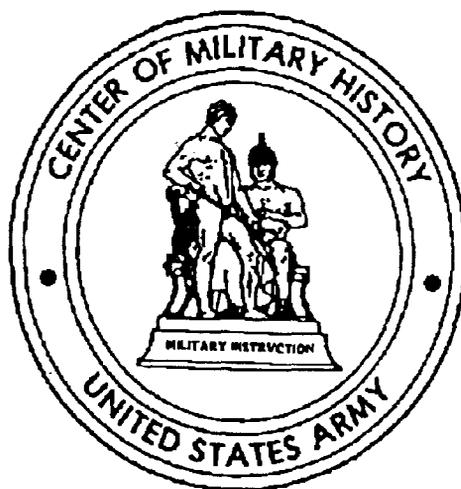


KASSERINE PASS BATTLES



Doctrines and Lessons Learned Volume II, Part 2



U.S. ARMY
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Contents

5. FM 17-22, *Armored Force Field Manual: Reconnaissance Battalion (Extract)*, 1942
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FM 17-22, *Armored Force Field Manual: Reconnaissance Battalion* (Extract), 1942

WAR DEPARTMENT,
WASHINGTON, August 18, 1942.

FM 17-22, Armored Force Field Manual, Reconnaissance Battalion, is published for the information and guidance of all concerned.

[A. G. 062.11 (7-14-42).]

BY ORDER OF THE SECRETARY OF WAR:

G. C. MARSHALL,
Chief of Staff.

OFFICIAL:

J. A. ULIO,
*Major General,
The Adjutant General.*

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

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RECONNAISSANCE BATTALION
ARMORED FORCE FIELD MANUAL

SECTION I

GENERAL

■ 1. PURPOSE.—*a.* The purpose of this manual is to outline general methods of training and employing the reconnaissance battalion of the armored division. Tactical employment of the reconnaissance company is covered in FM 17-20, and that of the tank company in FM 17-32. The subject of reconnaissance in general is covered in FM 100-5 and FM 17-10.

b. This manual is intended as a guide only. It is not expected that it will be followed blindly. Rigid application of a fixed set of rules is highly undesirable. Each situation must be solved on its own merits. Individual initiative must be encouraged.

c. Following is a key to symbols used in illustrations in this manual:

-  CAR, HALF TRACK
-  GUN, ASSAULT, SELF-PROPELLED
-  CAR, ARMORED, RECONNAISSANCE
-  TRUCK, 1/4 TON
-  MOTORCYCLE, SOLO
-  TANK
-  COMBAT COMD, ARMD DIV

■ 2. MISSION.—*a.* The primary mission of the reconnaissance battalion is, in conjunction with observation aviation, to furnish the division commander with information upon which to base a decision for employment of the division.

Before any other mission is assigned, a careful estimate should be made as to the probable effect on this primary mission.

b. Additional missions that may be assigned are counter-reconnaissance, security, and combat. The reconnaissance battalion is not given the mission of covering development of the division or its elements. Such mission would interfere seriously with the primary mission of reconnaissance. Such covering is incidental to reconnaissance and counterreconnaissance.

■ 3. SUPPORT.—a. Depending upon its mission, terrain, width of zone, and the enemy situation, the reconnaissance battalion may be reinforced by engineers, infantry, artillery, tank destroyers, and air bombardment. Observation aviation attached to an armored division habitually cooperates with the reconnaissance battalion.

b. When numerous streams are to be crossed and the terrain is otherwise difficult, one or more companies of engineers should be attached.

c. When the battalion is given counterreconnaissance, security, or combat missions, infantry and artillery may be attached. Combat aviation if available, should be in support.

d. When the reconnaissance battalion is given a mission of seizing and holding critical points it should be relieved at the earliest practicable moment by other troops in order that it may perform its primary mission of reconnaissance.

■ 4. ORGANIZATION.—The battalion is composed of a battalion headquarters and headquarters company, three reconnaissance companies, and a tank company. For details of organization see current Tables of Organization.

■ 5. METHOD OF EMPLOYMENT.—a. The reconnaissance battalion operates under direct orders of the division commander. Rarely will it or any of its elements be attached to other units of the division, as this will dissipate its strength.

b. Clearly defined missions must be assigned. If two or more missions are assigned, the *primary* mission must be indicated.

c. A zone of reconnaissance is assigned. This varies with the terrain, road net, mission, and enemy situation. A zone

30 to 50 miles in width may be reconnoitered at a speed of 10 to 15 miles per hour. (See FM 17-10 and FM 17-20.)

d. The battalion may reconnoiter as far as 150 miles in front of the division. This distance, however, will be exceptional. Normally the reconnaissance battalion will not precede the division by more than 100 miles.

SECTION II

TRAINING

■ 6. GENERAL.—a. Tactical training of the battalion as a whole commences near the end of the company training period. The company should have completed each phase of training as listed below before such phase is scheduled for battalion training. During company training periods the battalion commander and his staff, in addition to supervising training, prepare tactical exercises for the battalion. Battalion headquarters should hold frequent command post exercises. Combined operations with other units, air, infantry, tank, artillery, tank destroyer, and engineer, should be held when practicable.

b. The battalion as a whole, in addition to company training (see FM 17-20), should be trained in—

Marches.

Security.

Collection of information and reports.

Offensive action.

Defensive action.

Retrograde movements.

Special operations.

■ 7. PROCEDURE.—a. To be of value in training, exercises must be carefully planned and vigorously executed. Plans for an exercise must be made well in advance and not left to the last moment. (See FM 21-5.)

b. The following is a guide to steps taken in preparation of field exercises:

(1) Decide upon the type of exercise (par. 6) and the particular points of such exercise that are to be emphasized.

(2) Make a map reconnaissance to determine suitable terrain for the exercise and find out if that terrain is available at the time desired.

(3) Plan the exercise on the map. Make a terrain reconnaissance of the area. Next, with the staff, war-game the exercise on the map until satisfied that the situation is sound and that the points to be emphasized will be brought out.

(4) The exercise should then be played as a war game by the battalion commander, his staff, and the company officers. At this time company commanders and junior officers should be required to make decisions and issue orders. Interest is maintained by injecting various small situations requiring immediate decision and action.

(5) The exercise is next played on the terrain. Before proceeding in the exercise, make sure that all equipment and personnel are complete as far as available. From the time the unit moves from the vehicle park until the end of the problem, each individual must understand that he is to act as though he were under actual combat conditions. Tolerant of any laxity will invariably lead to poor performance in the exercise and a consequent loss in training time.

(6) After the exercise, hold a critique at which the exercise is explained. Bring out the good and bad points of performance. Where solutions were in error point out a correct solution. Do not try to hold to one solution if others may be equally good. Care must be taken not to ridicule the work of individuals.

c. In all problems try to inject realism. Whenever possible use a two-sided maneuver. In any case outline the enemy position with small groups.

SECTION III

CONTROL, ORDERS, LIAISON

■ 8. CONTROL.—Control is exercised by giving definite orders, by use of radio and messengers, and by use of zones, boundaries, axis of advance, and phase lines.

a. Radio.—(1) The battalion is amply equipped with long and short range radio sets for communication within the battalion, to higher headquarters, and with supporting air units.

(2) When voice radio is used, and it is used for all short distance radio communication, the commander or his staff

officers must use it in person. For long range operation, messages are sent by key and usually in code.

(3) Figure 1 shows the battalion radio net. By use of different crystals these nets may be changed to meet any situation.

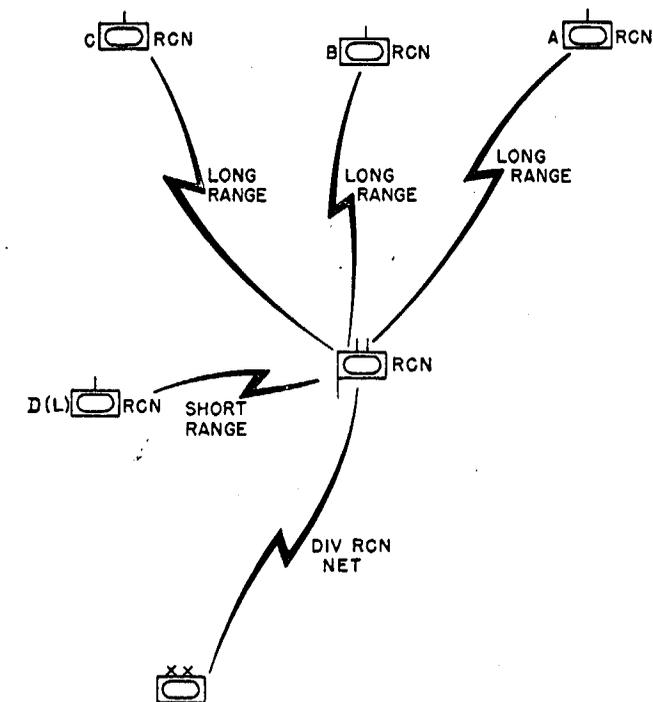


FIGURE 1.—Radio nets, reconnaissance battalion.

(4) Strict radio discipline must be maintained. Messages must be brief.

(5) For radio identification codes see current Signal Operations Instructions. FM 17-20 also covers radio identification codes.

(6) Do not send orders or information in the clear when the information to be transmitted, if intercepted by the enemy,

6

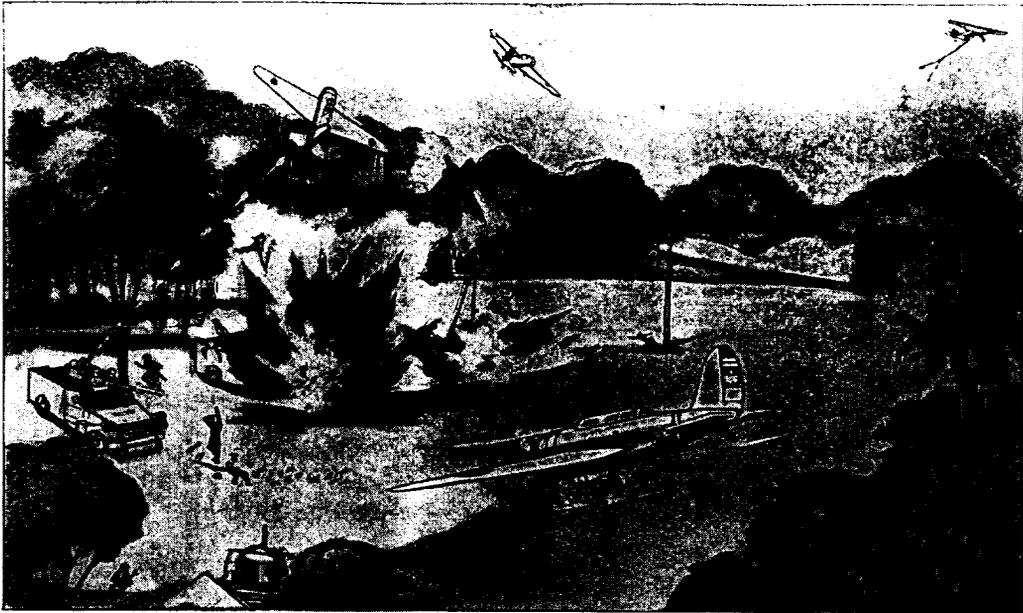


FIGURE 2.—Airplane message pick-up field. Do not place pick-up field near the CP; the enemy may find it.

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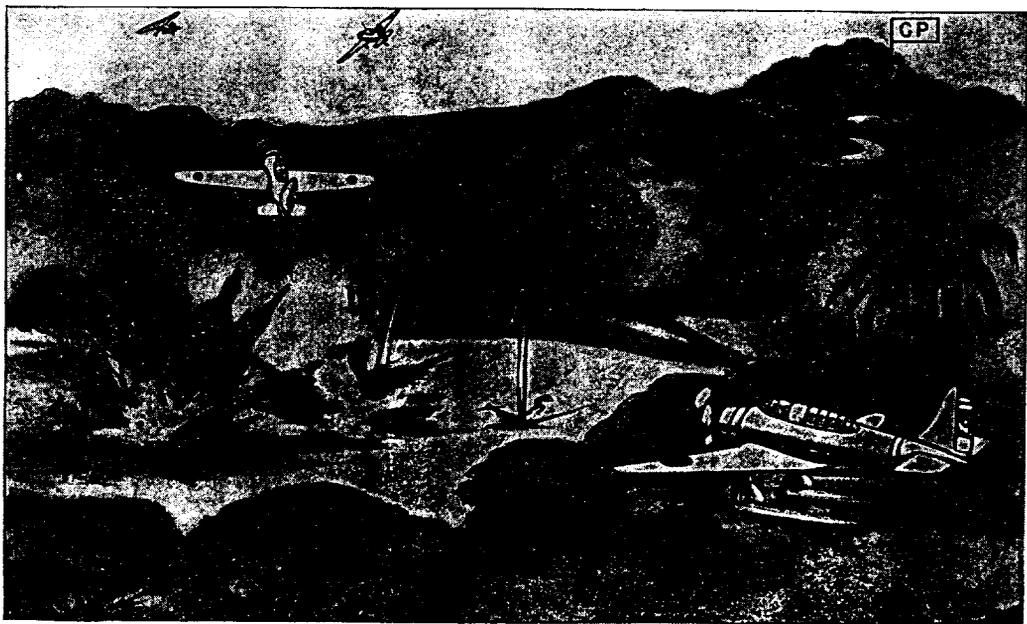


FIGURE 3.—Airplane message pick-up field. Place pick-up field away from CP and use messenger to take message to panel personnel.

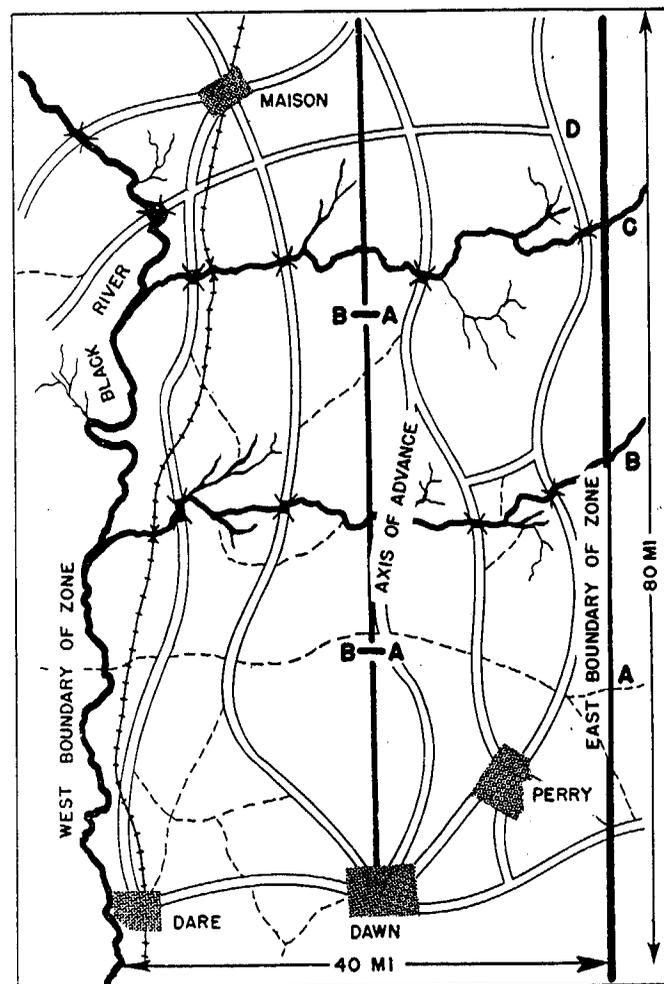


FIGURE 4.—Zone of advance for reconnaissance battalion, showing boundaries, axis of advance, and phase lines A, B, C, and D.

can be acted upon in time to influence the situation in question. Do not send messages in code and repeat any part in the clear. Brevity codes may be used for certain messages. For rules governing radio security, see FM 24-5.

b. Messengers.—Use messengers for short distances, as they will be faster than radio. There are only a few messengers in the battalion headquarters, so use them sparingly. A messenger sent to division headquarters 50 miles away will probably not return within 4 hours.

c. Panels and pick-up and drop messages.—(1) The use of pick-up and drop messages is convenient for transmission of overlays, maps, and aerial photographs. The slow-flying liaison airplane is valuable for this service. Do not have the pick-up field near the CP. The enemy observation may find it. For use of panels see FM 24-5.

(2) When radio silence is essential, when radio communication has broken down, or when it is necessary to identify location of the CP or pick-up field to the air observer, panels may be used.

d. Zones, boundaries, axis of advance.—Direction and lateral extent of movement is controlled by designation of zones of advance and boundaries, or by giving an axis of advance and a frontage. The division commander designates a zone for the battalion. The battalion commander divides the zone into zones for his companies. (See fig. 4.)

e. Phase lines.—The rate of advance is controlled and coordination is obtained by designating phase lines and report lines. These are easily identified terrain features on the route of advance. The battalion commander prescribes the time leading elements of the companies will pass the phase lines. Companies report when they reach and pass a phase line.

■ 9. ORDERS.—*a.* Orders are usually oral. They may be, and usually are, supplemented by use of marked maps, overlays, or aerial photographs. A sketch such as figure 4 might well be issued as part of the order for an advance. Orders follow the form given in FM 101-5. They must be short and clear. Missions must be unmistakably stated.

b. Clear orders are necessary for correct execution. Every officer must strive by continuous practice to make himself

perfect in the issuance of such orders. Thorough training in this subject should be given during the war game period of preparing tactical problems.

■ 10. LIAISON.—*a.* The use of liaison officers must be habitual. Reconnaissance battalion headquarters has one liaison officer who remains at division headquarters. This officer must know the plans of the battalion commander. He must keep the battalion commander informed of any changes in division plans. His duties are prescribed in FM 101-5.

b. Each combat command sends one liaison officer to the CP of the reconnaissance battalion. This officer must know the plans of the combat command commander. He keeps this commander informed on the situation as found by the reconnaissance battalion. He should have a radio set for communication with the combat command and should also be provided with messengers.

c. The reconnaissance company of the armored regiments should maintain liaison personnel at the CP of the reconnaissance battalion. This also applies to the infantry regiment when it is leading the division. As the combat command closes on the reconnaissance battalion, its liaison party joins that company of the reconnaissance battalion in the zone of advance of the combat command. When the regimental reconnaissance company operating with the combat command closes on the reconnaissance battalion, the liaison party joins the company commander and furnishes him all information available.

d. Artillery liaison officers from the combat commands should also join the reconnaissance battalion and remain with it until the combat command closes on the reconnaissance battalion. By this means the artillery will gain early information of positions, terrain, and targets. The liaison officer is also able to give necessary information to any supporting artillery that may be detailed to assist the reconnaissance battalion.

e. The engineer reconnaissance platoon of the headquarters company, engineer battalion, accompanies the reconnaissance battalion. It performs reconnaissance and liaison functions.

SECTION IV

MAINTENANCE

■ 11. GENERAL.—Each company of the reconnaissance battalion has a maintenance section which performs second echelon maintenance for the company. In addition, the battalion headquarters company has a maintenance platoon which performs second echelon maintenance for the battalion as a whole. The battalion may be reinforced by elements of the division maintenance battalion. In combat the distinction between echelons of maintenance is slight. Each maintenance unit does such work, with the tools, spare parts, and mechanics available, as time and the tactical situation permit. Company maintenance will not undertake work so extensive that service to a large number of other vehicles is prevented. Vehicles must be kept rolling. FM 17-50 covers in general the subject of maintenance.

■ 12. BATTALION MAINTENANCE PLATOON.—This platoon is organized into a platoon headquarters, two maintenance sections, a maintenance section (trains), and a wrecker section. When the battalion is advancing, with two companies leading, a maintenance section is assigned to each of the two leading companies. When three reconnaissance companies are leading, the train section will service the center company.

■ 13. MAINTENANCE PLAN.—*a.* Before starting an operation, the battalion commander, after acquainting his staff with plans for employment of the battalion, calls upon the maintenance officer for a plan of maintenance. The plan is based upon a maintenance estimate of the situation which includes—

(1) *Probable enemy resistance.*—If enemy resistance is expected to be heavy, maintenance needs will be high. If resistance is expected to be light, maintenance needs will probably be low.

(2) *Terrain.*—Rough terrain will increase maintenance needs.

(3) *Width of zone.*—If the zone of advance is wide, the work of maintenance detachments will be made difficult, owing to the long distances which they must travel to reach disabled vehicles.

some protection from the enemy. However, the battalion must provide for its own security. The reserve reconnaissance company furnishes the outpost.

b. Security in bivouac is obtained by—

(1) Taking advantage of natural barriers such as wide streams, swamps, lakes, or extremely mountainous country.

(2) Detail of an outpost. (See FM 17-10 and FM 17-20.)

c. When practicable, select bivouac in daylight, move billeting parties in and occupy bivouac after dark; the enemy may observe these movements in daylight.

d. Make sure a definite system of recognition is in effect. Supply vehicles, kitchens, vehicles for evacuation of wounded, and messengers will be moving in and out all night. (See FM 17-20.)

e. Security from air attack is obtained by concealment, dispersion, and use of available weapons. Do not fire at hostile airplanes unless attacked or unless sure your location has already been discovered, as this will disclose your position. Dig slit trenches for protection.

SECTION VII

INFORMATION AND REPORTS

■ 22. **GENERAL.**—Information, no matter how accurate, is useless if not placed in the hands of the commander in time to be evaluated. Therefore, there must be a systematic and fast method of recording information and transmitting it to division CP.

■ 23. **INFORMATION SOUGHT.**—All information which may be of any value to the commander must be sought and reported. FM 17-10 lists specific items of information which should be obtained. In general, information required is—

a. Location of the enemy, his flanks, disposition, composition, direction of movement, strength.

b. Location of gaps or weak points in enemy defense.

c. Confirmation of information obtained by air observation.

d. Identifications.

e. Terrain, such as obstacles, cover, concealment, ground suitable for tanks, ground suitable for dismounted men only, impassable ground.

■ 24. **COLLECTING AND RECORDING INFORMATION.**—Collection and transmission of information by reconnaissance companies is covered in FM 17-20. At reconnaissance battalion headquarters, information is recorded and evaluated to some extent. However, information which may appear of little or no value may be of great value to the division G-2 when evaluated in conjunction with information received from other sources.

■ 25. **TRANSMITTAL OF INFORMATION.**—The division G-2 may designate which information is to be transmitted at once and which is to be sent in periodic reports. This may be covered in standing operating procedure. Should this not be indicated, then the battalion commander must decide. Usually information of first contact with the enemy, any large body of troops encountered, and any terrain information which is vital to the division commander in his plan of employment is transmitted at once. For methods of transmitting information, see paragraph 8.

SECTION VIII

OFFENSIVE COMBAT

■ 26. **GENERAL.**—Offensive combat in general is covered in FM 100-5. To gain information, the reconnaissance battalion must act quickly and aggressively. It must be prepared to fight for information. In addition to the armored cars, it has a tank company which it may use to overcome enemy counterreconnaissance or to repel an enemy attack.

■ 27. **ADVANCE TO CONTACT.**—a. Zones, boundaries, axis of advance, and phase lines are covered in paragraph 8.

b. As the battalion advances in its zone, increasing enemy resistance usually is met. Reconnaissance companies spread out and seek the enemy's flanks and rear, constantly reporting the situation to the battalion headquarters.

c. When the hostile covering force can be penetrated, the reconnaissance elements feel out and determine the enemy dispositions. They seek weak spots in the enemy defenses. The reserve reconnaissance company may be committed to move around the enemy flanks to his rear areas.

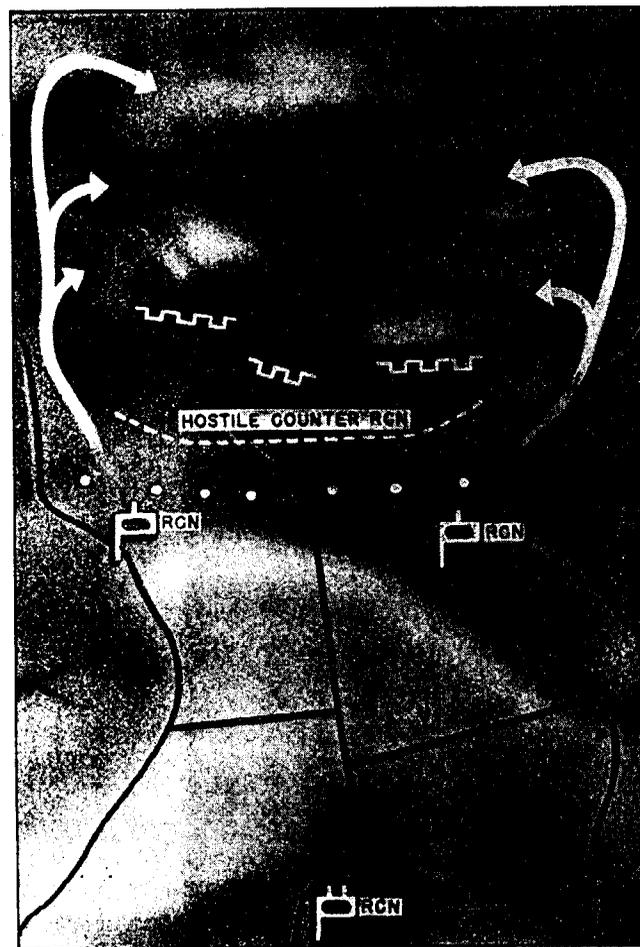


FIGURE 20.—Reconnaissance elements seek location of enemy flanks and move to his rear, if practicable. Battalion commander must watch road net so he can shift his reserve.

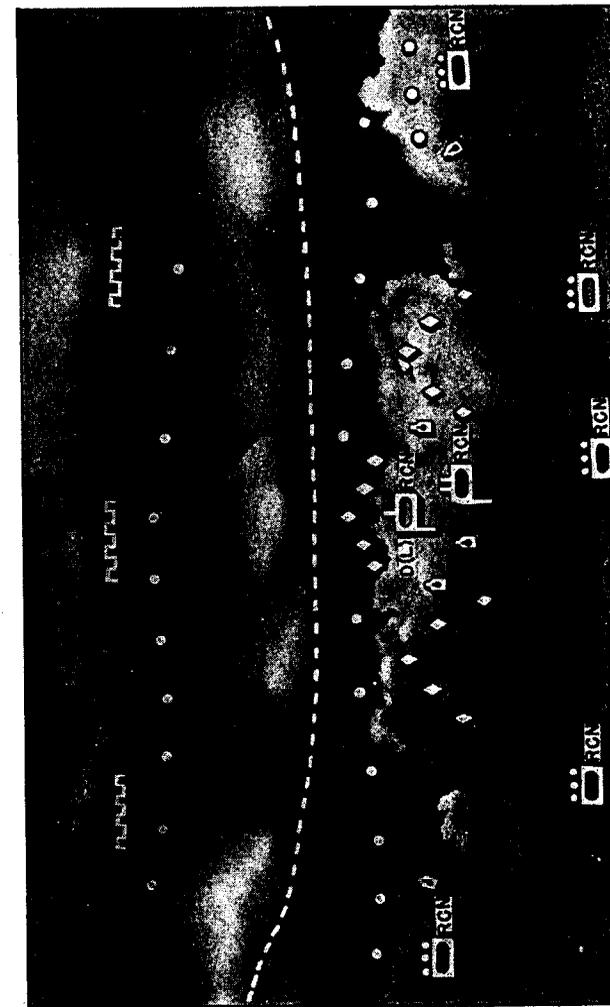


FIGURE 21.—With tank company supported by assault guns, attack through weak spots in hostile covering force.

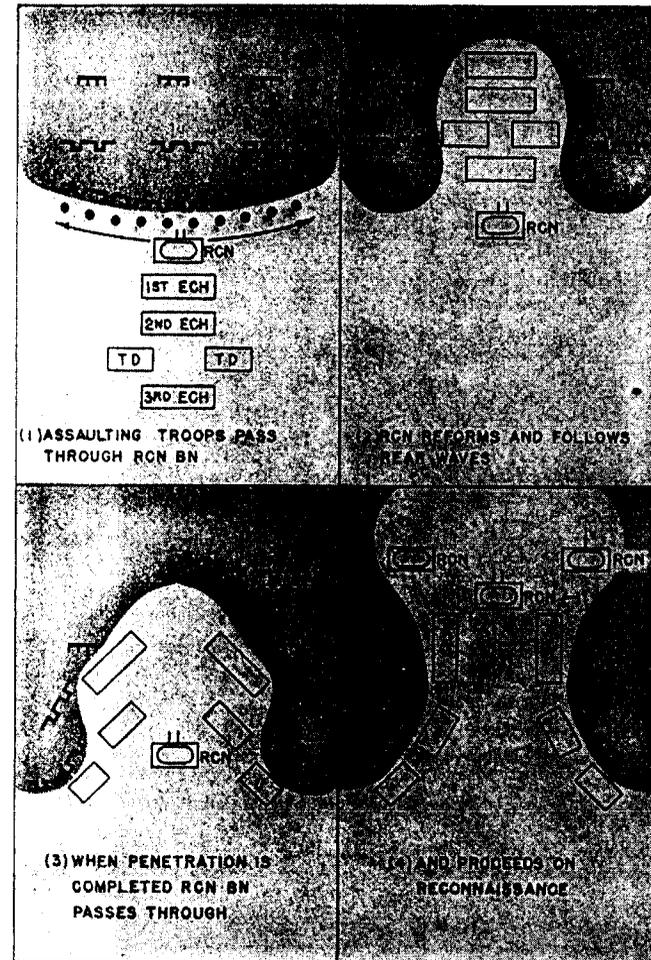


FIGURE 22.—When passed through in a penetration, the battalion reorganizes and follows the last echelon of attack.

d. When the enemy flanks are unassailable and his covering forces cannot be penetrated by reconnaissance elements, a weak place in the covering force is sought. The reconnaissance battalion commander then attacks through this weak spot with his tank company, supported by air bombardment and artillery, if available. Available assault guns of the reserve reconnaissance company and of reconnaissance platoons near the point of attempted penetration support the tank company attack. The reserve reconnaissance company moves through behind the tank company and proceeds to feel out the enemy main defenses. The tank company seeks to destroy the covering forces, thus permitting other reconnaissance elements to advance.

■ 28. COOPERATION WITH REGIMENTAL RECONNAISSANCE.—As combat commands close on the reconnaissance battalion, liaison details from regimental reconnaissance companies join their reconnaissance units. These units make detailed terrain reconnaissance and contact elements of the reconnaissance battalion in their zone. They may relieve elements of the reconnaissance battalion, thus permitting the battalion to extend reconnaissance farther to the flanks. How-

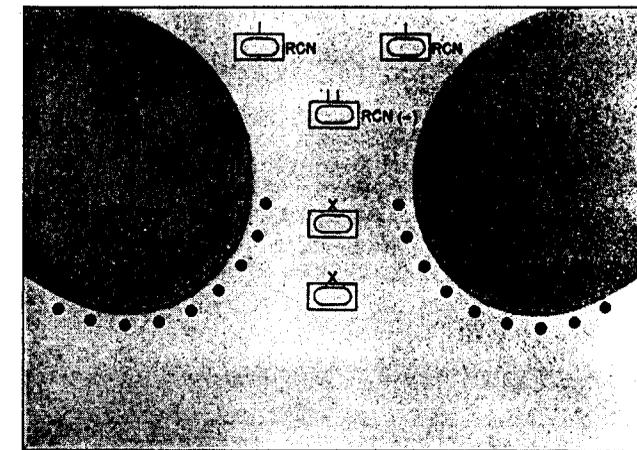


FIGURE 23.—Operation when exploiting a penetration made by other troops.

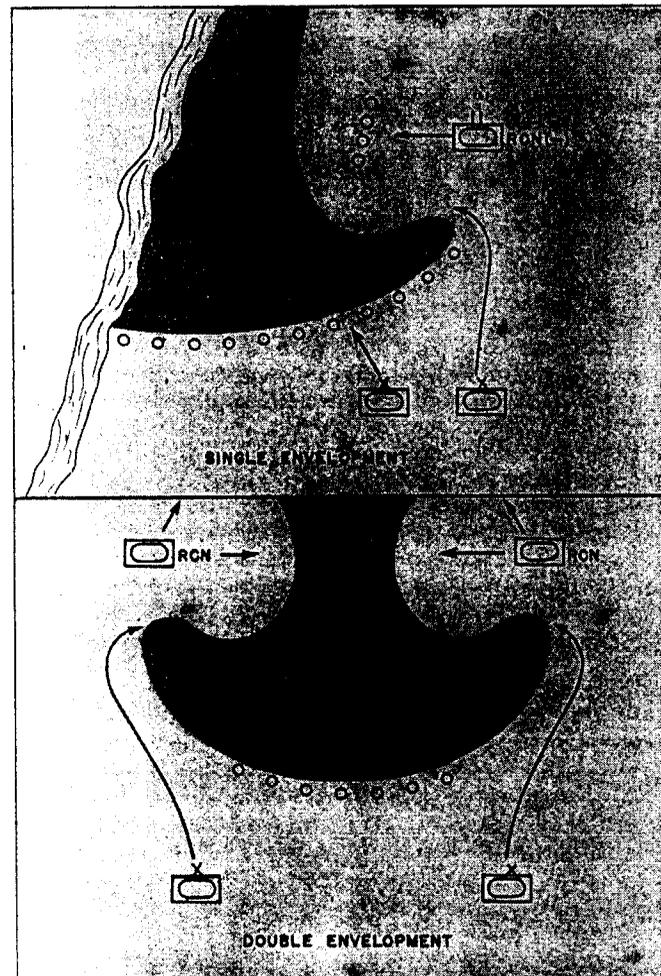


FIGURE 24.—Envelopment.

ever, such maneuver usually is impractical, and regimental reconnaissance companies may move to the flanks or be placed in division reserve. When the reconnaissance battalion is employed over a large front, regimental reconnaissance companies may take over part of the front.

■ 29. ACTION IN A PENETRATION.—*a.* When passed through by assaulting troops, the battalion is reorganized and follows the last echelon of attack, ready to move out on reconnaissance missions when the penetration has been made.

b. When the division passes through a gap in the hostile line to exploit a penetration made by other troops, the reconnaissance battalion leads.

■ 30. ENVELOPMENT.—*a.* When the division attacks by envelopment of one flank, the bulk of the reconnaissance battalion reconnoiters on the exposed flank and seeks enemy vital installations.

b. When the division attacks by double envelopment, the battalion operates on both flanks.

■ 31. SEIZING CRITICAL AREAS.—In offense, the reconnaissance battalion may be given the mission of seizing and holding a critical area until the arrival of other troops. It may be given the mission of moving forward rapidly to assist paratroops in holding such areas. The battalion moves swiftly to these areas, fighting to obtain them if necessary. It must be relieved as soon as practicable.

■ 32. PURSUIT.—When the division engages in a pursuit, the reconnaissance battalion operates with the encircling force. It gains contact with the retreating columns; operates on their flanks; locates routes that will permit reaching the heads of these enemy columns; finds and reports on routes that will enable the encircling force to avoid obstacles and hostile security elements; and locates key positions from which the encircling force may operate against the heads of the retreating enemy columns, and thus facilitate the destruction of the enemy by the direct pressure forces. This reconnaissance during a pursuit must be pushed with great vigor. (See also FM 100-5.)

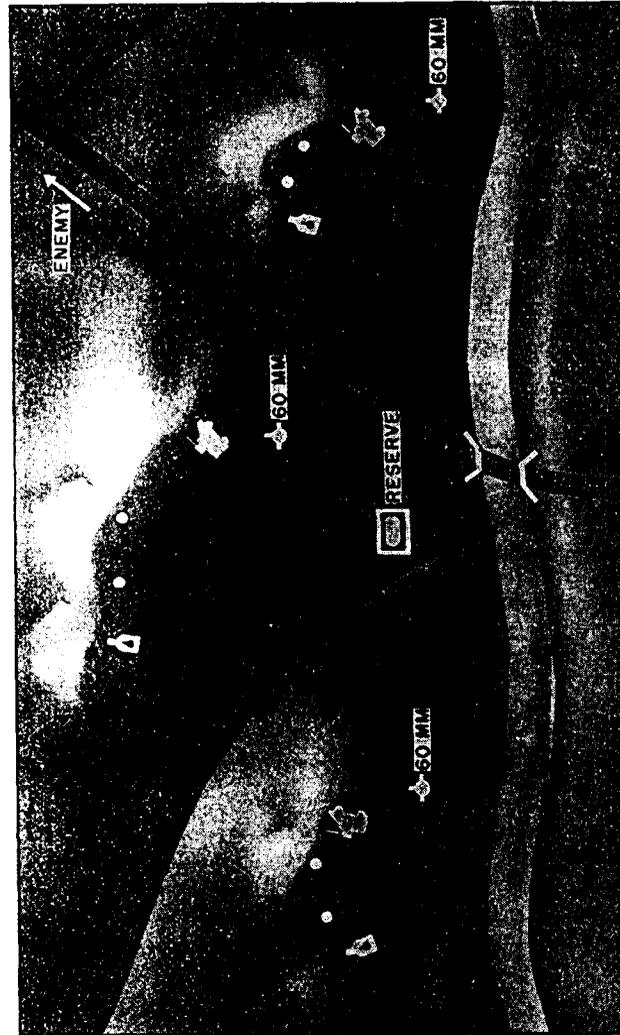


FIGURE 25.—Seizing and holding a bridge.

SECTION IX

DEFENSIVE ACTION AND RETROGRADE MOVEMENTS

■ 33. GENERAL.—In defense, the primary mission of the battalion is to detect the strength and direction of movement of the enemy. As the enemy approaches, the battalion may be assigned a counterreconnaissance mission.

■ 34. COUNTERRECONNAISSANCE.—The width of the counterreconnaissance zone will vary with the terrain and the road net. Normally no more than nine roads can be covered. For counterreconnaissance missions the regimental reconnaissance companies and one or more light tank companies may be attached to the reconnaissance battalion.

■ 35. DEFENSE OF A POSITION.—When the division is engaged in defending a position, the reconnaissance battalion, reinforced as necessary, contacts the enemy, reports his strength and movements, and performs counterreconnaissance missions. It may fight a delaying action to give the defenders time to organize positions. It withdraws along previously reconnoitered routes. It seeks to lead the enemy into a false conception of the defensive position, and deceives him as to its extent and strength. For this mission the battalion may be reinforced with artillery. It is reinforced with engineers for performing demolition work. The battalion then reconnoiters to the flanks and prepares to resume the offensive or to protect a withdrawal.

■ 36. RETROGRADE.—In a retrograde movement, the reconnaissance battalion operates on the hostile flanks to establish road blocks, and to locate, harass, and delay hostile pursuing forces. Withdrawal must be effected before becoming too closely engaged. The delaying force must be kept constantly informed of the progress of the hostile troops. Contact is maintained and enemy progress reported by elements of reconnaissance companies observing the hostile route of march from positions along the flanks. These detachments harass the enemy by firing into the flank of the hostile force and quickly retiring to other points of observation. During a retrograde movement, there will be frequent opportunities

for elements of the reconnaissance battalion to prepare well-planned ambushes into which enemy troops, especially security groups, can be drawn and then annihilated. The tank company may be used with the delaying force, or may move on routes parallel to the hostile route, prepared to crush enemy security forces or other small groups. Unit commanders will ordinarily be given mission type orders in an action of this nature. Every means of communication will be used to effect coordination and control. Air cooperation is invaluable in maintaining hostile and friendly contact and in reporting targets of opportunity. This cooperation is not restricted to observation aviation but envisages the utmost use of combat aviation to operate against the heads of enemy columns and reconnaissance elements.

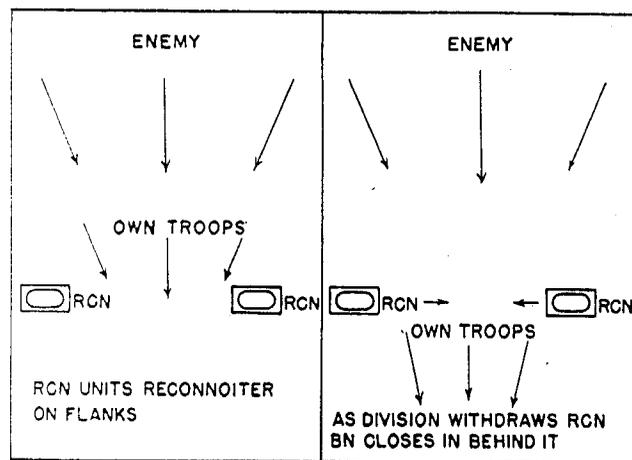


FIGURE 26.—Withdrawal.

SECTION X

SPECIAL OPERATIONS

■ 37. ATTACK OF A RIVER LINE.—a. The fundamental principles governing attack of a river line are covered in FM 100-5 and FM 17-10.



FIGURE 27.—Delaying action. Select position where weapons may be used from defilade. Select next position that will cover withdrawal from forward position. Use tanks to counterattack. Engineers destroy bridges and place mines.

6

FM 17-30, *Armored Force Field Manual: Tank Platoon* (Extract), 1942

WAR DEPARTMENT,
WASHINGTON, October 22, 1942.

FM 17-30, Armored Force Field Manual, Tank Platoon, is published for the information and guidance of all concerned.

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BY ORDER OF THE SECRETARY OF WAR:

G. C. MARSHALL,
Chief of Staff.

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

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III

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.

 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	 —LD— LINE OF DEPARTURE

(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 medium tanks.

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.

(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.

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: cannister, high explosive, and armor piercing.

(1) Cannister 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.

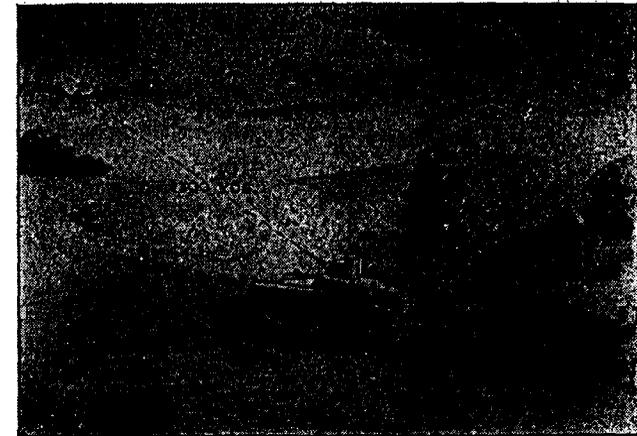
(1) Armor piercing ammunition is effective against most hostile tanks up to a range of 1,600 yards. The armor piercing shell itself is effective against unarmored vehicles beyond limit of vision of the firer, normally 2,500 to 3,000 yards.

(2) High explosive ammunition is used against antitank 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 used at ranges of 7,500 yards.

(3) Smoke ammunition is effective as in (1) and (2) above. It is used to screen antitank guns so that the tank may move to a more favorable position. The smoke cloud from this projectile is effective 50 yards downwind and the smoke element burns for 10 seconds. The smoke is placed in front of or on the target. For the greatest effect, fire to the windward and just in front of the target. If wind direction cannot be determined, fire just in front of the target on the line tank-target. Note direction of smoke cloud and fire another shell if necessary. If wind is blowing indirectly toward you, fire in or just behind the target. The smoke shell is also effective against personnel and is incendiary.

■ 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.

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

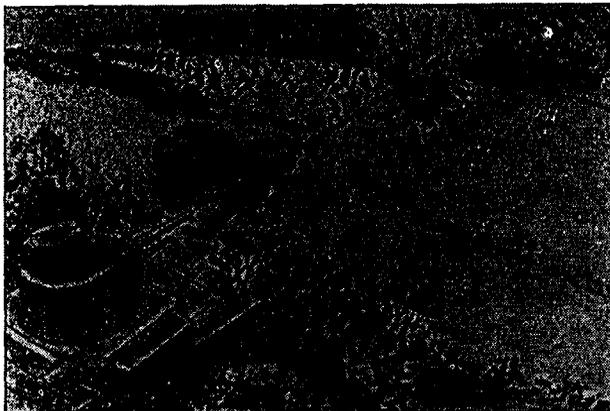


① Without a gyro stabilizer, do not fire from a moving tank at a point target 300 yards distant (see par. 10b). This is a waste of ammunition.



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.

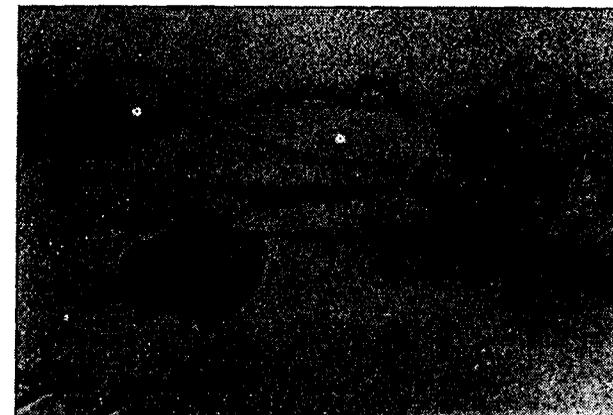


- ① Do not attack a dismounted column with the slow-firing 37-mm gun with armor piercing or high explosive shell; the effect will not be great enough.

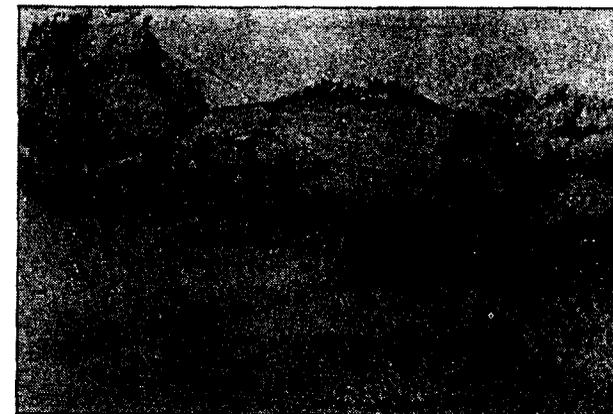


- ② Make a surprise attack with the fast-firing machine gun. If column is within 200 yards, use 37-mm cannister.

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

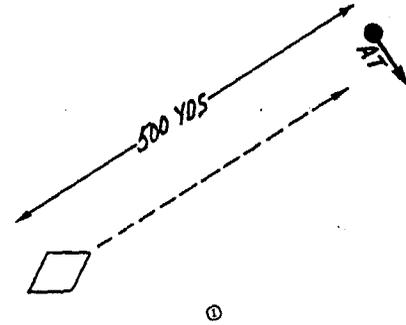


- ① When you are not under fire, do not fire at 500 yards, or greater range, from a moving tank at an enemy antitank gun which is firing at some other target. The effect of your fire is too uncertain and discloses your position.

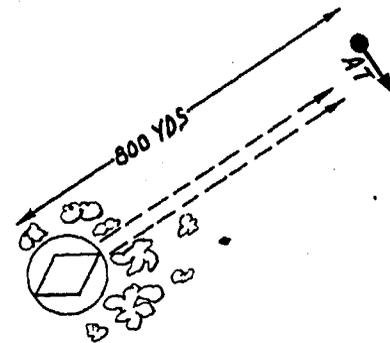


- ② Go into position at once and shoot with all guns at the crew of the antitank gun; the effect of fire from a stationary tank at 800 yards range is excellent.

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

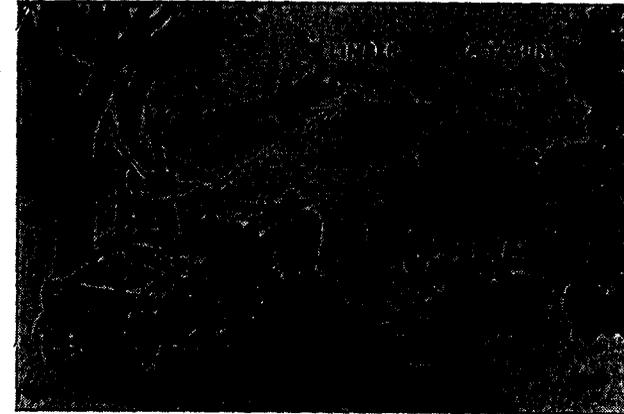


①



②

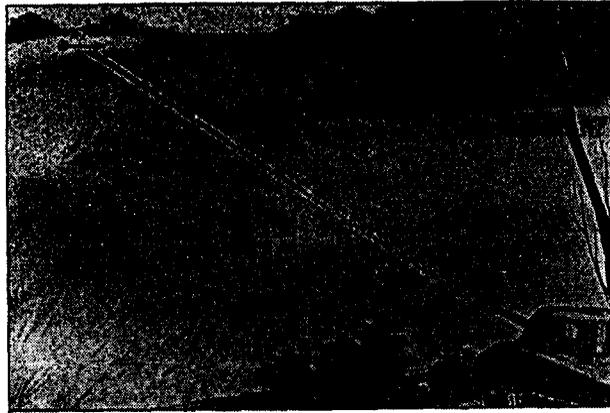
FIGURE 27.—Attacking hostile antitank gun that is firing at another target. (See also fig. 26.)



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



② Attack at once; fire with all guns at the enemy antitank gun.
FIGURE 28.—Attack more dangerous target.

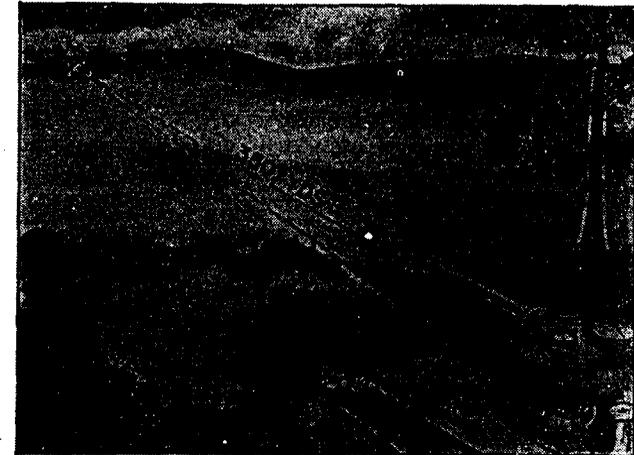


- ① Do not fire with a machine gun at an antitank gun going into position at ranges in excess of 800 yards.

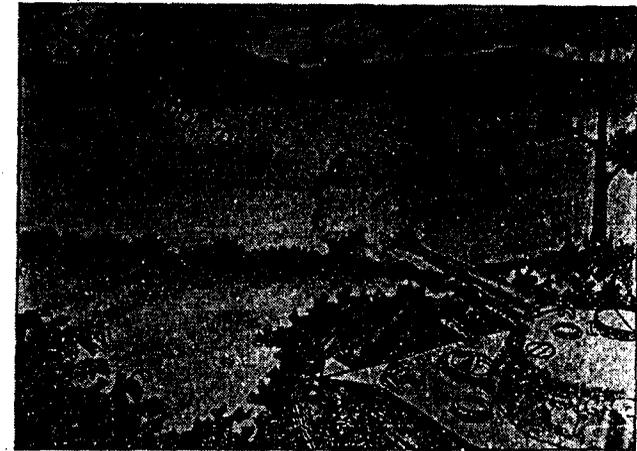


- ② Fire with the 37-mm or 75-mm gun at the antitank gun going into position.

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

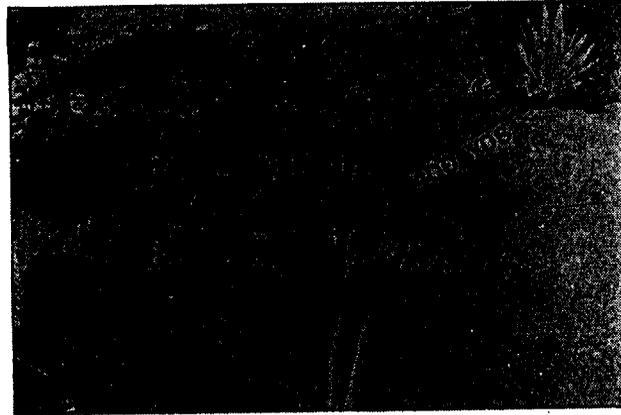


- ① Do not attack an antitank gun frontally at 350 yards or greater range by machine-gun fire. The machine-gun projectiles do not penetrate the armor plate at ranges greater than 350 yards.

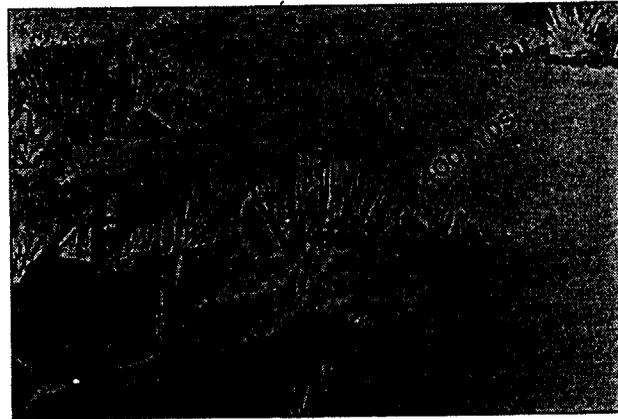


- ② Fire at the target with the 37-mm armor piercing or 75-mm high explosive or armor piercing shell. It will penetrate the armor plate, destroy the weapon, and eliminate the crew.

FIGURE 30.—Attacking an antitank gun frontally.

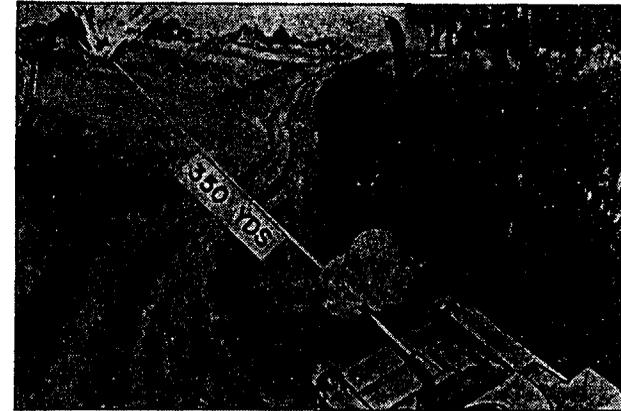


- ① Do not fire with only the 37-mm gun at any enemy antitank gun (400 yards away) pointing in another direction.

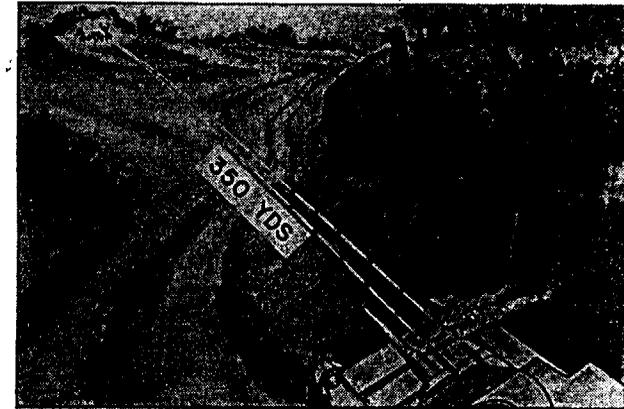


- ② Fire with all guns at the unprotected flank of the antitank gun.

FIGURE 31.—Firing at a hostile antitank gun.

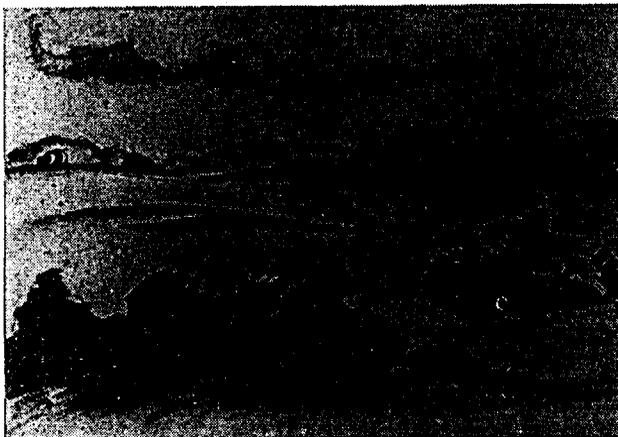


- ① Do not fire at antitank gun with 37-mm tank gun at close range.



- ② 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.

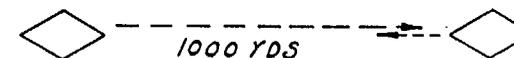


- ① When an oncoming enemy tank is met, do not keep moving toward it, firing during movement, if suitable stationary positions are available.

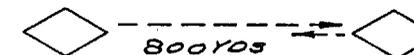


- ② Move into position at once and take the enemy tank under fire with armor piercing projectiles from your stationary tank.

FIGURE 33.—Attacking enemy tanks.



- 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.

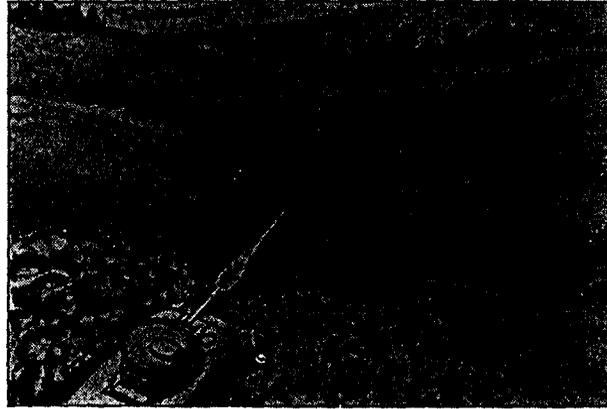


- ① Do not attack an enemy tank with explosive shells.

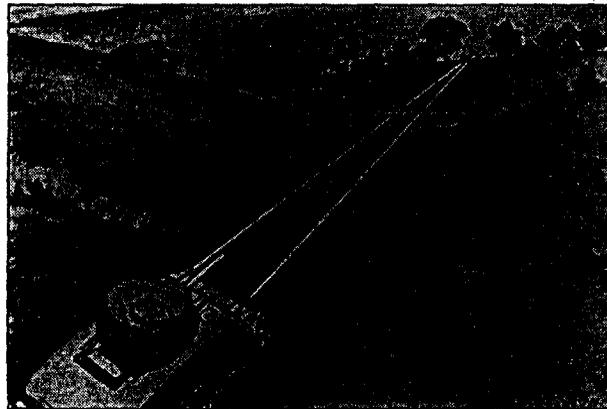


- ② Fire with armor piercing shells.

FIGURE 35.—Attacking enemy tanks.

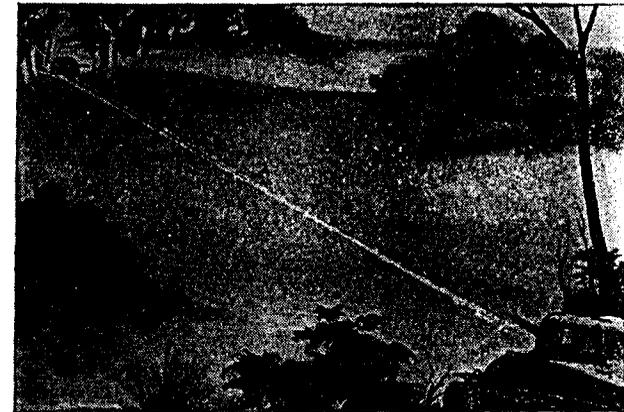


- ① Do not fire at an enemy machine gun, not emplaced, with the slow-firing 37-mm tank gun using high explosive or armor piercing shell. This is a waste of ammunition.

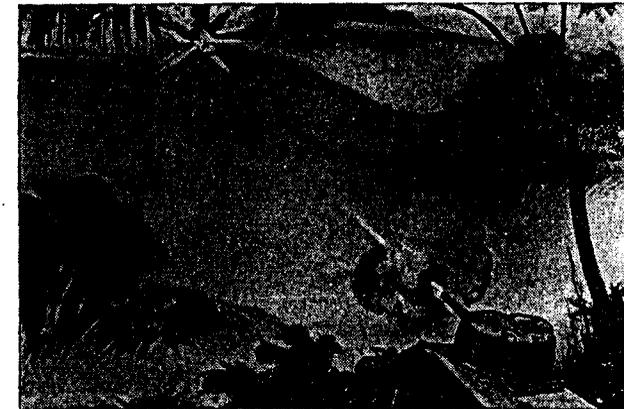


- ② Eliminate the enemy machine-gun crew by fast-firing machine guns or use 37-mm cannister if within 200 yards.

FIGURE 36.—Attacking hostile machine guns.

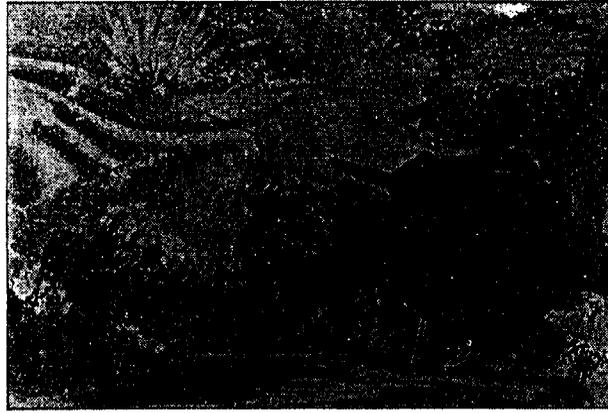


- ① Do not fight an emplaced machine gun with a machine gun.



- ② Use 37-mm or 75-mm explosive or armor piercing ammunition.

FIGURE 37.—Attacking an emplaced machine gun.

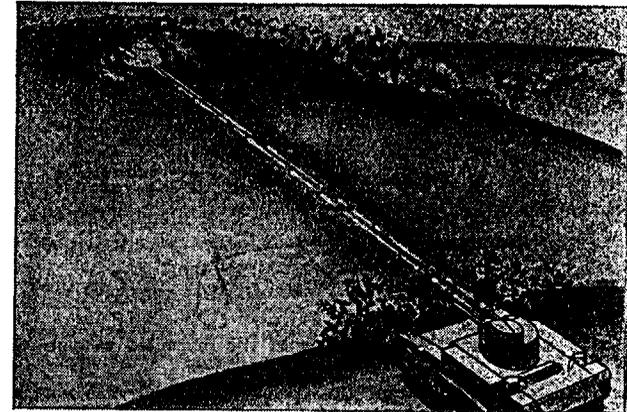


- ① Do not try to destroy the crew of an enemy machine gun at close range with explosive shells.

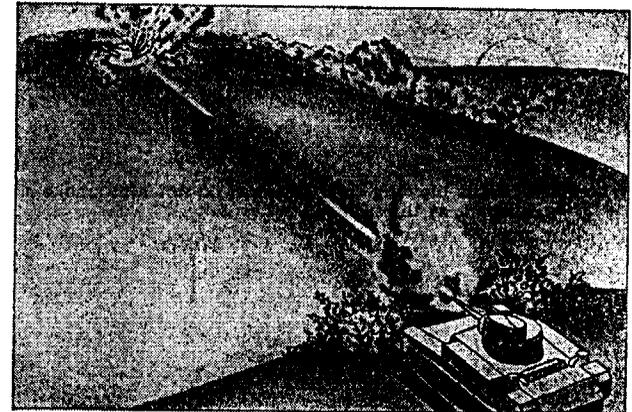


- ② At close range, use machine guns to destroy living targets. If range is less than 200 yards, use cannisters.

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

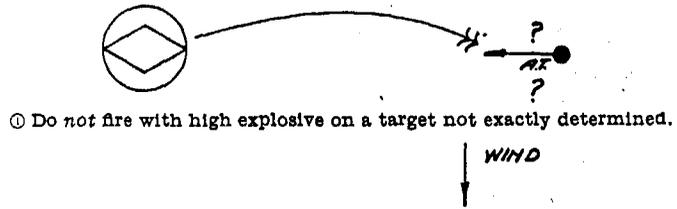


- ① Do not fire with machine gun at loopholes of the bunker. This will probably not be successful.

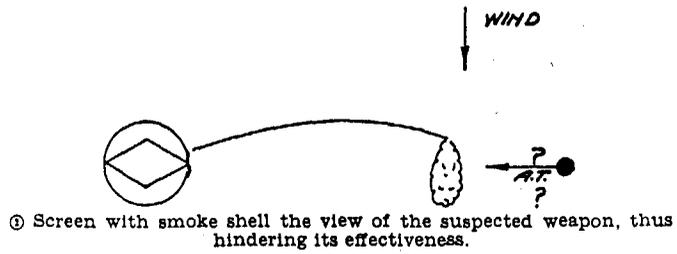


- ② Destroy the loopholes by 37-mm or 75-mm tank gun fire, using armor piercing projectiles.

FIGURE 39.—Firing at loopholes in a bunker.

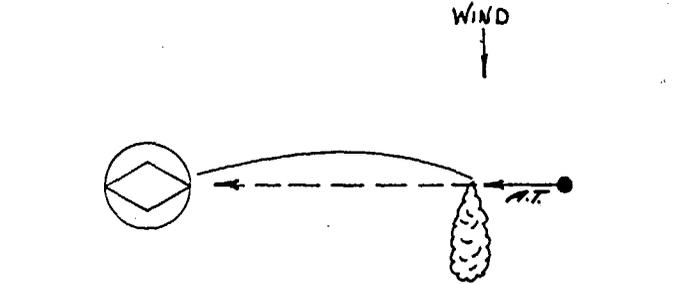


① Do not fire with high explosive on a target not exactly determined.

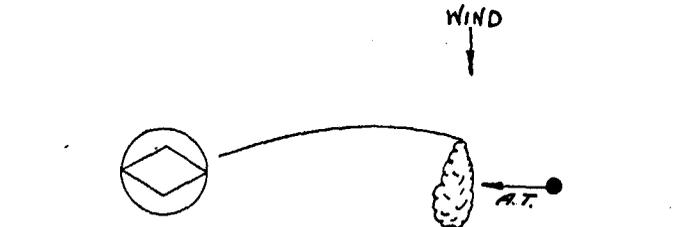


② Screen with smoke shell the view of the suspected weapon, thus hindering its effectiveness.

FIGURE 40.—Firing at target the position of which has not been exactly determined.



① When the wind is blowing from the side, do not aim smoke shell at the front of the target.



② Aim the shell to the windward side. The wind will blow the smoke in front of the target.

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

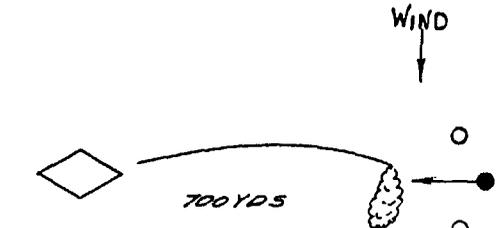


① When the wind is blowing from your front, do not place the smoke shell in front of the target. This does not blind the antitank gun.

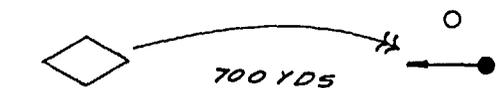


② In this case, place the shell behind the target; then the wind will screen it completely.

FIGURE 42.—Use of smoke shell, head wind.

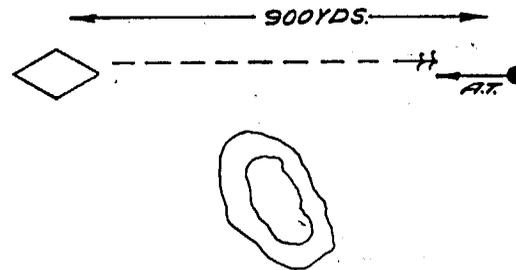


① Do not use smoke shell against definitely located infantry weapons.

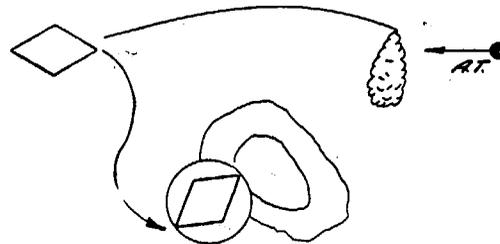


② Destroy infantry weapons by high explosive shells and ricochet firing.

FIGURE 43.—Use of smoke shell against small arms.

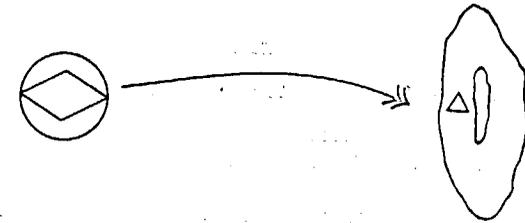


- ① While changing position, do not answer antitank gun fire with explosive shells.

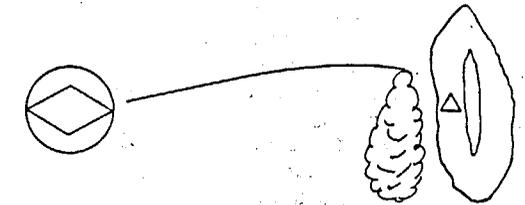


- ② Blind the antitank gun immediately with smoke shell, proceed to the next position, and from there destroy the antitank gun with explosive shell.

FIGURE 44.—Use of smoke shell to cover maneuver.



- ① Do not try to eliminate an observation post with explosive shell.



- ② Blind the observation point with smoke shell and then destroy it.

FIGURE 45.—Use of smoke shell to blind an observation point.

CHAPTER 3

CONTROL, ORDERS, AND RECONNAISSANCE

■ 12. CONTROL.—*a. Purpose.*—Control is essential to coordinated action. Loss of control leads to uncoordinated and uneffectual 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.*



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.

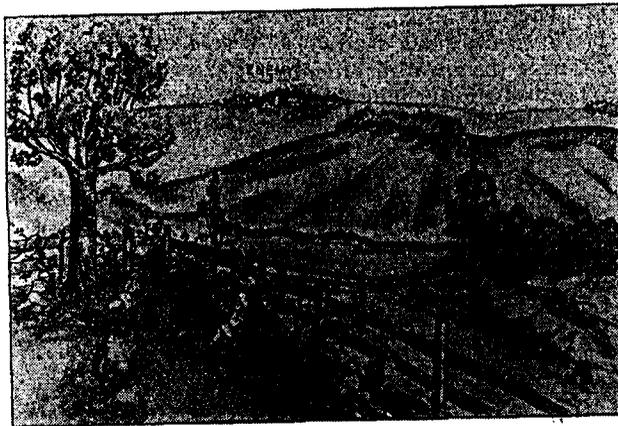


FIGURE 47.—Give order from point where terrain and enemy can be seen.

(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.

(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.*

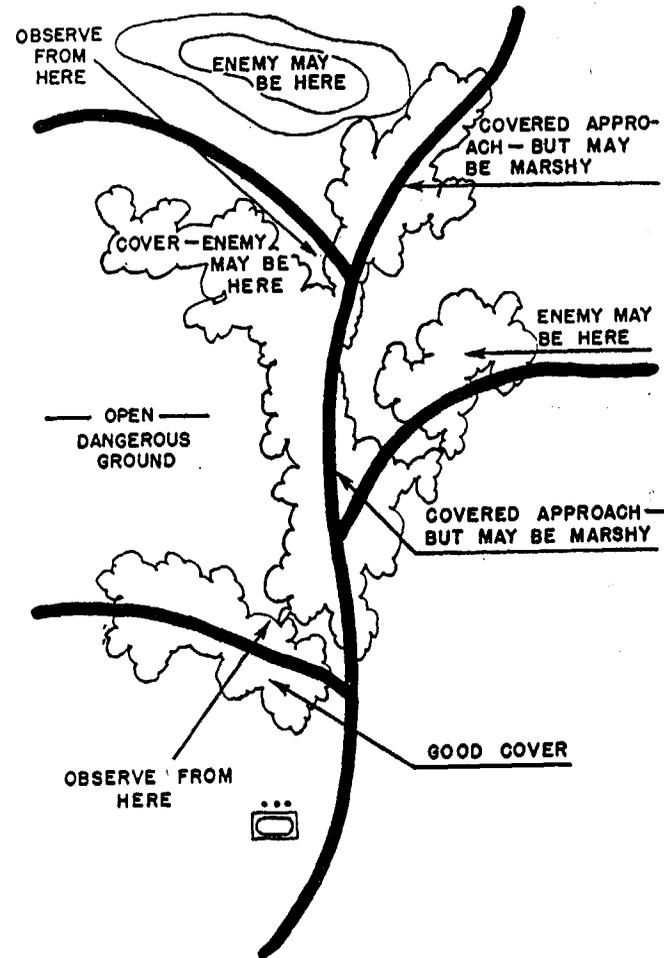


FIGURE 48.—Observation.

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.

■ 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.

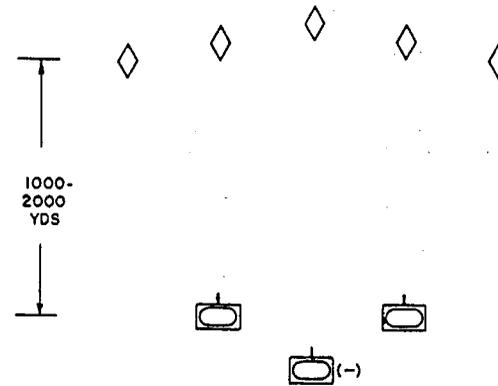


FIGURE 106.—Covering detachment.

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.

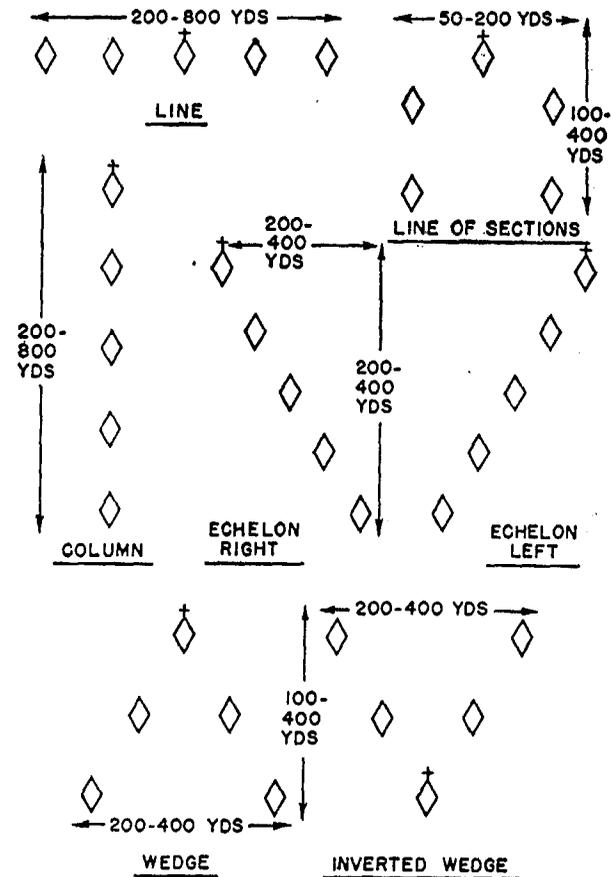


FIGURE 107.—Formations.

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

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

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

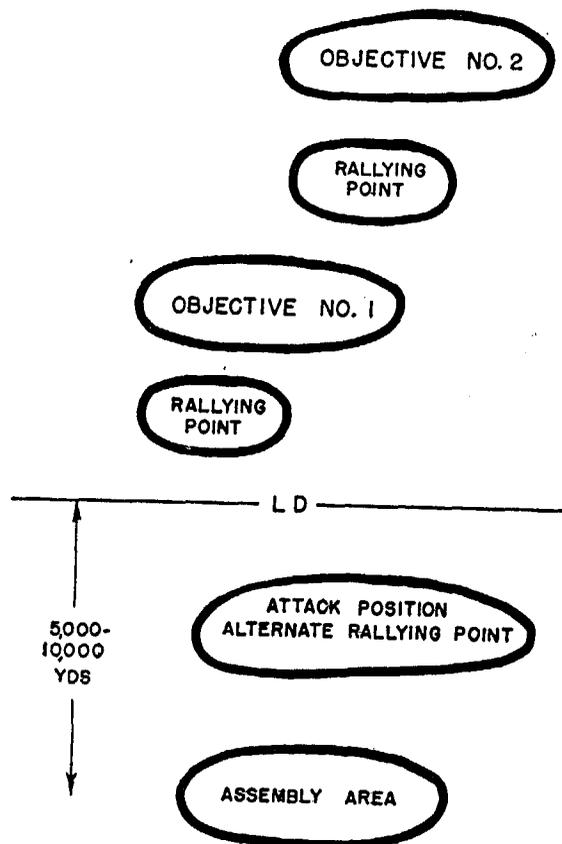


FIGURE 108.—Installations.

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.

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

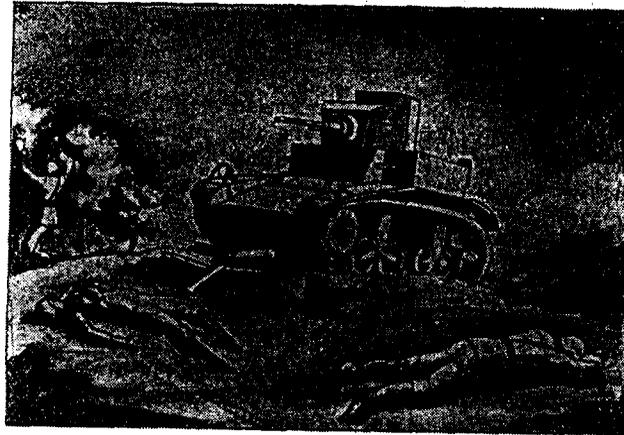
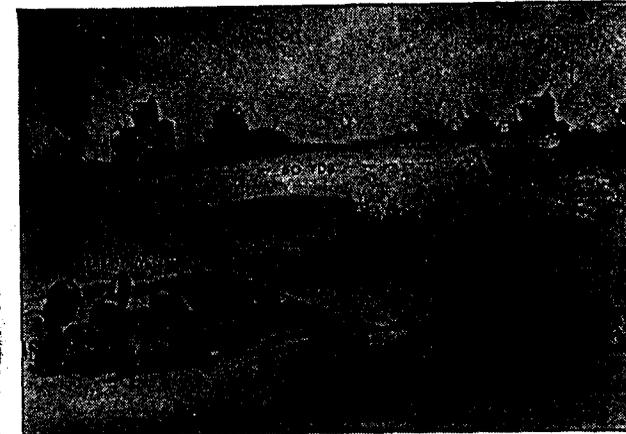
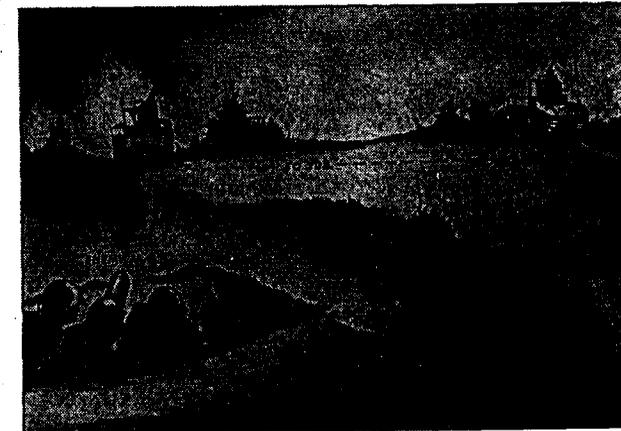


FIGURE 109.—Beat down crew of enemy machine gun with fire and then crush the gun. Tanks are permitted to move somewhat (about 50 yards) to the right or left of their line of advance to do this. Beware of antitank mines.

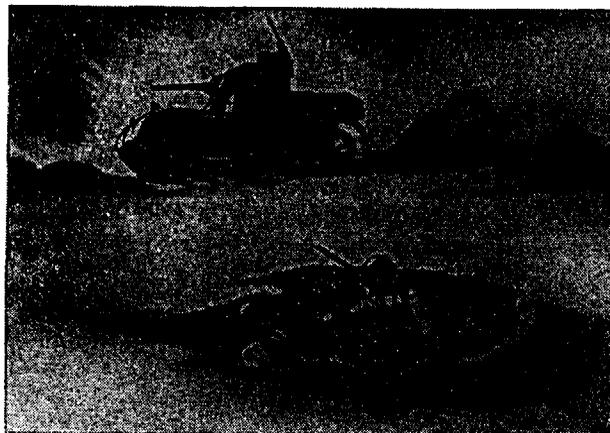


① Tank No. 1 should not leave its line of advance to crush an enemy machine gun lying a considerable distance (more than 50 yards) to the right or left.

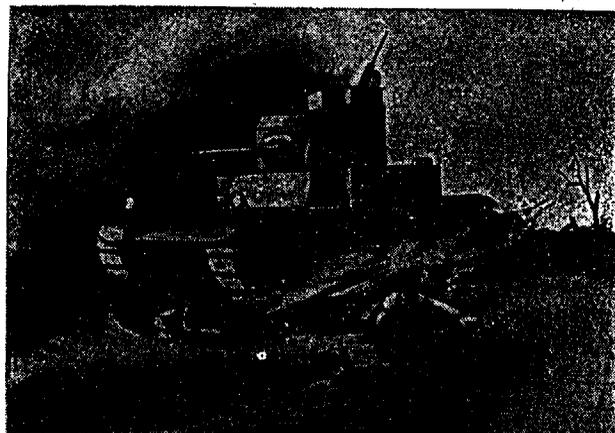


② Tank No. 1 should hold its line of advance and let tank No. 2 take care of the enemy machine gun. Tank No. 1 may indicate location of enemy machine gun by firing tracer.

FIGURE 110.—Leaving direction of advance.



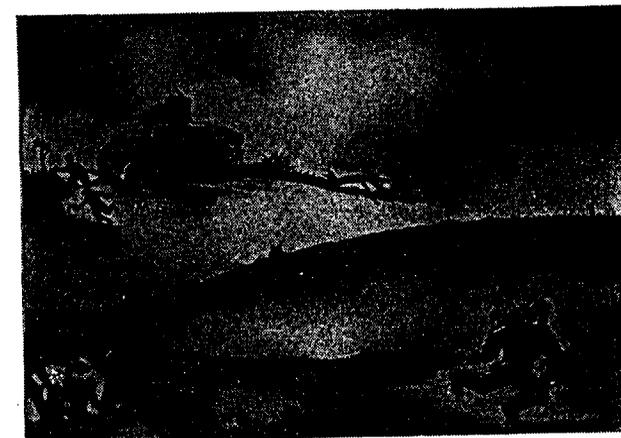
① Do not disregard members of enemy machine-gun crew who have fled to shell holes.



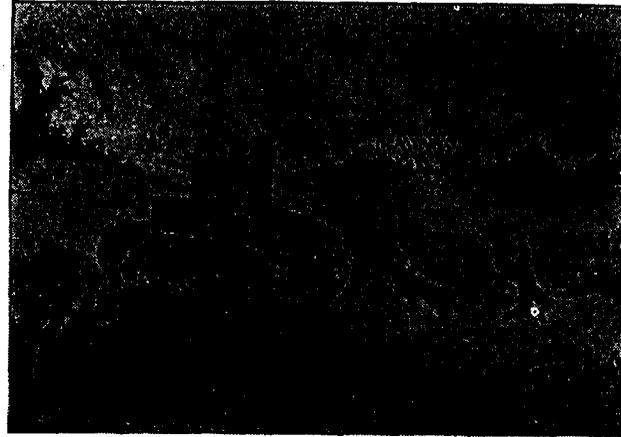
② Mop up enemy crew by running over the shell hole.
FIGURE 111.—Crush machine guns near direction of advance. Beware of antitank mines.



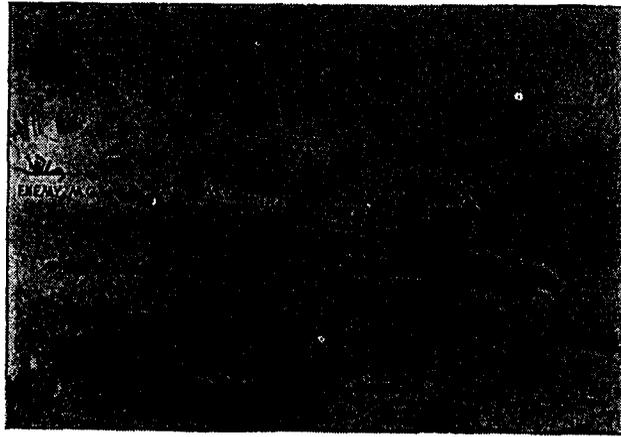
① Do not fight against the plainer and larger target (men) when there is a more dangerous, although smaller, target (machine gun).



② Destroy the most dangerous target although it is small and indistinct.
FIGURE 112.—Strike more dangerous target.

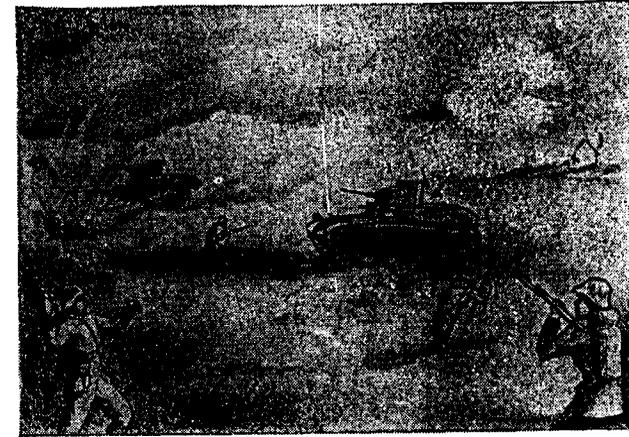


① Do not immediately abandon a tank which has become immovable.

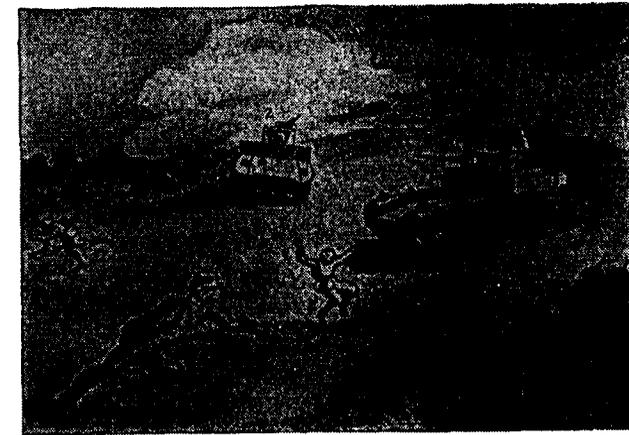


② Remain in the tank and participate in the combat as long as possible.

FIGURE 113.—Abandoning tank.



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.

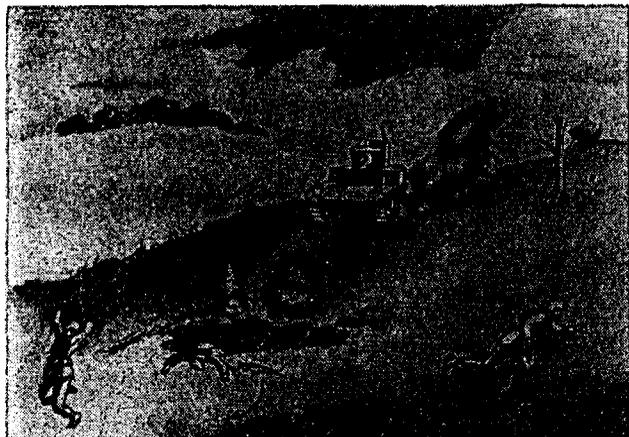


② Tank No. 2 assisting tank No. 1.

FIGURE 114.—Assist disabled tanks.

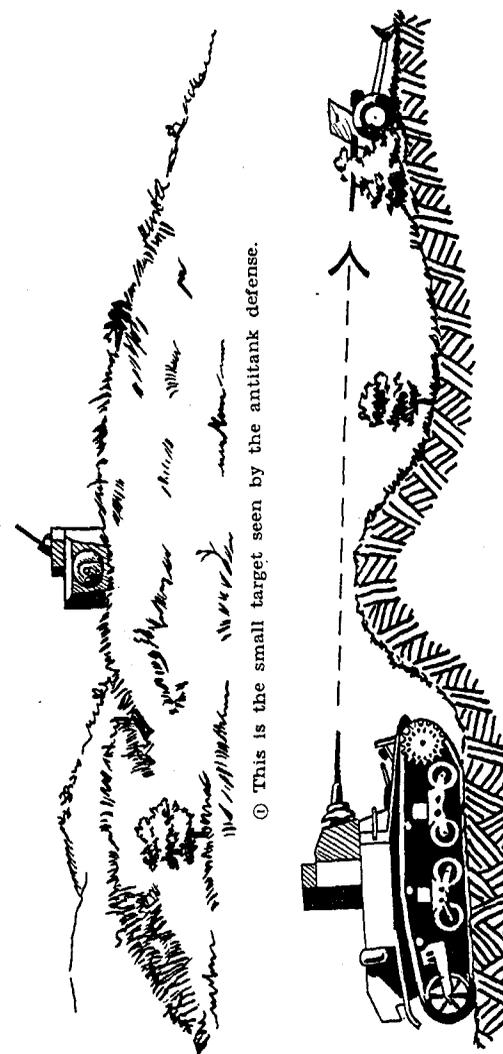


- ① Do not use saddle between two hills without seeing what is behind the hills.



- ② Seek out and destroy heavy weapons in position behind the hills.

FIGURE 115.—Beware of ridges.



- 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 the target which the tank presents to the antitank gunner.



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

■ 35. ABANDONING TANK.—For procedure in abandoning tank see FM 17-5.

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.

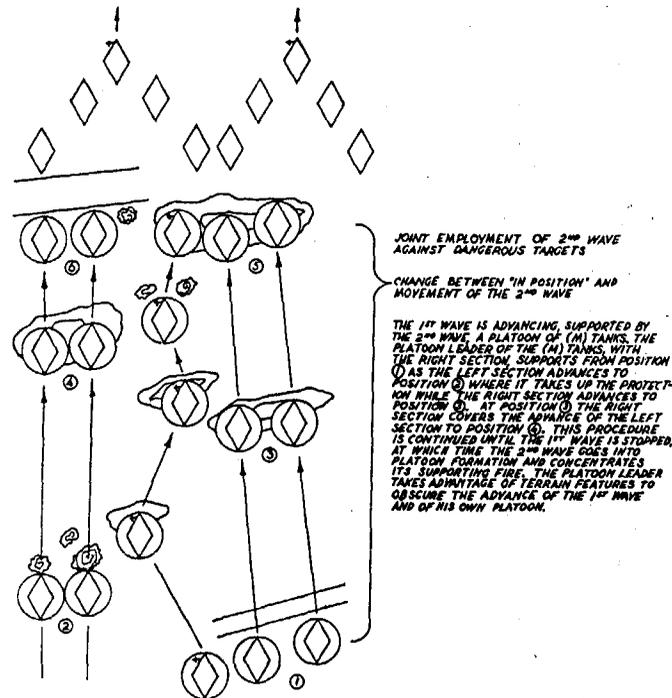


FIGURE 118.—Support of leading wave by second wave.

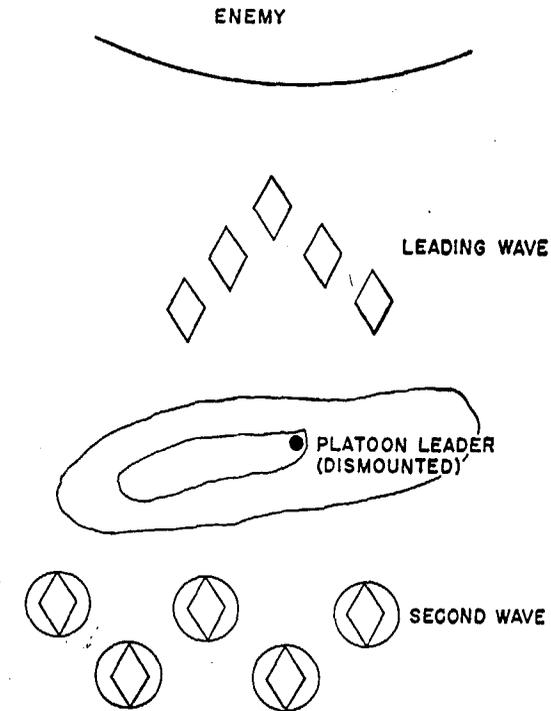


FIGURE 119.—A method of support of leading wave by indirect fire.

■ 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.

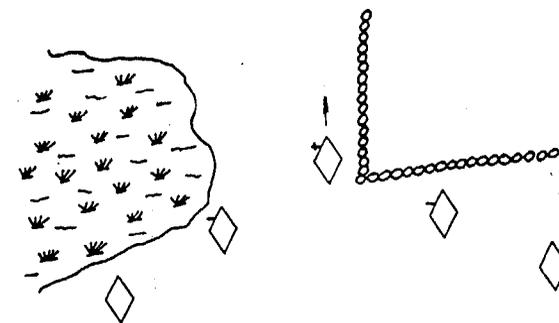
b. When attacking through infantry in position, arrangements are made with the infantry for a passage of lines. These arrangements include paths to be taken by the tanks and means for infantrymen to identify themselves so they will not be run down by the tanks. All members of the tank crew must be particularly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

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

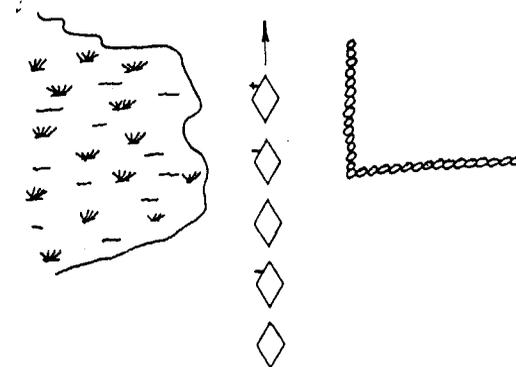
(1) The platoon advances by fire and maneuver, one section always covering the advance of the infantry and the other section.

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

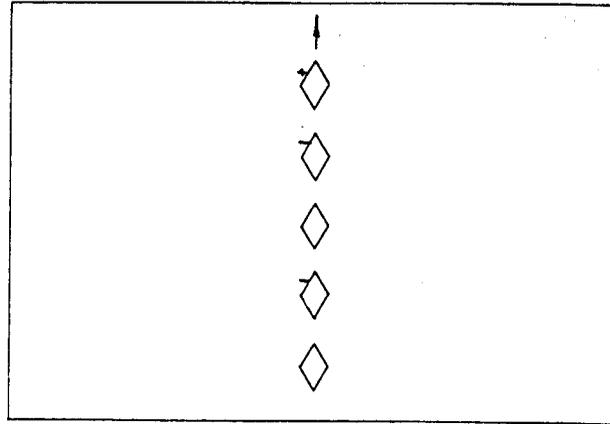


⊙ In approach, do not use a wide formation which may cause part of the tanks to strike an obstacle and be lost.

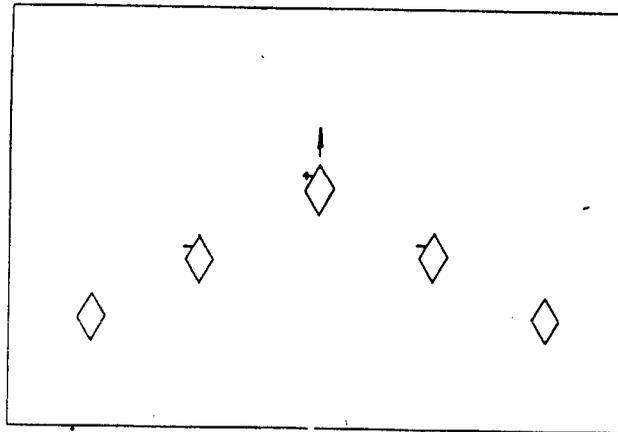


⊙ In approach, use a deep formation so the platoon commander has all the tanks behind him and can guide or halt them as necessary.

FIGURE 120.—Formation in approach.

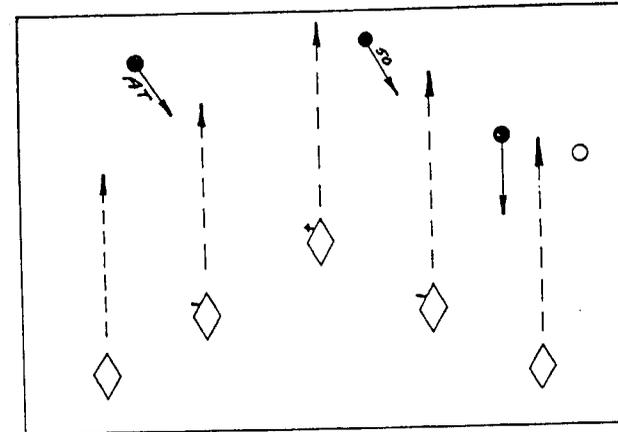


- ⓐ Do not begin a fire fight from a deep formation because fire of too few weapons can be brought into play.

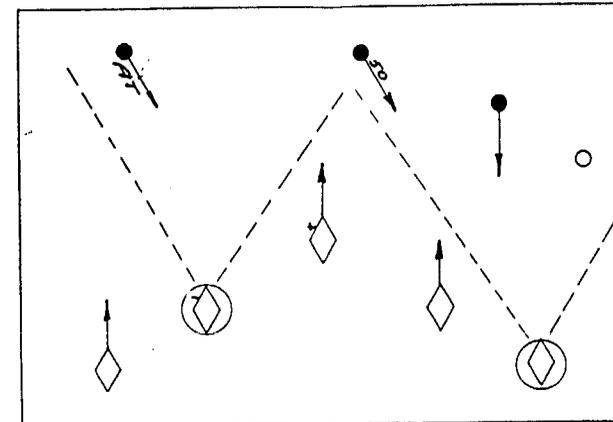


- ⓑ Begin the fire fight from a wide front so fire power of all weapons can be immediately brought into play.

FIGURE 121.—Formation for beginning fire fight.

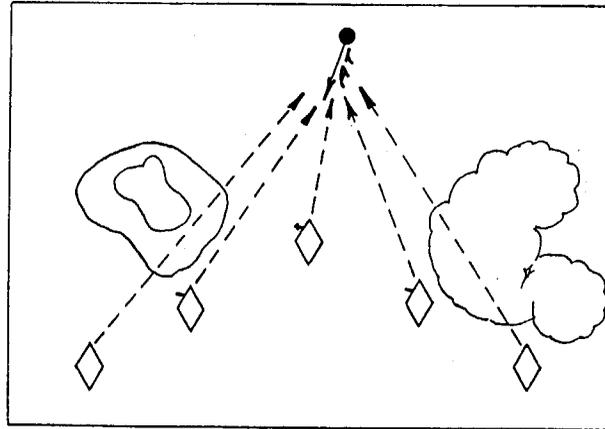


- ⓐ Do not move all tanks of the platoon forward at one time. This causes many targets to be overlooked. Observation from a moving tank is difficult.

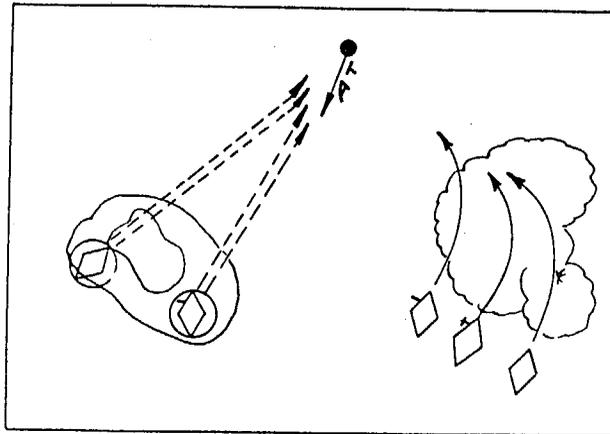


- ⓑ Move platoon forward by having some tanks observe while others move. By alternating movement and halts, the great advantage of shooting and observing from a stationary tank can be fully utilized.

FIGURE 122.—Method of advance.



① Do not have all tanks of the platoon shoot at a discovered antitank weapon while moving.



② 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.

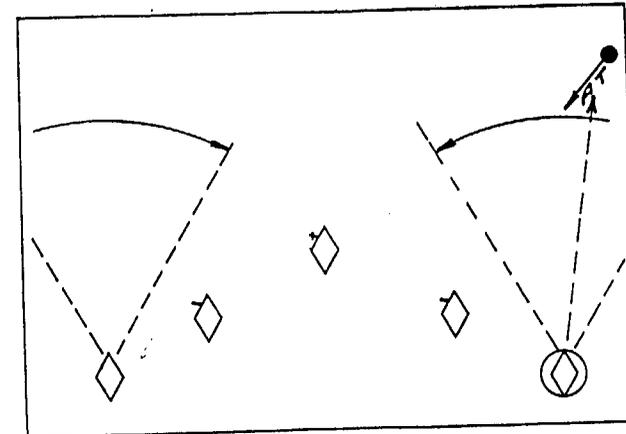
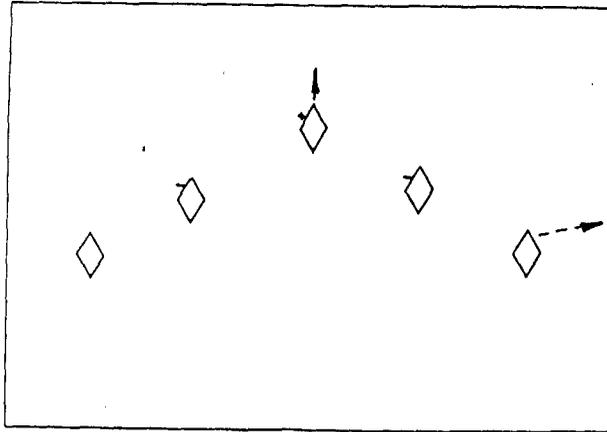
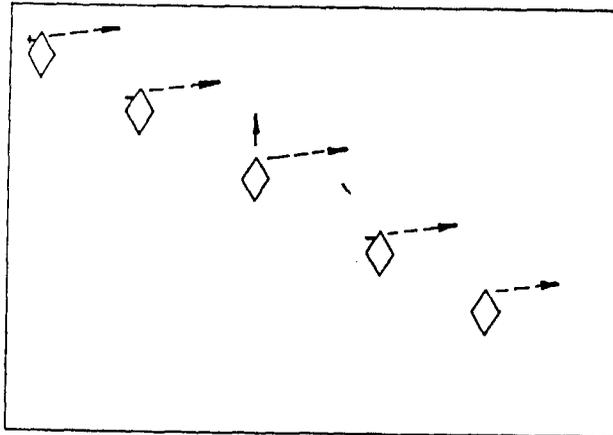


FIGURE 124.—Observe occasionally from a halted tank. The field of view of the observer (especially in flank tanks) is increased by halting. Fire against an antitank target can better be observed. Halt in defilade or concealment.

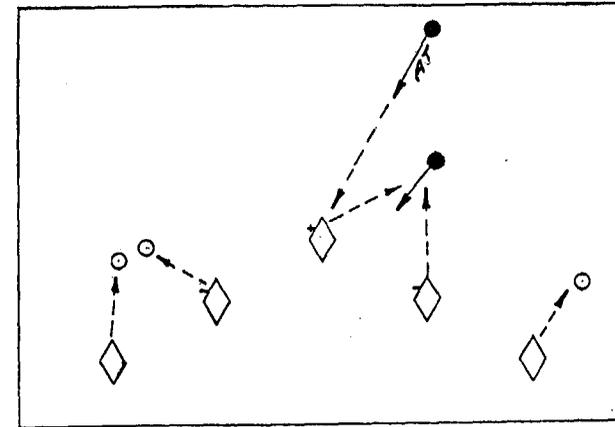


- ① Do not advance the platoon on an open flank in a line or wedge formation. In such formation, the observation and ability to fire to a flank is limited.

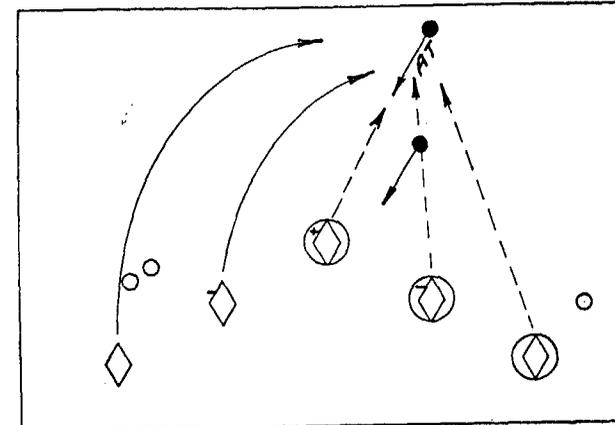


- ② Echelon the platoon on the open flank. In this formation, the weapons of all tanks have a full field of fire toward the flanks.

FIGURE 125.—Formation for an open flank.

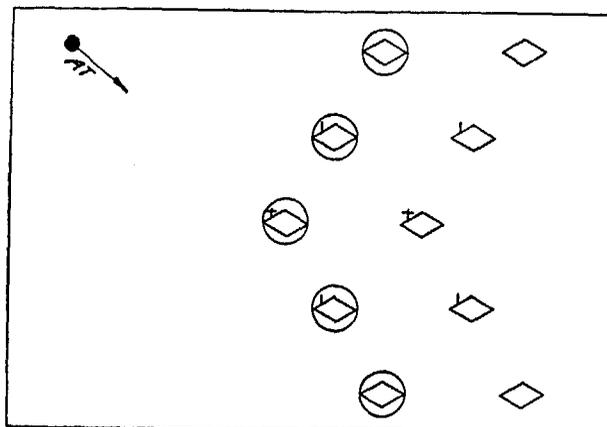


- ① When confronted with both an antitank gun and a machine gun, do not attack the machine gun first and thus allow the more dangerous weapon, the antitank gun, to continue firing.

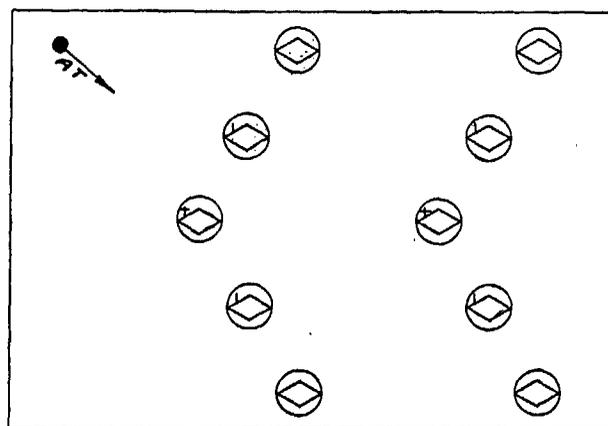


- ② Destroy by fire and movement the enemy antitank gun, disregarding the less dangerous targets.

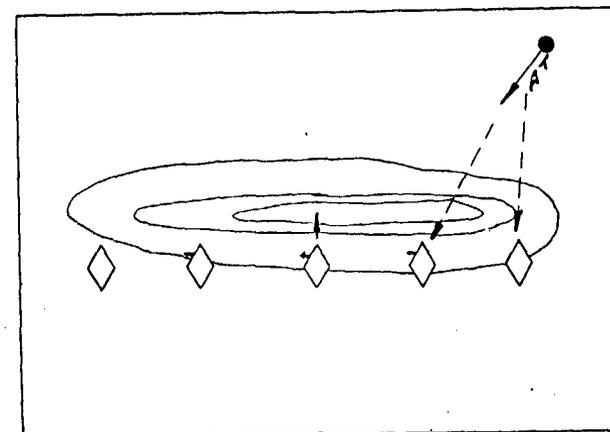
FIGURE 126.—Destroy more dangerous targets.



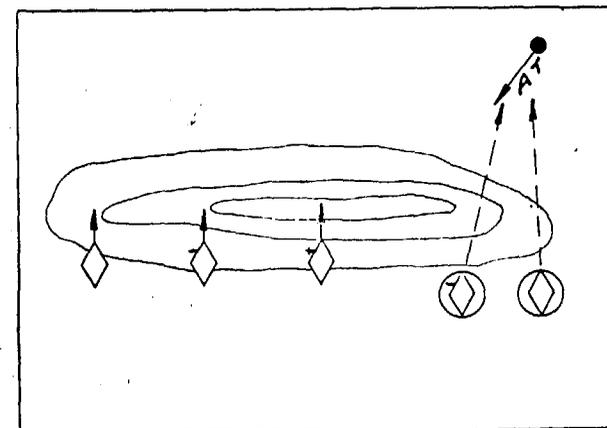
- ① Do not continue movement when the leading wave of tanks halts. The platoon then becomes bunched, providing an excellent target for the enemy. Bunching also limits use of tank weapons.



- 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.

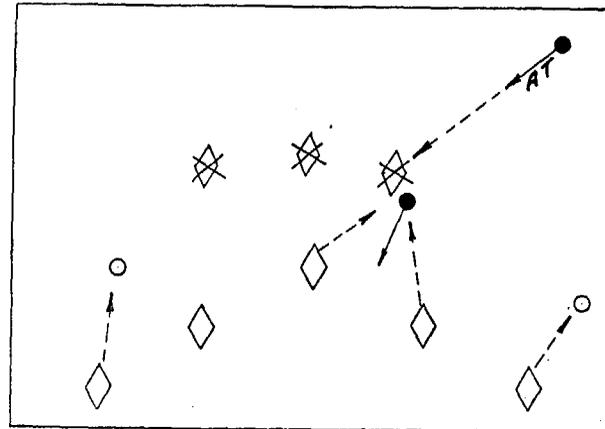


- ① Do not cross a hill with all tanks in movement and no tanks ready to fire.

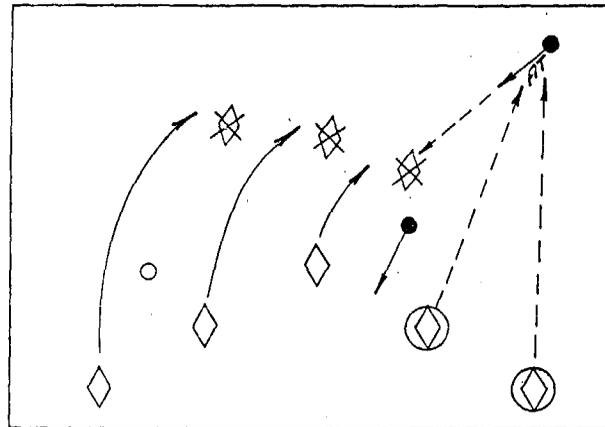


- ② The platoon should cross a hill by alternating movement with halts. In this way, halted tanks cover movement of remainder of platoon.

FIGURE 128.—Crossing a hill or ridge.



① Do not hold to the mission to fight enemy infantry in spite of the fact that the leading platoon has suffered heavy losses from antitank weapons.



② When the leading wave has suffered losses from enemy antitank guns, immediately abandon the infantry mission and attack, by fire and movement, the most dangerous weapons.

FIGURE 129.—Attack more dangerous target.

■ 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 break-through. 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.

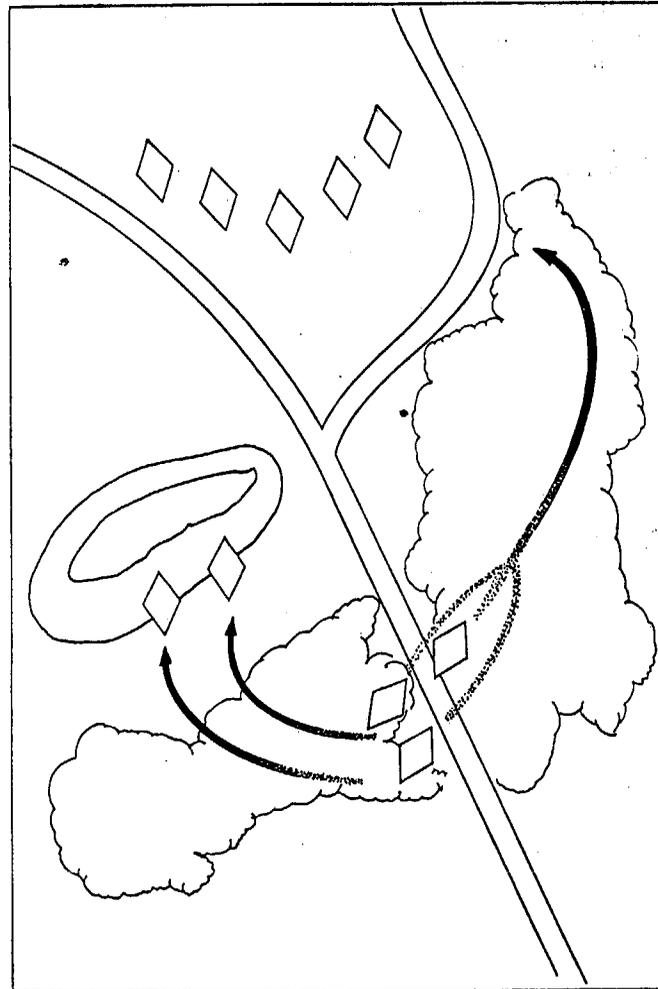


FIGURE 130.—When enemy tanks are encountered, place some tanks in defilade and maneuver others to flank.

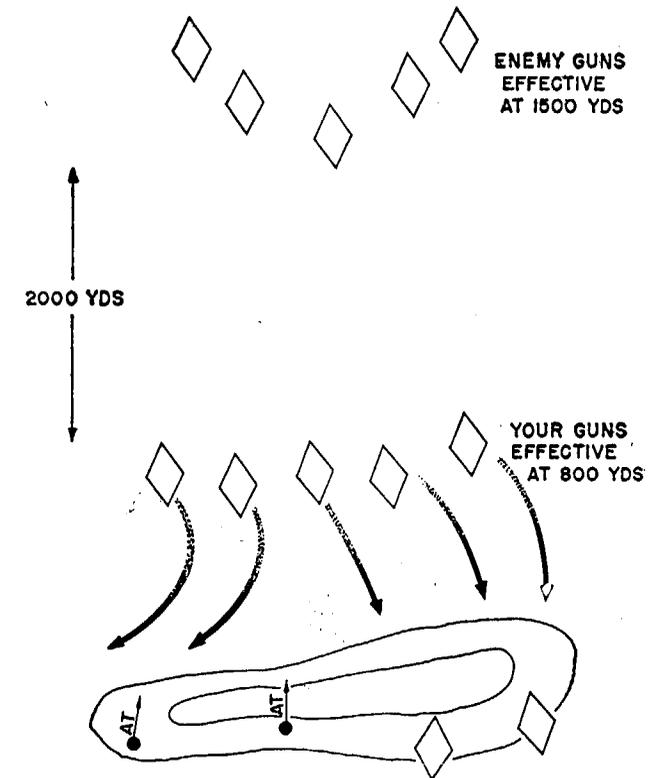


FIGURE 131.—If you cannot maneuver to the flank or take up defiladed position, withdraw to your own antitank defense.

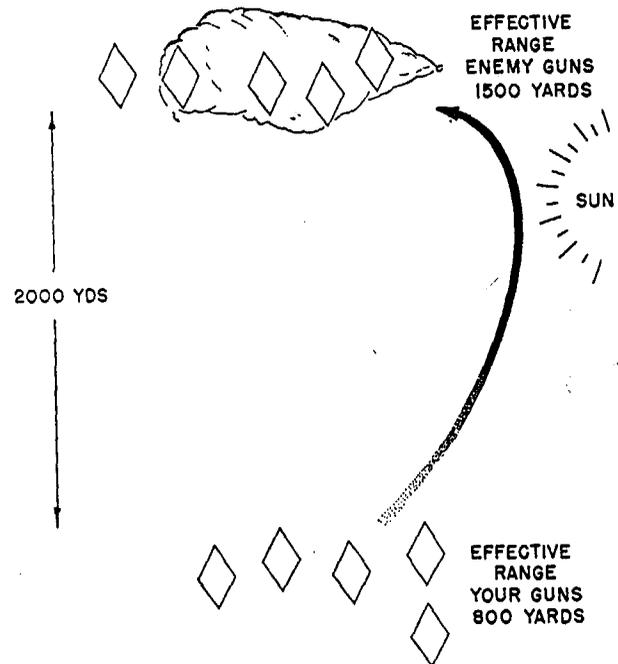


FIGURE 132.—If you cannot withdraw to antitank defenses, close with enemy at maximum speed and attack him *from the sun*. Your supporting mortars should place smoke on the enemy if within range.

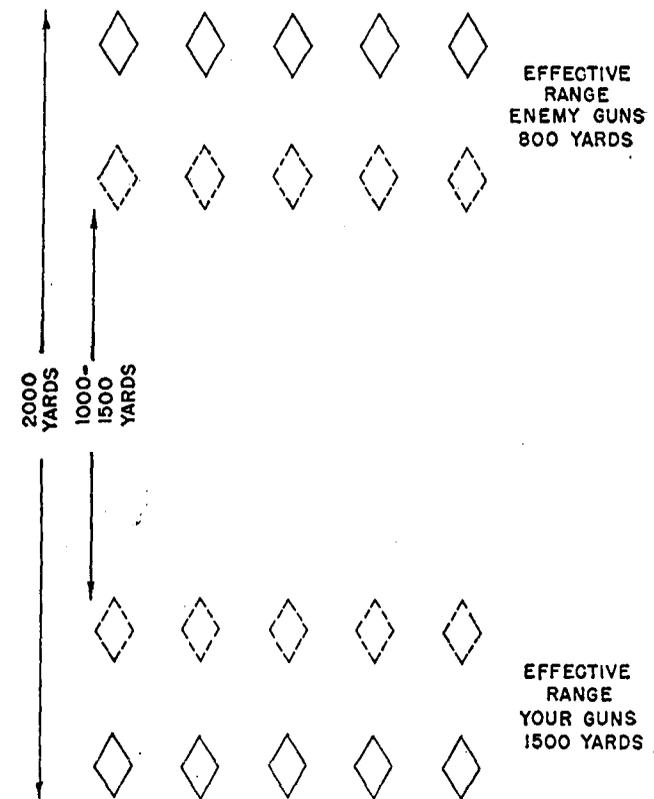
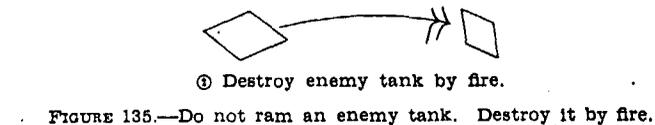
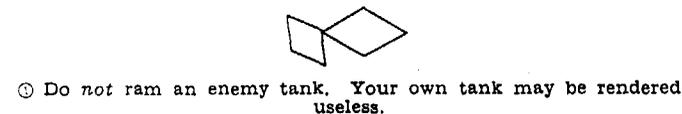
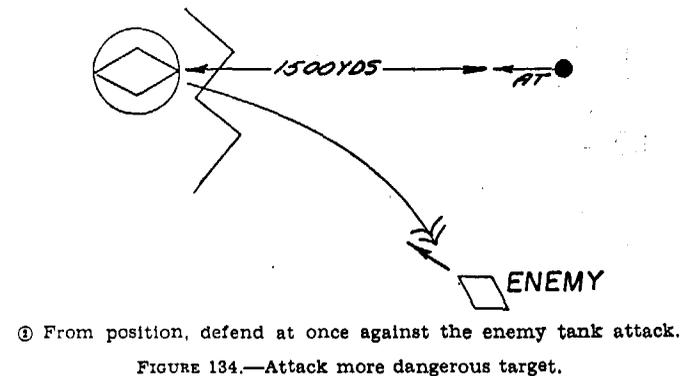
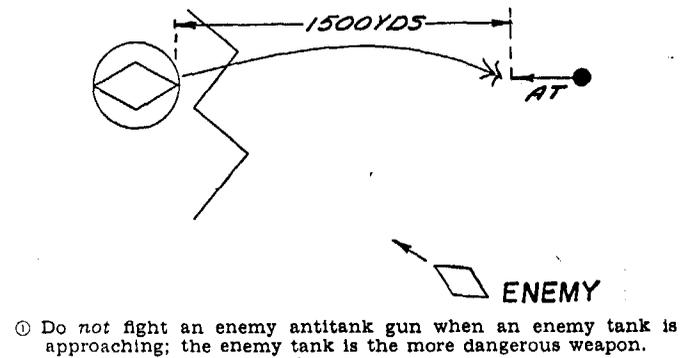


FIGURE 133.—If you outrange the enemy, close to effective range but keep out of his range.



(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 section rushes the emplacement.

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.

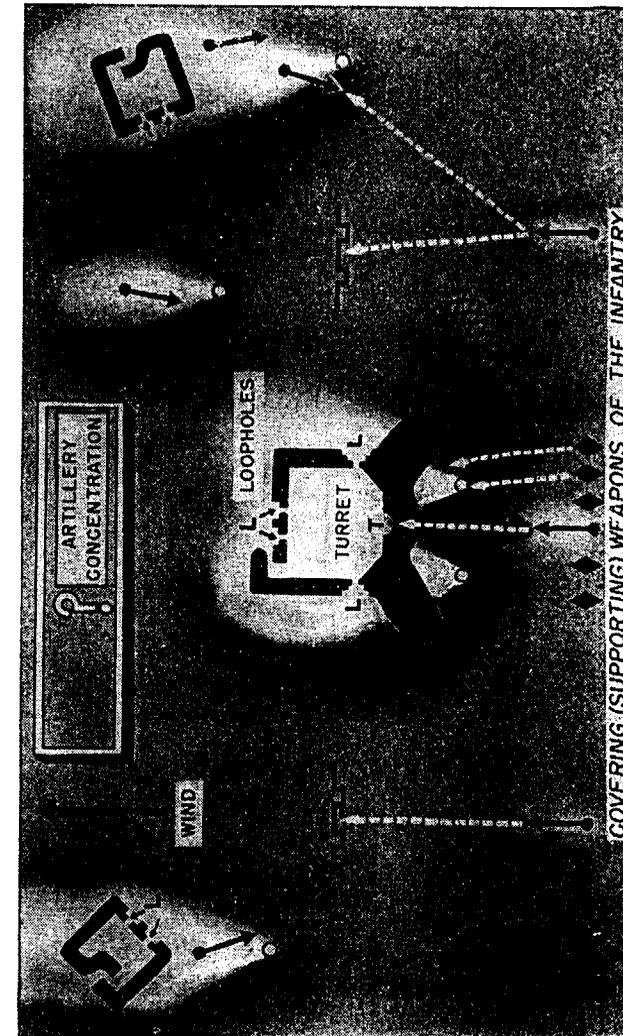


Figure 136.—Attacking emplacement, wind conditions favorable.

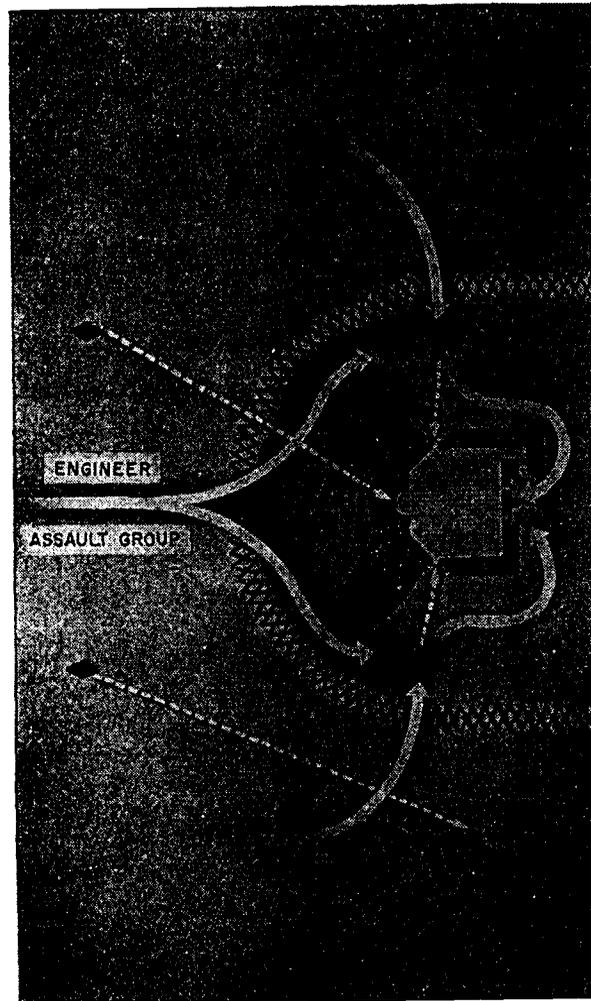


FIGURE 137.—Attacking emplacement, wind conditions not favorable.

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FM 17-32, *Armored Force Field Manual: The Tank Company, Light and Medium* (Extract), 1942

WAR DEPARTMENT,
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The Adjutant General.*

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

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ARMORED FORCE FIELD MANUAL

THE TANK COMPANY, LIGHT AND MEDIUM

SECTION I

GENERAL

■ 1. SCOPE.—*a.* This manual covers the tactics and technique of the light and the medium tank company, and is applicable to the tank companies of both armored regiments and separate tank battalions. It supplements pertinent matter contained in FM 17-10. It covers the action of the company when acting as part of the battalion and when acting alone. The company will habitually be reinforced whether acting alone or as part of the armored battalion.

b. Key to illustrations:

	ASSAULT GUN
	AMMUNITION CARRIER
	MORTAR CARRIER
	INFANTRY PERSONNEL CARRIER
	TANK IN MOTION
	TANK IN POSITION
	1/4 TON TRUCK
	MOTORCYCLE
	EXPLOSIVE SHELL FIRE
	SMOKE SHELL FIRE
SYMBOLS TO INDICATE CERTAIN VEHICLES	
	COMPANY COMMANDER'S VEHICLE (HT OR TANK)
	SECOND-IN-COMMAND'S VEHICLE (HT OR TANK)
	PLATOON LEADER'S TANK

■ 2. PURPOSE.—This manual is only a guide to the employment of the tank company. The formations and actions described herein are not inflexible. Each tactical situation must be solved on its own merits and not by blind application of a set of inflexible rules. Initiative of all commanders must be encouraged.

■ 3. PRIOR TRAINING.—Individual crew, section, and platoon training should be completed before proceeding to company training. The technique of operation of vehicles and weapons and of the employment of the various weapons should have been covered in earlier instructions. (See sec. II.)

■ 4. ORGANIZATION.—*a.* The tank company, both light and medium, consists of a company headquarters and three tank platoons of five tanks each.

b. Company headquarters.—(1) Company headquarters is composed of a—

- (a) Command section.
- (b) Tank section.
- (c) Communication-liaison-reconnaissance section.
- (d) Maintenance section.
- (e) Administrative and supply section.
- (f) Mess section.

(2) On the march when combat is imminent and when the company is in combat the administrative and supply section and the mess section are with the battalion or higher unit trains.

(3) The command section consists of the company commander and various individuals mounted in a half-track vehicle. During combat the company commander rides in one of the tanks of company headquarters. The command section half-track joins the maintenance officer.

(4) One tank of the tank section is used by the company commander. The other tank is used by the maintenance officer who is also second-in-command of the company. This tank is used as a replacement for the company commander's or a platoon leader's tank.

(5) The communication-liaison-reconnaissance section is equipped with a ¼-ton truck. It is used on the march for

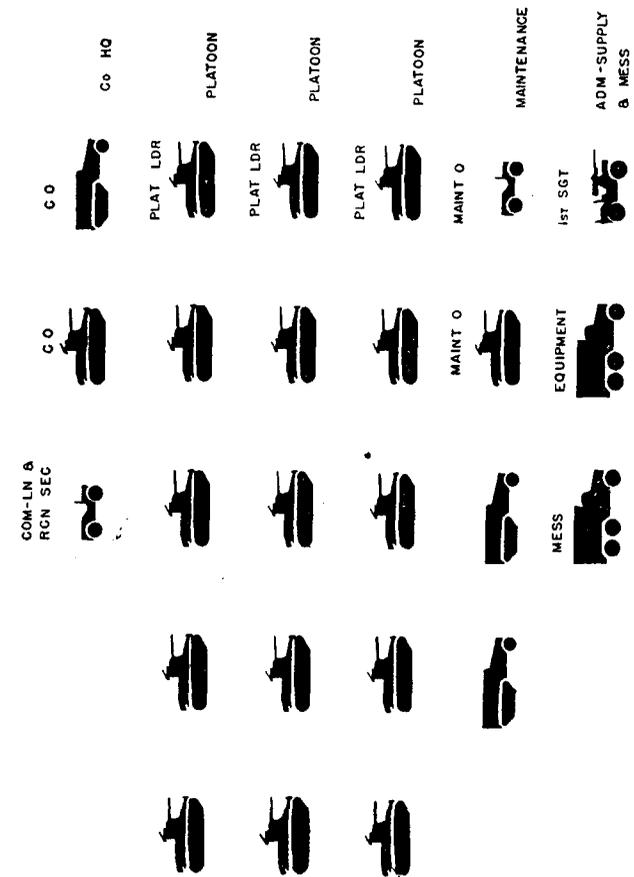
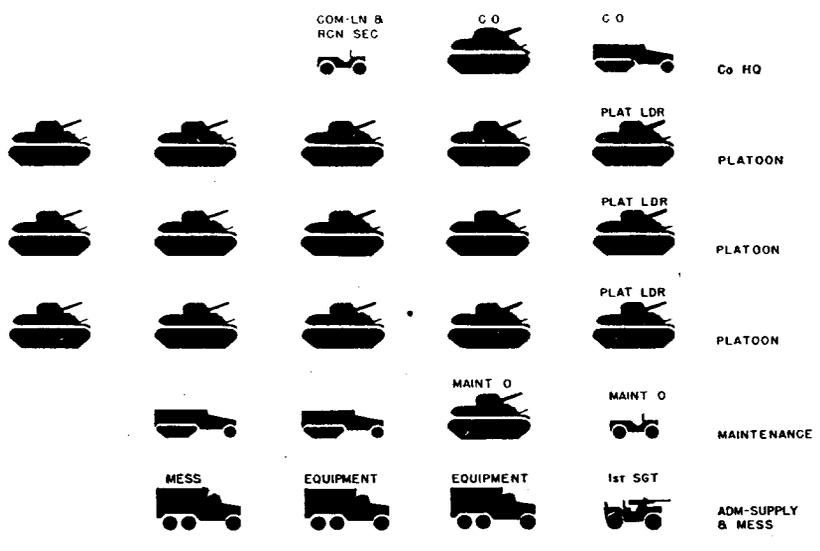


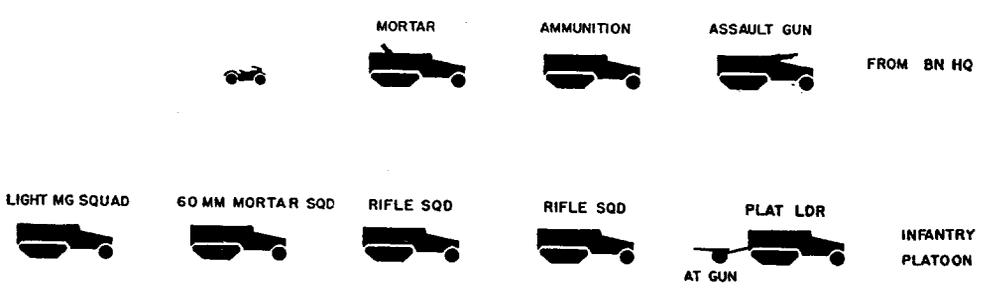
FIGURE 1.—Light tank company.



NORMAL ATTACHMENTS SAME AS LIGHT TANK COMPANY
 MAY BE ATTACHED SAME AS LIGHT TANK COMPANY

FIGURE 2.—Medium tank company.

NORMAL ATTACHMENTS



MAY BE ATTACHED



FIGURE 3.—Attachments, tank company, light and medium.

47732°—42—2

5

reconnaissance short distances to the sides and for liaison with higher headquarters, especially when the company is attached to another unit such as an infantry battalion. When not used for liaison this section remains with the maintenance officer and proceeds with him to the company rallying point. Here the staff sergeant in charge makes such repairs and adjustments on radio sets as time and means permit.

(6) The maintenance section is organized and equipped to perform second echelon maintenance for the company. It is equipped with a 1/4-ton truck and two half-track vehicles. During the march it follows at the tail of the company and makes such repairs to vehicles as it can. Vehicles beyond the capabilities of the section to repair are left with their crews, for regimental or maintenance battalion personnel. During combat the section accompanies the company to the attack position where it assists in making last minute repairs. It follows the attack as closely as practicable, along an axis of maintenance prescribed by the company commander, to repair tanks that are out of action.

(7) The maintenance officer, second-in-command of the company, commands the maintenance section and supervises all maintenance in the company. He accompanies the company to the attack position. After the attack starts he assumes charge of all vehicles left at the attack position, that is, the maintenance vehicles, the second company headquarters tank, and the communication-liaison-reconnaissance 1/4-ton truck. He moves these vehicles forward, following the company as closely as practicable, makes repairs on damaged tanks, makes estimates of material needed to repair those beyond the capabilities of his section to repair, transmits this information with the exact locations of the disabled vehicles to the regimental maintenance platoon, and rejoins the company at the rallying point.

■ 5. CHARACTERISTICS.—*a.* The tank is characterized by great mobility, fire power, armor protection, and shock action. These characteristics are possessed in varying degrees by different types of tanks. The characteristics dictate the manner of employment.

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

(1) Feeling out the enemy and developing the 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 medium tanks.

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

(6) Pursuing a defeated enemy.

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

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

(2) Support by fire the attack of either light or other medium tanks.

■ 6. OPERATION.—*a.* The tank company is normally employed as part of the tank battalion. It may, however, be used as advance, flank, and rear guard and on separate missions.

b. The reinforcement of the tank company will be normal. Such reinforcements will vary from a mortar and an assault gun from the battalion headquarters company to one or more infantry platoons, engineers, artillery, and reconnaissance elements. A light tank company may have a medium tank platoon attached to or supporting it for certain operations.

■ 7. FUNDAMENTALS.—*a. Surprise.*—Surprise is obtained by striking the enemy at an unexpected time, from an unexpected direction, and in sufficient numbers to gain the objective. Speed of movement and the use of covered approaches assist in gaining surprise. *Seek to surprise your enemy but do not let yourself be surprised. Give your enemy credit for as much tactical knowledge as you have or more. Do not*

underestimate him. Expect the unexpected and be prepared for it.

b. Fire and maneuver.—The company advances by fire and movement. A portion of the command maneuvers against the enemy while the remainder covers that movement. This covering force does not necessarily fire all the time while the other force is maneuvering. It takes up positions where it can bring effective fire on any enemy holding up the advance. It fires only when necessary to assist the advance. After the maneuvering force has advanced beyond supporting distance of the covering force, it may take positions and become the covering force while the former covering force becomes the maneuvering force.

c. Mass.—Concentrate your fire power and shock action on the enemy. Do not fritter away your strength on small, unimportant targets. Concentrate on an objective that is decisive; the others will then fall.

d. Conservation of ammunition.—The tank carries a relatively small amount of ammunition and resupply is difficult. It is imperative that each round be made effective. Do not fire with the 75-mm and 37-mm guns until there is something at which to shoot. (See sec. II.)

■ 8. TERRAIN.—*a.* The tank is sensitive to terrain. For most efficient use, tanks should operate over terrain that will permit advance by covered routes at good speed.

b. The tank company commander must continually study terrain and seek to turn it to his advantage.

c. The following types should be avoided:

- (1) Ground covered with large stumps.
- (2) Heavy woods.
- (3) Swamps.
- (4) Ground covered with large boulders.
- (5) Steep slopes.

d. Just because ground appears impassable for tanks does not justify dismissal of possibility of attack either by yourself or the enemy over such ground. Only by detailed reconnaissance can passableness be determined. In many cases passage of difficult ground is justified by surprise effect gained.

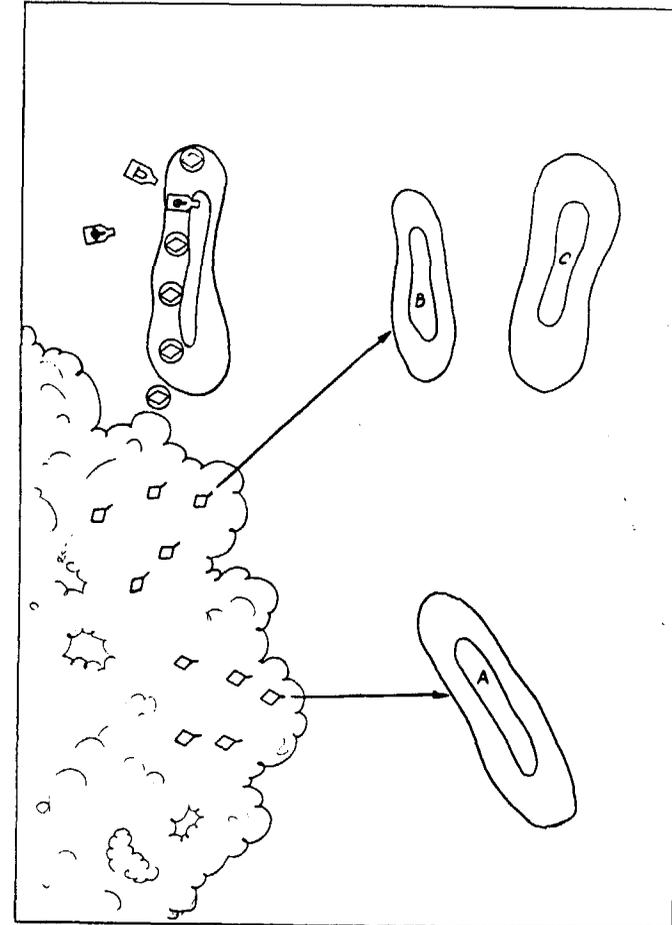


FIGURE 4.—Fire and maneuver. One platoon from deflated stationary positions, together with mortar and assault gun, supports advance of other platoons.

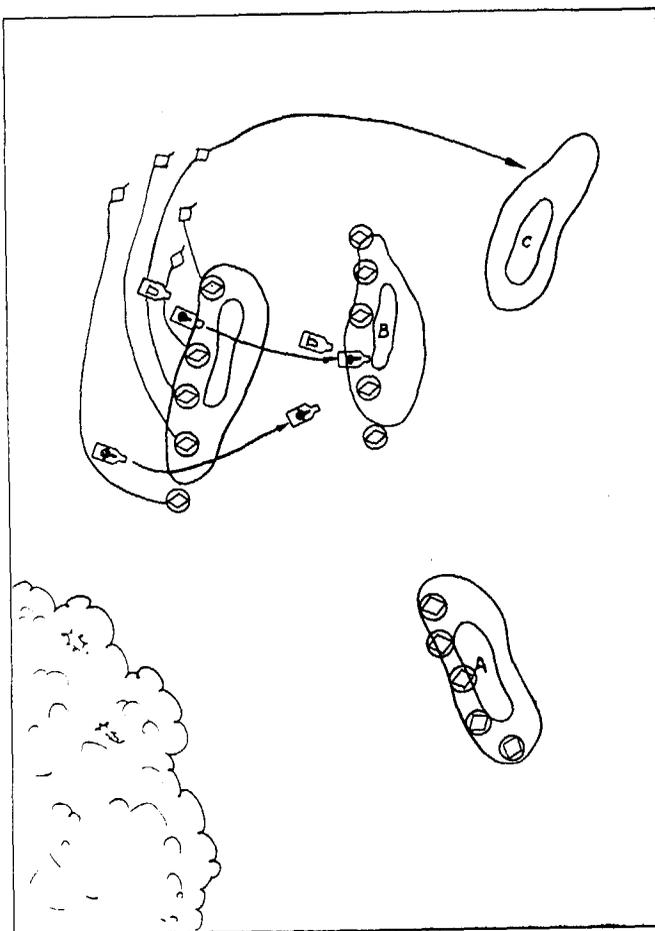


FIGURE 5.—Fire and maneuver. After platoon has reached B it takes up firing positions to cover advance of other platoons. Mortar and assault gun displace forward.

SECTION II TRAINING

■ 9. GENERAL.—*a.* Training of the tank company must be progressive. It is divided roughly into phases as follows:

- (1) Basic.
- (2) Specialist.
- (3) Marksmanship.
- (4) Technique of fire.
- (5) Section and platoon combat exercises without ammunition.
- (6) Combat practice firing.
- (7) Company combat problems.

b. Each phase should be completed before proceeding to the next. The efficiency of the company as a whole will depend upon the thoroughness with which each individual unit is trained.

c. Throughout the training period emphasis must be placed upon cooperation, coordination, and individual initiative. Training methods are covered in general in FM 21-5.

d. 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 gunners 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. In this manner, and this only, can troops be trained in the proper 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.

SECTION V

MARCHES

■ 22. GENERAL.—*a.* The subject of marches is covered in detail in FM 17-10, 17-50, and 25-10.

b. A good march depends upon good march discipline. This can be obtained only by practice and rigid enforcement of march rules.

c. Security on the march and at halts is covered in section IV.

d. The rate of march of a tank column consisting all or in part of medium tanks does not exceed 20 miles per hour. A column composed of light tanks and half-track vehicles may travel at a rate as high as 30 miles per hour. Such a rate is advisable only in a tactical maneuver or when time is crucial. Wear and tear on vehicles is great, deterioration rapid. It must be remembered that a successful march is one that places the troops and equipment at their destination at the proper time and in the proper condition to fight.

e. When air attack can be expected, and this is usual anywhere in the theater of operations, distances between vehicles during daylight marches are seldom less than 80 yards, approximately 88 yards per vehicle. This may be extended to 176 yards or 0.1 mile. During night marches the density of 20 vehicles per mile should not be exceeded. However, vehicles may be grouped into groups of approximately five, closed to short distance. A good night driver is placed in the leading vehicle of each group.

f. When combat is imminent, the company commander will usually be with the battalion commander. Platoon leaders assemble at the head of the company column. The company is conducted by the senior platoon leader. Platoon sergeants assume temporary command of the platoons. By such groupings, orders can be given with less delay.

g. During the march certain designated members of the vehicle crew must remain awake and alert at all times. When contact is not imminent, one member detailed as alert man watches for both ground and air attack. When contact is imminent all members of the crew must be alert. Heavy guns are loaded or prepared for loading. Machine guns are

half-loaded. Everything is made ready for instant action. Certain men are detailed as air and ground guards to give instant warning of attack. *Do not let yourself be surprised.*

■ 23. HALTS.—*a.* Halts are usually made for 15 minutes after the first 45 minutes of march. Thereafter, halts of 10 minutes are made at the end of 1 hour and 20 or 1 hour and 50 minutes of marching. In long columns, halts must be made on a schedule as most of the troops will not be out of bivouac at the end of 45 minutes. A long halt, usually ½ hour, is made after 4 hours of running time. This is for the purpose of refueling. Again, in long columns this must be a scheduled halt.

b. Drivers and tank commanders make regular inspection of their vehicles at halts. One man must be left in the vehicle to man the vehicular weapons in case of attack.

SECTION VI

OFFENSIVE ACTION

■ 24. GENERAL.—*a.* The tank is an offensive weapon. Its offensive powers of mobility, fire power, shock action, and armor protection should be exploited to the limit.

b. The tank company will habitually be reinforced during combat. (See sec. I.) The company may be used either alone or as part of the battalion. It is used alone in advance, rear, and flank guards, and may be used alone as a covering force. As part of the battalion it may attack—

(1) As the first echelon of attack, the mission of which is to destroy enemy antitank defenses, artillery, command posts, and other rear installations.

(2) As the second echelon of attack, the mission of which is to destroy infantry targets, especially machine guns, heavy weapons, and antitank guns passed over by the leading echelon. It also destroys command posts, communication centers, and other rear installations.

(3) As the third echelon of attack, which advances with the infantry and destroys enemy machine guns and other enemy installations holding up the infantry.

c. It must not be assumed that the tanks always attack first. Many times the infantry will attack to secure ground from which the tanks may attack.

d. In attack battalions are usually given zones of action. Companies are assigned a frontage and direction of attack. Zones and frontages must not be so narrow as to restrict maneuver.

■ 25. ASSEMBLY.—a. Before any attack, except in repelling a surprise counterattack or when attacking direct from march column, the company will occupy an assembly area or intermediate positions where tanks are repaired and everything made ready for battle.

b. Security in assembly areas is discussed in section IV.

c. The assembly area is selected by the battalion or higher unit commander. A battalion guide or staff officer should indicate the area to the company commander.

(1) The area should afford concealment, should not be within range of hostile medium artillery, should have good standings for vehicles, and should have good routes available for entrance and exit.

(2) The area is occupied in such manner that units are in proper formation to move direct to attack positions without going through the areas of other troops.

(3) The company commander, riding behind the battalion commander in column, is given his area assignment. He divides the area into platoon areas and leaves a guide, usually the communication sergeant in the ¼-ton truck, to guide the platoons to their positions.

(4) Immediately upon moving into the area, tanks are dispersed, security is established, vehicles concealed, and necessary maintenance performed.

(5) In moving into an area at night, a guide must be provided for each platoon. After a platoon reaches its position, each tank must be guided to its place by the tank commander.

(6) The road must be cleared rapidly. Vehicles must not jam on the road. Tracks into the area are brushed out to prevent disclosure of the position to hostile aircraft. (See FM 21-45.)

(7) Platoon leaders establish a platoon CP, and send a runner to the company CP. The company commander reports to or sends a runner to the battalion commander. The bugler is used as a messenger.



FIGURE 22.—Do not move into assembly area without posting guides. Columns will jam on road and may become disorganized in area.

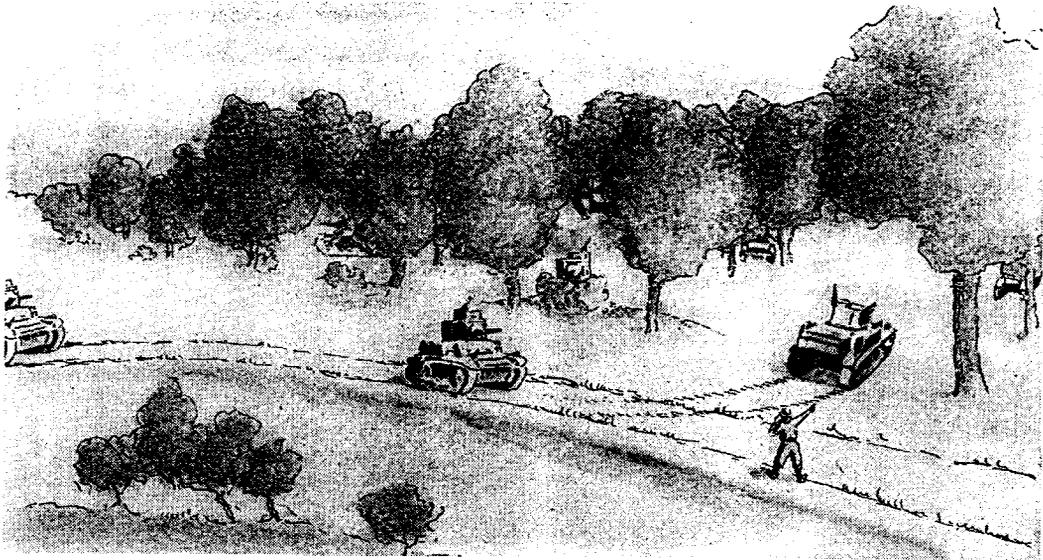


FIGURE 23.—Post guides at entrance of assembly area to indicate platoon areas.

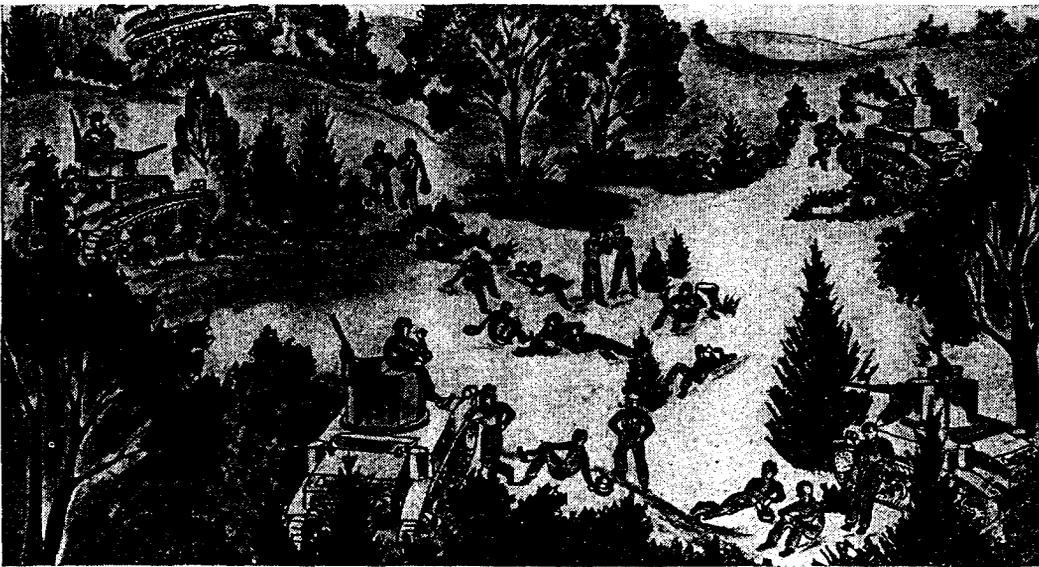


FIGURE 24.—Do not move into assembly area and let crews remain idle.



FIGURE 25.—In assembly area, crews check tanks and get ready for action.

d. The attack position is as close to the line of departure as is consistent with concealment. Here last-minute checks are made and last-minute orders given. It is here that last-minute coordination is made with infantry when tanks attack through infantry.

■ 26. FORMATION.—a. Figure 26 shows typical formations for a tank attack. It should be noted that the diagrams show only one formation for the platoons. These may be in any prescribed combat formation such as line, wedge, column, echelon, or line of section columns, depending upon terrain and hostile dispositions.

(1) The formation of three platoons in line is seldom used. It provides no reserve, is difficult to control, and has no power for sustained effort. It may be used by a covering force.

(2) The formation of two platoons in the assault is easier to control than line formation and affords a reserve for influencing the action, but has less sustaining power than column formation. The support company is usually disposed toward the exposed flank.

(3) Column formation affords maximum control and sustained power. It is the formation for a penetration when the company is not supported by another company. It has the disadvantage of developing very little initial fire power.

(4) Another formation not shown in the diagram is one platoon in assault and two platoons in reserve. This formation is suitable when the situation is vague. Deployment to right or left is facilitated.

b. During the approach to combat the company commander is at the head of his company. When the attack begins he goes wherever he can best influence the action. He will usually seek an observation point, probably close to the firing positions of his tank platoon supporting the attack, from which point he will be able to watch the attack of his platoons. Here he controls by radio the maneuver of the platoons and uses his reserve at the proper time. He should not lead the initial attack unless such action is necessary for psychological purposes. When he leads the attack he will become engaged in combat and will be unable to control his company.

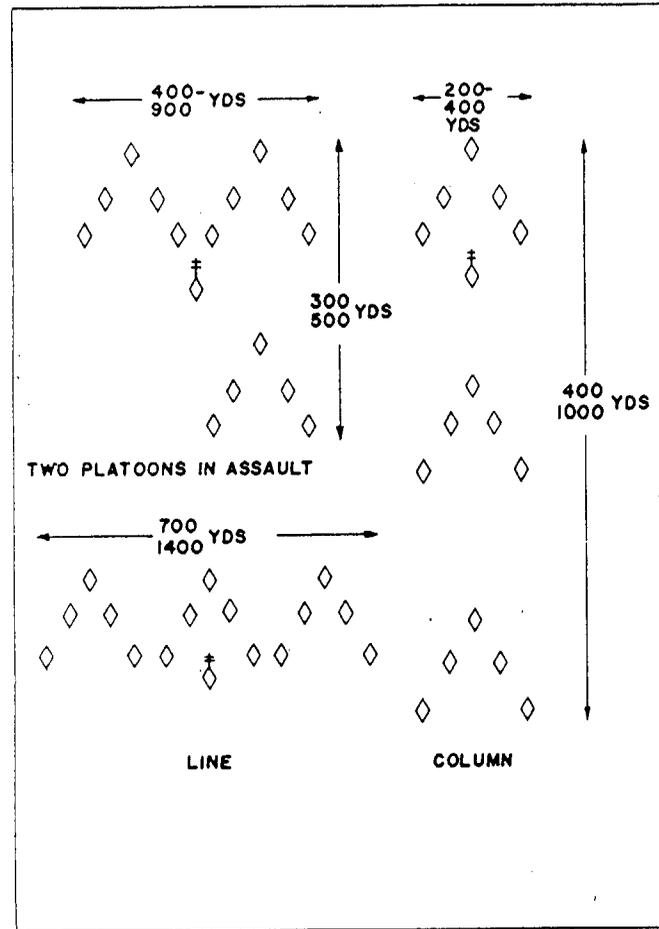


FIGURE 26.—Formations for attack. Platoons may be in line, wedge, inverted wedge, column, line of section columns, or echelon.

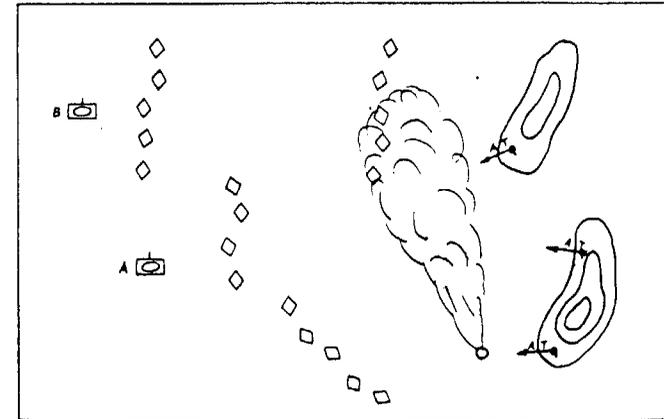


FIGURE 27.—Do not use so much smoke that maneuver of adjacent units will be affected. Here smoke laid down by company hinders movement of Company B. (See also fig. 28.)

- 27. USE OF SMOKE.—*a.* Smoke is used by tank units to—
- (1) Screen movement of tanks.
 - (2) Blind hostile observation.
 - (3) Neutralize hostile antitank guns.
 - (4) Confuse the enemy as to the real point of attack.

b. The use of smoke in any great quantity must be coordinated by higher commanders. Even one mortar can, if there is a cross wind, lay down a smoke screen that will hinder the movement of adjacent friendly troops.

c. Each medium tank and each assault gun has a limited number of rounds, usually five, of smoke ammunition. They cannot lay down an extensive smoke screen. This ammunition is used only for temporarily blinding observation of antitank guns so the vehicle may close with the gun or move to a more favorable position. The 81-mm mortar of the tank battalions carries a preponderance of smoke ammunition. Its high rate of fire, 30 rounds per minute, allows it to lay down a heavy smoke screen in a short time. (See FM 17-27.)

d. For screening small targets a cross wind is best, as only one round if fired to windward will suffice for concealment.



Figure 28.—Do not use so much smoke that maneuver of adjacent units will be affected. Here smoke laid down by company hinders movement of Company B. (See also fig. 27.)

However, a cross wind will blow smoke into the zone of the adjacent unit and fire must be controlled.

e. For screening an attack a wind blowing directly toward the enemy position is best. Smoke laid in front of the enemy position will drift to the rear and cover rear areas as front areas become free for attack. *CAUTION: Do not lay a smoke screen when the wind is blowing from the enemy toward you unless you desire to withdraw.*

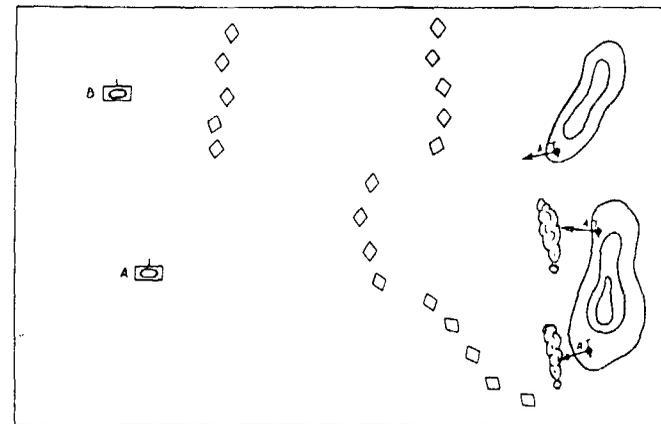


Figure 29.—Lay only enough smoke to conceal your own targets. (See also fig. 30.)



FIGURE 30.—Lay only enough smoke to conceal your own targets. (See also fig. 29.)

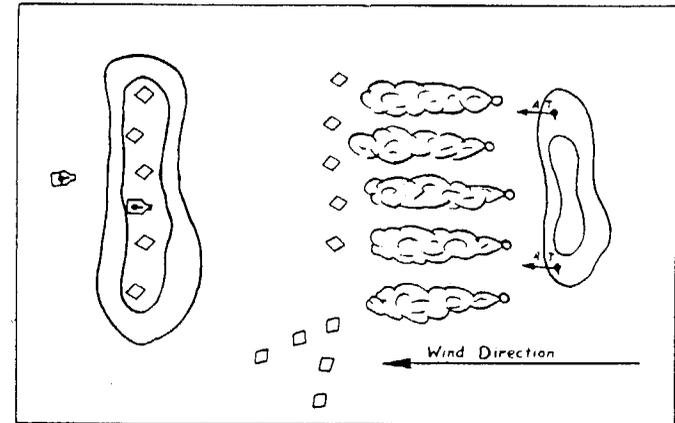


FIGURE 31.—Do not lay smoke that will come back on you. (See also fig. 32.)



FIGURE 32.—Do not lay smoke that will come back on you. (See also fig. 31.)

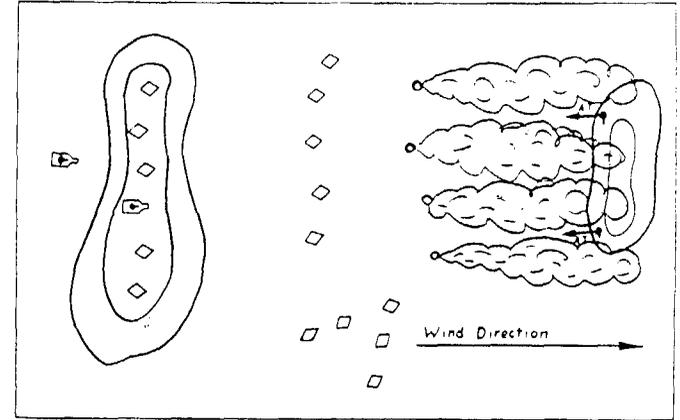


FIGURE 33.—Smoke laid with wind down range is most effective. It continues to cover hostile rear installations. (See also fig. 34.)

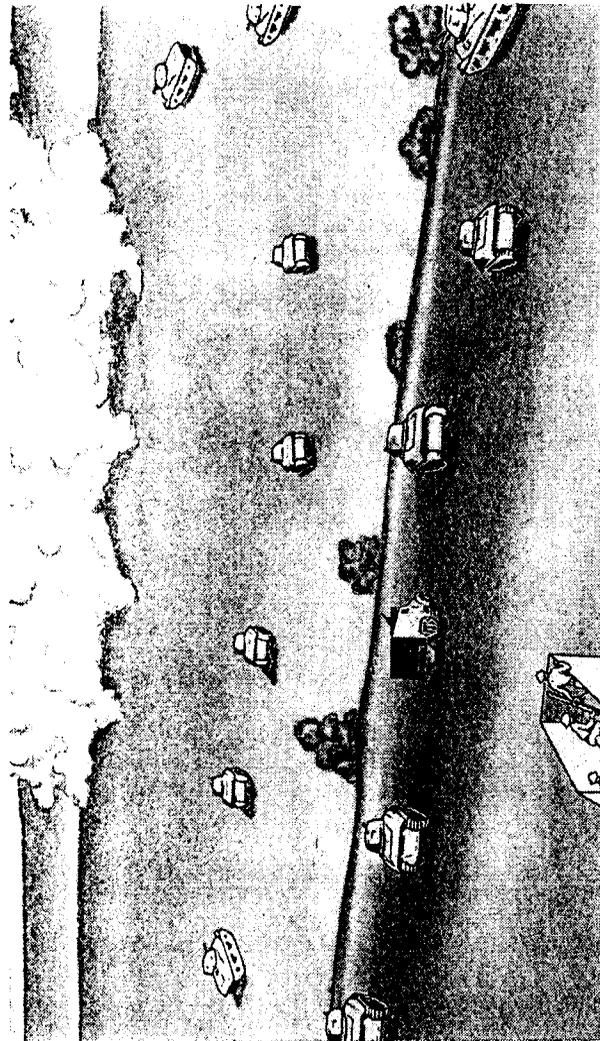


FIGURE 34.—Smoke laid with wind down range is most effective. It continues to cover hostile rear installations. (See also fig. 33.)

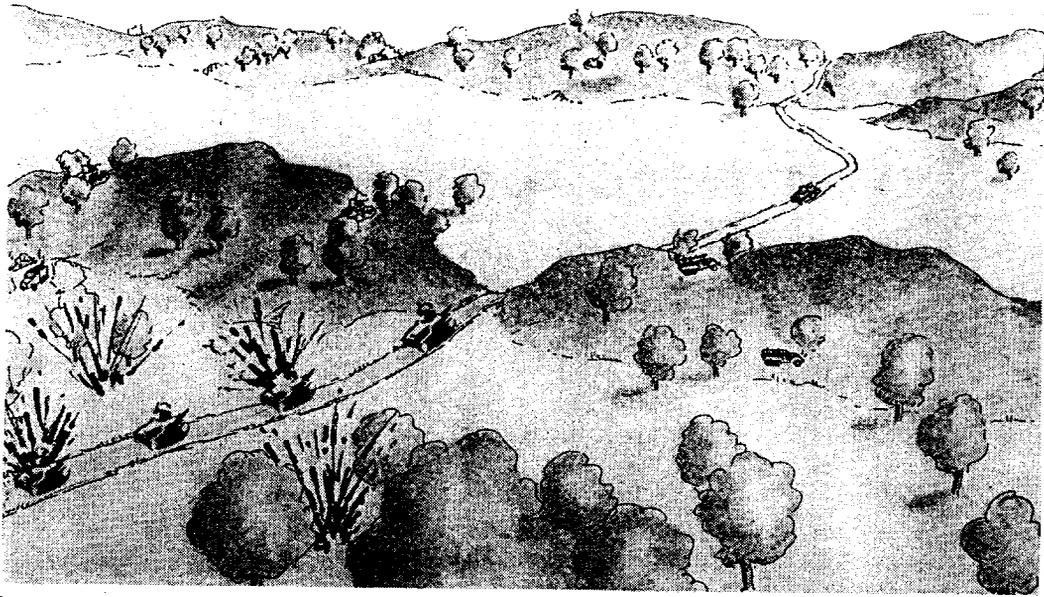
■ 28. ATTACK FROM MARCH COLUMN.—*a.* When unexpectedly attacked by the enemy or in a meeting engagement when time is essential, attack may be made direct from march column, with halt made only long enough to issue orders and perform the minimum of reconnaissance.

b. If the column is unexpectedly attacked from the flank, each platoon moves directly to the attack. It rallies on the road or at such other place as the company commander may direct by radio. The platoon leader gives his order for attack by radio and at the first opportunity reports to the company commander. When platoon leaders are at the head of the company column they must, with all possible speed, return to and assume command of their platoons.

c. Meeting engagement has been covered in advance guard action (par. 20).

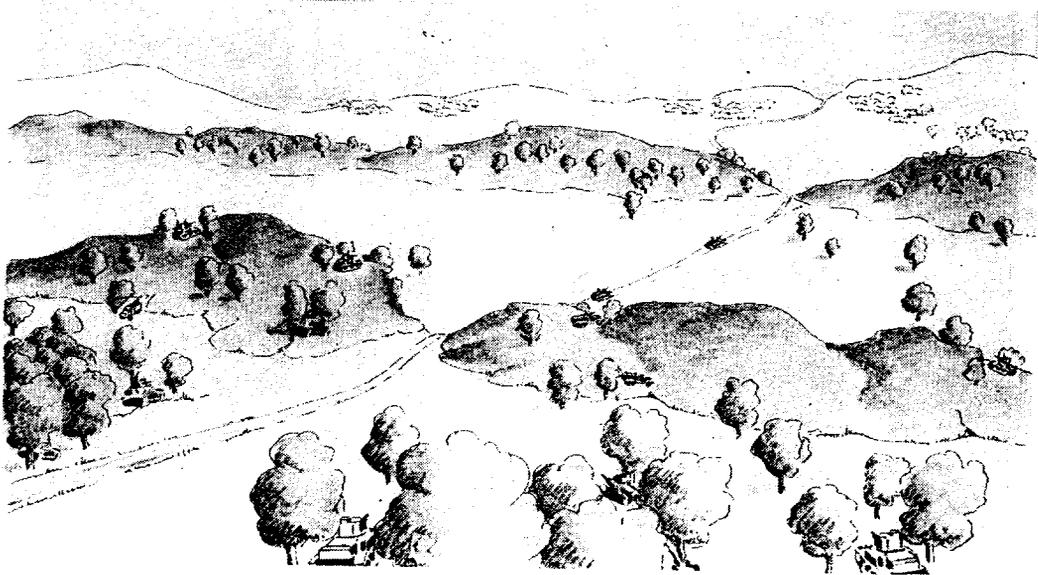
d. When attacking unarmored troops, move quickly into action, overrun and destroy the enemy.

e. When attacking armored troops from march column, maneuver to bring maximum fire on a portion of the enemy, while containing the remainder with a small force or blinding him by use of smoke. Fire, if practicable, from concealed positions with tank stationary. If you are caught in the open by heavier tanks with heavier weapons, use smoke on part of the enemy and close rapidly with the remainder. Unless you can withdraw and lead the enemy tanks into the fire of your own supporting medium tanks, your best chance is to get to close range where your weapons will be effective. Use maximum speed.



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FIGURE 35.—Do not keep units on road while reconnaissance is being made and orders are being issued. Such inaction invites destruction by artillery fire.



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FIGURE 36.—Move rapidly off road and prepare for action.

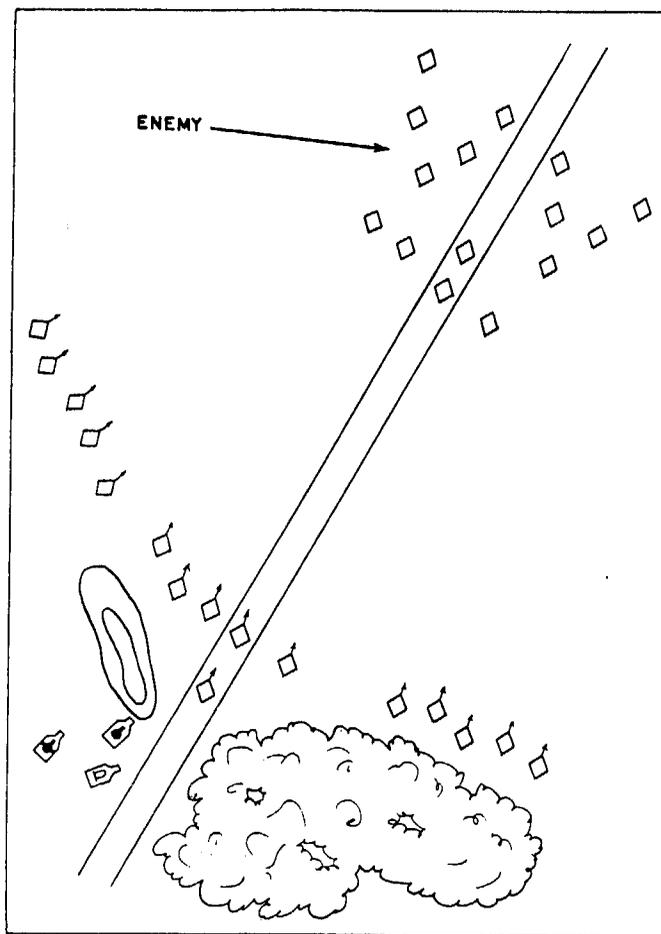


FIGURE 37.—In meeting engagement with armored troops do not rush to meet enemy in frontal attack in open.

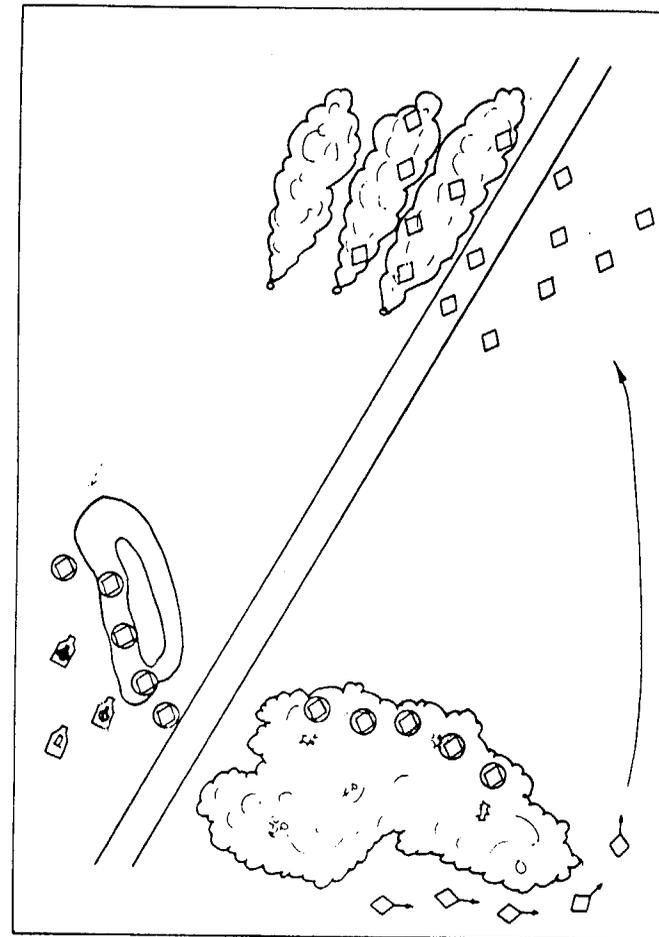


FIGURE 38.—Maneuver to position where concentrated fire can be brought on part of enemy. Detain rest of his forces by use of smoke, if practicable.

■ 29. ATTACK OF POSITION.—*a.* Such attacks are preceded by movement into assembly areas, reconnaissance, and movement to attack positions. Such attacks may be penetrations or envelopments. When one or both of the enemy's flanks are open, envelopment is usual. Penetration is followed by envelopment of the flanks created.

b. Attack of a position is characterized by coordination of all fires, artillery, mortars, assault guns, supporting tanks, and dive bombers. When the enemy position is held in strength and is protected by mine fields, the infantry usually attacks first, protected by artillery and mortar fire. When mine fields or tank obstacles are to be removed, infantry and engineers, protected by smoke and heavy artillery and machine-gun fire, remove mines and make paths for the tanks. The tanks then attack through the gaps created.

c. Tanks may attack ahead of infantry to break down wire entanglements and destroy hostile automatic weapons.

d. Artillery fire must lift when tanks approach within 300 yards of its target. The protection afforded by the artillery is taken over by the assault guns, mortars, and supporting medium tanks. Economy of ammunition must always be considered. Medium tanks and assault guns cannot lay down sustained artillery fire.



FIGURE 39.—Attack of position.

■ 30. METHOD OF ADVANCE.—Advance is made by leapfrogging or other means of fire and maneuver. (See fig. 40.)

a. In the leapfrogging method of advance, the first platoon covers the advance of the second and third platoons to their next position and then moves around or through the second platoon to its new position, which places the first platoon in advance of the second platoon. The second platoon then covers the advance of the first and third platoons to the next position. The solid line indicates the direction of movement of the first platoon, and the dotted line indicates the actual route taken by the first platoon to reach its new position.

b. In moving by bounds, the first platoon covers the advance of the second and third platoons to their next position, and then moves to its new position. The operation is then repeated. The use of this method always keeps the same platoons in the forward positions.

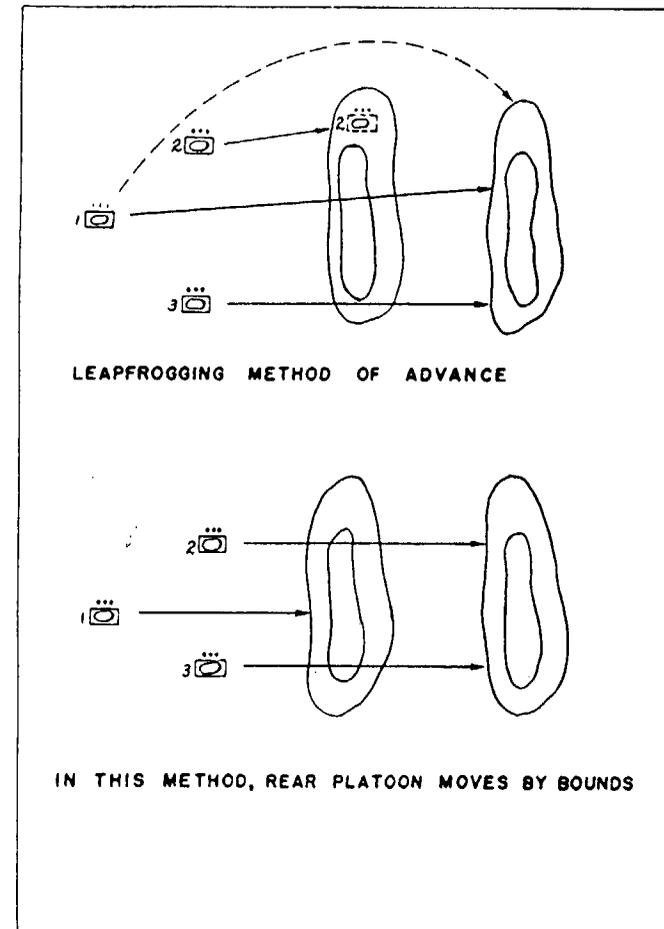


FIGURE 40.—Method of advance. One platoon covers the advance of other platoons.

■ 31. ATTACK WITH INFANTRY.—*a.* The infantry may attack ahead of the tanks, with the leading wave, or with the rear echelon. It may be in carriers or dismounted, depending upon the strength of the enemy. It must dismount when taken under heavy enemy fire.

b. In a vague situation infantry will advance with a light tank company. It will follow one of the tank platoons in carriers until serious resistance is met. It may then be used to form a base of fire for the tank attack; to attack supported by tank, mortar, and assault gun fire; to destroy resistance which cannot be reached by tanks; to maneuver dismounted to the flank to destroy enemy antitank guns holding up an attack. There must be liaison between the tank company commander and the infantry commander. The infantry platoon commander has an SCR-510 radio set with which he may communicate with the tank company commander. Should he not have the proper crystals for this communication, the tank company commander uses his own half-track as a liaison vehicle, causing it to move with the infantry platoon commander.

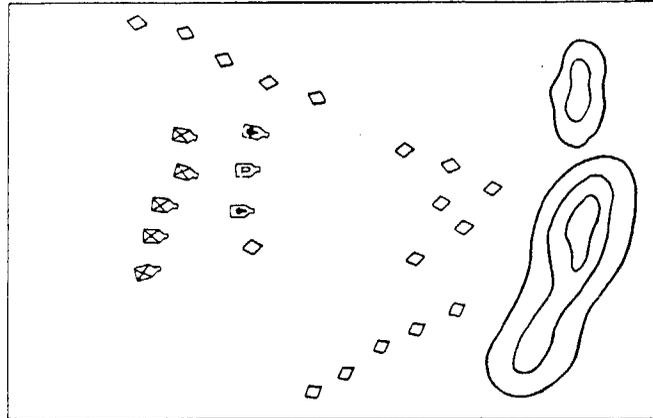


FIGURE 41.—Advance with infantry following in carriers. Situation vague. (See also fig. 42.)

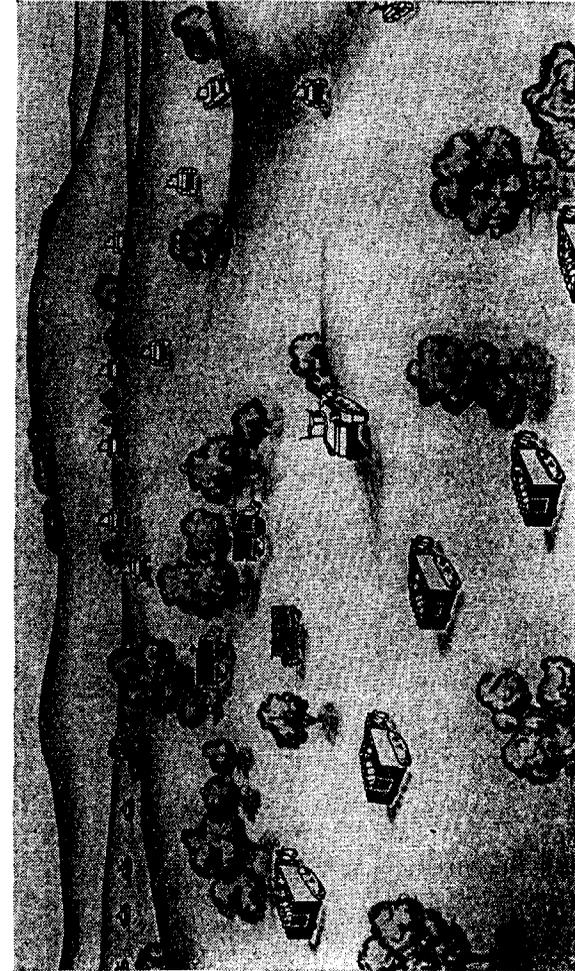


FIGURE 42.—Advance with infantry following in carriers. Situation vague. (See also fig. 41.)



FIGURE 43.—Advance with infantry dismounted.

■ 32. ACTION WHEN ENEMY LAYS DOWN SMOKE SCREEN.—*a.* In smoke or fog, tanks lose direction, may crash into each other, and will be forced to slow down. Maintenance of direction is difficult at best. The tank compass will be hard to see if smoke gets into the tank.

b. When a tank platoon or company commander sees that his unit is about to be smoked, he orders the tanks to move at maximum speed to deflade positions. Some tanks on the flanks dispose themselves to protect the flanks to repel a counterattack that may be following the smoke screen. All prepare immediately to resume the advance at maximum speed when the smoke clears. The support platoon and assault gun prepare for immediate resumption of fire. These may be moved to a more favorable position to bring fire on the enemy.



FIGURE 44.—If smoke cloud hits you, do not move on through it.

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FIGURE 45.—If you continue, tanks will lose direction and antitank gunners will have good targets.

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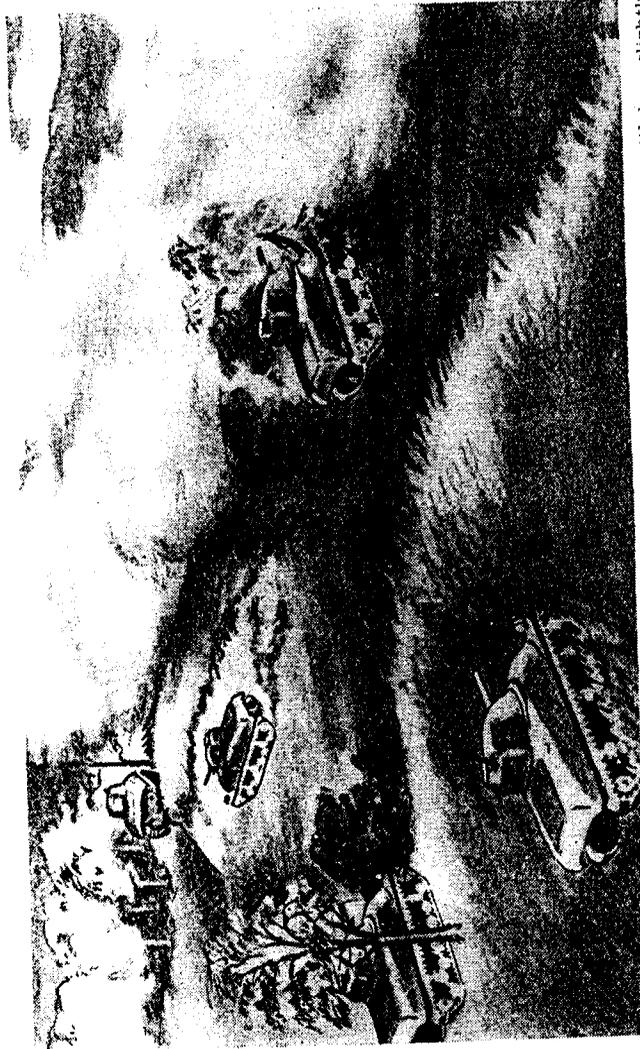


FIGURE 46.—If smoke cloud approaches, seek concealment or deflade even if you have to withdraw slightly.

■ 33. ATTACK OF ARTILLERY POSITION.—Do not attack artillery frontally. Cover the artillery with machine-gun fire from the front or flank and send platoons to the right and left. Attack it from the flanks and rear and overrun the battery position.



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FIGURE 47.—Do not attack artillery frontally.



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FIGURE 48.—Cover artillery with fire and attack from flanks and rear.

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FIGURE 49.—Do not attack across mine field.

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FIGURE 50.—Go around mine field or have infantry and engineers clear path.

■ 34. ATTACK OF VILLAGES.—Avoid villages if practicable. If the village must be taken, use infantry, engineers, mortars, and assault gun to attack frontally while tanks encircle the town.



FIGURE 51.—Do not attack village frontally with tanks if such action can be avoided.

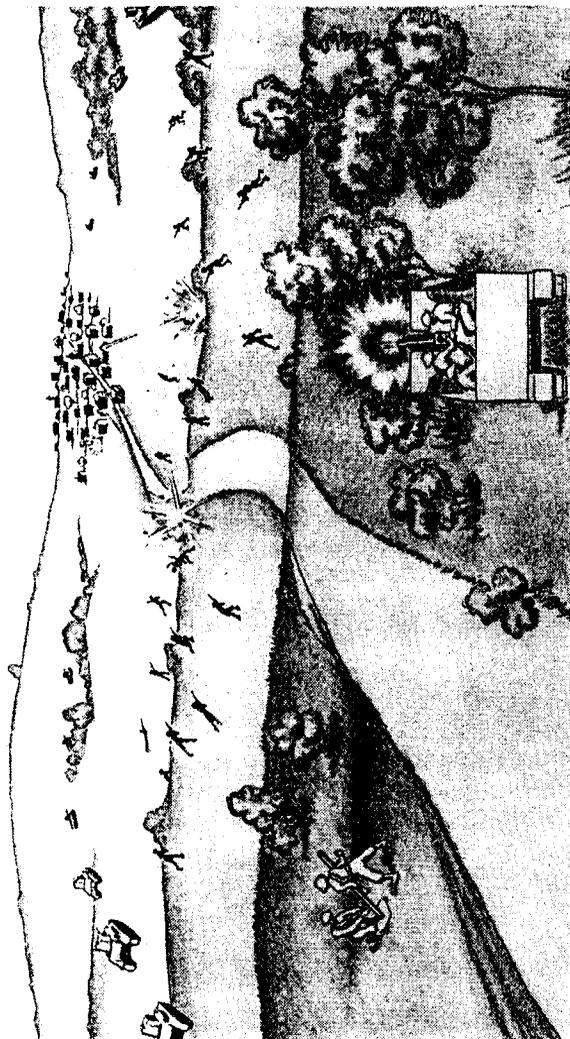


FIGURE 52.—Use infantry to attack frontally and tanks to encircle town.

■ 35. **ATTACK IN WOODS.**—To maintain control move through woods in column. Beware of paths, as they will probably be mined or covered with AT guns. If necessary have infantry or other dismounted men precede tanks.

■ 36. **ATTACK OF FORDS.**—In attack of fords place tanks in defiladed position to take defenders under fire and use infantry to attack flank or rear.

■ 37. **ATTACK OF RIVER LINE.**—In the attack of a river line, engineers, supported by artillery and some medium tanks close to the river bank, ferry infantry and tank destroyer units across. They then build the bridge. Medium tanks supporting the crossing are disposed under cover or in defiladed positions close to the river bank where they can give close protection to the engineers.

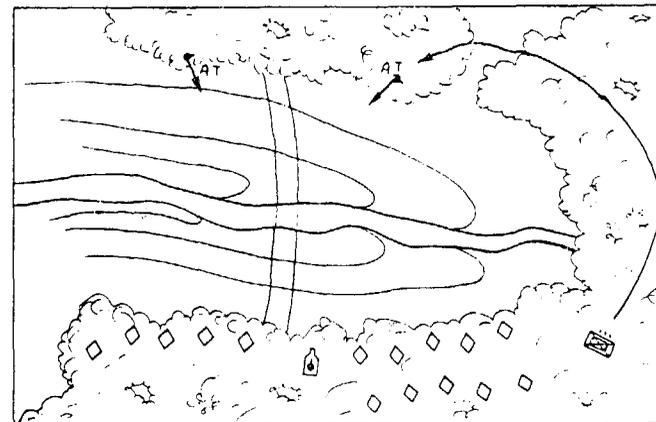


FIGURE 53.—Attack of ford.

SECTION VII DEFENSE

■ 38. **GENERAL.**—*a.* The tanks' offensive power must be used in defense for counterattacks. They are not used as stationary pill boxes except as a last resort. FM 17-10 covers in general the employment of armored units in defensive combat.

b. In defense, infantry and engineers hold the main line of resistance while tank units form the reserve for counter-attacking hostile forces preferably before they reach the infantry lines.

■ 39. DEFENSE OF A POSITION.—In defense of a position, the tank company will normally operate as part of the battalion. (See FM 17-33.) Here it is used to attack as described in section VI. In the defense, careful reconnaissance is made of all terrain over which a counterattack might be made and arrangements made with local infantry commanders for passage of lines and coordination of fires.

■ 40. WITHDRAWAL.—In withdrawal, tanks are used as counterattack forces to make shallow attacks on a wide front to slow up the enemy attack and permit friendly troops to withdraw and reform. The company will usually be with the battalion. In these attacks, the rallying point is normally the attack or assembly position.

■ 41. DELAYING ACTION.—Delaying action is similar to withdrawal, the tanks being used to attack the heads and flanks of hostile columns. In delaying action do not allow yourself to become so heavily engaged as to be unable to withdraw.

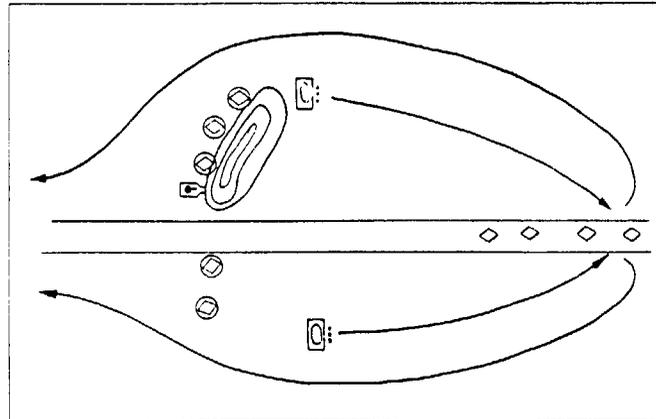


FIGURE 54.—Delaying action. Support attack of two platoons by one platoon. One platoon then protects withdrawal of attacking platoons.

■ 42. REAR GUARD.—Formations of the rear guard are the same as the advance guard except in reverse order. The rear guard may have to fight a delaying action. It can expect no help from the main body.

SECTION VIII

JUNGLE WARFARE

■ 43. GENERAL.—a. FM 31-20 covers the general subject of warfare in the jungle. In general, because of their sensitiveness to terrain, tanks are unsuited for mass employment in jungles. Their use in such operations will usually be limited to groups of a company or less, supported by infantry. A tank platoon might be attached to an infantry company.

b. Light tanks are more suited to jungle operation than medium tanks.

c. Operation in jungles is usually confined to narrow trails through dense growth relieved at intervals by open spaces. Much of the trail may be swampy and require pioneer work of considerable extent before the tanks can traverse it.

■ 44. ATTACK.—Infantry leads on the jungle trails, develops the enemy, and the tanks then attack. Such operations are a continuous series of small attacks; at one time tanks lead and the next, infantry.

■ 45. DEFENSE.—a. Infantry defends the trails by placing antitank mines and machine guns to cover them. The open spaces are covered by fire. The tanks are held in reserve to counterattack if the enemy succeeds in reaching the open space.

b. Tanks may be used to delay the enemy by turning the turret guns to the rear and withdrawing from one vantage point to another.

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1942

WAR DEPARTMENT,
WASHINGTON, September 18, 1942

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Battalion, Light and Medium, is published for the informa-
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BY ORDER OF THE SECRETARY OF WAR:

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Chief of Staff.

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The Adjutant General.

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

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ARMORED FORCE FIELD MANUAL

THE ARMORED BATTALION, LIGHT AND MEDIUM

SECTION I

GENERAL

	SECOND IN COMMAND
	PLATOON LEADER
	COMPANY COMMANDER
	BATTALION COMMANDER
	TANK
	TANK, SHOWING DIRECTION OF TURRET GUN
	HALF-TRACK, CAR OR CARRIER (OF ARMORED UNITS)
	HALF-TRACK, CAR OR CARRIER (OF INFANTRY UNITS)
	MORTAR CARRIER
	ASSAULT GUN
	AMMUNITION CARRIER
	1/4 TON TRUCK
	MOTORCYCLE
	DESTROYED AT GUN
 BN MAINT	BN MAINT CREW, MAINT CO, ARMORED REGT
	UNIT TRAINS, ECHELON A

Key to symbols used in this manual.

■ 1. SCOPE AND PURPOSE.—*a.* This manual covers the tactical employment of the light and medium tank battalions both as part of a larger force and when acting independently. It is designed as a guide only and does not lay down a set of inflexible rules. Each tactical situation must be solved on its own merits and the initiative of individual commanders must be encouraged.

b. Although not written specifically for the separate tank battalions, the fundamentals covered herein and formations shown are generally applicable to those units.

■ 2. ORGANIZATION.—*a. Armored battalion.*—The armored battalion has a headquarters and headquarters company and three tank companies. For details of organization see current Tables of Organization.

b. Separate tank battalion.—The separate tank battalion is similar in organization to the armored battalion except that a service company is added for administrative purposes and for maintenance.

c. Headquarters and headquarters company.—The headquarters and headquarters company consists of a battalion headquarters and a headquarters company. The headquarters company is further divided into company headquarters, an assault gun platoon, and a mortar platoon. The company has a small maintenance section for maintenance of company equipment only. Figures 1 and 2 show in chart form the organization of the company. A small reconnaissance platoon is provided for the battalion headquarters.

■ 3. FUNDAMENTALS.—*a.* The tank battalion operates by surprise, fire and maneuver, and concentration of effort (mass).

(1) *Surprise* is obtained by speed of maneuver, use of cover and concealment, striking at an unexpected time in an unex-

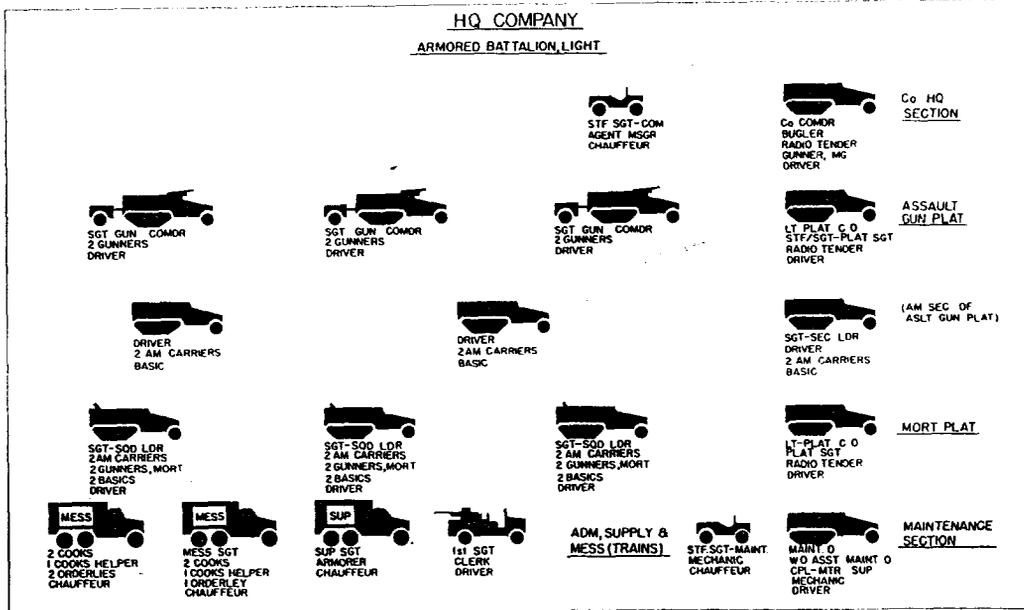


FIGURE 1.—Headquarters and headquarters company, armored battalion, light. (The medium battalion headquarters company is similar in organization.)

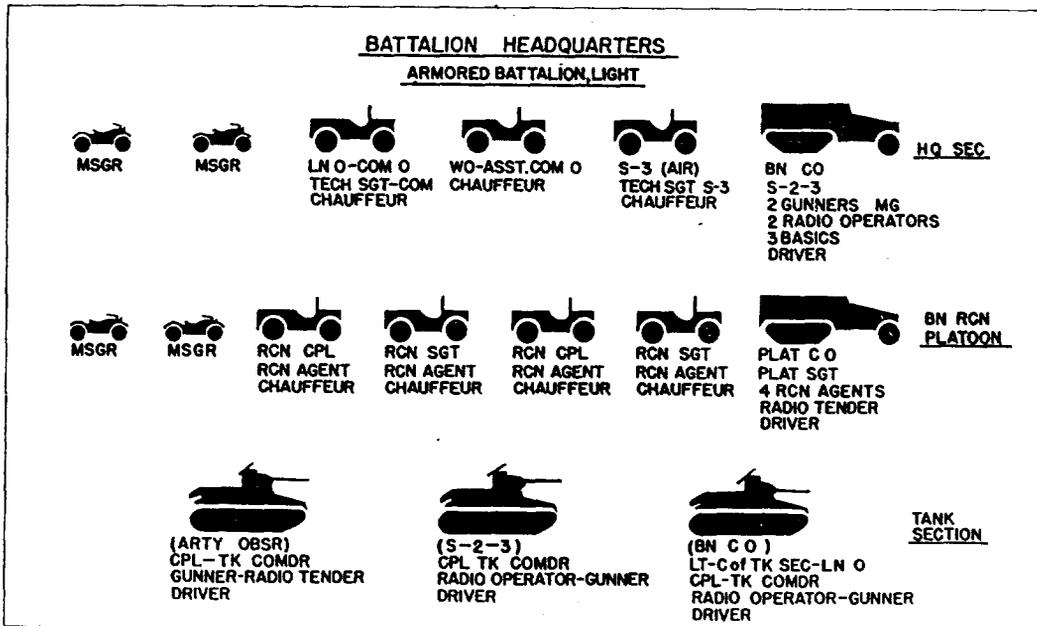


FIGURE 2.—Headquarters, armored battalion, light. (The medium battalion headquarters is similar in organization.)

pected direction, and by deceiving the enemy as to the true point of the main attack.

(2) *Fire and maneuver* is a fundamental of all tactical employment. Part of the battalion supports by fire the maneuver of the remainder. This fundamental is applicable down to and including the tank section.

(3) *Concentration of effort* must be made on critical areas. Do not disperse the command by making simultaneous attacks on widely dispersed objectives. Such action is ineffective, wastes effort, and usually leads to failure.

b. The characteristics of the different type tanks dictate their employment.

(1) The light tanks are used—

(a) To feel out weak points in enemy resistance.

(b) To screen the advance when the situation is vague.

(c) As a fast maneuvering force to attack the enemy flank or rear or to exploit a success.

(d) To draw the enemy into prepared traps.

(e) As advance, flank, or rear guards.

(f) On terrain impassable for medium tanks.

(2) The medium tanks are used—

(a) As the leading wave or echelon of attack against known enemy resistance when the antitank defense is strong.

(b) To support by fire the advance of light tanks, other medium tanks, or infantry in tank versus tank action.

■ 4. INFLUENCE OF TERRAIN.—In any plan for employment of tanks, the influence of terrain must be carefully analyzed. (See FM 17-10.) Tanks are extremely sensitive to terrain and, many times, infantry must attack to secure ground from which the tank attack may be launched. However, do not dismiss the possibility of the use of difficult terrain. The surprise gained may be worth the labor of traversing it.

SECTION II

TRAINING

■ 5. GENERAL.—a. The subject of training is covered generally in FM 21-5. The battalion may operate alone, as part of a regiment, as part of a combat command, and as the division reserve. It will normally be reinforced. It is essential that



FIGURE 3.—Surprise is gained by rapidity of movement, use of concealed approaches. Do not move across open spaces when cover is available.

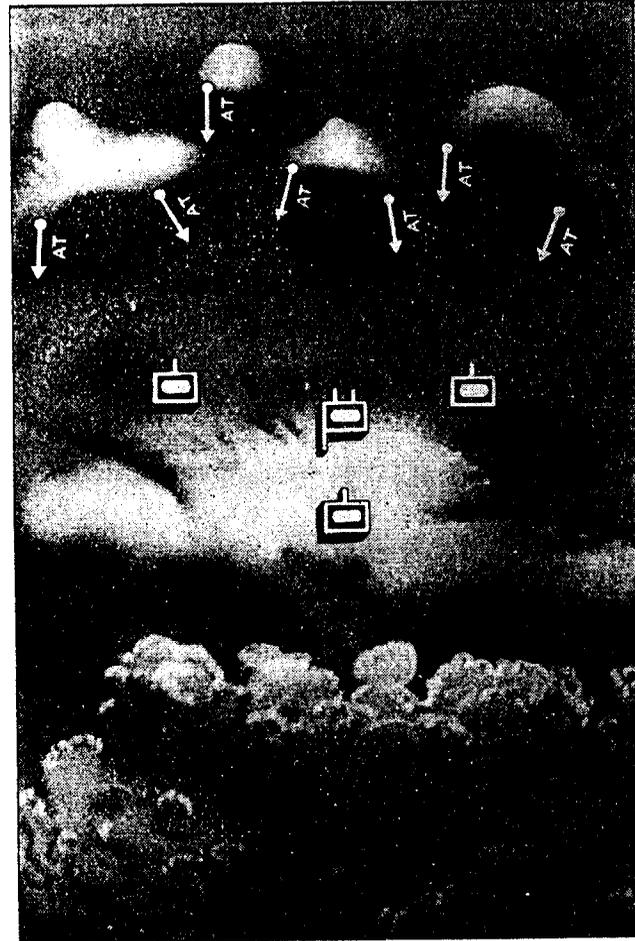


FIGURE 4.—Advance without fire support will lead to disaster.

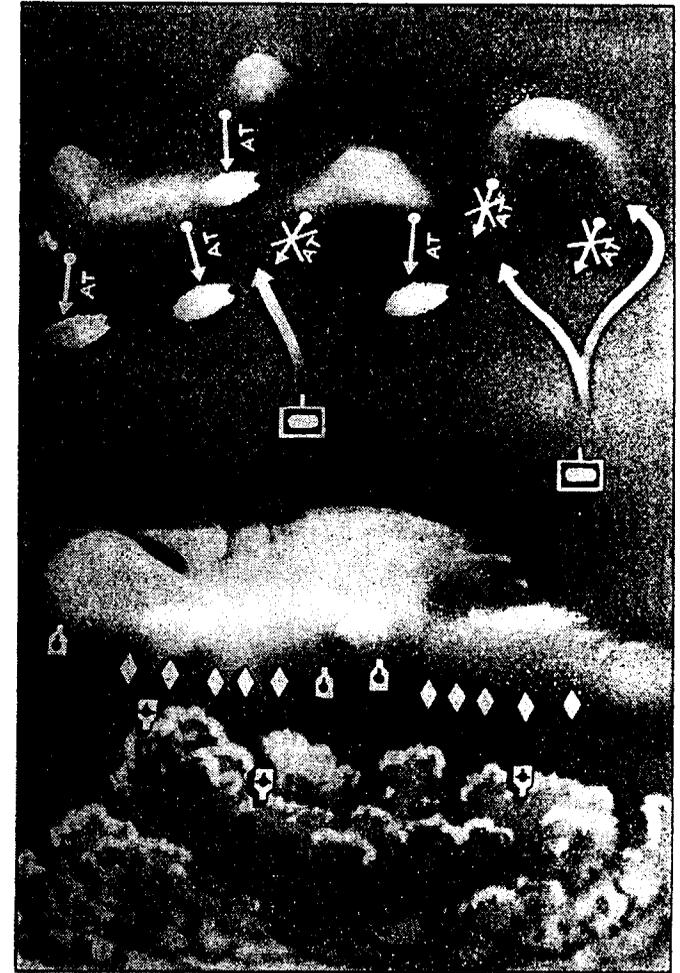


FIGURE 5.—Use available supporting weapons. Use one company to support attack by fire. Companies also use fire and maneuver in their advance. Smoke antitank guns or fire on them with assault guns.

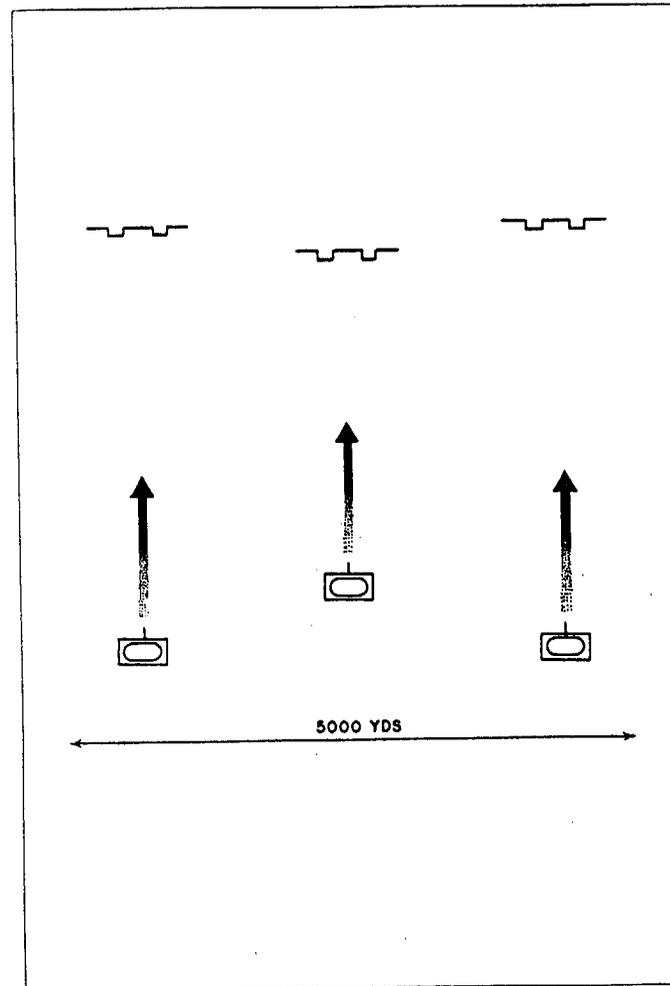


FIGURE 6.—Do not disperse the battalion.

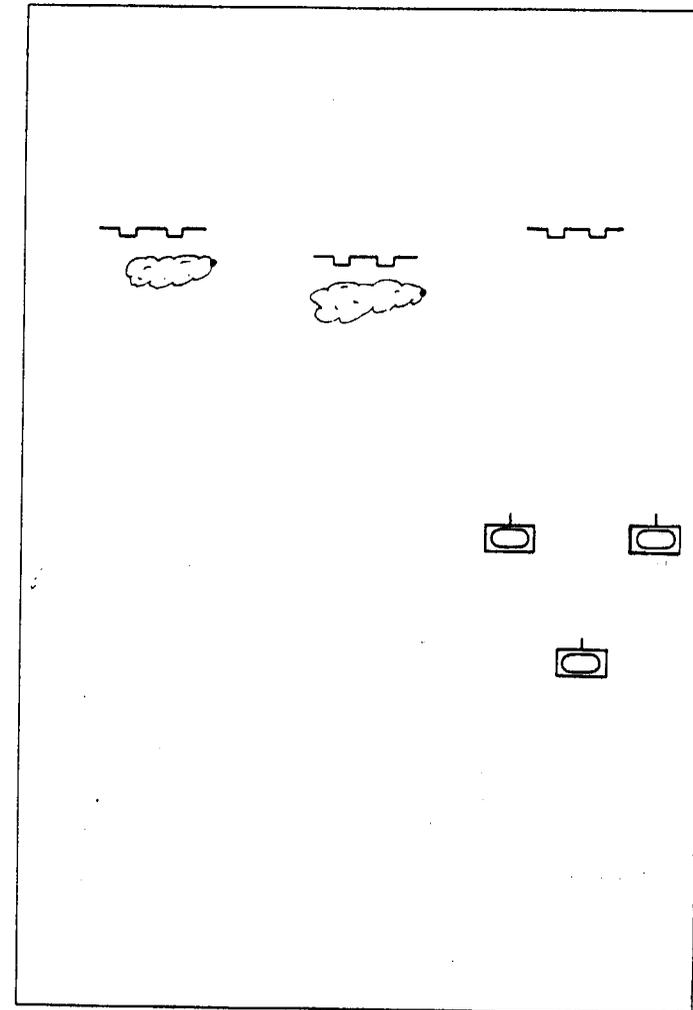


FIGURE 7.—Mass effort on one objective, take it and others will fall. Block enemy observation by smoke, if practicable.

(6) After the exercise, hold a critique; emphasize lessons learned. Comment on poor solutions and point out a correct solution. Commend good solutions but do not ridicule poor solutions. Remember the men are being prepared for combat and their success or failures may be directly traceable to their teaching. Have parts of problem repeated as necessary.

■ 8. COMBINED TRAINING.—Whenever practicable, hold combined training exercises with artillery, engineers, infantry, tank destroyer units, and air units. In any case the battalion medical detachment and the battalion section of the maintenance company should be present.

■ 9. SUPPLY, MAINTENANCE, AND EVACUATION.—Do not forget the supply, maintenance, and medical functions in keeping the battalion in operation. Think of these in planning exercises. Require the staff officers concerned to make plans and require execution of such plans. (See FM 101-5.)

SECTION III

CONTROL, ORDERS, LIAISON, RECONNAISSANCE, MAINTENANCE, EVACUATION

■ 10. CONTROL.—Control as discussed herein consists of both tactical and fire.

a. Tactical.—Control once lost is difficult to regain. It is therefore imperative that the battalion commander use every means within his power to insure adequate control of his battalion at all times. Control is exercised by—

(1) Giving clear definite orders as to formations, zones, lines of departure, axis of advance, phase lines, attack positions, objectives, and rallying points. (See sec. VI.) It is not sufficient merely to give these orders; the battalion commander must allow time for lower commanders to transmit these orders to all personnel and must assure himself that this is done. The most brilliantly conceived plan is likely to fail if it is not properly transmitted to the troops and if execution of it is not supervised. *Plan, order, supervise.*

- (2) Radio.
- (3) Messenger.
- (4) Signals.

(5) For radio communication within the company see FM 17-32.

(a) The battalion commander has radio communication with higher-unit headquarters, his company commanders, reconnaissance platoon, assault gun platoon leader, mortar platoon leader, artillery forward observer, and headquarters company commander. By switching of crystals, attached units may be placed on the battalion command frequency. See figure 8 for battalion radio net.

(b) The use of radio must be kept to the minimum. Messages must be brief. Do not send messages in the clear that will disclose information upon which the enemy will have time to act. *Commanders habitually use the radio themselves.*

(c) On the march, radio is usually silent although receivers are turned on and all except a small number used for other purposes are set on the battalion net. Radios must be silent at least ½ hour before reaching bivouac. They *must* be silent in bivouac.

b. Fire.—The control of the fire of a tank battalion with its supporting weapons and reinforcements is an extremely difficult task. The battalion commander must rely to a great extent upon mission-type fire orders as control of individual weapons is impracticable. In general, the battalion commander controls fire initially by giving targets to supporting weapons and zones of action for his leading companies. During action, the battalion commander by means of radio or by oral order when practicable gives fire missions to his battalion.

(1) *Initial.*—(a) *Leading companies.*—Leading companies are given a direction of attack or zone of action. The locations of any known hostile targets are designated to the company commander and the company commander is then left free to control the fire of his company.

(b) *Reserve company.*—Part or all of the reserve company may be given an initial mission of supporting the leading companies by fire. Known targets are pointed out to the platoon or company commander and a time for opening fire designated. If location of targets, such as antitank guns, is not definitely known, the reserve company or its platoons is given the mission of firing on targets as they appear. Each

platoon will be given the mission of supporting a particular leading company, to protect a flank, or to cover a particular zone.

(c) *Assault gun platoon.*—Initially the assault gun platoon, except when the zone is extremely wide, remains under the direct control of the battalion commander. The platoon leader is directed to fire on designated targets if any suitable targets are known. Otherwise, he places his guns in position and is directed to fire on targets as they appear.

(d) *Mortar platoon.*—Initially fire control of the mortar platoon is the same as for the assault gun platoon. It may be given smoke missions. (See FM 17-27.)

(e) *Supporting tank company or platoon.*—A supporting tank company or platoon is controlled the same as the battalion reserve.

(f) *Supporting infantry.*—Supporting infantry is normally used as a base of fire for the maneuver of the battalion. As such it is given a mission and fire control left to the unit commander. (See FM 17-40 and 17-42.)

(g) *Artillery.*—The battalion commander through his artillery forward observer calls for such fires as he deems necessary. (For fire control and coordination see FM 17-62.)

(2) *During action.*—(a) *Leading companies.*—Company commanders control their companies. The battalion commander gives orders for movements. Rarely will he give orders for a company to place its fire on any particular target. He may order the company commander to assist an adjacent company but actual fire control is left to the company commander.

(b) *Reserve company.*—As the attack progresses the battalion commander, by radio or personal contact with the reserve company commander, orders supporting fires for leading companies. In this connection, the platoons of the reserve company may be placed on the battalion command frequency so fire orders can be given without undue delay. When the reserve company acts as a unit for maneuver the company net is re-formed.

(c) *Assault gun platoon.*—By radio the battalion commander orders the assault gun platoon to fire on targets as desired. The assault gun platoon commander must not wait for orders to fire on targets of opportunity. (See FM 17-25.)

(d) *Mortar platoon.*—By radio or signal the battalion commander directs the mortar platoon leader to fire on targets as they appear or place smoke as needed. (See FM 17-27.)

(e) *Supporting tanks.*—These are controlled the same as the reserve company.

(f) *Infantry.*—As infantry is needed to reduce resistance which tanks cannot reach, the battalion commander orders its use tactically but does not attempt to control the fire.

(g) *Artillery.*—Through his artillery forward observer the battalion commander calls for fires as needed. Should this observer become a casualty the battalion commander, his S-2-3, or his company commanders and platoon commanders of the battalion adjust artillery fire.

(3) *Adjustment of fire.*—For maintaining control and obtaining faster adjustment of fire the battalion commander may use his S-2-3 to control a part of the fire support. Thus this officer may direct the fire of the assault guns or mortars in accordance with the battalion commander's wishes.

c. *Signals.*—Signals are covered in FM 17-5. Because of the distance involved the battalion commander will rarely use visual signals.

■ 11. *ORDERS.*—a. Orders are oral or in written message form and frequently fragmentary. They must be brief, clear, and when practicable, given at a point from which as much as possible of the terrain over which the operation is to take place, can be seen. Full use should be made of marked maps, aerial photographs, and overlays.

b. The form for a field order is given in FM 101-5.

■ 12. *LIAISON.*—The battalion commander maintains liaison with the regiment or combat command by means of a liaison officer. This officer should know the battalion plan of action. He may be used to deliver orders to the battalion but he should not be used for messenger service. Duties of liaison officers are prescribed in FM 101-5.

■ 13. *RECONNAISSANCE.*—Reconnaissance is covered in detail in FM 17-10, 17-20, 17-22, and 17-32.

a. The tank battalion has a small reconnaissance platoon mounted in a half-track vehicle and four ¼-ton trucks. This platoon is used on the march for making short reconnaissance

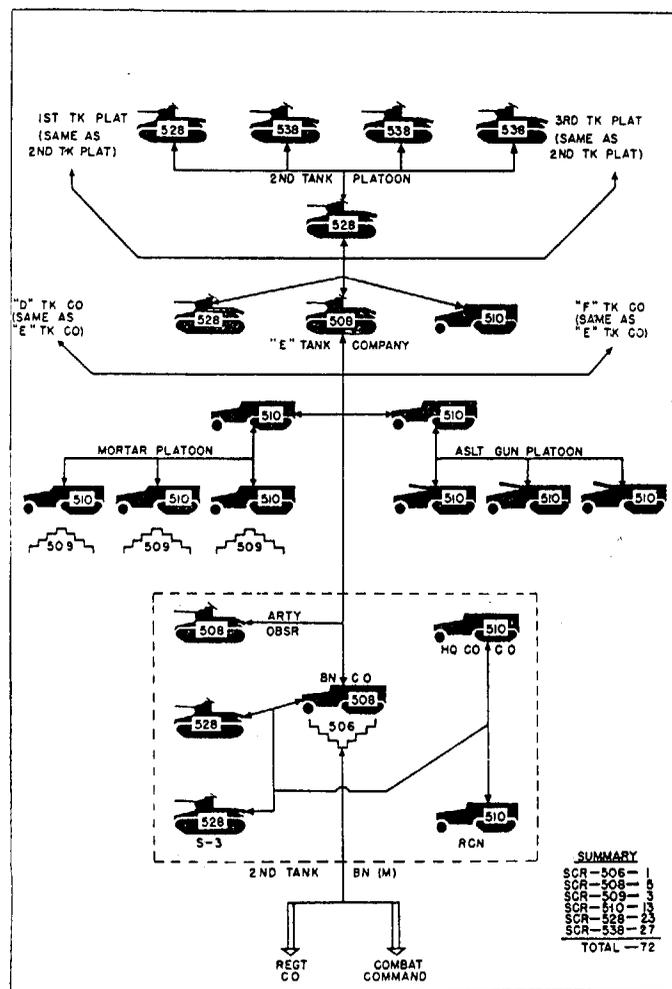


FIGURE 8.—Battalion radio net.

trips to the right and left of the line of march, or to reconnoiter to the front when the battalion is acting alone, or is acting as an advance guard for a larger force. In assembly areas and rallying points it is used for close reconnaissance missions. Before combat the platoon assists the battalion commander in reconnaissance of the area of employment. During combat it follows the reserve company, performs reconnaissance missions to the flanks, or may be used to maintain liaison with adjacent units. When the battalion is in the leading echelon of an attack, the reconnaissance platoon usually follows the second echelon and rejoins the battalion at the rallying point.

b. The battalion commander and his staff must make personal reconnaissance for employment of the battalion. This includes reconnaissance of both terrain and enemy positions.

■ 14. MAINTENANCE.—Employment of company maintenance sections is covered in FM 17-32.

a. The battalion has no maintenance personnel except for its own battalion headquarters and headquarters company vehicles. During operations a battalion maintenance section of the regimental maintenance company is attached to, or supports, the battalion. It moves with the battalion and reinforces the company maintenance sections. This section accompanies the battalion to the assembly area and attack positions where it assists in making final adjustments on vehicles. During combat it follows the battalion as closely as practicable, along the battalion axis of maintenance designated by the battalion commander. It seeks disabled vehicles, reinforces company maintenance sections, and reports to the regiment, or to the maintenance battalion personnel with the combat command, the location of any vehicles which are disabled beyond the capability of the section to repair. If time permits, an estimate of the extent of the damage should be transmitted at the same time. The maintenance section should rejoin the battalion at the rallying point where it will assist the company maintenance sections. (See FM 17-50.)

b. During a penetration when the battalion is the first echelon of attack, maintenance personnel usually follow the second echelon of attack.

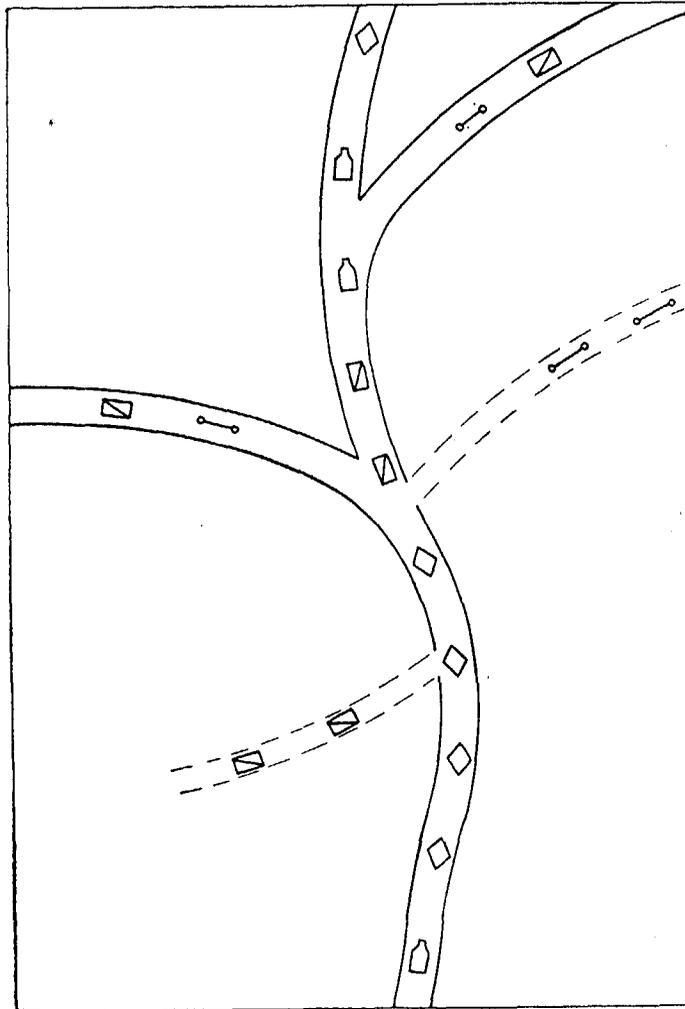


FIGURE 9.—On the march, when the battalion is in the main body, use reconnaissance platoon and motorcyclists to reconnoiter short distances to the flanks.

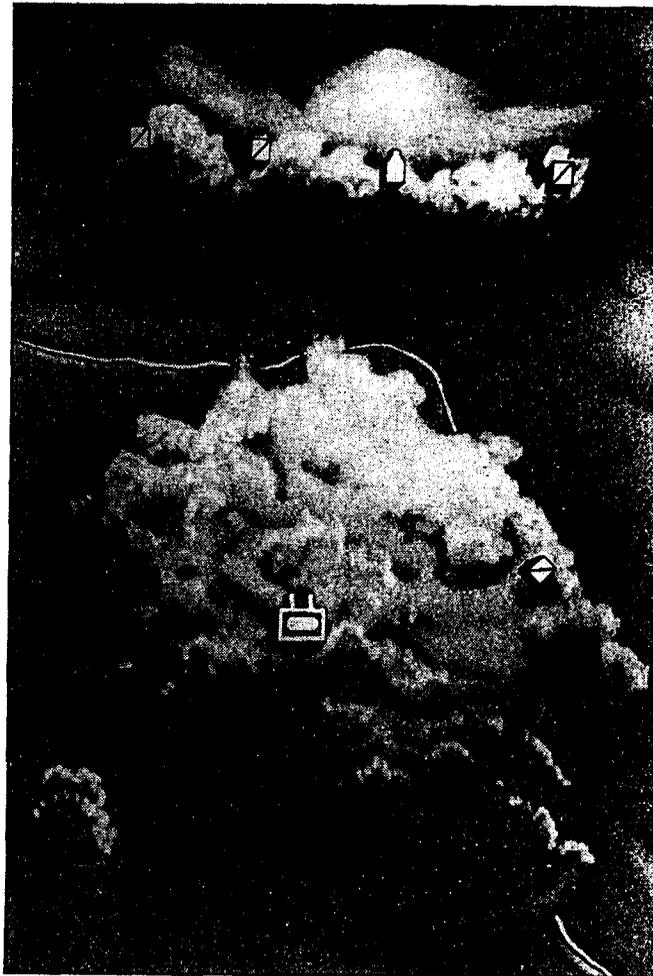


FIGURE 10.—In assembly area, attack positions, and rallying points, use reconnaissance platoon to observe and to make additional reconnaissance.

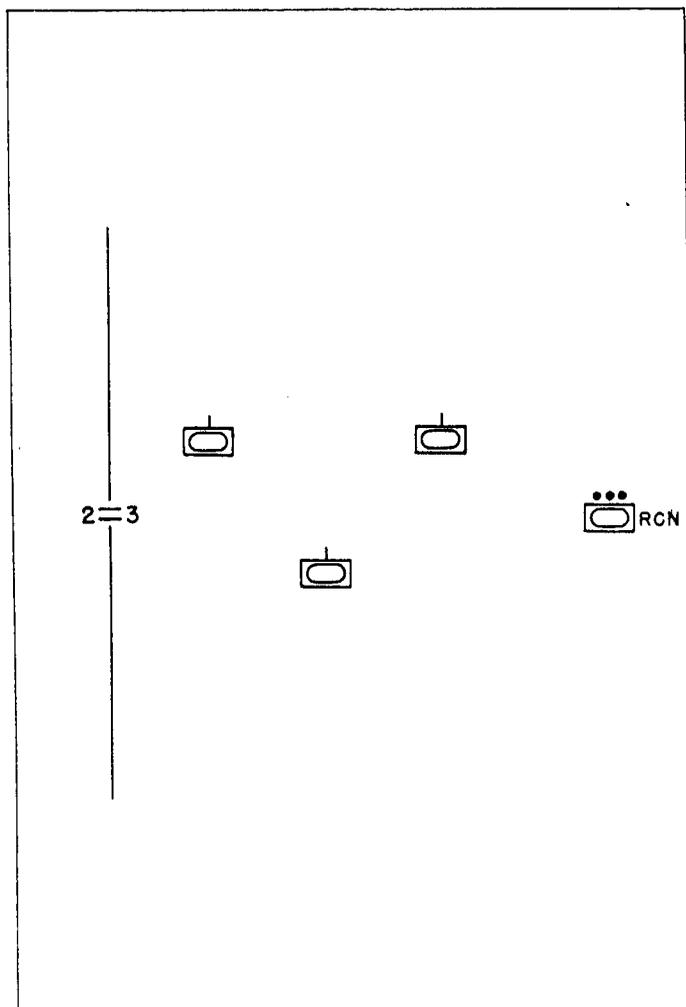


FIGURE 11.—During combat, use platoon for reconnaissance to flanks or to maintain contact with adjacent units.

■ 15. EVACUATION.—The evacuation of wounded from armored units is covered in detail in FM 17-50 and 8-5. The battalion section of the regimental medical detachment marches at the rear of the battalion on the march. It accompanies the battalion to the attack position. During combat it moves forward with the maintenance, cares for wounded, and joins the battalion at the rallying point.

SECTION IV

MARCHES AND BIVOUAC

■ 16. GENERAL.—The subject of marches is covered in detail in FM 25-10, 17-10, and 17-50.

a. A successful march is one that places the troops and equipment at their destination at the proper time and in proper condition to fight. A successful march depends upon good march discipline. This can be obtained only by thorough training in march procedure and rigid enforcement of march rules.

b. The rate of march of a column containing medium tanks does not exceed 17 miles per hour. This rate may be increased for short periods for columns which do not contain medium tanks. However, it must be borne in mind that an increase of rate of march above 17 miles per hour for extended periods will cause an exorbitant increase in maintenance needs.

c. For detailed discussion of distances between vehicles see FM 25-10. Ordinarily distances will be not less than 50 yards and usually will be approximately 90 yards. At times they may be as great as 0.1 mile. Movement by infiltration is discussed in FM 25-10 and 17-50.

■ 17. MARCH PLANS AND ORDERS.—The march order for a battalion is oral, supplemented by sketches or marked maps of the route. Each vehicle commander and each driver should know the route and when practicable be given a sketch of the route. For form for a march order see FM 101-5.

a. *Warning orders.*—Warning orders should be issued far enough in advance of the time set for departure so that proper preparations for the march may be made. These preparations will depend upon the situation as to supply and state of maintenance. A well-trained battalion should be able to

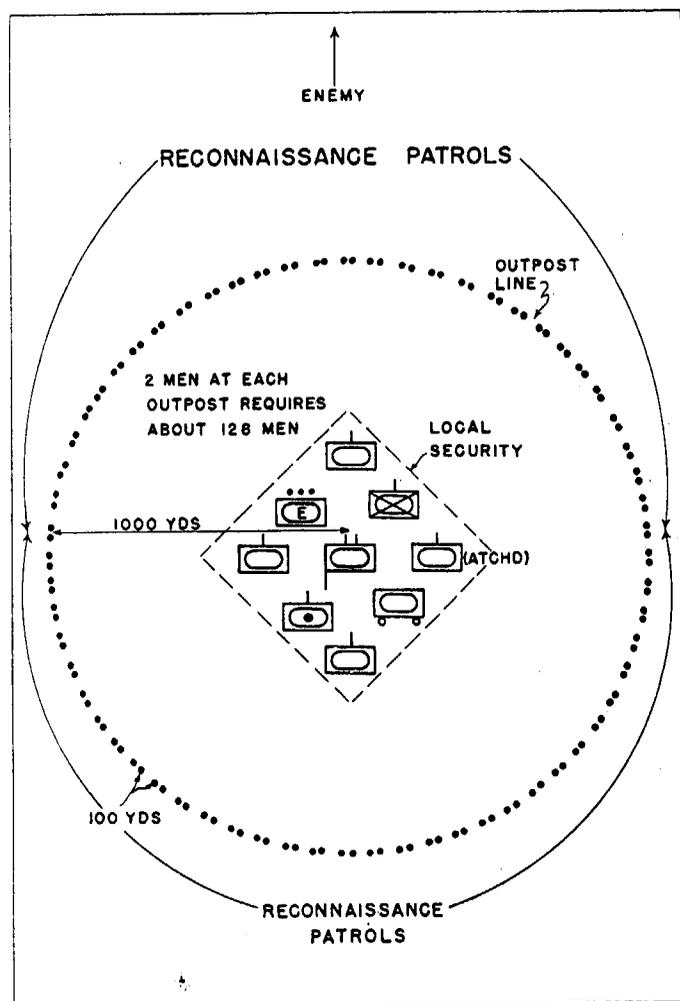


FIGURE 36.—One form of outpost in open terrain with no natural obstacles available.

individual arms, machine guns, and 37-mm tank guns. The 75-mm gun may be used at times. For low-flying attack the guns must be trained on the point of probable appearance of the airplanes. There will be no time to shift after the airplanes appear. Have all receivers on battalion frequency so air alert warning can be transmitted quickly.

(4) At temporary halts, move under concealment and brush out tracks. If concealment from observation is not available, move off road and disperse, if possible. Dig slit trenches at long halts. If vehicles are concealed, do not fire at airplanes unless attacked.

b. In bivouac.—(1) Air security in bivouac, assembly areas, and rallying points is obtained primarily by concealment and dispersion. Air sentries are detailed. Use standard air alarms. Keep one battalion radio receiver on reconnaissance unit frequency so early warning of approach of airplanes may be obtained.

(2) Brush out all tracks (see fig. 40).

(3) Enforce rigid camouflage discipline. Dig slit trenches. Prohibit unshielded lights.

(4) Do not fire at airplanes unless attacked.

■ 26. IN ASSEMBLY AREA AND AT RALLYING POINT.—*a.* At assembly area and rallying point make use of available cover and concealment. Post local security.

b. At rallying point, first unit to arrive posts weapons to cover favorable avenues of approach. Post observation. As more units arrive, the battalion commander posts more security details and then reorganizes his battalion.

c. Use available tank destroyer elements to assist in protection. (See FM 18-5.)

■ 27. AGAINST CHEMICAL ATTACK.—See FM 17-10 and 21-40.

SECTION VI

OFFENSIVE ACTION

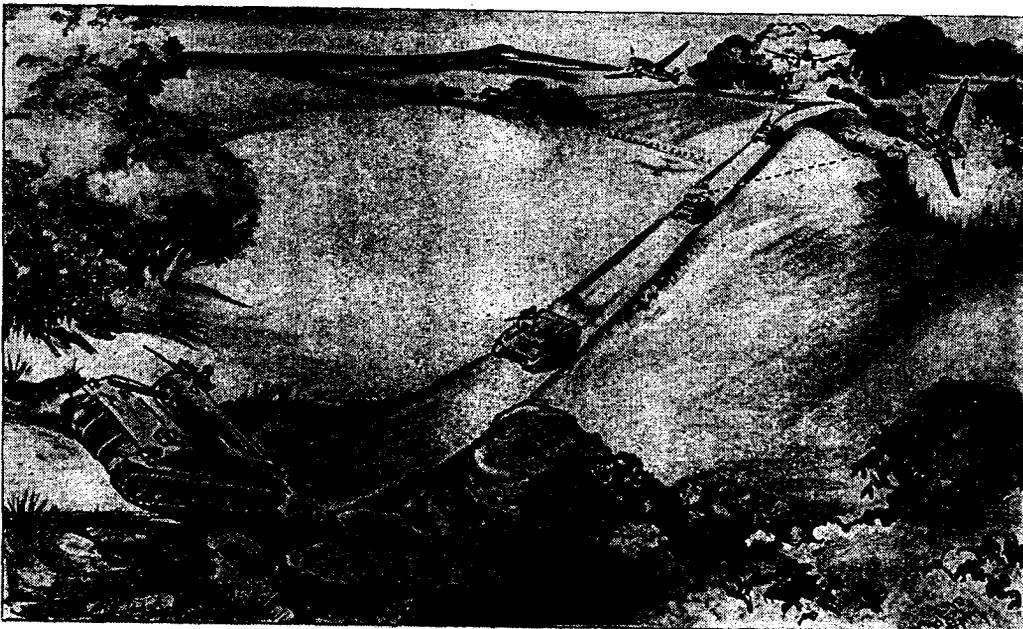
■ 28. GENERAL.—For fundamentals of offensive action see paragraph 3, and FM 100-5 and 17-10. The missions of echelons of attack are as follows (see FM 17-100):

a. The combat command or armored regiment will usually attack in three echelons. The light or medium armored



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FIGURE 37.—This column was not alert. Hostile airplanes attacked over woods in rear. Vehicles closed up at bottom of hill and made a perfect target. BEWARE OF DEFILES.



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FIGURE 38.—Here some guns pointed to rear and covered woods. Vehicles are properly spaced. This column was alert.

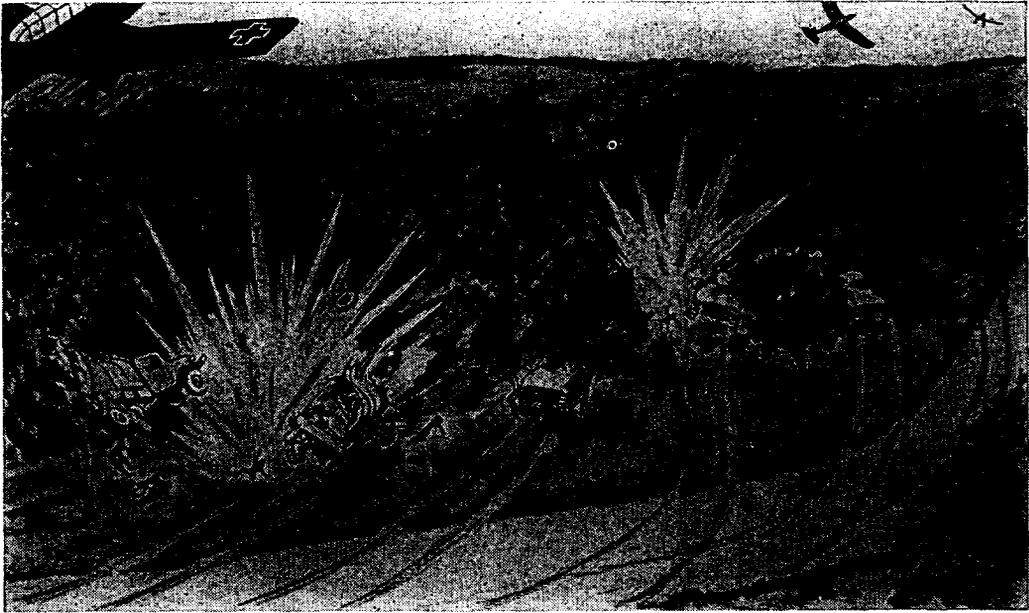


FIGURE 39.—Tracks here disclosed the position of the vehicles. Also vehicles were not dispersed. Slit trenches had not been dug.

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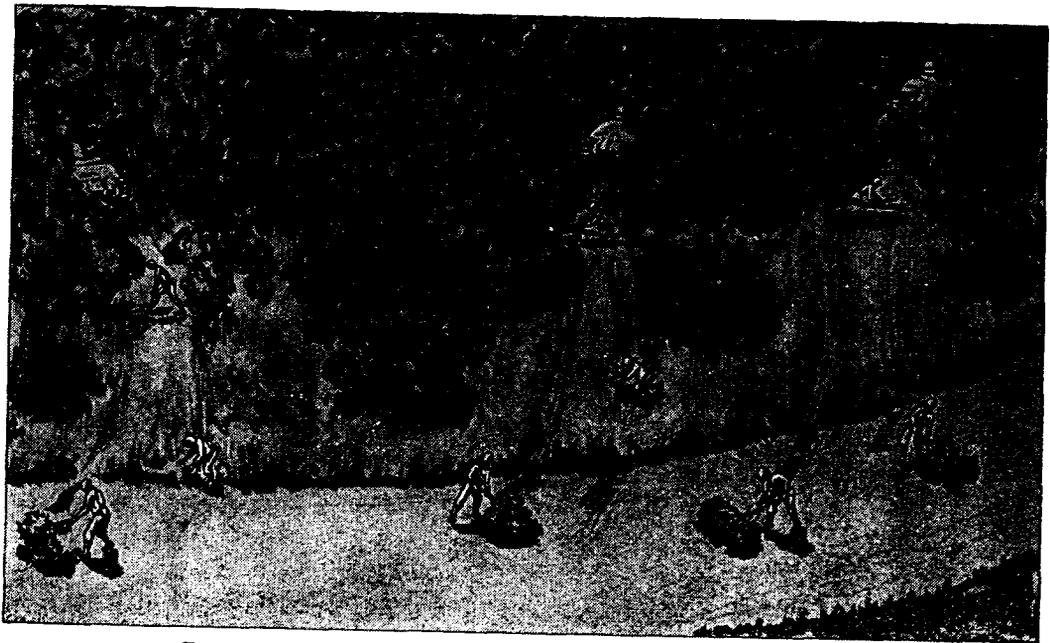


FIGURE 40.—Brush out tracks, disperse vehicles, dig slit trenches.

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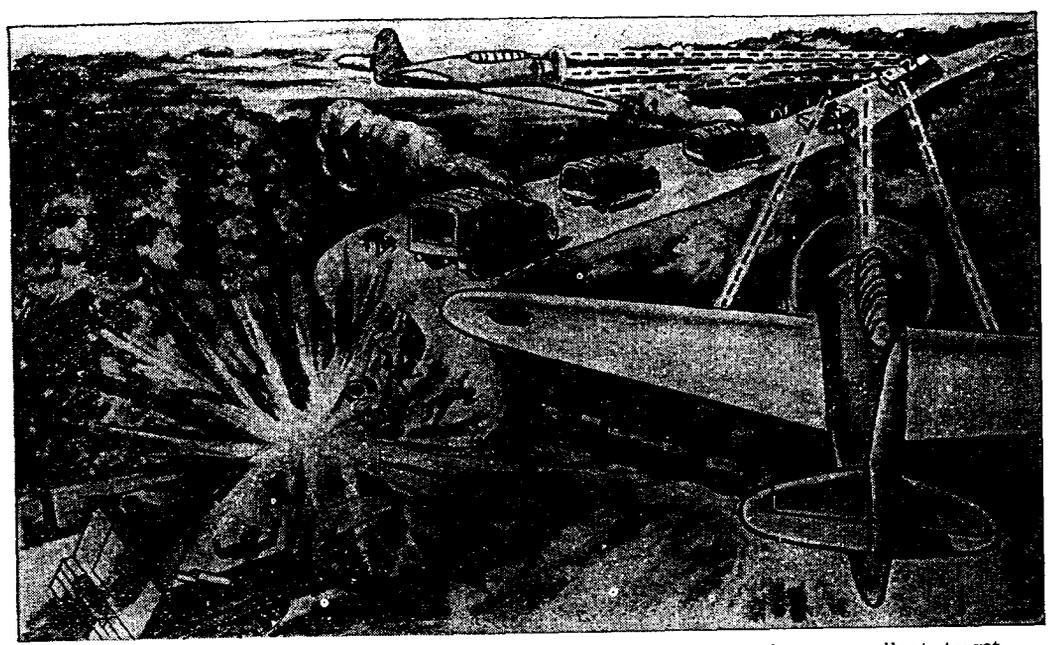


FIGURE 41.—Vehicles closed up at halt and stayed on road. They make an excellent target.

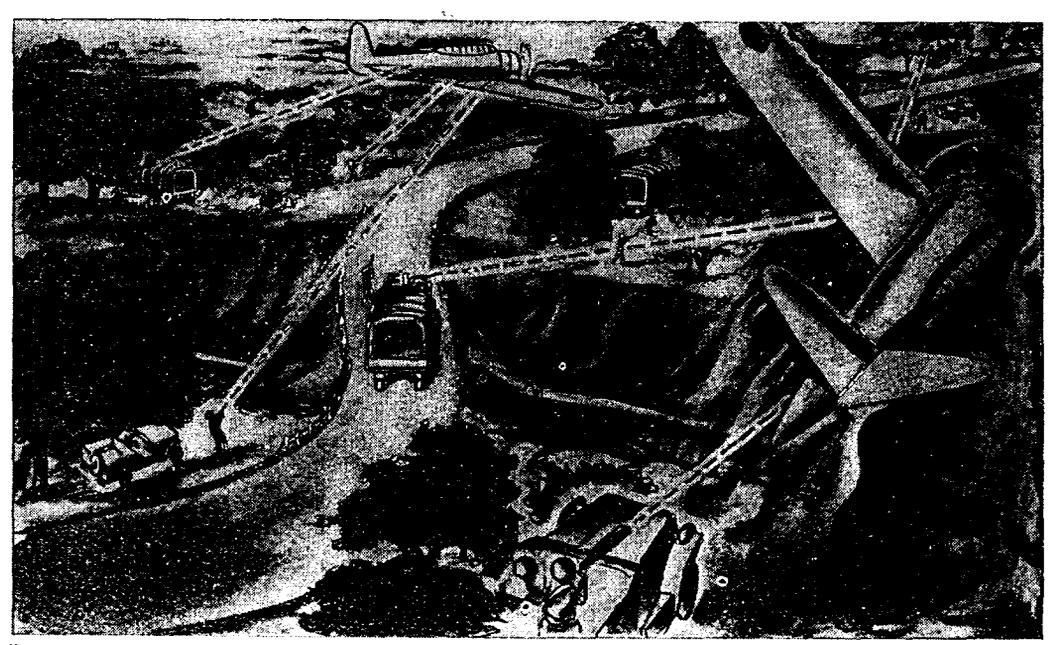


FIGURE 42.—Move off the road if practicable. Disperse. If possible, always halt in a shadow. If it is impossible to move off the road, keep some weapons manned and ready to fire. Cover all directions.

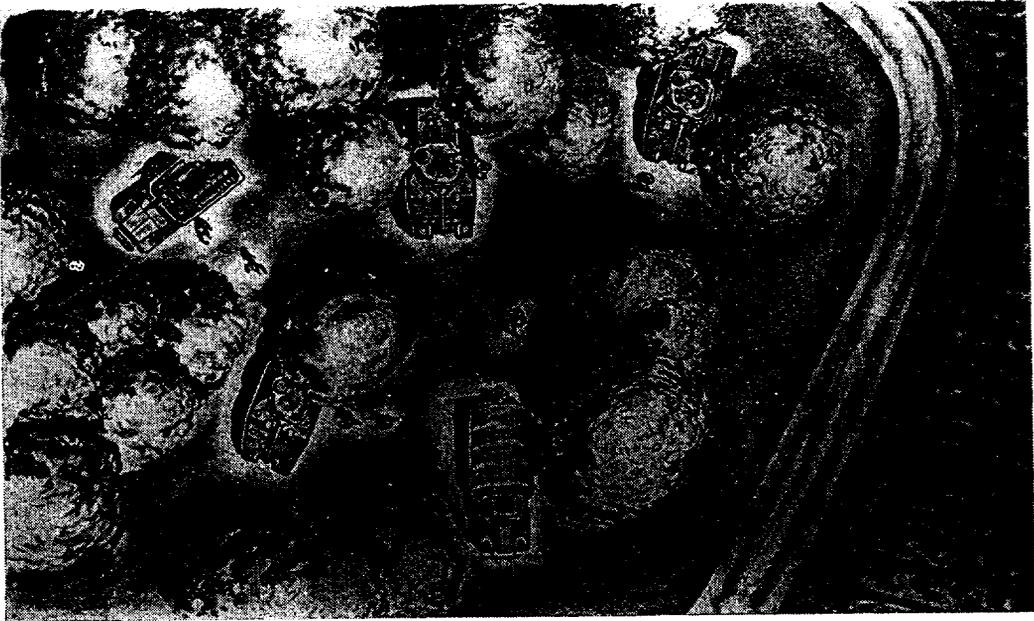


FIGURE 43.—Here advantage was not taken of cover. This invites disaster.

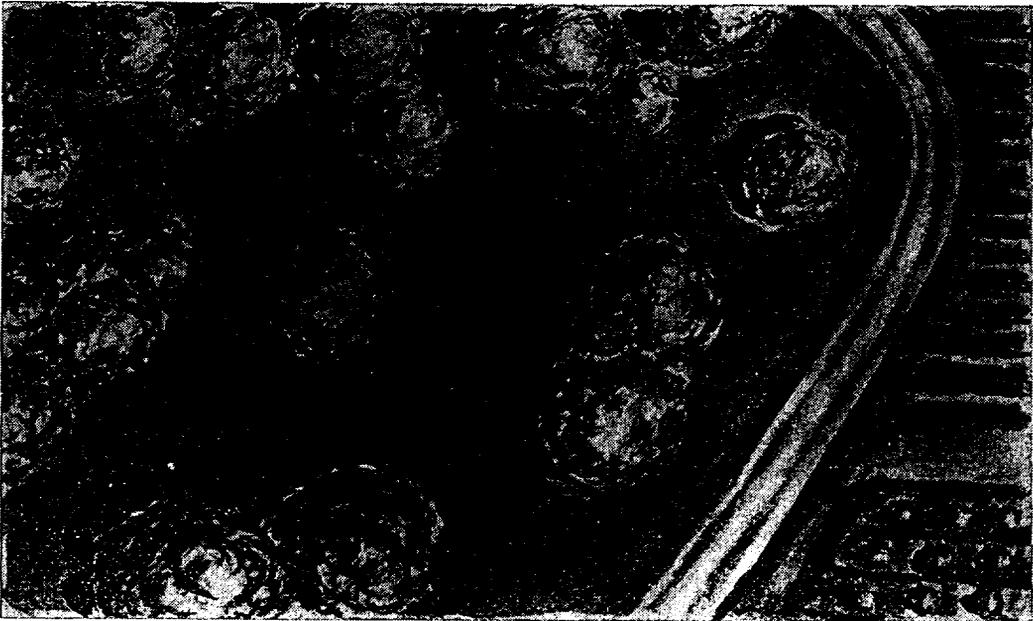


FIGURE 44.—Advantage was taken of available concealment here.

battalion may be in any of these echelons. Each echelon attacks in a series of waves using fire and maneuver.

(1) *First echelon.*—The mission of the first echelon of attack is to destroy enemy antitank defenses, artillery, command posts, and other rear installations. It pays little attention to personnel other than that operating antitank weapons and artillery, command post personnel, or reserves in assembly areas.

(2) *Second echelon.*—The mission of the second echelon of attack is to destroy infantry with its weapons, especially machine guns. It destroys antitank guns passed over by the leading echelon and also command posts, communication centers, reserves, and rear installations.

(3) *Third echelon.*—The third echelon of attack advances with the infantry and destroys enemy personnel, machine guns, and installations holding up the infantry.

b. It must not be assumed that the tanks will always attack first. Many times infantry will attack to secure ground from which a tank attack may be launched or in conjunction with engineers, to remove or clear paths through obstacles.

■ 29. FORMATIONS, FRONTAGES, AND DEPTHS.—Formations, frontages, and depths will depend upon the mission, terrain, enemy situation, and supporting fires. For type formations see figure 46. Companies may be in any suitable formation. (See FM 17-32.)

a. *Frontage.*—(1) Wide frontage may be taken on a covering mission while a penetration calls for narrow frontage and great depth to give sustaining power to carry the action through to a successful conclusion.

(2) A narrow frontage to facilitate control is taken in wooded terrain. Impassable ground may narrow the formation. (See fig. 47.) In open terrain, wider frontages than for wooded terrain are practicable and desirable.

(3) When enemy has few antitank guns and his other antitank defenses are light a wide frontage may be taken. If enemy antitank defenses are strong and cannot be avoided, a narrow frontage and formation in great depth is taken.

(4) When well supported by artillery and bombardment aviation, the frontage may be greater than when such support is light or lacking. In the latter cases, the tanks must furnish their own supporting fires.

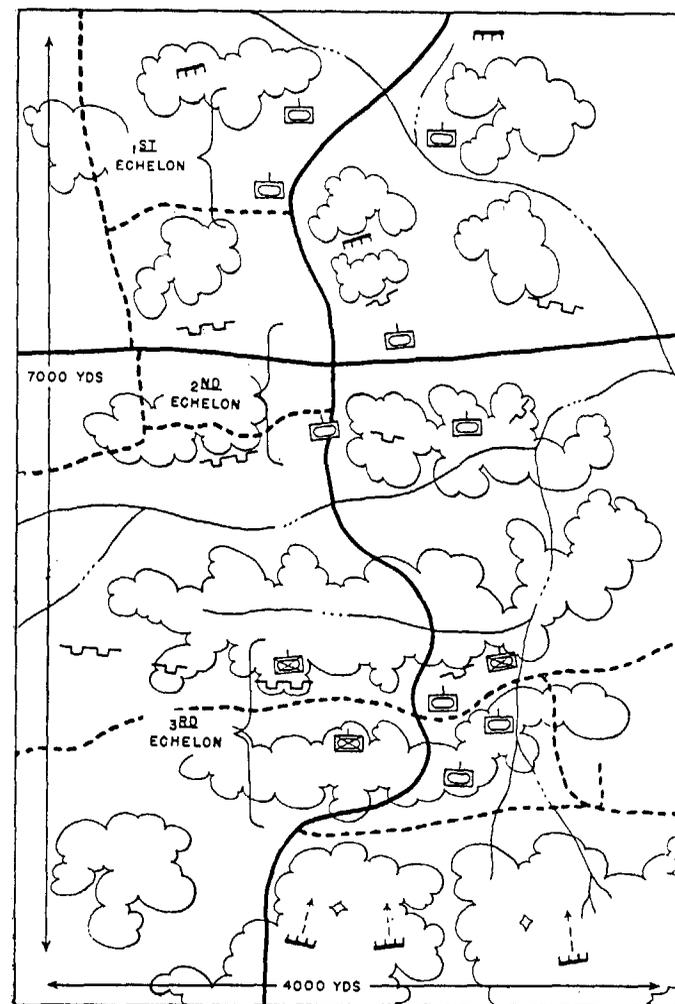


FIGURE 45.—Echelons of attack. Distances are not fixed but will depend upon terrain and the enemy.

b. *Inverted wedge.*—This formation is suitable for any echelon of attack. It provides strong fire power to the front, flank protection, fire support, and a reserve to influence the action.

(1) Frontage in this formation will rarely exceed 1,500 yards.

(2) The depth of the formation depends upon the terrain, mission, and fire support of other units.

(3) The reserve is usually located behind the company making the main effort. It moves from firing position to firing position to give continuous support to the leading companies. It is prepared to repel counterattacks from the flank or to pass through a depleted leading company and continue the attack.

(4) Unless an extremely wide front is covered, the mortar platoon and the assault gun platoon should be retained under battalion control.

c. *Wedge.*—This formation is used in advancing against an enemy whose defenses have not been definitely located. The leading company covers the advance of the other two companies. These companies in turn protect the flanks, give fire support to the leading company, and are prepared to maneuver to either flank. Mortars and assault guns may be attached to the leading company.

d. *Column.*—Column gives maximum control and driving power. The battalion may be quickly developed to either flank. The formation is useful in passing through woods. It may have to be used in passing a defile. It is the best formation for a penetration when the battalion is acting alone. For the initial advance against light enemy resistance, the leading company will usually cover a broad front.

e. *Echelon.*—The battalion may be echeloned either to the right or left. Such formations are useful for a flank battalion as it gives great flank protection by favoring rapid deployment to the exposed flank. Assault guns and mortars may be attached to companies.

f. *Line.*—This is a rare formation as it provides little depth and consequently low sustaining power. Its use is confined to screening or counterreconnaissance missions. Assault guns and mortars should be attached to companies.

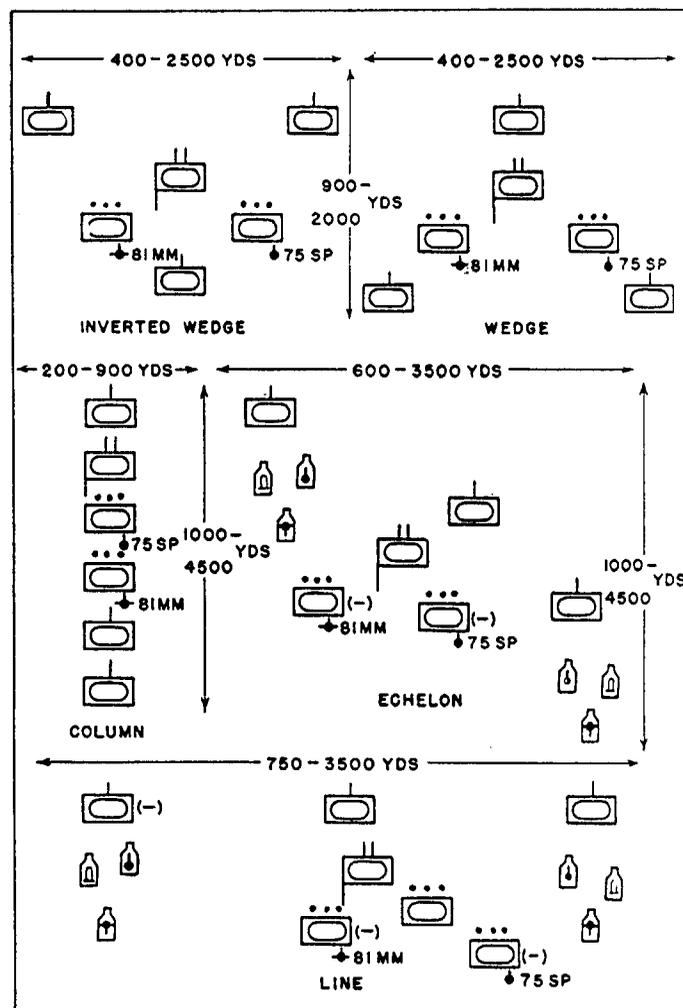


FIGURE 46.—Schematic formations for an armored battalion.

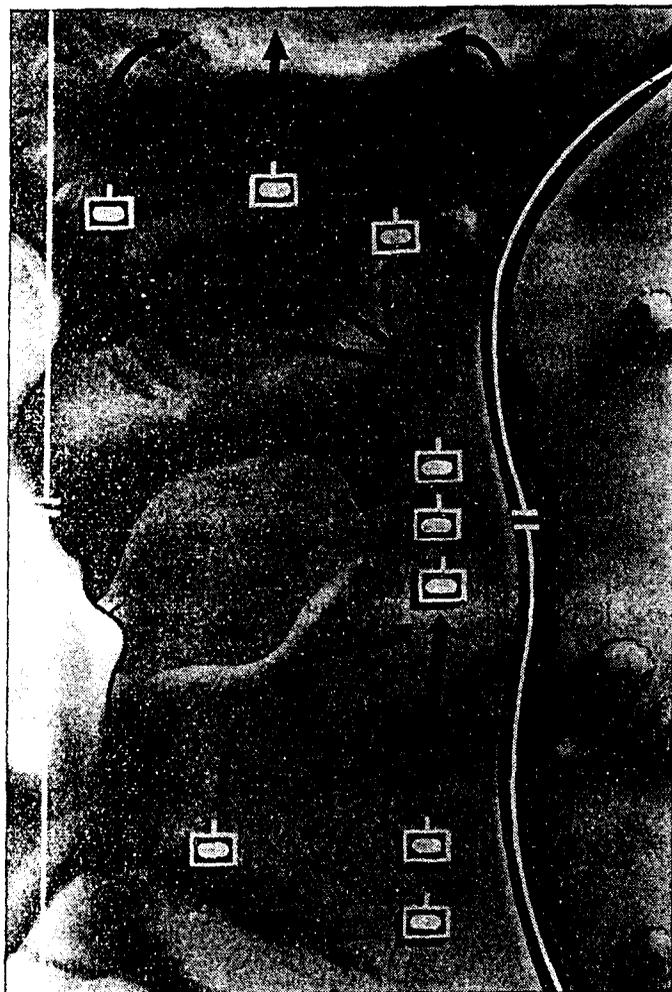


FIGURE 47.—Influence of terrain on formations.

g. Other formations.—There are other formations or modifications of the above formations that may be used to meet a particular tactical situation. For example, in the echelon formation the rear company may follow in the trace of the center company.

■ 30. **BATTALION HEADQUARTERS** (see FM 17-10).—*a.* In the approach to combat and in combat, the battalion has with it only those individuals and vehicles necessary for the control, maintenance, and evacuation of the battalion and for supply of the battalion in the assembly position. All supply vehicles—gasoline, ammunition, equipment, and kitchen trucks if with the column—are left at the assembly position to be moved forward as directed by the regimental or combat command commander. Personnel sections are with the regimental, combat command, or division trains.

b. The forward echelon of battalion headquarters (see FM 17-10) moves with the battalion to the attack position. During combat the battalion commander, the S-2-3, and the artillery forward observer move forward with the battalion, the headquarters commandant remains at the attack position with the battalion headquarters maintenance section, attached battalion maintenance section, battalion medical detachment, and such other vehicles and personnel as the battalion commander may direct. The actions of maintenance and medical personnel are covered in section III. The headquarters commandant moves this group forward as directed by the battalion commander. In a penetration this group will follow the second or third echelon of attack.

■ 31. **SUPPORTING FIRES.**—*a. Artillery* (see FM 17-60).—The artillery gives close support to the attack in all stages. (See FM 17-10.) An artillery forward observer, mounted in a tank, advances behind the leading waves of tanks. This officer has direct radio communication with the supporting artillery battalion and the tank battalion commander. Other artillery officers usually will be forward to conduct fire of individual batteries as may be necessary, but these will not be in the radio net of the tank battalion commander.

(1) The tank battalion commander may expect from the artillery—

(a) Firing of concentrations to cover development for an attack.

(b) Assistance in security of assembly area by placing concentrations on avenues of approach for hostile troops.

(c) Assistance in protection of the rallying point by fires as necessary on threatening hostile elements, and by counter-battery fire.

(d) Support of initial attack by fires on hostile front line installations, antitank guns, observation posts, and artillery. Targets must not be closer than 300 yards to friendly troops. An area 200 yards wide and 200 yards deep can be effectively covered by one battery.

(e) Continuing support as attack progresses by concentrations on hostile troops and weapons holding up the attack.

(f) Screening, by smoke, of hostile antitank guns and observation points.

(g) Assistance in breaking up hostile counterattacks, including hostile armored threats from the flanks.

(h) Destruction of road blocks and troops defending them.

(2) The battalion commander should not expect the artillery to—

(a) Fire a long preparation before the attack, unless special arrangements have been made for dumping additional ammunition at the guns.

(b) Fire concentrations on unimportant targets or targets which the tanks themselves may overcome without excessive danger.

(c) Fire at targets that can be neutralized more quickly by assault guns, mortars, or tank weapons. Small targets close to the leading tanks and positively located can usually be eliminated quickly without calling for an artillery concentration.

(d) Blast extensive passageways through mine fields.

(3) Each officer must know how to call for and adjust artillery fire. (See FM 17-62.) Radio nets should be set up so that each tank company commander, if necessary, can tune into the artillery net. The company commander needing artillery support first calls his battalion commander on the radio, gives location and type of target, and requests fire. The battalion commander turns the fire mission over to the

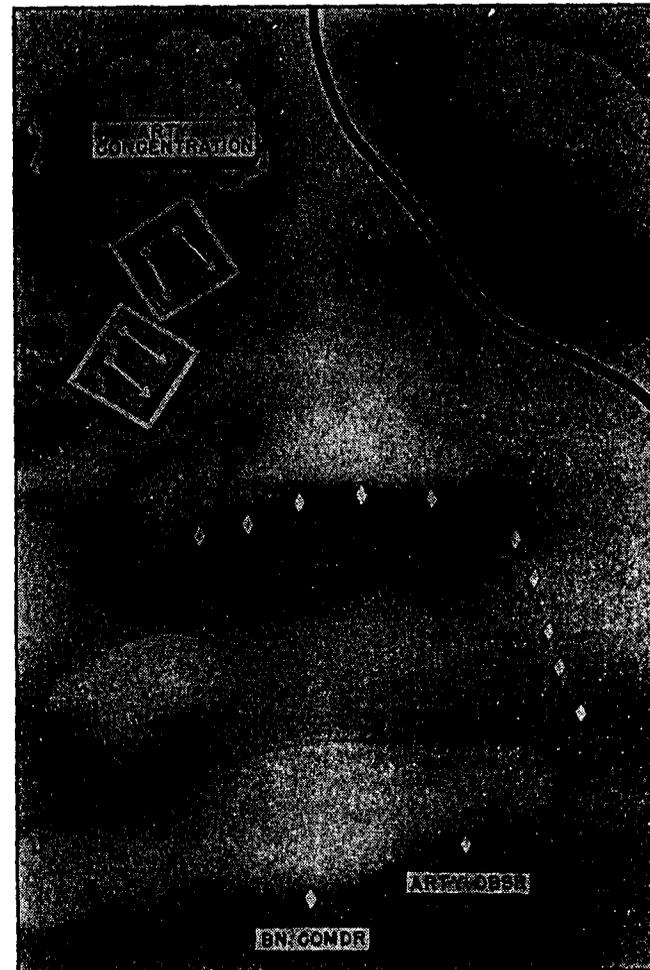


FIGURE 48.—Do not call for artillery fire on unimportant missions. Here valuable ammunition is wasted on a machine gun that the tanks themselves can easily overcome.

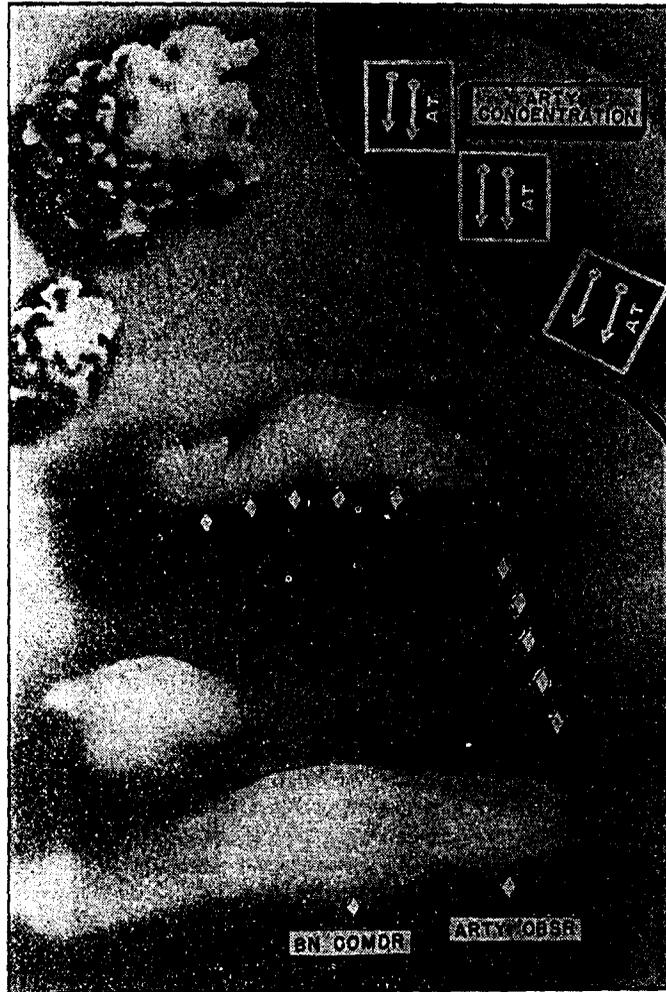


FIGURE 49.—Save artillery for important targets such as groups of antitank guns.

artillery forward observer. If the observer is not in a position to direct the fire and cannot move quickly to such position, he may so state and the battalion commander gives the company commander authority to adjust fire. If the artillery forward observer should become a casualty, either the battalion commander or the company commander may adjust fire.

(4) In order that all officers may be able to adjust fire, the battalion commander in his attack order designates a series of check points and easily identifiable terrain features, and numbers them consecutively in the direction of advance. To distinguish check points for the various artillery battalions, the check points for the lower numbered artillery battalion begins with 100, the next higher 200, and the highest number 300. Company commanders number these check points on their maps.

b. *Air support.*—(1) Air bombardment is used to supplement artillery fires and to attack targets beyond the range of artillery. The use of air bombardment should be coordinated with artillery fire.

(2) The battalion commander has on his staff an officer called the S-3 for air. When the battalion is making the main effort or is the first echelon of attack this officer is mounted in a half-track vehicle, equipped with long-range radio, from the division signal company.

(3) Should air support be needed and the signal company long-range radio is not available, the battalion commander may arrange through his regiment or the combat command for air support.

(4) If air support is desired, ask for it at the earliest practicable moment. It takes time to get the planes to the right place.

c. *Mortar fires.*—For employment of mortars see FM 17-27. The mortars should be retained under battalion control when the attack is on a narrow front. When the front becomes so wide that mortar support cannot be given leading companies by retention under battalion control, attach them to companies.

d. *Assault gun.*—For employment of the assault gun platoon see FM 17-25. The same principle of attachment which

governs the mortar platoon also governs the assault gun platoon.

e. Supporting tanks.—Medium tanks from another battalion may be used to support the attack either by direct or indirect fire. The reserve company should be used to support the attack by fire. Do not attempt to lay down extensive artillery preparations with the medium tanks; the ammunition carried will not permit such action. (See FM 17-32.)

f. Infantry weapons.—When attacking with infantry, the infantry weapons are used to give fire support for the tanks. (See par. 32 and FM 17-10, 17-40, and 17-42.)

■ 32. COORDINATION.—Careful planning, perfect coordination and timing, and vigorous execution are essentials of a successful attack. The effect of all elements—tanks, infantry, artillery, and air—must be coordinated.

a. In a meeting engagement coordination is difficult. (See par. 34.) However, in an attack from assembly position on an enemy whose location has been determined, the maximum of coordination must be attained.

b. Coordination is obtained by explicit orders, designation of time or signal for attack, and designation of a line or lines of departure. Commanders concerned or their staff officers must confer and make certain that each knows what, when, where, and how he is to operate.

c. The regimental or combat command commander is responsible for coordination of the attack as a whole. However, the battalion commander must confer with the infantry commander, the artillery commander or his liaison officer, and the commander of supporting tanks. He makes all necessary arrangements to insure that each knows what the other is to do. He arranges for special signals and for any special radio communication. *This information must be passed on to the lower units.*

■ 33. POSITIONS.—Locations or positions which must be understood by all are the assembly position, attack position, rallying point, and alternate rallying point. In addition separate tank battalions may use an intermediate position. (See fig. 49 and FM 17-10.)

a. The assembly position (area) should afford concealment and is preferably beyond the range of hostile medium artillery fire, usually about 8,000 to 9,000 yards from the line of departure. If such assembly position would cause the battalion to move through a defile to reach attack positions, then select an assembly position in front of the defiles or cause several passages to be constructed through the obstacle. (See fig. 50.) In assembly areas, post security, check vehicles and weapons. Get everything ready for the attack.

b. An intermediate position may be designated if the assembly position is a great distance from attack positions. This is in fact a forward assembly position and should have the same characteristics as the assembly position.

c. The attack position is as near the line of departure as practicable, considering concealment. There will be an attack position for each company or platoon. Halts are made only long enough to regain control, for last minute coordination with other troops, especially infantry if the attack is made through or in conjunction with infantry. Before reaching the attack position, assume a deployed or semideployed formation. Take up the formation with which the line of departure is to be passed.

d. The rallying point is a well-defined terrain feature at which the tanks assemble after reaching their objective. It is usually in rear of (on the friendly side of) the final objective. (See fig. 52.) It should afford concealment and take advantage of natural obstacles for security. Here the battalion reorganizes, resupplies as necessary, takes care of wounded, and prepares for further action. Alternate rallying points are designated in case the rallying point is untenable or cannot be attained. The attack position may be designated as an alternate rallying point. There should be a rallying point and an alternate rallying point for each objective. *Do not stop to reorganize on each objective.* If the going is good *keep going* to the final objective, then reorganize. Keep control by observation of advance and issuance of necessary coordinating orders.

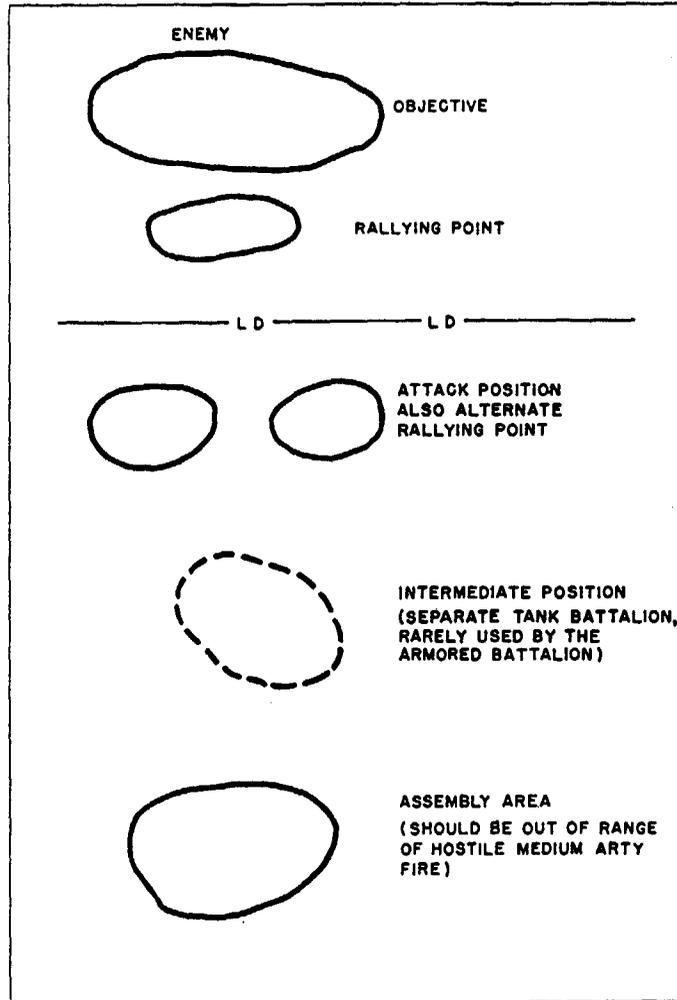


FIGURE 50.—Armored battalion installations.

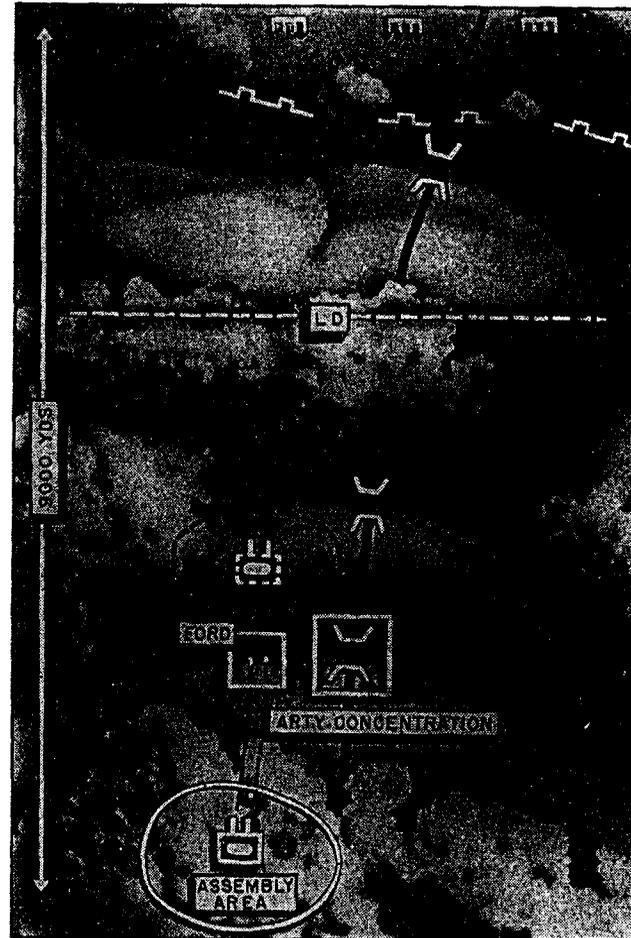


FIGURE 51.—Do not select assembly area with defiles in front that can be blocked by artillery. Move forward through defiles before discovered by the enemy. Disperse to minimize losses.

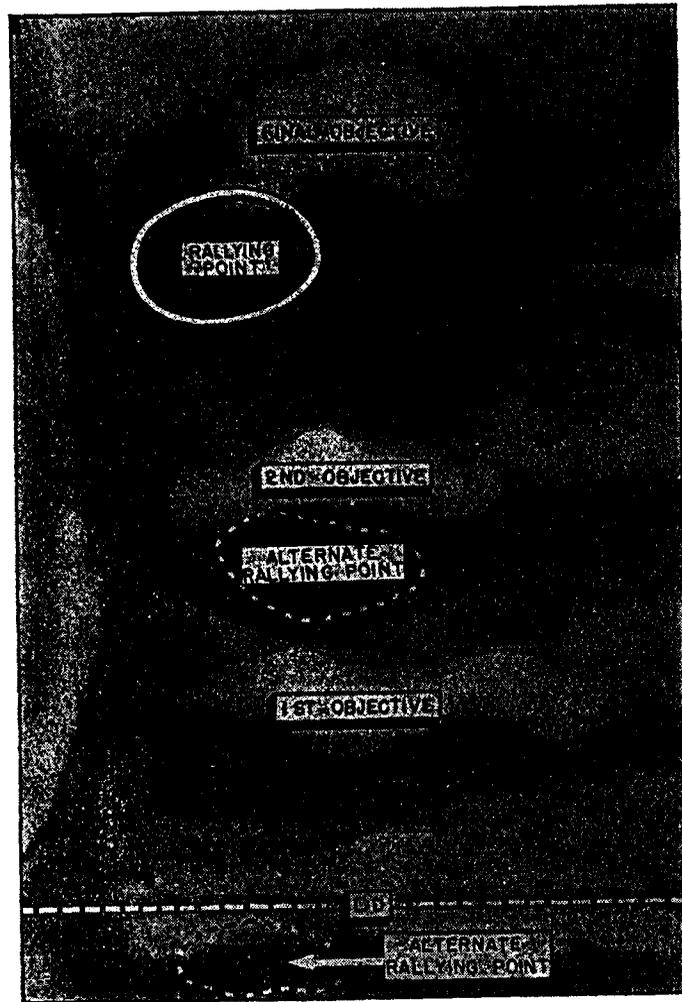


FIGURE 52.—Rallying point.

■ 34. MEETING ENGAGEMENT.—*a.* A meeting engagement may occur when the situation is obscure, such as the meeting of small hostile units when reconnaissance is not effective. Again it may occur when opponents are aware of each other's presence but attack immediately to gain some tactical advantage. (See FM 17-10.) Advance guard action is an example of a meeting engagement.

b. In order to secure tactical advantage in a meeting engagement it is essential that orders be issued and action initiated immediately. Commanders must be well forward. Little time is spent on coordination of fires. Attack is usually launched from march column. The mission of the command will determine the action taken.

c. The following shows one form of action in a meeting engagement:

(1) *Situation.*—(*a*) Combat command A, 60th Armored Division, is marching west along state highway 59 with the mission of destroying an enemy unarmed column reported advancing on TETRA from the west. (See fig. 53.)

(*b*) The 1st Battalion, 99th Armored Regiment, with one company of infantry, one platoon of engineers, a heavy tank destroyer platoon, a medium tank company, and one battery of field artillery attached forms the advance guard.

(*c*) Reports from combat command reconnaissance units indicate a Red force of infantry, artillery, and tanks is marching from the west on TETRA. This force has brushed aside our reconnaissance units.

(*d*) At 10:00 AM the point of the advance guard is as shown in figure 53. The battalion reconnaissance platoon has reached DEAD MAN CREEK and has just reported that enemy patrol of two armored cars is moving east on highway 59, leading car about 500 yards west of DEAD MAN CREEK.

(*e*) At this time the advance guard commander, who is immediately behind the advance party, receives the following message from the combat command commander:

"Battalion of enemy light tanks followed by two batteries of artillery and a regiment of infantry is moving east on highway 59, head of column 2 miles east of TETRA. Seize

PERRY ROAD RIDGE at once and cover the development of the combat command."

(2) *Actions and orders of battalion commander.*—The advance guard commander (battalion commander) immediately gives orders as follows:

"Support commander, enemy tanks, artillery and infantry moving east on highway 59, head of column 2 miles east of TETRA. Move your company at maximum speed and cover crossings of DEAD MAN CREEK.

"Artillery observer, I want artillery prepared to fire on crossing of Dead Man Creek on highway 59 and enemy concentrations in woods west of the creek.

"S-2-3 conduct reserve to assembly areas in woods west of Lone Branch. Send assault gun platoon and mortar platoon forward at once to report to me near junction of highway 59 and PERRY ROAD. Report to me at PERRY ROAD with the company commanders. I am going forward."

(3) *Situation—continued.*—(a) As the point crossed LONE BRANCH it met the hostile reconnaissance cars previously reported, quickly deployed, attacked, and destroyed the cars. The advance guard continued the advance and as the point approached the bridge over DEAD MAN CREEK it was fired upon by two tanks coming down the road to the west. It immediately moved off the road to the woods on the right. The advance party took position on hill west of PERRY ROAD together with the assault gun, opened fire, and destroyed the hostile tanks. The support commander moved the infantry platoon south of the road and a tank north with orders to cover crossings of DEAD MAN CREEK. (See fig. 54.)

(b) The advance guard commander arrived at junction of highway 59 and PERRY ROAD. He learned by radio report from the reconnaissance platoon that DEAD MAN CREEK was favorable for crossing by tanks to a distance of 1 mile north of the bridge. One reconnaissance squad reconnoitering to the south reported to the infantry platoon leader on the south of the road that suitable tank crossings were located 200 and 400 yards south of the bridge. This was reported to the battalion commander.

(c) The reconnaissance platoon leader reported enemy patrols on west bank of DEAD MAN CREEK and what was estimated as a platoon of tanks moving into woods north of the road. (See fig. 54.) Just then hostile artillery fire fell on woods northeast of the bridge knocking out one of the two tanks at (1). The S-2-3 and the company commanders arrived at this time. An air observer dropped message stating that hostile tanks, estimated as a battalion, were moving north of road and going toward woods north of highway 59. Infantry in carriers was moving into woods south of roads.

(4) *Actions and orders of battalion commander—continued.*

"Artillery observer, bring fire on enemy tanks at (2).

"Look at your maps. Tanks estimated as a battalion are moving here (pointing to map). Infantry is moving into that woods (pointing to woods).

"We hold this ridge to cover development of the combat command. DEAD MAN CREEK is fordable north of that bridge.

"Company B with assault gun and mortar attached, move here (see map). Prepare to repel enemy attack from west or north and to attack on my order.

"Company C. Position rear Company B. Protect right flank.

"Company D. Position south Company C. One platoon edge woods cover west on north. (See map.)

"Infantry company, move south of road, cover crossings of DEAD MAN CREEK there. 1st platoon Company A attached to you.

"Mortar platoon less one squad cover bridge to front.

"Assault gun platoon less one gun cover bridge to front.

"I'll be with Company B.

"Move out.

"Artillery observer be prepared to switch fires to area in front of Company B. Come with me.

"Company A keep enemy from crossing creek to your front. If artillery fire is needed, call me. You may adjust the fire."

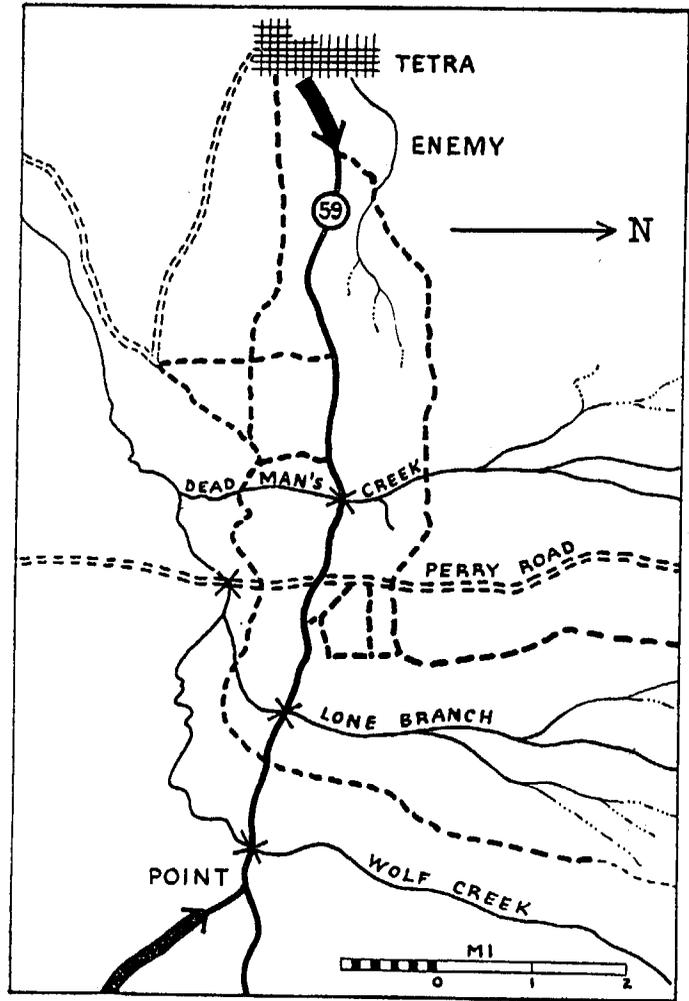


FIGURE 53.—Illustrative problem, advance guard. (Map 1.)

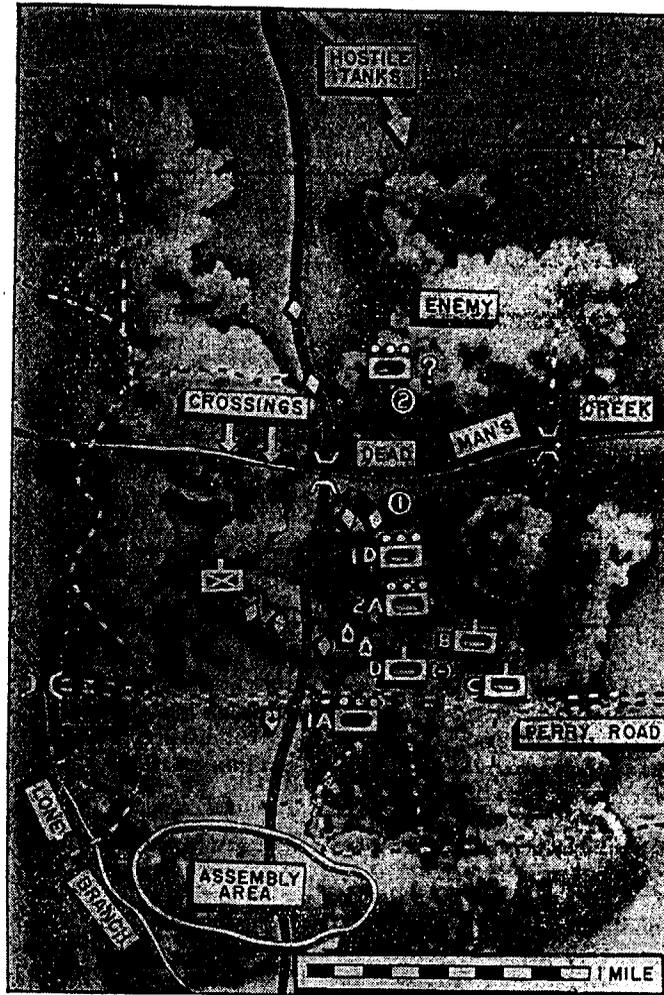


FIGURE 54.—Illustrative problem, advance guard action. (Map 2.)

■ 35. ATTACK BY PENETRATION.—*a. General.*—(1) Armored units seek to attack through weak spots in an enemy position, break through, and destroy rear installation. Attack is made through a well-organized position only when attack on other points is impracticable.

(2) A penetration is characterized by attack on a narrow front, the massing of all available fires, and the maximum coordination of all means of attack. Often infantry and engineers will attack first to clear paths through obstacles through which tank units may pass.

(3) The attack is made in three echelons. Against a position strong in antitank guns, medium tanks lead.

b. First echelon of attack.—(1) *Action prior to the attack.*—Prior to the attack and after receiving the plan of attack the battalion commander—

(a) Makes a map and personal reconnaissance of the routes to the attack position and, from an observation post, studies the ground over which he is to attack.

(b) Causes company commanders and as many as practicable of lower unit commanders to make a personal reconnaissance.

(c) Contacts infantry and reconnaissance units in the zone, obtains all information they may have concerning the terrain and the enemy, arranges for fire support and passage of lines. If infantry and engineers attack first, he arranges for liaison.

(d) Obtains information on artillery support for the initial attack and for subsequent action. Makes requests for additional fires or changes in artillery fire plan if desired.

(e) Obtains information on air bombardment support. Requests support desired. Makes arrangements for liaison with air observation.

(f) Plans his attack.

(g) Issues his attack order.

(2) *Plan of attack.*—The plan of attack includes—

(a) *Formation.*—Consider width of zone and distance to final objective. Normally the width will not exceed 1 500 yards. A formation with two companies leading will usually be satisfactory. The battalion commander prescribes the initial formation for the companies or gives each company a frontage.

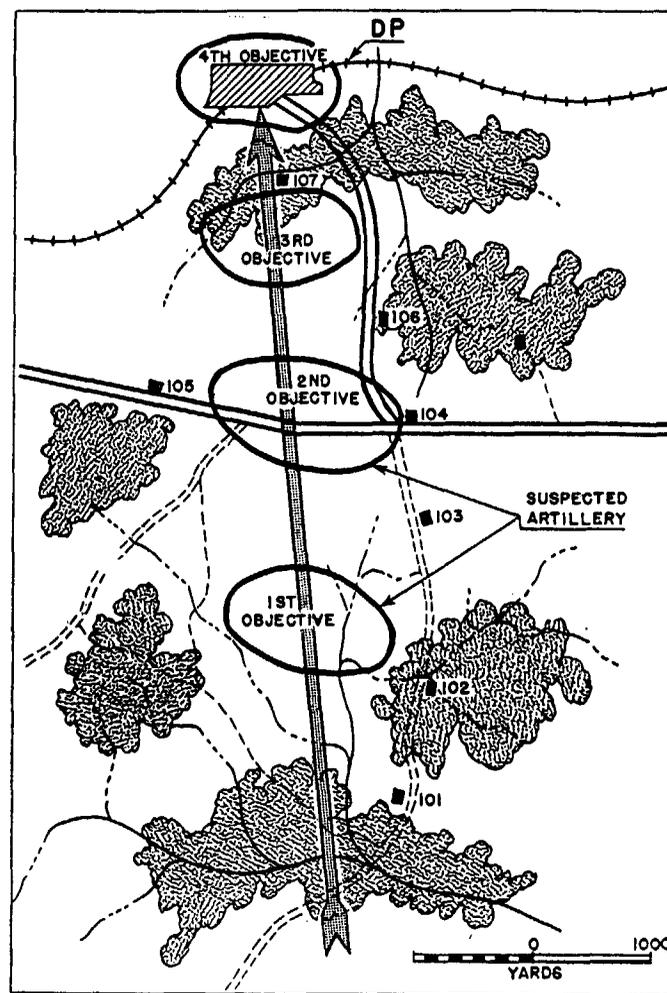


FIGURE 55.—Plan of attack showing objectives.

NOTE.—Numbers designate artillery check points.

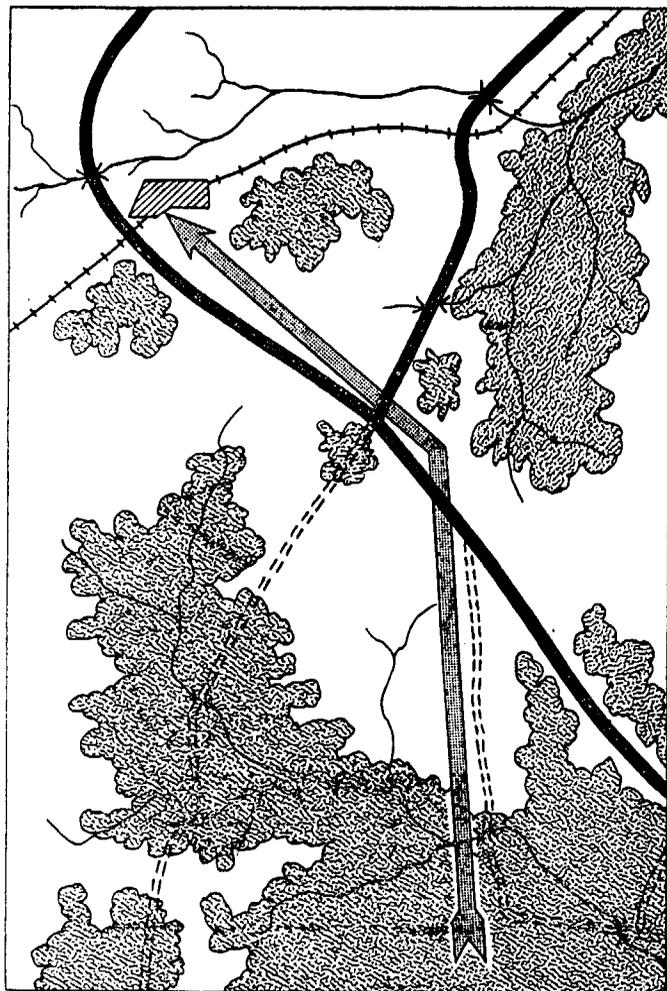


FIGURE 56.—Plan of attack. If change of direction is necessary, make it at a well-defined terrain feature.

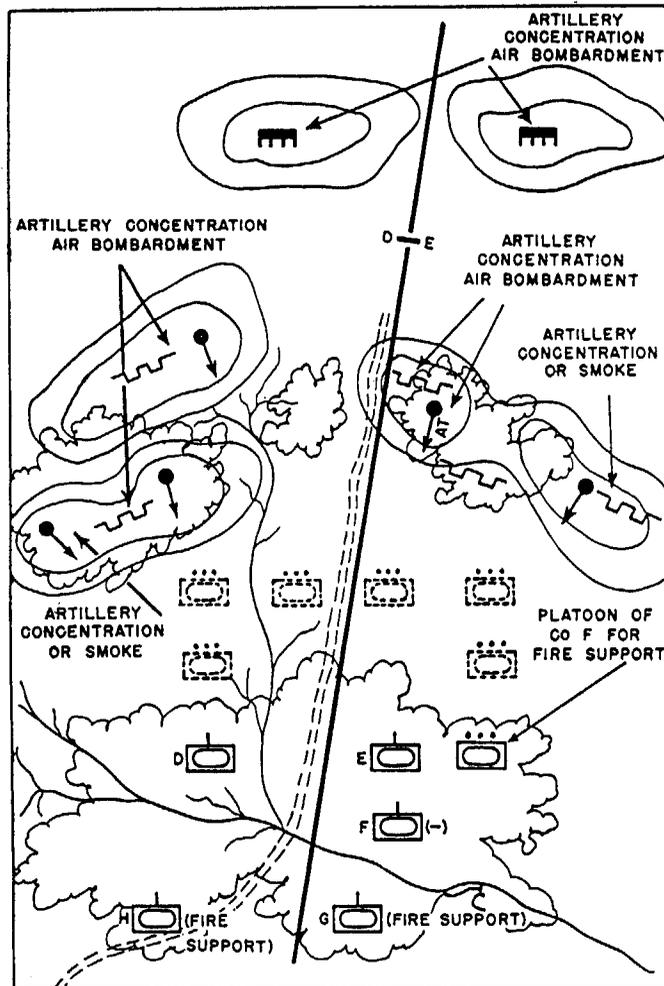


FIGURE 57.—Coordination of fires for initial attack. Broken symbols show one formation for advance.

(b) *Objective*.—Designate a series of objectives. The first objective is usually the enemy second line position or a prominent terrain feature in rear of his front installations. Objective should be easily discernible terrain features.

(c) *Direction of attack*.—The objectives determine the direction of attack. However, an azimuth of attack should be given. If a change of direction becomes necessary, make it on a prominent terrain feature.

(d) *Boundaries*.—Boundaries rarely are designated unless another battalion is attacking abreast. The boundary is then designated by the higher commander. Each company is given a frontage. A road or other suitable feature may be designated as a guide. A boundary may be given between companies. However, designation of objectives will often be sufficient. Figure 56 shows a boundary between companies.

(e) *Line of departure*.—This should be some line as far forward as available cover will permit. It may be a small stream, edge of a woods or other distinguishing line. Different lines of departure may be designated for each company.

(f) *Time of attack*.—This will normally be set by the higher commander and is on time or by signal. When infantry attacks prior to the tanks, the tank is launched by signal.

(3) *Attack through infantry*.—(a) If the attack is made through infantry, special arrangements must be made for passage of lines. The battalion commander contacts the infantry commander in his zone and arranges for this passage. Each company commander contacts the infantry troops in his part of the zone and makes arrangements whereby foot troops indicate their positions so they will not be endangered by tanks. Guides are posted as necessary.

(b) When infantry attacks first to clear a passage through obstacles, liaison is maintained by the battalion commander with the infantry commander. Infantry or engineers post guides to show tanks where to cross the obstacles.

(4) *Movement to attack positions*.—(a) Guides are posted or routes marked to attack positions. The battalion moves out, protected if necessary by a small covering detachment. The covering platoon should be from the reserve company and takes up positions to protect the attack position and

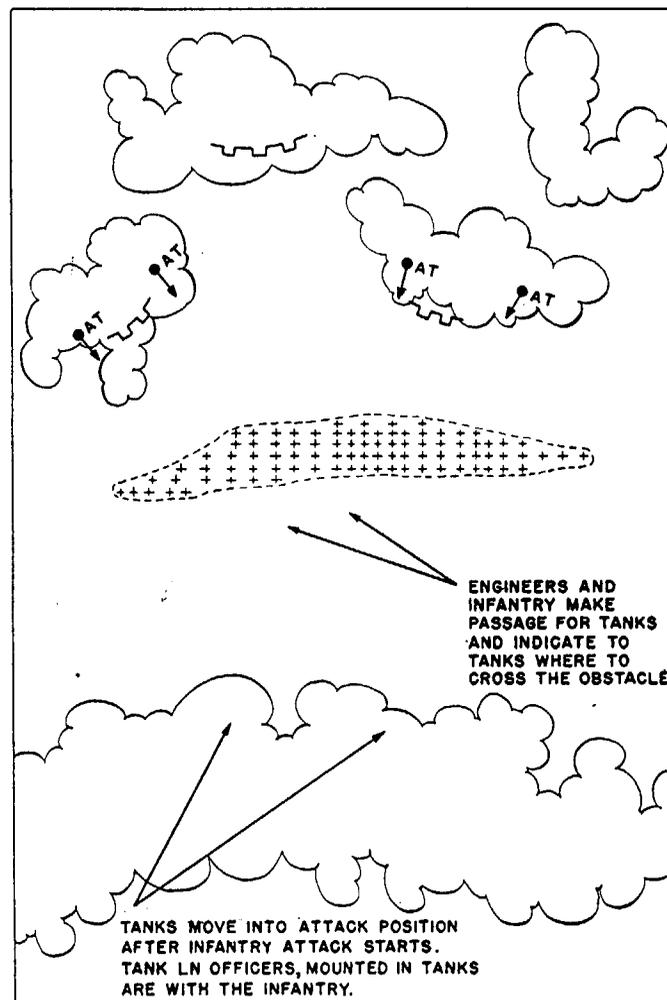


FIGURE 58.—Attack through infantry and engineers who have cleared passages through obstacles.

support the attack. The mortar platoon and assault gun platoon follow the covering force and go into position. The leading companies follow and move into attack position. The reserve and the battalion headquarters, less the command group, move last. The battalion commander with his S-3 moves behind the covering force. The artillery observer either moves with the battalion commander or goes to the attack position ahead of the battalion where he will be ready to observe and adjust fires.

(b) Movement to the attack position is made at such time that only a few minutes will be spent in that position for last minute check and orders.

(5) *Conduct of the attack.*—(a) The battalion commander observes the attack and, by personal orders or by use of his staff, directs the companies as necessary. *The battalion commander must use the radio himself.*

(b) As the attack progresses, the battalion commander or his S-3 designates targets or missions for the assault gun platoon or the mortar platoon. The battalion commander personally directs the movement of the reserve to influence the action. He calls upon the artillery observer for fires. In case the artillery observer becomes a casualty the battalion commander or his officers adjust artillery fire. (See FM 17-62.)

(c) The reserve follows the assault companies at 300 to 1,000 yards. It moves by bounds from cover to cover where it can give continuous fire support to the leading companies and protect the flanks. *Do not use the reserve company for artillery support when artillery is available.* This will deplete the ammunition supply and the reserve will not be able to influence the action later. When an objective is taken the reserve must be prepared to protect against counterattack.

(d) For action of rallying point see paragraph 33.

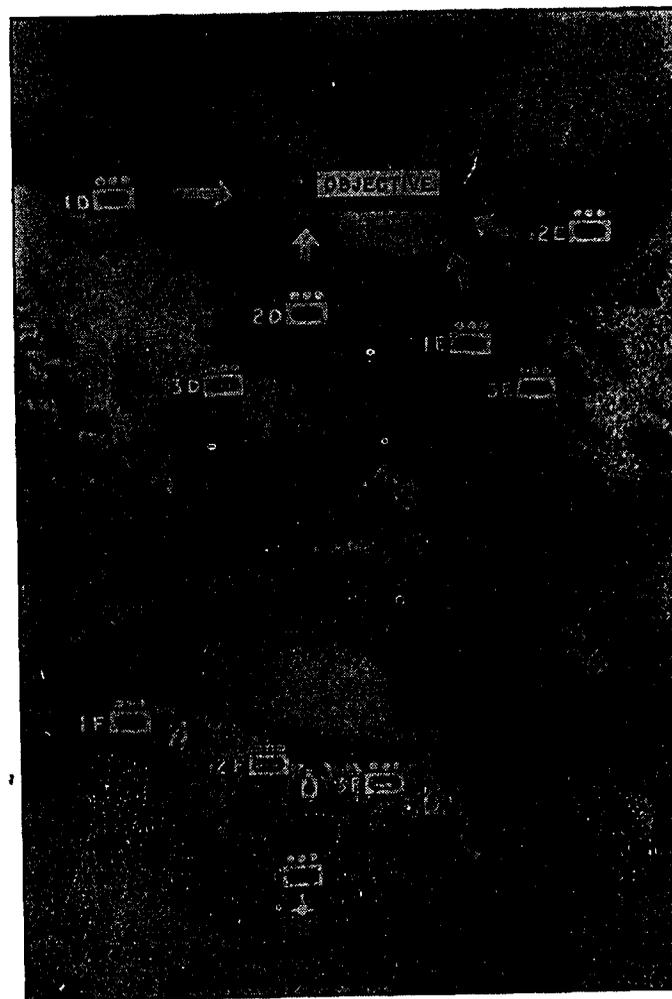


FIGURE 59.—Use reserve as necessary for fire support. Mortars and assault guns displace so as to maintain continuous fire support.

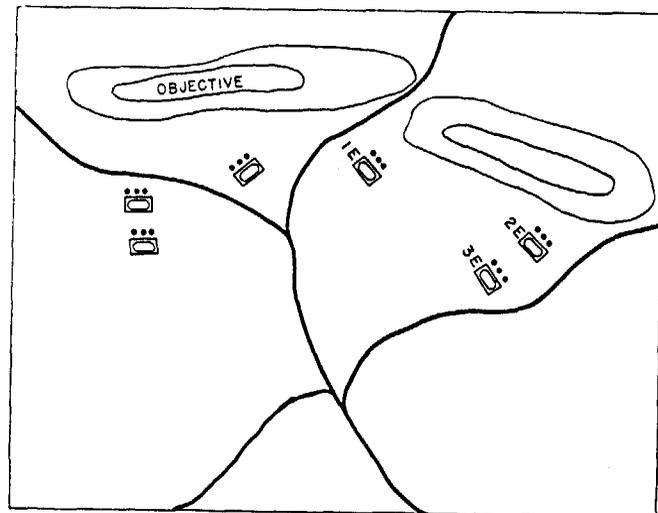


FIGURE 60.—Keep companies in right direction. Here Company E is advancing in wrong direction.

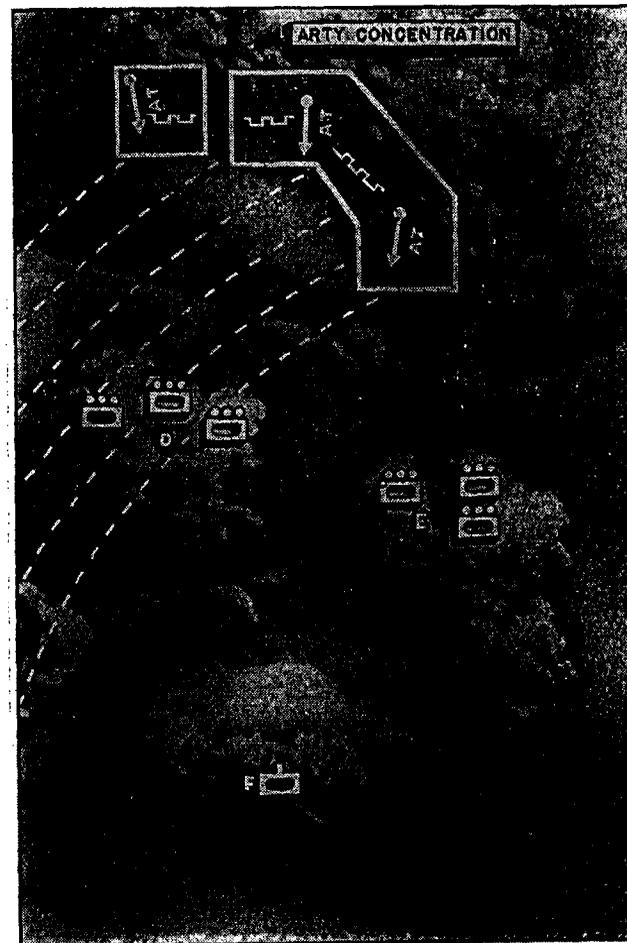


FIGURE 61.—Use artillery to support attack where practicable. Here Companies D and E are held up by antitank fire. Artillery is available and can bring down much more effective fire than can Company F.

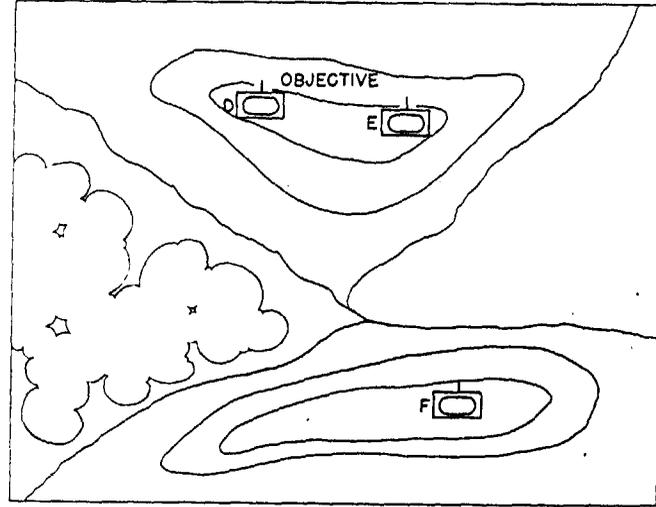


FIGURE 62.—Reserve is placed to cover flanks of leading companies on objective.

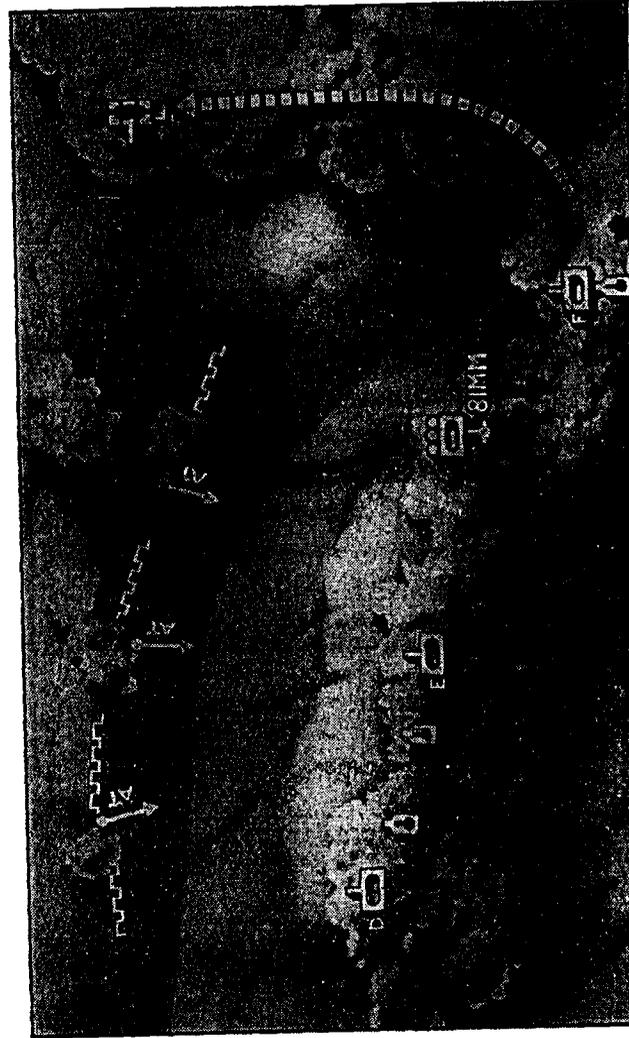


FIGURE 63.—Use reserve company for envelopment. Attach assault gun. Coordinate assault gun fire, mortar fire, artillery fire, and attack of all three companies. Attack may be launched upon signal by Company F when it is in position.

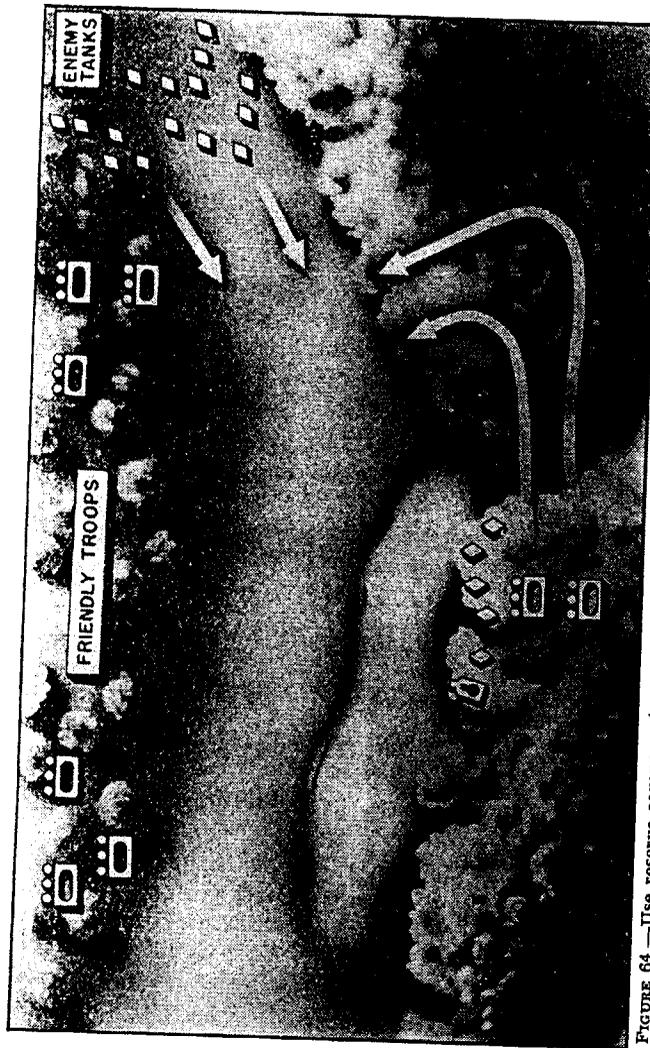


FIGURE 64.—Use reserve company to reapi mechanized counterattack. Part of company brings fire on hostile tanks, and remainder maneuver strike enemy tanks at close range.

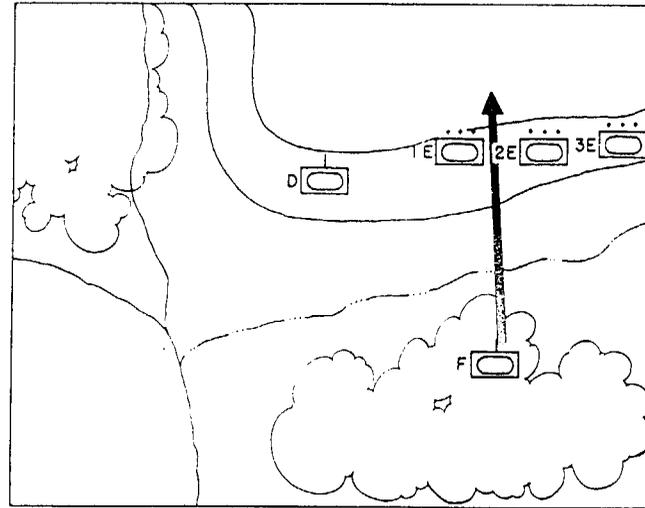


FIGURE 65.—Use reserve to make passage of lines and to assume mission of a depleted company.

c. Second echelon of attack.—(1) *Position.*—The second echelon may be either light or medium tanks. It follows the leading echelon at a variable distance from 500 to 3,000 yards, depending upon the terrain and the enemy situation. It should be close enough so that the enemy will not have time to reorganize his antitank defense after the first echelon passes but should not be so close as to become intermingled with elements of the first echelon.

(2) *Function.*—The second echelon of attack must be prepared to—

- (a) Support the leading echelon by fire.
- (b) Protect the flanks of the leading echelon.
- (c) Pass through and assume the mission of the first echelon should that battalion become so depleted as to be unable to continue on its mission.
- (d) Make an envelopment to either flank.

(3) *Formation.*—The second echelon must assume a formation that permits fire support of the leading echelon by

some of its elements; covers the zone of attack to beat down hostile automatic weapons; and facilitates movement to either flank or passage through the first echelon. Wedge formation will be proper in most cases.

(4) *Action prior to the attack.*—Prior to the attack and after receiving the orders or plan of the regimental or combat command commander, the battalion commander—

(a) Makes personal reconnaissance and causes lower unit commanders to reconnoiter routes to the attack position and to the line of departure of the first echelon.

(b) Studies map of zone of attack.

(c) Contacts battalion commander of first echelon, learns his plan of attack, marks objectives on map, locates artillery check points, arranges to support first echelon by fire.

(d) Contacts infantry or reconnaissance units in the front, obtains all possible information of the enemy, arranges for be made through mine fields or other obstacles, and arranges for indicating to tanks the location of these paths.

ments for indicating to tanks the location of these paths.

(e) Obtains information on artillery support.

(f) Plans his attack.

(5) *Plan.*—The plan includes the steps outlined in b(2) above.

(6) *Conduct of the attack.*—(a) The battalion moves into position immediately after the first echelon of attack. The battalion commander must be well forward, usually just behind the company supporting the first echelon. He moves the battalion forward when the first echelon has passed the first obstacles or when his support company can no longer support the leading echelon by fire.

(b) The battalion commander moves his battalion rapidly forward and overruns and destroys hostile infantry and weapons. He must be ready at all times to repel a counter-attack from either flank. He overcomes small isolated enemy resistance by use of tanks, mortars, and artillery fire. During the advance, the artillery may displace forward with or behind his battalion. This artillery is not attached to his battalion but he gives such aid and security as is consistent with accomplishment of his mission.

(c) In case of enemy counterattack the battalion commander immediately takes appropriate countermeasures.

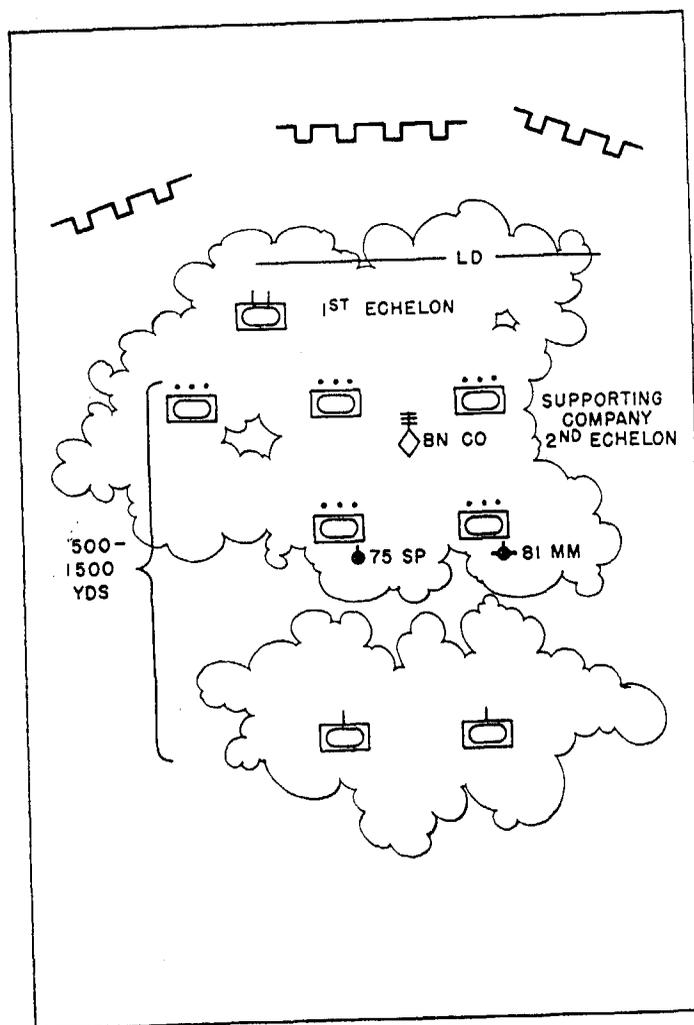


FIGURE 66.—Second echelon of attack. Attack positions.

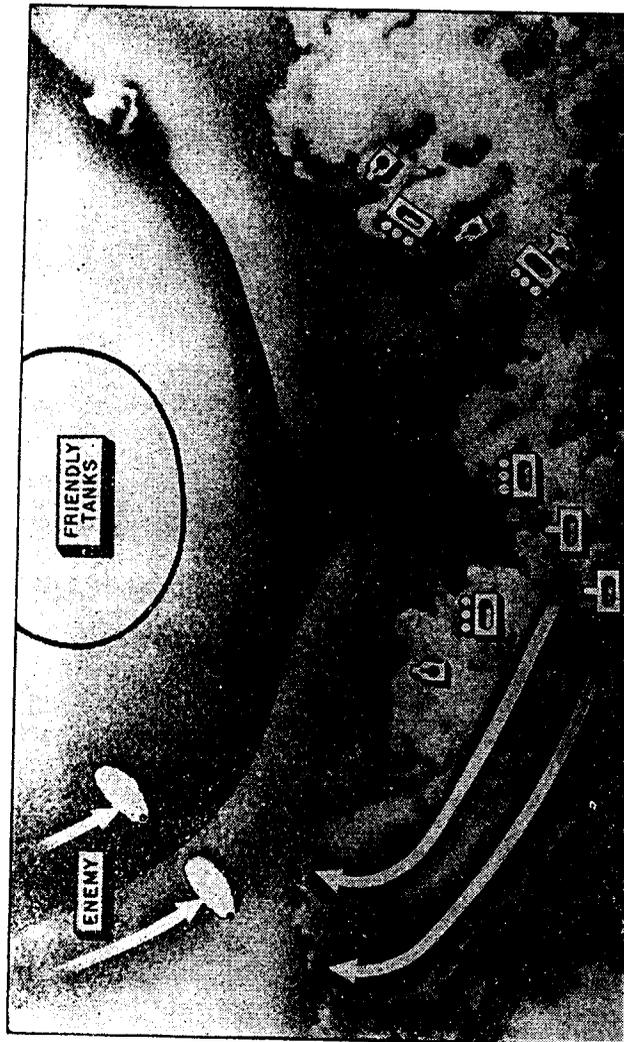


FIGURE 67.—Repelling counterattack. Battalion commander uses one company to fire on enemy from concealed or defiladed positions, maneuvers the other two companies to strike enemy in flank, calls for artillery fire on the hostile troops, and uses smoke to disorganize the enemy.

d. Third echelon of attack.—(1) If armored infantry makes the initial attack, the tank battalion will advance behind the second echelon of attack, joining the infantry in front of the line of departure. If the armored infantry does not make the initial attack, it advances, in carriers, close behind the second echelon of attack. The tank battalion follows the infantry closely. (See (3) below.)

(2) Prior to the attack the battalion commander—

(a) Makes a map and personal reconnaissance and requires subordinate leader to make such reconnaissance as is practicable.

(b) Contacts the infantry commander and makes arrangements for coordination, and liaison.

(c) Plans his action.

(3) The advance to attack may be made with infantry leading, with tanks leading, or by tanks and infantry together.

(a) When resistance is light, infantry in carriers will usually lead the attack. The leading tanks follow the infantry at 200 to 500 yards. When infantry is forced off carriers by hostile fire, tanks immediately attack and assist the infantry to advance.

(b) When the second echelon has not reduced all hostile automatic weapons the tanks of the third echelon lead the attack. Infantry follows closely in carriers if practicable.

(c) When attacking, dismounted infantry advances with or closely behind the tanks.

(4) The tanks of the third echelon must be prepared to—

(a) Overcome local resistance holding up the infantry.

(b) Repel a counterattack.

(c) Move rapidly to either flank as an enveloping force to assist the first or second echelon.

(d) Pursue.

■ 36. ENVELOPMENT.—The battalion may be used as an enveloping force and may itself use enveloping action in attack.

a. Battalion as an enveloping force.—As an enveloping force the battalion will usually be reinforced. It moves rapidly around the enemy flanks and attacks from flank or rear. The attack is timed with a frontal attack by infantry or other tanks and with artillery fire. The objective and time of attack is set by the higher commander. Time of attack

may be upon signal that the enveloping battalion is in position. When practicable the battalion commander will be permitted to choose his own direction of attack, the flank only being indicated.

(1) In an envelopment, place mortars, assault guns, and a medium tank company to support the attack by fire. Use the remainder of the battalion as a maneuvering force.

(2) In advancing to attack positions, use a covering force consisting of the reconnaissance platoon, one or more platoons of tanks, and infantry.

(3) Use the reconnaissance platoon to reconnoiter the exposed flank and protect this exposed flank by a tank platoon. The infantry company follows the attack at about 500 yards, in carriers as far as possible, and mops up the enemy position.

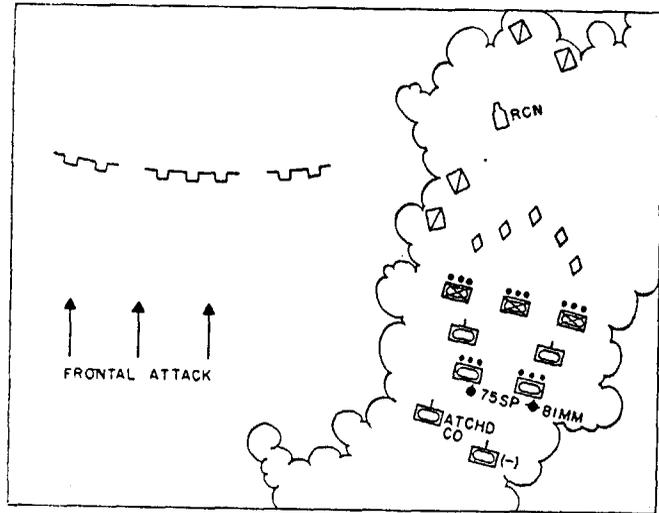


FIGURE 68.—Movement to attack positions in envelopment.

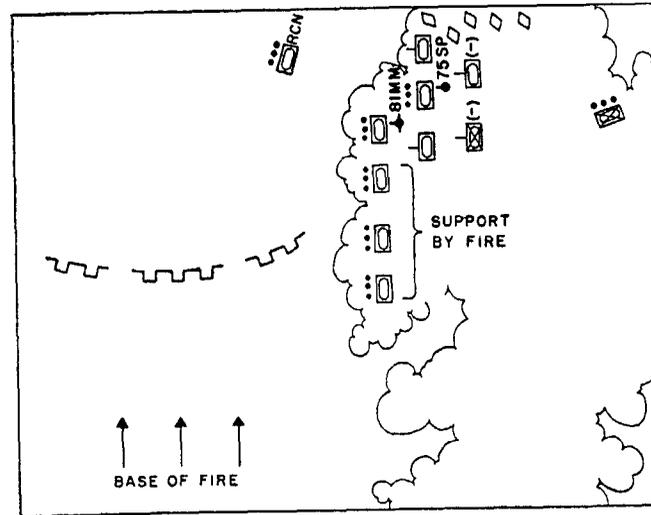


FIGURE 69.—Plan of attack, envelopment.

b. Battalion acting alone.—When acting alone the battalion may use a single or double envelopment maneuver. Infantry, if present, with a medium tank company and the assault gun and mortar platoons, less detachments, forms the base of fire. The remainder of the battalion envelops one or both flanks. Use reconnaissance platoon for reconnaissance on both flanks. Coordinate artillery fire with the attack.

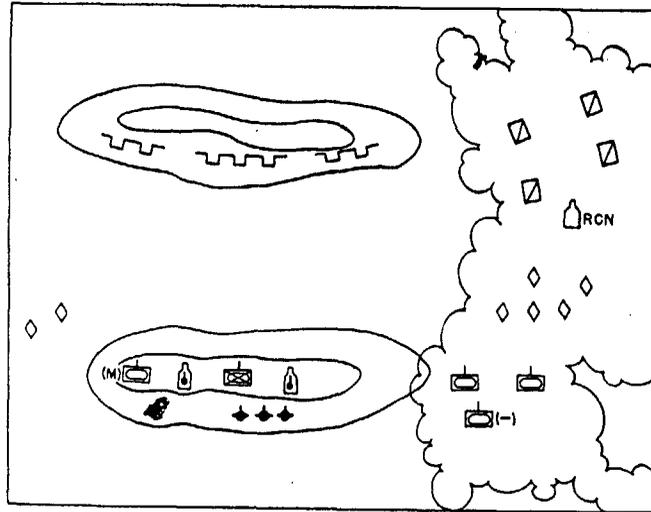


FIGURE 70.—Single envelopment reinforced tank battalion acting alone.

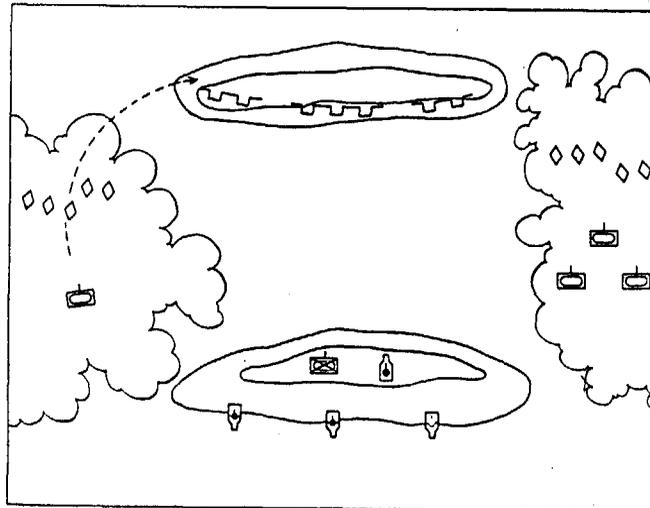


FIGURE 71.—Double envelopment, reinforced battalion.

■ 37. TANK VERSUS TANK ACTION (see FM 17-10).—Attacking tanks frequently encounter hostile tank units unexpectedly. At other times they may be required to attack hostile tanks deliberately in order to break up an attack or a counterattack. It is therefore necessary that all personnel be carefully trained in recognition of hostile and friendly tanks; characteristics and capabilities of hostile tanks as to armor, armament, and speed; vulnerable parts of hostile tanks upon which fire will be effective; range at which each of our weapons is effective against hostile vehicles; enemy methods of tank employment; and methods of combating hostile tanks, such as the use of speed, defilade and cover, and ambush. In tank versus tank action—

a. Use artillery concentrations on hostile tanks. Concentrations will be especially effective in defiles.

b. Place some tanks (preferably medium tanks) together with assault guns in defiladed or concealed positions to fire upon and slow down the hostile attack when enemy tanks come within effective range.

c. Use mortars to place smoke on the enemy to disorganize his attack. Smoke may also be used to screen maneuver of your own tanks.

d. Maneuver part of the battalion to one or both hostile flanks where they can attack by fire at close range, preferably from defiladed or concealed position.

e. If defiladed or concealed positions are not available use smoke both of mortars and artillery to disorganize the enemy and screen the advance to effective range.

f. When attacking an enemy inferior in armament, advance rapidly to positions beyond the effective range of his weapons, take up stationary position, and fire. If enemy advances, withdraw and keep beyond range of his guns while still keeping him within effective range of your own guns.

g. When attacked by an enemy whose armament is superior to your own, withdraw and lead him into your own anti-tank defenses. If there are no anti-tank defenses backing you up, place smoke on enemy and maneuver rapidly to approach within effective range.

h. Use terrain to aid in maneuver, defilade, and concealment.

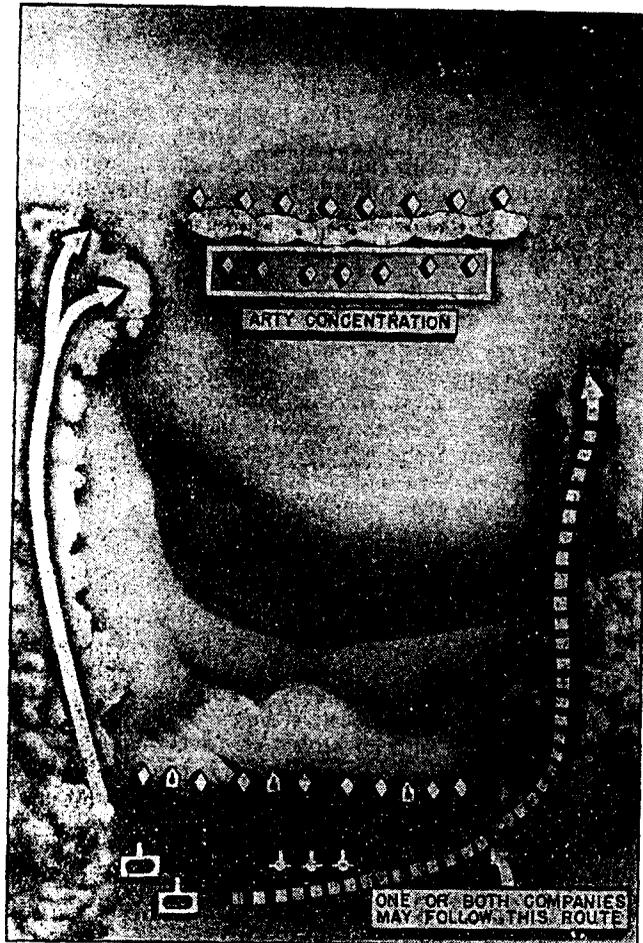


FIGURE 72.—Tank versus tank action. Place some tanks in defilade to fire on and slow down the enemy while other tanks maneuver against one or both flanks. Use artillery and mortars to smoke hostile tanks.

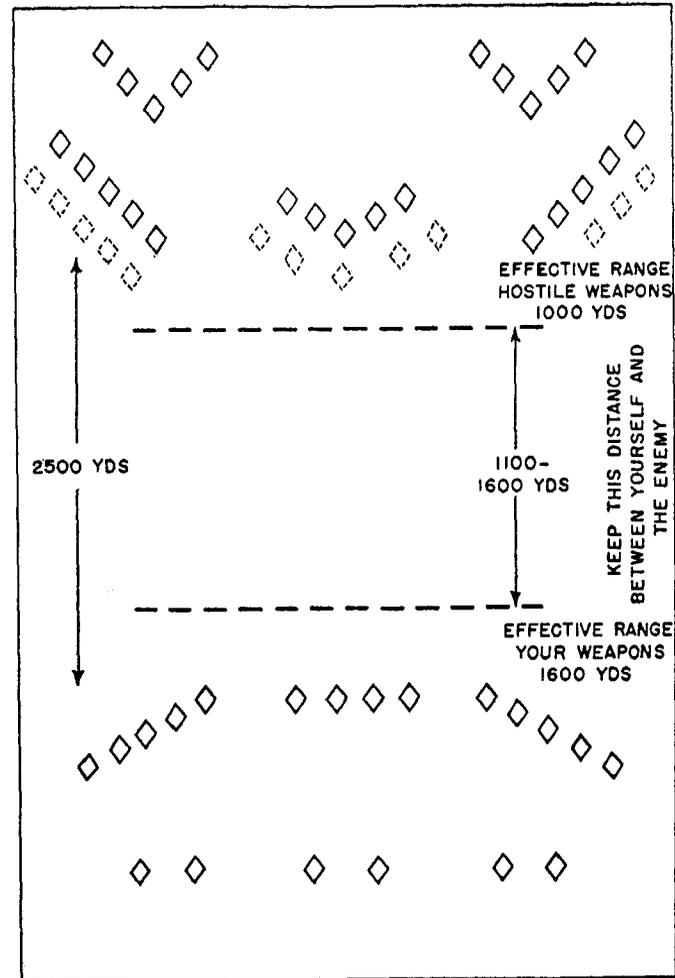


FIGURE 73.—If enemy armament is inferior, advance to effective range of your own weapons and fire. Stay out of effective range of enemy weapons.

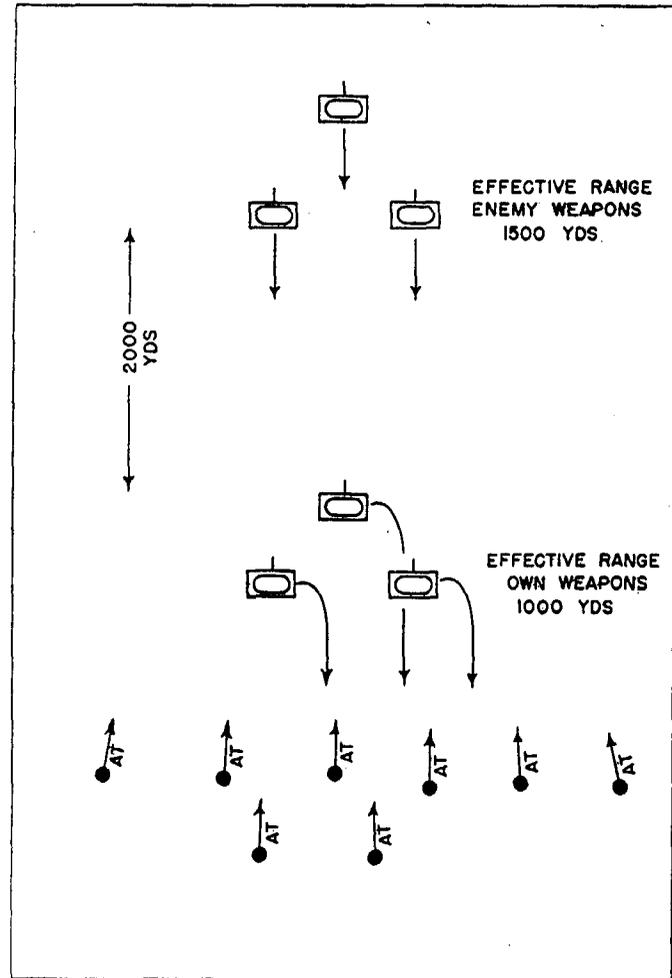


FIGURE 74.—In open country offering no concealment, if your weapons are inferior to those of the enemy, withdraw and lead enemy into fire of friendly supporting antitank guns.

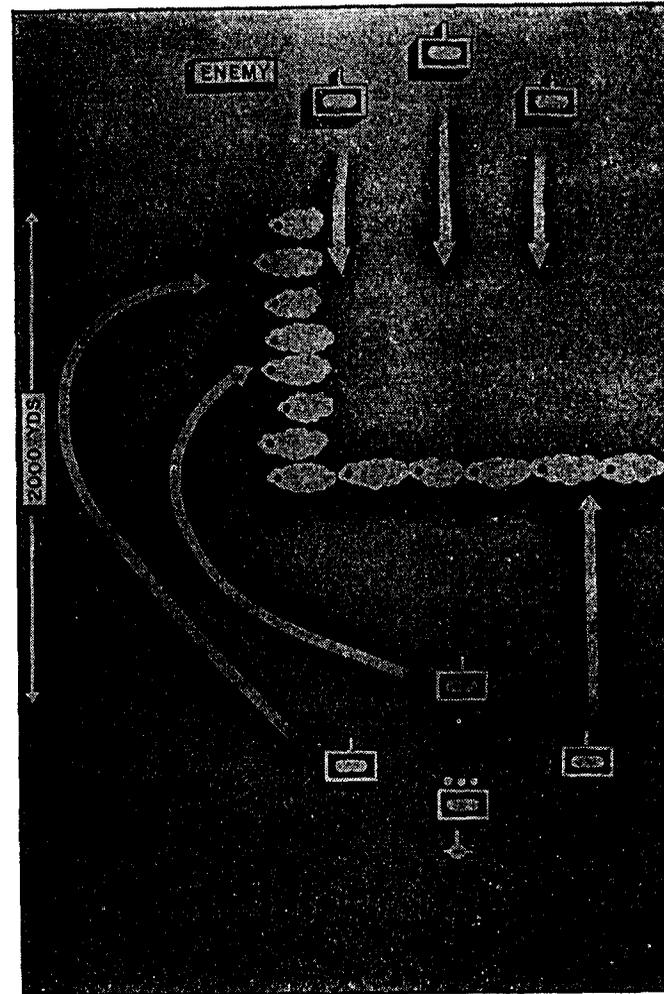


FIGURE 75.—If not possible to withdraw to antitank supporting weapons, use smoke screen to cover movement to effective range.

■ 38. **BATTALION IN RESERVE.**—*a.* A battalion in division reserve must be prepared to move rapidly to a flank to extend an envelopment, relieve a depleted assault battalion, repel a mechanized attack, or pursue a defeated enemy. The reserve is located in a position where it can best support the main attack and cover the flanks.

b. The battalion commander of the reserve battalion—

(1) Keeps himself constantly informed of the situation and of the division commander's plans either by personal contact with the division commander and his staff or by a liaison officer.

(2) Maintains a liaison officer at the division command post.

(3) Constantly studies the map and plans movements.

(4) Initiates route reconnaissance for movement of the battalion.

(5) Keeps his battalion informed of the situation.

■ 39. **PURSUIT.**—When it is recognized that the enemy is withdrawing, pursuit must be launched immediately and pushed to the limit of endurance of the command even into the night. Only lack of fuel or ammunition will be allowed to halt the action even temporarily. The enemy must be given no rest and must not be given time to regroup his forces and reorganize his defense.

a. Armored battalion.—The armored battalion will usually be part of the combat command in pursuit. It will usually be reinforced with engineers, infantry, and artillery.

b. Light tank battalion.—Light tank battalions together with infantry and engineers will be given missions of advancing rapidly behind the enemy, moving parallel to the enemy withdrawing columns, and seizing critical terrain that will block hostile retreat. Medium battalions then attack and destroy the enemy.

c. Formations.—(1) When advancing along roads parallel to the enemy, march formations are taken with reconnaissance units to the front and flanks. When the enemy is met, deployment must be rapid in order to destroy the enemy force at the earliest practicable moment.

(2) When advancing through scattered groups of enemy, a partially deployed formation is taken. Part of the advance

may be made across country in order to pass and cut off the retreating enemy.

d. Observation aviation.—Maximum use must be made of observation aviation. Air observers should report direct to the battalion headquarters by radio or drop message, giving the enemy situation and especially locations of large bodies of troops.

SECTION VII

DEFENSIVE ACTION

■ 40. **GENERAL.**—*a.* In defense the armored battalion is held in reserve to be used on counterattack missions to the front, flanks, or rear. As the tank is primarily an offensive weapon it should not be placed in position and used as a pill box, except when the enemy is to be ambushed. This last mission is more suited to the tank destroyer units and tanks should not be used for that purpose when tank destroyers are present.

b. The battalion acting alone will rarely take up the defensive unless forced to do so by lack of fuel.

■ 41. **DEFENSE OF A POSITION.**—*a.* In defense of a position, infantry occupies the main line of resistance while tank units are held in reserve. (See FM 17-10, 17-100, and 100-5.) The battalion may be part of a combat command as general reserve or may be in local reserve for a particular section of the line. Medium tanks are normally used in local reserve while some medium tanks and light tanks are placed in general reserve.

b. As a local reserve the tank battalion may be called upon to counterattack the enemy either in the front or to the flanks before he has reached the main defenses, or counterattack an enemy who has succeeded in penetrating the position and destroy or eject him.

c. The reserve position should—

(1) Afford proper concealment for all vehicles and personnel.

(2) Be large enough to allow for dispersion of vehicles, that is, at least 50 yards between vehicles.

(3) Have good routes leading into and out of the position so that movement may quickly be made to previously selected attack positions.

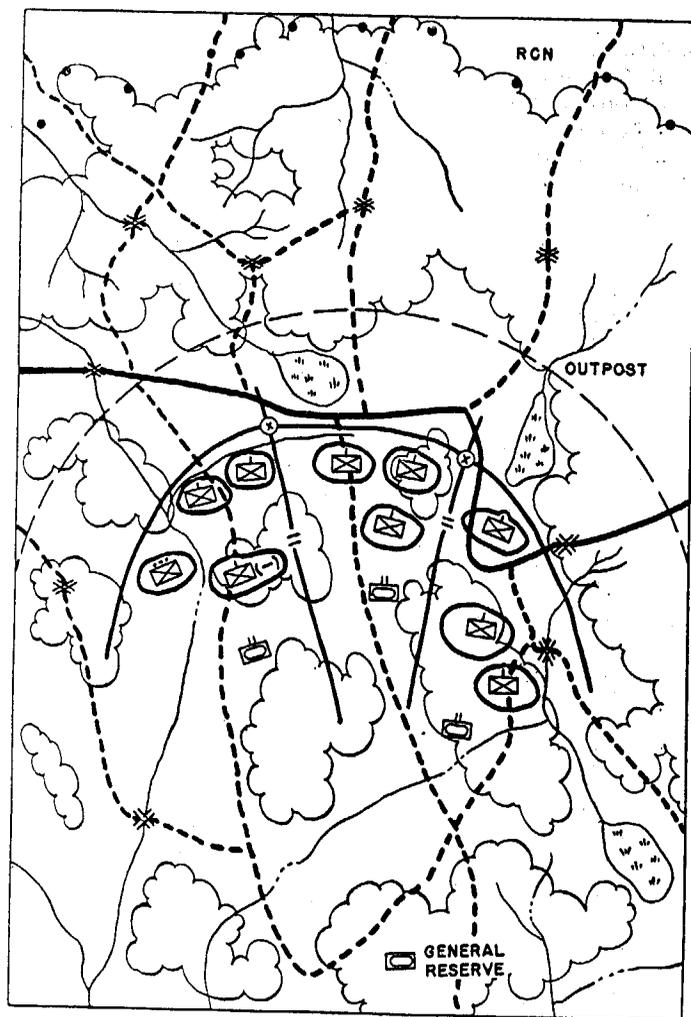


FIGURE 76.—One type of defense for armored division, showing armored battalions as local reserves.

(4) Be out of effective artillery range, that is, 4,000 to 7,000 yards behind the front line.

d. The battalion commander must make plans for all possible uses of the reserve including use in sectors other than the particular sector in which his battalion is operating. During organization of the defense, the battalion commander moves or causes his battalion to move into a reserve position as indicated by the higher commander, provides for local security as in an assembly area, then proceeds as follows:

(1) Contacts the infantry commander in the sector, and

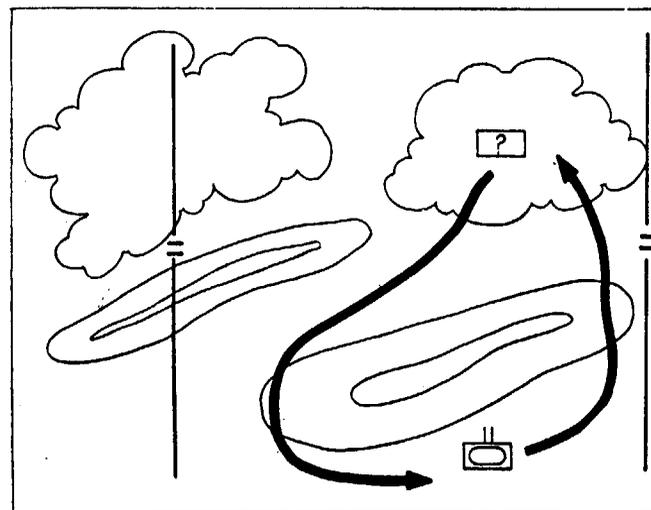


FIGURE 77.—Counterattack. If possible strike the enemy before he reaches our own lines. If front is covered with mines, passages must be opened for this purpose or gaps left.

learns this officer's plans and tactical dispositions. He reconnoiters the area and with the infantry commander plans counterattacks and coordination for counterattacks to include—

(a) Tank attack positions.

(b) Infantry, artillery, antitank gun, and air support of the tank attack. (All possible weapons should support.)

- (c) Direction for each contemplated attack.
- (d) Objectives.
- (e) Arrangements for marking paths in mine fields so tanks may attack the enemy in his attack positions or pursue him.
- (f) Arrangements for liaison. The tank battalion should keep one liaison officer at the infantry battalion command post. This officer must be equipped with radio. The S-3 for

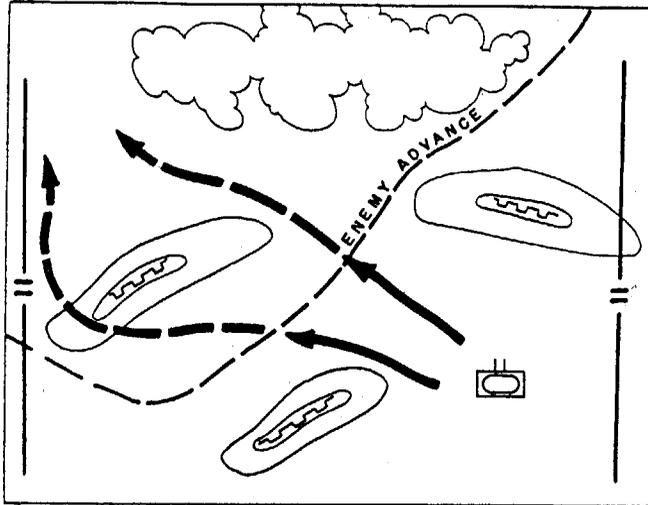


FIGURE 78.—Counterattack. If enemy succeeds in penetrating the position, counterattack and eject him. Do not be satisfied with merely ejecting him, also destroy the reserves following.

air in the battalion commander's half-track vehicle may be used for this duty.

(2) The battalion commander then outlines his plans to his company commanders and directs them to make and have their lower unit leaders make careful route reconnaissance to the various attack positions. He should also require subordinate commanders to make careful employment reconnaissance, on foot, over the area of contemplated attack. Recon-

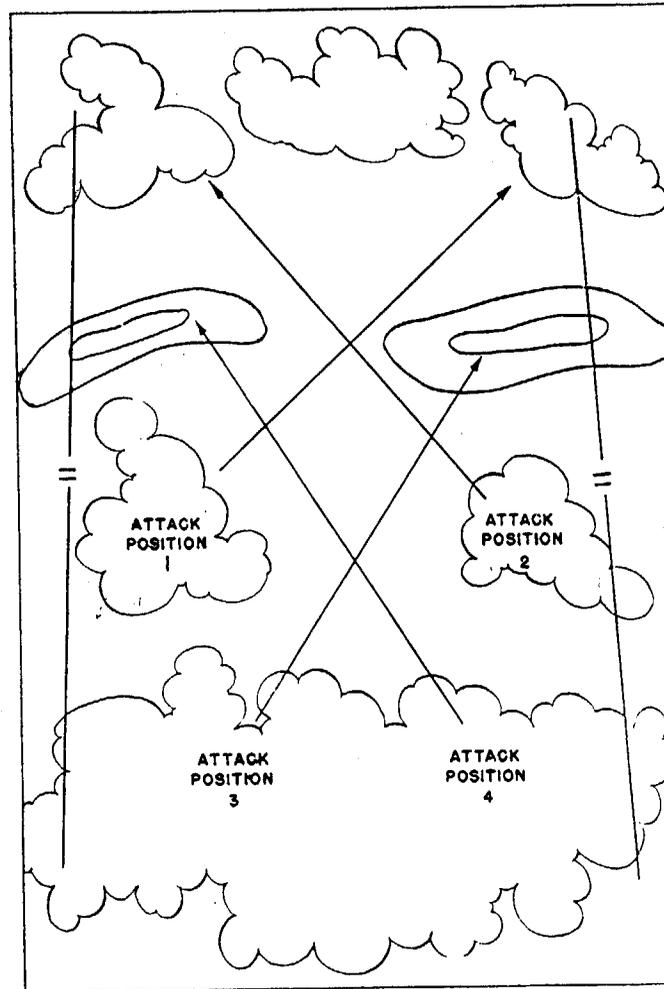


FIGURE 79.—Plans of action. Each plan is numbered. All plans must provide artillery and infantry support.

naissance should be made beyond the main line of resistance to the outpost line of resistance when time is available.

(3) Next, the battalion commander visits adjacent tank battalions and makes plans for mutual support. He obtains reconnaissance data from these commanders and makes any personal reconnaissance that can be made in the time available.

(4) Orders for various plans of attack are then given. They should be in overlay form or marked on maps. Each

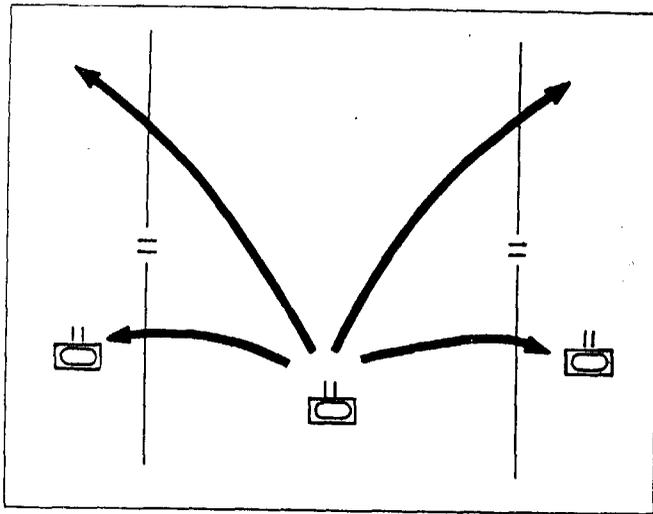


FIGURE 80.—Plan of action. Make plans for assistance of adjacent battalions.

plan is given a number and when time comes for action the battalion commander merely calls for execution of a particular numbered plan.

■ 42. WITHDRAWAL.—*a.* As part of a general covering force, tanks will be very useful in daylight withdrawal but are of little value at night except in bright moonlight. As part of the covering force the tank battalion, by rapid thrusts on a broad front, attacks and disorganizes the enemy and thus

gives other troops the opportunity to disengage and retire. These are limited objective attacks. These attacks are supported by available artillery. Having reached its objective the battalion withdraws, taking with it, by towing if necessary, all disabled tanks. The rallying point is usually the attack position.

b. When acting alone the tank battalion uses smoke to screen the withdrawal. A company supported by mortars and assault guns may be used to attack as in *a* above, to cover the withdrawal of the remainder of the battalion. A rear guard is then formed.

c. Prior to withdrawal of the combat elements, trains, except those that are absolutely essential, such as the maintenance and medical vehicles, are sent to the rear.

■ 43. DELAYING ACTION.—*a.* As part of a larger force in delaying action the tank battalion is used as a reserve to protect the flanks and make limited objective attacks (par. 42).

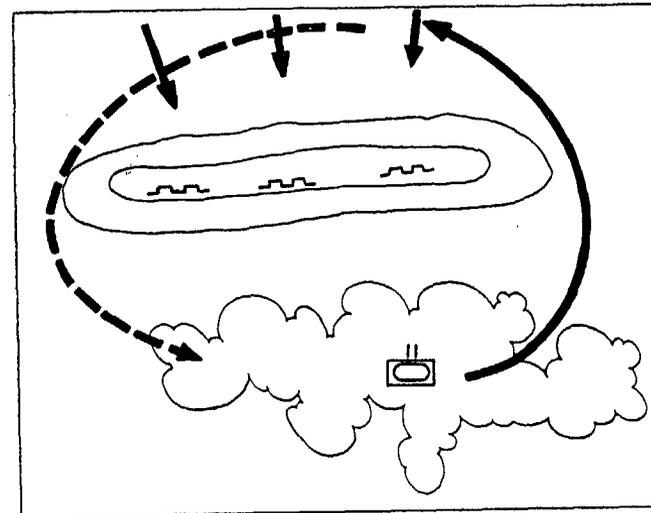


FIGURE 81.—Armored battalion as part of a delaying force. Battalion is used in reserve and attacks flank of enemy.

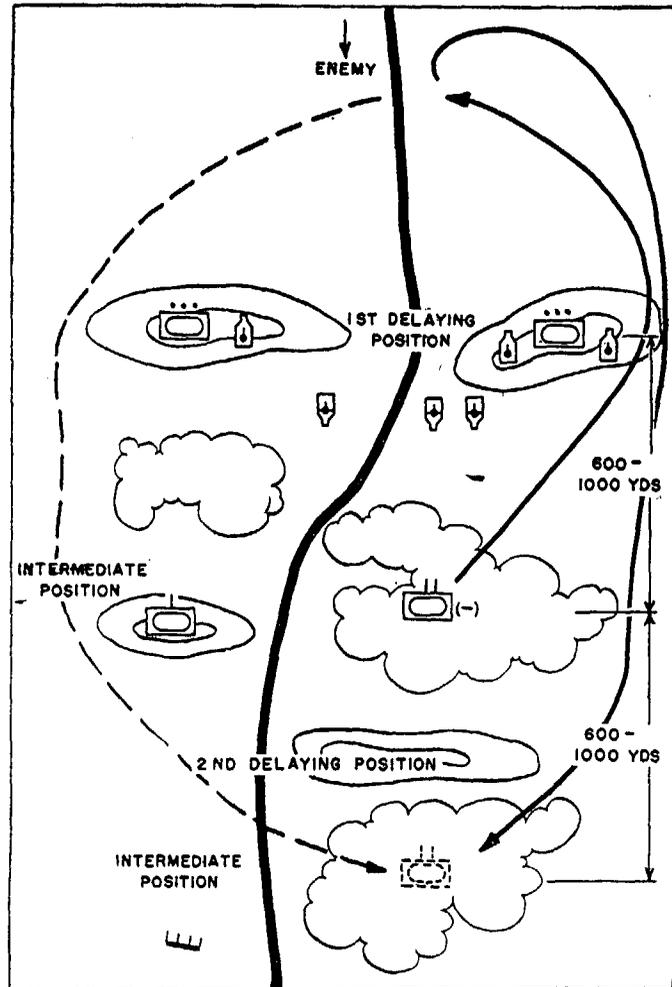


FIGURE 82.—Reinforced battalion in delaying action, acting alone.

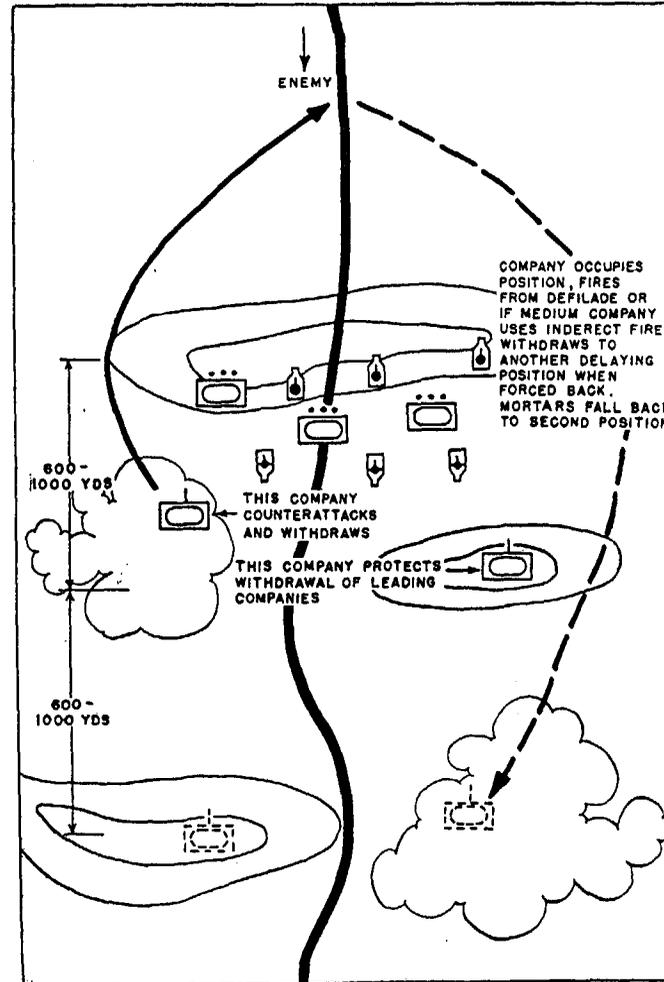


FIGURE 83.—Armored battalion acting alone in delaying action. No reinforcements.

b. When acting alone in delaying action the armored battalion will usually be reinforced with infantry, artillery, and engineers. Artillery by long-range fire delays and forces deployment of the enemy. Engineers destroy bridges and blow up fords. The infantry occupies positions from which it can force enemy deployment while tanks make limited objective attacks on the flanks and front of the enemy. The infantry then withdraws under protection of the tanks to the next delaying position.

c. If the tank battalion is not reinforced, companies or platoons with assault guns and mortars occupy deflated or concealed positions to bring fire on and force the enemy to deploy while other tanks make flank attacks. These tanks then withdraw to the next delaying position.

d. Delay may be in one position or successive positions. If delay is in one position, select as strong a position as practicable, that is, high ground with a stream in front and flanks protected by impassable ground. If delay is in successive positions, select these positions so that enemy artillery will have to displace. Select intermediate positions to cover withdrawal and withdraw by echelon.

SECTION VIII

SPECIAL OPERATIONS

■ 44. GENERAL.—Although fundamentals are the same for special operations as for other tank actions, certain operations present special problems that require some change in technique. The paragraphs below are written as a guide for solving certain type operations. Some conditions, such as operations in desert or in snow and ice, require special training and seasoning of troops.

■ 45. ATTACK OF A RIVER LINE.—In the attack of a river line the armored battalion is normally part of a larger force. However, the battalion when acting alone may seize bridges over unfordable streams, may force the crossing of streams at fords, or may with the assistance of engineers, cross small unfordable streams. The latter will be exceptional and the

battalion must be reinforced with reconnaissance, infantry, engineer, and artillery elements for such operations.

a. *As part of a larger force* (see FM 17-10).—The infantry supported by artillery and fire of medium tanks forces the crossing, the engineers build the bridge, and the tanks then cross. Some tanks may be ferried across early. Light and medium tanks may be used to support the crossing by fire. Medium tanks are more suitable for this purpose.

(1) *Light armored battalion*.—Light tanks are held in concealed assembly areas beyond range of hostile medium artillery fire and move to the river at the proper time to be ferried across or to use the bridge. An assembly point is designated on the far bank of the river where the battalion is reformed. Subsequently, the battalion performs such missions as are directed. Do not close up on river bank, or move up too early. The enemy may launch an air attack or bring artillery fire on the column.

(2) *Medium armored battalion*.—The medium armored battalion, when not used for fire support, is conducted the same as the light armored battalion in (1) above. A medium armored battalion may be used to assist the initial crossing by direct or indirect laying methods. When so used these tanks are placed in concealed positions close to the river bank, preferably on high ground. Medium tanks should not be used to replace artillery but are used for fire on definitely located enemy targets. Do not fire all your ammunition; it will be needed when the crossing is effected.