

MHI  
Copy 3

**N-2760**

**FM 17-20**

**WAR DEPARTMENT**

**ARMORED FORCE FIELD  
MANUAL**



**EMPLOYMENT OF ARMORED  
UNITS  
RECONNAISSANCE PLATOON  
AND COMPANY**

**May 30, 1942**

**FM 17-20**

**ARMORED FORCE FIELD  
MANUAL**



**EMPLOYMENT OF ARMORED UNITS  
RECONNAISSANCE PLATOON  
AND COMPANY**



**UNITED STATES  
GOVERNMENT PRINTING OFFICE  
WASHINGTON : 1942**

WAR DEPARTMENT,  
WASHINGTON, May 30, 1942.

FM 17-20, Armored Force Field Manual, Employment of Armored Units, Reconnaissance Platoon and Company, is published for the information and guidance of all concerned,

[A. G. 062.11 (5-12-42).]

BY ORDER OF THE SECRETARY OF WAR:

G. C. MARSHALL,  
*Chief of Staff.*

OFFICIAL:

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

DISTRIBUTION:

D 2, 7 (5); D 17 (20); IR 2, 7 (5); Bn and H 17 (5);  
IBn 2, 5-10 (3); C 17 (20); IC 2, 5-11 (5).  
(For explanation of symbols see FM 21-6.)

## TABLE OF CONTENTS

	Paragraphs	Page
<b>CHAPTER 1. General.</b>		
Section I. General.....	1-11	1
II. Training.....	12-18	16
III. Control, liaison, reports and forms..	19-22	24
<b>CHAPTER 2. Reconnaissance platoon.</b>		
Section I. Marches.....	23-28	34
II. Security.....	29-33	44
III. Assembly.....	34-35	65
IV. Offensive.....	36-46	78
V. Defensive.....	47-51	104
VI. Special operations.....	52-54	114
<b>CHAPTER 3. Reconnaissance company.</b>		
Section I. General.....	55	122
II. Marches.....	56-58	122
III. Security.....	59	128
IV. Assembly.....	60-61	128
V. Offensive.....	62-63	129
VI. Defensive.....	64-65	129
VII. Special operations.....	66	129
VIII. Maintenance.....	67-69	132
<b>INDEX.....</b>		<b>135</b>

# ARMORED FORCE FIELD MANUAL

## EMPLOYMENT OF ARMORED UNITS RECONNAISSANCE PLATOON AND COMPANY

### CHAPTER 1

#### GENERAL

	Paragraphs
SECTION I. General.....	1-11
II. Training.....	12-18
III. Control, liaison, reports and forms.....	19-22













#### SECTION I

#### GENERAL

■ 1. SCOPE.—*a.* This manual covers the tactical employment of the armored reconnaissance platoon and company of the armored reconnaissance battalion and the armored regiment. Many of the fundamentals set forth are applicable to the reconnaissance and liaison sections and platoons of other units in the armored division and the separate tank battalion and group. All reconnaissance agencies should study this manual for training and tactical methods applicable to their unit.

*b.* This manual is not intended to replace FM 17-10. It is to be used as a supplement thereto.

*c.* Key to illustrations:

	ARMORED CAR
	ASSAULT GUN
	AMMUNITION CARRIER
	1/4 TON TRUCK
	TRUCK (OTHER THAN 1/4 TON)
	MOTORCYCLE
	COMPANY COMMANDER'S VEHICLE
	PLATOON COMMANDER'S VEHICLE
	RIFLEMAN
	ANTITANK GUN
	MACHINE GUN
	ROAD BLOCK

■ 2. PURPOSE.—The purpose of this manual is to outline training methods, observation and reconnaissance methods, and the types of tactical action in which an armored reconnaissance platoon and company may have to engage in order to carry out its function of obtaining information.

■ 3. MISSIONS.—*a.* The principal mission of all reconnaissance agencies is to *obtain information* required by higher authority *and get it to the interested party in time* to be useful. While it is highly desirable to obtain information without being detected, time is the important factor. The reconnaissance platoon and company must therefore be prepared at all times to act both intelligently and aggressively.

*b.* The reconnaissance platoon and company may expect, in addition to the mission of obtaining information, to be given counterreconnaissance missions.

*c.* Reconnaissance platoon and company commanders must at all times be given definite missions within the limitations of the material available. If the mission is not clear to the platoon or company commander, it is his duty to ask that his mission be more clearly defined or to recommend a mission in keeping with the capabilities of his unit.

*d.* The reconnaissance platoon functions as indicated below:

(1) The platoon normally performs two general types of reconnaissance, zone reconnaissance and area reconnaissance.

(2) Zone reconnaissance is performed in front of an advancing force and of necessity must be aggressive in order not to delay this force. Unless adequate time is allowed reconnaissance agencies, information cannot be gathered in great detail. Area reconnaissance is designed to search an area for information of the enemy although units of the division may not advance into or through that area.

(3) In advancing through a zone the platoon normally operates on two roads on a frontage of between 5 and 7½ miles. Initially, while opposed only by hostile reconnaissance, it follows well-defined roads and moves rapidly. Patrols within a zone are normally one section.

(4) Upon encountering hostile security elements, the platoon moves via trails and across country. Patrols combine at previously designated points or on radio orders for protec-

tion and to concentrate fire power. Rate of advance is slowed down.

(5) Upon approaching strong hostile concentrations dismounted patrols must be used to obtain detailed information.

(6) The platoon leader with one armored reconnaissance car section and the assault gun section will normally follow the main route in his zone or the axis of communications assigned by the company commander. The platoon advances on a series of successive objectives. A general plan is announced for the entire advance but the platoon reorganizes on each objective and makes detailed plans for its movement to the next. These objectives may be phase lines announced by higher commanders or they may be terrain features selected by the platoon commander.

■ 4. TYPES OF TACTICAL ACTION.—Regardless of the mission assigned, reconnaissance elements must be fully prepared to undertake the following types of tactical action:

- Marches.
- Security.
- Assembly.
- Attack.
- Pursuit.
- Defense.
- Delaying action.
- Withdrawal.
- Special operations.

■ 5. TACTICAL GROUPING.—*a.* The armored reconnaissance platoon is a small tactical team consisting of mounted scouts capable of rapid and effective dismounted action, armored reconnaissance cars combining fire power, mobility, and all-around armor protection, supported by an assault gun section.

*b.* In accordance with the principle of tactical grouping to meet a particular tactical situation the reconnaissance platoon leader and company commander must be prepared to work with engineers, infantry, tanks, artillery, and support aviation, both observation and bombardment.

■ 6. ORGANIZATION.—Table of Organization 17-37 prescribes the organization of the armored reconnaissance company. Figure 2 illustrates a manning table for the reconnaissance

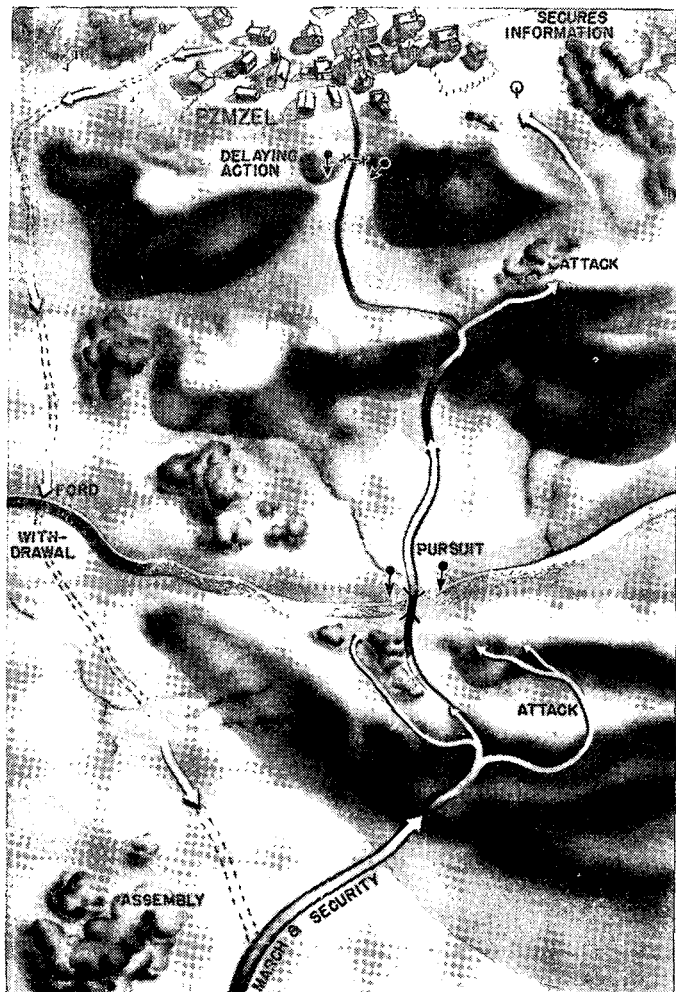


FIGURE 1.—Schematic view of typical action by reconnaissance patrol. Mission to secure detailed information of enemy disposition in PZMZEL.



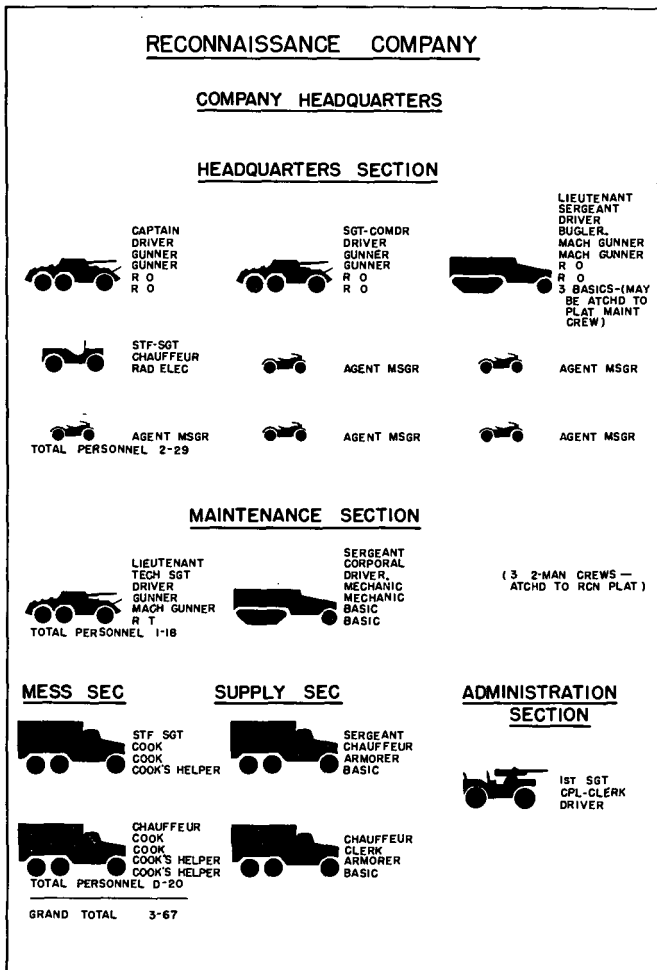


FIGURE 2.—Manning table, reconnaissance company.












<u>RECONNAISSANCE PLATOON</u>	
<u>1ST SECTION. A. C.</u>	<u>2ND SECTION. A. C.</u>
	
LIEUTENANT DRIVER GUNNER MACH GUNNER R O R O	STAFF SGT DRIVER GUNNER MACH GUNNER MACH GUNNER R T
	
SGT DRIVER GUNNER MACH GUNNER MACH GUNNER R T	SGT DRIVER GUNNER MACH GUNNER MACH GUNNER R T
TOTAL PERSONNEL 1-23	
<u>SCOUT SECTION</u>	
	
LIEUTENANT CHAUFFEUR R T	SGT CHAUFFEUR R T
	
CPL-GUNNER CHAUFFEUR GUNNER-MORTAR	CPL-GUNNER CHAUFFEUR GUNNER-MORTAR
TOTAL PERSONNEL 1-11	
<u>ASSAULT GUN SECTION</u>	
	
SGT-COMDR DRIVER GUNNER GUNNER	CPL-SQD LDR DRIVER AMM CARRIER AMM CARRIER
TOTAL PERSONNEL 0-8	
<u>MAINTENANCE CREW</u>	
	<u>(ATTACHED FROM CO MAINT SECTION)</u>
MECHANIC CHAUFFEUR	
TOTAL PERSONNEL 0-2	
<b>GRAND TOTAL</b>	<b>2-44</b>

FIGURE 3.—Manning table, reconnaissance platoon.

company. Figure 3 illustrates a manning table for the reconnaissance platoon. These manning tables are intended to serve as a guide. Company commanders are authorized to modify these tables to meet particular conditions.

■ 7. EQUIPMENT.—*a.* Figure 4 illustrates the scout section. Figure 5 illustrates two types of armored reconnaissance cars. Figure 6 illustrates the assault gun section. FM 17-25, Employment of Armored Units, the Assault Gun Platoon and Section (when published), details the tactical employment of that weapon.

*b.* The type of armored reconnaissance car to be issued has not yet been determined. One of the types shown in figure 5, with only minor modifications, will probably be adopted.

■ 8. RADIO NETS.—The radio net shown in figure 7 is that which will normally be employed by the reconnaissance platoon and company. These nets may be varied, within the limitations imposed by division signal operations instructions and available crystals to meet particular situations. Normal radio ranges are shown in figure 8.

■ 9. CODES AND CIPHERS.—*a.* The use of codes and ciphers is prescribed by the division SOI in conformity with policies announced by higher authority. In general these instructions state that division field codes and cipher devices will not be taken into combat. The reconnaissance platoon and company habitually operate in the presence of hostile forces and are constantly exposed to the likelihood of combat, ambush, and capture.

*b.* In view of the foregoing, standard division field codes and cipher devices will *not* be carried forward of the reconnaissance battalion headquarters. The reconnaissance company of the reconnaissance battalion and of the armored regiment will rely on simple brevity codes, map coordinate codes, and such other codes as the situation may warrant.

*c.* It is a command decision when to use a previously arranged code and when to send a message in the clear. As a general guide the following principle should govern the decision of the commander concerned. Always go on the assumption that enemy intelligence agents are listening and can understand your clear text. With that in mind estimate

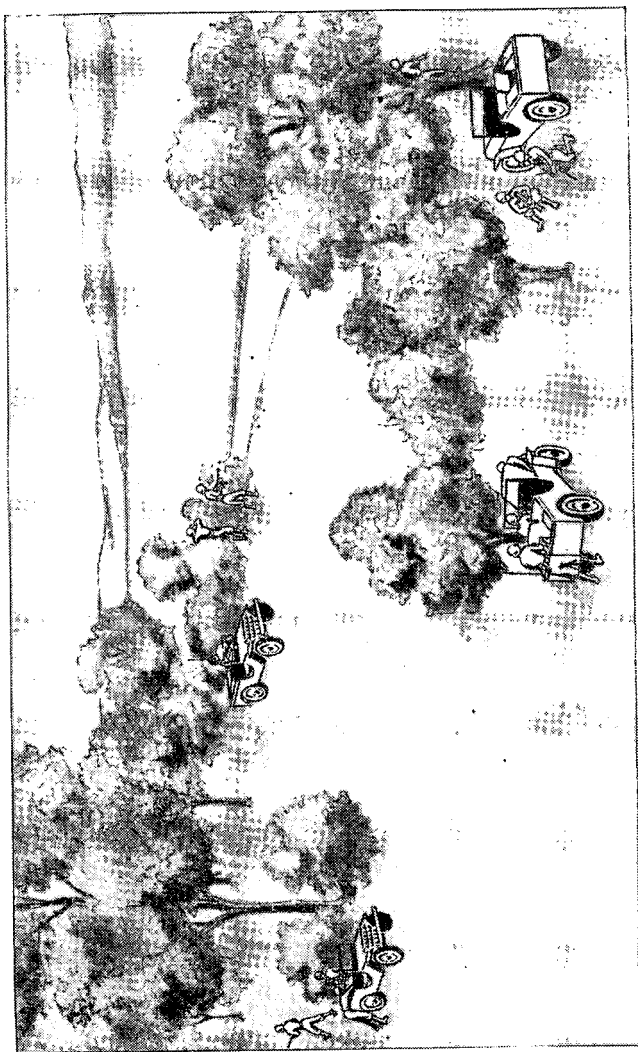


FIGURE 4.—Scout section.

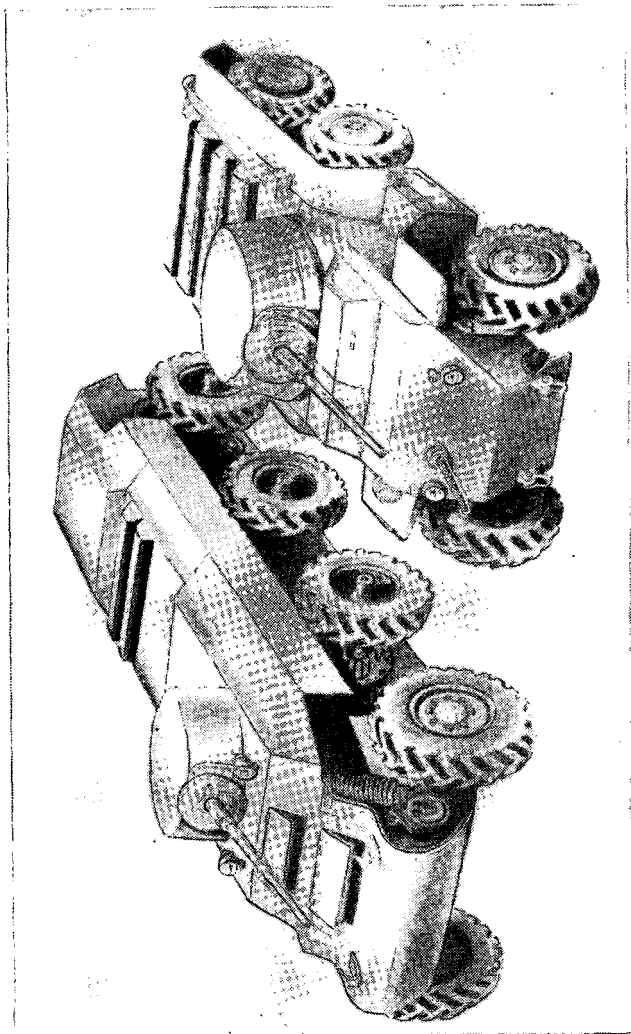


FIGURE 5.—Armored reconnaissance cars.

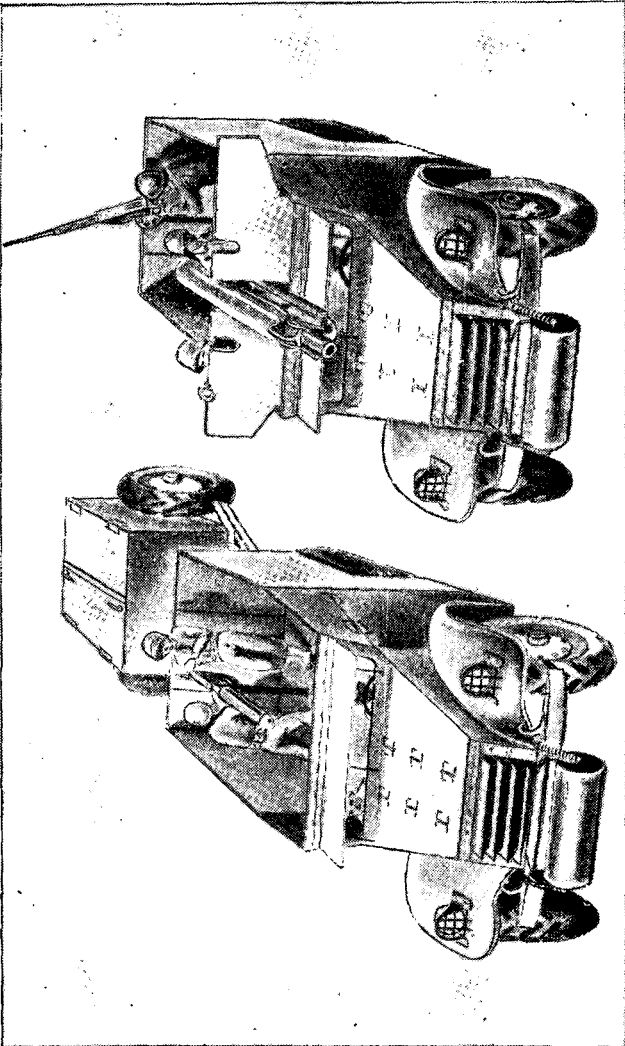


FIGURE 6.—Assault gun section.

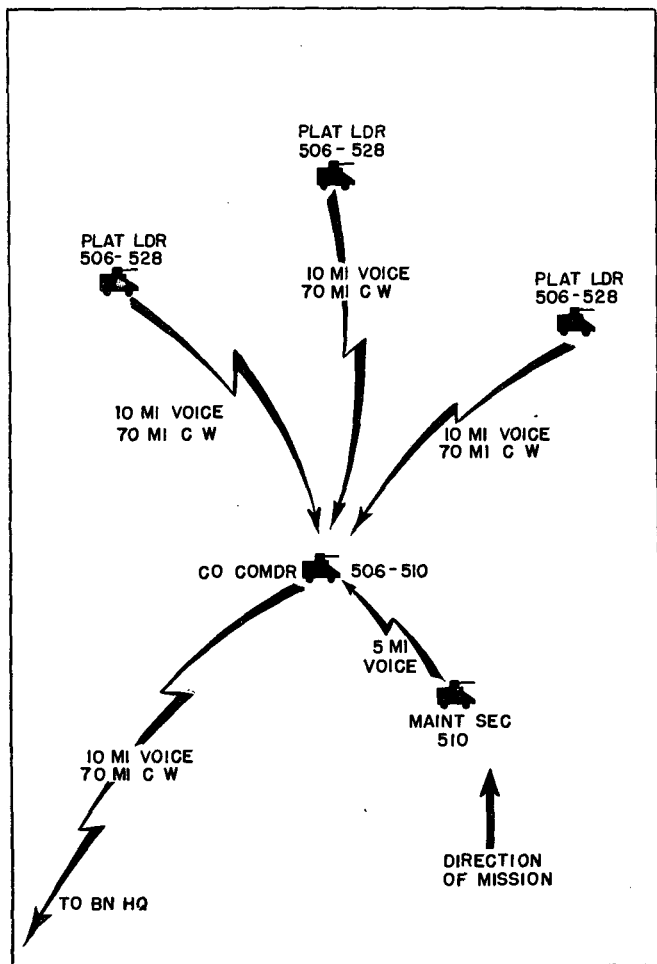


FIGURE 7.—Radio net, reconnaissance company.

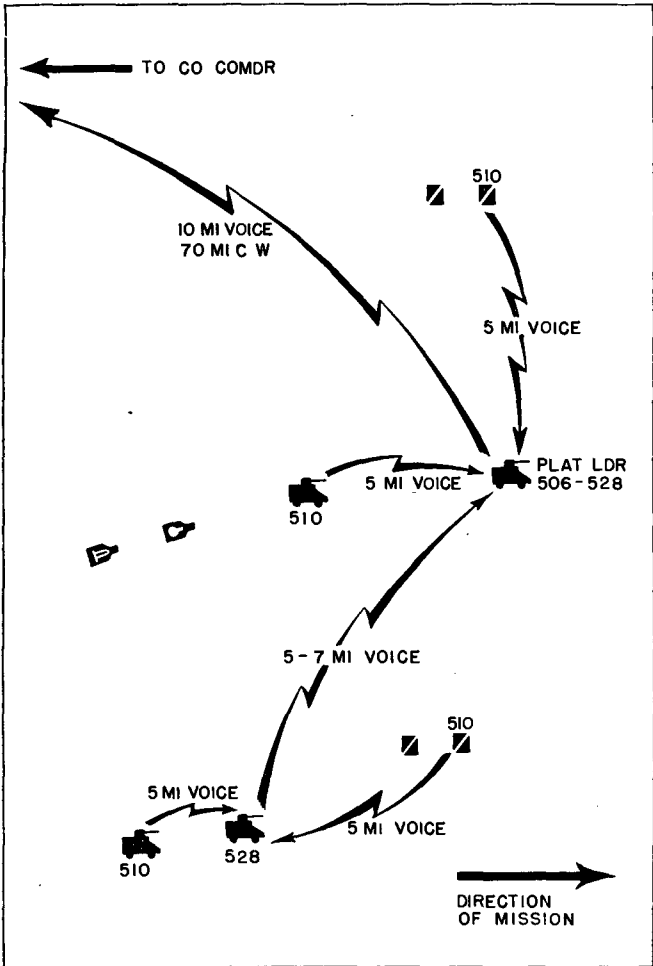


FIGURE 8.—Usable radio ranges.



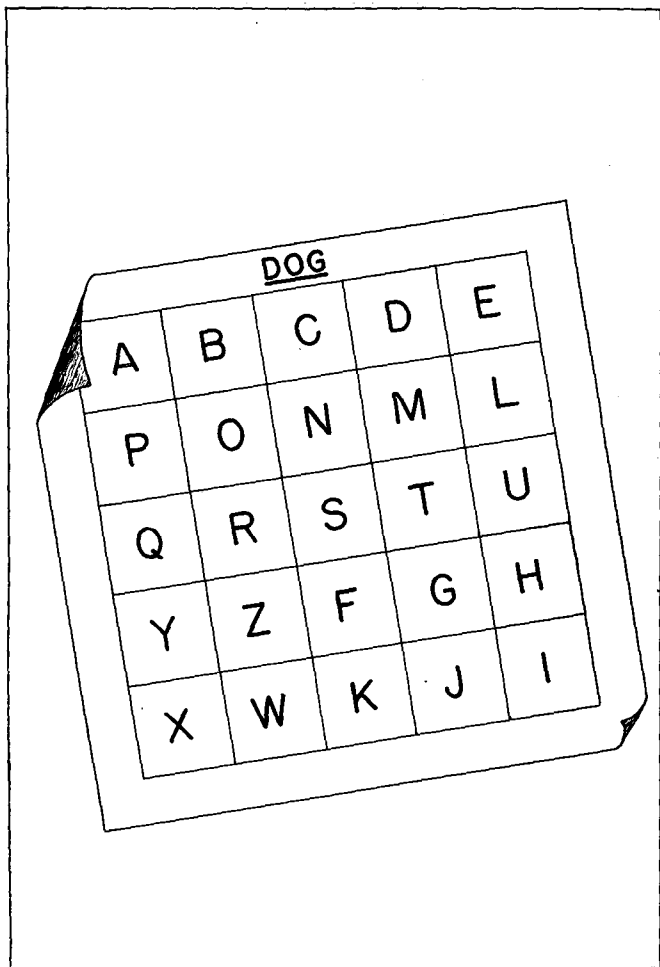


FIGURE 9.—Operators' identification code. Any number of squares can be prepared. Each square is given a code name, as "dog," "cat," etc. Before sending a message the operators identify each other by designating the square to be used, unless it has been previously announced. The operator sending the message would say "dog, OS" using any two letters on the diagonal upper left to lower right. The receiving operator answers "RN" giving the letters of the opposite diagonal.

whether or not the information will enable him to take action against your own forces. Example: A message by radio saying "The bridge at Annins will carry medium tanks" should not be sent in the clear, for while the enemy probably knows the load limit of that bridge, the message coupled with others might indicate that our forces planned to advance over that route. However, if by prearrangement the message said "Bridge safe," signed Patrol No. 1, the enemy would gain no useful information unless by directional intercept the patrol at the bridge was located and identified. Such a condition is unlikely in mobile warfare.

d. The possibility that enemy stations will come into a net and send false or misleading messages is always a contingency. It is necessary therefore that persons using the radio use the operators' identification code (fig. 9.)

e. Wherever possible communication should be by voice between the commanders concerned, not enlisted radio operators. Officers who have trained together will recognize one another's voices. This eliminates to some extent the possibility of hostile stations entering the net.

f. Reconnaissance personnel must be especially careful not to carry into action any codes, papers, letters, maps, orders, etc., except those absolutely necessary. They must be prepared at all times to take prompt and effective measures to destroy such papers or documents as they may have.

■ 10. ANALYSIS OF RECONNAISSANCE FRONTAGES AND DISTANCES.—Time, distance, and means of communication impose definite limits on the frontages and distances over which reconnaissance units can operate successfully. Assignment of missions must conform to these limitations. A reconnaissance platoon should habitually operate by sections or groups of at least two vehicles. A single vehicle is too vulnerable to ambush to operate alone successfully. This means that a platoon can cover only two roads, if the area between these roads must be thoroughly reconnoitered for hostile troops.

■ 11. USE OF ILLUSTRATIONS.—The illustrations in this manual are designed to simplify and speed training. They may be used as the basis for sand table lay-outs. Pictures, to achieve their full value, must be *studied*. See Training Films 7-265 and 7-266.

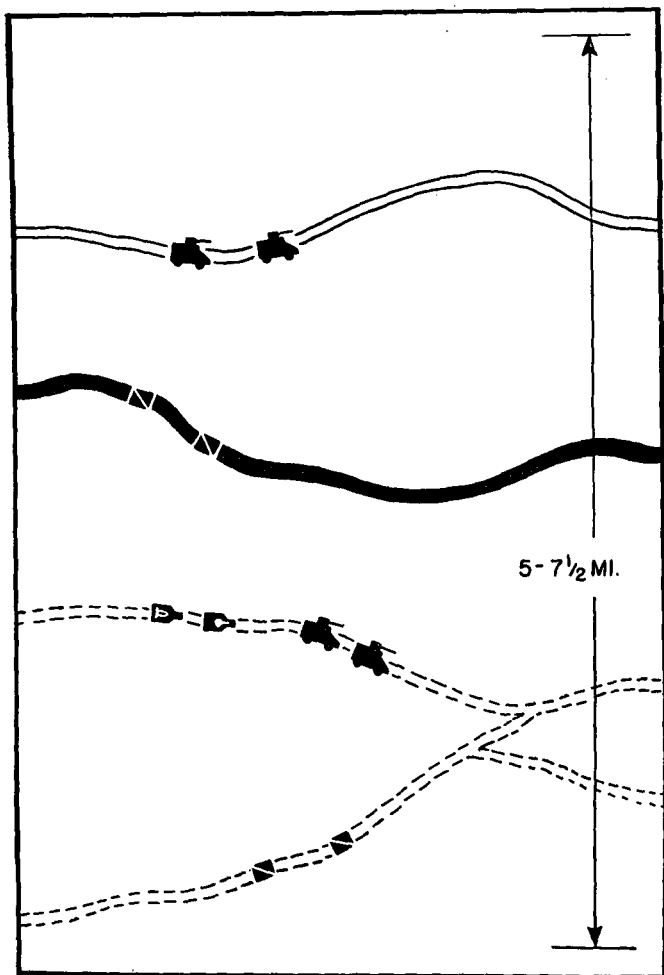


FIGURE 10.—Frontages for reconnaissance platoon.

## SECTION II

### TRAINING

■ 12. GENERAL.—*a.* To be classed as a competent reconnaissance man, each individual must undergo a long period of intense training. The subjects in which each individual in a reconnaissance platoon and company must be trained are more varied than in any other unit of the Armored Force. Beyond the initial training phase individuals and units must constantly practice *all* of their varied duties to maintain the required degree of proficiency.

*b.* The goal to be sought in training is to make all members of a platoon sufficiently proficient in the duties of all other members so that they are interchangeable in any emergency. The success of a mission may depend upon an armored reconnaissance car driver operating the radio in the ¼-ton scout truck.

■ 13. SUBJECTS.—In addition to the basic duties of a soldier, proficiency in operating and firing all weapons of the platoon, proficiency in driving all vehicles of the platoon, and proficiency in voice operation of the radio equipment of the platoon, all men must be taught the following subjects:

*a.* Map and aerial photo reading. (FM 21-25.)

*b.* Scouting and patrolling dismounted. (FM 21-45, 21-100, and 17-10.)

*c.* Elementary navigation.

*d.* Signs, tracks, and tracking.

*e.* Armored, vehicle identification. (FM 30-40 and 30-42.)

*f.* Action with prisoners. (FM 30-15.)

*g.* How to observe and how to describe what has been observed. (FM 30-10.)

■ 14. ELEMENTARY NAVIGATION.—*a.* The vehicle commander, the section leader, the platoon leader, and the company commander are responsible for knowing accurately at all times where they are. There is no excuse for becoming lost. A person who is lost is one who failed to observe where he was going. In short, he failed to navigate. The basic elements of navigation are:

(1) Use of odometer to register distance from known point.

(2) Use of compass, watch, sun, and stars to maintain direction.

b. While navigation is the responsibility of the commander, one man in each car should be required to navigate and keep a simple strip map (see sec. III).

■ 15. HOW TO OBSERVE.—a. It is essential that all men be given training in observation. While time may not be available to conduct special instruction as outlined below, the elements of how to observe can be explained and practice obtained concurrently with other training.

b. (1) Training in observation is intended to develop mental alertness and acuteness in sight and hearing and the ability to remember and describe *accurately* what has been seen and heard.

(2) Visible objects should be studied for color, form, number, and dimensions.

(3) The characteristic sounds of marching men, animals, carts, automobiles and trucks, tanks, airplanes, and the discharges of various types and caliber of weapons should be learned.

(4) The next step in observation training is where to look for things. No vehicle should proceed from one observation point to the next without first, by observing the terrain, estimating where enemy antitank guns and other weapons might be located and siting weapons to cover these spots.

■ 16. SIGNS, TRACKS AND TRACKING.—a. Tracking animals or human beings is one of the world's oldest pursuits. Its use in modern warfare, as applied to tracking men or vehicles, must not be overlooked. The basis for successful tracking is trained ability to observe and logically deduce from a few signs and tracks what has taken place at a particular spot. A reconnaissance patrol may not see a hostile patrol pass a particular point but careful observation of the ground may reveal to the trained observer that an enemy vehicle or vehicles passed, the direction of travel, and an estimate of the length of time since they went by.

b. When studying identification of hostile armored vehicles particular attention should be given to the type and width of tracks or tires and the characteristics of the tread.

c. Training in tracking, in addition to its value in recon-

naissance work, is also an aid in training men in the necessity of obliterating their own tracks when concealment is essential and is an insurance against getting lost.

■ 17. METHODS OF TACTICAL TRAINING.—*a.* Efficient tactical employment is the framework on which all the special subjects listed above are hung. Ability to observe, navigate, or track an enemy or read a map is of no value unless sound tactical procedures are employed to reach the objective indicated by the mission. Tactical procedures and formations can be standardized and reduced to a few simple rules *provided* it is clearly understood that these procedures are *not* rigid and inflexible, that they are guides which can be varied by the leader to meet varied situations.

*b.* Tactical training must proceed logically from the elementary actions of the section (scout, reconnaissance car, and assault gun) to the more complex in which all elements of the platoon act as a smooth and efficient team. It is divided into indoor training and outdoor training. The former consists of prepared tactical problems on the map or sand table, the latter of field exercises on training courses similar to those prepared for the tank platoon and by actual reconnaissance missions.

*c.* Tactical problems played out on maps or on sand tables are particularly useful in training vehicle and section leaders to make rapid estimates and quick, accurate decisions. Open discussions should be held before and after the exercise. During the conduct of the exercise the play should be fast and decisive. To maintain such an action requires careful and thorough preparation on the part of the officer conducting this exercise.

SPECIAL NOTE.—Under no circumstances should the conduct of these exercises be left to noncommissioned officers. Officers must be required to conduct these exercises.

*d.* Wherever practical the field exercises should be played one or more times on the sand table or map before going into the field. Field exercises, like map exercises, require thorough preparation. It is not sufficient for a company commander to direct one of his platoons to conduct a reconnaissance problem along highway X between towns Y and Z. The platoon must be given a *specific* mission. Included in the

instructions should be a list of the points to be taught in the exercise.

e. Ten commandments for the reconnaissance leader:

- (1) *Keep your mission constantly in mind.*
- (2) Calculate the "time-space" factor of your mission; know how much time you have left to accomplish that mission.
- (3) Remember that a mission is accomplished only when the required information has reached the proper headquarters in time to be of value.
- (4) Study all available maps and aerial photos of the area in which you are to operate.
- (5) *Keep your mission constantly in mind.*
- (6) Memorize salient terrain features shown on your maps or aerial photos.
- (7) Maintain your schedule.
- (8) Know when to take a chance by quickly evaluating the consequences.
- (9) See without being seen.
- (10) *Keep your mission constantly in mind.*

f. Before beginning mission know—

- (1) Where am I going?
- (2) What route will I designate?
- (3) What formation will I use initially?
- (4) What friendly troops should I contact prior to or during my departure?
- (5) What shall I do upon arrival at the principal objective?

g. While on mission ask yourself—

- (1) *Am I sticking to my mission?*
- (2) Am I reporting the "what-where-when" of any hostile troops observed?
- (3) Am I reporting negative information and my location when appropriate?
- (4) Am I contacting adjacent friendly troops and exchanging information?
- (5) *Am I sticking to my mission?*

■ 18. TRAINING DISMOUNTED SCOUTS.—a. Excellent training can be provided dismounted scouts by laying out a simple course as illustrated in figures 11 to 14. No elaborate or expensive equipment is needed. The length of the course is not fixed and can be readily fitted to available terrain.



FIGURE 11.—Scout training, first phase.





FIGURE 12.—Scout training, second phase.



FIGURE 13.—Scout training, third phase.



FIGURE 14.—Scout training, fourth phase.

b. (1) *First phase.*—The purpose of this phase is to teach scouts how to advance taking advantage of cover. Several scouts can move at one time; the remainder take position at A and try to detect their advance.

(2) *Second phase.*—The purpose of this phase is to teach scouts how and what to observe. After the scout has reached point A the terrain between A and B comes into his view. He should be permitted to observe for a limited time (5 minutes) and then called upon to state in detail what he saw in order of its importance. The terrain under observation may be a section of the camp or a well-traveled highway. Replicas of enemy vehicles and weapons may be placed in partially concealed positions.

(3) *Third phase.*—The purpose of this phase is to teach scouts the selection of weapons and the principles of taking prisoners. A situation should be presented briefly and the scout required to choose *instantly* the weapon he would use. He should have the choice of pistol, carbine, submachine gun, or grenade. Dummies can be placed and the scout required to (1) take them alive, (2) kill them.

(4) *Fourth phase.*—The purpose of this phase is to develop stamina and agility. It consists essentially of an obstacle course including hedges, walls, ditches, barbed wire fences, in and out trenches, etc. The scout should be required to run this course at a rapid, steady gait, carrying full combat equipment.

c. All phases of this course should be run both in daylight and at night and particularly in inclement weather.

d. If terrain permits, a similar course can be laid out for training vehicular crews, including motorcycle messengers, in mounted scouting.

### SECTION III

#### CONTROL, LIAISON, REPORTS AND FORMS

■ 19. CONTROL.—*a.* Radio provides the principal means of controlling and directing reconnaissance elements. Leaders must not, however, place sole reliance in radio or in any single means of control. Flag signals and arm-and-hand signals must be learned and employed where applicable. Motorcyclists and  $\frac{1}{4}$ -ton trucks may be used for messenger service. Where a message or overlay of importance must be

sent it should be sent in duplicate and if possible by different routes.

b. It must be borne in mind that the supply of messengers is not inexhaustible and that if the journey is a long one, time must be allotted to rest the personnel and refuel the vehicle.

■ 20. **LIAISON.**—The qualifications and duties of liaison officers are fully laid down in FM 101-5, "The Staff and Combat Orders." Officers selecting liaison officers and officers detailed to this duty should be familiar with the provisions of this manual.

■ 21. **REPORTS AND FORMS.**—*a. General.*—While it is highly desirable from the G-2 point of view to receive information from reconnaissance elements on standard printed forms, such forms can seldom be maintained in combat. However, during the training phase standard forms for rendering reports are an excellent aid to training in how and what to observe. They provide a check list so that no important elements will be overlooked.

(1) Figures 15 and 16 illustrate a standard form for recording routine information. The principal advantage of this form is that the bulk of the information can be transmitted by radio in an abbreviated code.

(2) Figure 17 illustrates a special form for determining bridge information. While this form will generally be used by the engineer reconnaissance elements, armored reconnaissance elements should be familiar with it.

(3) Figure 18 illustrates a simplified route reconnaissance graph.

(4) Figure 19 illustrates the simplest method. It requires only a sheet of paper, a pencil, and the training and intelligence to know what to put down.

*b. Bridge formulas.*—The following information and data are taken from FM 5-10. All reconnaissance personnel should be practiced in their use. The following is a brief outline of the steps followed in inspecting a bridge:

(1) Where the bridge is in territory that has been evacuated by the enemy, the abutments and piers should be carefully examined for evidence of mines. This should be done first.

(2) Examine planking to determine its general condition. It should be smooth, for the reason that a rough surface greatly increases the stresses in all parts of the bridge. For modern heavy loads a simple rule-of-thumb is that the thickness of the planking in inches should never be less than one and one-half times the clear distance between the stringers in feet. Thus, if the stringers are 2 feet apart the floor planks should be at least 3 inches thick. This rule should not be carried to absurd limits in either direction, and should be modified by the statement that whenever the flooring is less than  $2\frac{1}{2}$  inches thick it should usually be reinforced by way planks or by a diagonal layer of flooring, regardless of the spacing of the stringers. Splitting and rotting should be noted as evidences of weakness.

(3) Examine stringers at supports for rot or crushing, and throughout their length for warping, twisting, splitting, or breakage. The amount of sound stringers remaining must be decided and figures based on this decision.

(4) Examine pile and trestle bents for rot, splitting, loose joints, and alinement.

(5) Examine wooden abutments and footings for rotting, settlement, and erosion, or sloughing away of the bank beneath them.

(6) Examine masonry abutments and piers for cracks, bulging, or sliding. The change of condition between inspections is of great importance in this connection.

(7) If the floor consists of a paved surface on sound, properly placed buckle plates, it is safe to assume that it will carry the heaviest military loads. If the flooring is a concrete slab, the determination of its capacity will be difficult in the field, but it may be roughly estimated from the capacity of the stringers.

■ 22. DETERMINATION OF ALLOWABLE LOAD.—The inspection having been made, the next step is the determination of the allowable load. As time for a detailed computation is generally not available, a rule-of-thumb for capacity is desirable. If the flooring has been found satisfactory according to the rule-of-thumb given in paragraph 21, or can be made satisfactory by the addition of way planks or doubled planking, the arrangement and strength of stringers is next investi-

gated. Taking into consideration the kind of flooring apt to be found, it is reasonably safe to assume that the load will not be equally divided among the stringers. It is a fair assumption that one-third of the total load upon the span might have to be carried by any one stringer and that two-thirds of the load, that is, two-ninths of the entire load on the span centered in the middle of the stringer, will give an approximately equivalent bending stress. Based upon this hypothesis, approximately simple formulas for judging the strength of stringers are:

$$W = \frac{bd^2}{L} \text{ (for rectangular timber)}$$

$$W = \frac{6d^3}{10L} \text{ (for round timber)}$$

where

$W$  = the maximum permissible load on a single stringer in hundreds of pounds

$b$  = the breath of the stringer in inches

$d$  = the depth of a rectangular stringer in inches, or the diameter of a round timber in inches

$L$  = the span in feet.

These formulas are based on a working stress of 1,800 pounds per square inch. The factor of safety is about 3. If judgment indicates that this working stress is excessive for the stringers being investigated, the permissible load should be taken as proportionately less. An approximate formula for judging the strength of a steel I-beam is:

$$W = \frac{d^2}{5L}$$

where

$W$  = the maximum permissible load on a single I-beam in tons

$d$  = the over-all depth of the I-beam in inches

$L$  = the span in feet.

*Example:* An existing bridge is found to have six rectangular wooden stringers 8 by 10 inches in cross section, evenly spaced at 2 feet from center to center; span 14 feet; floor planks 2 inches thick. What maximum load should the bridge pass?

*Solution:* The load which any one stringer can pass is by the formula given above.  $W = \frac{8 \times 10 \times 10}{14} = 57$  hundred pounds.

The floor planks being thin, it is assumed that this stringer may have to carry two-ninths of the total load on the span. Therefore the total permissible load on the bridge is

$\frac{9}{2} \times 5,700 = 25,650$  pounds. Extra flooring is required.



UNIT	ROUTE OR HIGHWAY			I.P.			BRIDGES			COMPUTER			DATE														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
	Critical points: towns, bridges, cross roads, etc., facilities, etc., described by adjoining spaces	Odometer	Time	General direction (your movement)	Type (see key)	All weather?	Underpass (height)	Detile (length)	Cross road	Road junction	Road right	Road left	Turn left	Turn right	Railroad (number of tracks)	Bridge (cap. in tons) Type (see key)	Hours Eng. repair or Pioneer work	Highest bank	Type of bottom	Rate of current	Cover/concealment	For dable (R or L)	Ferry (capacity)	Method of propulsion	Crossing speed (round trip)		
A																											
B																											
C																											
D																											
E																											
F																											
G																											
H																											
I																											
J																											
K																											
L																											
M																											
N																											
O																											
P																											
Q																											
R																											
S																											
T																											
U																											

Figure 15.—Reconnaissance form, part one.

TERRAIN		DATE													PAGE	B					
		POSITION																			
27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	KEY	
SUPPLIES																					
Opn. Armd. Veh.	Cover&Concealment	Stumps Area (extent)	Swamp Area (extent)	Gassed Area (extent)	Observation pt.	Assembly Area	Bivouac Area	Cover&Concealment	Good drainage	Airfields (key)	Gasoline stations (Number)	Gasoline storage tanks (capacity)	RR loading platforms (No.)	RR platforms (cap. in tons)	(Sldings (number)	(Sldings (length)	Docks & Landings	Communications (Tp., Tt., or Rad.	Power lines	Water supply	
A																					
B																					
C																					
D																					
E																					
F																					
G																					
H																					
I																					
J																					
K																					
L																					
M																					
N																					
O																					
P																					
Q																					
R																					
S																					
T																					
U																					

FIGURE 16.—Reconnaissance form, part two.

## BRIDGE RECONNAISSANCE REPORT

(Overlay designation) -----

-----  
(Unit)

Map Reference ----- Report No. -----  
Date -----

Reconnaissance Agency -----

1. Bridge is ----- miles ----- from ----- along  
(Direction) (Nearest Town)  
Highway No. ----- at crossing of -----  
(Name of R. R., River)

2. Bridge: -----  
(Type) (# Spans) (Over-all length) (Road width)  
Show on back Profile sketch of Bridge, showing critical members.

3. Flooring: -----  
(Type) (Thickness) (Condition)

4. Stringers: -----  
(No.) (Type) (Length) (Dimensions)  
(Spacing) (Condition)

5. Bents or Piers: -----  
(Type) (Size) (# Posts) (Condition)

6. Abutment: -----  
(Type) (Dimensions) (Condition)

7. Height of floor: -----  
(Max. over valley bed) (Max. over deep water)

8. For Truss bridges—Critical member: -----  
(Dimensions) (Position)  
-----  
(Condition)

9. Capacity: ----- By whom determined -----

10. Suitability to by-pass: -----  
(Method) (Least Mobile vehicle) (Work for all vehicles)

11. Stream: -----  
(Width) (Velocity) (Depth) (Bed Material)

12. Banks: -----  
(Height) (Material) (Condition)

13. Ferry: -----  
(Type) (Capacity/Trip) (Capacity-Trips/hr.)

In event that suitable by-pass exists demolition data are useless.  
If ferry or ford so designate in large letters.

FIGURE 17.—Bridge reconnaissance form.

## Route reconnaissance graph

Organization:			Route:					
Sched- ule time	Actual time	Route	Mile- age	Road surface	Num- ber lanes	Bridges	Mark- ing re- quired	Remarks

## CODES AND SYMBOLS

*Route symbols:* (Column 3)

Impassable route N P

Unsafe bridge

Safe bridge

*Road surface code:* (Col-  
umn 5)

A. Cement

B. Asphalt

C. Gravel

D. Sand

E. Good shoulders

F. Poor shoulders

*Route Terrain Code:* (Column 3)1. Rolling farm coun-  
try.2. Heavily wooded,  
impassable

3. Cut

4. Fill

5. Flat, marshy

6. Flat, dry

7. Rough, impassable

8. Wooded, passable

9. Sandy

10. River, paralleling  
(unfordable)11. River, paralleling  
(fordable)

12. Hilly

13. Defile

Col- umn 1	Col- umn 2	Col- umn 3	Col- umn 4	Col- umn 5	Col- umn 6	Col- umn 7	Col- umn 8	Column 9

FIGURE 18.—Simplified route reconnaissance form.

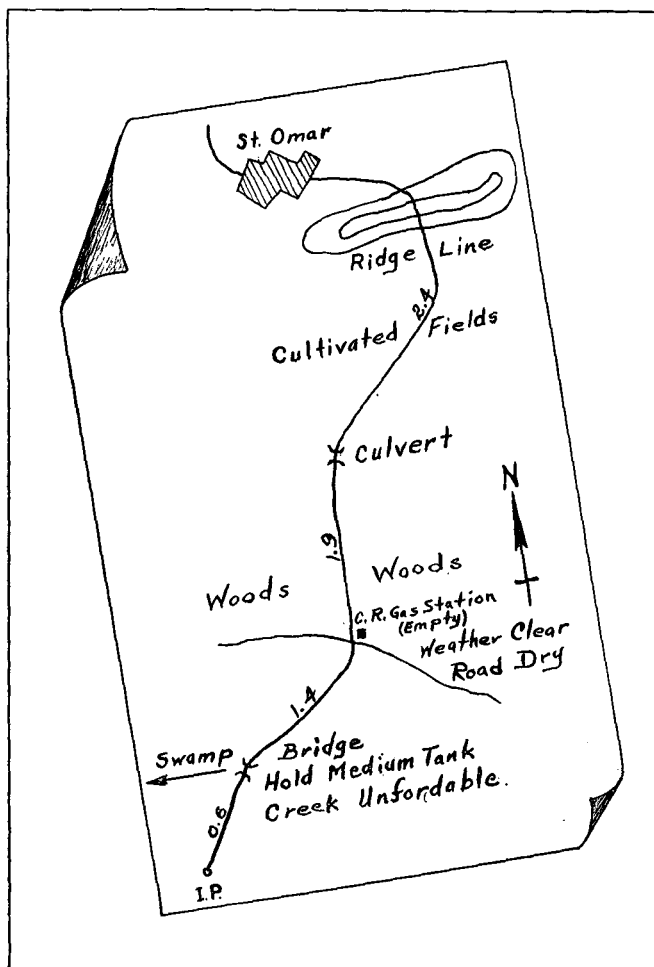


FIGURE 19.—Sample of write sketch.

## CHAPTER 2

## RECONNAISSANCE PLATOON

	SECTION I	Paragraphs
SECTION I. Marches.....		23-28
II. Security.....		29-33
III. Assembly.....		34-35
IV. Offensive.....		36-46
V. Defensive.....		47-51
VI. Special operations.....		52-54

## MARCHES

■ 23. GENERAL.—*a.* The reconnaissance platoon will march either administratively or tactically. The methods and technique of administrative marches are fully covered in FM 25-10, and FM 17-50 (when published).

*b.* Tactical marches by a reconnaissance platoon differ materially from those of most other units. The following figures illustrate proper and improper methods of march technique applicable to the reconnaissance platoon in a tactical situation either assumed or actual.

■ 24. MARCH FORMATIONS.—Figure 20 illustrates four formations which may be used by the armored reconnaissance platoon. The decision as to which formation to use is based on the mission, the type of opposition expected, and the terrain. These are not the only formations but they should be learned and practiced until they become standard. A well-trained platoon should be able to adopt any one of these formations immediately upon receipt of the order "Formation B" (or C, etc.).

■ 25. ACTION WHEN IN OBSERVATION.—*a.* Information is usually gathered at a halt, movement being used only to go from one observation point to another, or to avoid detection or capture.

*b.* Before crossing terrain to a new observation point it should be thoroughly searched from a covered position.

*c.* During the early stages of reconnaissance before serious enemy opposition has been met, observation may be made from the vehicle in chassis defilade or in cover of woods or brush.

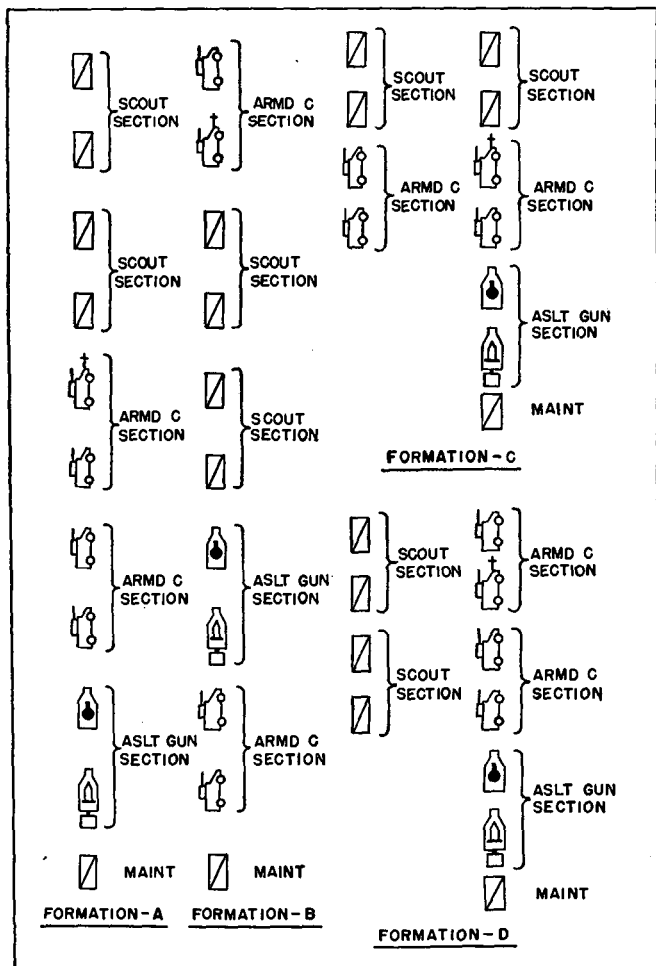
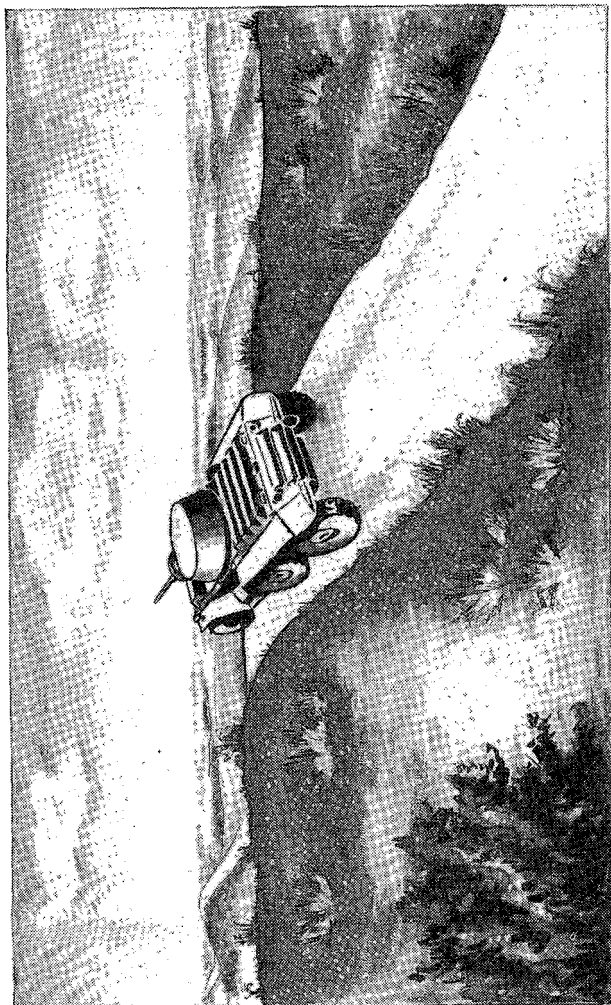


FIGURE 20.—March formations, armored reconnaissance platoon.



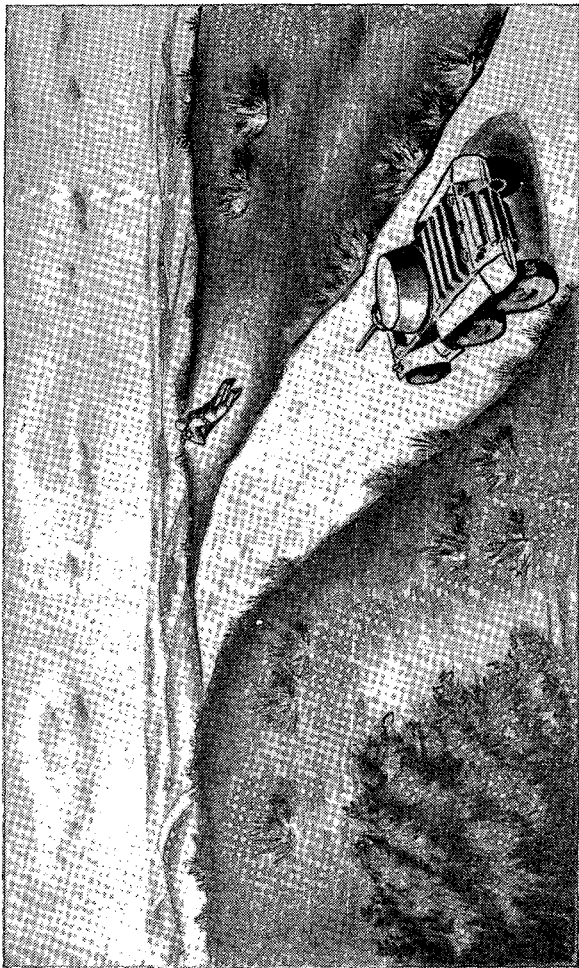
FIGURE 21.—Observe before leaving cover. A stationary vehicle habitually dismounts at least one scout for close-in defense. He must be posted far enough from the vehicle so as not to be disturbed by its noise. He should be particularly alert to listen and watch for hostile approach especially from flanks and rear.





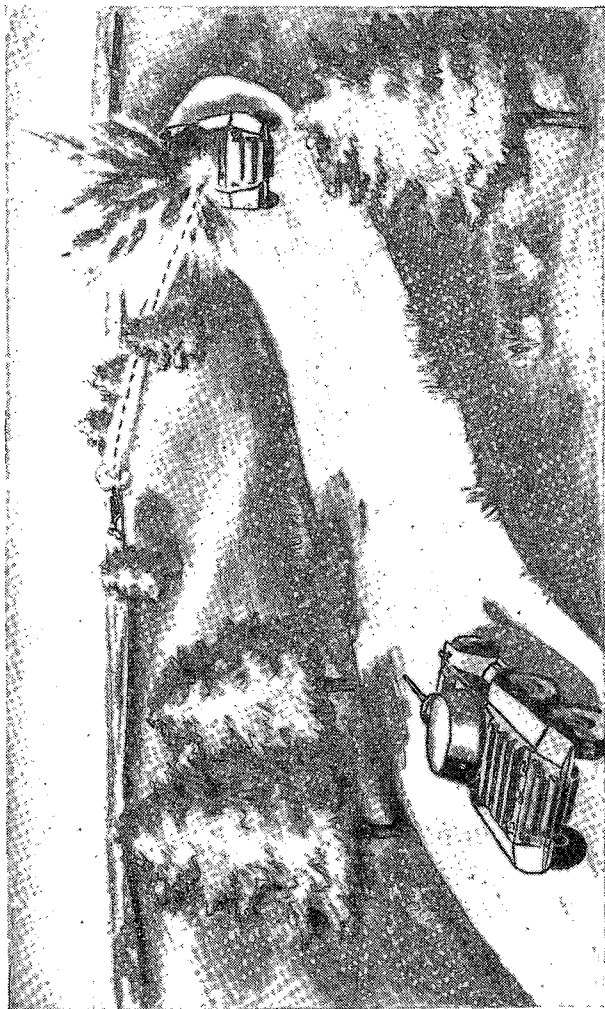
① Do not expose vehicle over a crest if cover is poor.

FIGURE 22.

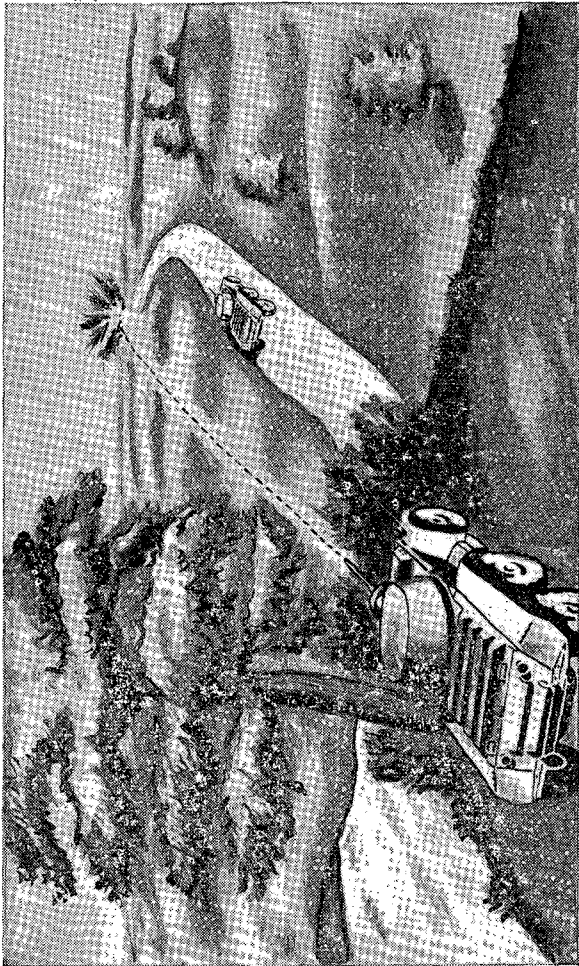


③ The scout should dismount and crawl forward to a position from which he can observe. If this position is to be occupied any length of time, vehicle should leave road to obtain cover.

FIGURE 22—Continued.



① Do not send a vehicle forward to a new observation position unprotected.  
FIGURE 23.



② Place an armored car or the assault gun in a position where it can cover the advance of the other car.  
FIGURE 23—Continued.



FIGURE 24.—If necessary to assist the advance of the supporting vehicle, the leading vehicle will engage the gun from covered position, using mounted fire or dismounted or combined action.



FIGURE 25.—Fire on suspected gun location often causes hidden gun, believing he has been discovered, to return fire, thus disclosing position and caliber.



FIGURE 26.—Dismounted men signal "clear" from bridge and their vehicle No. 1 bounds forward, under cover of guns at No. 2, and on the way to the next crest picks up the dismounted patrol.

■ 26. **ADVANCE BY BOUNDS.**—*a.* Approach crests cautiously, off road, and observe terrain beyond from vehicle in cover or in chassis defilade or dismounted. When the leading car has completed its bound it covers the advance of the rear car. The section leader normally rides in the rear car and directs the leading car in each successive bound when the section is operating alone. This places the section leader where he can report the action in case the leading car is ambushed. When covering the advance of the larger patrol, however, the section leader normally leads (fig. 23).

*b.* If a vehicle is fired upon by weapons close enough to be dangerous to it, that vehicle will move to cover as rapidly as possible. Supporting vehicle will engage these weapons to cover movement of the attacked vehicle.

■ 27. **RECONNAISSANCE BY FIRE.**—If previous contact has disclosed your presence, reconnaissance by fire may trick the enemy into exposing a hidden weapon.

■ 28. **MARCHING THROUGH DEFILE.**—Reconnoiter critical obstacles or defile before committing vehicle. This is best done by dismounted patrols.

## SECTION II

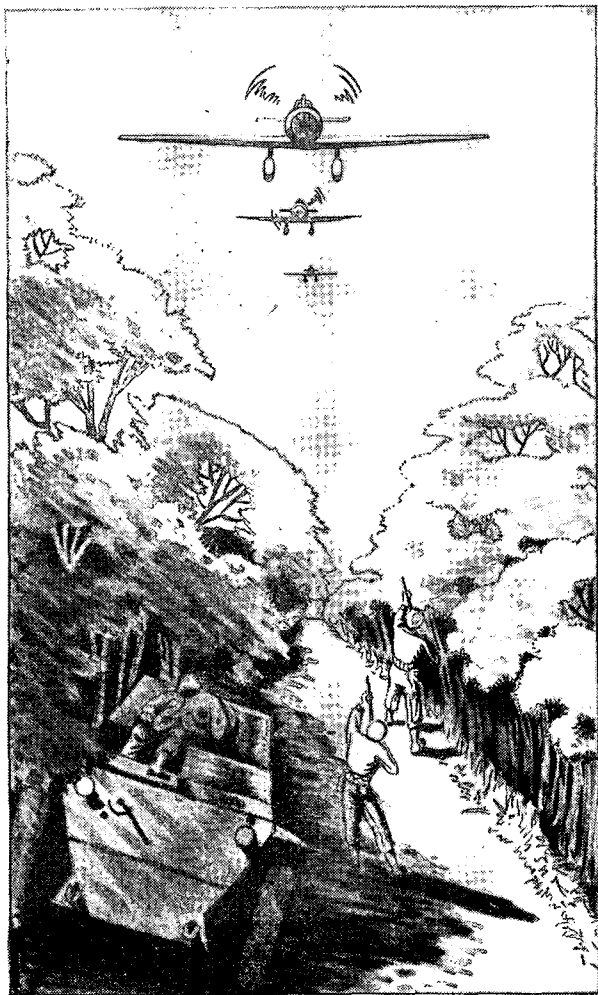
### SECURITY

■ 29. **GENERAL.**—*a.* The reconnaissance platoon or any element of it acting alone is responsible at all times for providing its own local security. It must guard against hostile dismounted action, mechanized action and an attack.

*b.* In addition to local security the reconnaissance platoon may be called upon to act as a security detachment for other elements. These missions include advance guard, flank or rear guard, and march outpost.

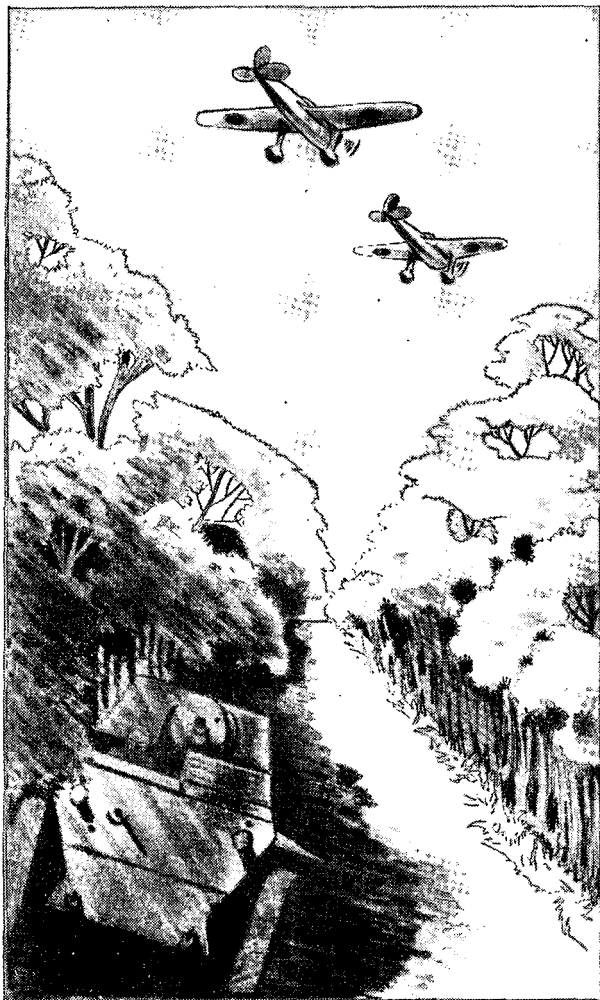
■ 30. **LOCAL SECURITY.**—The reconnaissance platoon provides local security at the halt and on the march by means of mounted and dismounted (during halts only) scouts or observers placed at such distance from the vehicles as to give warning of approaching hostile ground elements. Air sentinels will be kept posted at all times on the basis of one per vehicle. Security detachments must be provided with signaling equipment if posted out of visual range (fig. 29).



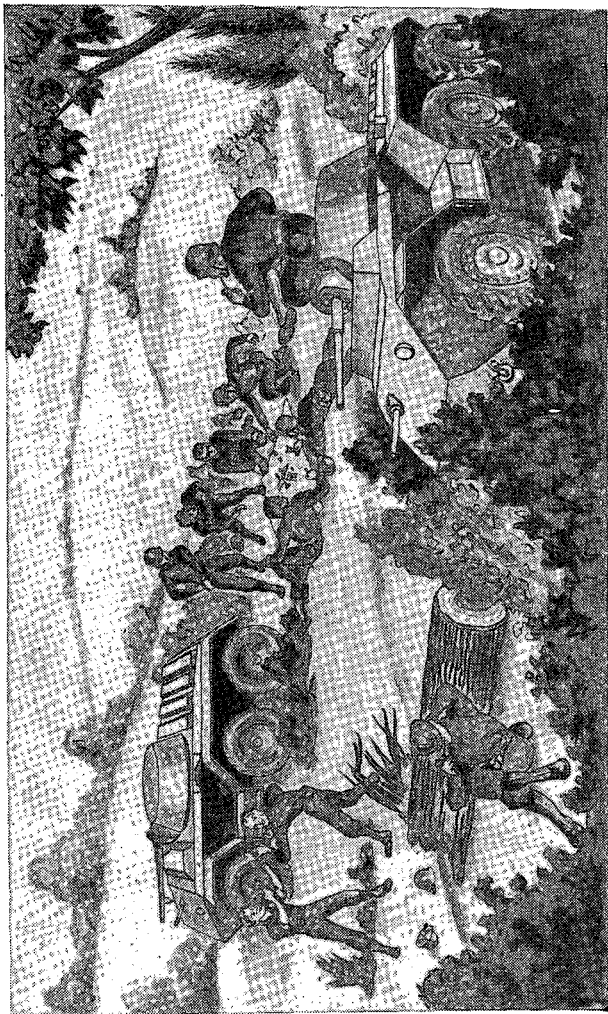


① Do not fire at hostile planes when you are concealed.

FIGURE 27.

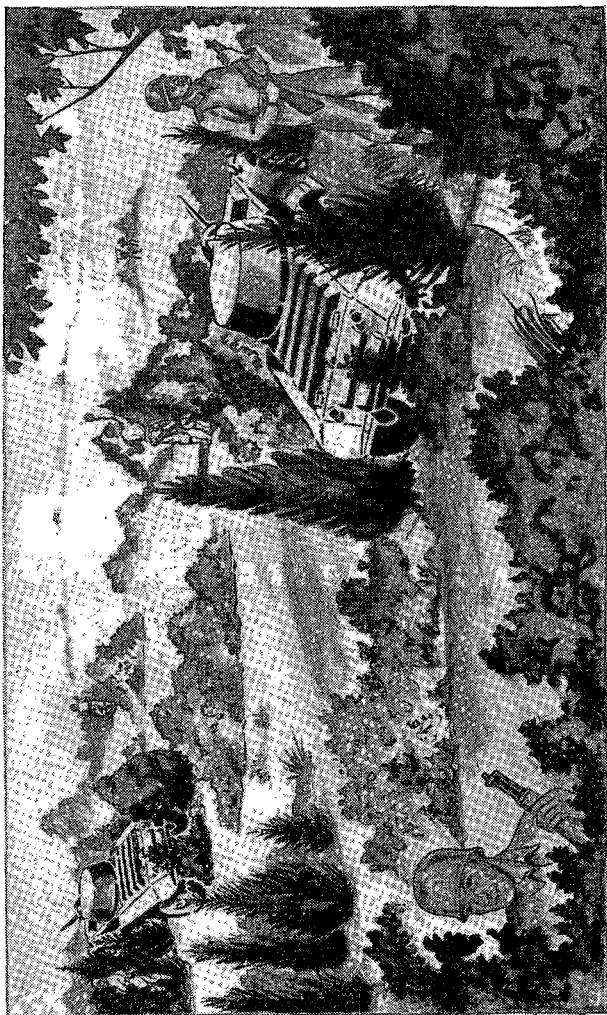


③ Hold your fire. The hostile plane may not locate you.  
FIGURE 27—Continued.



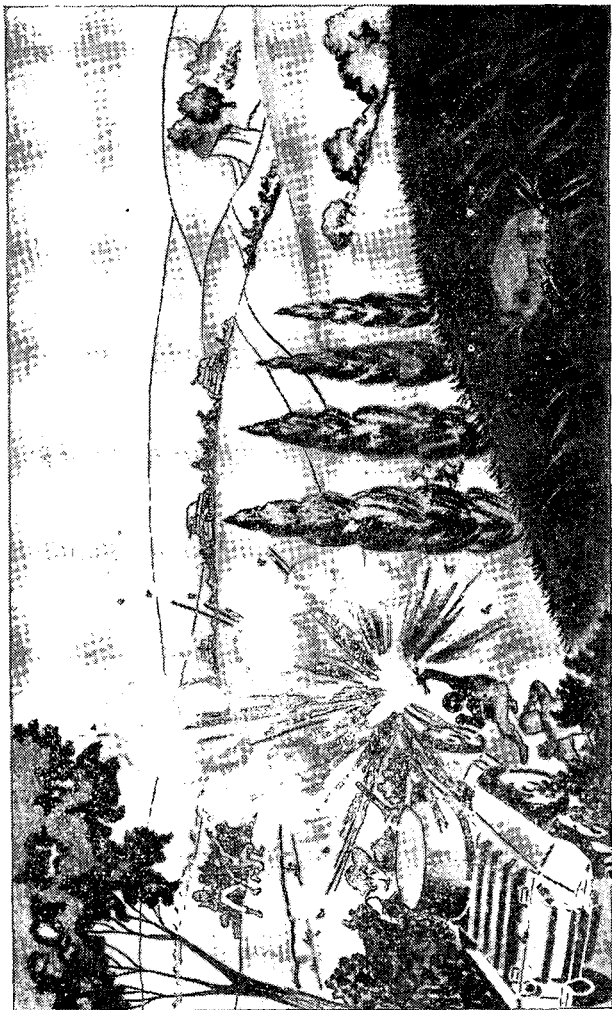
① Do not allow all men to loaf at the halt.

FIGURE 28.

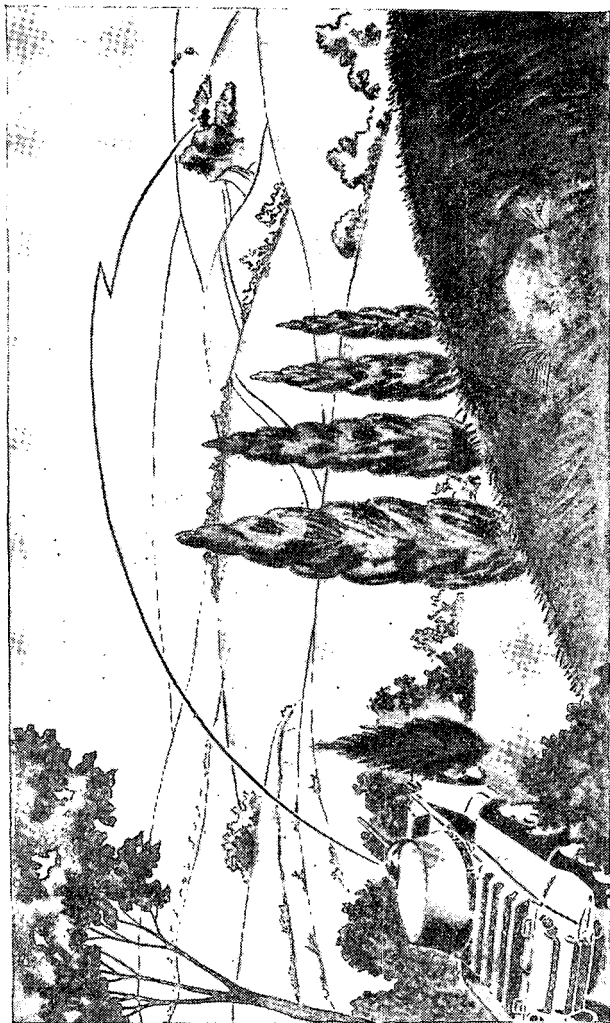


② Post local security detachment. Keep air sentinel alert.

FIGURE 28—Continued.



① Do not expect scouts close in to give adequate warning of hostile mechanized attack.  
FIGURE 29.



© Post warning detachments well out when mechanized attack is expected.

FIGURE 29—Continued.



① Do not advance in the presence of the enemy without support.

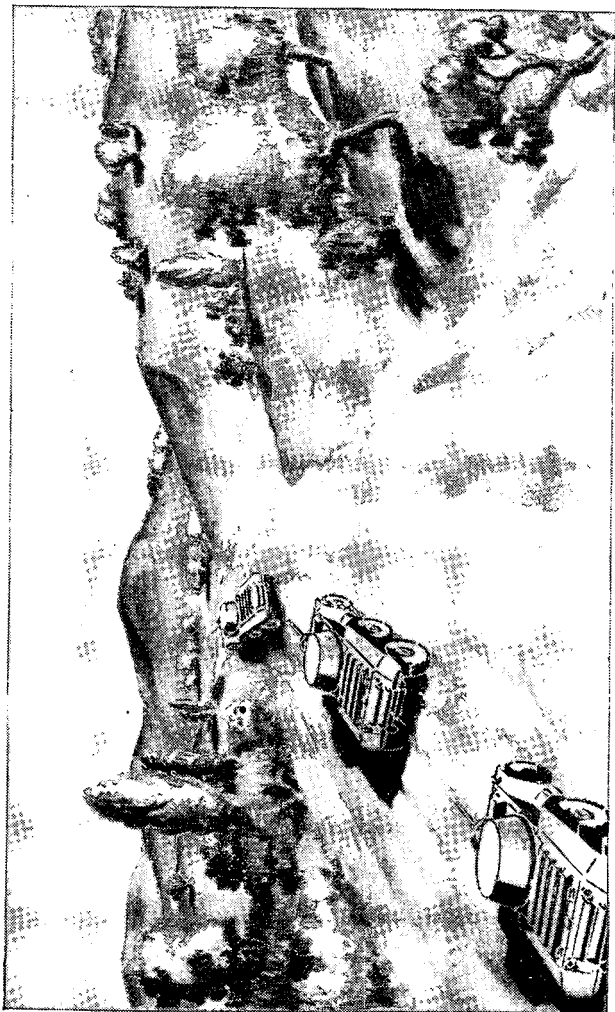
FIGURE 30.



③ Place one vehicle in position to support the advance of the leading vehicle. It may be a 1/4-ton supporting another 1/4-ton, or an armored car or assault gun supporting another car.

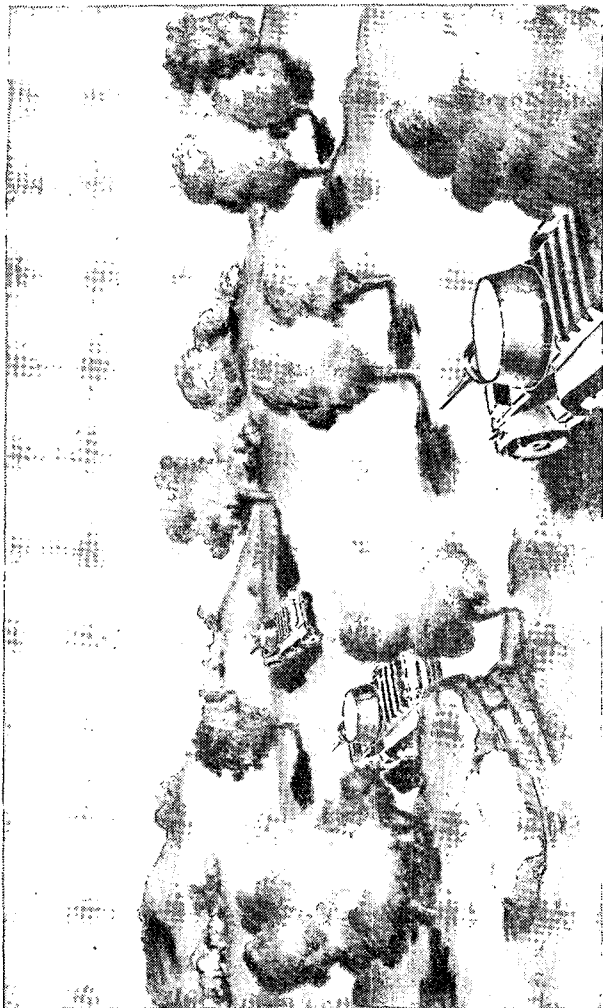
FIGURE 30—Continued.





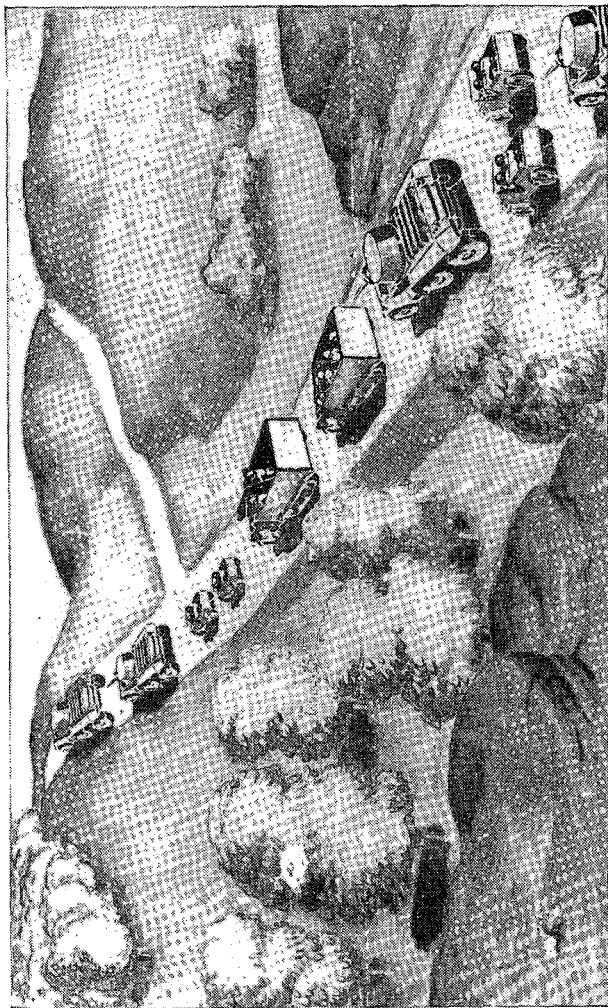
① Do not advance in the open when cover is available.

FIGURE 31.



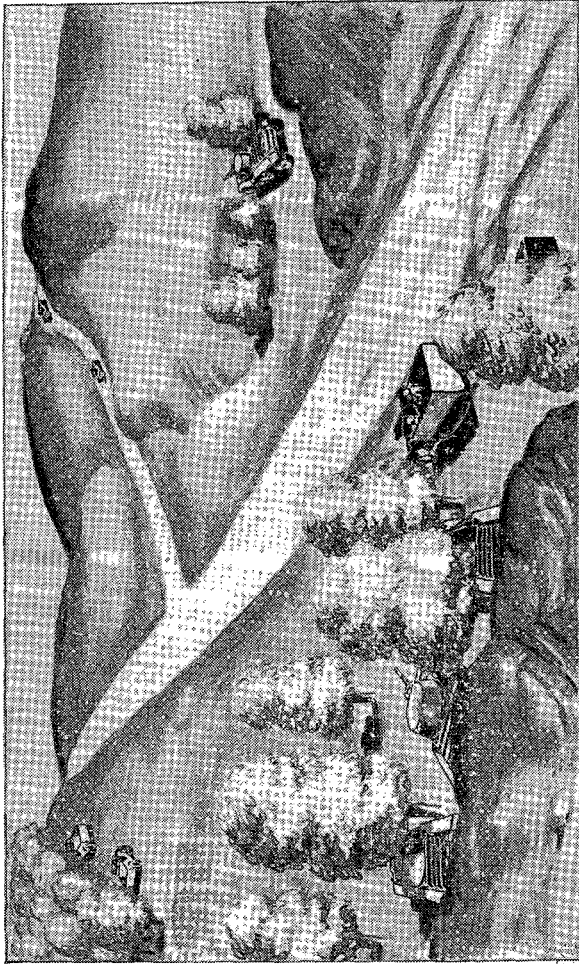
② Use covered route to advance toward suspected enemy position.

FIGURE 31—Continued.



① Do not pass side roads or dangerous localities without flank security.

FIGURE 32.



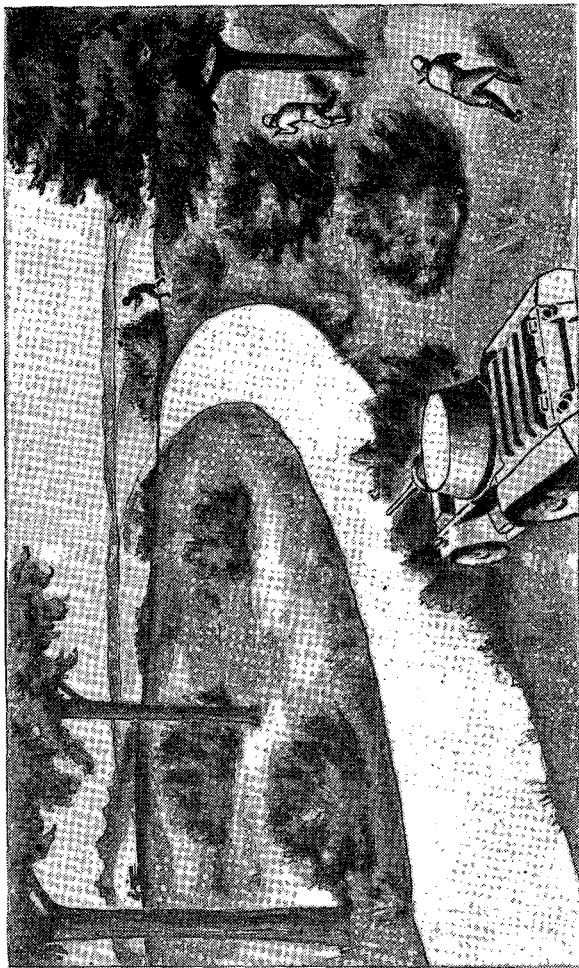
② Send one of the scout sections to flank or to scout dangerous locality before advancing. Always send vehicles in pairs for mutual support.

FIGURE 32—Continued.



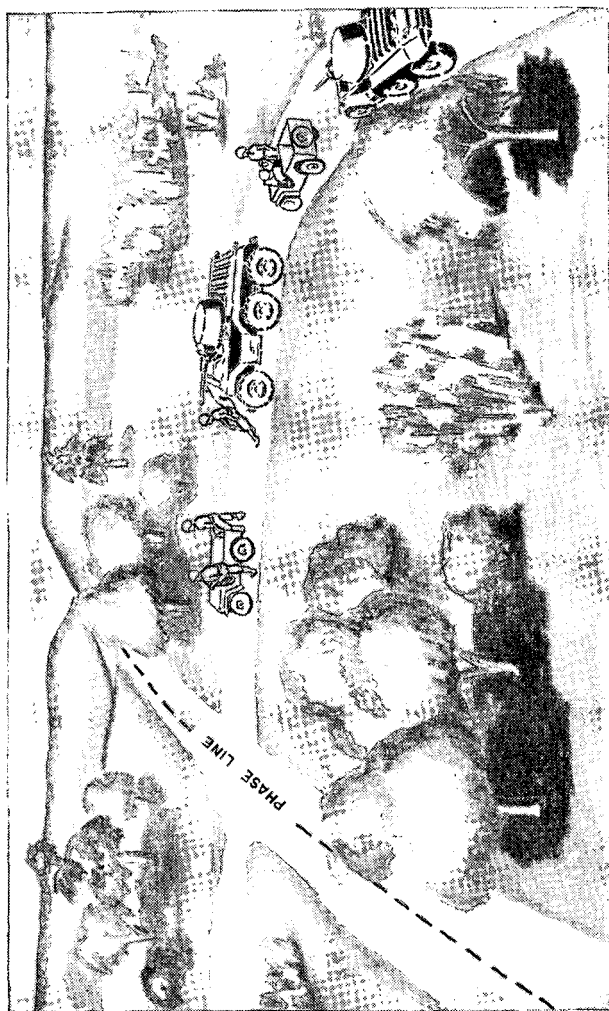
① Do not sacrifice a vehicle against known enemy resistance.

FIGURE 33.



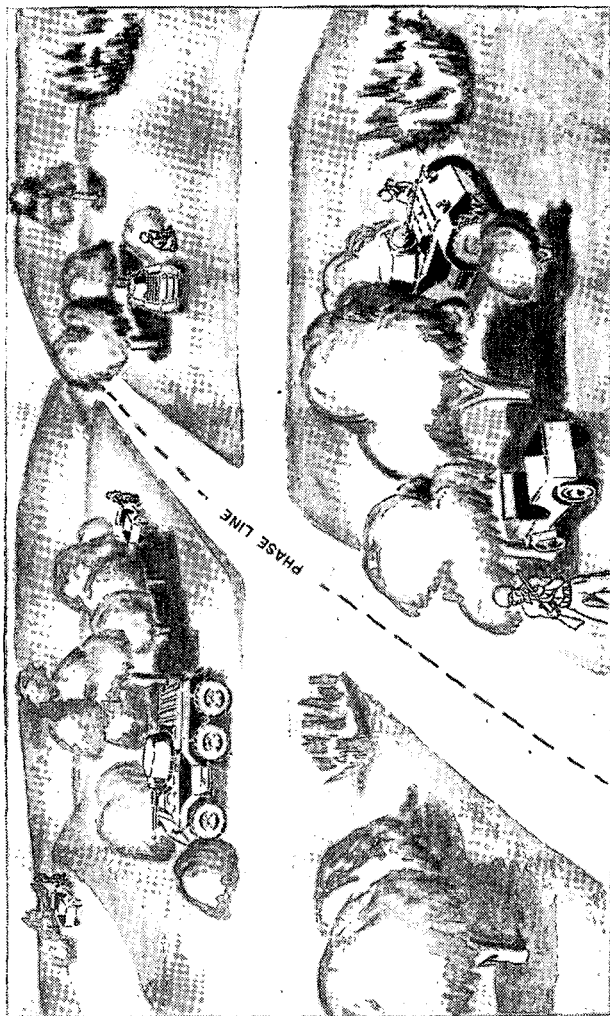
② Unless time requires such a sacrifice use dismantled action adequately supported by fire to reduce hostile resistance.

FIGURE 33—Continued.



① Do not halt in place on the road on reaching a phase line.

FIGURE 34.



② Immediately take up a march outpost providing all-around security.

FIGURE 34—Continued.





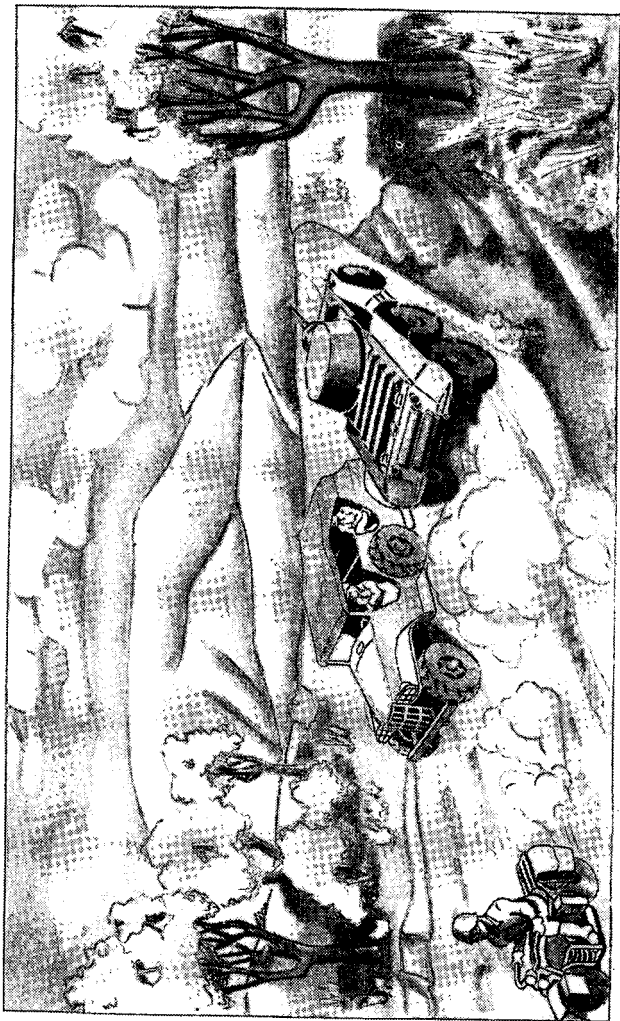
① Do not ignore friendly outpost when leaving a bivouac.

FIGURE 35.

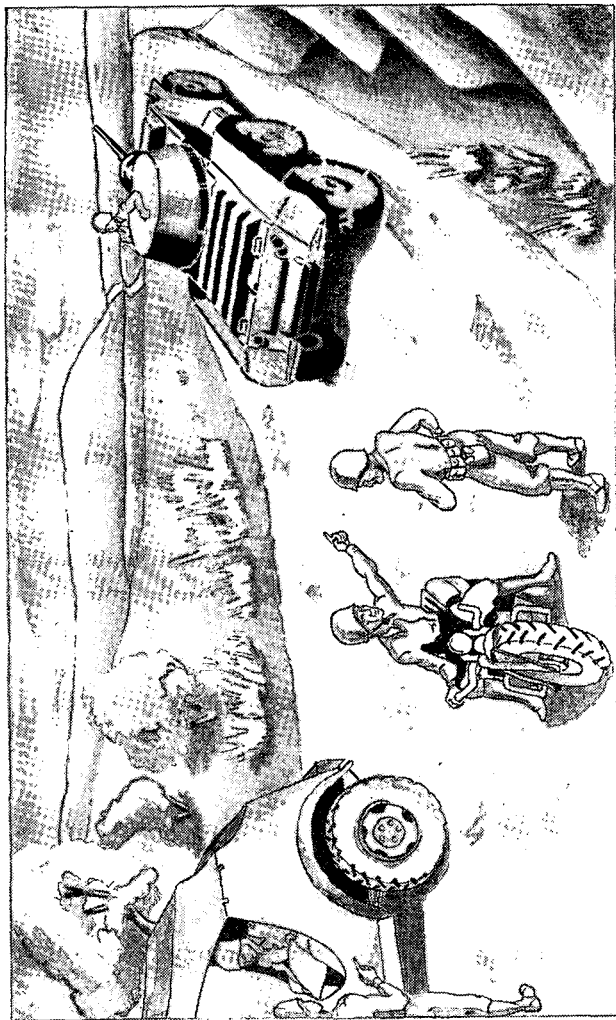


© Secure information from outpost and notify them of probable time of return. Arrange positive means of identification.

FIGURE 35—Continued.



① Do not pass friendly vehicles returning from the front.  
FIGURE 36.



② When possible, stop them long enough to obtain information.

FIGURE 36—Continued.

■ 31. SECURITY ON MARCH.—The reconnaissance platoon marching in the presence of the enemy (real or expected) will observe the following points where applicable (figs. 29 to 33).

■ 32. ACTION ON PHASE LINE.—When a reconnaissance platoon reaches a phase line on which it is to halt, it must immediately take up a march outpost providing all-around local security (fig. 34).

■ 33. PASSING OUTPOST LINE.—When a platoon leaves bivouac on a reconnaissance or patrol mission, the platoon leader must check to see that all personnel are completely equipped and that vehicles are prepared for combat. When the platoon or patrol passes the outpost position the platoon leader must identify himself, secure information of the enemy and our own troops which the outpost may know, inform the outpost of his probable time of return, and arrange a definite means of identification.

### SECTION III

#### ASSEMBLY

■ 34. GENERAL.—*a.* The assembly area for large armored units is a position affording concealment from air observation and is usually out of hostile light artillery range. Since reconnaissance elements will frequently be on active missions while the division is preparing for attack, this definition is not entirely applicable.

*b.* As applied to reconnaissance units the assembly area is any position affording concealment and defilade where the reconnaissance platoon can be resupplied with fuel and ammunition, the vehicles serviced, and the personnel fed and rested.

*c.* The assembly area for a reconnaissance platoon will usually be beyond the range of friendly supporting weapons and will frequently be within range of hostile artillery. It is therefore necessary that the reconnaissance platoon leader select the best positions available.

■ 35. PLATOON IN ASSEMBLY AREA.—The platoon leader should observe the following principles in disposing his vehicles in an assembly area. In addition to those shown below the platoon leader should take the security measures contained in section II.



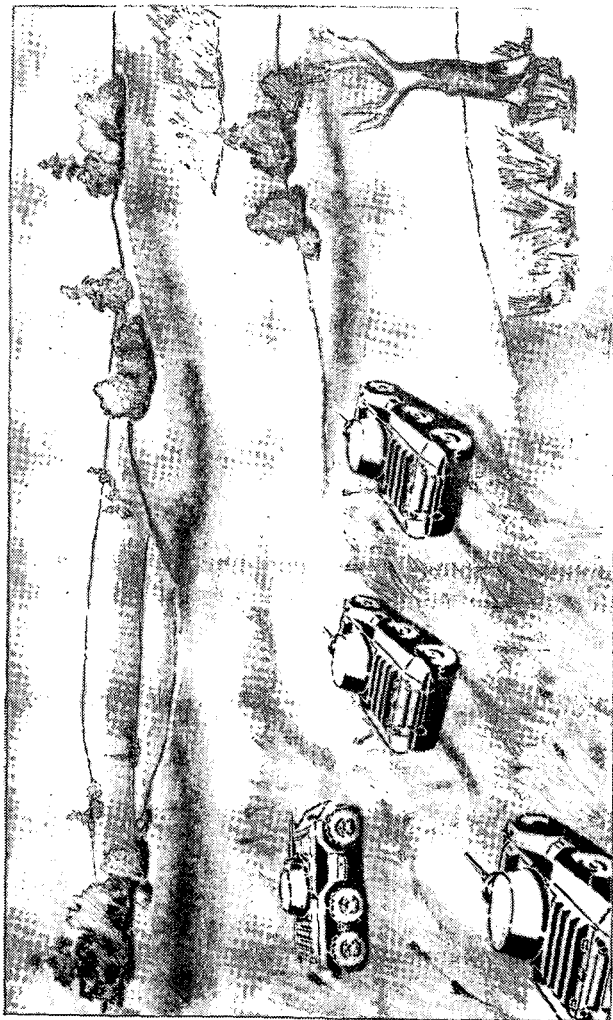
① Do not shoot at hostile aircraft obviously out of range. It discloses your position.

FIGURE 37.



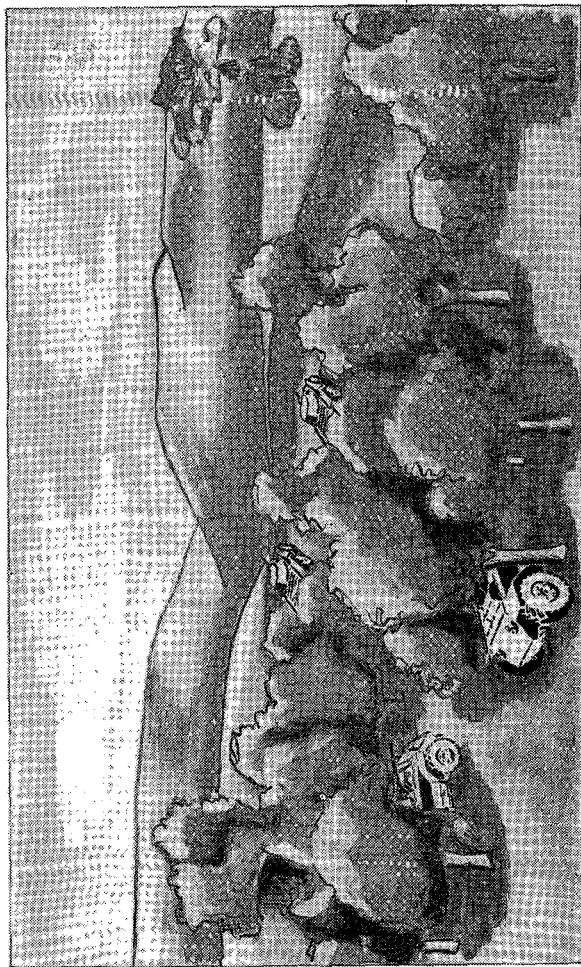
② When you know your position is discovered engage hostile planes within range.

FIGURE 37—Continued. .

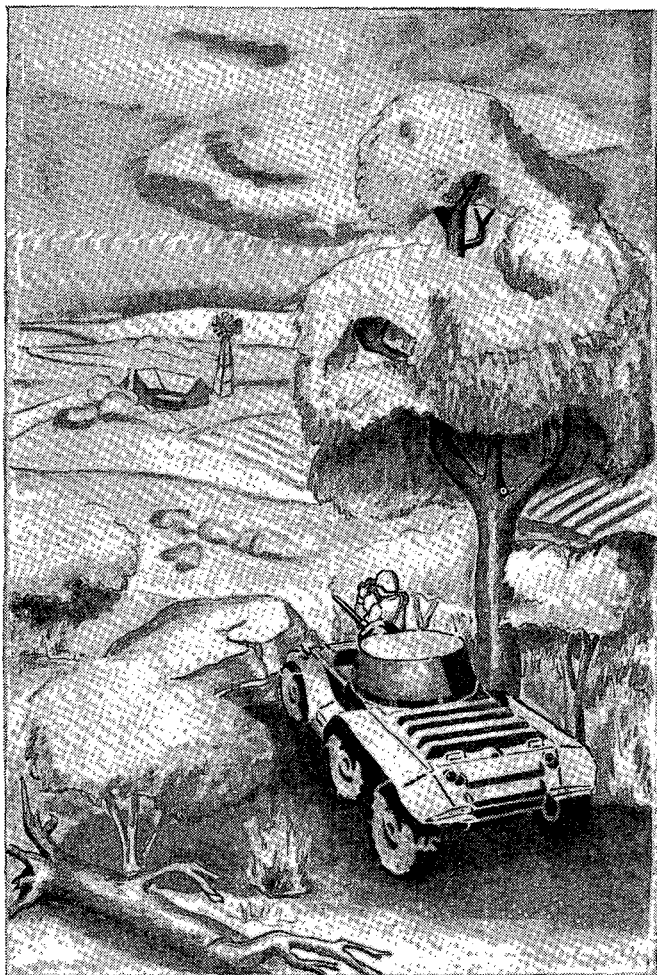


① Do not assemble vehicles in the open.





③ Assemble vehicles in woods, and preferably in a position deflated from hostile flat-trajectory weapons.  
FIGURE 38.



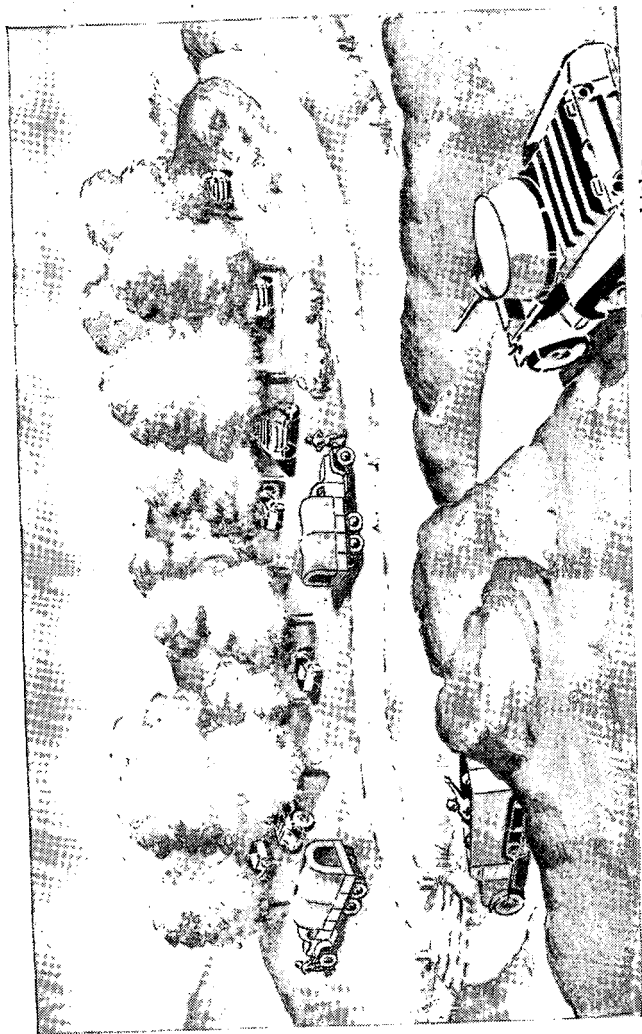
① Do not place vehicle on outpost in a position which requires it to back out.

FIGURE 39.



© Face vehicle toward the exit and rotate turret so gun covers avenue of approach.

FIGURE 39—Continued.

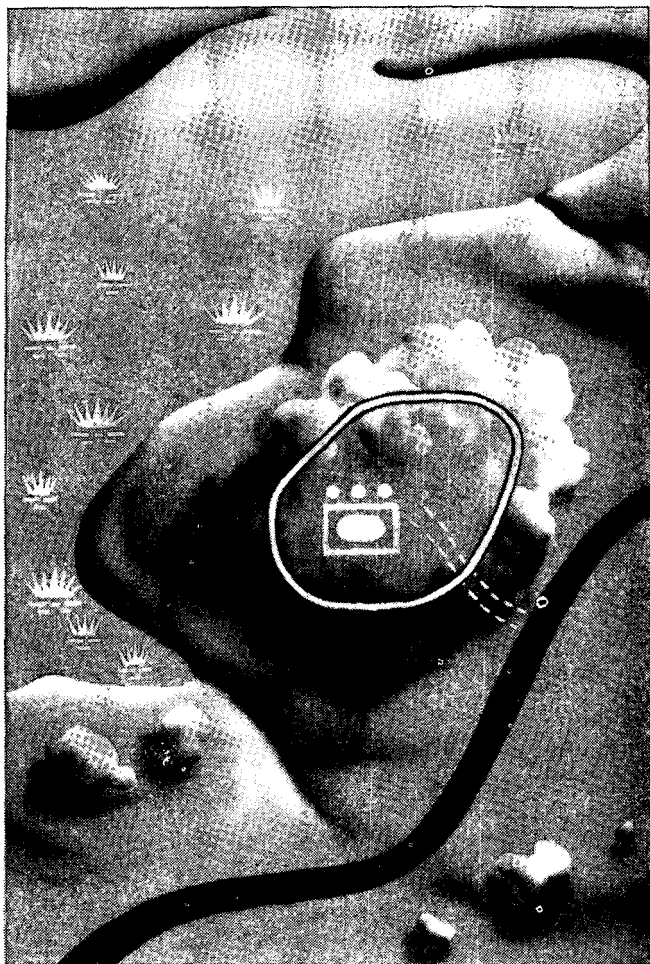


① Do not select an assembly area which will hold only your vehicles.



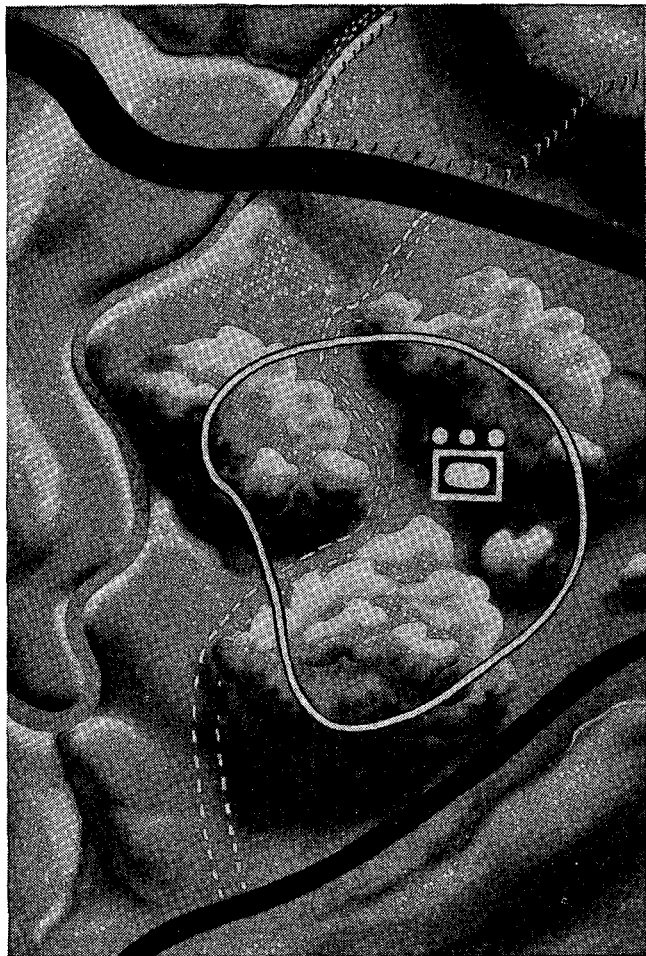
② Select an area big enough to permit maintenance, supply, and command vehicles to fit in without crowding.

FIGURE 40.



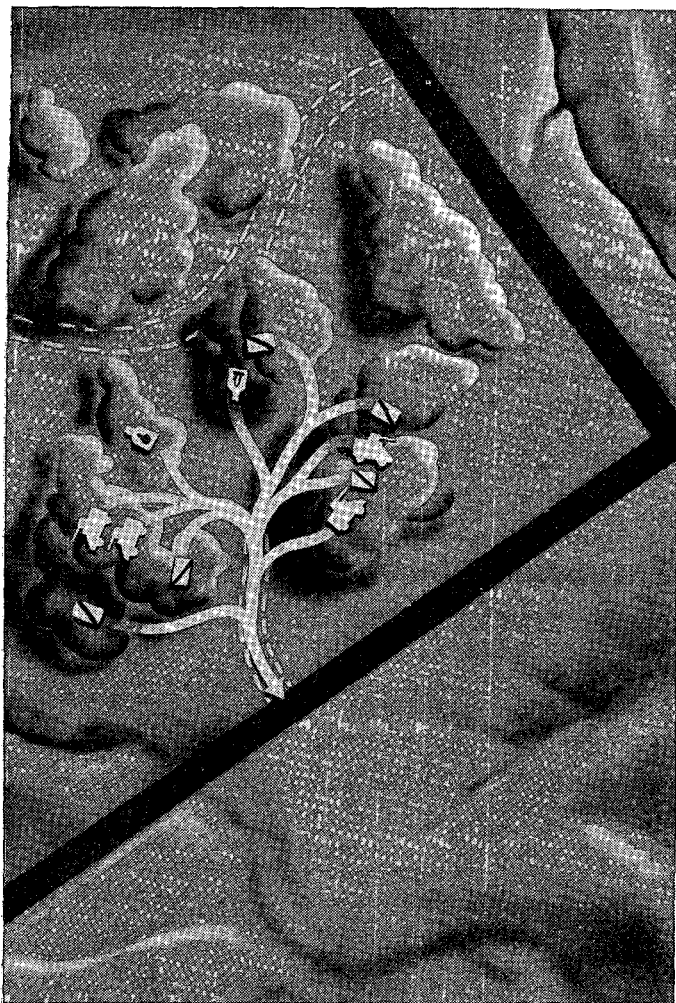
① Do not select an assembly position with only one exit.

FIGURE 41.



② Select assembly area with two or more exits.

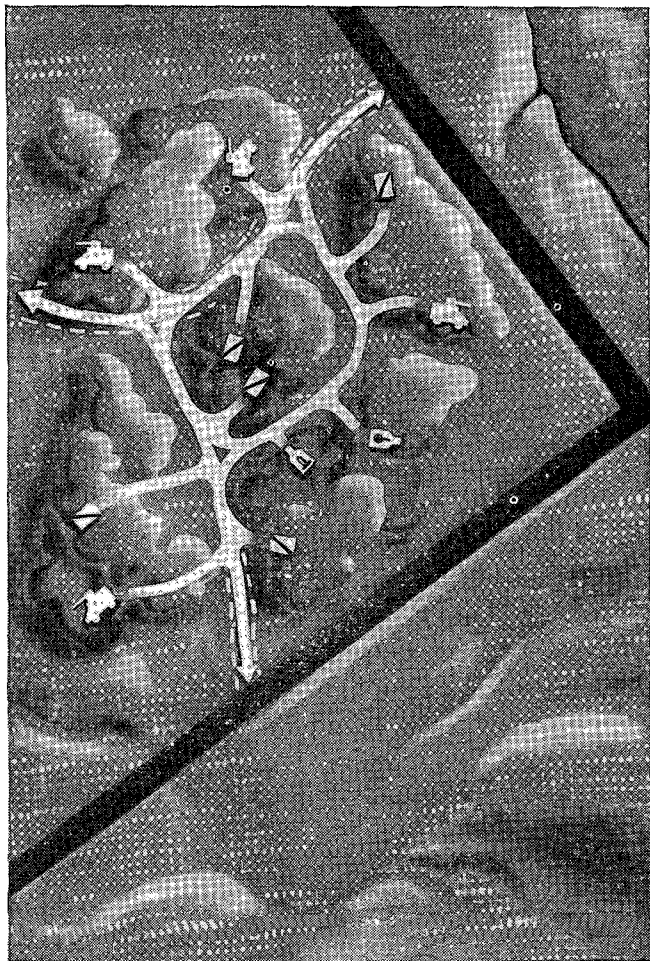
FIGURE 41—Continued.



① Do not dispose platoon haphazardly in the assembly area.

FIGURE 42.





- ② Dispose individual vehicles so that they may move out promptly to any exit in the formation ordered.

FIGURE 42—Continued.

## SECTION IV OFFENSIVE

■ 36. GENERAL.—*a.* The purpose of this section is to illustrate methods of attack which may be used when necessary to accomplish the reconnaissance or security mission assigned.

*b.* While information should be gathered without fighting, it is repeated that this is seldom possible and that the reconnaissance platoon must be prepared to attack vigorously to accomplish its mission.

*c.* However, the platoon should not become involved in a lengthy engagement with the mistaken idea that it must clear the way for troops that follow. Inform them of the situation and continue your reconnaissance as soon as it is possible to bypass the enemy. The troops following are organized and equipped to deal with a strong enemy force.

*d.* In side-slipping hostile resistance make your detour beyond reach of his weapons, requiring the enemy to displace if he is to oppose you again.

■ 37. WEAPONS.—*a.* The carbine, the pistol, and the hand grenade are the dismounted man's personal weapons. He should carry them whenever dismounted from his vehicle.

*b.* The submachine gun is a vehicular close-in defense weapon intended to cover dead spaces that cannot be covered by other vehicular weapons. It may remain with the vehicle or be used in dismounted action. It is particularly effective for close-in fighting.

*c.* The caliber .30 machine gun on the vehicle or in dismounted action is a personnel weapon which has no effect against armored vehicles or gun shields except at very close range. This weapon should be used against antitank weapons and artillery only when it can be maneuvered to fire on gun crew from angles where they are not protected by armor.

*d.* The caliber .50 machine gun has limited armor-piercing qualities at ranges under 500 yards and should not be used beyond that range at heavily armored vehicles or equipment.

*e.* The 37-mm guns, turret-mounted in the armored car and on S. P. mounts for train defense, are antitank guns effective against armor up to 1,000 yards. This gun should be used against armored vehicles, antitank guns, artillery, and bunkers.

*f.* The 60-mm mortar in the scout section is an auxiliary weapon for use against crews of weapons holding up the advance of the platoon. It is also a valuable defensive weapon. Its effective range lies between 100 and 1,600 yards. The shell has a 15-yard bursting radius.

*g.* The assault gun is a direct support weapon which can be rapidly brought into action against antitank guns or artillery. It is used as a base of fire covering the advance of other elements of the platoon. Its high trajectory and comparatively low muzzle velocity make it less effective against armored vehicles than a gun of similar caliber.

*h.* The vehicular weapons are normally fired from the vehicle in a stationary hull-defilade position. Cars advancing from cover to cover must be prepared to use moving fire in an emergency.

*i.* The proper selection of weapons, particularly by the lead vehicle, gives those following an indication of the type of resistance encountered. For example, if the lead car used its machine guns it is an indication to those in rear that unarmored resistance has been encountered. If the 37-mm is used, it is an indication that armored resistance has been encountered. Such firing is not a positive identification, however, as 37-mm canister might be fired at a group of massed enemy personnel surprised at close range.

■ 38. AMMUNITION.—*a.* The amount of ammunition carried in each vehicle is limited and requires careful use. The 37-mm gun should not be used against targets which can be effectively engaged by machine guns.

*b.* Vehicles which are put out of action should be stripped of their ammunition whenever this is practical.

*c.* The vehicle commander must know at all times the status of the ammunition remaining and be prepared to render a prompt report on the amount and type needed to replenish his vehicular load.

*d.* The platoon leader must make frequent checks of the status of ammunition and make redistribution where necessary.

■ 39. ATTACK TO SECURE INFORMATION.—To secure positive information of strength, condition, and identification, it may

be necessary to send dismounted scouts into an enemy bivouac. To cover their approach and action, launch a feint attack with armored cars supported by the assault gun (fig. 43).

■ 40. ATTACK OF DEFENDED ROAD BLOCK.—*a.* Enemy road blocks will generally be located in defiles and at stream crossings which cannot readily be side-slipped by the reconnaissance platoon. To continue on its assigned mission, the platoon will have to knock out hostile forces assigned to defend the road block. Figures 44 to 51 illustrate the procedure to be observed. The leader must carefully estimate the situation and formulate a plan of action and then strike vigorously with all the fire power at his command. Do not rush in blindly.

*b.* If the hostile road block can be side-slipped, the platoon leader should report its exact location. It is preferable if practical to leave a scout section (2 vehicles) in observation to watch for changes in the enemy disposition and to notify friendly troops of the existence of the road block, and whether or not it is defended.

■ 41. ACTION WITH ENEMY PATROL.—The action to be taken when encountering a hostile mechanized patrol depends upon the mission assigned. Figures 52 and 53 illustrate the principles to be observed.

■ 42. PASSAGE OF LINES.—When the reconnaissance platoon is stopped by a strong enemy position and the division or combat command commander orders an attack the platoon leader will act as follows:

*a.* Send his scout or liaison sergeant back to meet the assault echelon commander. He should be prepared to give full information of located enemy installations, disposition of his own vehicles, character of the terrain, and best routes of advance.

*b.* Place his armored cars so that they will cause the minimum of interference to the attacking unit.

*c.* Place his assault gun where it can assist, by fire, the advance of the assault echelon.

*d.* Reconnoiter routes to the flank so that he can withdraw quickly when ordered.

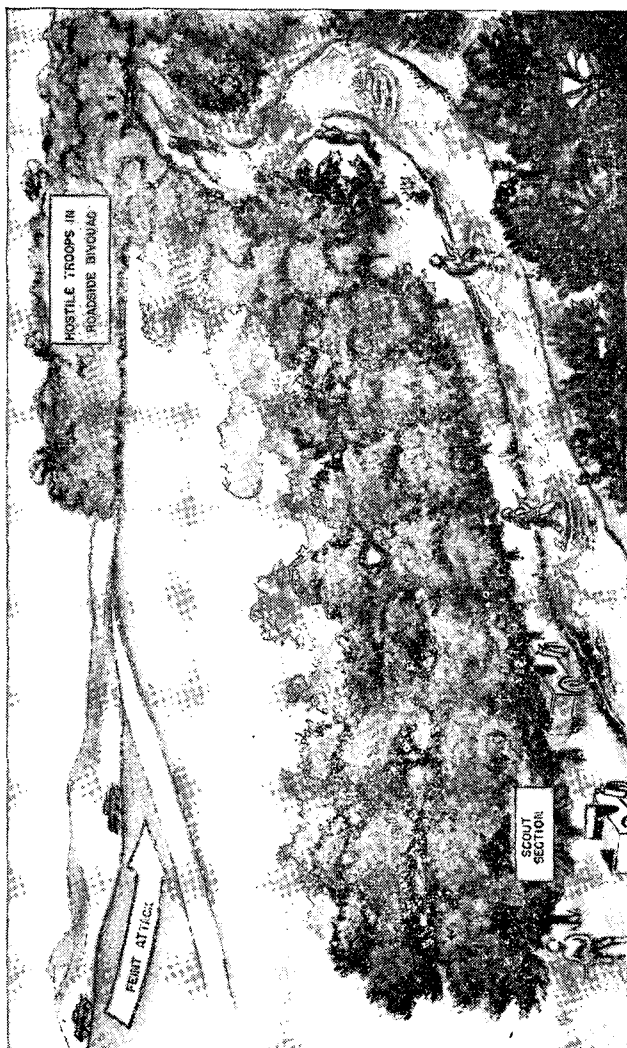


FIGURE 43.—Feint attack to cover dismounted scouts.



① Do not rush blindly into an attack of a road block.

FIGURE 44.



© Establish a base of fire. Maneuver either with dismounted personnel or mounted personnel or both. FIGURE 44.

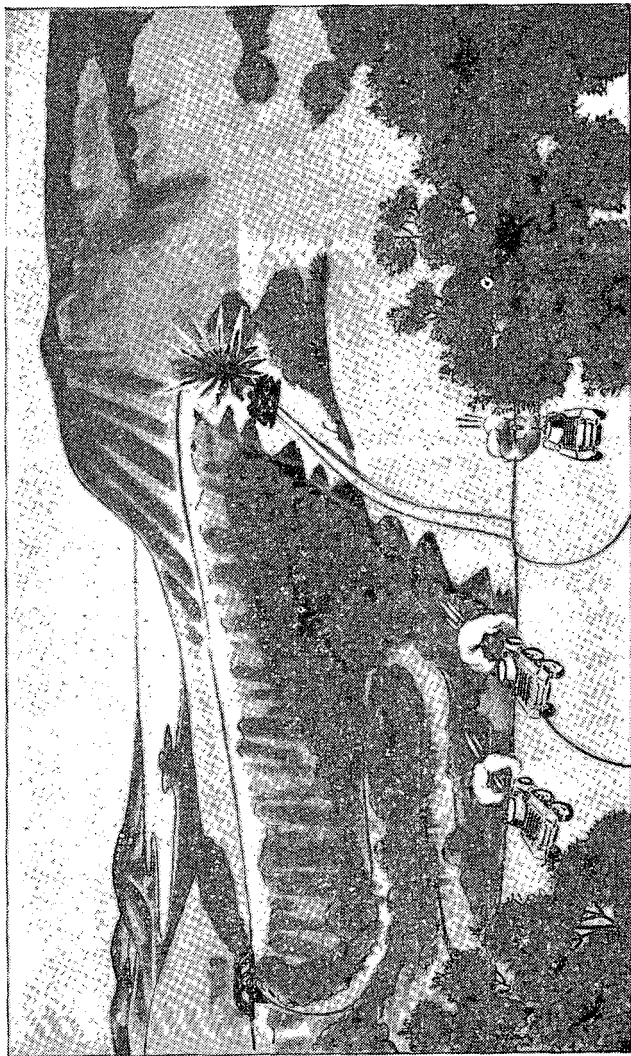


FIGURE 45.—Do not attack frontally when fired on by AT gun defending a defile.



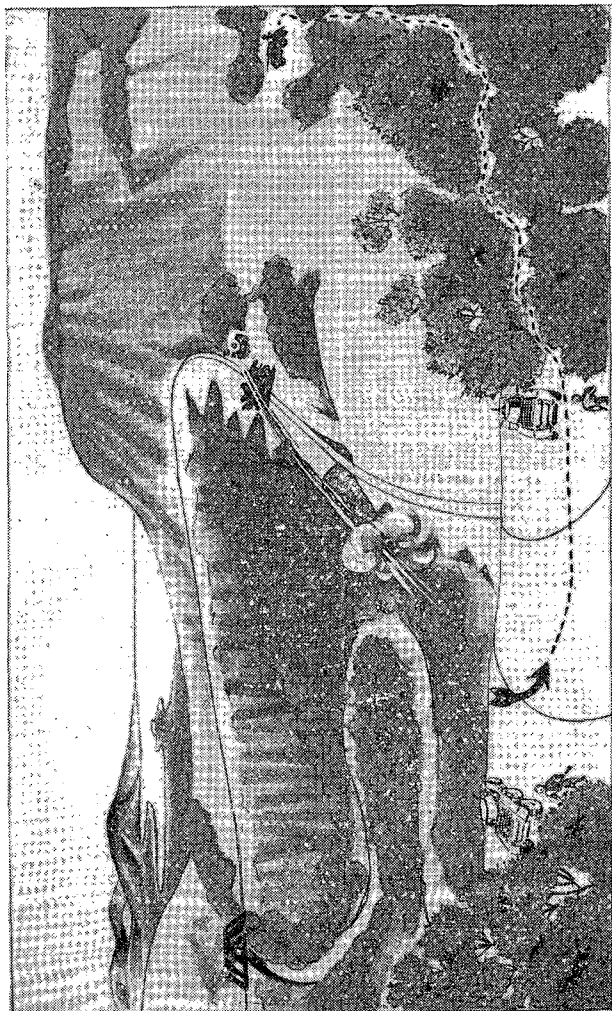


Figure 46.—If car is fired upon when it starts its forward bound, it should withdraw and move to flank.

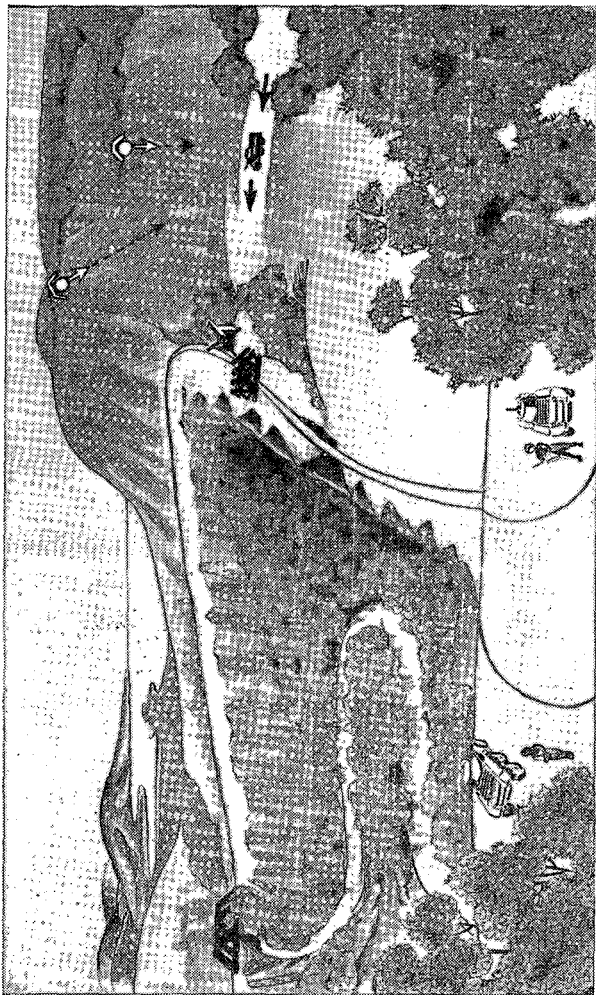


FIGURE 47.—When fire of gun is neutralized do not move vehicle to overrun gun position if vehicle is exposed to possible gun emplacements immediately beyond neutralized position.

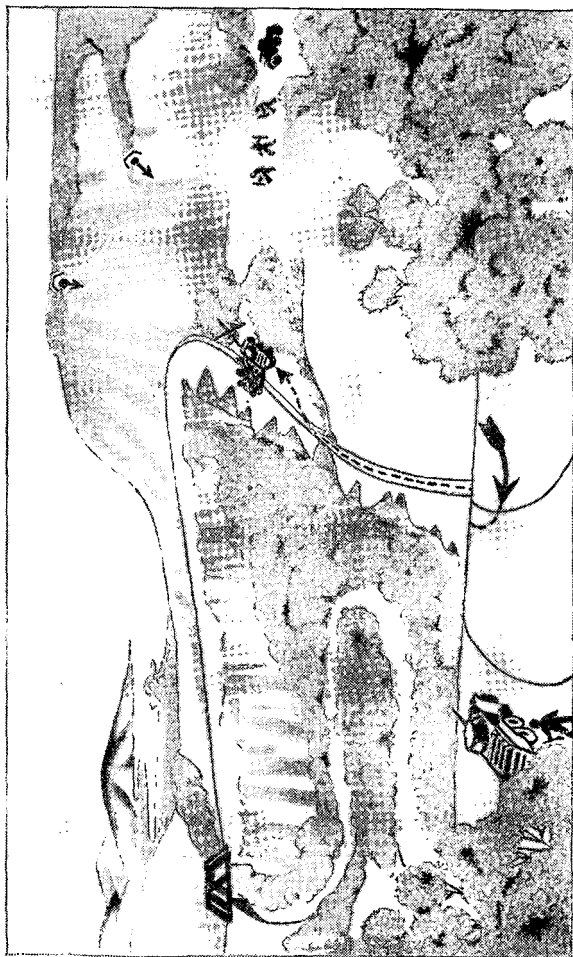
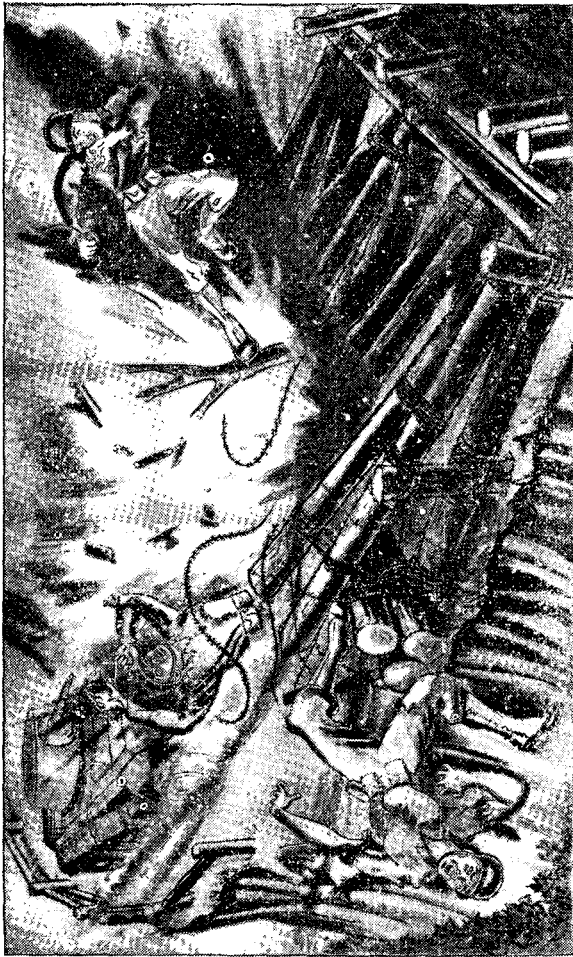
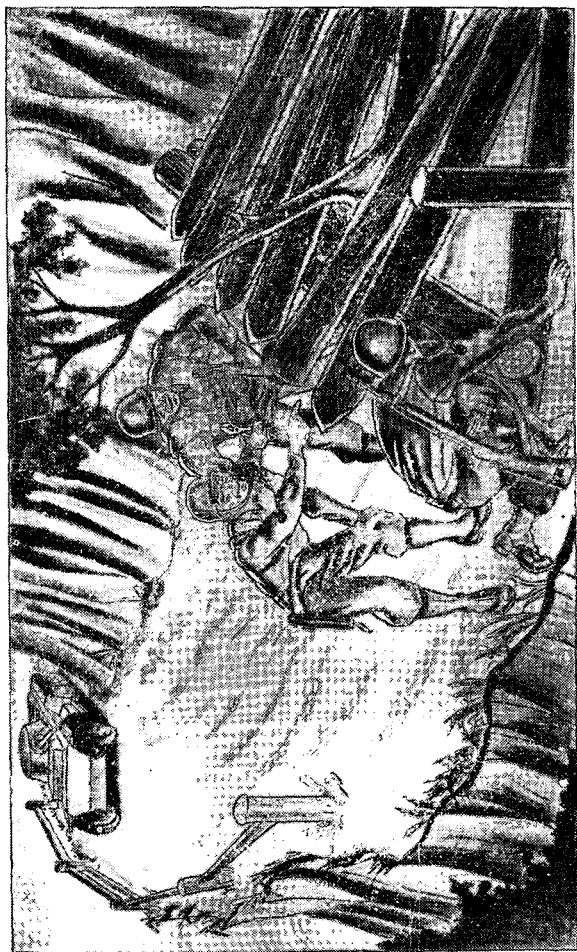


FIGURE 48.—Move vehicle to position which will not be exposed to fire from other likely gun emplacements. Move dismounted men to capture enemy gun position. Other vehicles and weapons cover this movement by fire.



① Do not attempt to dismantle road block without careful examination. The road block may be mined. There may be a booby trap set for the unwary.

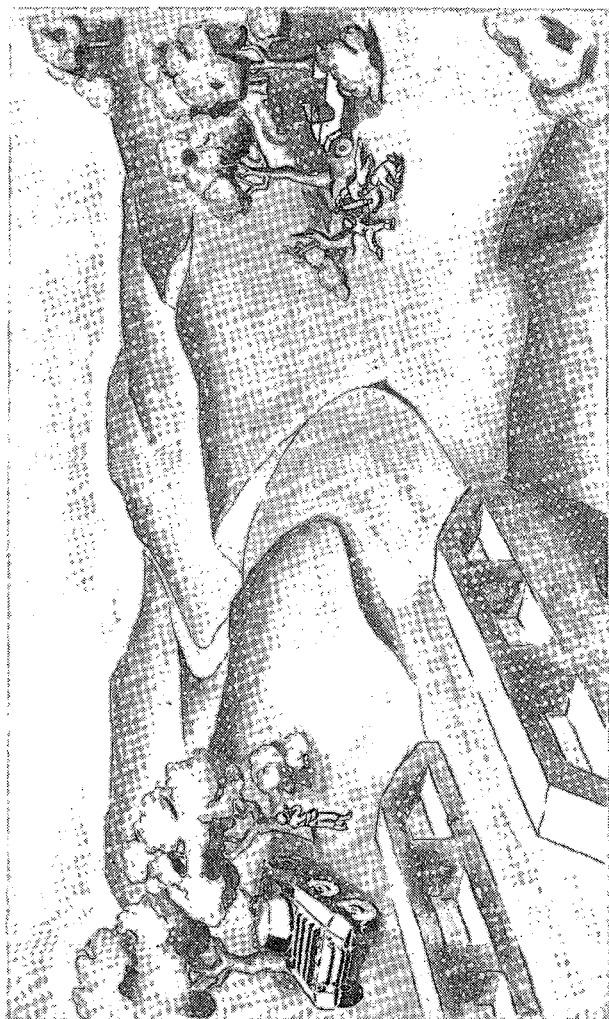


© Examine block carefully for mines and trip wires. If in doubt, fire HE from 75-mm or 37-mm at likely spots. This will probably trip the wires.

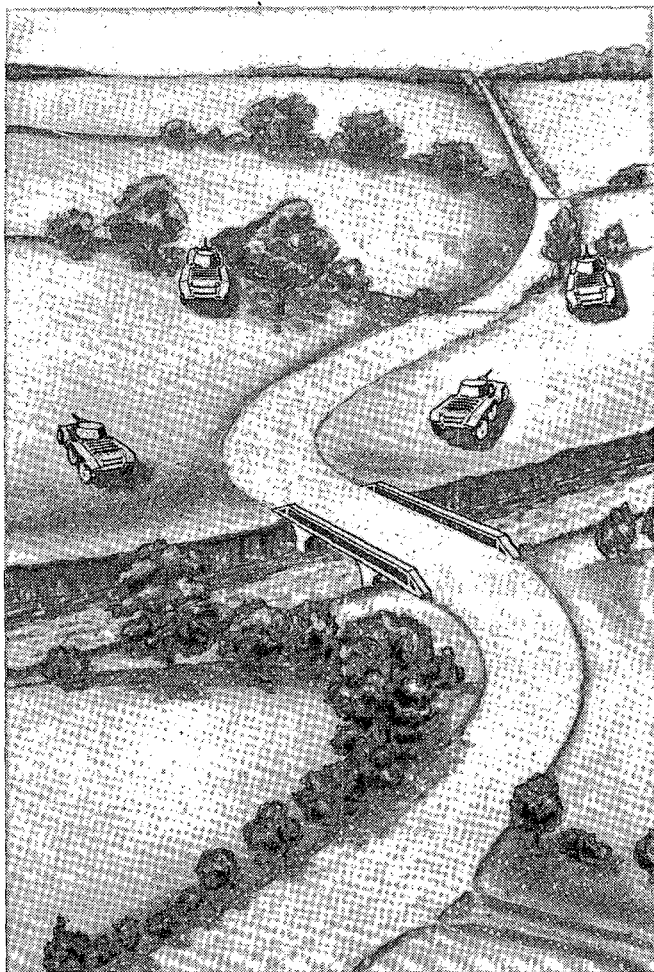
FIGURE 49.



① Do not attempt to hold key point on side away from enemy.



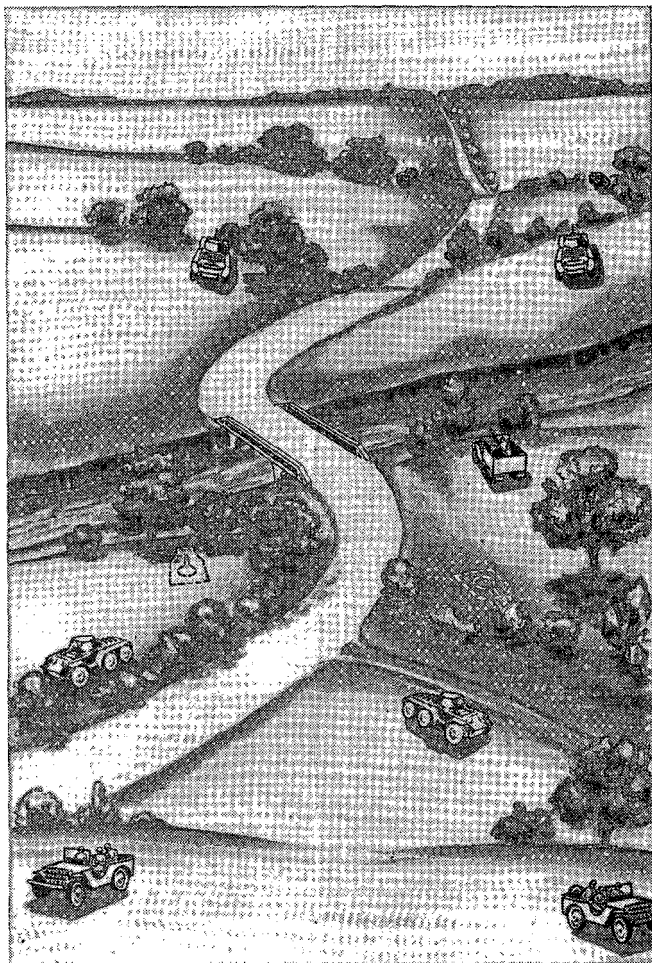
© Move across to enemy side.  
FIGURE 50.



① Do not hold key point by defense sited in only one direction.

FIGURE 51.



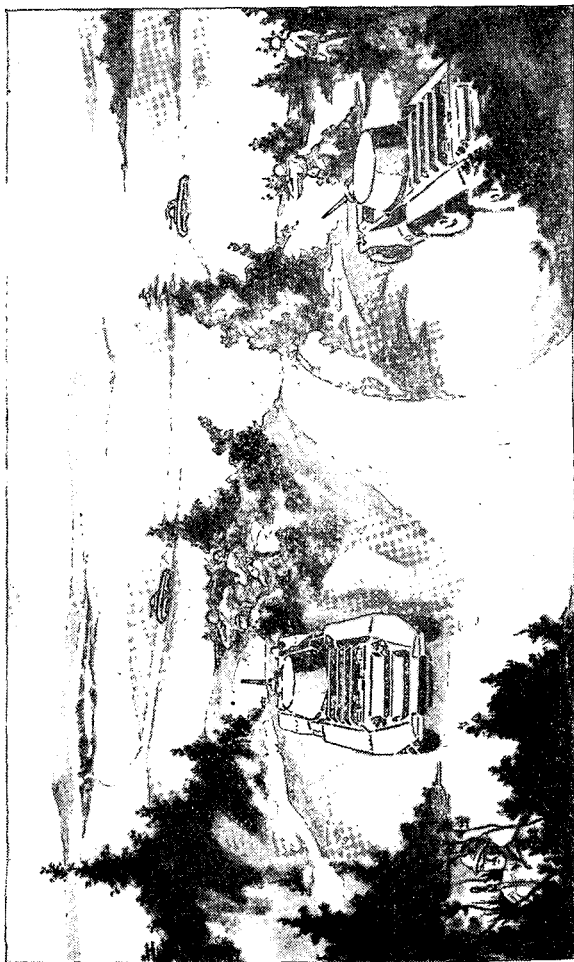


- ② Dispose armored cars to cover all directions. Send scout sections well out to observe for hostile forces. Select several positions for assault gun.

FIGURE 51—Continued.

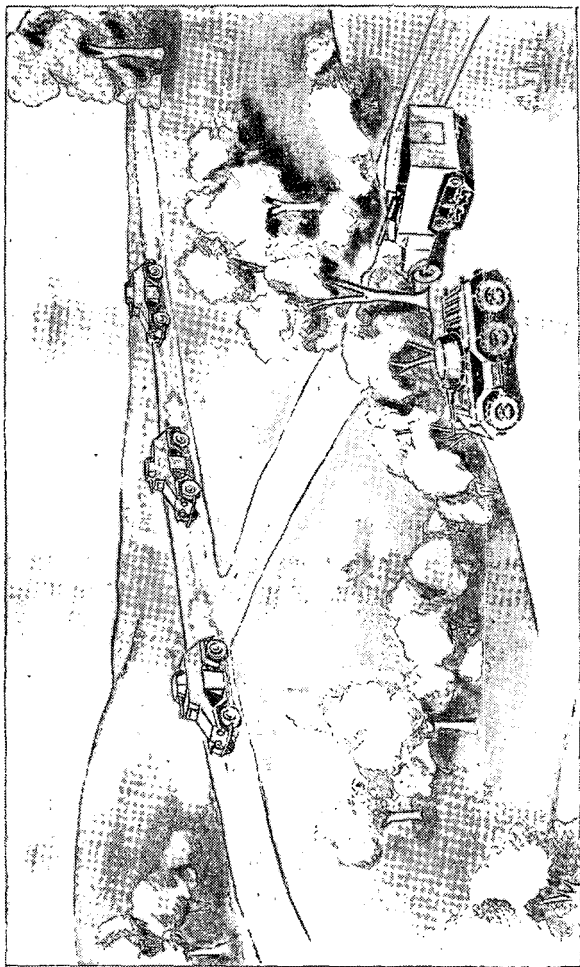


① If your mission requires secrecy, do not attack enemy mechanized patrol.

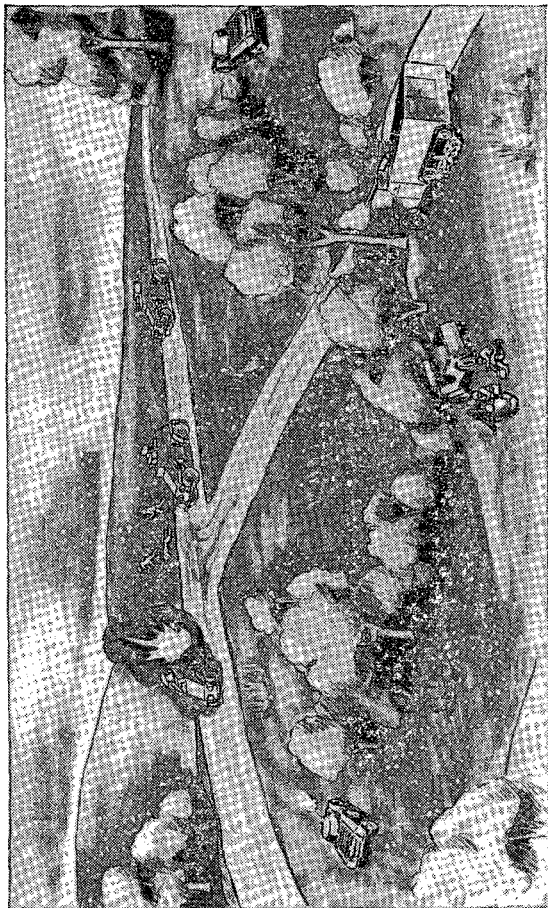


© Take a concealed position and observe enemy patrol. Report its strength, composition, and direction of movement. Then continue mission.

FIGURE 52.



① If mission does not require secrecy or includes counterreconnaissance, do not permit hostile patrols to pass unmolested.



© Destroy them by rapid combined fire and maneuver. After the action, enemy personnel and vehicles must be carefully examined for maps, papers, codes, orders, and new or unusual equipment. In the enthusiasm to examine captured equipment do not neglect your own security. There may be other enemy patrols.

FIGURE 53.

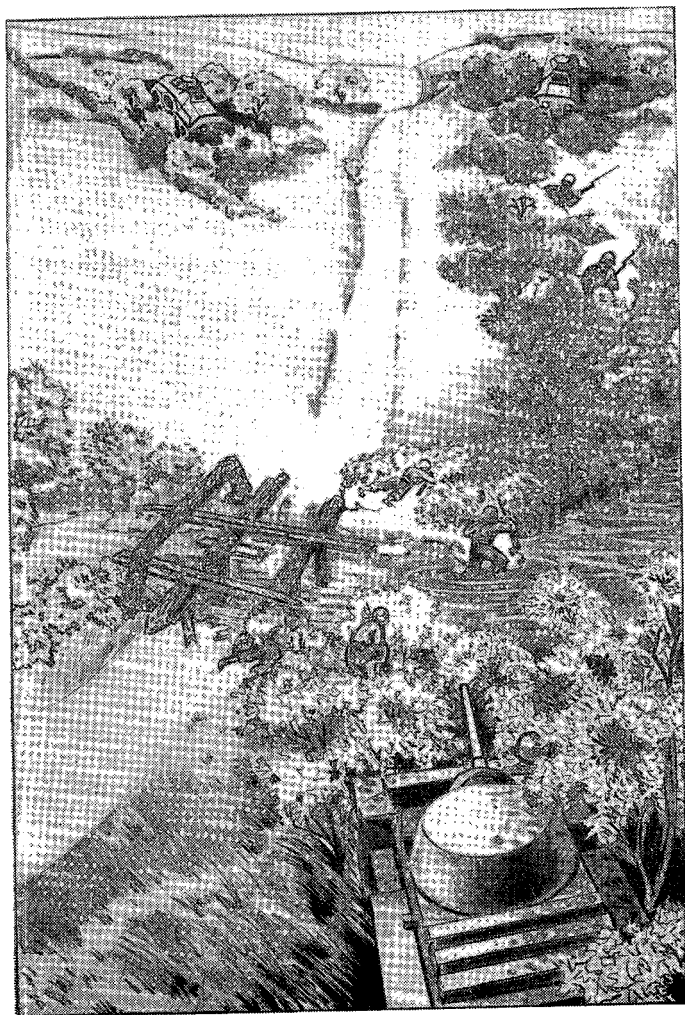


FIGURE 54.—Ambushing dismounted men for identification.



FIGURE 55.—Ambush to cut off enemy vehicle.

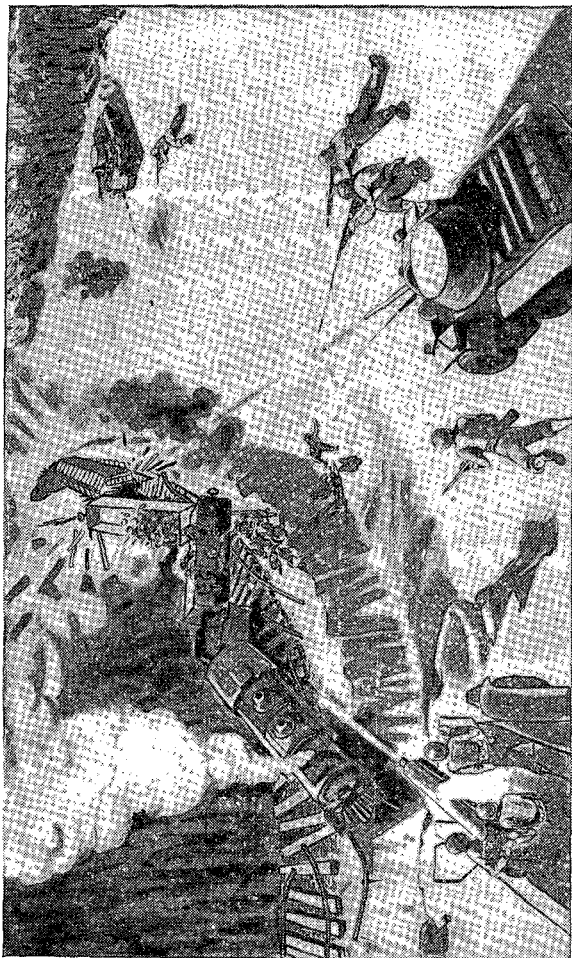


FIGURE 56.—Ambush enemy railroad train. Select curve on an embankment. Remove spikes from one rail. If time permits replace with dummy wooden spikes. Remove bolts from fish plates at rail joints. Shoot personnel of wrecked train with machine guns, matériel with 37-mm and 75-mm, but do not stay too long.



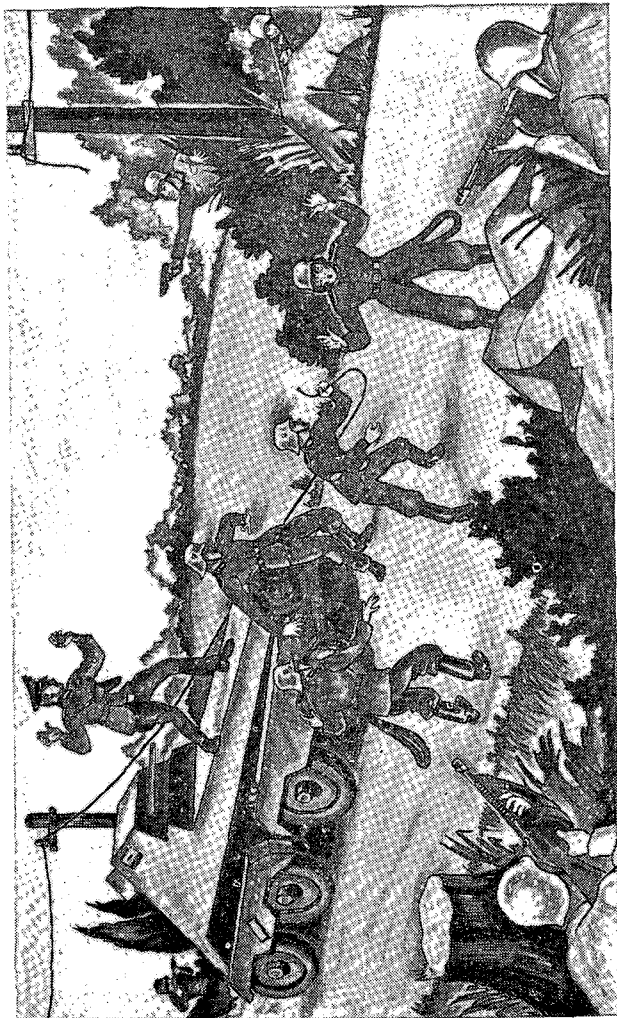


Figure 57.—Ambush to capture personnel and equipment. Cut enemy field line and ambush repair crew.

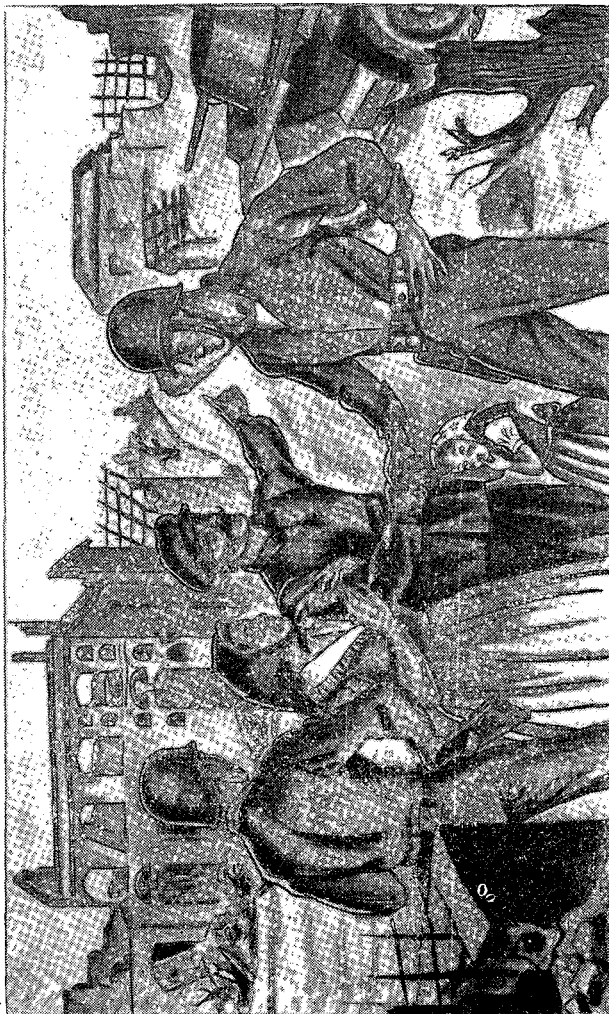


FIGURE 58.—Secure information from local friendly inhabitants, but beware of fifth columnists.

■ 43. **AMBUSH AND HARASSING ACTION.**—*a.* Ambush and harassing action will be used by the reconnaissance platoon on many occasions.

(1) The principal purpose of an ambush is to destroy a hostile patrol or to capture personnel or vehicles for identification purposes. Figures 54 to 58 illustrate some of the methods of ambush.

(2) Harassing tactics may be employed when such a mission is specifically assigned or when the platoon is cut off behind the enemy lines with no chance of escape.

(3) There are three things to be observed when setting an ambush:

(*a.*) There must be adequate cover.

(*b.*) Select one or more routes of withdrawal.

(*c.*) Designate a rallying point.

*b.* When identifications or prisoners are desired, small hostile patrols or detachments should be ambushed. This may be done by erecting a hasty barricade in a defile and capturing personnel that dismounts to remove it.

■ 44. **SEIZING KEY POINT.**—*a.* The reconnaissance platoon may frequently be directed to advance rapidly, seize some key point (bridge, rail junction, defile, etc.) and hold it pending the arrival of other forces. In such a situation time is the vital element, for it is usually a race with the enemy as to who gets there first.

*b.* The platoon leader must take the calculated risk of moving at maximum speed, disregarding observation and covering fires. He must depend on his speed and on increased distances between vehicles to prevent excessive losses.

■ 45. **ACTION WITH ENEMY PATROL.**—The action to be taken when encountering a hostile mechanized patrol depends upon the mission assigned. Figures 59 and 60 illustrate the principles to be observed.

■ 46. **PURSUIT.**—Except for short pursuits to isolate and destroy small hostile patrols the armored reconnaissance platoon will engage in pursuit only on orders from higher authority. Once a pursuit is ordered the platoon must drive forward vigorously. This does not mean, however, that caution is thrown to the winds or that the principles of security are

abandoned. On the contrary, while greater calculated risks are taken all personnel must be doubly alert for hidden mines and ambush by antitank guns.

## SECTION V

### DEFENSIVE

■ 47. **GENERAL.**—The armored reconnaissance platoon will engage in defensive operations for the following purposes:

*a. Counterreconnaissance.*—To prevent hostile ground reconnaissance from locating, identifying, and reporting friendly movements.

*b. Defense.*—To hold an area or position until relieved by higher authority.

*c. Delaying action.*—To delay and force hostile advancing elements to deploy, thus slowing down their rate of advance.

■ 48. **COUNTERRECONNAISSANCE.**—*a.* An effective counterreconnaissance screen must stop and either destroy or turn back hostile ground reconnaissance forces. Stopping and turning back is accomplished primarily by fire power delivered from carefully selected positions. Destruction is accomplished by fire and maneuver.

*b.* A platoon engaged on a counterreconnaissance mission is justified in launching a pursuit against a hostile patrol only if it is backed up by other elements capable of maintaining the effectiveness of the screen. Normally the platoon will launch a pursuit only when ordered by higher authority.

■ 49. **DEFENSE.**—The defense may be either mobile or static.

*a.* Mobile defense is carried out by moving from position to position, applying the maximum available fire power to disrupt and stop the hostile advance.

*b.* Static defense is the defense of an area or position by means of road blocks, mine fields, and natural obstacles defended by fire from the vehicles sited in level defilade positions (figs. 59 and 60).

■ 50. **ROAD BLOCKS.**—*a.* There is a wide variety of road blocks which can be constructed. The type used will depend upon:

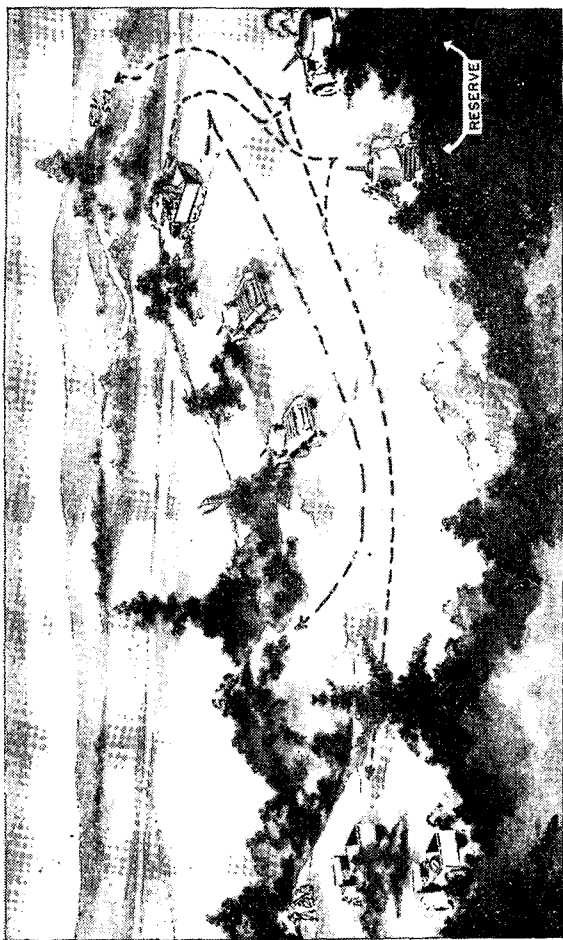
(1) Material available.

(2) Time available for construction.



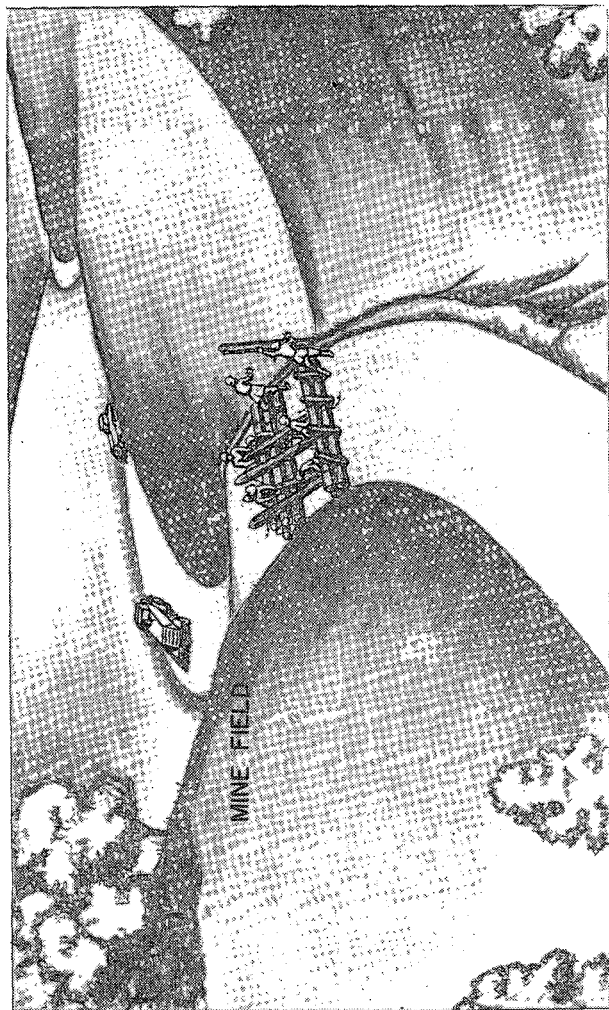
① Do not take a static position in open country to defend against hostile mechanized forces.

FIGURE 59.



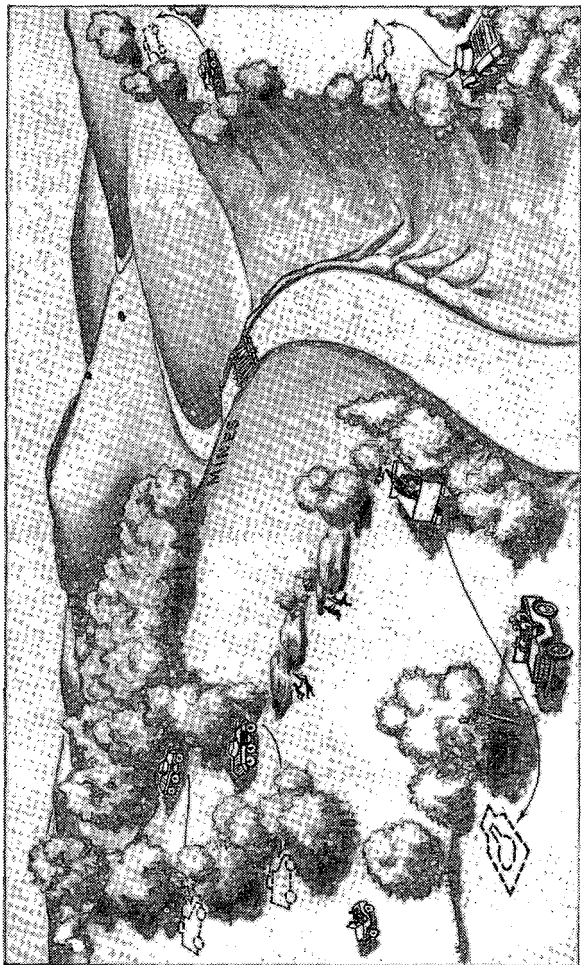
② Place some elements in position with alternate positions selected. Keep others in reserve to move to threatened flank or to launch limited objective counterattacks. Put scout section on flanks to warn of hostile approach.

FIGURE 59—Continued.



① Do not construct road blocks or mine fields and leave them undefended.

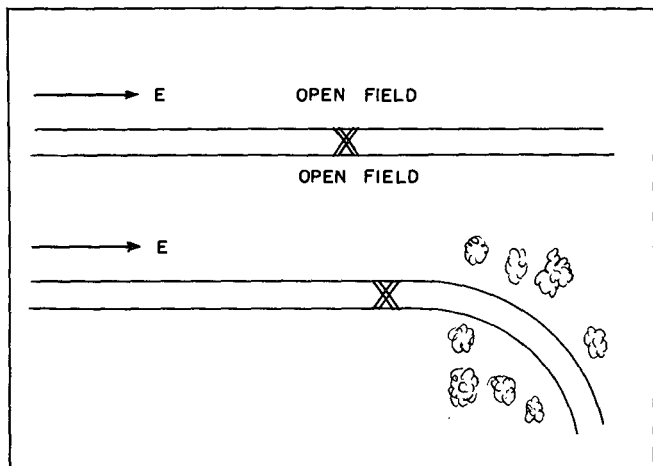
FIGURE 60.



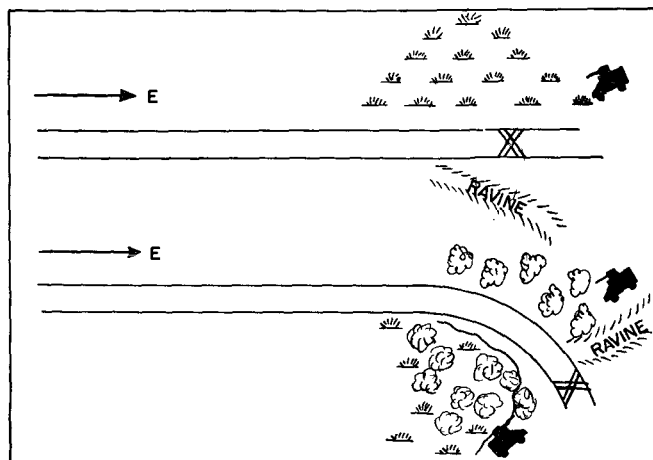
② Place vehicles to fire on hostile vehicles approaching road blocks. Site machine guns and 60-mm mortars to prevent hostile personnel from removing obstacle. Select alternate positions for all vehicles.

FIGURE 60—Continued.



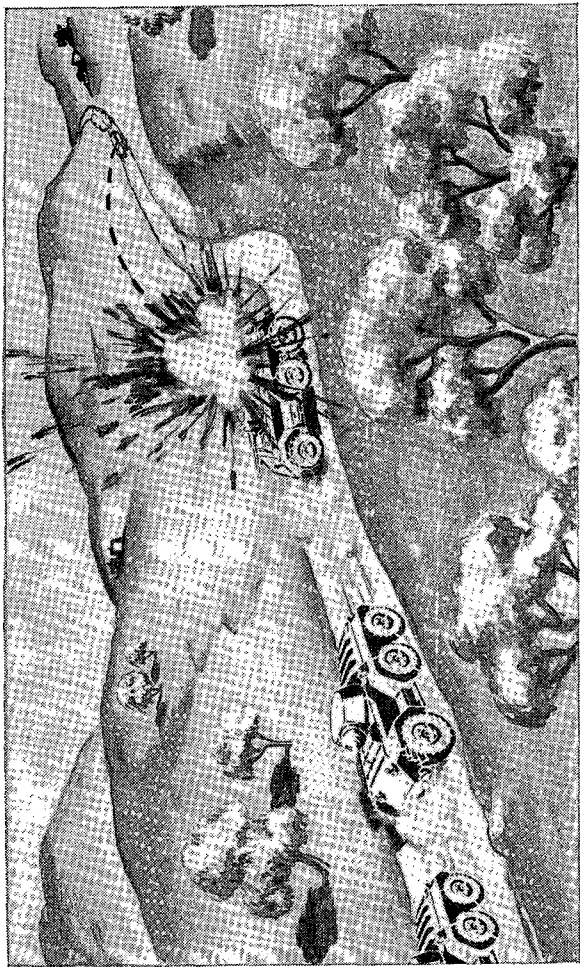


① Do not place road blocks as illustrated.

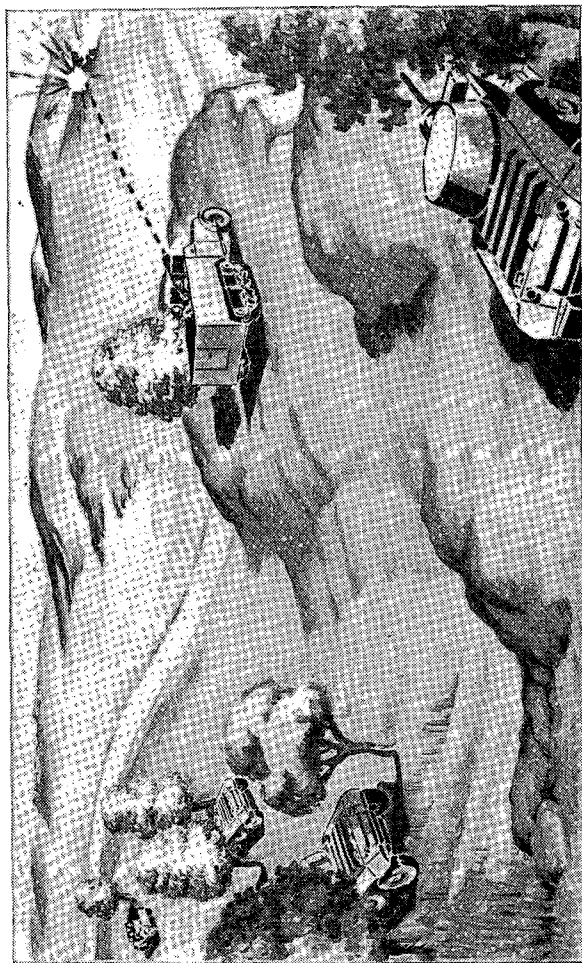


② Place road blocks in defiles or around blind curves and site guns to defend them.

FIGURE 61.

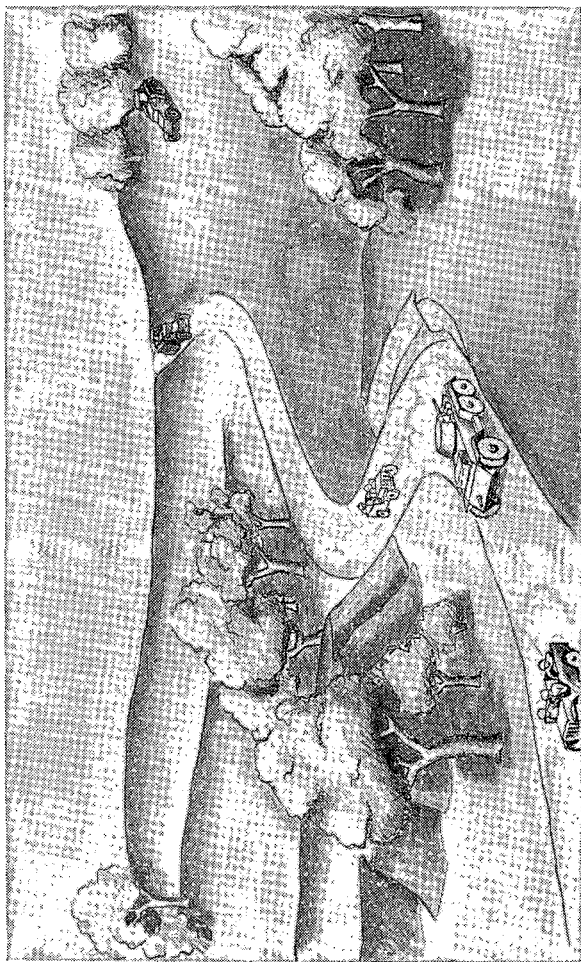


① Do not pull back everything at once. The enemy *may* have mobile forces with which he can launch a pursuit. Do not assemble on the road.

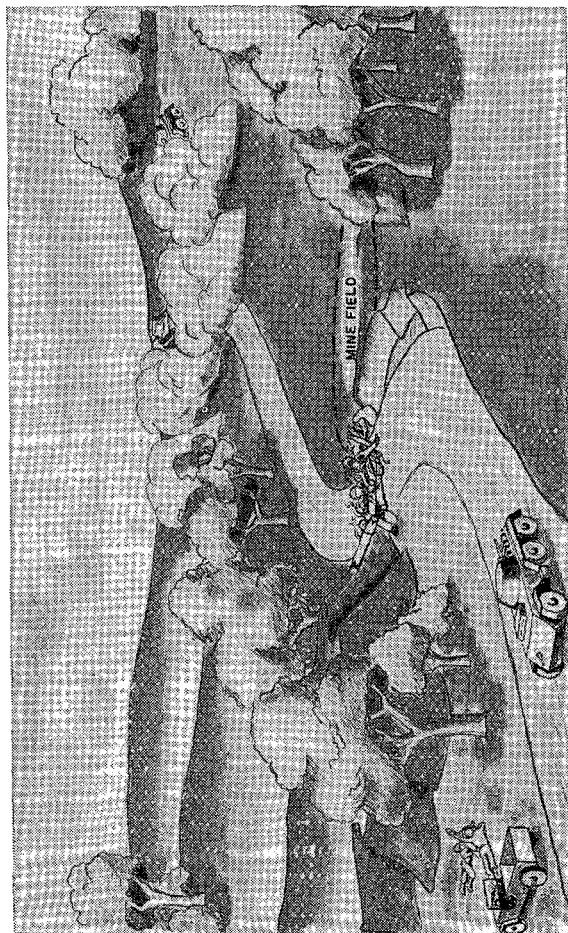


② Leave a small covering force to maintain fire on located enemy positions and assemble remainder of platoon out of range of direct fire.

FIGURE 62.—Breaking off action with dismounted force—daylight.



① Do not try to break off action by starting a race. The enemy's vehicles may be faster than yours.



② Use smoke to cover withdrawal. Prepare demolitions, road blocks, or mine field to delay pursuit. Leave mortar section to cover block. Have turrets of rear section of AC turned to the rear. Send scout section well ahead to prevent ambush.

FIGURE 63.—Breaking off action with mechanized force—daylight.

b. A few of the materials that may be used for road blocks are listed below (see FM 5-20):

- (1) Trees felled across the road.
- (2) Trucks, wagons, automobiles, etc., placed sideways across road.
- (3) Concertina wire.
- (4) Mines.
- (5) Cables.

c. The location of road blocks is dictated by the type of terrain and the position to be defended. Road blocks should be located in defiles and around blind curves to insure maximum surprise. They should always be defended (fig. 61).

■ 51. **BREAKING OFF ACTION.**—*a.* The reconnaissance platoon commander will break off action to side-slip resistance or to withdraw preparatory to further operations. The action taken varies with the type of hostile force (mechanized or dismounted) and the time of day (daylight or night). Figures 62 and 63 illustrate the principles to be observed in breaking off action.

b. In breaking off action at night leave scout section to create a diversion, particularly noise, to cover sounds of other vehicles moving. Withdraw to a previously reconnoitered rallying point and move platoon as a unit. Otherwise it may be ambushed and destroyed piecemeal.

## SECTION VI

### SPECIAL OPERATIONS

■ 52. **GENERAL.**—Special operations are those which are exceptional or which require special equipment. Mounted reconnaissance at night and river crossings are covered in this section.

■ 53. **RECONNAISSANCE AT NIGHT.**—*a.* Night reconnaissance is a combination of mounted and dismounted action. The patrol should consist of armored cars and scout cars. If the patrol expects to return before daylight the assault gun section should be omitted. Prior to leaving, the platoon leader must check all vehicles to see that items of equipment are secure and muffled against unnecessary noise. Radio dial lights must be masked. Men who will execute the dismounted

action should be provided with some means of identification (white arin bands are one solution). Definite signals should be arranged and thoroughly understood by all.

b. The patrol will proceed to its objective by bounds, moving from terrain feature to terrain feature. If the engines are in such condition that they start quietly, they should be stopped at each halt. If they start noisily, they should be left running at idling speed. Dismounted scouts should move far enough from the vehicle so that the engine noise does not prevent listening.

c. In night reconnaissance the ears are the principal means of learning what is going on. A scout should listen for several minutes for unusual sounds such as coughing, snoring, the clang of metal objects, and other sounds that disclose the presence of men or vehicles.

■ 54. RIVER CROSSING.—a. If it is known in advance that the mission of a reconnaissance platoon will require it to cross an unfordable stream, an engineer squad or section equipped with either 15-man assault boats or 6-man rubber boats should be attached. Since the necessity for crossing unfordable streams cannot always be foreseen or the assault boat equipment is not available the reconnaissance platoon must be prepared to use other methods.

(1) When only a short distance is to be covered scouts can swim the stream. Before resorting to swimming a search should be made for any small boats that might be hidden along the banks. The platoon leader should know in advance what men can swim and how well. For short distances men can swim with their clothes and equipment. For longer distances or swift streams, improvised floats of shelter-halves, boxes, or logs must be made. These can be pushed across by the best swimmers or pulled over by a light line carried across by the leading man.

(2) Whatever method is employed elements of the platoon should be put in position to cover by fire the men executing the crossing (fig. 64).

b. There are several expedients which may be used to ferry the  $\frac{1}{4}$ -ton trucks of the scout section across a river. They are shown in figures 65 to 69. See also FM 5-10 and Training Circular No. 26, War Department, 1942.

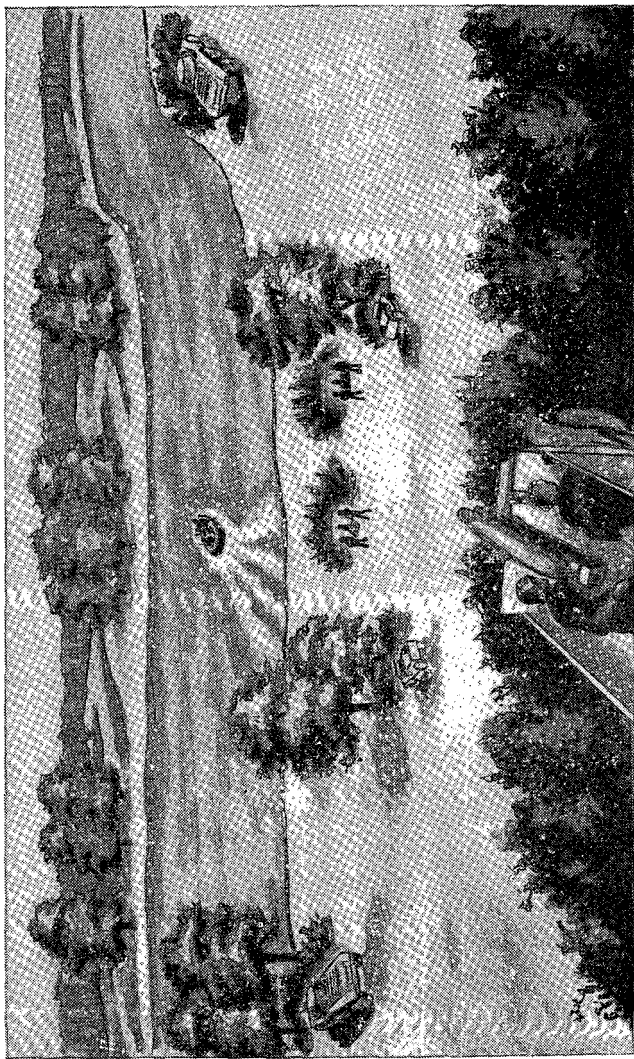


FIGURE 64.—Covering personnel crossing river.





FIGURE 65.—Stringing cable from half-track winch. Winch cables are pulled across the stream by man who has crossed carrying a light line.

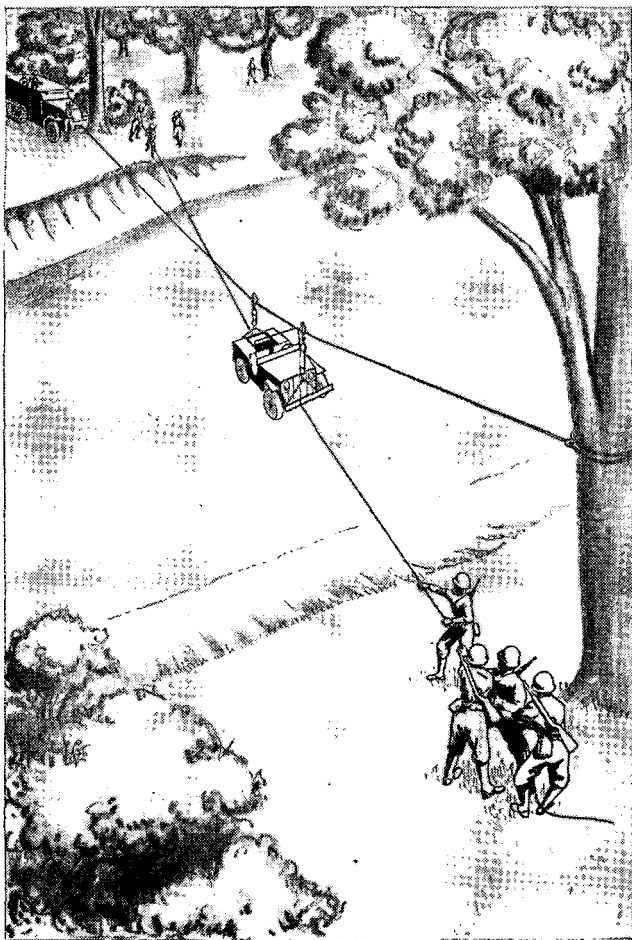


FIGURE 66.—Truck suspended from cable. Note use of snatch block and tow chains. After blocks are placed over cable, the winch takes up the slack only sufficiently to lift vehicles off the ground. The more slack left, the better. It avoids excess strain on the cable.

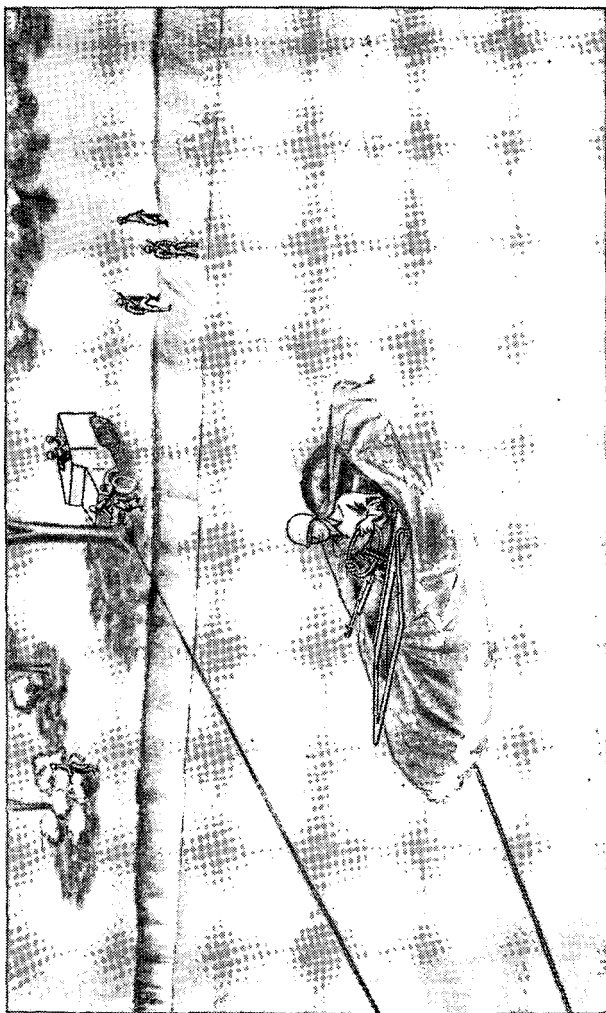


FIGURE 67.—Truck floated in paulin. Before placing truck in paulin, wet down stream bank. Wet clay makes an excellent skid.

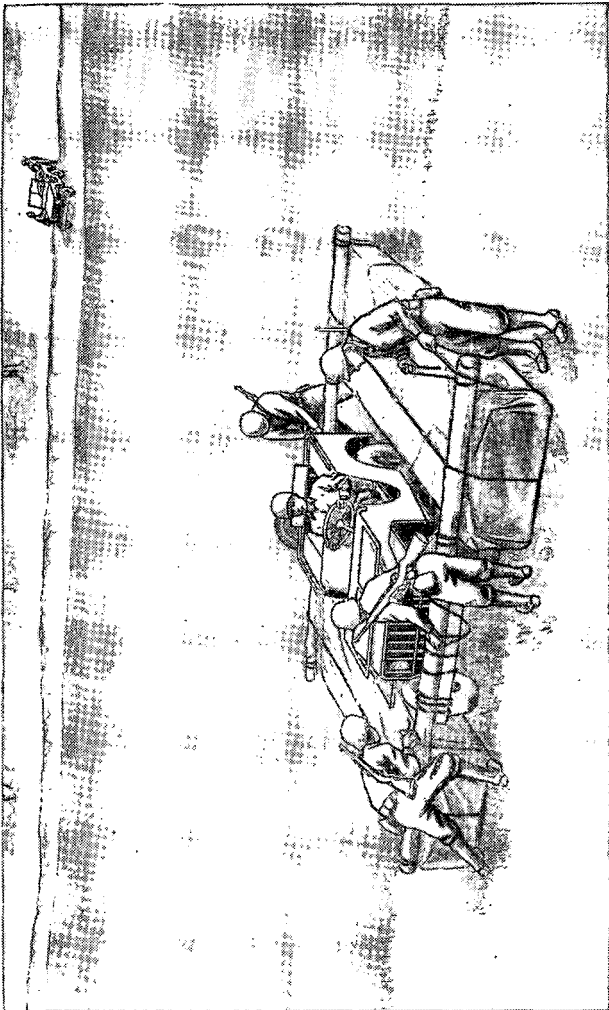


FIGURE 68.—Truck carried on outriggers. Each ponton frame should be 1½ feet by 3 feet by 11 feet.

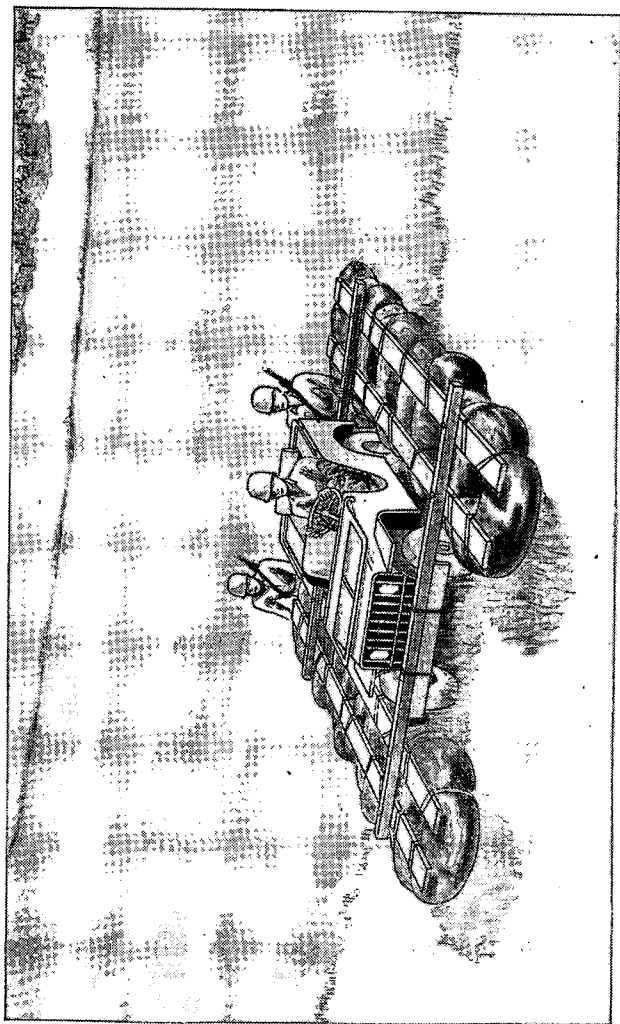


FIGURE 69.—Truck floated on inner tubes. Each outrigger float is made of five 9 by 12 inner tubes.

## CHAPTER 3

### RECONNAISSANCE COMPANY

	Paragraphs
SECTION I. General.....	55
II. Marches.....	56-58
III. Security.....	59
IV. Assembly.....	60-61
V. Offensive.....	62-63
VI. Defensive.....	64-65
VII. Special operations.....	66
VIII. Maintenance.....	67-69

#### SECTION I

#### GENERAL

■ 55. SCOPE.—*a.* This chapter covers the tactical action of the armored reconnaissance company. It is intended to show how the company is employed after higher authority has determined when and where.

*b.* The armored reconnaissance company consists of a company headquarters platoon and three reconnaissance platoons. The employment of the reconnaissance platoon is covered in chapter 2.

*c.* The company headquarters platoon consists of a command section, a communications section, a maintenance section, an administrative and supply section, and a mess section.

#### SECTION II

#### MARCHES

■ 56. GENERAL.—*a.* The methods and technique of administrative marches is covered in FM 25-10.

*b.* The reconnaissance company as a unit will seldom conduct a tactical march (real or assumed combat conditions), since the platoons will normally march on a broad front. Figure 70 illustrates the basic conditions of a reconnaissance company on the march.

■ 57. MARCH FORMATIONS.—Figure 72 illustrates the basic march formations used by the reconnaissance company. These are not the only formations which can be used.

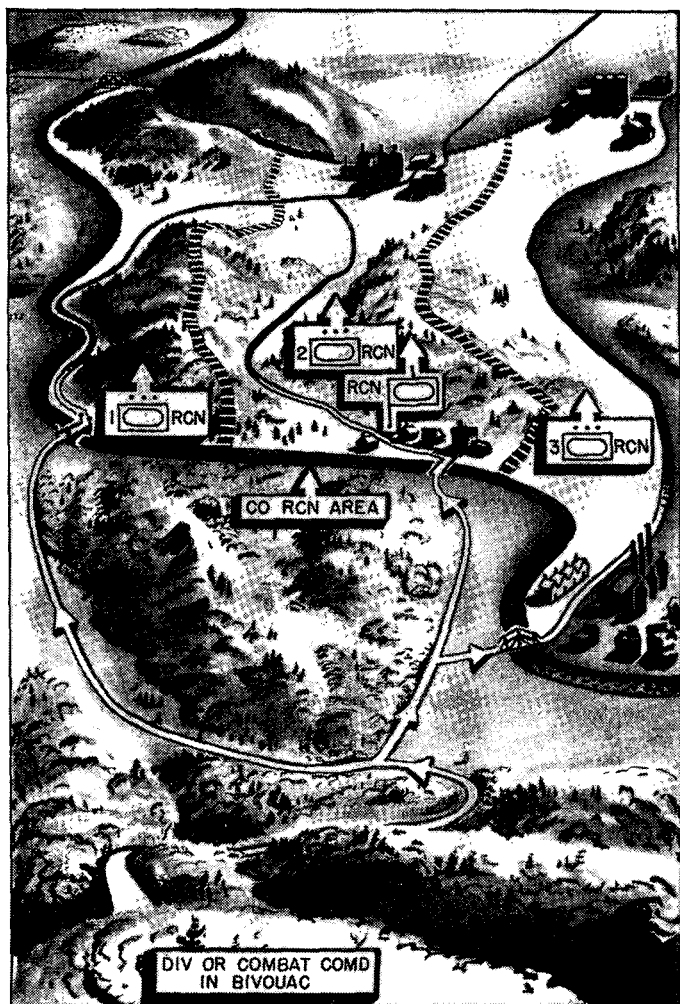


FIGURE 70.—Reconnaissance company in area reconnaissance.

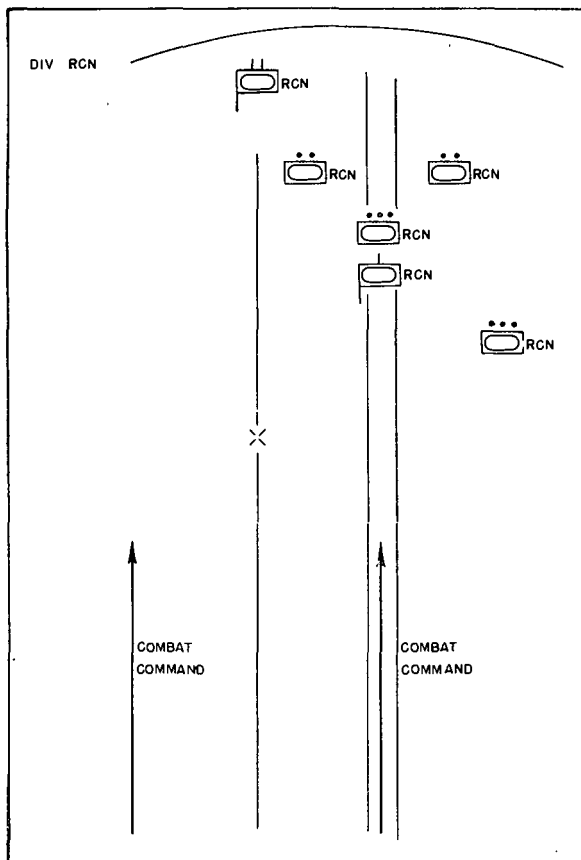


FIGURE 71.—Reconnaissance company in zone reconnaissance. One platoon and the company command, communications, and maintenance sections should remain on the main axis of advance. The mess section should march with the company maintenance section. The administrative and supply section marches with the division trains. The platoon maintenance crews march with the platoon. The motorcycle messengers are distributed as follows: one to CP combat command (or battalion in case of a company which is part of the armored reconnaissance battalion), one to each platoon, one at company headquarters. In some situations one or two can be sent to CP combat command and three kept at company CP, none sent to platoons.



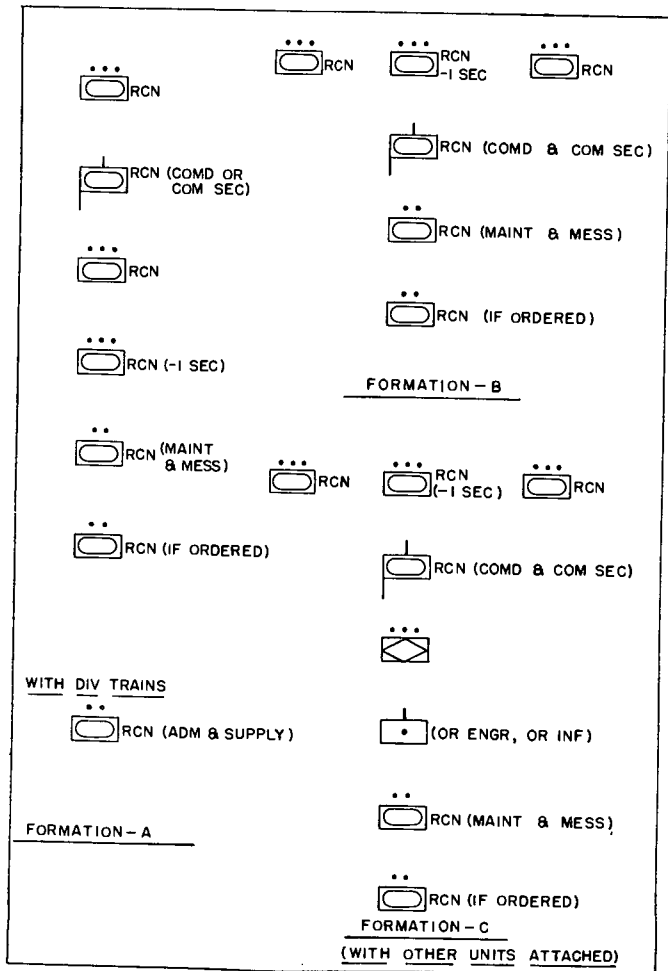


FIGURE 72.—Reconnaissance company march formations. In both zone and area reconnaissance the company headquarters section may move by bounds while the platoons are working their respective zones or areas.

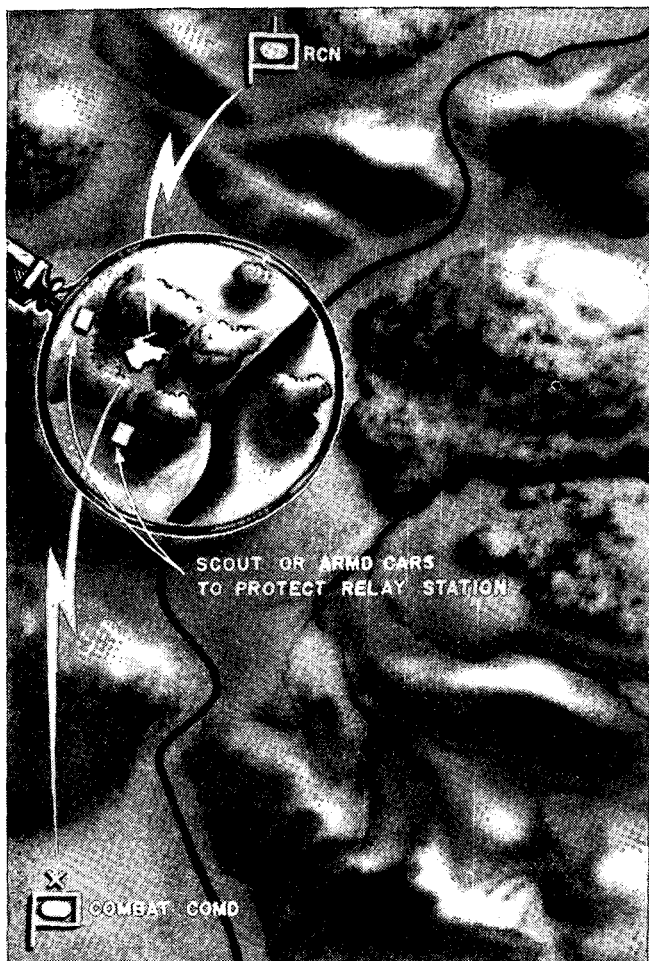


FIGURE 73.—Reconnaissance company relay station. Locate relay station well off road. Leave scout or armored car section for local security. Place double guard near road to stop motor messengers and guide them to relay station.

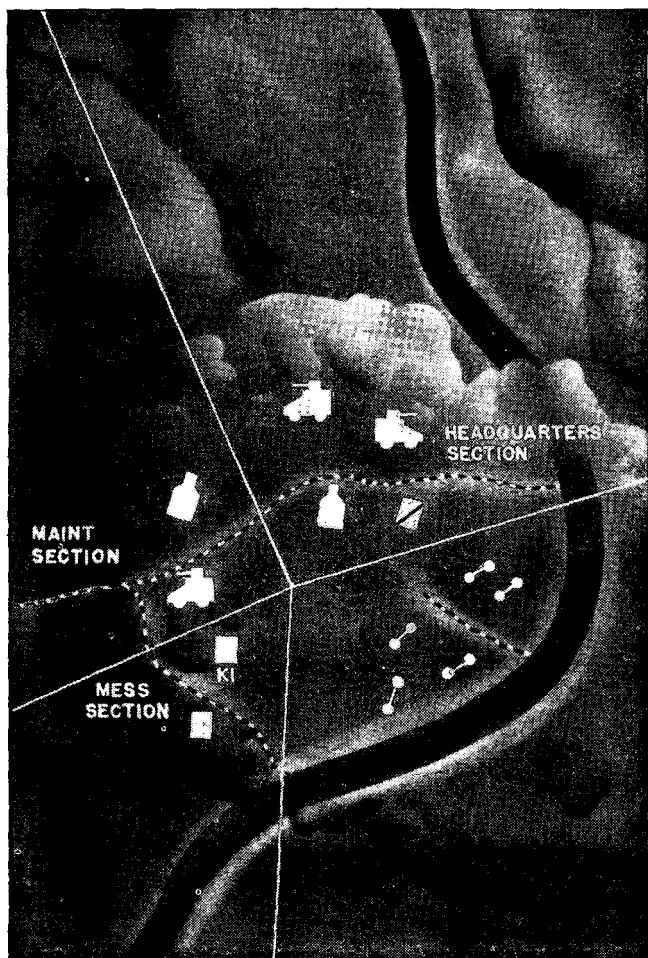


FIGURE 74.—Locate elements of company headquarters platoon according to their function. Radial lines indicate sectors of security responsibility. Mess section should be located near access road to permit ration and water trucks to reach them readily at night.

Changes may be made to meet varying conditions. Training in the use of the basic formations must be carried to the point that they become standard and can be taken up on the order "Formation A."

■ 58. RADIO OR MESSENGER RELAY.—Due to the distance between reconnaissance company CP and the battalion combat command or division CP it may be necessary for the company to establish a relay point. Figure 73 illustrates the principles to be observed in establishing a relay station.

### SECTION III

#### SECURITY

■ 59. GENERAL.—*a.* The reconnaissance company is responsible for its own local security. The principles to be observed are illustrated in section II, chapter 2. Figure 74 illustrates a schematic lay-out for the reconnaissance company headquarters platoon when the platoons are on missions.

*b.* In an assembly area bear in mind the fact that one or more platoons may leave on patrol on short notice. Arrange local security so that any element can leave without disrupting security arrangements and necessitating extensive changes.

### SECTION IV

#### ASSEMBLY

■ 60. GENERAL.—The principles to be observed in an assembly area are illustrated in section III, chapter 2.

■ 61. COMPANY ASSEMBLY AREA.—When selecting an assembly area for the reconnaissance company, observe the following principles:

- a.* Select area with concealment and defilade.
- b.* Be sure there is firm footing.
- c.* Choose area with more than one exit.
- d.* Be sure area is big enough for all vehicles to have at least 50 yards in all directions.
- e.* If possible, leave space for attached units.
- f.* Select area with natural means of defense.

## SECTION V

## OFFENSIVE

■ 62. GENERAL.—The reconnaissance company will seldom engage in offensive action as a unit. Normally the platoons will carry out offensives to accomplish assigned missions. The company will coordinate the action between platoons (unless detached) and direct the action of attached units (tank, infantry, artillery, engineers, air).

■ 63. PURSUIT.—Pursuit of hostile forces will generally be ordered by higher authority. The reconnaissance platoons execute the action. The company coordinates the action of the platoons and attached units.

## SECTION VI

## DEFENSIVE

■ 64. GENERAL.—*a.* The reconnaissance company may engage in defensive operations as a unit on orders from higher authority. These may include:

- (1) Counterreconnaissance.
- (2) Defense of a river line.
- (3) Defense of defile.
- (4) Delaying action to cover movement of other elements of the division.
- (5) Flank protection.

*b.* Figures 75 and 76 illustrate the principles to be observed in defensive operations.

■ 65. FRONTAGES AND DISTANCES.—When acting in a defensive operation, the frontage which can be covered by a reconnaissance company is much less than when engaged on purely reconnaissance missions. Normally this will be a frontage of two platoons. One platoon should be held out as a reserve.

## SECTION VII

## SPECIAL OPERATIONS

■ 66. GENERAL.—The reconnaissance company will act in special operations as outlined in section VI, chapter 2.

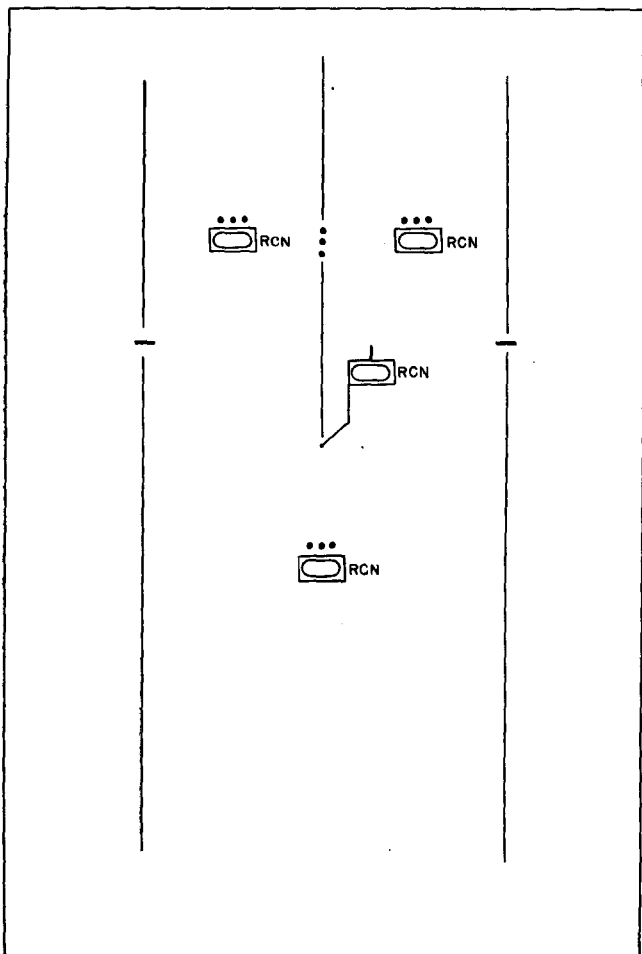


FIGURE 75.—Reconnaissance company on counterreconnaissance. This formation will apply to a delaying action. The maximum distance which a platoon can cover is limited by facilities for observation. The platoon must be able to observe the entire front, otherwise hostile patrols will slip through.

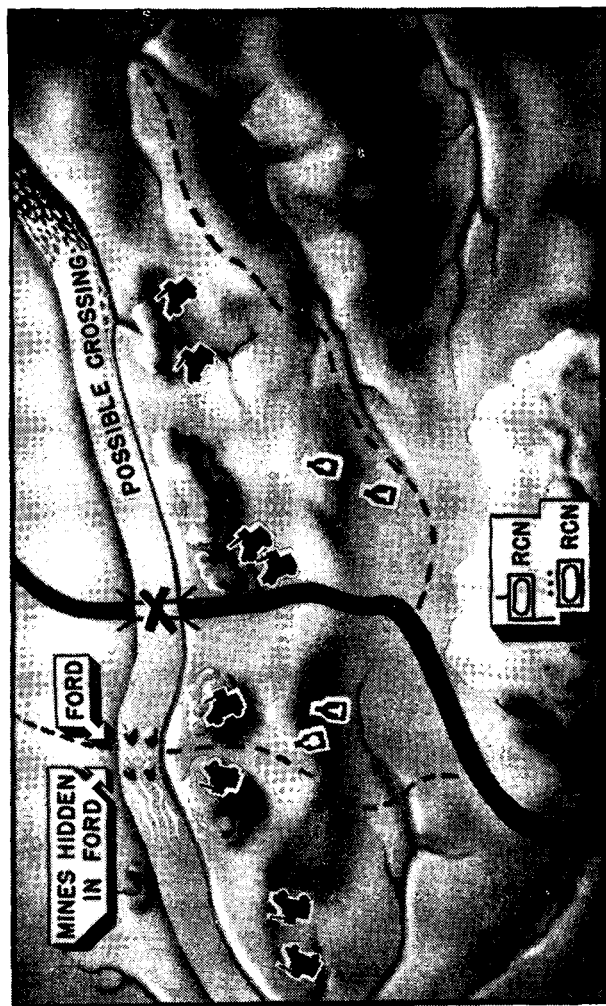


FIGURE 76.—Reconnaissance company defending a river line. Scout sections are used to patrol and observe assigned front. This formation will apply to the defense of a defile.

## SECTION VIII

### MAINTENANCE

■ 67. GENERAL.—*a.* The maintenance of vehicles, weapons, and radios is a function of command. While the physical duties pertaining to maintenance are performed by the vehicular crew and the maintenance section the responsibility for proper maintenance cannot be delegated.

*b.* As a general guide maintenance will be performed by the lowest echelon within the limitations of time, tools, spare parts, and trained personnel. There can be no rigid lines of maintenance in the theater of operations.

■ 68. DUTIES OF PERSONNEL.—*a. Company commander.*—The company commander maintains general supervision over company maintenance activities. He assigns the company maintenance officer.

*b. Company maintenance officer.*—The company maintenance officer supervises and directs the activities of the maintenance section. He supervises the periodic vehicular checks. As directed by the company commander, he performs scheduled technical inspections assisted by the company foreman-mechanic. He will also make frequent nonroutine inspections of crew maintenance, reporting the results of such to the company commander. He assigns platoon crews to the reconnaissance platoons.

*c. Platoon leader.*—He is responsible that the vehicular crews of his platoon perform first echelon maintenance. He is responsible that his vehicles, weapons, and radios are serviced and ready for combat at all times. He is responsible that vehicles, weapons, or radios needing repair are promptly and properly reported.

*d. Company maintenance crew.*—The company maintenance crew makes technical inspections, carries out preventive maintenance inspections, and checks and repairs failures within the limits stated in paragraph 67*b*.

*e. Platoon maintenance crew.*—The platoon maintenance crew goes with its platoon at all times. It makes such field repairs as available facilities permit. It reports to the maintenance officer any vehicle beyond its ability to bring in, giving location and estimate of repairs or material needed.



When not engaged in maintenance work on its platoon vehicles, the platoon crew will assist other crews.

*f. Vehicular crew.*—The vehicle commander is responsible for the first echelon of maintenance. He assigns duties to the members of the crew and sees that they are carried out. They include:

- (1) Drivers' inspections.
- (2) Servicing (gas, oil, water, antifreeze, air).
- (3) Lubrication, except that requiring special equipment or training.
- (4) Cleaning.
- (5) Securing equipment.
- (6) Weapons (including turret operation) cleaning and inspection.
- (7) Radio operators' (tender) inspections.

**¶ 69. OTHER MAINTENANCE ELEMENTS.**—*a.* The armored reconnaissance battalion will normally have assigned to it a maintenance section (or platoon) from the division maintenance battalion. The reconnaissance company of the battalion will go to this section for assistance beyond its own facilities.

*b.* The reconnaissance company of the armored regiment will normally be assigned one 10-ton wrecker from the reserve crew, maintenance platoon, armored maintenance company (regimental). This wrecker will be under the direction of the company maintenance officer. For assistance beyond its own facilities the reconnaissance company will deal with the armored maintenance company.



## INDEX

	Paragraph	Page
Advance by bounds.....	26	44
Ambush.....	43	103
Ammunition.....	38	79
Assembly area:		
Company.....	60, 61	128
Definition.....	34	65
Platoon.....	35	65
Attack—		
Of defended road block.....	40	80
To secure information.....	39	79
Bounds, advance by.....	26	44
Breaking off action.....	51	114
Bridges:		
Allowable load.....	22	26
Inspection.....	21	25
Car, armored reconnaissance.....	8	7
Ciphers.....	9	7
Codes.....	9	7
Control.....	19	24
Counterreconnaissance.....	48	104
Defensive:		
Breaking off action.....	51	114
Company.....	64-65	129
Counterreconnaissance.....	48	104
Defense.....	49	104
Purposes.....	47	104
Road blocks.....	50	104
Dismounted scouts.....	18	19
Distances, reconnaissance.....	10	14
Enemy patrol, action with.....	41, 45	80, 103
Equipment.....	7	7
Formations, march.....	24, 57	34, 122
Forms.....	21	25
Frontages, reconnaissance.....	10	14
Grouping, tactical.....	5	3
Harassing action.....	43	103
Illustrations.....	11	14
Key point, seizing.....	44	103
Liaison.....	20	25
Load, bridge.....	22	26

## INDEX

	Paragraph	Page
Maintenance-----	67-69	132
Marches:		
Action when in observation-----	25	34
Advance by bounds-----	26	44
Company-----	56-58	122
Formations-----	24, 56	34, 122
Radio or messenger relay-----	58	128
Reconnaissance by fire-----	27	44
Security-----	31	65
Through defile-----	28	44
Messenger relay-----	58	128
Messengers-----	19	24
Missions-----	3	2
Navigation, elementary-----	14	16
Night reconnaissance-----	53	114
Observation:		
Action when in-----	25	34
Training-----	15	17
Offensive:		
Action with enemy patrol-----	40, 45	80, 103
Ambush and harassing action-----	43	103
Ammunition-----	38	79
Attack—		
Of defended road block-----	40	80
To secure information-----	39	79
Company-----	62, 63	129
Passage of lines-----	42	80
Pursuit-----	46	103
Seizing key point-----	44	103
Weapons-----	37	78
When necessary-----	36	78
Organization-----	6	3
Outpost line, passing-----	33	65
Passage of lines-----	42	80
Phase line, action on-----	32	65
Pursuit-----	46	103
Radio—		
As means of control-----	19	24
Nets-----	8	7
Relay-----	58	128
Relay station-----	58	128
Reports-----	21	25
River crossing-----	54	115
Road blocks-----	50	104
Security:		
Company-----	59	128
Local-----	30	44
March-----	31	65
Outpost line-----	33	65
Phase line-----	32	65

## INDEX

	Paragraph	Page
Special operations:		
Company-----	66	129
Definition-----	52	114
Night reconaissance-----	53	114
River crossing-----	54	115
Subjects, training-----	13	16
Tactical—		
Action, types-----	4	3
Grouping-----	5	3
Training, methods-----	17	18
Tracking, training-----	16	17
Training:		
Dismounted scouts-----	18	19
Navigation, elementary-----	14	16
Observation-----	15	17
Purpose-----	12	16
Subjects-----	13	16
Tactical, methods-----	17	18
Tracking-----	16	17
Weapons, offensive-----	37	78

