

FM 17-30 TANK PLATOON

This is an unusual manual. The basic document was written in haste before US Army tank doctrine had solidified. As with many armies in the 20's and 30's, there was a three-way split of competing doctrines. The infantry, which demanded the tank in WW I as an aid in assaulting trenches, considered the tank to be an infantry support weapon. The cavalry looked instead to light tanks used in combination with horse as a reconnaissance tool. The idea of tanks as a separate combat arm was promoted by Chafee, Boudinot, Patton, and others in the interwar years, and just as fiercely resisted by entrenched infantry and cavalry establishments. (See lengthy discussion in our introduction to **FM 100-5**.)

Doctrine

The doctrine presented here represents a number of hasty (and untried) changes that arose with the rapid fall of France in 1940. German tank doctrine had been dragged down by the same conservatism as in the United States, but the adamant promotion of a combat arm of decision by Guderian and others produced a massive trial by fire against French and British forces on the continent. The dramatic success of the new doctrinal regime attracted notice in the United States, and the infantry support and light reconnaissance schools finally had to yield. (If you read **FM 100-5** with care, you will see that remnants of the old ideas remain stubbornly in place.)

The details of the updated doctrine, however, were largely untried in combat (and retained some conservative vestiges of the old infantry support role). Results in North Africa in 1942 showed some deficiencies, but the overall confusion produced by introducing a green field army to combat masked the doctrine shortcomings. The 1944 update (Change 1, prepared in the months before D Day and printed in red in the following text) represents the highlights of combat lessons learned from Kasserine to the fall of Tunis. But doctrine was changing even as the new manuals were appearing.

One overall difference between the 1940's doctrine and that in the years since has to do with the role of the tank as an offensive weapon. This point is reinforced again and again (note the brevity of the chapter on the tank platoon in the defense). The reason for the emphasis on offense is partly because this is where the tank's chief strength (shock effect) lies. But there is also a stubborn reluctance to allow tanks to be reabsorbed into the slow and conservative infantry doctrine by allowing armored units to be scattered over the line as mobile pillboxes.

This caused quite a few complications that had to be dealt with later. Instead of using tanks in the defense to protect against other tanks, a tank destroyer service was invented. It was modeled on the German *Panzerjäger* idea: armored fighting vehicles (though not so heavily armored as tanks) with powerful main guns that were to be used in a defensive antiarmor role. Perhaps US doctrine wonks presumed that if the Germans thought it was a good idea it would work on our side of the hill. In fact, the Germans made large numbers of TD's, not because they were more effective at killing tanks, but because many more could be built; tanks are expensive, hard to maintain, and tax resources of steel, rubber, and other strategic materials. There was also the

economy realized by converting obsolete tanks from conquered armies – stripping down the chassis and adding a 76mm AT gun could convert an inferior tank into a serviceable special-purpose weapon at low cost. In addition, a more lightly armored turret with an open top or a casemated gun with limited traverse make it easier for a vehicle to pack a much larger gun than if it had to be enclosed in a turret; the length of recoil in a large gun (e.g., a 90mm) requires a long turret, which is so heavy it requires a larger chassis, and having a long gun tube in front unbalances the turret, requiring counterweight on the rear (the “bustle” in trackspeak), increasing weight still more. (The ever-imaginative Israelis actually managed to install a 105mm L65 gun in a modified M4A3E8, but its performance was marginal.)

The American TD family was made up of fast tracked vehicles with armor thickness much reduced from tank standards. The TD’s would move rapidly from covered position to covered position (dirt makes very effective armor) in defensive operations, and could ambush tanks that penetrated the MLR. In the offense, the TD’s could provide overwatch and supporting direct fire. Thus, actual tanks could save themselves for closing with and destroying the enemy by means of firepower, maneuver, and shock effect. In the defense, tanks were to be used principally for counterattack.

Experience in 1943-5 in Europe and in the Korean War would demonstrate that the best antitank weapon is another tank. Whatever their intended employment, TD’s were frequently used as if they were tanks, and were at a great disadvantage. In addition, improved mechanical engineering of power packs and suspensions made it feasible to arm tanks with large-bore main guns and very effective composite armor without sacrificing speed and maintainability. (Note that the German heavies in WW II spent a lot of time being repaired.) TD duties eventually returned to the infantry in the form of light but powerful and long-ranged AT missiles. The TD vanished.

It’s also important to note that tank platoons are often attached on a task basis to infantry companies, and a tank companies usually receive rifle platoons in trade. This forms tank-infantry packages commonly called teams (e.g., “Team Baker” might be Baker Company of an infantry regiment minus one platoon plus one platoon of a tank company).

Technically, this use went against doctrine (“the tank is NOT an infantry support weapon”), but in practice it was often necessary. This exception is almost always made in the attack, much less often in the defence.

The manual

Unlike comparable infantry manuals, FM 17-30 relies heavily on graphics instead of dense text – the bulk of document is filled with pictures. This was done for clarity – the tank is part of a mobile arm, and one picture is literally worth a thousand words.

Once the overall doctrinal philosophy is understood, details can be mastered easily because they make sense and can be visualized as dynamic events instead of checklists in which actual maneuvers are left to the imagination.

There is some evidence this manual was written in haste. For one thing, most manuals after the start of the war were written in haste; an army was frantically reinventing itself, often on a

day-to-day basis, and service school scribblers were overworked and asked to treat the impossible as routine. The reader should be forgiving about proofreading and format confusion (the writers and editors never really settled on whether a chapter number should be printed in Roman or Arabic numerals, and both appear in the text!).

Marginal comments

I have added quite a few more glosses to this manual than to others. Living historians generally know little about armored doctrine, and most will be starting at “entry level.” Note also that the editor served for many years as an Armor officer, including two years in combat. He writes from experience, and from long study of evolving doctrine.

True, we have little opportunity to use combat vehicles as organized formations; but someday, maybe, we will have the chance at an appropriate event with usable land (tanks are very effective “landscape architects”). And this manual tells us how to do it.

T. O’Neill



FM 17-30

**ARMORED FORCE FIELD
MANUAL**

TANK PLATOON



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(For explanation of symbols see FM 21-6.)

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ARMORED FORCE FIELD MANUAL

TANK PLATOON

CHAPTER 1

GENERAL

■ **1. PURPOSE AND SCOPE.**—*a.* This manual is written as a guide for the tactical training and combat procedure for the individual tank, the tank section, and the tank platoon, both light and medium. The tactical procedures and methods set forth herein are not to be followed as inflexible rules, as such practice would stifle individual initiative. The methods of procedure given must be varied to meet the particular situation at hand.

b. Key to symbols used in this manual will be found on page 2.

■ **2. ORGANIZATION.**—The tank platoon, both light and medium, consists of five tanks. The platoon is divided into a platoon headquarters consisting of the platoon leader and the crew of his tank, and two sections of two tanks each.

■ **3. CHARACTERISTICS.**—*a.* The tank is characterized by great mobility, fire power, armor protection, and shock action. These characteristics are possessed in varying degree by different types of tanks. The characteristics dictate the manner of employment. All types of tanks are limited by their restricting vision devices.

b. Light tanks, as compared to medium tanks, have less fire power, lighter armor and armament, greater speed, and better maneuverability. They are particularly fitted for—

(1) Feeling out and developing weak spots in the enemy position through which medium tanks may attack.

(2) Screening the advance against light enemy resistance.

(3) Leading an attack against an unarmored enemy weak in antitank defense, when speed is essential.

(4) A fast maneuvering force to exploit the success of other tanks.

(5) Maneuver to flank or rear to strike the enemy command posts, communication centers, reserves, and vital installations.

(6) Pursuing a defeated enemy.





















c. Medium tanks, because of their greater fire power, guns of heavier caliber, increased armor protection, and shocking power are used to—

(1) Lead an attack against an enemy whose position and strength are known.

(2) Support by fire the attack of either light or me-

Most tanks have five crewmen: tank commander, gunner, loader, bow gunner, and driver. When the tank is "buttoned up" (its hatches are closed), the view of the outside is through contractions called "vision blocks". Some rotate for wider view, some are fixed, and all provide very narrow visibility.

dium tanks.

 OBSERVATION POST	 TANK SECTION LEADER
 RIFLEMAN	 TANK PLATOON COMDR
 RIFLEMAN (OUT OF ACTION)	 MORTAR CARRIER
 LIGHT MACHINE GUN	 ASSAULT GUN (SELF PROPELLED)
 CAL. 50 MACHINE GUN	 AMMUNITION CARRIER
 ANTITANK GUN	 OBSTACLE
 MOTORCYCLE	 BUNKER
 SCOUT CAR	 EXPLOSIVE SHELL FIRE
 TANK IN MOTION	 SMOKE SHELL FIRE
 TANK IN POSITION	 LINE OF DEPARTURE

These map symbols will be used later in the text.

d. It is essential that tank crew members know the strength and weaknesses of their tank and its weapons. Furthermore, they must know the strength of their weapons as compared to enemy weapons likely to be encountered.

■ **4. OPERATION.**—The tank platoon is the smallest tank battle unit. It normally operates as part of the tank company. However, it may operate as an independent unit as advance, flank, or rear guard or on similar missions.

a. *Methods.*—Tanks operate by surprise, fire and maneuver, and in mass. The violation of these fundamentals will lead to ineffectual effort and perhaps disaster.

(1) *Surprise.*—Surprise is gained by striking the enemy at an unexpected time, from an unexpected direction, with all strength possible. Speed of movement, use of covered approaches, and coordination of fires assist in gaining surprise. *Seek to surprise the enemy but do not let yourself be surprised. Give the enemy credit for being as capable as yourself. Do not underestimate his ability. Do not become careless. Expect the unexpected and be prepared*

for it.

(2) *Fire and maneuver.*—An advancing unit is covered by the fire of weapons in stationary position. This is important as the tank in the open is not only extremely vulnerable but movement, dust, and restricted vision make the locating of new targets extremely difficult. Tanks in defiladed position can quickly locate and promptly bring fire upon hostile weapons that fire upon the advancing tanks. This procedure of fire and movement may be by section, platoon, or company.

(3) *Mass.*—Concentrate effort. Do not waste strength on numerous unimportant targets. Strike on a key position with all power that can be mustered. If this fails, others may then be taken. If effort is made on several positions, the enemy may easily destroy you by concentrating successively on each attacking element.

b. Coordination.—Coordination of effort, that is, timing of all elements, is essential. An uncoordinated effort violates the fundamental of the use of mass. Therefore, in attack, time the movement of the tanks and the opening of fire by supporting weapons or supporting tanks so that maximum effect is obtained. Teamwork is essential.

c. Initiative and aggressiveness.—In order to obtain success in battle, leaders must exercise initiative and act aggressively. A small force acting under direction of an aggressive, alert, leader can overcome a much larger force whose leader is slow and nonaggressive. Do not let the enemy have time to get set. Conversely, do not rush headlong into battle with no plan of action. Think clearly, give clear orders, *then* act fast.

d. Striking weakness.—Seek to strike the enemy where he is weak in antitank defense. Do not drive headlong against strong antitank defense. Bypass it or call for assistance to reduce it.

e. Mission and echelons of attack.—(1) The mission of tanks in the armored division is to attack and destroy vital hostile installations such as command posts, communication centers, supply installations, reserves, and artillery.

(2) The mission of tanks in the separate tank battalions is to assist infantry, cavalry, or motorized divisions to advance by destroying hostile machine guns, personnel, and vital installations.

(3) A tank attack will usually be launched in three echelons, each echelon in a series of waves.

(a) The first echelon of attack, Preceded by neutralization by combat aviation and artillery, if available, is directed against the antitank defenses, artillery, command posts, and other rear installations. (See FM 17-33 and FM 17-32.) Tank platoons of this echelon destroy first the enemy antitank defenses and second, enemy artillery. They attack enemy infantry only when hindered by it in fulfilling their primary missions.

A fundamental rule of armor employment: *never split up a tank platoon*. The smaller the number of tanks acting as a maneuver unit, the greater the difficulty in providing mutual support, without which tanks are sitting ducks.

We call this principle “bypass and haul ass.”

Rather early, armored forces discovered the futility of unsupported tank attacks. Tanks always attack with infantry support; because of poor visibility, tanks alone can be stymied by small enemy forces.

(b) The platoons of the second echelon follow the first echelon at such distance that the enemy will not have time to re-form his antitank defenses. These platoons destroy hostile automatic guns and personnel and clear the way for the advance of infantry. Antitank guns passed over by the first echelon must be silenced by the leading waves of the second echelon. (See par. 38c.)

(c) The tank platoons of the third echelon advance with the infantry, destroy hostile machine guns passed over by the second echelon, and hostile personnel. The mission of this echelon is to assist the advance of the infantry. They may lead the infantry attack if resistance is still heavy. If resistance has been broken by the first two echelons, tanks of the third echelon will follow the infantry, prepared to attack isolated resistance as necessary. These tanks also protect the infantry from counterattack, particularly of mechanized forces.

CHAPTER 2

TRAINING

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SECTION I

GENERAL

■ **5. GENERAL.**—*a.* The subject of training is covered generally in FM 21-5. In the tank platoon the individual man plays an important role. During the progress of an infantry or cavalry attack the commander is able, by personal contact, to command his troops. In the tank the commander cannot see his men face to face. The platoon leader must rely upon radio and signals for controlling his platoon. The tank attack progresses rapidly and the commander is not able personally to influence the action as well as can commanders of other units. Once the tank attack has started, success depends largely upon the training and initiative of the individual tank commander. For this reason the training of tank crews must be thorough. Each individual must know his job thoroughly and teamwork of the tank crew must be developed to a high degree.

b. (1) The training of the tank crew, section, and platoon includes—

- (*a*) Use of terrain.
- (*b*) Selection of weapons and ammunition.
- (*c*) Communication and control.
- (*d*) Reconnaissance.
- (*e*) Marches and bivouacs.
- (*f*) Security.
- (*g*) Offensive action.
- (*h*) Defensive action.

(2) Prior to training in these subjects, individual training and marksmanship (see FM 17-12) should have been completed. Combat practice firing follows tactical training of the crew. (See FM 17-15.) Tank crew drill is covered in FM 17-5.

■ **6. TRAINING PROCEDURE.**—The only purpose of tactical training is to prepare for battle. Tactical exercises, therefore, are a vital part of training and are, in fact, a dress rehearsal for combat. Solutions of tactical situations should not be stereotyped, otherwise individual initiative is lost. There is usually more than one suitable solution to a tactical problem. Emphasis should be placed upon initiative and aggressive action. Once a decision is made, act quickly, boldly, and vigorously. The following procedure

will be used in the preparation and execution of all tactical training exercises: —

a. The officer in charge of training by map study selects the area, personally reconnoiters the ground, and drafts the problem. With other officers he plays the problem on a map.

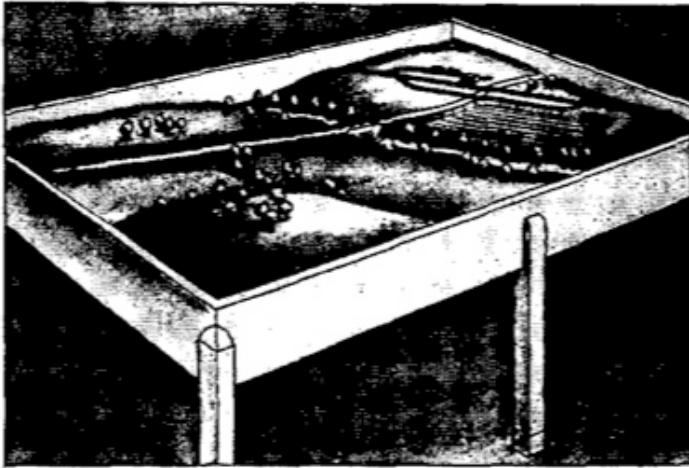


FIGURE 1.—Sand table.

b. The problem is next played on a sand table, using numbered blocks of wood or miniature tanks to represent vehicles. (See TF 7-265 and 7-266.) If the problem is for individual tanks, the whole tank crew is present. If for the section or platoon, the noncommissioned officers and selected privates are present. The problem should be run several times and each man called upon for solutions. Interest is maintained by injecting small situations as the action progresses. Emphasize decisions and immediate vigorous action.

c. Following the sand table phase, the section or platoon executes the problem on the ground. After completing the problem, assemble all personnel and hold a critique. Point out errors and state a method of correcting these errors. Avoid ridicule. Repeat the problem as necessary.

SECTION II

TERRAIN

■ **7. Study.**—The estimate of terrain generally is covered in **FM 101-5**.

a. The importance of the study of terrain cannot be overemphasized. Battles are won or lost by the ability of the leader to estimate terrain and use it to his own advantage. The study of terrain must be continuous throughout all phases of training. Each individual must understand thoroughly how to use terrain to his own advantage and must appreciate how the enemy can use it.

There is an art to using a sand table, and requires imagination and ingenuity. It has the advantage of being reusable for any tactical situation. I use a simple shallow wooden box, about 3x4 feet, filled with concrete sand from Home Depot. Dampen the sand to create contours, add yarn, map tacks, model railroad vegetation, simple "Monopoly" style buildings, simple model tanks, and other easily fabricated items.

b. Study of terrain must be preceded by a thorough course in map and aerial photograph reading. Each individual must be taught the names of terrain features and then the method of converting these features to his advantage. Each individual must answer the following questions:

(1) What is the nature of the soil?

(2) Is it hard or soft? Will the tank sink in a short distance and then be able to move forward, or is there a crust which may carry the vehicle for a short distance and then break, bogging the machine?

(3) Is the ground level or rolling?

(4) Is the surface eroded, forming natural barriers around which a route must be reconnoitered?

(5) Are stream banks soft and swampy, or hard? Steep or sloping?

(6) Are stream bottoms hard sand or gravel, or soft mud?

(7) What is the depth of the stream? Consider not only the depth to the actual bottom but also the amount the tank may sink. Know the fording depth of the tank.

(8) What is the type of vegetation? Does it provide concealment from air observation? From ground observation?

(9) Does terrain afford good firing positions for support of maneuvering tanks? Does it afford concealed routes of approach?

(10) Is the terrain heavily forested or covered only with light brush?

(11) What is the background for an attack? Will the tank be silhouetted against the sky or a light-colored field?

(12) Are there any defiles that will limit your movement?

c. Following is one procedure for study of terrain:

(1) By use of a sand table, teach terrain features and how to use them. (See par. 8.) For use of sand table, see TM 7-265 and TM 7-266.

(2) On the ground, walk the platoon over the terrain. Point out terrain features. Show how to use covered approaches and firing positions. Demonstrate testing of swampy ground and fording depth of streams.

(3) Have the platoon drive through the area in tanks; first with ports open and then with ports closed.

■ **8. Use.**—a. Foot troops use cover to minimize losses in approaching the enemy. The tank, although armored, must also make use of cover when practicable. The following factors render this operation difficult:

(1) The tank forms a much larger target than the foot

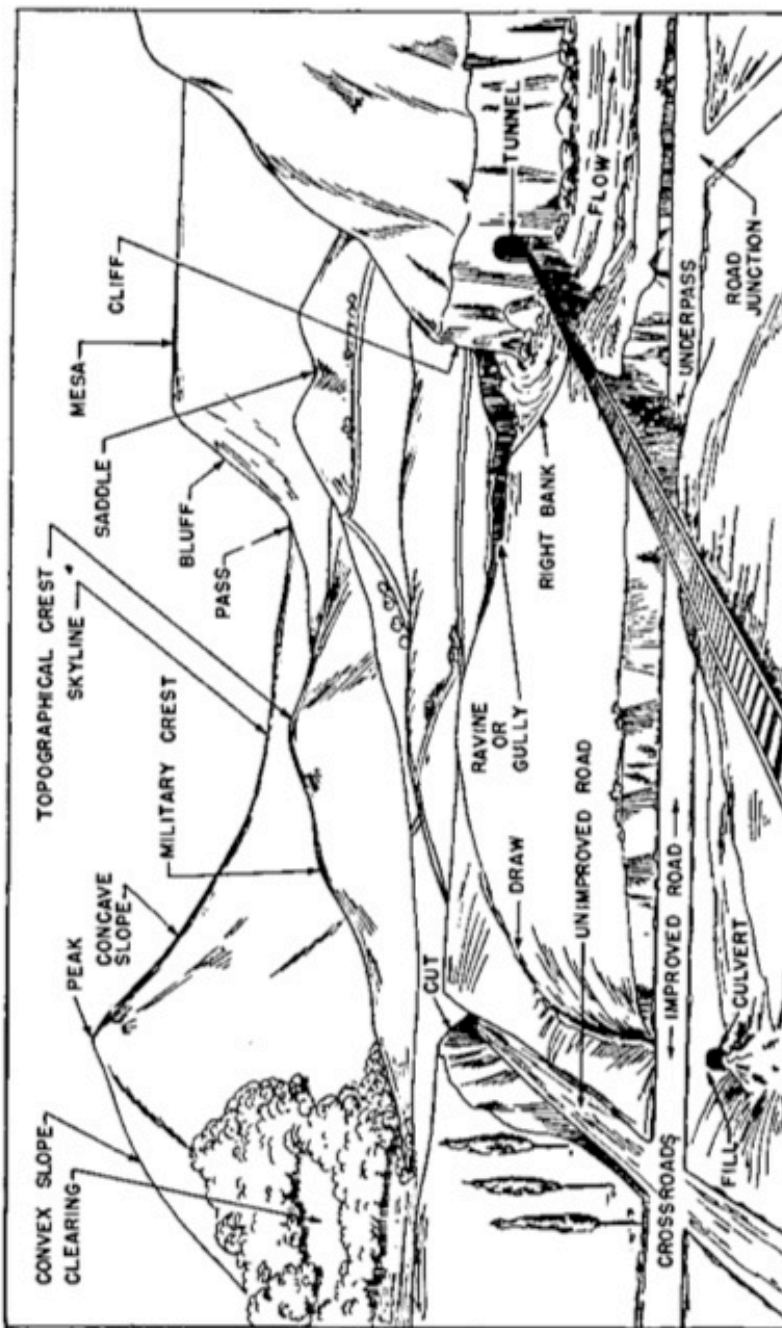


FIGURE 2.—Terrain features.

Every soldier, and every serious living historian should know these terms and understand how they influence tactics.

soldiers and cannot take advantage of small cover. Therefore, it is necessary that routes be carefully chosen.

(2) The speed of the tank reduces the time available for selection of routes while moving. This difficulty is overcome to some extent by choosing, while in turret defilade, a route to a new position.

(3) View from the tank is limited and good routes may be difficult to choose. This may be overcome to some extent by the tank commander observing from the open turret except when under fire.

(4) The formation of the platoon or company may at times preclude maximum use of cover as tanks should not, without the platoon leader's authority, stray more than 50 yards from their assigned direction except when necessary to silence an antitank gun.

(5) The driver, in seeking cover, must coordinate his action with the gunner. Sudden changes or frequent unannounced changes of direction will seriously impair the aim of the gunner.

b. Figures 3 to 21, inclusive, indicate incorrect and correct methods of using terrain.



Ⓛ Do not cross the crest of a treeless hill when it can be avoided.

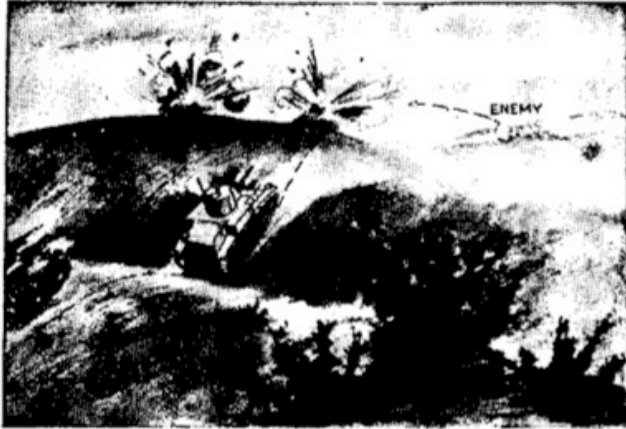


Ⓡ Drive around the hill.

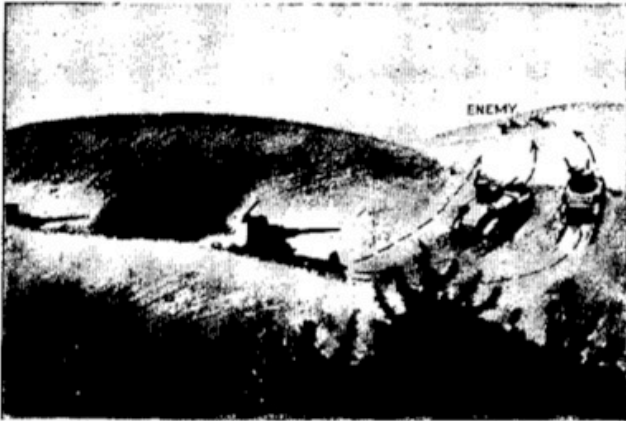
FIGURE 3.—Passing a treeless hill.

Most of these graphics are paired, and show (1) what not to do and (2) what to do instead.

Point here: never be silhouetted against the sky. Yes, you are easier to see, but there is another reason. Many AT weapons used stereo or coincidence range finders (opto-mechanical contraptions that effectively set the observers eyes two feet or more apart, extending depth perception and simplifying range estimation). These are easiest to use when the target is not set against a "noisy" background.



① Do not cross a treeless ridge when it can be avoided.



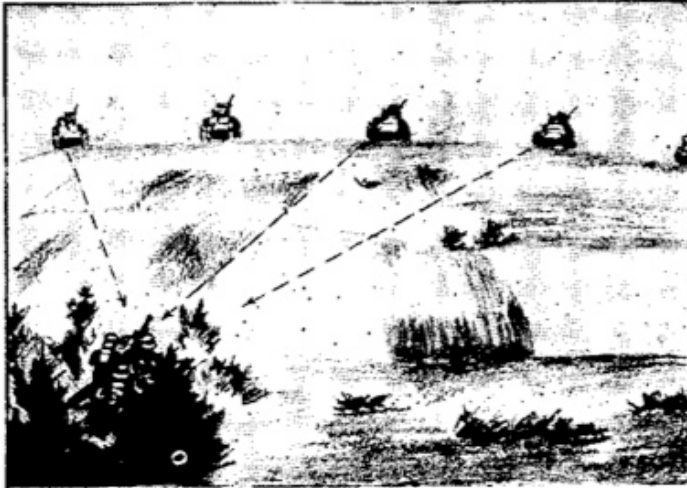
② Make use of the ridge as cover for a change of approach direction.

FIGURE 4.—Passing a treeless ridge. (See also fig. 5.)



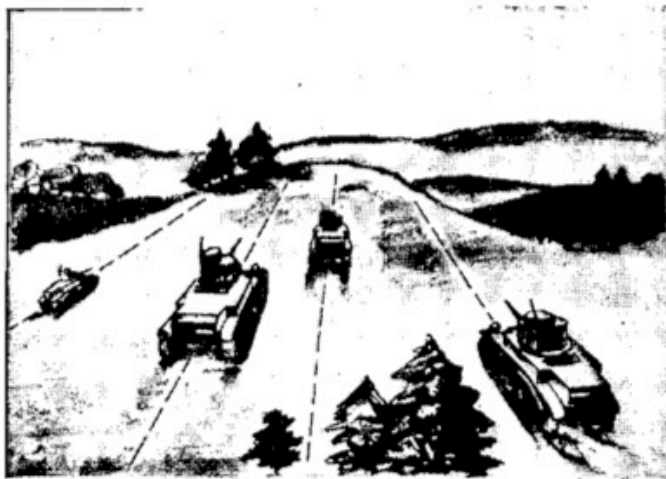
③ Do not approach the crest of an extended ridge in deep formation. The enemy can destroy your tanks one by one.

Note that crossing high ground in column robs tanks in the rear of a look at what is going on beyond the crest; this can give the enemy a chance to knock out one unsuspecting target after another.

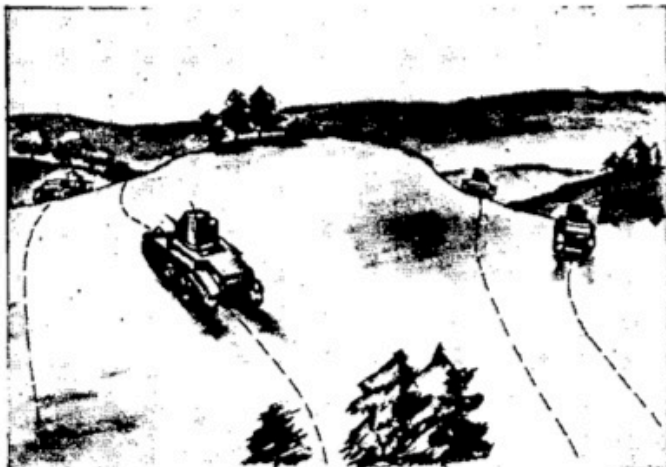


③ Approach the crest in line formation; then all tanks of the platoon reach the crest at the same time and are prepared to concentrate their fire against the enemy battery or antitank gun which may be in position behind the ridge.

FIGURE 5.—Method of crossing a ridge when detour is impracticable.



① Do not drive straight across country without taking advantage of folds in the ground.



② Make use of small depressions and valleys.

FIGURE 6.—Take advantage of folds in the ground.

The tank commander and driver must be working together, and this takes time. Remember; a tank maneuvers from cover to cover just like an infantryman.



① Do not drive straight across country without taking advantage of folds in the ground.



② Make use of small depressions and valleys.
FIGURE 7.—Make use of depressions and valleys.



③ Form platoon in double or single column.
FIGURE 8.—Driving through closed terrain.

I'm not certain why Figs. 6 and 7 are here, since they make the same point. But I guess it's worth making the point twice. Remember: casualties in M4 and M5 series tanks come in multiples of five.



① During the approach, do not drive by a lightly wooded area.



② Use the woods for concealment.

FIGURE 9.—Take advantage of lightly wooded areas.



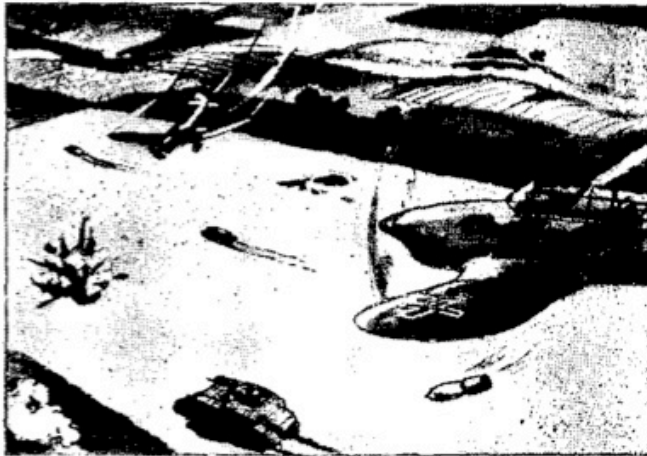
③ Do not attack without using the house for cover.

“Lightly wooded areas” means woods with trees far enough apart to allow tanks to pass between them. To understand how important this is, we need to remember that woods in Europe are often carefully tended and parklike. Woods in the United States are often made up of dense second growth due to a long history of bad agricultural practice – we have so much land in comparison to Europe that we tend to take woods lightly – followed by abandonment and nasty regrowth.

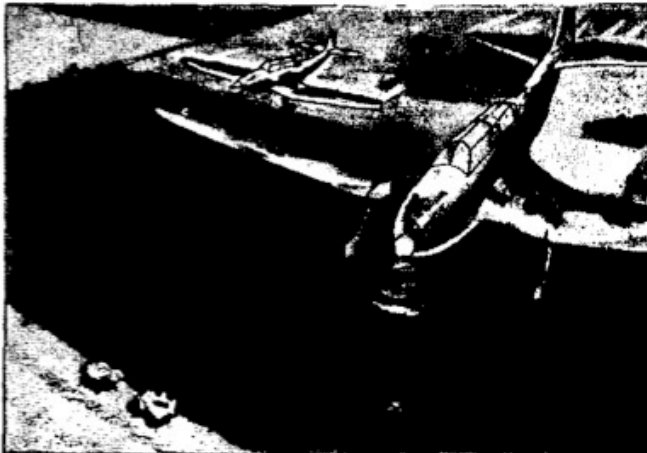


⑤ Use the house as cover.

FIGURE 10.—Take advantage of buildings.



⑥ Do not drive over a light-colored field when it can be avoided.



⑦ Use dark background as far as possible for movement.

FIGURE 11.—Use dark background.

The reason for this is that shadows tend to be a giveaway for targets like tanks and other vehicles. If you park them in dark areas, they are hidden by background shadow.

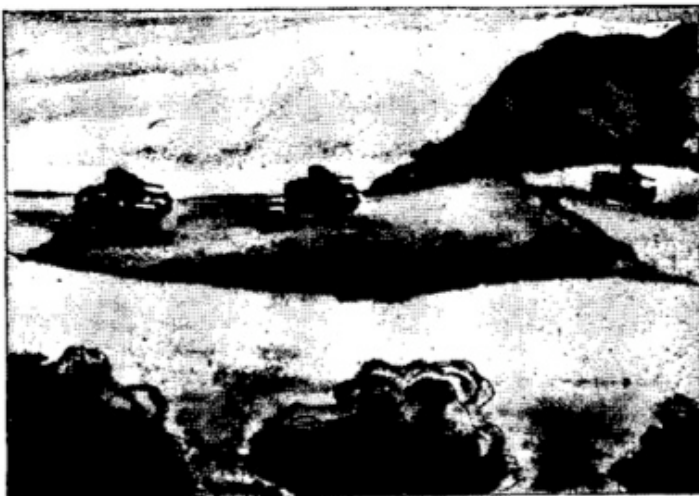


① Do not take a short cut over a light-colored field. A track is left which is visible to enemy air observers for hours.

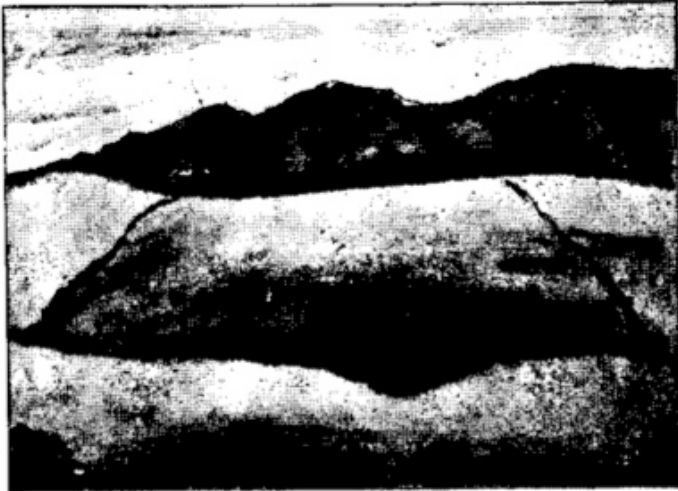


② Go around the field, thus preventing telltale tracks.
FIGURE 12.—Stay on dark ground.

To the extent possible, follow treelines and woodlines. Tracks are harder to see if they are adjacent to natural lines.



③ Do not advance in front of a light background.



① Use dark background to cover advance.
FIGURE 13.—Use dark background.



① Do not pass through a dense forest in double column or wider formation. This necessitates the clearance of several paths and contact may be lost.



① Pass through dense woods in one column and clear only one path.
FIGURE 14.—Passing through woods.



① Do not take a short cut across open fields.

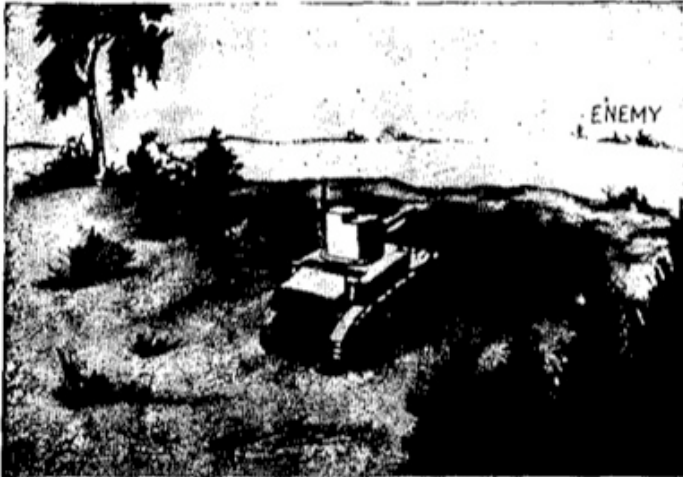


② Go around open fields in order to advance under cover.

FIGURE 15.—Avoid open fields.



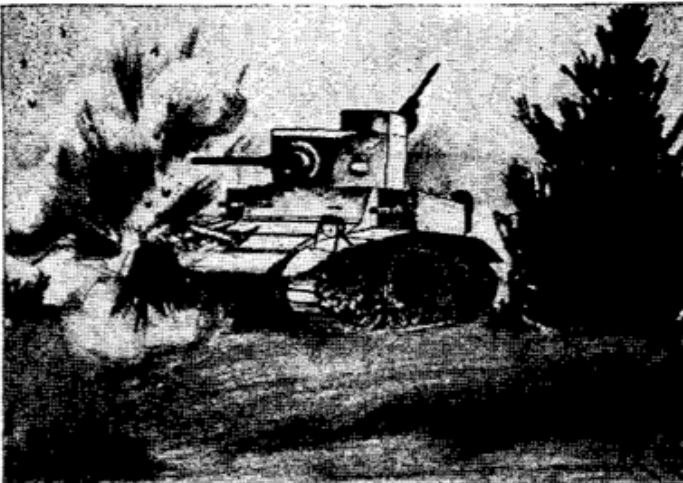
③ Do not take position on top of a hill.



① Take position on the slope, giving defilade to the tank hull.

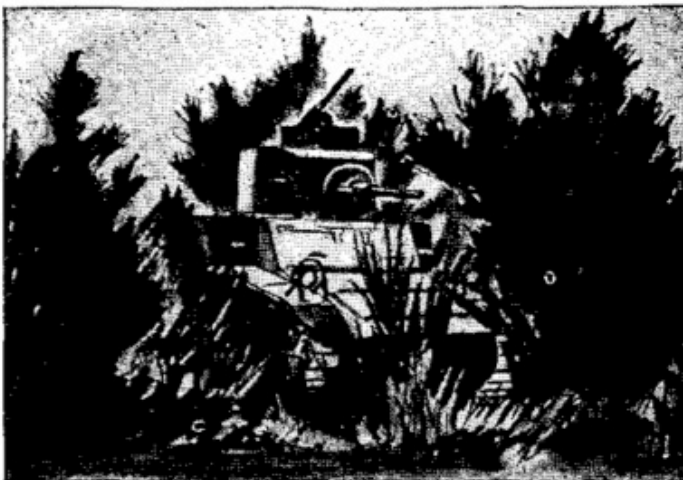
FIGURE 16.—Avoid positions on open hills.

Taking a defilade position is a basic principle of armored combat. The enemy should have nothing but the top of your turret down to the bottom of the mantlet to see and shoot at.



② Do not take position near bushes.

This point is more subtle. Bushes and clumps of cover are called "positive" ground – the enemy reflexively looks that way because *he* would hide there. Camouflage your position carefully instead of sitting in the open next to an attractive place for the enemy to check out.

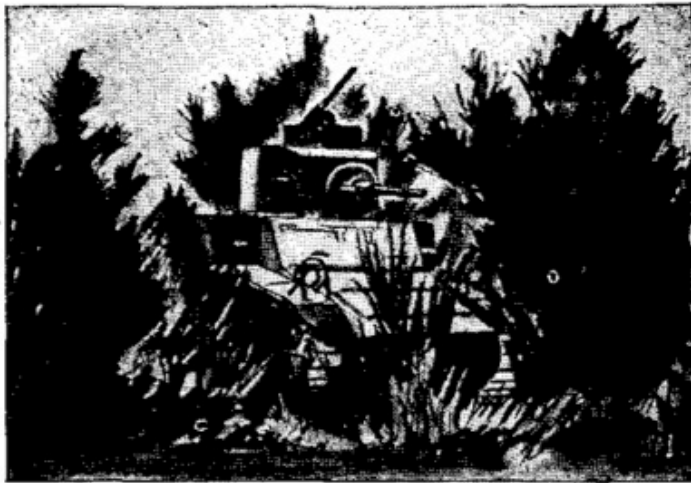


③ Drive into the bushes and take position.

FIGURE 17.—Concealed position in brush.



① Do not take position near bushes.



② Drive into the bushes and take position.
FIGURE 17.—Concealed position in brush.

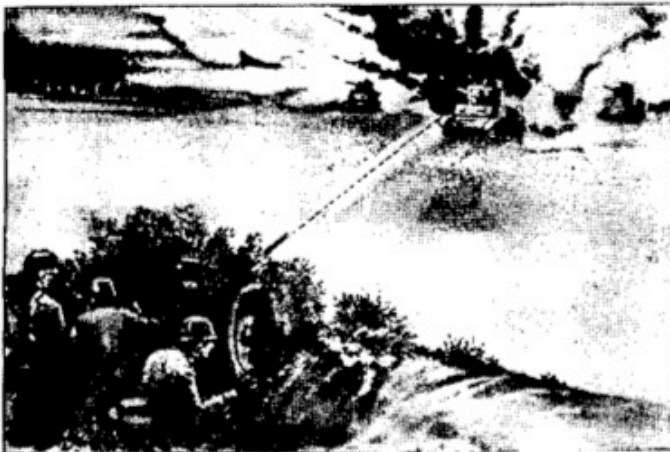


③ Do not drive through fog in a broad formation, as contact may be lost.

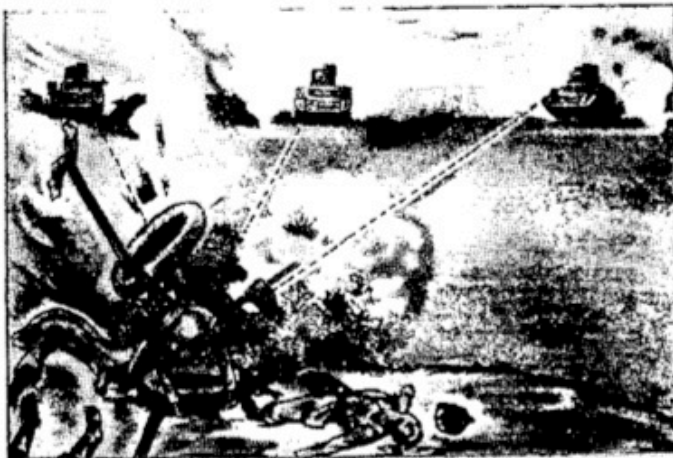


- ③ Drive through fog in double column in order to narrow and shorten the formation.

FIGURE 18.—Passing through fog.



- ① Do not drive through smoke cloud in wedge formation. As the tanks come out of the smoke cloud the enemy can destroy them one after the other.



- ② Drive through a smoke cloud in line formation. The tank platoon comes out of the cloud all together, ready to fire. If defiladed or concealed positions can be taken up until smoke cloud passes, do so. (See FM 17-32.)

FIGURE 19.—Driving through smoke cloud.

See figure 5; same principle.

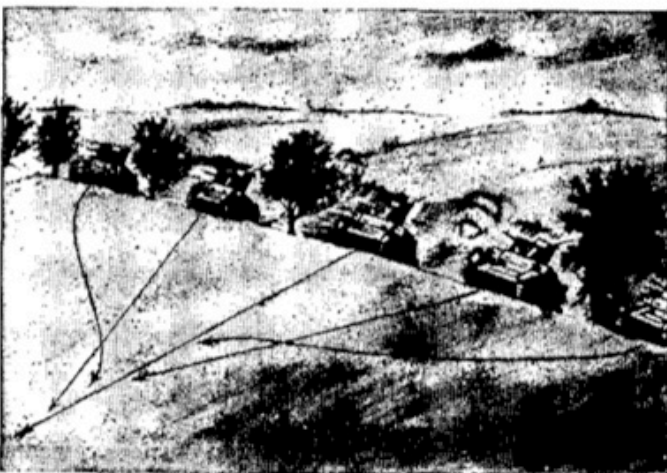


FIGURE 20.—Passing through a defile. Spread out as soon as defile is passed in order to bring more fire power to bear on the enemy and to offer a less concentrated target.

A tough and astute enemy will wait until the first tank or two has emerged from the defile (the appropriate word is “debouched”), then smack them hard to block the rest from getting through. The only antidote is to scout thoroughly, call in suppressing fire as you snake through the defile, and make sure the first few tanks through provide heavy suppressing fire as the rest come on line. Easy to say; hard to do.



① If an obstacle is crossed in column, much time is lost, for all vehicles must wait until the tank ahead is across.



② When an obstacle is crossed on a wide front, each vehicle requires the same time. The column then can be quickly re-formed.

FIGURE 21.—Crossing obstacles such as ditches.

SECTION III

WEAPONS AND AMMUNITION

■ **9. GENERAL.**—The tank is armed with several weapons of different calibers each of which is provided with more than one type of ammunition. The tank crew must be carefully trained in the characteristics of these weapons, their capabilities and limitations, and the proper use of each. The gunner and tank commanders must know instinctively what weapons to use and the proper type of ammunition for each target.

■ **10. DESCRIPTION.**—*a.* Depending upon the type of tank, the weapons available are the caliber .30 machine gun, the 37-mm gun, and the 75-mm gun. In addition, the tank has 12 grenades, fragmentation, incendiary, and smoke, and the individual weapons of the crew, submachine gun and pistol.

b. The machine gun is an antipersonnel weapon. When fired from a stationary tank it may be effective at ranges up to 2,500 yards. However, it will normally not be used beyond 1,000 yards. From a moving tank not equipped with the gyro stabilizer, the machine gun should not be used at ranges greater than 300 yards. With the gyro stabilizer, ranges are the same as from a stationary tank. The M1919A4 caliber .30 machine gun cannot deliver sustained fire like the M1917 water-cooled gun. Caliber .30 armor piercing ammunition will penetrate the shield of antitank weapons at 200 yards.

c. The 37-mm gun has three types of ammunition: canister, high explosive, and armor piercing.

(1) Canister ammunition is used against personnel at ranges up to 200 yards. (See FM 23-80 and FM 23-81.)

(2) High explosive ammunition is used against unarmored weapons in position, such as machine guns or antitank guns, from an unprotected side. It is no good against armored vehicles or bunkers.

(3) 37-mm armor piercing ammunition is effective against most hostile light and medium tanks up to a range of 800 yards. It is also used against emplacements.

d. The 75-mm gun is equipped with armor piercing, high explosive, and smoke shell.

(1) Armor piercing ammunition is effective against most hostile tanks up to a range of 1,600 yards. The armor piercing shell itself is effective against unarmored vehicles beyond limit of vision of the firer, normally 2,500 to 3,000 yards.

(2) High explosive ammunition is used against anti-tank guns, machine-gun emplacements, and occasionally against personnel. It is effective beyond the limit of vision (see (1) above). By indirect fire with an observer, it may be

By the time this manual was fielded, there was also a company of M4's with a 105mm short cannon in the tank battalion.

In those days, armor-piercing was what we call "shot" – solid steel rounds, sometimes with a very hard point (usually tungsten carbide) that penetrated armor by pure kinetic energy. This created a problem as US tanks began to encounter the heavily armored Tiger and Panther tanks. ↓

used at ranges of 7,500 yards.

(3) (Superseded.) (a) Base emission smoke shell M89 is a blunt-nose projectile with a maximum effective range of 1,600 yards. Its shape makes it difficult to control for deflection and range. It bounces on firm terrain from 100 to 300 yards from the point of strike. Each round burns about 3 minutes. A platoon can screen a 400-yard frontage of average terrain within the effective range of the shell.

(b) Smoke ammunition is fired by the section or platoon to screen or blind an enemy position during the maneuver or assault of attacking tanks. It is used on small areas at the command of and controlled by the unit commander. It is not effective when fired by a single tank. Since it takes from 1 to 2 minutes to build a satisfactory screen, suspected areas are smoked before the start of the attack. After the attack is under way, high explosive is used against antitank guns which open fire on assaulting or maneuvering tanks. Tank smoke is not used on missions which properly belong to the organic assault guns or mortars.

(c) The section or platoon fires three or four rounds per gun in about 1½ minutes to screen a suspected area. With a flank wind, the screen is built up to windward of the target, so that it will drift onto and just in front of it. When firing into a head wind, tanks place smoke on or close behind the target. A crosswind of from 3 to 6 miles velocity is ideal. When the wind velocity is high (15 mph), the rate of fire is faster than in a slow wind (3 to 5 mph).

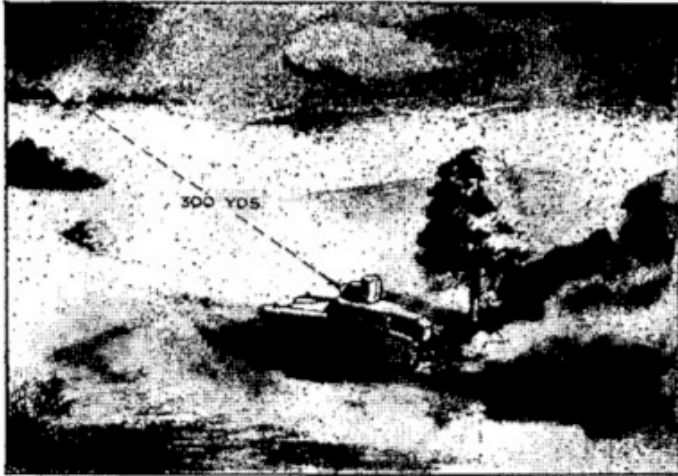
■ **11. CONSERVATION OF AMMUNITION.**-Each exercise scheduled for company training must include training in ammunition conservation. Although exercises are conducted without ammunition, this subject must always be kept in mind. During exercises, the 37-mm and 75-mm gunner should be required to simulate firing and assistant gunners should keep track of the number of rounds the gunner has simulated firing. When all ammunition is fired, the gunner ceases firing. This is one of the principal ways in which troops can be trained in conservation of ammunition. If promiscuous simulated firing without thought of ammunition supply is permitted, wasteful habits will be developed. The tank commander requires frequent reports from gunners concerning ammunition supply. The chart below shows in a startling manner what a comparatively small amount of ammunition is available.

↑ Kinetic penetration is a product of force (F), and F equals mass times acceleration ($F = mA$). If a shot round has insufficient energy to penetrate a given armor thickness, there are two options: a heavier round or a faster round. Both responses have technical challenges.

During the war, high explosive antitank (HEAT) rounds began to appear, but were pretty much confined to rocket launchers (bazooka, Panzerfaust, etc.). There was a technical problem firing them from tank guns – the spin of the round would weaken the shaped charge jet. The answers were not in place until after the war.

C 1, 8 July 1944.

Weapons	Rounds carried	Usable rate of fire per minute per weapon	Number of minutes ammunition will last, firing at usable rate	Number of targets that can be engaged with ammunition available at 5 rounds per target
Light tank, M3:				
3 caliber .30 machine guns.....	4,000	125	10	-----
1 37-mm gun.....	103	10	10	21
Medium tank M3:				
2 caliber .30 machine guns.....	4,000	125	16	-----
1 37-mm gun.....	150	10	15	30
1 75-mm gun.....	50	6	8	10
Medium tank M4:				
2 caliber .30 machine guns.....	4,000	125	16	-----
1 caliber .50 machine gun.....	300	125	2.5	-----
1 75-mm gun.....	96	6	16	15



① Without a gyro stabilizer, do not fire from a moving tank at a point target 300 yards distant (see par. 10b). This is a waste of ammunition.



② Fire from stationary tank. Move nearer if it is only an enemy machine gun.

FIGURE 22.—Firing on a point target from moving target.



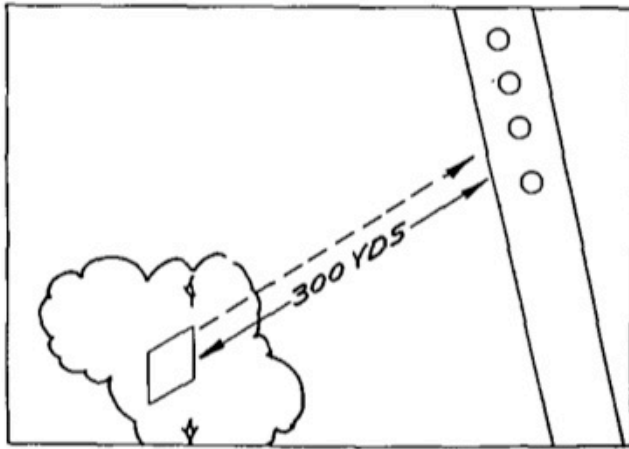
③ Do not fight advancing enemy infantry from a moving tank at a range of 500 yards or greater, if suitable stationary firing positions are available.

Practical stabilization for firing on the move didn't appear until late in the war (with the M26 light tank).

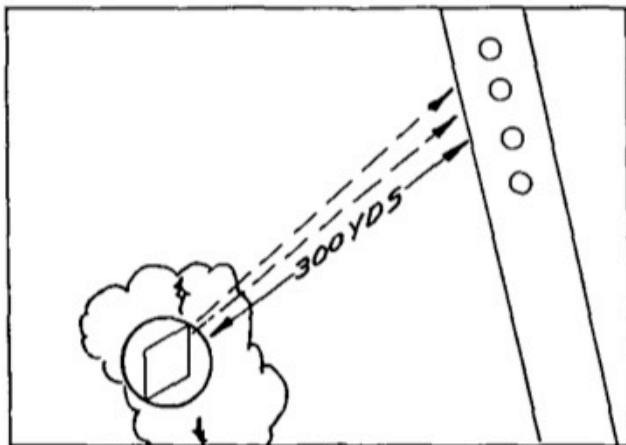


① Shoot from stationary tank with machine guns; move the tank forward after the enemy has started to take cover.

FIGURE 23.—Firing on foot troops from a moving tank. (See also fig. 24.)

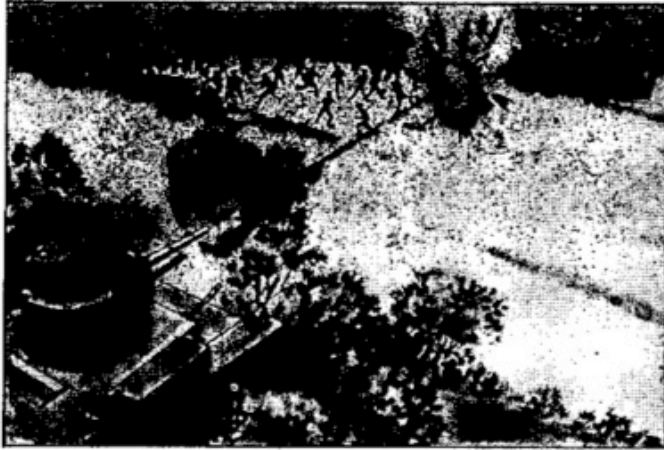


①

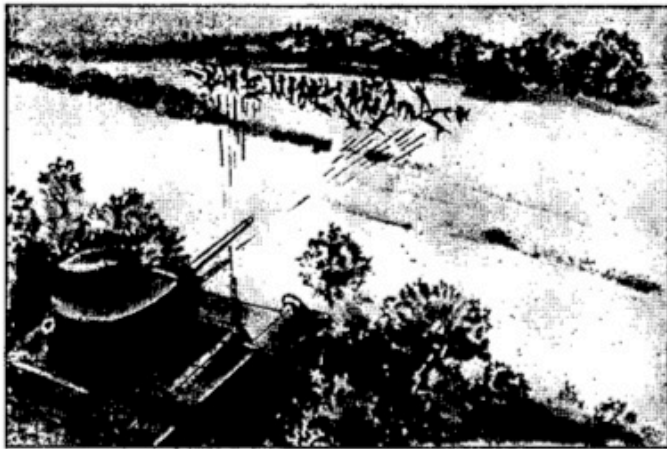


②

FIGURE 24.—Firing on foot troops from a moving tank. (See also fig. 23.)

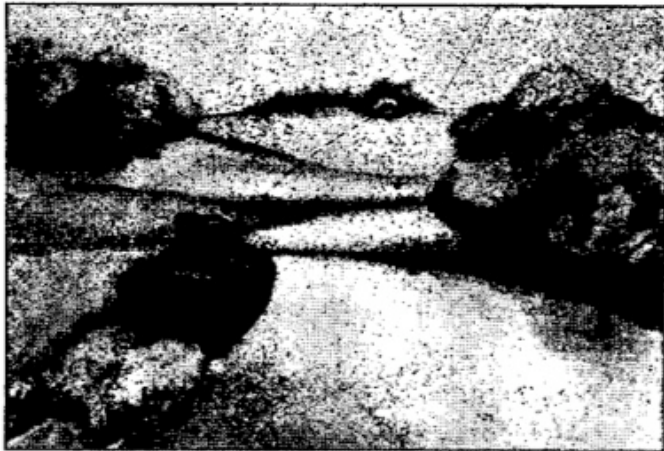


- ① Do not attack a dismounted column with the slow-firing 37-mm gun with armor piercing or high explosive shell; the effect will not be great enough.



- ② Make a surprise attack with the fast-firing machine gun. If column is within 200 yards, use 37-mm cannister.

FIGURE 25.—Attacking a column of foot troops or horse cavalry.



- ③ When you are not under fire, do not fire at 500 yards, or greater range, from a moving tank at an enemy antitank gun which is firing at some other target. The effect of your fire is too uncertain and discloses your position.

Think about it: a soldier struck by a tank's AP round will be pretty well obliterated; but the AP round is designed to engage large, protected point targets, not to plink away at soldiers for the sheer joy of using a cannon to swat a fly. Use the bow MG and the commander's M2 — you will be less likely to run out of ammo before the enemy runs out of infantry.

Corollary: *one round one kill*. If you miss a dangerous target, he now knows where you are and the odds are sort of even. *Avoid a fair fight at any cost.*



② Go into position at once and shoot with all guns at the crew of the antitank gun; the effect of fire from a stationary tank at 800 yards range is excellent.

FIGURE 26.—Attacking hostile antitank gun which is firing at some other target.

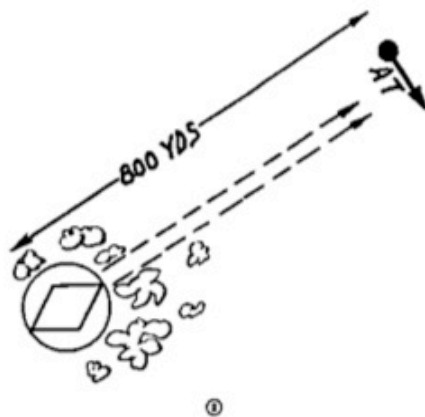
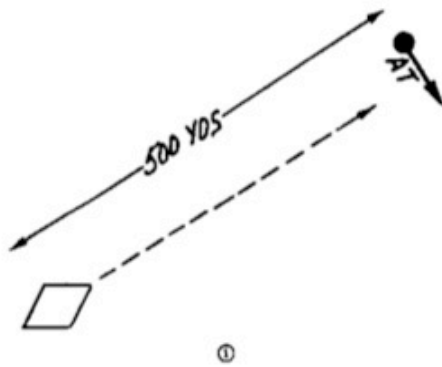
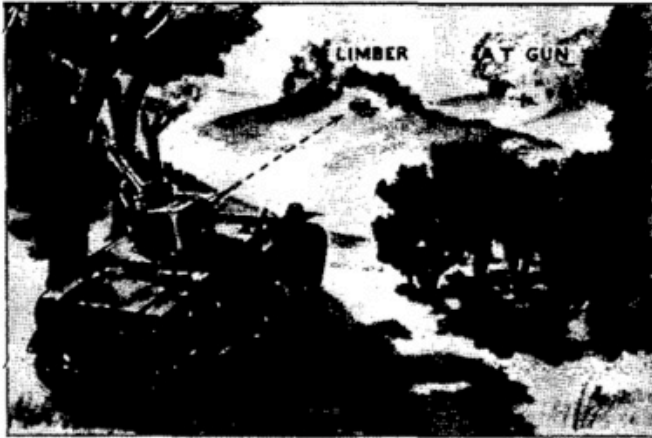


FIGURE 27.—Attacking hostile antitank gun that is firing at another target. (See also fig. 26.)



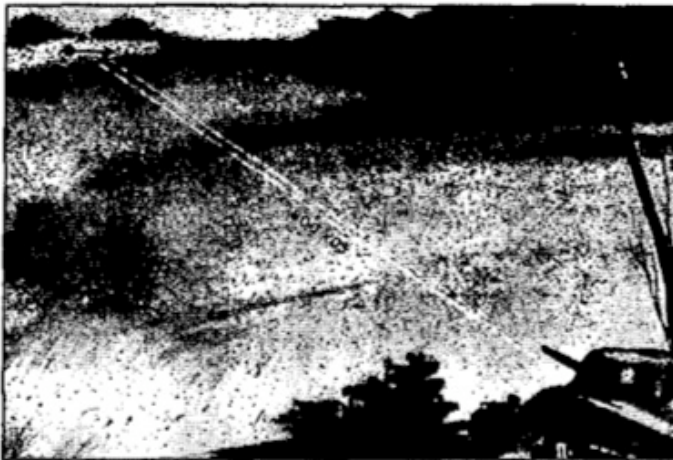
① Do not shoot at a larger but less dangerous target (ammunition section) while an enemy antitank gun is moving into position.

Don't club the baby seals when a polar bear is in range.



② Attack at once; fire with all guns at the enemy antitank gun.

FIGURE 28.—Attack more dangerous target.

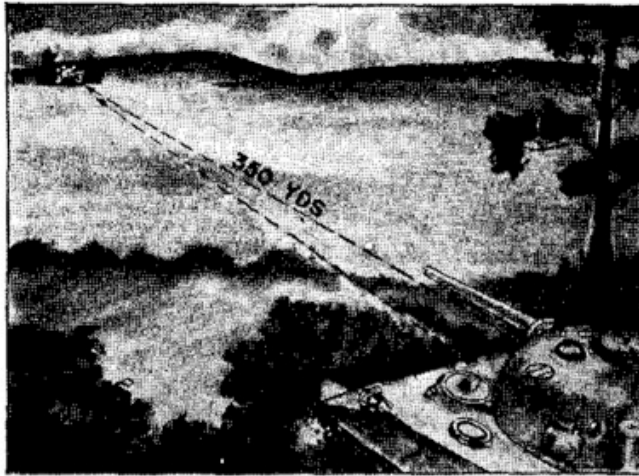


③ Do not fire with a machine gun at an antitank gun going into position at ranges in excess of 800 yards.

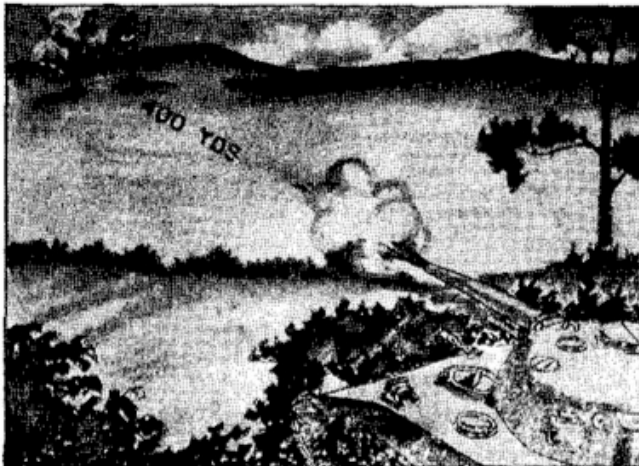


- ① Fire with the 37-mm or 75-mm gun at the antitank gun going into position.

FIGURE 29.—Firing at an antitank gun going into position.

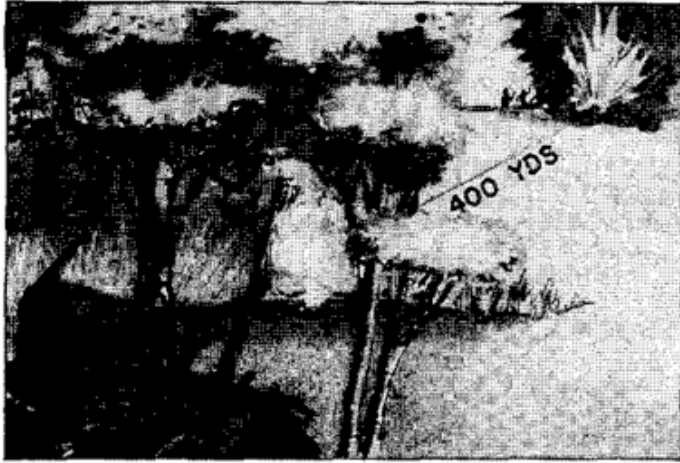


- ① Do not attack an antitank gun frontally at 350 yards or greater range by machine-gun fire. The machine-gun projectiles do not penetrate the armor plate at ranges greater than 350 yards.

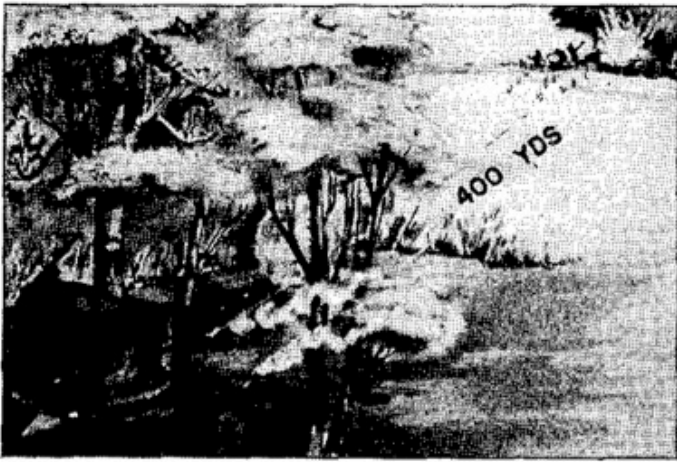


- ② Fire at the target with the 37-mm armor piercing or 75-mm high explosive or armor piercing shell. It will penetrate the armor plate, destroy the weapon, and eliminate the crew.

FIGURE 30.—Attacking an antitank gun frontally.



① Do not fire with only the 37-mm gun at any enemy antitank gun (400 yards away) pointing in another direction.



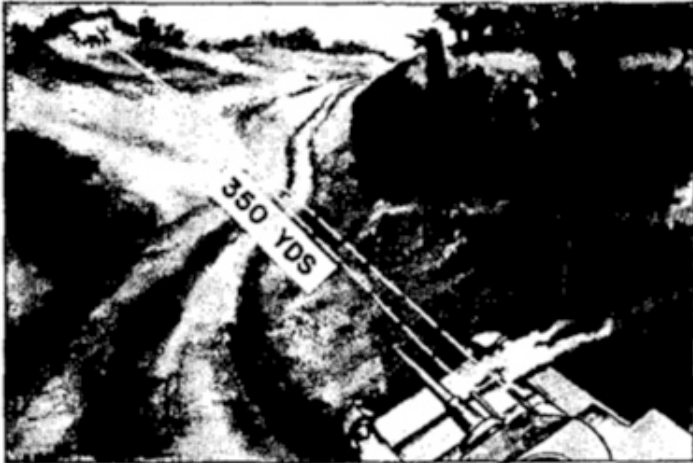
② Fire with all guns at the unprotected flank of the antitank gun.

FIGURE 31.—Firing at a hostile antitank gun.



③ Do not fire at antitank gun with 37-mm tank gun at close range.

Typical AT guns (like the 37, 57, and the 75mm Pak 40) have a splinter shield to protect the crew from small arms and shrapnel from the front. Unless the gun is emplaced and protected by earth or sandbags, the flank is unprotected.



① It is sufficient to use the machine gun, as armor piercing machine-gun ammunition will penetrate the armor plate at short ranges.

FIGURE 32.—Firing at hostile antitank gun.



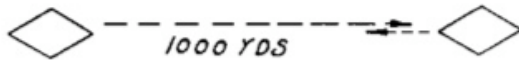
② When an oncoming enemy tank is met, do not keep moving toward it, firing during movement, if suitable stationary positions are available.



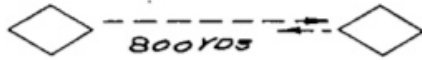
③ Move into position at once and take the enemy tank under fire with armor piercing projectiles from your stationary tank.

FIGURE 33.—Attacking enemy tanks.

Figure it out. Moving, you have low accuracy against a point target. The point target is stationary and shooting back. Who do you think will win?



① Do not attack an enemy tank with the 37-mm tank gun at more than 800 yards. This is a waste of ammunition.



② Let enemy tank approach to within at least 800 yards range.

FIGURE 34.—Firing at hostile tanks.



③ Do not attack an enemy tank with explosive shells.



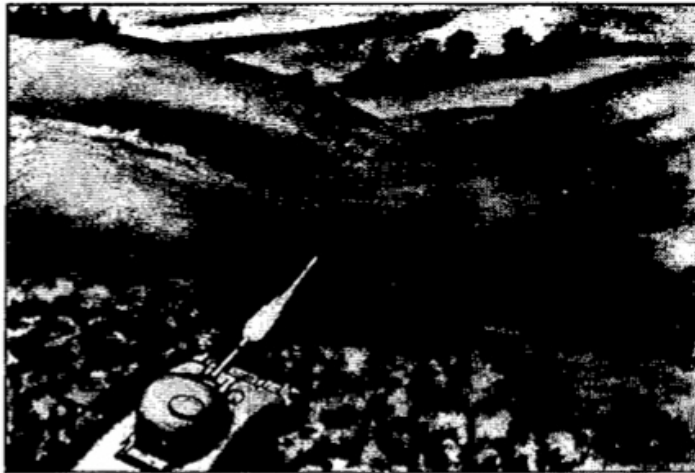
④ Fire with armor piercing shells.

FIGURE 35.—Attacking enemy tanks.

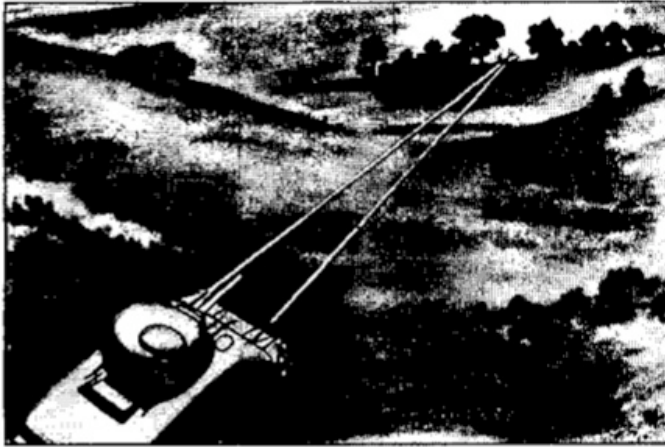
Remember that $F = mA$. At longer ranges, the shot round loses velocity.

Note, however, that the 37 is ineffective against the frontal armor of heavier tanks at pretty much any range. Wait until he presents his flank and hit him in the thinner armor.

The energy of an exploding HE shell goes in all directions. If you don't have any AP shell left, go with HE and hope for a lucky hit (try aiming for the turret ring or the gun mantlet and pray).



① Do not fire at an enemy machine gun, not emplaced, with the slow-firing 37-mm tank gun using high explosive or armor piercing shell. This is a waste of ammunition.



① Eliminate the enemy machine-gun crew by fast-firing machine guns or use 37-mm cannister if within 200 yards.

FIGURE 36.—Attacking hostile machine guns.



② Do not fight an emplaced machine gun with a machine gun.



③ Use 37-mm or 75-mm explosive or armor piercing ammunition.

FIGURE 37.—Attacking an emplaced machine gun.

HE is probably better, but a direct hit with AP will do the trick.

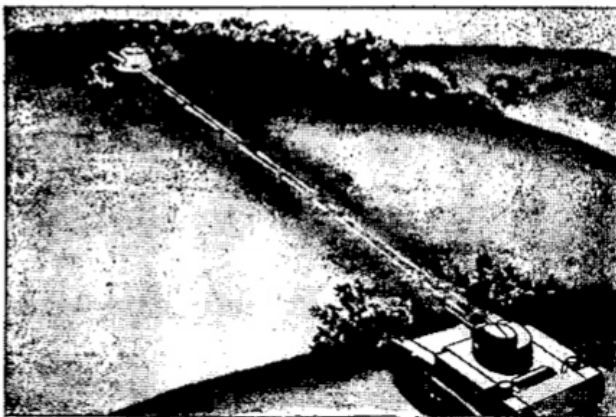


ⓐ Do not try to destroy the crew of an enemy machine gun at close range with explosive shells.

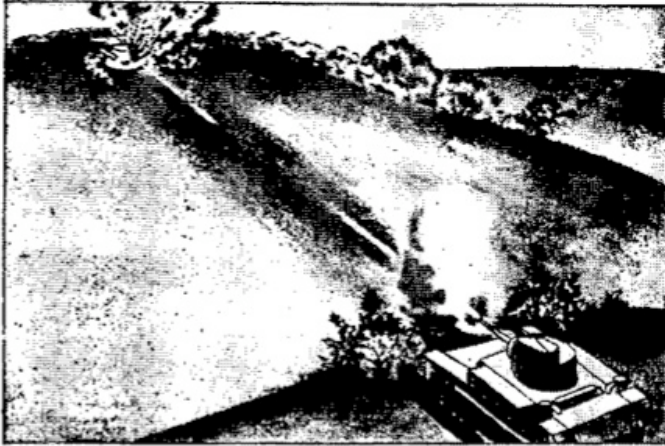


ⓑ At close range, use machine guns to destroy living targets. If range is less than 200 yards, use cannisters.

FIGURE 38.—Attacking a hostile machine gun at close range.

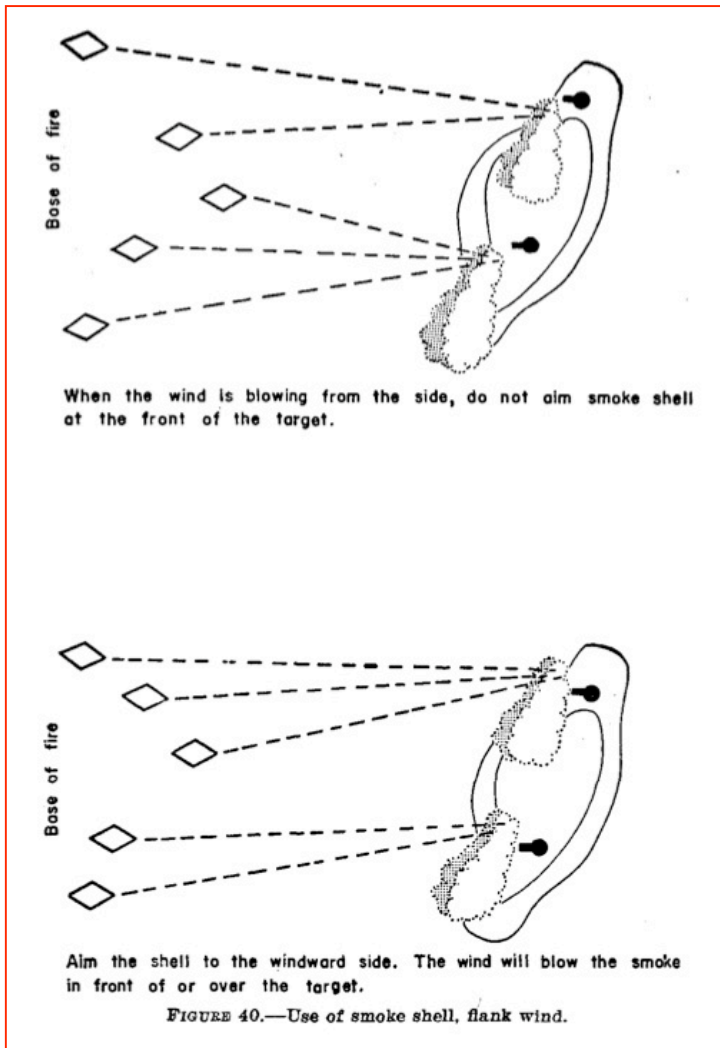


ⓒ Do not fire with machine gun at loop-holes of the bunker. This will probably not be successful.



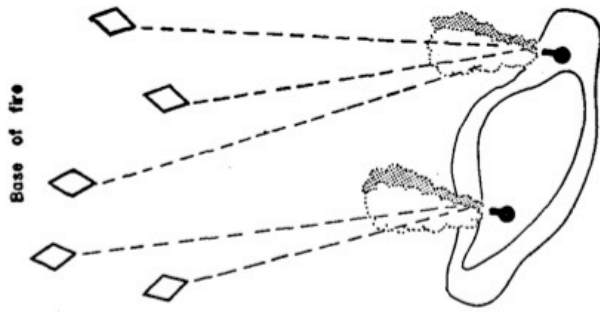
② Destroy the loopholes by 37-mm or 75-mm tank gun fire, using armor piercing projectiles.

FIGURE 39.—Firing at loopholes in a bunker.

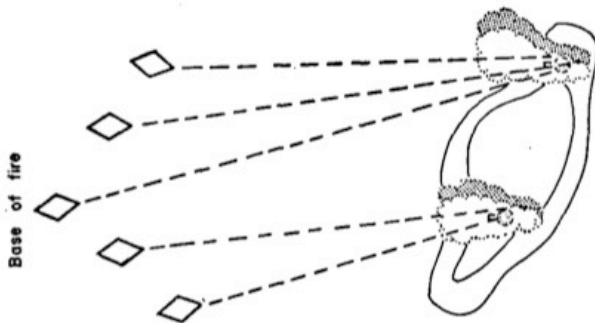


C1, 8 July 1944.

Duh. The smoke will obscure the target and make it impossible to adjust subsequent rounds.

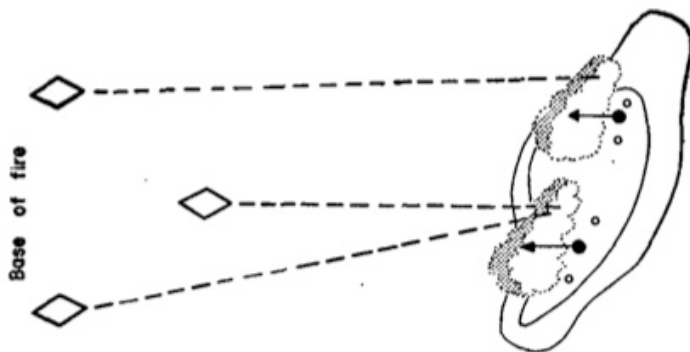


When the wind is blowing from your front, do not place the smoke shell in front of the target. This does not blind the antitank gun.

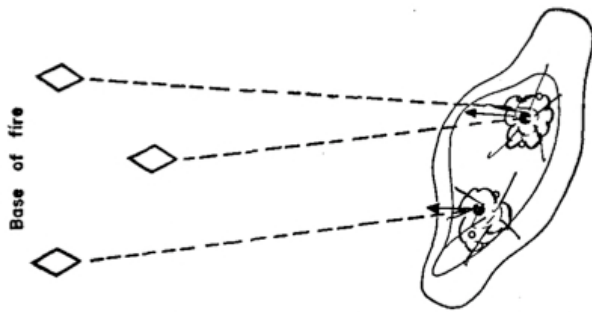


In this case, place the shell on or behind the target; then the wind will screen it completely.

FIGURE 41.—Use of smoke shell, head wind.

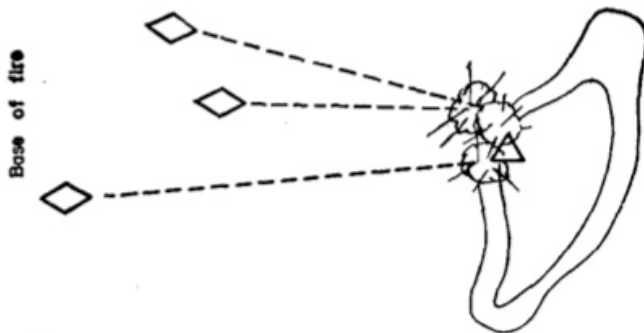


Do not use smoke shell against definitely located infantry weapons

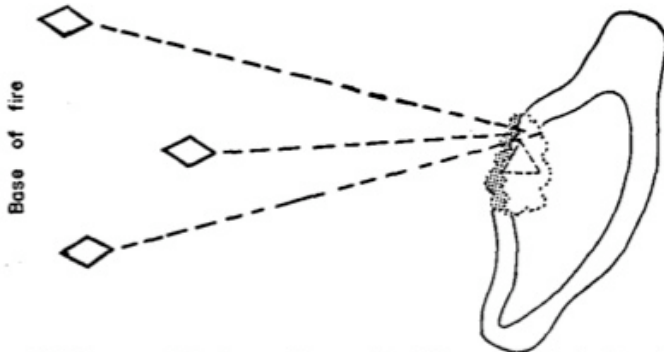


Destroy infantry weapons by machine gun and high explosive ricochet fire.

FIGURE 42.—Do not use smoke against infantry weapons.



Destroy definitely located observation posts with high explosive



Blind suspected observation posts with smoke shell when fire from other weapons is not available.

FIGURE 43.—Use of smoke shell to blind an observation point.

Figure 44, Use of smoke shell to cover maneuver, is rescinded.

Figure 45, Use of smoke shell to blind an observation point, is rescinded.

[A. G. 300.7 (28 Jun 44).]

If an HE round hits at a very shallow angle it may ricochet and explode slightly above the ground. This depends on the fuze setting and on luck.

CHAPTER 3

CONTROL, ORDERS, AND RECONNAISSANCE

■ **12. CONTROL.**—*a. Purpose.*—Control is essential to coordinated action. Loss of control leads to uncoordinated and ineffectual effort. The platoon leader must at all times be able to direct the maneuver of his platoon and to concentrate the fire power of the platoon as desired.

b. Tactical control.—The platoon leader controls the platoon initially by clear, definite orders as to direction of attack, zones, and objectives. During the attack he controls movement by means of radio orders and flag signals. Less frequently, orders will be given to assembled tank commanders during lulls in the fighting.

c. Fire control.—For fire control of individual weapons by the tank commander, see Field Manual for the weapon concerned. For list of Field Manuals and Technical Manuals, see FM 21-6. Prior to the attack the platoon leader points out known targets and indicates which weapons are to fire on these targets. For the advance, he designates tanks to guard to the front, right, and left. (See FM 17-12, 23-80, 23-81, and 23-95.) During the attack the platoon leader by radio directs the fire of his platoon or of a tank or section upon certain targets if these targets have not already been adequately engaged.

■ **13. ORDERS.**—*a.* Initial orders are given to the assembled tank commanders from a point from which as much as practicable of the area over which the platoon is to advance can be seen. If this is impracticable, show the zone and direction of advance on a map, sketch, or aerial photograph. Indicate objectives and rallying points. Make the order brief but clear. The order should include—

- (1) Information of the enemy and terrain.
- (2) Mission of the company.
- (3) Mission of the platoon.
- (4) Fire support, that is, mortar, assault gun, or artillery.
- (5) Attack position.
- (6) Direction of attack.
- (7) Objectives.
- (8) Formation of platoon.
- (9) Scheme of maneuver, that is, attack straight to front or one section making envelopment. Orders for each section if platoon does not attack in one wave.
- (10) Time of attack or signal for the attack.
- (11) Rallying point.
- (12) Alternate rallying point.

(13) Special signals, if any.

b. During the advance, orders are given by radio or by flag signal, except during lulls in combat, when section leaders or tank commanders may be assembled for receiving orders.

PL and PSG tanks have sets of two red flags; there is a designated signal system to allow conveyance of standard orders without radio.



FIGURE 46.—Do not give orders from map or by description alone if you can reach a position from which terrain and enemy may be pointed out.

■ **14. RECONNAISSANCE.**—*a.* The tank platoon is not a reconnaissance unit although at times it may be used for reconnaissance purposes. When on purely reconnaissance missions, its functions are as described in FM 17-20. This paragraph covers employment and battle reconnaissance.

b. The tank has limitations as a reconnaissance vehicle due to limited observation and noise. However, in many situations tanks must be used for reconnaissance because of their armament and armor protection. Much of the employment reconnaissance, because of these restrictions and also to prevent discovery of the presence of tanks, must be made on foot. However, every effort should be made to thoroughly reconnoiter the terrain and the enemy positions. Employment reconnaissance may be classified as hasty and deliberate.

(1) When attacking from march column or when making a deep movement into enemy held terrain, deliberate reconnaissance, because of the lack of time, may not be possible. In such case the platoon leader makes a hasty map reconnaissance, gains all the information he can from his company commander, and passes all information along to his tank commanders. He tentatively selects his route of advance from the map or carefully studies the route designated by the company commander. He notes what will apparently be difficult places, places where cover is meager or lacking, and available cover. As he advances, he moves from observation point to observation point and continuously studies the ground to the front and flanks.



FIGURE 47.—Give order from point where terrain and enemy can be seen.

(2) (a) During combat, reconnaissance is continuous. The platoon leader and individual tank commander constantly observe in order to choose routes, select positions, and find enemy installations. The platoon leader must keep his company commander informed concerning the situation. He should constantly ask himself the following questions:

1. Where am I?
2. Where is the enemy?
3. What is my mission?
4. What is the enemy doing?
5. What weapons is he using?
6. How can I best use the terrain?

(b) In his reports to the company commander, the platoon leader should answer all or part of the following questions:

1. Where am I?
2. What am I doing?
3. Where is the enemy?
4. What is the enemy doing?
5. What weapons is he using against me?
6. What is enemy's strength?
7. What is on my flanks?
8. What are my losses?
9. What am I going to do?

(3) In a coordinated attack, particularly in the penetration of a position, there will usually be more time for reconnaissance. If infantry or reconnaissance units are in contact with the enemy and time is available after receipt

of orders (see FM 17-22), the platoon leader, section leaders, tank commanders, and drivers if possible, reconnoiter the ground from the attack position to the line of departure. From an observation point, the zone of advance is studied as far forward as practicable and routes for each tank selected. Maps or aerial photographs are studied to determine character of terrain beyond the limit of vision. This reconnaissance cannot be too detailed.

c. During battle, reconnaissance is continuous to discover enemy positions and weapons, routes of approach, detours around impassable ground, and anything that will affect the progress of the platoon.

d. The platoon leader must keep his company commander fully informed of the results of reconnaissance. *When reporting, be sure to give your own position.*

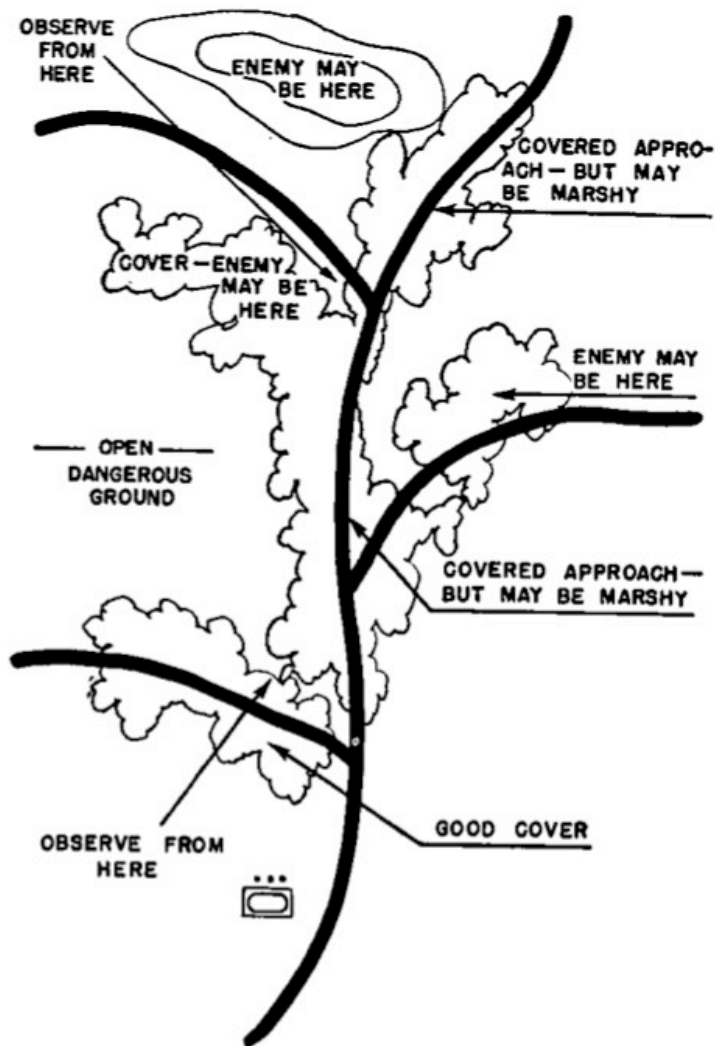


FIGURE 48.—Observation.

CHAPTER 4

MARCHES

■ **15. GENERAL.**—For detailed discussions of marches, see FM 17-10, 17-50, 17-32, 17-33, and 25-10. For security on the march, see chapter 5.

a. A good march places men and equipment at their destination at the proper time and in condition to fight. The success of a march depends upon good march discipline which can be obtained only by practice and rigid enforcement of march rules.

b. The platoon, except when detailed on security missions, marches as part of the company. The platoon leader, when contact with the enemy is not imminent, marches at the head of the platoon and is responsible for the proper distance from the unit ahead. He frequently observes to the rear to check on his platoon. When contact is imminent, platoon leaders will usually march at the head of the company and platoons are conducted by the platoon sergeant.

c. Radio silence is maintained when in the presence of the enemy and as otherwise ordered. *However, radio receivers are turned on and tuned to the battalion or other frequency as directed in order that immediate air alarm may be transmitted to all tanks.*

d. A march must not be considered as a joy ride. All men must be alert. Weapons must be ready to repel a ground or air attack. Tank commanders observe from the turret and keep close watch for enemy air or ground troops and for distance to the tank ahead.

e. The following should be particularly stressed (see also FM 17-32):

- (1) Keep proper distance from vehicle ahead.
- (2) Glance to rear occasionally to observe march of other vehicles.
- (3) Watch for air or ground attack.
- (4) Keep to right of road when there is two-way traffic. Travel in center of high-crowned road when there is one-way traffic but watch out for vehicles trying to pass.
- (5) Move off road at halt or as far off the side as practicable. If ditches prevent moving completely off the road. Use available cover but do not close up. *Keep distance.*
- (6) Change drivers at the halt.
- (7) *Keep alert. Keep weapons ready for use.*

■ **16. RATE AND DISTANCE.**—*a.* The march rate of medium tanks will not exceed 17 miles per hour. Light tanks when not in column with medium tanks may exceed this rate.

b. The distance per vehicle will depend upon the time of day and the possibility of air attack. The usual distance per vehicle is 88 yards, that is twenty vehicles per mile.

When there is danger of frequent and heavy air attacks, this distance should be increased to 176 yards or 0.1 mile.

c. At night, distance is decreased so that the driver can see the night lights of the vehicle ahead.

■ **17. HALTS.**—*a.* Halts are usually made for 10 minutes every 2 hours. At the halt, do not remain idle. Inspect the tank and refuel as necessary. Have one man on the weapons ready to repel ground or air attack. Do not let yourself be surprised. Drivers should be changed at these halts. *Do not close up.*

b. Refueling halts, usually of ½-hour duration, are made every 4 hours. Men may be fed during these halts.

c. See also paragraph 15*f.*

■ **18. MAINTENANCE.**—Tanks that fall out of column pull to the side of the road, under cover if practicable. The company maintenance section following the company makes a hasty examination of the vehicle. If it can be repaired in 10 minutes, this maintenance section makes necessary adjustments. If more extensive repairs or adjustments are necessary, the vehicle is left for the battalion section of the regimental maintenance company, which is following the battalion. The crew remains with the vehicle.



FIGURE 49.—On a high-crowned road with one-way traffic, drive in center.

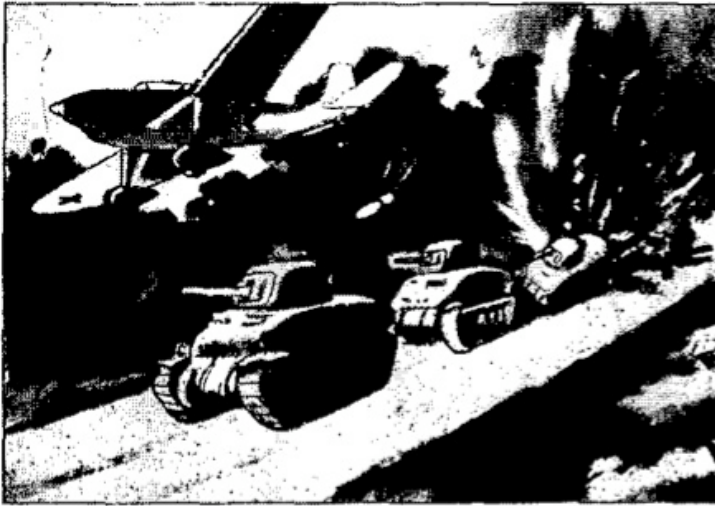


FIGURE 50.—Do not close up tanks during a halt, thereby offering a good air target. Halt with proper march distance so as not to present a massed target.



① Use shadow of trees when halted.



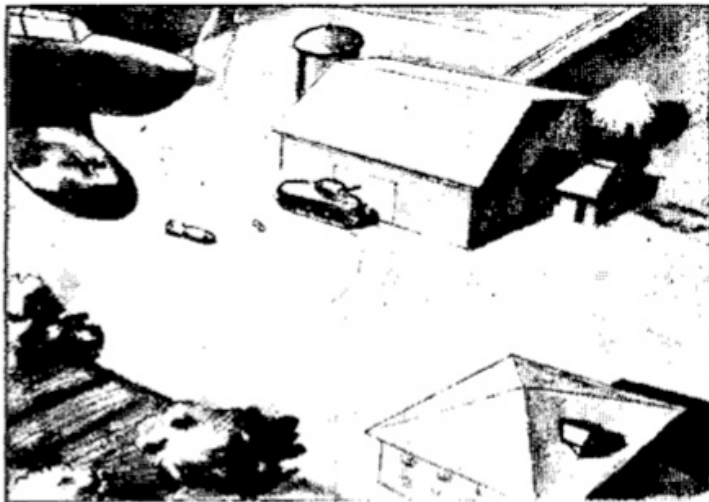
② Halt on the shady side of the wood's edge, not on the sunny side.

FIGURE 51.—Halt in shade or move into woods.



FIGURE 52.—If concealment is not available, move off road and disperse.

An enemy aircraft equipped for attacking tanks may or may not see or attack a single visible target. If targets are dispersed, the cost of homing in on one while under fire from numerous scattered .50 cal MGs may be seen as not worth the aggravation.



① Do not halt at the side of a barn where an air observer can see the tank; better concealment is available inside the barn.



③ When the movement of the sun changes the shadow, change the tank's position with the shadow.

FIGURE 53.—Halt on shady side of buildings.



④ Do not loaf at the halt.



⑤ Inspect tank. Keep one gun manned.

FIGURE 54.—Action of tank crew at the halt. Keep observer alert.

At every halt the crew should perform operator maintenance checks and inspections (track tension, wheel bearings, sprocket wear, seeps, weeps, and leaks), and one crewman should man the 50 and watch for enemy aircraft.

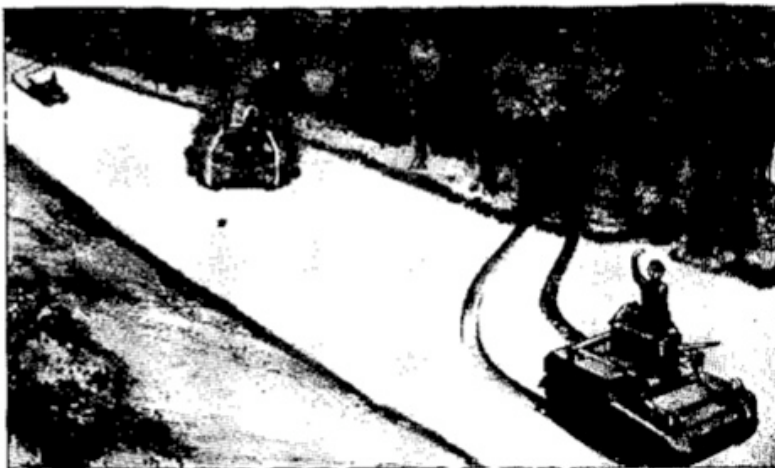


① Do not halt so vehicles will have to back out to return to the road.

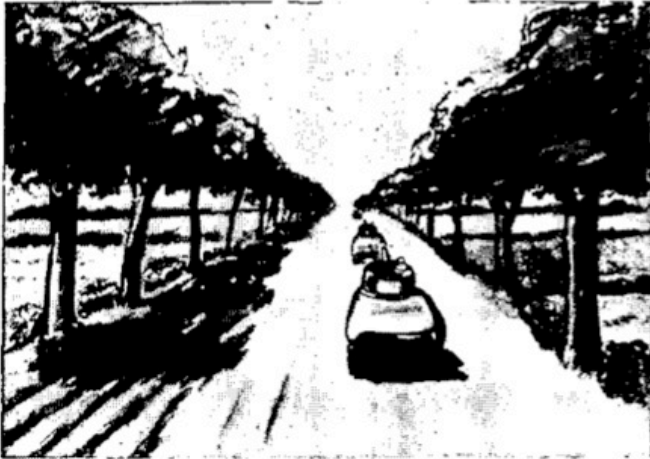


① Head vehicles so they can be moved directly forward to the road.
Turn turrets so guns of platoon will give all around protection.

FIGURE 55.—Position of vehicles at the halt.



① Do not form on road and wait for signal to move forward.



① Do not drive in the dust beside road, even if shaded. Drive on the hard surface where no dust cloud is raised.



② Do not drive off the road where a dust cloud attracts attention of the enemy.

FIGURE 57.—Dust clouds.



③ In extreme darkness, use the night driving lights. This prevents collisions and permits uninterrupted movement of the column.



- ③ When moving at night, the tank commander must observe from the turret, recognize obstacles, and understand the light signals of the platoon commander. The tank commander must not sleep during a night march.

FIGURE 58.—Night driving.

CHAPTER 5

SECURITY

■ **19. GENERAL.**—The subject of security generally is covered in **FM 100-5** and FM 17-10. This chapter covers local security for the platoon and the platoon on security missions.

a. Security is the responsibility of all commanders from the highest to the lowest. The higher commander is responsible for security of the command as a whole. The tank platoon is responsible for its own local security. *Do not let the enemy surprise you. Do not become careless. Do not relax vigilance because you think the enemy is far away. Small hostile groups may approach by stealth. Paratroops may attack. There is always danger of air attack.*

b. Security for the tank platoon is obtained by-

(1) Posting observers to warn of hostile ground or air attack.

(2) Keeping some of guns manned at all times. (For instructions on loading and half-loading alert weapons, see FM 17-32.)

(3) Concealment and camouflage.

(4) Use of slit trenches.

■ **20. ON THE MARCH.**—a. On the march—

(1) Take and keep proper distance between vehicles (80 to 170 yards; see ch. 4).

(2) Keep radio silence.

(3) Tune receivers of all vehicles to battalion command or other frequency as directed in order to receive early information of air or ground attack.

(4) Tank commanders observe from turrets. Keep alert for ground and air attack.

(5) Gunners remain ready to deliver fire instantly.

b. The platoon may be given the mission of protecting to the front, either flank, or the rear. If the platoon is acting alone, individual tanks are given these missions.

■ **21. AT THE HALT.**—At temporary halts during the march, when the tank platoon is operating within the column, the following security measures are taken:

a. Move off the road if practicable and into concealment.

b. Disperse vehicles.

c. Point guns to give all around defense.

d. Keep one man in each tank on the gun.

e. Keep one man on platoon leader's radio.

f. Post one or two men armed with submachine guns to a flank as necessary. This will not be necessary if flank is open and view unobstructed.

g. Post air and ground observer.

h. Post man on road to receive signals from company commander.

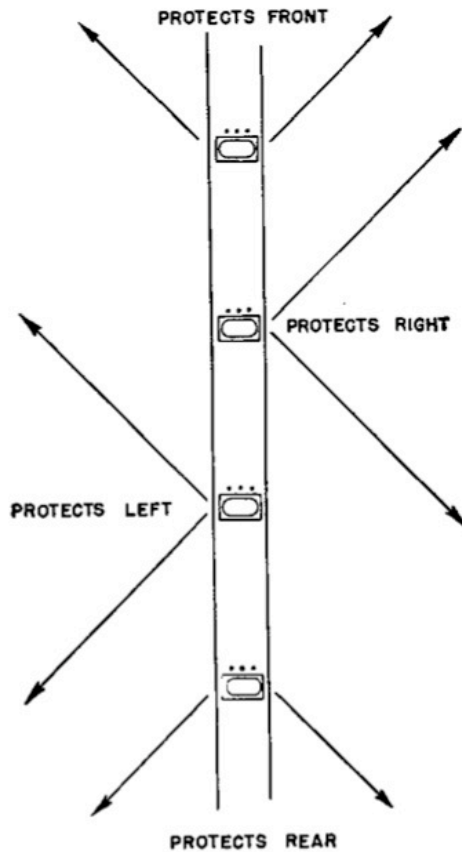


FIGURE 59.—On the march, the platoon may be given the mission of protecting the front, either flank, or the rear.

i. Dig slit trenches if halt is for more than 15 minutes.

j. Place tanks so they can move out without backing.

■ **22. BIVOUAC.**—In bivouac, the tank platoon leader—

a. Places platoon in its assigned area for all around defense, dispersed at not less than 50-yard intervals.

b. Places tanks so they can be readily moved out without backing.

c. Has slit trenches dug for crew members.

d. Sights guns for defense and details men to fire these guns if such should be necessary.

e. Has tank crew bivouac at its tank.

f. Establishes a platoon CP at his tank and has at least one member of the platoon awake at this CP at all times.

g. Checks concealment and camouflage.

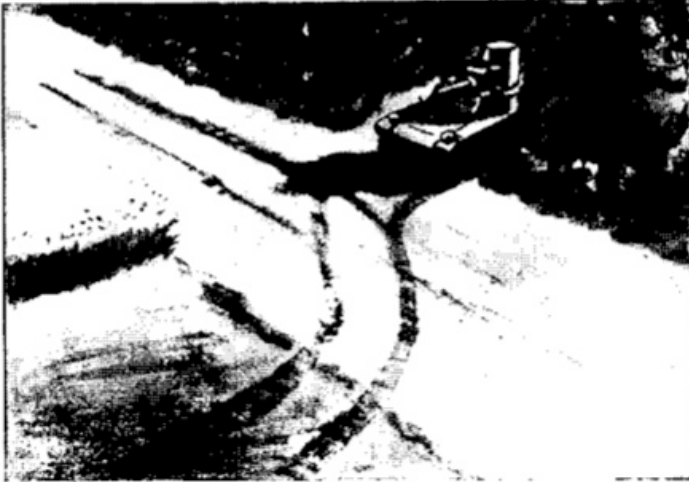
h. Has tank tracks brushed out to prevent disclosure of position.



FIGURE 60.—Platoon protecting a flank. Cover woods so as to be prepared to fire on either ground troops or low-flying airplanes.



① Do not drive forward into concealment; there will be difficulties when backing out.



① Back into concealment; then driving out will be easy.
 FIGURE 61.—Method of getting under cover.



FIGURE 62.—Bear in mind the position of the sun when you park tanks under trees. It is of no value to park under trees if position of sun is disregarded.



FIGURE 63.—Often foliage of trees does not afford sufficient cover. In this case, the tanks must be camouflaged with branches against aerial and ground observation.

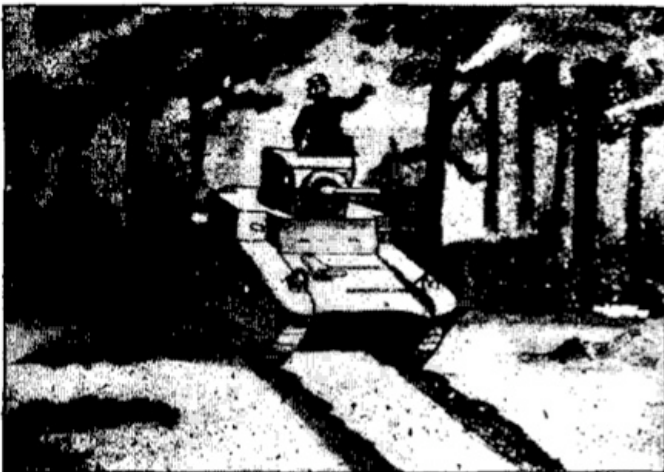


① Do *not* assemble the tanks at intervals of less than 50 yards. In such crowded formation, heavy losses are to be expected from artillery fire and bombing attacks.



② Extend the distance between tanks to at least 50 yards in order to reduce casualties.

FIGURE 64.—Disperse vehicles.



③ Do *not* remain in the turret when backing into concealment.



- ③ When backing into concealment, dismount and assist the driver by signaling the direction.

FIGURE 65.—Backing into concealment.



- ③ Do not neglect to blot out the tracks left on the road by turning tanks. Even if tanks are well camouflaged in the woods, the tracks will betray the position of the platoon.

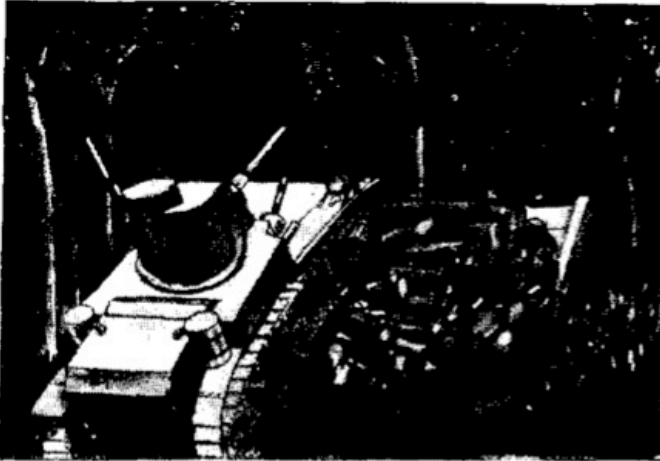


- ③ Blot out the tracks immediately, thus leaving no clues to enemy airplanes.

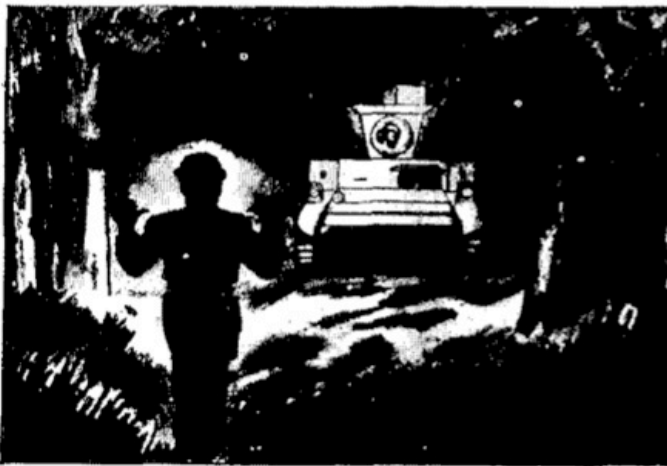
FIGURE 66.—Blot out tracks.



FIGURE 67.—Keep crews in shade and under cover. Avoid movement in the open.



- ① Do not let the driver do all the maneuvering himself when driving into assembly position at night; accidents and damage to the tanks are the consequence.



- ② The tank commander must dismount and precede the tank on foot, directing the driver into the assembly position by dimmed light signals.

FIGURE 68.—Movement into bivouac at night.



FIGURE 69.—Do not close up in going into bivouac.



FIGURE 70.—Move into bivouac at regular intervals.



FIGURE 71.—All men should not go to sleep.



FIGURE 72.—One man must be awake to give the alarm. Vehicular weapons must be sited to cover approaches.

■ **23. IN THE ASSEMBLY AREA.**—Security measures in assembly area are similar to those in bivouac except that slit trenches are not dug unless the area is to be occupied for more than 15 minutes. In assembly area, men prepare their tanks for action.

■ **24. AT RALLYING POINT.**—The most opportune time for the enemy to strike is while a unit is reorganizing; therefore, the first consideration at the rallying point is security. At the platoon rallying point, if one is designated at a different place from that of the company, the platoon leader sites tank weapons to cover hostile avenues of approach and designates observers to warn of hostile advance. He then checks and reorganizes his platoon. At the rallying point, conceal vehicles and disperse them.

■ **25. TANK PLATOON AS ADVANCED PARTY.**—*a.* The tank platoon may be detailed as the advance guard for a company or as the advance party of a larger force. In any case its action is the same.

b. The duty of the advance guard is to secure the uninterrupted march of the main body, brush aside small enemy resistance, and give the main body time and space for development. The commander of the advance guard must act quickly and boldly. He will have little time for estimate of the situation or the terrain.

c. Figure 75 shows the tank platoon as advance party. It uses two tanks as a point. The platoon will usually have one or more motorcycles, an assault gun, and a mortar attached to it.

d. The support commander with the artillery observer usually rides between the advance party and the support. The advance party may expect speedy artillery support.

e. The point and advance party are responsible for security and observation within view of the route.

f. The column is ordinarily preceded by the division reconnaissance company, the reconnaissance company of an armored regiment, and the reconnaissance platoon of the armored battalion. This latter is from 3 to 7 miles in front of the advance guard. Despite this fact, the advance guard must take great care in its advance. Reconnaissance units will rarely find the enemy. Hostile troops may place road blocks after reconnaissance elements have passed. The point and the advance party commander must keep always on the alert to detect enemy activity.

The rallying point (RP) is where the platoon stops after overrunning an objective. It is usually just prior to the limit of advance (LOA). The PL gets his tanks snuggled down in good firing positions against enemy counterattack, and checks critical levels (ammo, fuel, etc.).



FIGURE 73.—Do not assemble at rallying point and start reorganization before security is posted. Do not crowd vehicles.



FIGURE 74.—Post security immediately upon arrival at rallying point. Conceal vehicles.

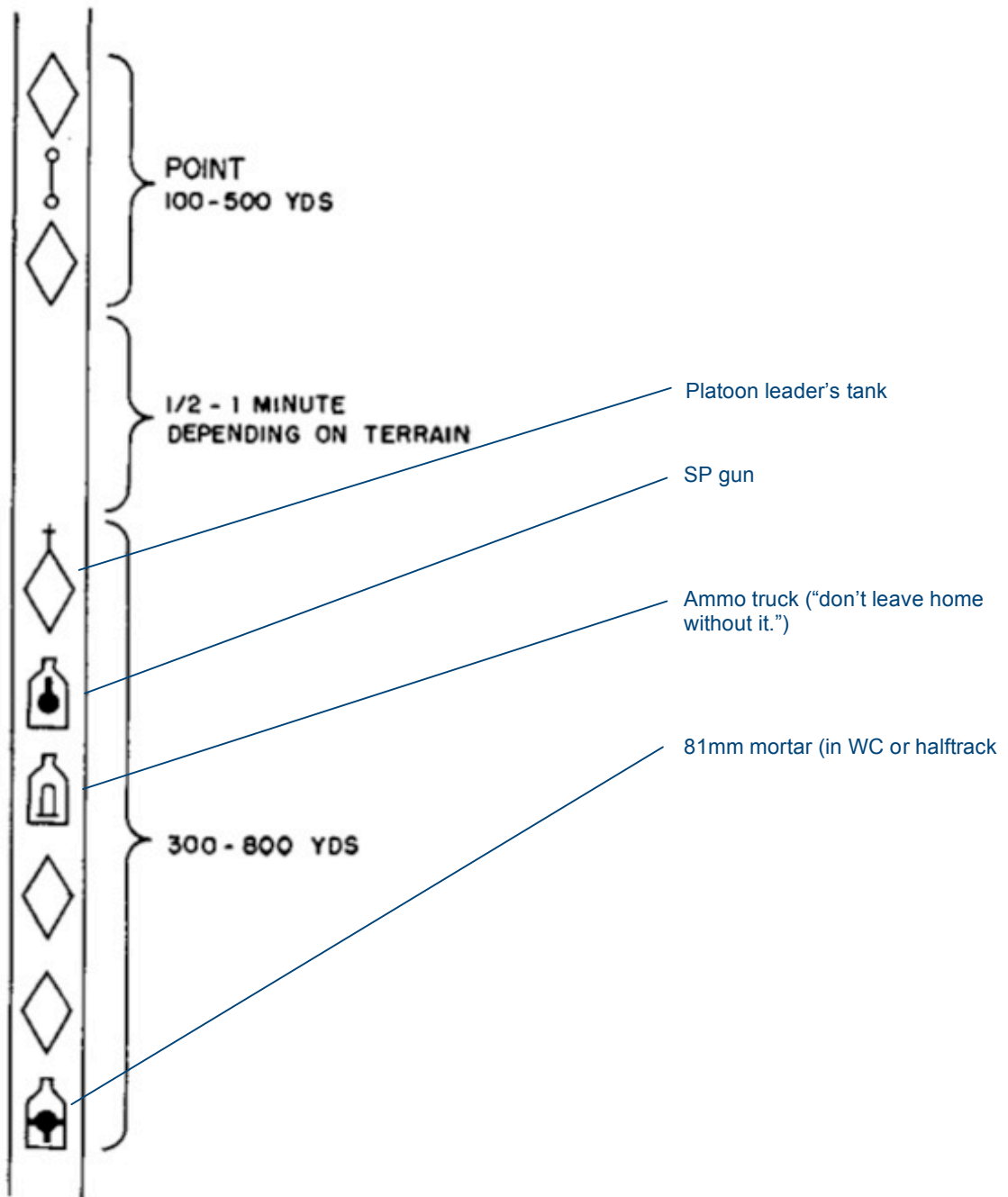


FIGURE 75.—Reinforced platoon as advance party.

g. When contact with the enemy is imminent, all weapons are loaded and gun crews prepared to fire at once. Vehicles advance so that a leading vehicle is always covered by one or more vehicles in the rear. Vehicles must remain in sight of each other. Figures 76 to 90, inclusive, show methods of advance and action to be taken if the enemy is met.



FIGURE 76.—Contact imminent. Point and advance party move by bounds. Here leading tank moves to crest of hill. Commander searches terrain beyond, then motions second tank to move on. Second tank then becomes leading tank.

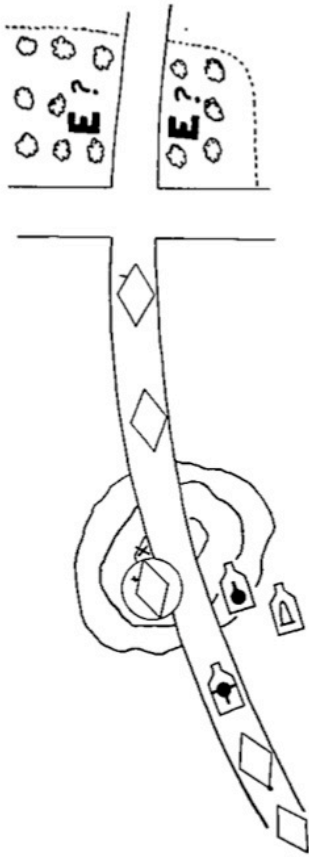


FIGURE 77.—If distance between observation points is great, both tanks of the point advance. The advance party covers them.



FIGURE 78.—The tank gunner must be behind his gun when contact with the enemy is made. He is then ready to deliver the first shot against the enemy tank or armored car.



FIGURE 80.—Action of point when enemy armored vehicle is met.

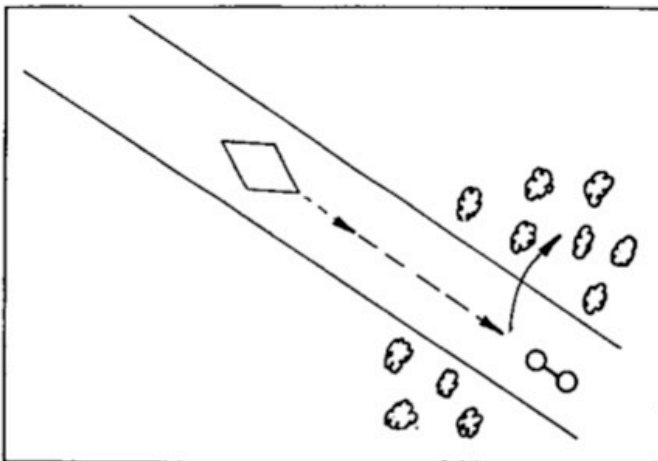
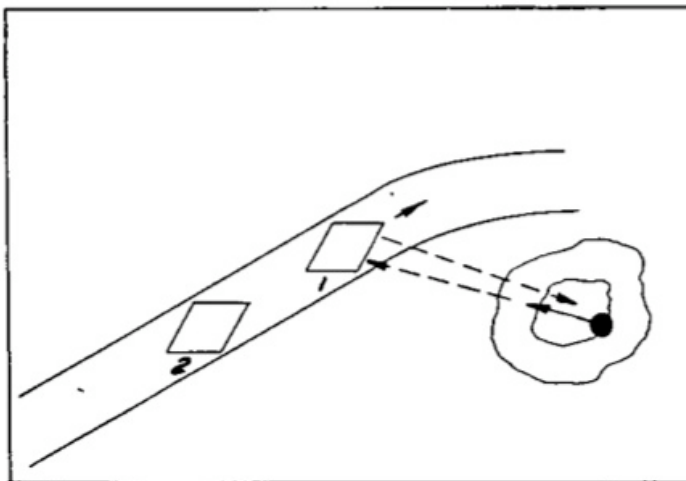
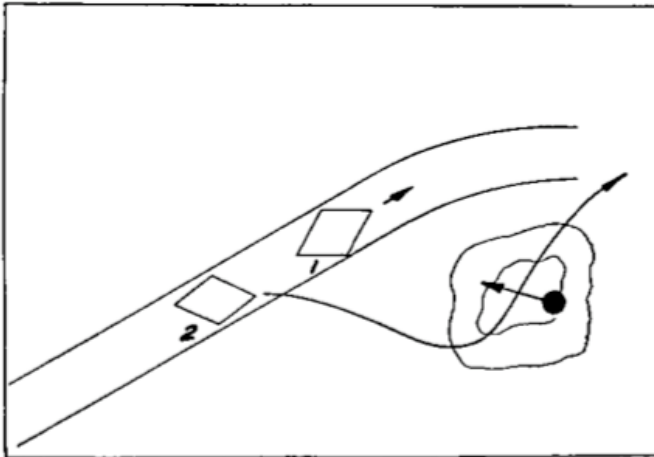


FIGURE 81.—Do not shoot at an oncoming enemy motorcyclist from a moving tank; he may escape and notify his unit of your presence. Stop the tank at once. Then, by accurate fire, the enemy motorcyclist can be destroyed.

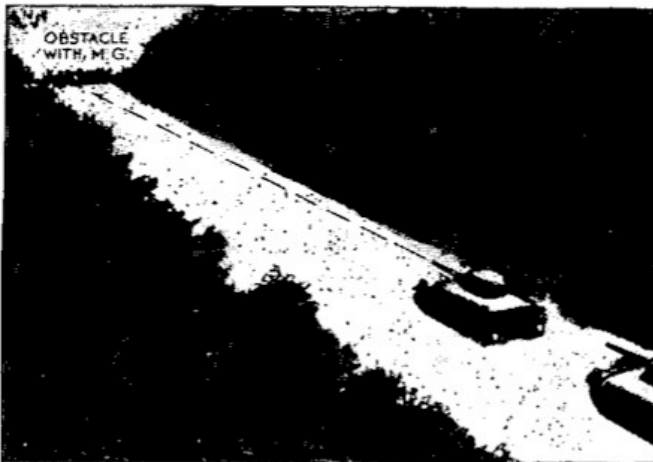


① Do not merely fire from the route of march at an enemy machine gun on the flank.



② Crush it.

FIGURE 82.—Silencing opposition on the flank.



① Do not attempt to destroy by fire only, a road barrier which cannot be avoided.



③ If armored infantry is not present, it may become necessary to dismount some of tank crew and cover their maneuver by fire of tanks.

FIGURE 83.—Action at road barrier.

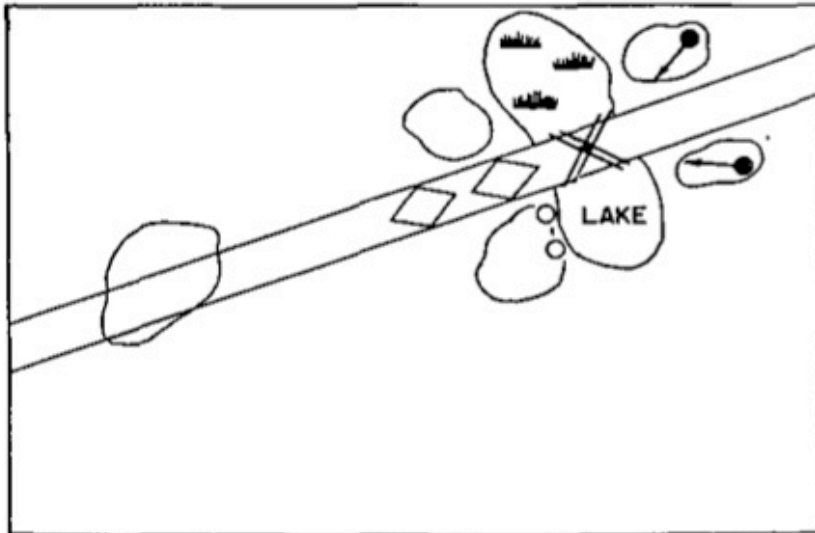
I had to do this once or twice – since it effectively disables a tank while the crew is out playing infantry, do it only when absolutely necessary.



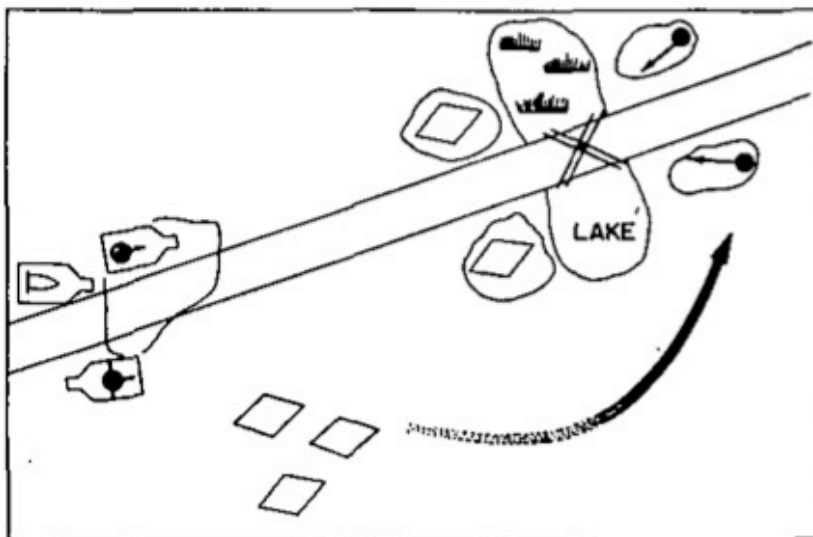
FIGURE 84.—Do not ram a road obstacle without first examining it. It will probably be mined and tank will be disabled, thus making the obstruction more effective.



FIGURE 85.—Examine road block for mines and booby traps. Have rear tanks cover dismounted men examining obstruction.

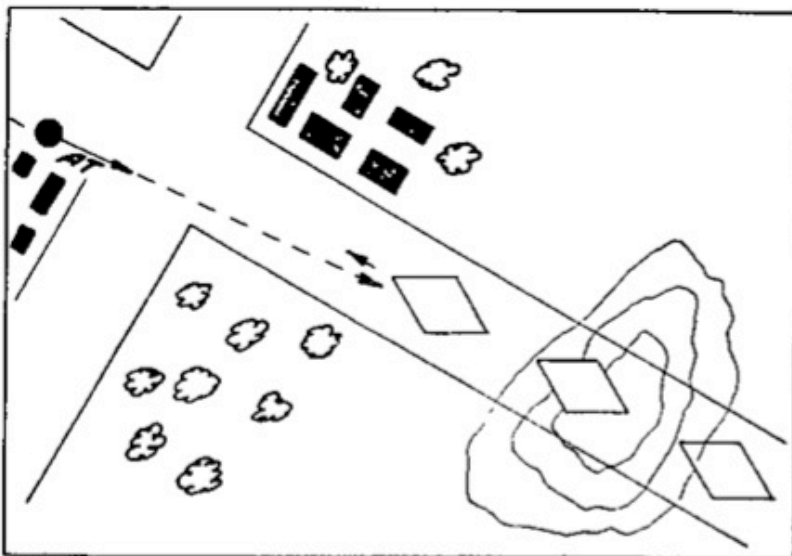


- ① Do *not* attempt to engage by frontal attack of tank crews the enemy defending a blocked bridge by concealed machine-gun fire.

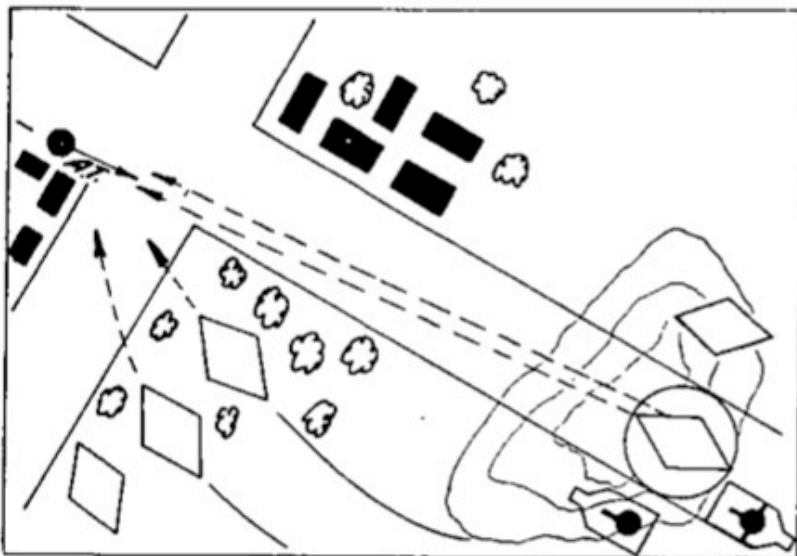


- ② Leading vehicles should engage the hostile machine gun while remaining vehicles move around the lake to destroy the enemy by flank attack. If only two vehicles are present, use one to make a flank attack. If antitank guns are encountered, use assault gun fire to silence them or blind them with smoke of the mortar.

FIGURE 86.—Attacking a road block.

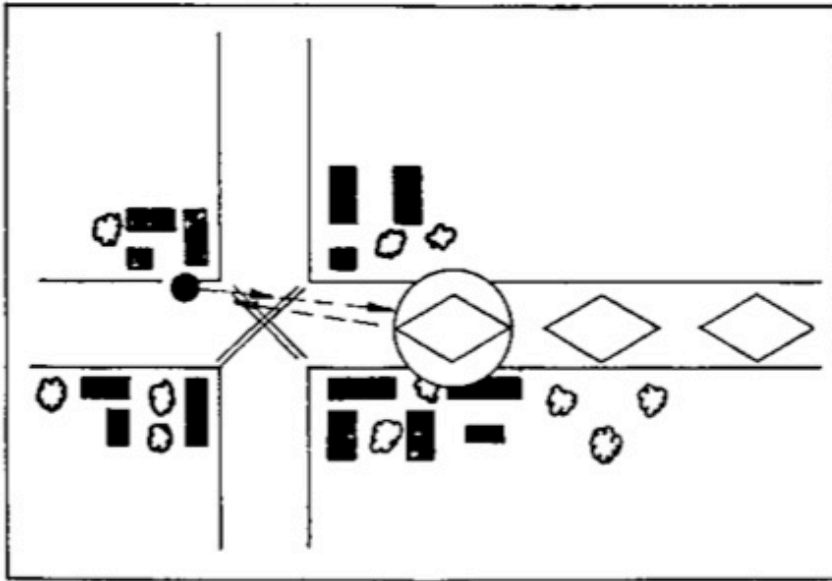


① Do not advance toward a village without making use of mutual support and terrain concealment.

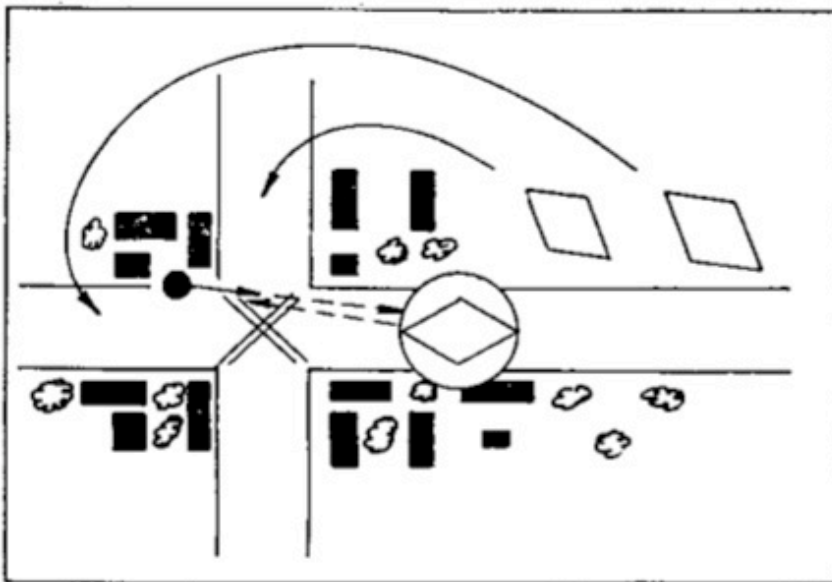


② Reach the objective by use of available cover; first vehicles go into position engaging the enemy. Remaining tanks attack from the flank under cover.

FIGURE 87.—Attacking a village.



① Do not fight a well-protected road block in a village by direct frontal fire.



② Try immediately to destroy the enemy by a flank or rear attack.

FIGURE 88.—Attacking a road block in a village.

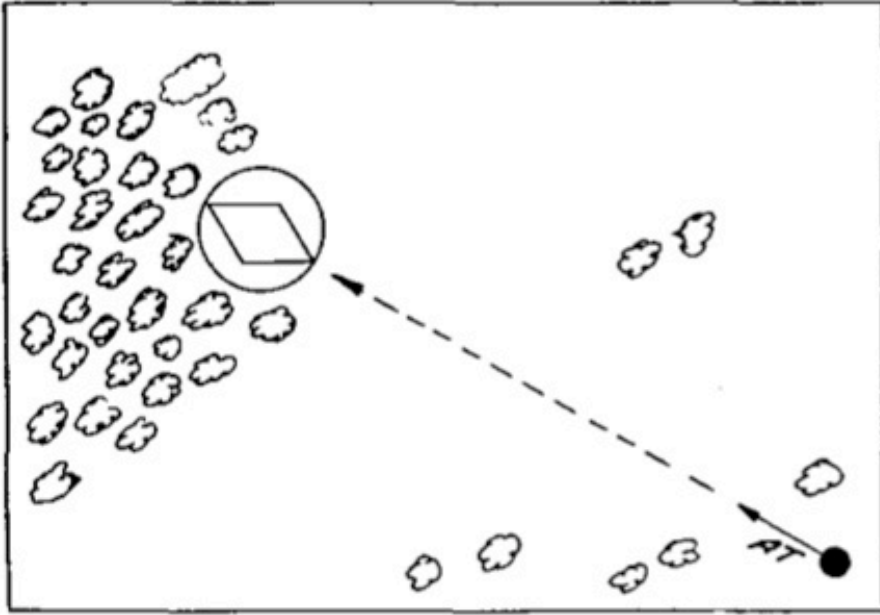


- ① Do not move out from edge of woods without covering the foreground with a halted tank.

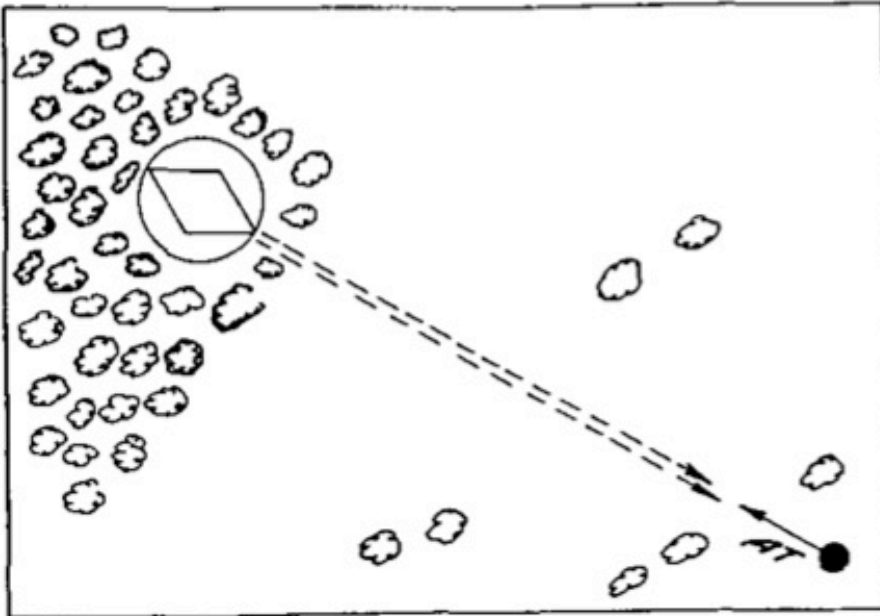


- ② Have one tank go into position in edge of woods and observe. This tank covers the exit and subsequent advance of the platoon.

FIGURE 89.—Emerging from woods.



① Do not halt outside the edge of a woods; your tank becomes an easy prey to enemy antitank guns.



② Halt as deep in the woods as observation permits, utilizing as much cover as possible.

FIGURE 90.—Halting in edge of woods.

■ **26. Flank Guard.**—*a.* The platoon may be detailed as a flank guard. Light tanks, because of their greater mobility, are more suitable for this mission. As a flank guard, the platoons will usually be reinforced with an assault gun, mortar, two or more motorcycles or 1/4-ton trucks, and a squad of infantry.

b. A platoon acting as flank guard travels on roads parallel to the main body and from 2 to 5 miles to the flank. It may march roughly abreast the main body or may occupy successive positions to protect the flank. It must give immediate warning of any enemy encountered and delay any enemy attack from the flank. (See figs. 91 and 92.)

■ **27. REAR GUARD.**—*a.* A rear guard may be detailed for either advancing or retiring troops. Its mission is to protect the main body from harassment by the enemy, to delay enemy forces advancing on the rear, and to collect stragglers and vehicles falling out of column. During a withdrawal, the rear guard destroys bridges or otherwise blocks roads.

b. The rear guard, unlike the advance guard, can expect little assistance from the main body. It follows the main body at such distance that the enemy will be unable to harass that element. When the enemy pursues rapidly, the rear guard fights a delaying action by occupying successive positions. It withdraws from a position before becoming heavily engaged. Withdrawal is made by bounds, one portion of the rear guard covering the withdrawal of the remainder. In some cases the rear guard may have to fight a delaying action in one position in order to give the main body an opportunity to retire. In such event, it must hold the position at all costs. The main body then details a new rear guard.

c. The tank platoon may be either part of a rear guard or, reinforced, it may be the rear guard. Figures 93 and 94 show formations and methods of operation of the tank platoon as a rear guard.

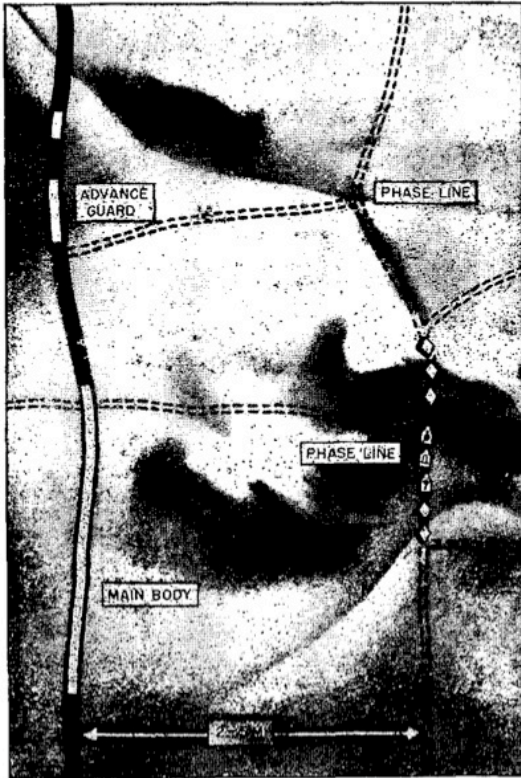


FIGURE 91.—One method of operation of flank guard. Platoon advances parallel to and roughly abreast of the column. Platoon leader must know the phase lines and time for passing each.



FIGURE 92.—Another method for use of flank guard. Platoon covers defiles and moves forward by bounds. Defile is covered until main body moves past.

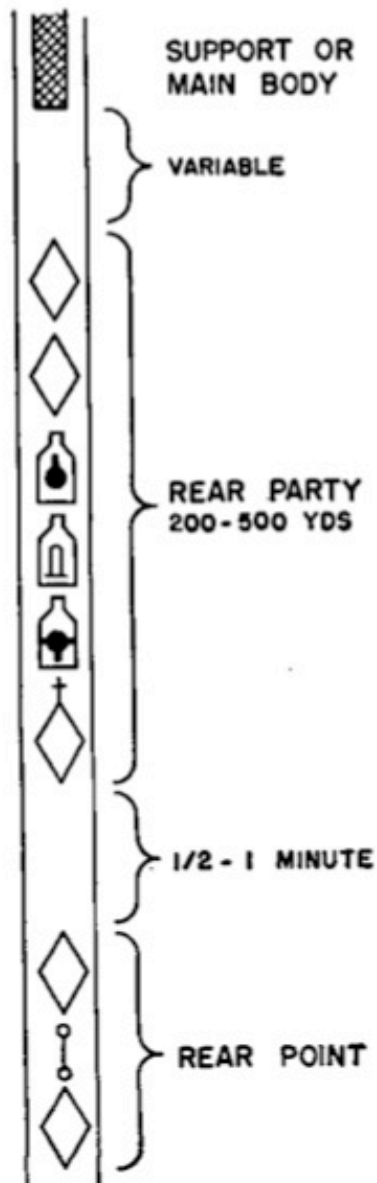


FIGURE 93.—Rear guard formation, reinforced tank platoon. naissance units may be behind the rear guard.

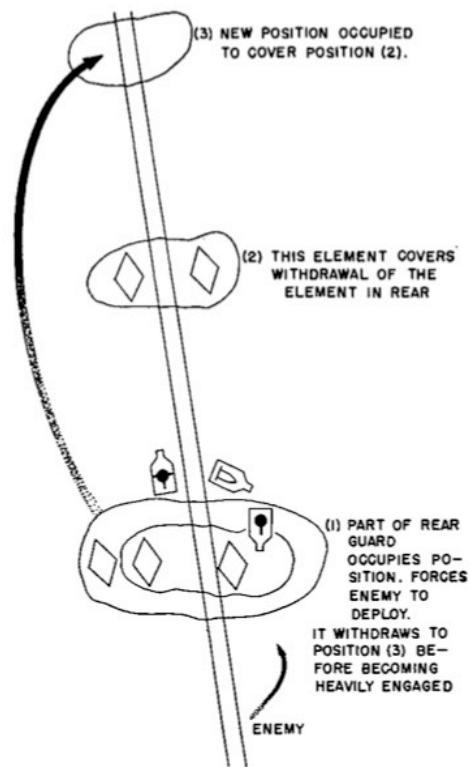


FIGURE 94.—Rear guard action. Occupy successive positions; one element covers withdrawal of those in rear.

■ **28. OUTPOST.**—*a.* The mission of the outpost is to protect a resting command or a defensive position against annoyance, surprise, and observation by ground forces. At a halt, a march outpost is first established and next a more detailed outpost system is established. The tank platoon may be part of the outpost.

b. As an outpost the platoon—

- (1) Repulses minor enemy attacks.
- (2) Establishes outguards to warn of enemy approach.
- (3) Prevents enemy ground reconnaissance of the bivouac area.

c. An outpost establishes a reserve, supports, and outguards. (See FM 17-10.) It may have detached posts at certain points. Supports are numbered from right to left. Each support posts outguards and these are numbered from right to left in each outguard. (See fig. 95.)

d. The distance of the outpost system from the bivouac depends upon the terrain, weather, duration of the halt, and proximity of the enemy.

(1) During a short halt, security is posted close by as the unit should be ready for instant battle. At longer halts, security is at such distance that timely warning of enemy approach may be given and resting troops alerted. v

(2) When the enemy is close, security must be posted farther out than when the enemy is at a great distance. This distance is measured in time as well as miles. A motorized or mechanized enemy on ordinary terrain is much closer in time than is an enemy on foot.

(3) In misty or foggy weather, security is posted close-in.

(4) During daylight, security detachments occupy points of good observation. At night they occupy lower ground and especially guard roads. During daylight the number and strength of security detachments may be less than at night.

(5) In open terrain the strength of security detachments may be less than in closed terrain.

e. As an outguard, the platoon posts individual tanks to cover approaches. As a support, the platoon posts outguards. As part of a support, it may be used to reinforce any threatened post.

f. As part of the reserve, the platoon is used as a counterattacking unit. Routes are reconnoitered and plans made to support any threatened point of the outpost system.

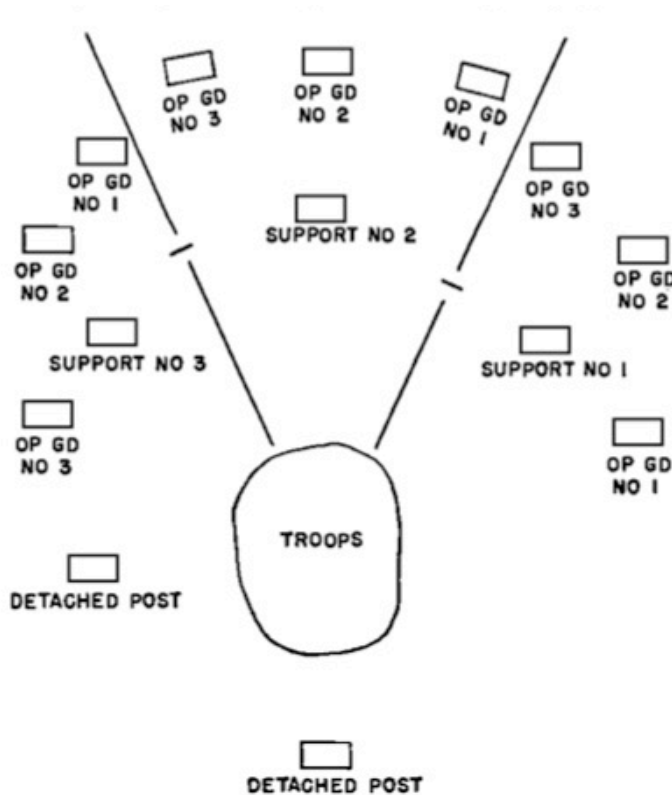


FIGURE 95.—Outpost system.

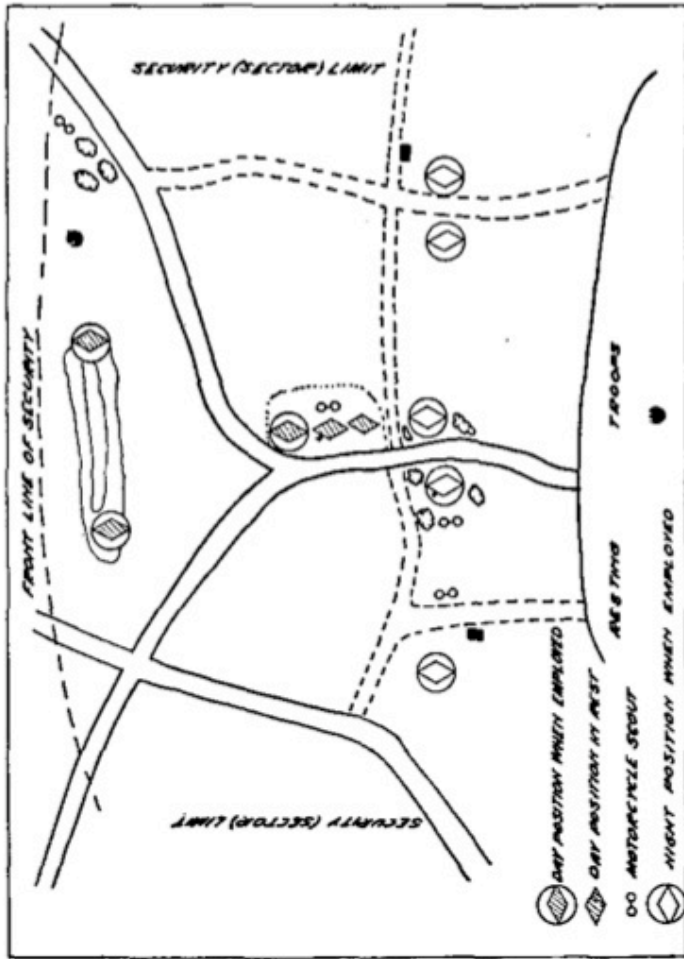
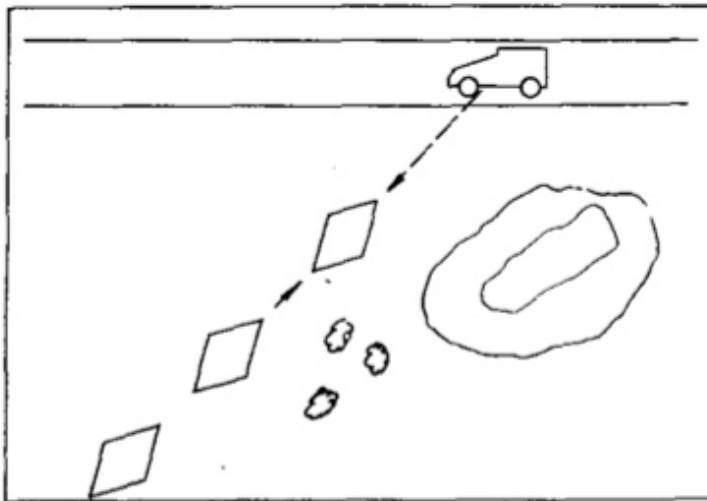


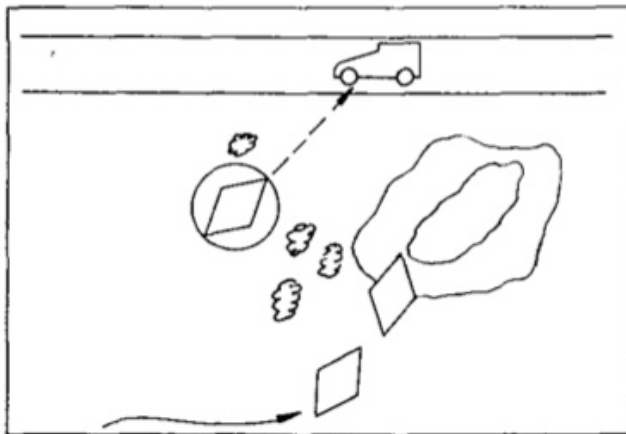
FIGURE 96.—Platoon as an outguard.



ⓐ Do not move to outpost position without march security, thereby permitting the enemy to surprise you.

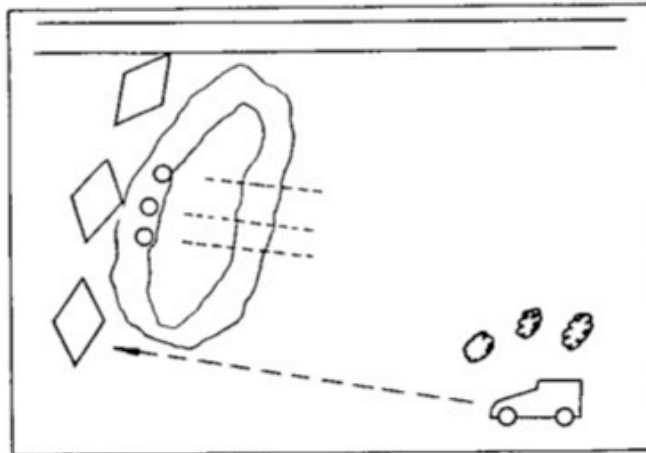
The sentence legend is syntactically contradictory. Just remember the first (independent) clause.

The writer obviously needed that extra cup of coffee.

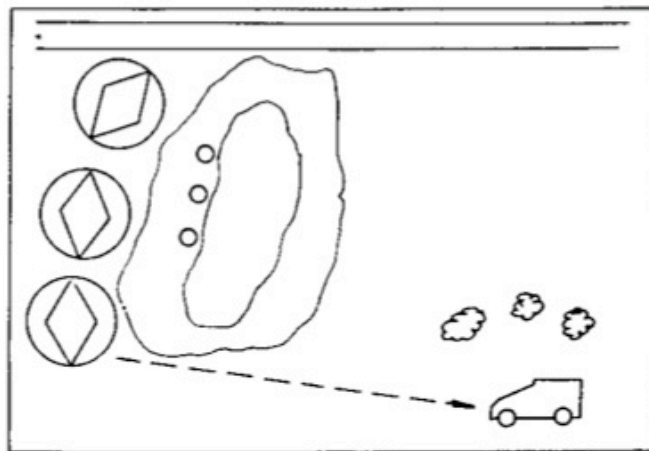


③ Move in march security formation (advance guard) or covered by a halted tank.

FIGURE 97.—Moving into position.

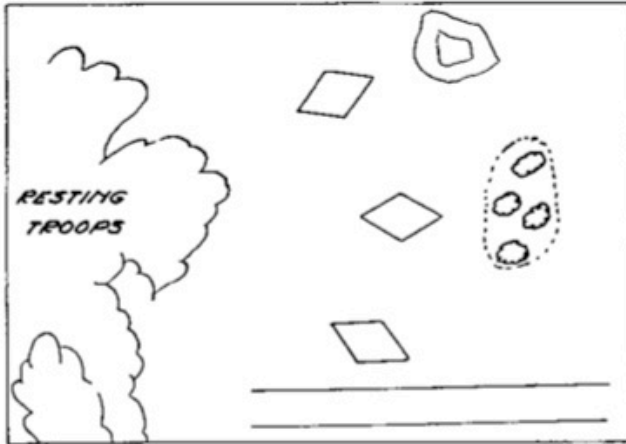


④ Do not cover a dismounted reconnaissance with weapons of dismounted men only.

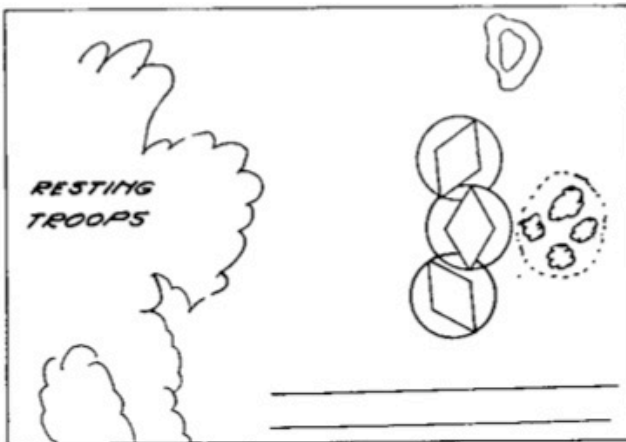


⑤ When local security is necessary to protect a dismounted reconnaissance, the radio operator or assistant gunner replaces the absent gunner. The tanks cover the dismounted reconnaissance.

FIGURE 98.—Covering dismounted reconnaissance personnel.

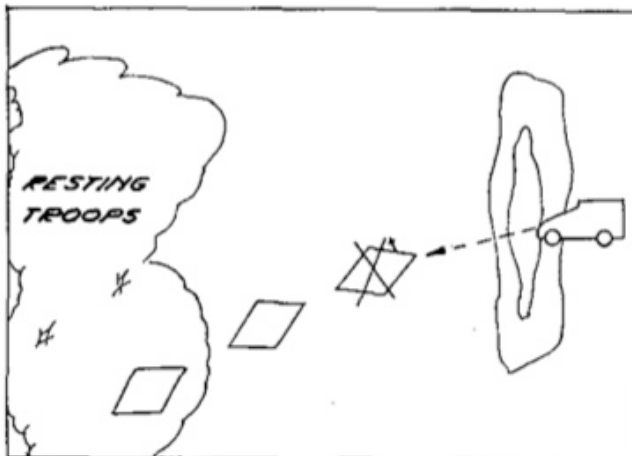


① Before arriving at the outpost position, do not order individual tanks to a certain point. The terrain always appears different than shown on the map. Unnecessary changes of positions are thus avoided.

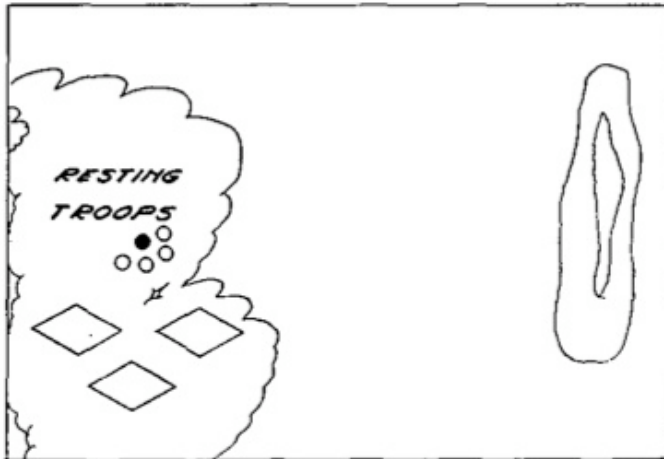


② Move entire platoon to the outpost position. Then determine, from personal reconnaissance, where the individual tanks should be posted.

FIGURE 99.—Selecting position for tanks.



③ Do not march to the outpost position without informing the platoon as to the situation and mission. If the commander is killed, his second in command will be ignorant of the situation.



③ The platoon commander, before marching, must inform all tank commanders as to the situation and mission.

FIGURE 100.—Inform platoon of mission.

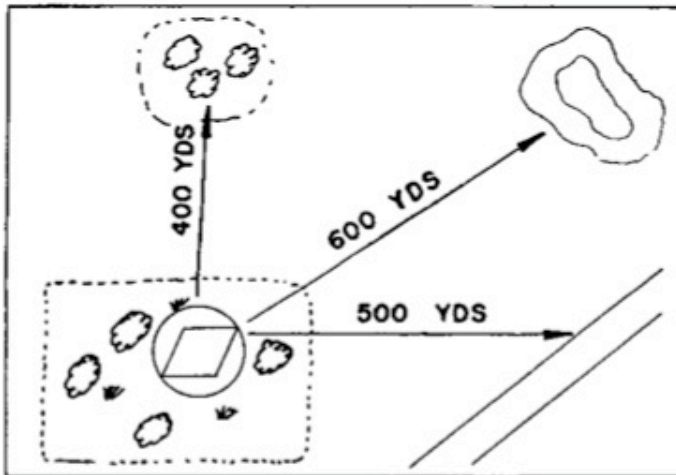


FIGURE 101.—Upon going into position, the tank commander must at once determine the range to several terrain features. Thus, upon the appearance of the enemy, fire can be immediately opened with the correct range. Ranges to the limit of effectiveness of the principal weapon will be determined.

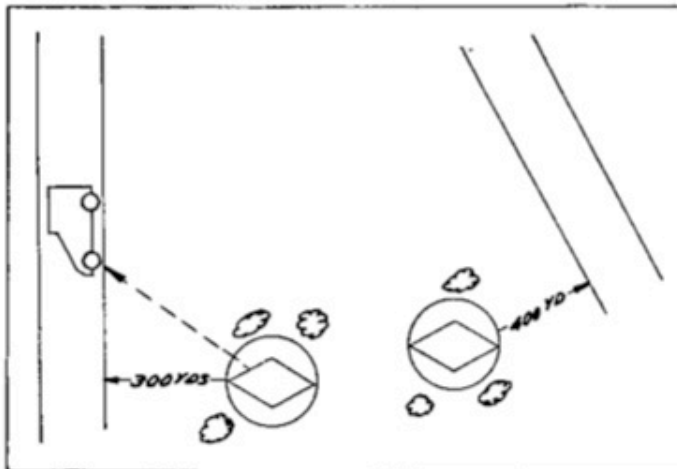


FIGURE 102.—Place the tanks so they can block the important road with effective fire. This is usually more important than placing the tanks where observation is good but where the long range makes fire ineffective against enemy armored vehicles.

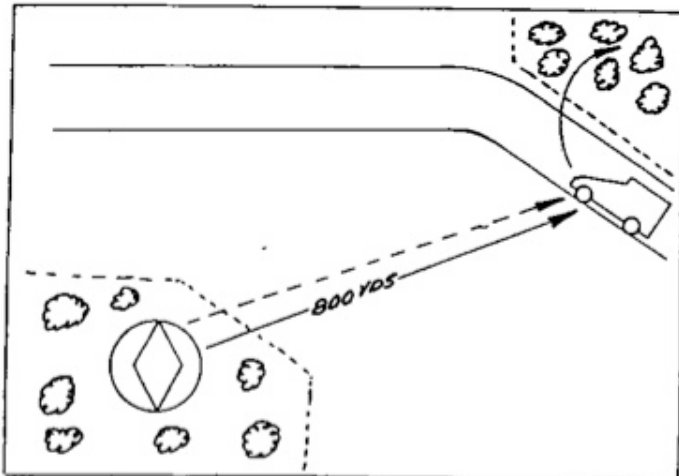


① Do not halt between bushes, leaving the tank uncovered so enemy air reconnaissance can quickly locate it.

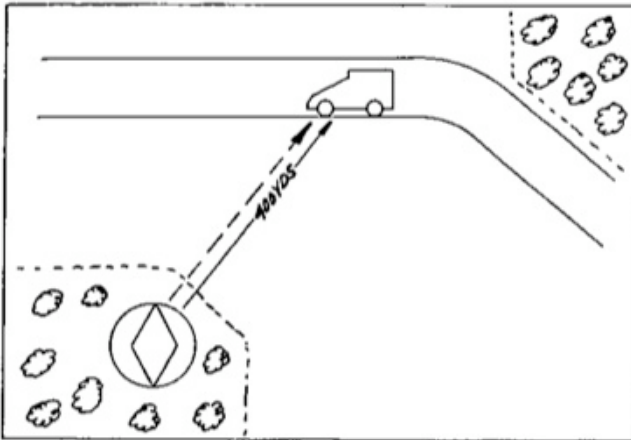


② Drive the tank into bushes, leaving it with a good field of fire but difficult to recognize from the air.

FIGURE 103.—Use of concealment.



③ Do not shoot at an oncoming armored car at long range.



ⓐ Allow the oncoming armored car to reach short range so as to take it under destructive fire.

FIGURE 104.—Allow hostile vehicles to approach within range before firing.



ⓐ Do not allow friendly vehicles to pass in the direction of the enemy without warning of your security post.



ⓐ Stop friendly vehicles traveling toward the enemy; ask the mission; explain the situation and location of your security post.

FIGURE 105.—Stop friendly vehicles.

■ **29. COVERING DETACHMENT.**—As a covering detachment, the platoon precedes the company or battalion from an assembly position to the line of departure and protects from surprise. The covering detachment moves on a broad front, 100 to 200 yards between tanks, and precedes the leading echelon by 500 to 1,000 yards.

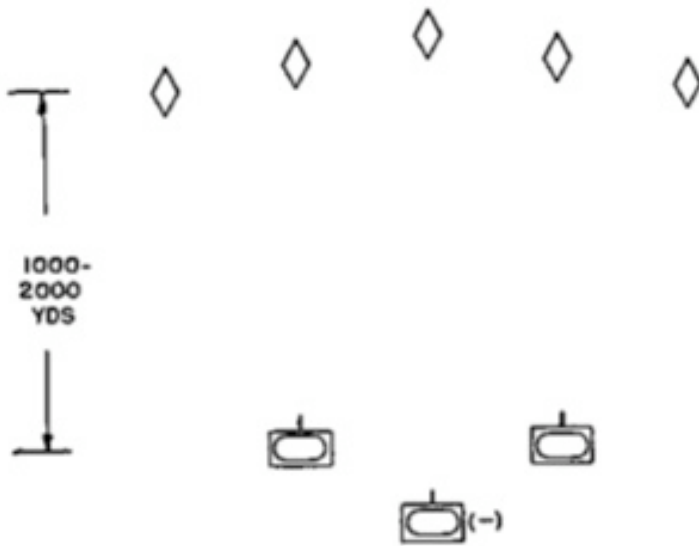


FIGURE 106.—Covering detachment.

CHAPTER 6
OFFENSIVE ACTION

		Paragraphs
Section	I. General.....	30-32
	II. Tank crew.....	33-35
	III. Tank platoon.....	36-42

SECTION I
GENERAL

■ **30. GENERAL.**—Offensive action of armored force units is discussed in **FM 100-5** and 17-10. The tank is primarily an offensive weapon. Opportunity is sought at all times to exploit its characteristics of fire power, mobility, armor protection, and shock action.

■ **31. FORMATIONS.**—The various formations described herein are suited for particular types of operation. They should be practiced constantly so that one formation may be quickly assumed from any other formation. (See FM 17-5.)

a. Line.—This formation develops great fire power to the front. It is suitable for leading waves of the attack when heavily supported by other weapons. It has no depth. It is useful for a covering force.

b. Line of sections.—This formation might also be column of sections. It does not develop as much initial fire power to the front as does line. However, it lends itself readily to fire and maneuver, one section occupying firing positions to protect the advance of the other. The formation is easy to control.

c. Column.—This formation develops little fire power to the front. It is useful primarily for approach marches, passing through heavy woods, and passing defiles. It is easy to control.

d. Echelon.—This formation is useful for a flank platoon. It develops great initial fire power either to the front or flank. It is difficult to control.

e. Wedge.—Wedge is a modified line-of-sections formation. It affords good fire power to the front and either flank. It is easy to control as far as direction is concerned. However, its fire power is difficult to control due to the fact that the platoon leader is not in a position to see his sections readily.

f. Inverted wedge.—Without radio, this formation is difficult to control as far as direction is concerned. However, when radio is operating, the platoon leader can keep his platoon under close control as he is able to see all tanks and at the same time search the terrain for targets. He can by radio readily direct the movement of either section. This formation often results in combat when the platoon leader sends one section on an enveloping movement,

This is usually called a “vee.” Maintaining control of direction is easier if one of the two lead TC’s is well briefed on the maneuver, and other tanks are clearly instructed to guide on him.

covers its movement by the fire of the other section, and orders both sections to assault when the enveloping section is in position.

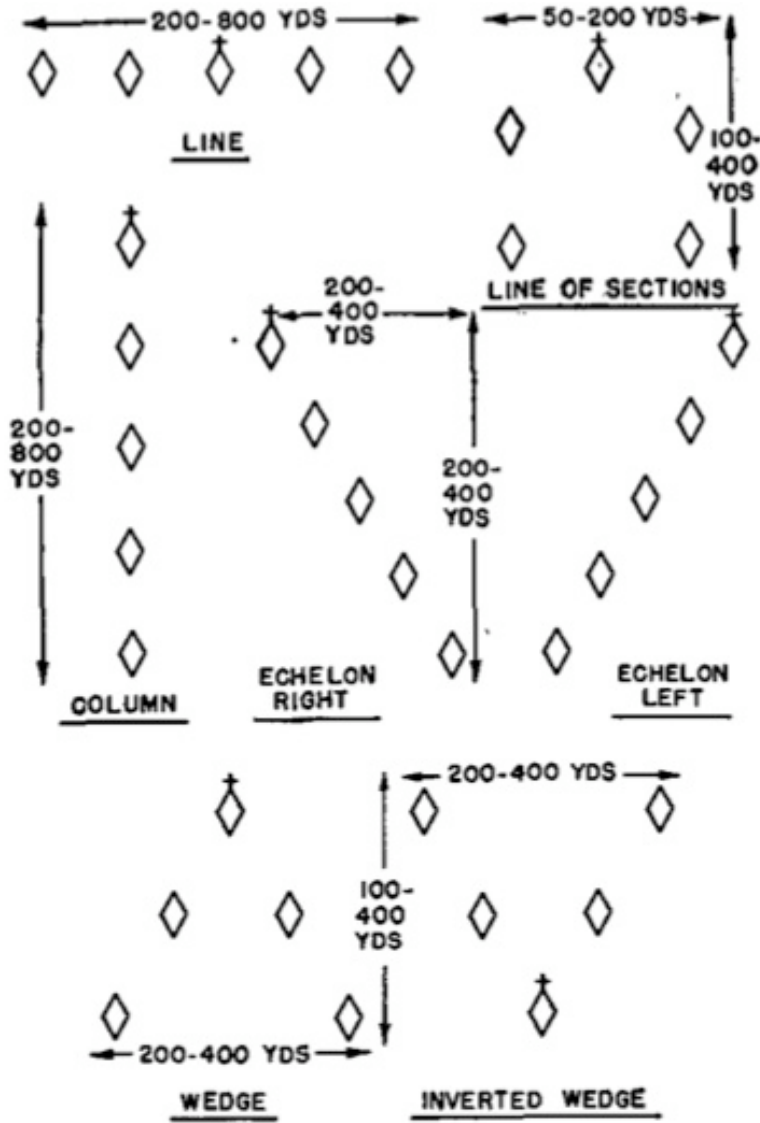


FIGURE 107.—Formations.

■ **32. INSTALLATIONS.**—The installations with which the tank platoon or section is primarily concerned are the assembly area, attack position, line of departure, and rallying point.

a. Assembly area.—The assembly area is an area in which troops preparing to attack are assembled. In this area the tank platoon checks tanks, makes necessary adjustments on tanks and equipment, refuels tanks, checks on food and water, and receives information of the enemy and of the terrain. Orders for the attack may be issued in the assembly area. Usually the general plan of attack will

These are usually called "control measures."

The AA is always out of sight of the enemy.

be given here and final orders issued in the attack position. The assembly area is normally beyond hostile medium artillery range.

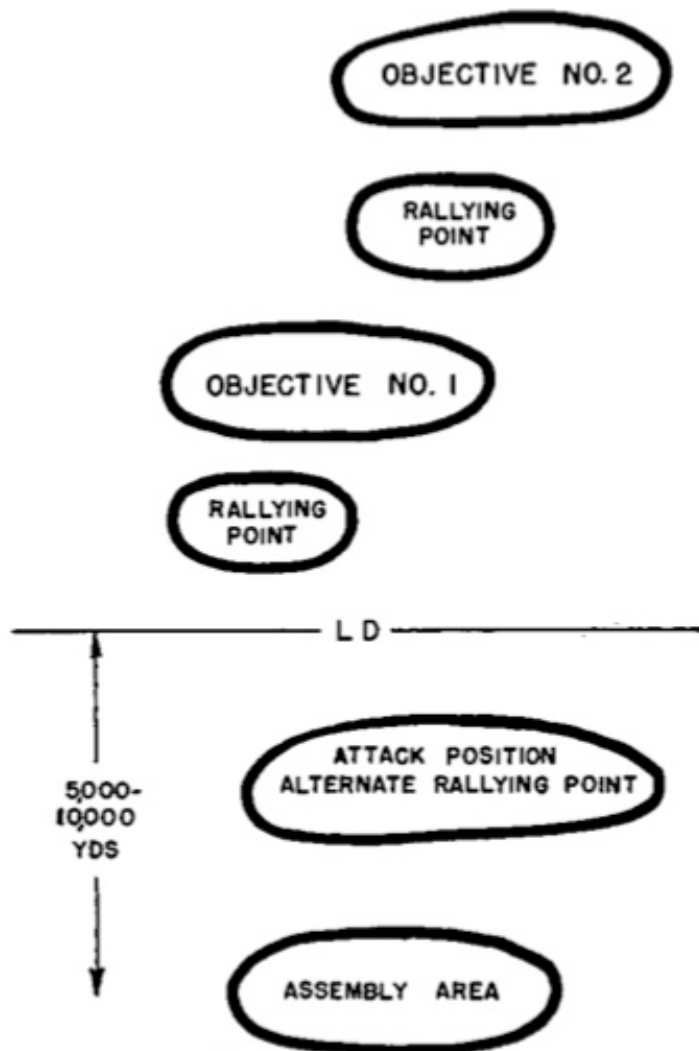


FIGURE 108.—Installations.

b. Attack position.—The attack position is the last covered or concealed position before the line of departure is reached. Here last-minute checks are made on vehicles and final orders issued. Here the final coordination with infantry is effected. Tanks must not stay in the attack position more than a few minutes. A long stay will cause surprise to be lost and will expose the platoon to hostile artillery fire.

c. Line of departure.—The line of departure is a well-defined, easily recognizable terrain feature such as a small stream line or edge of a woods. Separate lines of departure may be given for individual platoons or companies. This is

particularly true when a portion of the unit is making an envelopment.

d. Rallying point.—The rallying point is a position where the unit reorganizes after the attack. It should be a well-defined, easily recognizable terrain feature. It should afford concealment. It is usually in front of an objective. An alternate rallying point, usually the attack position, is designated to be occupied in case the rallying position is unobtainable or untenable. A series of rallying points may be designated, one for each objective. The platoon leader may designate a rallying point but ordinarily this point will be designated by the company commander. At the rallying point the platoon posts security, reorganizes, makes adjustments in ammunition, and cares for casualties, and the platoon leader reports the status of the platoon to the company commander.

SECTION II

TANK CREW

■ **33. COOPERATION.**—*a.* The speed, fire power, armor protection, and crushing power of the tank must be used to the utmost. To secure the maximum effectiveness of these characteristics, the tank commander must control his crew and the crew must have the maximum of coordination and cooperation.

b. The tank commander in accordance with orders of the platoon or section leader, or on his own initiative when such orders are lacking, controls the direction of movement by orders to the driver and controls the fire by orders to the gunners. Crew members must be trained, however, to act instinctively. The tank commander should not have to give long, detailed orders. In fact, he will not have time to do that. His orders must be brief.

c. The tank commander directs the driver to drive in a certain direction or on a certain point. From time to time he tells him to vary the direction as necessary. The driver makes changes of direction to avoid irregularities in the ground, to take advantage of good terrain, and to avoid antitank gun fire. He must not make a sudden change of direction or stop without notifying the tank commander and gunner. Such action will interfere with the aim of the gunners.

d. The tank commander designates targets to the gunners and controls the fire of the guns by specifying the type of ammunition, if necessary, and by adjusting fire. The gunner must instinctively know and use the proper type of ammunition.

“Gunner! AP! Moving tank! Fire.”

■ **34. OPERATION.**—Figures 109 to 117, inclusive, depict methods of operation and technique for the individual tank.



FIGURE 109.—Beat down crew of enemy machine gun with fire and then crush the gun. Tanks are permitted to move somewhat (about 50 yards) to the right or left of their line of advance to do this. Beware of antitank mines.



① Tank No. 1 should not leave its line of advance to crush an enemy machine gun lying a considerable distance (more than 50 yards) to the right or left.

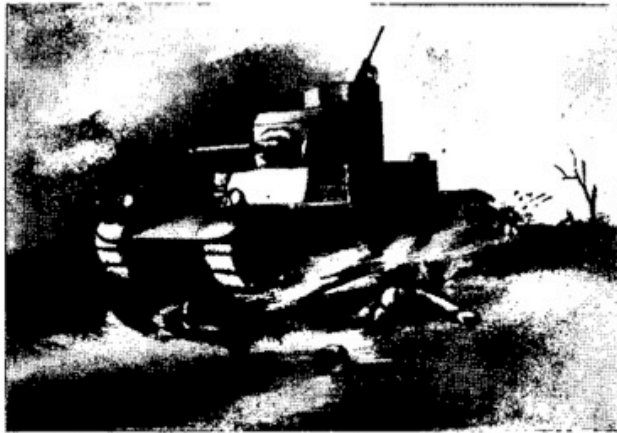


② Tank No. 1 should hold its line of advance and let tank No. 2 take care of the enemy machine gun. Tank No. 1 may indicate location of enemy machine gun by firing tracer.

FIGURE 110.—Leaving direction of advance.



① Do not disregard members of enemy machine-gun crew who have fled to shell holes.



② Mop up enemy crew by running over the shell hole.

FIGURE 111.—Crush machine guns near direction of advance. Beware of antitank mines.

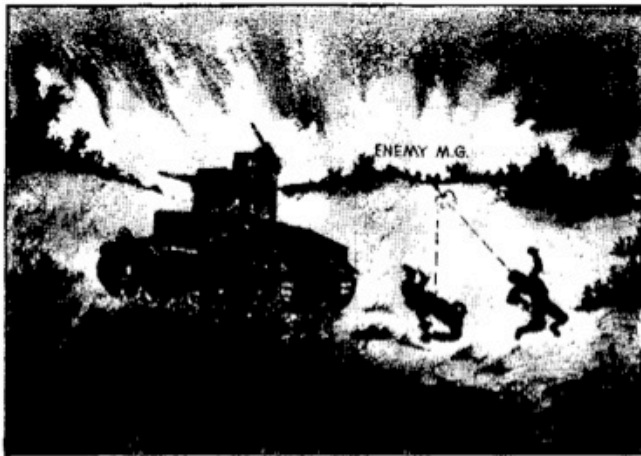


① Do not fight against the plainer and larger target (men) when there is a more dangerous, although smaller, target (machine gun).



- ① Destroy the most dangerous target although it is small and indistinct.

FIGURE 112.—Strike more dangerous target.



- ① Do not immediately abandon a tank which has become immovable.



- ① Remain in the tank and participate in the combat as long as possible.

FIGURE 113.—Abandoning tank.

This is the “school solution”, and it happens. But a non-mobile tank that keeps firing is a sitting duck. Following this guidance is worth a bronze star, at least, and very likely a purple heart – but the rest of the platoon will remember you fondly.



① When tank No. 1 becomes immovable and its crew is endangered by attack of the enemy, tank No. 2 must support and assist tank No. 1.

Example (I've done this): tank 1 throws a track of the track is broken by a smaller mine, problems that can be repaired in place. Tank 2 pulls alongside on the damaged side to protect the crew from fire, and adds suppressing fire while the crew of tank 1 dismounts to make repairs.

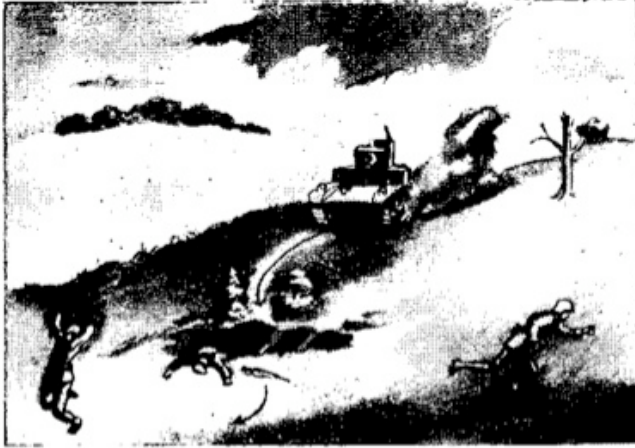


② Tank No. 2 assisting tank No. 1.

FIGURE 114.—Assist disabled tanks.



③ Do not use saddle between two hills without seeing what is behind the hills.

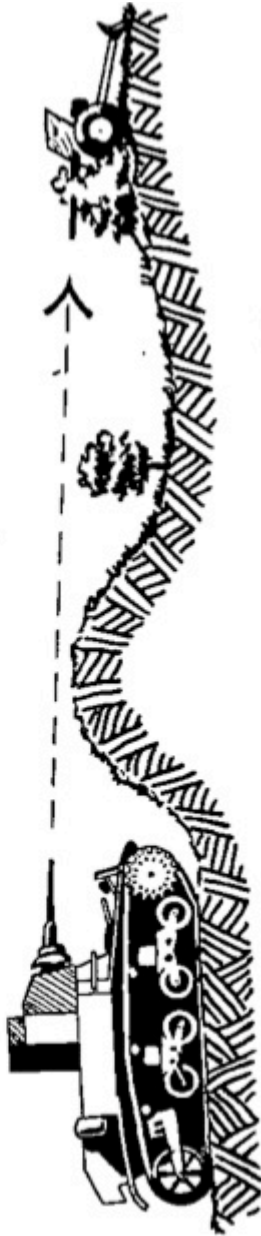


① Seek out and destroy heavy weapons in position behind the hills.
 FIGURE 115.—Beware of ridges.

In this case, the enemy is using "reverse slope defense", letting you pass, then smacking you at a vulnerable angle. Expect it, and spoil their little plans.



① This is the small target seen by the antitank defense.



② This is a side view of the position behind a hill.
 FIGURE 116.—Use deflade when practicable when halting to fire.

This is so basic it has it's own name: "hull deflade."



① This is the target which the tank presents to the antitank gunner.



② This is a side view of the position behind shrubs.
 FIGURE 117.—Use brush or woods as concealment.

SECTION III

TANK PLATOON

■ **36. GENERAL.**—The tank platoon usually operates as a unit although sections or individual tanks may operate alone in certain situations. The platoon commander controls his tanks by section or by individual tank.

■ **37. FIRST ECHELON.**—*a.* Tanks of the first echelon advance rapidly under support of all available supporting weapons-artillery, infantry weapons, and other tanks. When they meet resistance, platoons use fire and maneuver to reduce that resistance. *Tank platoon leaders keep their company commander constantly informed of the situation, their losses, enemy resistance, and action taken.* Call upon the company commander for artillery fire as needed.

b. The platoon commander of the leading wave of the first echelon should comply with the following:

- (1) Do not permit tanks to be diverted from their primary mission by firing at unimportant targets.
- (2) When resistance is met, use fire and maneuver.
- (3) Select targets and give fire missions to the platoon.
- (4) Use speed and terrain to accomplish mission.
- (5) After a local attack, concentrate the platoon, reorganize, and continue on mission.
- (6) Keep company commander constantly informed of the situation.

c. The tank platoons in the second wave of attack advance by bounds from firing position to firing position and give continuous support to the leading wave.

(1) Figure 118 shows diagrammatically a method of advance and support. The arrows show the bounds made by each tank in supporting the leading wave. The circled symbols show firing positions taken by each tank.

(2) Tanks of the second wave must advance rapidly behind the first wave. Some tanks must always be within supporting distance. Crews of the tanks in position must be extremely alert for targets. The tank cannot remain in position very long as it will become a very vulnerable target.

(3) Tanks emerging from the edge of woods or approaching within 800 yards of a ridge must always be supported by tanks in position.

(4) Tank platoons of the second wave may support the leading wave by indirect fire methods when such methods can give prompt support.

d. Tank platoons in the second wave of attack protect the flanks and are ready to repel counterattacks.

Question: How do tanks provide "indirect fire?" Figure 119 shows one platoon behind high ground providing fire support for an objective they cannot see (but the platoon leader, as shown in the diagram, can). ↓

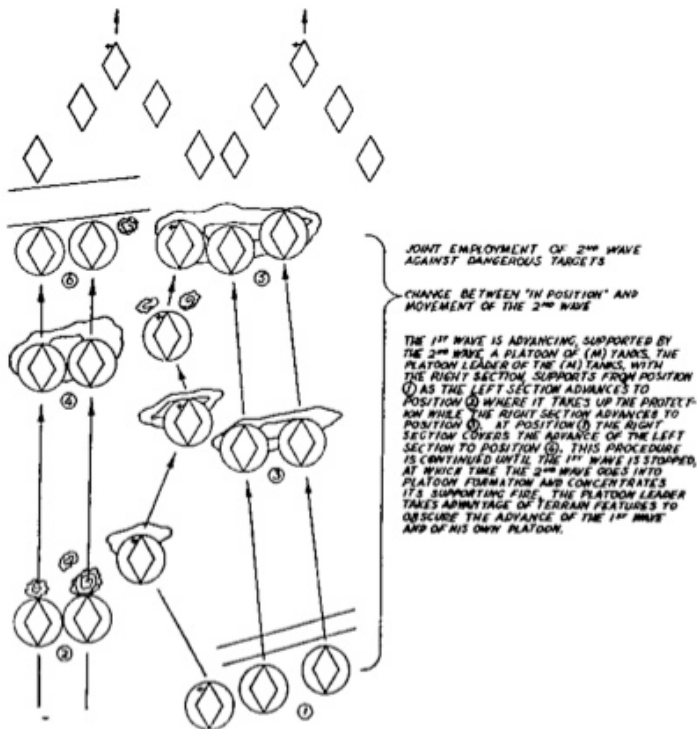


FIGURE 118.—Support of leading wave by second wave.

This symbol indicates a stationary tank.

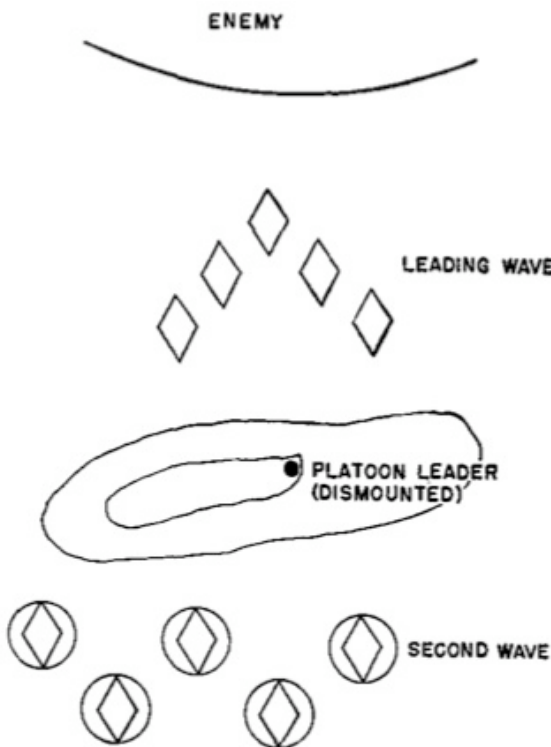


FIGURE 119.—A method of support of leading wave by indirect fire.

↑ Answer: Here is a little-known fact. Tanks can be used in the indirect fire role, though it takes some work. Firing tables are provided with the main gun so they can shoot like howitzers. The tank may have to be run up an embankment to get enough elevation, but that's not usually difficult. The gunner finds the correct elevation for a given range and elevates the gun to that angle using a device called a gunner's quadrant. The tank fires a round and the spotter (here the platoon leader) adjusts.

Note that AP and canister ammunition are not suitable for this role – use HE.

■ **38. SECOND ECHELON.**—*a.* The second echelon follows the first echelon close enough so that the enemy will not have time to reconstitute his antitank defense. This echelon, in addition to its mission of destruction of hostile automatic weapons and antitank guns passed over by the first echelon, protects the flanks and repels counterattacks from the flanks.

b. Some platoons of the second echelon may be detailed to support by fire the first echelon. In such operations, their action is the same as the second wave of the leading echelon.

c. The infantry may attack with the second echelon. The infantry attacks with the leading wave. The tanks do not slow down to the pace of the infantry but keep on moving fast. Succeeding waves pass through the infantry.

■ **39. THIRD ECHELON.**—*a.* The third echelon of attack usually attacks with the infantry and assists the infantry to advance. The infantry may advance with the second echelon (see par. 38). This echelon will run away from the infantry and the third echelon of tanks then takes over the task of assisting the infantry.

b. The infantry may advance behind the second echelon of attack in carriers until forced to dismount. When the infantry is forced to dismount, the tanks first take position to cover this action and then, assisted by the infantry, attack the enemy resistance by fire and maneuver.

■ **40. ATTACK WITH INFANTRY.**—*a.* When the infantry attacks first to secure ground from which a tank attack may be launched, tanks when practicable take position to assist the attack by fire. This assistance may be either by direct or indirect fire. Targets are machine guns and other automatic weapons. Pill boxes or emplacements may be demolished by armor piercing ammunition. The tank platoon leader is assigned a sector in which to support the infantry. He may be assigned targets or may fire on targets as they disclose themselves.

b. When attacking through infantry in position, arrangements are made with the infantry for a passage of lines. These arrangements include paths to be taken by the tanks and means for infantrymen to identify themselves so they will not be run down by the tanks. All members of the tank crew must be particularly alert to prevent injury to their own infantry.

c. When attacking with infantry, the following should be observed when applicable:

(1) The platoon advances by fire and maneuver, one section always covering the advance of the infantry and the other section.

(2) The platoon joins in the fire fight only against dangerous targets. Do not waste ammunition on hostile

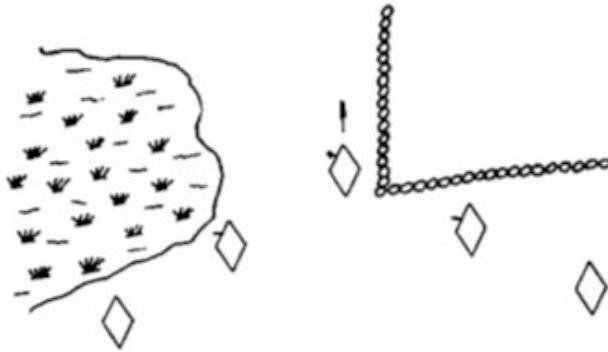
riflemen at long ranges. The infantry supporting weapons will take care of that.

(3) Be prepared to protect the infantry against a mechanized attack.

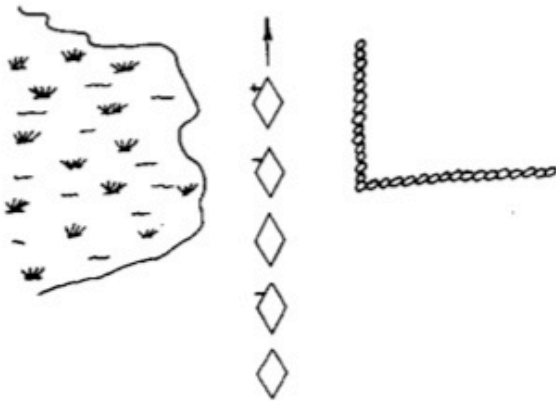
(4) Destroy antitank guns immediately.

(5) If the platoon attacks ahead of the riflemen, hold the ground gained until the riflemen close up.

(6) Keep close contact with the rifle unit commander.

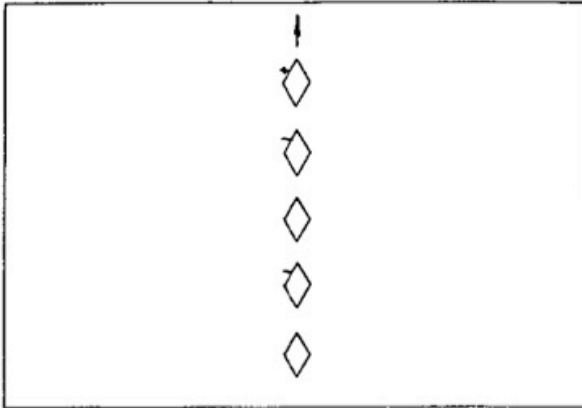


① In approach, do not use a wide formation which may cause part of the tanks to strike an obstacle and be lost.

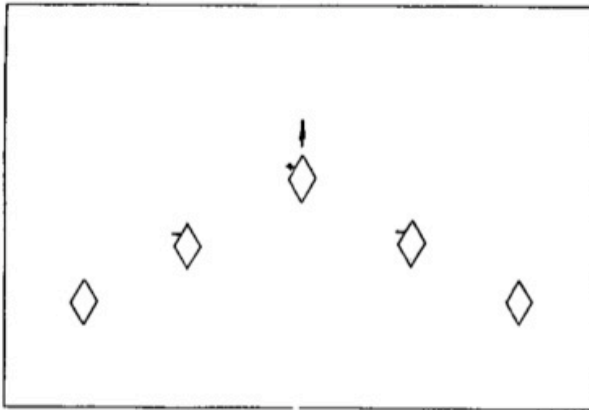


② In approach, use a deep formation so the platoon commander has all the tanks behind him and can guide or halt them as necessary.

FIGURE 120.—Formation in approach.



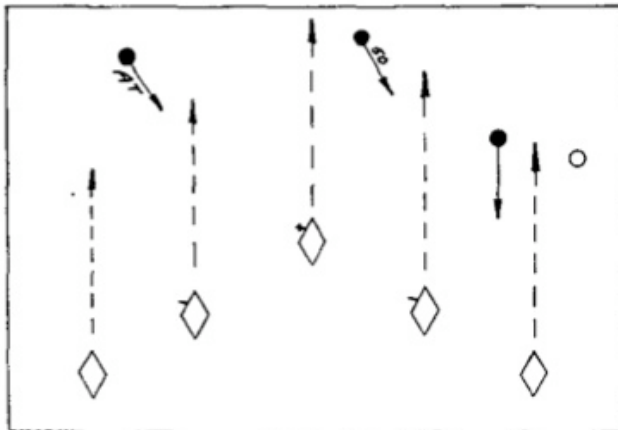
① Do not begin a fire fight from a deep formation because fire of too few weapons can be brought into play.



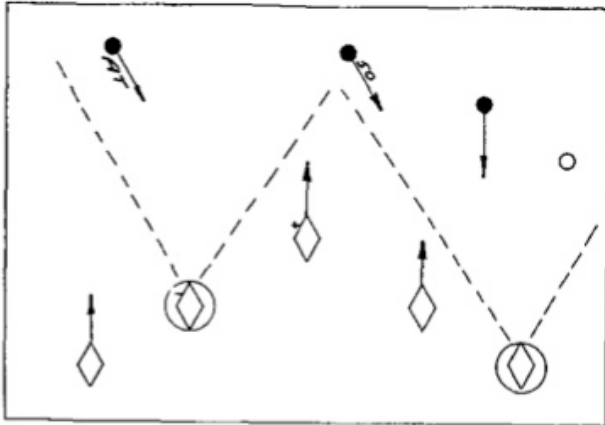
② Begin the fire fight from a wide front so fire power of all weapons can be immediately brought into play.

FIGURE 121.—Formation for beginning fire fight.

The wedge formation shown here provides maximum firepower to front and to left and right flanks. It's tough to enfilade tanks in this formation.

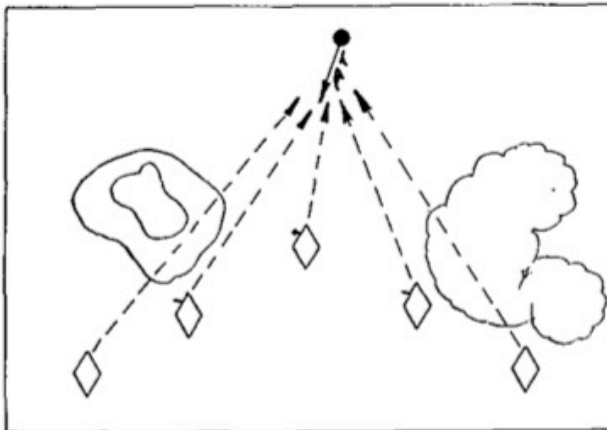


③ Do not move all tanks of the platoon forward at one time. This causes many targets to be overlooked. Observation from a moving tank is difficult.

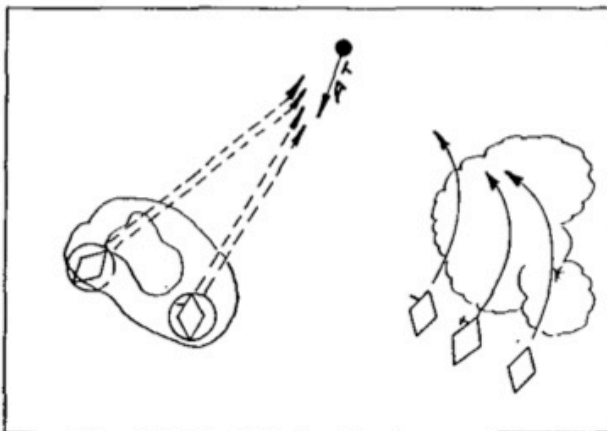


③ Move platoon forward by having some tanks observe while others move. By alternating movement and halts, the great advantage of shooting and observing from a stationary tank can be fully utilized.

FIGURE 122.—Method of advance.



③ Do not have all tanks of the platoon shoot at a discovered antitank weapon while moving.



③ Part of the platoon fires from halted tanks in defilade and the remainder of the platoon moves to envelop the enemy. The antitank weapon can usually be destroyed by the well-aimed fire of stationary tanks.

FIGURE 123.—Attacking an antitank gun.

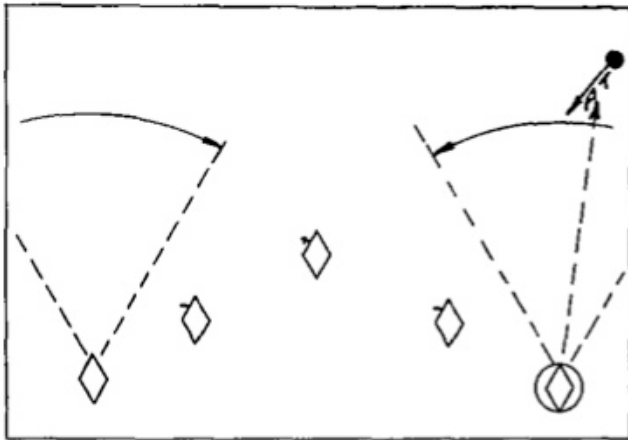
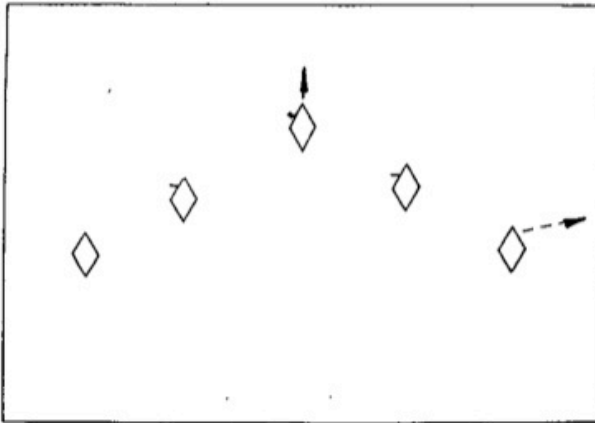
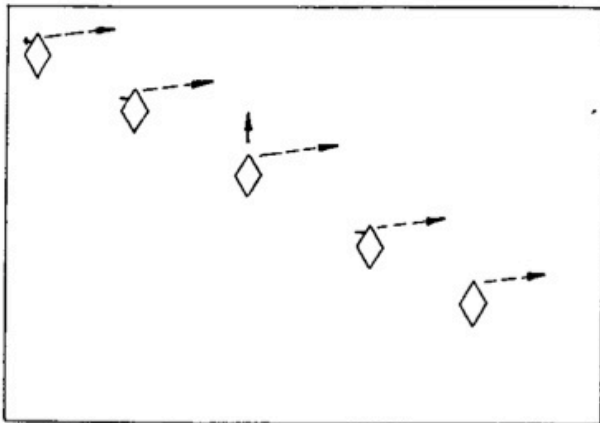


FIGURE 124.—Observe occasionally from a halted tank. The field of view of the observer (especially in flank tanks) is increased by halting. Fire against an antitank target can better be observed. Halt in defilade or concealment.

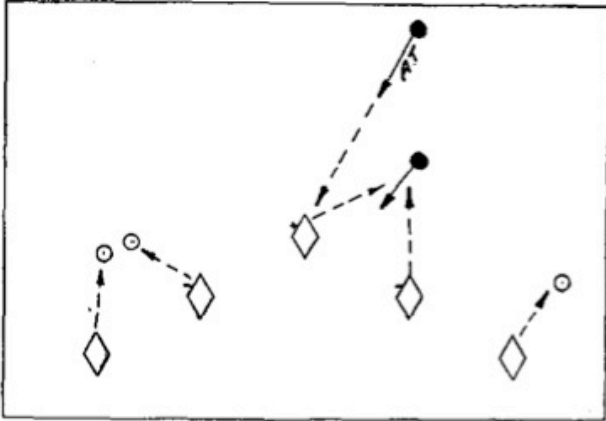


① Do not advance the platoon on an *open flank* in a line or wedge formation. In such formation, the observation and ability to fire to a flank is limited.

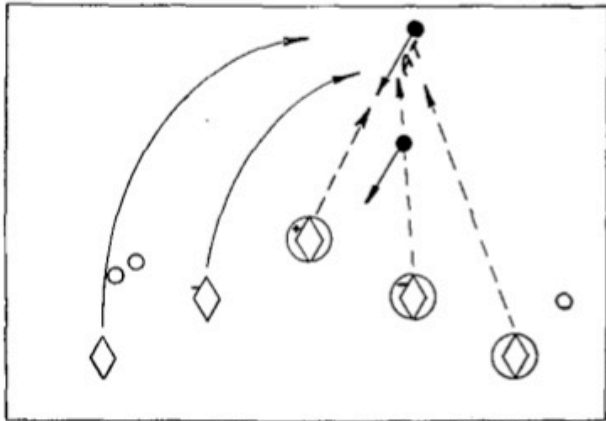


② Echelon the platoon on the open flank. In this formation, the weapons of all tanks have a full field of fire toward the flanks.

FIGURE 125.—Formation for an open flank.

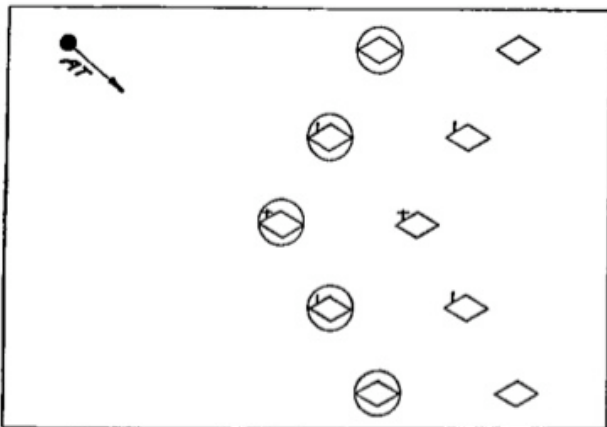


① When confronted with both an antitank gun and a machine gun, do not attack the machine gun first and thus allow the more dangerous weapon, the antitank gun, to continue firing.

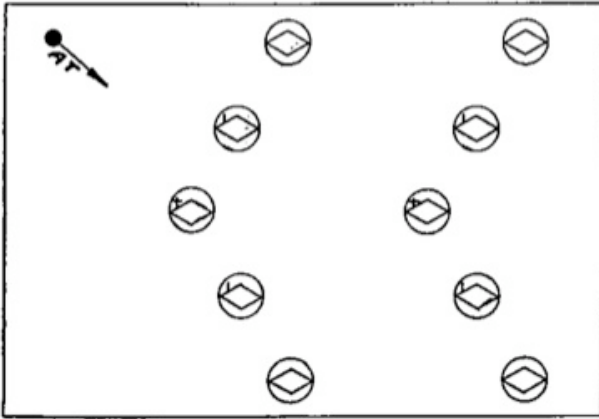


② Destroy by fire and movement the enemy antitank gun, disregarding the less dangerous targets.

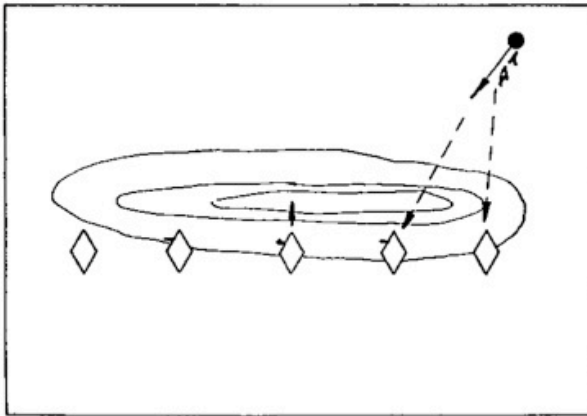
FIGURE 126.—Destroy more dangerous targets.



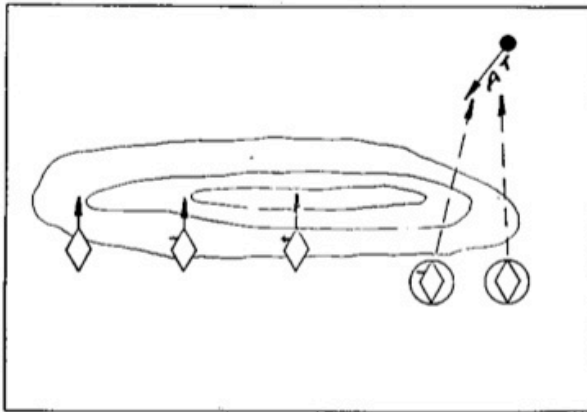
③ Do not continue movement when the leading wave of tanks halts. The platoon then becomes bunched, providing an excellent target for the enemy. Bunching also limits use of tank weapons.



- ② When the leading wave of tanks is stopped, halt the platoon at once under cover at a distance from the leading platoon.
 FIGURE 127.—Halt platoon when leading wave of tanks stops.

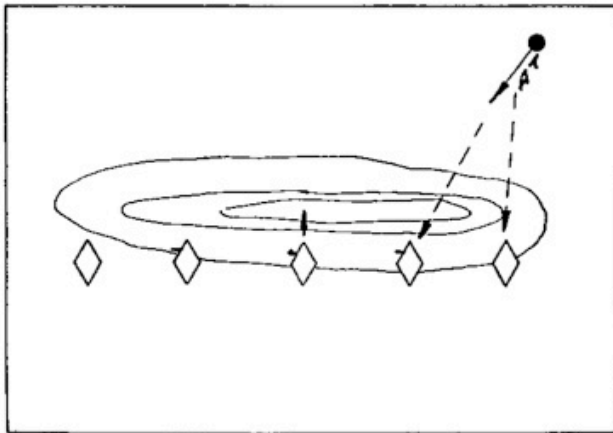


- ① Do not cross a hill with all tanks in movement and no tanks ready to fire.

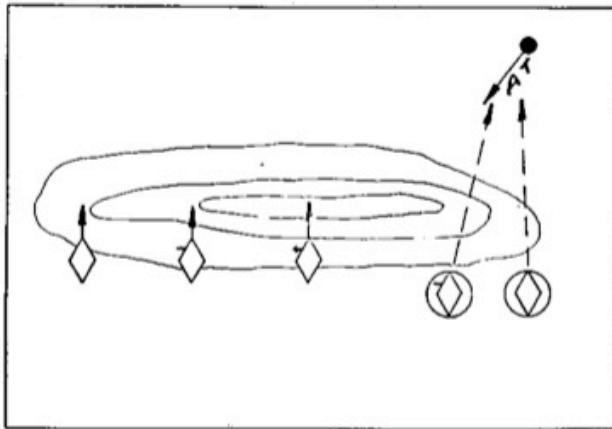


- ③ The platoon should cross a hill by alternating movement with halts. In this way, halted tanks cover movement of remainder of platoon.

FIGURE 128.—Crossing a hill or ridge.



ⓐ Do not cross a hill with all tanks in movement and no tanks ready to fire.



ⓑ The platoon should cross a hill by alternating movement with halts. In this way, halted tanks cover movement of remainder of platoon.

FIGURE 128.—Crossing a hill or ridge.

■ **41. TANK VERSUS TANK ACTION.**—*a.* In tank versus tank action, it is essential that tank crews be able to recognize readily hostile tanks, that they know the capabilities of these tanks, the vulnerable points at which to fire, and *the capabilities of their own and enemy tank weapons.* In tank versus tank action, every advantage must be taken of terrain, the sun, direction of wind, weather, and your own weapons.

b. If outranged by hostile weapons the following may be done:

(1) Move to concealed positions and send some tanks to the enemy flanks.

(2) Withdraw behind your own antitank gun defenses, keeping out of range of the enemy weapons.

(3) Close on the enemy at maximum speed, attacking from direction of the sun if practicable.

c. If your weapons outrange those of the enemy, close to effective range of your weapons but keep out of range of the enemy and halt to fire.

■ **42. ATTACKING FORTIFICATIONS.**—Tanks avoid attacking fortifications when possible. However, it may be necessary to attack bunkers, pill boxes, and fixed gun emplacements in order to effect a breakthrough. These fortifications are attacked by small teams consisting of a tank platoon, an infantry platoon, and engineers, supported by artillery and mortars. The method of attack will vary with the terrain, the armament of the emplacement, and the wind direction.

a. Attacking machine-gun emplacements.—In attacking a machine-gun emplacement, a section of tanks covered by the remainder of the platoon rush the emplacement and destroy it by crushing. If the emplacement cannot be destroyed by crushing, infantry or engineers following the tanks destroy the personnel by dropping a grenade in an opening or by use of a flame thrower.

b. Destroying antitank gun emplacement.—In attacking an antitank gun emplacement, methods must be varied according to wind and terrain conditions.

(1) If wind conditions are favorable, that is, from flank or down range—

(a) Artillery and air bombardment destroy enemy artillery.

(b) Just before the attack, artillery places a concentration on the emplacement and adjacent infantry.

(c) Smoke is placed on the emplacement and those adjacent.

(d) The tanks, followed closely by engineers and infantry, rush forward. The tanks crush the protecting wire and the infantry and engineers destroy the hostile gun crew.

(e) Infantry automatic weapons keep down the fire of adjacent riflemen. After the emplacement is taken, tanks and infantrymen destroy the adjacent troops.

(2) If wind direction is not right, that is, if it is blowing toward you, the procedure is as follows:

(a) Artillery and air bombardment is used as in (1) above.

(b) Smoke adjacent emplacements.

(c) Infantry protected by automatic weapons and fire of one section of tanks moves forward.

(d) One section of tanks precedes the infantry.

(e) The other section of tanks fires on the loopholes of the emplacement.

(f) The leading section of tanks finds a good position and brings fire on the loopholes and the rear section

then advances.

(g) One section of tanks crushes protective wire while other section covers this action.

(h) Infantry and engineers then destroy the emplacement.

c. *Attacking emplacements by platoon alone.*—Should the platoon have to attack the emplacement alone, use 75-mm smoke shell to blind the defenders while one sections rushes the emplacement.

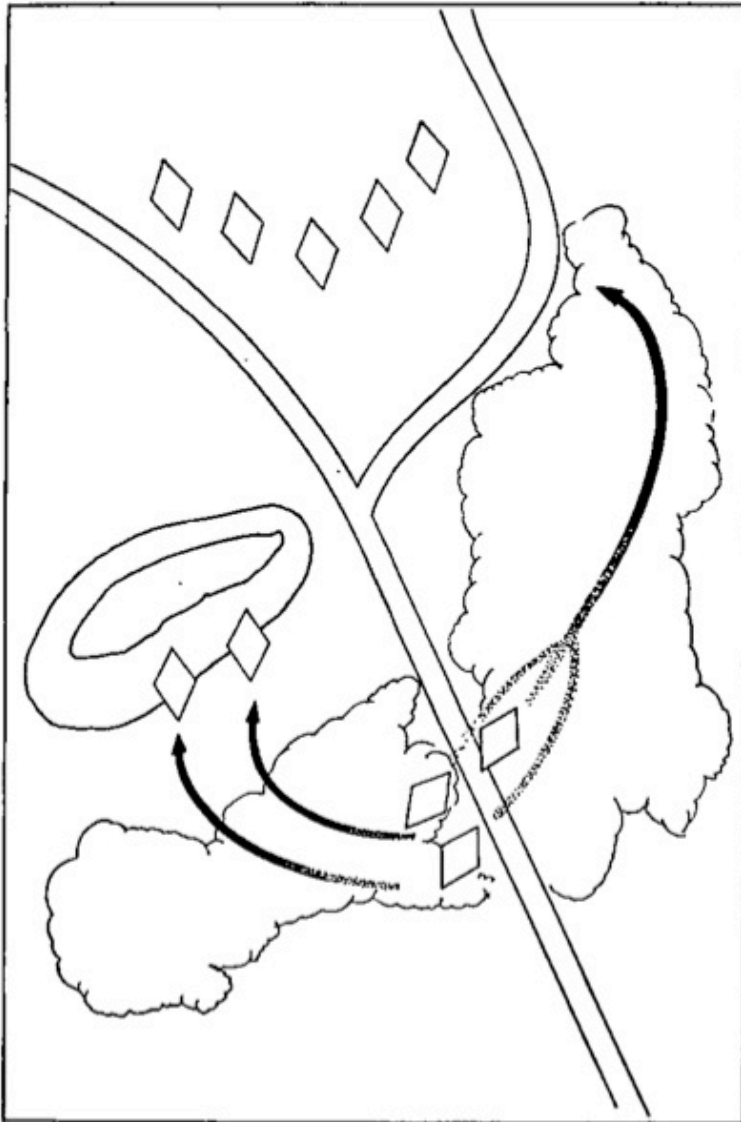


FIGURE 130.—When enemy tanks are encountered, place some tanks in defilade and maneuver others to flank.

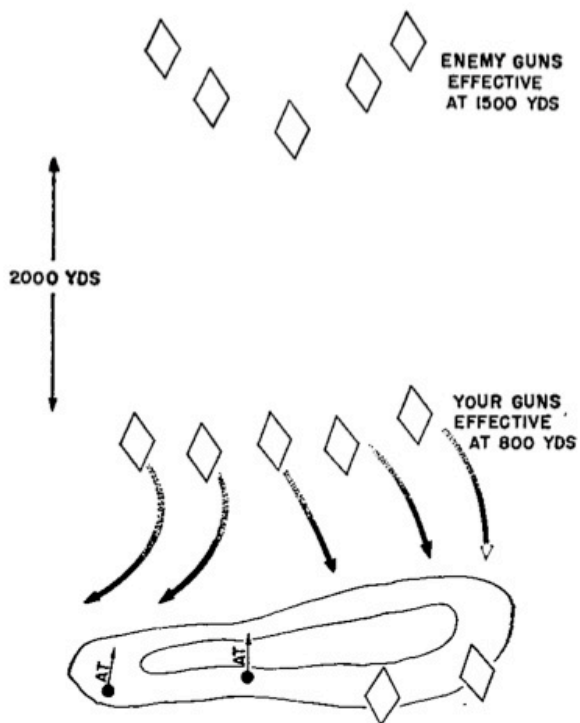


FIGURE 131.—If you cannot maneuver to the flank or take up defiladed position, withdraw to your own antitank defense.

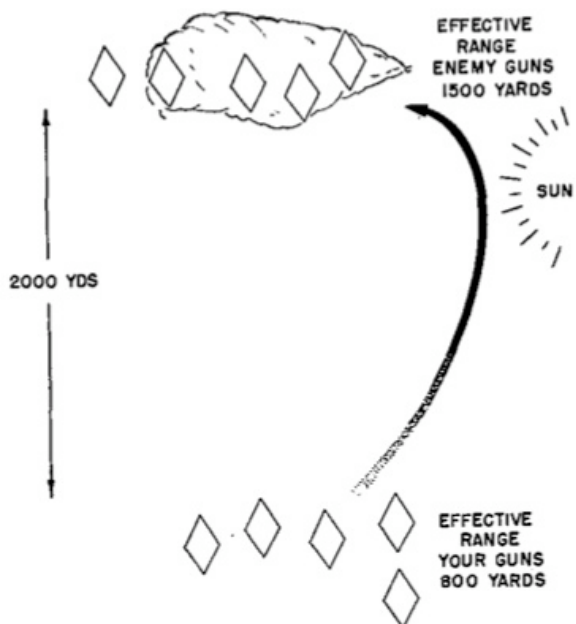


FIGURE 132.—If you cannot withdraw to antitank defenses, close with enemy at maximum speed and attack him from the sun. Your supporting mortars should place smoke on the enemy if within range.

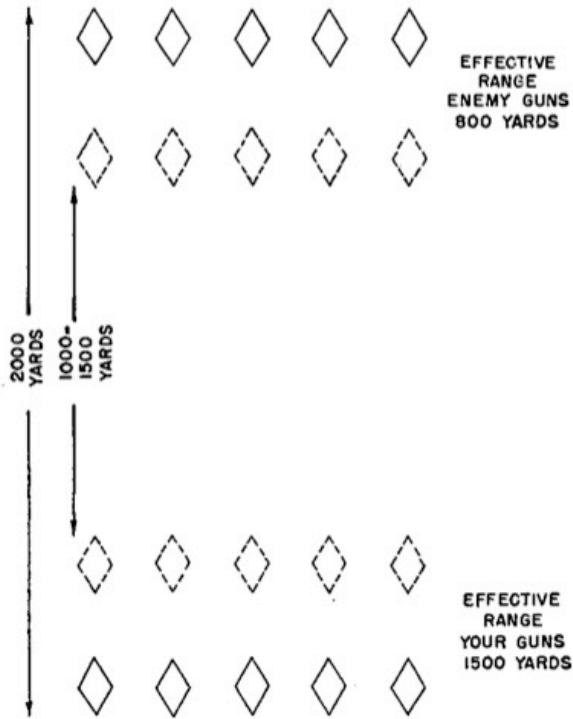
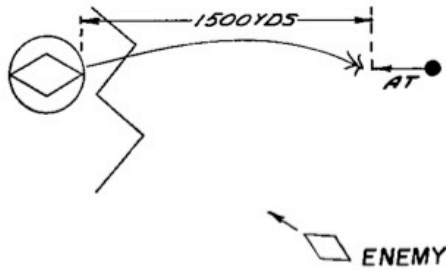
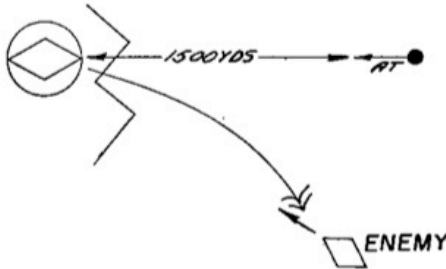


FIGURE 133.—If you outrange the enemy, close to effective range but keep out of his range.

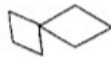


- ① Do not fight an enemy antitank gun when an enemy tank is approaching; the enemy tank is the more dangerous weapon.



- ② From position, defend at once against the enemy tank attack.

FIGURE 134.—Attack more dangerous target.



- ③ Do not ram an enemy tank. Your own tank may be rendered useless.



- ④ Destroy enemy tank by fire.

FIGURE 135.—Do not ram an enemy tank. Destroy it by fire.

CHAPTER VII

DEFENSE

■ **43. GENERAL.**—Defensive action by armored units is covered in FM 100-5 and FM 17-10. Tank platoons in defense are used as counterattacking units. They are not used as armored pill boxes.

■ **44. PROCEDURE IN DEFENSE.**—*a.* The tank platoon will be part of a larger unit used as a counterattacking force. This force makes limited objective attacks. The platoon functions as in any other attack.

b. When in a defense position the tank platoon leader, his tank commanders, and drivers make a thorough reconnaissance of the ground over which they may attack. Several plans of attack may be given and the ground over which each will take place must be thoroughly known. Some of this reconnaissance must be made on foot. Landmarks must be noted and complete plans made for the attack.

■ **45. WITHDRAWAL.**—*a.* The tank platoon will usually be part of a larger force. With this force it makes fast limited objective attacks to disorganize the enemy and then rapidly withdraws. In this action the platoon may be used to give supporting fires as in offensive' action.

b. The platoon may also be used to cover road blocks. In such action, tanks take position where they can cover by fire the approaches to the road block and also be mutually supporting in case the enemy sends dismounted men around the block.

Note the brevity of this chapter. The manual's emphasis is driven by tank purists, who regard the use of tanks as mobile defensive pill-boxes with horror, and pushed for the establishment of a tank destroyer corps to perform this function. Doctrine calls for tanks to be held back in a defensive position, and used for counterattack and exploitation.

We don't always have that luxury; but there was a fear (justified, I think) that division and corps commanders, who generally came from the infantry because that branch had been around longer, would misuse tank assets out of ignorance if the critical points were anything but "black letter doctrine" that could be cited in protest.

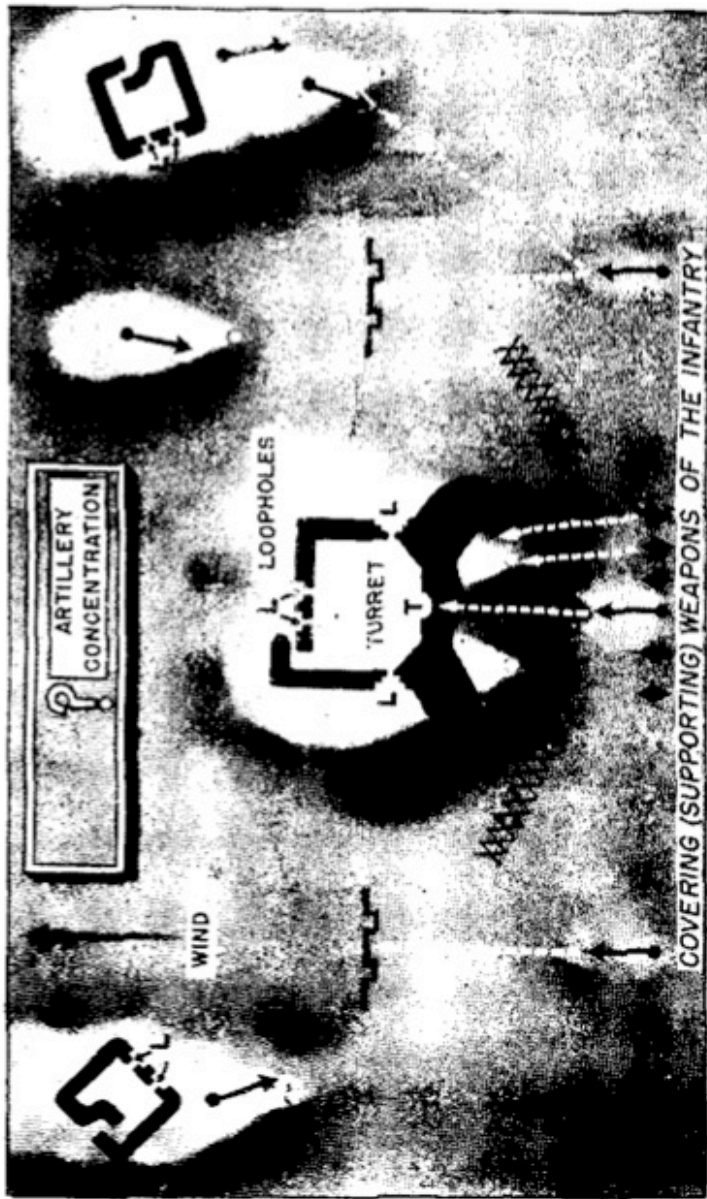


FIGURE 136.—Attacking emplacement, wind conditions favorable.

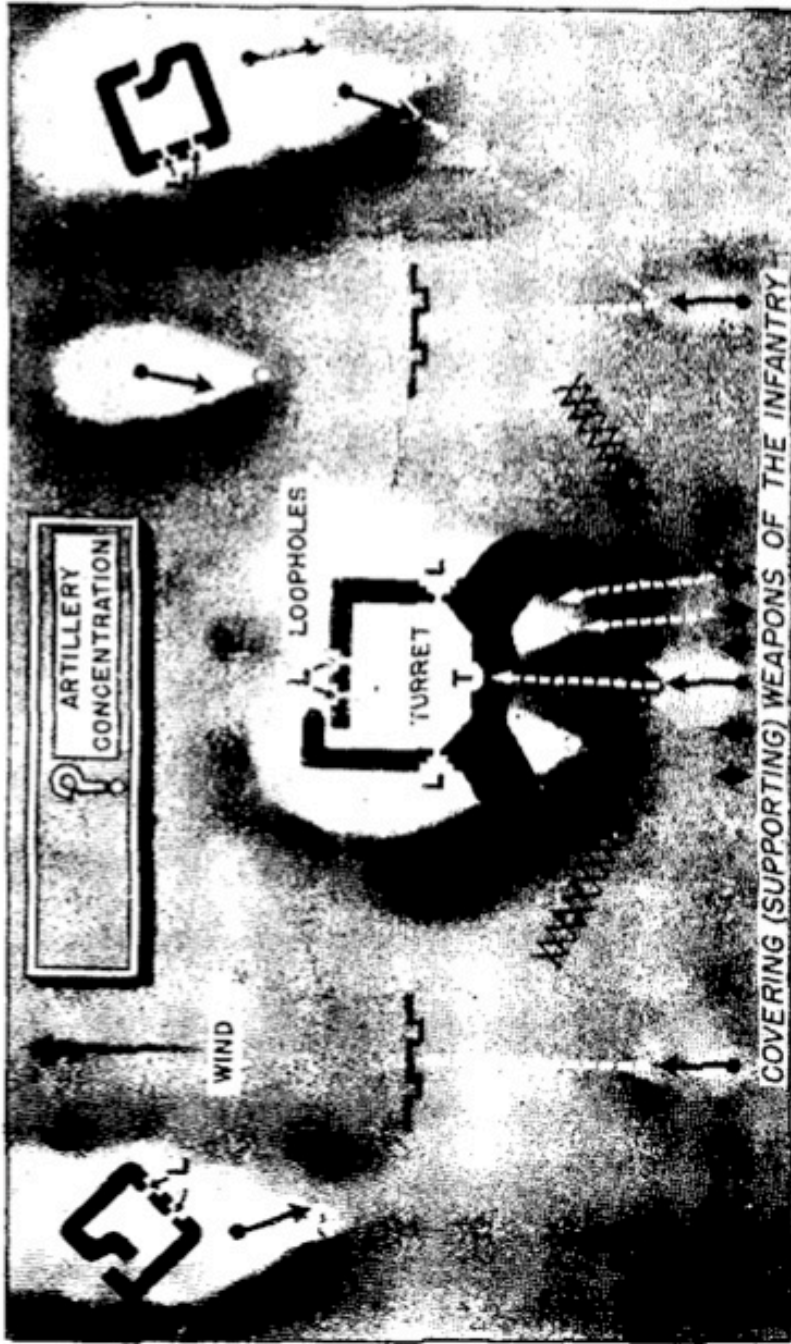


FIGURE 136.—Attacking emplacement, wind conditions favorable.