VOLUME 1 * NUMBER 8

INTELLIGENCE BULLETIN

April 1943

MILITARY INTELLIGENCE SERVICE
WAR DEPARTMENT

Military Intelligence Service
War Department
Washington, April 1943

Intelligence Bulletin
No. 8
MIS 461

NOTICE

The *Intelligence Bulletin* is designed primarily for the use of junior officers and enlisted men. It is a vehicle for the dissemination to them of the latest information received from Military Intelligence sources. In order to secure the widest possible use of this bulletin, its contents are not highly classified. It is for the exclusive use of military personnel, however, and no part of it may be published without the consent of the Military Intelligence Service, except in the case of Task Forces and Overseas Theaters of Operation. Commanders of these organizations are authorized to reproduce any item in the bulletin, provided they maintain the classification of the information and give its source.

It is recommended that the contents of this bulletin be utilized whenever practicable as the basis for informal talks and discussions with troops.

Readers are invited to comment on the use that they are making of the *Intelligence Bulletin* and to forward suggestions for future issues. Such correspondence may be addressed directly to the Dissemination Branch, Military Intelligence Service, War Department, Washington, D. C. Requests for additional copies should be forwarded through channels for approval.

TABLE OF CONTENTS

PART ONE: GERMANY

LIST OF ILLUSTRATIONS

PART ONE: GERMANY

Section I. GERMAN COMBAT IN WOODS

1. INTRODUCTION

The following German document summarizes lessons learned by the German Army in Russia, with regard to combat in wooded terrain. It is of special interest to American troops, inasmuch as the Germans may reasonably be expected to utilize these lessons in other theaters in which large woods, often swampy and thick with underbrush, are to be found.

2. THE DOCUMENT

a. Principles of Leadership

(1) Wooded terrain often enables us [German forces] to advance within assault distance of the enemy, to bring up reserves, and to shift forces to the critical point of attack (*Schwerpunkt*). Wooded terrain also is favorable for coming to close grips with enemy tanks.

In woods, it is practicable to seize the initiative against an enemy who is superior in heavy weapons, artillery, and tanks. By using surprise attacks, it is possible to annihilate such an enemy, or at least to maintain a successful defense against him.

(2) Difficulty of movement through wooded terrain, and of observation over it, demands that heavy weapons and artillery be attached to the combat units they are to support.

(3) In woods fighting, observation difficulties and a general lack of knowledge of the situation call for courage, tenacity, and the ability to make quick decisions. Mobility, coupled with alert, cunning leadership on the part of all commanders, can play a decisive role.

(4) In this type of combat, everything depends on the concentrated energetic employment of the infantry strength with a view to annihilating the enemy. Systematic fire preparations and the development of protecting barrages are seldom possible. Also, there will usually be many blind spots in defensive fires.

Therefore, the number of rifles and machine guns is often the decisive factor in woods fighting.

(5) Surprise is even more important in woods fighting than in combat in open terrain. For this reason, woods fighting demands, above everything else, careful planning and silence during all movements.

(6) In woods fighting, the necessity for sending out strong patrols to the front, flanks, and rear can lead to a dangerous scattering of strength. In situations where there is danger of being cut off or surrounded, it is generally preferable for the commander to hold his strength together. Such situations arise frequently, especially with small units. This must not lead to hurried or ill-advised measures, or to panic. Caution, determination, and skillful employment of available forces will generally permit offensive actions in which the enemy can be defeated or annihilated.

(7) Movement and combat in woods demand formations in depth. This facilitates control of the forces, mobility of leadership, rapid transmission of orders, and readiness to deliver fire quickly when a flank is in danger.

(8) An advance based on gaining one intermediate objective after another, and on reorganizing the units after each objective has been reached, protects against surprise and makes control easier.

(9) To coordinate the effort in woods fighting, the commander must formulate a detailed plan of operation, and must give each subordinate unit a definite mission. Often he must prescribe in detail how the mission of a subordinate unit is to be accomplished.

(10) Combat in extensive woods, especially in enveloping movements and in encirclements, often consists of a series of small fights. The individual assault groups must act as a coordinated whole, despite difficulties in the transmission of orders and in communications between units. Commanders of participating units must understand both the mission and the situation.

(11) Any commander who is forced by the situation or the terrain to depart from the prescribed plan of operation must obtain beforehand the approval of his higher commander. This is necessary so that the latter can coordinate the proposed action with that of other units in the woods, and above all with the fire of the heavy infantry weapons, the artillery, and the German Air Force. Such coordination is necessary in order to avoid losses through the operation of friendly supporting fire.

(12) Since the German Air Force is often unable to obtain adequate information about the enemy, and since it is seldom practicable to employ the motorized and armored reconnaissance units on a large scale, the employment of numerous strong scout patrols on foot becomes highly important.

b. Reconnaissance, Observation, Orientation

(1) In operations in wooded terrain, all our [German] troop units must carry out ground reconnaissance continuously to avoid surprise attacks by the enemy.

In general, several patrols operating abreast of each other should be sent out to the front. Other patrols should operate

along the flanks. In this connection, it is important to make the distance between adjacent patrols wide enough to avoid the danger of one patrol being confused by the noises made by a neighboring patrol. In woods with thick underbrush, this distance should be at least 160 yards.

(2) In line with the principle of silent movement, the equipment of patrols must be tested carefully, and anything which creates noise or which is too unwieldy must be left behind. The armament of patrols consists of machine pistols, rifles (if possible, automatic rifles equipped with telescopic sights), and many *Eier* (egg) grenades. Since the ear must be constantly alert, the steel helmet may be left behind.

(3) Patrols should obtain information which will answer such questions as the following: Where is the enemy, or where is he believed to be? Where are his left and right flanks? Where are his advance security elements? What are the habits of his patrols? Where are his fields of fire?

If contact with the enemy is effected, it is desirable to obtain early information regarding gaps or weak points in his positions. This provides a basis for quick tactical decisions by the commander.

It is especially necessary for reconnaissance missions to obtain information regarding existing roads, paths, and clearings; ditches, streams, and bridges; and such characteristics of woods as the thickness of underbrush, the height of trees, the location of high or low ground, and the location of swamps.

(4) The commanders of companies, platoons, sections, and squads must always detail special lookouts to protect against snipers in trees. Individuals who spot tree snipers are to dispose of them by aimed rifle fire. Sweeping the treetops with machine-gun fire will be resorted to only in cases where the enemy snipers cannot be located definitely.

(5) During halts, observation from treetops is profitable.

(6) Patrols in the woods must carefully observe paths and trails. Important conclusions concerning the position of the enemy can be drawn from the location and condition of these trails. It is important to note whether or not a trail has been used recently. One way of judging this is to inspect the morning dew for any unnatural disturbance.

(7) If there is no terrain feature on which the patrol can orient itself, the compass must be used. Each patrol must carry at least two compasses, one for the leader and one for his second-in-command. The leader is in front; the second-in-command brings up the rear, guarding against any deviation from the proper course.

c. On the March

(1) Our [German] troops must be prepared to erect short, strong bridges and to lay corduroy roads. Engineers must be placed well forward to clear the way and to remove obstacles. Also, many road-working details must be provided to assure mobility for all units.

(2) When paths and roads through swampy woods must be used, it is especially desirable to employ local inhabitants as guides. Routes of this type often are not shown on maps.

(3) In woods fighting, the increased length of time required for bringing forward various elements from the rear demands that the advance guard be made very strong. Heavy weapons and artillery, staffs, and signal detachments are to be placed well toward the front.

(4) All elements of the column must be prepared for instantaneous defensive action, and must expect surprise attacks against flanks and rear.

(5) As a rule, flank guards and rear guards must be used. The flank guards must be able to leave the roads and move across country. The strength of the flank guards, as well as the interval between them and the main body, depends on the strength of the

main body, the character of the woods, and above all on the character of the roadnets. Lest the flank guards be cut off and destroyed, they must guard against operating too far from the main body.

(6) It is necessary to include, in all echelons of the column, detachments which have the mission of searching for enemy tanks.

(7) Strong air attacks, artillery fire, attacks by guerrillas, or attacks by enemy troop units may make it necessary to conduct the march off the roads while passing through woods.

(8) In clearing road blocks rapidly, it is advisable to attack the blocks frontally with fire delivered from units on each side of the road. This fire will pin the defenders to the ground. Meanwhile, other elements of the attacking force should envelop the road block from the rear.

d. Approaching the Enemy

(1) When our [German] reconnaissance has indicated that enemy resistance is to be expected on the route of march, and when contact with the enemy seems near at hand, it is often wise to abandon the march on the road fairly early, in order to gain surprise and launch an attack from a direction that is tactically favorable.

(2) If the woods are thin, the advance formation can be loose, with wide intervals. If the woods are thick and relatively impassable, the troops must be held close together, echeloned in depth.

(3) Units should move by bounds when advancing through woods. Orders issued in ample time should specify the successive objectives. These must be clearly defined features, such as roads, paths, creeks, and so on. After reaching an objective, the unit must halt long enough to reorganize and re-orient itself, to let the heavy weapons and artillery weapons catch up, and to take new security measures.

(4) It has proved a good idea to provide special close-in security elements between the main body and the normal security elements. The special elements consist of small groups of infantry, equipped with close-combat weapons—especially machine pistols.

The main body advances in deep formation, with security to the flanks and rear, as described above.

Mortars, antitank guns, and heavy infantry weapons should be placed well forward, immediately behind the leading infantry. This is done so that unexpected enemy resistance can be broken at once by heavy fire.

(5) Short halts should be called on reaching clearings, roads, and paths, and on leaving the cover of woods. Machine guns and heavy infantry weapons are brought up to cover an advance across open land. Patrols move through the woods to the right and left, so as to reconnoiter the edge of the woods on the opposite side of the clearing. When the advance is resumed, the open clearing is to be avoided even if the edge of the opposite woods is reported to be free of the enemy. Clearings which cannot be avoided are to be crossed in swift bounds.

(6) When German troops are within sight and range of the enemy, further advance is made by creeping and crawling so as to come within close combat distance. Even under strong enemy fire, creeping and crawling through woods can be accomplished successfully.

e. Attack (General)

(1) To achieve surprise, we [German forces] should employ all available weapons so that the enemy will be deceived as to our plan and strength and as to the time and place of our attack. Feint attacks may be made in the woods with weak forces. Noise alone may serve the purpose. These measures confuse the enemy, tempt him to employ his reserves prematurely, and therefore weaken his power of resistance. If possible, the attack should

be made so that the enemy is enveloped from both flanks, or at least struck in one flank.

(An enveloping attack by the enemy can best be repulsed through the employment of forces brought up from the rear.)

(2) In thick woods, natural features which run perpendicular to the direction of the attack serve well as objectives. The stronger the expected enemy resistance, the shorter must be the distances between objectives.

(3) Surprise will be obtained chiefly by the manner in which fire is opened. Generally, the commander himself will give the order to open fire. Fire must be coordinated and delivered in short, heavy bursts; this has a useful psychological effect in the woods.

(4) The fire of the defender, which normally strikes the attacker at very short ranges, must be traversed rapidly, regardless of consequences. Experience has shown that this method results in fewer losses than if the attacker goes into position and overcomes the defender by fire power.

(5) In general, it is pointless to deliver fire on the enemy after he has abandoned his position. Through rapid, determined pursuit, he must be prevented from reorganizing and gaining time to launch a counterattack. However, if fighting has been heavy and has involved much man-to-man action, it is profitable to halt briefly after the enemy collapses so that we can reorganize and concentrate our strength.

(6) Since trees and underbrush reduce the effect of individual rounds, woods fighting calls for the use of more ammunition than does combat in open terrain. Therefore, the problem of ammunition supply requires special consideration.

(7) In woods it is usually impossible to carry on an attack after nightfall. For this reason, troops must break off the fighting in ample time to organize a defensive position for the night.

f. Attack against a Weak Enemy

(1) We [German forces] are most likely to succeed in an attack against a weak enemy if our approach is noiseless, and if the assault is launched from the closest possible distance on either enemy flank.

(2) When our patrols have developed the possibilities for an envelopment, troops are brought up from the rear. While they envelop the enemy flanks and rear, our forward elements attack energetically to the front.

Frequently the patrols sent out to locate the enemy flanks, or the messengers sent back by these patrols, can serve as guides for our enveloping forces.

The units assigned to the enveloping force will be controlled by their leaders through prearranged sound signals.

The attacking elements in front of the enemy positions open fire and launch their attack, with battle cries and with bugles blaring "the charge."

(3) In general, the commander belongs with the elements attacking to the front, since this enables him to judge the situation and make decisions regarding the employment of rear elements.

g. Attack against a Strong Enemy

(1) This type of attack follows our [German] principles of attack against organized positions. Assault detachments are formed, equipped with such weapons of close combat as hand grenades, smoke grenades, and Molotov cocktails. Flame throwers are especially effective in the woods.

(2) Assault detachments seek out the weak points in the enemy position, and try first to effect a small breach. If the woods are thick, and if gaps in the enemy positions are discovered, it is advisable to infiltrate silently into the position with small detachments. These detachments attack enemy centers of resistance and security posts, annihilate them, and attempt to throw

the enemy into confusion. They prepare the way for the attack by the main body.

(3) Woods often prevent the opposition from detecting our advance. This makes possible the assembly of our attacking force at points closest to the enemy position, especially just before dawn.

(4) A sudden and determined surprise attack without preparation by fire is usually more effective than an attack preceded by fire preparation.

(5) The fields of fire prepared by the enemy must be avoided. Machine guns, antitank guns, and individual artillery pieces must be brought into position in these fields of fire and must silence the enemy guns.

(6) The spearhead of our attack must penetrate deep into the enemy position, despite all difficulties and lack of observation. The rear elements of the attacking force widen the penetration and mop up the position.

h. Support by Heavy Infantry Weapons and Artillery

(1) Since the ranges are usually very short, our [German] heavy machine guns will often be employed in the role of light machine guns. Light machine guns may be brought into action rapidly, and may be shifted from position to position very readily. Ammunition supply vehicles are brought forward by bounds.

Heavy infantry mortars are attached to the heavy infantry platoons. Use of smoke shells during siting has often proved profitable. Care must be taken to insure that the trajectory of the mortar shell will not be blocked by trees or foliage.

The mobility of light infantry weapons and light antitank guns makes them extremely useful; they will normally be attached to the infantry companies and will be employed in direct firing.

The use of armor-piercing shells by antitank guns is effective against targets of all kinds, since these shells are not easily deflected by trees or foliage. On the other hand, our "hollow-

head" shell (*Hohlkopfgeschosse*) is less successful, because it is sensitive and explodes prematurely when it strikes a tree or bush.

(2) Because of observation difficulties in the woods, our artillery is likely to have great trouble with shells falling short of enemy positions.

Many advance observers must be attached to the leading companies. Whenever observation is possible, fire must be opened suddenly.

The laying of telephone wire takes time. Therefore, reconnaissance units with the leading elements must be equipped with other means of communication, preferably radio.

In favorable terrain it is often possible to make use of observation from high points outside the wood. Flares are used as signals between the observer and the infantry commander to indicate the location of the leading elements, to define the targets, and to control the fire.

To match the advance of the infantry, artillery fire is moved from objective to objective. Certain phase lines will be prescribed, and fire will be directed on these at the infantry's request. Short violent salvos are especially effective.

i. Mopping Up a Woods

(1) When we [German forces] attempt a rapid mopping up of a woods, we normally succeed only through the employment of forces moving in different directions to surround the enemy.

(2) The mopping up of woods by the "combing" method—in which our troops advance in a line along a broad front, with only a few yards between the individual soldiers—has proved ineffective. There is always a danger that the enemy will concentrate his forces at a given point and break through our own line. Therefore, we must keep our forces concentrated and, according to the situation, direct strong and compact assault detachments along the roads and paths—with all movement following a carefully prepared plan.

(3) To forestall enemy attempts to break out of the woods, we must cover the edges of the woods with infantry weapons and artillery, and must employ tanks and self-propelled artillery.

(4) Against an encircled enemy, harrassing fire in ever-increasing density and the employment of air power are especially effective.

Advance observers, attached to the assault detachments and equipped with individual radio sets, can direct the artillery fire and the air bombing so that there will be no danger to our own troops.

j. Defense

(1) When defending in a woods, the danger from surprise attacks is increased. We [German forces] must not wait until the enemy, taking advantage of the abundant cover, launches an attack from the immediate vicinity. We must seek out the enemy, attack him, and annihilate him.

(2) Mobility in the defense is the best means for deceiving the enemy as to our own strength and intentions. This mobility often leads to the defeat of a superior enemy force.

(3) It is especially important to build up centers of fire quickly and to employ reserve strength, even in small units, with a view to annihilating the enemy through counterattacks. Heavy infantry weapons, artillery, and reserves must be held close to the point of likely action.

(4) Organization in depth and complete cover of the front by fire are seldom possible, even when strong forces are available.

Woods enable a defender to erect many effective obstacles in great depth. These obstacles will often stop the enemy or canalize his attack in a direction favorable to the defender.

(5) The employment of tank-searching details close to the enemy's best routes for tank approach is highly profitable.

(6) When a complete defensive position cannot be organized due to lack of time or manpower, a continuous strong obstacle

must be erected—and, if possible, many centers of resistance, capable of all-around defense and of holding under fire the enemy's avenues of approach.

(7) The edges of woods normally lie under enemy fire and therefore are not to be occupied. Our weapons must operate from within the woods. If observation permits, they should be at least 30 to 50 yards from the edge.

Each center of resistance must be protected all around by minefields. Within the center of resistance, an adequate supply of hand grenades must always be within reach.

Every effort must be made to clear fields of fire. These must be located so that our fire will strike the attacking enemy's flank.

(8) Camouflage of the position against observation by treetop observers is essential, but uniformity in the organization of positions and in methods of camouflage must be avoided.

Camouflage screens are to be used at all times. Branches and twigs used for camouflage must be renewed every morning. (Dry or withered foliage will betray even the best-located positions.)

(9) Paths and trails between individual centers of resistance, and to the rear, are to be provided and marked. These paths are necessary for mutual support by adjacent units and for quick employment of reserves.

Paths must be kept free of dry wood and foliage so that the patrols will not be betrayed by crackling and rustling noises. The tendency of soldiers to take short cuts, and therefore to make new paths, must not be tolerated.

Patrols must never operate on regular schedules or by identical paths. The enemy will soon discover the routine and will annihilate careless troops.

(10) Defense in the woods demands the employment of numerous observation posts for the artillery (3 to 4 per battery). For this purpose, signal equipment from the division signal company must be made available. Many heavy barrages must be provided

in front of the main line of resistance, and especially between the gaps in the centers of resistance.

The gun positions of the artillery must be protected against close-in attack. To this end, the position must be surrounded with centers of resistance, especially to the flanks and rear, and with increased numbers of security patrols.

These provisions are especially important in cases where only weak infantry forces are available and where, therefore, the development of the defensive position in great depth is not possible.

(11) Obstacles must be erected in front of every position, especially along rivers and creeks. The enemy may use the latter as avenues of approach. All obstacles must be covered by fire, even if only by patrols. Wire and booby traps are to be used liberally. Alarm devices, which can be made from captured wire and cans partly filled with stones, should be installed in the wire and obstacles in front of a position. The response to alarms should be rapid. Indeed, each commander must realize that speed can be decisive in a counterattack.

(12) Listening posts and standing sentries are to be employed at all favorable approaches to a position. The hour of relief and the place of relief are to be changed frequently.

(13) The laying of telephone lines, even to the smallest advance unit and neighboring units, is important. (Captured matériel will often be useful in this connection.) Wires should be strung through the treetops.

Section II. RECENT DEVELOPMENTS IN GERMAN TACTICS

1. ARTILLERY (NORTH AFRICA)

In increasing their precautions against British counterbattery fire in North Africa, the Germans have resorted to the following tactics:

a. Daytime harassing missions fired from roving gun positions in the open.

b. Adjustments made by using one or two guns sited on a flank of the battalion position.

c. The fire of both light and medium batteries directed into the same area simultaneously so as to make it harder for the opposition to locate these gun positions.

d. As many as six batteries fired at once, so as to confuse the opposition's sound ranging.

2. ARMORED FORCE (RUSSIA)

United Nations observers in Russia report that the German Armored Force has recently used the tactics described below.

a. General Characteristics

All arms cooperate closely. Everything depends upon the success of the tanks, which are used in mass. Reconnaissance of weak points, flanks, and gaps is very carefully performed. Speed is stressed. Orders are very detailed, but local commanders are allowed full scope.

b. Surprise

Surprise is achieved through secrecy, rumors, and false orders. Tanks are maneuvered in an area where the main blow is not to be delivered. Not only real tanks but dummies, mobile and immobile, are kept in evidence at one part of the front, while the main striking force is concealed elsewhere.

c. Psychological Methods

On occasion, paratroops with automatic weapons have been dropped behind the Russian lines at the moment of the tank attack.

Parachutists or motorcyclists try to seize nerve centers.

Troops who succeed in reaching the rear of the Russian defenses use indiscriminate fire in an attempt to disrupt morale.

d. Advance

While the leading detachments go forward, the main body follows in march column. When resistance is met, the leading detachments deploy on a wide front.

Strong reconnaissance units are sent out to the flanks. However, the main body remains in march column.

e. Attack

A spearhead formation is usually employed; that is, motorcyclists and assault weapons go forward. A tank regiment follows, with two battalions up, if the front is expected to be from 1 to 1½ miles wide. Panzer Grenadiers (armored infantry) are deeply echeloned behind these elements. The remaining infantry either advance far to one flank, or remain concentrated in the center, ready to widen any gap that may be made.

f. Avoiding Frontal Attacks

Frontal attacks are always avoided. German tanks have come to respect fire from Russian antitank guns; therefore, if there is a strong antitank defense, the German tanks give up the attack. The Germans then make a show of preparing for a second attack in the same place, while they search the front for spots that are weak in antitank defense.

g. Defense

Defense by German armored forces is very elastic. Towards dusk, detachments of Panzer Grenadiers move forward in front of the main line of resistance to create an impression that the edge of the defensive zone is further forward. The remainder prepare the main line of resistance. A number of tanks are dug in on this line. When the defensive zone prepara-

tions have been completed, most of these tanks withdraw to assembly points in the rear, to prepare for a counterattack; only a few PzKw III's or PzKw IV's remain dug in, to serve as pivots of fire.

3. PROPOSED DEFENSIVE A/T METHODS (RUSSIA)

A German Army document, based on German experiences in defending against Russian tank attacks, includes recommendations for the improvement of defensive methods. These recommendations are contained in the extracts given below.

a. Use of Tanks

We [German forces] should keep our tanks in reserve as far as possible, and use them in close formation against flanks of the Russian tanks as soon as the direction of the attack is clear. Our tanks must always be prepared to act without delay. Previous reconnaissance of covered approaches is necessary. Long-barreled 75-mm and 50-mm pieces have good effect when used from the flank. Concentrated fire must be placed on individual enemy tanks.

b. Use of Antitank Guns

Defiladed gun positions are desirable. Fire should be opened as late as possible. It should be opened even when there seems to be little chance of success; the enemy tank will be impeded and usually will swing away. Antitank guns must be made mobile so that they can be massed at the point where the Russian tanks are attacking. An allotment of half-tracked tractors is essential.

c. Use of Artillery

A well organized warning system and constant readiness to fire must be insured. Individual guns in good condition must be disposed in readiness, preferably 100-mm guns with special *Rotkopf* (red top) ammunition. Gun tractors are necessary in order to transfer guns quickly to the sector threatened by the tank attack.

Antitank defense by 88-mm flak has the advantage of achieving a satisfactory penetration performance against all types of tanks. However, a marked disadvantage of the 88-mm guns is their great height, which makes them quickly recognizable. Also, their positions cannot be changed readily.

d. Use of Infantry

When Russian tank attacks have been accompanied by infantry, our own infantrymen who have allowed themselves to be overrun in their positions have had great success against the Russian infantry following up behind. Our troops who have dug themselves in well have suffered very few casualties, whereas companies which have abandoned their positions have had much greater losses. For this reason it is essential to dig in deeply and quickly, using every possible means. Above all, troops should remain in the positions and allow the enemy tanks to go past. All centers of resistance must be equipped with Molotov cocktails, explosives (prepared charges and antitank mines), and, if possible, with flame throwers.

4. STATIC DEFENSES (NORTH AFRICA)

The German defenses of the coastal town of Bardia consisted, wherever the ground was suitable for armored force vehicles, of an antitank ditch 3 feet deep and 6 feet across, with an especially steep slope on the side that the British tanks would approach. A short

distance from the ditch, and nearer Bardia, was a wire fence, consisting of a double line or a double apron on wooden posts—in either case, approximately 3 yards deep. This ditch and fence combination described an arc around Bardia. Between the fence and the town itself, there was a series of 83 strongpoints about 500 yards to 800 yards apart—describing still another arc. As a rule, antitank mines were laid on the British side of the ditch, although sometimes the mines were laid between the ditch and wire.

Each strongpoint was wired in and, except where the terrain was naturally unsuited to tank use, surrounded by an antitank trap. The strongpoints, which were made of concrete, were semicircular in shape with an opening at the rear, and consisted of 3 to 5 positions for automatic weapons. In most instances the tank trap surrounding a strongpoint was a ditch 9 feet across. The ditch had a steep slope and a concrete lip on the side that the British tanks would approach, while the other side was faced with stone and had a concrete lip. The entire ditch was covered with thin (¼ inch) lath planking, which in turn was camouflaged with dust and pebbles. The tank traps were sited within hand-grenade range of the positions. Artillery defense was lacking in depth. Reserve positions consisted of low stone walls, or boulders grouped around a natural hollow.

5. DEFENSIVE RUSES (NORTH AFRICA)

a. In North Africa, the Germans have repeatedly attempted to attract the attention of British patrols by unnecessarily loud talking and whistling, as well as by rattling tin cans and tools. While this is going on, German patrols try to outflank the British patrols.

b. A British patrol in the El Alamein area found that the Germans had hung bells on wire obstacles, to serve as an alarm device. (Note subparagraph 2j (11) of "German Combat in Woods," page 14.)

c. Booby traps have been found attached to concertina wire fences, to give warning of the approach of British patrols. Although few details are available, it appears that the explosions caused by these traps were not very great. It has been suggested that the traps may have consisted of *Eier* (egg) grenades with the screw caps removed and the igniter strings tied to the wire fence. This type of booby trap has been found in connection with abandoned vehicles.

For a device of this kind to work satisfactorily, it would be essential for the body of the grenade to be secured firmly. The standard igniter for the grenade has a delay of about 4½ seconds. The effect of the "egg" grenade is mostly blast.

Section III. GERMAN AIR FORCES

1. TACTICS AGAINST GROUND TROOPS

German air attacks against ground troops consist primarily of two types of action—low altitude strafing and dive bombing—and are usually made by air units closely supporting an infantry or armored force. Their chief purpose is to hinder troop movements and destroy communications, thus preventing effective reinforcement and deployment of opposing troops. That the Germans have attached an increased importance to such raids is shown by the fact that special ground-attack units (*Schlachtgeschwader*) were organized during 1942, equipped principally with the new Hs 129, an aircraft designed especially as a tank destroyer and antipersonnel weapon.

Dive bombers have been employed extensively against ground troops and fixed defensive positions, often producing panic among troops who were facing them for the first time. Troop movements have been critically hampered by accurate bombing attacks on strategic roads and crossroads, followed by strafing of personnel. Primary objectives of dive bombers, coop-

erating with ground forces, are the opposition's lines of communication, which are systematically attacked to disrupt movements of any kind, and to prevent effective counterattacks.

The Germans believe that a patrol of four planes is the most effective ground-attack unit, since it is both maneuverable and sufficiently strong to neutralize such targets as artillery positions and small columns of troops. The number of such dive-bomber units normally employed on one raid has been 8 to 10 (30 to 40 aircraft); these are escorted by about 10 fighters flying 1,000 to 2,000 feet above them. Formations approach at 14,000 to 17,000 feet in the sun. When they are near the target, they descend to about 6,000 feet. From this altitude they dive at a steep angle, one after another.

Bombs are released during the pull-out, at altitudes of approximately 250 to 500 feet. The leader drops his bombs at about 300 feet; the others, at 300 to 500 feet. Usually each aircraft releases one large (550 lb.) and two or four small (110 lb.) bombs. The bombs form no pattern, and the large bomb usually overshoots the small ones, all generally falling within 50 to 150 yards of the target.

If antiaircraft fire is intense, aircraft fly in staggered formation, maintaining extended intervals. Since very few aircraft will dive through intense antiaircraft fire, the bombs are usually released above the barrage, with consequent loss of accuracy and dimin-

ished effect. On strongly defended positions, only one run over the target is made per sortie.

If antiaircraft fire is light, dive bombers often fly four in a single line. When they reach the objective, all attack the same target, or else the formation separates into pairs, each of which attacks a previously designated target. The pairs also may subdivide, and dive on the assigned target from different directions. They may repeat the attack if all bombs were not released during the first dive. In this case they climb in a big arc to dive again.

Most of the dive bombers shot down by ground defenses are hit by light antiaircraft guns just as the planes are pulling out of their dives. Since at that time the entire belly of an aircraft is exposed to fire, the pull-out is the bomber's moment of greatest vulnerability. Although aircraft have been engaged by artillery during the actual dive, very few hits have been scored. However, the bombers have been forced to take evasive action, thus making accurate bombing impossible.

The effect of small-arms fire on the morale of pilots is considerable. Ground-attack aircraft undoubtedly have been hit by it, and tracer or armor-piercing ammunition, fired from the ground at close range, has a deterring effect. However, low-flying raids have been very successful, both against troops and lightly armored vehicles. Bomb splinters have been known to penetrate armored cars from 30 yards. If the driver's flap or the

car doors have been carelessly left open, "near misses" may also cause damage.

Attacks by cannon-firing aircraft are carried out at an angle varying from 20 to 70 degrees, depending on the type of target. No particular part of an armored vehicle seems to be aimed at, but roofs are hit less often than are other parts of the vehicles. Pilots open fire at about 200 yards, continuing to fire until they are past the target. Although high-explosive, armor-piercing high-explosive, armor-piercing, and incendiary ammunition are used, the belt loading is 75 percent armor-piercing when the aircraft is to attack armored vehicles.

Units created for ground attack have been equipped chiefly with the Hs 129, built with special protection for this type of attack. The heavily armored cockpit makes action possible at low altitudes. These aircraft take off in echelon, by sections, flying to the target in close echelon formation if there is danger of attack by enemy fighters. They avoid antiaircraft defenses as much as possible by using cloud cover (if it exists), by approaching from the sun, and by changing course frequently. The attack is made by individual sections of the unit. While one section is attacking, another is moving away from the target, and the third is approaching it. Each section flies in close formation, diving directly at the target at about a 45-degree angle. When leaving the objective, the planes fly in line ahead or in echelon formation, strafing the area as they depart.

Fragmentation bombs are dropped on a target from an altitude of 60 to 100 feet during the pull-out. After the bombs are released, the guns are fired at the target. In place of bombs, the aircraft may mount the Mk 101 30-mm cannon, which is for use against tanks and armored cars.

As in the case of dive bombers, all operations by ground-attack aircraft are usually escorted by fighters. The method of escort depends on the number and type of enemy fighters which are likely to be encountered en route to, or in the vicinity of, the objective.

It must be emphasized again that the weakness of attack aviation lies in the vulnerability of low-flying aircraft to rifle and machine-gun fire.

2. FLYING DISCIPLINE

German Air Force documents have been stressing the necessity of dealing harshly with breaches of flying discipline. A communication signed by Marshal Goering himself lists such cases under the following headings:

a. Arbitrary deviation from a prescribed mission for the purpose of so-called "visits" to acquaintances and relatives, involving departure from the prescribed flying height.

b. Arbitrary low-level attacks.

c. Arbitrary acrobatics below 3,300 feet.

d. Arbitrary low flying.

e. Every other type of flying that endangers the aircraft or its occupants.

Goering sternly reminds all personnel of the great value of discipline, and of the heavy burdens that are being placed on the German people in order to maintain the Luftwaffe as a strong, well equipped force. He threatens the severest punishment for all frivolous and thoughtless behavior which in any way threatens to weaken the striking power of the service.

Other Air Force documents deal with specific cases and the punishments imposed. For instance, during a 2-month period, 10 aircraft were destroyed and 4 damaged, and 18 people were killed as a result of these breaches of discipline. A total of 478½ months of imprisonment was imposed, 52 weeks of confinement to barracks, and 6 weeks of restriction to camp limits. Twenty men were demoted. Six men who were killed were deprived of the honors of a military funeral. In Germany this last punishment is much worse than it sounds; it involves the refusal of pensions or any other form of state support for the man's family and dependents.

One unusually serious case was made the subject of a special communication which was to be read aloud to all flying crews in all German Air Force units, at home and abroad: A young fighter pilot under training was ordered to take a Bucker 131 (a light 2-seater training plane) from Schwechat to Villacoublay, France. He was required to fly above 1,600–1,700 feet. At first, he obeyed his instructions faithfully. But as he approached Ulm, he remembered that some

of his relatives lived in the neighborhood. He turned off his course, and circled over their house three times, at altitudes ranging from 320 to 250 feet. By now he was only 3 miles from his parents' home. He decided to pay them a visit, too. This time he circled over the house five times, at heights between 170 and 250 feet. He then thought it only proper that he should call on his fiancé, inasmuch as he was in the neighborhood. So he set his course for Routlingen, and flew over the girl's house four times, at approximately 150 feet. It was only when he was leaving the area, and was about to return to his prescribed course and altitude, that he decided to turn back, land, and offer a more personal greeting. He made an excellent landing quite close to the house. Unfortunately, the girl was not at home, and he had to take off again. The pilot's prospective father-in-law started up the engine. However, while the pilot was taking off, he hit a tree, crashed on a road, and turned over. He himself was uninjured, but his passenger, a clerk from the unit's orderly room, suffered injuries to his head and right leg.

A court-martial was held, and the pilot was sentenced to 7 years of penal servitude and the loss of all military privileges and civil rights during this period. This sentence was sustained by Marshal Goering, who turned down all pleas for mercy and added that any part of the sentence falling within the duration of the war was not to be included in the sentence of 7 years, but added to it.

Section IV. GERMAN GUN-HOWITZER (STANDARD 105 MM)

1. GENERAL

The standard light gun-howitzer of the German Army is the 105 mm (see figs. 1 and 2). It is directly comparable to our 105-mm howitzer and to the British 25-pounder. The following table of characteristics shows the relationship between the German gun-howitzer and its American counterpart:

	German 105-mm Gun-Howitzer	*U. S. 105-mm Howitzer*
Weight	4,260 lbs	4,235 lbs.
Maximum range	11,674 yds	12,250 yds.
Maximum muzzle velocity	1,542 ft per sec	1,550 ft per sec.
Weight of standard H. E. shell	32.65 lbs	33 lbs.
Weight of bursting charge	3.0 lbs	4.8 lbs.

It must be noted, however, that the performance of the German gun-howitzer is rendered less effective by a standard use of charge 5 rather than charge 6.[1] This

[1] Howitzers with semi-fixed ammunition have propellant charges which are divided into sections called "zones." When a range has been determined, one or more zones can easily be removed from the shell case, so as to give the desired charge for the range in question. The German gun-howitzer, which has six zones, uses any combination of the first five as the standard charge; whereas the American howitzer, which has seven zones, uses any combination of the first six as the standard charge.

reduces the maximum muzzle velocity from 1,542 feet per second to 1,283 feet per second, and the maximum range from 11,674 to 10,007 yards. The use of semi-fixed ammunition cuts down the maximum rate of fire and further reduces the effectiveness of the weapon.

The German gun-howitzer may either be tractor-drawn or horse-drawn. In tractor-drawn units a light tractor is used; when the piece is horse-drawn, the howitzer and limber are pulled by a six-horse team.

2. DESCRIPTION OF COMPONENT PARTS

The tube of the German 105-mm gun-howitzer is long, and of monobloc construction, with the counter-recoil cylinder above it. The elevating mechanism permits the piece to be used as either a gun or a howitzer, as the occasion dictates. Its high elevation

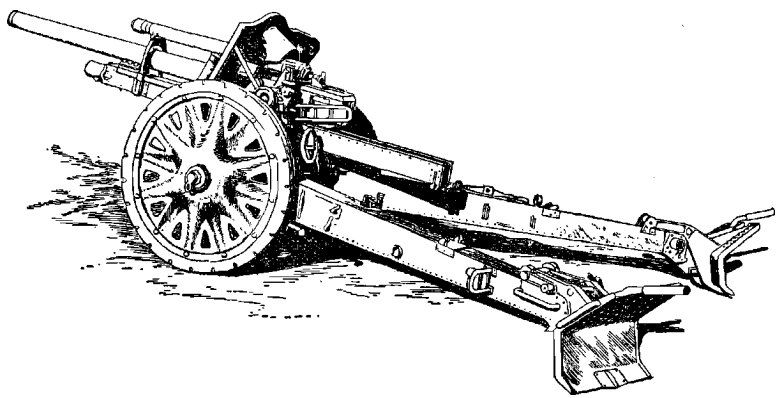

Figure 1.—German 105-mm Gun-Howitzer, Left Side View (trails spread and spades locked in position).

and the use of semi-fixed ammunition give it the characteristics of a howitzer. On the other hand, the long tube allows a high muzzle velocity, and the long split trail gives the piece good stability when it is to be used as a gun.

The breech mechanism is of the horizontally sliding type, and simply designed. Built-in safety devices

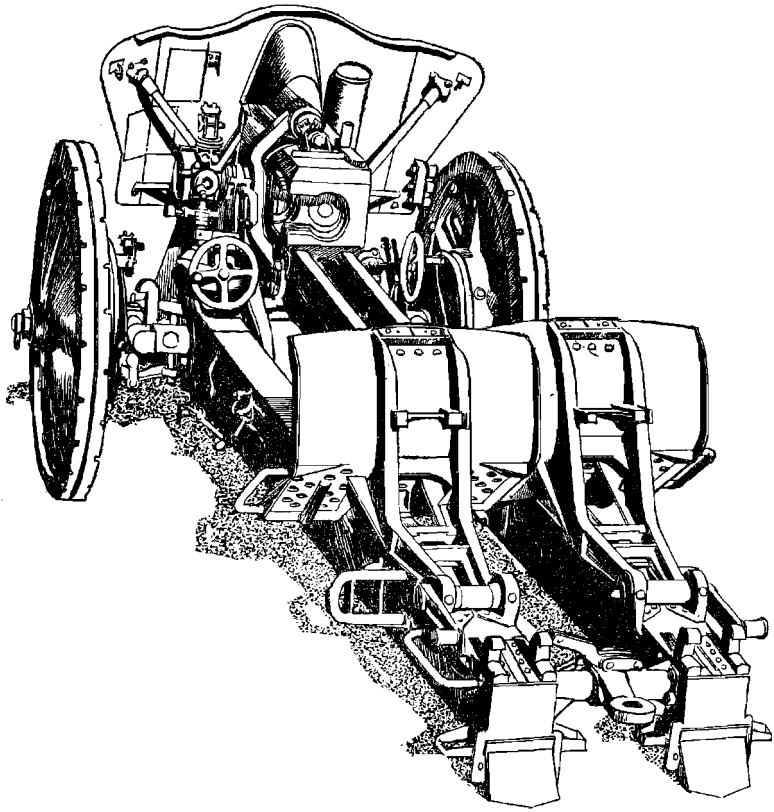

Figure 2.—German 105-mm Gun-Howitzer, Rear View (traveling position)

allow the firing mechanism to operate only when the breech block is in the fully open or fully closed position. Also, a hand-operated safety device is provided.

The recoil and recuperator systems are of the hydropneumatic type. The elevating mechanism is a well protected unit; it is entirely enclosed except for the elevating arc and its pinion. The total elevating arc is 47 degrees and 37 minutes. Since the worm and worm wheel are permitted to move against Belleville springs, the recoil and counter-recoil force is absorbed.

The traversing mechanism is of the nut-and-screw type, and is almost completely enclosed. The total traversing arc is 56 degrees and 14 minutes, or 28 degrees and 7 minutes, to the right and to the left.

The bottom carriage is of very complicated design, and has more parts than the bottom carriage of our 105-mm howitzer.

In design and general construction, the optical fire-control equipment is similar to the corresponding equipment used on the American 105-mm howitzer.

3. AMMUNITION

The standard high explosive shell used in the German gun-howitzer consists of a shell case, primer, and propelling charge of nitroglycerine powder (divided into five zones and contained in cloth bags). This powder is not flashless.

The projectile consists of a two-piece steel shell, similar in shape to our 105-mm M–1 shell, and has a

rotating band of copper (on a steel backing) that is rolled into place.

A super-quick percussion fuze, or a time-and-percussion fuze, is provided, and a booster fits in a pocket below the fuze cavity.

Section V. GERMAN TANK MAINTENANCE AND RECOVERY

1. INTRODUCTION

The German Army attaches the utmost importance to the effective maintenance and prompt recovery of vehicles. In the German armored divisions, each tank company, battalion, and regimental headquarters has a repair section. Moreover, each tank regiment is provided with a workshop company consisting—for a regiment of six companies—of a headquarters platoon, 1st and 2d (repair) platoons, 3d (recovery) platoon, an armory section, workshops for communications equipment, and a company supply section. Larger regiments may be given added strength. According to pre-war organization, a tank regiment of three battalions had—in addition to its workshop company—a light workshop platoon. Although little information about the workshop platoon has been available since 1940, it is believed that the strength of the unit has been increased.

2. DUTIES OF UNITS

a. Repair Sections

Repair sections are responsible for the general maintenance of tanks, their armament, and their radio apparatus.

In camp and rest areas, a repair section checks the serviceability of vehicles in the unit to which it is attached; during this period, mechanics are sent to the workshop company for advanced training, or else master mechanics are brought in to give instruction.

On the march, repair sections travel with the tank units and deal with all vehicle or equipment breakdowns that can be repaired with field equipment and in less than 4 hours. If a tank breaks down, the repair section leader inspects it to determine the nature of the damage. If the damage warrants it, the tank is handed over to the recovery platoon of the workshop company to be towed away. Otherwise, two mechanics with a motorcycle and sidecar stay with the tank to make repairs, while the other elements of the repair section travel in the rear of the column—if possible, on higher ground, from which they can spot breakdowns. In this way, one vehicle after another of the repair section stays behind—ordinarily the motorcycles, but if the damage is serious, a converted PzKw I tank without turret or armament. The repair section truck always stays with the repair vehicle left farthest to the rear.

In battle, the company repair sections are under the order of the battalion commander and are directed by a battalion motor-transport officer. On the march, they follow closely behind the fighting units and range over the battle area, looking for broken-down tanks. If a tank cannot be repaired on the spot, it is made towable, and its position is reported to the workshop company's recovery platoon.

Repair sections are not allowed to undertake the welding of armor gashes longer than 4 inches. In battle, the regimental headquarters repair section is attached to a battalion.

b. Workshop Companies

(1) *General.*—The workshop company operates as far as 15 to 20 miles behind the fighting tanks of its regiment, except that the recovery platoon works in the battle area, mainly to tow out disabled tanks. The workshop company handles repair jobs which take up to 12 hours. Repair jobs requiring up to 24 hours are sent back to rear repair bases.

The workshop company has its own power and light system, power tools, a crane, and apparatus for electric welding and vulcanizing. Existing facilities on the spot, such as factories, are used whenever possible.

(2) *Tank Recovery Platoon.*—According to information received from prisoners of war, the towing vehicles and trailers of the recovery platoon are sent forward to regimental headquarters and operate under

its direction. The current method is to send two or three recovery vehicles forward with the fighting units. These vehicles advance in the line of attack and cruise across the width of the battle front. The Germans believe that hostile forces will be preoccupied with the German tanks and therefore will not attack the recovery vehicles, even when they come very close.

If a member of a tank crew orders the driver of a recovery vehicle to tow his tank to the rear, the former assumes responsibility for the action (in case it should later prove that the damage was unimportant and could have been fixed on the spot by a repair section). It is always permissible, however, to request that a damaged vehicle be towed away if it is in danger of being shot up.

The towing vehicle usually goes forward alone, and tows a disabled tank away by tow ropes. Towing is used in preference to loading on a trailer. A prisoner of war explains that in the North African desert the latter operation may take as long as 20 minutes—and time is precious in front-line recovery. Prisoners state that trailers are being used less and less and that their use is confined chiefly to roads. On roads a higher speed can be maintained, and the trailers neither cut up the road surfaces nor weave as much as a towed tank. In roadless parts of the desert, trailers are resorted to where the ground is bad, and towing is done where the ground affords reasonably good going.

The recovery platoon is not given the whole responsibility for the important work of salvaging tanks. In case of retirement, the Germans use combat tanks to tow disabled tanks. Instances have been reported in which, even during battles, combat tanks have been employed both to protect towing operations and to assist in the towing.

Recovered tanks are towed to an assembly point behind the combat area. Trailers may be used to take the disabled tanks from the assembly point to a workshop company.

According to prisoners of war, the drivers of recovery vehicles have done front-line duty for about 8 days at a time, and then worked at the rear, between assembly points and workshops. One prisoner who had been a driver reported that he usually had a crew of two unskilled men with him. It was his opinion that skill was not so necessary as a fair amount of intelligence and plenty of courage.

c. Light Workshop Platoon

A German document from North Africa gives detailed instructions for organizing a workshop platoon in a two-battalion tank regiment (which normally would not have this unit). In this case, a good illustration of how flexible German organization can be, personnel was obtained for the platoon by breaking up the battalion headquarters repair sections of the two battalions. This platoon was smaller than the

workshop platoon designated by the pre-war organization for a tank regiment of three battalions, and was to operate in place of the battalion headquarters repair sections, under direct regimental command. The platoon was to serve as a link between the workshop company and the company repair sections. Like the latter, it would handle work requiring less than 4 hours. In attack, it would follow the central axis of advance, keeping in close touch with the workshop company's recovery platoon.

The light workshop platoon was to work on brakes, gears, and clutches of PzKwII's; on damaged gear-mechanisms of PzKwIII's; and on valve defects in all types of truck and tank engines, except PzKwIII's and PzKwIV's. Also, the platoon was to repair electrical and fuel systems; salvage and tow wheeled vehicles; repair wheeled vehicles; perform autogene welding and soldering work; and charge and test batteries and electrical apparatus.

Section VI. MISCELLANEOUS

1. GERMAN DESTRUCTION OF MOTOR VEHICLES

A recent German Army document shows the importance that the Germans attach to the destruction of motorized equipment before it can fall in our hands. The document also describes methods of accomplishing the destruction most effectively.

The Germans state that if very little time is available for the destruction of a motor vehicle, four vital parts which can be destroyed quickly are the carburetor, the distributor, the fuel pump, and the ignition coil. The destruction of these parts is accomplished with a hammer, hatchet, pick-axe, or similar tools. A hand grenade placed between the cylinder block and the carburetor or distributor is especially effective, since this results in a cracked cylinder block as well as in the destruction of the carburetor or distributor.

The Germans recommend that if more time is available, the following be demolished also: the generator, the battery, the starter, and the tires. As soon as these

have been destroyed, gasoline is poured over the vehicle and ignited.

The motors of track-laying vehicles are destroyed in the manner recommended for wheeled vehicles. In addition, the driving sprockets may be demolished. The Germans place a 5-pound prepared charge of TNT between the sprocket and adjacent bogie. If possible, similar charges are set on both sides of the vehicle. The charges are wedged in place with wood or stone to obtain maximum destruction. A length of safety fuse, long enough to insure a 25-second delay, is recommended for use in firing the charge. Demolitions of this type are performed only by those trained in the handling and use of explosives.

It should be noted that the above instructions apply specifically to the destruction of gasoline engines making use of the ordinary spark plug for ignition. A vehicle powered by a Diesel engine has no carburetor, distributor, or spark plugs; in wrecking a Diesel engine, the Germans destroy the fuel-injection system by means of a hand grenade.

2. NEW GERMAN ARMY INSIGNIA

New insignia have been issued throughout the German Army, to be worn on the left arm, 4 inches below the shoulder, when shoulder straps are not worn (see fig. 3, on following page).

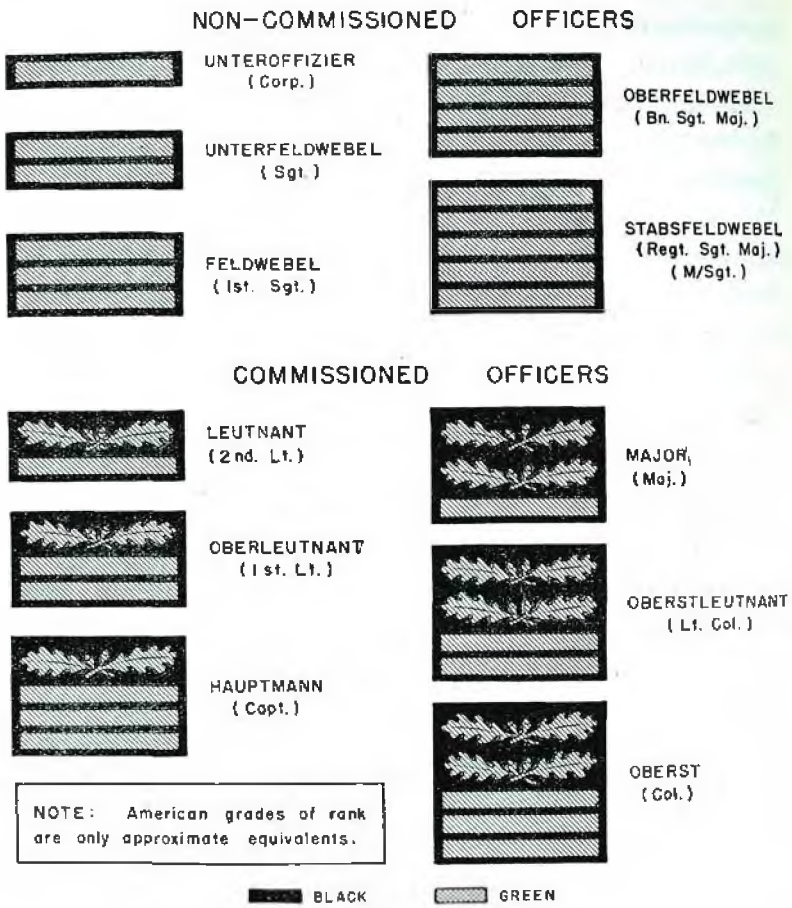

Figure 3.

3. THE FIRE FIGHT

A British Army handbook on fieldcraft and battle drill stresses the importance of the fire fight, lists the fire power of the German infantry division, and summarizes German methods in defense and attack. Extracts from this handbook are given below.

a. General

The morale and fatigue factors being equal, it is fire superiority which will win or lose battles. The side which applies the greatest quantity of fire at the right time and at the right place usually will succeed. It is fatal to attempt movement without having made proper arrangements for fire superiority.

b. German Infantry Division Fire Power

(1) *Reconnaissance Unit.*

Mobile covering troops with mortars (three 50-mm and three 81-mm) and machine guns may be encountered on a very wide front.

(2) *Infantry Regiment.*

The infantry regiment consists of three infantry battalions. Each battalion has four companies—three rifle companies and a machine-gun company (although Nos. 4, 8, and 12 are called machine-gun companies, they also include 81-mm mortars).

(a) *Rifle Companies.*

Each company consists of a headquarters group, three platoons, and an antitank rifle section.

Each platoon consists of a platoon headquarters, four rifle sections (each consisting of a second-in-command and nine men), and a light mortar section.

Each platoon has a platoon sergeant, a bugler (who carries a machine pistol), two messengers, and a stretcher-bearer. It also has a one-horse vehicle.

The light mortar section has a team of three men (the mortar is normally a two-man load) and five ammunition cases containing nine rounds each.

The total strength of the headquarters group is nine men.

(3) *Platoon Weapons.*

The platoon weapons consist of a light mortar and 45 rounds (30 mm, range 550 yards); five machine pistols, 192 rounds per pistol (9 mm); four light machine guns—one per section, 1,150 rounds per gun (range 3,200 yards); and 28 rifles (90 rounds per rifle, carried by the individual soldier).

(4) *Support Weapons.*

(a) The antitank rifle section within each rifle company consists of a noncom and six men, with three antitank rifles.

(b) Each of the three machine-gun companies—Nos. 4, 8, and 12—has 12 heavy machine guns. These are fired off a tripod, have a range of 3,800 yards, and are capable of indirect fire (caliber .31 inch). Each company also has six 81-mm heavy mortars with a range of 2,078 yards.

(c) The regimental weapons in No. 13 infantry-gun company and No. 14 antitank company consist of six 75-mm light infantry howitzers, with a range of 5,600 yards (10- or 14-lb. shell); two 150-mm heavy infantry howitzers, with a range of 6,000 yards (80-lb. shell); and twelve 37-mm antitank guns.

c. Characteristics of German Defense

(1) Great attention is paid to camouflage, especially during the construction of posts.

(2) Covering positions are mobile.

(3) Weapon pits are used.

(4) Dummy positions are used extensively ("to draw and dissipate the opposition's fire") and movement from dummies to real positions take place when an attack begins.

(5) The siting of 81-mm mortars, heavy machine guns, and infantry guns is determined by:

(a) *Observation post sites.*—These must afford a good view from a high point.

(b) *Method of control.*—The infantry-gun and machine-gun companies have no radio, very little other signal equipment, and only 8 miles of field wire. Therefore, communication by line is limited. In the case of heavy mortars, communication is maintained by shouting or by line telegraphy or telephony only.

(6) The Germans tend to site positions in threes, in a clover leaf pattern.

(7) General mobility and immediate counterattack are the backbone of German defense doctrine.

d. Characteristics of German Attack

(1) The significance of the fire fight (*Feuerkampf*) is fully appreciated. The Germans adhere to the principle of fire superiority on a narrow front chosen as the "critical objective" (*Schwerpunkt* theory).

A typical concentration of fire for a battalion attack, which might be on about a 600-yard front, would be provided by—

6 heavy mortars from the machine-gun company,
12 heavy machine guns from the machine-gun company,
9 light infantry howitzers from No. 13 company,
2 heavy infantry howitzers from No. 13 company.

This is exclusive of light machine guns, machine pistols, and so on, and does not include the usual allotment of divisional artillery.

(2) The Germans distinguish between three aspects of the destruction of the opposition by fire:

(a) Destroying the opposition's personnel and their means of fighting.

(b) Forcing the opposition under cover and preventing them from using their own fire power.

(c) Blinding the opposition to prevent observation and avoid fire. The use of smoke figures in this method. Also, the psychological effect of stunning the enemy by the sheer weight of explosives is taken into account.

(3) The Germans use light signals to call for fire support.

(4) Three ranging rounds of mortar fire are likely to be followed by groups of 10 rounds.

(5) Mobile reserves of ammunition are maintained, to step up fire at a decisive place at a decisive time.

e. British Doctrine

(1) *In Attack.*

We must dispose our strength so that we have fine superiority at the point of impact. This is the key to success.

(2) *In Defense.*

We must keep a mobile reserve of fire—as large a one as possible—to counter the enemy's tremendous concentration at his point of attack.

PART TWO: JAPAN

Section I. AMPHIBIOUS TACTICS BASED ON EXPERIENCES AT WAKE

1. INTRODUCTION

Lessons learned by the Japanese in the land, sea, and air attack on Wake Island are contained in a recent enemy document. Of special note is the indication that the surrender of U. S. troops was hastened when a Japanese detachment got among civilian workers and began slaughtering them. Apparently the U. S. commander surrendered at that time to prevent further killing of these workers, realizing that surrender was inevitable anyway. The information given below has been taken from the enemy document, and is presented in a paraphrased and condensed form.

2. GENERAL PROCEDURE

You must not use a plan of attack that has been used previously, because the enemy can anticipate our actions. And don't forget to take the enemy by surprise. This is absolutely essential.

Our method of operation must be determined only by the progress of the battle.

There are many cases where the soldier must value speed more than finesse.

The issue of victory lies in the constant maintenance of the offensive spirit. The great success of this operation (capture of Wake Island) was due, in the final analysis, to the constant display of this spirit by all personnel, without regard for their own lives.

It is necessary to train especially picked troops for the landing force.

In landing in the face of the enemy, it is necessary to utilize timely diversions and deceptive movements. If the diversion does not succeed in its purpose, it will hinder rather than help the subsequent operations. Because the diversion effort at Wake was carried out before the invasion force landed, the result was rather to alert the enemy than to deceive him. In view of this, similar operations in the future should be thoroughly prepared beforehand in regard to time, place, and method of attack. It also is essential to have thorough communication arrangements so that all units can be advised of any last-minute changes in our landing plans.

In case the landing is restricted to a very narrow front and there is no room for a diversion, you must either carry out a thorough bombardment before and after the landing, or make the landing in overwhelming force. If the attempt is made to land secretly (that is, using only motor boats and landing only small numbers at one time) on a place like Wake Island where landing is limited to a small area, it is evident that great losses will be incurred.

In the invasion of a strategic island, the command must be unified. The invasion forces consist of the Occupation Force, the Covering Force (naval and air), and also a force we may call "Cooperation." [Comment: This force is believed to be com-

posed of reserves and unloading units.] The power of these forces cannot be developed fully if there is a lack of mutual understanding among them.

3. PREPARATIONS FOR LANDING

Because troops easily become scattered at night and control is difficult, execution of the operations must be made simple by detailed preparations. The following factors must be considered in deciding methods of operation, organization, and equipment:

a. Troops must be organized and equipped to fight independently during the daytime.

b. Remember that when the enemy's main batteries and other defense areas cannot be captured before daybreak, it is often impossible to get fire support from the ships during the day. [Comment: This shows a healthy Japanese respect for our shore batteries.]

c. At night, hand grenades and grenade throwers are extremely effective in silencing heavy guns. In day fighting, it is necessary to have machine guns and infantry cannon available for use.

d. All the first-line fighting strength must be landed at once. Quite often, motor boats used in the first landing become stranded and cannot be used for another trip.

4. LANDING PROCEDURE

If the beach is defended, it is absolutely essential to complete the landing before daybreak. In general, it seems that the earlier the landing time, the more effective it will be.

Although the Wake Island landing was effected 4 hours before sunrise, it turned out that the old saying "The hours of the night are short" was only too true. The landing originally was planned for execution at 2300 hours, but trouble in lowering the motor boats delayed us about 1½ hours. It is also necessary to allow

extra time for approaching the shore and making the main landing.

Where there are fringing reefs, low tide is more advantageous for landing than high tide.

At night the enemy shells pass overhead; so damage is slight, although you receive a fierce shelling.

It is easy to mistake the landing point at night. The leading boat must approach at half speed or low speed until the island can definitely be seen from the large landing lighters.

To lead the boats in close formation within range of the enemy's defense guns is extremely dangerous; however, in landing operations in the dark on long swells around an island, and if the boats deploy 4,500 to 5,000 yards from shore, the lighters will find it extremely difficult to hold their course, and almost impossible to reach shore at the designated point. Although four lighters were led within 3,500 yards of the shore at Wake, none of them arrived at the appointed time or place. Two lighters which accompanied patrol boat No. 32 lost sight of her on the way because she increased speed. It is necessary for the leading boat to have a low-powered signal light on its stern for signaling to the rest of the boats.

At the time of landing, the normal speed of the patrol boat should be maintained. When the boats are proceeding shoreward at about normal speed, the enemy has extreme difficulty in aiming.

It is necessary to unload the boats very quickly after reaching shore, and a great deal of equipment should be made ready in the bow of the boat.

5. THE FIGHT AFTER LANDING

a. General Observations

The enemy forces are, after all, easily beaten. Although the U. S. force was numerically equal to the invasion force and was

in a fortified position, it was defeated in a half day's fighting; so the conclusion is inescapable that the U. S. soldiers are at the beginning like lions, but at the end are gentle like virgins.

In the Wake Island operation, our landing force hardly fired a shot until daybreak, but used enveloping movements and hand grenades. In darkness, our use of rifle fire generally is damaging to us because it reveals our positions. Hand grenades and grenade discharges are extremely effective, particularly against enemy machine-gun positions, trenches, and so forth. There were some cases where enemy positions were surrounded from four sides, and use of the rifle might have caused casualties to friendly troops.

b. U. S. Tactics—How to Combat Them

(1) *Attacking a Defense Position.*—A diagram of a U. S. position is shown in figure 4.

Note that the Americans put two or three men out in front of their position. When we approach, they fire a volley and

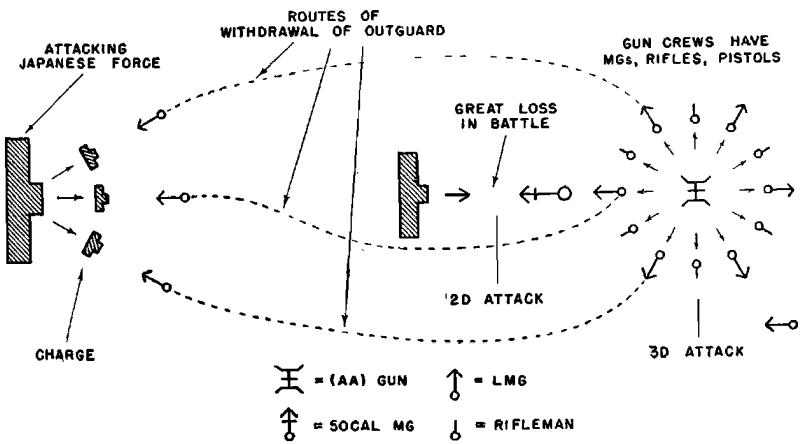

Figure 4.—Diagram of attack on U. S. position

fall back in an attempt to lead us to their main body. (Study the diagram.)

To combat such positions, encircle them at night and fire on them heavily with grenade throwers and hand grenades. Immediately thereafter, rush the positions from the flanks and rear as well as from the front.

If the night charge fails, or if the opposing forces confront each other in the daytime, it is most effective to encircle the position and begin fighting with hand grenades and grenade throwers.

(2) *How to Mop Up at Night.*—The Americans usually post a sentinel, armed with a light machine gun, about 200 to 300 yards in front of their positions. After firing a burst, the sentinel skillfully withdraws to a nearby slit trench. When our forces have passed by, he opens fire and throws our rear into disorder.

Against these tactics, divide the troops into an assault force and a mopping-up force.

When the assault troops locate the enemy position, they will rush it. Remember to have scouts ahead of the assault force and to keep a sharp lookout to the rear.

The mopping-up force advances after thoroughly searching the trenches in the occupied area, throwing two or three hand grenades into likely hideouts. This force then occupies the ground taken and posts sentinels to secure our rear.

See figure 5, which is a diagram for mop-up methods.

(3) *Attacking U. S. Positions in Heavy Brush.*—On Wake Island, the enemy (U. S.) had numerous positions in the heavy brush area. These positions had many small machine-gun nests, with a few 50-caliber machine-gun nests as the backbone of the defense.

When attacking from the open ground in front, our troops received the sweeping fire of these machine guns and our losses were great. When trying to attack the enemy's rear in the brush area, maneuvering was difficult because our troops were unacquainted with the terrain. Forces penetrating such positions

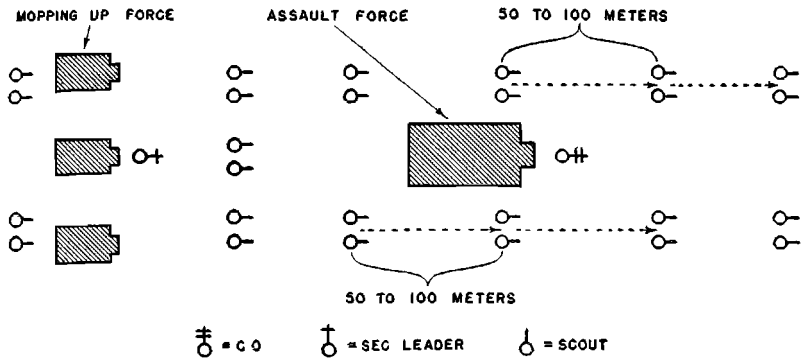

Figure 5—Japanese mop-up methods.

should use special care not to become dispersed. They should surround the enemy and then use hand grenades, grenade throwers, and so forth.

(4) *Attacking Skirmish Lines.*—Although the Americans deploy in skirmish lines, they do not hold their ground. When we charge, they fall back and assemble in the vicinity of a defensive position, but they do not turn to the offensive—that is, they almost never counterattack. We should take advantage of this with all our power.

(5) *Attacking Contractor's Workers.*—The U. S. contractor's workers have absolutely no fighting spirit. It is fruitful for us to raid those places where these workers may be found, as the first step in bringing about the surrender of the enemy. In the Wake operation, the success of one company's action as a flying column was the first step toward victory. [Comment: This unit apparently captured the contractor's workers and started slaughtering them.]

6. COOPERATION OF SHIPS AND AIRCRAFT

a. Destruction of land batteries with ship's guns or airplanes is difficult.

b. Direct cooperation between air and land forces is extremely effective, and the cooperation of light airplanes is essential (especially when we are weak in artillery and the enemy has powerful artillery, tanks, and so forth).

c. Detailed reconnaissance of enemy positions by airplanes appears to be extremely difficult.

d. It is sometimes hard to bomb air bases. It was difficult to see and bombard the Wake airfield with ship's guns because it is lower than the road around it.

7. COMMUNICATIONS

When landing, it is necessary to devise measures to keep communication equipment from getting wet. In the Wake operation, communication between ships and the shore was impossible because the radios and telephones either got wet or received severe shocks. The rockets and signal pistols also got wet, and, although fired, they were difficult to distinguish from the enemy's machine-gun tracer bullets.

The methods of communication must be simple. In a landing operation carried out by a number of cooperating units, it is necessary to perfect communications so as to maintain close liaison. It is most important to have several simple, sure means of communications so that they will function regardless of the situation.

Section II. NOTES ON THE JAPANESE—FROM THEIR DOCUMENTS

1. INTRODUCTION

Japanese comments on their operations, as revealed by their own documents, are given in this section. The documents have been paraphrased and edited to eliminate repetition and parts considered of little or no value. For the sake of clarity, individual documents are separated by a long dash.

2. REGARDING MORALE

The following are extracts from an address made by a Japanese commander to his troops in New Guinea on September 11, 1942:

. . . Endeavor to forget unpleasant incidents and to remember only the good. It is useless to brood over matters as a hysterical woman does.

We are all thin from lack of food, but do not show a haggard countenance when we get on the vessels. There is a saying that "The Samurai (warrior) displays a toothpick even when he hasn't eaten." [Comment: That is, he is too proud to admit

that he is suffering from lack of food.] This is an example worth emulating at the present time.

Since we have been here, there have been those among us who have worked well and also those who have been lazy. The men of the "suicide squads" and those with similar aspirations are among the bravest of the brave; on the other hand, those who have neglected their duty can only be considered despicable. Every individual must aspire to be a hero.

The document below, dated October 14, 1942, is a statement made by a Japanese commander to his subordinate commanders in New Guinea.

This is a most regrettable statement to have to make regarding soldiers, but this unit in facing air attacks here has turned out to be composed of cowards. There are some men who, in the midst of their work, take refuge before any order to do so has been given. This is a breach of military discipline which will not be permitted in the future.

The rigor of military discipline applies equally to those who advance without orders and those who do not advance when ordered to do so—to the brave as well as the weak.

When it becomes necessary to take refuge, obey the commands of your leaders. Those on the beach near the landing craft should take refuge in the jungle as far inland as the position of the rapid-fire gun unit. Even during the period when you are taking refuge, every unit commander must maintain liaison with the command, and also exercise control both over those who are engaged on some task and over the remainder of his unit. We are truly sympathetic with those who have to continue work during air attacks.

The first submarine relief went off better than expected, but the second failed. I think that any further attempts at rescue will

be even more difficult. As a matter of fact, the crew of the submarine, in endeavoring to rescue us, is engaged in a more death-defying task than we are ourselves. This command does not ask for anything more than that you should emulate the spirit of sacrifice of such men.

The "bulletin" below was issued by a Japanese commander December 1, 1942, on New Guinea.

It is reported that part of my unit retreated yesterday (30th), when the enemy penetrated the fixed radio station area. This is being thoroughly investigated by all Military Police members of the detachment.

It is to be remembered that anyone leaving the garrison area without orders will be severely punished or executed on the battlefield, in accordance with the Military Criminal Code. Hereafter there will be no leniency. In order to develop military discipline and strengthen the foundation of victory, deserters will be severely punished.

Those who have no rifles or swords will tie bayonets to poles. Those who have no bayonets will carry wooden spears at all times. Some are walking with bayonets only, or without any arms. Each man will prepare a spear immediately and will be as fully prepared as troops about to charge. Even the patients will be prepared.

---

3. REGARDING U. S. TROOPS

The following "Characteristics of the U. S. Army" were issued by the Japanese during the early phases of fighting on Guadalcanal:

a. U. S. troops are simple-minded and easy to deceive.

b. The enemy lives in luxury, so cut his lines of communication.

c. The Americans possess a strong feeling of national unity, and they like novelty and adventure.
d. They are boastful, but are inclined to carry out their boasts.
e. They are optimistic and lack patience.
f. They excel in the technical field.
g. Their marksmanship is excellent.
h. They lack proper training in scouting and security.
i. The tempo of their attack is slow.
j. After the initial assembly, the enemy has difficulty in controlling succeeding movements.
k. Adjoining units do not cooperate with each other.

---

4. REGARDING SECURITY

Observation parties watching for aircraft will note the following places particularly:
a. The space between the mountains and the sky;
b. Between clouds;
c. The coast line and along rivers;
d. Above villages.

When enemy aircraft are observed, report the number and direction of the flight to the commander, and the number, direction, height, and distance to the antiaircraft units.

No soldier will be on lookout duty more than 1 hour at a time. Two lookouts will be on duty at the same time at each post. One will watch the direction from which planes are most likely to come, while the other will watch the opposite direction and act as runner.

The following is an order by a Japanese commander to a "suicide squad":

I order the three of you to be messengers unto death . . . Should you encounter the enemy on the way, fight to a finish;

burn these papers, and each of you use your final bullet to take your own life rather than become a prisoner.

In writing home, mention nothing concerning current military operations; make no reference to the zone of operations, and make no reference to the state of training.

To avoid personal injury from falling coconuts, do not sleep under coconut trees.

5. REGARDING ATTACK

In the absence of a specific plan of action, attack during a dark night, or in the rain, to gain the maximum surprise effect. Another method is to assault the key enemy positions after they have been blasted by concentrated fire.

Plans of attack should not fall into one fixed pattern. It is best to confuse the enemy by changing the pattern as often as feasible.

. . . A captured position should be prepared for use against enemy counterattacks, and it should be held firmly.

Avoid the enemy's zone of fire.

. . . Most of our losses are suffered from artillery and mortar shells. When these enemy attacks cannot be neutralized, it is important to plan a desperate assault to occupy the enemy's strongholds. Remember that enemy artillery positions are protected by several automatic weapons and that the positions are strongly prepared. In attacking them, use smoke, deception, and penetrating forces, which should be at least the strength of a platoon.

6. REGARDING DEFENSE AGAINST AIR-BORNE TROOPS

The best way to deal with enemy air-borne troops (parachute units) is to annihilate them before they have time to assemble and consolidate their positions. Indispensable requisites in this type of defense are airtight security measures, including careful and thorough reconnaissance, and perfectly established communications and liaison.

Each commander is responsible for taking protective measures in his own area. These measures are to be carried out in conjunction with general antiaircraft defense, and with protection of structures and equipment.

The enemy drops paratroops to capture key communication positions and important military installations. Another practice is to interfere with our troop concentrations and deployment, and to drop a few troops secretly behind our lines to incite the inhabitants and start agitations.

---

7. REGARDING EQUIPMENT

a. Rubber Boats

Types	Capacity
Large	12–15 men
Medium 97	6–7 men
Small	2–3 men
Portable	1 man

These boats, which can be deflated and packed, are easy to transport and to inflate. They are easily damaged, and should be stored under cover when not in use.

The boats are designed for use by advance units in actions over terrain which has small, unfordable streams and lakes. They are not suitable for use by large forces or in the crossing of large

rivers or swift currents. (They are difficult to manage in currents moving faster than 5 feet per second.)

b. Land Mines

Types of these include a remotely controlled land mine, which is exploded by an electrical current; an automatic mine (alarm-clock type), and contact mines. These latter include a pressure-operated mine which is placed about 4 to 5 inches underground, and one which is adapted to use with a booby trap.

These land mines are not as good obstacles as are wire entanglements. However a large number of them can be laid in a short time.

In laying these mines, place them in dead spaces in front of a defensive position and near wire entanglements, about 3 to 5 yards apart.

Section III. JAPANESE FLAME THROWERS

1. INTRODUCTION

While the Japanese have as yet made little use of flame throwers, they are believed to possess them in some quantity. These weapons are not carried as organic equipment by units, but are held for issue to specially trained personnel when the weapons are needed.

The information in succeeding paragraphs of this section is paraphrased from a Japanese document titled: "Use and Effectiveness of Flame Throwers." The document mentions four types of Japanese flame throwers, but gives a description of only two. One of the latter, "No. 1 Flame Thrower," has a maximum range of approximately 30 yards—according to the Japanese document—while the other, "No. 2," has a maximum range of nearly 45 yards. The No. 1 weapon will maintain a steady flame for 10 seconds as compared to 12 seconds for No. 2, and No. 1 has a fuel-tank capacity of about 4 gallons as compared to more than 10 gallons for No. 2. The two flame throwers mentioned but not described are known as Type 95 and Type SS.

The fuel capacity of the No. 2 flame thrower indicates that it is of a type too heavy for one man to carry. It is probably a two-man load.

A Japanese flame thrower, designed to be carried by one man, was captured by U. S. forces on Bataan. It has been examined by the U. S. Chemical Warfare Service, and was described in *Tactical and Technical Trends,* No. 18, February 11, 1943.

2. HOW THEY OPERATE

Although the Japanese document as a whole speaks of flame throwers in general, it is believed that the Japanese charts refer to a type which is carried by one man and which throws a flame approximately 30 yards.

a. Flame Chart

The Japanese chart given below is measured in meters (1 meter=39.37 inches).

b. Fuel

The fuel for flame throwers usually is a mixture of gasoline, crude oil, and kerosene. Sometimes only two of these are used. The crude oil prolongs the burning and increases the length of the flame.

During an emergency, or when no kerosene is available, a mixture composed of equal parts (by liquid measure) of gasoline and crude oil may be used. When no gasoline is available, the mixture should be composed of 2 parts of crude oil and 4 parts of kerosene.

During hot weather, the mixture should be 1 part of gasoline, 3 parts of crude oil, and 6 parts of kerosene. For cold weather, the proportion of the more volatile component should be increased: the mixture should be 1.5 parts of gasoline, 2 parts of crude oil, and 6 parts of kerosene.

For burning out emplacements, the mixture should be 1 part of gasoline, 4 parts of crude oil, and 5 parts of kerosene.

c. Safety Features

With the fuel tank full and ready for use, the flame thrower can be dropped from a height up to 6 feet without affecting the fuel tank, air pressure, or air-tight seal.

With the weapon charged and ready for use, a direct hit on the air container by small-arms fire from a distance of 110 yards will not cause it to explode or burst.

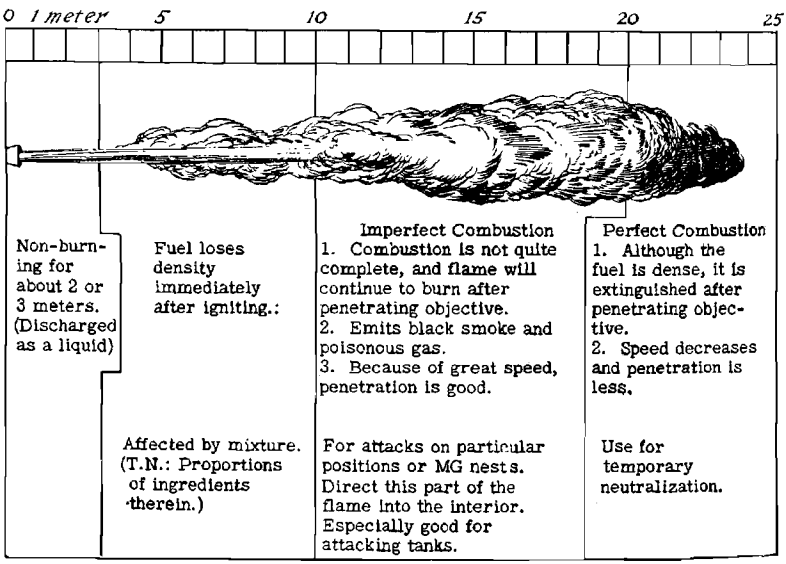

Figure 6.—Combustion chart for Japanese Flame Thrower.

If the same test is applied to the lower part of the fuel tank, fuel will spread over a radius of about 7 yards. If the upper part of the tank is hit, only gas will escape; the tank will not burst or explode.

3. TACTICAL AIMS

Flame throwers are designed to kill enemy troops, to set afire or explode certain objectives, and to build up the morale of our own forces by striking fear into the enemy. They are used during an assault to break up flank defenses, or in mopping up. They also are used in the capture of centers of resistance, obstacles, and key positions, and to attack tanks at close range.

4. TRAINING

The essential objects of training are to:

a. Impart thoroughly the details of the construction and operation of the flame thrower;

b. Teach the importance of maintaining the fuel supply and of being economical with it;

c. Teach the proper maintenance of equipment;

d. Teach the importance of observing strict discipline, because of the dangers involved in training;

Use water instead of fuel in training, but act as if it were real fuel.

5. TACTICAL EMPLOYMENT

a. Against Key Positions or Emplacements

A partly consumed discharge (imperfect combustion, see fig. 6) will attain the best results against an objective. However, for momentary neutralization, such as the initial subjugation of flank defenses, a perfectly burning discharge will achieve the purpose.

In attacking special positions (such as flank defenses), temporary neutralization is achieved by inflicting casualties among the defenders and rendering their ammunition temporarily unfit for use. To insure success, follow up with an attack using explosives. Because of the black smoke and noxious gases emitted, it is impossible for the enemy to post fresh guards for 5 to 10 minutes.

In attacking enclosed positions, direct the flaming oil through the loopholes. The stream will strike an inside wall, be reflected, and reach every part of the interior.

b. Against Tanks at Close Range

Our experiments show that flame throwers at close range can temporarily neutralize tanks by inflicting casualties among the crew and by stopping the engines. Complete destruction is possible if the action of flame throwers is followed by attacks with explosives. However, best results are obtained by setting fire to combustible parts inside the tanks.

Section IV. HOW THE JAPANESE TREAT NATIVES IN S. W. PACIFIC

1. INTRODUCTION

This section deals with the harsh methods used by the Japanese in dealing with the natives on the Southwest Pacific islands which the enemy has occupied. The information comes from Japanese documents, which have been paraphrased for the sake of clarity. These methods are described below to acquaint our troops further with some of the ruthless acts of the enemy, and to give them some pointers on how not to treat the natives.

2. ON GUADALCANAL

a. General

The natives of this island are to be made to cooperate with the Imperial Army. Unless they submit to 30 days of forced labor, they cannot obtain a resident's badge. However, women, persons under 14 and over 50 years old, and the crippled and diseased will be excused.

b. How to Handle Forced Laborers

Those who submit to forced labor without resistance will appear at a designated place and be registered. Thereafter they

must live apart from their families in an area to be called the "fixed dwelling place."

While submitting to forced labor, they will be given a temporary resident's badge and will be provided with food and other things necessary for housekeeping (from government supplies). One stick of tobacco will be given to each laborer per week. As a rule, give two sticks to the "boss boy" only. Upon completion of the 30 days of labor, give a loin cloth or other good gift to laborers who have good records.

All laborers will work 10 hours per day.

c. Discharge of Forced Laborers

When they have completed their 30 days of labor and have permission from the officer in charge, the laborers can return to their former abode or move to a suitable place.

If the forced laborers are negligent in their work, their temporary residence badges will be taken from them after the third offense and they will have to work 10 additional days. After five offenses, they will work 20 additional days.

Those who conduct themselves well and are diligent will receive good-conduct badges.

Those who receive the highest good-conduct badges will be made chiefs and otherwise rewarded.

Divide the chiefs into big and little ones, and give a big chief jurisdiction over two or more little chiefs.

The chief will receive his control of village affairs from the government [Japanese], and will act on the orders of the government.

3. IN S. W. PACIFIC AREA AS A WHOLE

The natives of this area are generally simple and docile and habitually respect their masters. In some respects, however, because of the previous system of control, they have a habit of as-

serting their rights (they easily forget their duties), and many of them, affected by missionary education and leadership, persist in those manners.

The following points should be the general standard in handling the natives:

a. By the authoritative and strict rules of the Imperial Army, see that they give us true respect and obedience. Induce them to become Japanese subjects.

b. Prohibit the religious teaching (usually accompanied by schooling), which they have had from the missionaries, but do not restrict the individual faith of the natives.

c. Although you may try to indoctrinate them with the Japanese type of spiritual training in its entirety, it will be hard for them to understand and usually there will be no results. For the present, make them understand well the great power and prestige of Japan and the superiority of the Japanese race, and bring them to trust us, admire us, and be devoted to us.

d. Be sure none of the natives serve as spies for the enemy. In such cases, take severe measures.

e. Do not enter their dwellings or chat with them on a level of equality.

f. The missionaries and Axis country nationals (those remaining are mostly Germans) use their positions as priests and as citizens of allied nations to maintain their former rights, profits, and foothold. On the surface, they promise to cooperate with us, but the real intentions of many are to further their own interests. Investigate them very strictly and, without being excessively high-handed on the surface, direct matters in such a way as to gradually destroy their power, interests, enterprises, and so forth. If necessary, seek additional instructions from higher authority.

g. In the new Imperial territory, the churches, their proselyting, and their education are to be prohibited.

h. The land and all natural resources are government property, and, for the present, private ownership of them will not be recognized.

Section V. JAPANESE EXPLANATION OF S. W. PACIFIC REVERSES

According to the Japanese, they won a "strategic" victory in the lower Solomon Islands and in the Gona and Buna areas of New Guinea. The enemy's version of the fighting was given in a report made to the Japanese Diet (parliament) by Major General Sato, Army spokesman representing both the Army and Navy. The report was picked up by the Federal Communications Commission from a Japanese broadcast.

Explaining the Japanese strategy in the South Pacific, General Sato said that their "advance guards," on Guadalcanal and in New Guinea, held the American and Australian troops until the Japanese main forces could consolidate positions closer to their supply bases "for a concrete operation in the future."

". . . At the beginning of September," General Sato said, "We crossed the Stanley Mountain range and neared the vicinity of Port Moresby. However, owing to general circumstances, our unit withdrew to the vicinity of Buna, and began the task of diverting the enemy to this area."

General Sato claimed that the Japanese "withdrew" from Buna and Guadalcanal only after accomplishing their objectives—holding United Nations forces until the main Japanese forces were well established in the rear. "The withdrawal of our forces in both areas was carried out in an orderly manner and, moreover, in a calm manner, while always attacking the enemy and keeping him under control."

General Sato admitted that the Guadalcanal operation was "nerve-wracking" because the Japanese units "had to operate several thousand nautical miles away from the base line which connects Malaya and the Philippine Islands. Therefore, it was inevitable to have differences in effectiveness and speed of operations between our forces and the enemy forces . . . Because of this fact, it would have been ignoble strategy for our forces to have sought a decisive battle in a location strategically disadvantageous."

". . . Due to such harmonious unity between our Army and Navy," General Sato continued, "the most difficult strategy—a withdrawal under the very noses of the enemy—was done calmly and in an orderly manner, with almost no losses. This is something unprecedented in the world."

Section VI. JAPANESE A/A GUNS

1. GENERAL

When the Americans captured the Guadalcanal airfield, they found that the Japanese had left behind three types of antiaircraft guns. These were naval guns, set up on shore. They included twelve 75-mm antiaircraft guns, one 25-mm pom-pom, and one 13.2-mm machine gun. The 75-mm weapons, on naval-type mounts, were emplaced in a triangular formation, each side about 4,500 yards in length. The pom-pom and the machine gun were found in separate positions along the shore.

2. DETAILS OF 75-MM A/A GUN

The 75's (see fig. 7) were in three batteries, each consisting of four guns. They were emplaced in open pits with sandbag revetments, and had 360-degree traverse and 75-degree elevation.

Each gun has two telescopic sights, one mounted on each side of the mount with a traversing handwheel on the right and an elevating handwheel on the left of the mount. Lateral deflection, vertical deflection, slant

range, and super elevation are all set on a series of drums, disks, and dials on the left side of the mount.

The slant-range drum has two scales. The outer is graduated from 0 to 7,000, and the inner from 100 (opposite the 0 on the outer scale) to 300 (opposite 6,000 on the outer scale). This drum is turned by a small handwheel.

The lateral-deflection drum turns on a spiral, and is graduated from 0 to 200.

Figure 7.—Japanese 75-mm A/A gun.

The superelevation curves are on a disk, operated by another small handwheel.

The gun also has an open sight mounted on a drum. The controlling handwheel moves only the vertical sight.

There were no directors at any of the gun sites, but at each was a navy-type coincidence range finder with a 68-inch base.

The guns fire high-explosive shells which have 30-second mechanical time delay and percussion fuzes. The weapons have no fuze setters, as ours have. Instead of fuze setters the Japs used a manual two-piece tool. One piece, a long plier-like tool, holds the fuze by its bottom ring, below the graduations. The other piece, shaped like a truncated cone with handles on each side, fits over the fuze nose and engages the lug on the side of the fuze. The fuze is set by holding it with the first tool and rotating the second tool. It is not clear how the fuze-setting is obtained.

3. DETAILS OF 25-MM POM-POM

This gun is a Hotchkiss type, gas-operated, air-cooled, magazine-fed weapon (see fig. 8). It consists of three 25-mm cannon mounted side by side on a naval-type, three-gun pedestal mount. The gun fires armor-piercing and tracer shells from a 15- or 20-round vertical box magazine, which fits into the top plate of the receiver. The sighting is on the same gen-

eral principles as that of the 75-mm gun described above.

4. DETAILS OF 13.2-MM MACHINE GUN

This weapon is a 13.2-mm (52-caliber) Hotchkiss type, gas-operated, air-cooled, magazine-fed antiaircraft machine gun, mounted on a naval-type pedestal

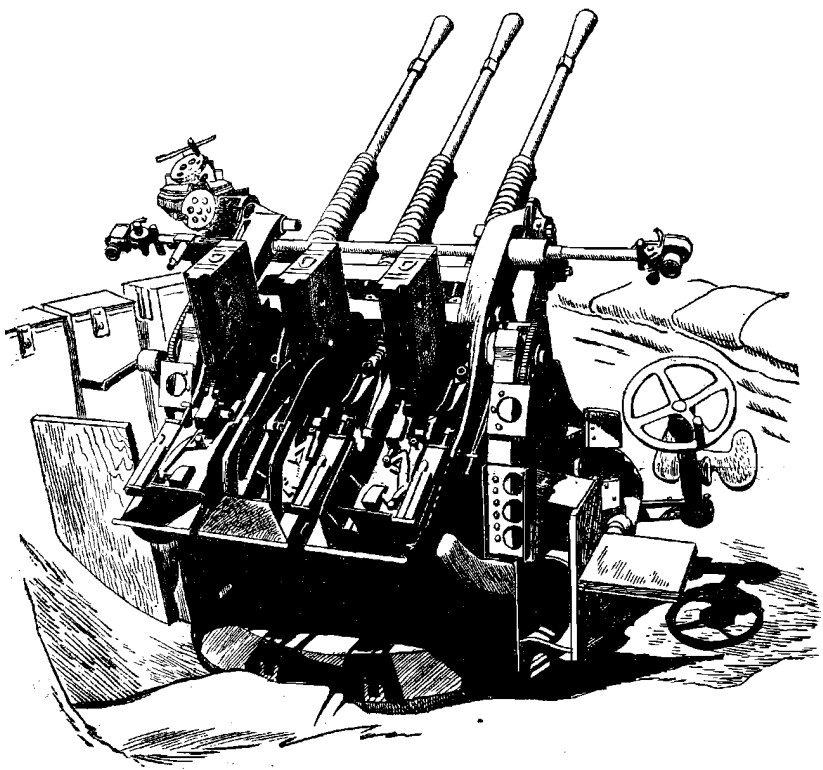

Figure 8.—Japanese 25-mm pom-pom gun.

mount. It is fed by a 30-round semicircular magazine which fits into the top of the receiver. The gun has a shoulder stock and pistol grip. Antiaircraft sights are mounted on the gun. They are composed of a front-ring antiaircraft sight and a rear sight; the latter consists of a small vertical rod with a ball tip. This weapon is the standard heavy antiaircraft machine gun.

U. S. GOVERNMENT PRINTING OFFICE: 1945