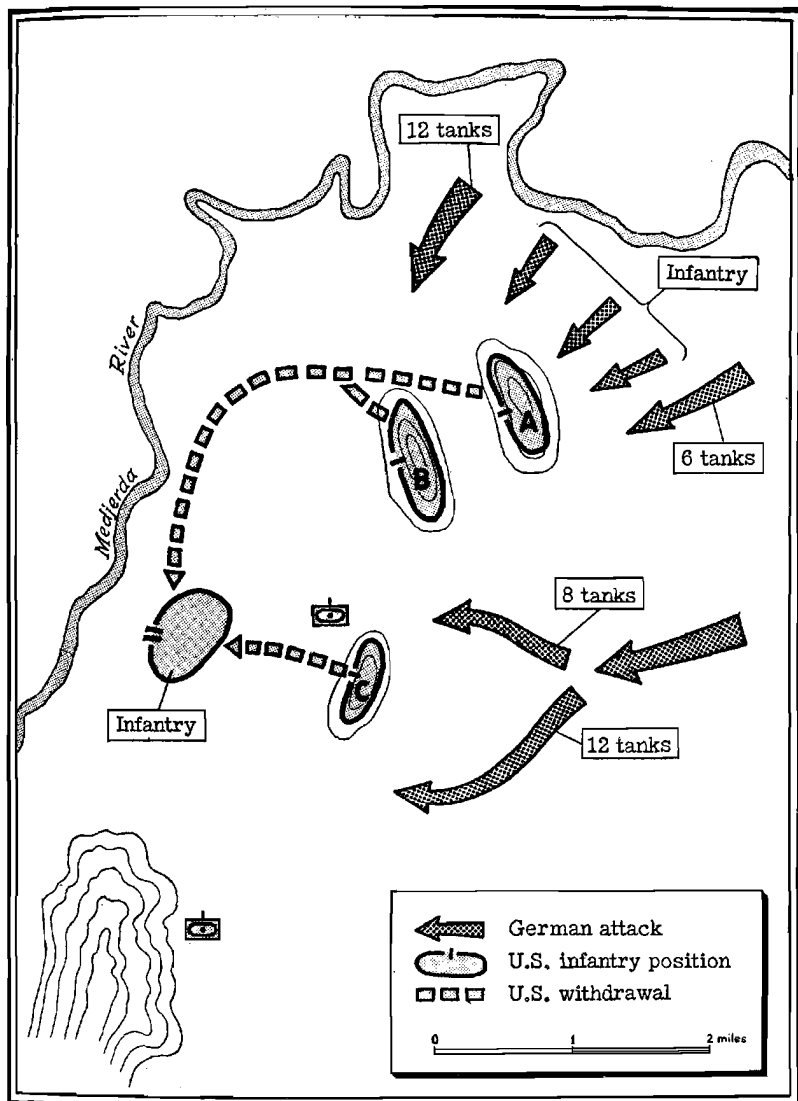


Figure 1.

antitank guns.) Our 37-mm antitank guns and an assault gun fired on the German tanks, and they returned the fire. They made no effort to advance nearer than 1,000 yards. They had a certain amount of defilade, but many of the tanks were fully exposed. The eight tanks moving toward the left of C Company advanced very cleverly through draws and depressions until they finally penetrated our position and overran the artillery and infantry positions, forcing C Company to withdraw. These eight enemy tanks occupied the ground, but did not pursue the infantry. In the action thus far, approximately six German tanks were knocked out.

At this time our medium and light tanks came to our rescue around both sides of the mountain on our right flank, and immediately attacked the 10 remaining tanks out of the 12 which had stopped 1,000 yards from the right flank of our position (see fig. 2). These tanks were bunched closely together in line and facing our oncoming tanks. The German tanks immediately withdrew about 1,000 yards to a defiladed position. As our tanks advanced, they came under fire of camouflaged 88-mm guns to their right flank. To the best of my knowledge, about six of our medium tanks and two light tanks were knocked out, with no loss to the German tanks. The German tanks stayed well behind cover and fired only a few times. The battle ended at nightfall, and our tanks withdrew.

The remainder of the eight tanks which overran our artillery and occupied C Company's position remained in that position and took a distinctly minor part in the battle, firing only a few times.

* * * * *

In this operation (see fig. 1) the enemy attacked with his infantry and was successful in getting some of his infantry onto A Company's position. In the rear of the position, A Company had half-track vehicles. These were immediately used to launch a counterattack; the .30-caliber gun mounted on the

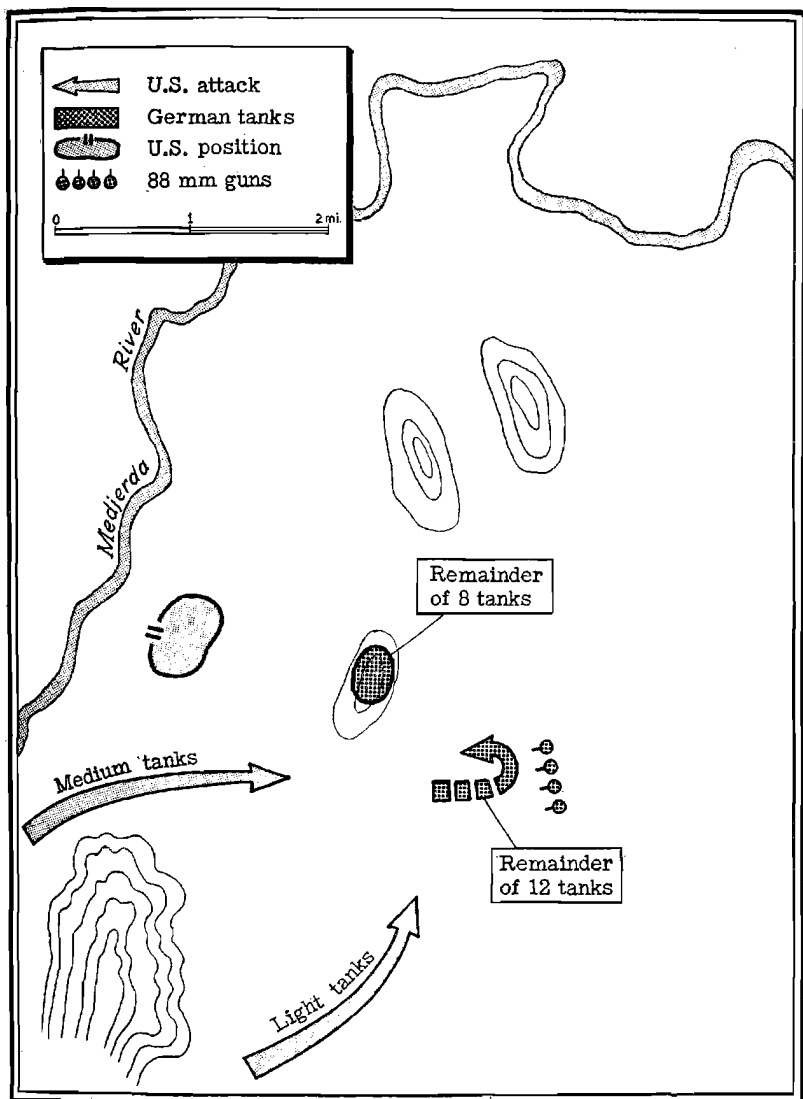


Figure 2.

half-track provided fire, and the track itself was employed to run over the enemy's personnel and his light machine-gun positions. The use of these half-tracks in a counterattack to regain a position proved highly effective.

3. OPERATION 2a

After several days of very heavy rains, movement across country was extremely difficult. Vehicles of every type were in constant danger of bogging down in the mud. We occupied a mountain (see fig. 3). At our left was a river, then a broad open plain, then a highway, then another plain, and then a large mountain range.

About 15 German tanks attacked, moving down the highway in column, with not more than 10 yards between tanks. They moved at a speed of only 2 or 3 miles per hour, and the German infantry kept up with them. The Germans were cautious. They seemingly fired at every little bush or terrain feature which might possibly conceal a gun, although there were no American or British troops in that particular area between the river and the mountain range. On the right flank of the enemy tanks, between the highway and the mountain range, the German infantry advanced in a deployed formation, covering the entire space between the highway and the mountain range. The German infantry continued to advance at the walk, and finally disappeared out of sight, in the direction of Medjez-el-Bab. The tanks continued to advance down the highway, but when they came to a junction with a road leading to the river, four German tanks moved down that road to the river bridge. There they halted on the road, and fired on some of our medium tanks, which were in defilade across the river. Before withdrawing, the German tanks apparently fired until they were out of ammunition. So far as I know, no damage was done to their tanks or to ours. The range from our defensive position to the

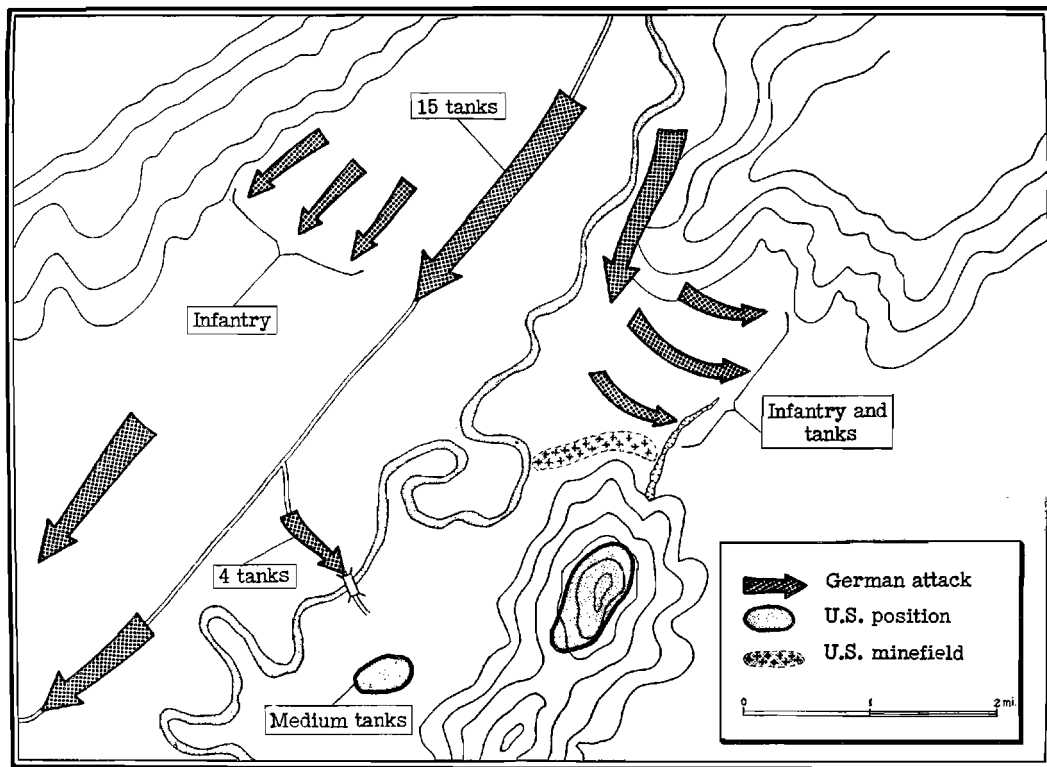


Figure 3.

highway was too great for antitank fire. The range from the bridge to our tanks was well within effective range for fire.

4. OPERATION 2b

In front of our defensive position, we had a minefield extending from the river to a ravine (see fig. 3). Out in front of that was a large hill mass. Between the river and the hill mass, the Germans moved out to attack our position. They attacked in many waves of infantry: each wave was a line of section columns or platoon columns. Dispersed through this deployed infantry formation were 10 to 15 German Pz. Kw. 3's and Pz. Kw. 4's, advancing with the infantry and firing directly on our position. The ground was extremely wet, and the tanks moved very slowly. In fact, at times they scarcely seemed to be moving at all. They approached to positions near the minefield, where they stopped and shelled us for a while. Then they turned to the left, moved along in front of the minefield, and disappeared to our right flank. Because of the emergency of the situation, we had laid part of the minefield by daylight, and it is quite possible the Germans knew its exact location. The infantry advanced with the tanks until the former was only a short distance from the minefield. At this point the infantry was broken by our fire, and moved into the hills, disappearing to our right flank.

Because of the threat on the other side of the river (indicated in Operation 2a) to envelop our left flank, we were then ordered to withdraw to new defensive positions. By nightfall we were no longer in contact with the enemy.

5. OPERATION 3

Defensive positions in this battle were held by the French. The Germans launched a frontal attack on Rebaou (see fig. 4) with infantry supported by direct fire from tanks moving with

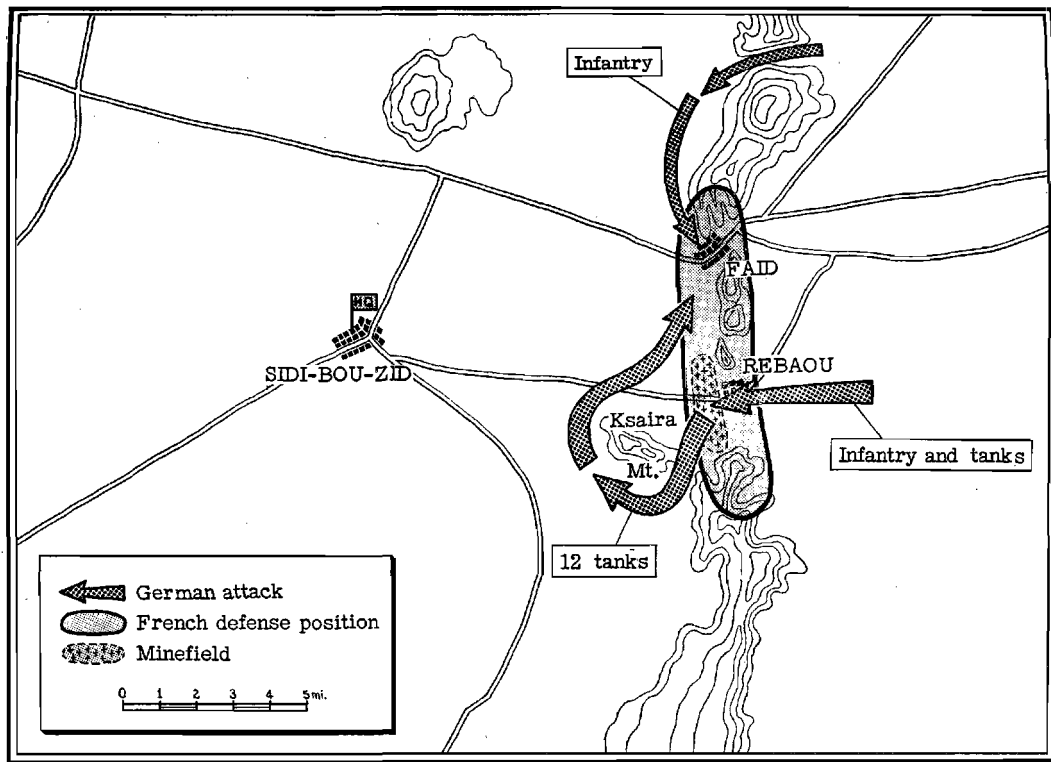


Figure 4.

the infantry. Several Pz. Kw. 6's were used in this attack. At the same time the Germans attacked Faïd from the north and west with infantry. Rabaou was taken during the morning. The tanks broke through the minefield and moved as shown in figure 4. After rounding Ksaira Mountain, they made no attempt to attack the village of Sidi-Bou-Zid, which was the French headquarters, but headed directly for the main pass through the mountains at Faïd. Their movement across the large open space from Ksaira to Faïd was quite slow. When the German tanks were within 1,000 to 2,000 yards of the village of Faïd, they began to shell the village and the pass. After about 30 minutes of this, they moved into the village. The defensive positions on either side of the pass were thus completely surrounded.

6. OPERATION 4

We were occupying hill "C" (see fig. 5) and attacked hill "A" with infantry only. The attack was successful on "A" and a number of prisoners were taken. Although we had only light machine guns, rifles, and light mortars when we occupied "A," we immediately directed our fire upon hill "B." After a few minutes, a white flag was raised on "B," and enemy troops began pouring out to surrender. Just as they reached the foot of "B," two German tanks moved out of a shallow gully and covered us on hill "A." Surrender of the enemy on "B" stopped. The tanks then forced us to withdraw, and we lost hill "A" and "B" and the prisoners on "B." The tanks fired machine guns and 47-mm high explosive at us. Since we had no antitank weapons at hand at the time, we were forced to give up hill "C."

In other words, the German tactics had consisted of hiding several tanks in a defensive position so that a counterattack could be launched. The counterattack was successful because when we reached the position, we were carrying only machine guns, rifles,

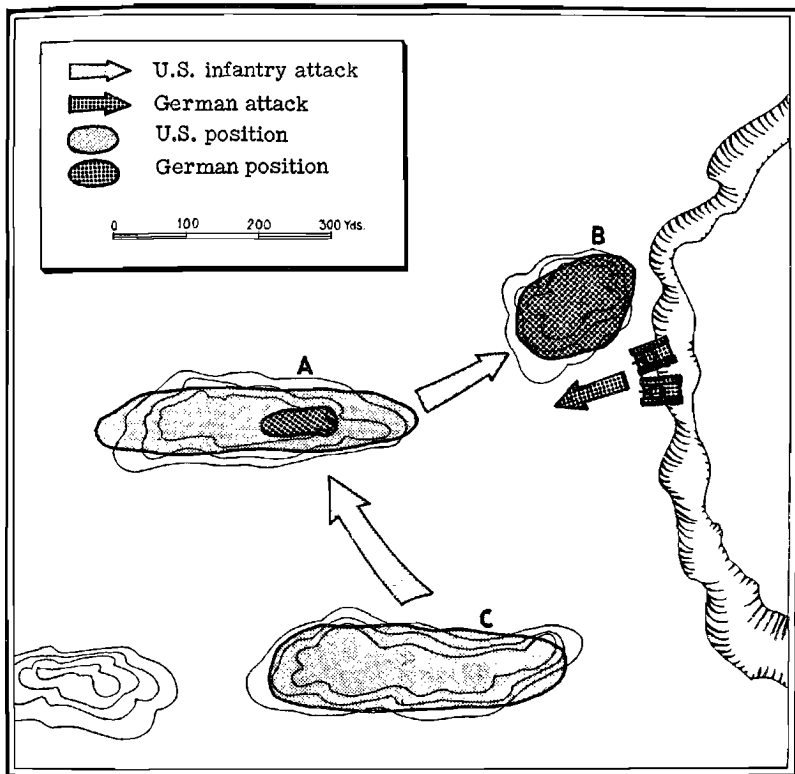


Figure 5.

and mortars. As a result, the Germans had armor and weapon superiority.

Another U. S. military observer, commenting on this action, points out that a plan of attack should provide for aggressive defense measures to hold captured ground which is certain to be counterattacked, and that these measures should automatically include aggressive anti-tank defense.

7. OPERATION 5

We occupied a defensive position in the sand dunes, cactus patch, and nose of Hamra Mountain (see fig. 6). The enemy occupied Lessouda Mountain, Sidi-Bou-Zid, and the mountain range east and south of Sidi-Bou-Zid. The country was open and flat. The distance from Hamra to Lessouda was about 10 miles.

Early in the morning six German tanks moved out to a position (see point X in fig. 6) several miles in front of our position. The tanks were closely grouped. We placed artillery fire on them, and they moved just outside our range. They maneuvered all day in the vicinity of this position, moving laterally back and forth across our front, but not coming any nearer to our own position. At 1500 the number of tanks increased to about 12. They still continued to group themselves closely and to move about on our front, attracting our attention but not advancing on our position. Shortly after 1500 a large column of 20 to 30 tanks was discovered moving to our left flank. These tanks were moving very slowly so as not to raise any dust. They were taking advantage of all possible defilade, and in general were moving on the lowest ground. Movement must have been under way for a number of hours. Shortly after this, a column of about 15 tanks was noticed moving slowly to our right flank; it was taking advantage of defilade and whatever cactus cover was available. No infantry or accompanying guns came up with these tanks. It was purely a tank attack. Until darkness, a battle took place on our position between the enemy tanks and our tank-destroyer guns (we luckily had several with us), our 37-mm guns, and some of our medium tanks. Our infantry was withdrawn when the battle seemed to be developing into a tank versus tank affair. In this action we lost two tanks, and the enemy lost six. We were ordered to a new defensive position; this movement began at nightfall.

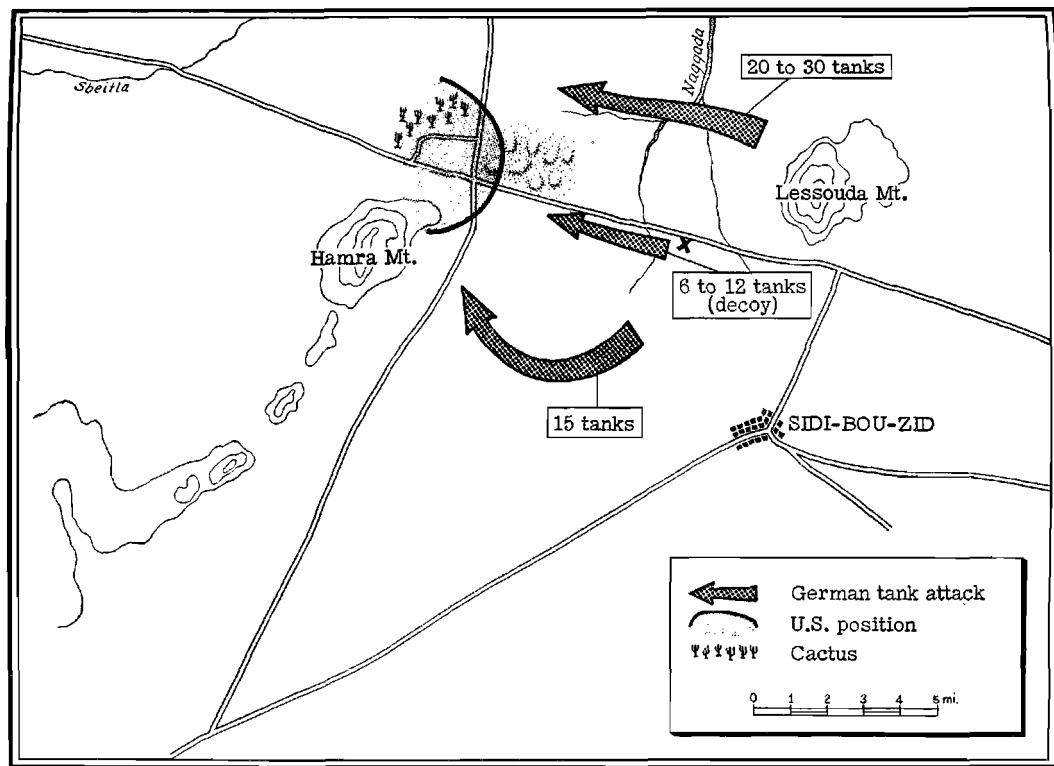


Figure 6.

Shortly after the withdrawal started, the 10 or 12 tanks that had been moving about on our front all day began to attack straight down the highway. Firing erratically, they approached our new defensive position, causing a great deal of confusion and disorganization until they were finally driven off by the direct fire of our artillery.

It is believed that the Germans attempted to use the tanks at our front to attract our attention in order to sneak the other tanks around both flanks in a double envelopment. Then, after dark, these tanks were ready to launch a night attack, using the highway as an axis.

8. OPERATION 6

One of our companies, occupying high ground, was attacked and driven from its position. Behind the position we had three light tanks which had been assigned to the battalion, as well as three light tanks from a light tank platoon which had been attached. These six tanks were immediately used in a counter-attack. We succeeded in driving the enemy from the high ground and in reoccupying it.

9. OPERATION 7

The day after Operation 4 took place (see fig. 5), the attack was repeated. This time our infantry was accompanied by light tanks. At first our infantry was pinned down by small-arms fire while moving from hill "C" to hill "A." The tanks were immediately moved forward to bring machine-gun and 37-mm high explosive fire on hill "A" at point-blank range. Our infantry moved immediately behind these tanks, successfully occupied hill "A," and captured a number of prisoners.

An attack was then launched on hill "B." The entrance to the dugout on hill "B" faced the right end of hill "A." Our

light tanks began to pour 37-mm high explosive into the entrance of the trench, and the enemy immediately surrendered.

10. OPERATION 8

Several unsuccessful attempts had been made to take a small hill with infantry alone. Finally, two tank destroyers (M10) and several light tanks were moved into a position from which the hill was almost within point-blank range. They began to shell the hill with a terrific amount of direct fire. This was most successful, and our infantry promptly occupied the hill.

11. TANKS WITH INFANTRY

In my battalion we had one light tank with each infantry company. The purpose of this tank was twofold:

First, it was to be with the infantry company at all times—especially to sit behind it on a defensive position and remain in readiness to counterattack to restore the position. In an attack, enemy infantry is traveling light when it reaches and takes a position, generally arriving with only rifles, light machine guns, and light mortars, and with few antitank weapons or none at all. Thus if an armored vehicle or tank is available for use in a counterattack against the enemy, it will almost always succeed in forcing him from the position. We did this in Operation 6 by using tanks, and in Operation 7 by using half-tracks. The Germans had successfully used the same method against us in Operation 4.

Second, a tank accompanying infantry in the attack, firing directly with machine-gun fire and especially high explosive, is paralyzing in its effect upon the enemy. Also, infantry can follow it closely. It has been found that this fire, directed point-blank at enemy positions, is exceedingly difficult to live through. We employed it successfully in Operations 7 and 8. Without this

direct fire, the hill would probably not have been taken. The Germans once employed this direct fire against us, but it failed—partly because we were holding a strong defensive position at the time. However, they have employed it successfully against other units, and seem to be skillful at coordinating this direct fire with their infantry advance. In the Gafsa-El Guettar region they used it successfully against infantry elements. The Germans moved their tanks with their infantry, placed direct fire on the American position, and forced our men to keep down until the German infantry and tanks were on our position.

In an effort to escape the effect of this type of direct fire, as well as observed artillery fire, there was a tendency in Tunisia to defend the forward slope of a hill at night and to defend only the reverse slope during daytime. The Germans are very good at this business of reverse-slope defense, and our units at the front simply adopted the method. It works in the following manner:

A few automatic weapons are placed on the forward slope of the hill to make the attacker fight his way to the top. A large part of the defending force is dug-in on the reverse slope of the hill with machine guns sighted to fire on the crest. When the attacker arrives at the crest, these guns are immediately fired as he exposes himself on the skyline. The bulk of the infantry on the reverse slope is immediately used in a counterattack against the attacker, who usually is in a poor state of organization when he arrives at the top of the hill. Counterattacks may be delivered over the crest of the hill, or else around the sides of the hill in a double envelopment.

The Germans have used this form of defense on many occasions. An outstanding example was the battle of Longstop Hill (east of Medjez-el-Bab). An officer who took part in this action tells me that there were four ridge lines, which the Germans were occupying. The first three were defended rather lightly, and the last ridge was the main defensive position. There were

enough automatic weapons dispersed on the slopes of the forward ridges to make the attackers fight their way up. As soon as the top of the first ridge had been taken, all guns on the second ridge were laid and fired on the crest line of the first ridge. Thus the attackers had to fight their way down the slope of the first ridge to get to the forward slope of the second ridge, and so on, until the last ridge line was reached. When the crest line of the last ridge had been reached, it was found that the Germans had the bulk of their force on the reverse slope, where their machine guns were sighted for grazing fire toward the crest. As the attackers came over this crest, they came under the grazing fire of these machine guns. They were counterattacked by the German infantry occupying positions on the slope; as a result, our attack was beaten off, and we sustained heavy losses. Reverse-slope defense involves making a number of difficult decisions: the best line on the reverse slope to defend from, where to place the automatic weapons on the forward slope, when to counterattack, and whether to counterattack over the top of the hill or around the side of the hill in an envelopment.

The whole purpose of reverse-slope defense is to shield oneself from the direct fire of assault guns and tanks and against observed artillery fire. In fact, it seems to be the only satisfactory defense against this type of attack. Naturally, the employment of antitank guns on reverse slopes and secondary ridges is a vital part of the reverse-slope defense.

Section II. COMBAT IN HIGH MOUNTAINS, SNOW, AND EXTREME COLD

Official German military doctrine dealing with the tactics to be used in high mountains and under conditions of extreme cold is summarized in this section. The information has been extracted from German Army documents.

1. IN HIGH MOUNTAINS

a. Command

The German Army emphasizes that the skill and leadership of junior commanders are severely tested in mountain warfare inasmuch as forces will generally be split into relatively small groups. The efficient handling of these groups demands a high standard of training and discipline. Columns will often be separated by wide areas of difficult country, and, since lateral communication is often very difficult, command of deployed units becomes much more complicated than during operations over ordinary terrain.

b. Movement

(1) The Germans recognize that the limited number of trails and the tendency of men and animals to become exhausted have a decisive influence on movement.

(2) Units are divided into numerous marching groups, none of which is larger than a reinforced company, a gun battery, or an engineer platoon. The Germans maintain that in this way the danger of ambush can be overcome, and each group can fight independently.

(3) Engineers are well forward (with protective patrols) to help repair roads.

(4) Aware that small enemy forces can hold up the advance of a whole column, the Germans consider it necessary to have single guns well forward. They also regard flank protection as very important; for this reason stationary, as well as mobile, patrols are used.

(5) When unusually steep stretches are encountered, infantry troops [probably reserves] move forward and disperse themselves among the pack animals of the artillery, for the purpose of helping the artillery in an emergency.

(6) Pack artillery moves at march pace ($2\frac{1}{2}$ miles per hour) and after marches of over 6 hours, 3 to 4 hours rest is necessary. Short halts are considered useless, because men and animals must be able to unload.

(7) The Germans stipulate that for every 325 yards ascent or 550 yards descent, 1 hour should be added to

the time which would be estimated necessary to cover the same map distance on ordinary terrain.

c. Supplies

(1) The supply echelon may include some, or all, of the following means of transport: motor vehicles (with preference given to vehicles of from 1 to 2 tons), horse- and mule-drawn vehicles, rope railways, pack animals, and manpower. Transport aviation may also be used if the terrain permits.

(2) The Germans have found that a cart drawn by two small horses can be highly practical in mountainous country.

(3) The German Army stresses that supplies must initially be packed in containers suitable for pack transport, in order to avoid a waste of time in repacking en route.

(4) Man loads vary from 45 to 75 pounds.

(5) In general, supplies are organized into valley columns and mountain columns. Valley columns carry supplies for 2 days, and mountain columns carry supplies for 1 to 2 days.

d. Weapons

(1) Light machine guns are used more often than heavy machine guns.

(2) Mortars are used extensively, and often replace light artillery.

(3) Antitank guns and heavy machine guns are mostly used for covering road blocks.

(4) It is a German principle that effectiveness of artillery fire from valleys depends on the careful selection of observation posts, and on efficient communication between these posts and single gun positions. "It cannot be overemphasized," the Germans say, "how difficult it is for artillery to leave the roads or level ground."

(5) In general, the emphasis is on the lighter weapons.

e. Reconnaissance

Apart from normal reconnaissance tasks, it is considered important to mark trails to show: which areas can be observed by the opposition, how far pack transport can be used, where trails need improving, and where troops must assume the responsibility of carrying everything themselves.

f. Signals

(1) The Germans use radio as the primary means of communication, because of the great difficulty of laying lines.

(2) Motorcycles and bicycles are used in the valleys.

(3) The Germans take into account the fact that lateral communication is often very difficult and sometimes impossible.

g. Engineers

German engineers in mountain units are assigned the following tasks in addition to their normal duties:

bridging swift mountain streams, clearing mule trails, and constructing rope and cable railways.

h. Attack Tactics

(1) Attacks across mountains usually have the subsidiary missions of protecting the flanks of the main attack (usually made through a valley), working around the rear of the opposition, or providing flanking fire for the main attack.

(2) It is a German axiom that the early possession of commanding heights is essential to the success of forces moving along the valleys.

(3) Generally, the German main attack follows the line of valleys, which alone gives a certain freedom of movement to a strong force and the necessary supply echelons.

(4) German troops attacking uphill are always on guard against falling rocks and possible landslides caused by supporting artillery fire.

(5) The Germans have found that attacking downhill, while easier for forward troops, often presents tactical and ballistic problems for the artillery.

i. Defense Tactics

(1) German officers are reminded that defense of any large area of mountainous country ties down a very considerable number of troops.

(2) The Germans believe that if a crest is to be defended, it is better to have only the outpost position

on the crest or forward slope and to have the main line of resistance, with heavy weapons, on the reverse slope.

j. Training

(1) In general, the basic training of German mountain troops is that of normal infantry units. Specialized training comes later.

(2) Battalion officers are trained mountain guides, and must pass tests annually.

(3) All guides are required to be expert at map reading and the use of altimeters, at judging weather conditions, at recognizing dangers peculiar to mountainous country, and at overcoming great terrain difficulties in order to reach observation posts.

(4) The necessity for noiseless movement is emphasized, inasmuch as under certain conditions sound may travel farther in mountainous terrain than in open country.

(5) It is stressed that ammunition must be used economically.

(6) Since troops are likely to be separated from their units for a number of days, the Germans require a high standard of discipline and physical toughness.

2. IN SNOW AND EXTREME COLD

a. Movement

(1) *Marching.*—The Germans consider it important that clothing should not be too warm. Weapons are covered. Advance guards are strong, and heavy weap-

ons and artillery are well forward. Antitank weapons are distributed along the column. Ski and sleigh troops may be sent out to guard the flanks. Plenty of towing ropes are loaded on motor transport, and horse-drawn and hand-drawn sleighs are considered very useful for transporting weapons and supplies.

(2) *Halts*.—In contrast with normal German practice in mountains, halts are short when the temperature is very low. Motor transport vehicles are placed radiator to radiator. Snow is cleared under the vehicles, and some sort of foundation is provided for the wheels.

(3) *Restrictions*.—The Germans limit the use of the tanks and motorized units when the temperature is lower than 5 degrees above zero (Fahrenheit). Motorcycles are considered useless when the snow is more than 8 inches deep. Snow is regarded as a tank obstacle when it is higher than the ground clearance of the tank's belly. German tractors can negotiate snow up to 1 foot in depth; at 1 foot the use of snow-clearing apparatus becomes necessary. At very low temperatures, gasoline consumption is reckoned at five times the normal rate. Snow deeper than 1 foot 4 inches is considered impassable for pack animals.

b. Weapons

The German Army warns its mountain troops that:

(1) Distances are usually underestimated in clear weather and overestimated in fog and mist.

(2) At low temperatures weapons often fire short at first.

(3) Ammunition expenditure tends to rise very sharply when visibility is bad.

c. Reconnaissance

When German reconnaissance units are operating in mountains under conditions of extreme cold, extra tasks include obtaining information about the depth of snow, the load capacity of ice surfaces, and the danger of landslides and avalanches.

Regarding direction signs, the Germans warn that the opposition will use every possible form of deception, and that great care must be taken in interpreting the direction of trails correctly. It is acknowledged that there is an ever-present danger of being diverted into an ambush or a strongly defended position.

The usual German methods of indicating trails are to mark trees and rocks, erect poles, and set up flags on staffs. Stakes are used to denote the shoulders of roads.

d. Signals

It is noted that a greater length of time is needed for laying communication wire under mountain conditions, and that cold and dampness lowers the efficiency of a great deal of signal equipment.

e. Attack Tactics

(1) Because of the difficulty of movement, assembly areas are nearer the opposition than is normally the case.

(2) Limited objectives are the rule.

(3) Because deployment is so difficult, it is often delayed until contact has been made.

(4) Combined frontal and flank attacks are used wherever possible.

(5) Commanding positions are considered of added value and are occupied by mobile troops as quickly as possible.

(6) Decentralization of weapons is authorized so that units can deal with surprise attacks without delay.

(7) Attacks are often made by ski troops.

f. Defense Tactics

German mountain troops are taught that under conditions of snow and extreme cold:

(1) Obstacles take much longer to build.

(2) Strong outposts are highly valuable because they force the opposition to undertake an early deployment.

(3) The usefulness of snow as protection against fire is often overestimated.

(4) Heavy snowfalls render mines useless.

Section III. ANTITANK TACTICS AS SEEN BY U. S. COMBAT PERSONNEL

The following comments on German antitank tactics in Tunisia are from members of a U. S. armored division. It is believed that these descriptions of the enemy in action will be of interest and value to junior officers and enlisted men.

1. A BATTALION COMMANDER

German antitank gunnery in Tunisia made our reconnaissance a particularly tough job. The Germans dragged up their big 88-mm guns and dropped them in position behind their tanks. Usually a crew dug its gun in a hole 12 by 12 by 6 feet deep, virtually covering up the shield and exposing only the barrel of the gun. We found these guns especially hard to locate. (In fact, they can break up your whole show if you don't pick them up in time.) Apparently the Germans used mats to hide the muzzle blast. Once we hunted three days for a gun, which was within 1,000 yards of us, and then found it only by spotting the personnel approaching the gun position.

Generally, the Germans tried to suck us into an antitank-gun trap. Their light tanks baited us in by playing around just outside effective range. When we started after them, they turned

tail and drew us within range of their 88's. First, they opened up on us with their guns in depth. Then, when we tried to flank them, we found ourselves under fire of carefully concealed guns at a shorter range. We've just got to learn to pick off those guns before closing in.

When the Germans went into position, they hid their guns and tanks in anything available, including Arab huts. Then they dressed their personnel in Arab garb so that these men could go to and from their positions. Usually the Germans tried to draw us within a 1,200-yard range. They frequently used machine guns to range themselves in, and we ducked their shells by watching that machine-gun fire. When they were moving, they shot at anything that looked suspicious, and generally knocked down every structure in sight. (We thought this a good idea, and followed suit.) Sometimes the Germans got the range with high-burst smoke shells. But when we saw three of those in a line, we took off. We had discovered that it was the high sign for the Stukas.

One evening several Mark¹ IV's followed a British tank column right up to their tank park until a 25-pounder battery spotted the strangers on the tail of the column and blew them off the road.

Later the lieutenant colonel was asked a question about the use of tanks in action. He said:

The Germans towed their 88's behind their tanks. (Maybe they brought up 75's, or both; I know they brought up 88's.) They towed them up and dug in. Their tanks came out and attracted our attention, and, until we caught on to their tricks, the tanks led us right between the guns, got behind us, and gave us the works. We learned not to form the habit of going for

¹ A British designation that Americans often use instead of the German *Pz. Kw.* (*Panzer Kampfwagen*).

the first 88's which shot at us. There were likely to be several much closer up. The first 88 that barked and the first tank were generally bait, and we had to refrain from plunging at them. When they staged any night attack or late evening attack, and neither side pressed the fight, the Germans put their 88's in No-Man's-Land way ahead of where their tank positions were. In one instance their tanks were within 1,000 yards of a pass, but their guns were 4,000 yards ahead of the pass.

Four 88's, if dug in, are a match for any tank company. They are the most wonderful things to camouflage I have ever seen. They are very close to the ground.² You can watch the fire coming in; little dust swirls give the guns away and show how low they are. The projectiles just skim over the ground. The pit is 12 by 12 by 6. The gun looks like a pencil or black spot. The shield is level with the piece, and all you can really see is the tube. In Tunisia the crews, dressed in Arab clothes, did everything they could to camouflage positions. Our artillery found that it could get them out with high-explosive. When a tank gun could find them, it could get them out, too.

Over 1,200 yards there was no use in worrying about the 88. Its fire bounced off our medium tanks at that range. Under 1,200 yards, we took care to watch out. His gunnery stank at long ranges. In general, I felt that our men were better.

We soon learned to pick off the leader of a tank group. After a while we were able to tell which was the leader, because of certain differences in behavior. When we got one of their commanders, the other tanks stopped and seemed sort of dazed.

One day I had an interesting experience. Ten German tanks were sitting on a ridge, shooting at half-tracks. They had been at my left rear and I hadn't seen them. There were Mark IVs, some Mark IIIs, and a Mark VI. They stopped on the crest and

² See *Intelligence Bulletin* No. 9, page 59, for sketch of an 88-mm AA/AT gun, dug-in.

did a right flank and started to get in column. The Germans sometimes put a Mark VI in the middle and the others on the flanks—always making one flank heavier than the other, however. We picked out one and hit him, and he stopped. We burned the next one. Then the Mark VI, which I had thought was a Mark IV, came close. The Mark VI tanks are hard to identify, but have a more or less square outline with an offset box on the side.³ We bounced four rounds off the front of him. Then another tank came up right along side of him, and it was easy to move a hair's breadth to the left and pick him off. (We had no AP, so I know an HE will crack a Mark IV. You should shoot low, and it will ricochet and kill them in the turret, or damage them so they will be of no use.) We had to move out of it when the Stukas appeared.

Whenever Stukas came along, the German tanks sent up colored flares to identify themselves. Then, with three smoke shells, they marked a target for the Stukas.

The Germans used a lot of high-burst ranging. I noticed that the artillery was likely to fire a round, apparently getting the range from the map, and get one overhead and then drop right down on us. It was comparatively easy to dodge an 88, because they started with machine-gun bullets. When they began hitting us, we moved suddenly to the right or left to avoid the fire.

2. A COMPANY COMMANDER

When you fire on the German tanks, they play a lot of tricks. When we fired on them in Tunisia, they stopped, leading us to think that we had knocked them out. When we turned around on something else—wham, they opened up on us!

It would really be worth your time over in the States to shoot at your men at night with tracer bullets. In Tunisia the Ger-

³ For a description of the Pz. Kw. 6, with sketches, see *Intelligence Bulletin* No. 10, pp. 19-23.

mans used tracers and sometimes raised hell with our troops. Tracers throw a hell of a scare into you, anyhow; each one looks as though it's headed straight for you. The Germans are cracker-jacks at night fighting, I might add.

I'm also concerned about another question of tactics, which is probably none of my business. We had always been taught that the Germans attacked at dawn or in the early morning light. Actually, just to confuse us, they were even more apt to hit us at dusk, when there was only half an hour of light left in the sky. Then they threw everything they had at us—including their star shells and Very lights—in an attempt to put us on the run.

3. A TANK COMMANDER

I think that a battalion of infantry trained to operate at night could slip into a German tank park and really raise hell. One night, after we had been burned out of our tank during action, we made our way to within 30 yards of a parked tank, thinking it was an Arab hut. The Germans don't seem to worry so much about security at night.

Section IV. 75-MM ASSAULT ARTILLERY

The German 75-mm assault gun is a weapon comparable to the U. S. 75-mm and 105-mm self-propelled guns. The gun and mount weigh about 20 tons. The maximum speed across country is about 7 miles per hour; on roads, about 22 miles per hour. It can average about 15 miles per hour. On normal roads its radius of action is about 100 miles; across country, about 50 miles. To move an assault-gun battery ¹ 100 kilometers (about 65 miles) requires 4,000 liters (about 1,050 gallons) of gasoline. The range of the 75-mm short-barreled tank gun, with which this weapon was originally equipped, is about 6,000 yards.

Apparently there are now three types of German assault guns in service: the short-barreled 75-mm tank gun, with a bore 23.5 calibers in length; the long-barreled 75-mm tank gun, with a bore 43 calibers in length; and an intermediate gun which seems to be a 75-mm gun with a bore 30 calibers in length. It seems probable that the long-barreled 75, which is the prin-

¹ For organization details, see page 34.

cipal armament of the new Pz. Kw. 4 tank, may be primarily an antitank weapon, while the intermediate gun will take the place of the old short-barreled 75 as a close-support weapon.

A 1940 German document states that the assault gun "is not to be used for antitank purposes, and will only engage enemy tanks in self-defense or where the anti-tank guns cannot deal with them." However, a 1942 German document states that "the assault gun may be used successfully against armored vehicles and light and medium tanks." This apparent contradiction can perhaps be explained by the fact that prior to the invasion of Russia in 1941, this weapon had been used in limited numbers. Experience in Russia may have shown that it could be used successfully against tanks, although Russian sources refer to it as an infantry support weapon, essentially. Perhaps a more logical explanation lies in two German technical developments since 1940, namely: hollow-charge ammunition, which is designed to achieve good armor-piercing performance at relatively low muzzle velocities, and the reported replacement of the short-barreled, low-velocity 75-mm with the long-barreled, high-velocity 75-mm gun on some of the newer models.

The following information about German assault artillery is a condensation of a recent article in "Red Star," the official Soviet Army publication, and deals with only one of the three types—the short-barreled 75-mm.

The Germans make extensive use of self-propelled guns as assault artillery. Their most important mission is to destroy the opposition's antitank and heavy infantry weapons. The German self-propelled mount under discussion is a Pz. Kw. 3 chassis armed with a short-barreled 75-mm gun, which has a semiautomatic breech block. The gun's traverse is limited. The armor on the front and sides of the vehicle has thicknesses of 50 mm and 30 mm, respectively. The top and rear of the gun carriage is open. The speed of the self-propelled gun is about 31 miles per hour, and its range is about 84 miles. The gun's initial muzzle velocity is about 1,389 feet per second. The gun carries 56 rounds. The ammunition is fixed and consists of the following types: high-explosive, armor-piercing, and smoke.

The gun crew consists of a gun commander, a gunner, a loader, and a driver. Two self-propelled guns make up a platoon. The platoon commander's vehicle is equipped with signal flags, rocket pistols, a two-way radio, and a speaking tube for communication between the commander and his gunner and driver. The radius of the radio is about $2\frac{1}{2}$ miles when the vehicle is at the halt, and from $1\frac{1}{4}$ to a little less than 2 miles when it is moving. The second vehicle in the platoon has only a receiving set and signal flags.

There are three platoons in a battery, as well as a separate gun for the battery commander, three armored vehicles with supplies, and an ordinary supply truck. In a battalion (the largest unit) there is a headquarters, a headquarters battery, and three firing batteries. The battalion commander has a gun under his own personal command. According to the German table of organization, the battalion of assault guns is an independent unit and is part of the GHQ artillery pool. The assault artillery battalion can be placed under the command of an infantry commander or tank unit commander, but not under an officer of lower rank than regimental commander. It is important to note that if an assault-gun battery has the necessary supplies to permit it to

take care of itself, it may assume an independent role, apart from that of the battalion.

Assault batteries, which are assigned a limited number of targets, have the mission of supporting the attacks of the infantry, and of destroying the opposition's heavy infantry weapons and strong points disclosed during the course of the attack. In supporting tank attacks, the self-propelled artillery assumes some of the normal tasks of the heavier tanks, including the destruction of antitank guns.

The assault artillery never serves as antitank artillery in an attack; only in self-defense does it open fire at short range, shooting armor-piercing shells against tanks. Its shell has almost no effect against heavy tanks.

The battery is part of the combat echelon, and marches ahead of the trains. All seven guns and three armored supply vehicles are in this echelon. In deploying for battle the guns come first, moving abreast toward the front and ready for instant action. The guns of the platoon commanders are on the flanks. The battery commander is stationed to the rear, in a position which is dictated by the type of firing and the terrain. Behind him, the supply vehicles move by bounds from one protected position to another.

If a position lacks cover, these vehicles follow at a considerable distance, maintaining radio communication with the rest of the battery.

In carrying out its special task of facilitating an infantry breakthrough into the rear of the opposition's defenses, the assault battery may follow one of two methods of maneuver: the battery may take part in the initial assault, or it may be held in reserve and not committed until the hostile dispositions have been discovered. In all instances the battery cooperates closely with the supported infantry battalion or company.

Assault guns use direct fire. To achieve surprise, they move forward stealthily. In supporting an infantry attack under

heavy enemy fire, assault guns halt briefly to fire on targets which offer the greatest danger to the infantry. The assault guns fire a few times, and then disappear to take part in the battle from other positions. When an assault artillery battalion is attached to an infantry division cooperating with Panzer units in an attack, the battalion's primary mission is to destroy the hostile antitank defenses. If the battalion is supporting tanks in a breakthrough, its batteries seek positions permitting good observation. In other cases each battery moves into the attack after the first wave of tanks, and as soon as the latter encounters opposition, the assault guns cover them with protecting fire. It is believed that the Germans regard close cooperation between the assault battery and the first echelon of tanks as essential in effecting a quick destruction of antitank defenses.

If hostile tanks counterattack, the German antitank guns engage them, and the assault artillery unit seeks to destroy the hostile guns which are supporting the attacking tanks. When the German antitank artillery is unable to stop the hostile tanks, as a last resort, the self-propelled assault guns engage the tanks, opening fire on them with armor-piercing shells at a distance of 650 yards or less.

In the pursuit, the assault guns give the infantry close support to strengthen the latter's fire power.

The most important role of the assault battery in defense appears to be in support of counterattacks. However, in special instances, they have been used as artillery to reinforce the division artillery. When an assault battery is to support a counterattack, it is freed from all other tasks. The battery, knowing the limits within which the counterattack will operate, acts just as it would in supporting an infantry attack. Assault-battery officers and infantry commanders jointly make a careful reconnaissance of the area in which the counterattack is to take place.

The most vulnerable points of a German self-propelled assault gun, according to the Russians, are the moving parts, the rear half of the fighting compartment, the observation apparatus, and the aiming devices.

The Russians contend that their antitank rifles and all their artillery guns, beginning with their 45-mm cannon, are able to fight successfully against the German assault guns. Heavy losses of self-propelled guns, the Russians say, have greatly weakened the German Army's aggressiveness in the attack and tenacity in the defense.

Section V. NEW 75-MM ANTITANK GUN

As the effectiveness of the tank increases, especially as a result of more powerful armament and greater armor thickness, the development of antitank weapons is necessarily speeded up. Until recently the largest caliber German antitank gun (not to be confused with the dual-purpose AA/AT gun or with the tank gun)

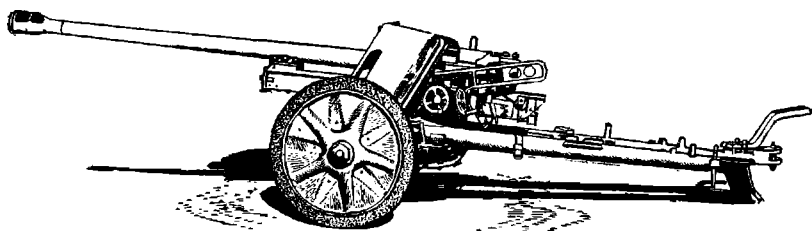


Figure 7.—German 50-mm Antitank Gun.

was the 50-mm (see fig. 7). However, the Germans now have a 75-mm antitank gun (see fig. 8), which they designate as the 7.5-cm Pak¹ 40.

Although this new long-barreled gun is very similar in appearance to the standard German 50-mm antitank gun, known as the 5-cm Pak 38, the new 75-mm has

¹ *Panzerabwehrkanone*—antitank gun.

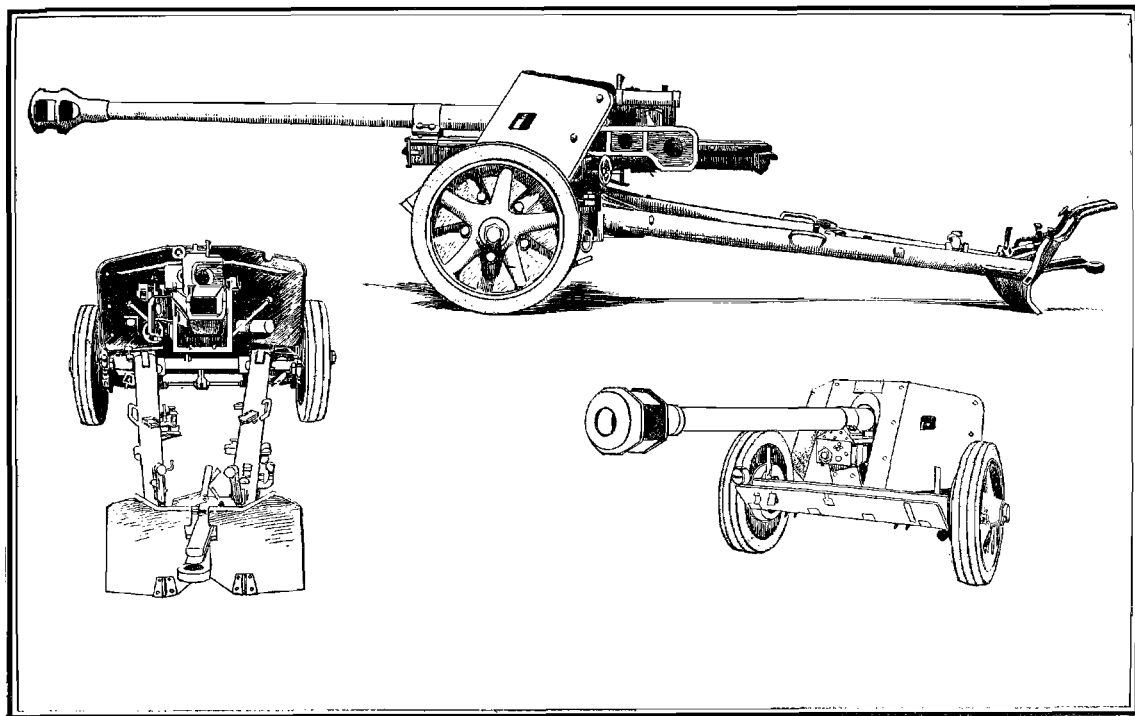


Figure 8.—German 75-mm Antitank Gun.

certain structural differences which may readily be detected: its shield is angular, and has a flat frontal section with two flat side pieces set at an angle of about 45° to the plane of the frontal section; its muzzle brake is broader and longer; and its sighting aperture is square.

The new 75-mm, exclusive of its carriage, is essentially the same weapon as the German 75-mm long-barreled tank gun, which the German Army designates as the 7.5-cm Kw. K.² 40 (the latter is now the principal armament of the Pz. Kw. 4, and also appears in two self-propelled versions.) The chief differences between the 75-mm antitank gun and tank gun are probably the substitution, in the antitank gun, of mechanical firing and percussion primer for electric firing and primer; the chamber of the antitank gun is also probably much longer. The breechblock is of the semiautomatic, horizontally sliding type.

The 75-mm antitank gun is mounted on a split-trail carriage, with torsion springing; this springing is automatically cut out when the trails are open. The light-alloy wheels are fitted with solid rubber tires. An unusual feature is a detachable third wheel, which can be fitted on near the trail spades, to permit easier manhandling. The gun has a double baffle muzzle brake.

Additional details about the weapon are as follows:

Over-all length in traveling position-----	19 ft. 2 in.
Over-all height-----	54 in.

² *Kampfwagen Kanone*—tank gun.

Weight in action.....	3, 350 lbs.
Length of barrel.....	10 ft. 6 in.
Length of recoil.....	35. 43 in.
Elevation.....	+22 degrees.
Depression.....	- 5 degrees.
Traverse.....	65 degrees.

Four types of ammunition are used: high explosive, hollow charge, armor-piercing shot, and an armor-piercing tracer shell with a small explosive charge and an armor-piercing cap covered with a ballistic nose. The armor-piercing shot is the usual German steel casing enclosing a tungsten carbide core; it is fitted with tracer.

Detailed confirmed information regarding the effectiveness of this weapon is not yet available. It has a low silhouette, certainly, and this is always a definite advantage for an antitank gun. While the muzzle velocity is high, the tube is of monobloc construction and the propellant charge is very large; in view of this, the safety factor may be regarded as somewhat doubtful. Nevertheless, the Germans apparently have confidence in the gun, inasmuch as they are now manufacturing it as a standard weapon.

Section VI. TACTICS USED BY Pz. Kw. 4's (WITH SHORT 75-MM GUN)

1. INTRODUCTION

Although recent models of the German Pz. Kw. 4 medium tank have been fitted with a long-barreled 75-mm gun, the Germans are still using Pz. Kw. 4's mounting the short-barreled 75-mm gun (see fig. 9). For this reason the information which follows should prove useful. It is based on German Army documents which discuss the tactics employed by individual Pz. Kw. 4's armed with the short 75-mm gun, by medium tank platoons, and by medium tank companies.

2. TACTICS OF INDIVIDUAL TANKS

a. Because only a small amount of ammunition is carried, the gun is normally fired while the tank is at the halt, so as to avoid waste. The Germans state that the machine guns mounted in the turret and hull can be employed successfully against mass targets—such as columns, reserves, limbered guns, and so on—at ranges up to 800 yards.

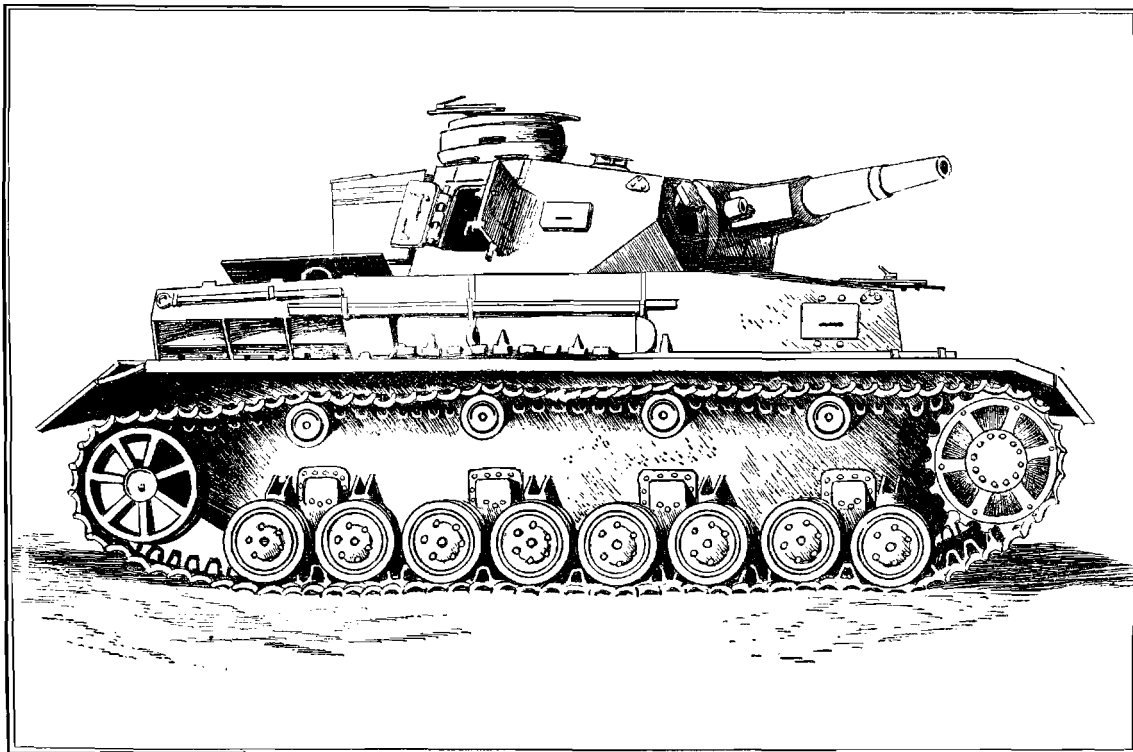


Figure 9.—German Pz. Kw. 4, Mounting a Short-barreled 75-mm Gun.

b. As soon as a target has been put out of action, or as soon as attacking German troops are so near a target that it is dangerous for tanks to fire, the tanks move forward by bounds of at least 200 to 300 yards. When changing position, the drivers take care to keep their correct position in the tactical formation.

c. Single tanks may be used for supporting action against prepared positions. The tank normally moves from a flank under cover of smoke. Embrasures are engaged with armor-piercing projectiles, and neighboring defenses are blinded by smoke. Tanks usually do not fire on static defenses at ranges of more than 400 yards. The assault detachments work their way forward under this protection, and as soon as lanes have been cleared through the antitank defenses, the tank follows and engages the next target. The German Army requires close cooperation between tank and assault-detachment commanders. Light signals and other types of signals are prearranged.

The Germans also use single tanks in woods fighting and for the protection of rest and assembly areas.

3. PLATOON TACTICS

a. During the attack, medium platoons move forward in support of the first wave. Half the platoon gives covering fire while the other half advances. The whole platoon seldom moves as a body.

b. The platoon commander directs by radio, and he can control fire either by radio or by firing guiding-rounds to indicate particular targets.

c. Antitank weapons usually are engaged by tanks at the halt. If the nearest antitank weapon can be dealt with by the light tank company, the medium platoon engages more distant antitank weapons or attempts to blind them. Artillery is engaged in the same manner as antitank weapons. The Germans consider enfilade fire especially profitable.

d. If the light company encounters hostile tanks in the open, the medium platoons at once engage them with smoke shells in order to allow the light company to disengage and attack the opposition from a flank.

e. Moving targets and light weapons are engaged with machine-gun fire and by crushing; mass targets are engaged with high explosive.

f. Against prepared positions, the procedure is that described in paragraph 2c, above. When the whole platoon is employed, the advance may be made by mutual fire and smoke support. The platoon assists in the consolidation of a captured position by promptly laying down smoke and fire. Metal obstacles may be engaged with armor-piercing projectiles. The platoon does not move forward again until all hostile weapons in the prepared position have been knocked out.

g. In street fighting a medium platoon may be used in the second echelon to lend support. The Germans employ the tanks' guns in cleaning up nests of resist-

ance in houses; they also use the tanks themselves to crush lightly-built houses.

h. If a front-line tank formation is ordered to hold an objective until the arrival of infantry, the medium platoon gives protection by taking up a position on high ground affording a large field of fire.

4. COMPANY TACTICS

a. Medium platoons under the command of light companies use the latter's radio frequency.

b. Reserve crews follow immediately behind the fighting echelon, and move back to join the unit trains only after the beginning of a battle. They come forward again as soon as the battle is over. Reliefs are supposed to be so arranged that first-line drivers are thoroughly rested when they leave the assembly area to take over before an action.

c. The repair section, commanded by a noncom, travels with the combat echelon until the beginning of the battle.

d. The company commander travels at the head of his company until the leading platoons have gone into action. He then establishes a temporary command post with unimpeded observation of the battle area. Maintaining direction and contact is the responsibility of company headquarters personnel while the commander is at the head of his company.

e. In the attack the normal formations are the broad wedge (*Breitkeil*)¹ or extended order (*geöffnete Linie*). The Germans believe that effective fire on the part of the whole company can be obtained if the rear elements provide overhead fire or if they fill up or extend the front of their company to form a line.

f. In tank-versus-tank actions, the company is employed as a unit, whenever possible. When hostile tanks appear, they are engaged at once; other tasks are dropped. If time permits, the battalion commander detaches the medium platoons which have been attached to light companies, and sends them back to the medium company. At all times medium tanks attempt to fight with the sun behind them.

g. During the pursuit the medium tank units are employed well forward so that they can take full advantage of the longer range of their high-explosive shells.

5. RECOVERY

Tank mechanics move directly behind the combat echelons. The recovery platoon is responsible for towing away those tanks which cannot be attended to by the repair section. The recovery platoon is under the orders of the regimental workshop (maintenance) company commander, who has under his control all equipment and spare-part trucks of the tank companies. These follow by separate routes as prescribed by him.

¹ Three platoons are involved, forming a hollow triangle with its apex forward.

Section VII. MISCELLANEOUS

1. METHODS OF OBSTRUCTING AIRDROMES

The Germans and Italians are expert at rendering airdromes temporarily or permanently unserviceable, and have employed a number of methods of obstructing and destroying airfields and landing grounds from which they have been forced to withdraw.

Vehicles, heavy construction equipment, logs, drums filled with rocks, and other movable obstacles are placed on runways and landing areas to prevent Allied forces from using them and, at the same time, to keep them available for the Axis. Nearby areas which might also be used for landing are blocked with more permanent obstacles, such as steel posts, cables, timbers, and ditches. When an airdrome can no longer be defended, it is demolished by explosives, plowed up or scarred with deep trenches, and then liberally sown with mines and booby traps.

In North Africa the roads in the vicinity of certain abandoned Axis airdromes were found to have been mined very carefully to delay the Allied advance and give the Germans time to destroy the surfaces of their landing fields. The thoroughness with which the land-

ing fields themselves were mined varied greatly; some had received only slight attention, whereas others had been mined in the most elaborate manner possible (see fig. 10).

On one airdrome the ground was furrowed in patterns resembling giant fingerprints. Effective furrows were also cut by a small metal wedge about 8 inches wide, with the cutting edge leveled back at 45 degrees. Ordinary plows were also used. Z-shaped trenches and irregular bomb craters were found in another field; and in still another, the runways had been crossed with trenches and the landing ground further obstructed by wrecked aircraft, motor vehicles, and the familiar emergency device of barrels filled with rocks. The Axis of course destroys its hangars whenever this is possible.

Several types of booby traps are likely to be planted before an airfield is abandoned (see fig. 10). For example, mines made up of several charges packed in a wooden box, and the whole buried in a landing strip, may be booby-trapped in as many as three ways. The lids of these improvised wooden box mines are open about $\frac{3}{4}$ inch. The box explodes if it is lifted, or if the lid is either lifted or stepped on. "S" mine crates may be buried in the ground, with metal spikes protruding to damage tires, and fitted with anti-lifting devices. Gasoline, oil, and water cans and drums may be partly buried in the runways, and similarly fitted with anti-lifting devices. (See *Intelligence Bulletin* No. 10, pages 7-12 for additional details.) Booby

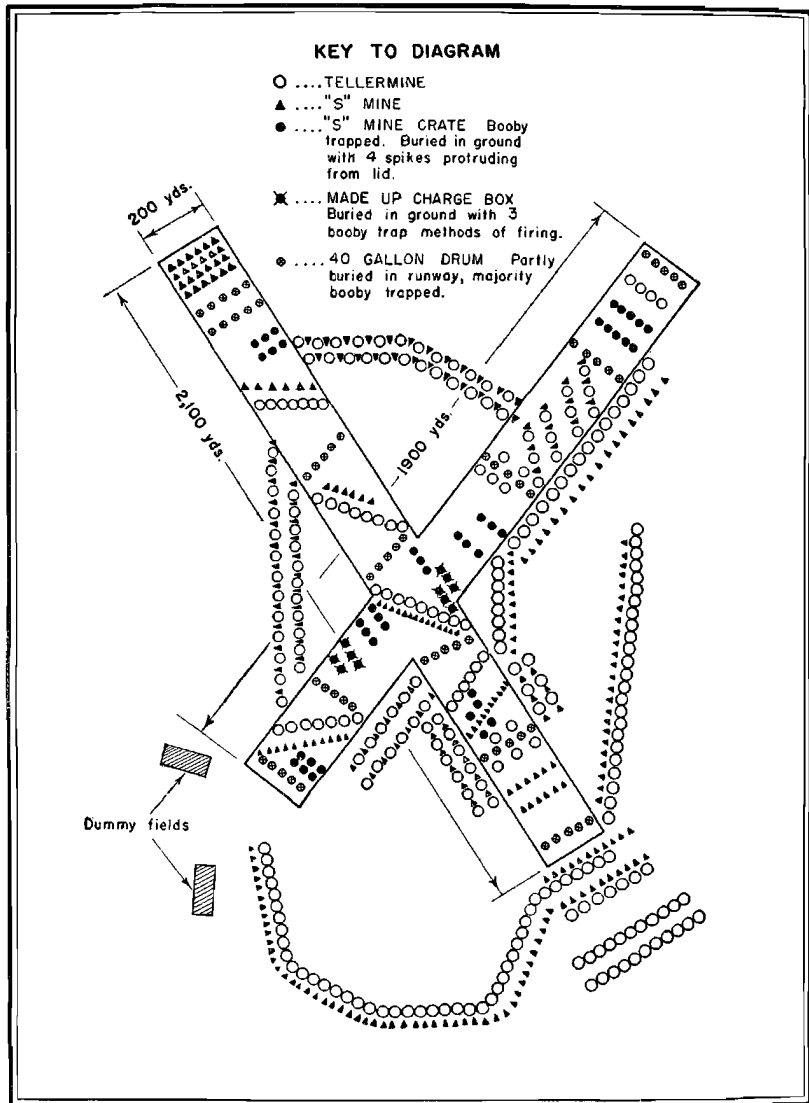


Figure 10.—Abandoned Axis Landing Field in Libya (showing positions and types of mines and booby traps).

traps are also fitted to the movable parts of abandoned planes and vehicles.

Temporary obstructions, such as barbed wire, fences, and logs, have been observed on temporarily unused fields in France, Belgium, and Holland, and also on portions of active fields. Another portable obstruction now greatly favored by the Germans is an arrangement of beams or metal rails, lying crossed on the ground, or standing and secured near the top, like the poles of an Indian wigwam. All these obstacles, of course, can be cleared when the fields are needed, and replaced when the occasion demands.

A semipermanent type of obstacle which has been observed in occupied countries consists of an upright tree fixed in a cement block. Such obstacles are sometimes supplemented by stakes driven into the ground at irregular intervals, and the approaches to the field closed by networks of barbed wire. In one instance an airfield had been completed, and then evidently found unsuitable; it was made unserviceable for landings by a series of evenly-spaced trenches 16 inches deep. Large felled trees, which take an appreciable time to remove, are also used as semipermanent obstacles.

2. DELAYING TACTICS (TRIPOLITANIA)

In Tripolitania the Axis handled its rearguard skillfully during the withdrawal. The following notes are of interest as an illustration of the enemy's methods.

a. The foundation of his rearguard positions was always the 88-mm antiaircraft-antitank guns, with a 50-mm core.

b. In support he had: long-range artillery (105's, 210's, and 75's on self-propelled mounts), tanks, infantry (very well equipped with machine guns and mortars), and engineers.

c. In the initial stages (open desert) his rearguard screen was at first deployed over a very wide front. He used his artillery (including 88's firing frontally) at extreme range to hold up the British Eighth Army's advance and to force it to deploy. He used mines (including dummy minefields) effectively for the same purpose.

d. He showed his tanks and moved them about, to attract the attention of British tanks and observation posts while he was concentrating his antitank guns in the British line of advance. He then withdrew his tanks to defiladed positions.

e. He did not attempt to withdraw his antitank guns until twilight (in some cases, not until after dark), when he invariably moved his tanks forward to cover the withdrawal of the guns.

f. His 50 mm's were always defiladed, except in the close country south of Castel Benito, where he relied on natural cover and concealment.

g. He always had a covered line for withdrawal of his antitank guns.

h. He sited his infantry to protect his antitank guns against infantry attack. The protection was achieved by machine-gun and mortar fire from the flanks, not by men in front of the guns.

i. In an action south of Castel Benito, he made excellent use of both natural cover and natural tank obstacles when siting his guns. However, the damage inflicted was negligible, since he preferred to hold up the British by firing at extreme range, rather than waiting until he could be certain of a "kill."

3. "TEN COMMANDMENTS" FOR USING TANKS

A Fifth Panzer Army order signed by Lt. Gen. Gustav von Vaerst (now a United Nations prisoner) lists ten "commandments" regarding German employment of tanks:

a. The tank is a decisive combat weapon. Therefore, it should not be used except in a center of gravity and on appropriate terrain.

b. The tank is not a lone fighter. The smallest tank unit is the platoon, and, for tasks of considerable importance, the company.

c. The tank is not a weapon to accompany infantry. Forcing its way through the enemy, it enables the infantry to follow it closely.

d. The tank can take, and mop up a sector, but it cannot hold the sector. This is the task of the infantry, supported by its heavy arms, antitank weapons, and artillery.

e. The tank is not an artillery weapon which can long harrass an enemy from a firing position. The tank fights in movement, and subjects its targets to fire for a short while only.

f. The task of the infantry is to neutralize hostile antitank weapons and quickly follow up tank attacks, so as to gain the best possible profits from the tactical and moral impact.

g. The task of the infantry is to give fire support to the assault of the tanks, to neutralize hostile artillery, and to follow up the progress of the tank attack by coming up behind the tanks quickly to obtain a decisive effect. The task of the supporting artillery is to protect the flanks of the attacking tanks by fire, keeping pace with the advance.

h. The task of the armored infantry is to follow up closely the attack of the tanks, so as to be able to intervene immediately in the battle of tank against tank.

i. The mission of the engineers is to open up passages through the minefields, under the protection of the tanks. This makes it possible for the tank attack to start anew.

j. At night, the tank is blind and deaf. Therefore, the task of the infantry is to protect it with their arms.

(Signed) VON VAERST.

PART TWO: JAPAN

Section I. JAPANESE PRISONERS¹

1. DO JAPANESE SURRENDER?

The answer is definitely "yes." United Nations forces have already captured hundreds of Japanese. It is true that they, as a whole, are stubborn and persistent fighters, but some of them will surrender when up against tremendous odds. They begin to doubt the invincibility of the Japanese Army when, after a long and desperate struggle, they are cut off and without prospect of relief.

2. RESULTS OF BROADCASTS

A number of Japanese surrendered on Guadalcanal as a result of broadcasts in Japanese and the dropping of leaflets. The broadcasts were made at times when the front lines were more or less stable and the opposing forces were close to each other.

¹In connection with this section, reference should be made to FM 30-15, which gives our own training doctrine relative to the value of enemy prisoners, documents, and matériel, and the procedures to follow in utilizing them.

A U. S. officer who spoke Japanese broadcasted frequently to enemy troops, telling them that they would be unharmed, given food and rest, and would be treated well if they came over with their hands up.

In response, the Japanese would first send one man out with his hands up. If he was not harmed, others would follow. Sometimes a "trigger-happy" U. S. soldier would shoot one of these men, with the result that others would not follow. "Trigger-happy" soldiers can fumble the ball in a big way at times—not only in such cases as the above, but while serving as scouts, on patrols, and in any other capacity where silence is really "golden." [A news correspondent who spent considerable time on Guadalcanal recently was asked for his best single bit of advice for enlisted men and junior officers training for jungle warfare. He said: "Learn to be as silent as a frontier Indian, and as patient as a cat waiting for a rat."]

One prisoner said that after hearing the U. S. broadcast, a number of Japanese held a meeting to decide whether or not to surrender. Several favored the idea, but they decided to stay in the battle and fight until killed because some of their comrades were wounded and so weak that they were not able to go over and give themselves up. However, a U. S. bombardment the next day was so heavy that the group submitted to capture.

Some of our troops on Guadalcanal were dug in for a time near a large field covered with high grass.

They called the field "prison alley," because a large number of Japanese surrendered there. Sentries stationed at the edge of this field were on constant watch for Japanese to come out of the bushes with their arms up. When one showed up and was waved on by the sentry, 10 or 12 others would follow immediately.

3. REGARDING JAPANESE LABORERS

The Japanese had 600 to 700 laborers on Guadalcanal when we invaded the island. These men were used for labor duties because they were unfit for military service. When the bombing started, most of them took to the jungles to hide—they apparently were considerably frightened. (Many Japanese laborers were also used later to strengthen the Japanese defenses at Buna.)

U. S. troops worked out a plan whereby one, two, or three of these captured laborers—volunteers—would be released to go into the jungles, contact other laborers, and bring them into our lines. These volunteers carried white flags, and went out at a designated hour. All our troops were told of the plans before the Japanese went out, so they were not molested. These volunteers performed their mission exactly. They contacted the other laborers, and within a week droves of them filed into our lines.

4. REACTION OF PRISONERS

The Japanese generally make good prisoners. They appreciate kind treatment, and are very cooperative.

A high Japanese officer, questioned by a U. S. officer who spoke Japanese, refused at first to give any information other than his name. Later, under kind treatment by the Americans, his confidence was gained and he talked without hesitation. "You can torture me—do anything to me—and I won't tell you a thing," he said. "But if you treat me kindly, then I will tell you anything you want to know."

In another instance, a Japanese lieutenant who surrendered, revealed that he had been told to cover the rear of his unit in retreat. "Why should I hold the rear?" he said in response to a question. "The rest are getting out. I'm not going to be a sucker—left holding the bag."

Nearly all Japanese prisoners said they had expected their captors to kill them.

"Do your officers tell you that the Americans would commit atrocities on you?," some prisoners were asked.

This was denied by every prisoner. "No, not at all," one replied. "We just expected it as part of the warfare."

Section II. NONCOM TELLS EXPERIENCES IN NEW GUINEA FIGHTING

1. INTRODUCTION

An infantry sergeant who took part in some of the toughest fighting in New Guinea early this year has written a story of his experiences for the Military Intelligence Service. Because his story will be both interesting and helpful to U. S. military personnel, it is reproduced below. The sergeant was wounded in action and has been returned to the United States.

2. THE STORY

On January 1 [1943], we were flown over the Owen Stanley range [New Guinea] to relieve an Australian combat unit, which was keeping open a trail over which natives were bringing up supplies.

The first day we had snipers firing into our perimeter [an area with all-around defense] with explosive bullets, which were very irritating and nerve-wracking. The next morning the same thing started. I got permission from my lieutenant to go out and see if I could find the sniper. I walked about 40 yards out of the perimeter, and I saw him in a large tree about 300 yards away. Since this was the first Jap I had seen, I was quite nervous.

I took my time and fired 5 shots. The Jap fell only partly out of the tree; he was tied in by his legs, and his rifle was strapped to a limb.

Our first general activity was to send out patrols under company noncoms, to be sure there were no Japs digging in.

One day about noon, our commander asked for volunteers to go into an area believed to be occupied by the Japs. I asked for two men to go with me into the area. We had gone about 300 yards when we thought we heard something moving in the undergrowth. I left the two men behind and crawled up to a place where the growth had been cut down to about knee height. There I could see fresh dirt, so I lay still and listened for about 30 minutes. Then I brought the other two men up with me and I left them in my position while I crawled forward to investigate. I found a freshly dug hole, with a banana-tree trunk forming a wall about waist high on two sides of it. I called the other men up, and we decided to go back and report what we had seen; however, just then a .25-caliber machine gun opened up, and we immediately dived into the hole. We thought that the enemy was covering the hole with this one gun, but another .25 caliber opened up from another direction. All during the afternoon we exchanged fire with them, using our Thompson submachine guns and the one Browning automatic rifle we had with us. At about 2000, after dark, we went back into the jungle and got away without a shot being fired at us. We stayed in the jungle that night because it is absolute suicide to go into your own perimeter after dark.

The next morning we reported what we had seen.

At night you're not permitted to fire your rifle because it would reveal to the Japs exactly where you are—you use only hand grenades and the bayonet.

The Japs will go from tree to tree during the hours of darkness and make noises, or call familiar names of people, or call your medical personnel. When they have located your perimeter, they

fire their machine guns about waist high over your position; then they send a group of men crawling in under their own fire. They crawl very slowly until they feel the edge of your fox hole; then they will back away a bit and throw in hand grenades.

Another favorite Japanese trick is to capture a wounded man and place him near a trail or perimeter and then cover him with machine-gun fire. They will torture him until he screams and yells for help, but it is absolutely suicide to send in help for him.

One morning at 0845 we were told we were going to attack the Jap perimeter at 0900. The lieutenant in charge took with him two runners, who carried a telephone and the necessary wire. When we were at the right position, our artillery and machine guns laid down a barrage until the lieutenant telephoned back for them to stop. We moved on, on our bellies. The Japs were out of their pillboxes and seemed to be doing some sort of fatigue work. There were six of us who got within 20 yards of them without being seen. We had three Tommy guns, a Browning automatic rifle, a Springfield rifle, and a Garand rifle. The lieutenant motioned for us to start firing. One sergeant threw a grenade, and, as it hit, we opened up with all our guns. There wasn't a single Jap who escaped, but there were some left in pillboxes, and they pinned us down with fire from one .50-caliber machine gun and from several .30-caliber machine guns. One of our six men got hit near the hip with a .50-caliber bullet, which lodged in his left shoulder. The Japs also wounded three more of our men who were behind us. The lieutenant telephoned the commanding officer and told him of our situation, and we were ordered to retire. Later we made another attack on this perimeter and took it.

There was a lieutenant who had been shot down near a pillbox, and our commanding officer asked for volunteers to go in and get him. When he was last seen he was still alive, but when we got to him, after wading through swamp water waist deep, he was lying on his stomach—dead. While we were going toward him,

the Japanese had killed the lieutenant by slashing his stomach, and had placed him on an "island." We put him on a litter and started back into our own perimeter, but the Japs opened fire on us, and we had to leave him and take cover in the trees. I thought the fire was coming from only one pillbox, so we all started firing in the direction from which the fire was coming. We soon learned, however, that there were two more pillboxes from which we also were receiving machine-gun fire. When they stopped firing, another boy and myself went out and got the lieutenant and took him into the perimeter. Later he was taken to battalian headquarters (command post) where he was buried in the regimental burial ground.

On January 15 our battalion moved into a position to make an attack on a large Japanese perimeter. All artillery and machine-gun fire was concentrated on this perimeter before the infantry started pushing forward. The heat was terrific. We moved in about 100 yards under Japanese fire, with two platoons forward and one in reserve (the squads also were two forward and one in reserve). My squad was in reserve when we started pushing forward.

The lieutenant sent back for me to bring my squad forward and relieve the right squad. Because so many of this squad had been killed and wounded or had passed out from heat exhaustion, I thought I might find a better place to put my men. So I crawled forward to find positions for them. I had found a few good shell holes, some logs, and depressions in the ground, when a .30-caliber machine gun opened fire on me. The first burst hit the front handle grip of my Tommy gun, and, of course, I got as low as possible; but the second burst hit my Tommy-gun drum, and two bullets hit me in the arm. Also, fragments of the drum hit me hard—on the hand and shoulder. These .30's were explosive bullets which broke up my arm and tore a great deal of flesh away from it. It felt as if an ax blade were shearing through the flesh of my arm.

I rolled over into a small depression of the ground, and took my knife out and tried to cut off the sleeve of my coveralls. While I was cutting, I saw the barrel of the .30 caliber sticking out of a small pillbox, so I rolled back and got my Tommy gun, thinking there might be a chance of knocking out this one machine gun, which was about 20 yards away. Just as I was getting in the right position to shoot, a .25-caliber machine gun opened up from the left. One bullet hit me in the elbow and one in the ribs—the latter went through my pipe and a can of tobacco and only broke my rib. I pulled out this bullet myself, burning my index finger on the hot lead. Another bullet went through my helmet and just grazed my scalp. I lay there for about 3 hours in the hot sun, bleeding profusely. Figuring that I would bleed to death if I remained there, I began to crawl back to my own men—only hoping and trusting to God that He would give me strength and protection to get back. I got back to my men, and the platoon medical personnel made a hasty cross splint and sling for my mangled left arm. One of my men helped me back to the command post where litter bearers took me back to a dispensary. Attendants gave me morphine and put me on a jeep, which carried me back—with several other casualties—to the 11th Portable Hospital. There medical officers operated and took out two bullets. I stayed there that night, and the next day I was sent to a small landing field where a plane was waiting to take casualties back to Port Moresby.

After staying a short time in Moresby at the 171st Station Hospital, I was flown to Australia, where a board of medical officers determined that I should be returned to the United States.

Section III. JAPANESE WARFARE AS SEEN BY U. S. OBSERVERS

1. INTRODUCTION

The contents of this section have been extracted or paraphrased from reports submitted by U. S. observers, some of whom took part in the fighting they describe. The contents have been arranged in two separate paragraphs, one dealing with enemy tactics on Attu Island and the other with enemy tactics on the Arakan front in Burma.

2. ON THE ATTU FRONT

a. General

The Japanese on Attu had large quantities of various types of foods, plenty of warm clothes and bedding, and were otherwise well equipped for a long siege.

In some instances they appeared to be well trained and led, and they fought with reckless abandon—even when the odds were tremendously against them—but in other instances the exact reverse was true. One

observer stated that the enemy appeared to fight with great precision and determination when carrying out a carefully prearranged plan, but that he appeared confused and not very effective when his plans were upset. Some of the enemy would defend their positions to the last man, while in other instances they would leave well-prepared posts and retreat without putting up much of a fight.

This same observer reported that the Japanese infantrymen had plenty of ammunition and used it freely, but that they generally were poor shots.

b. Defense Positions

The Japanese had strongly prepared positions in all the key passes. These positions were usually centered around machine-gun nests, but mortars also were used, and foxholes for snipers were arranged in depth. These foxholes were well hidden, individually drained, and often interconnected with underground tunnels. They were well stocked with food and ammunition.

Figure 11 shows a common type of emplacement for a machine gunner and the type of cave generally used by riflemen. The main view (*b*) shows a typical set-up, with a machine-gun emplacement flanked on either side by two-man caves for riflemen. Notice that the Japanese cut a small ditch right through the middle of the emplacement—so that a running supply of snow water would be available at all hours. These streams also made it difficult to identify the emplacements

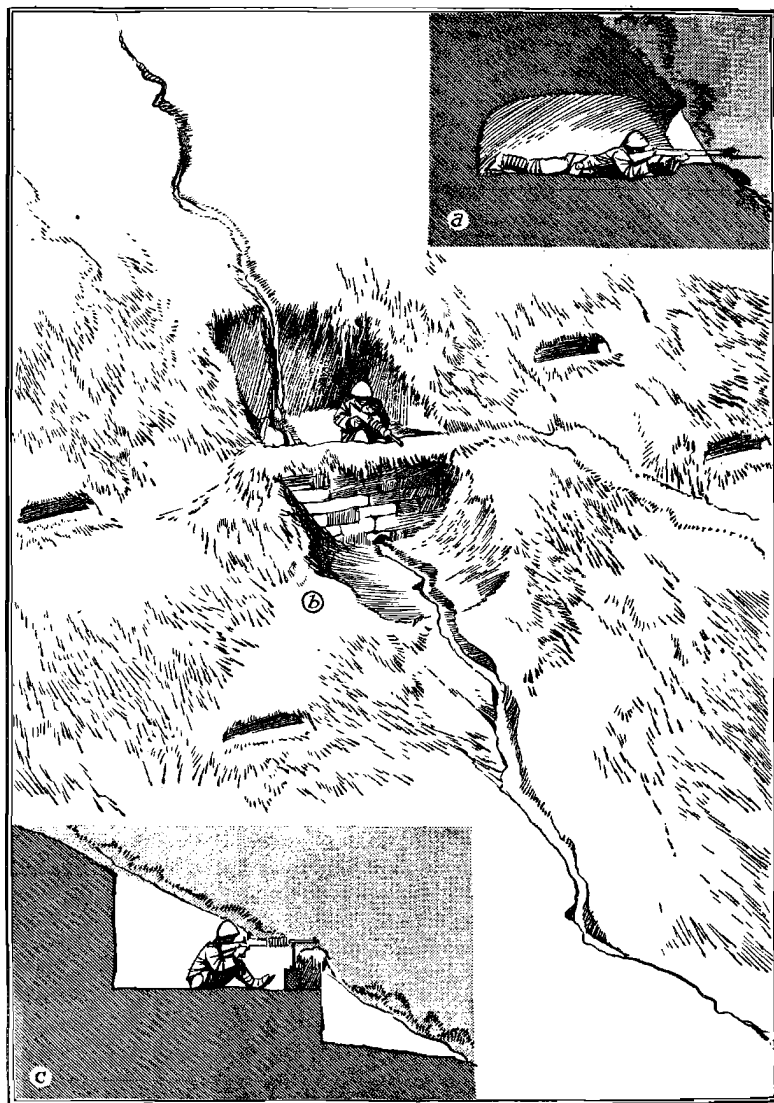


Figure 11.—Japanese Defense Positions.

from air photographs. Figure 11a shows a cross section of a two-man cave, and figure 11c shows a cross section of the machine-gun emplacement.

Most of the Japanese emplacements and caves were constructed on hillsides or mountainsides. Very few were found on top of ridge lines or at the foot of the hills or mountains.

c. Camouflage

Dead native grasses were extensively and cleverly used by the Japanese. Pits dug into the ground to house ammunition and other supplies were almost invariably covered with grass. Some tents were camouflaged with grass which had been interwoven with loosened strands of rope.

A cook shack erected on the bank of a creek had no entrance except from the bank of the stream.

d. Weapons

The weapons encountered by our forces included Type 98 antiaircraft guns, caliber 20-mm, which are reported to be capable of firing 300 shots per minute. In one area, ammunition for these guns was stored in holes about 2 feet deep and 12 feet square and covered with grass.

A few booby traps were encountered. They were simple devices, which resembled a 10-cent-store mouse trap. They would not explode unless someone stepped on the ignition fuze.

Several smoke grenades, manufactured in June 1941 and marked "98 Type," were also found. They give off a white smoke which lasts for 1½ minutes.

e. Equipment

An unusual item of Japanese equipment was a portable wooden steam bath tub, which had a fireplace—outside opening—and a compartment for heating water. The tub, about 4 feet high, had a lid which fitted over it, except for a 4-inch slit for breathing and observation.

Two types of stoves have been described by observers. One was merely an oil drum with two holes in the top to hold two cooking utensils. The other was a round stove, found in the center of a tent. It was flat-topped, about 30 inches high, and 18 inches in diameter. Coal was used as fuel. Mess kits, which held 3 pints or more, were hung around the edge of the stove. A kit, when taken apart, actually consisted of a pail and two pans.

An observer described one type of Japanese tent as follows:

The tent was circular, about 5 feet in diameter, and was made of a poor quality of 8- or 10-ounce white duck. It was not rain-proof; things inside were damp and mildewed. It had a 3½-foot side wall and a square door. A trench was dug from the entrance to the center.

The grass had been cut inside the tent, and the smooth ground was covered with a variety of odds and ends to allay dampness. Several sleeping mats were scattered about on the flooring.

The Japanese appeared to have plenty of good grade wool, or part wool flannel-type blankets of two colors, OD and gray. The size of the blankets were small, about 5 feet long and 3 feet wide.

f. Clothing

The Japanese had a wide variety of Arctic clothing, including fur-lined shoes, mittens, coats, and heavy sheep-skinned parkas (fur-lined hoods). Most of the fur came from white rabbits. They also had very serviceable rubber boots, which came up to the knees, and parka-type raincoats, which were lined for warmth and which came down to the knees.

g. Food

Large quantities of food were taken by our forces on Attu. The kinds of food included rice, dried and fresh fish, oatmeal, canned oriental oranges, potatoes, fresh carrots, dehydrated green vegetables, fresh onions, soy-bean cake and sauce, canned salmon, canned meat balls, dried beans, tea, vitamin pills, candies in small boxes, and *sake* (a kind of wine made from rice).

One observer reported that food found in one tent was contained in the following manner:

Dried rice in heavy matting bags; dehydrated green vegetables packed in rubberized bags. These rubberized bags or rubber-covered canvas tubes are about 4 feet long and 9 inches in diameter, and are tied at both ends. One half is filled with rice in a heavy mat tube that fits into half the length of the cylinder. The other end is filled with dehydrated green vegetables. We

also found dried whole fish, about 10 inches long and 4 inches wide and weighing from 4 to 6 ounces. These fish are packed in hermetically sealed boxes within wooden cases, like our ammunition boxes. The cases were about 14 by 20 by 30 inches. We also found tall wine bottles, canned salmon, preserved fruits, and jams. Dried beans, of the large white variety with black eyes and a little larger than the G. I. black-eyed pea, were found packed in heavy-matting burlap bags.

3. ON THE ARAKAN FRONT

a. Defense Positions

The following notes by observers on Japanese defenses in Burma (Arakan front) are mostly supplemental to information given previously in the *Intelligence Bulletin*:

The Japanese, in this area, have consistently stuck to a policy of all-around defense in small localities. They have shown great energy in preparing alternative positions. This policy may be due to the enemy's thin spread of troops on the ground, but they have been able, so far, to fall back on prepared defenses, ready to make a further stand without being delayed by digging.

In recent operations the Japanese have strongly defended positions in ravines . . .

The Japanese interpret heavy shelling as the probable beginning of an attack in force. Careful observation by a British officer before, during, and after the concentrated shelling of an enemy strong point revealed that the Japs were dug in well enough to enable their observers to keep their heads up during the shelling. Throughout the shelling one enemy observer watched the British positions through binoculars—in fact, his observation was not interrupted by four direct hits on his po-

sition. If the British had attacked, the enemy would have been able to call for defensive fire at any time.

Japanese beach defenses in Burma include a trench system within wire obstacles. The system consists of two groups, which enclose irregular areas. The two groups are separated by a tidal creek. The trenches themselves are about 5 feet wide at the top, and have shallow firing bays on both sides—thus affording an all-around field of fire. The trenches zigzag irregularly, and the fire bays are spaced at intervals varying between 23 and 70 feet. There are about 66 bays, equally divided between the two groups.

The only defensive structure within the trench system is a pillbox, about 10 feet square. A single line of wire, set on posts at about 10-foot intervals, enclose the two trench systems on the north and south. Along the shore side are double lines of wire, 10 feet apart and strung in shallow zigzags. On the landward side, the tidal creek is used as a boundary to the defense area—there is no wire defense along the creek.

b. Dispersion

Japanese forces, in possession of an area, split up into parties as small as 20 men and live in villages that are reasonably well connected to roads and jungle trails. This dispersion has the following advantages:

(1) It enables the enemy to live off the country without imposing a heavy strain on any particular district.

(2) It makes possible the rapid grouping and deployment of forces for purposes of attack and defense.

(3) The plan makes it very difficult for air observers to get any idea of the number of troops in an area.

Section IV. NOTES ON THE JAPANESE— FROM THEIR DOCUMENTS

1. INTRODUCTION

This section consists of a variety of Japanese documents, which have been edited and paraphrased to eliminate repetition and unimportant parts. The reader must keep in mind throughout that this information is from enemy sources and must not be confused with U. S. methods of warfare.

2. ROAD-MOVEMENT ABILITIES OF UNITS

The Japanese chart below was designed to show the abilities of different types of units to move over roads which have varying natural obstacles.

Type of unit		Width of road (in meters)	Slope	Radius of curvature (in meters)	Fording limit
Dismounted tps (column of fours), Cav (two files)		2.50 (8.2 ft)			80 cm (2.62 ft)
					100 cm (3.28 ft)
FA		3.00 (9.84 ft)	$\frac{1}{40} \left\{ \begin{array}{l} \frac{1}{6} \text{ if the road is short and} \\ \text{straight} \end{array} \right.$	Level ground 10 (32.8 ft) Sloping road 25 (82 ft)	50 cm (1.64ft) (80 cm) (2.62 ft)
Mt Arty	Limbered	1.50 (4.92 ft)	$\frac{1}{6}$ ($\frac{1}{4}$, if as above)	6 (19.68 ft)	(40 cm) (1.31 ft)
	Pack horse	1.00 (3.28 ft)	$\frac{1}{4}$ ($\frac{1}{2}$, if as above)		80 cm (2.62 ft)
Hvy FA	Limbered	3.00 (9.84 ft)	$\frac{1}{60}$, ($\frac{1}{6}$, if as above)	Level ground 10 (32.8 ft) Sloping road 25 (82 ft)	50 cm (1.64 ft) 70 cm (2.29 ft)
	Motor-drawn	4.00 (13.12 ft)	$\frac{1}{6}$ ($\frac{1}{4}$, if the length is less than 10 meters)	Level ground 10 (32.8 ft) Sloping road 15 (49.2 ft)	40 cm (1.31 ft)
Field AA Gun		4.00 (13.12 ft)	$\frac{1}{6}$	Level ground 10 (32.8 ft) Sloping road 15 (49.2 ft)	Same as above
Transport	Vehicle	2.00 (6.56 ft)	Same as for Mt Arty		50 cm (1.64 ft)
	Pack horse	1.00 (3.28 ft)			80 cm (2.62 ft)
Automobile		4.00 (13.12 ft)	$\frac{1}{6}$	7.5 (24.6 ft)	40 cm (1.31 ft)
Caterpillar Track Armored Car			$\frac{1}{8}$ or $\frac{1}{2}$		40 cm

3. ROAD-MOVEMENT ABILITIES OF VEHICLES

The abilities of Japanese vehicles, including tanks, to move over roads which have varying natural obstacles is shown by the enemy chart reproduced below.

Type of vehicle	Weight (metric ton ¹)	Max gradient which these vehicles can climb		Radius in which a vehicle can make a turn (meters)	Minimum road width (meters)	Depth of water which can be forded (meters)
		Ice-free period	Freezing period			
Tank	Medium 11 Light 7	¾	Depends upon road surface, but climbing ability is considerably lessened. Non-skid equipment is necessary.	Maximum 7.5 (24.6 ft)	3 (9.84 ft) or 4.00	1.00 (3.28 ft)
Heavy armored car	3.4	½				0.80 (2.62 ft)
Light armored car	2.3	½ ¼				0.60 (2 ft)
Caterpillar tractor	4.0	¼				0.40 (1.3 ft)
6-wheel automobile	3.5	¼				0.40
6-wheel passenger car	2.5	¼				0.40
Motorcycle with sidecar	0.44	¼				0.20

¹ A metric ton equals 2,204.6 pounds.

4. DEFENSE AGAINST ANTI-AIRCRAFT

A Japanese commander gave the following instructions to his unit as it moved into an area near Buna, New Guinea:

It is particularly urgent that you take appropriate anti-aircraft measures. Carelessness in this respect by even one soldier could bring about general disaster. The instructions below must be rigorously observed.

- a. Locate and conceal all bivouac areas in the jungle.
- b. Complete air-raid trenches quickly.
- c. Do not cut trees or branches in bivouac or anti-aircraft-defense areas.
- d. Mark roads connecting units, so that they can be followed at night.
- e. Obscure entrances to bivouac areas, and take precautions in entering and leaving to prevent discovery by the enemy.
- f. Gather up drying laundry in a hurry when an air-raid alarm sounds.
- g. Cook only between the hours of 0200 to 0400 and 1600 to 1800. Provide sand in cooking area for use in putting out fires in case of air raids.
- h. Set up kitchens at least 500 yards from the unit bivouac areas.
- i. Collect only very dry wood for fires in order to lessen smoke.
- j. Enforce rigid control of lights at night.
- k. Get to shelters immediately when the air alarm is sounded, and do not move about.
- l. Put on steel helmets as soon as our anti-aircraft guns begin firing, for protection against splinters.
- m. Camouflage tents.
- n. Observe that our planes wiggle their wings from left to right when flying low over our positions, so that we may distinguish them from the enemy.

5. GENERAL INSTRUCTIONS

The following instructions were taken from two separate documents:

- a. Avoid panic when attacked by submarines.
- b. Take off your shoes and leggings when abandoning ship.
- c. Take special precautions with life preservers because they are highly inflammable.
- d. Do not enter civilian residences.
- e. Do not get your own coconuts—have the natives get them for you.
- f. Set up latrines in places removed from bivouac areas. Dig them deep, and provide sand or some other type of cover to prevent the breeding of flies. Latrines must always be used.
- g. Erect beds in camp at least 1 foot from the ground in order to guard against dampness, scorpions, tree snakes, and so forth.
- h. Use only filtered water (obtained from the water supply squad), or water that has been boiled.
- i. Take measures to prevent the breeding of mosquitoes, and take medicine to prevent malaria—which is very prevalent in this area.
- j. Abandon individualism—be a real soldier.

PART THREE: UNITED NATIONS

Section I. HOW TO HANDLE WOUNDED IN DIFFICULT SITUATIONS

1. INTRODUCTION

No attempt is made in this section to give complete details on how to handle wounded in difficult situations. The aim is to furnish pertinent data on current experiments and practices as conducted by medical authorities of the British and American Armies.

2. METHODS OF RESCUE

This paragraph deals with methods of rescuing wounded from trees, cliffs, walls, upper stories of buildings, and tanks. Much of the information is based on experiments conducted at a British Army Combined Training School. The British feel that, aside from improving rescue techniques, this type of training will have a good morale effect throughout the army—that military personnel will volunteer for difficult tasks much more readily if they feel that efficient efforts will be made to rescue them in case of injuries.

The British training consists largely of practical demonstrations, using improvised equipment such as that likely to be found in combat areas. Certain types of rescue equipment, however, is recommended for medical units to carry at all times in theaters of operations. These include block and tackle, ropes, saws, axes, and so forth.

The demonstrations given by the British consist of two general types: one in which the "victim" is only slightly wounded and is able to help himself and the rescuers to adjust various types of slings and knots used, and the other in which the "victim" is supposed to be unconscious and unable to assist.

a. From Trees

In removing wounded from trees, the British recommend that a victim be bundled or tied up as a "package." If he is out on a tree limb, it is generally a good idea to tie him securely to the limb by means of rope or bandages, saw or cut off the limb, and lower it to the ground. In lowering, the British emphasize the importance of the victim's feet being downward and of protecting the man's face and eyes from laceration or scratches by tree limbs or thorns. The lowering is accomplished by throwing a rope over a limb above the one on which the victim rests. The rope naturally will slide much easier over the limb if the latter is smooth. A thorough knowledge of various useful knots and methods of securely tying up a

wounded man or object is an essential part of the British training.

An American observer describes one demonstration as follows:

A man was lowered from a tree limb about 30 feet high. He was supposed to be unconscious, and at the beginning of the demonstration was lying on his belly on the limb, with his arms and legs dangling from each side of the limb. His "rescuer" climbed the tree, crawled out on the limb, let down a light rope, and pulled up a heavier one, which he slung over a convenient limb immediately overhead. He then tied a sailor's knot—two loops, which can be used either as a form of breeches buoy or for some similar application. In this case the loops were adjusted to fit snugly around the "victim's" body; they were put in place by sliding them over the man's legs and around his middle. The loops then were adjusted so that the man was suspended in a kind of cradle when he was lifted—one loop was around his upper legs and the other around his waist. In this position he was lowered to the ground.

b. From Walls or Cliffs

This demonstration consisted of lifting a man to the top of a wall, then over the wall and down to a beach below. The man was raised and lowered over the wall in an improvised stretcher made of bamboo poles tied together. A simple system of ropes and pulleys was used in carrying out the demonstration.

c. From Upper Stories of Buildings

For this demonstration, the British constructed a makeshift boom, which projected out of a second-story window. From this boom, a man, tied in an impro-

vised stretcher, was lowered down the side of the wall. This, of course, is a simple matter for anyone who knows how to do it. The critical moment comes when the man is pushed out of the window and suddenly swings free. Personnel in the window must have a guide rope to reduce the swinging to a minimum before lowering of the victim begins. The British also recommend that personnel on the ground have a guide rope to prevent the wounded man from being slapped against the wall by wind.

d. From Tanks

Very little mechanical equipment has been used to date in the rescuing of wounded from tanks. These wounded generally manage to get out under their own power, or are removed by other members of the crew.

For the seriously or painfully wounded, medical officers recommend the use of chloroform or morphine before removal from tanks. These drugs act quickly on the nervous system, and thereby greatly aid in the removal efforts.

3. METHODS OF TRANSPORTATION

According to reports from India, the British have experimented successfully with two improvised methods of ferrying wounded across water. The principles involved in both cases are the same—that of tying up lighter-than-water materials in waterproof ground

sheets¹ to form "floats," to the tops of which are fastened some form of stretcher.

a. Bundle Float

In improvising this type of float, the following equipment is required:

Eight ground sheets, 4 bamboo poles, 8 yards of rope, and such stuffing material as straw, paper, or cotton waste.

The float is constructed as shown in figure 12. Each of the four floatable and waterproof bundles is made approximately 3 feet long and 1 foot wide. Two ground sheets are spread out, one on top of the other, and a sufficient amount of stuffing material is placed on them. The material is then bundled up and tied by rope. Allowing the second ground sheet of each bundle to overlap the fastening of the first will aid in making the float waterproof. The bamboo poles are tied together and then made fast to the bundles, as shown in the diagram.

b. Stretcher Float

For this float, the ordinary stretcher used by the British Army is tied securely to the top of eight improvised floating bundles. The details of construction and meth-

¹ A ground sheet is a combination rain cape (when used for a rain coat) and covering to spread on the ground under the individual soldier's tent. It is a rubberized, waterproof canvas which is square except for a flap on one side. This flap is primarily for the purpose of protecting the soldier's neck and head when the ground sheet is used as a rain cape. In some cases, the British soldier is issued two sheets, one of which he carries in his pack.

ods of using the float were described by an observer as follows:

Two teams (total of eight men) of stretcher bearers, wearing full equipment and gas masks, carry the loaded stretchers to the edge of the water. Each man removes all his equipment and

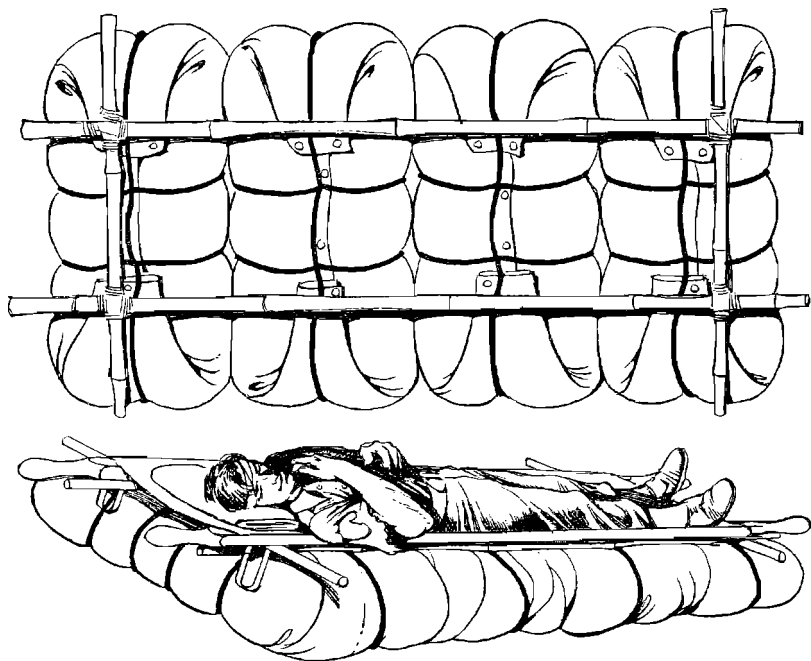


Figure 12.—Bundle Float

clothing; he empties his water canteen and mess kit (if they are full), and replaces the latter in his pack.

Each man then spreads his ground sheet flat on the ground. About $11\frac{1}{2}$ feet from one end, he places his webbing equipment and pack (including mess kit and emergency ration can), his water bottle, and his clothing. These are arranged to form a

bundle approximately 1 foot square. He then folds the two sides of the ground sheet up over the equipment, and rolls it up—much like the U. S. soldier rolls his blanket in his shelter half. After the rolling has been completed to within 9 inches of the loose end of the ground sheet, the end is flapped back over the roll, or bundle, which is tied with the soldier's bedding rope. String and roller bandages can also be used.

The eight bundles or individual "floats" are then tied to the stretcher by the free ends of the ropes used to secure the bundles. One bundle is tied to each of the four handles of the stretcher and one is tied to each of the four Thomas splint suspension bar attachments—there are two on each side of the stretcher. The bundles are secured as close as possible to the stretcher.

Four of the stretcher bearers then tie their shoes together by the laces and place them alongside the patient, with the soles next to the patient's body. These four men—one team—then lower the stretcher into the water and pilot it across.

The bundles are detached from the stretcher upon reaching the shore, and are tied together and returned by a stretcher bearer so that they can be attached to a second stretcher, which is ferried across in the manner previously outlined—by the second stretcher team.

The bundles are likely to get wet inside if the ground sheet has leaks or if it has not been rolled and tied properly.

In an emergency it is practical to use only four bundles—one tied to each handle of the stretcher. This method, however, is considered unreliable, and is more uncomfortable for the patient.

If the patient's condition is not too serious, the stretcher bearers' gas masks can be placed on the stretcher with him and carried across.

Section II. SOME BRITISH TRENDS IN COMBAT FIRING

1. GENERAL

Combat firing is being stressed in courses at the British Infantry School. Our observers, in a recent report, point out that the basic British instruction in this subject is very similar to that taught at the U. S. Infantry School and training centers, but that the British are specializing to a higher degree in the more minute phases of the training. Such specialization is believed to increase all-around proficiency, and to contribute to good fire discipline.

The British teach combat firing to individual squads (British sections), and each member thereof must previously have received thorough training in known-distance firing.

2. FIRE AND MOVEMENT

As in U. S. courses in combat firing, the main British theme is fire and movement. Since the British squad consists of a Bren-gun group and a rifle group, teaching the mechanics of fire and movement is very simple.¹

¹ The Bren gun is the basic automatic weapon in the British Army. It is a .303-inch caliber light machine gun, air-cooled and gas-operated, which for fire power and operational purposes can be compared to the U. S. Browning automatic rifle. This gun is often mounted on a tracked vehicle (known as a universal armored carrier) which is popularly called the "Bren gun carrier."

When a squad leader desires to move his unit forward under enemy fire, he is taught to get his Bren gun into a new position under the cover of his rifle fire. After the Bren gun has reached the forward or flanking position, the riflemen advance, in turn, under cover of fire from the Bren gun. Variations of these methods are also taught by the British.

3. SPECIAL METHODS

The following special items of interest to squad leaders in combat firing are also included in the British courses:

a. Signaling with Bren Gun

The use of fire from a Bren gun to give signals is considered especially useful to a squad leader on the battlefield. If his Bren gun is separated a considerable distance from the remainder of the squad, and if a particular action is planned at a given time, the firing of the Bren gun during a lull in the battle makes an excellent signal. The best type of signal appears to be a series of single shots followed by a short burst of fire, or any such simple combination previously agreed upon.

b. Special Uses of Bren Gun

British Bren gunners are given special instructions to make them proficient in firing their weapons from

elevated positions. The gunner and his assistant are given detailed training in climbing trees, clambering up the sides of houses, or getting up on any other elevated object. The British teach, in great detail, the theory of covering a reverse slope by what normally would be plunging fire. In this instruction, both riflemen and Bren gunners are cautioned about the need for more accurate fire in case the beaten zone is a level surface.

In this plunging-fire instruction, the types of gun positions most frequently used are roofs of houses, window sills of upper stories in buildings, trees with sufficient height and stability to permit operation of the Bren gun at some distance from the ground, crests of small ridges, and so forth.

c. Stress of Fire Superiority

As in U. S. infantry training, the British stress the importance of fire superiority. In this the Bren gun plays an important part. For example, the Bren may be sent to a flank to silence an enemy machine gun which is holding up an advance. The Bren gunner is also taught methods of neutralizing enemy fire at a time when the enemy is covered by smoke—the British believe that an enemy, advancing in reasonably close combat without being able to see, will be demoralized more quickly by automatic fire than by rifle fire.