

~~R-14077~~

Tactical and Technical Trends of the **AXIS FORCES**

Instructors Reading this Document

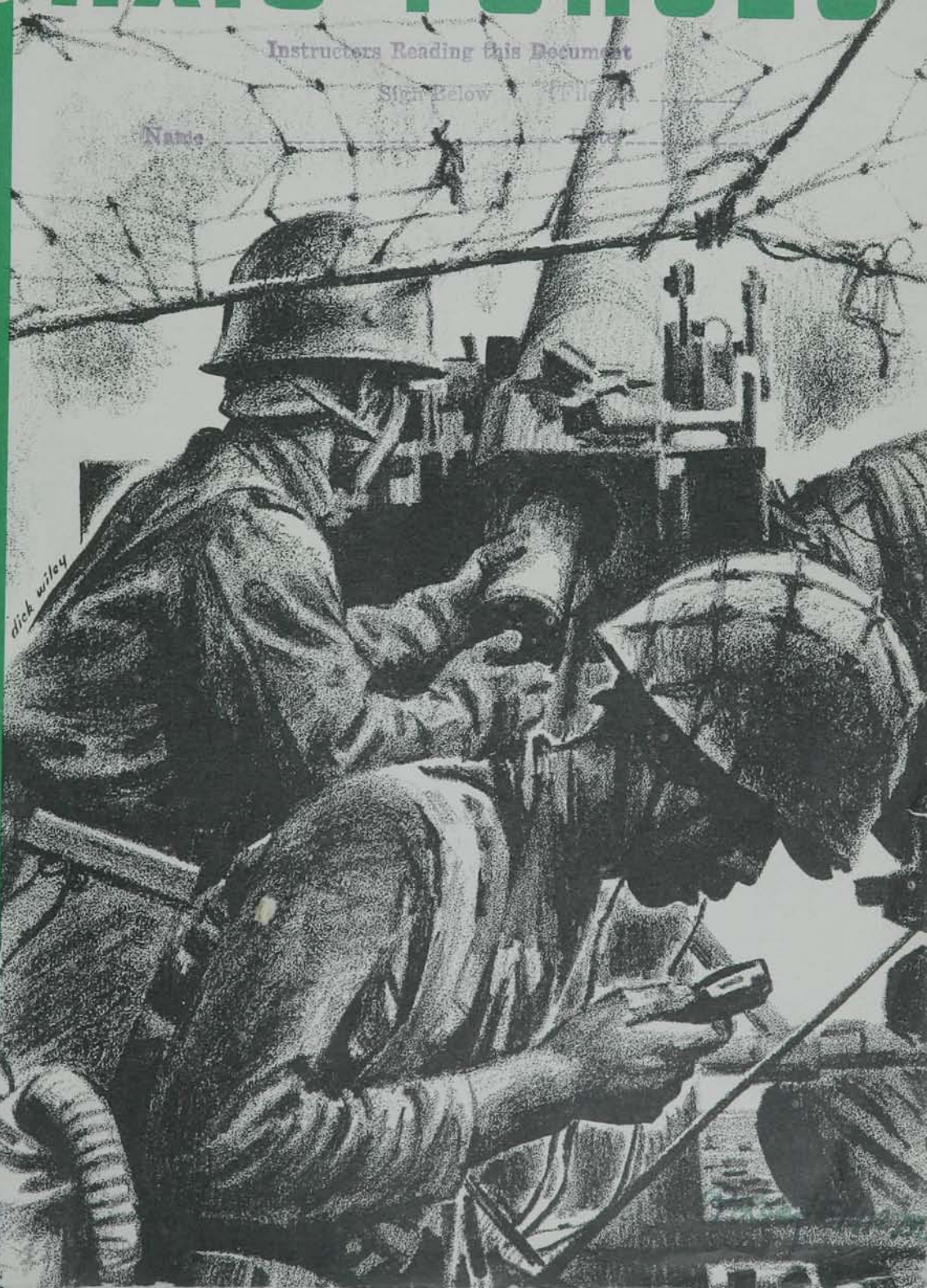
Sign Below

Name

dick wiley



PREPARED AND PUBLISHED BY
ASSISTANT CHIEF OF STAFF, G-2
HEADQUARTERS WESTERN DEFENSE
COMMAND & FOURTH ARMY PRESIDIO
OF SAN FRANCISCO, CALIFORNIA



HEADQUARTERS WESTERN DEFENSE COMMAND AND FOURTH ARMY
Presidio of San Francisco, California

Office of the Assistant Chief of Staff G-2

20 June 1943

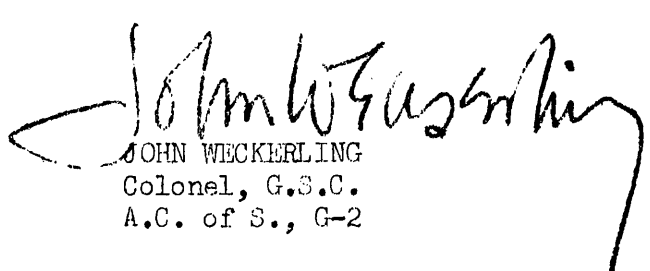
INFORMATION BULLETIN)

NUMBER 3e)

TACTICAL AND TECHNICAL TRENDS
OF THE AXIS FORCES

F O R E W O R D

The information contained in this bulletin has been reproduced from a recent Military Intelligence Service, War Department publication by authority of the Assistant Chief of Staff, G-2, and is the thirteenth such bulletin issued by this office.


JOHN WIECKERLING
Colonel, G.S.C.
A.C. of S., G-2

CONTENTS

I - ANTITANK	
Finnish Tank Traps Over Frozen Rivers	1
German Antitank Units in Rearguard Action in Africa	1
German 76.2-mm Self-Propelled Gun	1
German 75-mm Antitank Gun	1
Vulnerable Spots for Incendiary Grenades on German Tanks.	3
II - ENGINEERS	
Japanese Field Works in Buna	6
III - ARMORED FORCE	
Ammunition Carried by German Tanks	7
IV - ARTILLERY	
German 150-mm Self-Propelled Gun	7
V - INFANTRY	
Japanese Ruses--Buna Area	7
German Patrols in North Africa	9
German Use of Aircraft for Ground Security at Night	9
VI - ORDNANCE	
Some Notes on German Weapon Development	10
VII - GENERAL	
A - Some German Views on Fortifications	13
1. Elements of Modern Fortification Design	13
2. The Failure of Fortifications in the 1940 Campaign	21
B - Japanese Opinions on American Tactics	24

I - ANTITANK

TACTICAL

1. FINNISH TANK TRAPS OVER FROZEN RIVERS

A recent report on the method used by the Finns to open tank-trap channels in the ice over streams and lakes, and to keep them open and hidden, may be useful for purposes of winter operations. Briefly, the Finns saw out a channel in the ice, roof it over, leaving an air space underneath to prevent refreezing, and replace the snow over the roof to keep the air space warm and to hide the trap.

2. GERMAN ANTITANK UNITS IN REARGUARD ACTION IN AFRICA

According to reliable reports, the tactical use of antitank weapons by German units operating on rearguard missions, is as follows: First, the 88-mm dual-purpose guns fall back, then the combat engineers, and the antitank guns last. Unless the attack is too overpowering, the antitank units, before withdrawing, stand fast for a length of time designated in orders. If the gun positions are undetected, antitank fire is opened only at the last possible moment, since the German 50-mm guns are not effective against General Grant (U.S. M3) and General Sherman (U.S. M4) tanks at long ranges. If the gun positions are known to the enemy, long-range fire is employed.

TECHNICAL

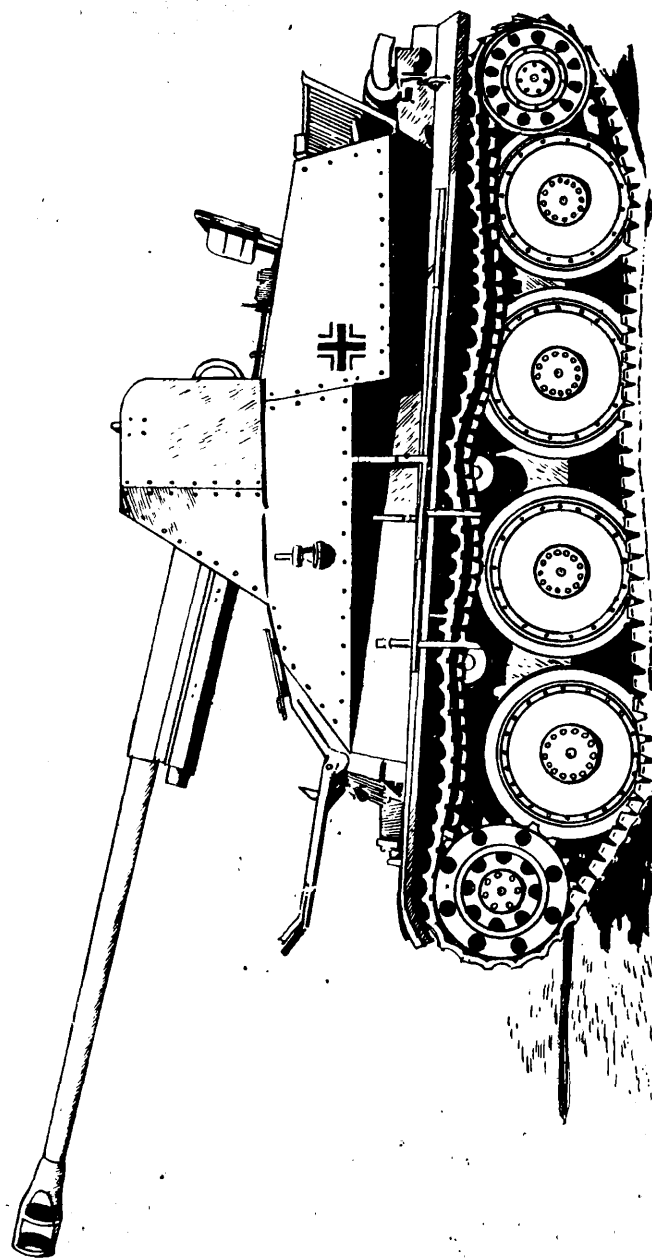
3. GERMAN 76.2-MM SELF-PROPELLED GUN

This weapon is another example of the German tendency to mount a large variety of guns on self-propelled mounts. These weapons have been in action in North Africa. The accompanying sketch is based on photographs of a captured specimen.

The weapon consists of a Russian 76.2-mm gun mounted on the Czech 38 (t) light tank chassis. The gun has a traverse of about 40 degrees, and an elevation of minus 5 degrees to plus 20 degrees. It is an adaptation of the standard Russian light field piece, which is reported to have a maximum range of about 15,000 yards and a muzzle velocity of about 2,300 to 3,400 feet per second; it fires a projectile weighing about 15 pounds.

4. GERMAN 75-MM ANTITANK GUN

In case any of the 75-mm Pak 97/38 guns fall into the hands of our artillery, it should be a fairly familiar weapon. The gun is a long-barreled adaptation of the French "75" with some interesting modernizations. Noteworthy are the double shield with an air space between the two plates, the perforated Solothurn muzzle brake, the odd-looking split trail, which would seem to give a large and rapid traverse, and the third smaller wheel set under the trail spades. This third wheel can be folded up flat on top of the trail. The carriage is quite similar to the 50-mm German antitank gun. With a screw breech-block like the old "75", the piece is typically French. An earlier type of French 75-mm dual-purpose antitank-field piece, said to fire a 14.1-pound solid shot at 2,100 f/s velocity, was completed in March 1940. The present weapon appears to be a development of this gun.

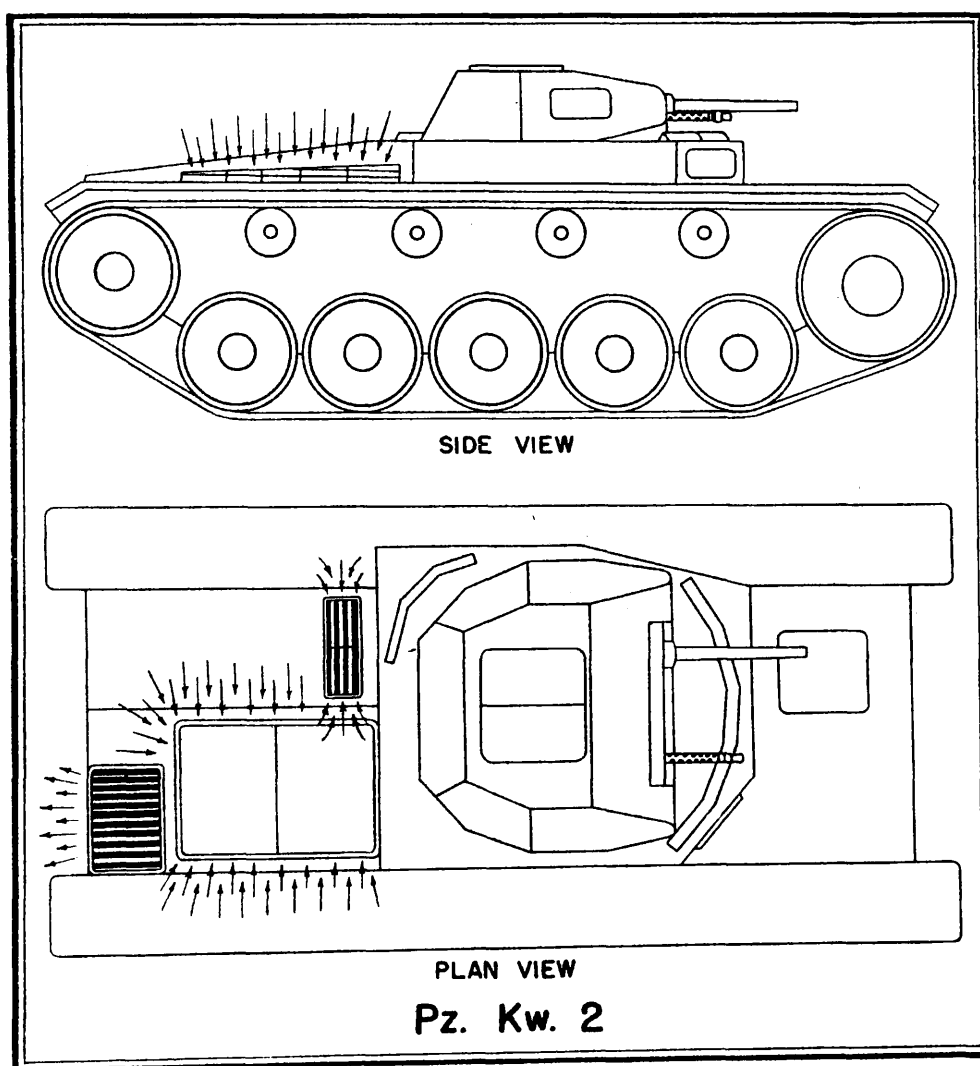


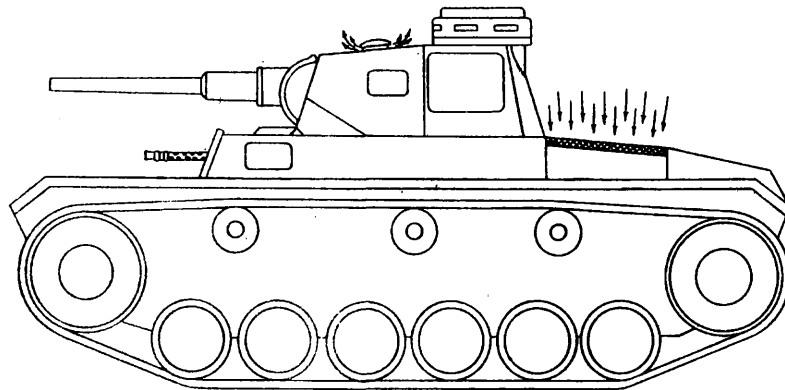
GERMAN 76.2-MM SELF-PROPELLED GUN

5. VULNERABLE SPOTS FOR INCENDIARY GRENADES ON GERMAN TANKS

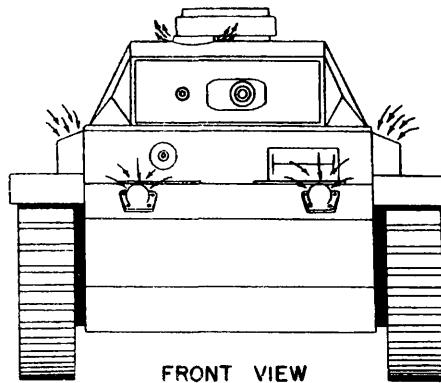
In attacking enemy tanks at close quarters with Molotov cocktails or incendiaries, the air intakes are among the most vulnerable points. It is important, therefore, that the location of these intakes and outlets be known, as the flame and fumes of a grenade thrown against an intake while the engine is running will be sucked inside, but if the grenade lands on an outlet, they will be blown clear of the tank.

The best targets are the flat top-plates behind the turret. Side intakes are invariably protected by a vertical baffle. The accompanying sketches show the "soft spots" in German tanks Pz.Kw. 2, 3, and 4.

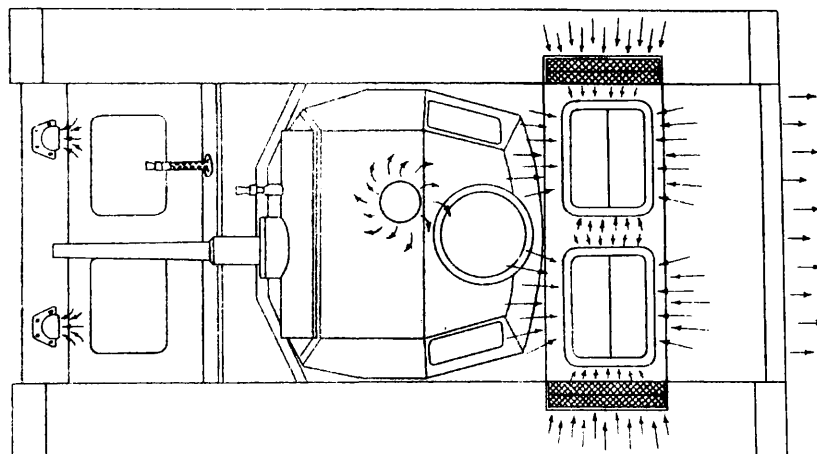




SIDE VIEW

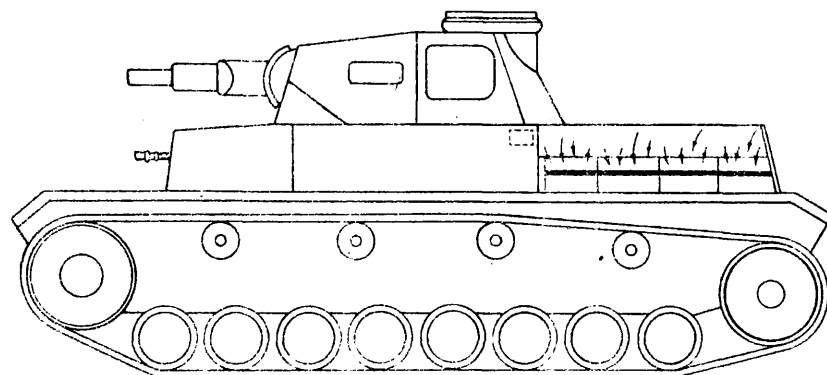


FRONT VIEW

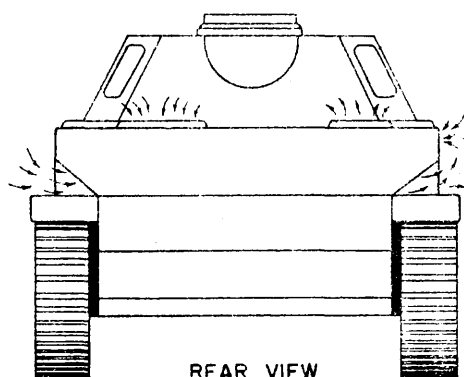


PLAN VIEW

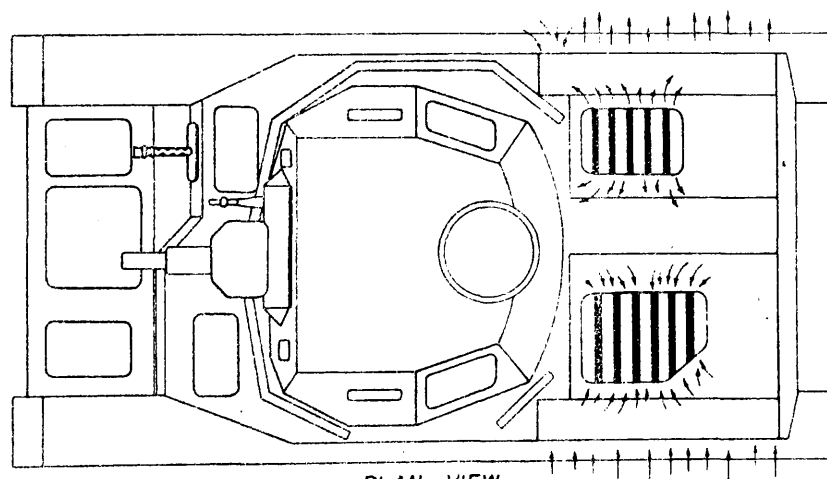
Pz. Kw. 3



SIDE VIEW



REAR VIEW



PLAN VIEW

Pz. Kw. 4

II - ENGINEERS

TACTICAL

JAPANESE FIELD WORKS AT BUNA

The taking of the Japanese positions in the Buna area (southeastern New Guinea) was a relatively lengthy process. Much of the difficulty was occasioned by the strong field works constructed by the enemy, and by the tenacity with which these works were held. Of interest, therefore, is the following extract from a report made by a U.S. Army engineer.

* * *

The enemy bunkers and dugouts in the Buna area were constructed of coconut-palm logs, dirt, sand, and sand bags, covered with natural camouflage. In some instances, pieces of armor plate were set up. No concrete positions were found. The log-and-dirt bunker construction was done carefully and strongly. The corner posts were firmly embedded in the ground, and the horizontal logs neatly and strongly attached and interwoven. Several alternating layers of logs and earth were generally used to give full protection against mortars and light artillery. Roofs were thick and were also made of alternating layers, giving excellent protection. Bunkers were connected to systems of radiating fire and communication trenches on both sides. In some instances, underground trenches were used, and the enemy used these to place snipers in our midst even after they had long been driven from the general area. Leaves and grass were well used to camouflage all bunkers; in addition, the bunkers had been planned and built for just this purpose long before the campaign actually started, and the quick jungle growth, sprouting up over the earthworks, gave first-class natural camouflage.

The enemy work was generally neat and strong. One position in Buna Mission, consisting of kitchens, latrines, dugouts, and trenches, was, in consideration of the locale and the terrific bombardment that it had endured, a model of neatness and efficiency.

The enemy dugout positions were well sited and mutually supporting. It was extremely difficult, if not impossible, to bypass any of the positions, each of which had to be reduced in turn.

It would be impossible to overstress the tenacity with which the Japs clung to their prepared positions. Grenades, and ordinary gun and mortar fire were completely ineffective. There were many instances (not isolated ones) where dugouts were grenaded inside, covered with gasoline and burned, and then sealed with dirt and sand,--only to yield, 2 or 3 days later, Japs who came out fighting. One souvenir hunter, entering, 4 days after the battle, a dugout that had been sealed; was chased out by a Japanese officer wielding a sword. Some of the instances in which Japs lived on in these positions, through the burning and the detonation, in the filth and gore, when sorely wounded themselves, are almost incredible.

III - ARMORED FORCE

TECHNICAL

AMMUNITION CARRIED BY GERMAN TANKS

Two captured German tanks (Pz.Kw. 3's) were recently examined in the Middle Eastern theater. The number of rounds carried for the 50-mm (1.97-in) guns was as follows:

	HE	AP	TOTAL
Tank 1	80 (45%)	98 (55%)	178
Tank 2	51 (32%)	111 (68%)	162

Of these, 86 rounds were carried loose on the floor of Tank 1, and 83 in Tank 2. In the bins of the first tank were 92 rounds, and there was room for 7 additional rounds; in the bins of the second were 79 rounds with room for 17 more. This indicates a total stock of some 185 and 179 rounds per tank, respectively.

IV - ARTILLERY

TECHNICAL

GERMAN 150-mm SELF-PROPELLED GUN

The Germans have at least three types of 150-mm self-propelled guns. One is mounted on the chassis of a German Pz.Kw. 1 and has a high three-sided shield. Another is mounted on a French tracked-chassis. Photographs of the third type are now available and are the basis of the accompanying sketch.

The sketch shows that the gun is mounted on what is apparently an adaptation of a German Pz.Kw. 2 chassis; the standard Pz.Kw. 2 chassis has 5 bogie wheels, whereas the mount for this 150-mm gun has 6 bogie wheels. Otherwise the mount appears similar to the usual Pz.Kw. 2 chassis. It was previously reported that the maximum elevation for this weapon was 30 degrees; in the sketch the gun is elevated to an angle of about 70 degrees, but whether it can be fired from this position is not known. Presumably, radio communication is installed, as there is a rod-type aerial on the left hand side of the superstructure.

V - INFANTRY

TACTICAL

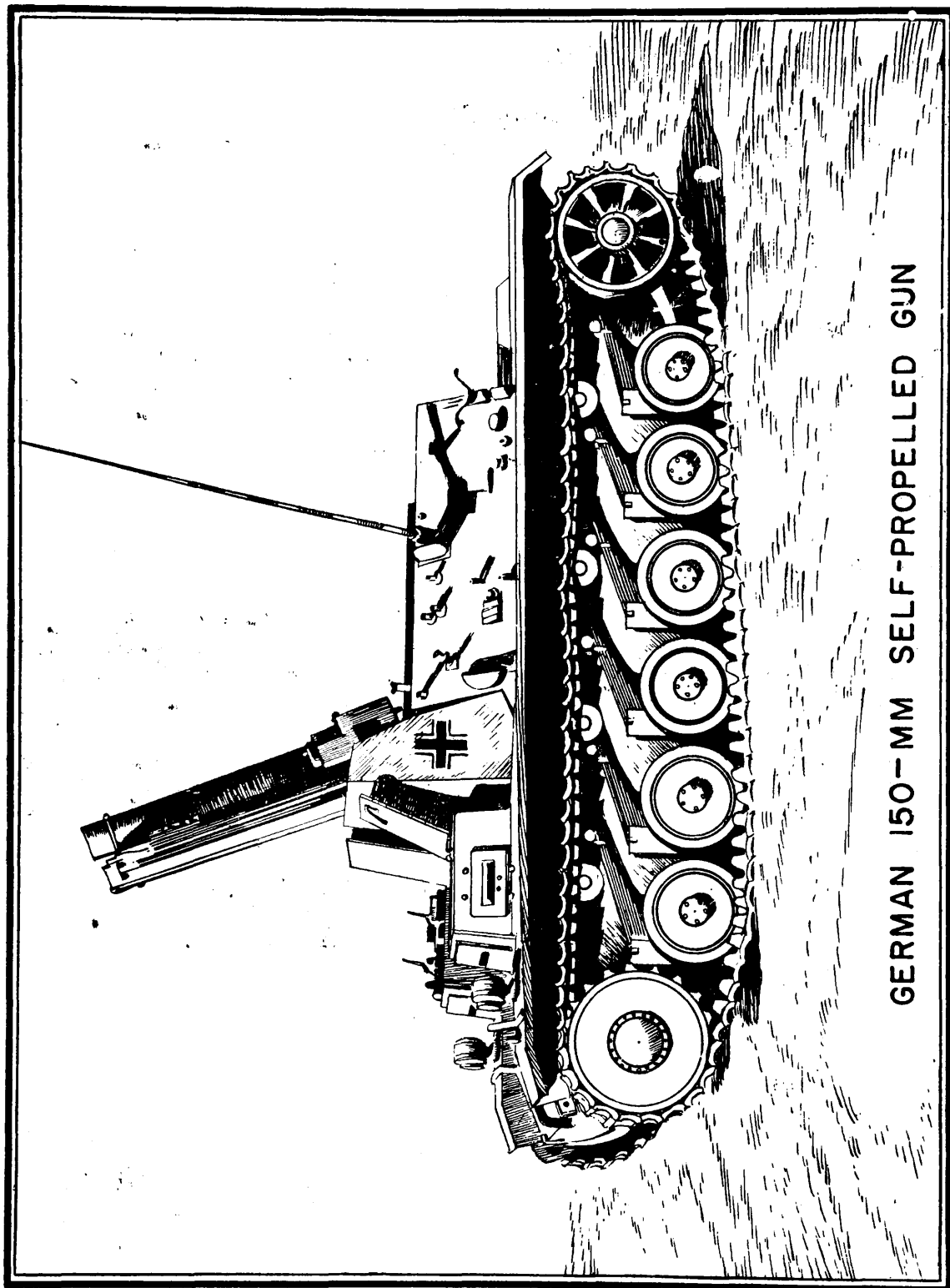
1. JAPANESE RUSES--BUNA AREA

The extensive use of deception and ruses by the Japanese is well known. Below are described two which were used in the Buna area (Southeastern New Guinea).

a. "Dummy" Snipers

An American patrol advancing up the coast was fired on by a sniper in a tree. They halted, located him, and apparently shot him down. They then advanced

RESTRICTED



GERMAN 150-MM SELF-PROPELLED GUN

RESTRICTED

~~SECRET~~

and were fired on again. This happened several times. Thorough investigation revealed that one sniper had been holding up the patrol, and dummies had been placed in other trees. After the Americans had fired sufficient shots, these dummies were dropped by a pulley arrangement. This caused the Americans to suppose that they had cleared the opposition.

In another case, the sniper's dummy was rigged so that it could be pulled back up into place; the sniper made the mistake of pulling it back up too soon, giving away his ruse.

b. "Short" Rounds

The morale and spirit of an Allied unit advancing under covering fire of friendly artillery was seriously affected by this ruse. Every time our guns opened up to provide covering fire for an advance, or fired on any target, the one known Jap 70-mm gun in the Government Gardens area also opened up and placed its rounds among our forward elements. The Japanese timed the activity of their own gun to coincide exactly with that of our supporting artillery. This made the troops imagine that they were being fired on by their own guns.

2. GERMAN PATROLS IN NORTH AFRICA

The following items of information on certain German patrols in the El Alamein area have been obtained.

The patrols in question occurred at regular intervals of 4 days, the men being drawn from the various platoons in the company. At no time was a complete squad or platoon as such detailed for a patrol. One patrol consisted of 16 to 18 men under a platoon commander. The men were formed into two squads, and only the squad leaders were told the plans for the patrol. They left their main line of resistance and went out 1,500 to 2,000 yards in front of their minefields, in single file. Five or six men stayed behind to guard the gap through the minefield.

On another patrol, the covering party consisted of an NCO and six men armed with one machine gun, one Tommy gun, and hand grenades. A third patrol consisted of the equivalent of two platoons under the command of a company commander.

Neither telephone nor portable radio set was taken on these patrols, and no artillery officer accompanied them.

3. GERMAN USE OF AIRCRAFT FOR GROUND SECURITY AT NIGHT

On two occasions at night, British ground patrols in the El Alamein area observed a German Fieseler Storch take off and circle around them firing its machine guns. It has been suggested that this may be a method of ascertaining the strength of hostile patrols and ensuring ample warning if an attack in force is under way.

Comment: This is a small German plane comparable to the U.S. liaison plane. It can take off and land in very limited space and is used for liaison, courier service, observation, and similar tasks. Division and higher commanders sometimes use it for reconnaissance and as a means of transportation.

VI - ORDNANCE

TECHNICAL

SOME NOTES ON GERMAN WEAPON DEVELOPMENT

a. General

The goal of all modern armies is the maximum production of good and efficient weapons in a minimum variety of types. The advantages of limiting weapon types to the smallest number consistent with effective war-making have been shown to be numerous. If weapon designs are highly standardized and relatively few in number, equipment can be produced swiftly and abundantly by mass-production methods. Further, the training of troops is simplified and facilitated, and if the weapons themselves can be used in interchangeable roles (the dual-purpose AA/AT guns are a familiar example), battle efficiency is greatly increased.

Nazi Germany has been most consistently and successfully devoted to the principle of limiting the variety of weapons to the smallest number which will give the required combat strength and effectiveness.

Since the original basic designs upon which the equipment of the present German army was produced, there has been no pause in the intensity of development which followed. As the German army gained experience, newer and more efficient designs of equipment were produced, and existing types were modified as circumstances required. German designers learned their lessons rapidly, and the result is that even standardization carried on to an extreme, as it undoubtedly is in German equipment, has little or no effect upon the development of better and more efficient weapons. Italy has tried hard to conform with the rapidly changing requirements which the present war has brought about, but, hampered by a chronic lack of adequate designers, adequate raw materials, and adequate facilities, she is always just one step - and sometimes just one hundred steps - behind. There has been much for Italy to learn since Italy felt the full weight of modern armaments, and, with an increasing German influence in control, the Italian armament industry is at least making an effort not to be left too far behind. Evidence from many sources, obtained during or immediately prior to present operations, makes it possible to collate what is known about certain new equipment, and makes it possible to draw some conclusions. The following is a partial list of certain enemy equipment identified in the course of recent operations.

b. German Kampfpistole

The Kampfpistole itself is the normal, light-metal signal pistol, slightly bored out and rifled, and has a caliber of 27 mm. The only projectile so far identified is an HE grenade with a direct-action fuze operating on impact. The accurate range is very short, and the maximum range is not more than about 100 to 150 yards. There is little effective fragmentation, and the effect is only to project an "offensive" -type grenade a little further than it could be thrown by hand.

c. Rifle Grenades

(1) Grenade Launcher (Schiessbecher)

This is a heavy-metal grenade launcher in two parts, having a caliber of 30 mm. The main body can be clamped to the muzzle of any rifle model 98 (except Models 98a and 98/40) and carbine model 98K. The clamp itself fits just behind the front sight. Into this component is screwed a cylinder forming the rifled bore of the cup. The rifled cylinder is the male portion and has a very rapid right-hand thread. A special tool is supplied with each cup for assembling.

(2) Grenade Launcher Sight (Granatvisier)

The sight is a simple attachment clamped to the left-hand side of the rifle just to the rear of the rear sight and comprising a "U" notch rear sight and blade front sight, on a base revolving about an axis and aligned by a small spirit level. There are two range scales, reading respectively from 0 to 250 meters for low-angle fire, and 250 to 50 meters for high-angle fire. The graduations apply to the HE round only; when firing the AP round, 75 meters on the low-angle scale correspond to a range of 100 meters, and 50 to a range of 65 meters.

(3) HE Grenade (Gewehr Spronggranate, or G.Sprgr.)

The projectile consists of a blackened steel body with an aluminum nose fuze and a grooved collar fitting into the rifling of the grenade launcher cup. The fuze operates on impact, but the shock of discharge also initiates a delay system in the base which, in the event of the nose fuze failing to function, detonates the explosive filling after a delay of 5 seconds. The collar carrying the rifling may be unscrewed from the body and the igniter string pulled, in which case the projectile can then be thrown as a hand grenade, operating after 4 1/2 seconds. The effect is equivalent to that of a "defensive" type of grenade, the radius of fragmentation being given as about 30 yards.

(4) AP Grenade (Gewehr Panzergranate, or G.Pzgr.)

This is a form of armor-piercing rifle grenade. It incorporates the hollow-charge principle. In appearance the grenade is a long cylinder, partly steel and partly aluminum, with a black, rounded-metal nose cap and a base plate slotted to facilitate removal. The forward half of the cylinder is constructed of steel and contains the bursting charge, a light metal diaphragm shaping the hollow charge. The rear aluminum half of the cylinder, which carries an interrupted collar with 8 right-hand grooves to fit the rifling of the launcher cup, contains a fuze and explosive train. The weight of the bursting charge is exceedingly small compared with the total weight of the grenade, and the general design is unnecessarily complicated, with considerable waste of efficiency. There is no provision for use as a hand grenade.

(5) Practice Grenade (Gewehr Spronggranate Ub.)

This round is fitted with a smoke generator, 6 holes for smoke emission being drilled in the side of the body.

(6) Cartridge and Packing

Each grenade is packed with a bulletless, blank rifle cartridge in a cardboard container, which may be marked with the German nomenclature. The cartridges are not interchangeable between rounds of different types. The containers are black with a white spot on the end for AP rounds, and gray for HE rounds.

(7) Range

HE - Maximum range 250 yards (approx).

AP - Moving targets are to be engaged at ranges of less than 100 yards, the vulnerable parts of tanks being penetrated, according to an enthusiastic but probably over-confident handbook, at ranges of under 50 yards. The latter range probably represents the degree of accuracy of aim, since the actual effect is not dependent upon range.

d. 200-mm Spigot Mortar

An effective introduction is the 200-mm spigot mortar. Although intended for the destruction of obstacles, minefields, and gun emplacements, it is not considered that the effect would be sufficiently great to mark an advance in minefield clearance methods. The probable appearance of the projectile is an egg-shaped body containing the bursting charge, with a long tubular tail having fins at the base. The tail probably breaks off in one piece on detonation of the round, and there will be considerable blast effect with comparatively little fragmentation. It is possible that incendiary, smoke, and other chemical agents may be used.

e. Small Arms

(1) Pistol P.38

Although not a very new design, this pistol, which incorporates good design points of many previous types of pistol, is gradually replacing existing models.

(2) Machine Guns

A new model, the MG 41, is reported to exist. A still newer model, MG 42, exists and is more satisfactory than the MG 41.

The newer types differ from the MG 34 in having an increased rate of fire, and being lighter in weight. An increase in the rate of fire of ground MGs over the MG 34 (cyclic rate 900 rpm) is likely to prove of doubtful value, since the increased expenditure of ammunition will present difficulties without obtaining any real advantage.

(3) 20-mm Flak 38

This weapon is a development from, and an improvement upon, the 20-mm Flak 30 which has proved quite successful. It does not represent any radical change in design, but is simpler, more accurate in operation, and incorporates many minor improvements.

(4) 20-mm Flakvierling

This equipment consists of four 20-mm Flak 38s on a single, highly mobile carriage. Although probably intended for AA use, it can be used against ground targets and is a very useful marine equipment.

VII GENERAL

A - SOME GERMAN VIEWS ON FORTIFICATIONS

1. ELEMENTS OF MODERN FORTIFICATION DESIGN

The German army was noted in the early stages of this war for its offensive operations, but the German High Command has not neglected the art of defensive warfare, in which fortifications may play a major role. The following article, translated from a German military review (1941), presents a summary which is regarded as representing certain aspects of German theory on the design of modern fortifications.

* * *

a. General

Like all the means of waging war, fortifications have been subject to constant change throughout the course of history. New methods of attack give rise to new designs in fortification, and new designs similarly force the development of new means of attack. Every war brings new experiences. Nevertheless, simple basic designs can be recognized, designs that remain uniform at the core. In what follows, these will be discussed especially from the tactical viewpoint, and without consideration of the operational significance of the fortification.

Every fortress is a reinforcement of the terrain, and results from the effort to increase further the superiority of emplaced weapons against a mobile attacker. The defender can choose his position, his "emplacement" in the terrain, and can reinforce and strengthen it according to the time and materials available. On the other hand, the attacker of fortifications is forced to penetrate the defender's position with strong means of assault, or at least so to interdict the defender's action that the attacker can move in close and overcome him in close combat. Even fortifications that lead the attacker to give up the idea of making an attack have fulfilled their purpose.

b. Fundamental Principles

The objective of the defender is to annihilate the attacker by fire. For this purpose, fortifications must withhold their firepower until the moment in which it can be used to decisive effect. Until that time the fortification must provide cover against the effect of the attacker's arms. The attacker's fire effect will be further weakened or dispersed if his observation is made difficult by the concealment of the defensive positions.

Fire effect, cover, and concealment are, therefore, the basic considerations that determine the forms of fortified positions, and which must always be weighed against each other in their development and application.

These factors are mutually related; they complement each other in part, but they also interfere with each other. It is impossible to achieve the ideal of a perfect combination, but a calculated and planned combination must be made. Sometimes the main aim to be attained in the combination of these factors can be determined by tactical considerations; how this aim can be achieved under given circumstances depends on the individual case. Fire effect has priority over cover; concealment increases and provides a substitute for cover up to a certain point; adequate cover reduces the importance of concealment. However, poor concealment facilitates enemy observation and thereby his operations; faulty concealment can thereby nullify the fire effect planned for the decisive moment. In modern fortifications there is no fundamental distinction between permanent fortifications (i.e., those developed with the means available in peacetime) and field fortifications, except that construction of the latter is limited by war conditions with respect to the outlay of time, labor, and materials possible. In the case of permanent fortifications, the basic designs can be developed and perfected to a correspondingly greater extent.

c. The Shelter

The simplest form of fortress is the shelter. It is an example of a form that developed in field fortifications and has found a place in permanent fortifications. In their modern form, small in size and accommodating only one or two squads or gun crews, shelters can be scattered throughout the battle position and can provide possibilities of cover everywhere. Small as targets, they are easy to conceal, and this can be done most completely by sinking them to the level of the ground surface. Technical limitations may be met if the water table is high. In every case the entrance to the shelter must be higher than the water table, even though account must be taken of the increased costs when the construction must be done in ground water, and when water-proofing must be arranged for.

The disposition of shelters on the terrain depends on the fire plan. In addition, to meet unforeseen battle situations, some shelters may be used to contain reserve units.

In modern fortification practice, shelters are made of reinforced concrete. The thicknesses vary according to the mission of the emplacement, and according to the type and penetration power of the arms expected to be used by

the attacker. In the case of small and well-concealed shelters, one can take into account the fact that the effectiveness of attacking arms will be relatively limited. With the methods used in permanent fortifications, shelters can easily be fitted out so as to make them livable for long-term occupation. The degree to which shelters are livable has tactical significance, since it helps in determining how long a group can garrison the shelter without relief. The longer this period, the fewer total effectives are needed.

However, shelters are merely cover: fire effect is not possible from them, and the garrison has to leave them for firing assignments and combat. Here arises a serious danger: that in large-scale battle, if the attacker covers the emplacement with heavy fire and smoke, the defenders will not recognize in time the decisive moment when the enemy infantry nears the position. The attack may reach the advanced shelters and put them out of action before the defenders can emerge and organize their defense.

This danger must be met primarily by arrangements for suitable observation. It is difficult, however, to guarantee that the arrangements will function at the critical moment. The solution may be sought by using telescopes which can be sighted in any direction, in armored observation towers, or by using observers in exposed or partially protected positions. The first method has the disadvantage of spoiling the complete concealment which is the major advantage of a shelter, and the second method lessens the protection afforded to personnel.

Even if they have been installed in advance, firing emplacements which are open and have covered approaches or lateral communications can betray the locations of shelters to enemy observation; therefore these open emplacements demand great care in construction.

d. The Loophole Position

Summing up, it may be said that as regards cover and concealment, shelters can be developed almost to ideal perfection--but at the cost of the fire effect. The more attention given to cover and concealment, the less assurance that the planned fire effect can be realized at the decisive moment. These disadvantages of the shelter are reduced if it is made possible to fire from the shelter (or from some special combat space in it), thus combining cover with fire effect. The simplest means for accomplishing this is the loophole, and the result is the loophole position.

(1) The Wall Loophole

The simplest design is the wall loophole. This can be used for observation when firing is not in progress; in the latter case, a second loophole is needed unless the loophole has been widened to permit both observation and fire. The loophole position, however, has a disadvantage; concealment is largely sacrificed in the interest of fire effect. The loopholes must be placed above ground level; often, in fact, rather high above it because of vegetation. Additional space, above the loopholes, is necessary for the movements of the gunners, and the cover must come above this space. All this means a rather high structure. Only in particularly favorable conditions, for example on rising

ground, can the structure be adapted to the ground and thereby given suitable concealment.

In addition it is necessary to allow sufficient space for traversing and elevating the gun in order to obtain adequate fire effect. The result of this requirement is loophole "mouths" of greater or lesser size, depending on the wall thickness. These mouths can hardly be camouflaged without diminishing observation and reducing fire effect. Especially in the critical moment when the gun goes into action. These mouths are easily detected and attacked.

The size of the outer openings can be reduced by designing the loopholes in the shape of an ; in this case the guns are emplaced partly in the thickness of the wall, and this arrangement makes it easier for the crew to swing the gun laterally. However, by this arrangement the gun no longer has the protection of the full thickness of the wall. This disadvantage can be reduced, but not eliminated, by armorplating the loophole.

(2) Loophole Armorplate

The logical carrying out of this principle leads to the development of loophole armorplate; with only a fraction of the wall thickness, this armorplate can offer the same resistance as the thick reinforced concrete. The loophole opening can be made correspondingly smaller. Nevertheless, the open loophole is still easy to detect, especially since the armorplate is harder to camouflage than a concrete wall. Nor can this disadvantage be eliminated by special construction of the loophole shutter. The place where a vertical piece of armorplate is joined to the reinforced concrete structure is a weak point, and requires special attention in designing. Furthermore, the elevation of the structure remains unchanged. To reduce the elevation, one possible solution is to use a flat roof of armorplate. Even in this case, a considerable cubic volume is still needed to give room for handling the gun and the crew--aside from the fact that the structural joints become more complicated, and that construction costs are greatly increased by the use of armorplate. These disadvantages are especially notable in the case of frontal loopholes, and so another possible solution is by siting guns for loophole flanking fire only. This solution, however, simply substitutes one problem for another, since frontal fire is absolutely indispensable for repelling attack. Furthermore the terrain often gives the attacker opportunities for flank observation, and positions for combatting these flanking loopholes--or, the attacker may acquire such vantage points in the course of the battle.

(3) The Loophole Position and the Fire Plan

An advantage of the loophole is that, up to a certain point, it permits the preparation of an almost automatic fire-plan. The place of each gun in the fire plan is clearly indicated by the position of its loophole. But here again is a point of weakness: If guns are put out of action, gaps in the fire may develop, especially if the defender is depending on the "automatic" functioning of his fire plan. A fire plan with overlapping fires, arranged in depth, minimizes this weakness but increases the number of installations and weapons employed. Therefore, the exclusive use of loopholes imposes a certain rigidity

~~CONFIDENTIAL~~

on the defense, and does not permit the defense to adapt its fire to changing and unforeseen combat situations. Some guns may remain idle because, in their sector, no target is visible to them, while in other places the guns may not be adequate to combat the targets offered. This problem can only be met by a defender who is energetic, and who views the loophole position only as a shelter cover which must be abandoned if necessary in the interest of fire effect.

(4) Large Weapons in Loophole Positions

The difficulties in installing loophole positions increase with the size of the guns. Fire missions will occur in which emplacement behind loopholes seems desirable and suitable not only for machine guns but also for guns of larger caliber, especially antitank guns. These larger guns are the ones which can or should be limited in their field of fire to a specified sector. In the case of cannon, the problem of embrasures is even more difficult, since, apart from the size of the weapon, a greater clearance is needed for aim, especially with regard to elevation. The result is rather complicated and expensive construction.

On the other hand, guns emplaced in cover are thus provided a certain measure of protection and better possibilities for concealment (i.e., in comparison with open works), although these possibilities are limited in the case of aerial attacks. Further improvements may be made by providing bomb-proof quarters, in shelters, for the gun crews and for ammunition, and by arranging routes of withdrawal and alternate positions. A simple problem, and one which can be easily solved, is the installation of high-trajectory weapons under cover from which they are capable of firing. High trajectory fire is especially effective in supplementing and overlapping frontal fire.

e. The Armored Turret

Perhaps the most compact form of combat position is the armored turret, consisting of armorplate with a circular base and a rounded cover. This form affords enemy fire the smallest target and the least favorable surface of impact. Its elevation is kept down to the indispensable minimum needed for the service of the weapon. Also, the solid union of an armored turret with the concrete block offers no great structural difficulties. On the other hand, turrets are very costly. Protection can be obtained in any degree desired by varying the thickness and quality of the material, but the question of cost and the technical problem of transportation weight here approach their maximum limits. Even in the case of turrets, we find the opposing, interacting relationship between the objectives of fire effect and concealment. The latter is very difficult if great fire effect is to be achieved.

Turrets may stand in the open and thus have an all-round field of fire, or they may be built into the terrain and have a field of fire limited to a predetermined sector. A turret with only one loophole affords the smallest possible target and can thus be adapted to almost any terrain. However, a turret loophole gives no more tactical fire effect than any other loophole, and it costs much more. If the number of loopholes is increased to two or three, giving a firing radius of 200 degrees, this immediately complicates the factor of

[REDACTED]

concealment because the semi-circular form of turret necessarily becomes more visible. However, the turret with several loopholes does solve one major problem in the arrangement of the fire plan. Even more important, it permits the same weapons to be used for other missions when they are not serving their principal mission in the fire plan. In this way the rigidity of the prepared fire plan is to a certain degree reduced, and thus a weakness is remedied. Furthermore, several loopholes make it possible, at least in emergencies, to use several guns. The multiple-loophole turret thus gives a much greater fire effect, without additional expense.

The advantages just discussed are gained especially in the case of turrets constructed for all-round fire: either with guns mounted so as to rotate inside the turret, and fire through a number of loopholes, or with the turret itself so constructed as to rotate. The rotating turret is more expensive and demands special provision for the protection and operation of the rotating mechanism. Such turrets realize a maximum fire effect with a minimum use of space, but they can at best be only incompletely concealed.

This disadvantage is eliminated by building disappearing turrets, which are raised out of their cover only for firing, but this naturally involves a further complication and expense. In addition there is the difficulty of observation and the problem of determining the correct moment for raising the turret. At that moment no concealment is possible, although the fire effect may be increased by the element of surprise involved. Even heavy weapons, especially cannon, can be built into turrets. For these weapons, only rotating turrets can be considered; otherwise the dimensions become too great and fire effect is severely limited. The protruding barrel of the gun is its most sensitive part; it can, however, be protected by special casing, or can be so designed as to permit easy replacement. Further effective protection can be achieved by the careful siting of the turret on the terrain, care being taken not to spoil the fire effect.

It is particularly difficult to protect antiaircraft guns, but it is relatively easy to solve the problem of sheltering in turrets the smaller of the high-trajectory weapons. Observation posts can also be set up in turrets.

f. The Combination of Defensive Elements

Shelters, loophole positions, and turrets are the basic units which enter into the design of all modern fortifications. The central problem of all fortification design turns on the construction of the positions from which the fire effect must be achieved, and on their adaptation to the terrain. In the construction and lay-out of all shelters which are designed not for combat but for the convenience and comfort of troops, the purely technical possibilities and the questions of cost are the determining factors.

It is a significant fact that a greater number of weapons or living quarters can be more cheaply assembled in one larger structure than in many single units. From the standpoint of tactical considerations, the latter type of lay-out offers the advantage presenting a smaller target, adapting itself better

[REDACTED]

to the terrain, and permitting a more thorough control of an area. In the larger structure, it is possible to achieve the combination of various arms and greater numbers of combat effectives under more closely unified leadership, as a center of resistance.

Thus we have many forms in modern fortifications: so many as to be confusing when all are viewed at once:

- (1) Simple (and more complex) shelters for accommodating gun crews, as well as for special purposes such as serving as a command post or providing storage space for rations, ammunition, and reserves.
- (2) Loophole positions (single or multiple loopholes), with or without adjoining shelters.
- (3) Combat positions with turrets, to contain various weapons or to be used as observation positions, likewise with the necessary adjoining shelters.
- (4) Smaller and larger aggregates (or works-Werke) with various weapons, behind loopholes or in turrets, with adjoining rooms and mechanical installations.
- (5) Larger combinations of works and single positions, with gallery connections to separate works and groups of works.

g. Entrances and Communications

A further problem is presented in the matter of entrances. On the number and size of the entrances depends the speed with which the crew can emerge from cover in case of need.

On the other hand, every entrance offers a possibility of attack to the enemy and must therefore be given special protection. High entrances under strong cover have deep recesses, and it is therefore particularly difficult to camouflage them. They complicate, and also impede, exit. Armor-plated entrances reduce this disadvantage, but in their turn increase the cost.

When open communications are used, trampled paths will result in spite of all precautionary measures, and the aerial photograph of these paths betray even installations well camouflaged against surface observation. Open communications, also, are not safe under enemy fire. The difficulties connected with both entrances and communications can be relieved by using gallery communications. These permit covered liaison, the supply and transfer of effectives, and simple bombproof routes for telephone lines as well as for supply lines of all sorts. Bombproof resting rooms, command stations, mechanical installations, and depots for rations and munitions and the like, can be connected with these galleries with relatively little additional cost. On the other hand, they require a considerable outlay in construction time and cost, if their bombproof quality is not to be nullified. Favorable earth and ground water conditions are prerequisites for the technical possibility of constructing such works.

h. Obstacles

Finally, obstacles must also be considered among the types of permanent fortifications. Obstacles are erected against infantry and tanks, principally in front of the main line of resistance, but they may also be effective deep within the main battle position. They result in a considerable heightening of the fire effect, because they impede the attacker in his forward movement and thus to a greater degree force his exposure to the effect of the defensive weapons. The obstacles must therefore lie within the effective range of the defensive weapons and must be dominated by their fire. Here, especially advantageous use can be made of flanking and diagonal fire. The obstacles will in general be erected continuously, but gaps may serve to canalize the enemy attack in accordance with the intentions of the defenders. Observation and fire coverage of the obstacles must be maintained also at night and in fog. An important requirement is that the obstacles must not interfere with one's own observation and field of fire, even when allowance can be made for supplementing this fire by high-trajectory weapons. It is very important, in addition, that the layout of the obstacles on the terrain does not enable or facilitate recognition of the defense system, especially from the air, thereby exposing the location of otherwise well-concealed structures.

Against infantry, wire obstacles are the common form, and are effective when sufficiently wide or when laid in several bands; but dry and waterfilled trenches, reinforced concrete bump obstacles, post obstacles, rail obstacles, and "hedgehogs" of various kinds, especially steel structures, as well as combinations of these forms, are used against tanks. The danger of interfering with one's own field of fire, and the danger that the obstacles may be used as cover by the attacking infantry are especially great in the case of antitank obstacles of all kinds. The former danger can be met by reducing the height of the obstacles; the latter by selecting the least massive form possible and by establishing a fire effect which will enfilade the obstacle. Those requirements are often difficult to fulfill in practice. All effective antitank obstacles are high in cost. Mines are arranged and concealed more easily and more rapidly, and leave the field of fire open, but they also constitute a risk to one's own mobility in the forward area. A position on terrain which is impassible to tanks should therefore always be sought, and this factor may under certain circumstances decisively influence the choice of the general position.

i. Conclusion

It was not the purpose of the foregoing discussion to indicate the best form of fortification, but simply to report the problems which arise in preparing them. An absolute optimum form does not exist. Fortifications are a combat medium; in combination they must meet operational requirements, and individually they must meet tactical requirements. As in all such matters, advantages and disadvantages have to be weighed against each other in the particular case; this consideration will determine the location of the fortifications on the terrain, and sometimes their form. Important, further, is the recognition of the fact that no one form guarantees success, but only the fighting spirit and morale of the troops placed in them. To achieve and increase this, good weapons are need-

ed, and also suitable fortification designs. Without the will to fight, however, even the best designs are useless, as the fate of the Maginot Line showed.

2. THE FAILURE OF FORTIFICATIONS IN THE 1940 CAMPAIGN

The following article, translated from a German military review (1941), is interesting in its critical analysis of the weaknesses of French, Belgian, and Dutch fortifications against the German attack in 1940. It is also noteworthy that the writer evidently feels it necessary to argue the point that the experiences of that campaign do not prove that fortifications are outmoded.

* * * * *

a. General

The press is often accustomed to represent the controversy about permanent fortifications in such a light that the reader has to conclude that their value does not bear a reasonable relationship to their cost in time and money.

The mere fact that every one of the fortified positions attacked by German troops fell quickly, does not in itself justify any conclusion as to the value of permanent fortifications. In the war on the Western Front, weaknesses on the opposing side favored our successes.

Without any desire to minimize in the least the unprecedented achievements and offensive power of our troops, the following must still be said:

A permanent fortification that is to be fully equal to its mission must meet the following requirements:

(1) It must block all avenues of attack (even those that seem hardly practicable), leave no gaps suitable for breakthrough, and be uniformly strong everywhere. (It must be understood, of course, that a weaker type of lay-out can be compensated for by favorable terrain.)

(2) In estimating the strength of construction necessary, attention must be paid to the effects of all modern offensive weapons.

(3) The defense of permanent fortifications must be conducted offensively, as any defense should.

b. French Fortifications

The French land fortifications and their defense met these requirements in some places--in fact, along the entire territorial boundary between Switzerland and the Channel coast, they left no gap--but their strength was quite variable. The strongly developed sectors of the Maginot Line proper (except for the support position at Montmedy (Work 505) which could be approached from the flank) were not seriously attacked. Therefore, a conclusive judgment with respect to these sectors can not be given. The German attacks, except for that on Work 505, were directed only against those portions of the position which were more weakly developed. Because of the type of structure (only individual works

[REDACTED]

in a single line) and the limited strength of the construction, and because of an appreciable lack in depth, portions of the French territorial defense possessed no worthwhile fortifications.

The flaws lay, however, not only in fortresses, but also in the spirit of the defense. Not only the inferiority of their air and armored forces, but above all the training and the spirit of the French army weakened the offensive power of the French soldiers and their capacity of resistance. The basic failure, complete concentration on the defensive and a corresponding training program for French soldiers, robbed the fortifications of a large part of their power to repel and to hold. In addition, all of the attacks delivered in June against fortifications were made easier by the fact that artillery and field troops, and even portions of the fortress troops, had been withdrawn from the fortified fronts for the battles in Flanders and for garrisoning the Weygand line.

The French overrated the strength of defensive warfare and at the same time underrated the striking power of the German Wehrmacht, which was combined with special attack tactics for use against permanent fortifications.

A few examples may clarify the points stated:

(1) The first breakthrough at Sedan and to the north struck the junction between the Ninth and the Second Armies (Corap and Huntziger). At this place, where a strategic breakthrough was not expected, the prepared position was not only extremely weak and lacking in depth, but both armies, in spite of repeated requests by their leaders, had been given especially poor consideration as to troop reserves and defensive weapons (for example, antitank and antiaircraft guns).

(2) Work 505 (at the Montmedy bridgehead) courageously resisted for almost 3 days, until the entire garrison was dead.

The troops fighting outside the work did, indeed, stubbornly defend the village of Villy, but the garrison was lacking in sufficient offensive spirit to throw back the Germans who reached the area of the fortification.

(3) The attack on a work heavily damaged by shell fire southeast of Woissenburg was shattered by the stubborn defense; further breakthrough attempts here were abandoned.

(4) The breakthrough west of Lembach in the mountainous, forested terrain of the northern Vosges on June 19 was successful because the French garrison had already been greatly weakened (in artillery and reserves) and permitted the attacker to approach unimpeded to within 100 meters from the fortifications.

(5) The many attacks conducted from the rear against the French border fortifications after the breakthrough and encirclement (for example, Maubeuge and west of Rohrbach) met no active defense whatever. These attacks were made

easier by the fact that the rear sides of the fortified installations were weaker, and therefore could not resist even light artillery at short range.

c. Belgian Fortifications

The Belgian fortifications were also founded on obsolete notions. The numerous installations of the border defense position were in part not garrisoned adequately, and in part not at all, so that they could hardly be defended against the lightning assault of the Germans. Not one of the major defense positions could be held until French and British help arrived. In their quick collapse, the decisive factor was the surprisingly swift seizure of Fort Eben-Emael. This could be traced back to the fact that unprecedented courage of the German parachute troop attack had crippled the fort, which in any event had inadequate fire coverage of the area to be defended. Counterattacks were limited to weak attempts from the fort, from neighboring units, and from the responsible 7th Belgian Division.

With the fall of Eben-Emael and the occupation of undamaged canal bridges both at Vroenhoven and Veldwezelt, the whole major defense position collapsed.

The Dyle position would have been able to hold out longer if it, and its extension along the Meuse from Namur, had been developed as far as France. Even the otherwise useful northern sector of Wavre--Lyon--Lierre lacked the necessary depth.

It was therefore a matter of piecework, and south and north of Namur, as well as at Wavre, easy breakthroughs were made on May 15. The consequence was that even the northern sector had to be evacuated on May 16.

Even the fortress of Antwerp played no part; its northeastern front was broken through on May 17 without offering noteworthy resistance. The evacuation of the Dyle position on May 16 and the occupation of the city of Antwerp on May 18 made the remainder of the Antwerp bridgehead also worthless.

The bridgehead at Ghent, in itself well developed, both to the north (after the fall of Antwerp and the loss of the lower Scheldt) as well as to the south (after the failure of the British) lost its support and had to be evacuated on May 23.

If one wishes to summarize the value of the Belgian fortifications and the reason for their failure, the following will be admitted from what has been said:

(1) The land fortifications of the Belgians were not based on a fundamental, clear plan and, in part for political reasons, were much too extensive for the little country and the weak army.

(2) The help of the French and the British, on which the Belgians had counted in planning the strength of their installations, failed.

(3) The attack power of the German Wehrmacht had been underestimated.

d. Dutch Fortifications

What has been said about the Belgian land fortifications applies to an even greater degree in the case of the Dutch fortified installations.

The Dutch attempts to place fortified positions in the way of the German assault shows a deplorable error in judgment, both of the German power and of their own situation. The Mause-Ijssel position played no role whatever, any more than did the Peel-Raam position, which was broken through at Mill on May 10-11. The Grebbe line held up the attack at Grebbeberg on May 12 only for a matter of hours. In the new positions there was hardly any possibility of an orderly combat leadership, since at no time did they have communications; every loophole position was on its own. The situation of the fortress of Holland was already critical when the German parachute troops on May 10 took possession of the Moerdijk, Dordrecht, and Rotterdam bridges--undamaged.

Even under the assumption that the fortifications would only have to hold until the arrival of outside aid, about 4 to 5 days, the main defense position was too weak.

e. Conclusion

If there is any inclination to draw from the role which the land fortifications played in the campaigns of 1939 and 1940 the conclusion that their value did not correspond to the costs of installation, the following should be said in summary as an opposing argument:

(1) The German Westwall accomplished its operative mission of giving the command a free hand in the east. Whether it would have also held against a tactical attack was of course not demonstrated, but it may be assumed with certainty that it would have met the test, since on the German side the necessary prerequisites had been met.

(2) The fact that the enemy territorial fortifications did not fulfill their purpose was due to the defensive flaws detailed above, or to the incapability of the commanders to utilize them correctly.

Wherever, in individual cases, the defense of the fortifications was inspired with the proper spirit, the results confirmed the permanently sound principle that fortifications increase the combat power of the army, and that therefore, properly used, they cannot be dispensed with.

B - JAPANESE OPINIONS ON AMERICAN TACTICS

These Japanese opinions on American tactics are derived from U.S. Navy sources. The Japanese based these opinions on operations in the Philippines and the fighting on Guadalcanal up to November 1942. It should be noted how strongly the Japanese emphasize the importance of infantry shock action. This is not shock action as we think of it; rather, their concept is limited to the carrying of a position with the bayonet. The emphasis is on the individual soldier, rather than the unit and the coordinated action of all arms. It will be interesting to note what changes, if any, the Japanese may make in their tactics as the result of their defeats in New Guinea and Guadalcanal.

* * * *

FOREWORD

American troops on Guadalcanal consist of a main body of Marines, whose quality in character and equipment is the pride of the American forces. With them are cooperating some Army troops and Army and Navy air forces. Although the Army forces will probably be reinforced in the future, it is estimated that the Marines will still be the backbone of their forces.

Judging by the results of the fighting up until now, the information set forth in the "Material for Study on American Tactics" just about hit the nail on the head.

The following investigates the results of their usual methods of fighting, especially in the light of past fighting on this battlefield (Guadalcanal), and will be used as a reference in the next operation.

NOTE: With regard to land warfare, this report is chiefly compiled on the basis of Army combat.

ORGANIZATION AND EQUIPMENT

The organization and equipment of the Marine force are as given in the Table of Organization and Equipment of the American Marine Division and the American Marine Force Independent Battalion, compiled by the General Staff Office in August 1942. For more on equipment and weapons, see the Army Technical Headquarters reference book.

CHARACTER (from official reports on the national characteristics of the American people).

- (1) National unity is fairly strong.
- (2) They like novelty and are adventurous.
- (3) They are good at every sort of technique. (It is believed the Japanese mean "good in all technical matters.")
- (4) Although they are given to discussion, they possess practicality. However, they take a lot of time.
- (5) Although they are optimistic, they lack perseverance.
- (6) The American soldier, without support of firepower, is easily overcome and in combat is easily made to throw up his hands and surrender. If wounded, he immediately raises a cry of distress, etc. He lacks hand-to-hand fighting ability and spiritual strength. However, with the support of firepower, he acts fairly aggressively.

TRAINING

- (1) Marksmanship is generally good.

- [REDACTED]
- (2) Hand-to-hand fighting ability is extremely poor.
 - (3) Night actions are inexpertly carried out.
 - (4) Communication technique is excellent.
 - (5) Reconnaissance and security patrol training is very inadequate; however, their reconnaissance aviation is generally all right.
 - (6) Air-ground liaison is good.
 - (7) The training of artillery and their method of using it are generally good.
 - (8) They are skillful in operating tanks and automobiles.

COMMAND AND COMBAT LEADERSHIP

- (1) They subscribe to the principle that fire-power is everything, and their tactics are marked by a strong tinge of position warfare.
- (2) They distribute their forces in great depth.
- (3) They neglect the power of cold steel (i.e., sword and bayonet).
- (4) Their flanks and rear are particularly sensitive. It is said that many times, even when only small units or patrols are on their flanks or in their rear, they have lost calmness of command (literal translation) and their actions have been hampered.

ATTACK

Even though we may say that the enemy is on the offensive, unless they have a complete faith in their material strength, especially their artillery superiority, they have a tendency not to attack. To judge by the enemy's landing on Guadalcanal and his advance to the west in the last 10 days of September, the advance of his first-line units is begun only after considerable pressure has been placed on us by ground strafing by the air force or by the fire of heavy guns. The distance they will advance at one time is limited to the range at which the main artillery force can support them from the rear. Further advance is begun after the artillery is displaced forward and preparations completed. Ordinarily the attacking forces advance during the daytime, accompanied by trench mortars and supported by artillery and aircraft. At night they generally remain at rest in the position where sunset finds them.

There is a tendency for the main body to keep close to both sides of roads and not utilize the jungle, except for small forces and patrols. If they stop and do not move out for a day or two, they construct light wire entanglements.

DEFENSIVE FIGHTING

Although they make it a principle to destroy the enemy in front of the main line of resistance of a defensive position, they also advocate active counter-

attacks within the positions. (The Japanese principle of defense is to give with the blow, let the attacking enemy become disorganized by his advance, and then counterattack in force.)

In front of and within their positions, they prepare thorough concentrations of firepower, especially that of trench mortars and artillery, and they use ammunition abundantly. Furthermore, in not a few cases, the troops holding the position fell back and then artillery fire was concentrated in the area they had evacuated. Also, artillery fire concentrations are laid down in the jungle in front of the positions. There are units that have received heavy casualties on this account. It seems that they carry out test firing beforehand at each place. (This must mean registration fire. It is amazing to find a remark like this. It shows a remarkable lack of appreciation, on the part of the Japanese, of the capabilities and limitations of artillery. This has been intimated by other sources.)

They install microphones in front of and within positions, and utilize mobile artillery-observation stations to perceive our approach so that fire may be concentrated on our force. The "mikes" are gray in color and of large type, in large leather cases. They are installed at the roots of trees, etc. The wires are black insulated wire.

Their airplanes, particularly fighters, reconnoiter and make bombing and strafing attacks, and act very aggressively. As the fighters carry out their strafing and bombing at low altitudes by diving, there are frequent opportunities to shoot them down when infantry units can carry out AA firing.

Their forward units sometimes use a successive resistance. (Probably means delaying actions.)

For security to the front of their positions, they send out forces about the size of a platoon and generally avoid posting sentries in small groups, with the result that there are many gaps. The security measures in the position itself are also insufficient, and it often happens during a battle that our patrols stumble upon enemy positions and find AA gun positions, provisions, dumps, etc. On account of their not posting observers in front of the positions, the attackers (i.e., Japanese) sometimes, contrary to what might be expected, suddenly and without warning come in contact with the main position and receive unexpected losses.

Although their counterattacks are not vigorous, they sometimes execute them against our flanks and rear at very short distances in front of their positions. However, they don't use cold steel (bayonets).

NATURE OF DEFENSIVE POSITIONS

Their wire entanglements consist of roof-shaped and net-shaped entanglements, and low wire entanglements, and are constructed over the whole front of the position. Although there are three or four bands of wire at important points, there are also light entanglements of about three strands of barbed wire. Empty cans and so forth are fastened to the wires. Electrically charged wire entanglements have not yet been observed.

~~SECRET~~

Pillboxes are chiefly covered machine-gun positions, and are deployed in depth every 200 or 300 yards along the front. Many log ones have been used, but as yet none of the concrete type have been observed for certain.

At present the enemy is burning back the jungle here and there to clear the field of fire, establishing more covered machine-gun positions, and constructing other installations so the positions will be made increasingly stronger.

WITHDRAWAL TACTICS

Withdrawal from the field is carried out under the protection of the main artillery force. When in a coastal area, they use landing boats a great deal.

NIGHT FIGHTING

They fire actively at night, especially trench mortars, and where preparation has been made, the fire has considerable effect. They almost never make night attacks.

PATROLLING

Extremely few patrols are sent out, and when they execute a reconnaissance mission, it is generally with a platoon or a larger force, and almost like a reconnaissance in force. The afternoon of September 24, about 100 of the enemy appeared in the vicinity of the OKA Force's observation post and ran into some of our people who were cooking. They were scouting in preparation for the advance which the enemy made several days later in the vicinity of the Matanikau River.

They carry out vigorous air reconnaissance. They execute especially thorough strafing and bombing attacks when they spot the smoke of our cooking fires, or when our soldiers are moving in the open.

MISCELLANEOUS

Their tanks traverse almost any kind of terrain; however, their action is independent, and there should be many opportunities to take advantage of this.

Automobiles are used everywhere in large numbers, and are used even off the roads.

POINTS TO NOTE IN OUR COMBAT

(1) In many cases our attacks on positions are ineffective without organized fire support. Even a night attack must have a thorough artillery preparation, and we should not hesitate to use firepower support forces. (The composition of these "firepower support forces" is probably battalion and regimental infantry guns, 37-mm antitank guns, mortars, and machine guns: in other words, the infantry heavy weapons. The Japanese have a tendency to neglect proper use of these, placing their dependence on the maneuver and "cold steel.")