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INTELLIGENCE BULLETIN

January 1943

MILITARY INTELLIGENCE SERVICE
WAR DEPARTMENT

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NOTICE

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

"The Americans are very poor at scouting, patrolling, and security measures; so the effects of a sudden attack and the benefits to be gained therefrom should always be kept in mind."

—from a Japanese Army training manual.

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PART ONE: GERMANY

Section I. INFANTRY TACTICS

1. INTRODUCTION

At present German infantry tactics naturally are of the greatest interest and importance to American fighting men. Official German doctrine covering infantry tactics is clean-cut—so much so that when an American reads it, he is likely to fall into the dangerous error of assuming that the Germans always will follow certain methods. There is in circulation a popular theory to the effect that the Germans are fond of set procedures. Even if there is an element of truth in the theory, it must not be supposed that German military thought is inflexible. German commanders often show great imagination and adaptability in difficult situations. Although the following German doctrine is official, American troops will find that the enemy does not hesitate to depart from it. Its chief value for us is that it suggests what we may sometimes, although not always, encounter.

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2. THE MEETING ENGAGEMENT

In a meeting engagement a commander dispenses with preliminary preparations and deploys straight into battle. A commander will not accept the challenge of a meeting engagement unless he feels that his troops and leadership are numerically or otherwise superior to those of the enemy, or that, by waiting to prepare a deliberate attack, he would sacrifice ground he cannot afford to lose. Sound tactical decisions in the initial stages are essential. The worst mistake of all is hesitation.

The advance guard will delay the enemy and seize important positions, such as those suitable for artillery observation posts. The advance guard may (1) attack, with a limited objective; (2) defend its existing position; or (3) withdraw to more favorable positions.

The main body will deploy immediately. (It must be remembered that a withdrawal by the advance guard is likely to interfere with this deployment.) It is wrong to wait for further information in the hope that it will clear the situation. Lost time never can be regained. The time available decides whether the commander should concentrate his troops before launching them in an attack, or whether he should launch them when, and as, they become available.

The meeting engagement normally will take the form of a frontal attack by the advance guard, combined with one or more encircling attacks by the main body.

3. THE DELIBERATE ATTACK

The object of the deliberate attack is to surround and destroy the enemy. A strong, rapid encircling attack can be decisive, provided that it really comes to grips with the enemy and that the enemy is pinned down by frontal pressure, which will be exercised mainly by fire.

Encircling forces must move in depth if they are not to be outflanked. All encircling attacks sooner or later become frontal.

In all attacks the commander will select a *Schwerpunkt*, or point of main effort, where the bulk of his forces will be employed. The considerations involved in choosing this point are: (1) weakness in the enemy defense; (2) suitability of the ground for cooperation of all arms, but especially for tanks; (3) lines of approach; (4) possibilities of supporting fire, especially by artillery.

Boundaries and objectives are allotted to attacking units. This does not mean, however, that a unit must distribute troops over all the ground within its boundaries. It will choose within its boundaries the best line or lines of advance and utilize its troops accordingly. A *Schwerpunkt* battalion can be allotted about 450 yards of front, while a battalion which is attacking in an area removed from the point of main effort can be given 1,000 yards or more.

Once an attack has been launched, it must drive straight on to its objective, regardless of opposition. It is wrong for the foremost attacking troops to turn aside to deal with threats to their flanks. This is the task of the troops which are following them.

A breakthrough must be in sufficient depth to prevent the enemy from establishing new positions in the rear. A breakthrough cannot be successful until the enemy artillery positions are captured. This is the special task of the tanks.

As soon as enemy resistance weakens at any point, all available fire and forces must be concentrated to insure the success of the breakthrough.

Since artillery support is essential, artillery must be kept well forward.

4. THE PURSUIT

If the enemy is able to withdraw under cover of a rear guard, the attack has failed. He must then be pursued. The object of pursuing forces will be to encircle and destroy him. For this, infantry and artillery alone are not sufficient. Aircraft will

attack defiles on the enemy's line of retreat, and motorized elements will attempt to pierce his front and encircle his flanks. A point of main effort and clear orders are just as necessary in this operation as in any other.

The task of the pursuing forces is to interfere with, and if possible stop, the enemy's withdrawal so that he can be dealt with by the slower-moving infantry and artillery, which will be following up. The motorized elements pursuing the enemy may find themselves in great difficulties because of the speed with which they move and because of the exposed positions in which they may find themselves. They must be prepared for this, and will rely on aircraft and the slower-moving infantry and artillery to assist them in due course.

5. DEFENSE

A point of main effort is as necessary in the defense as it is in the attack. A defensive position has no value if the enemy can avoid it by passing around its flanks. Essentials of a defensive position are (1) a good field of fire for all arms, but especially for the artillery; (2) good observation; (3) concealment; (4) natural protection against tanks; and (5) factors permitting the fire from weapons to be concentrated in front of the main line of resistance.

The position is divided into advance positions, outposts, and a main position. The forward edge of the main position is known as the main defensive line.

The task of the advance positions is to deny good observation points to the enemy and to hinder his advance. They will be approximately 6,000 to 8,000 yards in front of the main position, and mines and obstacles must be used to strengthen their area. The defenders of advanced positions normally will consist of small mobile forces. Their principal task is to force the enemy to deploy. They will be withdrawn according to a definite schedule.

The outposts are responsible for the immediate protection of the main position. Their tasks are (1) to prevent the enemy from

surprising the forces holding the main position; (2) to mislead the enemy as long as possible over the dispositions and situations of the main position; and (3) to protect advance observation posts as long as possible. Outposts will be withdrawn when the situation makes it inevitable. As a rule, they are from 2,000 to 3,000 yards in front of the main position.

The main position must be defended in depth. This is of the utmost importance. Areas, rather than lines, will be defended. If the enemy should succeed in penetrating the position, he will be faced by a series of defended areas which can support each other by fire, so that in the end he collapses under the concentrated fire placed on him. A battalion will defend from 800 to 2,000 yards in depth.

The withdrawal of advance posts and outposts must be planned carefully so that they will avoid getting in the line of fire of the main position.

Penetration must be met by immediate local counterattacks, with limited objectives. Small parties of infantry carry out these counterattacks—if possible, against the enemy's flanks. Unless tanks are available, a deliberate counterattack will succeed only if it is carried out by superior forces and as a surprise against one or both flanks of the enemy penetration. Like any other deliberate attack, it requires thorough planning.

6. VILLAGE FIGHTING

Troops are too easily attracted to villages. These afford some cover from fire, but also draw it. It is important to note that they may become traps.

a. Attack

In attack, villages should be by-passed whenever possible. However, when this is done, the enemy must be pinned down in the village, chiefly by artillery fire.

If villages must be attacked, heavy supporting fire will be

placed on the outskirts, especially on isolated buildings and small clusters of houses.

The leading troops will avoid the streets, and will fight their way through back yards and gardens until they reach the far end of the village. Small independent groups are preferable for this work. Their tasks must be laid down accordingly, and each group must have its own supporting weapons.

Reserves must move close behind these leading groups, which may easily get into difficulty.

b. Defense

Well-built villages make good defense areas. Their edges are shell traps; therefore, the main line of resistance should be either inside or outside the village, not on the edges.

If a village is favorably situated, it should be turned into a defense area organized in depth. The irregular shape of its approaches should provide ample opportunities for flanking fire.

Villages afford especially good antitank positions.

Reserves must be held in readiness outside the village to deal with the enemy's probable attempts to by-pass.

Section II. MINEFIELDS IN DESERT TERRAIN

The following notes deal with the Axis technique of laying minefields in the North African desert. It must be emphasized that an important Axis purpose in laying minefields is to create and spread fear among United Nations troops. Cool heads and common sense, as well as a sound understanding of enemy methods, are therefore "musts" for all personnel.

1. TYPES OF MINES

Although the Germans and Italians use several types of mines in desert warfare, including captured mines as well as those of Axis manufacture, it has been reported that the enemy recently has shown a preference for the following:

a. German Teller Mine

This is a 19-pound antitank mine containing 11 pounds of explosive (tolite). It is shaped like a disk, 12 inches in diameter and 4 inches high. The firing pressure is about 350 pounds.

b. German "S" Mine

The "S" mine is an anti-personnel weapon containing 1 pound of tolite and 350 steel shrapnel balls. It is cylindrical, 4 inches in diameter, and 5½ inches high. "S" mines may be fired either by push-igniters or pull-igniters. These mines are buried, but when they are fired, they are thrown about 3 feet above the ground before detonating.

c. Italian "B4" Mine

This is a 3⅓-pound anti-personnel mine containing ¼ pound of T. N. T. and scrap metal fragments. It is cylindrical, 3 inches in diameter, and 5 inches high. In use, B4 mines are concealed, but not buried. A trip wire is attached to the trigger of a B4. When the wire is tripped, it releases a striker, which fires the mine.

d. "Wooden Box"

A new and unusually effective type of mine has been encountered during the present Egyptian-Libyan offensive. The mine consists of a wooden box containing nine blocks of guncotton and measuring about 18 inches in length, with inside dimensions of the box given as 11 by 8 by 2½ inches. The mine is fitted with a sensitive detonator, which is activated by about 35 pounds pressure. Since the mine is made of wood, the British probe for the mine with a bayonet, instead of using their regular mine detector. This is done with the bayonet at an angle to the surface of the ground, rather than perpendicular.

2. PATTERNS

Most minefields are laid in patterns. Prisoners of war state that these may vary considerably, and that they are decided upon by the officer in charge of a particular task, who must take into consideration local conditions and the type of defense that is contemplated. Among the patterns very frequently encountered are the "regular pattern" and the "regular pattern offset."

a. Regular Pattern

This is the most common. Mines in a row are spaced at equal distances, with equally distant rows, and with the mines of one row equally spaced between the mines of the previous row. A variation in this method is to vary the distances between rows. In no reported case, except for scattered mines, has the distance between mines in a row been unequal.

b. Regular Pattern Offset

By means of a pacing drill, a certain variety is introduced into the regular pattern. The distance between mines in any one row is equal, but one row is slightly offset from the previous row, and the next row is again offset by a different distance. Once a few mines have been located, the pattern soon becomes apparent and mines will be found where expected.

c. Random Mines

In front of most regular minefield belts, and particularly in front of gaps, there may be found mines

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scattered at random and unmarked. These are either continuous at very wide and irregular spacing, or in groups more closely spaced but not laid in any pattern inside a group.

3. SPACING

The average spacing observed between mines in a row is 6 yards; it has never been less than 3 yards and seldom greater than 10 yards, except in scattered fields. The commonest distances observed between rows are 5 yards and 10 yards.

Shallow minefields usually consist of from two to four rows of mines. Deep minefields generally consist of several belts of mines with considerable distances between belts, and with seldom more than eight rows of mines in any one belt. A single belt may be of any depth up to 200 yards.

4. MARKING

Often the front edge of forward minefields is not marked. The rear edge normally is marked by some form of fence, usually with a trip wire on short pickets, although cattle-fence, concertina wire, and rock piles are sometimes used. Instances of unmarked rear edges have been reported. The distance between the front fence, if there is one, and the rear fence may be anything from 100 to 800 yards.

A common marking is a single row of concertina wire running along the center of a field parallel to the rows of mines. In a large minefield there may be several un-

marked rows of mines in front, then a row of concertina wire, more mines, then concertina wire, and so on, finishing up with a row of concertina wire on the rear edge.

Only one case has been reported of continuous wire running irregularly within a field. Little information is available regarding signs used to mark fields, except those mentioned under "Gaps" (see par. 7, below). It is believed that a skull of crossbones indicates the presence of anti-personnel mines or booby traps.

In rear areas enemy minefields may be expected to be well marked with cattle fences and warning notices in German and Italian.

5. USE OF BOOBY TRAPS

No booby traps have been found fitted to captured British mines used by the Axis. Fields of Teller mines have been found, with a number of the mines fitted with booby traps. In one case Teller mines were in groups of 20, with about one-third fitted with pull-igniter traps and one-third with push-igniter traps. Teller mines, each fitted with a pull-igniter and a loop of wire projecting above the top of the mine as a trip wire, have also been found, but it has been the exception rather than the rule to find booby traps attached.

6. USE OF ANTI-PERSONNEL MINES

Increasing use of the Italian B4 anti-personnel mine was noted during September, 1942, before the British Eighth Army cracked the El Alamein line. These fields

contained some "S" mines, but mostly the B4's. Spacing of B4 and "S" mines ranged from 7 to 10 yards between mines in a row. The layout usually consisted of mines and wooden pegs set alternately, 4 to 5 yards apart, with trip wires from the mines running to the wooden pegs on both sides of each mine.

7. GAPS

Little information is available about gaps through minefields, but the following conditions were reported from Egypt:

a. Width

Widths of 7 and 10 yards were observed.

b. Method of Closing

Gaps are usually closed by means of two or three rows of Teller mines, with boards placed on one or all of the rows to insure detonation of mines if a vehicle attempts to pass through. Normally, gaps are kept closed.

c. Marking

In the northern sector of the El Alamein line, two types of gap markers were found:

(1) *Painted signs.*—Painted signs (see fig. 1) may appear on either side of a gap.

(2) *Luminous tubes.*—Luminous tubes 1 inch long have been placed on the tops of mines to mark a route for patrols. These tubes are visible 3 yards away.

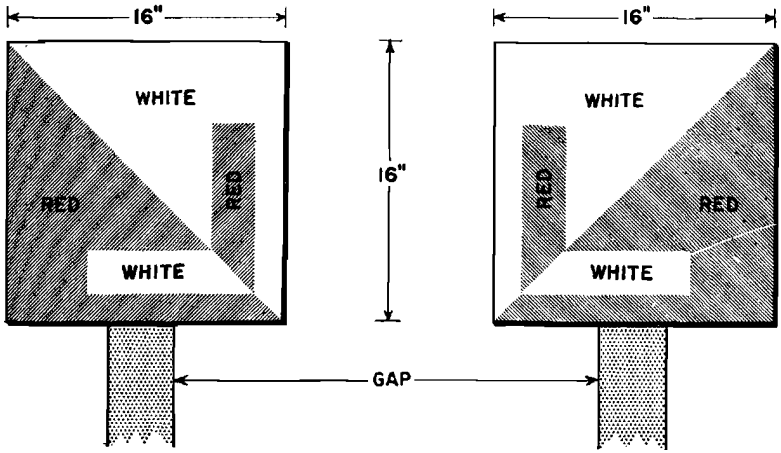

Figure 1.

d. General

It is reported that gaps are a favorite place for laying Teller mines without any marking wire or signs. Gaps are sometimes protected by unmarked groups of mines scattered in front of the gap.

8. TACTICAL SITING

One report states that the minefield is usually 215 yards to 325 yards in front of the main line of resistance, is covered by fire, and is observed by outposts. In another report the distance from the main line of resistance to the main minefield is given as varying from 215 yards to 1,080 yards. A listening post was also located by a patrol 100 to 150 yards behind a minefield. It definitely can be stated that it is the enemy's practice by day to cover all main minefields with small arms fire from close range, and by night to maintain anti-lifting

patrols and outposts, often located within the minefield itself.

9. MISCELLANEOUS INFORMATION

Until recently most mines were laid on the surface. Now a greater proportion of fields have the mines buried, but mines are often badly concealed so that by daylight their positions can, with practice, be located by eye. This should not be relied upon, however.

Teller mines, and sometimes captured British mines, have been found laid two or three on top of one another. The bottom mine may be laid upside down. Such groups are occasionally booby-trapped.

10. CONCLUSION

A most important point to remember is that the forward edge of a main minefield is often unmarked. Furthermore, whether the main field is marked or unmarked, there may be some scattered mines laid at random and unmarked in front of this field. Also, enemy minefields normally consist of several shallow belts laid in depth, with considerable gaps between belts rather than in one belt consisting of a large number of rows.

Section III. USE OF SMOKE

1. GENERAL

The fact that the Germans are fully equipped to utilize chemically produced smoke at any time cannot be too widely known.

Smoke may be used by any arm; in addition, regular smoke-producing units (*Nebelwerferabteilungen*) of varying sizes, as well as engineer units trained to handle smoke projectors, may be assigned to provide smoke support when it is needed.

Although slightly irritating, smoke is harmless, unless it is mixed with chemical warfare gas. Being practically the same color as natural fog, smoke is distinguished by its greater density and sharper outline, as well as its sudden rise and disappearance. Its density and extension depend upon weather and terrain. Favorable conditions for the use of smoke are: a steady, moderate wind, damp atmosphere, clouded sky, falling temperature, early morning or late evening hours, and bare, flat terrain. Unfavorable conditions for the use of smoke are: a very weak wind, a strong, gusty wind constantly changing its

direction, or no wind at all; dry atmosphere, sunshine, heat, and hilly or covered terrain.

2. SMOKE EQUIPMENT

The normal marking for German smoke ammunition is a broken white line and white lettering, including the identifying abbreviation Nb.

a. General Equipment

The following types of smoke equipment are likely to be used by all arms:

(1) *Smoke hand grenade 39.*—This closely resembles a stick hand grenade in shape. The head of the 39 is filled with a standard smoke mixture, and its handle has three horizontal corrugations at the screw cap so that it is possible to distinguish by touch between this and the stick hand grenade. The discharge of smoke lasts from 1 to 2 minutes. The total weight of the smoke grenade is about 2 pounds.

(2) *Smoke hand grenade 41.*—This is a small smoke generator (very similar to the smoke candle 39—see below) in a cylindrical metal case. It weighs about 1¼ pounds.

(3) *Smoke candle 39.*—This is used to lay small local screens of short duration. Its airtight and watertight cylindrical metal container is filled with standard smoke mixture. The candle weighs about 4 pounds and is fitted with a carrying handle. It can be placed on the ground and ignited, thrown by hand, or hurled by means of a sling passed through the carrying handle. The candle burns

from 4 to 7 minutes. Sometimes a number of candles are placed together to increase the density of the screen.

(4) *Smoke generator 41.*—In addition to using several older types of smoke generators, the Germans employ a new type, the 41, to screen long buildings, bridges, battery positions, and other vital areas for periods up to 2 hours. The generator, a strong iron drum strengthened by two iron bands, has a double bottom and a removable lid, and is fitted externally with a spigot and a steel projection tube. Several pieces of necessary equipment are attached to the inside of the lid. In operation, compressed air expels the smoke acid (20 gallons). The empty weight of the generator is 280 pounds.

(5) *Improvised smoke projector.*—The Germans also have an improvised smoke projector which can fire a special smoke generator (known as model 34) as far as 547 yards.

b. Equipment of Smoke Troops [1]

Troops especially designated and trained as smoke units use the following equipment:

(1) *Smoke mortars 35 and 40.*—These are two different models of a 4.14-inch smoke mortar. The 35 fires a stream-lined bomb a distance of about 3,000 yards, whereas the 40 has a maximum range of some 6,500 yards.

[1] Other arms may be equipped with adaptations of the matériel mentioned in this article. German tanks, for example, are fitted at the rear with a rack which can hold 5 smoke candles. These candles are dropped into place from the interior of the tanks; they cannot be projected. Certain infantry and artillery weapons can fire smoke shells, and it is possible to fit several types of aircraft with smoke-producing installations.

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(2) *Smoke mortar d.*—Although the Germans speak of one of their weapons—the *Nebelwerfer d*—as a mortar, it actually resembles a small gun, and has six barrels set in a circle like the chamber of a revolver. The mounting consists of a pair of rubber-tired wheels and a split trail. The barrels are not rifled, but have straight grooves inside them. The projectiles are 5.91-inch rockets, shaped like artillery shells. The six rounds are fired electrically at 1-second intervals. The rate of fire, including the time required to reload, is 6 rounds every 90 seconds. This weapon has a maximum range of 6,670 yards and can accommodate H. E. (high explosive), smoke, or gas-charged shells.

(3) *Smoke vehicle.*—A special smoke vehicle, built on a 3-ton semi-tracked chassis, is equipped to carry a large number of smoke generators in racks, from which they can be removed rapidly for use.

3. USE OF SMOKE IN THE FIELD

Army and corps commanders allot smoke troops, equipment, and ammunition to subordinate formations for large-scale screening operations. It is customary for the division commander to decide on the use of smoke and how it is to be coordinated with artillery fire and troop movements. Concentrated effect, as in other arms of the service, is what the Germans usually aim for when they employ smoke. The extent, object, duration, and direction of the smoke screen are contained in the commander's orders. When smoke is required in limited areas, it is

generally furnished by smoke-producing ammunition fired by the combat units themselves.

Captured documents indicate that the Germans fully realize how greatly the use of smoke may hinder the work of nearby friendly troops and supporting weapons. Independent use of smoke is permitted only when the effect of the smoke is limited to the area of the command using it. In other cases, the use of smoke is regulated by a higher commander than those immediately concerned.

Official German military doctrine outlines the following uses for smoke:

a. Attack

(1) Concealing the movements made in preparation for an attack, so as to gain surprise;

(2) Assisting movements which involve the crossing of open ground;

(3) Covering the initial crossing of a river in the face of the enemy;

(4) Blinding concealed enemy firing positions and suspected observation posts, preventing such defensive weapons as machine guns from operating effectively;

(5) Economizing on ammunition, and reducing the artillery's task;

(6) Taking the place of covering fire, to some extent;

(7) Assisting the main effort of the attack;

(8) Concealing weakness in the secondary attack or gaps in the attacking forces;

(9) Protecting the flanks.

b. Defense

(1) Blinding enemy observation posts;

(2) Concealing activities in the forward defense areas;

(3) Concealing troop movements to prevent observation from ground and air.

Throughout German training it is emphasized that smoke must always be laid on the enemy and not on friendly troops. An interesting suggestion is that screens sometimes be put down merely as a deceptive measure to mislead the opposition as to German intentions.

c. Miscellaneous Instructions

In the following miscellaneous instructions laid down for German troops to follow when they find themselves fighting in smoke, it should be noted that no distinction is made between hostile and friendly smoke:

(1) Smoke hinders defense more than it hinders attack;

(2) Route-finding by compass is essential;

(3) Units should be guided through preassigned sectors;

(4) Close combat is decisive; upon contact with United Nations forces, attack them immediately with the bayonet, hand grenades, and battle cries;

(5) Careful preparation of fire plans is essential in defense;

(6) Certain points of danger should be protected by units armed with the bayonet;

(7) Counterattack should take place, as a rule, after a smoke screen clears;

(8) Gas masks should be worn until it is definitely known that no chemical warfare gas is mixed with the smoke.

Section IV. 50-MM LIGHT MORTAR

1. GENERAL

The standard light mortar of the German Army is the 50-mm. This is comparable in a number of ways to our 60-mm, although ours is the superior weapon on the whole, especially as to maximum range, precision, and all-around performance.

The following table affords a basis for a comparison of the two weapons:

	German 50-mm Mortar	*U. S. 60-mm Mortar*
Caliber	50 mm	60 mm
Weight in action	31 lbs	42 lbs
Length of barrel	18 in	28.6 in
Maximum range	568 yds	1,935 yds
Minimum range	55 yds	100 yds
Traverse	600 mils (change in deflection)=33°45′	140 mils (70 either way)=7°57′
Rate of fire	6 rounds can be fired in 8 seconds, but this rate cannot be maintained	Maximum: 1 round in 2 seconds; normal: 1 round in 4 seconds—this can be maintained

AMMUNITION FOR ABOVE

Type of bomb	HE	HE
Overall length	8.5 in	9.54 in
Maximum diameter	50 mm	60 mm
Weight	2 lbs	2.96 lbs

AMMUNITION FOR ABOVE—Continued

HE filling	TNT	TNT
No. of charges, or zones	1	4
Propellant	Nitrocellulose	Nitrocellulose
Markings	Bomb painted dull red, stenciled in black	HE, yellow; practice, blue
Fuze	Percussion	Superquick

The 50-mm is muzzle-loaded and trigger-fired, and is designed for high-angle fire only—that is, for fire at angles of not less than 45 degrees. Our 60-mm is muzzle-loaded,

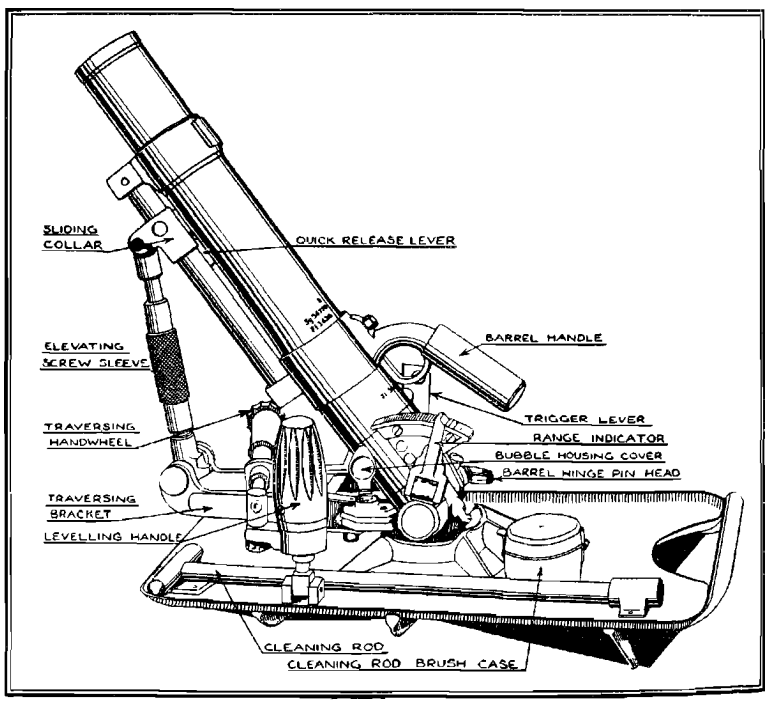

Figure 2. German 50-mm Light Mortar.

has a smooth bore, and is not trigger-fired. It is designed for high-angle fire at angles of from 40 to 85 degrees.

Although sights will be found with German 50-mm mortars manufactured before 1938, the mortars manufactured during or after that year are laid on the targets or aiming stakes by means of a white line on the barrel. Our 60-mm has the M4 sight, as does our 81-mm mortar.

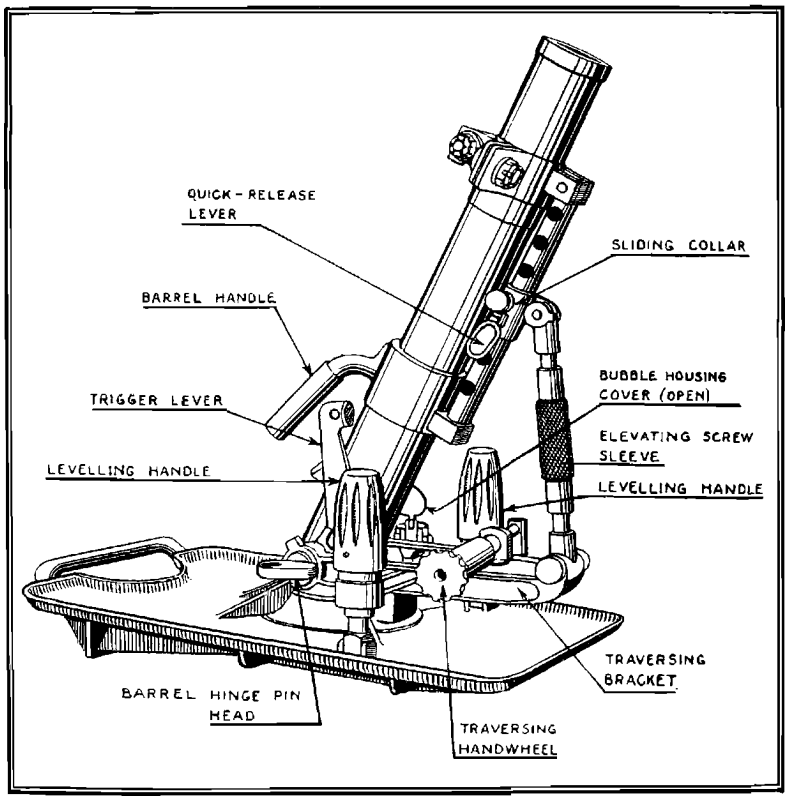

Figure 3. Another View of the German 50-mm Light Mortar.

The 50-mm is a two-man load. One man carries on his back the base plate with traversing and cross-leveling gear. The other carries on his back the barrel and the elevating screw pillar. Our 60-mm is a two-man load, also; a corporal carries the base plate and sight, while the No. 1 man carries the mortar and bipod.

2. ELEVATION

Range for the 50-mm is indicated on an arc fixed on the left side of the barrel by the rear edge of an indicator hinged on the traversing bracket. The arc is graduated from 60 to 520 meters, and the indicator can be folded down when the mortar is dismantled.

A rough adjustment of elevation can be effected in the following manner: Pressing a quick release lever unlocks the catch of the sliding collar connected to the upper end of the elevating screw pillar. The collar is then free to slide along its guide and the barrel can be elevated by means of the barrel handle.

As soon as the range ordered is approximately indicated on the range scale, the sliding collar is locked in its guide by the release of the quick-release lever. Fine adjustments are effected by rotation of the sleeve of the elevating screw pillar.

The U. S. 60-mm mortar has a permanent firing table, which is fitted to the tube. For ammunition of present manufacture, a firing table card is included with each complete round container. This table gives elevation (degrees) corresponding to various ranges throughout the field of fire, and also gives the change in deflection

(mils) due to one turn of the traversing control of the mount. The latter feature permits direct introduction of deflection corrections in case the sight is lost or becomes unserviceable.

3. LINE

The mortar can be laid either direct or by means of aiming stakes. Rough adjustments for line are effected when the position of the base plate is altered, with the traverse set at zero.

A deflection scale is engraved on the cross-bar joining the two leveling handles, and consists of a double row of graduations. The interval between the graduations in each row is 20 mils, but the rows are offset, so that the graduations on one are halfway between the graduations in the other. Thus the scale indicates deflections to the nearest 10 mils.

The total traverse is 600 mils (33°45′)—that is, 300 mils (16°52′30″) each side of zero. Fine adjustments are made by rotation of the traversing handwheel until the required deflection is indicated on the scale.

4. LOADING AND FIRING

During loading and firing of the 50-mm mortar, the layer's position is on the left, behind the mortar. He lies on his belly, holds the leveling handles, and presses on the base plate with his forearms. The loader, who lies to the right of the layer, loads by inserting the bomb in the muzzle, tail down.

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After releasing the bomb, the loader's right hand instantly goes to the trigger, and both loader and layer lower their faces to the ground. Meanwhile, the layer still holds the leveling handles and continues to steady the base plate by resting his weight on it. On the order to fire, the loader pulls the trigger slowly and evenly to the rear.

5. MISFIRES

When a misfire of the 50-mm occurs, the trigger should be pulled again—several times, if necessary. A German training manual warns that the detachment should wait 1 minute before unloading, in order to avoid accidents caused by possible delayed fire. On the other hand, when a misfire of the U. S. 60-mm occurs, the No. 3 man immediately strikes the barrel several times with a heavy nonmetallic instrument, such as a 2- by 4-inch timber, or, if this is not available, with the cleaning rod or with his heel. The mortar crew then waits at least 1 minute before removing the round.

6. AMMUNITION

The bomb fired from the 50-mm is a streamlined H. E. bomb of the anti-personnel type, with a finned tail unit which carries the cartridge. The bomb is fitted with a quick-acting nose fuze with booster. (The German name for this bomb is the 5-cm. Wgr. 36.)

The body is of mild steel with walls 4-mm thick, and has a cylindrical portion near the head. A screw-threaded

fuze hole is formed at the head, and the base end is similarly prepared to receive the cartridge container portion of the tail unit. The body contains a bursting charge of T. N. T. weighing approximately 4½ ounces.

The tail unit consists of a mild (not hardened) steel cartridge container, to which 8 blades formed in pairs, are spot welded to form the fin.

The fuze (Wgr. Z. 38) is a quick-acting nose percussion fuze with a graze pellet and booster. It arms itself approximately 60 yards from the muzzle of the barrel; until then it is safe.

The U. S. 60-mm mortar uses an H. E. shell (designation: Shell, H. E. M49A1, w/PDF M52, 60-mm mortar) against personnel and light matériel targets. The action of the fuze is superquick. For use in the field, it is issued assembled to the shell as a component of the complete round. To arm the fuze, it is necessary only to remove the cotter pin.

Section V. SECURITY IN THE FIELD

A German order giving instructions regarding security measures is published here as a matter of interest to our own forces.

In view of a regrettable loss which has occurred, it is necessary to call attention to often-repeated orders concerning security. All commanders, adjutants, liaison officers, doctors, and orderlies will be impressed immediately and most strongly with the following points:

Written orders and marked maps must contain only information which is essential for other ranks to know. All supplementary information about the general plan of operations will be given verbally.

Important orders and situation maps must never be taken into the front line.

Matches, hand grenades, or other means of producing fire must always be kept at hand for the immediate destruction of orders in cases when delay involves danger. The division will carry out periodic inspections in order to supervise the execution of this order.

Great care must be exercised during telephone conversations, since the English appear to tap connections.

Radio messages may be sent in the clear only when delay would entail grave danger.

PART TWO: JAPAN

Section I. JAP ESTIMATE OF U. S. LAND TACTICS

1. INTRODUCTION

What Japanese staff officers think of the land warfare tactics used by U. S. forces is set forth in an official Japanese document. These beliefs indicate clearly why the Japs have specialized in infiltrating, surprise, and deceptive tactics to such a great extent against our forces. Although the enemy may be in a mood to alter some of his beliefs by now, a study of what he thinks of us as fighters should be beneficial, as well as interesting. You will notice that the Japanese contradict themselves more than once in the document. Extracts from it are given below:

2. "U. S. METHODS—OUR COUNTERMEASURES"

One peculiarity of the U. S. forces is that the orders of the higher commanders are passed down in minute detail and leave little room for initiative by subordinates. For this reason, if

the supreme commander does not display a great deal of ability, a versatile change of tactics to cope with the situation as it develops is not possible.

American strategy is based on fighting a battle of fortified positions, but their rules for the conduct of battles encourage mobile warfare. In actuality, however, this is not often practiced in training and maneuvers.

Under normal conditions, the Americans display their might in carefully planned operations; but once their planned strategy is spoiled, they must get one or two high commanders to straighten things out. Hence, we must grasp every opportunity not to give them time to do this.

In order to capture one of their positions, we must induce them to come outside their fortifications and fight a decisive battle, or else all efforts must be made to put a hitch in their plans; we must practice a policy of throwing them into confusion.

Also, because American tactical ideas are simple, deceptive displays of force are one of the most valuable of all our strategic weapons.

Again, because the character of the American is simple and lacking in tenacity, they also lack tenacity in their tactics and battle leadership; and if they meet with one setback, they have a tendency to abandon one plan for another. For this reason, we must not fail to hammer at this weakness.

The Americans are very poor at scouting, patrolling, and security measures; so the effects of a sudden attack and the benefits to be gained therefrom should always be kept in mind.

The Americans make much of firepower, especially the power of artillery, and lay only small stress on bayonet assaults. So, under the cover of night, fog, or a smoke screen, we must take advantage of the lack of flexibility of their plans, cut down the advantage they may have gained by having registered their artillery fire on us, and lead our troops into an attack which will decide victory or defeat.

The decision of the U. S. forces to attack or defend will depend

largely on their estimates of the strength of their artillery compared to ours, so it is essential that we conceal our artillery strength and thereby cause them to underestimate it.

The Americans regard the enemy artillery dispositions as most important. For this reason, if we utilize mobile warfare and either conceal our batteries or establish fake artillery positions, we may reap great benefits.

The U. S. forces vigorously recommend the offense, and constantly practice it in maneuvers and training; and, unless they feel a definite inferiority in manpower and more particularly in artillery, the view should be taken that they will attempt an offensive.

As the rise of the U. S. forces took place during the World War, it is no wonder that they developed a definite tendency toward position warfare. Even in encounters that are not according to the "book," their leadership follows a fixed path; and they are extremely fearful of enemy counterattacks. For this reason, it is especially necessary for us constantly to utilize mobile warfare tactics.

a. Attack

(1) *Plans.*—The Americans do not minutely reconnoiter the movements of the enemy, and they are especially poor at determining the direction from which enemy attacks will come. They simply make broad plans for combatting enemy attacks against their fortifred positions, but have no idea of our active defense.

We must search for ways of attack and defense against the Americans with their superior firepower; and we must avoid a stationary defense as much as possible. Even when we unavoidably are fully on the defensive, we must work to keep our forces mobile.

In an active defense, if we base our defense on firepower in our advanced positions and do not seize every opportunity to counterattack, we will never make any gains. However, if the U. S. forces should have a marked superiority in firepower, we must plan an active defense by disposing our forces so as to increase

the units in the reserve. Do this by increasing the frontages assigned to front-line units. In doing this, we multiply our chances to use reserves for flanking.

(2) *Leadership.*—If the U. S. forces are in a meeting engagement or in an attack on a position (excluding heavily fortified positions), their columns usually will first diverge and then deploy. In deciding on the plan for deployment, they consider the enemy artillery fire as a factor of first importance. Their dispositions will usually be made on a much narrower front than our assembly positions, and therefore room for their maneuvering will be lessened.

It will be beneficial to study the methods of deployment of the U. S. forces. It should be remembered that at this time communication facilities will not be complete. Also, as their leaders will not have regained control as yet, we may, by maneuvering, discover good opportunities to strike. For this reason, do not relax your reconnaissance of the enemy's movements.

It is bad judgment not to use an assault to bring about a final decision. American assaults usually appear to be penetrations of enemy positions which have already lost all power of resistance (that is, after fire superiority has been gained); and their training in hand-to-hand fighting is not sufficient. Because of this, it is well to consider ways of destroying them by desperate fighting within our defensive positions.

We must not overlook the fact that the Americans, who believe in a principle of mutual support, are paradoxically inclined to reckless and headlong advances; and at times, they do not consider a coordinated advance, but, instead, rush forward alone. Consequently, when their forces are separated, crush them individually, or endeavor, with a counterattack by all your forces, to deliver a crushing blow.

(3) *Meeting Engagements.*—In meeting engagements, it is usual for the Americans to commit their forces only when control has been regained, so take advantage of this by sending up an advance guard to hold fast, and use your main body to maneuver and

strike at the enemy's flanks. Again, because the initial artillery fire of the enemy will be unorganized, bring up to the front at once a strong force of artillery to press the enemy. It is essential that the initiative be taken from him and that he not be allowed to regain it.

Their advance guards have a tendency to carry out independent attacks, and also often deploy their front line too broadly. By advancing one body of our troops, we can make the enemy deploy prematurely in most cases. Also, by bringing up an advance guard, we can gather our offensive strength in one spot for a decisive attack, break through the enemy front line, and strike the main body during deployment.

In dawn attacks, there are times when contact between opposing forces is lost. Therefore, when you fear that the Americans may launch a dawn attack while you are changing your dispositions in preparation, carry out a small attack against them; this will take advantage of the fact that while they are advancing to the line of departure, their covering fire will not yet be ready. Or, depending on circumstances, if you are well acquainted with the terrain within the enemy's lines, you may make a major counterattack.

Thus, while American attacks are not to be feared, it is most desirable that we investigate fully the ways of combatting the enemy's superior firepower. An attack or defense based on firepower will never bring good results when used against the U. S. forces.

b. Defense

The American defense does not utilize the ideas incorporated in our active defense system.

In cases when there is not much time, their organization of fire is weak and there are gaps in it. The machine guns are particularly fond of displaying their independence, and coordinated fire between machine-gun units is not often seen.

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When there is time to spare, they display magnificent, systematic organization of fire by using many types of weapons, and aim it in front of the position; but they have no minute organization of fire (that is, fire distribution by squads, and so on).

From the preceding, it can be seen that when they are pressed for time, the American dispositions, and especially their organization of fire, are not coordinated. Therefore, we must not fail to move fast and attack quickly, giving them no time in which to prepare their positions.

However, on the whole, in deciding on a plan of attack against American positions, the possibilities of maneuver must not be overlooked. Utilize a deceptive display of strength in order to draw the enemy out of his positions. When he attacks, by using your infantry guns, keep him from breaking through. Then practice the principle of manifesting your whole might in a counterattack.

c. Night Fighting

Insofar as night fighting is concerned, the Americans are unlike our troops, who can attack at night and bring about decisive results; instead, they simply use the night hours to better their preparations.

In view of the American organization of their military forces, national characteristics, and habits, it is best for them to make use of superior firepower and not indulge in night fighting. This is a point of which we should take advantage.

d. Pursuit and Retreat

American pursuit of the enemy starts only when the enemy has left his position and has begun the retreat. In the drill regulations, it is emphasized that the whole result of battles may be decided by energetic pursuits. In actuality, because they fear enemy counterattacks and demand order in the ranks, their manner of pursuit is not vigorous. And if their pursuit is delayed

by forces of the enemy, they will finally go on the defensive in order to collect their strength.

In general, their leadership in a retreat is very incapable. For this reason, once you have defeated them, great advantage may be gained by pursuing them relentlessly.

e. Security Measures

Duty in the field is poorly performed by the Americans, especially their security measures and patrols that operate over short distances. Because of this, concealment of our movements and execution of surprise attacks are comparatively easy, particularly at night. Their use of cover and concealment is poor.

f. Tanks

Their tanks are considered able to fight independently, but coordinated action with the infantry is difficult. In consideration of this, after the tanks have smashed the enemy positions, their infantry is brought up to exploit the gains. But calm individual soldiers, well trained in throwing explosive charges, will be able to destroy the tanks.

The movement of their tanks is extremely skillful and they are able to pass through practically any type of terrain. However, their antitank measures, on the whole, are crude and if we use our tanks well, we may crush the enemy line or break through without much difficulty.

g. Other Vehicles

A great many motor vehicles are included in the organization of the U. S. forces, who are thoroughly experienced in using them. They plan strategic and tactical actions with them that are unthought of by us. In a place where vehicles can travel, regardless of how bad the roads may be, you must consider that they will try to use them.

h. Vulnerability of the Rear

Since the rear of the U. S. forces seems very vulnerable, threats and raids on their rear confuse them extremely and produce many advantageous possibilities for the conduct of operations.

Section II. NOTES ON RECENT FIGHTING IN THE SOUTHWEST PACIFIC

1. INTRODUCTION

Issues No. 3 and 4 of the *Intelligence Bulletin* contained considerable information dealing with tactics and matériel used by the Japs in the Solomon Islands fighting. Additional information on the action in the Solomons, as well as in other Southwest Pacific areas, is presented in this issue.

2. INDIVIDUAL CHARACTERISTICS

Members of a Marine battalion in the Solomons agree that at night Japanese often can be detected by a characteristic odor, which resembles the gamy odor of animals. One Marine, through his sense of smell, detected a Jap walking along a road with him—the Jap was killed.

It is interesting to note that the Japanese are able to detect us by smell. A Jap scientist has described the odor of a white person as being pungent, rancid, sweetish, or bitter to his race.

3. NOISES DURING NIGHT ATTACKS

The Japs are very well trained to move silently in jungle areas. They deliberately make noises at times, however, to distract our attention and to deceive us, or to draw our fire—especially that of automatic weapons. These noises are made by firing rifles, mortars, and firecrackers, by beating on bamboo sticks, and by loud talking and yelling. Frequently, Japanese attacking units sneak up ahead of the noise makers and are ready to throw hand grenades and fire at our positions if our troops open fire at the noises. On other occasions, the Japs infiltrate small patrols to attack our forces from the rear while the noises are being made.

4. BIVOUAC DEFENSE

When the Japs bivouac in the jungle, they prepare an all-round defense. One bivouac position, captured by a Marine battalion in the Solomons, was occupied by a reinforced rifle company. Foxholes were of the standing type and tunneled in, with well camouflaged overhead protection. Some of the holes were connected by ropes, probably to guide soldiers at night. The area was roughly circular, and presented no flanks and no weak spots. Snipers were placed about in trees to protect automatic weapons. Low and narrow fire lanes, extending 1 to 2 feet above the ground, had been cut in all directions. The lanes were hard to see unless troops were crawling. Only the low brush was cut, and the lanes appeared like tunnels

in the jungle. Weapons fired low through them hit several of our men in the lower legs and ankles.

5. DECEPTION

The Japs have tried numerous tricks to sneak up to within knife- or grenade-range of our forces at night, or to lure them into the range of these weapons. Although many of the Japs speak good English, their accent almost always gives them away to a careful listener. They try hard to learn our passwords, and sometimes they cut in on our radio or telephone lines to get information.

After certain night operations in the Solomons, our troops found dead Japs wearing our helmets.

Also, a Jap was found dead with a light machine gun strapped to his back in such a manner that it could be fired. It is believed that guns of this type were moved from place to place in this way, with one man carrying the gun and the other firing it. The Japs also have been observed while running from tree to tree, firing one or two shots from each position. This creates the illusion of large numbers of troops.

6. EQUIPMENT

During the Milne Bay operations, the Japanese employed at least two light tanks which were heavily armed with automatic weapons. The tanks had strong lights which threw powerful rays 200 yards. The lights were controlled in such a manner that it was practically impossible to shatter them by point-blank fire. The tanks

were heavily greased, and sticky grenades would not cling to them. They were finally immobilized by breaking the tracks.

Cans of luminous paint were found in the Solomons. Apparently the Japs had planned to use the paint to assist movements at night.

7. CONCLUSIONS

The following conclusions, drawn by officers and men of a Marine battalion, are based on their fighting experience against the Japs in the Solomons:

a. Because the helmet silhouette is an easy way to detect friend from foe at night, it should be borne in mind that the Jap will use our helmets if he can get away with it, and positive identification cannot be based on that factor alone.

b. Telephone lines should be carefully concealed, and never laid on trails—because the Japs cut or tap them and use them as guides to our command posts.

c. Remember that darkness is just as good cover for us as for the Japs.

d. Jap noises are harmless. Wait until "pay-dirt" targets present themselves at night before opening fire.

e. Our men should always dig in, and our automatic weapons should have protection against grenades.

f. During daylight hours strong patrols should be sent out to interfere with enemy reconnaissance (on which they base their attacks) and to interfere with their rest.

g. Each man should be equipped with at least 4 hand grenades.

h. Location of friendly troops should be known to all our units or detachments.

i. Snipers strategically placed in trees are very effective in daytime—give the Japs some of their own medicine.

j. All guard and sentry details must be posted in pairs—while one man is challenging, the other must cover his partner from the flank, ready to handle any emergency.

k. Challenging at night must be done skillfully. The challenger must remain unseen in the shadows of a tree or building, and not permit the challenged person to come within knife-range of him until his identity has been definitely established as okay. The password should not be used unless necessary to secure positive identification. If used, the password should be spoken in a stage whisper.

l. Commanders should be mentioned by nicknames. Mention an officer or noncom by rank and that individual has a fine chance of being showered with grenades.

m. Troops should be well instructed in Jap tactics, but they also should be impressed with the fact that American fighting men can, and have, outfought this wily enemy.

n. The jungle puts a premium on individual and squad action.

o. Strict compliance with all basic rules of hygiene and sanitation is all-important. The individual must learn to conserve drinking water. All local water must be considered contaminated, and must be treated before drinking.

Section III. THE INDIVIDUAL SOLDIER

1. INTRODUCTION

The *Intelligence Bulletin* seeks to acquaint our junior officers and enlisted men as far as possible with the characteristics, training, and background of enemy troops. Such information has been given in each of the four preceding monthly issues of this publication. Particular reference is made at this time to the following sections which dealt with the Japanese: "Section I. GROUND FORCES," issue No. 1; "Section I. CHARACTERISTICS OF THE JAPANESE" and "Section II. GROUND FORCES," issue No. 2; "Section II. THE SOLOMON ISLANDS CAMPAIGN," issue No. 3; and "Section I. FIGHTING IN THE SOLOMON ISLANDS," issue No. 4. Additional information about the Japanese follows:

2. REACTION IN BATTLE

The information in this paragraph comes from several captured Japanese diaries. It shows that the Japanese

have a healthy fear of our weapons—particularly bombers—and that their morale can be shaken. However, the quotations—below—should not be interpreted as being counter to previous information describing the tenacity, fanaticism, treachery, and brutality of the Japs in battle. Apart from the morale aspect, these extracts reveal that certain weaknesses existed in the Japanese defenses at some points.

The extracts:

"Due to our antiaircraft guns being ineffective, the enemy (U. S. planes) circles around and drops their bombs on essential places. As we have only rifles, our only alternative is to flee from that area. It doesn't seem soldierly for us to flee as we watch the planes.

". . . I believe if friendly planes were here—even the inferior seaplanes—the enemy would disappear. I often think that antiaircraft guns and machine guns are not very effective."

"Several bombs were dropped. Even though there is little damage, the bombing is very dreadful. It is a horrible thing just to think of the restless souls of the human beings. The workers seem to scatter like small spiders at the same time the alarm sounds off. It is true that even the soldiers have in mind to flee as they watch the enemy planes. The higher officers would flee before anybody else.

"Even as an enemy, they deserve praise. It is very difficult for their bombs to hit the target. However, we are in fear on account of lack of armament.

"This time I think it is truly hopeless when I watch them over our head. Our force is shooting more and more at the enemy. However, not even one bullet seems to hit anything.

"Thus, in a battle the air assault is very fearful. No matter

what I do, I would rather be alive, and return to stay near Shizuko (his wife)."

"Our combat planes cannot get close to the enemy Flying Fortresses. It's very regrettable that the only alternative is for us to flee from being killed."

"Last night I stood guard at the working place, but there was no air raid. Even the motor sound of the automobiles would get us all excited. We started to construct the air raid shelters at 0500 hours. However, it was behind schedule. There is not even a single high official who can look into the future.

"An air assault occurred at 0930 hours, and every soldier fled. The deck officer was very displeased and gave a lecture. 'It is soldierly to die by a bullet.' Such boastful talk was made by him. However, when it comes to actual bombardment, he would disappear first, and the subordinates are very unpleasant about this situation."

". . . Many commanders like to take into battle with them as many of their men as possible, but, in contrast to this, I myself (a lieutenant) am inclined to leave behind many of those who are not really fit (due to injuries and sickness). Can it be that I am not sufficiently ruthless? It is a matter regarding which some self-examination is necessary. I am worried because I cannot unconcernedly overlook another's troubles and the feeling grows on me that as a commander I am lacking in sincerity. I feel that I am becoming detached from my comrades through insufficient mental discipline.

"Diligent people talk of their hopes.

"Lazy people bemoan their misfortunes.

"I will rectify my lack of mental discipline by diligence and industry."

"I (a lieutenant) don't know whether it is because the No. 1 Battalion has had so many casualties, but all ranks of commanders seem to have lost some of their offensive spirit . . .

"I feel strongly that if the enemy adopts guerrilla tactics, we will have no alternative but to adopt similar tactics. I have told Captain Horita that we must make a desperate attack at the enemy supply lines and billets, but he won't listen to me.

"The regimental headquarters has decided to move forward as the enemy in front has been repulsed by our 1st Battalion. I recommend that since none of our troops could be observed along the road, it was too early to move forward but the recommendation was rejected. Unwillingly we pushed forward, with the 3d platoon at the head. As expected, when we reached the ravine Corporal Komatsu and 5 men were killed, and Corporal Yamamoto and 2 men wounded . . ."

"June 17.—. . . (en route to Southwest Pacific island) Although I am not to think about such things until this military objective is ours, as I was gazing at the stars I felt as though I saw Yuriko's face (his girl friend)."

"July 3.—Going south. Wind came up in the afternoon and the boat rocked violently because of the high waves. During the night, while watching the waves, we began thinking about home and various other things and we became very depressed . . ."

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3. EARLY TRAINING

Physical training and conditioning play an equally important part in the development of the Japanese soldier. The Japanese have been quick to realize the advantages of mechanization and motorization, but they fully realize

that in many of the areas in which their troops must operate, such equipment can be used only to a limited extent. Furthermore, they feel very strongly that in warfare the machine can never take the place of man. All their training is based on the theory that troops must be prepared to operate under any conditions without the advantages of motor- or even horse-drawn transport.

The process of conditioning and hardening the soldier begins with his earliest recruit training. Physical drill, wall-scaling, road marches (a good part of which is done at double time up hill as well as on the level), fencing, bayonet training, ju-jitsu (called "judo" by the Japanese), and swimming occupy much of the soldier's time. The strictly military training is frequently carried out under adverse weather conditions, and, even in the earliest stages, is made to simulate battle conditions as realistically as circumstances will permit.

Because training in schools and universities does much to furnish the army with recruits who are already partially conditioned and toughened, the Japanese soldier is brought to a state of physical fitness very soon after his induction into the service. He needs this early conditioning because his training during the rest of his service will include long marches and maneuvers with full pack and equipment under a hot summer sun in Formosa or other tropical areas, or long periods of tactical exercises in the cold winters of Hokkaido and "Manchoukuo," frequently followed by a night in open bivouac in the snow without fires or lights of any kind. Men who have experienced these hardships find, under the stress of battle, that they have

become accustomed to physical strains and are freer to concentrate on overcoming the other difficulties which might confuse them in action.

Japanese training doctrine calls for special emphasis on field exercises, and insists on a maximum degree of realism in their execution. Whenever possible the enemy is represented by troops, not by flags or dummies; and trenches, barbed wire, and other obstacles are actually constructed in the area over which the troops are to operate. Every effort is made to simulate the noise, confusion, and befuddled vision which so frequently exist in actual battle, in order to accustom officers and men to that peculiar state known as the "fog of war." Artillery and machine-gun barrages are fired over the heads of friendly troops, and live grenades and mortars are used, although with reduced charges. So realistic was the training of the divisions which were rehearsing in the hills near Canton for the attack on Hong Kong that the troops suffered "a number of casualties." No considerations, either political or humane, are ever allowed to interfere with what the high command believe to be the one and only purpose of the training program—the production of fighting men.

All soldiers in the Japanese Army receive basic infantry training during their recruit period and take frequent refresher courses throughout their term of service. The training is progressive and thorough. Instruction proceeds systematically from the School of the Soldier to exercises involving large units and combined arms. In addition to this purely peace-time training, many officers and men were rotated through the ranks of active divi-

sions on the China front before joining units destined to take part in the major campaigns of the present war. Service in China was considered a very important part of the training program, and every effort was made to give this experience to the largest possible number of men. The Japanese have made conscientious use of the facilities afforded for small-unit training in the comparatively quiet areas of China and for higher unit and combined staff work in the more active sectors.

In all field exercises, the Japanese soldier is required to make full use of the terrain for cover and concealment. He is taught to improvise simple camouflage by using grass, twigs, branches of trees, and even by plastering himself with mud. Each combat soldier is provided with an individual camouflage net which he uses when on scouting or sniping duty. All men in the infantry and engineers are trained in the duties of scouts or snipers and much time is devoted to instruction in infiltration methods. Normally, in combat, only selected men are used for this type of work, but all those units fighting in jungle areas have been greatly benefited by the fact that all officers and men have had some experience in maintaining themselves, and in operating for days at a time, individually or in small groups, behind the enemy's lines.

Night operations play an important part in the training of Japanese troops of all arms. An effort is made to get every combat soldier out once a week on some sort of night problem with special emphasis being laid on individual, squad, and platoon exercises. More than half of the six weeks of intensive training engaged in by the

troops designated for the attack on Hong Kong was devoted to night operations. Their efforts were well repaid, for the key point in the British defense line on the Kowloon peninsula was captured after some two hours of fighting when a Japanese infantry battalion and a few engineers launched a well-timed and perfectly coordinated night attack against the position and caught the defenders completely by surprise.

Recent manuals bearing on various aspects of the training of officers stress the necessity of developing initiative in all grades, and the danger of adhering too rigidly to previously formulated plans when the situation demands a change in the course of action. That the Army has taken this to heart and can apply it in even the most complicated form of engagement was demonstrated at Kota Bharu (East coast of Malaya) where the repulse of the Japanese landings in the north and central sectors of the beach necessitated a change of plans in the midst of the engagement, involving the movement of men, barges, and even ships to the southern flank. This difficult maneuver was carried out in the face of the enemy, after the troops had suffered considerable losses, and during the hours of darkness. The Malayan campaign contains numerous other examples of rapid changes in tactics by troops whose first attempts to advance had been blocked by determined enemy resistance. Japanese troops are still taught to move forward regardless of losses when no other method presents itself, but officers are trained to seek out the soft spots in an enemy line and to

make their plans flexible enough to take advantage of any change in the situation which may occur.

Mass singing is used extensively. The Japanese say that martial marching songs heighten morale and that the beat of the music aids the rhythm of breathing, thereby easing fatigue. This feature has obviously been borrowed from the Germans, whose army has for many years recognized the value of mass singing.

4. COUNSEL ON FIELD SERVICE

The information in this paragraph was taken from a Japanese manual called "Battlefield Discipline" (*Senjin Kunren*).

a. A moment's negligence may result in an unexpected catastrophe. Be constantly on your guard. Do not despise your enemy or the natives. Do not be negligent after a small success. Know that carelessness brings disaster.

b. Sentry duty is important. Upon the sentry rests the safety of an army; he also represents the discipline of an army. Those on sentry duty must devote their person to their tasks, which must be sternly carried out. Accord the sentry high respect.

c. Ideological warfare is an important phase in modern conflict. Destroy propaganda and falsehoods of the enemy by your unshakable faith in the cause for which your Empire stands, and endeavor to spread *Kodo* (literally, the "Imperial Way").

d. Rumors arise from a lack of confidence. Do not be misled; do not be agitated by them. Firmly believe in the strength of the Imperial Army and deeply trust your superiors.

e. Control your anger and suppress your grudges. The ancients said, "Consider anger your enemy." A moment's violence often leaves cause for a long regret.

f. There is nothing more to be regretted than to fall a victim

to disease on the field. Be particularly mindful of your health so that you may not be unable to serve because of excesses.

g. Take to heart this saying of an ancient warrior: "My sword is my soul; my horse is my fortune." Always take good care of your arms and supplies, and give humane attention to animals on the field.

h. Be honest always; consider exaggerations and lies as dishonorable.

5. UNIFORMS

Extreme caution should be exercised in identifying the Japanese soldier by means of clothing and personal effects. Japanese troops in recent campaigns often have exhibited a complete lack of uniformity in dress.

In the majority of cases reported in Malaya, Japanese noncoms and privates wore uniforms of a cloth similar to our khaki drill. Officers wore slightly darker or greener khaki. The badge of rank usually was worn on the collar. A soft fatigue cap was worn underneath the steel helmet, which is much deeper than our old type and which is also distinguishable by a five-pointed star in the front center. In Burma, the Japanese were sometimes found wearing Chinese hats (peaked with a round crown). Footwear consisted of black or brown boots or tabi (canvas shoes, with heavy rubber soles, in which the big toe is separated from the remainder of the foot), with puttees up to the knee.

However, there were several deviations from the above standard attire, arising from pure necessity or from deliberate attempts at disguise.

Some of the prisoners were wearing pajamas and

even Chinese civilian dress. Captured Japanese equipment often included a soft straw hat, shorts, sweat shirts, and canvas shoes, which prisoners explained as part of their evening change in tropical weather. Instances have been reported by our troops of Japanese soldiers wearing captured British gas capes, Indian uniforms, and Malayan clothes. Such variations in dress have been observed principally on the front-line troops, who are fond of discarding their own cheap apparel for British clothing, both to disguise their identity and to satisfy their instinct for loot.

From the foregoing, it will be understood that the uniform is not always a foolproof means of identifying a Japanese soldier. In addition, it is advisable to study his facial and physical characteristics, especially so as to be able to distinguish him from our ally, the Chinese. *(See Section I, Characteristics of the Japanese, Intelligence Bulletin No. 2.)*

Section IV. SERVICE RIFLE

The Japanese service rifle is a simplified Mauser type with an action similar to our M–1903 (Springfield). Its official name is the Meiji 38th-year pattern (1905) rifle. Its caliber is .256 inch (6.5 mm). The weapon has not been changed since 1905, and the bulk of Japanese infantry is armed with it, or its carbine form.

The Japs are known to have a larger (bore) rifle of the same pattern, but it has not been used on a quantity basis. Its caliber is .303 inch (7.7 mm), enabling the enemy to use the British .303-inch Mark VII small-arms ammunition. The rifle has been used to some extent as a sniper's weapon, mounted with a telescopic sight.

The caliber .256 rifle is operated very much in the same manner as our M–1903 with the exception of the safety lock, which is easily figured out. This safety lock is much more awkward to operate than that of our M–1903. The rifle itself is a manually operated and bolt-action weapon, which takes 5 rounds in a clip, as does our M–1903. The bolt-stop is of the Mauser type; it is located on the left rear of the receiver and is pivoted on its forward end. To withdraw the bolt, the back end is pulled out.

The barrel is 31.4 inches long, and the rifle itself is 4 feet 2 inches without bayonet and 5 feet ¼ inch with bayonet. It is too long for easy handling—it probably is made long to compensate for the small stature of the

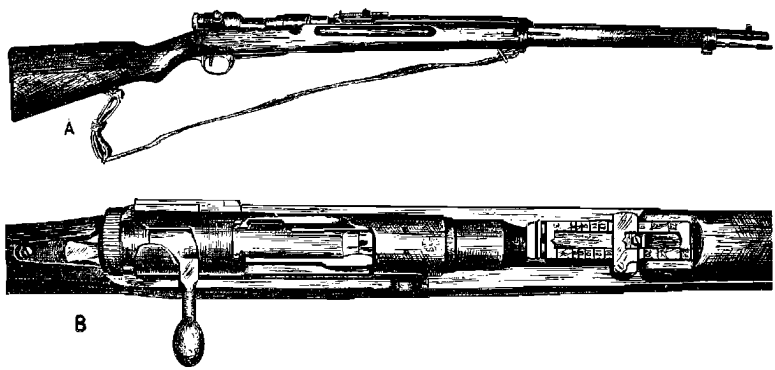

Figure 4. Japanese Service Rifle.

average Japanese. This length gives them a good reach in bayonet fighting. The rifle is equipped with a long knife bayonet, in the use of which the Japanese soldier receives a great deal of training.

The bolt handle is not bent down like that on our M–1903 and, consequently, catches in underbrush and is not so fast in operation. The sights are graduated from 433 yards to 2,598 yards. The leaf sight has an open "V" notch with no windage adjustment. The rifle is not so accurate as ours, especially at ranges greater than 300 yards.

All in all, the American soldier equipped with an M1 or 1903 rifle is far better armed than the Jap soldier with this "squirrel" rifle.

PART THREE: ITALY

Section I. 81-MM MORTAR

1. AS A WHOLE

The 81-mm Italian mortar Model 35 is a smooth bore, high-angle fire, muzzle-loading Stokes-Brandt type weapon. Remarkably similar in construction to the 81-mm American M1, this mortar is a standard Italian Army weapon.

The following table gives comparative data regarding the two weapons:

	Italian 81-mm Mortar	*U. S. 81-mm Mortar*
Caliber	81 mm (3.2 in)	81 mm (3.205 in)
Total weight in action.	135 lbs	136 lbs
Weight of barrel	47 lbs	44.5 lbs
Weight of bipod	42 lbs	46.5 lbs
Weight of base plate	46 lbs	45 lbs
Internal length of barrel.	46 in	45.55 in
Max. range (light bomb).	4,429 yds	3,288 yds
Max. range (heavy bomb).	1,640 yds	1,275 yds
Traverse	150 mils (8°26′15″)	180 mils
Elevation	40° to 90°	40° to 85°
Method of firing	percussion	percussion
Practical rate of fire	18 rpm	18 rpm

The barrel is a smooth-bored, steel tube fitted with a hollowed and threaded base cap which in turn is fitted to the socket in the base plate. The base cap is axially bored, and is threaded to accommodate the striker. A band and lifting handle are fastened to the breech end of the barrel.

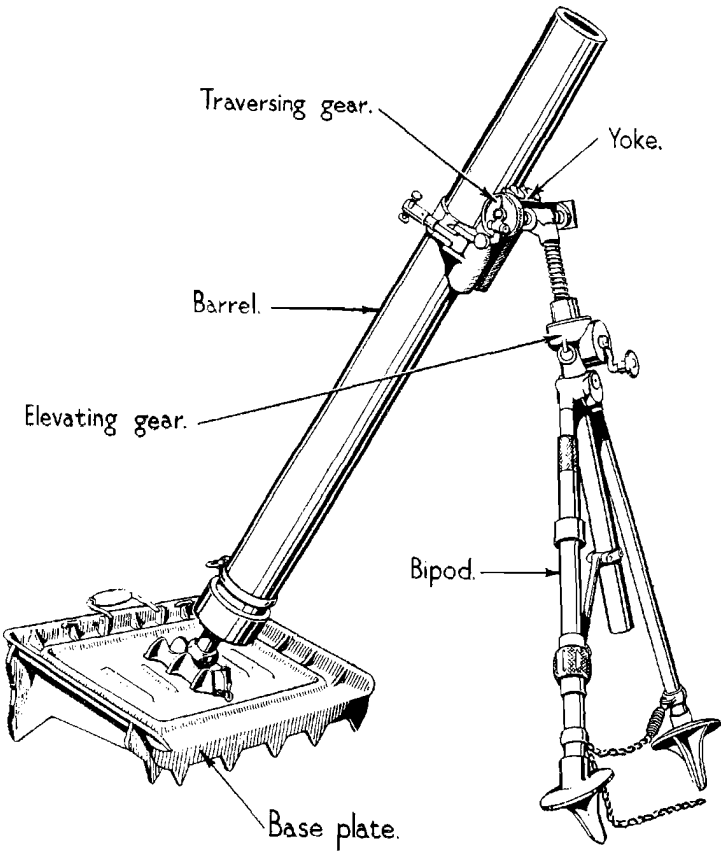

Figure 5. Italian 81-mm Mortar

2. BIPOD

The bipod consists of tubular steel legs, an elevating mechanism, and a traversing mechanism. The legs have spiked feet, and their spread is limited by an adjustable chain. To absorb shock on the legs during firing, a spring is linked with the chain. The cross-leveling mechanism is locked with a locking nut.

The elevating mechanism consists of a vertical screw operating in a threaded tube. The screw is actuated by a gear-and-handle mechanism of conventional design.

The traversing mechanism consists of a horizontal screw operating through a threaded T-yoke, the lower end of which forms a bearing for the elevating screw. An operating handle is secured to one end of the traversing screw, and a sight bracket to the other.

Two shock absorbers are mounted in a housing secured to the yoke, and are clamped to the barrel with a clamping collar.

3. BASE PLATE

The base plate is rectangular. It has three socket seats and a carrying handle. This is still another respect in which it is similar to the American M1.

4. SIGHT

The elevating quadrant provides for vertical adjustment from 40 to 90 degrees.

The lateral deflection scale, graduated in conventional

mils from 0 to 6,400, is equipped with a sliding scale beneath it to facilitate traverse readings. From the definition of a mil as that angle which at any range subtends 1/1000 of the range, errors in deflection can readily be estimated and corrected.

5. AMMUNITION

Two types of semi-fixed high explosive ammunition, a heavy and a light bomb, are used in this Italian mortar. Both are painted gray with an orange nose. Contrary to American practice, the propelling charge and fuze are not incorporated in the Italian bombs.

The maximum range of the mortar is 4,429 yards for the 7.2-pound light bomb, and 1,640 yards for the 15.1-pound heavy projectile. The corresponding American bombs used with the 81-mm M1 weigh 6.92 pounds and 15.05 pounds, and have maximum ranges of 3,288 yards and 1,275 yards, respectively.

Section II. TORPEDO BOMBER

The land-based Savoia-Marchetti (SM–79) bomber is the most widely used of several types of aircraft employed by the Italian Air Force. This aircraft has long been the mainstay of the bomber squadrons, and has been adapted successfully for torpedo-carrying purposes.

The SM–79 is a large, low-wing, tri-motored monoplane of metal and plywood construction. The engines, approximately 1,000 horsepower each, give the aircraft, when used as a bomber, a speed of almost 300 miles per hour. When a torpedo is carried, the plane has a top speed of about 200 miles per hour. The SM–79 normally carries a crew of four—two pilots, a radio operator, and a bombardier.

The depth settings of the torpedoes carried vary according to the size of the target. When employed against convoys, the aircraft carry torpedoes with several settings, the planes with deeper settings always attacking the larger vessels. These settings are adjusted by special torpedo mechanics and cannot be altered in flight.

An attack by torpedo bombers is usually made at dawn or dusk. Dusk is considered preferable since the air-

craft may make a low, unobserved approach toward the target, which is silhouetted against the horizon. The attacks are always made from the east since this is the

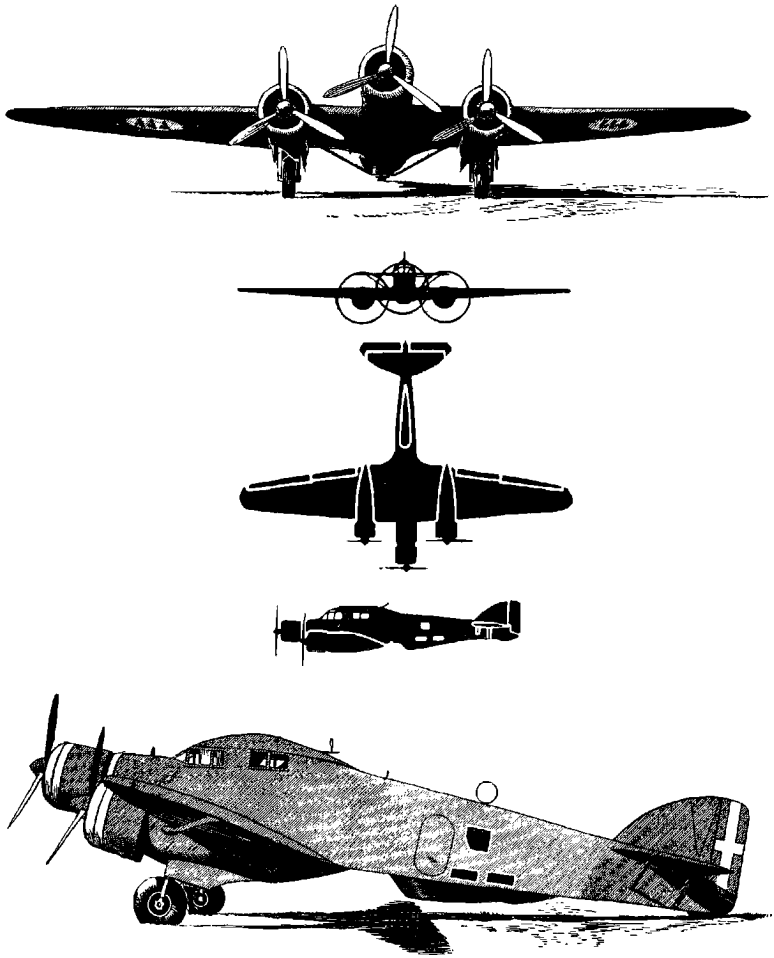

Figure 6. Savoia-Marchetti (SM–79) Torpedo Bomber; Two Views and Recognition Silhouettes

direction of poorest visibility. Daylight attacks are suicidal and are very seldom attempted.

Early in the war Italian aircraft torpedo attacks were usually made by individual aircraft and were not pressed home. Recently, however, these attacks have been better coordinated and many of them have been made at comparatively close range.

Torpedo squadrons are believed to have the highest morale of all units of the Italian Air Force. Their efficiency is such that Germany has sent squadrons to Italy for instructions in torpedo tactics. Italian aircraft torpedoes are believed to be superior to those of German design and are probably used by the German Air Force.

PART FOUR: UNITED NATIONS

Section I. THE MOROCCAN SOLDIER

1. INTRODUCTION

The information in this section was extracted from an article written by a Spanish infantry captain. It deals with the characteristics of the Moslem soldier in Spanish Morocco and how to get along with him.[1] Basically, this soldier is very much like Moslem soldiers in other parts of North Africa; therefore, it is believed that a study of him will aid our troops who come in contact with Moslems in the African theater of operations.

2. THE EXTRACTS

Centuries of warfare have developed notable military virtues in the Moroccans. They are born warriors, and possess in the highest degree the characteristics of a perfect infantry soldier. They are industrious and economical, good walkers and runners, agile, well disciplined, strong, good at hand-to-hand fighting, tenacious in defense, and pitiless in attack. They possess, moreover, an enviable instinct for making the most of opportunities

[1] A Moslem is a believer in the faith established by Mohammed, whose writings and revelations constitute a sacred book, the Koran.

offered by the terrain, fully exploiting them in retreat as well as in attack.

Military forces made up of such elements must naturally be excellent; but it takes skillful veteran officers to command them. The Moroccan is not urged on by the sentiments that inspire the Spanish soldier, such as patriotism, sense of duty, self-denial, spirit of sacrifice, and so forth. He does his work, nearly always because of the inspiration and personal magnetism of his leader, and such leadership is fostered only by the leader's display of intelligence, force of will, rectitude, skill, and, above all, valor.

Aside from his military qualities, the Moroccan soldier possesses other characteristic traits that his officers should know: He is haughty and proud because, being a Moslem, he believes that his religion and his race are superior to all others; he is distrustful, because deep down in his heart he is convinced that every action in life has a selfish end in view; he is mercenary—of necessity and as a natural defense against the unfailing greed of his neighbors; and he is crafty, because since childhood he has had to keep constantly on guard to defend his own interests and his family, in a country where so far only cunning and force have carried the day.

As a result of these traits, the Moroccan soldier will seem complex and difficult to a young officer. One simply must learn to know him; and for that purpose one must observe him, study him, and treat him accordingly.

In dealing with these troops it will be found quite profitable to mingle to some extent with the subordinates, to enter into their feelings and get to know them, demonstrating a suitable measure of friendly confidence such as will afford opportunity for them to present any claims or complaints they may have, or ask any question that may be troubling them. Such consultations should even include the soldier's personal affairs, and he should come to his officers for help and advice. He may without doubt be expected to do so, and perhaps more frequently than one might wish, as soon as he notices that his officers lend an attentive ear and take an interest. This trait, together with the characteristic

obstinacy of the Moroccan, may become a source of annoyance; but there is no better way for an officer really to attach a Moroccan soldier to his person and induce him to do his best in the faithful performance of duties assigned.

The writer does not possess sufficient experience to offer substantial advice, and we shall limit ourselves to quoting a few suggestions from our lamented great master in matters Moroccan, none other than General Capaz:

"Be extremely polite, since nothing could more easily wound a Moslem than insolence or contempt. Be of firm character, without weaknesses; and if you show indulgence, let it always be preceded by punishment. Avoid insulting and angry speech. The native chiefs never shout as they speak their sentences, and you might set them a bad example.

"Wear correct uniforms, and avoid showy attempts at imitating the dress of the natives.

"Be equitable in your decisions; because impartiality is for a Moslem the height of justice.

"Always keep your word, and never go back on an agreement.

"Ask for a service in such manner that you would seem to be asking for collaboration; and the service will be rendered more willingly.

"Respect the man's religion, and take care not to offend him. It would be an outrage to their feelings for you to attempt to explain to them a passage from the Koran, or to say that you have a Koran in your possession.

"Pass in silence over their beliefs and superstitions. They will tell you all sorts of funny superstitions; and you should not agree, or disagree, or smile. Simply remark: 'That may be.'

"The so-called good Moroccan—who admires European things and possibly speaks Spanish quite correctly, and who publicly advertises his repugnance to his creed and takes alcohol freely—is, generally speaking, not the type of man to be very much trusted.

"In your dealings with Moslem authorities, show them consideration; but do not strike too great a note of familiarity with

them. They will not understand your condescension and will not fail to regard it as a sign of weakness.

"Look with indifference upon events as they happen; if you give too much praise, they will regard it as cringing.

"Don't talk about war; and if you do, avoid dwelling too much on their cooperation or praise their valor and loyalty. If you do not follow this advice, you will hear them saying later that success was due entirely to their help.

"Do not lend your presence too readily at festivities, banquets, or more casual entertainment in your behalf; because the invitation will, as a rule, be followed by some request for a favor.

"There is one thing in particular that the young officers must keep in mind. Upon arrival, they will readily find admirers. But do not abandon yourself to your vanity. Servility is only one of their modes of intrigue; and a Moslem is addicted to intrigue so much that it constitutes part of his character no less than the Yibala is a regular part of his dress.

"In cases of doubt or hesitation—and such cases are bound to arise for a newly arrived officer—it will be necessary to suspend judgment and consult.

"If the occasion arises, something will have to be done. If you make a mistake you will lose prestige. If you confess your ignorance, they will lose respect for you. Under such circumstances one must nonchalantly pronounce certain magic words which can be acquired from the natives and the purpose of which is to gain time. For instance, 'We shall have to see . . . But let me see . . . Tomorrow;' or simply make a promise, more or less as follows: 'Don't worry . . . things are bound to go right, if it is the Lord's will . . .,' and so forth."

Section II. BRITISH TRAINING AND USE OF DOGS.

1. INTRODUCTION

The United States, Great Britain, Canada, and Germany are among the nations that recognize the importance of training dogs for war duties. The extensive use of dogs in World War I, as well as the popular peacetime activity of training dogs to take part in obedience trials, provided a backlog of experience for the men who now must train large numbers of dogs for work in the field. In nearly all nations, dogs have been used in police work; their trainers are in great demand for the wartime emergency need. To mention an outstanding force, the Royal Canadian Mounted Police long have been expert at schooling dogs to search for evidence in criminal cases, apprehend the more desperate type of criminal, and locate missing persons in thickly wooded areas.

The British Army, especially, has been making great progress in the training of dogs for war work. The personnel conducting its Dog Training Center have been selected from men who were recognized as successful dog

trainers in civilian life. The following notes deal only with dog training methods used by the British Army.

2. SUPPLY OF DOGS

The breeds of dogs most useful for war work are the Alsatian, the Dobermann Pinscher, the Big Airedale, and the Rottweiler. The age at which their training generally starts is from 1 to 2 years; after this, a dog is likely to have acquired set habits, and consequently is harder to school. Inasmuch as civilians have been generous about lending pets for the duration, the British Army has had no trouble in obtaining an adequate supply of dogs. Incidentally, mongrels have proved so satisfactory for war work that no effort is made to secure pedigreed stock. The British have found that mongrels with a strong Alsatian strain make especially good candidates, because of their quietness, dependability, ruggedness, and speed at detecting a body scent.

3. TACTICAL USE OF DOGS

A dog is trained to perform only one of three specific types of work. It may be trained as a messenger dog, to carry messages from outposts to company or headquarters and return; as a patrol dog, to advance ahead of night patrols and to indicate by pointing the approximate location of any human beings in the line of advance; or as a sentry dog, to be stationed at such vulnerable points as forward machine-gun posts to indicate any hostile advance against the position.

4. TRAINING

a. General

Dogs are tested first for gun-shyness. About one-third of the dogs are rejected for failure to pass this test. Next, the dogs are assigned to their trainers, and are given about two weeks in which to become accustomed to them. The dogs are taught to recognize certain simple, easily distinguished commands. All trainers use uniform commands. Throughout the training period, the dogs are conditioned to ignore human beings seeking to pet them, and all wild and domestic animals, including other dogs.

b. Messenger Dogs

Each prospective messenger dog is assigned to two trainers. It is taught to shuttle back and forth between the trainers, and over gradually increased distances. As soon as the dog can perform this work satisfactorily, its trainers take it to the headquarters of a unit. One of the trainers remains at a fixed position at the headquarters, while the other takes the dog to an outpost with which communication is desired. When the dog is released from the outpost, it makes its way back to the unit headquarters and its other master. Afterward, the dog can be released from the headquarters to return to the outpost when necessary. A good dog will find the right man if he is anywhere within a quarter of a mile from the position where the dog last saw him.

Messages are carried in a hollow, lightweight leather collar. This collar is put on the dog only just before the

animal is released, and is removed as soon as it arrives at the other post. This is the psychological basis of the training. Each dog is taught to understand that whenever the collar is attached, a trip to the other master is required.

Experienced trainers need an average of 6 weeks if they are going to teach a dog to work with them in this manner. Some dogs have been trained to operate over distances up to 8 miles. Three-fourths of a mile to 1 mile, however, is the maximum distance over which they are expected to operate under service conditions.

Once a dog has been trained, only two weeks are needed to accustom him to work with new masters. The battalion, or other unit to which the dog will be attached, furnishes the new men, who come to the Dog Training Center to work with the animal for the two-week period before taking it back to the unit.

Little effort is made to develop a dog's speed at delivering messages. Instead, emphasis is placed on developing its dependability, and on teaching it how to get past a variety of difficult obstacles. The theory is that if a dog gets through at all, its speed is bound to be greater than that of any human messenger. It is also recognized that a dog has a tremendous advantage over a human messenger in crossing bad ground, negotiating obstacles, and presenting a small and difficult target to enemy fire.

c. Patrol Dogs

Patrol dogs are trained to pick up body scent, to point out the direction from which it comes, and to work in

complete silence at all times. They are used only at night.

During operations the master and his dog work several paces in advance of the patrol. If the wind is coming from a direction from which opposition is expected, there is a much better chance of success. Detecting a body scent ahead, the dog points, indicating the direction. The dog's master signals the patrol leader, who can either take steps to deal with the opposition or attempt to evade it.

A U. S. Signal Corps officer reports that during a demonstration he witnessed, two of these dogs picked out men hidden in woods and ditches at distances of 100 to 150 yards, and accurately pointed the direction. The experienced trainers were able to estimate the approximate distance simply by noting the degree of excitement shown by the dogs and the eagerness with which they tugged at their leads. Another officer, after working with a night patrol which had used a patrol dog, reported that the animal was invaluable in helping the patrol to avoid opposition while carrying out reconnaissance.

d. Sentry Dogs

Sentry dogs are assigned to fixed defensive positions, where they pick up the sound or body scent of anyone approaching and give instant warning. They have proved especially valuable in the defense of machine-gun posts. As soon as a human being comes within about 80 yards of a gun position, the dog gives warning. Sentry dogs also are used extensively in the guarding of airdromes.

Section III. RUSSIAN ANTITANK TACTICS

1. INTRODUCTION

The Russian Army had forced upon it in June 1941 the major portion of Germany's armored forces. The Russians were driven back several hundred miles eastward during the first few months of the campaign, but, at the same time, they were studying the German tactics. And in the fall of 1941, when the Germans made an all-out attack for Moscow, the Soviets put into effect certain antitank tactics that finally halted the German drive.

These tactics, in general, involve placing the various antitank weapons in considerable depth and supporting them with heavy artillery, infantry, and frequently with aircraft. They are designed to break up the massed attacks made at relatively weak points by German tanks.

2. VARIOUS METHODS EMPLOYED

a. Organization of Terrain

Selection of terrain which limits or prevents the maneuvering of tanks is a major factor in breaking up armored attacks. In fact, the Russians consider that denial of

maneuverability is half the battle—the enemy must not be allowed to choose his ground or the time of attack.

The Russian defenses against armored vehicles are based mainly on "islands of resistance" disposed in depth. More often than not, these areas of resistance are centered around towns and villages or other built-up places. The Russians acquired considerable experience in organizing defenses in towns and villages during the revolutionary and Polish campaigns of 1918–1921. Their facilities for such defensive activity have been increased since that time by the systematic training of women and children, who operate the aircraft warning system, help to organize the defenses, and sometimes act as snipers.

To consolidate a town's defenses, armed detachments of soldiers and civilians are disposed at strategically important sites. Stone dwellings are used for emplacing heavy machine guns, either on the roofs or through windows. Antitank and antiaircraft guns are emplaced so that they can be fired down roads or streets, along with machine-gun fire. Tank mines and barriers are placed along likely approaches. Barricades are constructed for street fighting in case a penetration should occur.

Over areas selected for defense against tanks, the Russians frequently construct thousands of X-shaped tank obstacles by crossing three pieces of heavy steel rails or beams, and by driving them partly into the ground or wiring them together on top of the ground. Tanks approaching these obstacles must either slow down or maneuver around them. Artillery is sited to open fire as the tanks approach the obstacles—which, there-

fore, serve much the same purpose as the British minefields in North Africa.

Well in advance of their defended positions, the Russians install thousands of prefabricated individual concrete pillboxes. These are moved on trucks to the areas which need them. Holes are dug into the ground according to a planned scheme, and the pillboxes are then dropped into the holes. The pillboxes are distributed in great depth along the main highways. They are arranged so that an enemy, concentrating on destroying a certain pillbox, encounters oblique or flanking fire from others.

b. Use of Artillery

The Russians rely on artillery as their main weapon in fighting tanks. They make particular use of an 85-mm dual-purpose gun. Other pieces used extensively include 76-mm and 45-mm guns.

Usually the artillery opens up with long-range fire against moving or assembling tanks. Barrages are employed to disorganize tank combat formations, to cause casualties, and to separate the tanks from the infantry and accompanying artillery. In addition to stationary guns, a mobile reserve of antitank guns is always available.

If the Germans are able to attack after the long-range shelling, the Russians do not put their antitank system into effect until the tanks cross their line of departure and break through the forward positions.

How the Russians emplace their 45-mm and 76-mm guns and fortify the areas where they are located are told

in the following article written by a Soviet artillery officer:

"Fortifying 45- and 76-mm gun positions is hard work, but it pays large dividends in combatting German tanks. Crews are taught not only to dig in and to camouflage quickly, but also to mine sectors in front of their batteries. When time permits, two or three alternate positions are dug for each gun and are used to confuse the enemy in spotting our gun positions. Artillery fire from these positions is also frequently imitated in order to draw enemy fire.

"Open positions are soon knocked out by enemy tanks or aircraft. Therefore, a platform with all-around traverse is built first. Beside it is dug a hole into which the gun may be lowered. Ditches, 1½ yards deep, for personnel and ammunition, are dug on each side of the platform. The hole and the ditches are covered with logs, poles, and a ½-yard thickness of earth to guard against shell and bomb splinters. About 2 to 3 yards from the emplacement, another ditch is dug—this one for reserve ammunition. In battle, enemy tanks and planes make it very difficult to bring up additional ammunition from the rear. At some distance from the gun positions, dugouts 3 to 4 yards long and 2 yards wide, with inclined entrances, are dug for the horses. These dugouts are covered with poles, leaving a gap 1 to 1½ feet wide to admit enough light to prevent restlessness.

"In the spring battles, the Red Army artillery was organized in depth. The 45-mm guns were emplaced on the front lines, and were protected by other antitank defenses. The crews were able to set up minefields in front of the gun positions, as well as obstacles, and also to lift the mines when necessary. In addition, each artillery battalion and, in some cases, each artillery battery, had a mobile reserve of 5 to 8 combat engineers equipped with 4 to 5 mines each. Their function was to mine unguarded tank approaches after the direction of the enemy attack had been definitely ascertained. These mines proved highly effective in stopping and even in destroying many enemy tanks."

c. Air Support

The Russians insist on thorough air reconnaissance to safeguard their forces—particularly infantry—from surprise tank attacks. If there is any possibility of a clash with enemy armor, mixed columns of infantry, artillery, and tanks are employed, closely supported by aircraft.

Russian close-support aircraft—including the highly respected Stormovik planes—often have achieved good results in attacking German tanks and other armored vehicles.

d. Use of Antitank Rifle

The following information about the use of the Russian antitank rifle was originally published in the Red Star, official Soviet Army publication:

"A Soviet artillery battery was on the march when the column was suddenly attacked by six enemy tanks. A Red Army private armed with an antitank rifle jumped off a caisson, took position behind a mound, and opened fire. He inflicted sufficient damage on the leading tank to cause the remainder of the enemy tanks to delay their attack for a few minutes. The battery was given a chance to deploy and open fire, and the surprise attack was beaten off. Four of the six German tanks were put out of action.

"In many similar instances antitank rifles have proved effective against enemy tanks. The light weight, portability, and rapid fire power of this weapon permit its crew to go into action in so short a time that it can cover units on the march, at rest, or in battle.

". . . The greatest success has been attained by squads consisting of two or three antitank rifles placed 15 to 20 yards apart. Such units can bring effective fire to bear on a target, and have

a greater chance of putting it out of commission than fire by a single rifle would have.

"In selecting positions for antitank rifles, detailed reconnaissance of the target area should be made, in addition to the usual local reconnaissance. Eliminating dead spots and protecting against the most likely routes of enemy tank approach are most important considerations. The positions should be echeloned so as to be mutually supporting with fire from the flanks. Antitank rifles in artillery batteries are generally grouped on the most exposed flank of the gun positions. In all cases, the squad leader should select his own position so as to have maximum observation and, at the same time, personally control the actions of the antitank rifles.

"In fortifying these positions, it has proved impracticable to construct emplacements with roofs because of increased visibility to the enemy air force and lack of 360° traverse. The best types of emplacements are open and circular in shape, with a diameter large enough to permit free movement of the crew for all-around traverse and to protect the gun and crew from being crushed by enemy tanks. Narrow communication trenches connect the gun positions with each other as well as with the rear. Both emplacements and trenches are constructed without parapets; the extra dirt is utilized in building false installations to draw enemy fire. It is practically impossible for tanks to spot such fortifications, and the rifles are able to fire on them for the longest possible time. Also, protection against aerial bombardment is increased.

"In the preparation of antitank fire, the rifleman should select five or six key reference points at different ranges, measure the distance to them, and study the intervening terrain. When actually firing, he should fire at stationary tanks whenever possible and not take leads at ranges over 400 yards. Aim should always be taken at the vulnerable parts, taking advantage of any hesitation or exposure of the sides of the enemy tanks.

"Antitank defense must be drawn up so as to protect the anti-

tank rifle units fully, by means of all available obstacles, mines, and fire power."

e. Recent Trends

Recent trends in Russian antitank tactics are discussed in an article appearing in the "Red Star." An extract from this article follows:

Correctly disposed and camouflaged, antitank weapons can and do stop the German tanks. One case of a recent battle is recorded in which three antitank guns of the regimental artillery held off 56 German tanks in an all-day battle and destroyed 5. Another case records 35 to 40 German tanks attempting to cross a river, over a single bridge. One well-placed antitank gun destroyed 5 German tanks and forced the remainder to seek other means of crossing.

Communication with the chief of the artillery unit, with the infantry commander, and with adjacent units is usually by radio.

All artillery and antitank defenses are subordinated to the sector commander.

No set rule can be laid down as to the density of antitank weapons on any sector. The system depends upon the terrain and the local situation. In general, there should be greater density toward the rear. An attack by a large number of tanks is met at the front lines by artillery and rifle fire. Then antitank rifles and destroyer tanks come into play. If the enemy tanks still break through, they run into tank obstacles defended by flanking and rear antitank fire. Soviet infantry at this point attempts to cut off the German infantry from its tank support. The enemy tanks then continue to run into tank destroyers and an increasing number of minefields.

Where Soviet tanks are used in the defense, they must not be pushed out front, but must be scattered to the rear and dug in to await a possible breakthrough, where they can do their best work.

Section IV. NOTES ON BRITISH ANTITANK TACTICS

1. REGARDING POSITIONS

a. In Depth

Like the Russians, the British are firm believers in distributing their antitank weapons in depth. This not only goes far toward preventing encirclement, but results in "smothering" the tank waves. Whenever possible, antitank defenses—including traps, obstacles, and mines—should be so located that enemy vehicles will be channelized, or caught in positions where they will be subject to flanking fire. The flanks of tank echelons, although often protected by accompanying artillery, are especially vulnerable, partly because the visibility of the tank gunners is severely limited and partly because tank leaders are instructed to dash forward and gain their objective even if this involves dangerous exposure of flanks.

b. Changing Sites

Once a gun has opened fire, its position is given away by the flash, which may be seen both by air and ground observers. Therefore, the only means of protection is a change of position. The coordination of such moves is vastly important, because even one change may upset or alter the defensive layout as a whole. The British recognize that more training is required in the reconnaissance and layout of positions, especially with reference to the selection and coordination of alternative positions. Also, the guns should be so sited that they are defiladed from enemy ground observation. To accomplish this, it is frequently necessary to dig pits for the guns, just deep enough to allow the gun barrels to have traversing room above the ground. Slit trenches are provided for personnel and ammunition.

c. In North Africa

In the North African campaign, the British usually boxed in their battle positions completely with mines, providing an all-around defense. Such minefields, according to American observers, are normally marked with a barbed-wire fence, usually consisting of one to three strands. British-laid minefields along the enemy front were well covered by automatic weapons, while the dead spaces in between were covered by infantry mortars.

The minefields were sited and laid by British engineers.

Other information obtained by our North African observers included the following:

"The normal fire unit is the single gun. Where possible, guns are sited so as to be mutually supporting. A favorite gun position appeared to be behind a slight ridge, defiladed from the front, exchanging fire across the front of a neighboring gun, which, in turn, fired across its front. Some guns, especially 47 mm, are sighted to the rear so as to catch the tanks in their engine compartments or thinner armored portions after they have passed.

"The decision to employ guns on portee or on the ground is reserved to the battery commander.

". . . A typical position for the 57-mm gun is a shallow emplacement similar in plan to the standard emplacement for our 37-mm gun (M3). A low parapet of loose dirt is built up in front of the gun, just high enough to permit the muzzle of the piece to swing through its maximum traverse. Deep slit trenches for the protection of the crew are habitually provided. Ammunition chests are likewise dug in. It was observed that in level, open terrain, such an emplacement provided a high measure of concealment, especially if the muzzle were fully depressed so as to rest on the parapet. By doing this, the characteristic shape of the gun was concealed . . ."

Section V. BRITISH INDOOR WAR GAME

1. INTRODUCTION

The British Infantry Company Commanders' School suggests that greater realism can be added to indoor war games by using two identical sand-table models in each exercise. This enables two groups to oppose each other, one on the offensive and the other on the defensive. The tables should be placed in separate rooms, preferably adjoining each other and as nearly sound-proof as possible.

Such an arrangement is a particularly good training medium for platoon commanders and squad leaders; it is stimulating in that two sides are actually pitted against each other. The procedure offers a wide training scope, because the instructor can take up with each group war problems extending from the plan of the platoon commander down to the detailed action of each individual soldier. To derive the greatest benefit, students should give their orders and otherwise conduct themselves as in actual warfare. Wearing of gas masks would give added realism to the exercise.

2. SUGGESTED PROCEDURE IN DETAIL

An instructor and, preferably, two assistants should coordinate the exercise. They act as umpires, with the senior instructor moving from one group to the other to explain each situation as it would appear to the other side and assess the fire effect and casualties.

Each side is given a written report dealing with the situation at the start of the exercise and the mission it is to accomplish.

Realism can be added by having colored pegs to represent the platoon commander, squad commander, and so on. Also, cotton or wool could be used to represent smoke and the burst of high explosives.

The instructors should keep students strictly to what is practical, reminding them when necessary of the factors of time and space in connection with transmitting information and executing their plans. Distances, ranges of weapons, visibility, and the existence of streams, banks, woods, bogs, railroads, and mire as antitank obstacles or otherwise, need interpretation to students until they have as vivid an impression of the country depicted by the sand model as they would have if they were on the ground itself. Emphasis should be given to the actual position of students and the exact routes taken when on reconnaissance. For instance, would they be riding, walking, running, or crawling? Are their weapons loaded? If so, what is the position of the safety catch? Would they use their binoculars? Would the sun reflect from their

celluloid map cases, and thereby give the enemy sniper an easy shot with his telescopically sighted rifle?

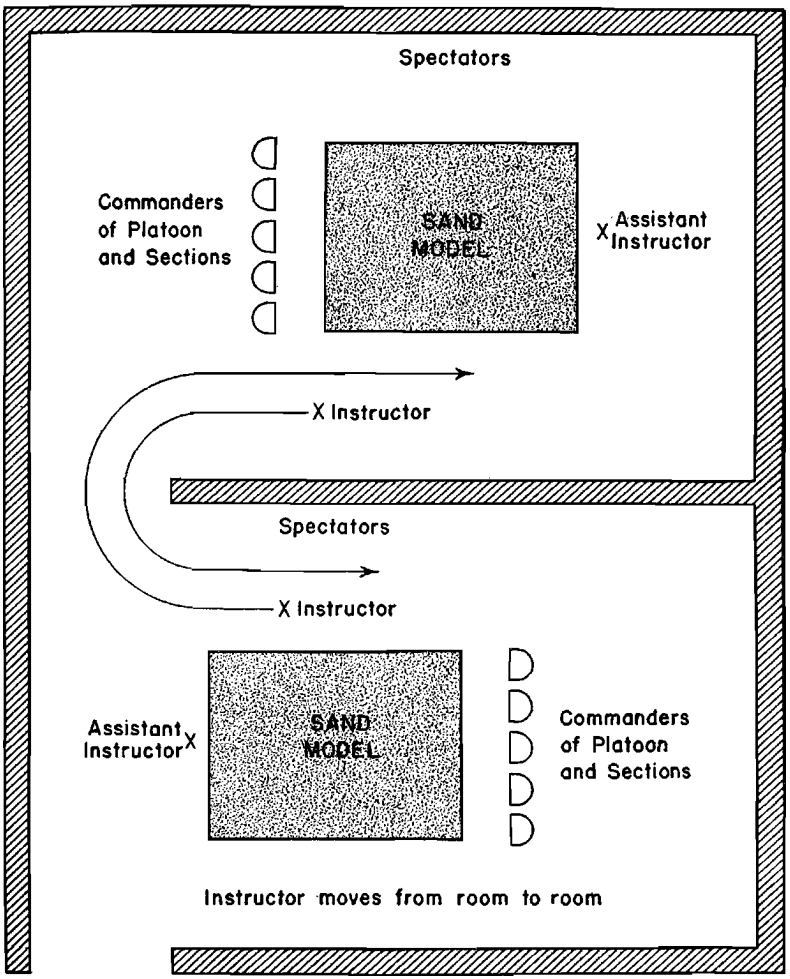

Figure 7. Sand Model War Game

The instructors should see that the following points, among others, are brought out:

a. By the Attackers

(1) The plan and orders of platoon and squad commanders;
(2) Routes of advance and formation;
(3) Position of antitank rifle, mortar, and Tommy gun;
(4) Action when fired on;
(5) Use of smoke;
(6) Action on reaching objective;
(7) Withdrawal (if applicable);
(8) Messages.

b. By the Defenders

(1) Orders by platoon and squad commanders for occupation of position;
(2) Orders regarding the digging of weapon pits;
(3) Concealment of squad posts and fields of fire;
(4) Antiaircraft protection;
(5) Antigas protection;
(6) Position of platoon headquarters and platoon weapons;
(7) Covering of road blocks;
(8) See that squad leaders know the position of platoon headquarters, that they know who is on the right and left, and that they prepare range cards;
(9) The position of wire (if applicable).

c. Regarding Administrative Duties.

(1) Ammunition supply;
(2) Evacuation of casualties;
(3) Feeding;
(4) Provision of spare clothing;
(5) Position of platoon truck;
(6) Latrines;
(7) Duty rosters;
(8) Organization of platoon for work.

The instructor and his assistants should see that the action is not slowed up—the tempo should tend to increase toward the end of the exercise. To help achieve this result, the instructor can allow the student less time to take action on the information he brings them dealing with the movements and actions of the opposing sides.

The height of interest is reached at the conclusion when both sides are brought together, and the instructor points out the dispositions of the opposing forces on the respective sand models and relates the moves and counter moves made by both sides during the exercise.

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