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No. 20
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Prepared for
ARMY GROUND AND AIR FORCES AND SERVICES OF SUPPLY
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[redacted]

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SECTION I

AIR

1. JAPANESE FIGHTER TACTICS

Japanese fighter tactics against both Allied fighters and bombers necessarily vary both with the number and type of aircraft encountered, and with the conditions under which attacks are executed. The normal tactical unit is a squadron of nine planes subdivided into three flights, in either Vee or echelon formation. Another frequently employed formation consists of a Vee of three fighter aircraft, flanked by echelons of two fighters. The latter formation is customarily used for ground attack, the echelon pairs meeting the fighter opposition while the Vee goes in to attack. The fighter formations usually fly at altitudes of 15,000 to 20,000 feet, but are said to operate efficiently at 27,000 feet or higher.

Japanese fighter pilots generally avoid head-on attacks against Allied fighters, probably because most of their planes are unarmored. "Head-to-tail" attacks are favored, except when engaging bombers with rear guns. Contrary to an earlier belief, the Japanese appear to prefer single to concerted attacks. They are now following our fighters into power dives, which heretofore they were reported reluctant to do. Apparently the structural strength of the new Hap, in particular, has made this method of escape for Allied aircraft less effective.

Attacks against our fighter aircraft have been most frequently made from above and the side, and, if possible, out of the sun. Recently, Japanese fighters are reported to be making a series of tight turns and then climbing steeply for a head-on attack. After attacking, they do a turn resembling an Immelmann, climbing up and flipping over to a half roll at the top of the loop. When pursued by our fighters, they frequently resort to evasive action, while pulling into Immelmanns and loops.

In the Aleutians, it has been observed that a Japanese Rufe, when given the advantage of altitude in a head-on attack, dives on his opponent and levels off just out of firing range. He usually rolls on his back as he passes over the Allied plane, and does a snap roll onto our fighter's tail. According to many observers, the moment of greatest vulnerability for the Japanese pilot is during the pull-out from a head-on attack, since our fighters are afforded a good shot when the enemy aircraft is in the process of making a slow roll or a climbing turn. When a head-on attack is not possible, Japanese fighters sometimes attempt an Immelmann or a steep chandelle before diving onto the enemy.

When a Japanese fighter approaches an Allied fighter aircraft broadside, from below, or at the same level, he fires a short burst and does a semi-half roll, usually to the left. He then comes back up in a steep climb and attacks again. When a climbing attack is made on a Japanese fighter, he remains just out of range until the pursuing plane begins to stall. Executing a quick turn, he brings his guns to bear on the Allied plane when it is a relatively easy target.

Japanese pilots are particularly adept in employing "decoy" tactics. The fighters sometimes fly in circles, one above the other, at different altitudes. When one of the lower aircraft is attacked, the aircraft above it dive success-

ively onto the opposing fighters, usually approaching from behind or slightly below. A similar ruse has been employed by three-plane formations. When encountered by a pair of Allied fighters, the right- or left-wing pilot of the formation peels off and dives. If one of our fighters follows, he becomes easy prey for the remaining two Japanese aircraft.

In another deceptive maneuver, Japanese fighters attempt to draw our aircraft, particularly stragglers, into combat for the purpose of exhausting their fuel supply by the time succeeding Japanese fighters arrive to attack. These tactics are also used to enable Japanese bombers to carry out their missions after our fighters have been forced down. A faked dogfight is often staged to make it appear that one of our planes is engaged, so that the others will come to its rescue. According to a pilot in the Netherlands East Indies, a fighter, with Allied aircraft on its tail, decelerated suddenly by using his flaps and side slips. When the attacking aircraft overshot, the fighter came up underneath and fired on him. Smoke cartridges are also reported to be employed by Japanese pilots after beginning a spin downward to create the impression that they have been knocked out.

Escort fighters for bombardment aircraft have been observed above, below, and to the side of the bombers. In approaching their target, the bombers usually fly at approximately 25,000 feet, but have been encountered as high as 29,000 feet. The protecting aircraft may sometimes fly 6,000 feet below and about 2 miles behind the bombers, or they may fly about 10 miles to the side, below or above them or at the same level. Fighters have also been known to trail the bombers at least 10 miles, although that distance gives Allied aircraft a decided advantage. Covering aircraft have, in one instance, been reported to fly above the bombers in varying positions at altitudes as high as 35,000 feet. Fighter escort planes, however, have been most frequently encountered under the bombers; in this case, our fighters, having the advantage of speed gained in a dive on the bombers, have attacked successively the bombardment planes and the fighters below them.

Currently, Japanese pilots are attacking both heavy and medium bombers from all directions, but the frontal attack is most frequently employed against our Fortresses in order to avoid the heavy fire of their rear guns. Tail attacks, sometimes made simultaneously with bow attacks, continue to be reported, as well as beam attacks and attacks from directly underneath.

During the Battle of Midway, two enemy fighters attempted interception of two three-plane elements of Fortresses, firing first at the wing ships, rolling and taking a shot at the lead ship, falling off, and then pulling back to make successive attacks. Subsequently, one Japanese aircraft flew in the path of the bombers, but far ahead, and after about 30 minutes made a right chandelle and attacked from the frontal quarter.

An instance of rear attack was recently reported from Guadalcanal. Two floatplane fighters, probable Rufes, approached a B-17E at 10,000 feet, one breaking away at 500 yards and concentrating on the bomber's underside. A

third enemy fighter did not take part in the action, but remained about 3 miles away at the same altitude as the bomber. A second attack, also from below, followed quickly. One of the fighters went into a slow roll at 7,500 feet, pulled up into a steep climb, and aimed at the belly of the bomber. During the engagement, both fighters jockeyed back and forth, avoiding a straight approach.

A recent report indicates that Japanese fighters now attack medium bombers from a position parallel to the bombers' line of flight but at a lower altitude. The fighters chandelle up into the bomber formation, rolling out and diving down to the opposite side, from which a new attack is begun. This maneuver, which is similar to a lazy eight, is repeated again and again. Frequently employed tactics against the B-26 involve a two-element attack, one aircraft on the right and two on the left, just out of range of the bomber. The single plane turns into the bomber to block out its turret and nose-gun fire, and then passes under the B-26 to take the left flank, while the other two planes change over to the right.

In early operations, Japanese employed two principal methods of ground attack, which are still considered effective. In the first attack, fighters come in just over the trees, dive on an Allied airdrome, machine-gun grounded aircraft and antiaircraft emplacements and then fly away in horizontal formation at low altitude. In the case of one such attack, a fighter remained to circle the field at an altitude of 12,000 to 18,000 feet, apparently to observe the results of the attack. Shortly afterward, the Japanese launched a new attack, probably making use of information gained from the observation.

A second method of attack is illustrated by operations against Palembang. A Japanese fighter flew over an airfield and attacked with machine guns while one or more flights of aircraft remained at altitudes of 16,000 to 20,000 feet. When defending Allied fighters attempted to get into the air, the Japanese planes immediately dived upon them at high speed. In a similar attack, the Japanese fired tracer and, when this scored, followed with 20-mm explosive. They passed the targets at a height scarcely over 25 feet, flew about 50 yards beyond the edge of the field, and after making easy turns, repeated the attack again and again.

More recently Japanese naval floatplanes, in loose echelon formation, flew over an Allied airdrome at 5,000 to 6,000 feet, and after circling it, peeled off, and executed organized machine-gun attacks, commencing fire at 1,500 feet. The planes then pulled out in a low turn and made independent low-altitude attacks.

Timing of all attacks on ground installations has been well coordinated.

2. MISLEADING MARKINGS ON GERMAN PLANES

Two German FW 190s over England in January 1943 are reported to have carried their crosses on the wings on a gray background and enclosed by

misleading yellow roundels; the effect might have given the impression that they were friendly planes. They also carried yellow bands near the tail end of the fuselage, and vertical yellow stripes on the tail unit.

On one occasion during February 1943, five FW 190s were reported to have red, white, and blue vertical stripes on their rudders. As a result, British fighters could not immediately determine their nationality and hesitated before attacking them.

ANTIAIRCRAFT

3. GERMAN HEIMATFLAK UNITS

a. General

For the purpose of supplementing the defense of industrial areas in Germany, and to some extent in occupied countries, a civilian antiaircraft organization is reported to have been organized. It is known as Heimatflak (Home Antiaircraft Defense).

b. Organization

These units are organized within the framework of Germany's air defense system. The Heimatflak commander in each Luftgau (air district) is presumably under the jurisdiction of the German Air Force Luftgau commander responsible for the air defense of the whole area.

It appears that Heimatflak consists of fixed batteries (Heimatflakbatterien) each with its own headquarters (Batteriekommando). No details of any higher unit organization are known at present.

There are two types of battery; a heavy battery of six 75-mm (2.95-in) guns, and a light battery of fifteen 20-mm (.79-in) guns. In addition, there are balloon barrage batteries (Heimatluftsperrbatterien) each with 24 balloons.

c. Personnel

The Heimatflak personnel consists of civilians who are trained to man antiaircraft guns in the neighborhood where the civilians are employed, thus releasing regular antiaircraft personnel for duty elsewhere. They perform antiaircraft duty in their spare time, but are presumably also called out from their factories or offices during working hours in case of alarm. These men may have had no previous military training, or they may be ex-servicemen discharged from the armed forces and drafted into industrial employment; on joining the Heimatflak, the latter relinquish their former service rank, but nevertheless receive the pay appropriate to that rank.

The average age appears to be between 50 and 60, though some reports refer to young men of 16 and upwards, who in some cases are drawn from the older classes of the Hitler Youth organization.

Heimatflak personnel wear the red collar-patch of antiaircraft on their uniform and are provided with steel helmet, gas-mask, boots, overalls and cap.

d. Training

Personnel are trained under noncommissioned officers from regular antiaircraft units, and possibly by men of their own detachment who have had previous antiaircraft experience, such as ex-servicemen. It is believed that training normally takes place at local antiaircraft sites, though one instance is known of workmen being sent to pursue an antiaircraft course away from their place of employment. The average period of training is probably from 2 to 3 months.

e. Sphere of Activity

Heimatflak is presumably intended primarily for supplementing the defense of industrial areas in Germany. The organization has, however, apparently been adopted to some extent in occupied countries also, since references have been made to Heimatflak in Luxembourg and Poland.

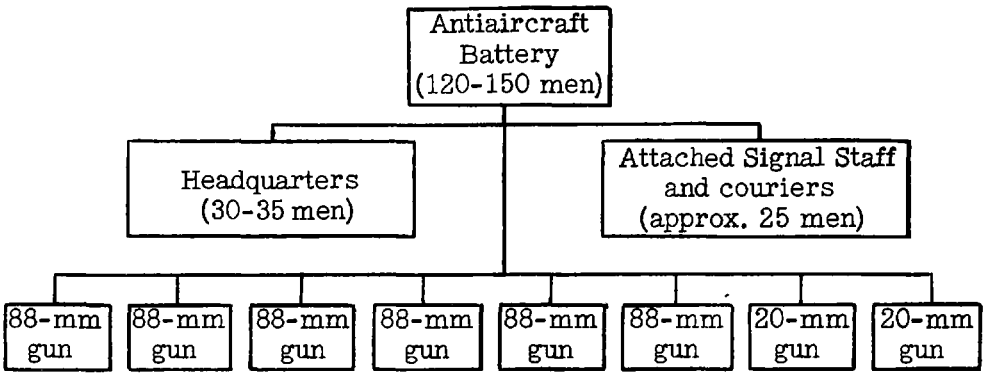
f. Conclusion

The manning of the antiaircraft defenses on the scale now believed to exist throughout Germany and occupied countries, in addition to provision for the large number of antiaircraft units operating with the field army, must involve a tremendous strain on manpower. It is not surprising, therefore, to find that an attempt is being made to ease this strain by the adoption of the policy of employing factory and office workers as part-time antiaircraft personnel. It may also mean an increase in the density of the antiaircraft defenses in areas heretofore considered inadequately defended.

4. GERMAN HEAVY ANTIAIRCRAFT BATTERY

A report has been received, based on German sources, which indicates that a German heavy antiaircraft battery usually consists of four 88-mm guns and two 20-mm guns. In some cases there are batteries with six 88's and two 20-mm guns.

The following chart shows the reported organization of a German heavy antiaircraft battery equipped with six 88-mm guns. The 88-mm guns have a crew of 10 to 12, the 20-mm gun a crew of 6.



The fire-control point, known as the Befehlsstelle or Feuerleitstelle, is placed according to the position of the battery and may be at some distance from the guns. Normally, however, it is spotted to the rear or to one side of the battery, usually at a distance of 300 yards.

The main instruments at the Befehlsstelle are the Kommandergeraet (for calculating firing data), the Entfernungsmessgeraet (for measuring distance to the target) and a Hilfskommandogeraet (for auxiliary calculations). The Kommandogeraet used by one battery reported was the K.G. 36. The K.G. 40 was also in evidence; this is similar to the K.G. 36 but has a power-operated lever. The firing data calculated by the Kommandogeraet is transmitted to the gun-pits by means of an electric indicator. The only orders passed verbally to the guns are loading and firing orders which are transmitted to the gun commanders by telephone.

During air raids on industrial towns in Germany, raid warnings were passed to the Batterie Befehlsstelle by the Untergruppe. The Untergruppe is a regional control which may, for operational purposes, control a number of batteries belonging to different Abteilungen (battalions) or even different regiments. The interval between the receipt of the warning and the appearance of hostile airplanes varies considerably, but is always at least half an hour and often much more. The guns also receive 30-minute notices of cease-fire periods during which night fighters would be operating. Warnings of this nature come by telephone from the Untergruppe, which receive them by direct line from the night-fighter control.

In the field a battery operates very often independently, the battery commander being solely responsible for effective employment of his guns. During operations the battery commander himself usually takes charge of the Befehlsstelle.

If gun crews are standing by, it is said that the 88-mm gun can be put into action within 3 to 10 seconds. An average gun crew can feed the guns at a rate of 10 rounds per minute; a very efficient crew can reach 15 rounds per minute.

The maximum effective height for the 88-mm gun is stated to be 22,000 to 26,000 feet, although the extreme height is 33,000 feet.

The extreme angle of elevation is said to be 85 degrees, but in practice the angle of elevation is limited to 60 degrees.

ARMORED FORCE

5. GERMAN HEAVY TANK

As reported in the press and as previously indicated in Tactical and Technical Trends (No. 18, p. 6) a German heavy tank has been in action in Tunisia. So far as can be definitely determined, this is the first time the Germans have used a heavy tank in combat. Whether or not it is the Pz.Kw. 6 cannot be definitely stated. At least one heavy tank has been captured, and while complete details are not yet available, there is sufficient reasonably confirmed data to warrant at least a partial tentative description at this time.

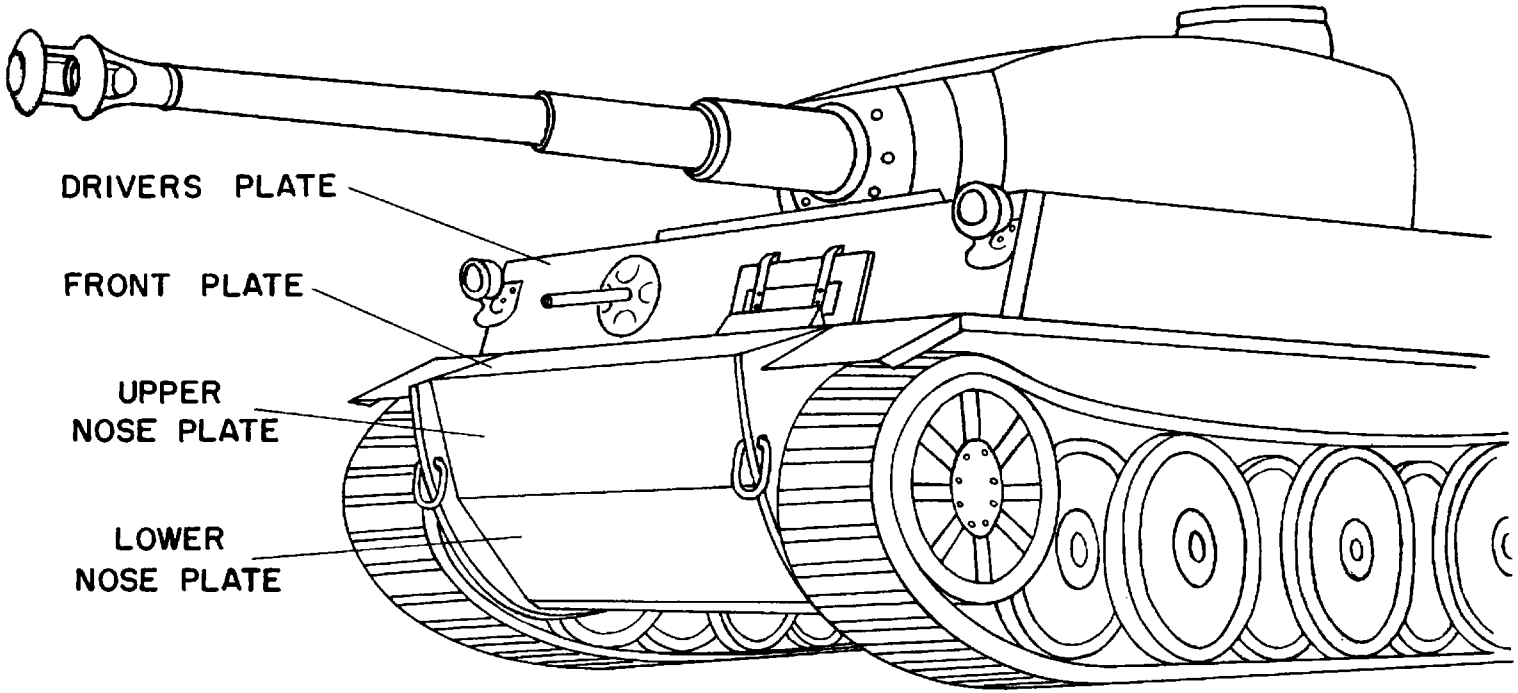
The chief features of this tank are the 88-mm gun, 4-inch frontal armor, heavy weight, and lack of spaced armor. The accompanying sketch roughly indicates the appearance of the tank, but should not be accepted as wholly accurate.

The tank has a crew of 5. It is about 20 feet long, 12 feet wide, and 9 1/2 feet high. The gun overhangs the nose by almost 7 feet. It is reported that the weight is 56 tons or, with modifications, as much as 62 tons.

The power unit is a single 12-cylinder engine. A speed of at least 20 mph can be achieved. Two types of track are thought to exist: an operational track 2 feet 4.5 inches wide, and a loading track which is just under 2 feet. The suspension system consists of a front driving sprocket, a small rear idler, and 24 Christie-type wheels on each side giving it an appearance similar to the familiar German half-track suspension system. There are 8 axles.

There is no armor skirting for protection of the suspension. The armor plating is as follows:

Lower nose plate	62 mm (2.4 in), 60° inwards
Upper nose plate	102 mm (4 in), 20° inwards
Front plate	62 mm (2.4 in), 80° outwards
Driver plate	102 mm (4 in), 10° outwards
Turret sides and rear	82 mm (3.2 in), vertical
Lower sides (behind bogies)	62 mm (2.4 in), vertical
Upper sides	82 mm (3.2 in), vertical
Rear	82 mm (3.2 in), 20° inwards
Floor	26 mm (1 in)
Top	26 mm (1 in)



GERMAN HEAVY TANK

The turret front and mantlet range in thickness between a minimum of 97 mm (3.8 in) to a (possible) maximum of 200 mm (7.9 in). It appears that the armor is not face-hardened.

The armament of the tank consists of an 88-mm gun and two 7.92-mm (.315-in) machine guns. The 88-mm has a double-baffle muzzle brake and fires the same fixed ammunition as the usual 88-mm AA/AT gun. As already indicated, the gun overhangs the nose of the tank by almost 7 feet. The turret rotates through 360 degrees and is probably power-operated. Three smoke-generator dischargers are located on each side of the turret.

Comment: From the above characteristics, it is apparent that the Pz. Kw. 6 is designed to be larger and more powerful than the Pz.Kw. 4. As far as known, a Pz.Kw. 5 tank has not been used in combat. The noteworthy differences between the Pz.Kw. 4 and Pz.Kw. 6 are as follows:

Armor	Pz. Kw. 4	Pz.Kw. 6
Minimum	20 mm	26 mm
Maximum	50 to 80 mm*	102 mm**
Principal Armament	75-mm (long-barrelled gun)	88-mm (AA/AT gun)

A 360-degree rotating turret is used in both the Pz.Kw. 6 and Pz.Kw. 4.

The appearance of the Pz.Kw. 6 indicates that the Germans continue to see the need for a fully armored vehicle equipped with a weapon capable of dealing with hostile tanks as well as with other targets that might hold up the advance of attacking elements.

This tank is undoubtedly an effective weapon, but not necessarily formidable. In the first place, a vehicle weighing from 56 to 62 tons presents many difficult logistical problems. Also, it is reported that one heavy tank was destroyed by a British six-pounder (57-mm) antitank gun at a range of about 500 yards; out of 20 rounds fired, 5 penetrated the tank, 1 piercing the side of the turret and coming out the other side, and another penetrating an upper side plate at an angle of impact of about 15 degrees.

*Attained by attaching extra armor plate to protect critical points on the tank.

**Basic armor plate. The turret front and mantlet may possibly be 200 mm thick.

6. NEW ARMAMENT OF GERMAN PZ.KW. 3 AND 4

As previously reported in Tactical and Technical Trends (No. 4, p. 15) recent models of two German tanks, the Pz.Kw. 3 and 4, have been fitted with more powerful armament, as shown in the accompanying sketches. These sketches are based on photographs of German tanks captured by the British in North Africa.

a. Pz.Kw. 3

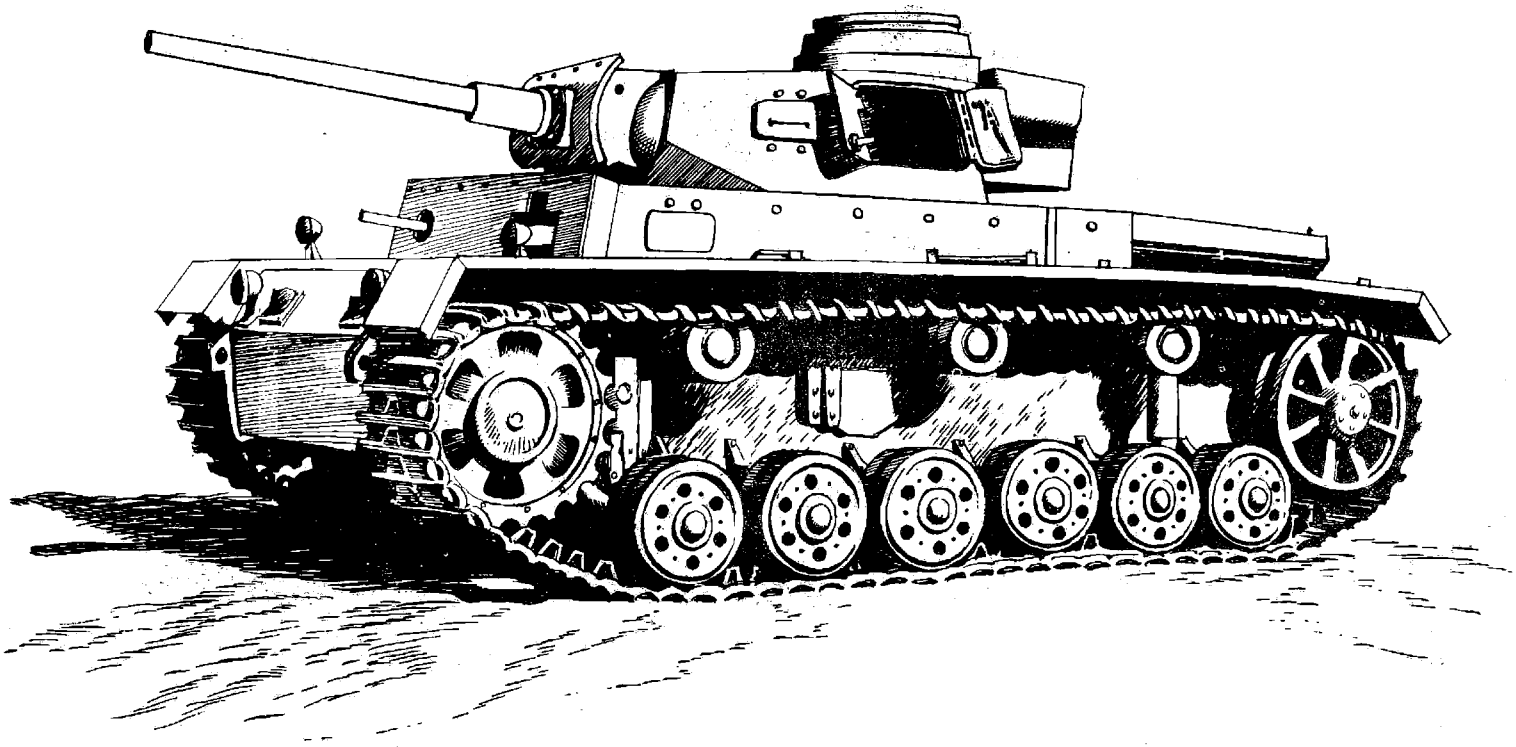
The principal armament of this tank is a long-barrelled 50-mm gun. It is reported that this gun bears considerable similarity to the 5-cm Pak 38 (50-mm antitank gun), except that there is no muzzle brake and that the mounting is, of course, different. The over-all length from the breech opening to the muzzle is 9 feet, 4 inches. The barrel overhangs the front of the tank by about 3 feet. The ammunition used is that of the 50-mm antitank gun with no adaptation or alteration apart from the fitting of an electric primer, the tank gun being electrically fired. The muzzle velocity of this tank gun has been estimated as a little over 3,000 feet per second. It has been reported that the performance of the tank gun should not be very different from that of the antitank gun, the estimated penetration figures for which are as follows:

79-mm (3.1 in) homogeneous armor at 300 yds at 30°
71-mm (2.8 in) homogeneous armor at 600 yds at 30°
63-mm (2.5 in) homogeneous armor at 850 yds at 30°

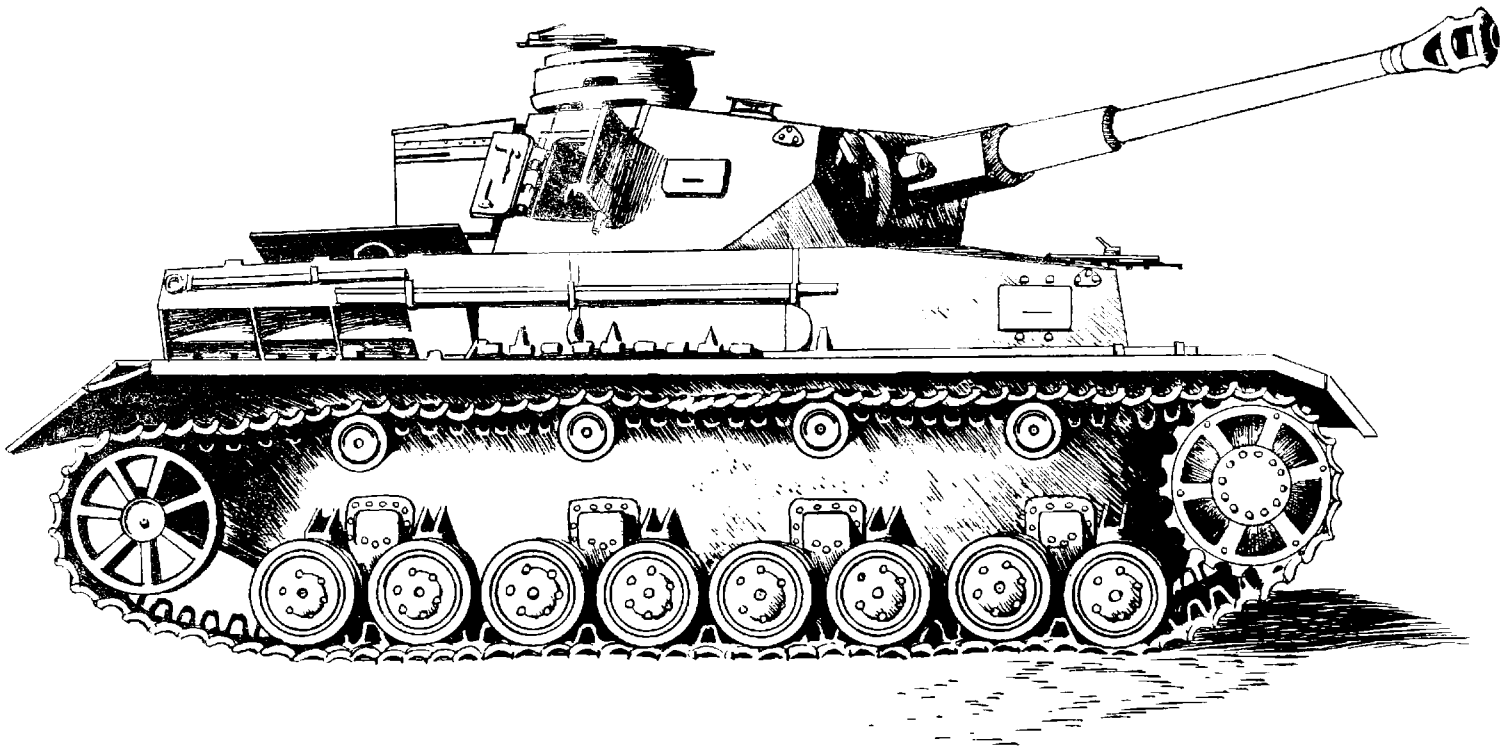
b. Pz.Kw. 4

The principal armament of this tank is a long-barrelled 75-mm gun, the 7.5-cm Kraftwagenkanone 40 (7.5-cm Kw.K. 40). It is reported that the muzzle velocity is 2,400 feet per second (also reported at 2,620 feet per second), and that 2.44 inches of armor plate can be penetrated at 2,000 yards at an angle of impact of 30 degrees. The long barrel, terminating in a muzzle brake, extends beyond the nose of the tank, and an equilibrator was provided, in the particular tank examined, to balance the consequent muzzle preponderance. The equilibrator is fixed to the floor of the turret and extends vertically to an attachment near the rear of the piece; it is 6 inches in diameter and 21 1/2 inches long. The gun is also provided with a traveling lock inside the turret. The traveling lock consisted of two steel bars about 1/2 inch by 2 inches and 15 inches in length. There were hardened semihemispherical surfaces about 1 1/2 inches in diameter projecting from each end of the steel bars, and these fitted into corresponding indentations on either side of lugs attached to the gun and to the turret roof. The steel bars were connected by two bolts; tightening the bolts provided a very positive lock.

Three types of ammunition were found with this tank: nose-fuzed HE; hollow-charge HE; and armor-piercing HE, this being an armor-piercing shell with a ballistic nose and an HE charge.



Pz. Kw. 3



Pz. Kw. 4

7. GERMAN TEAR-GAS GRENADE

An egg-shaped German grenade captured in the Middle East had a yellow band on the body and four pear-shaped projections on the lower half of the body. It contained a bursting charge and a small metal capsule of CN (chloracetophenone, a tear gas), and was fitted with a standard pull igniter.

8. GERMAN EXPERIMENTS WITH SMOKE AGAINST TANKS

A German document gives details regarding a series of experiments designed to test the use of what is believed to be irritant smoke at close quarters against tanks. It should be remembered that an irritant smoke is a harassing, rather than a lethal, agent. When inhaled, irritant smoke agents cause sneezing, intense irritation of the nose, headache, nervous depression, and nausea.

a. First Experiment

(1) Conditions

The tank was stationary, with hatches closed and engine running. One smoke hand grenade was set off in the immediate neighborhood of the tank.

(2) Results

A high concentration of smoke was built up in the tank, both by suction of the engine fans and by penetration through leaks in the forward entrance hatch, the mantlet of the hull machine gun, the turret ring, and the turret ventilators. Opening the hatches was not sufficient to ventilate the tank.

(3) Conclusions

Under the conditions set forth above, the crew would be forced to evacuate the tank after a short period. The driver and hull machine-gunner* would have suffered most from the effects of the smoke.

b. Second Experiment

(1) Conditions

As in the first experiment, but with the engine not running.

(2) Results

Similar to those of the first experiment.

* Probably because they are nearer the ground, where the concentration of the smoke cloud is greatest.

(3) Conclusions

Evacuation would have become necessary only after several minutes, and then probably only for the driver.*

c. Third Experiment

(1) Conditions

Tank moving; hatches closed. Smoke grenades were thrown at the tank but did not lodge on it.

(2) Results

There was little reduction in the fighting capacity of the crew, who were affected more by limitation of vision than by actual penetration of the smoke into the tank.

d. Fourth Experiment

(1) Conditions

Tank moving, hatches closed. Two smoke hand grenades, one tied to each end of a 6 1/2-foot cable, were thrown across the barrel of the gun.

(2) Results

Evacuation of the tank was inevitable within 30 seconds. All possibilities of observation were eliminated.

(3) Conclusions

If the crew show sufficient presence of mind to put on their gas-masks and rotate the turret through 180°, it is possible to avoid the effects sufficiently to enable the tank to be brought to safety. In any case, however, the fighting capacity of the crew would be greatly diminished.

Comment: There is insufficient detail to identify the type of tank upon which these trials were carried out, but the experiments do show, as the document points out, that smoke can become an important weapon in combatting tanks.

The type of grenade used is not indicated. Much of the effect produced within the tank is described as being physiological (choking and vomiting which

* Here, the suction of the engine fan is lacking, and the vision ports of the driver would provide the principal leakage points.

is characteristic of irritant smokes) and therefore also depends on the speed with which the crews adjust their gas-masks.

The German document states that this method of engaging tanks will be practiced, and preparations made for its use in battle.

ENGINEERS

9. GERMAN ANTITANK MINE--L Pz

This mine, which was first reported as being carried by German paratroops in their attack at Suda Bay, Crete, was taken from an enemy position in the El Alamein line. It reveals certain details hitherto not observed in German mines recovered in various Middle East campaigns.

The mine body is circular in shape and the specimen examined was painted gray. It is 10-1/4 inches in diameter and 2-1/4 inches deep. The loaded mine weighs about 9 pounds and contains about 5 pounds of TNT. It is noteworthy that the mine examined was stamped 1942.

The mine consists of a pressed-steel outer casing which is in two halves (see accompanying sketch), the upper half (1) being lipped to fit tightly over the lower half (2). The joint is made waterproof with adhesive tape after the mine has been assembled. Attached to the underside of the upper half casing (1) by means of five screws (3) is the flash chamber casing (4) with the detonator retaining collar (5). Five hollow brass tubes (6) connect this chamber with the percussion caps of five light pressure igniters (7) which are equally spaced radially and are secured to the upper half casing (1) by the hexagonal-headed screws (8). The explosive filling is contained in a sheet metal container (9) which is completely watertight. Five holes (10) accomodate the five igniters which protrude through the filling, and three more holes (11) accommodate the three bolts (12) which secure the container to the top half casing (1). Each bolt is secured with a nut (27).

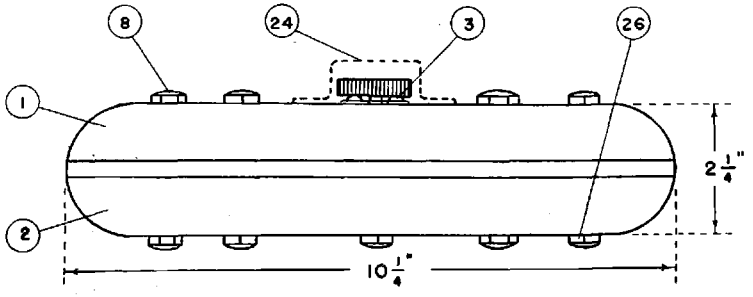
When the pressure igniter (7) is armed, the spring-loaded striker (13) is held, in the position shown in Figure 1 (note that the igniter is here shown in an upside-down position), by two small pins (14) which are housed in slots in the lower portion of the plunger (15). Depression of this plunger against the action of the spring (16) causes the slots to move clear of the sleeve (17). The pins (14) are then free to be forced outward under the pressure of the tapered surfaces at the tip of the striker, thus releasing the spring-loaded striker (13), which fires the percussion cap (18) in the holder (19). The detonator (23) is the standard German detonator employed in the Tellermine and is very sensitive.

A milled nut (20), attached to a screw-threaded spindle (21), enables

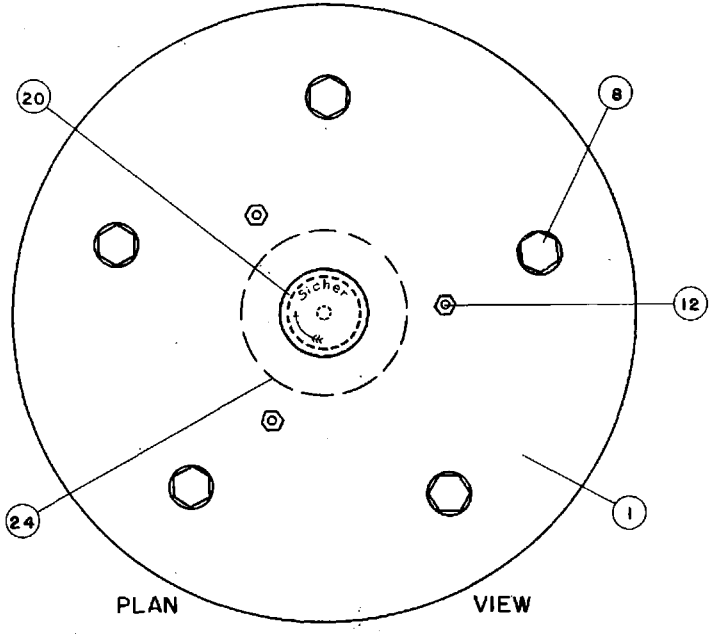
GERMAN

LIGHT ANTI-TANK MINE

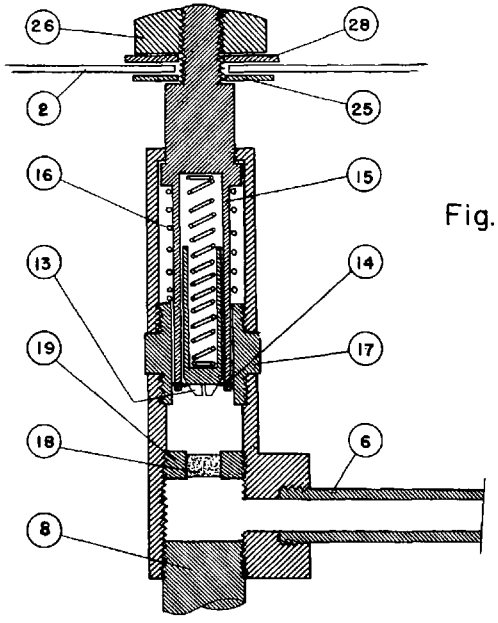
(LPz)



ELEVATION



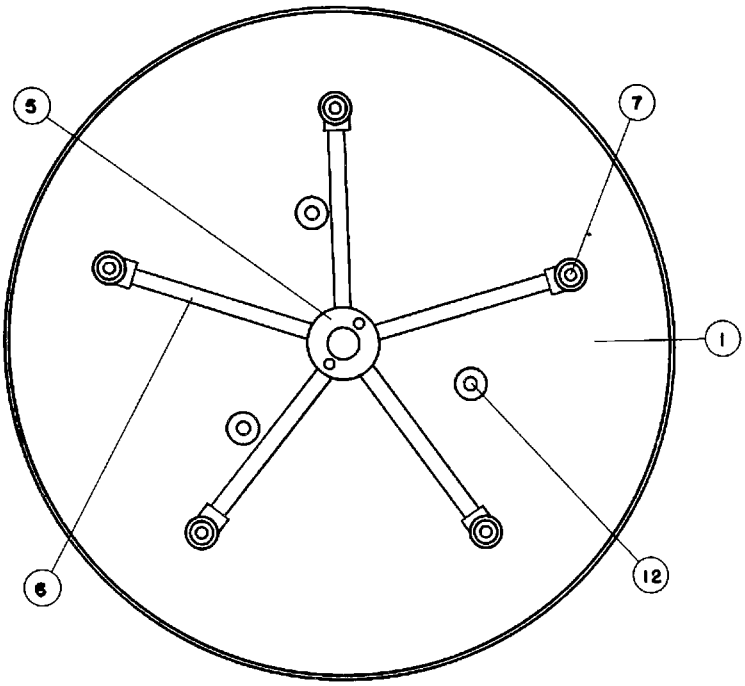
PLAN VIEW



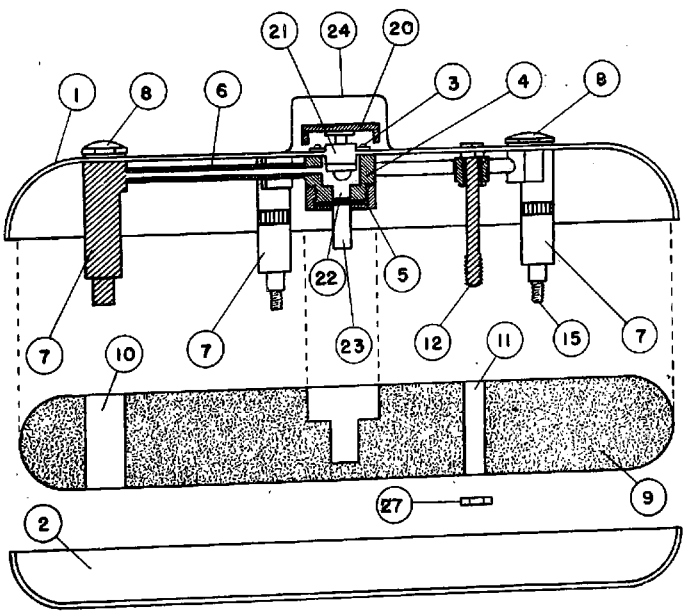
DETAIL OF IGNITER

Fig. 1

GERMAN LIGHT ANTI-TANK MINE (LPz)



VIEW OF UNDERSIDE OF MINE TOP



the flash channel (22) connecting the flash chamber (4) with the detonator (23) to be closed, thus preventing the passage of flashes from the flash tubes (6). A circumferential arrow with the word "Sicher" (safe), stamped on the top surface of the milled nut (20), indicates that the nut should be turned in a clockwise direction to neutralize the mine. The flash channel (22) is actually masked when the milled nut is screwed up tightly and when a white setting mark on the nut is in alignment with a white mark on the top of the casing. A protective cover (24) is attached by means of two studs and a bayonet fitting.

The lower half casing (2) fits over the screw-threaded portions of the plungers (15), with small felt washers (25) on the inner side of the half casing to make the joint watertight. The five hexagonal nuts (26), which are fitted with steel washers (28), secure the plungers (15) to the lower half casing (2).

In order to cause the mine to function when the five nuts (26) are in place, it is necessary for the mine casing to be crushed. This would require a heavy load, so the mine is thought to be intended for antitank purposes--hence the abbreviated designation "L Pz" denoting a light antitank mine. If, however, the five nuts (26) are removed and the mine placed on a hard, even surface, the pressure required to fire the mine is merely that required to overcome any one of the five igniter springs (16). In this condition the mine is exceedingly sensitive, and great care must be exercised when recovering these mines in case such an antipersonnel setting has been employed. The firing of only one of the five igniters is sufficient to detonate the mine.

To disarm the mine the following steps are taken:

(1) Carefully raise the mine clear of the ground, taking care NOT to tilt the mine. Such tilting might cause one of the igniters to go off by pressure against the ground.

(2) Stand the mine on edge and remove the five screws (8) over the percussion caps (18).

(3) Remove percussion caps (18) by unscrewing them in their holders (19).

(4) Lay the mine upside down and, if they are still in position, remove the five nuts (26) together with their washers.

(5) Remove the adhesive tape from the joint of the top and bottom half casings, and force off the bottom half casing by inserting a screw-driver or similar instrument in the joint and levering.

(6) Remove the five felt washers (25) from the plungers (15) and the three nuts from the bolts (12).

(7) Lift off the high explosive container (9) complete.

(8) Unscrew the detonator retaining collar (5) and remove the detonator (23).

INFANTRY

10. GERMAN TACTICS IN NORTH AFRICA

A knowledge of German tactics and methods may serve the dual purpose of turning the lessons to good account both against the Germans and against the Japanese. It is already apparent that the latter have studied and applied German methods of warfare.

In the German offensive operations in North Africa which began on May 26, 1942, the main feature of the German tactical methods, as reported from British sources, were:

(1) Employment of practically the whole of the German forces on the same axis of attack and on a comparatively narrow front, followed by the Italian armored and mobile forces. Italian infantry divisions supported by a small number of tanks were used for diversionary operations. The principle of concentration of force at the decisive point was, as usual, given primary importance, and must always be expected of German commanders.

(2) A night approach march followed by a very rapid advance and direct attack by tanks, after short reconnaissance and preparation against any opposition encountered on the axis of advance.

(3) Forward deployment and offensive employment of all guns of all types,including 88-mm guns,in support of tank attacks and against British counterattacks. Reliable observers report that practically every vehicle, even staff cars, in the enemy's leading columns was towing a gun or a trailer. A senior British commander reports that the German column with which he spent 8 to 9 hours before escaping consisted of:

8 armored cars
6 tanks
two platoons of motorized infantry
4 105-mm guns
4 88-mm guns
12 50-mm antitank guns
12 37-mm antitank guns
4 assorted self-propelled guns.
All vehicles towed guns or trailers.

(4) The enemy was quick to cover his front with antitank guns when tanks were brought to a standstill or stopped to refuel, and to protect his flanks at all times with an antitank screen. A threat to the enemy's flanks by British tanks was immediately met by the deployment of antitank artillery, while the enemy tanks continued their movement. It was useless to expect that British tanks would not encounter strong antitank defense in any offensive movement. The enemy appeared to have a rapid "follow the leader" deployment drill, and a system of visual control by means of colored disk signals.

(5) The efficiency of the enemy's recovery, repair, and maintenance generally was evidenced by the speedy renewal of his offensive after his first effort had failed to achieve his object, and the maintenance of the offensive for so long and over such great distances. The tactical advantages derived from a highly efficient system of recovery, repair, and maintenance are obvious.

(6) Enemy control was quick and personal. When an objective had been captured, the next move followed without delay, and it was usually action by the whole available force, not by reconnaissance elements or detachments only. This was evidenced in the advance east after the capture of Bir Hacheim, and again after the capture of Tobruk.

(7) Defensive positions were reduced by concentrating against them in turn. This is obviously the way to deal with positions that are out of supporting distance of each other when the complementary armored formations, for which the defensive positions serve as pivots, have themselves been forced on the defensive. This is another example of the firm application of the principle of concentration.

(8) Every effort was invariably made to draw the fire of the defense, especially the fire of antitank weapons, by the deployment and advance of some tanks. The tanks which had advanced were then withdrawn, and the enemy concentrated his artillery and mortars on all the defenders' weapons that disclosed themselves. After a thorough preparation of this kind, the real tank attack was launched.

(9) A case has been reported of mine-lifting being carried out in the following way: detachments of tanks advanced to the edge of the minefield and engaged all of the defending weapons they could see. Engineers then debouched from the tanks and proceeded to clear mines on foot, covered by the fire of the tanks. Tanks that were hit were pulled out by other tanks and then replaced, or the whole detachment withdrew and renewed its activities at another point. (Offensive use of small arms is the obvious answer.)

(10) Officers who have been in enemy hands, and enemy prisoners, report that ground-strafing aircraft were always engaged with intensive fire from every available small-arms weapon, including rifles. No one who was armed "went to ground" on such occasions.

11. NOTES ON SOME GERMAN TACTICS USED IN RUSSIA

Reports from an Allied Mission attached to the Russian Army highlights some tactical maneuvers used by the Germans in the Russian operations. Some of these tactics are mentioned under the following headings:

a. General Characteristics

The close cooperation of all arms was brought into play--all arms being subordinated to the success of mass tank formations. Great stress was laid on speed and surprise. Though detailed orders were issued, full scope was allowed to local commanders for their execution.

b. Surprise

Surprise was achieved by secrecy, rumors, and false orders. Tanks were moved about (especially by rail) in an area where the main blow was not to take place, and at the same time, the main striking force was kept concealed elsewhere. Immobile dummy tanks were also used.

c. Psychological Methods

At the moment of a tank attack, paratroops armed with automatic weapons were dropped. Troops which had gotten to the rear of the Russian defenses fired indiscriminately in an attempt to break the defenders' morale. Parachutists or motorcyclists were used for the seizure of nerve centers.

d. Frontal Attacks

Frontal attacks were always avoided by the Germans. German tanks reacted quickly to antitank fire; where a strong antitank defense was met the attack at that point would be called off. The Germans then would appear to be getting ready for a second attack in the same place, but would in fact be searching the front for spots that were weak in antitank defense.

e. Advance

While the leading detachments proceeded forward, the German main body would follow in march column. When resistance is encountered, the leading detachments deploy on a wide front, and strong reconnaissance detachments are sent out to the flanks; the main body remains in march column.

f. Attack

The arrowhead formation was the normal form of attack used. The order of march was as follows:

(1) Motorcyclists, with assault weapons in the lead;
(2) Tank regiment, with two battalions forward if frontage is 1 to 2 miles;

(3) Armored infantry, deeply echeloned.

The remaining infantry either advanced far to one flank or remained concentrated in the center ready to widen any gap that presented itself.

g. Defense

The defense was very elastic. Towards dusk, detachments of armored infantry would move forward in front of the main line of resistance to give the impression that the edge of the defensive zone was further forward than it actually was. The remainder prepared the main battle position. Some tanks were dug in on the defensive position. When the defensive preparations were completed, a majority of the tanks withdrew to assembly points in the rear. A few single Pz.Kw. 3's and 4's remained dug in on the position as pivots of fire.

There follow Russian answers to questions concerning the tactics and operation of German armor in the Russian campaign.

(1) Where do the various German Headquarters march in a full-scale tank attack?

During battle, the Headquarters of a tank force is placed as near as possible to the forward units, in order to obtain observation over the field of battle. Protection of communications with flank and rear units from fire is one of the considerations affecting the location of the command post.

(2) What is known about protection of tanks on the march and in final assembly positions?

Assembly positions and routes of advance are usually protected by three tiers of fighter planes flying at heights of from 18,000 to 20,000 feet, the most intensive patrolling being at 6,000 to 7,500 feet.

(3) Describe aircraft support during a tank breakthrough.

The tank attack is preceded by attacks by bomber aircraft (Ju-87, Ju-88, less frequently He-111) and by fighters (Me-110), in groups of from 20 to 30 planes endeavoring to pave the way for the tanks. The Me-110's operate in front of the bombers, attacking enemy troops with their cannon and machine guns.

When organizing cooperation between aircraft and tanks, the German command pays a great deal of attention to communications and control. Therefore, an air force control post is established with each Armored Division. These posts are commanded by experienced air force officers, who ride in the tank unit commander's tank at the head of the column. In contact by radio with the air force control post, he directs the aircraft to the targets as required.

(4) How are fuel and ammunition supplied to tank units which have broken through to the rear of the enemy?

The German command employs transport aircraft (preferably Ju-52) to supply such tank units as have broken through into the rear of the enemy defenses with ammunition and fuel. The Germans have a considerable number of transport aircraft and provide substantial help to small groups of tanks. But the basic problem of supplying tank units with fuel and ammunition devolves upon line-of-communications organizations.

In so far as the cooperation of the German air force with tanks is concerned, there is a marked tendency on the part of the German command to employ their air force with great mobility. In the course of operations in the south of Russia, it was noticed that the German air force units were rapidly moved from one sector of the front to another, as operations required.

MEDICAL

12. PREVENTION OF MALARIA*

a. General

Malaria is caused by a small blood parasite and is spread only by the bite of the female Anopheles mosquito. The disease is widely distributed over all parts of the tropical and subtropical world and is also found in many of the more temperate regions (see map at back of book). In times past, American troops have been faced with the problem of malaria not only in the southern United States, but also on posts of duty in Panama, Puerto Rico, Haiti, Nicaragua, and the Philippine Islands. World War II has carried United States forces to many new and different countries where malaria is present to an even greater degree. The disease is of tremendous tactical and medical importance in all the major theaters of operations, including the Southwest and South Pacific, India, and the Near and Middle East. Malaria will become increasingly important in North Africa following the rainy season, and the disease is ever present in Central Africa and in Central and South America. From the standpoint of prevalence and of the disability produced, malaria is the most important of all diseases in the world today.

Malaria mosquitoes breed under a variety of conditions. The most suitable locations are in slow-moving streams, swamps, lagoons, and marshes

*Prepared in the Medical Intelligence Branch, Prevention Medicine Division, Office of the Surgeon General.

where water is either fresh or brackish (though some species have adapted themselves to breeding in salt water). Other potent carriers of malaria breed in small pools of still water, and in collections of rain water in hollows and depressions in the ground, such as borrow pits and hoofprints. Engineers frequently, though unintentionally, contribute to the breeding of mosquitoes and the spread of malaria by creating artificial breeding places during construction work. In dry, arid areas, anopheline mosquitoes have adapted themselves to desert conditions and are able to breed in mere trickles of water. They may also be found in large numbers about oases, irrigation canals, shallow wells, and ditches. Several varieties of malaria-carrying mosquitoes breed in small collections of water about houses, and, unless care is taken, may enter buildings through carelessly opened screen doors, torn screens, cracks, and the junctions of corrugated or tiled roofs with walls. While malaria and malaria mosquitoes are encountered most often in the lowlands, they may appear at altitudes up to 6,000 or 8,000 feet, as in Ethiopia and Iran, and in certain parts of India and China.

Anopheline mosquitoes usually feed between dusk and dawn but will remain in darkened hiding places during the day. Anophelines do not like wind and often seek the protection of dark rooms, outbuildings, and underbrush. They rarely fly more than 1 to 2 miles from breeding places. Small collections of water, or sluggish streams having a border growth of grass or rushes, are preferred by many species of anophelines for depositing eggs.

Man is the reservoir of the malaria parasite. Anopheline mosquitoes become infected when they feed on a human who has the disease. After the parasite has developed within the mosquito for a period of from 14 to 40 days these mosquitoes are capable of transmitting the infection. In heavily malarious areas as much as 80 percent of the population may be infected with the disease.

b. Preventive Measures

(1) Sleep in screened rooms or under mosquito nets. Inspect screens, doors, and mosquito nets at regular intervals, and search for live mosquitoes in those parts of the house where there is little light. Permanent buildings should be thoroughly screened. Screen doors should always open outward.

Entrance vestibules with a screened door at each end (mosquito lock) will prove invaluable in excluding mosquitoes from buildings.

(2) After dark, stay indoors in properly screened buildings as much as possible.

(3) When it is necessary to be out of doors after dark, move about continually. When advisable, use head nets, gloves, and leggings along with other mosquito-proof clothing covering the entire body. Mosquitoes are able to bite through the material ordinarily used in shirts and other lightweight

clothing.

(4) Mosquito repellents should be applied to all exposed parts of the body at regular intervals. There are three good repellents (612, indalone, and dimethylphthalate) which are being issued by the Quartermaster. Of these, 612 will give good protection against mosquitoes for about 4 hours after liberal application, even under sweating conditions. Indalone will do about as well, except under sweating conditions, when it should be renewed half-hourly. Dimethylphthalate is slightly less effective than 612, but more effective than indalone. All are better than any repellents available heretofore.

(5) Insect sprays should be used inside airplanes and living quarters in the early morning and late afternoon, and at other times when necessary. The newly developed Freon pyrethrum aerosol insecticide spray is recommended.

(6) If possible, camps should be located on high, windswept ground, away from areas infested with mosquitoes and far removed from native villages (the inhabitants of which are usually infected and act as reservoirs of malaria). In permanent camps, control measures should include clearing, draining, and filling of low ground where possible, and all potential breeding places should be oiled or sprayed with Paris green as indicated (see S.G.O. Circular Letter 22, January 16, 1943).

(7) The use of quinine or atabrine for prophylaxis is not recommended as a routine procedure, since the available information indicates that these drugs do not prevent infection. They are, however, of definite military value in that they do prevent clinical symptoms of malaria so long as they are taken, and thus afford a means of keeping troops fit during periods of emergency in the field. Such drugs should be used only under special conditions and when advised by medical officers, flight surgeons, or local health authorities. The present War Department policy advocates atabrine 0.1 gram (one tablet or one and one-half grains) twice daily after meals on 2 days a week, allowing a 2- or 3-day interval between the days of taking. Under exceptional circumstances the dosage may be increased to two tablets on 3 days a week, still allowing an interval between days of taking. If atabrine is not available, take quinine sulfate 0.64 gram (2 tablets or 10 grains) after the evening meal each day (see S.G.O. Circular Letter 135, dated October 21, 1942).

(8) The estivo-autumnal, or malignant type of malaria, may give rise to unusual symptoms entirely different from the usual chills and fever. It is therefore advisable, when residing in, or travelling from, malarious areas, to suspect malaria when the cause of illness is unknown, regardless of whether there is fever or not. A physician should be consulted and advised of the recent possibility of exposure.

Comment: In the article in the previous issue - "Dangers" of the Tropics - reference was made to the problem of malaria, in a way that tended

to "play down" the dangers from malaria, and also was written to apply to peacetime conditions.

The present report deals with the subject from the point of view of military medicine and, as such, should be considered as reflecting current Army medical opinion on this matter.

ORDNANCE

13. NEW GERMAN 70-KILOGRAM BOMB

It is reported that the Germans have developed a 70-kilogram (155-pound) HE bomb with a medium-thick casing. This bomb is intended to replace the SC* and SD**50-kilogram (110-pound) general-purpose HE bombs. The wall-thickness of the new bomb is 10 mm (about 0.3 in), and the filling 21 kilograms (46 pounds) of TNT. The blast effect is reportedly as great as that of the SC 50-kilogram, and the fragmentation greater than that of the SD 50-kilogram. The fin assembly and external dimensions of the 70-kilogram being the same as the SC 50-kilogram, the same bomb rack can be used.

14. MARKING OF GERMAN HE BOMBS

From German sources it is revealed that the distinguishing color given to this particular type of ammunition serves to identify its category and characteristics. The following document (translation) is reproduced as of interest in this connection.

* * *

Technical Sheets Issued by the Quartermaster General (Air equipment)

Berlin, 29th August, 1941

Subject:--Distinguishing colors of HE bombs.

HE bombs are divided into various groups according to their effect, regardless of their caliber. Each group has a distinguishing color to facilitate

*SC is the designation for the bomb with a thin casing, which achieves its effect chiefly by blast.

**SD is the designation for the bomb with a thick casing, which achieves its effect chiefly by fragmentation. The SD has greater penetrating power than the SC, and was designed for attack on modern reinforced concrete structures.

handling and avoid confusion. This measure can only fulfill its purpose if the distinguishing colors are known to the units.

As it has been found that these colors are frequently not known, the meaning of the various colors is given below:

(1) Green--all bombs with purely splinter effect (cement splinter bombs);

(2) Yellow--all mine bombs with the distinguishing letters "SC";*

(3) Red --SD2*, SD50, SD250 and SD500, thick-walled HE bombs (splinter and mine effect);

(4) Blue--all bombs with particularly powerful penetration (armor-piercing bombs);

(5) Yellow with blue stripe--SD 1,700 HE bomb with increased penetration.

The bombs referred to under (1) are painted green all over; the other colors are painted in stripes on the conical part of the fin assembly.

15. AXIS MOTOR VEHICLES IN NORTH AFRICA

Representatives of a well-known Canadian motor vehicle manufacturer recently inspected enemy vehicles captured by the British in North Africa. The vehicles examined were German Ford and Opel-Blitz trucks, and Italian Spa trucks, varying from 1 1/2 to 8 tons. While the vehicles in question were not recent models, the following observations by the manufacturing representatives are of interest.

The front and rear springs of the vehicles inspected were heavily built. The leaves were wide, and long. All front springs were equipped with two rebound leaves mounted on top of the spring. The first rebound leaf was three-quarters the length of the main leaf, and the top leaf was half the length of the main leaf. There appeared to be no broken springs on any of these vehicles.

The large diameter of the gasoline-filler neck greatly assists in refueling from small cans in the field. The gasoline tanks were enamel-plated on the inside to prevent rusting. The spare gasoline cans were similar to the American 5-gallon can, except that they were enamel-plated on the inside and that the neck was equipped with an attached, snap-on top instead of the threaded type.

*See footnote to previous article.

Nearly all vehicles were equipped with oil-bath air cleaners. There were two types: one using a single metal-screen cone, and the other a double metal air cone, immersed in cylinder oil. The double unit takes in air over the top, but cleans the air twice through two conical metal screens, one inside the other, with an air space between them. The single unit takes air in from the bottom, and the air is cleaned once through a conical metal screen. The representatives were much impressed with these air cleaners.

Practically all radiators were built of tubular removable sections, and this feature would assist considerably in repairing radiator cores.

16. THE NEW GERMAN MACHINE GUN--M.G. 42

Recently captured specimens reveal that the Germans are using a new machine gun that is superior to their standard M.G. 34 in several respects. The differences from the M.G. 34 are:

(1) The M.G. 42 is designed for faster and cheaper production by an extensive use of stamping and welding in the receiver, barrel casing, feed mechanism, operating handle, and antiaircraft rear sight.

(2) It has an excellent barrel-change arrangement which is much faster than that of the M.G. 34. A simple movement allows a hot barrel to be removed from the gun and a fresh, cool barrel inserted with a reverse movement.

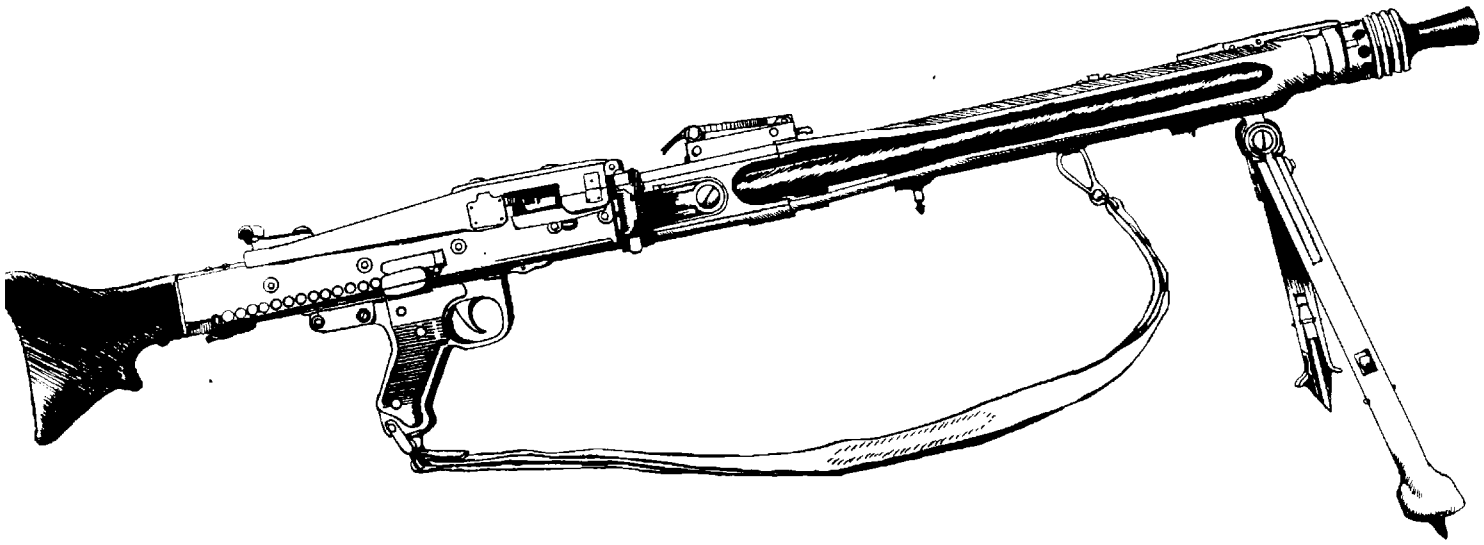
(3) It has an improved method of locking the barrel to the bolt as a round is fired.

(4) There is no provision for semi-automatic fire as in the M.G. 34 with its double trigger (one for full automatic and one for semi-automatic fire).

(5) Cyclic rate of fire has been stepped up to 1,050 rpm in the M.G. 42 as compared to the 900 rpm of the M.G. 34.

The above changes eliminate many of the intricate machine-tool operations needed for the bolt and other parts of the M.G. 34.

The M.G. 42 uses the same ammunition, ammunition belt, and drum or belt box as the M.G. 34. It is generally handled and stripped in the same manner. There is some difference in the method of attaching the bipod and the antiaircraft ring sight. Also, the slots for attaching the gun to a tripod incorporated into the receiver of the M.G. 34 are not present on the receiver of the M.G. 42; it is therefore probable that the M.G. 42 is designed to use a different tripod than does the M.G. 34.



German M.G. 42

QUARTERMASTER

17. NEW LUFTWAFFE OVERALL

It has been reported in the German press that the Luftwaffe has adopted a new uniform overall for high-altitude and cold-weather operations. Its weight is about 9 pounds and it will replace the electrically heated overall weighing 55 pounds, heretofore standard equipment. It is modelled on native Lapland winter clothing. Tests by air squadrons operating from Norway are said to have proven its value in facilitating the wearer's movements and in saving about 220 pounds weight on bombers.

18. GERMAN CONCENTRATED FOOD FOR MILITARY USES

The German technical press reports the large-scale preparation of a standard 30-pound (approximately) so-called dried vegetable "bomb" containing an assortment of compressed dried beans, peas, carrots, cabbage, spinach, onions, and potatoes. These rations are designed to be dropped from airplanes to isolated German units. It also reports special balanced-meal units composed of dried vegetables, meat, fruit, and fats compressed into a single cube prepared particularly for use in long-distance submarines.

GENERAL

19. GERMAN DISCIPLINE

The short article translated below appeared in a Berlin daily newspaper dated April 8, 1942, and is believed to reflect the general attitude of the German civilian and military personnel toward the subject of discipline. This is the first article on this subject noted in the German press subsequent to the early summer of 1941. The controlled German press publishes news and articles written and edited to conform to the German viewpoint, as prescribed by the governing authorities. As can be seen from its text, this article appeals to the German's well-known pride in his discipline. The purpose of its publication was probably to console both the German soldier and civilian for hardships endured and for losses sustained during the severe winter in Russia in 1941-42. It was also intended to assist in maintaining the traditional high standard of discipline during the serious strain confronting the nation in the months to come. For these reasons, though not of recent publication, the article is felt to be pertinent at this time, in view of the present situation on the Russian Front.

* * *

The expression "military discipline" conveys a definite idea, which is inseparably linked with troop training. Discipline characterizes the appearance, behavior, performance, conduct, and value of military units.

An undisciplined company will execute an order haphazardly, or it will even fail to execute it at all. Without discipline, confusion reigns, and when the situation becomes serious under hostile fire, both coolness and cooperation are absent. Then the superior officer is no longer the actual commander.

There is a well-known saying: "Troops are like their commanders." Resolving this statement into the elements of discipline, it means that the commander must be the best-disciplined man in his unit if he demands obedience from each of his subordinates. It is an error to believe that military discipline consists only of obedience to the orders of officers and noncommissioned officers. True, this is ostensibly correct on the drill field or in a maneuver, but not in battle. In actual combat, there must be another kind of discipline, a self-discipline originating within the individual. This is differentiated from formal obedience chiefly by the fact that it prevails without the presence, the command, or the supervision of a superior; in addition, it is maintained under the stress of tense situations.

I recall the case of a sergeant who had been ordered to hold an advanced post under all circumstances. One morning, his post was cut off by the Soviets. His situation was hopeless. Nevertheless, he held his post in spite of heavy losses. He formed an island, an unassailable island, not so much in the tactical as in the moral sense. He held out, not because he knew that his comrades would come to his rescue, but because he possessed self-discipline which to him meant soldierly honor, decency, duty, and comradeship. His self-discipline forced him to stand and, if necessary, to fall at his post. It never entered his thoughts to question

why it must be so. An order had been given, and naturally it would be executed.

The past winter has seen many such "islands" of the highest type of discipline. They have often ended in the sacrifice of life--the fulfillment of the last soldierly duty. They are the monuments to the great struggles occurring in recent months.

Soldierly discipline is not only a matter between superiors and subordinates; it involves outward actions as well as self-indoctrination. In order to stand the test, soldierly discipline requires: a firm foundation; a good military training, not too brief in duration; competent leadership; frequently a firm hand; exertions and privations; tests in courage under dangerous situations; information repeatedly as to what the battle is all about.

Military service demands a will to achieve the highest goal. It is not the individual action which decides, but rather a soldierly will on the part of each individual in the nation to carry out higher orders in a common effort. Therefore, in war, self-discipline is not restricted to the soldier alone. It is a matter that affects political, commercial, and cultural life as well as the life of the community and the family. It is the actual foundation of war, which is the fulfillment and demonstration of collective force. Self-discipline characterizes the individual as well as the entire nation. It is a matter of spirit, conscience, morals, and of the heart. It is the manifestation of a soldierly creed.

* * *

Comment: In general, the German soldier, as well as the German civilian, considers discipline as a matter of honor. This trait in the German people is encouraged, developed, and exploited by their political as well as their military leaders, with a view to uniting all the German people in their war effort. This the leaders have succeeded in doing to a remarkable degree.

The German soldier, as a rule, takes pride in his ability to withstand hardships and privations. He frequently receives commendation from his officers and friends for his performance in this respect, but never effusive sympathy.

Keeping the soldier constantly informed as to why he is fighting, what the battle is about, and his part in it, has been found to pay dividends in improved discipline in combat.

It is believed that there is still a high standard of discipline in the German Army, maintained in spite of the hardships, privations, and losses incident to the present campaign in Russia.

20. PAY OF GERMAN ARMY PERSONNEL IN AFRICA

For purposes of factual information, a report on the conditions and scales of pay in the German Army personnel in Africa is furnished in the following statement, received from German sources.

The pay is made up of four elements:

(1)	Wehrsold	Army pay
(2)	Frontzulage	Active service allowance
(3)	Afrikazulage	Africa allowance
(4)	Kriegsbesoldung (or) Friedensgebuehrnisse	War emoluments Peace emoluments

a. Army Pay

Army pay is disbursed on the 1st, 11th, and 21st of every month, officers and other ranks getting their pay from the same pay clerk, and through the same channels. The following table gives the scales:

Pay group--rank	Pay in lire every 10 days
16 Pvt	96
15 Pfc	115
14 Cpl	134
13 Lance Sgt	153
12 Sgt	172
11 1st Sgt	191
10 2d Lt	230
9 Lt	258
8 Capt	306

b. Active Service Allowances

Active service allowance amounts to 1 RM (1 Reichsmark = 7.7 lire) per day for each soldier irrespective of rank and is paid out with the Army pay. It must be noted that, although the last period of every month varies from 8 to 11 days, the pay is constant, but the active-service allowance does vary between 61 and 85 lire.

c. Africa Allowances

Africa allowances are reckoned from the date of arrival in Africa, but the money is built up as a credit. When the soldier goes back to Germany on leave or on posting, he takes with him a sort of check which can be cashed at any Pay Office and must be drawn in on payment. The scale is as follows: privates, 2 RM per day; noncommissioned officers, 3 RM; officers, 4 RM.

d. War Emoluments and Peace Emoluments

The difference between these is slight. The former is drawn by non-commissioned officers and officers who in peacetime are civilians; the latter by regular noncommissioned officers and officers of the standing army. In both cases a certain fixed pay is paid in to the banking account of the individual. A lance corporal received between 70 and 90 RM per month, the amount depending on where he lives. He gets more if his home is in a town, because rents are higher than the country.

The soldier in Africa, therefore, amasses quite a large amount of Italian lire. There is not much he can do with them, and little value is attached to them. It is a common thing for high-stake gambling to cause 8,000 lire to change hands without arousing any feeling on either side. For the thriftier, opportunity is given once a month to send money home. It is handed to the Pay Clerk, who gives a stamped receipt to the soldier and remits to the desired banking account in the Fatherland.

Comment: By converting these pay and allowance rates into United States money of current exchange values, we find the total monthly sums received by German Army personnel in Africa, in the grades of private to captain inclusive, are approximately equivalent to:

Pay group--rank	
16 Pvt	$ 51.45
15 Pfc	94.78
14 Cpl	97.78
13 Lance Sgt	100.77
12 Sgt	103.76
11 1st Sgt	106.77
10 2d Lt	125.02
9 Lt	129.44
8 Capt	136.92

The above computation is based on 1 Lire = 5.26 cents and 1 Reichsmark = 40.33 cents, rates of exchange published in U.S. Treasury Dept. Circular No. 1, July 1, 1942.

Attention is called to the fact that the pay of German Army personnel in Africa, as shown in this report, is lower than that of American troops in this theater.

SECTION II

REGULATIONS GOVERNING JAPANESE TROOPS OCCUPYING CONQUERED AREAS

REGULATIONS GOVERNING JAPANESE TROOPS OCCUPYING CONQUERED AREAS

Having consolidated their earlier gains of the war in the Southwest Pacific area, the Japanese began to advance to the south and to the east in the spring of 1942. The push southward has been marked by the Battle of the Coral Sea, the Japanese occupation and loss of Guadalcanal, and the fighting in southeastern New Guinea. Such operations involved not only the capture of the land areas concerned, but also their administration and defense so that they might be available as bases for future operations. Troops were specially detailed to follow the initial attack or advance and take over the administration and defense of the captured areas. They might be referred to as occupation or base troops.

Such elements undoubtedly moved south to the large Japanese advance base at Rabaul, New Britain, in the spring of 1942, as part of a major operation intended to culminate in an attack on Australia. By May 1942 Japanese troops had landed on Tulagi near Guadalcanal, and by the middle of July work had been begun on Henderson Field on Guadalcanal. On July 1, 1942 the Japanese "8th Base Force" was at Rabaul, though elements thereof had already probably moved south. There follows a translation of a Japanese document dealing with the duties of the "Guard Forces," i.e., the troops detailed to the administration and defense of captured areas.

* * *

Eighth Base Force - Regulations No. 3
July 1, 1942 (Rabaul)
Duties of the Guard Forces

a. General Principles

(1) The areas to be defended by these forces include the land, sea, and air in the regions occupied by the Imperial Forces southeast of the equator to New Guinea and to the east thereof.

At the important points within the wide areas which these units will control, bases will be established from which to advance the plans for attacking the east coast of Australia, in conjunction with other friendly forces. These units will also guard the conquered areas, preserve the peace, and protect the sea lanes. A most important duty will be to enforce military rule in conquered areas.

The areas which these units are to defend, and from which advances will be made, is near the focal point of the concentrated strength of U.S., British, and Australian forces. Our units are to perfect the defenses of the important areas and then advance, intercepting the enemy, wrecking his combined operations, and annihilating him. This operation, we believe, is the key to the successful termination of the Greater East Asia War.

(2) All men of these units should consider the above-mentioned duties as being of foremost importance; and they must fight daringly in the front lines of this, the most important battleground beneath the southern stars, overcoming all difficulties and breaking down all barriers, concentrating all efforts and striving always at fever pitch for Japan,--vowing to win this great battle.

However, that enemy sea, land, and air attacks will become vigorous and persistent, is something that we naturally expect from a standpoint of strategy. For this reason, take proper security measures in all defensive patrols and in an emergency be ready to launch immediately a full-scale counterattack. While bearing in mind that defensive measures may have to be taken, always retain the initiative and make it your number-one duty to overpower the enemy. The various units which are assigned to the defense of important points will desperately defend their allotted areas, and will also concentrate their efforts on keeping to a minimum the damage caused by enemy attacks.

(3) Discipline is the core of a military force, and naturally, in times of battle, all duties will be performed in a soldierly manner. The noble ideals of loyalty and patriotism are naturally related to leadership and obedience, and these are the basis for the fighting strength so manifest in the Imperial Forces. This is brought about by harmony and order within the unit itself. The soldier, showing his love for the soul and spirit of Japan, adds luster to his unit, and if this spirit be shown by one who has undergone hardships, then he gives greater glory to the Imperial Forces.

Front-line duty involves many factors which make it different from peacetime duty on board a warship or within a unit. At the present time, in the Imperial Forces, this is evident in stricter discipline and a flourishing martial spirit. The importance of these factors must never be overlooked.

If you think that due to a hasty expedition to foreign parts, or because of special circumstances occuring once in ten thousand times, there is any exception to this rule of strict discipline, you are under a great illusion. All commanders must make this matter their first concern and never relax their vigilance, being always ready to guide their men along the right path.

(4) If these units obey and follow their duty as outlined above, their strategic mission in offensive and defensive actions and in the guarding of the sea lanes will be successfully accomplished. However, in places where no civil government has been established, this force will also, without neglecting its strategical duties, enforce order within the various areas and assist in the civil administration. While one can say that a knowledge of how to govern foreign people is not easily come by, the indomitable, peerless Imperial Forces, who never violate a solemn and fearful dicipline, will be able to work together with these people and rule. However, there should be a period in which the subordinate people should be led and trained.

b. General Functions

(1) Commands will be strictly carried out by these units, whether acting alone or in conjunction with other units.

When operations involving large forces and concentrated efforts are necessary in order to carry out the strategy within the areas in question, the methods to be adopted will depend on the orders of the commander-in-chief of the operations as a whole. In cases where remnants of the enemy within these areas are to be mopped up, or where the troops are to be used for the maintenance of order, these tasks will be carried out according to the plan of the guard-force or garrison-force commanders.

(2) The guard-force command will make the plans for the defense of the areas under its control, plan the distribution of manpower, guns, boats, and weapons, establish a system of defense, give the orders for carrying out a successful defense, and generally prepare for battle.

(3) The guard forces will, conditions permitting, carry out mopping-up operations within the area, particularly against enemy communication facilities. At the same time they will extend the zone of our influence.

(4) The guard forces will, taking into account local conditions, establish observation posts and communication centers, and send out patrols. Communications will be established as quickly as possible; this is one of the most important factors in a successful defense.

(5) Protection of sea-borne traffic depends largely on ships and planes, and will be under the control of the superior commander. The guard-force commander and the garrison-force commanders will devote careful attention to the conditions of enemy and friendly sea lanes within their areas, and inform approaching friendly ships of these conditions. Also, the commanders will assist in guarding ships entering and leaving port, taking on or unloading cargo, and at anchor.

(6) In case friendly ships are present within their zone of command, the base forces and guard forces will, as the home force, assist the ships in carrying out their strategy, replenish supplies, and enable them to get some rest, etc. This is one of the most important points in carrying out the strategy of the Imperial Forces, and in manifesting their cooperation. The advancement of war strategy in this area depends largely on the work of the air force, and cooperation is therefore doubly important.

(7) In case there should be an airbase in the area, the air defense organization and patrol will be under the command of the air force; but the guarding of the area and the AA defense will be the duty of the guard force. Therefore, it is necessary to assist the air force in building up a speedy system of communications for patrol work.

(8) In case a friendly force under a different command stops in the area, it is necessary for the commanders to assure cooperation by reaching an understanding regarding any operations and by making clear the responsibilities of each.

(9) Keep the communication instruments always in a state of perfect preparation. In case they are not prepared, you must be ready to handle important communications swiftly and surely by such auxiliary means as flags, signal fires, and rockets.

In the case of reports and messages, you must not, by vainly concentrating on speed of delivery at the expense of essential accuracy, cause superior officers and friendly forces to err in their dispositions. Speed is to be sought after having prepared the important points of the message (for example, with regard to attack of enemy planes; --the number of planes, types, direction of attack and withdrawal, results, damage, etc.), and having made the text simple and clear.

(10) It is the duty of the superior officers to see that guard forces in remote outlying districts get necessary reports and suitable supplies, medical care, etc. However, since there are many cases when it is not easy to do this on account of the conditions of communications and tactical situation, each unit must do its best to improvise as required, and each commander must advance of his own accord and strive to grasp the general situation.

c. Internal Duties

(1) The daily routine depends upon the orders of the superior commander, but there is nothing to prevent the guard-force commander from making changes in accordance with the military situation, the work being done, the weather, etc. In short, it is most essential to promote a bright, interesting, pleasant life in the field: on the one hand, by planning an appropriate daily routine, weekly routine, and work schedule, thus achieving the best and most efficient plan for every sort of situation; and, on the other hand, by appropriate training, rest, and recreation.

(2) Leisure time should be utilized to the fullest possible extent in ardent training which should be carried out realistically. Also, encourage proficiency in military arts and athletics. This is the best way to improve and refine the efficiency of the whole force, make it energetic, and promote discipline and morale. The commanding officer must always give thought to these matters and not neglect to put them into practice.

When activities against the enemy are comparatively simple, "spiritual laxity" may easily arise before you know it in the environment of the front lines. It exhibits itself first in careless dress and sloppy saluting; then, in not a few cases, discipline relaxes and fighting power is lowered, so attention is required on this point.

(3) In combat, and in everyday training and duty, it is most essential both for the display of the force's military strength and for the promotion of efficiency in every sort of work that the officers be among the ranks, leading and supervising. Because the effect of this is to form a crack unit in which officers and men are harmoniously united, it is traditionally a virtue of the Imperial Navy. In forces engaged in operations and in front-line duty, the officers must give attention to this point.

(4) In operations in the pestilential and torrid tropics, great care is necessary to avoid losses due to sickness, particularly the epidemic diseases peculiar to these regions. The points to which this force should pay attention in the various areas which it guards are as follows:

(a) Divide up the area occupied by the units, and the important places of the vicinity, and within these areas and, insofar as possible, outside of them, make it impossible for disease-carrying insects to appear or spread. (We refer you to the results obtained in the area at Rashun taken over by the navy after the invasion, where mosquitoes were virtually eliminated after 2 1/2 months and the sanitary situation greatly improved).

(b) Always get rid of waste water, and do not permit even a small amount of stagnant water to stand in empty tin cans.

(c) Always cut weeds short, and try to see that air circulates well through the trees.

(d) All garbage is to be transported to an established place at some distance and disposed of. Combustible matter is to be burnt every day.

(e) When there are damp areas with poor drainage in the vicinity, quickly devise means of draining them,and also cover them with waste oil.

(f) Men must sleep under mosquito netting.

(g) When moving about in the bush, be especially careful about your clothes (do not have your legs exposed, and if necessary use an anti-mosquito mask and gloves), and when resting or going to bed take strict precautions against mosquitoes.

(h) Follow strictly medical directions as to the taking of preventive medicines.

(5) The commanding officer of a remote guard force must take care to report to his superiors without delay the tactical situation, and also from time to time the general situation, health conditions, and other essential matters. Also, he must be alert to utilize boats and airplanes for the transmission of reports, orders, etc., to keep his force fully supplied, to maintain close liaison with his superior officers, and to prevent delays in the military preparations and ordinary duties of his own unit. In case of wounds or sudden illness in a force which has

no doctor, the commanding officer is to get instructions quickly by message.

(6) Enemy property and captured goods must be properly disposed of in accordance with the various regulations. For this reason the commanding officer is to be conversant beforehand with the rules concerned. There is nothing to prevent the force from requisitioning and using whatever it needs from enemy produce, boats, houses, furniture, etc.; however, since the chief items, such as radio stations, power plants, etc., must be treated as national property from now on, you must report on their condition and strive to repair and preserve them.

(7) You should utilize spare time from duties to cultivate vegetables and fruit trees, and to raise chickens, pigs, etc., thus giving some ease and interest to your life and supplying some of your own provisions.

d. Treatment of Natives and Foreigners

(1) The natives of this area are in general simple and docile and tend to respect their masters. Each village is controlled autonomously under its chief (sometimes there is a main chief over the chiefs of a certain area or a number of villages), and if you can get the chiefs to direct the people favorably, it will make control comparatively easy and contribute a good deal of efficiency to labor conditions.

On the other hand, because of the past system of control, they have the habit of asserting their rights (they easily forget their duties), and many of them, having been affected by church education and being led by white missionaries, persist in those manners. The following points should be the general standard in leading and handling the natives:

(a) By the application of the authoritative and strict rules of the Imperial Army and by judicious direction, bring them to give us true respect and obedience. Induce them to become Japanese subjects. Make them realize that the Imperial Army will protect their lives and property, and that at the same time they must faithfully perform their duties.

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

(c) Although you may make every effort to instill 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) Although the administration of justice is controlled by the civil government, the rendering of fair decisions in unimportant local matters will contribute to public order. Be especially careful that there are none among them who, through contacts with or induced by Europeans and Americans, give aid to

the enemy. In such cases take severe measures, and when the offense is serious seek the direction of higher authority.

(e) Do not enter their dwellings nor chat with them on a level of equality.

(f) In view of the fact that they respect their women and have the custom of taking a fierce and daring revenge for offenses against them, never approach the native women.

(g) Since they respect property, always pay a proper price for things, and especially pay them properly when they have finished their work. In this matter follow the regulations of the civil government.

(h) Choose the chief carefully, respect and support his position as intermediary, and make him display his authority and ability in directing the people.

(i) Try to have labor and service carried out under the orders and direction of the chief; it is necessary that supervision be strict. Use experienced natives for the sanitary improvement set forth in paragraph 4 of part c. above. Furthermore, in view of the fact that under the old regime, the natives used to work twice a week on the nearby roads under the direction of their chief, and this was considered a duty, have them continue the custom.

(2) The Chinese are scattered about in the various areas to be controlled, living in small communities, and making use of their characteristic commercial talents to gain an economic foothold. In not a few cases they exploit the natives' labor. We may make use of the trades and business agencies of those who cooperate with us in good faith; however, in view of the actual situation in this area, where there are no remaining Japanese residents, the Chinese must not be permitted to extend excessively their economic foothold.

(3) Enemy aliens who are hostile are naturally to be dealt with according to regulations. However, in the case of those who are not hostile and who honestly wish to cooperate with us, investigate them and seek the instructions of higher authority.

(4) The missionaries and Axis nationals (those remaining are mostly Germans) insist on being treated as priests and citizens of allied nations and, on the surface, promise to cooperate with us, but the real intention of many of them is to maintain their former rights, profits, and foothold, and to extend their businesses and try to prepare for the period after the war. Investigate them very strictly and, without being excessively high-handed on the surface, direct matters in such a way as to emasculate gradually their power, interests, enterprises, etc. If necessary, seek instructions from higher authority. Base your relations with, and treatment of, these people on the following standard:

(a) Under the former regime the churches and their institutions were recognized as a form of the national government. As part of Imperial territory, their churches and their proselyting and education are now to be prohibited.

(b) Under the former government, with the exception of land belonging to the churches, private ownership of land was not recognized, and all enterprises relating to land were regulated by a lease granted for a definite period of time. For this reason the property and enterprises of the churches cannot be permitted to continue in their present status of vested interests. Of course, that which is already clearly private property is to be respected.

(c) At the beginning of this war, the Australian government rigorously selected from among the missionaries of Axis countries those who showed real sincerity in cooperating with Australia and who promised never to aid the enemies of Australia during the war; these were allowed to remain. At present there are quite a number of Germans and Italians who have been sent to Australia and detained there. Accordingly, there is a good deal of doubt about letting the present Axis missionaries simply go on exercising their special rights in our occupied areas, as "religionists" under international law.

(d) In case there is argument regarding the grounds and procedure in the above paragraphs, avoid entering deeply into vain discussions and seek instructions from higher authority.

e. Military Administration

The government of the occupied territories is in the hands of the Japanese civil administration, but, since the guard force must cooperate with and assist the civil authorities, we summarize here the essential points of the military administration policies of this force.

(1) Government

(a) This force will try to extend military administration over the occupied areas and to control them, quickly eliminating any hostile activity and restoring public order and discipline. Also, the force will devise means of self-support, and search for and secure important defense materials.

(b) Root out the white man's influence by the policy of controlling important points with the power of the Imperial Forces, and gradually extend the power of the administration over the whole area.

(c) Govern the natives, with the chiefs as the core of local autonomous government, under the direct guidance of the civil authority or a substitute organization. We may use carefully selected white men who cooperate with us and swear loyalty for this purpose.

(d) The churches and church-supported education of the old regime is prohibited. Respect the religious faith, customs, and private property of the natives. Guide the masses of the people so as to make them gratefully contented with the prestige and authority of the Imperial Forces; make them return quickly to their occupations and cooperate actively with our policies.

(e) Always endeavor to mollify the masses with propaganda and to make them understand the meaning of our policies. Drive home the fact that it is natural that in war time the special demands of production, and the monetary and labor policies, should occasion heavy burdens to the people. Make them realize that behind the favors and the soothing propaganda is the might of the brave Imperial Forces, and that they have no other course than to rely on us and co-operate with us.

(f) Endeavor to restore and utilize the native constabulary system of the former government. Prohibit entirely the carrying of weapons by the natives.

(g) Restore the native public schools as quickly as possible, and give instruction with suitable persons as teachers. Furthermore, make propaganda capital out of giving the natives free medical service insofar as the exigencies of the war permit.

(2) Development of Industry and Expansion of Production

(a) For the present the first thing in the development of industry is to meet the requirements for the support of the force and of the various policies adopted, and at the same time to get as much as possible of the products of the land to help out the "Materials Movement Plan in Japan."*

(b) Do all you can to get the men and materials needed for development from local resources. Endeavor to use the labor of the natives, and try to make practical use of local facilities and materials.

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

(d) The leasing, renting, and developing of government lands and resources will be permitted in the case of influential, trusted Japanese commercial firms. (All matters under this paragrapn will be executed by the civil administration.)

Permits granted in this area at present are as follows:

Nanyo Bocki Kaisha (South Seas Trading Company)
Nankyo Suisan Kaisha (Southern Development Marine Products Company)

(e) The expansion of production for the present will emphasize materials necessary to military operations and the production of provisions necessary for the support of the force. Otherwise, expansion will be managed according to the

* The Materials Movement Plan is evidently designed to effect the movement of raw materials, such as iron ore, petroleum, manganese, nickel ore, and bauxite, from the occupied areas to Japan.

"Industrial Development and Production Expansion Plan,"* established by the civil government. Apart from the above, the securing and investigation of essential resources are in the hands of the civil government.

(3) Finance and Currency

(a) For the present, war notes** will be the currency.

(b) In view of the fact that financial and monetary problems will have a serious effect on the future government, everyone will follow the policies fixed by the civil administration and endeavor to be economical.

*The Industrial Development and Production Expansion Plan is probably that part of Japan's economic policy which is concerned with obtaining the raw materials for the Materials Movement Plan, as well as rehabilitating and developing local industries to producing goods for local military needs.

** Special currency issued in occupied areas.

SECTION III

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TACTICAL AND TECHNICAL TRENDS, ISSUES 11-20 (INCLUSIVE)

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TACTICAL AND TECHNICAL TRENDS, ISSUES 11-20 (INCLUSIVE)

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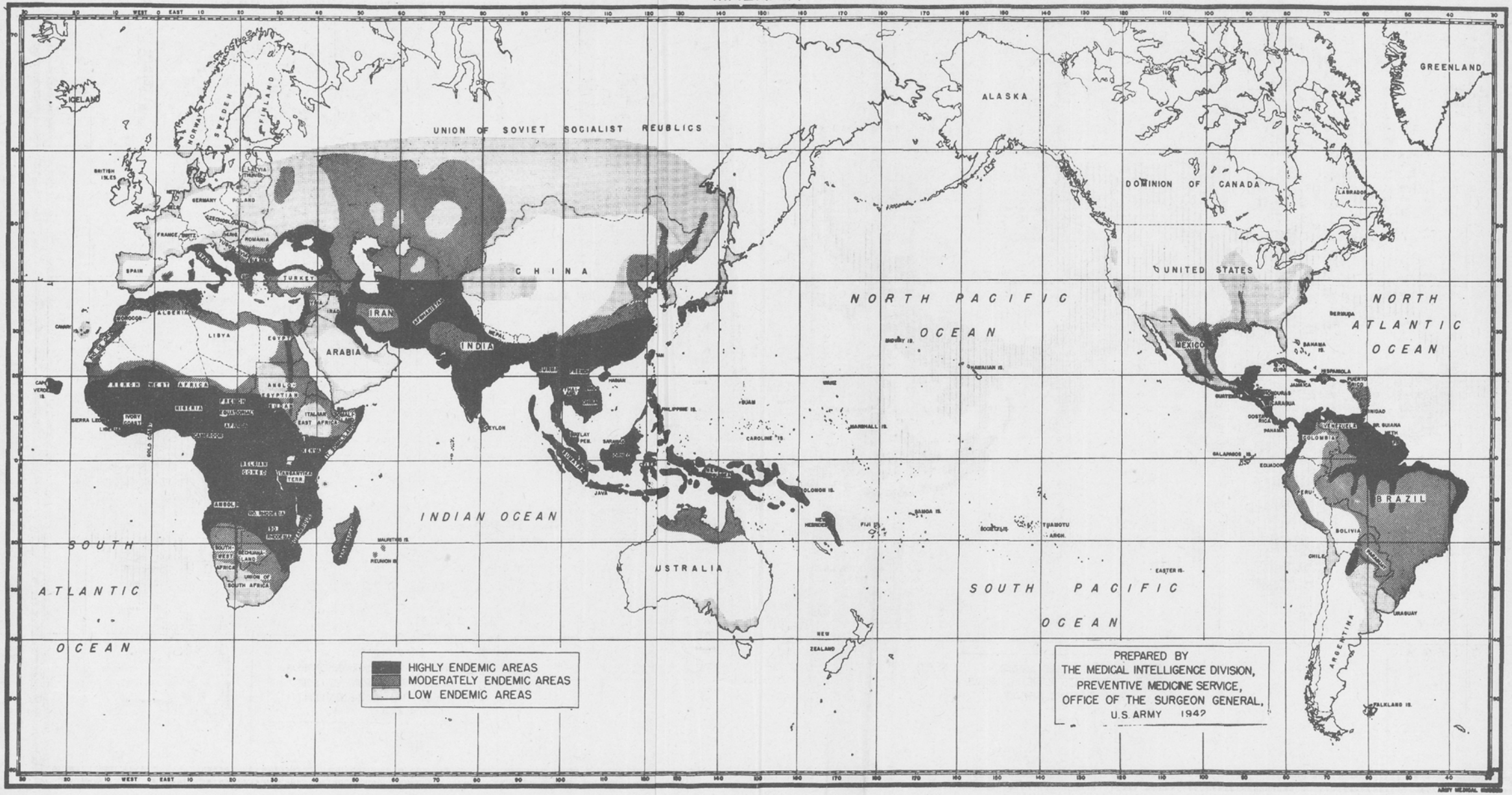
CORRECTIONS

No. 13, p. 31: Two paragraphs on this page, the third full paragraph and the last paragraph, tend to give the impression that the tanks of German armored forces operate independently and without the support of other arms. This, of course, is erroneous, since, as has been indicated elsewhere in Tactical and Technical Trends, isolated tank units become extremely vulnerable. It is true that, in the Battle of France, German tanks occasionally outstripped their own infantry and support columns by tens of miles. However, since then, the campaigns in Russia and North Africa have shown that the tactics used by all armies are to maintain the closest possible contact between fighting echelons of tanks and infantry, and other support echelons. Neither in attack nor defense do tanks function independently of infantry, antitank, and artillery support; all these units are part of a combat team. It is noteworthy that defensive tactics against armored formations are now based on an effort to split tanks from their support echelons.

MALARIA


ICELAND
GREENLAND
ALASKA
UNION OF SOVIET SOCIALIST REUBLICS
DOMINION OF CANADA
UNITED STATES
CHINA
NORTH PACIFIC OCEAN
NORTH ATLANTIC OCEAN
INDIAN OCEAN
SOUTH ATLANTIC OCEAN
SOUTH PACIFIC OCEAN
AUSTRALIA
BRAZIL
ARABIA
INDIA
IRAN
MEXICO
HIGHLY ENDEMIC AREAS
MODERATELY ENDEMIC AREAS
LOW ENDEMIC AREAS
PREPARED BY
THE MEDICAL INTELLIGENCE DIVISION,
PREVENTIVE MEDICINE SERVICE,
OFFICE OF THE SURGEON GENERAL,
U.S. ARMY 1942