*DEPARTMENT OF THE ARMY FIELD MANUAL*

*FM 100–5*

*This manual supersedes FM 100–5, 15 June 1944*

# FIELD SERVICE REGULATIONS

# OPERATIONS



*DEPARTMENT OF THE ARMY* *AUGUST 1949*

RESTRICTED. *DISSEMINATION OF RESTRICTED MATTER.*—No person is entitled solely by virtue of his grade or position to knowledge or possession of classified matter. Such matter is entrusted only to those individuals whose official duties require such knowledge or possession. (See also AR 380–5.)

*United States Government Printing Office*

*Washington: 1949*

DEPARTMENT OF THE ARMY

*Washington 25, D. C., 15 August 1949*

FM 100–5, Field Service Regulations—Operations, is published for the information and guidance of all concerned.

[AG 300.7 (9 Jun 49)]

BY ORDER OF THE SECRETARY OF THE ARMY:

OMAR N. BRADLEY
*Chief of Staff, United States Army*

OFFICIAL:
EDWARD F. WITSELL
*Major General*
*The Adjutant General*

DISTRIBUTION:

Army:
Adm Sv (5); Tech Sv (5); Arm & Sv Bd (2); AFF (40); OS Maj Comd (5); MDW (2); A (15); CHQ (10); D (10); B (5); R (5); S Bn (3); Bn (2); FC (2); USMA (10); Sch (5) except 5, 6, 7, 17 (1000); PMS & T (1); Dep (2); GH (2); Tng Div (5); PE (5); SPECIAL DISTRIBUTION.

**For explanation of distribution formula, see SR 310–90–1.**

DEPARTMENT OF THE ARMY

*Washington 25, D. C., 15 August 1949*

FM 100–5, Field Service Regulations—Operations, is published for the information and guidance of all concerned.

[AG 300.7 (9 Jun 49)]

BY ORDER OF THE SECRETARY OF THE ARMY:

OMAR N. BRADLEY
*Chief of Staff, United States Army*

OFFICIAL:
EDWARD F. WITSELL
*Major General*
*The Adjutant General*

DISTRIBUTION:

Army:
Adm Sv (5); Tech Sv (5); Arm & Sv Bd (2); AFF (40); OS Maj Comd (5); MDW (2); A (15); CHQ (10); D (10); B (5); R (5); S Bn (3); Bn (2); FC (2); USMA (10); Sch (5) except 5, 6, 7, 17 (1000); PMS & T (1); Dep (2); GH (2); Tng Div (5); PE (5); SPECIAL DISTRIBUTION.

For explanation of distribution formula, see SR 310–90–1.

# CONTENTS


| | | | Paragraphs | Page |
|---|---|---|---|---|
| APTER | 1. | ORGANIZATION | | |
| *Section* | *I.* | Territorial organization | 1–5 | 1 |
| | *II.* | Troop organization | 6–21 | 2 |
| APTER | 2. | ARMS AND SERVICES | | |
| *Section* | *I.* | General | 22–23 | 5 |
| | *II.* | Infantry | 24–30 | 6 |
| | *III.* | Armored cavalry | 31–35 | 7 |
| | *IV.* | Artillery | 37–52 | 8 |
| | *V.* | Corps of engineers | 53–57 | 13 |
| | *VI.* | Signal corps | 58–61 | 13 |
| | *VII.* | Chemical corps | 62–65 | 14 |
| | *VIII.* | Medical department units | 66–68 | 14 |
| | *IX.* | Quartermaster corps | 69–72 | 15 |
| | *X.* | Ordnance department | 73–75 | 15 |
| | *XI.* | Transportation corps | 76–79 | 16 |
| HAPTER | 3. | LEADERSHIP | 80–96 | 17 |
| HAPTER | 4. | THE EXERCISE OF COMMAND | | |
| *Section* | *I.* | Principles of war | 97–105 | 21 |
| | *II.* | Command | 106–117 | 23 |
| | *III.* | Estimate of the situation | 118–123 | 24 |
| | *IV.* | Terrain and weather | 124–126 | 25 |
| | *V.* | Conduct in battle | 127–132 | 26 |
| | *VI.* | Operation orders | 133–140 | 27 |
| | *VII.* | Command posts | 141–148 | 28 |
| | *VIII.* | Signal communication | 149–164 | 30 |
| HAPTER | 5. | COMBAT INTELLIGENCE, RECONNAISSANCE, AND COUNTERINTELLIGENCE | | |
| *Section* | *I.* | Combat intelligence | 165–178 | 34 |
| | *II.* | Reconnaissance | 179–205 | 37 |
| | *III.* | Counterintelligence | 206–219 | 43 |
| HAPTER | 6. | SECURITY | | |
| *Section* | *I.* | General | 220–225 | 47 |
| | *II.* | Security during movement | 226–239 | 48 |
| | *III.* | Security at a halt | 240–257 | 51 |
| | *IV.* | Security measures within bivouac areas | 258–263 | 54 |
| | *V.* | Security against armored attack | 264–268 | 56 |
| | *VI.* | Security against air attack | 269–278 | 57 |
| | *VII.* | Security against airborne attack | 279–281 | 59 |
| | *VIII.* | Security against chemical attack | 282–285 | 59 |
| | *IX.* | Security against radiological weapons | 286 | 60 |
| | *X.* | Security against biological warfare | 287 | 60 |
| HAPTER | 7. | TROOP MOVEMENTS | | |
| *Section* | *I.* | General | 288–290 | 62 |
| | *II.* | Foot marches | 291–292 | 62 |
| | *III.* | Motor marches | 293–299 | 63 |
| | *IV.* | Night marches and forced marches | 300–303 | 65 |
| | *V.* | Tactical considerations | 304–325 | 65 |

## CONTENTS—Continued


| | | Paragraphs | Page |
|---|---|---|---|
| *VI.* | March doctrines | 326–351 | 70 |
| *VII.* | Movements by rail | 352–361 | 75 |
| *VIII.* | Movements by air | 362–368 | 78 |
| *IX.* | Movements by water | 369–375 | 78 |
| CHAPTER 8. | THE OFFENSIVE | | |
| *Section I.* | General | 376–434 | 80 |
| *II.* | War of movement | 435–443 | 96 |
| *III.* | Attack of an organized position | 444–499 | 99 |
| *IV.* | Attack from the defensive | 500–504 | 113 |
| *V.* | Pursuit | 505–518 | 114 |
| *VI.* | Security in the offensive | 519–523 | 118 |
| *VII.* | Termination of the offense | 524–525 | 119 |
| CHAPTER 9. | THE DEFENSIVE | | |
| *Section I.* | Organization for defense | 526–599 | 120 |
| *II.* | Defense on a wide front | 600–609 | 140 |
| *III.* | Defense against airborne attack | 610–624 | 142 |
| *IV.* | Conduct of the defense | 625–651 | 147 |
| *V.* | Termination of the defense | 652–653 | 155 |
| *VI.* | Delaying action | 654–674 | 155 |
| CHAPTER 10. | RETROGRADE MOVEMENTS | | |
| *Section I.* | General | 675–684 | 161 |
| *II.* | Withdrawal from action | 685–700 | 163 |
| *III.* | Retirement | 701–723 | 167 |
| CHAPTER 11. | SPECIAL OPERATIONS | | |
| *Section I.* | Attack of a fortified position | 724–751 | 173 |
| *II.* | Operations at river lines | 752–797 | 180 |
| *III.* | Night combat | 798–818 | 193 |
| *IV.* | Combat in towns | 819–828 | 198 |
| *V.* | Combat in woods | 829–834 | 200 |
| *VI.* | Mountain operations | 835–881 | 202 |
| *VII.* | Combat in snow and extreme cold | 882–918 | 213 |
| *VIII.* | Combat at defiles | 919–941 | 222 |
| *IX.* | Jungle operations | 924–941 | 224 |
| *X.* | Desert operations | 942–946 | 229 |
| *XI.* | Partisan warfare | 947–954 | 231 |
| *XII.* | Joint amphibious operations | 955–967 | 233 |
| CHAPTER 12. | AIRBORNE OPERATIONS | | |
| *Section I.* | Basic considerations | 968–973 | 238 |
| *II.* | Command, control, and functions of units | 974–984 | 242 |
| *III.* | Planning and preparation for airborne operations | 985–1005 | 246 |
| *IV.* | Execution of airborne operations | 1006–1021 | 251 |
| CHAPTER 13. | THE DIVISION | | |
| *Section I.* | Infantry division | 1022–1029 | 256 |
| *II.* | Armored division | 1030–1038 | 258 |
| *III.* | Airborne division | 1039–1046 | 261 |
| APPENDIX | LESSONS OF THE PEARL HARBOR ATTACK | | 264 |

## FOREWORD

FM 100–5, Field Service Regulations, Operations, contains the doctrines of leading troops in combat and the tactics of the combined arms. It constitutes the basis of instruction of all arms and services for field service.

These field service regulations will be interpreted in the light of FM 27–10, Rules of Land Warfare, and should be studied in connection with FM's 31-35, Air-Ground Operations; 100-10, Field Service Regulations, Administration; and 100–15, Field Service Regulations, Larger Units.

While the fundamental doctrines of combat operations are neither numerous nor complex, their application sometimes is difficult. Knowledge of these doctrines and experience in their application provide all commanders with a firm basis for action in a particular situation. Knowledge and experience also enable the commander to utilize the flexible organization with which he is provided to group his forces into task units most suitable for the accomplishment of his mission.

Set rules and methods must be avoided. They limit imagination and initiative which are so vital in the successful prosecution of war. They provide the enemy a fixed pattern of operations which he can counter more easily.

The fundamental principles of combat remain unchanged, but doctrine and tactics must be modified with each major advance in weapons, transportation, and other devices applicable to warfare. In general, developments favorable to the offensive are followed by developments or measures which counter their effectiveness. If decisive effect and surprise are to be achieved, it is essential that the tactics and technique of employment of a new development are kept abreast of the progress of the development itself.

The projection of the tactical effect of a new development must be based upon a realistic consideration of the characteristics of the development, and an equal progression in development in all other fields. Thus a weapon, whose deadliness dictates increased dispersion to reduce casualties, may be offset by developments in signal communication and transportation, which permit the desired dispersion without reduction in cohesion and control.

Reasoned conclusions concerning the actical effect of a new development form the basis for new tactical doctrine. In the vast majority of instances, a new development merely extends the capabilities of existing agencies without necessitating radical revision of existing doctrine. Thus within the scope of existing tactics and doctrine, ground launched guided missiles extend the range and power of artillery. In exceptional cases a development may possess potentialities which dictate radical revision of the conduct of tactical operations. Thus the crossbow, firearms, the machine gun, and the airplane, in turn resulted in major changes in the tactical doctrine of their periods.

The analysis of the impact of new developments upon the doctrine and tactics of the combined arms must be accurate, constant, and detailed. Military thought must be realistic and alert to modify the doctrine set forth in these regulations in the light of new developments. A considered balance between the conflicting dictates of secrecy and the dissemination of information requisite to the development of sound doctrines of employment must be maintained, if timely realistic employment is to be practicable.

These field service regulations reflect policy, doctrine, and procedures current at the time of preparation. Tactical and technical developments and organizational changes of the Army will necessitate correction and modification of the manual from time to time. Recommendations for corrections or changes should be forwarded to the Commandant, Command and General Staff College, for consideration and inclusion in future changes to the manual.

Modern warfare demands close coordination of the tactics and techniques and careful evaluation of the capabilities and limitations of Army, Navy, and Air Force. A salient function of command is the development, in the forces employed on a given task, of the teamwork essential to success.

## WARNING NOTICES

*Authority for release of this document to a foreign government must be secured from the Assistant Chief of Staff, G–2, Department of the Army.*

When this document is released to a foreign government, it is released subject to the following conditions: This information is furnished with the understanding that it will not be released to another nation without specific approval of the United States of America, Department of the Army; that it will not be used for other than military purposes; that individual or corporation rights originating in the information whether patented or not will be respected; and that the information will be afforded substantially the same degree of security as afforded by the United States of America, Department of the Army.

---

This document contains information affecting the national defense of the United States within the meaning of the Espionage Laws, Title 18 U. S. C., sections 793 and 794. The transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

624.11 For further details, see FM 31-20.

952. (Superseded) For further details of the conduct of guerilla operations, see FM 31-20.

953. Rescinded.

954. Rescinded.

[AG 300.7 (15 Jul 52)]

BY ORDER OF THE SECRETARY OF THE ARMY:

OFFICIAL:
WM. E. BERGIN
*Major General, USA*
*The Adjutant General*

J. LAWTON COLLINS
*Chief of Staff, United States Army*

DISTRIBUTION:
*Active Army:*
Tech Svc (1); Tech Svc Bd (1); AFF (40); AA Comd (5); OS Maj Comd (5); Base Comd (5); MDW (2); Log Comd (5); A (15); CHQ (10); Div (10); Brig. (5); Regt (5); Sep Bn (3); Bn (2); FT (2); USMA (10); Sch (5) except 5, 6, 7, 17 (1000); PMS & T (1); Dep (2); GH (2); RTC (5); POE (5), OSD (5); Mil Dist (3).
*NG:* Div (10); Brig (3); Regt (3); Sep Bn (2); Bn (1).
*ORC:* Div (10); Brig (3); Regt (3); Sep Bn (2); Bn (1).
For explanation of distribution formulas, see SR 310-90-1.



U. S. GOVERNMENT PRINTING OFFICE: 1952

*This manual supersedes FM 100–5, 15 June 1944*

# CHAPTER 1

# ORGANIZATION

## Section I. TERRITORIAL ORGANIZATION

1. The *theater of war* comprises those portions of land, sea, and air which are directly involved in the conduct of war.

2. A *theater of operations* comprises a designated portion of the land, sea, and air in the theater of war in which military operations are conducted. Territorial responsibilities are assigned and are under the direction of the theater commander.

3. The *combat zone* comprises that part of the theater of operations required for the conduct of war by the field forces. Its depth may be dependent upon the size of the forces assigned, the nature of the operations contemplated, the character of the lines of communications, the important terrain features, and the enemy capabilities. It may be divided for tactical control into army group, field army, corps, and division areas; each is controlled by the commander of the corresponding unit. The rear boundary of the combat zone is designated by the theater commander and is changed to conform to the movement of the armed forces.

4. The *communications zone* includes all the territory of the theater of operations between the rear boundary of the theater and the rear boundary of the combat zone. Laterally, it usually is coextensive with the theater boundaries. The communications zone also provides area for the operation and defense of the supply, evacuation, transportation, service, and other administrative agencies required for rendering support to the combat zone.

---

For military terms not defined in this manual, see TM 20-205; for list of training publications, see SR 310-20 series; for training films, film strips, and film bulletins, see FM 21-7; and for training aids, see FM 21-8.

It may include areas necessary for the operation or support of Air Force units based outside the combat zone. It is a link in the chain of supply and evacuation between the combat zone and the zone of interior.

5. The *zone of interior* comprises the area of national territory exclusive of theaters of operations but, under certain circumstances, may include foreign territory, either allied, neutral, or hostile.

## Section II. TROOP ORGANIZATION

6. Troop organization includes command, combat (tactical), and service (administrative) elements. Most tactical units contain service elements and have some administrative functions. Troop units, either combat or service, are not designated as administrative unless they perform all, or nearly all, administrative functions for their components.

7. The Army of the United States is organized to provide, under the Secretary of the Army and the Chief of Staff, a Department of the Army general staff, a special staff, and administrative and technical staffs and services; and such army areas in the zone of interior and in overseas commands as may be necessary to the national security. The organization also includes the Office, Chief, Army Field Forces, which is the field operating agency of the Department of the Army within the continental limits of the United States, for the general supervision, coordination, and inspection of all matters pertaining to the training of all individuals and units utilized in a field army.

8. The mission of the Army is to provide field units properly organized, trained, and equipped for combat operations; to provide Army units for attachment to the Air Force for performance of prescribed functions; to provide common type support for the Navy and Air Force as directed; and under the general plan of the Department of the Army to prepare for, and on order or in imminent emergency to execute, planned operations for the defense of the United States.

9. The armed forces in the field consist of components of the Army, Navy, and Air Force organized separately, or in combination, into commands in theaters of operations, task forces, defense commands, and the other commands as may be required for national defense.

10. Several field armies may be organized into a *group* of armies under a designated commander. Such a group is primarily a tactical command.

11. A *field army* is composed of a headquarters, certain organic army troops, a variable number of corps, and a variable number of divisions. Some or all of the divisions may be assigned or attached from time to time to corps. The army is an administrative as well as a tactical unit.

12. A *corps* consists of a corps headquarters, certain organic and attached corps troops, and such combat divisions as may be attached to it. The corps is primarily a tactical unit. In some situations, it also may be an administrative unit.

13. The *division* is the basic large unit of the combined arms. It comprises a headquarters; infantry, armored, or airborne units; artillery units; and certain other troops of the arms and services. It is an administrative as well as a tactical unit.

14. A *brigade* is primarily a tactical unit composed of two or more regiments or groups of the same arm, together with a headquarters and headquarters company, or similar unit. A brigade may include units of other arms and services and may have administrative functions.

15. A *group* is a flexible organization consisting of a headquarters and two or more attached units, usually battalions, combined under one superior headquarters for the purpose of accomplishing a tactical, logistical, or administrative mission.

16. The *regiment* is a fixed unit which includes both administrative and tactical units. Ordinarily, the regiment consists of a headquarters; a headquarters company, and a service company, either separate or combined; and two or more battalions or similar units. It also may include one or more companies or similar units in which certain special weapons and means are assembled for tactical purposes, economy, instruction, and administration.

17. The *battalion* or similar unit is the basic tactical unit. It is composed of a headquarters; two or more companies or similar units; and certain special units, organic or attached. Unless organized as a separate battalion, it has few administrative functions.

18. In each arm or service, the *company, battery,* or similar unit is the basic administrative unit. It contains all the agencies re-

quired for subsistence, interior economy, and administration. For purposes of tactical control and training each company is subdivided into smaller units.

19. For economy and flexibility in the assignment of tasks, the means not habitually required by a unit are pooled and organically assigned to a higher unit. This facilitates the allotment of weapons and services to subordinate units, in accordance with their requirements for particular operations. Examples of this type organization are the heavy weapons company of the infantry battalion, the service company of the infantry regiment, and the artillery units of General Reserve Artillery.

20. a. To insure unity of effort, or to increase readiness for combat, part or all of the subordinate units of a command may be formed into one or more temporary tactical groupings (task forces), each under a designated commander. In each task force, the integrity of component tactical units is preserved as far as practicable.

b. In an armored division, the "combat command" is a tactical headquarters with its own headquarters company, designed for the tactical control of suitable temporary tactical groupings of armored cavalry and armored infantry battalions and essential elements of other arms in suitable proportion.

c. In an infantry division, the "combat team" normally will be composed of an infantry regiment, a light field artillery battalion, an antiaircraft artillery battery, and a company of combat engineers. In some situations a combat team may need other attachments, such as an ambulance platoon and a clearing platoon from the medical battalion, a signal detachment from the signal company, additional field artillery, or other units. The combat team will operate under the command of the infantry regimental commander.

21. a. For details of organization of the field forces and major items of equipment, including weapons and transportation, see current Department of the Army tables of organization and equipment.

b. For additional details relative to territorial organization, see FM 100–10.

# CHAPTER 2

# ARMS AND SERVICES

## Section I. GENERAL

22. a. The terms "arms" and "services" are used to designate the branches of the Army. The term "arms" is used to designate those branches of the Army whose primary mission is combat and combat support. The term "services" refers to those branches of the Army primarily concerned with combat support and/or administration. Some of the branches have essential missions in both fields.

(1) *Arms*—
- (*a*) Infantry.
- (*b*) Armored Cavalry.
- (*c*) Field Artillery.
- (*d*) Coast Artillery.
- (*e*) Corps of Engineers.
- (*f*) Signal Corps.

(2) *Services*—
- (*a*) Adjutant General's Department.
- (*b*) Chemical Corps.
- (*c*) Chaplains.
- (*d*) Corps of Military Police.
- (*e*) Finance Department.
- (*f*) Inspector General's Department.
- (*g*) Judge Advocate General's Department.
- (*h*) Medical Department.
- (*i*) Ordnance Department.
- (*j*) Quartermaster Corps.
- (*k*) Signal Corps.
- (*l*) Corps of Engineers.
- (*m*) Transportation Corps.

b. Branches having missions in the service fields are grouped as follows:

(1) *Administrative Service—*
- (*a*) Adjutant General's Department.
- (*b*) Chaplains.
- (*c*) Corps of Military Police.
- (*d*) Inspector General's Department.
- (*e*) Judge Advocate General's Department.
- (*f*) Finance Department.

(2) *Technical Services—*
- (*a*) Chemical Corps.
- (*b*) Corps of Engineers.
- (*c*) Quartermaster Corps.
- (*d*) Transportation Corps.
- (*e*) Ordnance Department.
- (*f*) Signal Corps.
- (*g*) Medical Department.

c. For details of Army administration and logistical functions in the theater of operations, including logistical support of the Air Forces in the combat zone see FM 100–10.

23. No one arm wins battles. The combined coordinated action or team work of all arms and services is essential to success. The characteristics of each arm and service adapt it to the performance of its special functions. The higher commander coordinates and directs the action of all, exploiting their powers to attain the ends sought.

## Section II. INFANTRY

24. The infantry is essentially an arm of close combat. Its primary mission in the attack is to close with the enemy and destroy or capture him; in defense, to hold its position and repel the hostile attack.

25. The weapons of infantry are rifles, bayonets, automatic rifles, machine guns, mortars, carbines, pistols, grenades, light antitank weapons, recoilless rifles, flame throwers, and tanks.

26. Infantry fights by combining fire, movement, and shock action. By fire, it inflicts losses on the enemy and neutralizes his combat power; by movement, it closes with the enemy and makes its fire more effective; by shock action, it completes the destruction of the enemy in close combat.

27. Infantry can maneuver over difficult ground. Its ability to move in small and inconspicuous formations enables it to take advantage of covered routes of approach and minor accidents of

the terrain. It must utilize the terrain intelligently to attain maximum fire effect, to conserve personnel, to conceal movement, and to facilitate the maneuver and employment of reserves Among other factors, the battle effectiveness of infantry is affected by conditions of morale, weather, terrain, physical efficiency, and the nature of the operations. Continued operation under adverse conditions will render infantry less effective. Commanders must insure rest and reorganization within the command by rotating units, by close supervision of supply of critical items necessary for the comfort of the command, and by proper and adequate medical care and evacuation.

28. Infantry is capable of some limited independent action by employing its own weapons. Acting alone, its offensive power decreases appreciably when its freedom of maneuver is limited or when it is confronted by an organized defensive position. For decisive operations, infantry must be reinforced adequately by artillery, armored cavalry, and engineers. Coordination with combat aviation is also essential. The defensive power of infantry reaches its maximum when it occupies a strongly organized defensive position and the enemy's freedom of maneuver is restricted.

29. Infantry units completely motorized are suited especially for the close support of armored units or for prompt dispatch as mobile reserves to distant areas accessible by road. Infantry troops, with equipment and supplies, also may be moved by air or water transport to seize decisive objectives or to operate in the enemy's rear area.

30. For infantry organization and tactics, see tables of organization and equipment and FM's, series 7.

## Section III. ARMORED CAVALRY

31. Armored cavalry is an arm of mobility, armor-protected fire power, and shock action. It uses its mobility in exploitation, in pursuit, in seizing objectives deep in enemy rear areas, in reconnoitering over broad frontages, and providing depth and wide radius of action in defense. It concentrates its fire power at the decisive area of action to lead, accompany, or support infantry in the penetration of the enemy's defenses, and to destroy enemy penetrations. It utilizes its shock action to close with and destroy the enemy.

32. The weapons of the armored cavalry are tanks, self-propelled guns and howitzers, machine guns, mortars, rocket launchers, sub-

machine guns, carbines, pistols, rifles, bayonets, automatic rifles, and grenades. Of these, the tank is the principal weapon. While these weapons correspond closely in type to those found in the infantry, the proportion of the numbers of each is different and is based on the different requirements and missions assigned to armored cavalry units.

33. Reconnaissance usually is performed by light armored cavalry units which employ rapidity and flexibility of movement, communication facilities, and fire power. Sustained offensive or defensive combat is avoided. The capabilities of light armored cavalry include both distant and close ground reconnaissance, counterreconnaissance, seizing and holding critical terrain features for a limited time, march and battlefield security, flank security, combat liaison, and delaying and harassing action. Reconnaissance units fight on a relatively broad front and in slight depth. In performing any of their missions these units customarily contribute to the security of the larger command and its elements by reporting locations and strengths of enemy forces and by providing timely warning of impending ground and air attacks. Information is transmitted directly to higher headquarters and to units whose security is threatened.

34. The armored attack is thrust quickly through the enemy defensive organization on a relatively narrow front. It employs a mass of armor in close coordination with other arms and supported by tactical air. Armored action requires large quantities of supplies and effective periods of vehicular maintenance. It is restricted by unfavorable terrain, obstacles, and weather.

35. The defense is assumed when the situation requires it. The armored cavalry is primarily an arm of offense with characteristics and capabilities designed for that role. Vigorous defense, however, is included in the capabilities of the armored cavalry. Even when pressing the attack, there are times a portion of the armored cavalry force engaged will temporarily assume the defensive while reorganizing, resupplying, or preparing to resume an attack which has not gained its final objectives.

36. For armored cavalry organization and tactics, see tables of organization and equipment and FM's, series 17.

## Section IV. ARTILLERY

37. a. The artillery comprises two general types: field and antiaircraft. Its armament consists of guns, howitzers, mortars,

rockets, guided missiles, automatic weapons, and controlled submarine mines.

b. For artillery organization and tactics see tables of organization and equipment and FM's, series 6 and 44.

## FIELD ARTILLERY

38. a. Field artillery is the principal arm of fire support. Its missions are the close support of the other arms; counterbattery fires to gain superiority over the hostile artillery; fires against hostile reserves and command, communication, and supply installations; and other long-range fires.

b. Field artillery is equipped with mobile guns, howitzers, rockets, and the equipment required for observation, fire control, and signal communication.

39. Field artillery fire possesses great power of destruction and neutralization. It compels hostile troops in the open to adopt widely deployed formations and has adverse morale effect. Fire from curved-trajectory weapons reaches objectives lacking adequate overhead cover and those defiladed against flat-trajectory weapons.

40. Field artillery fire possesses a high degree of flexibility. Field artillery is capable of intervening over a zone of great width and depth, and of rapidly shifting and concentrating its fire without changing its position. This characteristic makes it possible to concentrate the fire of large masses of field artillery under a common fire direction. Through the maneuver of artillery fire, commanders possess a powerful means of influencing the course of combat. The efficiency with which artillery fires are maneuvered is dependent upon adequate control. Control is effected by command and by liaison. Control depends on close liaison with supported, supporting, and adjacent units, on sufficient observation, efficient survey, and dependable signal communication. Adequate intelligence, particularly accurate and complete information of artillery targets, also is essential.

## DIVISION FIELD ARTILLERY

41. The principal mission of division field artillery is support by fire on those targets which interfere with the execution of the mission of the supported units. Division field artillery is employed also to neutralize enemy observation, to interdict hostile

movements, and to assist corps artillery in counterbattery. It must be prepared to engage promptly hostile tanks within its field of fire. Field artillery should not be diverted unnecessarily from its primary mission and employed strictly as an antitank weapon. In order to carry out its principal combat missions, division field artillery ordinarily is subdivided for combat so that certain units are assigned to the direct support of specified infantry, armored cavalary, or airborne units, and the remainder is retained in general support of the division as a whole.

42. The assignment of direct support missions to field artillery units insures close cooperation with the supported units and enables such artillery to act with greater promptness in meeting the requirements of a rapidly moving situation on the front of the supported units. A field artillery unit in direct support establishes liaison and signal communication with the supported unit and as far as possible executes the missions requested by the supported unit. Direct support artillery remains under the command of the the next higher artillery commander. It renders maximum fire support to the supported unit. On orders of the task force or division commander, its fires may be shifted to targets that are outside of the supported unit's zone of action. The commander of a field artillery unit in direct support is free to maneuver as necessary in order to furnish maximum fire support to the supported unit.

43. Whenever the situation permits, both direct support and general support artillery are retained under the command of the division artillery commander. Field artillery operates most effectively in this manner. When the division artillery commander cannot control efficiently the fire of all of his artillery because of the character of the operations, unusual extension of frontage, difficulties of terrain, lack of suitable observation, or difficulties of signal communication, such artillery should be promptly attached to the infantry and armored cavalry units which it is to support.

## CORPS ARTILLERY

44. a. Corps artillery consists of the organic corps artillery headquarters and headquarters battery; the organic observation battalion, which includes sound and flash ranging elements; and such additional field and antiaircraft artillery units as may be attached from time to time by higher headquarters and retained under the direct control of the corps commander.

b. The mission of corps field artillery is to support the action

of the corps by reinforcing the fires of the division field artillery, by engaging targets which are beyond the range or power of the division field artillery, by neutralizing or destroying enemy artillery, by fire on hostile reserves, and by disrupting hostile command, communication, and other important installations.

c. The mission of corps antiaircraft artillery is to provide maximum protection against hostile aircraft for units and installations located in the corps area. The amount of antiaircraft artillery attached to the corps will depend on the air and ground tactical situation. So long as the situation permits, the employment of the corps antiaircraft artillery should rest directly with the corps commander. This will insure coordination of means and maximum protection for the vital installations within the corps area of operations. When the fluidity of the situation or the dispersion in the area of operations makes centralized control impractical, antiaircraft artillery units may be attached to subordinate units.

45. The degree to which command of the corps artillery is decentralized is based on the same principles enunciated for division artillery. In general, the light field artillery battalions of the General Reserve Artillery which have been attached to the corps are reattached to subordinate divisions. After attachments have been made to the divisions, the artillery remaining under the command of the corps artillery commander is organized to give maximum support to the corps as a whole. This support is assured by the assignment to the corps artillery units of general support and reinforcing missions, counterbattery missions, and long-range missions.

## GENERAL RESERVE ARTILLERY

46. General Reserve Artillery consists of all artillery units not organic to divisions and corps. It consists of separate batteries, battalions, groups, and brigades. These units are available as a pool for allotment to theaters, army groups, armies, or task forces, according to their needs.

## ARTILLERY IN RESERVE

47. Artillery is effective only by its fire; ordinarily, it should not be held in reserve. Artillery earmarked for support of a unit held in reserve should be placed in general support of the engaged force if time will permit its employment with the reserve when the reserve is committed.

## HARBOR DEFENSE

48. Mobile artillery, either field or antiaircraft, may be used to reinforce harbor defense measures as required.

49. Submarine mines are underwater mines planted in considered patterns across a harbor entrance in such a manner as to insure the closure of that entrance to enemy vessels, particularly submarines Submarine mines can destroy enemy submarines which have not been detected by any other surveillance means. This is especially important because submarines are the only enemy craft, air or waterborne, capable of approaching our shores undetected by long-range surveillance means. Since the firing of controlled submarine mines is regulated from a shore station, friendly shipping can be safely passed through a submarine mine defense. Precautions must be taken to prevent hostile submarines from entering with such shipping.

## ANTIAIRCRAFT ARTILLERY

50. Antiaircraft artillery is equipped with antiaircraft guns, automatic weapons, rockets, guided missles, and the equipment required for observation, warning, and fire control. The primary mission of antiaircraft artillery is to provide local protection for field forces and important ground establishments against all forms of enemy air attacks and activities by day and by night.

51. Antiaircraft artillery also may be used against ground targets. Due to the characteristics of its weapons—high muzzle velocity and flat trajectory—these weapons may be used effectively for direct fire against tanks, fortifications, and small naval or land craft. It may be used for indirect fire in the role of field artillery. When used on these missions, little air defense should be expected; consequently, it should not be employed against these targets unless the air threat is secondary. Antiaircraft artillery will not be diverted from its primary role without authority of division or higher commanders, except when the unit position is threatened with hostile ground attack. Since the dispositions of antiaircraft matériel for ground role and air role differ materially, the change from air to ground role should not be made without careful estimate.

52. An essential agency of antiaircraft artillery is its intelligence service (AAAIS). This service gathers and transmits information of the enemy's air activities for use in connection with the employment of the antiaircraft artillery units. Antiaircraft artil-

lery also is provided with information about hostile aircraft by the aircraft warning service. Rapid interchange of information between these services is essential.

## Section V. CORPS OF ENGINEERS

**53. The Corps of Engineers has the primary combat mission of increasing the combat power of the field forces by construction or destruction, especially that which facilitates the movement of friendly troops or impedes that of the enemy.**

54. Engineers facilitate the movement of troops by providing passage through obstacles, both natural and man-made, or by removing those obstacles. Any operation, therefore, in which the physical characteristics of terrain constitute a major obstacle to success, is of paramount interest to the Corps of Engineers. Examples include defile operations, river crossings, bridging, passage of obstacles, beachheads, airheads, and demolitions.

55. The mission of hindering enemy movement is often of great importance. The inherent mobility of enemy motorized and armored forces and the threat of airborne forces must be countered by coordinated and intensive use of obstacles and demolitions. Obstacles may consist of hastily erected barriers, such as road blocks and mine fields, as well as deliberately prepared zones of obstacles. Obstacles are of little tactical value unless they are protected by fire.

56. Engineers have many additional important missions, some of which are water supply; production, reproduction, and supply of maps, mosaics, map substitutes, and relief models as required; reproduction and distribution of aerial photographs; operation of utilities; supply of construction, fortification, and camouflage materials and other engineer equipment; operation of landing craft in amphibious operations; beach operations; combat as infantry; and battlefield illumination.

**57. For details of Corps of Engineers organization and functioning in the field, see tables of organization and equipment and FM's, series 5, and FM 100–10.**

## Section VI. SIGNAL CORPS

**58. The Signal Corps has the primary combat mission of furnishing the signal communication essential to the performance of the over-all mission of the field forces.**

59. Signal Corps troops establish, operate, and maintain signal communication systems with facilities for wire, radio, messenger, and visual communication, and provide signal supply, repair, and photographic service. It also operates the signal intelligence service.

60. The Signal Corps exercises technical supervision over the entire signal service of the Army. It supplies other arms and services with the technical equipment required for the installation of their signal communication and warning systems.

61. For details of Signal Corps organization and functioning in the field, see tables of organization and equipment and FM's, series 11.

## Section VII. CHEMICAL CORPS

62. Combat troops of the Chemical Corps have the mission of assisting other units of the field forces by the use of chemical agents, smoke, incendiaries, and high explosives. The Chemical Corps exercises technical supervision over chemical warfare matériel of the Army. Chemical Corps service units are provided field armies and the theater to perform such missions as maintenance of Chemical Corps matériel, operation of chemical depots, field impregnation of clothing, decontamination of areas and matériel, and laboratory analysis of chemical agents.

63. Chemical units in the combat zone are army troops. They are attached to lower units as the situation requires. Chemical units may be employed profitably in mass for large-scale gas or smoke operations, or in small units for minor operations under division or lower unit control.

64. Operations of chemical units are coordinated by the higher commander as may be necessary to avoid interference by gas or smoke with the operations of other friendly troops.

65. For details of Chemical Corps organization and functioning in the field, see tables of organization and equipment and FM's, series 3.

## Section VIII. MEDICAL DEPARTMENT UNITS

66. Medical Department troops are organic to all units of all arms and services of battalion size and larger, except the battalions of an infantry regiment; medical service for these battalions is pro-

vided by the regimental medical company. Organic medical troops have the primary mission of providing emergency medical care on the battlefield, on the march, and in bivouac. They also evacuate to and treat at dispensaries, battalion aid stations, and regimental collecting stations.

67. Medical units, such as battalions, groups, mobile hospitals (surgical, evacuation, and convalescent), medical depots, and sanitary units, are assigned or attached to divisions, corps, or field armies to provide for evacuation, hospitalization, medical supply, and sanitation. Similar medical units are employed in the communications zone with the addition of such units as hospital trains and ships, and fixed hospitals.

68. For details of Medical Department organization and functioning in the field, see tables of organization and equipment and FM's, series 8.

## Section IX. QUARTERMASTER CORPS

69. Quartermaster Corps troops have the primary mission of providing supply and service support to combat units and to other supporting troops. With the exception of organic divisional troops, quartermaster units in the combat zone are field army troops.

70. Quartermaster supply includes food, general supplies, individual clothing and equipment, quartermaster organizational clothing and equipment, animals, and petroleum products for cooking, lighting, space heating, vehicles, and internal combustion engines.

71. Quartermaster service includes laundry, mobile bath, bakery, mobile refrigeration, salvage collection and evacuation, animal transportation, maintenance and repair of quartermaster items of clothing and equipment, sales stores, collection and disposition of personal effects, graves registration and burials, and troop labor.

72. For details of Quartermaster Corps organization and functioning in the field, see tables of organization and equipment and FM's, series 10.

## Section X. ORDNANCE DEPARTMENT

73. The mission of the Ordnance Department is to design, develop, procure, store, issue, maintain, modify, renovate, repair, and sal-

vage ordnance supplies and ammunition. It also trains and furnishes specialized ordnance troops. The Ordnance Department exercises technical supervision over ordnance items throughout the Army. By means of a technical intelligence service, it keeps abreast of world developments in weapons and other ordnance supply and equipment.

74. Ordnance units in the combat zone are field army troops, except those organic to the infantry, airborne, and armored divisions.

75. For details of Ordnance Department organization and functioning in the field, see AR 45–60, tables of organization and equipment, and FM's, series 9.

## Section XI. TRANSPORTATION CORPS

76. The mission of the Transportation Corps is to move troops, equipment, and supplies required for the conduct and support of military operations, except those moved by organic transportation.

77. Truck battalions, car companies, and other transportation units attached to divisions, or assigned or attached to corps, armies, task forces, and theaters, may be employed under centralized control or attached to subordinate units in accordance with the situation and policies of the commander.

78. Amphibious truck battalions, port battalions, truck battalions, and other transportation units, normally will be utilized, in amphibious operations, to unload ships and to move troops and supplies from ship to shore and over beaches. Amphibious truck battalions also may be utilized in river crossings and in shore-to-shore operations.

79. For details of Transportation Corps organization and functioning in the field, see FM 100–10, tables of organization and equipment, and FM's, series 55 and, until superseded, series 10.

# CHAPTER 3

## LEADERSHIP

80. Leadership is the art of influencing and directing people to an assigned goal in such a manner as to command their obedience, confidence, respect, and loyal cooperation.

81. Man is the fundamental instrument in war; other instruments may change but he remains relatively constant. Unless his behavior and elemental attributes are understood, mistakes will be made in planning operations and in troop leading.

82. In the training of the individual soldier, the essential considerations are to integrate individuals into a group and to establish for that group a high standard of military conduct and performance of duty without destroying the initiative of the individual.

83. War severely tests the physical endurance and moral stamina of the individual soldier. To perform his duties efficiently, he must not only be well equipped and technically trained but he also must be physically qualified to endure the hardships of field service and be constantly fortified by discipline based on high standards of military conduct. Strong men, inculcated with a proper sense of duty, a conscious pride in their unit, and a feeling of mutual obligation to their comrades in the group, can dominate the demoralizing influences of battle far better than those imbued only with fear of punishment or disgrace. Patriotism and loyalty coupled with the knowledge of, and a firm belief in, the principles for which the war is being fought also are essential.

84. In spite of the advances in technology, the worth of the individual man is still decisive. The open order of combat accentuates his importance. The dispersion of troops in battle caused by the influence of modern weapons makes control more difficult. Every individual must be trained to exploit a situation

with energy and boldness and must be imbued with the idea that success will depend upon his initiative and action.

85. Cohesion within a unit is promoted by good leadership, discipline, physical fitness, proficiency in weapons, sound tactical training, pride in the accomplishments and reputation of the unit, mutual confidence and comradeship among its members, and knowledge of the tasks to be accomplished by the unit and by its adjacent and supporting elements.

86. Leading troops in combat, regardless of the echelon of command, calls for cool and thoughtful leaders with a strong feeling of the great responsibility imposed upon them. They must be resolute and self-reliant in their decisions, energetic and insistent in execution, and unperturbed by the fluctuations of combat.

87. A leader must have superior knowledge, will power, morale and physical courage, self-confidence, initiative, resourcefulness, force and selflessness. Any show of fear or unwillingness to share danger is fatal to leadership. On the other hand, a bold and determined leader will carry his troops with him no matter how difficult the enterprise. A commander must bear in mind that physical unfitness will undermine his efficiency. He owes it to the men under his command to conserve his own fitness.

88. Troops are influenced strongly by the example and conduct of their leaders. Mutual confidence between the leader and his men is the surest basis for discipline. To gain this confidence, the leader must find the way to the hearts of his men. This he will do by acquiring an understanding of their thoughts and feelings, and by showing a constant concern for their comfort and welfare.

89. A good commander avoids subjecting his troops to useless hardships and danger. He guards against dissipating their combat strength in inconsequential actions or harassing them through faulty staff management. He keeps in close touch with all subordinate units by means of personal visits and observation. It is essential that he know from personal contact the mental, moral, and physical state of his troops, the conditions with which they are confronted, their accomplishments, their desires, and their needs.

90. The commander should extend prompt recognition for services well done, lend help where help is needed, and give encouragement

in adversity. Considerate and loyal to those whom he commands, he must be faithful and loyal to those who command him. A commander must live with his troops and share their dangers and privations as well as their joys and sorrows. By personal observation and experience he then will be able to judge their needs and combat value. The proper expenditure of combat strength is in proportion to the objective to be attained. When necessary to the execution of the mission, the commander requires and receives from his unit the complete measure of sacrifice.

91. A spirit of unselfish cooperation with their fellows is to be fostered among officers and men. The strong and the capable must encourage and lead the weak and less experienced. On such a foundation, a feeling of true comradeship will become firmly established and the full combat value of the troops will be made available to the higher commander.

92. The combat value of a unit is determined in great measure by the soldierly qualities of its leaders and members, and by its will to fight. Outward marks of this combat value will be found in the set-up and appearance of the men, in the condition, care, and maintenance of the weapons and equipment, and in the readiness of the unit for action. Superior combat value will offset numerical inferiority. Superior leadership combined with superior combat value of troops equipped with superior weapons constitutes a sure basis for success in battle.

93. A poorly trained unit is likely to fail at a critical moment because of demoralizing rumors, impressions, and hallucinations caused by unexpected events in combat. This is particularly true in meeting engagements and among troops entering combat for the first time. Therefore, training and discipline are of great importance. Every leader must take energetic action against lack of discipline, panic, rumor, pillage, and other disruptive influences. Discipline is the main cohesive force that binds the members of a unit.

94. A wise and capable commander will so regulate the interior administration of his unit that all groups perform the same amount of work and enjoy the same amount of leisure. But in so doing he will preserve tactical unity in assignment of tasks wherever this is possible. He will see that demonstrated efficiency is promptly recognized and rewarded. He will set before all a high standard of military conduct and apply to all the same rules of discipline.

95. Good morale and sense of unity in a command cannot be provised; they must be thoroughly planned and systematic promoted. They are born of just and fair treatment, a cons concern for the soldier's welfare, thorough training in basic du confidence in weapons and combat ability, comradeship an men, and pride in self, organization, and country. The estab ment and maintenance of good morale are incumbent upon e commander and are marks of good leadership.

96. The first demand in war is decisive action. Commanders spire confidence in their subordinates by their decisive con and their ability to gain material advantage over the enemy. reputation for failure in a leader destroys morale.

# CHAPTER 4

# THE EXERCISE OF COMMAND

## Section I. PRINCIPLES OF WAR

### THE OBJECTIVE

97. The ultimate objective of all military operations is the destruction of the enemy's armed forces and his will to fight. The selection of intermediate objectives whose attainment contributes most decisively and quickly to the accomplishment of the ultimate objective at the least cost, human and material, must be based on as complete knowledge of the enemy and theater of operations as is possible for the commander to gain by the exploitation of all sources and means of information available to him.

### SIMPLICITY

98. Plans should be as simple and direct as the attainment of the objective will permit. Simplicity of plans must be emphasized for in operations even the most simple plan is usually difficult to execute. The final test of a plan is its execution; this must be borne constantly in mind during planning.

### UNITY OF COMMAND

99. Unity of command obtains that unity of effort which is essential to the decisive application of the full combat power of the available forces. Unity of effort is furthered by full cooperation between elements of the command. Command of a force of joint or combined arms is vested in the senior officer present eligible to exercise command unless another is specifically designated to command.

### THE OFFENSIVE

100. Through offensive action, a commander preserves his freedom of action and imposes his will on the enemy. The selection

by the commander of the right time and place for offensive action is a decisive factor in the success of the operation. A defensive attitude may be forced on a commander by many situations; but a defensive attitude should be deliberately adopted only as a temporary expedient while awaiting an opportunity for counteroffensive action, or for the purpose of economizing forces on a front where a decision is not sought.

## MANEUVER

101. Maneuver in itself can produce no decisive results, but if properly employed it makes decisive results possible through the application of the principles of the offensive, mass, economy of force, and surprise. Better armament and equipment, more effective fire, higher morale, and better leadership, coupled with skillful maneuver, will frequently overcome hostile superior numbers.

## MASS

102. Mass or the concentration of superior forces, on the ground, at sea, and in the air, at the decisive place and time, and their employment in a decisive direction, creates the conditions essential to victory. Such concentration requires strict economy in the strength of forces assigned to secondary missions. Detachments during combat are justifiable only when the execution of tasks assigned them contributes directly to success in the main battle.

## ECONOMY OF FORCES

103. The principle of economy of force is a corollary to the principle of mass. In order to concentrate superior combat strength in one place, economy of force must be exercised in other places. The situation will frequently permit a strategically defensive mission to be effectively executed through offensive action.

## SURPRISE

104. Surprise must be sought throughout the action by every means and by every echelon of command. Surprise may be produced by measures which deny information to the enemy or deceive him as to our dispositions, movements, and plans; by variation in the means and methods employed in combat; by rapidity and power of execution; and by the utilization of terrain which appears to impose great difficulties. Surprise may compensate for numerical inferiority.

105. Adequate security against surprise requires a correct estimate of enemy capabilities, resultant security measures, effective reconnaissance, and readiness for action. Every unit takes the necessary measures for its own local ground and air security. Provision for the security of flanks and rear is of special importance.

## Section II. COMMAND

106. Command is the authority which an individual in the military service lawfully exercises over subordinates by virtue of rank or assignment. In joint commands, the commander may be an officer of the Army, Navy, or Air Force.

107. Command and leadership are inseparable. Whether the force is large or small, whether the functions of command are complex or simple, the commander must be the controlling head.

108. Decision as to a specific course of action is the responsibility of the commander alone. While he may accept advice and suggestions from any of his subordinates, he alone is responsible for what his unit does or fails to do.

109. A willingness to accept responsibility is an essential trait of leadership. Every individual from the highest commander to the lowest private must always remember that inaction and neglect of opportunities will warrant more severe censure than an error of judgment in the action taken. The subordinate unit is a part of a tactical team employed by the higher commander to accomplish a certain mission, and any independence on the part of a subordinate commander must conform to the general plan for the unit as a whole.

110. The commander's mission is contained in the orders which he has received. Nevertheless, a commander of a subordinate unit cannot plead absence of orders as an excuse for inaction. If the situation does not permit communication with the superior commander and the subordinate commander is familiar with the general plan of operations or the mission of the whole command, he should take appropriate action and report the situation as early as practicable.

111. In spite of the most careful planning and anticipation, unexpected obstacles, frictions, and mistakes are common occur-

rences in battle. A commander must school himself to regard these events as commonplace and not permit them to frustrate him in the accomplishment of his mission.

112. Personal conferences between the higher commander and his subordinates who are to execute his orders usually are advisable so that subordinates may arrive at a correct understanding of the plans and intentions of their superior.

113. All the troops assigned to the execution of a distinct mission should be placed under one command, not only to insure the unified execution of the mission, but also to insure a single chain of command during the operation. A commander should not bypass other commanders in the chain of command except in emergency. When a commander bypasses another commander in the chain of command in an emergency, he should insure that the bypassed subordinate commander is informed, at the earliest opportunity, of the instructions issued.

114. A commander who is advanced to a higher command should be relieved from the responsibility of direct command of his former unit.

115. For details of command responsibility and organization, particularly territorial, see FM 100–10.

116. A staff assists the commander in the exercise of his command by providing information, by making studies and recommendations, by preparing and distributing orders, and by supervision. Staff officers must have a thorough understanding of the policies of the commander and be acquainted with subordinate commanders and units. A commander should guide his staff by clearly enunciating directives and policies. A commander alone is responsible for all that his command does or fails to do; he cannot shift this responsibility to his staff or to subordinate commanders. A staff officer, as such, does not exercise command.

117. As much and possibly more may be learned by a study of failure as from a study of success. See the lessons of the defense of Pearl Harbor contained in the appendix.

## Section III. ESTIMATE OF THE SITUATION

118. In any operation, the commander must evaluate all the available information bearing on his task, estimate the situation, and

reach a decision. The estimation of the situation is a continuing process, and changed conditions may call for a new decision at any time.

119. The estimate often requires rapid thinking, with consideration limited to essential factors. In campaign, complete information concerning the enemy seldom can be obtained. To delay action in an emergency because of incomplete information shows a lack of energetic leadership, and may result in lost opportunities. The situation, at times, may require the taking of calculated risks.

120. The mission is the basic factor in the commander's estimate. This frequently may be resolved in terms of terrain. See paragraphs 124-126. Thus, it may be vital to hold certain dominating ground, to protect a certain defile, or to capture such features.

121. The capabilities of the opposing forces and the possible effect of their employment must be continually evaluated. The commander must guard against ignoring other lines of action open to the enemy in the belief that the enemy's intentions have been discovered.

122. In estimating the capabilities of forces, both friendly and hostile, the commander also must be provided with full and up-to-date information on the existing and probable future weather conditions.

123. For details relative to contents of the estimate of the situation, see FM 101–5.

## Section IV. TERRAIN AND WEATHER

124. Terrain always should be evaluated in terms of the following five factors: features critical to either combatant, routes of communication and avenues of approach, obstacles, concealment and cover, and observation and fields of fire. Weather and climatological data also must be considered since weather and climate may initially affect the employment of aviation, and armored elements, and they also can affect visibility, camouflage requirements, trafficability (both on roads and off), stream levels, temperature, and wind.

125. a. That part of the commander's estimate dealing with the terrain and weather often exercises a decisive influence upon his decision and plan. Proper evaluation and utilization of the terrain and of weather and climatological information reduce the

disadvantages of incomplete information of the enemy. The more important features to be considered in evaluating terrain include not only natural ground forms such as mountains, ridges, streams, bodies of water, swamps, bogs, woods, and open spaces, but also artificial features such as roads, railroads, dams, bridges, towns, and cultivated areas (as distinct from natural vegetation). The type, moisture content, drainage and surface and sub-surface conditions (due to frost, precipitation or physical obstructions) of the soil are of great importance in armored operations.

b. Weather information includes forecasts as to precipitation, temperature, fog or ground haze, cloud conditions, phases of the moon, periods of daylight and darkness, the wind and other predictable phenomena. Climatological information consists essentially of a summation and averaging of weather conditions over long periods of time. It affords a means for the evaluation of terrain and weather at a given season in the future, beyond the range of normal and accurate prediction. The studies of terrain and weather are inseparable; terrain always must be evaluated in consideration of predictable weather. The commander seeks always to utilize the terrain and weather to his own advantage and to the enemy's disadvantage.

126. Topographical maps are the basis for terrain studies, but must be checked through use of trafficability studies, air reconnaissance, air photos, and ground reconnaissance. Changes in the terrain, especially in the road net, occur continually. When discovered, such changes must be reported promptly to higher headquarters.

## Section V. CONDUCT IN BATTLE

127. The commander's decision for his unit as a whole, and the missions to subordinate units, are communicated to subordinates by clear, concise, and timely orders.

128. After providing for the issuance of orders, the commander places himself where he can best control the course of action and exert his leadership. When opportunity offers and when his presence at the command post is not urgently required, he will visit his subordinate commanders and his troops in order to inspire confidence and to assure himself that his orders are understood and properly executed. During the decisive phase of battle, the place of the commander is near the critical point of action.

129. Whenever the commander leaves his command post, he should orient his staff as to further plans to be prepared or measures

to be taken in anticipation of future contingencies, and should inform his staff where he can be reached.

130. A commander influences the course of subsequent action by his leadership, by the maneuver of subordinate elements to include reserves, by the concentration of artillery fires, by the fires of other supporting units, and by the effective use of available combat aviation.

131. The duration of a tactical operation seldom can be predicted. Successful engagements sometimes progress so slowly that the gains made are not immediately apparent. At other times, they progress so rapidly that the gains made can be capitalized only by the most aggressive and farsighted leadership.

132. Losses must be anticipated by the commander and his staff. Timely measures are taken for replacement of men, units, transport, and weapons, and for replenishment of ammunition and other supplies. Commanders must take appropriate steps to permit unit rotation from combat. Failure to provide for rotation results in lowered battle efficiency and higher casualty rates. When the situation permits, troops which have been heavily engaged are rested, losses in personnel and equipment are replaced, the unit is reorganized, and time is allotted for training to weld replacements into the team before the unit is assigned a new and important mission.

## Section VI. OPERATION ORDERS

133. The authority to issue orders is an inherent function of command. Orders normally are issued to next subordinate commanders. Bypassing the normal channels of command is resorted to only in urgent situations; in such cases both the commander issuing and the commander receiving the order should notify intermediate commanders of its content as soon as possible.

134. Orders should be originated and disseminated in time to permit subordinate commanders the maximum periods to reconnoiter, to estimate their own situations, to issue their orders, and to prepare their troops for the contemplated operation. Commanders must anticipate the delays involved in the successive dissemination of orders. When complete orders cannot be issued, essential details should be issued in fragmentary form.

135. Usually it is desirable to issue warning orders of impending operations. The principal purpose of the warning order is to

gain time for preparatory measures and to conserve the energy of the troops. During the planning stage it usually is desirable to confine knowledge of contemplated operations to the minimum number of commanders and staff officers.

136. An order should not trespass upon the province of a subordinate. It should contain everything that the subordinate must know to carry out his mission and to further the mission of the next higher unit. It tells the subordinate what to do but not how to do it.

137. Orders must be clear and explicit and as brief as is consistent with clarity. Short sentences are easily understood. Clarity is more important than technique. The more urgent the situation, the greater is the need of conciseness in the order. Any statement of reasons for measures adopted should be limited to what is necessary to obtain intelligent cooperation from subordinates. Detailed instructions for a variety of contingencies or prescriptions that are a matter of training impair confidence and have no place in an order.

138. Orders which attempt to regulate action too far in the future result in frequent changes. Such frequent changes overload the means of signal communication, cause confusion and misunderstanding, impose needless hardships on the troops, and injure their morale.

139. In every unit, standing operating procedure is prescribed by the commander whenever desirable. This procedure covers those features of operations which lend themselves to a definite or standardized course of action without loss of effectiveness. It assists in reducing the detail incorporated in the operation order. It must be remembered that newly-attached units are not familiar with SOP's of the unit to which attached.

140. For further details of operation orders, see FM 101–5.

## Section VII. COMMAND POSTS

141. The tactical situation usually requires that the headquarters of large units be divided into more than one echelon, normally into a forward and a rear echelon. When desirable, headquarters of smaller units may be similarly divided.

142. The forward echelon consists of those staff agencies required to assist the commander immediately in tactical operations. The

command post is the location of the forward echelon of a headquarters. All agencies of signal communication center at the command post. The rear echelon, primarily administrative, consists of the remaining staff agencies.

143. A commander frequently places himself forward of the command post, better to observe and direct the action. In such cases, he should be in communication with his command post. He may be accompanied by a small staff.

144. In the selection of a command post, primary consideration is given to the requirements of signal communication to facilitate command and control of subordinate units. Due regard is given to the disposition of troops, routes of communication, space for staff activities, cover, concealment, and security. Generally, when the command post is located at an existing or potential center of signal communication facilities, the other requisites of a command post will be found there also.

145. The number of moves of a command post should be held to a minimum. Each movement of a command post, even when skillfully accomplished, causes a temporary reduction in staff efficiency and in the effectiveness of control of subordinate units. However, there must be no delay in moving the command post when there is danger of sacrificing control. The aggressive forward displacement of the command post must be balanced against the requirements for adequate signal communication control. Before a change of location is made, the necessary means of signal communication for the new command post must be established. This requires that the signal officer be notified well in advance of such a movement.

146. On the march, a command post may move by bounds along a designated route, or it may move at a designated place in a column.

147. A commander must keep superior and subordinate units informed of the location and contemplated movement of his command post. Each large unit announces the location of its command post and, when practicable, the general location of the command post of each of its major subordinate units. In operations requiring the movement of command posts, each large unit may designate its own axis of signal communication by naming the probable successive locations of its command post, and may similarly assign an axis of signal communication to each of its

major subordinate units, in order to insure an integrated signal communication system.

148. The maintenance of secrecy as to the location of command posts, particularly of large units, is of great importance. They are the special objectives of hostile artillery, air attack, armored units, airborne troops, and raiding parties. This threat makes it necessary not only to provide security against surprise attack from either the air or ground, but also to use great care not to disclose the command post location to the enemy. Concealment from the air is of major importance. Traffic in and out of command posts is rigidly controlled. Landing fields, drop and pick-up grounds, and radio stations are placed at a distance. Signs to mark their locations and the routes thereto are used sparingly. When the danger is great, signs are not used; in their stead guides are posted to point the way and messengers are given more precise instructions.

## Section VIII. SIGNAL COMMUNICATION

149. The efficient exercise of command and the prompt transmission of information and instructions require the establishment of reliable means of signal communication. Entire dependence cannot be placed upon any one means; alternate means must be provided.

150. Every commander is responsible for the establishment and maintenance of the signal communication system of his unit and for its efficient operation as a part of the system of the next higher command. The command posts are the control points of the signal communication system. When headquarters are in movement, signal communication is maintained between command posts and with columns.

151. The establishment and maintenance of signal communication between superior and subordinate units are the responsibility of the superior commander; between adjacent units, as directed by their common superior. A supporting unit is responsible for the establishment and maintenance of signal communication with the supported unit.

152. Means of signal communication include wire, radio, visual, sound, pigeon, and messenger. The various means of signal communication are employed so that they supplement each other. The means which provide the maximum in reliability, flexibility,

secrecy, and speed with the minimum of effort and material generally will be the basic means in a given situation.

153. Early information must be given to the signal or communication officer of a unit about projected operations in order to facilitate the prompt establishment of signal communication. The necessary instructions therefor are prepared by the unit signal or communication officer in accordance with the directions of the commander. The signal officer of a higher unit maintains close liaison with the signal or communication officer of the subordinate unit.

154. Communication centers are operated by signal or communication personnel at all battalion or higher command posts and at the rear echelons of large unit headquarters for the purpose of speeding message transmission. In general, the choice of the means of sending messages, and the cryptographing and decryptographing of messages are the responsibility of the communication center. The writer may confer with the communication center about the means of transmission. In large units, a more positive means of staff message control is employed. The communication center transmits messages in accordance with precedence indicated by the writer.

155. Additional communication centers are established whenever needed for the reception and relay of messages. Information as to their location must be transmitted promptly to all concerned.

156. Wire communication (telephone, facsimile, and teletypewriter) constitute the basic means of signal communication for the infantry division and the larger unit headquarters. It is not always practical, however, when forces are operating at a considerable distance from each other. The time required for installation of wire communication diminishes its value in moving situations. Wire communication is susceptible to interception and seldom should be used to transmit clear-text classified messages.

157. Radio communication is especially applicable in spanning distances between widely separated mobile forces, between ground and air, and in the fire-swept zone of the forward area. It is less vulnerable than wire communication to hostile fire and is, therefore, a valuable supplement to wire systems in combat. It is subject, however, to static, to willful interference created by the enemy, and to electrical and mechanical failures. Its operational capabilities are affected by time of day, season of the year, and by the number of channels available.

158. Enemy interception of all radio messages must be presumed. Discretion must be used even in the sending of messages in code or cipher. When prompt action is called for, the commander must decide whether the urgency of sending the message in the clear outweighs the value of the information to the enemy. Radio transmission in the clear is justified in situations when the time available to the enemy is insufficient for exploitation of the information contained in the message. During certain phases of operations, use of radio must be rigidly restricted or prohibited.

159. Visual signal communication (lamps, flags, pyrotechnics, panels, and airplane maneuvers) is not suitable for long messages or over great distances, but finds especial application for communicating within and between small units and with airplanes.

160. Sound communication (principally public address sets, horns, bugles, whistles, gongs, sirens, and small arms fire) is used chiefly to spread an alarm, as a means to attract attention, and to transmit short prearranged messages.

161. The use of pigeon communication is nearly obsolete due to the widespread use of radio in conjunction with the airplane to contact and supply isolated parties. Training in pigeon communication will be conducted only when the need for it is foreseen.

162. a. In spite of the advances of technical means of signal communication, the messenger system still is essential to Army signal communication. The efficiency of the messenger system depends on the individual messenger. He must be chosen for his sturdiness, courage, self-reliance, and extreme loyalty.

b. Messengers are required to transport maps and overlays, and to deliver messages which require additional clarification. The failure of technical means of communication does not relieve the commander of his communication responsibilities. Messenger communication is needed and used by all units from the smallest to the largest. Scheduled messenger service is established when locations are fixed for a sufficient length of time to warrant the service. Special messengers always should be available at the communication center; they are dispatched on special missions as required by the situation. Local messengers serve the units located around the division command post or rear echelon.

c. Messengers are dispatched by the most efficient means of transport available. In addition to runners, other methods of transportation may include airplanes, motors, bicycles and animals.

Messengers are extremely vulnerable to enemy action. The provision of an armed escort sometimes is required when in or near hostile territory. It is advisable to send important messages by two or more messengers who travel by separate routes. All commanders will assist messengers in expediting delivery of messages.

163. Early signal communication in amphibious and airborne operations is paramount. This requires combat loading of signal personnel with signal equipment and coordination of signal procedure for ground, air, and naval forces prior to embarkation or emplaning.

164. For details relative to signal communication, see FM's of the 11 and 24 series.

# CHAPTER 5

# COMBAT INTELLIGENCE, RECONNAISSANCE, AND COUNTERINTELLIGENCE

## Section I. COMBAT INTELLIGENCE

165. Information of the enemy and of the area of operations must be evaluated to determine its probable accuracy and must be interpreted to determine its probable significance. It then becomes combat intelligence. From adequate and timely intelligence the commander is able to draw logical conclusions concerning enemy courses of action. Combat intelligence is thus an essential factor in the estimate of the situation and in the conduct of operations.

166. The commander is responsible for all intelligence activities of his unit. Thus, he is responsible that his command, within its capabilities and mission, gathers all possible information of the enemy, terrain, and weather that is pertinent to operations; and that his command transmits this information to appropriate higher, lower, and adjacent units.

167. The commander is responsible also for the conversion into intelligence of all information of the enemy and area of operations that is pertinent to his command and mission, and for the dissemination of this intelligence to superior, subordinate, and adjacent units. To aid him in carrying out these duties and responsibilities, the commander is provided with staff officers and agencies trained in intelligence procedures.

168. The gathering of information and the production of intelligence must be based not only upon our own plans and intentions but also upon a consideration of enemy capabilities. Intelligence activities must be coordinated with one another so as to provide complete coverage, to eliminate all unnecessary duplication of effort, and to fit such activities harmoniously into the entire operation.

169. Combat intelligence functions, procedures, and forms are covered in detail in FM 30 series.

170. The attention and activities of all information-collecting agencies and intelligence personnel are focused on that specific intelligence which, from the commander's viewpoint, is needed at a particular time in order to make a sound decision, to carry out a decision already made, to avoid surprise, or to arrive at a decision for future operations. The requirements for such specific intelligence are announced by the commander as *essential elements of information* (EEI). In other words, the EEI are a statement of the specific intelligence needed by the commander at a particular time.

171. In the combat zone the following items usually are included among the essential elements of information—what is the strength, composition, and disposition of the enemy; what courses of action that can affect our mission are within the physical capabilities of the enemy; when and under what circumstances can he put each course of action into effect; and whether, when, and in what strength, can he be reinforced? The essential elements also include unknown details of the area of operations that may affect our own maneuver. They also may include items of information desired by higher, lower, or adjacent units; and data on suitable distant objectives for air, amphibious, mechanized, or other highly mobile units, and on meteorological and hydrographic conditions enroute to such objectives.

172. The essential elements of information constitute the basis for orders, instructions, and requests governing the search for information. They do not impose limitations on reporting other information. While the primary mission of all collecting agencies is to satisfy the requirements arising from the essential elements of information, these agencies must also transmit all additional enemy information that comes to their attention. Ordinarily, the intelligence of the enemy that is required by the essential elements of information is deduced from numerous *indications* of the enemy's activities. Reconnaissance and other agencies are therefore directed to search primarily for these indications.

173. *Collection* is the exploitation of sources of information by collection agencies and the prompt delivery of the information secured to the commander. The information should be as complete and accurate in detail as circumstances permit. It must be transmitted to the headquarters requiring it in time to be of use.

174. Collecting agencies available to a commander of any combat unit are the troops themselves, particularly reconnaissance and observation elements, both ground and air; elements of the Air Force or Navy operating with or in support of the unit; intelligence staff personnel, assigned or attached, including technical and scientific intelligence teams; and intelligence liaison with higher, lower, and adjacent headquarters. Additional collection agencies may be made available to units that are operating alone or for special purposes.

175. The principal sources of intelligence initially available in the theater of operations are the intelligence studies made by the Department of the Army and furnished the field forces prior to operations. These sources are supplemented by more detailed information obtained in the field from study of recent maps and map supplements; captured documents and equipment; the hostile and neutral press and radio; interrogation of inhabitants, repatriates, prisoners, and deserters; the observation of enemy activity by agents; air and ground reconnaissance and observation; troops in contact with the enemy; and special information services of component units such as aircraft warning service, radio direction finding, and interception.

176. Collected information must be processed to make it intelligence. The *processing* may take place entirely in the mind of the commander or may take place as a routine function of the intelligence section of the commander's staff. The critical step of processing is evaluation and interpretation. These procedures transform raw information into intelligence by establishing its pertinence, the reliability of its source, the accuracy of its content and, in addition, its significance in the light of intelligence already on hand.

177. The combat intelligence produced is disseminated within the headquarters and to higher, lower and adjacent units by means of operation orders, messages, periodic reports and summaries, or by any other convenient form. The object of dissemination is to insure that intelligence reaches the individuals or units concerned in time to serve its intended purpose. Special attention must be given to the transmission of specifically requested information as soon as it is obtained. Special signal communication measures, such as flash warnings, must be taken for the dissemination of urgent information. Intelligence of the fighting characteristics of the enemy soldier, the characteristics of his weapons, his tactics, and the terrain he occupies must be disseminated to all

troops with first priority to those in closest contact with or proximity to the enemy.

178. The primary *use* of intelligence is to assist all commanders to make sound and timely decisions. Commanders use this assistance by incorporating the latest intelligence into the continuing estimate of the situation. The purpose of the intelligence estimate is to determine, on the basis of the latest information available, the capabilities of the enemy. When reliable, factual indications of future enemy actions are available, the intelligence estimate should state the capability that the enemy is most likely to adopt, together with the resources and methods he is most likely to employ. Whenever this indicated course of enemy action is not the most disadvantageous to our mission, the indications must be re-examined for reliability and accuracy.

## Section II. RECONNAISSANCE

179. a. Reconnaissance is directed effort in the field by military units to gather information of the enemy, weather, terrain, or resources. It is classified as distant, close, and battle. The techniques of reconnaissance employed by the several arms are described in their respective field manuals.

b. The purpose of reconnaissance is to gain information for use as a basis for tactical or strategical operations.

180. a. Information concerning the enemy may include his identification, location, dispositions, strength, organization, composition, movements, attitude, equipment, supply, morale, and condition. Evidence of changes in these factors is of particular importance.

b. Information concerning the terrain may include battle positions and the approaches thereto, character of roads, routes of communication, soil trafficability, streams, obstacles, cover, concealment, fields of fire, observation, and bivouac areas.

c. Information concerning weather may include precipitation, temperature, fog, cloud conditions, moon phases, wind, sunrise, sunset, and magnetic phenomena, as well as tide and surf conditions, if applicable.

181. The methods of obtaining information are varied and include actual observation of terrain or physical objects, ground and air reconnaissance, and the examination and identification of inhabitants, prisoners, spies, documents, and air photographs. Although

reconnaissance missions generally require secrecy of movement it may be necessary to resort to combat for the purpose of obtaining information.

182. Ground reconnaissance elements can maintain continuous contact, operate under weather conditions which preclude air reconnaissance, and can determine details of enemy activity, strength, composition, and combat efficiency. However, unless they are balanced, mobile, combat forces, they cannot obtain a complete picture of the enemy situation to any great depth in rear of the hostile screen. They should be complemented by air reconnaissance elements.

183. Armored reconnaissance units are balanced combat forces, capable of executing distant reconnaisance missions, operating on an extensive front, operating beyond the supporting range of other ground combat units and, in general, of executing any mission within the limitations of their organization and equipment. It may be desirable to reinforce armored reconnaissance units with other arms; it is especially desirable to augment their operations with air reconnaissance.

184. Close and intensive reconnaissance by infantry, artillery, and engineer units supplements the more distant reconnaissance. Infantry reconnaissance assumes special importance when armored reconnaissance units are lacking or weak. In such cases a reconnaissance unit consisting of available armored reconnaissance elements and motorized infantry or motorized infantry exclusively, may be employed. It may be desirable to reinforce such a unit with other arms. Infantry reconaissance is constant and intensive when the opposing forces are in contact and especially during combat. Light aircraft, within their limitations, are used by infantry, armored cavalry, artillery, and engineers in reconnaissance.

185. Small engineer parties may constitute a portion of ground reconnaissance units or other units on reconnaissance missions or they may operate independently to obtain and report detailed or technical information about routes of communication and movement, demolitions, land mines, obstructions, and bridges.

186. Reconnaissance is executed so as to secure information. Information on the location, strength and movement of hostile troop units must be gained at the earliest practicable moment. Contact with the enemy, once gained, must be continuously maintained.

The nearer the approach to the enemy, the more intensive is the reconnaissance.

187. Effective reconnaissance requires concentration of the available means on the most important missions. Depending on the situation, some reconnaissance elements may be held in reserve to reinforce the reconnaissance which is in progress, and to project reconnaissance in a new direction.

188. Ground reconnaissance elements gain and maintain contact with the enemy and, by working through gaps and around the flanks and the rear, endeavor to ascertain the strength, movements, composition, and dispositions of the enemy's main force, and the approach of enemy reinforcements. Light aircraft organic within ground units may be employed to supplement and complement the execution of reconnaissance by ground units with due regard to the vulnerability of light aircraft to hostile action.

189. Orders for the development of a command frequently assign zones of reconnaissance to subordinate units. Units maintain liaison and contact with adjacent units on their interior flanks. Flank units are usually given specific orders about reconnaissance on an open flank. However, even without orders from the higher commander, each unit executes such reconnaissance within its own zone of action and toward unsupported flanks as is necessary to gain information and to avoid surprise.

190. Ground forces assigned to reconnaisance missions secure information chiefly through the use of patrols. When, because of hostile activities or the distance of objectives, patrols require close support in the execution of their mission, reconnaissance is executed by detachments which closely back up the action of patrols and furnish reliefs for patrol duty.

191. The most detailed information will be required concerning areas of importance in the combat zone. Detailed information of the terrain in the possible areas of combat is essential. Terrain features that afford observation of the hostile dispositions constitute special objectives of reconnaissance. Active and aggressive action of patrols in seizing critical terrain features is imperative.

192. a. Frequently essential information can be obtained only through attack. Reconnaissance units attack when the mission requires it.

b. When hostile resistance is encountered which cannot be penetrated or enveloped, a reconnaissance in force constitutes the

The nearer the approach to the enemy, the more intensive is the reconnaissance.

187. Effective reconnaissance requires concentration of the available means on the most important missions. Depending on the situation, some reconnaissance elements may be held in reserve to reinforce the reconnaissance which is in progress, and to project reconnaissance in a new direction.

188. Ground reconnaissance elements gain and maintain contact with the enemy and, by working through gaps and around the flanks and the rear, endeavor to ascertain the strength, movements, composition, and dispositions of the enemy's main force, and the approach of enemy reinforcements. Light aircraft organic within ground units may be employed to supplement and complement the execution of reconnaissance by ground units with due regard to the vulnerability of light aircraft to hostile action.

189. Orders for the development of a command frequently assign zones of reconnaissance to subordinate units. Units maintain liaison and contact with adjacent units on their interior flanks. Flank units are usually given specific orders about reconnaissance on an open flank. However, even without orders from the higher commander, each unit executes such reconnaissance within its own zone of action and toward unsupported flanks as is necessary to gain information and to avoid surprise.

190. Ground forces assigned to reconnaisance missions secure information chiefly through the use of patrols. When, because of hostile activities or the distance of objectives, patrols require close support in the execution of their mission, reconnaissance is executed by detachments which closely back up the action of patrols and furnish reliefs for patrol duty.

191. The most detailed information will be required concerning areas of importance in the combat zone. Detailed information of the terrain in the possible areas of combat is essential. Terrain features that afford observation of the hostile dispositions constitute special objectives of reconnaissance. Active and aggressive action of patrols in seizing critical terrain features is imperative.

192. a. Frequently essential information can be obtained only through attack. Reconnaissance units attack when the mission requires it.

b. When hostile resistance is encountered which cannot be penetrated or enveloped, a reconnaissance in force constitutes the

best means of clearing up an uncertain situation. Troops engaged in a reconnaissance in force usually make a local attack with a limited objective. The commander who orders a reconnaissance in force must consider the possibility that his intentions or those of the higher commander may thereby be disclosed. He must be prepared also for the possibility that such reconnaissance may bring on a general engagement. If the situation is suitable, as for example where contact has been fully established and the attacker is probing for a weak spot, reserves should be available to exploit success.

193. It is a responsibility of the tactical air force to provide air reconnaissance for the army. Air reconnaissance covers areas which cannot be reached by ground reconnaissance. It provides rapid, fragmentary information gathered photographically and visually. It is limited by hostile action, inclement weather, darkness, and vegetation. Increased aircraft speed may provide additional limitations.

194. Night photographic reconnaissance by means of artificial illumination may detect heavy troop and vehicle movements. Reconnaissance flights made shortly after dawn and before dark offer a favorable opportunity for discovery of night movements already accomplished or contemplated.

195. Requests for air reconnaissance must be planned to insure continuity of observation of critical areas to discover the location, disposition, and movement of the enemy's forces. These objectives are closely observed both day and night to discover the enemy's main forces and reinforcements, and their direction of movement.

## TRANSMISSION OF INFORMATION

196. The best information will be of no use if it arrives too late at the headquarters for which it is intended. Prompt transmittal of all information and dissemination of pertinent intelligence is the responsibility of all commanders.

197. While a commander who is in need of information from other headquarters is responsible for requesting it, adjacent units should habitually exchange pertinent information regardless of whether or not such a request has been made.

198. a. Generally, no attempt will be made by a collecting agency to evaluate information prior to its transmittal to higher head-

quarters. In order to eliminate a mass of detail, higher headquarters may indicate the extent of screening to be accomplished in subordinate units. All items of information that may pertain in any way to the essential elements of information or to specific directives or requests should be reported, as they may be of significance to a higher commander when considered in conjunction with other information.

b. Negative information frequently is important as confirmation that the situation during a specific period of time has remained unchanged. First contact with the enemy and new identifications always are reported by the most rapid means available. Other results of reconaissance are reported as required in orders.

199. a. Important and urgent information, in addition to being transmitted to the next higher commander, is sent by the most rapid means available to all headquarters affected, without regard to the usual military channels.

b. Artillery observers and liaison officers are often in a position to transmit to the higher commander over their own signal communication systems early reports of important combat events when such information might otherwise be delayed in transmission.

200. During pauses in combat, or whenever the situation demands, subordinate commanders make brief reports to the next higher headquarters on their own situation and on the enemy situation to their front. Periodic reports are made as directed.

## COUNTERRECONNAISSANCE

201. a. Counterreconnaissance includes the active measures employed by a commander to screen his command from hostile reconnaissance. It is executed principally by aviation, antiaircraft artillery, armored cavalry, and other ground security detachments. A commander coordinates the action of all his ground force counterreconnaissance agencies by assigning to each a mission in accordance with its capabilities. The air force commander will coordinate his forces in a similar manner, maintaining close liaison with the ground forces commander.

b. Reconnaissance and counterreconnaissance on the ground complement one another and cannot be readily separated. Good ground reconnaissance assures simultaneously a certain amount of security. On the other hand, the activity of a counterreconnaissance force provides a certain amount of reconnaissance. Reconnaissance forces direct themselves against the enemy and move

freely about the terrain, while counterreconnaissance forces are fixed in relatively definite areas.

c. Should it be necessary to assign a force simultaneously to the mission of reconnaissance and counterreconnaissance, the order must state explicitly which has precedence. In forces of sufficient size, a portion may be assigned each task.

202. By attacking all hostile aviation, our aviation contributes materially to counterreconnaissance on fronts where it is important to conceal our own activity from hostile air reconnaissance. Complete elimination of hostile air reconnaissance cannot be expected. Where secrecy is desired, ground forces must conceal their movements and dispositions.

203. In its counterreconnaissance missions, aviation is supplemented by antiaircraft artillery and the suitable weapons of other ground units. Subject to the desirability of maintaining secrecy, all hostile aviation within range is fired upon to prevent observation. Before the fire of antiaircraft weapons is resorted to, consideration must be given to the fact that such fire may disclose the importance of the area being screened, and that camouflage and concealment may better serve our purposes.

204. a. Units assigned counterreconnaissance as their principal mission seek to defeat or neutralize hostile reconnaissance forces. In the execution of this mission, they operate offensively, defensively, or by delaying action, resorting to all forms of combat when necessary.

b. Offensive counterreconnaissance is most effectively executed by the defeat of the hostile reconnaissance force.

c. Defensive counterreconnaissance is most effective when the screen can be established behind an obstacle which might be crossed by hostile reconnaissance forces. Elements then are employed to obtain information, to attack advanced enemy detachments, or to obstruct their operations.

d. Aviation assisting in counterreconnaissance attacks hostile aviation attempting to cross the zone of counterreconnaissance and reports hostile ground movements, especially the approach of highly mobile units.

205. A counterreconnaissance screen may be either moving or stationary. A moving screen is especially applicable to a situation where the movement of a force must be screened; a stationary

screen is applicable in screening a concentration of troops or in preventing the enemy from reconnoitering an area.

## Section III. COUNTERINTELLIGENCE

206. The primary object of counterintelligence is to neutralize or destroy the effectiveness of hostile or potentially hostile intelligence and subversive efforts.

207. Surprise is highly important to the success of any operation. Counterintelligence, by denying information to the enemy or misleading him as to our capabilities and intentions, assists the commander in achieving surprise. In any operation, regardless of type, it is imperative that knowledge of the time and place of decisive action be kept from the enemy. All other information should be kept from the enemy to the maximum extent consistent with efficient execution of the operation.

208. Counterintelligence activities and functions within a command normally include secrecy discipline; concealment; communication security; restrictions on the preparation, transmission, and use of documents; deceptive measures including feints, demonstrations, and ruses; regulation of the activities of press correspondents, photographers, radio broadcasters, visitors, and such other persons as may accompany or visit the command; censorship; countersabotage; security control of civil population; counterespionage. Counterintelligence personnel also assist psychological warfare agencies in the conduct of counterpropaganda activities (see par. 217). Counterintelligence functions, procedures, and forms are covered in detail in FM 30 series.

209. Security and operational efficiency are harmonious only up to a certain point, where their interests will inevitably clash. When this point is reached, the responsible commander must decide which will take precedence. Furthermore, care must be exercised in prescribing counterintelligence measures, as troops tend to disregard those which obviously are unnecessary or unreasonable.

210. a. Personnel must be trained to the constant observance of secrecy under all conditions. Military information such as instructions, plans, operations, movements, and the strength, composition, or location of units never must be discussed except in line of duty and then only with persons whose duties require such information.

b. Personnel will be trained with regard to their conduct if

captured. Each individual will be directed to reveal to the enemy his name, rank, and serial number only, and to maintain absolute silence when asked any other questions; to exercise utmost discretion in conversations with other prisoners.

211. In preparing operations, it frequently will be advisable to take special precautions to maintain secrecy. Such precautions, however, must not be so restrictive as to jeopardize the success of operations by withholding information necessary to the forces involved.

212. a. Maximum use must be made of natural and artificial concealment. Natural concealment should be supplemented by camouflage, where necessary. Since photographs will disclose things not visible to a observer's unaided eye, commanders must prevent the making of tracks or other telltale marks in the vicinity of any installation, position, or other area occupied by the command.

b. Hostile air activity may require that troop movements in exposed areas should be made under cover of darkness and with restrictions on the use of lights and radios. When the enemy possesses an effective air force, a blackout system must be employed. Whenever possible, artificial means should be employed to mask the sounds of movement, especially in armored or motorized units.

c. Under favorable conditions, smoke can be placed over restricted areas for limited periods of time to conceal information of importance.

213. a. Strict observance of regulations governing the preparation, transmission, and use of classified documents and other material (AR 380–5) is essential.

b. Personnel in the front lines, on reconnaissance, or on missions over enemy territory, or other circumstances where capture is possible, will not have in their possession, under any conditions, any documents, official or personal, except those absolutely essential to the execution of the mission.

c. Before leaving a camp, concentration area, bivouac, or rest area, and in withdrawals from defensive postions, troops will make a systematic search of the area to insure that no documents, material, or other items of intelligence value to the enemy, remain behind.

214. Commanders are responsible for the establishment and maintenance of signal communication security within their commands.

Strict observance of regulations regarding preparation, transmission, and use of classified messages, including clear-text copies and paraphrases thereof, is of the utmost importance. Units of the Army Security Agency are responsible for the security surveillance of friendly signal communication. Use of codes and ciphers is generally restricted to personnel specially trained in and cleared for cryptography.

215. Regulations governing the activities of press correspondents, photographers, radio broadcasters, and visitors must be carefully prepared and enforced. The activities of such persons are normally supervised by the public information officer of the command. He is guided in all security matters by the intelligence officer.

216. Censorship is the systematic channeling and technical examination of all communications, other than official matter, for the purpose of suppressing information of value to the enemy, of detecting illicit hostile activities, of insuring the accuracy of releasable military information, and of collecting information helpful to intelligence. The effectiveness of unit censorship and the efficiency of attached censorship teams is a responsibility of the commander.

217. The psychological warfare branch of higher headquarters such as army, army group, and theater, carry out counterpropaganda measures. Assistance is rendered by counterintelligence agencies which detect the covert means employed by the enemy for dissimination of propaganda. It is essential that counterpropaganda measures be controlled and coordinated by the highest echelon concerned so that conflicting statements may not be given to the enemy.

218. Security measures applying to the civilian population are based upon policies announced by theater and higher headquarters and are normally executed by civil affairs or military government personnel in close coordination with Counter Intelligence Corps detachments and other counterintelligence agencies.

219. a. The mission of the Counter Intelligence Corps includes the conduct of counterespionage, countersabotage, and countersubversive activities. Each echelon of command, down to and including the division, has its own assigned or attached Counter Intelligence Corps detachment.

b. Regulations governing command responsibilities, adminis-

tration, and employment of Counter Intelligence Corps detachments are contained in TM 30–215.

c. Counter Intelligence Corps detachments operate within the area under control of the headquarters to which attached or assigned, without regard to boundaries of subordinate units. Generally, Counter Intelligence Corps operations involve the employment of measures and techniques which are designed to detect and apprehend enemy agents, prevent sabotage, uncover subversive activities within or pertaining to the military and civil populations, and such other related tasks as may be required.

# CHAPTER 6

# SECURITY

## Section I. GENERAL

220. a. Security embraces all measures taken by a command to protect itself against annoyance, surprise, and observation by an enemy.

b. Knowledge of the situation and of the characteristics of the enemy's weapons and equipment and familiarity with enemy tactical doctrines and procedures, when disseminated throughout the command, increases the effectiveness of security measures.

221. a. The primary mission of a security detachment is to protect the command against surprise attack and observation by hostile air and ground forces, and to maintain freedom of maneuver for the command by gaining the time and space it requires to make the necessary dispositions. Reconnaissance provides information on which to base security measures to be taken for protection of the command. Continuous reconnaissance therefore is essential on the part of all security detachments.

b. Security forces operate primarily with reference to the command they secure; reconnaissance forces operate primarily with reference to the enemy.

222. The commander prescribes security measures for the protection of the command as a whole and coordinates those adopted by subordinate commanders. Subordinate commanders provide additional security required for their own local protection, including the protection of their lines of communications unless such protection is furnished by the higher commander. Commanders maintain contact with adjacent security forces by signal communication facilities, liaison planes, liaison agents, and patrols.

223. All security measures include an adequate warning system consisting of observers and the means of signal communication to

warn promptly of hostile dispositions and operations on the ground or in the air.

224. When contact is imminent, security measures are increased. However, security forces should be only of sufficient strength to preserve the commander's freedom of action. In their composition, consideration is given to preserving tactical unity. It is advisable that they possess mobility at least equal to that of the forces they are expected to oppose.

225. A carefully and completely integrated air-ground plan contributes to effective security. The ground commander should know exactly what friendly aviation is doing. All security plans should take cognizance of such action and be drawn so as to fit the air-ground plan, thereby taking advantage of warnings, information facilities, and assistance of the air forces.

## Section II. SECURITY DURING MOVEMENT

226. A military force in movement secures itself by reconnaissance elements which operate in front of the command and by advance, rear, and flank guards when appropriate. Where terrain conditions permit, the reconnaissance elements are mobile. Depending upon the size and composition of the command, the reconnaissance elements vary from large units of all arms and aviation to small detachments.

227. In the offensive, large forces, particularly armored and other mobile formations, may be preceded by a covering force of combined arms. The purpose of such a force is the early development of the situation, including the crushing of hostile resistance within its power, or the seizing of a key terrain feature. Such a force precedes the column advance guards, hence must furnish its own security. It normally will advance by bounds from position to position. Against an aggressive enemy, care must be exercised to avoid defeat before the main force can intervene. A covering force of this type therefore should be given all possible mobility. Such a covering force employs the formations and tactics of any force of comparable composition and mission. Covering forces are used also on the defensive. For details see chapter 9.

228. The commander of such a covering force normally will operate under the direct command of the force commander. The protection afforded by the covering force does not eliminate necessary security measures by the commander of the main force. In an advance in several columns each column commander will provide

the necessary advance guard and such flank and other security as the situation requires. Mobile reconnaissance detachments will operate well forward of the advance guards, maintaining contact with the covering force.

229. a. The advance guard of a column precedes its main body to protect it against surprise and ground observation, and to insure for the main body adequate time and space for deployment. By aggressive action to overcome resistance within its capabilities it often makes it possible to defer deployment of the main body.

b. Once contact with strong enemy forces is made, the action of the advance guard depends upon the column commander's plan for the employment of his force. In the absence of specific instructions the advance guard commander takes the action called for by his mission and the situation.

230. a. The advance guard commander is given early information of developments by supporting combat aviation, by reports from the covering force, if one precedes the column, and by his own mobile security elements. The advance guard commander is also kept informed of the plans of his commander as the situation develops. Thus by the time contact is made orders for the employment of the advance guard will usually have been issued.

b. If the covering force is already in contact with the enemy the advance guard may extend the action in accordance with the over-all plan. If only mobile reconnaissance detachments have preceded the advance guard the necessary measures are taken to develop aggressively the situation and protect the development of the command. Where the situation permits, this normally is best accomplished by the seizure of terrain critical to the needs of the main body. The enemy reaction to such action frequently will indicate both the hostile strength and dispositions.

231. The strength and composition of an advance guard vary with the strength and mobility of the command, its mission, the situation, the terrain, and the time of day. It should be no stronger than is necessary for security. Greater strength is required as the distance from the enemy decreases. For large commands, it comprises components of all arms. Engineers are kept well forward in advance guards. Artillery with the advance guard is prepared for prompt support, displacing by bounds from one firing position to another when contact is imminent. (See chapter 6.)

232. a. Reconnaissance aviation and organic light aviation may transmit urgent information directly to advance guard commanders. Ample signal communication between the covering force and elements of the advance guard and between the advance guard and the main body must be provided.

b. Organic light aviation is particularly useful for communication purposes within the column.

233. a. The distance between the advance guard and the main body is sufficient to preserve for the commander his freedom of action in the employment of the main body, but is never so great as to expose the advance guard to defeat before assistance can reach it. Distances are reduced at night, in close terrain, and under conditions of low visibility and restricted observation.

b. An advance guard accomplishes its mission by searching the terrain to the front and on each side of the line of march, overcoming isolated hostile resistance, and preparing so far as practicable the route of advance for the movement of the troops by removing obstacles and mines and by making minor repairs to bridges and roads. It reconnoiters those points which afford extended observation of the dispositions of the main body, or which provide concealment for hostile reconnoitering or harassing detachments. Its reconnaissance elements are aggressively supported. Artillery with the advance guard is prepared constantly to support the advance with part of its strength and with all its fires in minimum time. The advance guard seizes and holds important features of the terrain, particularly those that will cover the deployment of the main body from hostile observation. According to circumstances it drives back hostile covering detachments, or opposes an enemy advance in force.

234. The formation of an advance guard is such as to insure its own security and provide sufficient distribution in depth and width for its maneuver. From front to rear, it is divided into highly mobile reconnaissance detachments: the point, the advance party, the support, and the reserve. In small advance guards, the reserve may be omitted.

235. When hostile resistance is met, the elements of the advance guard deploy successively on a broad front. Prompt support of leading elements is necessary. Precautions are taken against infiltration by hostile elements.

236. The considerations governing the advance guard of a force of all arms apply also to the security of more mobile forces. The

principal modifications result from the superior mobility of the units. For these units, advance guards operate with greater distances between their own elements. The zone of reconnaissance is more extensive, both to the front and to the flanks, to provide the necessary time for deployment of the faster moving force. Movement normally will be by bounds making a constant formal delineation between point, advance party, support, and reserve impractical. Close cooperation of reconnaissance aviation is essential.

237. a. When the flanks of a command are not protected by adjacent units, it frequently will become necessary to provide protection by using a portion of the command as a flank guard whose mission is to protect the marching column from ground observation and surprise from the flank, and in the event of an attack in force to provide the necessary time and space for the development of the main body. The flank guard usually moves parallel to the main body, either by bounds from position to position, or employing the tactics of an advance guard, as appropriate.

b. When the main body executes a flank march in proximity to the enemy, flank protection assumes great importance; a strong flank guard is detailed. The advance guard may be converted into a flank guard to provide the protection required by a change in the direction of march. In this event, a new advance guard is organized.

238. The rear guard consists of a portion of the command which follows the main body in the zone of march, usually by bounds, for protection of the rear of the main body from attack, observation, or interference by hostile forces.

239. When the command makes a long halt during the course of a march, the advance or rear guard establishes a march outpost, usually from the support. Units of the support occupy critical terrain features controlling the approaches to the column, establish outguards at commanding points, and when necessary, send out patrols.

## Section III. SECURITY AT A HALT

240. A resting force secures itself by means of outposts which are security detachments consisting of portions of the command disposed to cover its front, flanks and rear, in order to protect the force against annoyance, surprise, and observation by hostile ground forces.

241. The strength, location, and composition of outposts vary with the location, mobility, armament, and capabilities of the enemy; the terrain; the time of day; the size of the command to be secured; the degree of resistance desired; and the special tasks assigned. Its strength should be sufficient to permit timely warning, and delay when necessary, of any hostile force which may penetrate more distant security elements, until the main body can complete preparations for action. An outpost should be no stronger than is consistent with reasonable security. An outpost may include varying proportions of the combined arms. Engineers assume great importance due to the necessity for the construction of obstacles and, at times, of demolitions and destruction.

242. The outpost of a large command is divided from rear to front into reserve, supports, outguards, and sentinels. When important points to be secured lie outside the sectors of the supports, detached posts are established.

243. The missions of the reserve are to reinforce the forward elements of the outpost; to counterattack; or, if the outpost has been given a delaying mission, to occupy a position covering the retirement of the supports.

244. Supports constitute the principal echelon of resistance of the outpost. Supports provide their own security and perform observation by establishing outguards and sending out patrols. They are placed at the more important points dominating or controlling the approaches into the outpost area. Each support is assigned a sector which is clearly defined. Supports vary in strength from a platoon to a company. Supports are numbered consecutively from right to left.

245. a. An outguard varies in strength, depending on its mission, location, and the number of sentinels it is to furnish. Posts at a short distance from the support may be held lightly by outguards while important posts or those at a considerable distance must be held strongly. Outguards are numbered consecutively from right to left in each support.

b. Outguards must be ready for action at all times. When in close contact with the hostile outposts, the establishment of listening posts at night in front of the general line of observation is advisable.

246. Sentinels to observe the assigned area of responsibility of an outpost position are furnished by the outguards. These sentinels

have the mission of discovering hostile activity, giving the alarm in case of attack, and carrying out other orders specifically prescribed for their posts. Sentinels should be posted in pairs.

247. Detached posts are established at critical points located beyond the limits of any support sector. The size and composition of a detached post may vary within wide limits depending on both the terrain and situation.

248. Outposts conduct reconnaissance as well as friendly contact missions within the limits required by their security mission. More distant reconnaissance is conducted by means directed by the next higher commander.

249. Patrols execute reconnaissance in advance of the line of sentinels and in areas not covered by sentinels. Patrols also maintain contact between elements of the outpost.

250. Patroling in front of the line of observation is increased at night or during periods of low visibility. Night patroling requires systematic organization, careful preparation, and the coordination of advanced outpost elements with the activity of the patrols.

251. During an advance, the outpost established at night or for other similar halts usually is furnished by the advance guard. A new advance guard is designated when the movement is resumed after an extended halt. The outpost ordinarily stands relieved when the support of the advance guard passes the outpost area.

252. During a retrograde movement, the outpost usually furnishes the rear guard, a new outpost being posted from the main body when the command completes the day's march.

253. When the command remains stationary for a prolonged period, the outpost ordinarily is relieved at intervals of several days.

254. The halt order of the commander assigns locations to the elements of the command, designates the position to be held if attacked, and contains instructions relative to security. This order either provides for an outpost under centralized control by naming the outpost troops, or it requires column commanders to organize outposts for their commands. In either situation, the commander designates the general line to be held, the limits of the front to be covered by the outpost system and the division of responsibility between units. He indicates what action the out-

post is to take if it is attacked in force, outlines special reconnaissance to be executed, indicates the approaches which are to be especially guarded, and regulates the signal communication to be established between adjacent outposts. He may direct the establishment of detached posts either by elements of the main body or by the outpost.

255. a. The elements of the outpost conceal their locations and movements from ground and air observation. They prepare their positions for all around defense. Maximum use is made of obstacles and mines, antitank and automatic weapons, and long-range fires by artillery. The outposts thus attempt to deceive the enemy as to the true disposition of the main body.

b. Antitank weapons with the outpost are emplaced to cover the favorable approaches. Positions suitable for daylight occupation will frequently require modification to night positions which control night approaches, such as roads.

256. The outpost should be supported by adequate signal communication means established to facilitate prompt report to the commander of important information. Signal communication installations involved should consider both day and night locations.

257. Armored cavalry and motorized units detailed for outpost should be used to extend reconnaissance and to add increased depth to the security. When at a distance from the enemy and not protected by other troops, these mobile units may be used to provide security detachments to hold critical points on the routes of approach from the front, flanks and rear. These detachments preferably are posted along favorable terrain features such as defiles, streams, and crossings which the enemy will be forced to pass in his advance. Outguards are posted and patrols sent out from the detachments. Additional close-in security may be required by the main force. In close proximity to the enemy the mobility of such units cannot be profitably exploited and they generally will be replaced by less mobile elements.

## Section IV. SECURITY MEASURES WITHIN BIVOUAC AREAS

258. Security in a bivouac area is obtained by active and passive measures. All units are responsible for their own tactical security. Rallying points should be designated by each unit with routes thereto for each subordinate unit. Plans are prepared to fight

259. a. An interior guard is established to defend important activities or installations, and especially valuable matériel such as guns or aircraft, to give the alarm in case of air, airborne, ground, or gas attack, and to enforce traffic, police and camouflage discipline. Such guards should be given the maximum protection commensurate with the full performance of their duties.

b. In hostile territory, interior guards are made stronger. It is often necessary to have guards for bridges and railway stations; searching parties for enemy wire and radio installations; guards for prisoners, hostages, roads closed to civilian traffic; and for other special security measures.

260. Antitank weapons are emplaced for direct fire in the event of armored attack. Antiaircraft weapons are habitually located to permit ground fire when such does not interfere with the primary antiaircraft mission. When antiaircraft artillery units have been relieved of their primary mission, all antiaircraft weapons may be sited for defense against armored attack. However, no weapons should reveal the location of a concealed bivouac by premature fire.

261. In addition to the responsibility of each unit for its own antiairborne security, mobile units of the reserve may be designated to provide antiairborne defense as a high priority mission.

262. a. A minimum of one officer at each headquarters of company size or larger, and one noncommissioned officer in each platoon, or similar unit, are constantly on duty to alert the command in an emergency.

b. To alert all the troops, a general alarm is sounded. If the area commander decides to alert only certain troops he notifies them by the quickest means available. Upon alert each unit assembles in its designated area and reports its readiness to the commander. Quiet and order are maintained. Prior rehearsals are held in order that each man may know where to go and what to do.

263. Passive measures include dispersion, concealment and cover. Individual cover should be available against air or armored attack. Camouflage measures are taken when required by the situation.

## Section V. SECURITY AGAINST ARMORED ATTACK

264. Coordination of all means of security against armored attack is a command responsibility. Each unit commander constantly

employs all means available to him for this purpose. Measures taken will be integrated by higher headquarters to insure coordinated security against an attack of any type. This coordination is achieved by advance planning and timely orders. Improvement of the security against hostile armor is a continuous process.

265. a. The security measures habitually taken for the local security of each unit include provision against armored attack. The force commander will coordinate these local security measures by the assignment of specific sectors of responsibility and by prescribing other important details.

b. Security provisions for the protection of the force as a whole also include provisions against armored attack as part of the integrated security plan. Certain measures affording such protection afford common protection against attacks of other types, both ground and air. For example, mobile reserves strong in armor usually are held in reserve centrally located for use as a maneuvering force against possible attacks including armored and airborne.

266. a. Both active and passive measures are utilized in integrated combination. Active measures include employment of field artillery, combat aviation, chemical agents, antiaircraft artillery of types capable of direct fire against ground targets, tanks and other antitank weapons. Missions assigned in instances will be secondary to the primary missions assigned certain of the weapons involved.

b. Passive measures include air and ground reconnaissance, use of concealment, cover, antitank mines, demolitions and natural and artificial obstacles including the use of buildings and organized localities.

267. a. All such measures should be employed to insure maximum effectiveness. An efficient warning system with a coordinated intelligence and signal communication system provides for early and continuing information of the presence and action of hostile forces including armor or air. Friendly air missions are employed to discover and attack hostile armor and when necessary assist in transmission of information and orders. A map study, supplemented by air and ground reconnaissance, discloses favorable avenues of approach particularly for armored forces. Skillful use of natural barriers, strengthened by concealed mine fields and other man-made obstacles afford the best anti-armored defense provided they are adequately covered by fire.

b. Armored cavalry reconnaissance elements operate well to the front and flanks to give warning. All round observation and reconnaissance agencies are trained to make immediate report of an armored threat by the most expeditious means available. When the tactical situation permits, artillery may be used at long and medium ranges to break up hostile armored attacks and at medium and short ranges to destroy individual tanks.

268. For details of defensive measures against armored attack see chapter 8.

## Section VI. SECURITY AGAINST AIR ATTACK

269. All units must take appropriate measures against air attack and air reconnaissance. Measures taken by units for their own protection are a responsibility of command and should be included in orders. Active means of protection include fighter aviation, antiaircraft artillery and other suitable organic weapons. Passive means include the air warning system, concealment, dispersion and cover. Measures taken vary with the situation, the degree of visibility, the concealment and cover afforded by the terrain, and the capabilities of the enemy's aviation.

270. Measures authorized units for their own protection must provide for reliable identification of aircraft through either an air warning system or by the actions of the aircraft themselves. In planning for defense against an attack commanders take into consideration the effectiveness of available weapons, the tactics and effectiveness of hostile air, dispersion of troops, terrain characteristics, and requirements of speed and stealth of movement.

271. In the combat zone, the antiaircraft artillery with the field army provides the antiaircraft defense of all airfields and other Air Force installations, field artillery, principal troop concentrations and assembly positions, important command and supply installations, and movement of troops through defiles and other critical localities.

272. The first requirement of antiaircraft security is an efficient warning system to detect and trace movements of hostile aircraft, and to disseminate timely information to friendly agencies.

273. Upon receiving an air alarm, troops in position, bivouac, or billets, seek the nearest concealment or cover and remain motionless. In general, foot troops on the road deploy and seek cover. When time of warning permits, foot troops will deploy off the

road and continue the march. In general, motorized or armored troops continue the march, quickening their speed when possible. All suitable weapons open fire on hostile aircraft when the situation favors such action.

274. When the situation indicates the necessity for continued movement, particularly by day, and a command is subjected to frequent air attacks, maximum advantage is taken of dispersion and available concealment and cover without delaying the movement. Troops must be prepared to accept some casualties rather than delay arrival of large units at their destination at the appointed time.

275. A command diminishes its vulnerability to air observation and attack by adopting dispersed formations and increasing speed of movement. Dispersion in formation may be accomplished by increased width and depth of disposition or by reduced density within columns or groups.

276. Measures taken for concealment seek to thwart both hostile visual reconnaissance and air photography. The presence and position of troops are disclosed to an air observer by movement, by regular formation or outline, by reflection of light, or by dust, smoke, or newly made tracks and intrenchments. Commanders will take appropriate countermeasures to prevent detection. All troops should be impressed with the necessity for individual camouflage protective measures.

277. *a.* Shadows cast by the sun early in the morning and late in the afternoon facilitate concealment. During darkness, blackout provides effective concealment. Artificial illumination can be used to increase concealment by blinding the enemy as well as by casting shadows. Woods and villages afford concealment from air observation and reconnaissance. Individual cover is provided by digging fox holes.

b. Intrenchments and field works are visible from the air unless carefully sited and camouflaged. Protection is sought by the distribution of the defenses on the terrain and by their adaptation to concealment and cover, such as buildings, brush, hedges, banks, ditches, and cuts.

278. The antiaircraft security of a column depends in large measure on the success of its concealment in its last bivouac. During movement security measures must consider the visibility and the

possibilities of dispersion. Proper march planning will usually permit adequate dispersion during the formation of march columns and movement into bivouac or assembly areas at the end of a march. During temporary halts troops and vehicles clear the road and take full advantage of cover. Distances between vehicles and elements in the column are increased when the situation permits. Antiaircraft protection is particularly essential at crossings and at defiles. If sufficient antiaircraft is available some should be distributed within the column to supplement organic means.

## Section VII. SECURITY AGAINST AIRBORNE ATTACK

279. a. The threat from airborne troops requires special security measures. Responsibility for these measures extends through all echelons of command. The measures adopted within each echelon are coordinated to provide a unified system over the entire danger area.

b. Many of the security measures taken against armored attack constitute common protection against airborne attack. Security measures common to both include warning systems, certain reconnaissance measures and the provision of mobile reserves.

280. a. In general, the security measures required should provide early information, permit attack of incoming enemy transports by combat aviation and antiaircraft fire and the destruction of parachute troops while they are in the act of landing or immediately after. Landing forces not so destroyed should be isolated from resupply and reinforcement and attacked and destroyed as rapidly as the situation permits.

b. Passive measures include the obstruction of all possible landing fields not required by friendly air operations. Areas obstructed would include landing fields, open fields, straight stretches of level highway or other possible drop zones, or landing fields for hostile airborne troops.

281. For additional details relative to antiairborne security measures see chapter 9.

## Section VIII. SECURITY AGAINST CHEMICAL ATTACK

282. Responsibility for the measures necessary to provide security against chemical attack lies with the unit commander. Timely and adequate protective measures will minimize the likelihood of a chemical attack or greatly reduce the effectiveness of the attack should the enemy resort to this type of warfare.

283. Protective measures include provision for the following: an adequate warning system; individual and collective protective equipment; facilities for prompt decontamination of individuals, equipment, supplies, and areas which must be used by friendly forces; prompt treatment of chemical agent casualties; and tactical measures which minimize the effects of chemical agents. To obtain maximum effectiveness from the measures enumerated, training in their use or application must be thorough and continuous.

284. Protective equipment to assist the commander in discharging his responsibility consists of two general types—

a. The protective equipment provided for the individual soldier consisting of the gas mask, protective ointment, protective covers, and protective clothing.

b. Collective protective equipment provided for the protection of groups of individuals or organization equipment and supplies, consisting of collective protectors for gas proof shelters, protective covers for equipment and supplies, gasproof curtains, and decontaminating equipment and supplies.

285. The tactical measures taken by a commander to protect his command from chemical attack includes: troop dispositions which take advantage, as far as practicable, of terrain unfavorable for gas concentrations and the avoidance, evacuation, or decontamination to the extent possible, of gassed areas.

## Section IX. SECURITY AGAINST RADIOLOGICAL WEAPONS

286. The introduction of atomic weapons has produced the additional problem of protection of personnel from the harmful effects of radiation and radio-active materials. Increased dispersion of units and installations up to the limits of effective control will reduce the effect of atomic weapons. Protective measures include radiation reconnaissance, posting of danger areas, and insuring that personnel required to enter these areas do not receive more than the maximum safe exposure to the radiation.

## Section X. SECURITY AGAINST BIOLOGICAL WARFARE

287. The threat of biological warfare imposes upon all commanders the responsibility for protection of personnel from the effects of this form of attack. Definite information of the employment of biological warfare will probably be disseminated

# CHAPTER 7

# TROOP MOVEMENT

## Section I. GENERAL

283. Troop movements are made by marching (by foot, animal, or motor), by rail, by water, by air, and by various combinations of these methods.

289. A successful movement places troops at their destination at the proper time and in effective condition for combat. It is the task of commanders to reconcile the conflicting requirements of rapidity of movement and conservation of fighting power.

290. Special attention to the care of troops and to the means of transportation is essential to successful movement. Commanders take the necessary measures prior to a movement to place men and transportation in the best possible condition and exercise the necessary supervision during and after the movement to maintain them in that condition. Extremes of weather constitute one of the greatest sources of hardship on the march.

## Section II. FOOT MARCHES

291. The ability of a command to achieve decisive results on the battlefield may depend, in a large measure, upon the marching capacity of the troops. Troops must be conditioned to withstand the most unfavorable march conditions which they are likely to encounter in operations. They must be hardened gradually to this standard. Once attained, standards should be maintained, even though extensive use at times may be made of mechanical transport.

292. During active operations, troops must not be allowed to become unnecessarily fatigued. They are not kept in column nor under arms any longer than necessary, and full use is made of

mechanical means of transport for both the men and their equipment.

## Section III. MOTOR MARCHES

293. Since it will not always be possible to attach sufficient motor transportation to a command to enable it to move all its personnel and equipment in one trip, the ability of a command to concentrate superior forces quickly at the desired place, in time to achieve a decisive result, will often depend upon skill in the use of organic motor transportation to move by echelon. Whether the normal loads of motor vehicles are dispatched before or after the foot troops depends upon the nature of these loads and the tactical situation. The amount of organic transportation which prudently can be diverted from its normal purpose to move foot troops depends upon the degree of readiness for combat required by all or part of the command, the supply requirements, the hazard of immobilizing essential loads at a critical time, and the consequence of possible disorganization of the command by enemy action. Except for those vehicles issued for the movement of active weapons, such as prime movers or weapon carriers, all trucks of any unit are considered as a pool of transportation to be used as required.

294. The location of the detrucking area is largely dependent on the time required to complete the movement, the enemy's capabilities to interfere with the movement, the location of cover and terrain suitable for the detrucking, and the employment of the troops involved. The time required to complete the move is affected by the number and condition of roads, the distance between entrucking and detrucking areas, the available transport, the time length of columns, the delay caused by enemy interference or other obstructions, the time lag between the issuance of orders and the beginning of the march and, if the move is to be made in more than one trip, the time consumed in loading and unloading personnel and equipment and in assembling and organizing vehicles at turnarounds.

295. *a.* In the execution of movements, the commander divides his command into tactical groupings which are moved successively to their destination. Completely mobile units, such as armored divisions, can make the entire movement in one forward trip using organic transportation. Units which are not completely mobile, can move successive tactical groupings by augmenting their organic transportation with transportation obtained from higher headquarters, or can accomplish the move in two or more trips, using their organic transportation only.

b. When necessary, administrative loads not immediately needed for combat can be left in the old area and moved forward when the movement of troops and essential equipment and supplies has been completed. As far as practicable each grouping for movement is composed of the units normally associated tactically in combat, together with the organic weapons, ammunition, and rations, of such units, so that each grouping will constitute a tactical formation ready for combat employment at its destination.

296. Foot and motor movements may be combined. When a movement by organic motors cannot be completed in the allowable time, a combination foot and motor move may be advisable. Foot troops to be transported in a later echelon may march from the initial point to an intermediate entrucking point where they will be met and picked up by vehicles returning from an earlier echelon; or foot troops transported in an early echelon may be detrucked short of their destination and march the remainder of the distance while their vehicles turn around and return for the foot troops of a later echelon. Plans for a combined foot and motor movement must be flexible because circumstances in forward areas can easily disrupt the time schedule.

297. In an overseas theater of operations, the available motor fuels and motor transportation are generally limited, and at times critical. Frequently however, large bodies of troops must be moved quickly either to intervene decisively in combat or to exploit a defeated enemy. Such movements often are organized so that the foot elements of the command are transported on organic and attached transport, without unloading normal loads, to permit the command to move as a whole, without return trips for personnel or other loads remaining at previous locations. In order to accomplish this type of movement, motor transportation is overloaded. The individual soldier may ride in or on portions of the vehicle not designed for personnel accommodations. Tanks and other special purpose vehicles also afford transportation for foot elements. Even under these conditions, the tactical integrity of the foot elements should be preserved.

298. Preparations for and the conduct of movements by successive trips are greatly facilitated by the adoption of standing operating procedures. Otherwise, the preparation of plans and orders for such movements are very time-consuming.

299. When combat is probable, special attention is given to the protection of the detrucking area, to the composition of the

tactical group moving in the first trip, and to the security of the routes of movement to the detrucking area.

## Section IV. NIGHT MARCHES AND FORCED MARCHES

300. Night marches often are required to provide concealment from air and ground observation and security from air attack. They may be made for the purpose of avoiding excessive heat.

301. Night marches must be carefully planned. Prior reconnaissance of routes and assembly areas is especially important. Special precautions are taken to insure the maintenance of direction and contact within the column. Guides and connecting groups usually are necessary.

302. When troops are being moved by night marches for the purpose of concealment, movement before dark except by small detachments should be prohibited, and daybreak should find the troops either in position or in concealed localities. Measures to maintain secrecy must be rigidly enforced. Such measures may include enforcement of light discipline; instructions to halt or to clear the road when illuminated by flares; rapid bounds by motor elements between successive areas of conceaiment; radio silence; and when near the enemy, the maintenance of silence by personnel, and so far as practicable, the suppression of noises made by vehicles and equipment.

303. Forced marches impair the fighting power of troops and are only undertaken in cases of necessity. Available motor transportation is used to the maximum to meet the requirements. The length of marches of foot and mounted troops is usually increased by increasing the number of marching hours a day, rather than by increasing the hourly rate of march. The march may be broken by halts of several hours' duration. A long forced march practically becomes a succession of daily marches of greater than average duration. (See FM 101–10.)

## Section V. TACTICAL CONSIDERATIONS

304. The factors which exercise the greatest influence upon dispositions for marching are the composition and the proximity of hostile ground forces, the nature of the terrain, and the activity of hostile aviation. Contact with hostile elements should be expected from any direction not protected by friendly forces or terrain barriers.

305. a. The principles of security apply, and appropriate measures must be taken for security in all types of movement. When contact with the enemy is imminent, tactical considerations govern march dispositions. Columns are constituted in accordance with their tactical missions. Service troops and kitchen and baggage trains may be held in a protected area and moved forward under cover of darkness, after the hostile situation has been developed. When the situation permits the movement may be made by bounds during daylight.

b. When contact with enemy ground forces is remote the principal object of march dispositions is to facilitate and expedite the movement of troops and to conserve their energy. Commanders make use of the available motor transportation for moving foot troops. As far as practicable, columns are composed of units having the same rate of movement. Columns having different rates of movement are assigned separate roads or their movements by the same road are echeloned in time.

306. In an advance against the enemy a large unit is assigned successive objectives, or a mission and a zone, or routes of movement. A large unit whose zone of movement includes several routes assigns routes or zones to its component units in accordance with its plan of maneuver.

307. The commander's movement order prescribes the time and place of departure of his columns so as to produce the desired formation. Movements may be controlled by prescribing the hour when the head of the main body of the respective columns will continue the advance beyond the designated phase lines. Intermediate objectives may be prescribed in the order or during the movement. Column commanders report promptly when these objectives are reached and at other designated times. The imminence of contact with strong forces prepared for battle, the probable inequality in progress of the several columns, and suitable terrain affording concealment, cover, and tactical advantages largely determine the length of bounds. Control of the movement may also be obtained without the designation of phase lines. Under this procedure, subordinates furnish periodic position reports and the commander effects his control by issuance of orders during the movement.

308. When the enemy main forces are distant, large forces usually move in a broad and deep formation in order to permit flexibility of maneuver and to achieve rapidity of movement. Reconnaissance troops connoiter the assigned zone and gain contact

with the hostile forces. Security against motorized and armored forces is provided in the zone of reconnaissance through the successive seizure of road centers and natural terrain lines and by the aggressive action of mobile elements operating well to the front and on unsupported flanks.

309. On closer approach to the enemy, the zone of reconnaissance becomes less extensive and less time is available to prepare for combat.

310 a. A formation in depth provides maximum flexibility of maneuver but delays deployment in the direction of movement. It is the easiest of all formations to control, enables the commander to exert the maximum influence in coordinating the action of the forces initially engaged, and insures the availability of units intended for maneuver.

b. A formation in width increases readiness for deployment in the direction of movement. Maneuverability is restricted, especially after gaining contact; changes of direction are difficult.

c. A formation in which columns are echeloned to a flank facilitates maneuver and deployment to that flank and retains, to varying degrees, the advantages and disadvantages of both formations in width and depth.

311. When contact with strong forces prepared for battle is imminent, the commander assures himself of continued possession of terrain suitable for subsequent maneuver and develops his command for combat. He coordinates further advance by prescribing lines that will be seized by the advance guards while the main bodies of the respective columns are suitably disposed for combat within supporting distance. After a march has begun, variations in echelonment are obtained by halting certain columns or by changing the duration of their rest periods.

312. In an advance, commanders and their staff parties are well forward. The commander goes where he best can control the operation, usually with his principal column or with the column along which the axis of signal communications is being established. Ordinarily, the commander and his staff party move by bounds to successive locations where messages may be received and sent. He may be accompanied by one or more of his principal subordinate commanders.

313. Signal communication between columns and with the superior commander is regulated ordinarily by standing operating

procedure, supplemented, as necessary, by special instructions. Ordinarily, the means employed are messenger and radio. Light aircraft, including organic aviation, may be used to maintain contact between columns and to report their arrival at successive march objectives. Existing commercial signal communication systems are utilized where desirable.

314. A column includes all units under a single commander which use a single route. A column includes its security detachments, the main body, and the trains. The formation and movement of each of these groupings are regulated by a designated commander in accordance with instructions of the column commander. Distance between the groupings is regulated by the column commander. The maintenance of roads and the removal of obstacles make advisable and may require the presence of an engineer unit with the advance guard or near the head of each principal column. For details of advance guard movement see chapter 6.

315. The order of march of a column of all arms advancing against the enemy is dependent upon the terrain, the tactical situation, the mission of the column, and the relative mobility of the component units. The order of march of security detachments ordinarily is prescribed by their respective commanders. The column commander prescribes the order of march of the main body.

316. a. When contact with the enemy is possible, the order of march of a column composed of elements of approximately equal mobility is based upon the requirements of security and the probable order of entry of units into action.

b. Artillery is placed within the column in order to insure its availability for early and adequate support of the security forces and the initial action of the main body. Provision should be made for the protection of this artillery.

c. Antitank weapons are disposed to provide protection to the moving column. Some antitank weapons are attached to security detachments.

d. Motor vehicles required in the exercise of command and control of the column ordinarily advance by bounds. They interfere to the minimum extent with other elements. Administrative motor elements pertaining to staff parties ordinarily move at either the head or tail of their units.

e. Trains are so placed in the column as to be available to their units when required. Trains not immediately required may be

held in protected areas in rear and sent forward when the situation permits.

317. Orders for troop movements must be issued sufficiently in advance to permit preparation for those movements by the troops. For details see FM 101–5.

318. Routes should be reconnoitered and marked prior to the commencement of the march. Bridge capacities should be indicated. The dimensions of underpasses should be checked against vehicle dimensions. Timely measures are taken for preparation of stream crossings and for the removal of obstacles and other possible causes of delay. Careful examination is made of fords, bridges, and ice before attempting a stream crossing.

319. Cross-country marches usually will be necessary in the development and approach march preliminary to battle, or in the extension of a command for the purpose of diminishing its vulnerability to air attack.

320. On approach of a column to close contact with strong hostile forces, it becomes necessary to abandon the road and to develop the route column into a broader formation. The development of a large command is expedited by an advance in several columns. The area where development starts ordinarily depends upon the effectiveness of the enemy's artillery fire. As a rule, time can be saved and losses avoided by detouring isolated areas under hostile observation or fire rather than by starting early development.

321. The development of the column is effected by breaking the single column into several roughly parallel columns, each of which is assigned a march objective. As contact with the enemy becomes imminent, these columns themselves are developed into smaller columns. Time is generally gained in the execution of the development by assigning the longest routes to the leading units of the column.

322. The result of the complete development of the command is the distribution of the troops in accordance with the commander's plan of action. The development of a division usually terminates in the occupation of attack positions by front line units preliminary to deployment for attack or defonse. (See par. 414.)

323. Whenever practicable, assembly areas are chosen which are screened from hostile air and ground observation. Terrain which provides turn arounds for motor vehicles, natural protection

against an armored attack, and accessible ground observation is desirable. The position should be such that the troops have at their disposal favorable lines of advance to their combat positions. When the terrain does not afford concealment, the assembly areas of a division in daylight are usually beyond the effective range of medium hostile artillery. The assembly areas are protected by antitank and antiaircraft weapons and local security detachments. At times combat aviation may be necessary and available for this purpose.

324. Massing of units in close formation in assembly areas is avoided. Units are separated by sufficient intervals and distances to insure that concentrated targets are not offered to hostile air attack or artillery fire. When the possibility of attack by other weapons exists, dispersion should be increased to the maxmium degree the tactical situation permits. Each unit makes its own provisions for local all-around security.

325. When a command executes its development under cover of darkness, all preparations for the movements are completed, as far as practicable, before dark. Forces in contact aggressively develop the hostile situation. Routes of advance are reconnoitered and marked. Artillery prepares to protect the occupation of the assembly area by occupying suitable firing positions before dark or completing its preparations for night firing. In general, the pertinent provisions for night marches apply during such a development.

## Section VI. MARCH DOCTRINES

326. a. In each arm and service, movement is based upon march units and serials. In foot units, the foot elements of the battalion constitute a serial and the companies or platoons constitute march units. In motorized and armored units, the size of the march unit is governed by the number of vehicles that can be easily controlled by one commander. March units are grouped together into serials to facilitate control and to simplify the issuance of orders.

b. In each march unit the order of march of the several component units, is normally changed daily. Rotation in the order of the march of larger units also may be ordered when permitted by the situation.

327. a. Distance between march units, and between elements within march units, is prescribed for each march in accordance with the situation.

b. Differences in the rate of march in columns are absorbed as far as practicable within the space between march units. In motor columns, differences also are absorbed between vehicles. (See FM 25–10.)

328. A march serial composed of more than one march unit is placed in the desired order of march by scheduling the arrival of the successive march units at an initial point. The initial point is located in the direction of march. It should be inconspicuous to hostile air observation and easy to identify on the ground.

329. The location of initial points, and the time at which the heads of columns pass and the tails of columns clear them, are stated in the march order or in a march table accompanying it. When a large unit marches in several columns, the march order should fix an initial point for each column.

330. Commanders of the serials composing each column consider the route to be followed in reaching the initial point, calculate the time required, and start their commands so that there will be neither delay nor waiting at the initial point or elsewhere.

331. When several elements of a command marching by different routes are to join on a single road or when their routes of march cross each other, arrival at or clearing of the point of junction is so timed as to prevent interference between columns. The time of arrival at and clearance of such critical points will be stated for each serial in the march order.

332. When an unforeseen crossing of two columns occurs and no control personnel of a superior headquarters is present, the senior commander present regulates the crossing, basing his action on the situation and the missions of the two columns.

333. Motor columns may move in open or close column formation at prescribed rates or by infiltration. (See FM 25–10.)

334. Ordinarily, troops keep to the right of the road, leaving the left free for passage of other traffic along the column. On muddy, sandy, or dusty roads, or when both sides of the road provide concealment from air observation, or when attack by hostile combat aviation is probable, troops may be directed to march on both sides of the road, the middle of the road being kept clear for other traffic. Guards should always be posted in rear of troops on the road to warn approaching vehicles and prevent them from running into the tail of the marching column.

335. Halts during a march are a necessity and are habitually taken at regular intervals to rest men and animals, to service vehicles, to adjust equipment, and for other purposes. Halts generally are regulated by standing operating procedure, or by the march order. Unit commanders are promptly notified of the time and approximate length of any halts not provided for in the standing operating procedure or march order. Security, comfort of the troops, and their use in future operations influence the selection of the location for a halt.

336. a. After the first halt, usually 15 minutes, columns containing foot elements halt 10 minutes each hour. The halts of motor columns are made every 2 or 3 hours, and usually are specified in march orders. March units of foot troops halt simultaneously and resume marching simultaneously; all march units of motorized or armored troops may halt and resume marching simultaneously or successively. At the signal for the halt, units bear to the side of the road. On order troops fall out or dismount to rest. The road must be left clear by units at a halt.

b. Shortly before the termination of the halt, the commander of each march unit gives the preparatory signal for the resumption of the march. Foot troops fall in, mounted men remount, drivers resume their seats. Each unit moves out at the signal of its unit commander.

337. It is desirable to finish the day's march early. However, the length of the march or the desirability of avoiding excessive midday heat may render it advantageous to make a long halt toward the middle of the day. At long halts, each unit or group moves to a previously reconnoitered location near the route of march.

338. Men are not permitted to fall out during the march or to leave the immediate vicinity of their unit during halts, without the specific authority of an officer of their unit, an officer who is charged with keeping the unit closed up and with preventing straggling marches at the tail of each march unit. This officer examines men who fall out on account of sicknes or sore feet, and gives them a written note to the surgeon or requires them to continue the march. A small guard marches at the tail of each regiment and separate unit to control stragglers not admitted to the medical vehicle by the surgeon. March casualties are reduced by prompt foot inspection at the close of each day's march. Such inspections usually are conducted by company officers in conjunction with Medical Department aid men.

339. One or more medical vehicles march in rear of each regiment and similar unit for the transportation of men who become sick or disabled. One of the medical officers on duty with a troop unit marches in rear of the unit. He examines men who fall out for medical reasons. He admits them to the medical vehicle or authorizes them to place arms and equipment, in whole or in part, on that vehicle or other transportation provided for the purpose, or directs them to report to the guard in rear of the regiment.

340. A vehicle which is compelled to halt moves off to one side of the road and signals vehicles in rear to pass. Disabled vehicles are removed promptly from the road. Motor maintenance elements normally are placed at rear of column.

341. Assemblies from march columns may be made at long halts, to occupy assembly positions during development for combat, at entrucking and detrucking areas, and for other purposes. The column commander selects the assembly area in accordance with the situation or instructions received. He allots portions of the area to component elements according to the situation and probable future action. When contact with enemy ground forces is remote, march considerations and comfort of the men may govern dispositions for assembly. In large units troops are sheltered as close to the route of march as practicable and are distributed in depth to facilitate shelter, supply, the anticipated order of march, and security from enemy air activity.

342. When contact with the enemy ground or airborne forces is probable, tactical considerations govern the distribution of troops. Frontages are increased but units remain echeloned in depth with all around security. Trains and units lacking adequate means of self-defense are concealed, dispersed and protected in areas, generally well to the rear, or with troops equipped for defense. Whenever practicable, arrangements for the occupation of the area are based upon detailed reconnaissance.

343. Assembly areas may be announced in the initial march orders or during the course of the movement. In either case, subsequent arrangements are facilitated greatly by having representatives of the major units march near the head of the column. The column commander announces the location of his command post, and indicates to the representatives of the major units their respective areas in sufficient time and detail to prevent congestion and delay in clearing the roads. These representatives, after reconnoitering their respective areas and routes thereto, meet their units and conduct them to their assembly areas.

344. Provision is made for traffic control and security. Roads are promptly cleared. This is expedited, and wear and tear on motor vehicles is reduced by preparing turn-outs at places where motor columns leave the roads. For this purpose, engineers equipped with bulldozers are especially useful.

345. Special precautions are taken to avoid congestion and delay during the passage of obstacles and defiles, or in clearing the road. When tactically appropriate, provision is made for protection against hostile aircraft. The massing of troops, especially in the vicinity of an obstacle or defile, or during a halt, must be avoided.

346. Fordable streams are reconnoitered. Provisions are made in advance to avoid confusion and unnecessary delay at crossings. These provisions include the regaining of distances and the preparation of additional crossings. When a road leads through swamps or quicksand or across a stream with treacherous bottom, the limits of the road are marked or warnings are placed at dangerous points.

347. An engineer officer in charge of any bridge is responsible for its structural adequacy and the regulation of traffic on the bridge and its approaches. Instructions issued by the engineer officer and the engineer bridge guard, relative to the use of the bridge, are strictly obeyed. March commanders are responsible that vehicles exceeding the maximum load capacity of the bridge are removed from the column for crossing at some other point. In crossing on a pontoon bridge, motor vehicles travel slowly, holding to the center of the bridge and maintaining the distance essential to prevent overload.

348. In the event of a tactical emergency occurring at or near the bridge, troops on the bridge and its approaches are evacuated as directed by the engineer officer in charge.

349. In ferrying operations, foot troops are first brought to concealed and defiladed assembly areas, in the vicinity of the embarkation point. Here they are organized into tactical groupings corresponding to the capacity of the means for ferrying. Engineer equipment needed for the crossing, but not already at the river, is issued to troops at the final assembly area or attack positions, where instructions for embarking and disembarking and for conduct during the crossings are given. At the proper time, each tactical grouping is conducted to the point of embarkation by an engineer guide. Movement from the final assembly area to the river is under the control of the engineer troops.

350. On arrival at the embarkation point, troops enter the boat or raft in the manner directed by the engineer in charge. The engineer in charge is responsible for the arrangements of the loads and for handling of the boats. Individual equipment is loosened so that it may be removed easily.

351. Vehicles to be ferried are held concealed in an area where they will not block the approaches. They are loaded as directed by the engineer officer in charge, and usually are secured by brakes and blocking. Horses may be crossed by swimming. In unloading, the debarkation point is cleared promptly.

## Section VII. MOVEMENTS BY RAIL

352. Movement by rail versus road is decided upon after a study of the relative availability of all means of transportation. Facilities in a theater of operations are seldom adequate to permit a free choice. When gasoline, motor vehicle tires, and tracks are critical items, rail will carry all possible movements. When rail facilities are limited tracked vehicles may be moved by rail and all others by road. When a degree of choice exists the following guide may be used to move an infantry division: for distances less than 150 miles, it is generally expedient to use motor transportation (organic or attached); for distances between 150 and 350 miles, to send vehicles over the highway while troops move by rail; and for distances beyond 350 miles, to move both troops and their vehicles by rail. Smaller units may be moved by rail over shorter distances. (See FM's 100–10 and 101–5.)

353. Loading of vehicles on trains is normally a unit responsibility. Each unit will maintain a record of current transportation requirements for its movement as a whole and by separate units, including arrangement of trains and lists of supplies and equipage to accompany the troops under varying conditions. Units must be given timely notification of impending rail movements, in order to permit proper preparation.

354. Orders directing the movement of a unit by rail designate the points at which the entrainment of the unit will take place, indicate the number of trains and the hours of departure, and state the detraining area or destination of the movement, when these are definitely known and considerations of secrecy do not oppose.

355. The commander of the troops is responsible for the preparation of plans and tables regulating entrainment and departure of the elements of his command. Details of the move are worked

out with the transportation officer of the area in which the move originates. A central movement control agency determines the routing. In a theater all contacts with civilian or foreign government railroads will be made through the transportation officer.

356. The order in which elements are forwarded is determined by tactical and administrative factors. The assignment of units to entraining points is determined by availability of suitable loading facilities, matériel to be loaded, and proximity of elements to entraining points.

357. A transportation grouping consists of the troops, equipment, and supplies transported on one train. When tactical considerations govern, tactical unity should be preserved and each element should be accompanied in the same train by its own vehicles and equipment.

358. A senior officer is detailed in charge of each entraining point. He supervises the entrainment, police, and antiaircraft security at the station and is furnished with the necessary guard, transportation, and other assistance.

359. Units are directed to arrive at their designated entraining point early enough to allow entraining in time to insure the scheduled departure but not so early as to result in congestion or delay on routes to or at the entraining point. Premature entraining of personnel should be avoided.

360. The responsibility of the entraining officer ceases, and the responsibility of the train commander begins, when entrainment is completed and the train has been accepted by the railway for movement. The train commander is responsible for the security, discipline, and administration en route but exercises no control over the operation of the train.

361. A representative of the unit being moved and an officer of the transportation service proceed to the detraining area in advance of the troops or arrive on the first train of the troop movement. The representative of the unit determines the distribution of the troops in the detraining area, in accordance with the commander's instructions.

## Section VIII. MOVEMENTS BY AIR

362. Air transport may be employed for moving troops, equipment, supplies, or casualties. Air movement is characterized by

speed and flexibility. It is limited by weather and airfield facilities. The transport of bulky or heavy items is restricted by the conformation and payload of available aircraft.

363. The transportation officer of the theater of operations or similar command will establish and maintain contact with the appropriate Air Force commander with regard to air lift and policies and procedures to be followed. Available air lift will be allocated by the transportation officer in accordance with policies established by the theater or similar commander.

364. The commander of troops is responsible for preparation of plans for the movement of the elements of his command. Details of the move are worked out with the appropriate Air Force commander.

365. The prime consideration in loading units is the anticipated tactical employment in the airhead. Commanders must strive to maintain tactical integrity by plane loads if the air-transported force is to be committed relatively soon after arrival at destination. However, if the landing area is secure, tactical integrity may be sacrificed in order to attain the maximum usage of the available aircraft. When preparing for an air movement equipment too heavy or bulky to be air-transportable must be disassembled for movement. Items not readily disassembled will have to be eliminated. All personnel and equipment not required in the objective area should remain in rear. Key personnel and equipment should be distributed throughout the airlift to minimize the effect of losses.

366. Prior to emplaning, troops are instructed in loading and lashing equipment, in safety regulations on airstrips and in flight, and in plan of assembly after landing. Troops are marshalled near the departure airfields and aircraft loading tables and flight manifests are completed. Units are then emplaned according to the loading plan. Ground and air liaison officers are exchanged.

367. In flight, security may be provided for air movements by flying in formation under escort of fighter aviation, by dispersing, or by flying at night or under other conditions of low visibility. Loading and unloading points in areas under friendly control may be protected by fighter aviation and ground forces, including antiaircraft artillery and antitank weapons.

368. For further details of movement by air, see FM 1–30, "Tactical Doctrine of Troop Carrier Aviation," FM 31–40, "Supply by Air

# CHAPTER 8

# THE OFFENSIVE

## Section I. GENERAL

### THE OBJECTIVE

376. The purpose of offensive action is the destruction of the effectiveness of the enemy's armed forces and of his will to fight. To facilitate the accomplishment of this purpose, the commander selects for his attack a physical objective such as a body of troops, dominating terrain, a communications center, or lines of communications, or other vital area in the hostile rear for his attack. The attainment of this objective is the basis of his own and all subordinate plans. This objective should have the following characteristics:

a. Its capture must be possible within the time and space limits imposed by the assigned mission.

b. The threat of its capture should compel the enemy to evacuate his position or risk destruction therein.

c. Its capture should facilitate contemplated future operations.

d. It should produce a convergence of effort.

e. It must be easily identified.

377. The objective having been selected, all components are directed in coordinated efforts towards its attainment. Actions which do not contribute to this purpose are avoided.

378. An objective sometimes may be attained by maneuver alone; ordinarily it must be gained by close combat.

379. Sound tactical maneuver in the offensive is characterized by a concentration of effort in a direction where success will insure the attainment of the objective. This principle necessitates that

only the minimum means essential to deceive the enemy and reduce his ability to resist the main effort will be employed elsewhere on the front. These secondary efforts are justified only by the extent to which they contribute to the success of the main effort.

## DISTRIBUTION OF FORCES

380. In the offensive, troops are distributed into two or more principal tactical groupings; one or more main attacks in which the greatest possible offensive power is concentrated to bring about a decision, and one or more secondary attacks the mission of which is to render maximum assistance to the main attack. In each tactical grouping, the mass of the available means of combat is applied in a decisive direction.

381. Main attack groupings are designed to secure the objective and to destroy the hostile force. Secondary attack groupings are designed to hold the enemy in position, to force him to commit his reserves prematurely and to an indecisive location, and to prevent him from reinforcing the front of the main attack. This normally will necessitate the delivery of a limited objective attack whose success will contribute to the main effort.

382. Main attacks are characterized by narrow zones of action, strong support of artillery, armor, and other supporting weapons, effective support of combat aviation, and deep echelonment of reserves.

383. a. Secondary attacks are usually assigned wider zones of action than is the main attack, with a consequent reduction in both strength and depth of reserves. Such attacks are therefore usually assigned limited objectives. To compensate for this lack of reserves strong fire support is essential. The flexibility of artillery frequently permits it to support a secondary attack against an important limited objective without interference with the subsequent support of the main attack.

b. When the forces available for the secondary attack are limited in strength, strong fire support may be employed to offset such weakness and deceive the enemy. Skillfully located supporting weapons can fire in support of an earlier secondary attack without adversely affecting their support of a subsequent main attack.

384. When it is impracticable to determine initially when or where the main attack is to be made, the commander retains his freedom to act by disposing his forces in great depth, by holding out strong

reserves, and by maintaining centralized control of his supporting weapons. Mobility and correct initial location will permit rapid exploitation of the success of the planned main attack or of favorable developments in the holding attack.

385. Attacking echelons once committed to action lose their immediate availability for employment in the execution of other missions. Deployed and under fire, they can change front only at the risk of incurring heavy losses. The commander can influence the course of an action once begun by the employment of reserves, fire support, and air support.

386. a. In selecting the direction for the main attack, the terrain must be carefully studied. The choice of the front on which the main attack and the main efforts of subordinate units are made is often determined by the possibilities which the terrain offers for movement, for concealment, for cover, and for effective employment of artillery and armored units. The road net available must also be considered from the viewpoint of logistical support.

b. Selection of the direction of the main attack is influenced also by the time available for movement before the attack must be launched. In situations where speed is essential, mobile units composed largely of armor may be employed. The hostile dispositions must also be considered. For example, armor should not be employed against strongly prepared positions protected by obstacles. At times unfavorable factors may be accepted in selecting the area to be attacked in order to achieve surprise. Effective support by combat and reconnaissance aviation is essential in any major attack.

## FORMS OF OFFENSIVE ACTION

387. Attack maneuvers are classified as envelopments and penetrations.

388. a. In an envelopment, the main attack is directed against the flank or rear of the initial disposition of the enemy's main forces and toward an objective in rear of his front lines. It seeks to surround that portion of the enemy's forces both in front of and on the objective. It is assisted usually by a secondary attack directed against the enemy's front.

b. A successful envelopment depends largely on the degree of surprise attained and on the ability of the secondary attack to contain the bulk of the enemy's forces. Surprise is secured by maneuvering to avoid observation by the enemy and by deceiving

him. Superior mobility and air superiority increase the prospect of success.

c. An envelopment avoids attacking on ground chosen by the enemy, and forces him to fight in two or more directions to meet the converging efforts of the attack. Every effort is made to strike the defender's flank or rear in order to avoid any part of his organized front. Such an attack minimizes losses, handicaps the defender's ability to meet it promptly, compels the defender to fight on ground chosen by the attacker, and produces decisive results.

389. A turning movement is an enveloping maneuver which passes around the enemy's main forces to strike at some vital point deep in the hostile rear. The force making the maneuver usually operates so far from the secondary attack that the principal tactical groupings may be beyond mutual supporting distance. (Supporting distance is the distance by which forces may be separated and yet permit one to move to the aid of another before it can be defeated by an enemy force.) Hence, each grouping must be strong enough, or mobile enough, to avoid defeat in detail. When conditions favor such action, all striking elements of the command may be employed in the turning force, leaving only reconnaissance elements confronting the hostile dispositions. The turning movement is adapted particularly to highly mobile commands, such as armored cavalry and motorized forces, and forces transported by aircraft. It should be employed by highly mobile forces in situations in which the vital objective in the hostile rear can be seized by such a maneuver before it is necessary to involve the enveloping force in a major engagement with the enemy. Deception, secrecy, and mobility are vital to successful execution of a turning movement.

390. a. When the enemy takes up a defensive position, the commander of the attacking forces should consider the possibility of turning the enemy out of his position and forcing him to abandon his position and fight on ground more favorable to the attacker.

b. Situations may occur, especially in the pursuit of a defeated force, in which the enemy can be forced by direct attack to take up a defensive position while a portion of the more mobile attacking forces executes a turning movement against his lines of communication.

391. a. A double envelopment is executed by three principal tactical groups; two enveloping attack forces and a secondary

attack force. A simultaneous envelopment of both flanks generally requires considerable superiority.

b. The command seeking to attack by double envelopment must be deployed, or be capable of deploying, on a broad front against an enemy on a much narrower front or with little capability for maneuver. The maneuver is executed by making a secondary effort in the center while striking with enveloping forces on both hostile flanks. When mobile forces are available in reserve, they may complete the envelopment by an attack from the rear. When conditions favor it, this form of maneuver should be used because of the decisive results it promises. After an initial envelopment of one flank, favorable conditions for passing to a double envelopment through the use of reserves may be created when the success of our troops has placed the enemy in a disadvantageous situation.

392. a. The enemy's preparations to meet an envelopment of his flank ordinarily cannot be organized as completely as the defense of his front without sacrificing the strength of his original front, especially if the envelopment is launched from a locality deep on the hostile flank or rear.

b. The defender strengthens an unsupported flank by reserves echeloned in depth and in width. When threatened with envelopments and he does not withdraw, he may be expected to move his reserves to meet the envelopment. If necessary, he reconstitutes reserves from those portions of his front not heavily attacked. He may attempt to envelop the attacking forces, or to extend his flank beyond that of the attack up to the limit of his strength. An attempt on the part of the attacker to maneuver outside (outflank) such hostile extension may lead to overextension or to a dangerous separation of the enveloping forces from those making the secondary attack. It usually is better to take advantage of the enemy's extension and consequent weakness by retaining a deep formation and to penetrate his thinly held front than to overextend in an effort further to outflank the position. Protection of the flank of an enveloping force is assured by the impetus of the attack, the distribution of troops in depth, and the support of combat aviation. The use of combat aviation to hinder the movement of enemy reserves and supplies in his rear areas can be a decisive factor in the successful execution of an envelopment or a turning maneuver.

393. When the situation does not favor an envelopment, the main attack is directed to a penetration of the hostile front. Conditions which demand a penetration are enemy flanks which are unassail-

able, or lack of time to make an enveloping maneuver. Conditions which favor a penetration are overextension of the enemy, or terrain and observation favorable for more effective cooperation of the combined arms. A penetration often can be organized more quickly than can an envelopment.

394. a. In a penetration the main attack passes through some portion of the area occupied by the enemy's main forces and is directed against an objective in his rear. It is characterized by a rupture of the enemy's dispositions; the seizure of objectives by operations through the gap; and the envelopment of one or both flanks created by the break-through.

b. A penetration depends for success on coordinated power. The more important conditions favorable to success are surprise, adequate fire power, especially artillery, to neutralize the area of penetration, favorable terrain within the hostile position for the advance of the attacking troops, and strength to carry the attack through to its objective. An integral part of the plans for the penetration of a defensive position should be the pinning down of hostile reserves by the action of artillery fire and the tactical air force. Air power may be used to extend and deepen, or supplement the fires of artillery in neutralizing the enemy in the area selected for penetration.

395. a. In the penetration of a defensive position, the main attack is launched on a front wider than that of the contemplated break-through in order to hold the enemy in place on the flanks of the penetration. The attack on the remainder of the hostile front is designed to contain the enemy and prevent him from moving his reserves.

b. The amount of artillery, armored units, and combat aviation available largely determines the width of the front of penetration. The wider the front of penetration, the deeper the gap which can be driven, and the more difficult it will be for the enemy to close the gap. The deeper the penetration, the more effective will be the action of mobile reserves in seizing the objective and rolling up the hostile flanks created by the break-through.

c. The greatest distribution in depth is placed opposite the prospective front of penetration. The distribution of troops provides for three separate impulses: the initial break-through of the hostile position, a widening of the gap thus created by enveloping one or both interior hostile flanks, and the seizure of the objective. Exploitation which follows the seizure of the objective should include the destruction of the hostile forces enveloped and may

also include operations against key objectives deep in the hostile rear.

d. The sequence of these impulses depends on the situation. In some situations it is practicable through the existence of weaknesses or gaps in the enemy's front for armored cavalry or motorized forces to break through and to proceed straight to the objective, while operations of local envelopment and exploitation are performed by less mobile troops. In other situations foot troops must break through, the more mobile troops being held initially in reserve and used later to operate through the gap created by the foot troops.

396 a. The mission of the attacking echelon of troops is to break through the enemy's dispositions to a depth which will prevent the maintenance of the continuity of his battle position. Until this mission has been accomplished, the attacking troops do not divert their strength to the attack of the flanks of the gap. Hostile counterattacks against the flanks of the penetration are met by reserves, by the fire of the artillery, and by combat aviation.

b. The missions of rolling up the flanks of a gap created by penetration and of exploiting the break-through are assigned to reserves. Armored and motorized units are especially suitable for seizing the objective and for exploitation. Troops transported by air may be used to support these operations. Combat aviation is employed against hostile reserves and other important objectives to prevent reinforcement of the hostile forces under attack.

397. In large commands, a penetration often is initiated by launching simultaneously two or more powerful attacks, that is, a multiple penetration against weak localities on the hostile front. Strong localities are contained initially by secondary attacks. When the penetrating attacks have advanced sufficiently, the interior strong localities are reduced and the penetrating attacks are united into a single main attack. The destruction or isolation of strong hostile localities often is facilitated by launching multiple penetrations in converging directions. The doctrines applicable to a single penetration govern the organization and conduct of a multiple penetration.

## FRONTAGES AND DEPTHS

398. The frontage assigned to any unit in an attack varies with the mission, mobility, combat power of the unit; the terrain; available fire support; and the expected hostile resistance.

399. a. Units are distributed in depth to provide flexibility of maneuver, continuity in the attack, and security. For infantry units, depth of formation for combat rather than a wide extension of front is necessary in the initial deployment since the progress of battle will call for maneuvers that cannot be clearly foreseen. This condition can be met only by initial distribution in depth.

b. Depth achieved by a column formation facilitates maneuver by complete tactical units to meet obscure situations. Depth achieved by a formation with subordinate units abreast, with each unit in column, facilitates maximum power to the front as well as reliefs within units with minimum disarrangement of command. Such a formation is suitable for an interior unit in the penetration where the resistance has been definitely located and the possibility of maneuver limited.

400. a. Whether the maneuver adopted is an envelopment or a penetration, success will depend primarily on intelligent, energetic, and coordinated execution.

b. The doctrines which underlie the employment of the combined arms in the offensive are conservation of the combat power of troops in the attack echelon, provision of assistance for them to close with the enemy, and thereafter support of their attack until the enemy's power of resistance is broken.

## RESERVES

401. a. The primary mission of the reserve is to enter the action offensively at the proper place and moment to clinch the victory or exploit success.

b. The initial strength and location of the reserve will vary with its contemplated missions, the type of maneuver, the terrain, possible hostile reaction, and clarity of the situation. After the attack is launched, the reserve and the fires of supporting arms including combat aviation are the principal means available to the commander for shaping the course of action and for obtaining a favorable decision.

402. In a penetration the reserve must be large enough to widen the break-through by enveloping one or both of the flanks created in the gap and to exploit by operating deep in the hostile rear.

403. In an envelopment the reserve must be large enough to extend the envelopment or to exploit a successful enveloping action by operating against the hostile rear. To favor the envelopment the reserve is disposd toward the flank enveloped.

404. When open flanks exist or when there is danger of a hostile threat, some reserves are disposed to meet dangerous contingencies. This situation frequently will be met by echelonment of these reserves to provide depth in at least two threatened directions.

405. When the situation is relatively clear and enemy capabilities are limited, the reserve may consist of a small fraction of the command disposed to favor the maneuver. When the situation is obscure, the reserve may consist initially of the bulk of the command, centrally located and prepared to move to any point on the front or flanks.

406. a. The location of the reserve should combine a maximum of protection for itself against hostile observation and air and armored attack with a road net which facilitates rapid movement to any point of possible employment. Motor vehicles should be held available for the movement of reserves lacking organic means of rapid movement.

b. Dispersion in the location of the reserve is dependent upon the time required to concentrate the entire reserve for the implementation of any one of the plans for its employment. A poorly located reserve may suffer heavy casualties before it is engaged.

407 a. Often a commander's most difficult and important decisions are, whether or not to commit the reserve, and choosing the time and place of commitment.

b. At the decisive moment every man that can be used to advantage must participate in the battle. The reserve must be launched without hesitation. Piecemeal commitment of reserves is avoided. Reserves should be reconstituted from other units which the course of action makes available.

## COORDINATION

408. The commander is responsible for coordination of the action of all the elements of his command.

409. The efficient employment of signal communication plays an important role in the effective coordination of the action of all elements of the command. The commander places great reliance upon his signal communication for the transmission and receipt of orders, information upon which to base his decisions and to request supplies and munitions. Movement and fire direction

are largely controlled and coordinated through the signal communication systems.

410. The highest degree of coordination permitted by the situation and time element is sought. The considerations discussed below are applicable in general to situations in which thorough coordination can be prescribed. In other situations they are applied to the degree practicable.

411. Against a strong enemy, a decision to develop and deploy for attack directly from march columns risks loss of control and sacrifices some of the capabilities of artillery, tanks, and other supporting weapons. Even in a moving situation an attack is best organized and coordinated in assembly areas.

412. From a march formation the commander develops the main body for a coordinated attack by assigning march objectives to the larger units, usually the assembly areas they are to occupy, and routes or zones of advance thereto. The development order announces the missions of units already engaged, the missions of the artillery, the dispositions of the main body, the security measures to be taken, and instructions for further reconnaissance. It provides for essential administrative details so that the necessary preparations can be made. Instructions given in the development order are as complete as time permits so as to furnish maximum guidance to subordinate commanders. For movement to assembly areas and security during development, see paragraphs 320 to 325 and 436 to 440 inclusive.

413. a. The location of assembly areas is dependent on several factors. Darkness, cover from observed hostile artillery fire and air attack, a thorough knowledge of the situation, and a plan of attack already decided upon favor advanced positions located in conformity with the plan of maneuver. Conditions the reverse of these require the selection of assembly areas well back. Units of high mobility may complete their development and preparations for battle at greater distances from the hostile front than infantry.

b. If the plan of attack involves an enveloping maneuver, the assembly area of the enveloping force is separated by a sufficient interval from the troops in the secondary attack to preclude interference between units when deployed for attack.

414. Subordinate commanders assigned assembly areas may in turn assign more advanced assembly areas to the component units of their commands as knowledge of the situation and of

plans becomes available. The final assembly area of an infantry or armored cavalry battalion or similar unit in the attack echelon usually is the most forward concealed position available in rear of the line of departure. It is termed the attack position. Its location is usually designated by higher commanders but where necessary may be selected by the commander concerned. It should afford cover from hostile small arms fire.

415. a. While units are moving into and during the occupation of their assembly areas, the commander prepares his orders and completes arrangements for the execution of his plan of maneuver.

b. Commanders of troops in the attack echelon and the commanders of units designated to support them coordinate the action of their units. Whenever possible, reconnaissance and planning should be conducted concurrently with troop movement into such positions to insure against unnecessary delay.

416. a. As a unit arrives at its assembly area, march columns clear roads and take immediate measures for security against air, armored or other attack. Signal communication is established without delay between the superior command post and those of the major subordinate units.

b. In the assembly area, equipment not essential to combat is turned over to the custody of the unit's service echelon. Extra ammunition is issued to troops. The assembly area in which these measures are taken is determined by cover, concealment, situation, time and comfort, and effectiveness of troops. Reconnaissance, coordination of the maneuver and fire plans of subordinate units and attack orders must be completed and issued before forward movement from the attack position begins.

417. Development of the command terminates with the troops distributed in accordance with the plan for their employment and in an approach march formation favoring rapid deployment.

418. a. Should the commander decide that rapidity of action is essential to retain a tactical advantage, he may dispense with assembly areas, decentralize operations to combat commands, combat teams or task forces, and issue orders to those units to develop and attack.

b. Situations which justify decentralized control of this type are—an obscure tactical situation; necessity for rapidity of action over execessive distances; or operations over such extensive areas that centralized control is impracticable due to difficulties of signal communication.

c. Detailed advance planning combined with modern signal communication reduces the necessity for such decentralized control to very special situations. Every effort should be made to retain the advantage of improved coordination of effort inherent in centralized control. (See par. 433.)

419. a. Subordinate units ordinarily are assigned a zone of action, a line of departure, and an objective. In some situations a direction of attack and an objective, or an objective alone will suffice. When a commander desires that a subordinate unit direct its main effort in a specific direction within its zone of action he should so indicate by assigning a direction of attack as well as a zone of action to the unit.

b. Where such boundaries are desirable, zones of action are defined by designating their lateral boundaries, or by the assignment of a front of deployment, and the designation of the lateral limits of the objective. In large units the designation of objectives and boundaries may be made from the map; in small units these designations are made on the ground. Points designated should be easily identifiable on the ground.

c. When tactical groupings are separated initially by wide intervals, designation of a boundary between them may be withheld until a later phase of the action. In such situations, it frequently will be necessary to establish a limiting line between them for coordination and control of their supporting fires.

420. a. Zones of action should extend through the depth of the hostile position at least as far as the location of the hostile artillery and reserves, more deeply if the situation is definite. Important localities and terrain corridors commensurate with the size of a tactical unit should lie wholly within the zone of action of that unit. If it is desired that an adjacent unit render special assistance to another in the attack, this assistance should be clearly stated. During the progress of combat, and especially when reserves are committed to action, appropriate changes in zones of action are made.

b. To take advantage of favorable routes of approach, units may move temporarily into adjacent zones, after coordination with commanders concerned. Such movement must not interfere with the action of adjacent units or result in a dangerous massing of troops. Arrangements should insure that congestion and confusion are minimized. The emplacement and movement of artillery and other supporting weapons in zones of action adjacent to the zone of the units they support are permissible, but must

be carefully coordinated with the commanders of the affected zones of action.

421 a. The battalion is ordinarily the smallest unit which is assigned a zone of action. Smaller units usually are assigned directions and objectives.

b. When lateral boundaries are not clearly defined they are supplemented by assigning compass directions of attack. This is particularly important in small units.

422. A line of departure is a designated line which troops starting an attack cross at a prescribed hour. Based on the scheme of maneuver, it may be necessary or desirable to assign separate lines of departure and different hours to the several attacking units. The purpose of the line of departure is to coordinate the advance of the attack echelon so that its elements will strike the enemy in the order and at the time desired. It also facilitates coordination of fires. This line should be recognized easily on the ground and should be approximately perpendicular to the direction of attack. It should be controlled by friendly forces. As permitted by these criteria, the line of departure should be as close to the enemy positions as possible.

423. a. The time of attack is the hour at which the attack is to be launched. If a line of departure is prescribed, it is the hour at which the line is to be crossed by the leading elements of the attack. It is determined by the time required for commanders to make the necessary reconnaissance, prepare plans, and issue orders; for all units to coordinate their plans; and for the attack echelon to organize its attack and move to the line of departure.

b. The secondary attack may be launched prior to the main attack to force the enemy to commit the greatest possible portion of his forces against that attack, or the main and secondary attacks may be launched simultaneously.

c. Unity of effort is promoted by assigning subordinate units objectives which insure mutual support and by prescribing where and in what direction subordinate units are to make their main effort. The combat action and direction of attack taken by subordinate commanders must be such as to contribute to the main effort in accordance with the scheme of maneuver of the superior commander. The commander must endeavor constantly to prevent the attack from breaking up into a series of uncoordinated battles. Phase lines as described in chapter 7 may be used to aid in the control of the attack.

424. The degree of surprise attained is dependent in a large measure on the coordination and timing of the attack and the measures taken to deceive the enemy. Ruses, demonstrations, feints, and other measures for deception executed at the wrong time and place will be obvious to an alert enemy and will warn him of the impending attack. Superior mobility and the speed and aggressiveness of execution may be determining factors in achieving surprise.

425. The best guarantee for success in the attack is effective cooperation among the troops in the attack echelon, the supporting artillery, and combat aviation. The comander coordinates the fire support of all available supporting weapons with the plan of maneuver of the attacking troops.

426. Within the division, cooperation is facilitated by habitually associating a direct support artillery unit with the same infantry regiment or other supported unit. To insure close cooperation with the attacking troops, artillery units assigned to direct support of designated units maintain constant signal communciation and liaison with the supported unit.

427. It is desirable to locate the command post of the corps artillery, division artillery, or artillery commander of a smaller force of combined arms in close proximity to the command post of the corps, division, or force concerned. The location of the artillery command post is based on the control of its subordinate units and therefore may have to be separate. If separation of the command posts becomes necessary during the course of action, the artillery commander will continue to furnish liaison to the supported unit or to the division, corps or force command post. Direct support artillery units will establish and maintain signal communications with the supported unit, while the division, corps or force normally will establish and maintain signal communication to the command post of its artillery.

428. a. The commander of the supported unit informs the supporting artillery commander of the situation, his plan of attack, and the artillery support desired. The supporting artillery commander informs the supported commander of the terrain which the artillery commands with observation and fire and the means by which the artillery can most effectively support the attack. Based on this exchange of information, the interested commanders arrange the plan of fire support to be provided for the attack.

b. The artillery commander must comply with the requests of

the supported unit commander to the limit of his capabilities, subject only to orders received from higher authority. If he receives a fire mission which conflicts with the needs of the supported troops, he reports the situation to higher authority, then complies with the resulting decision, reporting the facts to the commander desiring the mission. If the urgency of the situation precludes these reports, the artillery commander acts on his own initiative in accordance with his knowledge of the situation, reporting his action to his superior at the first opportunity.

c. A direct support artillery unit establishes liaison with each supported infantry or armored cavalry battalion or other supported unit. A mutual obligation rests upon the commanders of supported and supporting units that liaison is established and maintained. It is essential that the supporting artillery know at all times the location of the leading elements of the attack echelon and be kept informed of the plans of the supported unit.

429. a. A single artillery staff working under the force commander facilitates the integration into a single coordinated fire plan of all the fires available to support a force of combined arms. Such a plan is based primarily upon the fire plans of subordinate units. The fire plan integrates not only the fires of direct support artillery but also provides for the utilization of those of reinforcing artillery including that of higher echelons and all other fire support. The final plan should be designed to furnish the maximum fire support to the maneuver plan supported.

b. In general, the shorter-range weapons and the direct support artillery will engage the targets in the immediate foreground best suited to the characteristics of the weapons involved. Other weapons are used as the situation requires to deepen the zone taken under fire or to supplement the fires upon targets most dangerous to the forces.

430. Early and adequate joint planning is necessary in order to obtain close coordination of the ground force elements and combat aviation which are employed in the attack. Suitable objectives for this combat aviation are those hostile elements, whose destruction or neutralization will contribute most toward a successful attack. During battle, combat aviation is especially useful to exploit a success, to correct an adverse ground situation, to attack hostile reserves or reinforcements, or to aid friendly ground troops in overcoming unexpected resistance. Combat aviation also may be employed to provide column cover particularly in pursuit and exploitation or for exposed movements.

431. a. Employment of Army, Navy, and Air Force in joint operations is facilitated by joint planning and training of all units, initiated well in advance in order to provide time for the coordination necessary due to differences in equipment and procedures.

b. To secure efficient coordination of available supporting fires of Army, Navy, and Air Force during a joint operation, a fire support coordination center is established in the artillery headquarters at each echelon of command from battalion to army. Here the representatives of the supporting components confer on the best means to be employed in attacking targets confronting the supported units. The artillery commander is responsible for the coordination of all fire support, including artillery, naval gunfire, and air strikes when command has passed to Army units ashore.

432. Because of the difficulty of establishing and maintaining effective chemical concentrations in mobile operations, use by the attacker of chemical agents other than smoke is limited. Smoke must be employed carefully in respect to both time and space, and must be coordinated closely with other supporting fires and with the action of armor and supporting air. Under favorable conditions of wind and weather, smoke is used to conceal the approach of the attack by blinding hostile observation posts, antitank guns, and infantry supporting weapons. It is especially useful during short periods when troops must cross exposed ground. Chemical agents can be used to neutralize areas the attackers will not move into, to protect flanks, and for counterbattery.

433. a. When conditions limit the ability of the commander to exercise a timely and direct influence on the action, the initiative of subordinates must be relied upon to a great extent. The commander issues less detailed orders to those tactical groupings over whose action he cannot exercise a direct influence, and attaches to them the means necessary to accomplish their tasks. He interests himself primarily in the action of the troops whose mission is of decisive importance to the action.

b. This method of conducting an operation is most prevalent in pursuits, in opening phases of a meeting engagement, during crises of battle, and in envelopments and turning movements in which the main and secondary attacks are separated by wide intervals. The greatest degree of coordination possible is prescribed initially; complete coordination is accomplished as soon as the course of action permits.

434. a. Based upon the commander's decision and plan the attack order is issued. This order includes the necessary measures for the coordination of the attack.

b. Coordination is assured further by command and staff visits to subordinates to see that orders are understood and are being carried out.

## Section II. WAR OF MOVEMENT

435. A war of movement is an operational phase offering great freedom of maneuver. Freedom of maneuver frequently characterizes the initiation of hostilities, the opening of a new campaign or a theater, and the exploitation of a successful major attack. During these periods a meeting engagement may result from a collision between two forces neither of which is fully deployed for battle. Utilization of the period of movement to contact, initial contact and subsequent deployment is of vital importance as commanders maneuver their forces to gain a maximum advantage of position before the situation stabilizes.

436. a. During the advance to contact every agency of intelligence, reconnaissance and security is utilized to insure that the main forces are engaged under the most favorable conditions.

b. Reconnaissance aviation is employed to locate and maintain observation of enemy forces. Covering forces, strong in armored cavalry elements, precede and screen the main body whenever the situation permits. This covering force, operating under the direct control of the force commander, in turn precedes its advance by mobile reconnaissance detachments charged with gaining and maintaining contact with the enemy. Reconnaissance and organic aviation operate in close contact with the covering force, furnishing it with the latest information.

c. Behind the covering force the main forces advance on a broad front. Each column precedes its advance with its advance guard, which in turn sends out the necessary mobile reconnaissance elements to the front and flanks. These reconnaissance elements also maintain contact with the covering force. When the main force is not preceded by a general covering force its advance guards normally will be stronger in armored cavalry reconnaissance elements to permit more extended reconnaissance.

437. a. When opposing forces are separated by great distances the covering force normally will advance by bounds. Depending on its mission and the situation it may attack and destroy small parties of the enemy, seize objectives important to the main force

or contain larger enemy units. Airborne or air transported units may be employed in conjunction with the covering force to seize critical terrain features or make early contact with the enemy to restrict his advance. As resistance is developed by the reconnaissance screen, mobile elements of the covering force may be dispatched to strengthen critical localities.

b. Information gained through these initial measures permit the commander to clarify the situation gradually as the main forces approach. Against an aggressive enemy measures must be taken to avoid the defeat of the covering forces before the main force can intervene. Accurate information is essential to prevent the flanks of the covering forces being turned with the result that the main body is taken in flank.

438. a. As contact becomes imminent each advance guard moves forward on a broad front. Based upon the situation developed by the covering force, the advance guard is engaged in accordance with the plan of the commander to extend the action of the covering force, or to seize ground essential to the development of its main body.

b. When a strong covering force has not preceded the advance guard, the advance guard should seize terrain affording the essential observation. Its principal function under these conditions is to take aggressive action to gain the time and space for the development and employment of the main body. The column commanders usually will have had opportunity to communicate to the advance guard commanders their plans for the engagement of the advance guard. At times, when advance information has been lacking, it may be necessary for an advance guard commander to act upon the basis of his general mission.

c. Advance guard actions are characterized by speed and aggressiveness, by broad fronts, and by small or no reserves. The advance guard is reinformed by the attachment of artillery, engineers and armor. Artillery opens long-range fire on enemy columns to force their early deployment, and to interdict the principal routes of approach.

d. These measures, whether taken by the covering force, the advance guard or both, tend to develop the enemy position. The hostile dispositions, particularly the location of his flanks, are important to provide the essential information upon which the commander can base his attack plan. When the security forces lack the strength to develop the situation fully, they may have to be reinforced by elements of the main force to obtain adequate

knowledge of hostile dispositions before the coordinated attack is launched.

439. After the reconnaissance units of the covering force and advance guard are withdrawn they may be employed on the flanks to screen our own dispositions or to execute further reconnaissance or harassing action against the hostile flanks and rear. When suitable reconnaissance missions are lacking, reconnaissance units may be held in reserve or used to protect rear areas from airborne or partisan action.

440. When the covering force encounters strong resistance and the initiative rests with the friendly troops, every effort is made to prevent the enemy from stabilizing the situation. The main body is brought forward by the most expeditious means in one or more columns, protected by its advance guards. Based upon the information obtained the force is engaged rapidly and aggressively to attack the enemy before all hostile units are available for action. In such cases exploitation of intelligence, mobility and terrain may permit attacks upon the enemy flanks and rear before he is prepared to counter these envelopments.

441. a. In accordance with his estimate of the situation, the commander develops the main body and organizes a coordinated attack or strikes directly from march column while organizing a more coordinated blow with the remainder of his force. He may attack when necessary with his whole force from march columns as units become available. Such an uncoordinated piecemeal commitment is to be avoided except when rapidity of action is essential and combat superiority at the vital point can be maintained for the time required to assure success.

b. While the main body is deploying for its attack, units in contact continue to develop the enemy position. Their mission is to determine the strength and dispositions of the enemy and the location of his flanks to provide a picture for a workable attack plan.

442. The commander of each attack unit directs its advance in the assigned zone of action to cross the line of departure at the prescribed hour. Each attack unit reconnoiters its zone of action and supports the reconnaissance elements with its supporting weapons. To keep troops in hand prior to contact, a base unit is usually designated on which other units regulate their advance from one terrain line to the next. Terrain features which af-

ford extended observation, or which are otherwise of tactical importance, are the objectives of each bound.

443. a. Regardless of whether the attack is launched from attack positions or directly from march columns, the method of approach to the hostile position is the same. Each battalion of the attack echelon moves to the most advanced position in which it can make its final preparations under cover from small-arms fire.

b. Whether an offensive battle is the result of a meeting engagement or is based on the attack of an organized position, the conduct of the attack from the time the enemy is engaged until he is defeated is essentially the same. What difference there is exists in the coordination, power, and speed developed in the opening phases.

## Section III. ATTACK OF AN ORGANIZED POSITION

### PRELIMINARY OPERATIONS

444. Ordinarily the defender will attempt to screen his main position and deceive the attacker about his dispositions by the employment of covering forces. A thorough reconnaissance of the hostile position and its foreground is of primary importance. This reconnaissance seeks to determine the location, depth, and extension of the hostile position, the hostile occupation of the position, contaminated areas, including those containing antipersonnel mines, the location of the hostile artillery, and antitank defense, including natural and artificial obstacles. It involves a thorough study of the map and air photographs of the enemy's combat zone, and the use of available air and ground reconnaissance agencies.

445. a. If reconnaissance and advance detachments fail to establish definitely the hostile main position, a reconnaissance in force may be made. An attack is launched against critical points in the enemy's outpost zone to drive in the enemy's covering forces and seize terrain which will permit the proper deployment of the command and afford adequate observation of the hostile battle position.

b. When the leading troops encounter a well organized system of defensive fires of hostile artillery and other supporting weapons, it may be taken as a reliable indication that the hostile battle position has been reached. The leading troops establish themselves on advantageous terrain features and cover the preparation for the attack.

446. During these preliminary operations, ground reconnaissance troops seek to locate the flanks of the hostile position. The leading elements are protected from hostile counterattack by strong supporting fires and by the presence of other units moved to concealed positions within supporting distance. The remainder of the command is held in readiness beyond the range of effective hostile artillery fire. Necessary measures are taken to protect it against air attack and attack by armored units.

447. a. Reconnaissance is continued to obtain information as a basis for the conduct of the attack. This reconnaissance provides more detailed information for the assignment of objectives and serves as a basis for the plan of fire of the artillery and the other supporting weapons.

b. Reconnaissance of the terrain must determine the most favorable routes of approach to the hostile position, the nature and strength of obstacles, location and extent of mine fields, and the possibilities for employment of armored units.

c. Air photographs of the hostile main position are distributed to subordinate commanders.

d. The terrain over which the attack must pass is studied on the ground, from the air, and from air photographs to determine the areas which the defender has organized for defense and which he can cover with defensive fires, and the areas in which the attacker can advance best by fire and maneuver.

e. Artillery conducts reconnaissance to determine the possibilities of artillery observation and fire, and the location of its firing positions and the routes of approach thereto.

448. Determination of the weak points in the enemy dispositions is of vital importance. By fire of artillery and other supporting weapons delivered from different directions, and by feints and raids, effort is made to ascertain the enemy's dispositions and his plan of defensive fires. Against an aggressive enemy a series of attacks may have to be launched before a weak spot is located.

## PREPARATIONS FOR ATTACK

449. a. Preparations for the attack include the completion of the signal communication system, organization of the command for combat, provision for ammunition, rations and other supplies, and the control and coordination of supporting fires of all arms. During this period, combat aviation is employed to gain and main-

tain air superiority and to prevent the movement of reserves and supplies into the area.

b. Preparations for the attack also include measures for the extension of signal communication during the attack, resupply at intermediate objectives or at selected times, relief and regroupment of units at specified times or places, and evacuation of prisoners of war, sick, wounded and dead.

c. All preparations for the attack are completed as far as practicable before the occupation of attack positions. Preparatory measures likely to betray the imminence of the attack are carried out secretly or are deferred as long as possible. Restrictions are imposed on those activities within our front lines and in rear areas which may disclose preparations for the attack to hostile reconnaissance. Strict surveillance is imposed on the use of radio communication.

d. During the preparation special consideration is given to measures designed to insure the continuity of the attack. Adequate provision is made for placing in readiness the necessary material and engineer units to clear paths through mine fields and other obstacles, to assist the advance of tanks and heavy weapons, and for the construction of roads connecting our own system with that of the enemy.

450. a. The plan of attack consists of the plan of maneuver and plan of fire including the support of combat aviation. The commanders of the attack unit, the artillery, combat aviation, and other supporting units make detailed arrangements for coordinating the action of their units to carry out the common mission. Fire plans of artillery and other supporting weapons for the defense of each successive objective are prepared before the start of the attack in order that the reorganization of the attacking troops, after seizing the objective, may proceed with benefit of maximum prepared fire support.

b. In coordinating their plans, it is essential that the supported and supporting commanders carefully study the terrain in which hostile resistance may be encountered and identify the successive intermediate objectives of the attack.

c. An agreement is reached relative to the known targets to be engaged by the artillery, other supporting arms, and the supporting combat aviation. Areas to be kept under surveillance for targets appearing after the attack is launched, especially these targets in adjacent zones which are dangerous to the advance, are agreed upon. Associated commanders must arrange for mutual

reinforcement of fire. If targets along the line of contact are to be engaged, every effort must be made to prearrange the details of attack and provide means of identification.

451. a. Attack unit commanders must receive early information of their assembly areas and zones of action, in order that they may make their own reconnaissance and formulate plans.

b. Attack units usually move at night into assembly areas, preparatory to an attack the next morning. Movement of units into their assembly areas by day generally is practicable only when visibility is poor or when overwhelming artillery and combat aviation are available. With favorable wind conditions smoke screens may be employed to cover daylight movement of units into their assembly areas. When smoke is used it should cover a large area with a haze to prevent drawing hostile artillery fire.

c. When armored elements are employed their assembly areas and routes of approach are reconnoitered, marked, and prepared. Tanks are moved into assembly areas and from assembly areas to the attack at the latest practicable time, in order to conceal intentions and to postpone the unmistakable warning given by the noise of tanks in motion.

452. The first mission of the artillery is to cover the assembly areas and the movement into them by attack units. During this phase, hostile artillery and observation posts constitute its principal targets. The artillery gives special consideration to those measures which will attain surprise and gain fire superiority over the hostile artillery.

453. a. Artillery positions are selected so that fire can be concentrated on the objectives of the attack. Defilade, concealment from air reconnaissance, protection by proximity of supported troops, and proximity to observation are sought. Sufficient time must be allowed for the preparation of firing data, establishment of signal communication, and organization of the artillery ammunition supply.

b. Artillery usually moves into position by echelon. The movement is frequently executed at night. Units assigned to positions screened from hostile air reconnaissance are moved first. The movement of artillery is regulated to avoid interfering with the attack echelon in its occupation of the areas where final attack preparations are made. Long-range artillery is placed well forward to be able to take under fire the most distant echelons of the defender's light and medium artillery.

454. a. During the advance of the attack echelon from assembly areas to attack positions, the hostile artillery constitutes the principal target of our artillery fire. Superiority over the hostile artillery is indispensable for the success of the attack.

b. Located hostile batteries must be neutralized or destroyed early in the artillery action. Their neutralization is maintained by a portion of the artillery in order that the mass may be employed on other missions, until again required for counterbattery fire as new hostile batteries are located. Neutralization of the hostile observation is of great importance in attaining superiority in artillery.

455. a. Artillery fires prior to the hour of attack may be limited to normal fires already in progress or the attack may be preceded by an artillery preparation.

b. The force commander decides whether a preparation is to be fired. He considers whether a sufficient number of remunerative targets will be located in time to prepare the fires, the probable effect of the preparation, the attendant loss of surprise, and the effect on the ammunition supply.

c. The force commander also decides the duration of the preparation. In general, a preparation should be long enough to accomplish the effect sought, but not so long as to permit the enemy to change his major tactical dispositions in time to meet the attack. The duration of the preparation may be governed by the ammunition supply. It may vary from a few minutes to several hours.

456. a. The nature of the artillery preparation depends upon its mission. Concentration of effect is greatly favored by dividing the preparation into phases.

b. The object of the first phase of the preparation is to neutralize the defender's artillery, destroy the most important hostile agencies of command and fire control, isolate the defender's forces from the rear, disrupt assembled hostile mechanized forces, and protect our troops from the enemy's counterpreparation fires. Artillery fire of the first phase comprises counterbattery fire; destruction fire on command posts, observation posts, and signal communication installations; interdiction and destruction fire on enemy routes of communication; destruction fire on mine fields and hostile obstacles; and concentrations on the hostile defense areas and assembled mechanized units.

c. In the subsequent phase of the preparation, sufficient artillery continues counterbattery fire to maintain neutralization of the

hostile artillery. The fire of the mass of the remaining artillery is concentrated on the hostile defense areas. Hostile observation should be covered with smoke to prevent observation of the movements of the attacker and render adjustment of hostile artillery fires difficult. If the terrain does not afford good cover for attacking troops, smoke may be placed upon the forward elements of the defensive position to prevent the enemy from using aimed small arms fire.

457. During the entire preparation, supporting weapons fire on sensitive points in the zone of resistance. Massed air action on the immediate front selected for the main attack may be used to soften resistance. Combat aviation is concentrated against signal communication centers and reserves, with particular attention to artillery and armored units which cannot be covered effectively by artillery. Whenever the situation permits, friendly air strikes in close support should be supported by ground fire on enemy antiaircraft weapons.

## CONDUCT OF THE ATTACK

453. The attack is characterized by the positive action of fire and maneuver, combined and controlled to create a preponderance of force in the decisive direction.

459. The attacking echelon advances from its attack positions so as to cross the line of departure at the prescribed time. Any mass formation of units runs grave risks of incurring heavy losses from hostile fires and air attack. When fire superiority has been gained, the attacking echelon closes to assaulting distance.

460. a. Superiority of fire rests chiefly upon the support of artillery, combat aviation, and other supporting armored or infantry elements, in conjunction with the mutual support of adjacent elements of the attacking echelon. It depends not only on volume of fire but also on its direction and accuracy and the close coordination of all fires with the movement of the attack echelon.

b. Fire effect is increased by enfilade action. Flanking or oblique fire is especially effective when frontal fire is delivered simultaneously against the same objective. A convergent fire forces the enemy to defend himself against attack from several directions and creates a powerful morale as well as material effect.

c. Units seek to gain flanking fire by enveloping action. Flanking fire is also secured through the lateral echelonment of support-

ing weapons with respect to the units they support. Heavy machine guns, from positions in adjacent zones of action, deliver oblique fire over the troops in their front and protect the flanks of troops in the attack echelon. Machine guns of rifle units follow the leading elements closely in order to take advantage of and deliver flanking fire through the gaps along the front. Units which have succeeded in gaining advanced positions deliver flanking fire across the front of adjacent rearward units.

d. Lateral echelonment of artillery for purposes of flanking fire increases the difficulties of fire control and of liaison between the artillery and supported units. The fire of supporting artillery is more reliable and effective when its positions and observation posts are in the zone of action of the supported unit.

461. The attacking echelon advances to assaulting distance of the hostile position under its own and supporting fires. Until the main hostile resistance is broken, attack units advance by bounds to successive terrain features. Fire and maneuver are alternated in such manner that an attack unit, whose advance is made possible by the combined fire of adjacent and supporting units, moves forward to an advanced position, and by its fire from that position assists the advance of the adjacent units.

462. Airborne troops may be employed to seize and hold or destroy objectives which are important to the success of the main attack. These troops may be reinforced by air transported troops.

463. Artillery and other supporting weapons insure continuity of support by displacing forward by echelon, while the bulk remains in position and maintains fire. Fire is lifted successively to more distant targets as the attacking echelon becomes endangered by it. When supporting fires are lifted from the hostile position to permit the attacking echelon to close with the enemy, the loss of this support must be compensated for by the increased fire of the lighter weapons and tank action.

464. a. Artillery supports the attack through the depth of the hostile position by successive concentrations in accordance with the requests of the supported comanders. Concentrations of artillery fire are regulated to bring the greatest possible volume of fire on objectives of decisive importance at the critical moments of the attack. Attack units must follow closely the artillery fires in order to take immediate advantage of artillery fire effect to gain ground to the front. The artillery is prepared for early movement forward to maintain close support as the attack prog-

resses. Essential fire missions of units being displaced are distributed to units in position.

b. Combat aviation can be used during this period to insure the momentum of the attack by prearranged missions against targets which cannot be engaged by artillery.

465. Artillery must employ all means at its disposal (observers, liaison sections, airplanes, radar, wire and radio communication) to obtain exact information on the location of the hostile defensive position and location of the forward elements of the attack. The attacking units must cooperate by employing all means of transmitting information to the artillery. When uncertain as to the location of the attack echelon, direct support artillery takes immediate steps to establish close contact with those elements.

466. a. The primary purpose of close supporting fire is to prevent the enemy from manning his defensive works in time to meet the assault, and to neutralize or destroy those targets which impede the progress of the supported troops. Its progression to successive objectives is arranged between supporting and supported commanders.

b. Other fire is placed on critical points in the hostile position to protect the attack echelon from hostile long-range and flanking fires and from counterattack. It is lifted to correspond with the advance of the attacking echelon.

467. Each attack unit uses the close supporting fires of its artillery and other supporting weapons to close with the enemy and to push on to its successive objectives without deviating from the prescribed general direction of attack.

468. It is desirable that combat aviation support the attack through the depth of the hostile position by concentrated attacks on that part of the front where the attack seeks decisive results.

469. The attacker must not permit the advance to be long arrested by hostile chemical concentrations, or areas containing mines. Contaminated terrain which cannot be avoided is posted and passed with the assistance of gas masks and protective clothing. Mined areas may be posted and bypassed, or breached, by supporting engineers or by organic mine clearing teams.

470. Whether the main attack is based upon an envelopment or a penetration, the battle generally develops into local conflicts along

the opposing fronts. During the course of battle, the combat action of units may undergo a change as between envelopment and penetration. A force that has successfully enveloped the enemy's flank may have to make a frontal attack to defeat a hostile reserve, or may find a favorable opportunity to attack the hostile resistance in flank. In a penetration, once minor resistances have been overrun, the outflanking action of small units is the most effective means of reducing the stronger hostile defense areas.

471. An attack seldom is executed exactly as planned. As long as the enemy has any freedom of action, unexpected difficulties are encountered which culminate in a crisis. The approach of this critical phase of the attack must be recognized by the commander so that timely measures can be taken to shape the course of action to secure a favorable outcome.

472. As the attack progresses, more control of necessity will have to be decentralized to subordinate commanders to permit them to meet the rapidly shifting situation. Means must be provided these commanders to permit execution of the mission assigned them.

473. Every means of signal communication including reconnaissance aviation must continue to inform commanders concerning developments farther in rear of the battle front, such as shifting of hostile reserves, arrival of reinforcements, and any indication of any enemy withdrawal. From these reports and other information, commanders direct the movements of reserves toward those portions of the hostile front that offer the greatest prospects for decisive success. Combat aviation and artillery may be effectively employed to attack enemy reserves and counterattacking forces.

474. In an attack of a stabilized front, the approach has already been effected and the attack opens with a coordinated assault. The hour of the assault is fixed by the commander of the whole front from which the assault is to be launched. The exact day and hour are kept secret until the latest practicable moment. Subordinate commanders must be afforded sufficient time for reconnaissance and briefing of units.

475. On a stabilized front, more detailed information of the enemy's defensive dispositions usually is available. The completeness of information will depend upon the length of time the front has been stabilized and the efficiency of intelligence meas-

naissance, conducted in such manner that the appearance of normal activity is maintained. Information is disseminated in the form of intelligence summaries, maps, and annotated air photos.

## THE ASSAULT

476. a. Against a strong resistance and well-organized defense, the commander will prepare the assault by concentrating the fire-power of all supporting weapons to neutralize the enemy and wear down his power of resistance before launching the assault. The commander of the unit will notify the supporting weapons, by a prearranged signal, or other means, that he is about to assault. The intensity of supporting fires is increased. Under cover of the supporting fire, the assault unit advances close to its objective. When the supporting fires are lifted from the objective, the assault unit overruns the hostile resistance.

b. Any delay in launching the assault after the fires lift allows the enemy to man his defenses. A series of brief lifts and resumptions of fire prior to the final lift preceding the assault will tend to discourage prompt manning of the defenses. In favorable situations tanks operating under artillery air bursts may be employed in advance of infantry.

## CONTINUATION OF THE ATTACK

477. a. After the assault of an organized position, the attack often breaks up into a series of separate engagements which are continued throughout the depth of the hostile position. These engagements are directed by subordinate commanders within their zones of action and are supported by all the means at their disposal. The first task is to capture assigned objectives. Areas of resistance are reduced by fire, overrun or outflanked.

b. Reserves usually are disposed in positions from which they may best be employed to exploit a success or to protect the flanks of the attacking units. All reconnaissance agencies search for probable assembly areas of hostile reserves, so that enemy preparation for the counterattack may be broken up by artillery fire and air attack. As the attack progresses each intermediate objective is promptly organized for defense and held until the attack is continued.

473. a. Road conditions, the possibility of maintaining ammunition supply, and the enemy's reaction following our successful

assault determine when and in what strength the artillery will be moved into advanced positions. Artillery executes its missions with the fewest possible changes of position. Frequent changes of position reduce the volume of fire support. The occupation of new positions and renewal of fire require considerable time. Nevertheless, change of position should be made unhesitatingly when fire effect or deficiency in liaison with the attacking echelon requires it. Changes of position generally are affected by echelon after timely reconnaissance of advanced positions.

b. Artillery promptly fires upon enemy troop assemblies, troops forming for countrattack, and on any rearward position on which the enemy attempts to reconstitute his defense.

479. a. If the tide of battle turns against the enemy, he may endeaver to disengage his forces and renew the defense on a rearward position, or he may fight a delaying action until battle can be renewed under conditions more favorable to him. Ordinarily, it is to be expected that the enemy will strive to hold out until nightfall and effect his withdrawal under cover of darkness.

b. The enemy may disclose his intentions to withdraw. Attacking troops must exercise great vigilance in observing the conduct of the enemy in their front, press their attack with energy, and maintain close contact with him. Reconnaissance aviation searches the rear areas for indications of retrograde movements of artillery and trains.

430. a. If the enemy succeeds in withdrawing his major forces from action, the commander intensifies reconnaissance to obtain the necessary information upon which to decide what line of action to follow. Aggressive action may prevent the enemy from reconstituting his defense on a rearward position. If the enemy succeeds in occupying a new position during darkness, it may be necessary to delay a renewal of the attack in force until daylight.

b. It may be of great advantage to regroup the attack forces during the advance to the new position and launch the main attack on another part of the front. Effort is made to exploit the moral ascendency by a quick and powerful blow before the enemy can reconstitute his defense. The action of armor and combat aviation at this time may be decisive.

81. If the enemy is fighting a delaying action on an extended front, the objective ordinarily will be attained more quickly by concentrating on a decisive part of the front and attacking with energy and dispatch. An attack pushed deeply and energetically

through the hostile front may isolate strong hostile elements and force the enemy to an early evacuation of the whole line.

482. In case of a break-through, armored units penetrate deeply into the hostile position and attack the enemy's reserves, artillery and command and communication centers. The gap is widened by attacking its flanks. Other mobile forces are sent through the gap to exploit the advantages gained and to attack the enemy in rear and prevent his escape. At this time the maximum efforts of combat aviation should be concentrated in cooperation with the ground forces in exploiting the break-through.

483. When the attack does not reach its objective or does not break through the hostile position during the day, the leading elements of the infantry intrench at the points reached. If possible, reserve units pass through these leading elements to continue the offensive by night attack. By attacking in depth, a commander can maintain continuous pressure day and night, and thereby can keep the enemy off balance. At the same time, the enemy's fatigue is greatly increased with resultant decrease of his effectiveness. When a night attack is impossible, the night is utilized to reorganize and resupply. Units also may be relieved to facilitate continuation of the attack the following day.

## RELIEF OF COMMITTED UNITS

484. In offensive combat it may be necessary to relieve units in contact with the enemy by executing a relief in place or a passage of lines. Either of these operations may be desirable in order to continue the momentum of the attack with fresh troops, to change the direction of the attack, to exploit a weakness in the enemy position with reserve forces, or to initiate an offensive on a front where stabilization has existed.

485. When a relief in place or a passage of lines is to be made, warning orders are issued by the commanders of the higher unit, the relieving or unit passing through, and the unit to be relieved. Warning orders include—the approximate hour the movement for the relief or passage of lines is to begin; the zones in which relieving or passing units are to operate; and the restrictions imposed upon reconnaissance parties as to size, routes, and hours of operation.

486. Personal reconnaissance by the commander and staff of the relieving or passing unit, and prior conferences with the commander and staff of the relieved unit are highly important.

487. A plan is formulated and orders are issued covering the movement of relieving or passing units. Fundamentally, either operation is the same as the development of a command for combat. In the preparation of the plan, restrictions imposed by higher authority because of other traffic in the zone of advance, the greater road spaces that may be required because of increased distances between units, the road net, and the practicability of cross-country movement must be considered. The plan must be flexible as to times and routes of movement. The size of the unit involved and the speed with which the relief or passage must be conducted will govern the thoroughness with which the details of the plan are prepared.

488. In accordance with the plan of the higher commander, commanders and staffs of both the relieving or passing units and relieved units arrange and agree upon such details as guides, use of roads, fire support to be furnished for the incoming troops by the unit to be relieved or passed through, transfer of the existing signal communication system, administrative matters, and the condition under which command passes to the relieving or passing unit.

489. Units to be relieved or passed through furnish guides. Individuals selected as guides should be capable and carefully rehearsed in their duties. They meet the relieving or passing unit before it enters the area and conduct it to assembly areas. Whenever possible, guides are furnished for units down to and including the platoon.

490. To disclose the fact that a relief in place or passage of lines is in progress invites heavy bombardment by air and artillery, a counterattack, or both, at a time when congestion and traffic circulation are doubled. Woods, fog, and defilade are utilized in the approach when the relief or passage is made in daylight. Smoke is placed on hostile observation posts and hostile forward elements. Mobility, ruses, feints, and demonstrations are exploited.

491. For reliefs in place on a scale large enough to require more than a single night, troops and transport of the relieving unit are concealed during periods of good visibility. The relief is carried out by echelon from rear to front, front-line units being the last elements relieved.

492. a. The plans for executing a relief in place must be in harmony with the plans for continuing the attack. It may be desir-

able that the positions of the relieved unit be occupied by a portion of the relieving unit in order to make the remainder of the relieving unit available to organize for the continuance of the attack. To relieve in place and attack with the same troops may take the relieving troops out of the desired attack formation.

b. The time of execution of a relief depends on such factors as characteristics of the enemy, weather, terrain, and air superiority. Front-line troops should be relieved in small groups and infiltrated to the rear. When the relief is executed in darkness, troops relieved are withdrawn promptly from the zone of action. Artillery of the relieved unit, and frequently other supporting weapons should be held in position to support the attack when resumed.

493. During the course of the relief in place, artillery maintains its normal fires, but is prepared to execute counterbattery and protective fires along the front of the relief in the event of an attack by the enemy. During a night relief, artillery fires may be so timed as to conceal noise of vehicles moving into position.

494. The execution of the relief in place is under the direction of the commander of the unit being relieved. He remains responsible for the defense of the sector until the relief has been completed. The actual passage of command takes place upon agreement between the commanders concerned with approval of higher headquarters.

495. The principal task involved in a passage of lines is in the preparation for continuing the attack. Where both units involved are infantry, the incoming commander will normally assume command of the zone of action before his troops reach their attack positions. Normally the time interval between the commencement of a passage of lines and the initiation of the attack is brief and allows little time for any readjustment of his troops by the relieving commander prior to the attack. The time factor plus the necessity for strict fire control makes the passage of command desirable at an early stage in the operation.

496. When executing a passage of lines at night, and the exact location of forward elements to be passed through is known, the line of departure for the attack is the line held by the forward elements. When the exact location of the most advanced elements of the unit to be passed through is unknown, the line of departure must not be forward of the line held by the most advanced elements whose location is known. In daylight, terrain permitting, a line of departure between the forward elements to be passed

through and a covered position close in their rear may be better than a line coinciding with the front-line element.

497. Lightly held positions and gaps in the front lines of the unit which is passed through should be utilized by the passing unit to the greatest extent consistent with its scheme of maneuver. This is particularly true when armored elements execute the passage of lines.

498. a. The passage of a major armored unit through an infantry element frequently will occur after a break-through of an organized position by the infantry. In any case a passage of lines by armor through infantry involves certain differences inherent in the characteristics of armor.

b. Normally a passage of command in the zone involved is unnecessary in view of the different missions of the units. Close coordination is essential between the commanders concerned. Liaison officers may be exchanged between the armored and infantry units.

c. In view of the length of the armored columns, every measure must be taken to expedite the passage. Detailed coordination between the participating units must be arranged. This includes the coordination of fires. Priority on roads must be assigned to the armor without crippling the traffic essential to the support of other units. The infantry units holding the sector may have to readjust their positions to facilitate the passage. Usually, because of the difficulty of operating armor at night, the operation is executed in daylight on a relatively narrow front.

499. Regardless of whether a passage of lines is executed in daylight or darkness, the units in contact and the artillery passed through remain in position and furnish all possible fire to support the attacking unit. When the attack has progressed far enough to prevent undue casualties to the relieved troops, they are assembled and reorganized.

## Section IV. ATTACK FROM THE DEFENSIVE

### PLANNED DEFENSIVE-OFFENSIVE

500. a. A commander with an offensive mission may decide to assume the defensive initially because of temporary combat inferiority or to create a situation which will place the enemy at a tactical disadvantage and offer opportunity for a decisive counteroffensive. In either case, an early resumption of the offensive to

attain the objective is contemplated. By inducing the enemy to attack first, the commander hopes to fix and exhaust him and then, when he is disorganized, to launch the counteroffensive. (See ch. 9).

b. This type of action demands the highest type of leadership and tactical skill and troops with a high order of training. The major problem for the commander lies in timing the attack.

501. Organization of the ground may not be as complete as is required for a protracted defense. Larger reserves also may be maintained, concealed in a position favoring the execution of the contemplated counteroffensive.

502. Once the purpose of the initial defense has been accomplished, the counteroffensive is launched. Thereafter, the conduct of the action is that of the attack.

503. a. A defending force frequently has an opportunity to adopt the offensive. When a general counterattack launched by the defender throws the attacker back following an apparently successful advance, or when a hostile attack breaks down, the enemy seldom will be able to withstand a determined counteroffensive.

b. The enemy artillery fire still may be superior but his attacking echelon will be disorganized. If the defender seizes the initiative and passes to an offensive before the attacker can recover from his disorganization and can properly dispose and employ his reserves, results often are decisive. The defense must be prepared to pass to the offensive and exploit the result of successful defensive action.

504. The general doctrines governing the preparation for and conduct of an attack are applicable to the counteroffensive.

## Section V. PURSUIT

505. The pursuit is launched when the enemy is no longer able to maintain his position and endeavors to escape. A commander recognizes a weakening enemy by the continued advance of his troops in a decisive direction; the capture of critical objectives; by the number and morale of captured prisoners; by the number of abandoned weapons; by the number of hostile dead; by the diminution of hostile artillery fire; and by the diminution or cessation of hostile countermeasures.

506. When a commander recognizes that the enemy is having difficulty in maintaining his position, he utilizes all means to maintain

the continuity of the attack and to exert a relentless pressure on the defeated enemy.

507. Effective pursuit requires leadership and exercise of initiative to the highest degree in all echelons of command. All commanders in the attack echelon spur on their troops and clinch the advantage with their reserves. Pursuit of a defeated enemy is pushed to the utmost limit of endurance of troops, vehicles, and other transportation. Abandoned enemy matériel is promptly put into use to augment that of the pursuing force or to replace losses. No opportunity is given the enemy to reorganize his forces and reconstitute his defense.

508. a. The object of the pursuit is the annihilation of the hostile forces. This seldom can be accomplished by a straight pushing back of the hostile forces on their lines of communications. Direct pressure against the retreating forces must be combined with an enveloping or encircling maneuver to place troops across the enemy's lines of retreat. Encirclement of both flanks of the retreating forces or of their separate elements is attempted wherever conditions permit.

b. Armored forces are particularly suited for this purpose. At times the objectives assigned such armored forces may be other than the pursuit of the beaten force. Such objectives can only be assigned when the attacker's margin of superiority warrants the early assignment of an exploitation mission other than the destruction of the hostile force.

c. By the coordinated employment of every available agency of destruction and terrorization, the shaken morale of the defeated enemy is converted into panic. The incipient dissolution of his organization is transformed into rout.

509. In anticipation of launching a pursuit, the commander causes preparatory measures to be taken. These measures include necessary plans and orders in all echelons. Reserves are regrouped and motorized. Artillery and engineers and other necessary units are attached to the direct pressure forces for the pursuit. Engineer combat units are placed well forward in columns of direct pressure forces to facilitate rapid stream crossing. Distant objectives are assigned to the principal tactical groupings. Missions are assigned to the field artillery in general support to obstruct movement on hostile avenues of withdrawal. Combat aviation is employed against those targets of opportunity and other objectives which will contribute most to the success of the pursuit.

510. The pursuit is conducted on a broad front. Motor transportation, including transportation captured from the enemy or abandoned by him, is employed to expedite the movement of foot troops. Troops before whom the enemy is giving way send in their reserves to gain his flank and rear or to break through his covering troops.

511. The forces engaged in the direct pressure and in the encircling maneuvers are assigned directions, zones of action, and objectives designed to bring the pursuit to a decisive conclusion. Such directions and zones of action may be around the flanks or through the wider gaps which defeat has opened in the hostile dispositions, or may be a continuation of the existing zones of action.

512. Combat aviation concentrates on critical points on lines of communication in the enemy's rear area, on hostile columns in retreat, and on hostile reserves endeavoring to reconstitute the defense. It attacks defiles on the enemy's line of retreat and disrupts traffic on the main roads and railroads in the enemy's rear area. Reconnaissance aviation reconnoiters vital points along the roads in the enemy's zone of retreat to keep contact with retreating columns and to locate any movement of hostile reinforcements, and keeps ground commanders informed of the hostile activities and movements within their zones of action.

513. a. The enemy's attempts to organize his retreat under the cover of darkness must be frustrated. Under no circumstances is he allowed to break contact. Units which have advanced without serious opposition continue their march during the night. Other units organize successive limited objective attacks against the enemy in their front.

b. During a night pursuit, the leading detachments push their advance along all available roads, followed by the main pursuing forces. The attached and supporting artillery advance by echelon, going into successive postions from which they can interdict the enemy's routes of retreat by map firing or by fire directed by observers which accompany the leading detachments. Prompt report is made when objectives are reached so that artillery fires may be coordinated.

c. Combat aviation searches enemy routes of retreat with flares, and attacks enemy columns and critical points in the enemy's rear area.

514. a. The employment of artillery is based upon the maximum exploitation of the mobility of lighter pieces and the long range

of the heavier types. So long as the withdrawing enemy can be engaged with observed and planned fire, a portion of the artillery remains in position to fire on the more distant targets.

b. The artillery attached to the pursuing forces, in addition to its supporting action, fires on hostile elements attempting to form columns in rear of the enemy's covering troops, and gradually takes over the missions of the artillery in process of displacing forward.

515. a. The purpose of the encircling maneuver is to get in rear of the defeated enemy and block his retreat so that he may be destroyed between the direct pressure and encircling forces.

b. When practicable, mobile forces, in the encircling maneuvers, advance along roads paralleling the enemy's line of retreat to cut him off at defiles, bridges, and other critical points. When the encircling forces cannot outdistance the enemy, they push through to a critical locality and engage the enemy's main forces in flank.

c. Armored and motorized units are employed in the encircling maneuvers and combat aviation may be coordinated with these maneuvers. The employment of airborne troops to seize defiles or other critical terrain objectives deep in the hostile rear, pending the arrival of more powerful mobile encircling forces, may contribute decisively to a successful pursuit.

516. a. The advance in the decisive direction must be maintained. Hostile rear guards or forces on flank positions must not turn pursuing forces from the decisive direction. Every effort must be made to block the main hostile force. When necessary, a new encircling force to continue the pursuit is constituted.

b. When the enemy succeeds in establishing himself in a position from which he cannot be passed or disloged quickly, the commander takes prompt measures to coordinate the attack again, supporting it with all available means.

517. Pursuit requires extensive reliance upon radio for communication with the leading troops. The construction of wire lines is concentrated along the more important axes. Command posts or advance message centers are established close behind the leading troops. Light aircraft are a valuable means of observation, communication, and liaison.

518. Adequate provision for the supply of ammunition and motor fuel to the pursuing troops is essential to the success of the pursuit. Every opportunity must be seized to augment supplies of all

kinds from captured or abandoned stocks. The commander endeavors to relieve the pursuing columns of all worries concerning supply and evacuation. All available transport, including air, should be utilized to assist in supply and evacuation.

## Section VI. SECURITY IN THE OFFENSIVE

519. Success or failure of an offensive is dependent in a large measure upon the action taken to protect the command from hostile reaction. Open flanks are highly vulnerable. The best security is to keep the enemy so heavily involved that he has not time or means available to endanger the success of the attack. Security of attack forces is assured by a timely search for information in all directions from which a hostile threat may come, by the proper disposition of security forces of ample mobility and combat power, and by prompt dispatch of accurate information and orders to security forces. This is particularly true in security against hostile forces of great mobility such as air, motorized, and armored units.

520. In offensive operations, the mass of available means for defense against air and armored attack is disposed to favor the main attack. The combat means for defense against air attack are supplemented by utilization to the maximum of cover, concealment, camouflage, defilade, dispersion, and night movements. The combat means for defense against attack by armored forces are supplemented by utilization of natural and artificial obstacles to protect the flanks and rear of the command, by dispersion, and by night movements.

521. Antitank weapons in each echelon of troops are disposed to cover the most likely avenues of approach of hostile armored units. Protection against an armored attack is best assured by armored reserves and by obstacles located on likely avenues of approach. These obstacles must be strengthened by demolitions and mines and protected by mobile antitank weapons supported by every available and effective means of fire support, particularly that of artillery. Such action isolates and destroys the hostile armored forces.

522. In offensive operations, the greatest need for security exists during critical phases of the battle. Security is enhanced by meeting possible threats with heavy fire before they can develop. The action of combat aviation against threats is particularly effective, especially if hostile troops or vehicles are in close formation.

523. As in earlier stages of the advance, reconnaissance missions by combat aviation constitute an important security measure. Armed reconnaissance missions both distant and close are charged with obtaining information of vital security importance. Missions flown just prior to darkness or immediately after daylight are frequently advisable. Where observation of specific areas can be indicated, night missions are justified and at times mandatory. (See ch. 6.)

## Section VII. TERMINATION OF THE OFFENSE

524. a. An offensive action once begun is halted only by hostile reaction or by other elements in the situation which demand it. If, during the course of an attack, it becomes necessary to pass to the defensive, the leading foot elements entrench themselves on the ground held. The leading echelon then is thinned out and forces are redistributed to organize the defense in depth. It may be necessary to move some elements to the front or rear for short distances to establish the defense on favorable terrain and secure flanking fire. Since any major adjustments attempted in daylight will probably result in heavy casualties, the general position of attacking units is maintained until darkness, when the selected defense position is occupied and organized.

b. If the situation demands major adjustments in daylight, they are accomplished under protection of smoke, and maximum fire support by artillery and other supporting weapons. Combat aviation may be employed in coordination with the other forces.

c. After an objective is taken, the enemy may attempt to retake the positions by one or several counterattacks during the period when fatigue and disorganization render the position vulnerable. Reaction by the enemy must be anticipated and measures promptly taken to consolidate the position and reorganize the units. Provisions made to defend the newly gained ground will include the maintenance of contact with the enemy, the establishment of observation posts, posting of observers for field artillery and other supporting weapons, the organization of a counterattacking force, and the avoidance of undue relaxation after a successful attack.

525. If, during the course of an attack, it becomes necessary to break off the action and withdraw, the command initially passes to the defensive. The completeness of the defense is dependent upon the situation and whether the initial defensive and the withdrawal must be executed in daylight or darkness.

# CHAPTER 9

# THE DEFENSIVE

## Section I. ORGANIZATION FOR DEFENSE

### GENERAL

**526.** **a.** The general object of defensive combat is to gain time pending the development of more favorable conditions for undertaking the offensive, or to economize forces on one front for the purpose of concentrating superior forces for a decisive action elsewhere.

**b.** Under the first of these objects, a commander may assume the defensive pending the arrival of reinforcements, or he may be thrown on the defensive by inferiority in numbers, disposition, or training. He may take up a defensive position and invite attack as part of a deliberate plan to win the battle by a counteroffensive.

**c.** Under the second object, the defensive usually is expressed in the mission received from higher authority. This mission may be to hold a vital area pending completion of the maneuver of other forces, to protect a flank, or to contain an enemy force while an offensive is being conducted on another part of the front or in another theater. Defensive measures always will be taken, in the absence of specific instructions, when an attack has reached its objective or is unable to continue the advance.

**527.** Defensive doctrine contemplates the selection and organization of a battle position which is to be held at all costs. Forward of that position maximum use is made of covering forces to delay and disorganize the advance of the enemy and deceive him as to the true location of the battle position. Strong reserves are held out to destroy the enemy by counterattack if he penetrates the battle position and after the momentum of the attack has been spent. See paragraphs 684 to 651.

528. a. The mission, the situation, including the enemy capabilities, and the terrain, influence the choice of localities and the type of defense adopted.

b. The position on which battle is offered must conform to the object of the defense and should facilitate future maneuver without jeopardizing the success of the defense. It must force the enemy to a direct attack or a time-consuming maneuver. A position that can be avoided readily has no defensive value. A position on the flank of the hostile route of advance is effective only if it compels the enemy to change direction and attack it in force rather than to contain and bypass it.

529. Reconnaissance of the position is as detailed as the time and situation permit. It includes a study of the principal routes available for hostile approach, terrain available for hostile observation, and the avenues most advantageous to the hostile attack. A study of the terrain on which the enemy must carry out his attack will give valuable indications of his possible assembly areas, the location of his artillery, the terrain favorable for attack by his armored units, and the area most advantageous for his main attack.

530. If contact with the enemy has not been made, the commander ordinarily is free to make a detailed reconnaissance of position, select the terrain on which to defend, and decide on the best distribution of troops. Every means is employed by the commander to expedite completion of plans, and issuance of orders to subordinates so that troops are held a minimum of time in assembly areas.

531. Basing his action on his mission, his personal reconnaissance, the reconnaissance reports of his subordinates, and the available information of the enemy and friendly forces, the commander forms an estimate of the enemy's capabilities and the probable front of hostile attack. He also makes his decision regarding the location of the main line of resistance, the employment of the artillery and other supporting weapons, the assignment of sectors, the strength and location of the general reserve, the defenses against armored attack and hostile aircraft, and other measures necessary for security. Successive reconnaissances by lower commanders fix on the ground the distribution of smaller units and the location of their combat emplacements. Exact information as to the location of the main line of resistance is furnished to all supporting forces including artillery and air.

532. a. In the hasty assumption of the defensive from a march formation, reconnaissance is executed concurrently with the development of subordinate units within their assigned areas. Dispositions of troops and weapons are coordinated by the senior commander as the situation continues, so as to complete the integrity of the defense as early as possible.

b. Depending on the mission and the situation, it may be advisable for a commander initially to attack in order to seize terrain to his front on which to organize the battle position. In other situations he may employ a covering force, organizing the battle position on terrain in rear.

533. Continuous reconnaissance and observation of the enemy's dispositions are conducted to secure the earliest possible indications of the offensive preparations. Air reconnaissance may provide, either by visual or photographic means, the information concerning the situation in rear of the enemy's leading elements.

534. a. The character of the terrain exercises a decisive influence on the selection of position. Ridges and valleys, generally parallel to the front of advance, constitute obstacles to the progress of an offensive and are natural lines of resistance for the defense. Such ridges often afford observation and fields of fire favorable for a defense in depth.

b. Natural obstacles such as river lines and swamps are important factors for consideration, particularly since the situation normally will involve protective measures against armored units, or other mechanized forces.

c. Commanding elevations and ridges delimit the compartments of terrain and form the framework of the system of observation, command, and fire control in combat. They determine directly the location of the observation posts and positions of the artillery and other supporting weapons, and indirectly the location of defensive positions and assembly areas. Level ground or long uniform slopes afford better fields of fire for the flat trajectory weapons of the defense but also favor armored action.

535. a. The battle position is so selected as to use the terrain to the greatest advantage. The extent of the position must be appropriate to the available troops.

b. The most important terrain factors are adequate field artillery observation, good fields of fire, concealment from hostile observation, and the presence of natural obstacles. The relative

importance of these terrain factors depends upon the strength, composition, armament, and mission of the defending force, together with a consideration of the enemy's composition and capabilities.

536. a. In selecting the forward limit of the battle position, the defender seeks terrain which will permit the most effective employment of the fires of field artillery and other weapons. Clear fields of fire for small arms are important and usually lead to the location of the main line of resistance on a forward slope. Considerations of concealment and the ability to escape the annihilating effect of enemy observed fire, particularly from direct fire weapons may, however, dictate the selection of a reverse slope position. The occupation of a reverse slope position may contribute heaviiy to the gaining of surprise. Such a position is practicable when possession of the crest to the front is not essential to the observation of fire or when the forward slope is otherwise unsuitable for defense.

b. When the forward limit of the position is on the forward slope, the defense areas of front-line battalions may be extended to the rear to include the reverse slope. When it is located on the reverse slope, front-line battalions establish detachments on the forward slope to observe and direct fire upon the enemy and to give timely information of his dispositions and movements.

537. a. Observation to the limit of range of the weapons is desired in front of the main line of resistance, as well as within the battle position. Adequate observation posts for supporting weapons are essential. The battle position must be so located that essential observation will be retained even though the enemy succeeds in penetrating the position.

b. Maximum advantage is taken of natural and artificial obstacles covered by antitank weapons as well as other weapons effective against personnel to stop attack by armored units or limit the directions of their movement. Towns, villages, and cities give considerable additional strength to a defensive position against armor. They are vulnerable to air attack, however, especially by incendiary bombs.

538. All parts of a position will not have the same defensive strength. Avenues of approach which enable the attacker to reach the position under concealment or cover are sources of weakness. These avenues of approach may, however, be unsuited for enemy attacks. Clear fields of fire over which the enemy must

advance for some distance under the defender's fire are sources of strength in a defense against foot troops, but may furnish excellent terrain for hostile armored attack. The defender must be prepared to meet any form of attack even though the terrain may not be favorable.

539. A position combining all defensive advantages will seldom be available. The weak points of a position are strengthened. A short field of frontal fire is compensated by dense flanking fires and heavy mortar and artillery concentrations; exposure to hostile observation is offset by distribution in depth and construction of dummy works. Persistent chemical agents, demolitions, and mines can be used effectively to strengthen exposed flanks and to contaminate and block covered avenues of approach leading into the position.

540. Positions on forward slopes are difficult to screen from hostile observation. Irregularities in the ground make it difficult to establish continuous bands of flanking fire with flat trajectory weapons. Troops occupying these positions may be subject to observed direct and indirect fire. On the other hand, positions on forward slopes may permit observed fire at long ranges on an approaching enemy. Reverse slopes may afford a good field of fire for automatic weapons against an enemy clearing the crest or against an enemy advancing up the forward slope of an adjacent hill. It often is possible to combine the advantage of forward and reverse slopes, occuping the forward slopes in strength at night, and occupying them with a skeleton force with automatic weapons during daylight.

541. The defense, no less than the offense, must effect surprise. The organization of a defensive system must not betray the defensive dispositions. Every available means must be employed not only to mislead the attacker as to the location of the position but also as to the strength and disposition of the defending force. These means include shifting, during lulls, those weapons whose positions were disclosed in repelling attacks. Deception, delay, and security are obtained through the use of covering forces.

542. Corps and division reconnaissance elements, reinforced as necessary by motorized infantry, armor, artillery, and engineers, seek especially to locate the mass of the hostile force. They may be employed as a mobile covering force, or to harass the enemy flanks and rear. Reconnaissance aviation is employed to augment

the reconnaissance in depth and to locate and make timely reports of hostile movements. During battle, reconnaissance and security missions are continued, especially to the flanks.

## SECURITY

543. Prompt and continuing security measures are taken in those directions from which the enemy is capable of attacking. Measures for counterreconnaissance are taken by all troops and agencies in order to screen from the enemy the preparations and dispositions made for defense.

544. The enemy will seek to avoid disclosing the distribution of his forces and the front of his main attack until his deployment is completed. The defense must gain contact with the enemy at the earliest opportunity and maintain such contact in order not to be taken by surprise. Every available means of reconnaissance is employed to locate the enemy and determine the direction of his advance and the distribution of his forces. Additional information relating to the outlines of the enemy's dispositions and the direction of his main attack are sought during the delaying action of the security forces. Available air support is employed to the maximum.

545. Friendly aviation, general covering forces, the general outpost, the combat outpost and other local security measures of forward elements of the battle position comprise the usual security echelons to the front. Conditions may preclude the employment of all these means, but in a deliberate defense, a commander must provide security elements within the means available.

546. Security forces have the mission of providing early warning of the approach of hostile forces, of providing time for the main force to prepare for combat, of forcing early deployment of the enemy, of deceiving him as to the exact location of the main battle position, and of observing the enemy's advance.

547. Troop units for the advance covering forces will generally be designated and controlled by the higher commander while the general outpost will be furnished by divisions or comparable elements assigned sectors on the main battle position. Combat outposts are usually furnished by lower units assigned to the main line of resistance.

548. a. Whenever practicable, an advance covering force is employed in front of the general outpost. The mission of this cover-

ing force is to provide early warning of the approach of a hostile force and to inflict the maximum delay on the enemy. Its use permits the defender to utilize advanced artillery observation, the laying of mines, demolitions, and obstacles in front of the outpost and the battle position. Similarly, such forces may be employed on exposed flanks.

b. The advance covering force should be mobile. The use of armored and motorized units including engineers is desirable. The force should have strong artillery and antitank support. Organic artillery may be reinforced by artillery from the main force, emplaced in advance of the battle position.

c. The advance covering force fights delaying action in its withdrawal. Unless the mission requires it, serious engagement with the enemy is avoided.

549. a. Natural terrain obstacles, such as water courses, heavily wooded areas, swamps, and any restricted avenue of approach are particularly favorable areas for the operations of advance covering forces.

b. The initial position of the advance covering force and the terrain between this force and the outpost are organized to the extent practicable in the time available.

550. a. The location of the general outpost is influenced by the terrain and our own dispositions. The position selected should deny the enemy ground observation of the main battle positions; it should afford superior observation, good fields of fire, and obstacles.

b. The mission of the general outpost is to provide early warning of the approach of a hostile force; provide time for the units in the main battle position to prepare themselves for combat; to force early development and attack by the enemy, delaying him and disorganizing his formations; and to deceive the enemy as to the exact location of the main battle position.

551. a. The general outpost garrison usually consists of infantry reinforced with armored units and engineers. According to its location, it may be supported by artillery fires from the main battle position or may have artillery attached to it.

b. The general outpost line of resistance, and the ground to the rear when appropriate, are organized for delaying action. Since the sectors assigned units will be relatively wide, maximum use of natural and artificial obstacles, mine fields, demolitions, and

long-range fires is indicated. Unless required by the mission, the general outpost does not accept close combat.

552. a. The foreground of the battle position is occupied by combat outposts detailed from each battalion holding a sector of the main line of resistance.

b. The mission of the combat outposts is to provide local security and gain time for troops responsible for the defense of the main line of resistance, and to deceive the enemy regarding where the main resistance is to be enountered. As long as the general outpost position is held, combat outposts may be relatively weak. The approximate strength of combat outposts may be directed by the higher commander. Prior to contact, combat outposts screen the units along the main line of resistance from infiltrating enemy patrols. Combat outposts will ordinarily not be established beyond the effective range of the light field artillery of the battle position.

c. When battle is interrupted by nightfall, combat outposts push their patrols forward in close contact with the enemy. The action of the combat outposts in adjacent sectors is coordinated by adjacent and higher commanders.

553. a. As each in turn is forced to withdraw under hostile pressure the covering forces and outpost conduct a delaying action. The withdrawals involved must be coordinated to insure effective covering fire from friendly troops. Prearranged signals, previously designated routes of withdrawal, and full use of signal communication means facilitate this coordination. Every effort is made to deceive the enemy as to the exact location of the battle position. The development of a heavy volume of fire, close range artillery support and withdrawals around the flanks, and hence at an angle to the trace of the battle position are among the means which facilitate both withdrawal and deception.

b. After the combat outposts have been forced to withdraw and the battle position is uncovered, battalion commanders provide local security for the battle position whenever the situation permits, such as during intervals between assaults.

## MAIN BATTLE POSITION

554. a. The defense is built around a series of organized and occupied tactical localities. These tactical localities are selected with consideration for their observation and natural defensive strength

so that their retention will insure the integrity of the position. The main battle position comprises a zone of resistance consisting of a number of mutually supporting defense areas disposed irregularly in width and depth, each organized for all around defense with trenches, fox holes, obstacles, and emplacements. Tactical unity is maintained in each defensive area.

b. A line joining the forward edge of the most advanced organized defense areas is called the main line of resistance. It is a planning line in front of which the field artillery and other supporting fires must be able to concentrate. The contour of the main line of resistance is thus irregular in trace, with elements on it sited for frontal and flanking fire.

555. The distance between successive echelons on the battle position should permit effective mutual support between adjacent defense areas. Defense areas should not be so close as to result in any area falling into the zone of dispersion of artillery fire directed against another. This distribution in depth diminishes the effect of hostile fire, provides for continuity in defensive fires, and provides for movement against the enemy, even though he succeeds in penetrating into the battle positions.

556. The natural defensive strength of the position has a direct bearing upon the distribution of troops for its defense, both as to frontage and depth. The all around defense of mutually supporting vital tactical localities is of paramount importance. Portions of the front which have great defensive strength can be held with fewer men, or units can be assigned wider sectors. Some portions of the front may remain unoccupied yet be held effectively by a combination of firepower and obstacles. Close terrain requires a greater density of troops forward toward the main line of resistance.

557. The width of sectors assigned to infantry units varies with the natural defensive strength of the various parts of the position; the relative importance of the sectors; the degree of control required; the number, strength, and weapons of units available; and the estimate of enemy capabilities. The necessity for control and the character of fields of fire affect the intervals which may be permitted between tactical localities. Some variation in the width of sectors may arise from the necessity for adjusting them to fix responsibility for defense of critical terrain. Economy of force is obtained by assigning units in direct proportion to the natural and artificial strength of the terrain. This enables the commander to hold out the maximum strength for use as reserves.

553. Sectors are delimited in orders by boundaries (lines indicated on the map or ground extending from rear to front). Boundaries are located so that there will be no question of the responsibility for the defense of the terrain which dominates a critical avenue of hostile approach. While it is frequently impossible to include both the avenue of hostile approach and the adjacent dominating terrain in the sector of the small units, the boundaries of sectors assigned to battalion and larger units should be located to insure unity of defensive dispositions and fires in defense of these critical localities.

559. a. Boundaries are extended forward of the main battle position. Divisional boundaries are extended to the range of weapons supporting all divisional units, including that of artillery attached to or supporting any divisional units on general outpost. This permits the coordination of artillery fire by the division or similar headquarters and facilitates its further coordination by the corps. Boundaries between front line regiments and battalions are extended forward at least to the limit of ground observation, including that of regimental or battalion elements serving as combat outposts. Such an extension enables commanders of these units to coordinate fires in the immediate foreground and delineates responsibility for the garrisoning of combat outposts.

b. The extension of boundaries to the rear is influenced by the existing road net and by the routes for movement within the position.

560. a. The division commander, upon the recommendation of the division artillery commander, directs the distribution of the division artillery and its organization for combat. Since the rapid concentration of artillery fire is essential to a successful defense, centralized command of the artillery is preferable. Every effort is made to meet the hostile main attack with the mass of the artillery fire.

b. The echelonment in depth of the field artillery takes into consideration the range of the various weapons, the location of the targets, and the possibilities of neutralization by hostile counter-battery fire. The echelonment is limited by the considerations that the bulk of the artillery must be able to concentrate its fire in close support of the main line of resistance, that the foremost echelon can fire deep in the hostile zone, and that the rearmost can support the rear defense areas of the battle position. The bulk of the light field artillery should be able to fire throughout the main battle position.

561. a. Normally, armor is not employed to hold defensive positions. At times, however, it may be used well forward to cover the occupation of other troops, or it may be employed to hold a position pending the arrival of other troops. When covering the occupation of position it usually accomplishes its mission by delaying action. When holding a defensive position with organic or attached infantry, armored units employ the same principles as infantry units on the defense.

b. Since the infantry organic to an armored division is inadequate to garrison the same frontage as an infantry division it is desirable to attach additional infantry to the armored division to permit it to hold a sector justified by the strength of its other arms. Alternatively, the tank elements of the division may be used as the reserve for fronts more extensive than the division sector.

562. a. Tank units, organic or attached to infantry, have two primary missions: to protect forward elements from enemy tanks, and to destroy by counterattack enemy who have penetrated the defensive position. In order to give immediate protection to infantry, part of the organic or supporting tanks should occupy positions in the defense areas. In this role, positions, dispositions, and maintenance of tactical integrity should be such that they can move rapidly into the counterattack. The bulk of the tanks should be held in reserve for the purpose of reinforcing threatened areas and for counterattack.

b. Large armored formations constitute a powerful striking force and are normally held initially in reserve prepared for rapid entry into action when an opportunity for a counterblow is presented. The mobility of such units favors employment of armored elements with the covering forces during the early stages of the hostile advance.

## RESERVES

563. The directions from which the hostile main attack may be expected and the commander's plan of maneuver determine the initial location of the reserve. Availability of suitable terrain is an important consideration in locating the reserve. Dispersal of the reserves into tactical groupings may be desirable in order to take advantage of cover, concealment, road net, and to facilitate employment. It may be echeloned for protective purposes in rear of an exposed flank in an assembly area from which it can deliver a planned and prepared counterattack.

564. a. General reserves may be called upon to relieve units on the battle position, participate in a major counterattack or counteroffensive, extend the flanks of the battle position, or occupy a rear position.

b. Prior to commitment to a definite line of action, they are held mobile, prepared to participate in battle in accordance with the plan of maneuver of the commander. While so held, they are disposed for all around defense against attack by hostile forces which may succeed in passing through or around the battle position. Necessary measures are taken for protection against hostile aircraft and for countering an attack by airborne troops. Plans for possible commitment are prepared and revised as time and the situation permit.

## ORGANIZATION OF FIRE

565. Coordination of the fire of the infantry, armored cavalry, artillery, and the use of support aviation, is carefully planned and is expressed in orders. Plans provide for bringing the enemy under effective fire as early as practicable unless the situation requires that fire be withheld to obtain surprise. Provision is also made for regulating the intensity of fires so that the enemy is subjected to progressively heavier fire as he approaches the defensive position.

566. a. Defensive positions are organized to utilize the defensive strength of the terrain and to gain the maximum effect from all weapons in the coordination of fires. The organization of systematic flanking fire by machine guns supplemented by the fires of other weapons constitutes the basis of defensive dispositions. Adjacent units, in addition to defending their own fronts, cover each other's fronts with flanking fire. Dead spaces in bands of machine gun fire are covered by the fire of other weapons. Fire effect is increased by obstacles which hold the enemy under frontal and flanking fire. Sectors of the defensive position especially exposed to hostile fire may be left unoccupied, except at night and during periods of low visibility, and may be defended by flanking fire from adjacent sectors.

b. Machine guns are so distributed in width and depth in each battalion defensive area as to take full advantage of terrain. As far as practicable, their fire should cover the entire front of the main line of resistance with continuous bands of fire. Some machine guns are sited to take under flanking fire hostile elements which succeed in penerating the main line of resistance. Some of

the machine guns are located where they can develop long-range fire during the hostile approach without disclosing the location of the main line of resistance. Mortar fires are coordinated so as to cover dead space in the bands of machine gun fire, or to concentrate in front of the battalion defensive area against any threat that should develop.

c. Artillery and heavy mortar fires are coordinated in the defensive plan of fire and are especially concentrated on the critical localities and on ground which is protected from or beyond the range of the fire of other supporting weapons. The effective control of these fires requires good observation, efficient signal communication and liaison. A considerable portion of the artillery and mortars must be capable of concentrating their fires on any penetration of the battle position. Gun positions should be located to insure that such penetrations will not jeopardize the ability of the artillery to support the counterattack.

567. All possible measures are taken to insure security against armored attack. Defense against armored attack is organized throughout the depth of the position. Although the main defensive effort against armored attack is prepared in areas which are favorable to the employment of armored forces, other areas less favorable to armor, should not be disregarded. Battalion and regimental antitank weapons from concealed positions defend the forward part of the battle position, while antitank weapons of higher units are echeloned farther in rear. Positions and routes for these weapons are reconnoitered, and the guns are held in readiness prepared for rapid movement to any threatened part of the front.

568. Defensive means against armored units include combat aviation, armored forces, mines, special weapons, or the special use of existing weapons, natural and artificial obstacles, organization of the ground, a warning system, and antitank weapons furnish the main defense against armored vehicles. Antitank defense must be organized in depth. The main antitank defensive effort is made in areas which are most favorable to the employment of armored forces.

569. Antitank weapons are disposed in width and depth within the battle position and their fires are coordinated to insure coverage of obstacles and likely routes of tank approach. Regimental tank units or antitank weapons may be attached to front-line battalions to reinforce the antitank defense of the main line of resistance, and to provide antitank defense in depth within the battalion defense

areas. Those elements attached to the reserve battalion provide antitank defense in depth for the regimental sector. Tanks are disposed to cover the most likely routes of tank approach. Antitank weapons of the battalions are disposed to overlap the sectors of fire of the tanks, to cover approaches not covered by the tanks, and to provide close-in antitank defense.

570. a. Weapons whose primary missions are against objectives other than armored units are used also against armored vehicles to the limit of their effectiveness. Small-arms and machine-gun fire has a limited effect, interfering primarily with the enemy's observation. High explosive and incendiary missiles are effective against armored vehicles. Antitank grenades, incendiary grenades, and smoke grenades supplement the close-in antitank defense.

b. Guns intended solely for antitank defense are kept concealed until their special target appears, since their effectiveness is jeopardized if their location is prematurely disclosed. Close-in protection of these guns is coordinated with other troops.

571. Armored cavalry units may be used to strengthen and deepen the antitank defense and provide additional mobile reserve. Large armored elements are effective means of countering the mobility and initiative of the attacker, particularly his armor. Armor is best used offensively in large groups on definite counterattack missions against the flanks and rear of the hostile penetration. Armored units utilize their mobility to gain an advantageous position from which to intercept hostile armor and deliver surprise fire. Their employment must be closely coordinated with and supported by other ground forces.

572. All supporting artillery must be prepared to assist in antitank defense. In both offensive and defensive action, provision should be made for the rapid concentration of as much artillery fire as possible on all areas favoring the assembly and maneuver of armored units, particularly on any defiles leading to such areas. In case of a penetration into the rear areas, artillery may engage armor by direct laying.

573. Antiaircraft artillery weapons are sited so that they may be employed against attack by armored vehicles when this can be done without interfering with their primary mission. In the event of simultaneous attack from hostile aircraft and armored vehicles, fire must be concentrated against the more dangerous threat.

574. Combat aviation is a powerful weapon against armored forces. Bombing, chemical, and direct fire attacks will be effective under many conditions. It has the mobility and fire power to strike and break up armored threats before they arrive within range of artillery and antitank weapons.

575. Chemical agents may be used to restrict possible assembly areas for armored units, to cause casualties to units in movement, and to render difficult the removal of obstructions or repair of damage caused by demolitions. Ordinarily, persistent chemical agents will be most effective unless their use will interfere with subsequent operation of friendly troops. Under such circumstances the use of nonpersistent chemical agents may be advantageous.

576. a. Mines are an effective means of defense against armored units. Antitank mines can be laid or buried without prohibitive expenditure of time and labor. Mines are laid in geometric patterns but slight accidental variations occur due to terrain and the human error in pacing. Mine fields are installed within the defended area as well as in front of it.

b. Mines are useful for quickly blocking defiles and favorable avenues of hostile approach. The location of mines must be coordinated with natural or artificial obstacles and with the fire of antitank weapons. They should be concealed, supplemented by dummy mine fields, and covered by fire to prevent removal by the enemy. The use of antipersonnel mines among antitank mines assist in the prevention of the removal of the mines by other than specially trained personnel. It must be remembered however that this limitation also will apply to friendly forces upon the resumption of the offensive.

c. Mine fields, contaminated areas, and other obstacles restrict the movement of the troops they are designed to protect. A careful and detailed record of the location of such obstacles must be maintained so that friendly troops entering the area can be advised and the necessary precautions taken for the safety of troops. Where antipersonnel mines have been included as part of the obstacle, this record must include an accurate location and give the type and numbers of each mine, so that if necessary they may be removed safely by troops other than those who laid them.

577. Natural obstacles to armored attacks include buildings and walls, watercourses, lakes, marshes, mountainous country, stumps, rocky ground, and thick woods. Few areas can be classed as com-

pletely tankproof. Undue reliance on natural obstacles must be guarded against. Guided by these considerations, the defensive possibilities of terrain must be studied constantly from the viewpoint of antitank defense in order to utilize existing natural obstacles to the maximum.

578. Artificial obstacles consist principally of mine fields and demolitions. Fabricated obstacles, barricades, and antitank ditches may be used in special situations. The location of artificial obstacles must be coordinated with natural obstacles and with the fire of antitank and other weapons. It is important that obstacles be covered by fire to prevent the enemy from removing the obstructions. Removal of obstacles can be impeded by contamination with persistent chemical agents. In general, obstacles, demolitions, mines, and persistent chemical contaminations are located where the enemy will come upon them suddenly and be unable to avoid them.

579. If hostile armor succeeds in entering or breaking through the battle position, it may be stopped, and destroyed by antitank fires, by armored units counterattacking or by a combination of these and other available means. It is normally impracticable or inadvisable to direct the main effort of the counterattack against the front of the enemy's armored force. It is usually better to employ natural and artificial obstacles, reinforced with antitank weapons, infantry and armor, against the point of the advance and direct the counterattack against the base or flank of the salient to destroy the penetrating force.

580. The division artillery commander prepares the general plans for the employment of artillery in accordance with instructions of the division commander. Coordination between artillery fires and those of other weapons is effected principally through liaison between artillery units and the units they are designated to support. The close support of the main line of resistance is a governing consideration in the formulation of all artillery plans.

581. The artillery plan of fire is based upon fires which—

a. Delay and disorganize the enemy in his approach to the position by long-range harassing and interdiction fire.

b. Disrupt the enemy's preparation for attack by counterpreparation fire.

c. Impede his attack with fire in width and depth throughout the defensive sector.

d. Break up the assault on the battle position by close-in defensive fires.

e. Limit penetration of the battle position by fire within our lines delivered on call.

f. Support the counterattack.

532. a. It is important to interdict hostile routes of approach, and to dislocate the hostile system of command and fire control at the earliest possible moment. Counterbattery fire, interdiction fire, and harassing fire are the principal missions of the medium and heavy field artillery throughout the battle. Long-range destruction and interdiction fire is directed especially on sensitive points in the enemy's rear areas and on his lines of communications, bridges, crossroads, and supply establishments.

b. The corps artillery commander coordinates the fires of the artillery with the corps. The corps may give the divisions instructions regulating the employment of the division artillery in the execution of its more distant missions. The corps artillery reinforces the fires of the division artillery. Corps artillery extends the depth of the fires of the division artillery.

583. a. Antiaircraft artillery is disposed initially to protect the organization and occupation of the battle position. When the commander has determined where the enemy is making his main attack, the antiaircraft artillery concentrates its efforts on preventing air reconnaissance and attack on the threatened parts of the defensive position, on protecting the employment of reserves for counterattack, and on protecting field artillery units.

b. If sufficient antiaircraft artillery is available, some units are assigned to the defense of important roads and installations, railheads, ammunition establishments, and airfields. The antiaircraft artillery intelligence service gives prompt warning of the approach of hostile aircraft to all units concerned.

c. When the air situation warrants, a division (or higher) commander may direct that some or all of the available antiaircraft weapons be sited so that they may be employed against a possible ground attack or in close support of infantry, armored cavalry, or other units.

584. As in other operations, combat aviation in defense will be engaged in its normal threefold mission. Its primary task is the gaining and maintaining of air superiority. This is followed by the isolation of the battlefield which is the process of preventing

or hindering movement, including that of reserves, to the decisive area. Finally, it wil intervene in the ground battle by engaging in close support missions. These may include attacks against enemy columns, artillery in position, reserves, and armored units.

## ORGANIZATION OF THE GROUND

535. The organization of a position is limited only by the time and facilities available. Dependent upon the situation and the time and material available, and initial hastily occupied position is developed into a strongly fortified system. Protection is to be sought in the distribution of defenses in depth and in width, their adaptation to the terrain, concealment from hostile observation, and in the strength of construction. From the beginning, great care is taken to conceal all works. Measures for increasing the effect of fire and for providing adequate signal communication take precedence over the construction of field fortification.

536. a. The development of a defensive position seeks first of all to strengthen the battle position itself, battery positions, and the command and control facilities of the entire position. The means employed include communication trenches; obstacles, including tank barriers; mines; shelter for troops; observation and command posts, including alternate locations; signal communication; gun positions; and supply dumps. These works differ from those in mobile situations in the elaborateness and permanency of their construction. When locating supply installations careful consideration should be given to adequate dispersal to minimize the effects of massed hostile air attacks. In areas of resistance in rear of the main line of resistance, permanent works are constructed to limit hostile penetration. All works are concealed or camouflaged.

b. In the siting of emplacements for defending troops, extreme care must be taken that there are no undefended approaches from any direction that would permit hostile elements to work their way in close enough to destroy the occupants with hand grenades or other close-combat weapons. Provision must be made for protecting the rear against attack by airborne troops and by highly mobile forces.

537. a. Troops carry out the organization of the position in accordance with a plan of construction expressed in orders as priorities. After the location of combat emplacements has been fixed, priority is given to clearing the field of fire, to removal of objects masking our own observation, and to the determination of ranges to points in the foreground. These measures are followed ordinarily by

the construction of the various defensive works and obstacles, and by the preparation of routes of approach for reserves and for ammunition supply. Primary consideration should be given to provision for camouflaging the works as they are constructed. Work may proceed simultaneously on several items.

b. Artillery and heavy weapons units give priority to the construction of gun emplacements, observation and command posts and signal communication systems, and provide for the supply of ammunition. Early consideration is given to preparations for the close defense of the positions. Individual rifle pits and other shelters are constructed for personnel. Camouflage and protection for guns and ammunition are provided. Alternate positions for gun emplacements are planned, constructed, and concealed.

588. In the construction of obstacles, wire entanglements are sited so that their outer edges can be swept by flanking fire. Other obstacles are coordinated with demolitions. All obstacles are covered by fire to hinder their removal. They should be concealed from hostile observation.

589. Dummy works serve to mislead the enemy and disperse his fire. To be effective, they must appear camouflaged and otherwise closely resemble genuine works. Dummy works easily recognizable as such give the enemy valuable negative information.

590. Channels of signal communication are increased and alternate channels provided. Units are connected by wire lines not only to the rear but also laterally. Lateral lines not only afford direct signal communication between adjacent units but also provide numerous alternative channels of signal communication between advanced units and the rear. Alternate command posts are selected and organized.

591. a. Engineers execute demolitions and construct obstacles, including mine fields and booby traps, to impede the advance of the enemy. They increase the defensive powers of the other arms by the construction of field works which require special equipment or training, by technical assistance in other works of organization of the ground, and by furnishing the necessary tools and engineer supplies.

b. Engineers also may be employed in the siting, preparation, and occupation of positions.

592. Persistent chemical agents have special defensive value since concentrations established before the hostile attack retain their

effectiveness throughout the attack. Persistent chemicals may be utilized to protect portions of the front and flanks of the position and to cover defiles, vital roads, road junctions, and wooded stream lines across or along favorable routes of hostile approach. When they can be placed without hostile interference, persistent chemical mines are employed; when the area is controlled by the enemy, chemical barriers can be laid by aviation, artillery, or chemical mortars. In deciding the use of persistent chemicals, the commander must carefully evaluate its effect on his contemplated future operations.

593. The selection of a rear position is essential to conduct of a flexible defense. It should be located at such distance from the main position that it can be organized without enemy interference and that it forces the enemy to reorganize prior to continuing his attack. The extent of its organization will depend upon the situation and the time available. The forces employed in the construction of the rear position must not be obtained at the risk of jeopardizing the defense of the main battle position.

594. Communication trenches greatly facilitate the exercise of command, the movement of troops, and the functioning of supply. In moving situations, time will rarely be available for the complete construction and camouflage of such trenches. They are indispensable in the prolonged occupation of a position. They are constructed first over exposed stretches on the routes of approach from the rear; their entrances are conspicuously marked. As a general rule, communication trenches should not be employed as combat emplacements. They should be sited so that they will not indicate to the enemy the location of combat emplacements. Their use, however, as part of a switch position should be considered.

595. The type of overhead cover varies with the location of the troops to be sheltered. The only forms of protection having permanent value against fire are dugouts and concrete or steel shelters sufficiently resistant to withstand heavy artillery fire and bombs from the air. Deep dugouts in the front lines do not permit the prompt egress of troops, and in case of attack may become traps. Overhead cover for frontline troops is designed chiefly to afford splinter-proof protection and shelter from the weather. Lack of strength is compensated for, as far as possible, by the increased number and smaller size of the shelters.

596. Overhead cover is a means of conserving the fighting capacity of the troops in the prolonged occupation of a position.

Reserves within range of hostile artillery fire and subject to the attack of combat aviation are, as far as practicable, sheltered in bombproof dugouts.

597. In a stabilized situation, the problem of drainage assumes great importance; the siting of works with a view to effective drainage is always given due consideration.

598. Small dumps of ammunition, rations, and materials needed in the construction and defense of the position are established in the sectors of small units.

599. a. The priority of work in the development of a position which is out of contact with the enemy is determined largely by the time required for the construction of the essential works and the extent to which they lend themselves to camouflage. Provision must be made for camouflage before the work is begun. Then camouflage is carried on continuously throughout the work.

b. After reconnaissance and determination of the method of occupation of the position, command posts, observation posts, signal communication facilities, obstacles, and shelters for the troops are constructed. Adequate forces must be concentrated early on important works requiring a considerable period for their construction. To avoid disclosing the position, the construction of fire and communication trenches may be deferred until troops occupy the position.

## Section II. DEFENSE ON A WIDE FRONT

600. Under some circumstances it may be necessary for a force to defend on a frontage which is markedly greater than that usually considered desirable. The factors which influence such a decision are—

a. The defender has air superiority and adequate armor.

b. Reinforcements are expected or available.

c. The enemy is inferior in training, in material, and lacks armored units or mobility.

d. Terrain to the rear is unfavorable, does not offer a shortened front, or restricts maneuver room.

e. Frontage assigned is such that the local commander has no choice but to defend it thinly.

f. Strong natural obstacles, which aid the defense and restrict enemy movement, exist to the front.

601. Where the frontage assigned a unit is many times greater than that considered normal, the defense will take the form of a screening action. Except for such extreme cases, the principles of defensive combat are valid. In the application of these principles on an extended frontage certain modifications or improvisations are necessary. The composition and number of troops available, the terrain and the situation constitute the primary governing factors. Under heavy attack the screening force may be forced to conduct a delaying action.

602. A defense in depth is essential. Seldom will it be desirable to commit all or even the bulk of a force to positions along the main line of resistance. Such a shallow defense would be extremely vulnerable since any success by the enemy would carry him through the defensive zone and allow him to maneuver in the rear. Depth is obtained by distribution of forces in several echelons and by holding out adequate reserves. Higher commanders add to the depth of the defense in a threatened sector by occupying prepared positions to the rear with either reserves or units taken from another part of the main battle position.

603. The sectors assigned units on the main line of resistance under such circumstances are usually so large as to preclude the organization of a zone of mutually supporting defense areas across the entire front. Emphasis, therefore, is placed on the organization and occupation of critical terrain features throughout the width and depth of the battle position by strong, balanced, self-sustaining units. Each such feature is organized for all around defense, and the balance of the sector covered with patrols and detached posts. Additional defense areas are prepared but not initially occupied; these will be manned in accordance with enemy action.

604. The protection of the artillery and rear area installations becomes a problem of increased difficulty. In instances this may result in the location of both artillery and installations within the organized defensive areas. In other cases, reliance may be placed upon strongly organized artillery position areas and defensive installations. The incidental protection afforded by proximity to reserve locations is also to be considered in the location of rear area installations.

605. The maximum number of troops are held mobile in each unit. The commander employs these in the zone of the enemy attack either in the blocking role, the counterattack role, or both, with

the object of limiting the enemy penetration or driving him out of the position. Early warning is essential, especially to the smaller units along the main line of resistance, otherwise enemy action may prevent the shifting of units to best meet the hostile attack.

606. a. The difficulty of defense against armor over an excessively wide defensive sector stems from the frontage to the covered combined with the rapidity with which the hostile attack can break through the overextended forward position.

b. As a consequence early information of hostile offensive movements is of vital importance. Reconnaissance by combat aviation and mobile ground elements is vital and must be extensive and aggressive. Signal means allocated to the warning system must be adequate to the increased distances involved.

607. a. Location of the sector reserves, including strong armored formation, is of increased importance. Frequently, two or more separate forces must be constituted to cover adequately the wide front and permit timely and powerful reaction against a hostile penetration. Under such conditions, detailed plans are essential to permit rapid concentration of the entire reserve in any of the critical localities. Full use should be made of obstacles and demolitions to canalize and limit the areas in which the enemy can operate.

b. Early employment of combat aviation is essential to delay, if not destroy, such a penetration.

608. a. Advance planning should provide for the employment of sector reserves from adjacent sectors against the flanks of a possible penetration.

b. Airborne or other general reserves should be earmarked for possible use in the coordinated reaction against a strong hostile attack.

609. For details of defense against armored attack see paragraphs 568 to 580.

## Section III. DEFENSE AGAINST AIRBORNE ATTACK

610. a. Airborne assaults are characterized by speed and flexibility in choice of objectives. Airborne forces may be expected to attack with surprise, in mass, under the cover of heavy air support. Detailed planning and rehearsals permit units to move

independently and aggressively towards their assigned objectives. An air reconaissance which may include both visual and photographic reconnaissance must precede the attack. The attack will usually be divided into several phases. The first phase may be a period of air bombardment varying from a number of days to a single concentrated bombardment just prior to the landing. Where surprise is sought the bombardment may be omitted. Second, the initial landings by airborne troops preceded by a pathfinder serial may follow. Finally, the period of build-up by parachute, glider, or air landed units which will reinforce and exploit initial gains can be expected.

b. Airborne attacks are limited by weather, suitable landing areas, and the maintenance of local air superiority. After initial landing, airborne troops require a brief period of reorganization and are limited in motor transport and heavy fire support.

611. All units are responsible for their own security. In the combat zone the coordination of available defense means is a responsibility of tactical commanders. In the zone of the interior and the communications zone, this coordination is a responsibility of commanders having area command.

612. a. All units, command and service, must be prepared to participate in operations against airborne troops. Planning should include the coordination of partisan, militia, and civil defense organizations.

b. The paramount passive measure is an efficient warning system which furnishes early air warning and prompt information as to parachute drops and air lands. Other passive means include antiairborne obstacles, camouflage, dispersion and concealment, and the realistic use of dummy installations.

613. a. The demoralization inherent in an enemy airborne attack can be greatly reduced by the timely provision of both plans and means to effect swift destruction of the attacker. Within the means available, commanders plan for the defense of their area against airborne attack. The extent of these preparations is governed by the available troops, requirements of other missions, the intelligence estimate as to the probability of airborne attack, the airborne troops, and airlift available to the enemy, the extent of the air warning service, relative air superiority, the number and importance of probable airborne objectives in the area, the number and distribution of feasible drop and landing zones, and the available road net.

b. In forward areas, sufficient combat troops usually will be available to defend adequately logical airborne objectives. In rear areas, the bulk of the defense will normally be assigned to service troops. Where an airborne attack against vital objectives seem probable higher commanders may assign combat units to assist in the defense. Where enemy airborne troops are employed frequently and effectively, additional measures to include mobile area reserves and additional air warning communication may be employed.

614. a. Logical airborne objectives and possible drop and landing zones determine the disposition of defense units. Airborne forces are most vulnerable during their period of reorganization immediately after the drop. The defender, therefore, should direct his initial effort against the enemy in the drop and landing zones. Where troops are limited, minimum defense measures should include an efficient warning system, planned and rehearsed local defense measures by service troops, and a mobile reserve prepared to move on short notice to previously reconnoitered positions to launch a counterattack.

b. Where an airborne threat is probable and sufficient means are available, the plan for the disposition of troops should provide a system of warning and combat detachments near all probable landing areas with provision for supplementary motorized patrols and local reserves for counterattacks. In addition, plans should insure a centrally located mobile reserve, strong in armor and fire power, to attack the airborne units before they can be reinforced with heavier supporting weapons. The entire organization should be characterized by flexibility to meet the attackers' advantage of speed and initiative.

615. Defense plans against airborne assault must stress security. Enemy air reconnaissance missions may be expected. Exposed or poorly camouflaged installations will be earmarked for neutralization during the bombardment phase. The bombardment will normally be extremely heavy. Defense troops should be well entrenched with overhead cover. Movements in and about the landing areas will be quickly detected and may be heavily attacked. Mobile reserves moving towards the landing area should seek covered routes. Where this is impractical the moving column should employ an open formation in order to present a less remunerative air target.

616. a. The defense should be conducted to counter the various phases of an airborne attack. Passive defense measures taken may

include dispersion, concealment, camouflage and realistic use of dummy installations.

b. During the hostile preliminary air bombardment, troops take cover and passive measures are followed except that suitable antiaircraft weapons engage enemy aircraft. Final preparations are made to meet the attack though essential movement must be executed rapidly in dispersed formation.

c. As transport aircraft approach, every available gun within range opens fire and is directed against transports, gliders, and descending parachute troops. Regardless of the magnitude of the hostile landings, local counterattacks are launched with speed and vigor in order to destroy the attack during its most vulnerable period. Tanks and armored vehicles available to local defense forces are freely committed due to their relative immunity to the weapons in the hands of the attacker at this stage. If more troops land and succeed in consolidating drop and landing zones, local defense forces must hold their ground to contain the forces landed and to form a base for the counterattacker by the mobile reserve. If it is possible to determine the main landing during this phase, the mobile reserve is committed.

d. Counterattacks are continued in order to destroy or isolate the attacker, and in those sectors where the airborne force has attained superiority, its advance is blocked. The mobile reserve is committed against the main landing at the earliest possible stage of the phase.

617. Infantry or service troops operating as infantry will normally comprise the bulk of the local defense units designated to occupy prepared positions and conduct early counterattacks. Where available, partisans, militia, and civilian defense organizations previously trained for defense duties may assist.

618. Field artillery should be emplaced so that it can, without displacement, cover the maximum area of responsibility. Batteries which cannot cover the entire area should select and prepare alternate positions. Adequate measures for the defense of the position areas must be taken in advance.

619. Antiaircraft artillery has the threefold mission of driving off air attacks, of destroying airborne troops prior to and during landing, and of assisting defense units with supporting fire against ground targets. A portion of the antiaircraft artillery should be allotted the primary mission of protecting the field artillery and the mobile reserve against air attack. Antiaircraft artillery units

must stress appropriate passive defense measures. They will be a primary target during the preliminary bombardment.

620. a. Because of their firepower, mobility, armor protection, and excellent communication equipment, armored units are well suited to destroy the airborne attack. They should therefore comprise the chief element of the mobile reserve. These same characteristics, however, make armor equally effective when operating with the local defense forces. The amount assigned these forces will be indicated by the time and space factors governing the arrival of the mobile reserve. Advance defense plans should provide for the utilization of armor assigned to local defense forces of areas which have not been attacked.

b. Armored units with a mobile reserve are extremely vulnerable to air attack during their move from the reserve location to the landing area. Covered routes and dispersed formations must be a primary consideration in their commitment.

621. On first knowledge of an enemy airborne attack, suitable combat aviation in the area takes to the air to repulse enemy aviation. Request is made for immediate air force reinforcements. Additional air support made available should destroy enemy aviation supporting the attack, be prepared to furnish air support to the counterattack of the mobile reserve and finally, isolate the attacker.

622. Complete preparation of the area requires considerable field engineering in the way of obstruction of landing sites; erection of road blocks; camouflage; construction of shelters; principal, alternate, and supplementary gun emplacements; mine fields; protective wire; and improvement of the road net that is to be used by the defenders. Engineers may be used to execute some of these tasks and to assist in others. All organizations should make preparations for destruction of matériel which otherwise might fall into the hands of the airborne forces. Priority should be given to the demolition of vehicles. The airborne forces' shortage of vehicles makes the capture of ground transport an initial requirement.

623. The importance of an adequate and reliable warning and communication system cannot be overemphasized. A local warning system is essential to supplement information received from air sentinels and detached posts which should be in communication with the command post at all times. Dependable means of com-

munication between engaged units and command posts must be provided. All means of communication will be employed.

624. Airborne troops may be employed during the hours of darkness. The same principles for defense against airborne attack are applicable whether the landing is in daylight or darkness. At night, however, there is greater confusion in the landing areas. The main effort of the airborne assault may be difficult to determine. Therefore, it may be advisable to delay commitment of the mobile reserve until the situation is clarified unless measures have been taken to illuminate the counterattack area.

## Section IV. CONDUCT OF THE DEFENSE

625. The defense is conducted along mobile lines. Mobility is obtained by the use of aggressive air and ground reconnaissance and strong covering forces, by improving facilities for movement within the battle position, by distribution of forces in depth, and by holding out reserves capable of rapid movement. Covering forces delay, deceive, and disorganize the enemy; units in organized areas of the battle position hold their positions at all costs; and reserves maneuver behind the pivots thus established. Mobile and rigid defense are combined so that possession of the areas essential to the maneuver of the defensive forces is retained, the maximum forces are made available for counterattack or counteroffensive purposes, and the enemy is deceived as to the kind of resistance with which he is confronted. Combat aviation is capable of rapid and powerful intervention against the attacker. Advance plans should provide for such employment.

626. The conduct of the defense must be aggressive. Aggressive measures may include patrols, raids, feints, demonstrations and harassing fires. It must be prepared to take advantage of errors or failures on the part of the enemy. The counterattack is a vital element of defensive action since it is often impossible to hold a defensive position by resistance in place only.

627. *a.* The integrity of the battle position is maintained by a combination of fighting in place and counterattack. Regardless of the considerations which dictated the adoption of a defensive attitude, the tactics of defensive combat are essentially to develop the maximum firepower against an advancing enemy, to reduce our own losses by a better knowledge and utilization of the terrain, and thereby to stop the enemy's advance or throw him back by counterattack.

b. The success of the counterattack depends largely upon timing. The initial superiority and momentum of the attacker should have been absorbed by the fight through the depth of the position to the point that the counterattack can be launched under favorable conditions.

628. a. In order to maintain itself in action in the face of hostile superiority, the artillery must fully exploit its mobility. If there are indications that the location of certain batteries has been discovered, such batteries effect a change to one of their alternate or supplementary positions.

b. In quiet periods, artillery units assigned to counterbattery and harassing missions may be moved to previously surveyed positions for the delivery of fire. This movement, occupation of position, delivery of fire, and return to position are generally accomplished during hours of darkness.

629. a. Defensive concentrations and barrages are fired close to our troops. They strengthen the fire of other weapons covering the most dangerous avenues of approach to the positions. Barrages are prearranged fires employed, as part of the final protective fires, immediately in front of the main line of resistance, to break up an enemy assault. Barrages are delivered on signal or call from front-line unit commanders or observers in accordance with the coordinated fire plan.

b. Since a uniform distribution of artillery fire along the entire front is generally ineffective, plans for the delivery of concentrations and barrages are designed to provide fire on critical areas or fronts. These fires, especially the barrages, are delivered at a high rate, and involve a great expenditure of ammunition. Hence, it is essential that front-line units carefully consider the emergency in their calls for artillery support. Provision should be made for reinforcing counterpreparation and barrage fires by artillery normally assigned to other missions, or by the artillery of adjacent divisions.

630. In addition to the artillery, mortars and other supporting weapons participate in counterpreparation and defensive fires. Their fires are coordinated with those of the artillery in the plan of defense.

631. Infantry defends its position by employing all the weapons at its disposal in cooperation with artillery fires. The fires of all weapons are carefully coordinated to insure that the enemy is held

under increasingly heavy and accurate fire as he approaches and comes within range of the various weapons within, and in support of, the battle position. For the development of coordinated fire plans see FM's 7–20 and 7–40.

632. a. A unit intrusted with the defense of a tactical locality never abandons it unless authorized to do so by higher authority. Local commanders take the necessary action to maintain the integrity of their defense areas. Plans are made for the employment of local reserves. Once the direction and strength of the hostile attack can be determined, local reserves are moved to implement the most effective of their previously prepared plans.

b. Unless covered approaches are available, the movement of elements of the garrison of the main battle position will be dangerous and costly once the attackers preparatory fires fall on the position.

633. a. Long-range fires are placed upon the enemy as early as possible to inflict casualties, to delay his advance, and to disrupt his organization. These fires are delivered by supporting weapons, within the battle position, capable of long-range fire without disclosing the forward elements of the battle position, and by weapons organic and attached to the outposts.

b. As the enemy continues his advance and comes within range of additional weapons, he is brought under an increasingly heavy volume of fire. Close defensive fires are planned to destroy the integrity of the attacking force before an assault is possible, by inflicting the greatest possible number of casualties, by disrupting command control and communication, by denying observation, and by neutralizing hostile supporting fires. These fires consist of the fires of all supporting and individual weapons which can be brought to bear on the enemy in his attack position, and throughout his attack until he launches an assault. If the enemy launches an assault, prearranged final protective fires are delivered, immediately in front of the threatened area of the battle position, to break up the assault. These final protective fires include fire on machine-gun final protective lines, and mortar, and artillery barrages. All other available supporting fires of the threatened area supplement and reinforce the final protective fires.

## EMPLOYMENT OF THE RESERVE

634. a. Based on the probable lines of action which may develop during combat, reconnaissance is conducted and plans are pre-

pared for the employment of reserves. Construction of selected defensive positions for reserve units must be initiated early in accordance with a considered priority. A planned balance is essential between the requirements for such construction and the employment of the major portion of the reserve as an advance covering force. (See ch. 5.) Reserves must be prepared either to occupy a previously prepared defensive area, to check a hostile penetration or an envelopment of the position, or to deliver a counterattack for the purpose of recovering a critical defensive area or to destroy a hostile penetration.

b. Reserve elements of units occupying sectors of the main battle position may initially occupy the most important of their previously prepared defensive positions. Advance plans and reconnaissance for the movement of local reserves to supplementary positions should be based upon the presumption that such movements may be under air and artillery bombardment or encounter armored attack. Provision for such movement should therefore include covered assembly positions, covered routes to the new positions, and security throughout the movement.

c. Tanks disposed within the battle position with the primary mission of antitank defense, open fire on remunerative targets of enemy armor at long ranges. When hostile armor is not present, tanks will fire on targets of opportunity in close support of the battle position. If the enemy effects a penetration of the battle position all available tanks and armored units are employed to limit the penetration and to support the counterattack.

635. Should the attacker succeed in penetrating or outflanking the position the defender seeks through fire and maneuver to destroy the hostile elements within the position. If individual overhead cover is available, front line units may request artillery fire, employing air burst, on the position.

636. a. A counterattack employs all available arms. It has the characteristics of an armored attack in that it leads with armored units and exploits with motorized and foot troops. It seeks to close the gap created by the hostile force and to isolate and destroy the enemy's advanced elements.

b. All available fire support is used in the counterattack. If the counterattack is directed against the enemy's armored force, this fire support should be strong in antitank weapons and artillery.

637. Combat aviation is used to the limit of its availability on missions which further the attainment of the ground objectives.

Among the important armed reconnaissance missions is the prevention of air supply of any hostile elements which may have been cut off and surrounded.

638. a. Decision as to when to launch previously planned local counterattacks essential to regain critical terrain within the battle position, involve consideration as to whether the momentum of the hostile attack has been spent to a degree that counterattack has a reasonable chance of success. Local counterattacks against a strong armored attack by elements garrisoning the battle position may result in early sacrifice of the depth of the battle position without adequate return.

b. On the other hand, if counterattack is essential, success may be dependent upon exploitation of the period of temporary confusion and disorganization inherent in the seizure of a position. Local counterattacks of this type require strong fire support including protection against armor. They are normally not justified except to regain critical terrain lacking which the sector is untenable. Local counterattacks, therefore, can be planned in advance primarily from the viewpoint of terrain. However, the strength of the hostile attack cannot be anticipated and actual decision to launch counterattacks must therefore be delayed until after the partial success of the hostile attack. Full advantage should be taken of signal communication means in coordinating last minute arrangements with higher and adjacent commanders.

639. a. Divisional and higher unit reserves are committed to the position only to the extent necessary to stabilize the situation and establish a firm base from which to launch a counterattack. Motor transportation is used to increase the mobility of reserves. Assembly areas of higher unit reserves should be selected and prepared with a view to strong defense against sudden air and armored attack. The defensive characteristics of such an area are important. A reserve may be utilized to garrison separated defensive positions provided such action facilitates the delivery of a planned counterattack. Well chosen defensive positions of this type lend depth to the defense by blocking the more dangerous approaches as well as by providing fire support for planned counterattacks in the vicinity. The most important of the defensive positions of such a reserve should be first considered in the location of its assembly area when other factors permit. Rehabilitation and shelter of personnel are important factors particularly under severe climatic conditions.

b. Armored units are essentially offensive in character. Armored

units are held in reserve prepared to counterattack or block any enemy penetration. They constitute for the defending commander a powerful reserve which due to its mobility can be held beyond the effective range of artillery.

640. a. Should the enemy succeed in penetrating the position with a strong armored attack, it is essential that units on the battle position close the gap thus created without delay, and before succeeding hostile units can exploit the success attained. The shoulders of the salient must be held at all costs.

b. In such situations local counterattacks may fritter away the strength of the garrison of the battle position. The defender's ability to hold the shoulders of the penetration may, as a consequence, be seriously impaired making it difficult or unsound to attempt a large scale counterattack by general reserves.

c. The commander considering a local counterattack must therefore decide whether a penetration within his defensive area is—

(1) A relatively weak infiltration which has not seized critical terrain and can therefore be blocked from further advance and destroyed.
(2) An attack which, though it has seized dominant terrain within the sector, can be destroyed by the local counterattack of the reserves available to the commander.
(3) An attack of such strength as to make local counterattack inadvisable.

d. In every instance full advantage should be taken of communication with and information available to higher headquarters. The use of local reserves of subordinate units as part of a large scale coordinated attack may be part of larger scale counterattack plans.

641. a. Counterattacks are of two general types—those designed to restore the original position by striking the hostile attack in flank, and those designed to trap and destroy the penetration at a point particularly favorable to the counterattack.

b. The basic essential of the first type counterattack is a favorable axis of attack which will strike the flank of the hostile penetration and also afford dominant observation along the selected axis. In planning to strike close to the base of the salient created by the hostile penetration, care must be taken to avoid friendly defense areas. These areas furnish valuable fire support which must be integrated into a carefully coordinated fire plan employing all available artillery and supporting weapons. Selection of a

series of possible lines of departure and objectives along the selected axis affords flexibility.

c. Counterattacks of the second type, though they are limited in character, can be planned in greater detail due to the fact the area of the counterattack is definitely determined. Such detailed plans are justified primarily in an area where a hostile penetration is considered likely. The counterattack should be designed to take the enemy at maximum disadvantage, preferably at the time when his penetration has progressed to a point where his attacking forces, including their fire support, are disorganized.

642. Wherever possible the local counterattack forces should consist of armor, strongly supported by infantry. The command organization of the counterattack should be such as to place all elements of the counterattack under the command of a single counterattack commander. Defense areas located within the zone of operations of the counterattack should be included in his command regardless of the original chain of command.

643. If the enemy has attained such success that local commanders are unable to eject him, the higher commander must decide whether to counterattack with reserves at his disposal to restore the battle position, to continue battle on the battle position and prevent further enemy advance, or to withdraw to a prepared position in rear.

644. Time is required for the preparation for a major counterattack. Sufficient reserves must be assembled to carry the attack forward. Adequate fire support must be arranged. Assembly areas, zones of action, objectives, and time of attack are clearly specified. Surprise is an important factor. Employment of artillery, chemical troops, and armored units is regulated and controlled by the higher commander. Whenever practicable, the counterattack is launched against the flanks of the hostile salient. Advance planning for such an operation is essential in order to reduce to a minimum the time required in final preparation.

## READJUSTMENTS OF DEFENSIVE POSITION

645. In reaching a decision to withdraw to a rearward position, the commander must carefully evaluate the time required to reach and organize such a position and the effect of hostile armored and air attacks on his withdrawing forces. The rapidity and power with which armored units and combat aviation can strike indicate

the necessity for the organization and occupation of the rearward position prior to the withdrawal of the forces directly engaged with the enemy. Reserves of higher commanders are suitably employed on such rearward positions. To order a withdrawal to an unorganized and unoccupied rear position in the face of attacks by armored forces and combat aviation invites disaster for the entire command.

645. Should darkness result in a cessation or lessening of hostile activity, aggressive measures are taken to maintain contact with the enemy and to determine his dispositions and probable course of action. Front-line units reestablish security elements, and where necessary, make readjustments and improvements within the battle position. Plans for the employment of illumination and night vision equipment are carefully coordinated and utilized to the maximum advantage. These plans should provide for illuminating a portion of the battle position, if necessary, to support a counterattack, and countermeasures against efforts of the enemy to illuminate the battle position.

647. When the enemy succeeds in establishing himself on favorable ground at close range from the main line of resistance, it may be advisable to redistribute the defending forces in depth. In such case the main line of resistance may be shifted to the rear of the zone of resistance, and the original main line of resistance held by combat outposts; or the defense may be transferred to a rear position, in which case the preparations for a withdrawal from action and a renewal of the defense on the new position must be made in advance. Withdrawal to a rear position is a rule advisable only when the situation clearly shows that the first position is untenable or will soon become untenable.

648. a. When a stabilization of operations gradually develops, the decision must be made whether to push an outpost forward and continue to hold the present position, making the necessary rectifications, or to hold the old position as an outpost position and transfer the principal forces to a rear position, which then becomes the main battle position. In either situation a redistribution of forces is necessary.

b. Measures are taken for the development and strengthening of the selected defensive position. Obstacles are reinforced, additional mine fields are constructed, defense against chemical agents is organized more thoroughly, shelter is provided for men and ammunition, and measures are taken to provide for the rest and comfort of troops.

649. a. Where a stabilized situation develops or a defense continues for a prolonged period, the necessity for conservation of the fighting power of the troops requires provision for the periodic relief of units. For the sake of continuity in the execution of the plan of defense, it is advantageous to relieve the artillery and the infantry at different times.

b. The relief is preceded by a detailed reconnaissance of the sector by officers of the relieving unit. If time permits, all commanders down to and including platoon leaders should visit the position prior to the relief. Commanders familiarize themselves not only with the disposition of the defending force, but with the known hostile dispositions on their part of the front. Arrangements are completed for the transfer of supplies and special equipment to be left on the position by the unit relieved. An overlap in both the arrival and departure of key personnel of the relieved and relieving units facilitates the relief.

650. Secrecy in planning and conducting the relief is essential to its successful accomplishment. The relief should be carried out under cover of darkness, and in sufficient time to permit the bulk of the relieved force to be beyond artillery range prior to daylight. Careful planning and proper supervision will prevent congestion of incoming and outgoing troops at critical points.

651. The execution of the relief takes places under the direction of the commander of the unit to be relieved; he usually remains responsible for the defense of the sector until the relief has been completed.

## Section V. TERMINATION OF THE DEFENSE

652. An attacking enemy through his own maneuvers, losses, errors, exhaustion, or other cause, may be placed in such an unfavorable position that the advantage passes to the defender. The latter then has a prospect of success in a counteroffensive, which aims at a tactical decision, the defeat, and possible destruction of the opposing force. It is conducted as an offensive operation.

653. Should the situation change to one requiring retrograde movement, the operation is conducted accordingly.

## Section VI. DELAYING ACTION

654. A delaying action is a retrograde movement by which a force seeks to delay the advance of a superior enemy. The tactics employed are basically those of the defense, although the underlying

principle of a delaying action is to gain time without fighting a decisive engagement. Delaying action may be used to facilitate a retirement. It may be used in the opening phases of a battle to gain time for the united employment of the entire command. It may also be used in later phases pending completion of preparations for counteroffensive action. In offensive operations, delaying action by a portion of the command to delay the arrival of hostile reinforcements may be of decisive importance. It finds special application in the operations of covering forces and other security forces.

655. a. Delay of an advancing enemy may be accomplished by defensive action in one position, or by delaying action in successive positions. Exceptionally offensive action may be required as a means of deception, to gain advantageous terrain or to disengage a heavily engaged force. All three forms of action may be used in any combination.

b. The mobility of the delaying force will largely influence the type action employed. Against an attacker strong in armor the delaying force should have equal mobility at least.

656. Skillful use of terrain has a decided influence on all delaying operations. A series of parallel ridges across the lines of hostile advance, unfordable streams, swamps, lakes, and other obstacles on the front and flanks, high ground with good observation and good fields of fire at long range, concealed routes of withdrawal, and a good road net favor the execution of delaying action.

657. a. In situations where the enemy has freedom of maneuver and mobile troops and the flanks of a delaying force are open to hostile attack, the protection of the flanks and rear is of vital importance. Since the enemy may succeed in pushing by the flanks or in executing a wider maneuver with mobile forces to strike in rear of an occupied delaying position, the commander must make provision to block or destroy such forces.

b. The support of combat aviation is of major assistance in the protection of the exposed flanks of a delaying force.

c. Ground and air reconnaissance forces must be continuously on the alert to locate threats to flanks and rear.

658. a. Delaying action in successive positions consists of a series of coordinated withdrawals by portions of the delaying force. It is based on limited resistance on a position, with the intention of renewing this resistance in successive positions if necessary.

The maximum amount of time is gained by blocking the advance of the enemy and by forcing him to reconnoiter, to deploy, to maneuver, and to make other time consuming preparations for battle. Combat ordinarily is broken off in each position before troops become closely engaged.

b. However, the situation may require a strong resistance on some position, or even a counterattack in order to accomplish the delaying mission. Such a situation may occur when it is necessary to offer strong resistance in a sector the possession of which will secure a well planned retirement on the whole front. If protracted resistance on a single position is necessary, measures are taken to extend the depth of the zone of resistance. The best available troops should be given the defensive mission.

c. The delaying measures are continued between positions in order to gain time for organizing resistance on the next position. Because of the retrograde and long-range nature of such combat, delaying action is executed most effectively by troops possessing a high degree of mobility and great fire power, especially at longer ranges.

d. In general, contact is made as far forward as possible and continuous resistance is offered in order to compel the enemy to employ his whole force and to consume a maximum of time. No more ground than necessary is given up. However, the ability to execute planned withdrawals under conditions that permit orderly movement to the rear must be retained.

659. In fighting a delaying action, some troops may be disposed on the rear position to cover the withdrawal from the positions in front. Timely measures are taken for reconnaissance and for preparation necessary for the occupation of the successive delaying positions in rear.

660. Provision is made for the establishment of wire communication from the force commander to the zone commanders and to the force artillery commander. Of special importance is efficient operation of the artillery communication net in order that the flexibility of artillery fire may be exploited to the maximum. Signal communication to distance or detached units is ordinarily limited to radio and messengers.

661. In open terrain the important consideration in the selection of a delaying position is a good field of fire at long range. In close and wooded terrain, observation and fields of fire are equally unfavorable for both sides. The defender can, however, ordinarily make better use of the cover, concealment, and obstacles offered

by the terrain than can the attacker. The ground in rear of the position should favor a covered withdrawal by screening the troops from hostile view and fire as soon as the position is vacated. Field fortifications are limited except where a protracted resistance is contemplated. Full use is made of mines, obstacles, booby traps, demolitions, and chemical interdictions in front and on the flanks of the position and in the areas between successive positions.

662. a. The conduct of delaying action is facilitated in open terrain by selecting successive positions on high ground at such distances apart that the enemy will be forced to regroup and redeploy his forces in order to attack each successive position. Elements of the delaying force may occupy the foreground of the delaying position during the early stages of the hostile development in order to simulate a defensive position. Careful plans should provide for the time and routes of withdrawal of these elements.

b. In wooded terrain the infantry bears the brunt of combat and successive positions must be much closer together. Each position should insure facilities for artillery observation and for the delivery of effective long range fire by other supporting weapons. In general, the depth of the zone of resistance is not great. The field artillery is disposed in depth so as to permit it to deliver the maximum long range fires and yet still be able to cover the withdrawal to the next delaying position at the proper time. Expected difficulty of displacement during the action may even require some of the field artillery to be initially placed behind the next delaying position. Other supporting weapons are located well forward.

663. Whenever practicable, withdrawal from a delaying position is effected under cover of darkness. When the enemy has superiority in air or armored forces, or both, the commander must ordinarily delay on a position until nightfall. In such situations selection of positions strongly protected by natural obstacles which facilitate operations on a broad front becomes a primary consideration. (See pars. 677 to 681, inclusive.)

664. If the withdrawal from action from a delaying position must be made in daylight, combat aviation and armor may be employed against those hostile elements which most seriously threaten the success of the operation. A daylight withdrawal may also be facilitated by organizing an intermediate delaying position to be occupied by reserves. (See pars. 690 to 693.)

665. a. To facilitate coordination of the operations, the combat area is subdivided into zones, the boundaries of which are ex-

tended to the rear to include initially the first two delaying positions, and later the final position in the commander's plan of action. In favorable terrain the width of zones in delaying action may be taken as about double that of sectors in defense.

b. A tactical unit is assigned to each zone and is given a combat mission. The strength and composition of each unit is determined by the assigned mission, the terrain, the width of the zone, and the nature of the hostile threat. Mutual support between adjacent units is coordinated by the next higher commander.

c. Decentralization of operations to commanders of those units will be frequent when operating on a broad front. Continuous liaison between adjacent units, and between subordinate units and the higher commander, must be maintained.

666. The delaying action is conducted in each zone by small units holding the natural strong points of the terrain and supporting each other by flanking fire. In close terrain or during periods of low visibility, close contact between adjacent units is maintained by combat patrols. Local reserves protect the flanks of forward areas and cover the withdrawal of forward elements.

667. Artillery in general support prepares a plan of interdiction fires covering principal hostile avenues of approach and is prepared to engaged distant targets. It is employed to reinforce the artillery in direct support in accordance with the requirements of the situation. Special attention will be given to interdiction of hostile movements toward the flanks and rear. Light artillery will often be attached to the unit it supports.

668. Engineers are employed to construct a barrier zone of mines, obstacles, and demolitions in front of the first delaying position and in the area between successive positions. To insure coordination, engineers are frequently attached to subordinate tactical units. Antitank units are attached to units covering the hostile avenues of approach. To protect an exposed flank, a mobile flank guard is detailed with engineers and antitank units attached.

669. Persistent chemical agents may be employed to contaminate the front and flank of each position to hinder, divert or delay the approach of the enemy.

670. The antiaircraft artillery is employed primarily to protect the artillery, reserves, and critical defiles in rear from hostile air attack.

671. A mobile reserve, reinforced by tanks, artillery, and engineers is prepared to move rapidly to counter mobile threats.

672. The greatest importance is attached to keeping the enemy in doubt as long as possible concerning the location of the successive delaying positions and the delaying nature of the operations being conducted.

673. The commander controls the operation by prescribing the time of withdrawal and the time by which each successive position is to be occupied. In open terrain, it is often better to make a timely and simultaneous withdrawal from each position. In close terrain or when a command is deployed over a wide front this may be impracticable, and the decision regarding the time of withdrawal is then left to subordinate commanders. The commander exercises control by prescribing a general terrain line to which units eventually will withdraw or in front of which the enemy will be held until a designated hour.

674. The loss of a defended tactical locality to the enemy does not involve necessarily an early withdrawal along the whole front. Adjacent units should take advantage of such situations to destroy the enemy by heavy flanking fire and by local counterattacks whenever the situation permits. An overly impetuous attacker may be given a serious setback by a well-timed aggressive local operation.

# CHAPTER 10

# RETROGRADE MOVEMENTS

## Section I. GENERAL

675. a. A retrograde movement is any movement of a command to the rear, or away from the enemy. It may be forced by the enemy or may be made voluntarily. It may be classified as a withdrawal from action, a retirement, or a delaying action.

b. Each of these operations possesses elements of the defensive, each contemplates movement to the rear, and each seeks to gain time by the sacrifice of terrain. While each classification is a variation of the defensive, delaying action employs defensive tactics so frequently that it has been included as part of chapter 9.

c. Every retrograde movement made from hostile contact must be initiated by a withdrawal from action.

d. Decision to effect a retrograde movement must receive the approval of higher headquarters.

676. Retrograde movements are made for one or more of the following purposes:

a. To disengage from battle.

b. To avoid battle in a disadvantageous situation.

c. To draw the enemy into a situation unfavorable to him.

d. To gain time without fighting a decisive engagement.

e. To conform to the movement of other troops.

f. To permit the employment of a portion of the command elsewhere.

677. a. Retrograde movements require a well-defined plan executed under the constant control and supervision of all leaders.

The presence of hostile armored and air forces increases the difficulties of executing these movements particularly during daylight. A successful retrograde movement usually is covered by a mobile security force, which devotes particular attention to flank security in order to avoid envelopment of the main forces. (See ch. 6.) Deception designed to create the impression of a stubborn defense or of offensive preparations furnishes valuable assistance in the withdrawal from action.

b. The organization and occupation of rear positions by a portion of the force prior to the retrograde movement is desirable. Provision should be made for prompt reorganization of units in the event of a rout of our forces; if possible, under the protection of units not otherwise involved. Careful attention to the care of the men, and the presence of higher commanders well forward will tend to counteract the detrimental effects of this type of action.

678. Mine fields, demolitions, contaminations, and other obstructions are used to the maximum in retrograde movements to delay the hostile advance and to assist in flank protection. Particular attention is paid to the use of mines on likely avenues of approach of armored units.

679. Combat aviation is employed against hostile aviation and to delay the hostile advance or pursuit by harassing and interdicting hostile forces at critical localities. It is of particular value in covering exposed flanks.

680. In retrograde movements, every advantage must be taken of available motor transportation for the movement of troops in order to facilitate withdrawal, conserve energy, and to gain time for the preparation of new positions. The effective use of motor transportation will assist materially in achieving maximum delay on, and between, successive positions. Security forces should consist of highly mobile forces. (See ch. 6.)

681. a. Enemy ground and air forces may be expected to follow up relentlessly both day and night any retrograde movement and to strike withdrawing columns from any direction. This necessitates continuous ground and air reconnaissance to both flanks and rear, rapid movement under cover of darkness, strong antiaircraft defense, and continuous all round antitank defense. (See ch. 6.)

b. Mobile reserves, particularly armored cavalry, are held available to meet wide and rapid movements against flanks and rear, penetration of the defensive front, and attacks by airborne troops.

Strong armored reconnaissance elements are essential for reconnaissance and flank protection.

682. Military police furnish guides to assist the rearward movement and control traffic. Traffic is regulated at critical points to prevent congestion, particularly in towns, at bridges, and other defiles.

683. Antiaircraft artillery protects the most important areas, generally the friendly assembly areas and critical localities along the routes of withdrawal.

684. Plans for retrograde movements must provide for the rearward displacement of the rear boundaries of divisions and higher units. Coordination between the combat zone commander and the communications zone commander is essential in event transfer of area responsibility is involved. Problems concerning the responsibility for communications zone dumps and other installatons and problems of evacuation and destruction, including the authority to direct such action, must be resolved and made known to unit commanders concerned prior to the initiation of retrograde movements.

## Section II. WITHDRAWAL FROM ACTION

685. A withdrawal from action is the operation by which a force disengages from the enemy. The general purpose of the withdrawal from action is to regain or preserve freedom of action. It may be followed by a retirement, a delaying action, or a defense on another position. Contact must be maintained, however, by our reconnaissance and security forces. Maintenance of contact may consist solely of observation of hostile movement.

686. a. A withdrawal from action in daylight usually risks such losses and disorganization that large units should make every effort to hold out until nightfall and then withdraw under cover of darkness. The heavier the fighting and the closer contact with the enemy, the more difficult a daylight withdrawal will be.

b. To avoid the possibility of hostile observation, even rear echelons and other rear installations wait for darkness unless assured of concealment. Small mobile forces may execute daylight withdrawals.

687. A withdrawal from action may be facilitated by darkness or other concealment of dispositions and movements, by bad weather,

by rapidity of movement, by the careful preparation of plans, by deception, and by counterattacks. Successful counterattacks create conditions favorable to the withdrawal of hard-pressed or closely engaged units. Persistent chemical agents may be used to restrict, hinder, or make costly the use of probable approaches.

638. The commander who orders a withdrawal from action also designates the rearward position on which the troops will assemble, and the operation to be undertaken after this assembly. The location of the rearward position should compel the enemy to regroup his forces, and renew his preparations for attack. Early orders are issued to permit movement of reconaissance and advance detachments to the rear assembly position, as well as other essential preparations preliminary to the withdrawal.

639. Engineers reconnoiter, repair, and mark roads in addition to installing mine fields, road blocks, and demolitions. In certain situations they reconnoiter and stake out rear positions and furnish guides. They destroy materials to be abandoned; act as part of a covering force; and constitute an emergency reserve.

## DAYLIGHT WITHDRAWAL FROM ACTION

690. In a daylight withdrawal, in addition to the rearward position, the commander selects a suitable covering position and details from reserves, or from the most available of the engaged forces, a mobile covering force, strong in firepower. This force occupies the position and covers the withdrawal of the troops engaged. A covering force of this type may include armor, artillery and antiaircraft means. Engineer and chemical elements are attached as required. Strong support by artillery and combat aviation at this stage of combat may be decisive.

691. The covering force covers the routes of withdrawal and the assembly position of the main body from one or more positions. When the terrain permits, the occupation of a flank position is desirable to facilitate the withdrawal of the remaining forces and to force the enemy to execute a time consuming maneuver. The commander makes special provision for antitank defense of road centers and other armored approaches that control the lines of communications to the rear, and the features of the terrain that afford extended observation over the area his force is covering. When its mission is accomplished, the covering force withdraws to the rearward position protected in turn by necessary security forces. (See ch. 6.)

692. The covering force must delay, restrict, or divert the enemy in order to permit the main body to disengage, assemble, and move to the rear. It also may serve as the initial outpost for a rearward position. The successful accomplishment of this mission depends largely on the composition and location of the covering force, the efficient execution of a systemtatic plan of artillery and other defensive fires, and the skillful use of counterattacks to release hard-pressed units.

693. a. The order for the withdrawal should assign zones or routes of withdrawal to each unit of the command. Zones of action are normally assigned to the main combat units particularly if they may have to fight while moving back. Routes are frequently assigned to trains and to other units such as artillery or reserves which move to the rear under control of the higher commander. Zones of action or routes so assigned should usually extend to the rear position.

b. The hour and priority of withdrawal of units should be fixed. Definite control measures should be established to include signal communication and provision for the clearing of routes and coordination of troop movement. A new command post is designated early. Every measure is taken to insure secrecy.

c. Trains and wounded are moved to the new area as early as possible. Preparation for the execution of demolitions on routes of withdrawal and the early removal or destruction of supplies and material are important. Material or supplies must not be abandoned in condition that will permit their repair and use against the withdrawing forces. Construction of necessary bridges must be undertaken including provision for maintenance.

694. a. When the terrain is favorable and the security of the command permits, all subordinate units may be withdrawn simultaneously. However, it usually is necessary to move certain units ahead of others in order to avoid congestion and to insure a smooth execution of the movement. This procedure also gives greater security to the command because the units remaining temporarily in place cover the withdrawal of those first to move. Normally it is best to withdraw the least heavily engaged units first. Smoke may be used to conceal the daylight withdrawal of a unit over terrain exposed to observed enemy fire.

b. Exposed units are withdrawn as early as possible consistent with the safety of the command. In some situations, counterattack, particularly by armored forces, may make it possible to withdraw first those units which are hardest pressed, or which

are exposed to the most dangerous threats. However, when necessary to protect the command as a whole, these hard-pressed units must maintain their positions. It is better to run the risk of losing certain units than to jeopardize the whole command.

c. The support of antiaircraft fire and of combat and reconnaissance aviation may be decisive factors in the withdrawal from action of a heavily engaged force. Armored cavalry reconnaissance elements protect the flanks of a force during such a withdrawal from action.

## NIGHT WITHDRAWAL FROM ACTION

695. Successful night withdrawal from action depends primarily upon deception and secrecy. Limitations placed by darkness upon hostile air and ground operations are fully exploited. Maximum advantage is taken of deceptive measures based upon the maintenance of normal activities including aggressive patrolling.

696. a. The withdrawal of the greater portion of the engaged force commences shortly after darkness. Small increments of the engaged forces, are left in position in immediate contact with the enemy. These detachments screen the withdrawal by simulating normal activity of a fully garrisoned position with fire from different positions, reconnaissance by combat patrols, and normal use of radio and pyrotechnics.

b. A portion of the field artillery remains in position to support the elements still in contact. It increases its fires to deceive the enemy as to the amount of field artillery in action. The artillery must insure the continuous support of the withdrawing elements. The remainder of the artillery is withdrawn to the rearward position, priority in movement being given to the heavier calibers.

697. a. At night the withdrawal of front-line units may be executed on a broad front. Troops withdraw initially straight to the rear and then move to designated assembly areas where small units are reformed and continue the rearward movement in conformance with the coordinated plan of withdrawal.

b. During the period of the night withdrawal the force is vulnerable to attack. Withdrawing units provide adequate security to protect their own columns. Strong security measures are taken to provide for defense of critical localities such as road centers and assembly and entrucking areas. Antitank protection against sudden attacks which utilize favorable approaches for night attacks is essential. Troops involved in such measures should

be in position prior to dark. Care must be exercised during movement involved to maintain secrecy.

698. a. In view of the broad front upon which the detachments screening the withdrawal are employed, a single covering force commander ordinarily cannot maintain effective control. The superior commander therefore coordinates the action of the elements holding the various sectors and provides artillery support. This coordination includes directions covering the time of withdrawal and action to be taken in case of attack.

b. The detachments left in contact with the enemy may be directed to withdraw at a prescribed hour or upon order. Existing signal communication is utilized to insure the best possible communication to the scattered elements of the covering force within the limitations of secrecy. Whenever practicable the foot elements of these detachments should be furnished motor transport particularly when the distance to rejoin their units is great.

699. In addition to the detachments left on the forward position the higher commander provides a covering force (outpost) for the rear position to which withdrawal is being made. The missions of this force include covering the withdrawal of the detachments left in close contact with the enemy and the artillery supporting these detachments. It has the further mission of protecting the assembly of the entire force for further retrograde movement or to serve as an initial outpost if the rearward position is to be defended.

700. Orders for the night withdrawal include in general the same provisions as for a daylight withdrawal (par. 694). The use of routes rather than zones in rear of the troop assembly areas is more frequent. As a result, coordination on roads becomes more important.

## Section III. RETIREMENT

701. A retirement is the retrograde movement by which a force seeks to refuse decisive combat under the existing situation by marching away from the enemy. A retirement may be made in one stage or in several stages, depending upon the distance involved. A retirement may be made following a withdrawal from action or when no actual contact with the enemy has been made. When a withdrawal from action precedes the retirement, the actual retirement begins after the main forces have broken contact with the enemy and when march columns have been formed. (For covering forces, see ch. 6.)

**702.** a. In retirements following a withdrawal, the most important considerations for a commander are to place distance, obstacles, and security forces between his main body and the enemy, and to regain his freedom of action. As the distance from the enemy increases, these small columns may be consolidated into larger columns. Forced marches may be essential prior to consolidation.

b. Trains are put in march without delay, under escort, if necessary, and sent to the rear to a selected bivouac area. During their retirement they establish dumps of ammunition, rations, fuel, and other supplies en route, to meet the needs of the retiring troops. Antiaircraft artillery protection of important defiles on the route of retirement is established. As fast as troop units arrive in assembly areas, they are formed into small columns and set in motion to the rear.

**703.** Road march formations are usually taken up when the zone of effective hostile light artillery fire is passed. Formations are modified to meet existing conditions of terrain, visibility, intensity of enemy fire, activity of enemy combat aviation, and tactical requirements for control and rapidity of movement.

**704.** During the initial phase of retirement made from contact, the division generally assigns specific routes to the trains, the artillery, and other auxiliary troops, and indicates when the routes will be cleared for the troops still in action.

**705.** The formation and number of columns to be employed during retirement depend principally upon the number of roads available and the hostile interference. It generally is desirable to move the major elements of a deployed force to the rear simultaneously and abreast of each other. However, a hostile threat to a flank may make it necessary for one element to hold in position until the movement of the others is well under way. A restricted road net, or defiles in the zone of movement, may necessitate withdrawals of elements successively. If a flank is threatened during the retirement, the adoption of an echeloned formation may be appropriate.

**706.** The actual terrain objective toward which a retirement is directed depends upon the mission of the command and the purpose of the movement. Such an objective should favor the future action of the command. Factors which influence the selection of this objective are the actual and potential strength of the enemy; reinforcements that may become available; the time when the enemy can reach critical localities on the route of the retirement;

and the extent that terrain and the weather favor hostile movement and interfere with friendly movements.

707. The retirement order of a small command usually designates the time when each subordinate unit commences its movement. In commands the size of a division or larger, the commander usually designates the time that the major portion of the command pass initial points or lines, and, when appropriate, the hour that certain lines or assembly areas must be cleared.

708. Clearing and maintaining the routes of march for friendly troops and organizing an effective zone of obstacles to delay the advancing enemy are of greatest importance. Engineers are sent back early to reconnoiter and improve the routes of retirement, repair bridges, and prepare obstacles and demolitions to be executed by the rear guard. Pertinent information of the location of obstacles and of the nature of the demolitions and contaminations prepared is furnished to the retiring troops. Measures are taken to prevent their endangering our own troops and to insure their execution at the proper time. Chemical troops equipped with chemical agents may be attached to the engineers for the contamination of obstacles and demolitions. Suitable engineer detachments are attached to rear and flank guards to assist in delaying the enemy. Some engineers may be employed in certain situations to reconnoiter and stake out rear defensive positions.

709. Traffic is regulated at critical points to prevent congestion, especially in towns, at bridges, and at other defiles. Strong antiaircraft and antitank protection is established at these critical localities until they are cleared by the main body.

710. Security forces are provided adequate artillery support in the execution of their missions. The remainder of the artillery is disposed to best protect the main body or support the security forces.

711. The antiaircraft artillery is disposed to protect the most vital points on the routes of the retiring columns. As the retirement progresses, the antiaircraft artillery moves rapidly by bounds from area to area, and frequently is given priority on the roads.

712. During a retirement, mobile forces are employed on security missions, and frequently may constitute or be attached to the rear or flank guards. Reconnaissance, particularly to obtain information of any hostile movement directed towards the flanks, is important and should normally be assigned to reconnaissance units

of the corps or division, armored units, and reconnaissance and light aviation.

713. A retirement generally offers opportunities for the use of chemical agents of all kinds. Smoke may assist security detachments in concealing their movements during successive withdrawals.

714. In retirement orders, present command posts and the next ones to be occupied should be specified. Axes of signal communication should be indicated as far to the rear as it is practicable to foresee them.

715. All around security must be provided. In a short retirement which can be completed in one night, the covering force for the withdrawal usually gives sufficient protection for the movement. If the movement continues after daylight, a rear guard should be formed to protect the march of the main body. Protection by combat aviation may become decisive during the daylight move. Initially this rear guard consists of the troops which covered the assembly of the main body reinforced by contingents of other arms as required by the situation.

716. The mission of the rear guard is to protect the main body from surprise, harassment, and attack. This requires that the rear guard operations should enable the main body to avoid battle and regain the freedom of action of the force commander. The strength and composition of a rear guard are such as to permit the execution of its mission without the intervention of the main body.

717. a. A rear guard covering the retirement of a combined force consists of a mobile force strong in defensive power. Units of the several arms are included in accordance with the requirements of the situation. A rear guard generally is strong in infantry, armor and engineers.

b. The ability of armored cavalry units to conduct delaying action makes them important elements of a rear guard. When the main body has succeeded in gaining sufficient distance from the enemy, these units may constitute the principal elements of the rear guard.

718. The formation and the method of operation of the rear guard are adapted to the situation. Movement to the rear is made by bounds, based on the progress of the main body and the time limit

set by the higher commander for holding designated terrain lines. The distance between the rear guard and the main body is determined accordingly. Delays in the retirement of the main body must be expected.

719. a. When in contact with the enemy, the rear guard distributes its forces in groups over a wide front and opens long-range fire with its artillery and other supporting weapons to force the enemy to deploy and thus to delay his advance. Unless the security of the main body requires a stubborn resistance, the rear guard, as far as practicable, avoids close-range combat and withdraws successively from position to position as the enemy approaches.

b. The successive positions of the rear guard are chosen at such distance from each other that the enemy is forced to renew his preparations for attack in front of each of them, and that changes of position by the artillery of the rear guard are reduced to a minimum. A rear guard position should favor withdrawal by affording covered routes.

720. When the enemy presses his pursuit closely, greater resistance is offered. Advantage is taken for favorable opportunities to punish overhasty pursuit by counterattack. Attack against the flanks of pursuiting columns by armored troops is an effective means of disorganizing the pursuit. The most favorable time for offering a determined resistance is during the late hours of the day to permit withdrawal of the rear guard under cover of darkness.

721. When the distance from the enemy permits, the rear guard retires in march formation. Its distribution corresponds, in general to that of an advance guard, in reverse order of march, comprising the reserve, the support, and the rear guard armored cavalry or motorized detachment. The support provides a rear party and necessary flank patrols. Because of the direction of march, infantry reconnaissance during the retirement is much more restricted than is that of an advance guard. Chief reliance for the execution of the necessary reconnaissance must be placed upon armored cavalry, other elements, and reconnaissance aviation. Mobile troops especially observe and forestall attempts to pass the flanks of the rear guard.

722. Advance guards, composed of mobile troops including armored and engineer elements, are habitually employed, not only to meet the threat of highly mobile forces but to clear the routes of

march, insure the uninterrupted movement of the main body, and regulate civilian and refugee traffic. For the latter purpose military police are attached.

723. Flank security is of special importance during a retirement. When there is danger of an encircling maneuver in pursuit, flank guards composed of mobile troops with engineer, antiarmored, and chemical units attached, are detailed to cover the exposed flank. When opposed by an enemy strong in armored and air forces, special attention must be paid to the antiaircraft and antitank security of the routes of retirement and the area to which the troops are retiring.

# CHAPTER 11

# SPECIAL OPERATIONS

## Section I. ATTACK OF A FORTIFIED POSITION

### GENERAL

**724.** a. A fortified position normally will consist of a series of strongly organized localities disposed in great depth and width in such a manner as to be mutually supporting. Exceptionally it may be a single, strongly organized locality. In either case, the main position ordinarily will be composed of a series of mutually supporting major works, consisting of gun emplacements, troop emplacements, tank obstacles, antitank and antipersonnel mine fields with wire entanglements. Chemically contaminated areas may be located in front of and between these major works to cover dead spaces which direct fire weapons cannot reach from the main fortifications. Lightest fortifications may be found in areas possessing difficult natural terrain. Specially trained troops with special equipment may find such areas the easiest for the penetration of the fortified position.

b. The main battle position will be outposted. The outpost system may consist of concrete and steel fortifications, field fortifications, artillery, automatic weapons and troop emplacements, tank traps, and obstacles disposed in great depth to the front and flanks. Mobile reserves will be held under cover pending their use in a counterattack and the position will be served by well developed signal communication systems.

c. Whenever possible, fortified positions are bypassed and later reduced by siege or by an attack from the rear, following an enveloping maneuver by ground or airborne troops. When, because of secure flanks, isolation is impossible by an initial enveloping maneuver, and sufficient airborne forces are not available, fortified positions must be reduced by direct attack against a weak area. The penetration is followed by envelopment of the created flanks to isolate the separate parts.

725. a. The attack of a fortified locality may be divided generally into four phases. In application, related phases may overlap, particularly on weaker parts of the front. Immediate exploitation of the success of each phase is imperative. These phases are—

(1) Reducing the hostile outpost system and gaining close contact with the main position. This is comparable to the development of a defensive position except that the strength of the outpost positions will frequently necessitate a full scale attack.

(2) Breaking through the fortifications at the most favorable point.

(3) Extending the gap by isolating and reducing hostile emplacements on its flanks.

(4) Completing the action by moving mobile reserves through the gap to complete the encirclement and isolation of remaining fortifications while continuing the attack against them from the front, flanks, and rear.

b. Air bombardment should, and the action of airborne troops may, precede or be a part of any of the above phases. For details see FM 31–50.

726. The basic principles involved in the attack of a fortified position are the same as those for any other attack. The principal differences that distinguish the rupture of a fortified locality from the penetration of any other hostile position are—the increased special training and combat superiority required, the thoroughness of preparations, the types of special equipment and troops required, and the comparatively narrow frontage initially assaulted.

727. Air superiority is necessary in operations against a fortified position. The attack of hostile reserves by combat aviation both prior to and during the attack is of material assistance in isolating the area under attack. Under certain circumstances supporting aviation attacks selected areas in close support of the assault. It may also supplement artillery fire on installations in the fortified position or attack hostile artillery or lines of communication. Saturation bombardment of the area of assault immediately prior to the attack may also be employed.

728. a. Reconnaissance must develop detailed, exact information. The extent of the main and outpost positions to include their depth and width, and the location and character of emplacements and their dead spaces must be determined. The location and character of field and antiaircraft artillery positions, observation

posts, tank traps, antitank and antipersonnel mine fields and other obstacles must also be located. The relative advantage of the various approaches must be worked out from the viewpoint of the defender's effectiveness including those areas in rear of the locality which favor attack from the rear once the penetration has been achieved. To obtain the best results the efforts of reconnaissance and combat aviation must be coordinated with those of ground reconnaissance, including engineers.

b. Air photos are taken of the entire locality at successive intervals to determine the initial hostile defenses and the progress of any changes being effected. Important localities are outlined heavily and indicated clearly on the photographs; copies are distributed down to and including the smallest combat units which are to operate in the area covered, together with such intelligence summaries as are needed by each echelon of the command. These reconnaissances are continued throughout all phases of the operations.

729. a. Based on the results of reconnaissance and the task assigned, the commander determines what special troops, equipment, combat power, and training will be needed to break through the hostile system. He organizes his command into its tactical groupings and assigns missions to each.

b. The organization of the command into tactical groupings provides for self-sustaining combat units down to and including battalions, so that each echelon of attacking troops will be able to exploit local successes promptly without reference to the next higher unit, and to facilitate the advance of adjacent units whose progress is not so rapid. Organization and plans must also include provisions for the destruction or sealing of emplacements so as to preclude the enemy regaining their use. Plans must provide for positive means of signal communication at all echelons of command.

730. a. The attacking echelon is made up of specially selected troops and weapons. Normally, this attacking echlon will contain infantry, engineers, flat-trajectory guns with high muzzle velocity, chemical troops, tanks, tanks equipped with flame throwers, and engineer armored vehicles.

b. Engineers equipped with demolition equipment will prepare lanes through mine fields, wire entanglements, tank traps, and other obstacles, and will assist the forward movement of the attacking echelon. Searchlights may be used for illumination during night operations.

c. Chemical troops will lay smoke screens, fire high explosives, incendiaries or other chemicals, and open lanes through contaminated ground.

731. Assault detachments rehearse the contemplated operation on terrain and against fortifications similar to those to be encountered. The size and number of assault detachments needed in the preliminary operations depend on the size and number of emplacements which must be reduced. Assault detachments may be given the mission of reducing one emplacement or a series of emplacements. Each tactical grouping must have enough trained assault detachments with sufficient special equipment to insure the reduction of all emplacements in its zone of action.

732. Adequate reserves are concealed in rear of the attack echelon to insure success and to meet hostile reaction. Sufficient artillery of all calibers required to reduce the outpost system supports the attack echelon. Artillery of the heavier types assists the preliminary operations by constant bombardment of the hostile main position, paying particular attention to hostile artillery positions and emplacements which can bring fire upon troops engaged in preliminary operations.

733. Every effort and means is employed to assure secrecy in the movement to attack positions.

734. All forces not required in the preliminary operations are held concealed beyond the range of hostile medium artillery, and continue training and preparations required for the attack against the main fortifications.

## CONDUCT OF ASSAULT

735. The advance through the hostile position is a step-by-step process, determined by the progress of the assault detachments. It must be rapid enough to prevent the enemy from reestablishing the continuity of his front by recoordinating his fires or by counterattack.

736. a. Fire of heavy artillery is directed upon fortified works and obstacles. The fire of ligater, flat-trajectory weapons, and of flame throwers is directed against embrasures to neutralize the hostile weapons. Flat-trajectory artillery with high muzzle velocity, using direct laying, is employed to penetrate emplacements and armored turrets.

b. The assault detachments, screened by smoke and taking advantage of accidents of terrain and dead spaces outside the angles of fire, push through and around emplacements under protection of the fire of all available supporting weapons and other troops in the attach echelon. Close coordination exists in the infantry-artillery-tank-engineer-air team. The assault detachments are protected by fires and smoke placed on other localities from which hostile reaction may interrupt their movement, especially flank positions and troop emplacements not being attacked. These assault detachments utilize special demolition charges to explode mines, create gaps in wire, and reduce concrete emplacements.

737. a. Commanders of attack echelon units must be forward at the localities being attacked to exercise a direct influence. Division or lower commanders are well forward during the attack.

b. The speed of the advance through the outpost system depends in large measure upon the coordination maintained by the assault echelon commander. Alternative measure must be taken promptly when planned details of the assault are unsuccessful. As the gap is widened and the penetration is deepened situations will arise where the initiative, vigor and boldness of subordinates must be allowed full play.

738. Liaison among tanks, artillery, the attacking troops, and cooperating aviation is maintained by all possible means. Extensive radio and wire nets, messengers, visual signal stations, and pyrotechnics are employed to insure timely transmission of information and orders.

739. Emplacements are reduced in scheduled order successively by the assigned assault detachments. When an assault results in prolonged hand-to-hand fighting, local supports are rushed forward to assist the assault detachments. Each assault detachment is provided with reserves and local supports who follow up the advance closely, disposed for rapid passage through the detachment in the event the attack results in serious disorganization of the defense. Any halt is dangerous because of the speed with which a local hostile counterattack can be organized and launched, supported by weapons which are already in position and highly coordinated. Small isolated resistances which have been bypassed are reduced by special mopping-up detachments from general supports and reserves.

740. During the assault, supporting fires are concentrated on those hostile targets which constitute the greatest danger to the success

of the assault and a renewal of the advance; special attention is directed toward locating and bringing fire to bear on any hostile armored or local reserve elements forming for counterattack. When the advance is resumed, supporting fires conform to the movements and needs during the advance to the next emplacements.

741. During the advance to the next emplacements, units are reorganized as completely as time and facilities will permit. Additional personnel, equipment and material required against the next emplacement are brought forward. Essential adjustments are made in groupings and maneuver and fire plans.

## THE PENETRATION

742. While the preliminary operations are in progress, preparation for the penetration of the main fortifications is continued. New air photographs of the position and intelligence summaries are issued as necessary. All equipment, weapons, assault detachments, and other troops to be employed are in readiness to move forward to positions under cover of darkness, fog, or smoke by the time the preliminary operations are completed. Concealed routes to positions should be used.

743. The point of initial penetration of the position is selected carefully; it will be determined frequently by the existence of terrain and roads which favor the employment of armored forces in the break-through and exploitation.

744. The width of the front of penetration is limited by the amount and types of artillery and aviation available, the possibility of the employment of armor, and the number of trained assault detachments available.

745. Airborne troops may be landed within and in rear of the larger fortifications on the front of the main attack, to seize, hold or destroy vital installations or areas; to block the movement of reserves; and to assist assault troops by attacking the fortifications from the rear. If airborne troops are used, their operations must be coordinated with all other components of the attacking force. Special attention must be given to coordination with artillery, other supporting arms, and cooperating aviation.

746. a. The amount of ammunition, artillery, and cooperating aviation available, the degree of surprise possible, and the depth of

the fortifications on the front of the penetration will determine the length and intensity of preparatory fires prior to the assault. The bombardment of the whole front by artillery and aviation continues from the opening of the preliminary operations.

b. At some time prior to the hour of attack, the bulk of all supporting fires, ground and air, is concentrated on the fortifications on the front of the initial penetration. Combat aviation attacks hostile reserves, artillery, and sensitive points in the fortifications which artillery cannot, or does not, reach. Heavy and medium artillery is concentrated on points in the fortifications which offer the greatest danger to success of the penetration. The fire of flat-trajectory weapons is directed against lighter obstacles and embrasures in the fortifications. The use of smoke must be carefully coordinated to preclude interference with supporting fires.

747. Preparation fires on the front of penetration are lifted on a time schedule or on signal from the commander of the assault force, depending on orders from higher authority. The bulk of the preparation fires then shifts to the next fortifications to be reduced, or is placed to meet hostile reaction to the initial assault. Fires to include smoke are maintained against fortifications not subjected to assault.

748. Once a breach has been effected and the emplacements on the initial front reduced, additional assault detachments are sent into the gap at once. They attack the flanking works in each direction and widen the base of the penetration, while the assaulting force deepens the penetration by advancing and attacking the next fortifications in its zone. Troops in rear of the assault force are pushed rapidly through the gap created.

749. a. The location of the flanking fortifications and troops within or nearby facilitate the rapid organization and launching of a strong enemy counterattack. The strength of fortified positions usually will be augmented by strong field fortifications which must also be taken or destroyed. Enemy reserves frequently will be disposed in strong covered positions for such counterattacks. Delay in attacking the flanking fortifications and reinforcing the advance of the assault force may result in a serious reverse and the loss of the assault force by hostile counterattack. Troops in the zone of the flanking works move to the support of the assault detachments as rapidly as fortifications are neutralized.

b. Unless required by the attacker, captured enemy armament must be removed or destroyed and gun emplacements demolished

to prevent their recapture by the enemy or their use by hostile resistance forces.

### EXPLOITATION

**750.** Based upon prearranged plans, highly mobile forces are prepared to exploit the penetration. These forces usually will include both reserves and units disengaged from the attack. Plans and preparations must include provision to motorize infantry units. When the fortified position has been breached throughout its depth, these forces immediately are pushed through the gap. The shoulders of the penetration are defended against hostile counterattacks. Protection is given to troops passing through the gap by troops holding the shoulders of the penetration, by troops landed by air in rear of the fortifications, and by combat aviation. Armored forces lead the way.

**751.** **a.** Once through the gap, armored forces spread out fanwise, moving rapidly on all roads leading toward the hostile rear. Armored forces disrupt hostile lines of communications, block the movement of reserves, and complete the demoralization of the enemy. Closest cooperation by and coordination with aviation is demanded. The principal targets for cooperating aviation are hostile reserves, and troops attempting to block the movement of the exploitation forces.

**b.** Following the lead of the armored forces, the remaining troops in the exploiting force move rapidly to complete the isolation of the remaining fortifications. Such forces also participate in the complete destruction of the hostile field forces.

**c.** Suitable forces must be assigned to the mission of keeping the gap open against anticipated hostile efforts to close it.

## Section II. OPERATIONS AT RIVER LINES

### GENERAL

**752.** Owing to the restrictions which they impose upon movement and maneuver, wide and unfordable rivers exercise considerable influence on military operations. They constitute obstacles to an attack and natural lines of resistance for defensive action. They assist in screening against hostile ground reconnaissance and in providing security against hostile armored attack. The attack across unfordable rivers requires special preparations, both technical and tactical, proportionate to the size of the river and the relative strength of the opposing forces.

753. Reconnaissance of a river line is essential both in attack and defense. The strength of a river line increases with the width and depth of the river and the velocity of the current. Other considerations with a tactical and technical bearing are: the banks, adjacent terrain, islands, and tributaries including cover, concealment, and routes of communication on both sides of the river. The river bottom, approaches to the river bank, practicability of fords, the danger to be expected from ice floes, floating mines, and natural or artificially caused floods also must be considered.

754. Coordination with combat aviation is essential in all large offensive operations at river lines. Local air superiority is gained and maintained during the operation. River crossings sometimes can be greatly facilitated by use of airborne troops.

## ATTACK TO FORCE CROSSINGS

755. a. The defense of a river line sometimes can be outflanked. By demonstrations, strong in artillery and air activity, carried out at various points on the river line, an attempt is made to deceive the enemy as to the projected point of crossing, while a strong mobile force makes an unopposed crossing elsewhere and launches an attack to envelop the hostile flank before the enemy can readjust his dispositions.

b. When the enemy is not actually holding a river line, an effort is made to anticipate him in the possession of the necessary crossings. Mobile forces are advanced quickly on a broad front to seize the desired crossings and to occupy the dominating terrain on the far side in order to protect the crossing of the main body. Where river lines cross the lines of advance, orders must emphasize the necessity for speed and aggressive action to secure crossings.

c. Armored divisions and other mobile units effect river crossings by advancing rapidly and boldly to seize the necessary crossings and bridgeheads on the enemy's side of the river. If this is impossible, they effect wide detours to weakly defended or undefended points on the river and then cross. If all crossings are destroyed, armored units may be ferried until bridges can be constructed.

756. Troops transported by air and armored and motorized units may be employed to seize and hold important crossings until the arrival of leading elements of the main forces.

757. a. When the enemy is already in possession of a river line which cannot be turned, the crossing must be forced. Under favorable conditions, a river crossing may be forced by rapid and audacious methods directed simultaneously at a number of possible crossings. This may be accomplished by a bold attack of task forces, including troops transported by air and mobile ground forces strong in armor, amphibious vehicles and other stream crossing equipment.

b. In the absence of such favorable conditions, a more deliberate operation is required. Hostile troops are driven promptly across the river, and systematic preparations to force a crossing are initiated.

758. In an operation involving the crossing of a river, the actual crossing is a means, not the end sought. The immediate purpose is to get across quickly and economically and establish a bridgehead which will protect the crossing of the remainder of the command.

759. a. In establishing a bridgehead in river crossings for a large force there are usually three successive phases—first, elimination of the enemy's capability to place effective direct fire on the crossing front; second, elimination of the enemy's capability to place observed fires on the selected crossing sites; and third, elimination of the enemy's capability for placing any effective sustained fires of ground weapons on the selected crossing sites and on the space required on the enemy's side of the river for maneuver of the command.

b. Attainment of the first objective facilitates crossing by assault on storm boats, foot bridges, and ferries. Attainment of the second objective required for the second phase, coupled with local air supremacy, makes possible the construction of bridges to cross heavier loads. Attainment of the third objective coupled with air supremacy, gives uninterrupted use of crossing means over the river, permits the protected maneuver of troops in the furtherance of their mission, and facilitates the accumulation of supplies on the enemy side of the river. The assignment of river crossing objectives or missions to units must allow sufficient freedom to subordinate commanders so that successes can be exploited.

760. a. Reconnaissance of river lines across the routes of advance is begun by staff and engineer officers at an early stage of the operation. Air photographs showing the nature of the river and the bridge destructions effected by the enemy enable the commander to make an early estimate of the possibilities of crossing

and the means required. Ground reconnaissance of the river line can be executed ordinarily only after hostile covering forces on the near side of the river have been driven across the river.

b. Reconnaissance provides detailed information and furnishes the basis for the final selection of the crossing points and for the execution of the necessary preparatory measures. Based on the results of reconnaissance and on the tactical situation, decision is made as to the front or fronts on which the crossing will be forced.

761. In general, the attacker should operate on a wide front with several determined attacks at separated localities. The main effort will include one or more of those attacks. The defender is thus deprived of the capability of bringing the mass of his artillery, or his main counterattack, on more than one of the crossings. Secrecy in preparation and deception of the enemy as to the time and place of the main crossing are essential. Feints, deceptive use of smoke, or demonstrations are employed to deceive the enemy.

762. a. In the selection of crossing fronts and the crossing points, both tactical and technical requirements are considered. The sites selected as a consequence normally will be based upon the combination of requirements which best fit the specific situation. In this connection the surprise achieved by the selection of an unfavorable crossing front must be weighed.

b. Tactically, the attacker seeks concealment for his movement to the river; concealed assembly areas; a long stretch of river bordered by trees or low hills; undefended crossing points and good avenues for advance, especially roads, on the enemy side of the river. Dominating ground on the attacker's side of the river favors artillery observation and support of the attack by overhead fire. A salient in the river line toward the attacker favors concentration of combat power and flanking fire on enemy troops defending the salient. While the attacker of this type of salient can rest his flanks on the river after crossing, he may be forced to attack on a narrow front to break through a strong defense at the base of the salient

c. Technically, the attacker seeks a moderate current; a water area unobstructed by islands, bars, and reefs; suitable banks; good approaches on both banks; and easy connection to the existing road net. Old bridge sites frequently are advantegeous since they normally afford a road net, good approaches, and sometimes ruins on which to build a temporary bridge.

763. Having selected the fronts on which the crossing is to be made, the responsible commander formulates his plan of action for the crossing.

764. Tactical groupings are assigned to each crossing front and are given instructions regarding time of crossing, objectives, zones of action, assistance to adjacent units, and type and location of bridges to be constructed. Troops also may be assigned to make feints or demonstrations at points other than the main crossing fronts so as to deceive the defenders and to draw them away from crossing fronts. A portion of the command is held in reserve to exploit the most successful crossing.

765. Engineer troops and matériel must be made available early in the planning stage of the operation so that combined training can be accomplished, reconnaissances can be made, and equipment prepared and properly disposed. Nondivisional engineer troops with the necessary stream crossing equipment, normally are attached to, or placed in support of, the leading assault units making the crossing on each front. A reserve of engineer troops and matériel also must be provided to erect bridges or to assemble raft ferries, to reinforce the means of crossing at decisive points, to replace losses, and to do other engineer work such as maintenance and extension of the road net.

766. a. The unit engineer of the responsible commander is charged with all technical preparatory measures for the crossing and for distribution of engineer troops and matériel, the construction and guarding of bridges, and the regulation of traffic thereon.

b. The location of engineer matériel prior to the crossing, particularly ponton bridge equipment, must be carefully concealed. Discovery of its presence may disclose the plans of the commander to the enemy. It forms a remunerative target for both combat aviation and artillery, and should be given protection including antiaircraft defense.

c. The command post of the unit engineer is connected by signal communication with the command posts of the responsible commander and the commanders on each crossing front.

767. a. Once a tactical group is assigned to a crossing front, its commander and the commanders of troops supporting the crossing on that front direct staff and subordinate officers to reconnoiter the ground over which they will operate. Routes of approach, assembly areas, actual crossing points, and routes thereto must be located. Plans must be prepared for scheduled fires and

other details of the crossing operation. The volume of reconnaissance involved requires preparation of coordinated reconnaissance plans, including deceptive measures to meet restriction imposed in the interest of secrecy.

b. Signal officers reconnoiter the front of crossing for existing wire lines on the near side of the river and determine the need for additional wire lines. They also determine the possibilities of the extension of these lines on the far side. Prior to the crossing, normal radio traffic must be carefully maintained to preserve secrecy. Radio traffic measures may be included in deception plans. Once the crossing has been initiated, radio usually is relied upon for communicating with units across the river until telephone lines are established.

768. The hour of crossing is determined by the superior commander. It is more difficult to load and cross boats during darkness than during daylight. This difficulty may be more than offset by the security, secrecy, and surprise afforded by darkness. Crossings made under cover of darkness usually are timed to provide some time for reorganization on the far banks prior to daylight. The possibility of using artificial illumination should be considered.

769. Shortly preceding the crossing, the bulk of the troops to make the crossing is placed secretly in concealed bivouacs within easy night marching distance of their crossing fronts. A minimum of artillery may occupy concealed positions and fire for registration. For purposes of secrecy all but normal artillery fires may be silenced. Only covering forces and the necessary reconnaissance parties are permitted to approach the river. Covering forces along the river are designated from troops other than those to make the initial crossing.

770. a. Ordinarily, all supporting troops go into position under cover of darkness on the night of the crossing. Leading assault units move to attack positions where they are met by engineer troops with assault boats, footbridge, or other crossing means.

b. The following characteristics are desirable for these attack positions: accessibility for trucks which bring up engineer matériel, defilade, easy identification, concealment from air and ground observation, and direct and concealed routes to the crossing points.

771. a. The first assault waves on each front carry their boats from the attack position to the water's edge and launch them

on a broad front. Lateral movements and the massing of troops at the river bank are avoided. Measures are taken to regulate traffic and to suppress noise during the movement to the river. Ropes strung across the river will facilitate the crossing and provide additional safety to personnel. Specially trained and equipped patrols may cross in advance of the first assault waves to eliminate hostile listening posts and take over their communication. The movement from assembly areas to the far bank is usually under control of the engineer troops.

b. Departures from the attack positions are timed to permit leading units to cross simultaneously on a broad front, but once these units leave the attack positions they do not halt and no attempt is made to maintain alinement between boats. There is normally no firing from the boats particularly during a night crossing. Amphibious tanks and other amphibious vehicles, or landing craft may be a part of the assault force. The noise of movement may be screened by an air attack or by artillery fire. In the interests of secrecy, caution must be exercised in planning for the movement of heavy vehicles to the near bank prior to the crossing.

772. The engineer crews return the assault boats to the near bank for the second wave, which has moved forward close to the near bank. If the current is swift, allowance for drift must be made in fixing time or place of meeting the boats. If boats are to be reused, allowance must be made for probable losses during the crossing of the first wave. It may be necessary for succeeding waves to carry additional boats, or for engineers to furnish individual ponton boats or raft ferries to carry these waves.

773. Footbridges may be used for crossing first waves over narrow streams. Their construction is difficult, if not impossible, under aimed small arms fire. Ordinarily, they are used to cross succeeding waves of foot troops, particularly after the first objective has been attained. Where the width of the stream and other factors permit, footbridges may be preconstructed to permit spanning the stream without later construction.

774. Ponton raft ferries are provided where necessary to cross vehicles which will be needed before it is practicable to build the ponton bridge. Ferry construction usually is practicable after the first objective has been seized. When the supply of ponton boats permits, ponton raft ferries often are continued in use after the bridge is built to serve as an alternate crossing means and to handle return traffic.

775. Alternate plans are prepared for exploiting success on any crossing front by assigning troops from other fronts, or from the general reserve, to cross on the front where the crossing has been most successful.

776. In addition to the fires of organic weapons, the crossing of tactical groupings is supported by field artillery; the fires of supporting weapons of the general reserve; and by the fires of tanks and antiaircraft artillery when this will not interfere with the execution of their primary mission. During daylight crossings the support of combat aviation and the use of smoke may be decisive factors.

777. Supporting fire may be opened several hours prior to the initial crossing against an enemy prepared to resist in a well-organized position, or may be withheld until after the crossing is discovered, in order to obtain surprise.

778. a. Armored counterattack is a serious threat to the attack particularly during the early phase of the crossing. Every effort should be made to provide protection against such attack.

b. Measures taken may include early ferrying of organic and supporting tanks, provision for antitank fire support from the near side of the river, special priority of bridge construction for armored crossings, and air protection of the crossing and far bank by combat aviation. Assault elements may be equipped with additional individual antitank weapons if such action seems advisable.

779. The artillery gives close and continuous support to the advance. As soon as the assault waves advance from their first objective, the artillery may begin displacement of individual batteries across the river. Later, the mass of the artillery is advanced, the displacement conducted in such a manner as to assure continuity of artillery support. Artillery observers and liaison groups, with the necessary means of signal communication, accompany the assault units during the crossing and advance to the successive objectives.

780. Antiaircraft defense, both by ground units and aviation, is centered around the crossing fronts and particularly the more important tactical bridges. A portion of the automatic weapons of the antiaircraft defense is normally crossed to the far bank by boat or ferry before construction of the bridges is started. Continuous protection for the bridges is maintained as long as required.

781. Smoke, in addition to being used to conceal the actual crossings of the initial waves, may be used in connection with feints and demonstrations. The successful use of smoke facilitates the early construction of ponton bridges and thus expedites the expansion of the bridgehead. The use of smoke places additional importance on the marking of embarkation points and bridge sites and the routes leading thereto.

782. Reorganization is pressed by every available means, including the use of fresh troops, to insure that the attack on the second phase objectives can be continued without delay once the initial objectives have been taken. Since capture of these second objectives will deprive the defender of ground observation of the crossings, considerable resistance may be expected. All possible support, including armored units, should be made available to the assaulting forces to insure that the third objectives are captured in minimum time.

783. *a.* As soon as the second phase objectives have been taken, or prior to that time if conditions warrant, the responsible commander directs the construction of the bridges. The greater the number of bridges made available, the quicker and surer is the crossing. The construction of bridges from local materials requires much time and labor. Quicker results are obtained from the use of ponton or other engineer bridge equipment.

*b.* Alternate bridge sites are selected in advance. Transferring operations to an alternate site after the equipment is unloaded at the first site is a time-consuming and difficult operation. Decision for such a move rests with the responsible commander.

*c.* Immediately after bridges are constructed, protective devices including nets or booms may be placed in the stream to protect them from waterborne demolition activities.

784. Local control during the crossing and advance to the first objectives is mainly a responsibility of the leaders of small units. Capture of these first objectives gives an opportunity for the next higher commanders to resume centralized control and direct the attack on the second objectives. As soon as sufficient means have crossed the river, the commander may direct a coordinated attack on the third and final objectives. The period of delay on each objective is as brief as possible.

783. *a.* Traffic control measures for a river crossing must be complete and flexible. This is essential to provide for full utilization of the crossings in the exploitation of tactical success. Flexible

arrangements permit rapid adjustment to meet unexpected developments in the situation. Bridges may be damaged or destroyed, or changes may be required in the crossing priorities of units.

b. Traffic control generally is centralized. Traffic posts should be established at all points where serious traffic problems may arise. It usually is desirable to establish holding areas as close to the crossing points as safety and the road net permits. These holding areas are provided with adequate signal communication to the headquarters controlling the crossings. This permits a maximum, but regulated, flow of traffic over the crossings, while still facilitating the prompt readjustment of traffic. A holding area on the far shore performs similar functions in preventing congestion and regulating return traffic by bridge or ferry.

786. A successful crossing should be promptly and aggressively exploited. In one area a successful crossing may permit adjacent units to utilize crossings already achieved to strike the flanks and rear of the enemy forces opposing the adjacent units. A river crossing against resistance may thus be avoided. Under other circumstances the exploitation of a crossing may involve the early use of strong armored forces to strike deep in the hostile rear.

## DEFENSE AGAINST CROSSINGS

787. a. An unfordable river may be employed as an obstacle in front of a defensive or delaying position, or as an aid to defensive-offensive action which seeks to strike the enemy while his forces are astride the river. Holding a river line in such force as to leave available insufficient reserves, destroys the flexibility of the defense and exposes the defender to immediate defeat once the river line has been pierced. A river line loses much of its value as an obstacle if the enemy is not forced to make a direct attack; it becomes an obstacle to our own troops if successful counteroffensive action is to be followed by an exploitation.

b. A defensive position located with a river to its rear is equivalent to a bridgehead. The defended position therefore should be located to eliminate ability of the enemy to place any effective sustained fire of ground weapons on the bridge sites and to provide the necessary maneuver space between the battle position and the river. Under certain conditions greater distance from the river may be desirable to permit delaying action during the conduct of the defense. Plans must include provision for withdrawal across the river.

788. The commander must insure the complete destruction of all bridges and fords, which cross the river within his sector, to prevent them from falling intact into the hands of the enemy. The actual destruction is usually a mission of the unit engineer. Unless specifically forbidden by higher authority, any bridge or ford may be destroyed. When it is considered desirable to preserve such crossing until the last possible moment, full authority to complete their destruction is delegated to any member of the bridge or ford guard. In the case of a bridge which is especially important because of size or location, a senior officer may be designated to be responsible for its timely destruction. When it is apparent that the crossing cannot be kept from falling into enemy hands, it must be destroyed. Mines previously set along the approaches must be activated to delay the enemy and cost him casualties in personnel and equipment. A commander also must insure destruction of other means of crossing, such as boats, rafts, and materials which could facilitate a crossing.

789. a. A river may be used as an obstacle directly in front of the battle position when the river constitutes a major obstacle, when adequate forces are available to the defender, and when the enemy is unable to turn the position. In such a situation the river bank positions are held in strength as the forward portion of the battle position. As in the defense of any battle position adequate reserves are provided to intervene at decisive areas.

b. Emplacements are so located that the opposite bank and its approaches are held under fire and the enemy's attempts to cross are frustrated in their beginning. Salients in the river line and open terrain dominated by the enemy are held lightly, but must be readily covered by the concentrated fire of weapons.

790. a. When adequate forces are not available on the front to be held, or if the enemy can turn or avoid the position, river lines may be defended by defensive-offensive action. The tactics employed are comparable to those of a defense on a wide front except that counterattacks planned are to retain possession of the near bank. The mass of the forces is held in readiness at such distance to the rear that it can intervene promptly at any point where a crossing in force may be attempted. The river line itself then is held by relatively weak detachments. Stronger detachments with local reserves are posted at the most probable areas of crossing.

b. The operations of the advanced detachments are conducted in accordance with the doctrines governing outposts. It is their mission to force the enemy to disclose the full power of his sup-

porting fires, to discover hostile crossings, and to prevent hostile troops from establishing themselves in bridgehead positions before the arrival and counterattack by reserves. As in a defense of a wide front the local protection of artillery and installations must receive special consideration.

791. In defensive-offensive action, some artillery may be attached to the forces initially defending the more probable crossing areas. Enfilade fire on enemy crossing sites by artillery located well forward is very effective. The mass of the artillery is emplaced in such a manner that it can support the action of the main forces. To accomplish this purpose it may be necessary for a part of the artillery to move to previously planned positions after the hostile main attack has been discovered. Since the mass of the hostile artillery still will be on the far side of the river, much importance attaches to the neutralization of hostile air and ground observation directing the enemy's artillery fire.

792. a. In defensive-offensive action, the counterattack of the force reserve is made as soon as the hostile main crossing is recognized. The plan for this action is prepared beforehand. Success depends upon the commander's ability to launch the attack at the proper time and in a decisive direction. It must be launched before the enemy has established himself in a bridgehead position To this end, adequate signal communication must be insured and reserves must be prepared to move promptly and rapidly. Force reserves should aim to strike the main crossing while the hostile main effort is astride the river.

b. Decisive results are promised by the prompt employment of armored units and combat aviation against hostile units which have already crossed the river and by air attack of bridges, of troops engaged in ferrying operations, and those assembled for crossing.

c. In view of the importance of timely action and the distances involved, infantry units in force reserve should be provided motor transportation.

d. Antiaircraft artillery must be prepared to protect both the movement of reserves and of artillery to the counterattack positions as well as during the counterattack.

793. a. In any defense of a river line, security forces remain on the enemy's side of the river until forced to retire to maintain contact with the enemy, delay his advance, and determine his assembly positions and probable crossing places. When forced

to retire, these advance elements withdraw across the river. Timely measures are taken to destroy the crossings after the last elements have withdrawn across the river, or at such earlier time as may be necessary to prevent the crossings from being seized by the enemy. After the security force has withdrawn, contact with the enemy is maintained by use of patrols using boats or the special water crossing equipment.

b. Light armored units are employed initially on reconnaissance and security missions on the enemy's side of the river. Later they protect the flanks or rear of units on the river or are held in reserve.

794. The primary missions of the engineers are to destroy fords, bridges, and matériel which may assist the enemy in crossing; to reconnoiter the terrain along the river; to assist in organizing the ground; and to keep the roads in condition for rapid movement of reserves. Engineers also block with obstacles and mines the hostile avenues of approach to the river, embarking points, and landing points. Floating mines, rafts, and fireboats may be prepared and held in readiness upstream. Preparations are made for illuminating the water area at night. When dams and locks upstream permit the flooding of crossing sites the commander may order such action to be taken before the attacker has established a bridgehead. The effects of such flooding on the current and probable future operations of the defending forces must be considered carefully.

795. Combat aviation, in addition to its normal missions, can operate to prevent ferrying or bridging operations of the enemy by attacking ferrying and bridging equipment before it reaches the river.

796. a. In a retrograde movement when the enemy side of the river line is to be held as a defensive or delaying position, the withdrawing columns cross at the available bridges. If the crossing places are insufficient, the construction of additional bridges or ferries may be necessary. Antiaircraft defense is established on both banks of the river line to protect the bridges and crossing places.

b. Trains, motorized columns, and a part of the artillery cross first. Routes leading to and from the bridge approaches and crossing places are plainly marked. Staff officers with detailed instructions for march sequence and future action direct units to their destinations. Traffic is regulated strictly during the withdrawal across the river. Bridges and fords are destroyed to pre-

vent them from being seized by the enemy. Arrangements are made to ferry the last elements of the security forces.

797. Once it has moved across the river, the artillery which withdrew early is placed in position to protect the crossing places and cover the withdrawal of the remainder of the command. This echelon later is reinforced by the remainder of the artillery after it has crossed the river. At the earliest practicable moment, a plan of artillery defensive fires is prepared which will take advantage of the long range and flexibility of artillery fire to lay down interdiction and counterpreparation fires on the hostile routes of advance and assembly positions.

## Section III. NIGHT COMBAT

798. a. Night combat is characterized by a decrease in the effectiveness of aimed fire and by a corresponding increase in the importance of close combat and the fire of fixed weapons laid on definite targets or areas by day; by difficulty in movement, troop leading, and the maintenance of direction, cohesion and signal communication; and by a more highly sensitive morale of the troops.

b. Fog or smoke produces conditions of combat similar to darkness. Because of the uncertain duration of a fog and the amount of ammunition required to establish and maintain smoke concentrations, operations based on concealment provided by fog or smoke require rapid execution.

c. Decrease in the effectiveness of fire permits the use of closer formations without exposure to excessive losses; difficulty in the maintenance of control and direction necessitates limited objectives which may be approached by well-defined routes; the more sensitive morale of the troops increases the effects of surprise obtained by the offense and the importance of security measures on the part of the defense.

799. An unexpected collision of troops at night, or combat which extends into the night, usually develops into a static fire fight and a suspension of movement. As a rule, night combat can be conducted successfully only when there is time for the preparation and distribution of a well-conceived plan and for thorough reconnaissance by all leaders during daylight.

800. The ability of unit commanders to control their troops during night combat is greatly diminished. Tactical operations and

troop leading are accomplished with greater difficulty than in daylight. These difficulties can be largely overcome by training and prior planning.

801. Searchlights, illumination projectiles, and flares may be employed to provide artificial illumination. Light approaching bright full moonlight is obtained up to 5,000 yards from searchlights under conditions of low clouds. Since shadows are cast in the direction of the enemy, infantry troops can move forward undetected by taking advantage of concealment provided by these shadows.

802. Night raids may be used to capture personnel, obtain identifications and determine details of the hostile position, and especially any major changes in the enemy dispositions. When a raiding force has accomplished its mission, it withdraws on a previously arranged signal. A route of withdrawal other than that employed for the advance is used if practicable. During the withdrawal, the reserve of the raiding force is utilized to cover the withdrawal, and to protect its more vulnerable flank. Fires of the artillery and other supporting weapons are employed to neutralize the enemy advance elements and supporting weapons. The artillery neutralizes located hostile artillery.

## NIGHT ATTACK

803. a. Night attacks are made to complete or exploit a success, to gain important terrain for further operations, to avoid heavy losses which would be incurred by attack in daylight over open terrain, or to capitalize on the surprise inherent in night combat.

b. Despite the difficulty of control during night attacks, such attacks, by their surprise and shock to the defender, and the reduction of the effectiveness of his defensive measures, offer exceptional opportunities for success. Aggressive leadership, careful planning, and thorough training and rehearsal of attacking forces of high morale will more than offset control difficulties. Night attacks have proved highly successful where daylight attacks have proved unsuccessful or excessively costly. The advantages of night attack must be exploited.

804. Simplicity of plan, careful preparation, including training, secrecy, surprise, definite and easily identified objectives, and cohesion in execution are the governing principles in a successful night attack.

305. Surprise is an essential feature of night attack. Preparations for night combat, whether made during daylight or darkness, must avoid betraying the locations or intensions of the troops. The attack itself may be made by stealth or by full use of all available fire power.

306. The difficulties of night attacks increase with the size of the command. They may be made successfully with any size unit but the objective assigned any assault unit should be limited. To the extent that detailed plans can be completed in advance, deeper objectives can be reached by a succession of limited objectives attacks. Each attack is launched from the objective of the preceding one. To the degree that artificial illumination eliminates the difficulties of control and movement, deeper objectives can be assigned. Night attacks are made preferably by fresh troops, or by reserves of troops, in contact with the enemy.

307. a. An attack launched during the first hours of darkness may anticipate possible night operations on the part of the enemy. It may be delivered after successful combat in order to frustrate the enemy's attempts to organize a withdrawal at nightfall or to consolidate a position for defense. When the enemy is attempting a retrograde movement to a new position it may strike him before he can organize the position or his fire support.

b. An attack during the last hours of darkness may be advantageous as a preliminary to a general attack at daybreak because it gives the defender no time to reorganize. The attack usually should be launched to give the attacker sufficient time on the objective during darkness to organize the position to resist counterattack and prepare for further operations prior to continuing the attack at daybreak. Antitank measures are taken to include the emplacement of tanks and other antitank weapons. Tanks are moved forward and immediately made available to assist in repulsing a counterattack.

308. The decision to attack should be made while there still is sufficient daylight to make all preliminary reconnaissances and preparations. Reconnaissance should include observation of the terrain at dusk, so that both the day and night aspects may be studied. Easily identified direction points are located. Provision may be made for marking direction points, including objectives by machine gun tracer and artillery fire.

309. Subordinate commanders are instructed carefully concerning the terrain, the objective, and the direction of attack. Routes

of approach to the line of departure are marked carefully, guides are provided, compass directions are given, and watches are synchronized.

310. a. Orders for night attacks are formulated with more than usual detail. Routes of approach, assembly areas and attack positions, line of departure, and objectives are designated with the utmost extactness. Orders include the rate of advance; the formations to be employed; means for mutual identification of troops, measures for flank protection and for maintenance of direction and contact; the composition, assembly area, and mission of the reserve. Also required are the course of action to be followed in case of success; the signal for withdrawal if the attack fails; and an assembly area for each subordinate unit in case of withdrawal. The time of attack may be included in the order or may be announced later.

b. Detailed instructions for maintaining secrecy are issued; orders include detailed instructions governing reconnaissance and the conduct of artillery and other supporting fires to preserve secrecy.

c. Many of these control measures are unnecessary when artificial illumination is employed.

311. a. In the conduct of night attacks, only the simplest formations are employed. If the attacks are to be made by stealth, the smaller units advance in column until close to their objectives, when skirmish lines are formed and the enemy is rushed with the bayonet without firing. Each column is given a definite direction and objective. Contact is maintained between columns and every precaution is taken to avoid their collision. The assaulting columns are followed closely by their supports and local reserves.

b. The supporting weapons of the attacking force may be placed in position for flank protection of the initial assault. When the terrain is favorable for overhead fire, they may be emplaced in a rearward position to support the attack on signal or to cover a withdrawal. General reserves are held generally well in rear prepared to move promptly to the objective or to cover a withdrawal.

312. The particular circumstances attending each situation usually will indcate whether or not the assault should be preceded by artillery fire. Where preparation fires are indicated, a short but violent preparation generally will suffice. This preparation is lifted on call, or on a time schedule. The artillery holds itself in

readiness to intervene promptly and energetically in accordance with a prepared plan of fire to box off the zone of attack or to cover a withdrawal. The artillery neutralizes located hostile artillery.

313. On capturing their objectives, units are reorganized and promptly disposed to meet a counterattack. Their further conduct is prescribed in the attack orders.

## DEFENSE AT NIGHT

314. In night combat, the defense has the advantages of better knowledge of the terrain and of organized defensive fires covering the principal avenues of hostile approach.

315. a. The best defense against night attack is the aggressive spirit of the defense. This is inculcated by training which builds up the confidence of the defense forces in their ability to operate effectively at night.

b. Constant aggressive patrols, rehearsed night counterattacks, planned measures to organize rapidly and move to meet attack all tend to overcome the timidity which is inherent in lack of familiarity with night operations. The individual soldier must feel that he is superior to the enemy under any conditions, by night as well as by day. Units must feel that the area to the enemy front lines belongs to them and they must operate between the lines nightly.

316. Electronic devices, mine fields, vigilant outguards, active patrolling well to the front, and illumination of the foreground must be relied upon to give timely warning of attacks. Gaps that cannot be covered effectively by fire from adjacent units are occupied at night by elements in support. When a hostile attack is suspected or known to be in progress, supports and local reserves are brought closer to the main line of resistance.

317. Obstacles and the fire of fixed weapons are the principal means used in breaking up the assault. Artillery fires on prearranged areas supplement these fires. Small-arms fire is opened as soon as the alarm is given and combat outposts have been withdrawn.

318. As a rule, delaying action at night can be executed only by small units or detachments which operate and withdraw along well-defined routes. Retrograde movements are regulated carefully to avoid losses by fire from friendly troops in rear. Disorganization and delay of advancing hostile ground columns may be accom-

plished by the attack at night of small groups against marching columns, bivouacs, billets, or motor parks.

## Section IV. COMBAT IN TOWNS

819. Towns offer concealment for troops and weapons if they are of substantial construction and provide protection from air and armored attack and the fire of weapons. Consequently, they are often naturally strong defensive areas. On the other hand, they are conspicuous topographical features of which exact details are either available or readily obtainable. Fires started by hostile incendiary ammunition may make towns untenable.

820. Combat within the limits of a town is characterized by reduced effectiveness of fire and observation, by increased importance of close combat, and by difficulty in control of troops. Smoke grenades provide local screens to permit operations in streets and roads exposed to sniper fire. Fighting is at close range; the outcome depends therefore largely upon the initiative and aggressive leadership of subordinate commanders.

821. *a.* A town strongly held by the enemy may be taken by fixing the garrison with a holding attack while so directing the main attack as to isolate the town from the support of neighboring defensive positions. When immediate capture of the town is essential, the main attack is directed against the flank or rear of the town in order to secure the advantages of enveloping attack. When frontal attack cannot be avoided, the attacker initially concentrates on the capture of the near edge of the town by the methods applicable to the attack of any organized positions. He then continues the advance through the town.

*b.* The action within the town necessarily is decentralized to subordinate leaders, since lack of observation of the action precludes satisfactory centralized control. The attack through the town is usually methodical and thorough. Designated key objectives within the town may be seized initially to prevent destruction. Clearing up of bypassed resistance may be carried out by assault units or by specially detailed follow-up units as the situation dictates.

822. The larger the town and the longer it has been held by the enemy, the more thorough must be the preparations for attack. Visual and photographic reconnaissance determine the defensive organization of the area and the nature of defensive works, and furnish pertinent data to all elements participating in the attack.

After a town has been bombed or shelled or otherwise reduced to rubble it is extremely difficult to determine defensive works by means of air photos. These must be augmented by other means of reconnaissance.

823. a. When the enemy has organized the town into a strongly fortified position which cannot be avoided or outflanked, the advance may have to be made frontally, strongly supported by artillery, flame throwers, individually carried and mounted on tanks, other supporting weapons, and aided by combat aviation. When the fire of the supporting artillery and other supporting weapons is lifted, the assault echelon pushes through the defensive area in a series of bounds; supports and reserves mop up and organize the area for defense against hostile counterattack.

b. The attack is continued through the town to the far side in a similar manner. Strongly defended towns rarely present opportunities for tanks to exploit their mobility due to the restrictions of barricades, debris, streets, cellars, and short range antitank measures. However, opportunities will present themselves frequently where the support of tanks in such situations becomes desirable. In such cases small infantry-tank teams are particularly effective. Tanks are capable of breaking through light and medium-heavy construction. This, coupled with their ability to penetrate heavy walls with armor piercing shells and to attack enemy personnel with high explosive shells and machine-gun fire, makes them an effective combination with infantry for fighting inside a town. If strongly defended, large towns are not normally assigned as objectives to armored units operating alone. If defended only lightly, they are particularly vulnerable to attack by armored units.

824. In organizing a town for defense, defense areas are established. Fields of fire are cleared and the defensive capabilities of the town are developed by the laying of extensive mine fields and barricades, strongly protected by the fire of automatic weapons, mortars, antitank guns, and artillery. Antipersonnel mines and booby traps should be used liberally throughout the barricades. The concept of defense should be one of thorough all around defensive preparation, with outlying buildings organized to form salients from which the front or flanks of the town can be covered by flanking fire. Reserve units should be located within the town so as to facilitate movement to threatened areas.

825. Security detachments are posted at all important public service installations, such as water reservoirs, pumping stations, or

electric power plants. Such detachments protect these installations from damage by small hostile groups or individuals who are able to penetrate the defense of the town.

826. The outer defense is supplemented by defensive organization in depth throughout the area of the town. Obstacles are constructed and bridges are mined to prevent penetration of hostile armored elements. Buildings and cellars are fortified as firing positions to cover favorable avenues of approach from all directions within the town. Provisions are made to counter enemy attempts to set fire to the town by incendiary munitions.

827. To prevent the bypassing or isolation of the town and its eventual capture by hostile forces, through cutting off all supplies from the rear, a reserve, strong in armor, is held outside the town in concealed positions, prepared to break up the enemy's outflanking maneuver.

828. Towns are favorable to delaying action.

## Section V. COMBAT IN WOODS

829. Combat in woods, in many respects, is similar to that in towns. Often, in combat in woods, observation and control of troops are even more difficult than in towns. Some woods, owing to their size or location, are naturally strong defensive areas. Others, however, may have little or no defensive value, and may even be advantageous to the attacker by providing concealed routes of approach into the defensive position. Small wooded areas are avoided as they are conspicuous and draw fire.

830. The attack usually seeks to avoid isolated wooded areas included in the enemy's defensive position by passing them on either one or both flanks while neutralizing their edges by fire or smoke. The artillery blinds the enemy's observation by smoke and neutralizes the hostile weapons that are capable of delivering flanking fire against the attack. During dry weather, incendiary bombs may be highly effective. Small wooded areas may be neutralized with chemical agents. Combat avation may be employed in support of the attack, particularly in a preliminary bombardment of the woods.

831 .a. If avoiding the woods is impracticable and their possession is necessary, the attacker seeks to capture the woods by enveloping action. When enveloping action is inexpedient, the woods

are attacked frontally. The near edge of the woods is assaulted as is any other position, and then is used as a line of departure for the advance through the woods.

b. The dispositions to be taken for this phase of the attack depend largely upon the type of the woods. In sparse woods, formations are employed resembling those on open ground, but with greater density in the leading echelon. In dense woods, small columns are more effective in the leading echelon. Measures are taken to insure direction, cohesion, and signal communication between the columns. Supports are formed in column and closely follow the assault units. The vulnerability of the flanks to attack requires special measures for their protection.

832. All commanders must be watchful to prevent combat groups from assembling on or near roads and trails since these will be covered by the enemy's system of defensive fires. The enemy's strong points are outflanked by an advance straight thru the woods off the roads and trails. To avoid confusion and to prevent friendly troops from firing into each other, it may be necessary to regulate the advance by bounds. Reserves are disposed so that they will not become involved in the fighting of the assault echelon and can be employed where the greatest progress is being made.

833. Before emerging from the woods and while still far enough from the edge to be concealed from the enemy's view, the command is disposed for fighting on open ground. Arrangements are also completed for support by the artillery and other weapons. As the edge of the woods presents a well-marked target for hostile fire, the attacking forces make their exit rapidly to seize an immediate objective beyond the edge of the woods. Whenever possible, this objective should mask the edge of the woods from hostile ground observation and small-arms fire.

834. a. As a defensive position, woods have the objection of presenting a clearly defined target to the attacking forces. Since a position in the interior of the woods has the disadvantage of restricted view and limited field of fire, the observation elements of the outpost are advanced close to the edge of the woods. The main line of resistance must be back from the edge of the woods. Positions selected should be provided with overhead cover against tree and other air bursts. Cutting of trees must not divulge the position. Routes for messengers, supplies, and reserves must be known and marked for night use. The routes forward and to all positions in rear are reconnoitered and made known to all concerned.

b. While holding up the attacking units by means of obstacles, the defense seeks to break up the cohesion of the attacker's dispositions, lead him into false directions, and take the attacking troops under flanking fire. Natural or cleared lanes through the woods assist greatly in the development of flanking machine-gun fire and in detecting and holding up a hostile advance. Even when lanes have not been cleared, machine-gun and other automatic fire sited to ricochet from trees is effective and particularly demoralizing to an advance.

c. In wooded areas, close support by artillery becomes difficult. Fields of fire of all flat-trajectory weapons are extremely limited. The fire of high-angle weapons is not equally affected; a little clearing will permit howitzers and mortars to be used. Mines, defensive wire, and other obstacles are placed outside the woods so that the full effect of artillery and other defensive fires can be utilized.

d. Mines planted thickly within woods are particularly effective in slowing up the progress of the attacker and forcing him to use trails and mine detection methods. Care must be taken, however, to insure that friendly troops will not be injured. Defensive wire within woods is effective also in delaying the advance, particularly in conjunction with antipersonnel mines.

## Section VI. MOUNTAIN OPERATIONS

### GENERAL

835. Mountainous terrain offers no insuperable obstacles to the conduct of military operations, even in cold weather, if troops are properly equipped, clothed, supplied, and trained. In fact, such troops by accepting the natural hardships inherent in maneuver through mountain terrain frequently achieve surprise which results in success with relative ease and few casualties. The infantry division is capable of operating in most mountains, though it may be necessary to resort to pack animals and manpower for the movement of equipment and supplies. Troops that are required to operate at high altitude under conditions of low temperature, high winds, ice, and snow must have specialized training and equipment. In general, mountain operations retard and restrict mobility, reduce firepower and effect of fire, and make signal communications and supply more difficult.

836. Mountain warfare is characterized primarily by difficulties which terrain offers to movement. The restricted nature of

narrow valleys and defiles limits the strength of forces which can operate efficiently therein. The inadequate road net found in sparsely settled mountain areas enhances the military value of existing roads, adds importance to heights which dominate them, and slows down the operations. Critical terrain features consist of heights which dominate valleys and lines of communications with observation and fire; passes which permit movement through mountains; and roads and railroads which must be secured for supply purposes.

837. a. In mountain combat, the commander is limited by terrain as to the means which he may employ. Success depends more upon proper adaptation of available means to the terrain than upon their power. Maneuver of small units, and the initiative and leadership of subordinate commanders, are of the highest importance in mountain warfare. Small units are favored by the concealment which is available for movement, by the diminished effect of hostile firepower resulting from defilade, and by facilities for observation.

b. The plan of maneuver for the force as a whole is more closely subject to considerations of terrain than in ordinary regions. The problem often resolves itself into a matter of striking hostile routes of communications, and of defending one's own routes. The actions of small semi-independent units in seizing or defending heights which dominate lines of communications, or of fighting to seize or block passes and other defiles on routes of communications, become of increased importance.

838. It is essential that all commanders have a thorough understanding of the capabilities of mountain-trained troops. It is likewise vital that the staffs of higher echelons charged with logistical planning for operations in mountainous areas include experts on clothing and equipment, to insure that the proper amounts and most advanced types of these items are made available. All commanders must be fully instructed in the proper use and maintenance of this special equipment.

839. When formulating plans for operations, possibility of sudden changes in weather must be considered. Arrangements are made for frequent periodic weather reports. Meteorological equipment with personnel to operate it is desirable. Alternate plans are prepared to provide for changed weather conditions.

840. a. The commander of the theater in which the forces are to operate must specify special equipment and special training to

fit into the climate, the character of the terrain, and the type of hostile forces to be encountered. Troops operating in mountains should ordinarily have a preponderance of high-angle weapons; of attached pack transportation, and additional signal equipment. Mountain warfare often necessitates the substitution of lighter weapons for some of the heavier ones, or elimination of some of the supporting weapons, because of the limitations on supply.

b. Small units may be required to operate for several days without resupply. Necessary specialized training includes: use of skis and snowshoes; visual signaling; use of both pack and motor transportation, including snow vehicles; mountain climbing; special evacuation techniques for medical units; and specialized engineer techniques. Physical hardening is essential. Supply by air may be required.

841. Although decentralization of operations is characteristic of mountain warfare, and tactical groups usually operate semi-independently in the capture of terrain objectives, the scheme of maneuver from the force as a whole is based upon detailed planning to insure unity of effort and adequate logistical support. The operations of a force operating within a single valley corridor however wide can frequently be centrally controlled through skilled employment of signal communication means.

842. Close support by artillery and air normally is difficult to provide in mountain operations. Special effort must be made to provide the required close supporting fire.

843. Detailed reconnaissance is required to find locations from which machine guns can deliver grazing fire; very seldom will the full grazing effect be possible. The sharp relief offers opportunities to support advancing infantry with overhead fire. Mortar fire and grenades have increased importance due to the amount of defilade. Recoilless weapons will supply much of the heavy fire power where direct fire is possible. Horse cavalry reconnaissance units may be a part of the mountain organization, or may be attached to it for the mountain operation. Armored cavalry reconnaissance units generally are not suited to mountain operations.

844. a. The howitzer is best adapted for artillery support in mountainous terrain. Ordinarily flat-trajectory cannon can be used only at long ranges because of the necessity of clearing masks and reaching targets defiladed by steep slopes. Motorized artillery units are emplaced near the roads; pack artillery is capable of follow-

ing foot and mounted elements and taking defiladed positions in the more difficult terrtain overlooking the valleys. Frequently the situation may require that the control of at least a portion of the artillery be decentralized.

b. Because of inclement weather, the hazards of flight, and the difficulty of providing suitable landing areas for combat aircraft, greater dependence may have to be placed on ground observation and organic light aircraft in mountainous terrain. Observation posts must be reconnoitered and established early, and provision made for observers with the forward echelons to insure close and timely support. Artillery forward observers must receive the same specialized training as mountain infantry.

c. The effectiveness of counterbattery fires is diminished because of the difficulty of locating hostile batteries. The effectiveness of interdiction fires is increased because of the number of definite points which the enemy is compelled to pass.

845. The importance of engineers increases with the difficulties of the terrain. Maintenance of existing roads, and construction of new roads and trails for light motor transportation, are of primary importance. The existence of numerous sensitive points on the few highways facilitates demolition in defense, and increases the difficulty of retaining mobility in the attack. The difficulties of access to certain positions frequently necessitate use of aerial tramways in a stabilized position. Rocky soil may require employment of explosives for constructing even the simplest of intrenchments. Light, portable, bridging equipment is necessary in mountain operations.

846. Even though the hazards of flying in mountainous regions place some limitations on the use of low-flying combat aviation, the restricted road net often offers a favorable opportunity for combat aviation to attack critical road junctions and troops in defiles. Combat aviation may be effectively employed against hostile artillery positions and reserves on the reverse slopes.

847. Occasions may arise for employment of airborne troops. Such occasions include seizure of an important terrain feature, a hostile rear installation, and the quick movement of a force to operate against the hostile flanks or rear.

848. Maneuver of armored units in mountainous terrain generally is so restricted that their effective employment is very limited. However, in stabilized positions, armored vehicles can be brought

into camouflaged positions from which they can deliver accurate direct fire up to extreme ranges. From these same positions they can support, by overhead fire, the opening phase of an attack.

849. Antitank weapons are especially effective in the mountains as the routes of approach of the enemy armor are canalized and, except for the self-propelled armored vehicles, the weapons are easily placed and hidden.

850. a. The operations of the signal units are affected by the scarcity of commercial wire lines, by difficulties of laying wire, by "dead spaces" in radio reception, and by terrain barriers between adjacent corridors in which troops are operating. Dead spaces in radio reception may be obviated by establishing relay stations. Additional radio equipment is desirable.

b. Other methods to be used when wire and radio are inadequate include messengers, messenger dogs, and visual signaling. Experience has shown that the number of telephones needed in defense in mountains is large. Telephones at individual gun emplacements are desirable. Organic light aviation is useful for both observation and communication. Pigeons are of value for emergency communication. Conditions may permit the laying of wire by plane.

## RECONNAISSANCE

851. Mountainous regions are seldom as fully or as accurately mapped as other terrain. Numerous important irregularities of the ground cannot be shown on maps because the contour interval is usually large. A study of the maps of mountain areas seldom will give a true appreciation of the ground. This appreciation can be gained only by a study of the ground itself, by detailed reconnaissance, supplemented by a study of aerial photographs.

852. a. While reconnaissance in mountain warfare is facilitated by the restriction of enemy movements to the available road net and by numerous defiles, active patrolling is hazardous and fatiguing. Dismounted patrols will bring in much information of the terrain and of the enemy, but they will be handicapped by rugged terrain, sudden, violent changes in the weather, and by the possibility of ambush. These patrols are equipped with radio, means for visual signaling, and night vision devices. Local guides, if sympathetic, can be of great assistance.

b. Aggressive reconnaissance executed by specially trained patrols operating in difficult areas which often are weakly guarded, will produce excellent results. The capabilities for reconnaissance

and counterreconnaissance by small elements operating with boldness should not be overlooked.

853. Ground observation is unusually important in mountain operations. Some observation posts offer very distant views and afford opportunity for extended lateral observation. Observation is subject to sudden blinding due to atmospheric changes. For this reason, observation posts are echeloned in altitude as well as in width and depth. Since even excellent observation may fail to disclose critical obstacles, a physical reconnaissance of prospective routes should be made prior to initiating cross-country movements.

854. Reconnaissance aviation will be the principal means of obtaining information of terrain, hostile dispositions, installations, and troop movements in rear areas. Local commanders should use organic light planes for surveillance of enemy forward areas.

## MARCHES

855. All available roads and trails are used for movement. Since displacements within tactical groups or columns are difficult during the march, the march order of units must be such as will facilitate their entry into action.

856. a. The rate of march in mountains is influenced by the weight being carried by the troops, the elevation above sea level, steepness of slopes, character of the footing, and weather conditions. The rate of maching and the rate of climbing of well-seasoned troops is not greatly affected by changes in elevation of less than 5,000 feet above the altitude to which they are accustomed, up to an altitude of 8,000 feet. Over this altitude lesser changes must be considered. Altitudes over 5,000 feet cause sharp reductions in marching and climbing rates. Climbing steep slopes requires additional energy. Proper methods to conserve this energy must be used. The marching commander is the only one qualified to decide the pace and the time and place for halts. His decision is based on the mission, the difficulties of the march, and the condition of the troops.

b. The total time required in marching and climbing under favorable conditions on fair roads and trails is approximately the time required for marching the map distance plus 1 hour for each 1,000 feet of ascent or 1,500 feet of descent.

c. When frequent steep slopes are encountered, greater distances between elements and individuals are required. At a distance from

the enemy, effort is made to utilize favorable routes in valleys in order to reduce fatigue of troops.

857. a. The unit usually moves on several roughly parallel routes to avoid the greatly overextended columns of troops marching in single file, to reduce delays caused by bottlenecks, to increase the readiness of units for combat, to decrease the effect of aerial attack, and to reduce the fatigue and strain of the march.

b. In winter, travel may be possible only for specially equipped and specially trained foot troops; with snow vehicles used in place of the animals of the pack artillery and pack trains. Under these conditions, combat aviation may be an effective substitute for artillery, and transport aviation may be used to supply marching columns by means of air drop.

858. Because of the distant observation which may be available to the enemy, slowness of movement, increased possibilities of surprise by ambush, and terrain restrictions on the movement of flank security detachments, security on the march calls for special measures. Tactical groups usually will march separated by terrain obstacles which deprive them of mutual support. Establishment of all around security for each tactical group is necessary.

859. Special measures which afford security in mountains include—movement by bounds of the main body and the advance guard; seizure of the opposite and the lateral crests previous to the entry of a column into a valley; dispatch of detachments, including airborne troops, to seize critical points of the terrain to assist the advance through the mountains; utilization of darkness and fog; utilization of defilade in the area subject to hostile observation and fire; employment of rear guards even during an advance; and employment of combat aviation.

860. Because of the difficult routes followed by flank security detachments and the fatiguing nature of their operations, it is usually necessary to provide relieving detachments at frequent intervals. Consideration must be given to the fact that such detachments should start 1 to 2 hours ahead of the main body and ordinarily are unable to rejoin their units until after the completion of the march.

861. When contact becomes imminent, advance guards, exploring all routes in their zones of action, endeavor to seize terrain objectives which will cover the deployment of the main bodies. Because of slowness of movement of troops, developing for com-

bat, advance guards will act independently for longer periods of time than is the case on more normal terrain. For this reason, advance guards will have more artillery and engineers than normally and the heavy weapons will be pushed farther forward in the formations.

862. a. It is difficult to obtain security at the halt with a continuous screen of outposts. A more effective method is to send out detachments to occupy heights in the principal directions from which the enemy might fire on the main force. It is advantageous to send small groups far out to occuy dominant observation posts and defiles. Occupation of these forward positions will make possible the discovery of the enemy from afar. Information of the enemy's strength can thus be gained in time to be of value to the commander. The mountainous terrain enables these detachments to effect greater delay than in normal terrain.

b. The interior guard of all camps and bivouacs is arranged with special care. Enemy detachments may infiltrate through security dispositions in areas which are difficult to guard.

## OFFENSIVE COMBAT

863. In difficult mountain terrain, the reinforced battalion is ordinarily the largest unit which can be employed as a unit in the attack. The irregularities of the ground break the attack into relatively isolated actions which demand the highest initiative and leadership of all subordinate commanders.

864. The main effort of the unit is directed against the critical terrain features which offer the best opportunities for flanking action by small units, effective supporting fires, and the most advantageous approach to a decisive objective. Decisive objectives are usually terrain features, such as passes or heights, which control hostile lines of communications or from which the enemy can dominate friendly lines of communciations by observation and fire.

865. Surprise is facilitated by the exceptional defilade and dead space which the mountains afford and which frequently permit a debouchment at a short distance from the enemy. Surprise is completed by action of small detachments operating in areas which are difficult to traverse and appearing on the flanks or in the rear of the hostile position. The possibilities of employing airborne troops for this purpose should be considered. When other

[redacted]ge should be taken of darkness or fog, [redacted] snow to launch attacks.

[redacted] of boundaries follows normal procedures. [redacted] between tactical units may not be designated [redacted] extended intervals separating units. Instead, sub-[redacted] may be given axes of advance and special measures [redacted] insure contact and coordination and to provide for [redacted] of pockets of resistance.

867. a. Each tactical group makes its main effort by a combined advance along heights and valleys. It is particularly important that early possession of the heights on each side of the defile insure protection to troops operating within the defile. Tanks may be of great assistance within the defile and upon debouchment therefrom.

b. Infantry units advance by bounds, employing infiltration and enveloping action. They seek to outflank and capture hostile strong points on successive spurs and ridges. Supporting weapons of both infantry and artillery direct their fire to neutralize the enemy's observation and strong points.

868. Terrain obstacles should not be considered complete flank protection for tactical groups. Obstacles must be supplemented by flank combat patrols or by connecting groups which operate with adjacent units.

869. In addition to the possibilities of surprise which they offer, night attacks present special advantages. They avoid losses which would be incurred by attacks in daylight across difficult terrain under observed fires of the defense, and compensate for the deficiency of supporting fires in mountain terrain. The sharpness of relief lines facilitates maintenance of direction in the night attack.

870. a. The success of each tactical group is exploited. When the location of the reserves and the terrain permit, task forces are formed which push rapidly and deeply in the designated direction and initiate lateral movement against hostile forces which are holding up adjacent tactical groups. It is this flanking action against the lines of communications of the enemy which will cause the withdrawal of the enemy to become general and change the action from exploitation of a local success by one tactical group to a pursuit by the whole force.

factors permit, full advantage should be taken of darkness or fog, snowstorms, and drifting snow to launch attacks.

866. The designation of boundaries follows normal procedures. However, boundaries between tactical units may not be designated because of the extended intervals separating units. Instead, subordinate units may be given axes of advance and special measures are taken to insure contact and coordination and to provide for the elimination of pockets of resistance.

867. a. Each tactical group makes its main effort by a combined advance along heights and valleys. It is particularly important that early possession of the heights on each side of the defile insure protection to troops operating within the defile. Tanks may be of great assistance within the defile and upon debouchment therefrom.

b. Infantry units advance by bounds, employing infiltration and enveloping action. They seek to outflank and capture hostile strong points on successive spurs and ridges. Supporting weapons of both infantry and artillery direct their fire to neutralize the enemy's observation and strong points.

868. Terrain obstacles should not be considered complete flank protection for tactical groups. Obstacles must be supplemented by flank combat patrols or by connecting groups which operate with adjacent units.

869. In addition to the possibilities of surprise which they offer, night attacks present special advantages. They avoid losses which would be incurred by attacks in daylight across difficult terrain under observed fires of the defense, and compensate for the deficiency of supporting fires in mountain terrain. The sharpness of relief lines facilitates maintenance of direction in the night attack.

870. a. The success of each tactical group is exploited. When the location of the reserves and the terrain permit, task forces are formed which push rapidly and deeply in the designated direction and initiate lateral movement against hostile forces which are holding up adjacent tactical groups. It is this flanking action against the lines of communications of the enemy which will cause the withdrawal of the enemy to become general and change the action from exploitation of a local success by one tactical group to a pursuit by the whole force.

factors permit, full advantage should be taken of darkness or fog, snowstorms, and drifting snow to launch attacks.

866. The designation of boundaries follows normal procedures. However, boundaries between tactical units may not be designated because of the extended intervals separating units. Instead, subordinate units may be given axes of advance and special measures are taken to insure contact and coordination and to provide for the elimination of pockets of resistance.

867. a. Each tactical group makes its main effort by a combined advance along heights and valleys. It is particularly important that early possession of the heights on each side of the defile insure protection to troops operating within the defile. Tanks may be of great assistance within the defile and upon debouchment therefrom.

b. Infantry units advance by bounds, employing infiltration and enveloping action. They seek to outflank and capture hostile strong points on successive spurs and ridges. Supporting weapons of both infantry and artillery direct their fire to neutralize the enemy's observation and strong points.

868. Terrain obstacles should not be considered complete flank protection for tactical groups. Obstacles must be supplemented by flank combat patrols or by connecting groups which operate with adjacent units.

869. In addition to the possibilities of surprise which they offer, night attacks present special advantages. They avoid losses which would be incurred by attacks in daylight across difficult terrain under observed fires of the defense, and compensate for the deficiency of supporting fires in mountain terrain. The sharpness of relief lines facilitates maintenance of direction in the night attack.

870. a. The success of each tactical group is exploited. When the location of the reserves and the terrain permit, task forces are formed which push rapidly and deeply in the designated direction and initiate lateral movement against hostile forces which are holding up adjacent tactical groups. It is this flanking action against the lines of communications of the enemy which will cause the withdrawal of the enemy to become general and change the action from exploitation of a local success by one tactical group to a pursuit by the whole force.

b. In addition to direct pressure exerted on the withdrawing enemy, every effort is made to delay and harass his retreat by combat aviation and to block him by the action of encircling forces to secure terrain objectives which bar the hostile avenues of retreat. Encircling forces must be highly mobile. Critical terrain features on the enemy's route of withdrawal may be suitable objectives for airborne troops.

## DEFENSIVE OPERATIONS

871. In defensive operations, dispositions are based on the mission, on the routes of advance open to the enemy, and on the possibilities offered by a combination of difficult terrain and fire effect for breaking up the hostile attack. The defense must retain heights which dominate, by observation and fire, hostile routes of communications and approach. It must also deny the enemy access to passes or other defiles which, if lost, will render defended heights untenable. The strength of terrain may permit assignment of broader frontages to units than are usual in rolling terrain.

872. In defending passes or valleys, the defense rests its flanks on strong obstacles on adjacent heights. It takes full advantage of observation from these heights and pushes the flanks well forward along the heights to gain flanking fires in front of the position. The spurs extending to the front should be occupied to provide flanking fires and to deny their use by the enemy in reaching the heights. Two successive crests may be included in the position. Tanks protected by artillery fire and supported by infantry may be emplaced in concealed positions on the enemy's side behind minefields to prevent a surprise thrust by enemy armor.

873. Demolitions and chemical agents assume increased importance to the defense in mountains. In mountain passes and other defiles, contaminating demolitions are capable of blocking the advance of all except those forces capable of cross-country movement. Their effect may endure for long periods of time.

874. a. The outpost of a defensive position usually has good routes of withdrawal which do not mask fire from the battle position. Security elements are pushed out in front of the outpost position with the missions of gaining contact with the enemy at the greatest possible distance, and of gathering information which will assist the commander in disposing the elements of his command, particularly in locating his reserves advantageously.

b. It is important to delay the enemy as far in front of the position as possible. The more difficult the prospect of the defense of the battle position, the more important becomes this delay.

875. Even though it may contain areas which are difficult for the attacker to approach, the battle position is organized to provide prearranged fires across the entire front. No terrain can be considered impassable, and no area inaccessible, to a determined attacker possessing troops trained in mountain operations. Planned ambushes and an integrated system of road blocks form an integral part of the defense.

876. a. The distant observation available to the defense offers opportunities for long-range interdiction fires by both artillery and other supporting weapons. Such fires complement planned demolitions and must be coordinated with them by having the weapons register on the demolition sites while observation of them is still available.

b. Counterpreparation fires may be applied in mountains with unusual effect, since careful study of the terrain will indicate, almost conclusively, areas in which the enemy will form for attack.

877. Combat aviation is particularly effective in preventing or delaying the maneuver of hostile reserves, particularly in their passage of defiles.

878. From the beginning of the action, the defense must plan to maintain the integrity of its position by local counterattacks in case the enemy penetrates between adjacent defense areas. These counterattacks are prearranged as to direction, objective, and supporting fires so that they can be launched on short notice when the enemy is exhausted and disorganized. Because of the local nature of combat, a general counterattack is seldom possible. The reserves ordinarily will be held well forward and may be divided to cover two or more critical areas.

879. The rear areas of a defensive position may be subjected to harassing attacks by mountain or airborne troops. Protection against such attacks is afforded by placing security elements in positions which command areas in which hostile approach is at all probable.

880. In delaying action, blocking passes between valleys is emphasized.

381. In a withdrawal, the breaking of contact is simplified by the sharp relief which affords defilade and cover from hostile observation and fire.

## Section VII. COMBAT IN SNOW AND EXTREME COLD

### GENERAL CONSIDERATIONS

382. Military operations conducted under conditions of extreme cold and deep snow demand special equipment and training for troops designated to conduct such operations. Small bodies of troops so trained and equipped are well suited for use as patrols or raiding parties against the hostile flanks, rear, and lines of communications. Large bodies of troops so trained and equipped may operate as a major force and conduct extensive operations. Administrative and tactical plans must be developed concurrently, each adequate to support the other. Problems which must be overcome to conduct operations successfully in extreme cold and deep snow include—the retention of body warmth in men and animals, providing equipment and transportation which facilitate movement over snow and ice; the transportation and preservation of supplies and equipment; evacuation; and insuring the functioning of transportation, weapons, and equipment. Ice fog, resulting from the firing of weapons, may necessitate frequent changes of position for direct fire weapons during periods of extreme cold and calm.

383. Infantry trained in the use of skis, snowshoes, and snow vehicles can operate under conditions which normally would immobilize foot troops. Units usually are organized into light, self-sustained, tactical groupings from which all weapons and equipment unsuited to the operation have been removed. In very severe weather the proportion of the infantry component of any force must be increased to permit unit rotation and to provide an increase in unit strength. Unit rotation is necessary as exposure to extreme cold and deep snow results in reduced mental and physical alertness and consequent reduction in unit combat efficiency. Unit overstrength is necessary to offset the reduced working capacity of individuals.

384. *a.* The mobility of artillery is dependent upon the severity of the weather and surface conditions encountered. Artillery may be self-propelled, tractor drawn, towed by over-snow vehicles or towed on sleds. Reindeer, horses, and mules may be used to tow sleds. Pack artillery may be dismantled and carried in over-snow vehicles. When operating on icy roads or in icy areas special traction equipment may be necessary to prevent slipping.

b. The difficulties of providing artillery surveys are increased by extreme cold and deep snow. Adjusting and sensing of fire is likewise more difficult due to the dampening effect of snow and the limited contrast afforded by snow covered terrain. Time fire and white phosphorus may be used to better advantage than contact bursts both for sensing and in fire for effect.

c. In deep snow, artillery pieces must be equipped with snow spades to prevent excessive recoil, or dug in to ground level and tushioned with logs, as the frozen ground provides no cushioning effect.

d. Ice fog will necessitate frequent changes of position if direct fire is conducted during periods of extreme cold and calm.

885. Full tracked armored vehicles will experience little difficulty operating on frozen ground or on ground covered with not more than 12 inches of snow. When snow approaches 20 inches in depth, range and mobility are retarded. In snow over 30 inches deep, armor is restricted to roads and prepared trails. Streams and other bodies of water present serious obstacles except when frozen to a sufficient thickness to carry the weight of vehicles. Expedients are frequently required to reinforce ice surfaces prior to armored crossings. In planning armored operations the need of special traction equipment to prevent slipping and the probability of ice fog must be taken into consideration.

886. Due to the increased problems in facilitating the forward movement of combat troops, maintaining lines of communications, and constructing shelter, engineers normally require augmentation in strength and equipment. Snow removal equipment is required to meet the constant task of keeping roads and airstrips unobstructed; water supply problems require special attention; increased use of explosives is necessary for the construction of field fortifications and other facilities; increased stress must be placed on the training in field engineering given to all arms. Telpherage (cableways and tramways) may be necessary in extremely rugged areas to assist in problems of supply and evacuation. Pipe lines may be necessary to facilitate the supply of liquid fuels.

887. Medical service varies little from that in temperate climates except that casualties must be removed rapidly to prevent freezing. Special over-snow equipment is required since litters are difficult to carry over snow and ice. Front-line evacuation is performed by hand-drawn sleds, snow boats, or similar expedients; field ambulances or other vehicles used for evacuation in forward areas must have over-snow properties. Air evacuation from advanced

landing fields may be essential and may include helicopter lift from advanced posts or rugged terrain. Heated shelters are mandatory along the route of evacuation, and must have sufficient space to permit emergency treatment. These shelters must be readily transportable, easily erected and disassembled. Aid stations are placed as far forward as the tactical situation permits. They are provided with radio communication so that casualty locations may be rapidly indicated by unit command posts.

888. Air participation in operations is reduced by shorter periods of daylight and a higher percentage of unfavorable weather. Airfields may be distant from the units supported with a consequent reduction in usable aircraft load. However, for aircraft equipped with skis or tracked landing gear and for light aviation particularly, many suitable natural areas on snow or ice will be available. Troops and supplies may be flown to such areas. Supplies may be delivered by free drop, parachute drop, or by glider.

889. a. Full use is made of existing commercial signal communication.

b. Radio is extremely important but is subject to increased technical and operational difficulties. Technical difficulties encountered include reduced battery efficiency caused by cold, and icing of microphones caused by the condensation and freezing of moisture from the breath. Operational difficulties are increased by auroral phenomena. These increased technical and operational difficulties reduce radio efficiency and limit the extent of its employment.

c. Wire lines should be hung in trees or on poles whenever possible to prevent their freezing to the snow or ground and to avoid damage by individuals and over-snow vehicles.

890. Most chemical agents are effective in extreme cold, therefore protective measures must not be neglected. Contaminated clothing and equipment will result in casualties if brought into a warm shelter.

891. a. Horses and mules can be used in snow up to 14 inches in depth but require an excessive amount of care and their use is limited. Horses are more useful than mules, because the latter's small hoofs have less flotation in snow. Shelter must be provided in extreme cold.

b. Reindeer are found in arctic regions of North America, Europe, and parts of Asia. Reindeer are sturdy draft animals and

require less attention in cold weather than horses but are not as strong. They should be retained in their natural habitat and managed by natives.

c. Dogs are best adapted for light hauling operations on prepared routes over packed snow. In addition they are valuable aids to sentinels and may be used for scout or messenger duties.

892. a. Difficulties of maintenance are increased as conditions become severe. Special lubricants must be used in matériel, vehicles, weapons, and aircraft. For successful operation of motor powered equipment, special means for starting and operating engines must be provided.

b. Training in and enforcement of supply discipline is of extreme importance. Because of difficulties of supply, all clothing and equipment must be conserved to the maximum degree. From the standpoint of the indvidual, careless or poor supply discipline may result in the loss of life.

893. The morale factor in areas of extreme cold, long nights, and scare population is a major concern. The problem is not acute for troops engaged in operations of short duration, but may become acute during extended periods of relative inactivity. A study of recreational facilties and possibilities of the area should be completed prior to operations. Based on the study, commanders should take positive action to secure suitable facilities and appoint qualified officer personnel to care adequately for this important factor. Imagination and improvisation in the arrangement for and construction of recreation facilities may be required.

894. a. In many areas subject to extensive periods of extreme cold the terrain will present varied and difficult transportation problems during the break-up, open and early freeze-up periods.

b. A layer, "permafrost", frequently exists at varying depths below the surface, which prevents surface waters from draining into the subsoil. In relatively flat areas, where surface drainage is limited, this condition results in a soft spongy surface interspersed with numerous lakes and ponds which makes land transportation extremely difficult if not impossible. In such areas water transportation may effectively be utilized during the open water periods but no effective means of land transportation has been developed that can be depended on to traverse the muskeg and tundra.

c. Under certain conditions it may be necessary to move in sufficient supplies during the period of hard freeze to last until the next period of hard freeze.

d. In some instances stocks may be augmented by water transportation during the open water season. Where rivers traverse the area of operations, supplies may be moved in by barge or river boat during the open water season and dispersed to required locations by surface transportation during the hard freeze period.

e. Extensive use of air supply may be necessary. Delivery to established fields will present relatively few difficulties regardless of the season of the year. Where airfields are not available, planes equipped with skis or tracked landing gear may be utilized during the period of snow cover and float planes during the open water season.

f. Commanders must insure that adequate logistical measures have been taken to support operations during the periods of break-up and freeze-up.

## CONDUCT OF OPERATIONS

895. Plans for tactical operations to be executed during rigorous winter weather require a careful consideration of all problems previously enumerated. Tactical plans must be flexible to provide for the many contingencies which may result from variable weather and surface conditions in the projected area of operations. Logistical plans must be developed concurrently and must be adequate to support the proposed operation under all the varying conditions that may exist.

## RECONNAISSANCE

896. In deep snow and extreme cold, distant reconnaissance is performed by air units. Light aviation may be used for close-in air reconnaissance. Air reconnaissance is subject to the conditions imposed by bad weather and short periods of daylight. Even though the air is clear, wind blown snow may conceal ground activity from aerial observation. Normally, ground reconnaissance is best performed by ski and snowshoe patrols. When the terrain is favorable, this reconnaissance can be extended by the use of special snow vehicles, which are employed either independently or in conjunction with light aviation, ski and snowshoe patrols.

## MARCHES

897. a. Marches in snow and extreme cold are executed on foot, on skis, on snow shoes, by normal transport, by special snow vehicles, or by a combination of these methods. Except by well

trained ski troops, the distance covered ordinarily will be less than that expected under more favorable climatic conditions. Commanders must realize that the pace should be slow so that troops do not overheat and perspire; otherwise they will freeze during periods of inactivity. They also must realize that men must remove outer clothing at their own discretion. To insist on uniformity of dress is a mistake which may have serious consequences in the physical results on personnel.

b. The principal problem for foot or animal elements in snow is that of breaking the trail. Trail breakers are relieved frequently. The trail may be broken by men on skis, or snowshoes, by tractors, by tanks, by snow plows, or by special snow vehicles.

898. Trained skiers are the most mobile troops on firm snow in open terrain. The rate, depending on the type of terrain and snow conditions, varies from about 1½ to 3½ miles an hour. For short distances with trained men, the rate of march may reach 6 miles an hour. Under favorable conditions, skiing is very exhausting and the usual system of halts is insufficient. The number and length of halts must be determined by the conditions encountered.

899. Under certain conditions (brush or heavily wooded areas or "rotten" snow) the speed of snowshoers may exceed that of skiers. Normally the rate of movement on snowshoes will not exceed 1½ to 2½ miles per hour. The use of snowshoes is fatiguing, and marches over considerable distances can be performed only by men trained and accustomed to their use.

900. Movement by motor transport is dependent on the depth of snow. In 3 inches or less, wheeled vehicles without special equipment can move at reduced speeds. In snow up to 18 inches deep, wheeled vehicles can move on roads if equipped with chains, and leading trucks are equipped with lugs. In snow over 18 inches deep, a snow plow is necessary. When shuttling is contemplated, adequate provision should be made for cleared turn-arounds.

## SECURITY

901. Security is facilitated by the limitations which snow and ice impose upon the movement of large enemy forces, and by excellent observation for long distances over snow covered terrain in dry, cold weather. Unfavorable weather may limit air and ground observation of the enemy during which special security measures against raids by ski troops are always necessary.

902. Where snow impedes movement, security forces of troops on the march ordinarily consist of patrols on skis, snowshoes, or special snow vehicles. Advance and flank guards should be relieved frequently, since their missions are fatiguing. Advance guards should be relieved by leapfrogging at halts; flank guards should be assigned phase lines between which they secure the flank and then rejoin the tail of the column. In rugged terrain flank guards must be dispatched in advanced to secure the high points adjacent to the line of march, prior to departure of the main body. Light aircraft may be employed to observe for signs of enemy activity to the front, flanks, and rear.

903. Security at a halt is affected by the fact that enemy movement in heavy snow, except for units on skis, snowshoes, or special snow vehicles is limited to roads. This indicates the need for strong detachments posted on roads; however, normal security measures for protection of the front, rear, and flanks must be taken during all halts.

904. Security measures for bivouac areas must include strong outguard positions around the perimeter. Patrols operate between the outguard and bivouac area as well as between posts of the outguard. The tour of duty sentinels, under severe conditions may be for periods as short as 20 minutes. Surrounding areas should be checked carefully from the air just prior to dark to discover any enemy movement in the vicinity of the bivouac area.

905. Antiaircraft security measures must be intensified because the canalization of lines of communications makes them particularly vulnerable to air attack. Since the operations of ground troops, not specially trained and equipped, are canalized in deep snow to cleared roads, all active antiaircraft measures must be taken. Active defense may be limited necessarily to the extensive use of light automatic weapons. In snow covered areas, protection against observation is increased by use of a white covering for clothing and equipment and camouflaging supply dumps and other installations.

## OFFENSIVE OPERATIONS

905. a. Offensive operations require special preparations and equipment in greater proportion to the strength of the command than for normal operations. These special requirements will vary with the climatic conditions. Signal communication, maintenance, supply, and evacuation become increasingly difficult as the attack progresses. The adverse effects of inadequate planning and lack

of forceful execution are proportionately far greater in deep snow and extreme cold than in temperate climates.

b. When formulating plans, the possibility of sudden weather changes must be considered and preparations made to meet the difficulties imposed by such changes. Additional heavy snow may fall during the operation, thus further restricting mobility. A sudden thaw may prevent cross-country movement, or isolate troops from adjacent friendly forces. Fogs may develop quickly and low clouds may obscure observation. Adequate arrangements must be made for the dissemination of frequent weather reports.

907. A surprise envelopment by a properly trained and equipped force offers many prospects of success. Deep snow will hinder the movement of hostile reserves to meet the envelopment.

908. a. Whenever possible, attacks should be made along ridge lines as they offer observation, ease of control, and normally are more free of snow. The enemy's fire is more limited against attack along ridge lines and his positions in the valleys become untenable upon seizeure of the high ground.

b. Attacks in the valleys along stream lines may encounter deep snow, down timber and brush resulting in difficulty of movement and affording the enemy maximum observed fire from adjacent heights.

909. The selection of objectives is in accordance with accepted doctrine with particular emphasis on installations or critical terrain features which domniate the routes of communication and supply in rear of the hostile position. Seizure of such features will prevent withdrawal or reinforcement. With effective friendly antiaircraft artillery or fighter aircraft operations, lack of resupply by air of trapped enemy units will result in eventual surrender or annihilation.

910. The critical importance of shelter will normally render destruction of enemy installations undesirable. The nondestructive effect of toxic chemical agents on installations will greatly increase the possibility of their use. Chemical agents which are liquid, or which vaporize at low temperatures, will be useful in operations of this character. Screening smokes are relatively unaffected by temperatures. Chemical agents disseminated by means of thermal generators are unaffected by temperature.

911. The interdiction of enemy supply routes and destruction of supply installations are important factors in the selection of com-

bat aviation targets. Targets will be more vulnerable because of concealment and low mobility. In the attack of hostile positions and bases during periods of extreme cold, destruction of the enemy's shelters has great tactical importance.

912. The use of armor in the attack is dependent upon favorable terrain, which must be free of heavy forests and deep snowdrifts. Frozen ground affords excellent trafficability for armored operations. When snow has drifted, hollows and depressions are avoided and the attack is pushed on those ridges which are relatively free from snow.

913. a. Because of slowness in movement, reserves are located initially close to the probable scene of future employment. When the ground is covered with deep snow, the reserve should be capable of oversnow movement. Reconnaissance of routes assumes greater importance due to varying surface conditions. Possible routes for movements of reserves must be reconnoitered.

b. Attacks in extreme weather may require greater depth in reserves, in order that assault troops upon capture of each limited objective can be relieved by fresh troops which are prepared to hold the objective or to continue the attack.

914. In a pursuit over snow, the encircling force should be composed of the most mobile troops. Maximum use is made of oversnow vehicles and troops trained in oversnow movement. Airborne troops may be landed near defiles with the mission of blocking the retreat of the enemy.

## DEFENSE

915. a. Deep snow may favor the defense due to the difficulty of movement by the attacking forces. Excellent fields of fire are provided over frozen wide streams and lakes which afforded little or no cover to the attacker. Broken ice for a width of 20 to 30 feet forms a difficult obstacle.

b. Wooded areas, and rough terrain relatively free of snow, favor the attacker and are defended in strength and depth. Defense against tanks should be disposed in depth to cover those approaches which favor tank movement.

916. a. Ordinary entrenching tools are often ineffective. The organization of the position requires special tools and explosives. The location of a defensive position on the military crest will

usually be effective, since both enemy personnel and tanks have difficulty in ascending steep snow covered slopes. When the ground cannot be excavated, snow trenches are used, at least 7-8 feet of solidly packed snow is needed for protection from small arms fire. When a prepared position is garrisoned, it will require heated shelters.

b. The defender utilizes every opportunity to improve routes of communications within the position. Paths are opened between elements occupying forward defense areas, between rear and forward defense areas, and in the most probable directions of employment of reserves. Care must be taken to provide maximum concealment of all paths, especially those to gun positions in forward areas. Automatic weapons of reserve units, when not otherwise required, are sited to prevent hostile penetration and use of these paths.

917. The most mobile troops of the defender are held in reserve. Reserves are held close to the probable scene of employment. In deep snow, the enemy may be unable to change his dispositions in sufficient time to meet a counterattack directed at his flank.

918. The bulk of the forces employed in delaying action are ski troops, and foot troops transported in vehicles which can operate on snow covered roads. Troops engaged in delaying action in snow are reinforced by artillery and infantry heavy weapons adapted for movement over snow. The selection of delaying positions and waging of effective delaying action is facilitated by deep snow which delays and canalizes enemy forces.

## Section VIII. COMBAT AT DEFILES

919. A defile is a terrain feature which canalizes an advance. Defiles frequently occur in mountain passes, woods, towns, river crossings, lake regions, and swamp areas. A defile through which troops must pass is particularly susceptible to an attack. Ground defense is comparatively easy.

920. a. If the route of an advancing unit passes through a defile, a force may be sent forward to establish a defense in front of it to permit the main body to emerge from the defile unmolested and to secure sufficient space. Offensive action may be required to secure sufficient space. The defense may be conducted in a single position with flanks refused and protected by the obstacles creating the defile or the defender may adopt delaying action to

gain the necessary time and space for the main body to emerge and develop for any action required.

b. A similar defense outside a defile is often required of a rear guard to cover the retirement of the main body through a defile.

921. a. Defense may be conducted at the defile itself. In mountain passes or valleys, if the defender is more skillful in mountain movement than the attacker, he will have great advantage and will cause considerable delay. Conversely, if the attacker is more mobile, he will simply outflank the defender. The flanks of a position in a mountain pass cannot be considered secure against trained mountain troops.

b. A mountain defile is defended with the bulk of the forces on the high ground to the flanks which command the defile. For details see section VI.

c. Maximum use is made of demolitions, obstacles, and chemical agents within the defile to delay the hostile advance. Combat aviation is of maximum value due to the enemy's vulnerability to air attack while in the defile.

922. a. Defense in rear of a defile provides maneuver area to the defender while it closes the exit and restricts the movement of the attacker. The defensive position is concave towards the exit with flanks resting on obstacles. The distance of the position from the exit is such that converging fire of all arms can be brought upon the attacker before and during his debouchment. Reserves are held out to give flexibility to the defense and to counterattack promptly against enemy forces which succeed in emerging from the defile. The maximum delay and disorganization of the enemy is affected within, and in front of, the defile by the use of security forces; artillery concentrations; demolitions; obstructions; chemical agents; and air attack.

b. In the defense in rear of a mountain defile, care must be taken not to assume that the attacker will remain within the defile or that his main effort will be directed through it. If the attacking forces are mountain trained, they will seize the commanding terrain and outflank the defender.

923. The attack of a defile varies with the manner in which it is held and the accessibility of the flanks. When a defile is held at or within the entrance and the flanks are accessible, the main attack is made in a direction that insures the capture of localities which command the entrance. When the flanks are inaccessible,

the attack must be made by penetration. When the defile is held at the exit, the attack attempts to outflank the defense. By moving small forces through or around the obstacles creating the defile, the advance is made on a broad front to outflank defended areas. The attacker debouches from the defile on the widest possible front.

## Section IX. JUNGLE OPERATIONS

**924.** a. Basic principles of combat are applicable in jungle fighting but difficulties of terrain, visibility, and climate so complicate command, maneuver, supporting fires, supply, and evacuation that the application of these principles must be adapted as required by the limitations imposed. Resourceful leadership, proper training, and suitable equipment will convert natural difficulties into relative advantages.

b. Control and maneuver in jungle terrain are extremely difficult. Few roads or trails are available; they often must be constructed as movement progresses. Observation is limited to short distances, sometimes to only a few feet. Artillery survey is particularly difficult. All these difficulties increase in proportion to the size of the force involved.

**925.** a. Jungle tactics must be based on sound fundamentals. Control should be facilitated, yet formations must be sufficiently flexible under conditions of limited visibility and vulnerability to fire to permit rapid deployment. In general, units will move in column of files, adequately secured and alert for last-minute deployment into line. Intervals between men may extend to the limit of visibility between them.

b. Maneuver in the jungle consists of outflanking resistance, using rearward units which break out of the main column to turn the enemy position. Such tactics require basic training to produce resourceful individuals who consider the jungle an ally. Movement through the wilderness must be routine, not an exceptional emergency. Troops which cannot leave the trail are a liability in the jungle.

**926.** a. Jungle areas favor surprise and ambush by small forces. On the march, ambush is a constant threat. However, the very factors which facilitate ambush localize the surprise obtained. Security may be obtained by use of flank and rear guards which take position at key points such as stream crossings and high ground. Prearranged and rehearsed plans to meet surprise attacks rapidly likewise insure protection. In jungle movements,

distances between elements of a force should be much less than in open country, special measures being taken to maintain contact.

b. Bivouac areas must be prepared for perimeter defense, with suitable fields of fire. Security elements are posted to cover avenues of approach which threaten the bivouac area. Frequently the length of the column will dictate bivouac along the trail in depth. In such instances security may be decentralized to the smaller units.

927. The ability to maneuver off trails requires hardened troops, thoroughly acclimated and equipped for close fighting. Their training must enable them to move cross country, at least for tactical movements, and give them confidence in their jungle technique. Arms and equipment must be designed for maximum mobility through tangled wilderness under oppressive climatic conditions.

928. a. Defense in a jungle meeting engagement is difficult. It consists basically in blocking the routes of approach to the attacker's objective. Since these routes are almost always defiles, trails, streams, and ridge lines; strong blocking positions should be established where the attacker's maneuvering power is limited. These positions must be protected against an offensive turning movement, which means that the usual lack of visibility handicaps the defense if the attacker acts aggressively.

b. Where infiltration past the blocking position must be controlled, use is made of a series of strong support positions organized along a rearward line such as a ridge or river line. Reserves must act aggressively and have equal mobility with the attacker. In general, mobility must be used to strike the enveloping force when it is at the greatest disadvantage.

c. If no objective other than the route itself is threatened, defense can be organized in depth along the route, since the attacker must eventually return to it. Such defense should constitute a succession of self-contained strong points, organized for all-around defense, with prepared plans for counterattacks at points where the attacker is at maximum disadvantage.

d. In terrain where flanks can be anchored to obstacles and there is time to lay out and construct entrenchments and gun positions, the characteristics of jungle country give the defense great advantages. Such a position can only be overcome slowly and at great cost to the attacker. If backed by strong, mobile reserves, and secure supply lines; such a position, held with determination, can stop superior forces for a considerable time.

929. As in the defense, the principles of offensive action are unchanged in the jungle, although the methods of their application differ in some respects. Because of the cover and concealment afforded troop movements, it is to be expected there will be some meeting engagements with little or no advance warning. This requires commanders to estimate the situation rapidly, arrive at a decision, issue the necessary orders, and execute the plan of action. Rapidity of action will gain surprise which is always a contributing factor to success.

930. In the penetration of an enemy position the advantage lies with the attacking force in the early stages of the action, since the cover afforded his attacking echelon will enable him to approach close to the enemy position without being detected. However, at the same time, his approach may be canalized by a scarcity of trails, by dense vegetation through which passage must be cut, and by swamps or lagoons. During the actual attack of the organized position, the advantages accrue to the defender. Natural camouflage and concealment of front-line defensive weapons and positions frequently defy attempts to locate them. This makes the assault extremely costly to the attacker. If terrain permits, there is an excellent opportunity to use the infantry-tank team to demolish fortifications and overrun the position. The flame thrower mounted on the tank may be very successful when used in this manner.

931. a. The envelopment frequently will be used to gain decisive results. Such envelopments may be by land, or water, or airborne. The limitations on the use of land envelopments are imposed by lack of available routes for use by the enveloping force, and also by the excessive time required for the action due to normally slow progress in jungle terrain. Because the terrain and jungle growth will not permit such movement the use of the tank battalion in mass is seldom possible. Under such conditions, it may be found advisable to attach elements of the tank battalion to subordinate units in order that tanks may be used in small groups in conjunction with the infantry attack.

b. Water-borne envelopment frequently will offer possibility of striking the rear or flank of a defensive position without a time-consuming jungle march. Against an aggressive enemy care must be exercised to avoid a defeat in detail. Strong support of the water-borne force is essential, particularly during the landing phase of the operation.

c. The advantages and weaknesses of a water-borne envelopment

are, in general, common to an envelopment by airborne forces. Jungle terrain may limit the number of suitable airheads. As a result surprise may be difficult to achieve. When conditions permit, the entire operation may be airborne or a combination of any of the three methods of envelopment may be employed.

932. The rifle and bayonet, automatic rifle, grenade, machine gun, submachine gun, carbine, machete, and the mortar are weapons well suited for jungle fighting. Heavy mortars and rockets may replace artillery in the jungle, when lack of observation and the weight of field pieces limit the employment of artillery. Against well-constructed defensive positions, flame throwers are extremely valuable. Infantry heavy weapons often are transported by pack, small cart, or on the backs of men.

933. While light mobile forces are an essential in jungle warfare, such troops are too lightly armed to attack strongly organized positions. Part of the force, normally armed, must be moved up rapidly to relieve the advanced troops once such a position is uncovered. This makes imperative the rapid preparation of adequate trails and supply lines.

934. Conditions encountered in jungle warfare impede the progress of land forces and greatly restrict the movement of artillery and heavy equipment. Under these conditions it is desirable to use a greater proportion of aviation which has relative freedom of movement over the jungle. Jungle conditions may require the movement of the bulk of troops, supplies, and equipment by air. In jungle warfare the seizure, construction, and protection of the necessary airfields is often made the initial objective of all forces involved.

935. a. Supply problems frequently control the entire plan of operation. Lines of communications are tenuous, difficult to maintain, and always vulnerable to attack. In particularly difficult country, all material must be moved by hand. Native carriers are of great value in work of this type since they are acclimated and accustomed to existence on minimum subsistence. They should be organized into units of a semi-military character, stiffened by officers and noncommssioned officers in whom they have confidence. Native carrier organizations which are to work in forward areas exposed to fire should be especially selected and trained for the purpose. Weight-saving expedients are imperative as are specially trained and equipped medical, engineer, and service troops.

b. The maintenance and protection of supply routes are major considerations. When available, water routes will be found best.

although air transport also may be utilized to relieve troops of the necessity of guarding long and exposed lines. Self-containment of supply, in keeping with the proposed operation, is the ideal.

936. Signal communication often is difficult. Visual signaling usually is impossible; the use of runners is slow and frequently hazardous; the range of radio may be reduced greatly; and wire circuits are hard to install and maintain. When clearings are available, drop and pick-up messages are highly satisfactory, provided the liaison type of plane is used. Pigeons may be used for important messages. In actual combat, wire communication within battalions or similar units is vital.

937. Ground reconnaissance is conducted habitually by small parties. Distances at which security and reconnaissance detachments operate are decreased in proportion to the thickness of the jungle.

938. In general, jungle fighting is conducted at extremely close quarters by relatively small bodies of troops. Initiative by individuals and small unit leaders is the key to success, reinforced by proper discipline, training, and hardening to jungle conditions. The force which is able to move off the trails and to maintain itself under extremely arduous conditions possesses a great advantage.

939. a. Night operations under jungle condition are practicable for small forces of specially trained personnel. In general the normal difficulties of movement and control are so complicated by darkness that large night offensive operations are inadvisable.

b. Defensive measures against surprise night attacks are essential. Such measures should include adequate security advance plans which include, the designation of rallying points; local protection of bivouacs by passive measures which give warning of close approach; and fire plans which cover all approaches.

940. a. Unfavorable health conditions must receive the attention of all commanders. The necessary innoculations and a period of gradual acclimation are basic requirements.

b. Sanitation and health measures must be fully implemented, otherwise the strength of a command may be serious reduced by medical evacuations. In malarial countries, unless the tactical situation requires, marches should not begin until sufficiently after daylight to permit the preparation of breakfast and the breaking of camp to be completed after daylight. Similarly camp should

be made sufficiently before dusk to facilitate individual protection against insects during the dangerous dusk period.

c. Consideration should be given to the problem of medical evacuation. Light aviation is frequently the most suitable means. In view of the difficulties of collection and evacuation, casualties may have to remain with organizations for considerable periods of time. As a result unit medical personnel should be selected carefully to insure their ability to handle such cases.

d. As in arctic operations, preselection of personnel should be considered as a means of reducing nonbattle casualties.

941. a. Jungle warfare of the type described should be limited to the initial seizure of tropical areas. All combat methods should be designed to exploit the capabilities of the user. An industrial nation should therefore capitalize on its mechanical developments to permit the earliest possible use of heavy weapons and normal combat methods. Full use of aviation, water transport, engineers, and airborne troops place a more lightly equipped defender at maximum disadvantage. Native labor is of value particularly in the early stages of such an operation before power tools are available.

b. Engineer units are of great importance in the process of opening-up jungle country, particularly units equipped and trained for rapid construction of roads and airfields under the conditions encountered.

## Section X. DESERT OPERATIONS

942. a. The characteristics of desert areas vary greatly. The surface may include areas of loose sand and sand dunes, boulder-strewn areas, mountain areas, areas of extremely rugged terrain, or flat hard-surfaced areas. In areas of loose sand, foot movement and the movement of ground transports may be greatly impeded.

b. There are seldom any well-defined roads, but trails generally exist between water sources. In flat hard-surfaced areas, roads and trails are not vitally essential to the movement of ground transport. Desert areas are also characterized by limited vegetation and relatively few obstacles to movement. Limited vegetation results in an increased importance being placed on the technique of artificial camouflage. In certain desert areas the lack of obstacles makes possible a greater freedom of movement than usually found in normal terrain.

c. There are few landmarks and maintenance of direction often is difficult. Mirage is a constant source of error. Distances are

deceptive and usually are greatly underestimated. The effect of weather upon operations must be considered. Seasonal rains may make cross-country movement difficult or impossible; dust and sand storms may reduce visibility, facilitating surprise movement of forces, but greatly increasing maintenance problems. Extreme variations in temperature within a 24-hour period may be expected.

943. Desert warfare is characterized by the dependence of movement and operations on supply; particularly supply of water. Lack of roads, difficulties of maintaining direction, the danger of sand storms, and the vulnerability of supply columns to air and ground attack impose serious obstacles to the problem of supply. When local water supplies are inadequate, water must be brought from the rear by tank truck, rail, or pipe line. Successful operations are dependent upon—cross-country mobility; adequate maintenance, supply, and reinforcement of rapidly moving forces; dependable communications; and the coordinated action of air and ground forces. Mobile ground units or units transported by air assume increased importance.

944. a. The general doctrines governing offensive and defensive operations apply in desert operations. The troops employed must be trained and acclimated thoroughly before engaging in desert operations. A high degree of mobility is desirable in the forces employed. When the character of the desert permits, the speed, fire power, and comparative independence of water supply of motorized and armored forces make them especially useful.

b. The necessity for an effective organization for maintenance, recovery, and evacuation of weapons and transport is emphasized. Allowance must be made for an appreciably greater than normal consumption of fuel and lubricants when units are moving cross country. Stretches of loose or heavy sand may be made passable by the use of wire netting, canvas strips, or similar means. Low pressure, smooth tread tires assist wheeled vehicles in crossing areas of loose or heavy sand. Motorized units, armored units, or troops transported by air are employed to hold points of tactical importance, such as water sources.

945. Air superiority is extremely important, not only to destroy or neutralize hostile forces and installations but to protect our own forces from hostile air observation and attack. Air transport is especially useful for the supply of isolated detachments.

946. Desert terrain is often very advantageous for a wide encircling or turning movement by highly mobile armored or motor-

ized forces, in cooperation with combat aviation. Such action may prove decisive.

## Section XI. PARTISAN WARFARE

### GENERAL

**947.** a. Partisan warfare is carried on by small independent or semi-independent forces, operating against a greatly superior enemy. Partisan operations are conducted for the purpose of harassing or delaying larger forces and causing losses through attrition. They are also valuable in destroying signal communication, gaining military information, assisting regular forces to reconquer the country, or making incursions on the enemy's lines of communications and supply.

b. Partisan operations may result as an aftermath of the defeat of the main forces of modern armed opponents. They may arise from the intention to occupy territory or quell rebellions. They may be employed in friendly but enemy controlled areas.

**948.** The military geography of the area may require operations in mountains, deserts, jungles, or undeveloped terrain. Special arms, equipment, and methods of operations may be necessary. The situation in each instance must be studied critically to determine the appropriate preparations and methods necessary for the conduct of successful operations.

**949.** Every effort should be made to supply organized partisan groups with small portable radios and secure codes. If regular forces can maintain communication with partisan groups, they can be controlled and their operations coordinated with those of the regular troops. Supply and resupply of partisan forces will consist largely of air drops. Adequate and dependable signal communication is essential to carry out supply operations by air. If radio communication is good, air support can be given partisan operations by combat aviation.

**950.** a. In planning partisan operations against a superior force, good information of the enemy's dispositions and movements and a thorough knowledge of the terrain and road net are needed. Large-scale operations are avoided. Tactics are based on a small force striking a quick blow with surprise against isolated detachments and unprotected columns or convoys.

b. The plan of the commander provides for assembling the bulk of the command after each enterprise to prevent its dispersion and

to insure proper direction in the conduct of subsequent operations. Partisan groups should at all times have a rendezvous so that in case of dispersal by a surprise attack each individual can find the assembly point.

951. a. In the conduct of partisan warfare the mobility, enterprise, and reliability of the troops employed are more important than their numerical strength. In general, the best results are obtained by the use of numerous small detachments under capable and versatile subordinate leaders, all operating under the direction of an experienced superior commander. The enemy's main body is harassed and held in suspense by repeated threats and raids. Whenever practicable, movements and attacks are made at night. During daylight hours, the main forces remain concealed, leaving only reconaissance patrols in contact with the enemy.

b. Partisan raiding parties operating in the enemy's rear may seriously interrupt the enemy's system of supply by destroying bridges and attacking supply trains. Every effort is made to keep in communication with these raiding parties so that their subsequent activities may be properly directed. Passive measures, operations at night, and dispersion counteract hostile air and armored operations.

952. Larger forces engaged in the suppression of partisan warfare have superior organization, armament, and equipment but may be handicapped by lack of reliable information, by dependence on an organized system of supply, and by difficulty in bringing the partisans to a decisive engagement.

953. When the objective of the operations is the destruction of partisan forces or the quelling of tribal uprisings, every effort should be made to enlist the support of native elements to form small mobile constabulary-type units. Such units are familiar with the area and with the partisan opponents. Vigorous and bold action by mobile forces is ordinarily the quicket and surest way of defeating the enemy bands. Usually, this can be accomplished best by an advance on a broad front along all available routes within the affected area against the enemy's principal villages and strongholds. These then are organized as defensive areas, from which highly mobile columns conduct operations against any organized resistance located. Since the attacker usually is greatly superior in strength and means of combat, encirclement by double envelopment should be attempted in order to bring about a decisive result.

954. a. When the objective of the operations is the occupation of the hostile territory, concerted action directed against the capital, the government, the main lines of communications, and main sources of supply is the quickest method of bringing about decisive battles and overthrowing the enemy.

b. Undue dispersion of force by using numerous minor detached forces to combat similar small partisan forces may lead to defeat in detail.

c. Vigorous air attacks conducted in front and on the flanks of operations directed toward vital objectives prevent hostile partisan concentrations that would slow up or divert the main forces.

## Section XII. JOINT AMPHIBIOUS OPERATIONS

955. Joint amphibious operations are over water operations, conducted by Army, Navy, and Air Force jointly, for the purpose of effecting a successful landing on a hostile shore. Amphibious operations present many technical and tactical problems which require special organization and equipment.

956. An amphibious operation may be carried out for any or all of the following purposes:

a. To seize and secure a beachhead from which to initiate major land operations.

b. To seize and secure an area for use as a naval or air base.

c. To seize and secure an area to deny its use to the enemy.

d. To destroy enemy facilities, installations, and forces in a particular area.

e. To effect deception or gain information of the enemy.

957. Types of amphibious operations are determined by the types of vessels employed; namely, those which can place personnel, vehicles, and supplies directly on the beach, and those which require the transshipment of troops, vehicles, and supplies to smaller landing craft for movement to the beach. Amphibious operations may be classified as ship-to-shore operations and shore-to-shore operations. A ship-to-shore operation is a transshipment of troops, equipment, and supplies from seagoing vessels to smaller landing craft and the subsequent movement to the landing beach. A shore-to-shore operation is an amphibious operation in which the *bulk* of the landing force with certain supplies and equipment is transported in landing ships, craft, and/or vehicles from a shore base directly to a landing beach without transshipment.

958. a. In an amphibious operation the initiative and the capability of effecting surprise lie with the offensive forces. The enemy must spread his forces to defend his whole coastline, not knowing where or when the attack will come. The attacker can select the landing areas and can use his floating reserve to exploit any weakness in the enemy's defense.

b. Numbers and types of ships and craft are usually limited and the composition of the landing force with its equipment must conform to the capacity of the available vessels. More time is required to attack from sea than from land and the assault troops are particularly vulnerable to attack from enemy air, sea, and land weapons. The assault troops cannot take an effective part in the combat until landed on the shore. Suitable landing beaches for large forces may be limited and may be denied by unfavorable sea conditions and strong defenses. Because of the distance of the landing areas from the air bases, land based air support may be limited. When this condition exists air support must be partly, if not wholly, supplied by carrier based aircraft. Unfavorable weather and surf conditions may arise at the time of the landing. After the troops are ashore, they must be supplied over the beaches until ports and/or airfields can be obtained or developed.

959. a. Army units must be specially grouped to facilitate the landing of combat units intact. Each combat unit must be so organized that it will be self-sufficient in fire power until the supporting weapons are landed. Similarly, a special naval organization is required to embark, convoy, and land Army forces and to provide naval gunfire support at least until artillery units are established ashore. Air units must be employed so as to insure adequate air defense during the voyage, the landing, and the beach operation, as well as adequate offensive action prior to, during, and after the landing.

b. Special equipment must be used to breach underwater obstacles and beach defenses. Special ships, craft, and amphibious vehicles are required to land the personnel, supplies, and equipment. The geographical features of the landing area will determine the type and quantity of the special amphibious equipment needed in a partcular operation.

## GENERAL PHASES OF AN AMPHIBIOUS OPERATION

960. a. The planning phase covers the preparation of plans and the coordination between Army, Navy, and Air components of

the details for the operation. Logistic and operational planning must be concurrent and closely coordinated.

b. During the concentration and specialized training periods, forces participating in the operation must be assembled, organized into a task force, and trained jointly, utilizing improvised sand tables or terrain models. The training should include instruction in the execution of specific orders over a representation of the actual terrain. This can be accomplished without sacrificing secrecy, if appropriate precautions are taken by the staffs in the preparation of sketches and other training aids of the landing areas.

c. The equipment, supplies, and vessels for the assault troops are assembled and combat loaded. The joint force embarks and rehearses the planned operation as realistically as time and availability of resources will permit. Rehearsals should be completed sufficiently in advance of the sailing date to permit any last minute changes that might be indicated.

d. Movement to the objective area includes the movement of the task force from the point of embarkation to the landing area.

e. Prelanding operations consist of reconnaissance, mine sweeping, naval and air bombardment, under water demolitions, destruction of beach obstacles and other operations designed to facilitate the assault landing.

f. The assault phase is the actual assault landing on the hostile shore.

g. Reserve troops and supplies to support the operations are brought in and established ashore.

h. Adequate beachheads are gained, consolidated, and organized, and logistical installations are developed.

## GENERAL DOCTRINES

961. General doctrines which are particularly applicable to amphibious operations as a whole are—

a. There must be unified command throughout every phase of the operation.

b. It is the responsibility of the joint commander to coordinate the operations of the Army, Navy, and Air Force in order to assure the teamwork essential to the success of the operation.

c. Each joint force must be organized, equipped, trained, and rehearsed specifically for the task it is to perform.

d. Organization and operation of initial shore logistic functions require specially trained and equipped personnel.

## SHORE PARTY

962. a. Once ashore and off the beach, the task of the combat unit is the same as combat under any other circumstances. However, special attention must be given to establish the logistic services to support the operation. This is the mission of the shore party.

b. Engineer special brigades or similar organizations are trained and equipped to give combat organizations the initial logistic support required for amphibious operations. The shore party is represented by the engineer special brigade, plus supporting service units. Thrusting from the rear forward, the services build a logistic chain. The most advanced link in the chain begins behind the combat troops. It must be commenced on D-day by an organization specially trained to forge it under conditions of heavy combat. This organization carries on its duties until the fixed logistic service organization constructs and organizes the more permanent installations upon which rapid and large expansion of the logistic chain can be founded. The engineer special brigade, with advanced elements of the permanent logistic agency attached, lands with the assault elements on D-day.

c. The primary tasks of the shore party upon arrival on the hostile shore include—

(1) Facilitation of the movement across the beach of combat troops with their equipment.

(2) Unloading the cargo from ships and lighters as soon as the tactical situation permits and as rapidly as the cargo can be delivered to the shore.

(3) Rapid dispersion, inventory, and storage of supplies to minimize losses from enemy action and other causes.

d. The first task is accomplished progressively as elements of the shore party arrive, clear the beach of mines and obstructions, construct necessary exit roads, and complete the tasks of removing or repairing stalled vehicles and other mobile equipment.

e. The second and third tasks require adequate provision of vehicles, labor personnel, and equipment for handling materials and other supplies. It is imperative that movement of the supplies from the beach be expedited. The beach must not become an overloaded dumping ground. The engineer special brigade organically possesses the means for planning, controlling, and furnishing specialists for shore party operations.

963. During the initial stages of an amphibious assault and until the artillery can be established ashore, assault troops must be supported by Naval gunfire and air bombardment. Sufficient naval forces and air forces must be supplied to accomplish this mission and in addition to provide protection for the entire force. Once the artillery is established ashore, naval gunfire and tactical air, reinforced, if necessary, by strategic air forces are used to reinforce the fire of the artillery.

964. Due to the great concentration of fires of the various arms and services, centralized control of all fires is essential. To accomplish this, a fire support coordination center (FSCC) or its equivalent is set up in each echelon of command from the battalion to the army. The FSCC consists of artillery, naval, and air force officers and is organized and directed by the artillery commander.

965. Efficient signal communication is essential for control of ships, craft, aircraft, and troops. Signal communication units must be given joint training prior to any amphibious operation.

966. The Joint Force Commander is responsible for the adequacy of the logistics plan. The logistics plan must be able to support the tactical plan and, likewise, the tactical plan must fall within the capabilities of the logistics plan to support it. Provision must be made for sufficient initial supply to safeguard against possible delay in resupply. Levels of supply to be maintained are prescribed by higher headquarters.

967. a. For additional details see FM 31–5 and amphibious manuals in the 60 series.

b. For detailed information relative to signal communication, see appropriate classified joint texts.

# CHAPTER 12

# AIRBORNE OPERATIONS

## Section I. BASIC CONSIDERATIONS

968. This chapter lists basic principles for the joint employment of air and ground force units in airborne operations. It further indicates, for guidance of ground force commanders and staffs, procedures to be used in the planning and execution of such operations. For additional detail, see FM's 1–30, 31–40, and 71–30.

969. Airborne forces generally are employed in close coordination with other ground, air, and naval forces. The missions are to attack, seize, and hold important objectives; to exploit initial airborne assaults; and to occupy areas or reinforce units beyond the immediate reach of other ground forces. Specific types of operations are—

a. A deep airborne envelopment into hostile territory and the seizure of an airhead from which to initiate further land or air operations. This invasion type operation is a major assault landing of extensive forces and resources and involves continued operations against the enemy. Logistical support initially will be entirely by air. An eventual link-up with ground or naval forces may be made.

b. The seizure of an area, in connection with other military ground operations, in such a manner that an early link-up between the airborne and other forces is practical. This early link-up type operation involves landings in rear of the enemy lines in which—

(1) Important tactical localities are seized and held in conjunction with or pending early arrival of military or naval forces.

(2) Movement of enemy reserves is blocked or delayed by capturing and holding critical terrain features thereby isolating the immediate battle area.

c. The seizure of an area for use as an airbase from which to initiate further air, or airborne operations.

d. The seizure of an area to deny its use to the enemy.

e. The destruction of enemy forces, installations, and facilities followed by a prompt withdrawal or relief of attacking elements.

f. The reinforcing of threatened or surrounded units.

970. a. Airborne combat differs from ground action in that—

(1) There is usually an absence of heavy equipment, such as heavy artillery and armor, in the airhead.

(2) The circular shape of the airhead facilitates rapid employment of reserves at threatened points.

(3) The requirement for protection of airfields and strips from enemy observation and fire restricts the freedom of maneuver of the airborne commander.

(4) The restrictive effect of bad weather is felt more strongly.

(5) Supporting services are present in limited numbers, initially, thereby increasing difficulties of control, supply, and communication.

(6) Troops are extremely vulnerable during landing and assembly.

(7) Mobility and fire power of troops landed in the airhead are restricted more than in normal ground operations. The normal shortage or lack of friendly armor requires the airborne commander to emphasize the use of other means for strengthening antitank defense and increasing offensive power.

b. The characteristics of airborne operations are outlined in the following paragraphs.

971. Relative characteristics of air transported, glider, and parachute operations are—

a. Parachute operations require specially trained units whereas aircraft can be used to land units which have had a minimum of specialized training.

b. Parachutists can make day or night jumps; gliders can be landed at night with only sufficient light to discern terrain features; light aircraft can land on favorable terrain or roads on bright moonlight nights, but other aircraft require lighter runway markers.

c. Powered aircraft require use of captured airfields or construction of airstrips; glider landings can be made on relatively level and unobstructed terrain, but parachute units can land on any terrain which is free of obstacles dangerous to the individual upon contact.

d. Glider formations are more sensitive to weather and antiaircraft fire than powered aircraft.

e. Gliders can land heavy vehicles and equipment on terrain which is impracticable for use of powered aircraft. Small vehicles can be dropped by parachute on many types of terrain.

f. Operational radius of action is greater for parachute operations than for those which require glider tow or landing of airplanes to discharge passengers and matériel.

g. Parachute troops can be delivered into an area faster than glider or air transported forces. Units utilizing heavier equipment can be delivered by glider or airplane.

h. Gliders normally are used only once in an assault operation, whereas powered aircraft may make successive trips to the airhead.

972. a. The employment of airborne forces envisions—

(1) A movement by air to overcome distance, geographical barriers or enemy defenses.

(2) Use of the forces which are not committed to action, by threat of employment, to compel the enemy to disperse defense forces and facilities to protect vital installations.

b. Airborne operations require a high degree of coordination between air and ground forces and naval forces acting in conjunction or present in the area of operations. Therefore operations generally should be under theater control for over-all planning and supervision.

c. Because of the inherent vulnerability of airborne operations, air superiority within the area of operations is a fundamental prerequisite. Protection for marshaling, air movement, and establishment of the airhead must be adequate to prevent effective enemy counteraction.

d. In invasion type airborne operations, parachute units are normally used to make the initial assault. Air-transported units then move into protected landing areas and, when organized, attack from the airhead to exploit the tactical advantages gained. If there is no requirement for a parachute and glider assault,

ground units which have been trained for air movement are employed.

e. To obtain maximum effectiveness in the initial assault, airborne landings are conducted in mass and in the smallest practicable area.

f. When conducted in conjunction with ground or amphibious operations, airborne operations are launched to give maximum assistance to the main effort. Airborne attack may precede the ground or amphibious attack.

g. Airborne operations may be conducted in daylight or at night. Additional training and practice are required for night operations.

h. In large scale airborne operations desirable airhead characteristics are—

(1) Adequate landing areas.

(2) Dominating terrain features or barriers which facilitate defense of the airhead.

(3) Adequate road nets connecting the landing areas, the objective, and the dominating terrain features.

973. A large scale airborne assault requires the support normal to any large operation. Service support must be sufficient to meet operational demands. In addition, airborne operations require—

a. Strategic and tactical air forces sufficient to insure air superiority in the operational area.

b. Troop carrier forces whose strength, state of training, and type of aircraft insure successful movement of all necessary equipment and combat and service units.

c. Departure airfields within flying radius of the airhead. These airfields should allow dispersion of both powered and glider aircraft. Runways must permit the marshaling and rapid departure of large groups of loaded gliders.

d. Airborne and ground units properly trained and equipped to accomplish the combat missions assigned.

e. Marshaling areas with adequate service troops, facilities, and equipment to guard, house, and feed troops, and to provide signal communication and necessary briefing aids.

f. Air transported service units to construct advanced air strips within the airhead and to control air traffic.

g. Supporting units to insure accurate weather information and electronic or visual guides to and from the airhead area.

974. a. It is the responsibility of the theater commander to request forces and facilities which are needed to launch required airborne assaults. Within the limits of the means actually provided, he determnes the scope of the airborne operations that can be conducted.

b. To facilitate planning and to provide an agency which insures timely recommendations on the use of airborne forces, an airborne planning section is included on the theater staff.

c. Having approved an airborne operational plan, the theater commander usually assumes responsibility for over-all coordination, issues directives to all participating units defining their responsibilities and functions, and designates the commander. It usually is advantageous to establish a joint headquarters composed of army and air force personnel to plan and execute all airborne operations. This facilitates continuity of effort, rapid planning, and vigorous execution.

d. During the air movement the troop carrier commander controls the movement of the transported army units.

e. The senior army commander in the airhead is the airhead commander.

f. After the landing is made, the army and troop carrier units remain under command of the airborne operation commander until a ground juncture is effected. At that time troop carrier units revert to their normal assignment and army units come under the appropriate commander in the area.

g. The communications zone and air force units in a supporting role support the airborne force as directed by the theater commander.

975. a. All field forces must be capable of conducting large scale airborne operations. Forces designated for such operations should be given a warning directive well in advance of the operation.

b. The theater commander may direct an army headquarters, with appropriate supporting troops, to devote itself primarily to preparation and training for airborne operations. Airborne and air-transported divisions or corps will be assigned by the theater commander for the specific mission.

c. The army or separate corps commander influences the action by securing and disseminating information of enemy forces which

may affect the command; by his presence in critical areas; by changing boundaries, missions, and objectives; by shifting troops; by committing reserves; by arranging for support aviation; by allocation of logistical support; and by timely shifts of priorities for air movement into the airhead. After the initial combat phase of an airborne operation has been completed, the force operates in its normal ground role.

976. a. Every army corps must be capable of commanding an appropriate number of airborne divisions, air-transported divisions, or a combination of both types, in either the assault, build-up, or exploitation phase of an airhead operation.

b. In a separate corps airborne operation, the corps normally operates directly under theater headquarters or an army group until such time as the established airhead has been reached by ground units. At the time of link-up, the corps normally reverts to command of an appropriate army.

c. Any corps designated to command airborne forces should be given the earliest possible warning directive to permit it to complete preparations for executing the mission. During this preparatory phase, a separate corps completes all the preparations listed for the army. When a corps is operating independently in an airborne operation, it assumes the logistical support functions of an army, to include the operation of essential administrative installations as required by the situation. A corps, subordinate to an army for an airborne operation, is relieved of most administrative functions and permitted to confine its preparations principally to planning and training for its part in the tactical ground operation.

d. The theater commander may direct one or more corps headquarters, with appropriate supporting units, to emphasize planning and training for airborne operations. This directive does not preclude the commitment of the designated corps headquarters to ground operations. The decision to direct such specialization depends largely on the anticipated number and frequency of airborne attacks and the number of corps headquarters available in the theater.

e. In an airborne operation, close control is necessitated by the fluid character of combat in an airhead which requires rapidity of decision and aggressive action. The corps commander in an airborne operation influences the action by his presence in critical areas and by appropriate action covering each of the factors listed in paragraph 975 c.

977. a. The basic tactical airborne unit is the division. Its primary role is to conduct parachute and glider assaults. It is capable of landing in unprepared areas and immediately and effectively engaging the enemy.

b. The airborne division, as initially committed, can be expected to fight and exist as a tactical unit without relief or resupply for approximately 48 hours. The initial lack of heavy weapons in the assault is compensated for by special combat training including rehearsal, effective use of surprise, thorough planning, and the concentration of a superior force in the objective area.

978. a. The division requires at least 7 days to prepare for an operation.

b. In organizing for combat, the division is divided into the assault, follow-up, and rear echelons. The assault echelon normally includes parachute and glider elements. The follow-up echelon may include glider, airplane, overland, or seaborne elements. The rear echelon includes administrative personnel and units not required initially in the objective area.

c. Equipment available for the airborne assault is identical to that for ground operations, except that medium armor, heavy artillery, and heavy engineer equipment, at present, cannot be transported by air.

979. a. Most units may be adapted for air movement after sufficient training and with certain modifications of organization and equipment.

b. A commander is justified in resorting to air movement of a ground unit only when geographical obstacles, hostile barriers, distances, or expediency forbid or seriously limit the use of other types of transport.

980. Tactical air and troop carrier elements are closely associated with ground units in an airborne operation. Strategical air forces, air defense units, and the air-sea rescue services assist airborne operations when the situation requires their participation.

## ARMY AND AIR FORCE RESPONSIBILITY

981. Army responsibility includes—

a. Concentration, organization, and equipping of the airborne forces.

b. Conduct of airborne and ground training as required in preparation for an airborne mission.

c. Planning and supervision of the ground phase of the airborne assault.

d. Recovery of initial supplies and equipment and the provision of service units for the unloading of aircraft in the airhead.

e. Control of supplies from air fields in the airhead to supply points.

f. Repair of air fields or construction of air strips within the airhead during the assault phase.

g. Evacuation to airhead air fields.

982. Communications zone responsibility includes—

a. Procurement and delivery of supplies and equipment to rear air bases.

b. Movement of the airborne forces to marshaling camps and the provision of accompanying equipment and supplies.

c. Evacuation from rear air bases.

983. Air force responsibility includes—

a. Concentration, organization, and equipping of air units participating in an airborne operation.

b. Providing the army with necessary facilities for air training and for conduct of training of air force units.

c. Planning and supervision of the air participation in an airborne assault.

d. Air movement of troops, equipment, and supplies to landing areas within an airhead.

e. Receipt, unloading, and temporary storage of supplies at rear bases.

f. Preparation and loading of follow-up supplies and delivery to the airhead.

g. Procurement of aerial delivery containers and cargo parachutes.

h. Assistance in the logistical organization for the receipt of supplies on airhead air fields.

i. Evacuation from airhead air fields to rear air bases.

j. Operation, construction, and maintenance of air fields in the airhead after the assault phase.

984. Joint responsibility includes—

a. Planning of vital interest to both services, including selection of landing zones, and time and space factors involving troop and supply delivery must be accomplished jointly.

b. Army and air force pathfinder teams should be trained jointly in order that the respective duties of each will be coordinated.

## Section III. PLANNING AND PREPARATION FOR AIRBORNE OPERATIONS

985. a. An airborne operational plan is the outgrowth of continuous preliminary planning developed by theater and unit staffs. This planning is based on availability of aircraft and the changing tactical and logistical conditions in the theater. The theater planning staff considers numerous possible airborne operations. From among these emerge certain probable operations which are assigned to subordinate units for development.

b. A unit directed to plan one or more airborne operations initiates planning immediately and continues until the operation is either cancelled or executed. The amount of detail involved in the planning and the detailed intelligence sought varies with the level of the headquarters.

986. Planning directives from higher headquarters may be oral and fragmentary in the early stages of planning. A complete directive is issued later, usually as a result of a theater air-ground conference. Directives issued by all commands contain operational information, intelligence, weather, and necessary logistical information. In addition, directives include general landing areas; composition, equipment, and departure airfields of air force units; pathfinders and guides; special equipment; and arrangements for altering or cancelling the operation.

987. Detailed planning is best developed by working backward from the objective area in the following sequence:

a. Develop ground tactical plan, determine strength and composition of the forces required.

b. Develop the logistical plan.

c. Develop a landing plan which indicates the sequence, time, and place of arrival of troops and matériel.

d. Prepare flight and air movement plans based on the landing plan.

e. Prepare marshaling plan based on plan of air movement.

988. Simplicity is a guiding principle in the planning and preparation for airborne operations. To attain simplicity—

a. Avoid a complicated plan for distribution of troops at departure airfields.

b. Use landmarks which are easy to locate and identify from the air.

c. Avoid a complicated scheme of landing.

d. Do not depend on a plan which is entirely contingent upon the arrival of any one air serial or ground unit.

e. Do not prescribe difficult and distant objectives immediately after landing.

f. Do not duplicate objectives.

g. Airborne participation must be integrated completely into the over-all plan.

989. Planning time requirements can be reduced and effective execution facilitated by the development of airborne, troop carrier, and communication zone standing operating procedures.

990. Combat elements of the airborne force are selected in accordance with the mission and operating conditions imposed. These may include airborne or air-transportable units, or any combination of the two. Supporting elements from all arms and services may be assigned. Troop and cargo-carrying capabilities and availability of aircraft, the initial landing capacity of the airhead, and other limitations impose definite restrictions on the organization of the airborne force. Special planning therefore is necessary to reduce aircraft requirements and assure maximum fire power and mobility in the parachute or glider elements.

991. The nature and location of landing areas are important in formulating the scheme of maneuver. The general location in which they are to be established is governed necessarily by the mission. Landing areas may be assigned in broad general terms. In lower units, more specific designation of their locations is required by the higher commanders. Landing areas should provide dispositions favorable to the ground tactical plan and be of sufficient size to accommodate the landing forces.

992. a. In an airborne operation, the airhead is the area in hostile territory established by the airborne assault force to protect the

subsequent landing of troops and supplies by air. It is part of the objective area. It normally includes all of the landing areas and all airfields and airstrips in the landing areas. The principal factors which determine the location, extent, and form of a proposed airhead are the mission, the location of proposed landing areas, the size and organization of the airborne force and air forces involved, the offensive and defensive characteristics of the terrain in the objective area, the expected time available for organization of the ground, and the expected enemy reaction.

b. The limits of the airhead are defined by the airhead line, which constitutes a tentative defensive position for the airhead, and an outpost line, to which security forces are pushed for screening purposes. These lines are selected in advance and modified as more detailed information becomes available.

993. a. The ground tactical plan is based upon normal considerations governing the conduct of ground operations but is modified by the special conditions which develop from dispersed landings and lack of initial command control. Special consideration must be given to the time and place at which the assault and reserve elements are landed; consolidation and reorganization of the assault forces; and capabilities of the airhead organization to continue fire and logistical support.

b. Plans for the advance outward from the airhead to the ultimate objective may be prepared simultaneously with the assault plan. Uncertainty of success of various landings and the possibility of loss of troops, matériel, and aircraft en route, and during landings, requires flexibility in such plans.

994. Logistical plans of armies, corps, or divisions, vary in scope, coverage, and sequence in planning. The logistical plans of all commands, however, cover all five essential elements of logistics; namely, supply, evacuation and hospitalization, transportation, service, and management.

995. a. Upon determination of forces required, assignment of mission, and selection of general landing areas, allotment of supporting troop carrier units is made.

b. A daily allocation of aircraft units is made, based on the number of balanced divisions and supporting units that can be landed each day. The allocation of aircraft indicates the troop carrier units which transport each airborne unit. The airborne and troop carrier commanders study assigned landing areas and select general areas for each subordinate unit.

c. Airborne commanders and troop carrier commanders study assigned landing areas to select and agree on specific drop zones, landing zones, airstrips, and airfields. In formulating the tactical plan, the sequence and exact place for landing of all units finally is established. The airborne and troop carrier units then prepare the detailed air movement table.

d. When required, plans are developed to bring in air-transported troops and matériel after the seizure of an airhead and the construction or capture of suitable airfields. These troops may include infantry divisions, corps, and army troops, and service elements to support them.

996. An air support plan is formulated based on the over-all air force mission and the amount of strategic, tactical, and troop carrier air effort available.

997. Upon designation of the general landing areas, troop carrier staffs initiate planning for an air movement. The troop carrier commander's plan for the air movement prescribes the use and allocation of troop carrier units and facilities in a manner which meets the requirements of the airborne commander as far as technical and tactical limitations permit.

998. Backward planning from the landing area is the best approach to the problem. Final approach routes and air traffic in the target area, route over enemy and friendly territory, serial formation assembly, air traffic, and concentration for the air movement are considered in that order. Plans are made for each based upon the following considerations:

a. Estimate of enemy air and ground dispositions which can be avoided or neutralized.

b. Distinctive terrain features for use as aids to navigation, or control, or both, and coordination points.

c. Conformation of suitable landing areas and location of terrain obstacles.

d. Anticipated weather.

e. Concept of air traffic density as it may be affected by a day or night operation.

f. Other terrain features which affect ground observation and ground fire. Centers of population, main roads, proximity to interceptor airfields, radar and air warning system, antiaircraft

defense system, thinly held front-line sectors, and time and distance in enemy territory are all considered for effect on the air movement and routes.

g. The air route selected should be as short as practicable, delay alerting the enemy air defense system, take advantage of terrain features for navigation and control points, establish a free air passage corridor over naval forces, where required, and minimize conflict with other theater air traffic. The plan is integrated with other theater agencies.

999. a. The marshaling plan covers three principal and related activities. These are the movement of tactical units to marshaling camps; the provision of certain facilities and services by the communications zone while units are in the marshaling camps; and plans for loading of aircraft.

b. The preparation of standing operating procedures for marshaling and publishing of warning orders and fragmentary information well in advance are essential to smooth execution of a marshaling plan.

## PLANS FOR CONSOLIDATION AND BUILD-UP OF TROOPS AND MATÉRIEL

1000. After assault units have seized their objectives and have accomplished initial missions, a temporary transition to the defensive is usually necessary. The mission of the force changes from an attack on the initial objectives to one of a perimeter defense. The new mission can be coordinated by selection of an airhead line and by prescribing boundaries between or areas of responsibility to units.

1001. The conduct of the defense of the airhead usually is delegated to the commander of the assault force. In preparation for this defense, the commander plans to phase in troops and supplies, to furnish an integrated antitank defense, and to reinforce his field and antiaircraft artillery. The plan is flexible to permit changes as the tactical situation varies.

1002. Some major factors to be considered in the build up plan are—

a. Airfield construction.

b. Development of a system for the reception of troops and matériel.

c. Concentration of units for further operations.

d. Installation of logistical facilities on a scale to support contemplated operations.

1003. The exploitation phase insures the fulfillment of the operational mission. Plans for successful exploitation may include—

a. Enlarging the airhead as an advanced airbase, naval base, port, staging area, or missile site.

b. Seizing critical terrain, road and rail nets, canals, natural resources, and protecting potential allies.

c. Destruction or capture of manufacturing areas, resources, missile sites, airfields, or enemy forces.

d. Seizing other terrain inaccessible to other type ground troops.

1004. If the initial contact is with amphibious forces, at a port or shore line, plans are made for eliminating enemy opposition, coordinating naval gunfire and air support, and signaling safe entry to amphibious units.

1005. If an inland contact with advancing ground forces is contemplated, plans are made for coordinated use of air and artillery support. Requirements include—

a. Prearranged plans for junction and assumption of command by the senior headquarters.

b. Command and staff liaison.

c. A system of mutual recognition and identification prescribed in signal operation instructions.

d. Early radio contact to establish front-line positions, no fire, and bomb lines.

e. Maximum use of available liaison aircraft to describe positions and to assist in making final link-up.

## Section IV. EXECUTION OF AIRBORNE OPERATIONS

1006. a. The air movement of assaulting airborne troops delivers the force to its assigned landing areas, with minimum dispersion in time and space, to achieve maximum benefit from tactical surprise. To accomplish this, emplaning take-off, and air assembly of serials from all airfields are scheduled closely by the air headquarters controlling the over-all air movement.

b. Pathfinder serials, when required, precede the main troop carrier column. Parachute pathfinder teams place and operate navigational aids in the landing area.

## LANDING AND REORGANIZATION OF AIRBORNE UNITS

1007. a. The landing and reorganization of airborne units and their matériel are two critical phases of the airborne assault which are executed with all possible speed and precision. When necessary, security is sacrificed for speed and control of reorganization.

b. Airborne troops normally are landed as close to their objective as possible without coming under small arms fire. The troops should have a reasonable time to collect equipment and assemble as tactical units before engaging in combat. Surprise may be enhanced, however, by landing on the objective or making the move to the objective as short as possible. A short move prevents the exhaustion of troops resulting from forced marches, carrying heavy combat loads, and manhandling equipment over long distances.

1008. a. An airborne division normally lands its three combat teams in three general drop zone areas in less than an hour. Command echelons are placed in assault serials. The actual landing is made by battalion groups. The glider element lands in parachute combat team areas or in an area centrally located. Gliders normally land after parachutists have cleared the area of local enemy resistance.

1009. Battalions and separate units reorganize in a prearranged manner making use of assembly areas, assembly aids, and identification markings for personnel and equipment. Assembly areas are established just off the landing areas. For reference they are marked by prominent landmarks and assembly aids. The first parachute units to land normally are charged with gaining and maintaining the security of the drop and landing zones. Other units move directly to their assembly areas, by planeload or glider-load, carrying with them all equipment needed for the assault.

1010. a. Each battalion commander reports location and status of personnel and equipment before moving from the assembly area to the objectives. Battalions normally will report readiness for action in 30 to 60 minutes.

b. Designated personnel remain on the drop and landing zones to protect the area, assemble stragglers, care for casualties, and to complete the removal of supplies.

c. The reorganization of the division is complete when all elements of the units are in their proper places and communication is established.

## ACCOMPLISHMENT OF INITIAL GROUND MISSIONS

1011. a. The infantry battalions proceed on their assigned mission when assembled. The smaller units, which may have left the drop zone earlier on independent missions, either have seized the objective or obtained information as to the defenses. Combat during this period is based primarily on aggressive action by small units. Commanders attack as rapidly as the situation permits, utilizing all available fire support. A system of reinforced road blocks is used to mobilize enemy forces. Enemy communications facilities are disrupted promptly. Artillery is placed under centralized command as soon as possible. During the development of the coordinated attacks, detachments protect the flanks and rear, gain contact with neighboring units, destroy or capture enemy troops, and otherwise consolidate their assigned area.

b. Units or personnel which are landed in areas other than those planned, direct their efforts to the accomplishment of the general mission and establish contact with their respective headquarters as soon as practicable.

1012. The regimental commander places himself where he can best coordinate the actions of his battalions to secure a decision. The division commander shifts the fire of artillery, arranges for air support, and uses reserves as the situation dictates.

1013. As soon as the initial objectives have been captured, the combat teams seize further objectives which facilitate the establishment of a coordinated division defense. Then, defensive positions are organized, signal communication established, reserves reconstituted, and other measures taken to prepare the force to repel enemy counterattacks or to resume the offensive.

## LANDING AND REORGANIZATION OF AIR TRANSPORTED UNITS

1014. Based on the capacities of the secured airstrips or airfields, air-transported units land as rapidly as possible. If combat teams are expected to initiate combat within a few hours after landing, unit integrity is maintained by airfield or adjoining airfields.

1015. From the deplaning area, air-transported units move by

air serial organization to a designated assembly area carrying with them all equipment needed for their immediate tasks. Upon arrival in combat team assembly areas, groups are directed to their subordinate areas where units report the status of personnel and equipment.

## ESTABLISHMENT OF COMMAND POSTS AND COMMUNICATIONS

1016. The immediate establishment of communication, as parachute, glider, and air-landed elements arrive in the combat area, is essential for effective command control of ground operations. For effective command control signal communication is maintained within the airborne forces, with supporting aviation and naval forces, with troop carrier units concerned with build-up and air supply and evacuation, and to widely separated airborne or ground forces with a common or coordinated mission.

## DEVELOPMENT OF THE AIRHEAD

1017. The major consideration after the initial landings have been effected and the initial ground missions accomplished is the advance to and seizure of the airhead line. This extends the occupied area to a sufficient distance beyond the airstrips and airfields to insure uninterrupted landings of air-transported troops, equipment, and supplies, and secures the requisite terrain features and maneuver space for such further offensive or defensive operations as the mission may require. The advance to, and seizure of, the critical terrain features of the airhead line is accomplished with maximum speed. For purposes of coordinating this advance, the airborne assault commander may designate successive objectives or phase lines.

1018. The airhead line is occupied and organized to the extent demanded by the situation. Adjustments in the preplanned dispositions of troops and installations are made to fit the realities of the terrain and the situation. Appropriate active and passive reconnaissance and security measures are taken, which usually include the establishment of a predetermined outpost line to which security forces promptly advance. In the early stages of the operation the defensive positions are usually lightly held and the bulk of the forces are held in reserve for counterattacking enemy penetrations. As reinforcing units are landed in the airhead the positions are more heavily organized.

1019. The build-up of the airhead proceeds concurrently with the

seizure and organization of the airhead line. As additional combat troops arrive they are used to reinforce the front-line positions, to constitute reserves, and to prepare for such offensive operations as the mission may require.

## SUBSEQUENT OPERATIONS

1020. a. Ground operations to exploit the advantages obtained by the establishment of the airhead follow the normal pattern of ground operations.

b. After the airhead has been established firmly, airborne units either are relieved to permit preparation for subsequent airborne assaults or are reorganized and re-equipped for sustained ground operations.

c. Withdrawal from an airhead may be forced by the enemy or may be made voluntarily. Advance planning is imperative as the limitations of transport aircraft and the circular nature of the airhead introduce complicating factors not present in the normal ground withdrawal. When the situation permits, the plan usually provides for evacuation in the following sequence: supplies, matériel, and troops.

## SUPPLY PHASES

1021. Supply operations within an airhead are divided into these three phases—

a. Accompanying supply phase—recovery and distribution of accompanying supplies by assault airborne forces.

b. Unit air supply phase—receipt, recovery, and distribution of unit air supply by assault airborne forces.

c. Replenishment supply phase—receipt, classification, storage, and distribution of replenishment supply, and the receipt of accompanying supplies in follow-up echelon.

# CHAPTER 13

# THE DIVISION

## Section I. INFANTRY DIVISION

1022. a. The infantry division is the basis of organization of the ground field forces. It is triangular in composition. Three regiments of infantry, a heavy tank battalion, a combat engineer battalion, an antiaircraft artillery automatic weapons battalion, and four field artillery battalions comprise the major combat elements. It is the smallest unit that is composed of all the essential ground arms and services and which can conduct, by its own means, ground operations of general importance. It can strike or penetrate effectively, maneuver readily over any type of terrain, and absorb reinforcing units easily. It can act alone or as part of a higher unit.

b. The organization of the infantry division includes the minimum number of organic units with which the division can be expected to engage in sustained combat. In many situations, in order that the division may engage in decisive operations, it must be reinforced with additional means such as artillery, armor, engineer, and antiaircraft elements.

c. The doctrines of combat, enunciated in preceding chapters of this manual, apply to the operations of the infantry division.

1023. The combat value of the infantry division derives from its ability to combine the action of the various arms and services, to maintain combat over a considerable period of time, to fight sustained close combat, and to gain and hold ground. The ability of the infantry division to absorb and supply reinforcing units such as artillery, armor, engineers, and additional service units gives it a flexibility which contributes heavily to its combat effectiveness. With special training and special equipment as necessary it can participate effectively in any type of special operation.

1024. When a division is operating as part of a larger unit, it usually must conform to the plan of action of the higher commander. In an advance, the corps commander ordinarily will prescribe a zone of advance for each division of the corps. The road net within the zone may influence largely the march formations and supply arrangements within the division. The corps also may prescribe the general line which advance guards of the division will cross at a given time at the beginning of the march, the extent of the march, as well as any special formation of the corps for the advance.

1025. When fully motorized by the attachment of additional transport, the infantry division is a highly mobile unit. It is especially suited then to execute the following types of operations:

a. To provide close support of armored units; to consolidate and hold gains made by such units.

b. To seize and hold important localities pending arrival of less mobile forces.

c. To exploit success achieved by armored, airborne, and other units.

d. To execute envelopments and turning movements either in close cooperation with armored and other mobile units or, under favorable conditions, to execute these operations independently.

e. To constitute a powerful mobile general reserve for use either offensively or defensively as the situation demands.

1026. The army or corps reconnaissance elements or covering forces may be operating in advance of the divisions. While cooperation and contact between these reconnaissance elements and those of the division are necessary, their presence in no way relieves the division commander of responsibility for reconnaissance by, and security for, his own command.

1027. a. When the division is moved by air transport the type transport aircraft furnished will determine what divisional heavy equipment can accompany it. If heavy equipment such as medium tanks, medium artillery, and engineering vehicles cannot be transported, the capacity of the division to engage in long sustained combat is reduced.

b. The infantry division has neither the characteristics nor the means of the airborne division to permit it to land from the air in an area not previously secured by friendly troops.

1028. In combat, the mission assigned the division may require the division to act in close coordination and cooperation with adjacent divisions or to operate at a distance from the main force. The decisions and actions of the division commander in either situation are predicated upon the greatest assistance to the successful execution of the task of the higher commander.

1029. a. Situations will arise during combat when it becomes desirable to decentralize command functions normally exercised in division headquarters. In such situations combat teams are formed. For details see paragraph 20.

b. When the situation makes such action advisable, the infantry division can readily organize a mobile task force whose major components include infantry and artillery battalions and all or part of the divisional tank battalion. Such a force may be augmented by the attachment of suitable reconnaissance, engineer, signal, and medical elements.

## Section II. ARMORED DIVISION

1030. The armored division is the basic large armored unit of the combined arms. It comprises a balanced force of essential ground arms and services so organized and equipped as to make it tactically and administratively self-contained and especially suited for missions which require great mobility and fire power.

1031. a. As presently organized, four tank battalions, four armored infantry battalions, four armored field artillery battalions, one antiaircraft artillery automatic weapons battalion, one reconnaissance battalion, and one armored engineer battalion comprise the major combat elements of the division. These battalions are administratively self-sufficient. A division headquarters, two combat command headquarters, a reserve command headquarters, a division artillery headquarters, and a trains headquarters comprise the larger command and control elements of the division. The combat commands and reserve command headquarters are tactical headquarters with no organic troops other than their own headquarters companies.

b. Battalions and other units, both combat and service, are attached to combat commands and to the reserve command by the division commander in accordance with the missions he assigns these commands. Division artillery headquarters, operating under division headquarters, exercises command over the division artillery whenever the tactical situation permits. The trains head-

quarters is a tactical headquarters which provides for the control, movement, and protection of those elements of the division trains assigned to it. It also performs administrative functions for the rear echelon of division headquarters. It exercises no technical supervision of units of the division trains.

1032. The organization of the armored division provides great flexibility in the composition of its combat formations. If organizing for combat, the armored division is prepared to fight in two or three flexibly organized combat commands. The composition of each is varied from time to time to perform most advantageously the tasks at hand. The reserve command controls the combat units not assigned to the other combat commands. The reserve command, with its attached combat elements has the mission of supplying the combat commands with rested and rehabilitated units or of being employed in combat as a third combat command.

1033. a. The units within the combat command ordinarily are organized under the combat command commander into smaller task forces consisting basically of tanks, armored infantry, and armored engineers. Each task force usually consists of a reinforced battalion commanded by the battalion commander. These reinforced battalions are formed either by the attachment of tanks from a tank battalion to an armored infantry battalion or by a similar attachment of armored infantry from an armored infantry battalion to a tank battalion. Armored engineer detachments normally are attached to these reinforced battalions.

b. The proportion of tanks and armored infantry within these reinforced battalions varies. One may be strong in tanks while another may be strong in armored infantry, but the basic principle of employing tanks and armored infantry together is maintained.

c. Artillery battalions may be attached to or placed in support of the combat command. Artillery battalions normally are not attached to reinforced tank or armored infantry battalions but are designated as direct support battalions for them. Reconnaissance and service elements attached to a combat command operate under direct control of the commander of the combat command.

1034. Successful operation of the armored division depends upon the proper utilization of its mobility, fire power, and shock action.

a. To achieve the maximum mobility, movements must be planned and coordinated. Techniques of marching, maintenance,

and resupply of fuel, lubricants, and spare parts must be perfected. Obstacles, terrain, and weather are restrictive factors affecting the mobility of armor.

b. To achieve the maximum utilization of fire power, adequate supplies of ammunition must be available and in the possession of the combat units; resupply must be adequate and timely.

c. The fire power and mobility of the armored division are utilized to permit it to close with the enemy to exploit shock action with decisive results. A well organized and defended position, protected by obstacles and mines, restricts the employment of shock action and increases the importance of fire power.

## OPERATIONS

1035. The armored division may be employed in most types of ground combat either as part of a larger force or independently for a limited period of time. It is specially suited to execute the following type missions:

a. Offensive operations planned to achieve deep penetration and seizure of decisive objectives such as dominating terrain, communication centers, bridges, lines of communications, higher enemy headquarters, and other vital areas in the hostile rear, or envelopment and destruction of hostile forces.

b. Mobile defensive operations planned to utilize the armored division as a counterattack force or as a covering force in retrograde movements.

c. Destruction of hostile armor.

1036. a. In offensive operations the employment of the armored division is dictated by its outstanding characteristics of independent mobility and predominant tank strength. Where these characteristics can be employed effectively, the armored division may lead or provide the principal effort in the initial attack. Under circumstances where the armored division cannot initially be employed effectively, or is held in reserve during the reduction of a strongly organized area, the armored division must be prepared to attack through the infantry division as soon as the obstacles have been breached or bridged. Generally, the initial attack of the armored division, through the infantry divisions, employs teams of tanks and armored infantry, supported by massed artillery fires and other weapons in rapidly repeated attacks on successive objectives, moving ever deeper into the enemy's defensive organization, destroying his reserves, overrunning his

artillery, and disrupting his communications. The momentum of this initial attack by the armored division must be maintained.

b. As soon as the hostile defensive organization is penetrated, the armored division moves rapidly to the exploitation phase, advancing in one or more columns deep into enemy territory to seize vital communications centers or terrain objectives. During this phase, armored units will attack from march columns, where practicable, will bypass resistance, will make assault crossings of streams, and will perform any special operations necessary to accomplish their mission.

1037. In defense, the armored division is best employed in mobile reserve as a counterattack force. It may be assigned a front-line defensive sector to occupy, but the armored division is not particularly adapted to such a role. When so employed, its sector must be designed to permit it to exploit advantageously its relatively weak infantry strength and its comparatively great strength in armor. This can be achieved by—

a. Employment of defensive-offensive methods which permit it to hold wide fronts with weak infantry garrisons backed by strong and mobile reserves.

b. Reinforcing the armored division by additional infantry to permit it to hold a frontage equivalent to its over-all combat power.

c. Assigning it a relatively narrow sector comparable to its infantry strength while holding its strong armored component in corps reserve located to facilitate its use on the front of its own division.

1038. For a more complete discussion of the elements of the armored division, see FM 17–100.

## Section III. AIRBORNE DIVISION

1039. The airborne division is the basic large unit of the combined arms for use in airborne operations. The specific organization and equipment of the airborne division is essentially that of an infantry division with less heavy equipment and a lower ratio of supporting units. A parachute maintenance company is provided to store, maintain, pack, issue, and recover parachutes and other specialized airborne equipment.

1040. In organizing for combat, the division normally is divided into an assault echelon, a follow-up echelon, and a rear or base

echelon. The assault echelon usually is further divided into combat teams and divisional units. The assault echelon is landed by parachute and glider. The follow-up echelon contains additional transportation, heavy equipment, and supplies. It rejoins the division by air, land, or sea as soon as practicable after the airborne assault. The rear echelon contains the administrative echelons of all units and the parachute maintenance company.

1041. The preparation of the airborne division for airborne assaults includes specialized training in details of air movement, airborne assault, and ground combat. All personnel are trained in parachute, glider, and air-transported techniques. Units and staffs are experienced in the specialized procedures of marshaling, air movement, assault landings, reorganization after landing, and the conditions which exist in combat operations in enemy territory.

1042. When committed to normal ground operations, the division must be given additional heavy transportation. However, it does have excellent tactical mobility and can operate effectively over difficult terrain. When given a ground mission, the attachment of armor, additional artillery, and service units is normal. (See TO&E 71 for composition of the airborne division.)

1043. The primary mission of the airborne division is to seize objectives in enemy territory by means of assault parachute and glider landings. Suitable division missions include seizure of bridges, defiles, or other key terrain to assist the advance of friendly troops, or to hinder the movement of enemy forces, or both; and, as a part of a larger airborne force, to seize and protect an area suitable for the landing of normal ground force units which are trained to make a movement by air transport. In view of the limitations of an airborne division in seizing and holding objectives indefinitely, it is normal to reinforce it quickly or to effect a ground link-up with other forces.

1044. In seizing an objective the airborne division may elect to land directly on the objective or to land at a distance and make a normal ground attack. A combination of both methods has many advantages. Units landed on the objective can secure maximum surprise in attacking the enemy while units landed at a distance can delay the arrival of enemy reinforcements and enter the fight for the objective when and where needed. It is essential that the objective be seized and that the division be regrouped in a defensible position before the enemy reacts with sizable forces.

1045. Continuous and effective liaison with the troop carrier air force is essential to successful operations of the airborne division. Joint training to develop smooth teamwork is mandatory.

1046. Air supply and air evacuation of casualties of the airborne division, when it is performing its primary role, is the responsibility of the air force. In the initial stages, supplies are delivered by parachute or glider into the objective areas. This normally is followed by landing supplies by transport aircraft, after suitable landing fields have been seized and prepared. Finally, after the link-up is made with friendly ground forces, supplies are delivered and distributed in the normal manner.

# APPENDIX

## LESSONS OF THE PEARL HARBOR ATTACK

1. The Congressional Joint Committee on the Investigation of the Pearl Harbor Attack, after its thorough investigation of the attack, reached the conclusion that certain supervisory, administrative, and organizational deficiencies existed in the armed forces of the United States and recommended that serious consideration be given by the Army and Navy to 25 principles which it enunciated in the hope that something constructive might be accomplished that would aid our national defense and preclude a repetition of the failure of 7 December 1941.

2. Acting on this recommendation the Chief of Staff of the Army approved the simplicity, soundness, and applicability to the conduct of war of the principles referred to in the paragraph above and directed that the 25 principles be studied throughout the Army and that they be explicitly enunciated in appropriate field manuals and other publications.

3. The 25 principles presented by the congressional committee are set forth below. They are treated in detail in subsequent paragraphs.

**I. Operational and intelligence work requires centralization of authority and clear-cut allocation of responsibility.**

**II. Supervisory officials cannot safely take anything for granted in the alerting of subordinates.**

**III. Any doubt as to whether outposts should be given information should always be resolved in favor of supplying the information.**

**IV. The delegation of authority or issuance of orders entails the duty of inspection to determine that the official mandate is properly exercised.**

**V. The implementation of official orders must be followed with closest supervision.**

**VI. The maintenance of alertness to responsibility must be insured through repetition.**

**VII. Complacency and procrastination are out of place where sudden and decisive action is of the essence.**

VIII. The coordination and proper evaluation of intelligence in time of stress must be insured by continuity of service and centralization of responsibility in competent officials.

IX. The unapproachable and superior attitude of officials is fatal. There should never be any hesitancy in asking for clarification of instructions or in seeking advice on matters that are in doubt.

X. There is no substitute for imagination and resourcefulness on the part of supervisory and intelligence officials.

XI. Communications must be characterized by clarity, forthrightness, and appropriateness.

XII. There is great danger in careless paraphrase of information received and every effort should be made to insure that the paraphrased material reflects the true meaning and significance of the original.

XIII. Procedures must be sufficiently flexible to meet the exigencies of unusual situations.

XIV. Restriction of highly confidential information to a minimum number of officials, while often necessary, should not be carried to the point of prejudicing the work of the organization.

XV. There is great danger of being blinded by the self-evident.

XVI. Officials should at all times give subordinates the benefit of significant information.

XVII. An official who neglects to familiarize himself in detail with his organization should forfeit his responsibility.

XVIII. Failure can be avoided in the long run only by preparation for any eventuality.

XIX. Officials, on a personal basis, should never countermand an official instruction.

XX. Personal and official jealousy will wreck any organization.

XXI. Personal friendship, without more, should never be accepted in lieu of liaison or confused therewith where the latter is necessary to the proper functioning of two or more agencies.

XXII. No consideration should be permitted as excuse for failure to perform a fundamental task.

XXIII. Superiors must at all times keep their subordinates adequately informed and, conversely, subordinates should keep their superiors informed.

XXIV. The administrative organization of any establishment must be designed to locate failures and to assess responsibility.

XXV. In a well-balanced organization there is close correlation of responsibility and authority.

4. All of these principles are included in existing field manuals either directly or by implication, but since they are not treated as a whole in any Department of the Army publication, they are discussed more fully below with references to the appropriate field manuals covering the subject.

*I. Operational and intelligence work requires centralization of authority and clear-cut allocation of responsibility.* — Staff agencies charged with the responsibility and authority for the

preparation and issuance of tactical or strategical orders in the name of the commander, and those charged with intelligence operations, including the collection, evaluation, and interpretation of information concerning an actual or possible enemy, and the dissemination of resulting intelligence, must work as one team. Only thus can orders and instructions be in consonance with available intelligence and therefore take full advantage of the situation and capabilities of an actual or possible enemy. This requires that those responsible for the preparation of orders and instructions be constantly and fully aware of the situation and capabilities of an actual or possible enemy. Responsibility for initial coordination rests jointly on intelligence and operations staff agencies. When orders or requests are not in consonance with available intelligence because of differences of views as to the implications thereof, those differences must be resolved by the chief of staff if he is authorized to do so or, if not, then by the commander himself. Final responsibility and authority are vested in the commander. (See FM 101–5.)

*II. Supervisory officials cannot safely take anything for granted in the alerting of subordinates.*—Orders issued to subordinates must be clear and explicit and as brief as is consistent with clarity. The more urgent the situation the greater the necessity for conciseness. When definite action is required a definite order should be given. In war nothing can be taken for granted, and no assumptions as to the meaning of messages are warranted without closest supervision to make certain that the intentions of the commander are understood. When it is necessary to place a subordinate in a position in which he must act on his own judgment, the object to be obtained must be made clear and he should be furnished with all crucial information and intelligence accompanied by the best estimate of its significance. (See FM 101–5.)

*III. Any doubt as to whether outposts should be given information should always be resolved in favor of supplying the information.*—Unity of effort toward a common objective cannot be obtained if subordinates who may have to act on their own judgment are not told all that it is or may be necessary for them to know. The secrecy of the source of information or intelligence should not be taken as a reason for not making the information or intelligence known to commanders to whom it is vital. While the information or intelligence is given, the security of the source may remain guarded. It is therefore the primary duty of the intelligence officers of all echelons of command to keep their commanders and all others concerned fully informed of the situation and capabilities of an actual or possible enemy. In absence of instructions

from their commanders as to what is advisable to make known to subordinate commanders, they should take the view that it is better to err on the side of giving too much information or intelligence rather than too little. (See par. 221.)

*IV. The delegation of authority or issuance of orders entails the duty of inspection to determine that the official mandate is properly exercised.*—(See principle V below.) Subordinate commanders must understand not only the orders of their superiors but also the intentions which inspire them. Thus the responsibilities of a commander and his staff do not end with the issue of the necessary orders. They must insure receipt of the orders by the proper subordinates, make certain that they are understood, and enforce their effective execution. It is sound practice to recognize as implicit, in the delegation of authority or the issuance of orders, the responsibility of inspecting and supervising to determine that the delegated authority is properly administered and the orders carried out. (See FM 101–5.)

*V. The implementation of official orders must be followed with closest supervision.*—The principle of the supervision of subordinates is well understood. It should be stressed, however, that when a subordinate is at such a distance from the commander that personal supervision is not possible, the reports of the subordinate's plans and actions must be carefully checked to make sure that they comply with instructions given. More complete intelligence of the enemy situation and capabilities must be furnished the subordinate than is ordinarily the case. Also liaison officers, who are representatives of the senior commander and who are fully informed of the situation and the intentions of the senior commander, should be employed to insure that the subordinate and the senior commander have mutually complete information and intelligence and a mutual understanding of plans and orders.

When the subordinate is close at hand, personal conferences between the higher commander and the subordinates who are to execute his orders must be held in order that the subordinates may arrive at a correct understanding of the plans and intentions of the superior and may correctly interpret the orders issued. Within the scope of authority delegated to it, the staff must supervise the execution of plans and orders and take the necessary action to carry out the commander's intentions. (See pars. 112 and 128.)

*VI. The maintenance of alertness to responsibility must be insured through repetition.*—Long range plans or estimates can be vitalized by timely repetition. An energetic followup of instruc-

tions must insure that they are effectively executed or are modified at the proper time to fit a change in the situation. Repetition for the purpose of intensifying and insuring alertness is especially appropriate in critical situations extending over a considerable period of time. (See FM 101–5.)

*VII. Complacency and procrastination are out of place where sudden and decisive action is of the essence.*—During strained relations preceding a state of war and in periods of comparative calm in battle it is vital that commanders and staff officers be on the alert to detect indications of any change in intentions of a potential or actual enemy. At such times the significance of information and even the absence of it assumes immediate and great importance. Doubt as to probable enemy intentions should be resolved in favor of positive and aggressive action on his part. Blind acceptance of continuance of the *status quo* may be fatal. (See pars. 96 and 109.)

*VIII. The coordination and proper evaluation of intelligence in time of stress must be insured by continuity of service and centralization of responsibility in competent officials.*—A sound appreciation of the situation and capabilities of an actual or possible enemy requires long and painstaking study based on detailed knowledge gained by training and experience in the coordinated search for information, in its proper evaluation and interpretation, and in the dissemination of the resulting intelligence. This indicates the need of a central, joint or combined, intelligence agency, if appropriate, comprising an adequate staff of capable and experienced intelligence and counterintelligence personnel of the interested services, to which all information of an actual or possible enemy is sent, and where it can be properly evaluated and interpreted and the resulting intelligence disseminated to all commanders, agencies, or headquarters concerned. Frequent changes in key intelligence and counterintelligence personnel enhance the possibility of unsound intelligence and commanders estimates, and, more important, may destroy the full confidence of responsible commanders in the intelligence presented to them. It is seldom that commanders have sufficient time to make the detailed studies necessary to arrive at sound conclusions as to enemy capabilities; for this they must rely upon their intelligence staff officers. If, in addition, their intelligence staff agencies are incompetent, or lack a commander's full confidence, the results may well be disastrous. As indicated under principle I above, however, final responsibility for securing the information and intelligence which he must have in a particular situation, and upon which he must

base decisions that will enable him to accomplish his mission regardless of what an actual or possible enemy may do, rests upon the commander. (See par. 94.)

*IX. The unapproachable and superior attitude of officials is fatal: There should never be any hesitancy in asking for clarification of instructions or in seeking advice on matters that are in doubt.*—A commander should be accessible to his subordinates and should carefully avoid creating the impression that he is unapproachable. He should bear in mind that no man has so firm a grasp of his business or has attained to such complete understanding as to warrant deafness to the opinions of his subordinates. A commander should not be intolerant of a subordinate seeking clarification of his orders; this contact should be encouraged, for the commander who inspires his subordinates to speak out with frankness, who never upbraids them for faulty opinions, who never ridicules them, who encourages their personal confidences, has a hold on them that is difficult to shake. The commander who listens with consideration to the opinion of a subordinate binds that subordinate to him in the most effective manner. It is incumbent on the subordinate commander to seek a clarification of any doubt on his part as to the meaning of the orders he received from the higher commander, regardless of the latter's attitude. A commander should always be careful to treat his subordinates with utmost consideration. He should be quick to recognize merit in his subordinates and should be loyal to them, for no commander can expect loyalty from his subordinates unless he carries conviction of loyalty to them. In leadership there is an inviolable law of reciprocity. (See pars. 90 and 91.)

*X. There is no substitute for imagination and resourcefulness on the part of supervisory and intelligence officials.*—The exercise of command functions requires imagination, foresight, and an intuitive application by commanders of the principles of war. Any procedure which limits the imagination or initiative of subordinate commanders should normally be avoided. It is equally important that intelligence and other staff officers be possessed of a high degree of resourcefulness in order that all information available to an organization can be fully developed and exploited to the end that resulting intelligence, in suitable form, can be placed at the disposal of all commanders concerned in order that the utmost effective use of it can be made. The secrecy of certain sources of information must not blind the intelligence agency as to their ability to disseminate intelligence revealed. The source of the information may still be safeguarded, even though the intelligence

conveyed is made known to those to whom it is of vital importance.

*XI. Communications must be characterized by clarity, forthrightness and appropriateness.*—Every commander must make sure that he understands the wishes and intentions of his superiors. Not only must he understand his orders but he must be sure that he understands the intention which lies behind the orders. In orders it is essential that there be no opportunity for misunderstanding by any subordinate of the exact intended meaning of all terms used. The use of highly technical or even technical military language when there is danger of misunderstanding is to be avoided. It is essential that orders be clear and explicit. (See par. 137.)

*XII. There is great danger in careless paraphrase of information received and every effort should be made to insure that the paraphrased material reflects the true meaning and significance of the original.*—The practice of paraphrasing coded intelligence messages is a proper procedure in order to preserve the secrecy of codes, but in performing this difficult task it is very essential that while protecting the code, the meaning of the message must not be lost or distorted from its true meaning. Carelessness in paraphrasing messages inevitably leads to misunderstanding of the message and may lead to a completely false idea of the actual meaning of the text. In paraphrasing the guiding principle must be to reproduce the true meaning of the message even though to do do may compromise the code. (See pars. 209-211.)

*XIII. Procedures must be sufficiently flexible to meet the exigencies of unusual situations.*—Inflexible procedures which cannot be subjected to sufficient alteration to satisfy the exigencies of a given situation generally lead to failure. Proceeding through channels is normal and should be followed, but not to the extent that a grooved pattern is followed regardless of the demand for distinctive action. Flexibility should characterize all military organization and operations. The attempt to follow set rules where the situation demands otherwise may prove fatal. Military decisions are founded on reason and judgment which are the result of the comparison of well weighted ideas and not on a set of fixed methods. (See FM 101-5.)

*XIV. Restriction of highly confidential information to a minimum number of officials, while often necessary, should not be carried to the point of prejudicing the work of the organization.*—(See principles XXI and XXII above.) The basic premise upon

which all intelligence work is founded is that it is the duty of every individual and headquarters to transmit promptly all items of enemy information to higher, lower, and parallel echelons to whom it is of value. The promiscous distribution of highly secret material is dangerous, nevertheless it must be made available to all those whose responsibility cannot competently and intelligently be discharged without the knowledge of its content. By skillful paraphrase the information contained in a highly secret document may be made known and still protect the secrecy of its source. This is particularly important insofar as it concerns dissemination of intelligence concerning enemy capabilities. Wide distribution of such information or intelligence does not compromise the success of a commander's own action. Military information is of no value unless it reaches those who have need of it in such form and in time to serve their purposes. (See pars. 135 and 211.)

*XV. There is great danger of being blinded by the self-evident.*—The aim of any military commander is to deceive his enemy as to his intentions. As a rule the deception is carried out by a course of action calculated to fix in the mind of the enemy certain false assumptions in order that the blow the commander delivers will be insured of surprise. The self-evident must never be accepted without great caution, and a commander must never forget that, regardless of hostile appearances, he is at all times responsible for the protection of his command from surprise in any direction from which attack is possible by land, sea, or air. (See par. 121.)

*XVI. Officials should at all times give subordinates the benefit of significant information.*—Few matters call for more judgment in war than to know how much information it is advantageous to make known to subordinate commanders and how much to conceal. As a general rule officers of all grades must keep in mind that unity of effort toward a common end cannot be obtained if subordinates who may have to act on their own judgment are not told in time all that it is necessary for them to know. The success of operations must not be jeopardized by secrecy precautions. (See pars. 199 and 221.)

*XVII. On official who neglects to familiarize himself in detail with his organization should forfeit his responsibility.*—One of the qualities essential to the successful exercise of command is professional knowledge and training. These qualities are of little value unless the commander applies them to the improvement of conditions within his command. This requires that he know what

is and what is not being done by his subordinate commanders. As the size of the command increases, the problem of personal contact boween the commander and his troops becomes increasingly difficult, but loses none of its importance. It is as vital to the general officer who exercises high command as it is to the platoon commander who leads his platoon in battle to know what is going on in his organization. The successful commander must be a professionally qualified leader; command and leadership are inseparable.

Where more than one service is involved in the defense of an outpost it is important that each commander know the plans and operations of the other in order that the defense may be efficiently coordinated. Assumption on the part of one that the others are acting correctly, without verification, may prove false. (See pars. 90 to 96.)

*XVIII. Failure can be avoided in the long run only by preparation for any eventuality.*—(See principle XV above.) The basic doctrine that the commander alone is responsible for all his unit does or fails to do, emphasizes the fact that a command must always be prepared for any event, however unlikely, within the physical capabilities of an actual or possible enemy. What an enemy is most likely to do must not lead the commander to neglect to consider all lines of action within the hostile capabilities. In order for a commander to guard against surprise, his estimate of enemy capabilities must be accurate and complete, his security measures must be adequate, his reconnaissance must be effective, and he must require that all subordinate units be ready for action at all times. (See pars. 105 and 111.)

*XIX. Officials, on a personal basis, should never countermand an official instruction.*—Clear and decisive orders are the logical result of definite and sure decisions. Generally they are preceded by long and detailed study by the commander and all staff sections of the headquarters and are transmitted to the subordinate commanders through the normal chain of command. Any bypassing of the channels of command by personal conversation or letters should be resorted to only in the most urgent situations. When it is done, however, the staff should be informed immediately of all actions taken or orders given, else staff confusion, misinterpretation, and misunderstanding of current orders will result. (See par. 133.)

*XX. Personal and official jealousy will wreck any organization.*—(See principle IX above.) Jealous adherence to prerogatives

and unwillingness on the part of commanders to make concessions in the interest of common welfare, especially when the forces involved have a similar mission, leads to a failure of either to accomplish its task. Selfishness should never dictate the actions of a commander or staff officer.

*XXI. Personal friendship, without more, should never be accepted in lieu of liaison or confused therewith where the latter is necessary to the proper functioning of two or more agencies.*—Personal friendship and contacts on a social basis, as fine as they are, cannot be used as a substitute for command liaison. The heavy responsibility of a commander makes it mandatory that official matters be dealt with on official terms in such a manner as to insure that all concerned have the same knowledge of the situation and that all effort in the accomplishment of the task at hand is integrated and coordinated. (See FM 101–5.)

*XXII. No consideration should be permitted as excuse for failure to perform a fundamental task.*—Regardless of the various supervisory or administrative responsibilities that devolve upon a commander by virtue of his position, his fundamental responsibility is to carry out his mission. No excuse or explanation can justify or even temper his failure to discharge that responsibility.

The exercise of command produces individual or collective military action on the part of subordinates regardless of the latter's will. The commander of an organization is thus the controlling head. He is responsible for everything his command does or fails to do. The introduction of a staff group into the organization in no way alters this basic principle of command and responsibility. The staff members are assistants to the commander, performing in his name such details pertaining to his functions of command as may be delegated to them, but the commander retains full responsibility as though the staff had not been provided. A commander who attempts to shift responsibility to his subordinates is not worthy of command. (See par. 108.)

*XXIII. Superiors must at all times keep their subordinates adequately informed and, conversely, subordinates should keep their superiors informed.*—The commander is responsible for seeing that his staff and other subordinate agencies are informed of his activities as commander. Through his chief of staff he should make sure that information and operations of the staff are coordinated and that there is a smooth, uninterrupted flow of information and intelligence from higher to subordinate and from subordi-

nate to higher headquarters. When it is vital and urgent that certain information reach either a lower or higher headquarters, it should be forwarded by the most rapid means available regardless of the set practices of military channels. (See par. 199.)

*XXIV. The administrative organization of any establishment must be designed to locate failures and to assess responsibility.*—A commander, through his chief of staff, must have a standard procedure for the processing and handling of staff papers. It must be simple and must insure that a record is kept of all persons who have access to the papers. Only in this way can the commander determine definitely where to assess responsibility for inaction or failure to comply with instructions. This applies particularly to the handling of highly secret matters, since there is a natural tendency to overstress the secret grading of such papers. (See par. 150 and AR 20–5.)

*XXV. In a well-balanced organization there is close correlation of responsibility and authority.*—There must always be a close correlation between responsibility and authority, for to vest a commander or staff officer with responsibility and no corresponding authority is eminently unfair. A commander must make clear to his subordinates their authority to make command decisions in an emergency during his absence. Succession in command is clearly defined in AR 600–20 and AW 119 and 120. It is of particular importance, in view of atomic and other scientific developments, that it be clearly defined through several levels.

In cases where the orders of a commander specify tasks only, they by implication convey all necessary methods and means to perform these tasks. To the extent that methods and means are prescribed by a higher commander, responsibility devolves upon him for their correctness. Staff officers as such do not exercise command, but assist the commander to the extent he may require. If a staff officer, by virtue of delegated authority, issues an order in the name of the commander, responsibility remains with the commander even though he may not know of the order. (See AR 600–20, AW 119 and 120, and FM 101–5.)

| | Paragraph | Page |
|---|---|---|
| Administrative services | 22 | 5 |
| Advance covering force. (See Covering force.) | | |
| Advance guards. (See Guards.) | | |
| Air movements. (See Movements.) | | |
| Air support: | | |
| Airborne operations | 972–973 | 240 |
| Amphibious operations | 958–959 | 234 |
| | 963 | 237 |
| Counterreconnaissance | 204 | 42 |
| Defensive action | 544–545 | 125 |
| | 574, 584 | 134, 136 |
| | 625 | 147 |
| Defiles | 921–922 | 223 |
| Desert operations | 945–946 | 230 |
| Envelopment | 392 | 84 |
| Fortified position, attack of | 727, 746 | 174, 178 |
| Mountain operations | 846, 877 | 205, 212 |
| Movements by air | 367 | 77 |
| Movements by water | 370 | 78 |
| Offensive action | 386, 388 | 82, 94, 110 |
| | 430, 523 | |
| Organized position, attack of | 449–450 | 100 |
| | 457, 464 | 104, 105 |
| | 473, 482 | 107, 110 |
| Partisan warfare | 954 | 233 |
| Penetration | 394, 396 | 85, 86 |
| Pursuit | 509 | 115, 116 |
| | 512–513 | |
| Reconnaissance | 193–195 | 40 |
| Retirement | 715 | 170 |
| Retrograde movements | 679 | 162 |
| River line operations | 754, 795 | 181, 192 |
| Snow and extreme cold | 889, 911 | 215, 220 |
| Towns, combat in | 823 | 199 |
| War of movement | 436 | 96 |
| Withdrawal | 690, 694 | 164, 165 |
| Woods, combat in | 830 | 200 |
| Airborne attack, defense against | 610–624 | 142 |
| Airborne division: | | |
| Operations | 1041–1046 | 262 |
| Organization | 1039–1040 | 261 |
| Airborne operations: | | |
| Accomplishment of missions | 1011–1013 | 253 |
| Air Force responsibility | 983–984 | 245 |
| Air support | 972–973 | 240 |
| Airhead development | 1017–1019 | 254 |
| Army responsibility | 981–982 | 244 |
| | 984 | 246 |
| Basic considerations | 968–978 | 238 |
| Consolidation and build-up | 1000–1005 | 250 |

| | Paragraph | Page |
|---|---|---|
| Control | 974–980 | 242 |
| Landing and reorganization: | | |
| Airborne units | 1007–1010 | 252 |
| Air-transported units | 1014–1015 | 253 |
| Missions | 969 | 238 |
| Movement | 1006 | 251 |
| Planning and preparation | 985–999 | 246 |
| Reserves | 1012 | 253 |
| | 1018–1019 | 254 |
| Signal communication | 1016 | 254 |
| Subsequent operations | 1020 | 255 |
| Supply | 1021 | 255 |
| Airborne troops. (See Troops.) | | |
| Amphibious operations: | | |
| Air support | 958–959 | 234 |
| | 963 | 237 |
| Doctrines | 961 | 235 |
| Fire support coordination center | 430, 964 | 94, 237 |
| Phases | 960 | 234 |
| Problems involved | 958–959 | 234 |
| Purpose | 955–956 | 233 |
| Reserves | 958–960 | 234 |
| Shore party | 962 | 236 |
| Signal communication | 965, 967 | 237 |
| Supply | 966 | 237 |
| Support | 963–964 | 237 |
| Types | 957 | 233 |
| Antiaircraft artillery. (See Artillery.) | | |
| Antiairborne security | 610–624 | 142 |
| Antiaircraft security: | | |
| Assembly areas | 323–324 | 69 |
| Bivouac areas | 260 | 55 |
| Defensive action | 564, 583 | 131, 136 |
| Defiles | 345 | 74 |
| Delaying action | 670 | 159 |
| Marches | 319 | 69 |
| Offensive action | 519–520 | 118 |
| Retirement | 711, 723 | 169, 172 |
| Retrograde movements | 683 | 163 |
| River line operations | 780, 792 | 187, 191 |
| | 796 | 192 |
| Security against air attack | 269–278 | 57 |
| Security against airborne attack | 279–281 | 59 |
| Security at a halt | 255 | 54 |
| Snow and extreme cold | 905 | 219 |
| Warning system | 52 | 12 |
| Antimechanized defense: | | |
| Assembly areas | 323 | 69 |
| Bivouac areas | 260 | 55 |

| | Paragraph | Page |
|---|---|---|
| Defensive action | 537 | 123 |
| | 567–570 | 132 |
| | 573–574 | 133 |
| | 579, 606 | 135, 142 |
| | 634 | 149 |
| Delaying action | 668 | 159 |
| Marches | 308, 310 | 66, 68 |
| Mountain operations | 849 | 206 |
| Movements by air | 367 | 77 |
| Night attack | 807 | 195 |
| Offensive action | 519–521 | 118 |
| River line operations | 778 | 187 |
| Security against armored attack | 264–268 | 55 |
| Security at a halt | 255 | 54 |
| Towns, combat in | 824, 826 | 199, 200 |
| Withdrawal | 691, 697 | 164, 166 |
| Approach march | 319, 322 | 69 |
| Armored cavalry: | | |
| Capabilities | 33 | 8 |
| Characteristics | 31 | 7, 8 |
| | 34–35 | |
| Counterreconnaissance | 201 | 41 |
| Exploitation | 750–751 | 180 |
| Reconnaissance | 33, 183 | 8, 38 |
| Weapons | 32 | 7 |
| Armored division: | | |
| Operations | 561–562 | 130 |
| | 1035–1038 | 260 |
| Organization | 1030–1034 | 258 |
| Arms | 22 | 5 |
| Army, composition | 11 | 3 |
| Army field forces | 7 | 2 |
| Army of the United States | 7 | 2 |
| Artillery: | | |
| Antiaircraft | 50–52 | 12 |
| Composition | 37 | 8 |
| Field: | | |
| Characteristics | 38–40 | 9 |
| Corps | 44–45 | 10 |
| Division | 41–43 | 9 |
| General reserve | 46 | 11 |
| In reserve | 47 | 11 |
| Assembly areas: | | |
| Antiaircraft security | 323–324 | 69 |
| Antimechanized defense | 323 | 69 |
| Marches | 323–324 | 69 |
| | 341–343 | 73 |
| Offensive action | 411–418 | 89 |
| River crossings | 769–770 | 185 |
| Atomic weapons, security against | 286 | 60 |

| | Paragraph | Page |
|---|---|---|
| Attack of fortified position. (See Fortified position, attack of.) | | |
| Attack of organized position. (See Organized position, attack of.) | | |
| Attack position | 320–325<br>414 | 69, 89 |
| Aviation. (See Air support.) | | |
| Battalion, composition | 17 | 3 |
| Battery, composition | 18 | 3 |
| Battle position. (See Position.) | | |
| Biological warfare | 287 | 60 |
| Boundaries: | | |
| Defensive action | 559 | 129 |
| Delaying action | 665 | 158 |
| Mountain operations | 866 | 210 |
| Offensive action | 419–421 | 91 |
| Bridge: | | |
| Construction | 773, 783 | 186, 18 |
| Crossings, march | 347–348 | 74 |
| Brigade, composition | 14 | 3 |
| Censorship | 216 | 45 |
| Chemical corps | 62–65 | 14 |
| Chemical agents: | | |
| Defensive action | 575, 592 | 134, 13 |
| Defiles | 921 | 223 |
| Delaying action | 661, 669 | 157, 15 |
| Fortified position | 730 | 175 |
| Mountain operations | 873 | 211 |
| Offensive action | 432 | 95 |
| Organized position, attack of | 469 | 106 |
| Retirement | 708 | 169 |
| Retrograde movements | 673 | 162 |
| River line operations | 731 | 188 |
| Security against chemical attack | 282–285 | 59 |
| Snow and extreme cold | 890, 910 | 215, 22 |
| Withdrawal | 687, 690 | 163, 16 |
| Combat: | | |
| Airborne operations | 968–1021 | 238 |
| Amphibious operations | 955–987 | 233 |
| Command, organization and purpose | 20 | 4 |
| | 1031–1033 | 258 |
| Defiles | 919–923 | 222 |
| Desert | 942–946 | 229 |
| Development for | 319–322<br>325 | 69, 70 |
| Doctrines | 97–105 | 21 |
| Intelligence | 165–173 | 84 |
| Jungle | 924–941 | 224 |

| | Paragraph | Page |
|---|---|---|
| Night: | | |
| Attack: | | |
| Antimechanized defense | 807 | 195 |
| Conduct | 806–809 | 195 |
| | 812–813 | 196 |
| Formation | 811 | 196 |
| Hour | 807 | 195 |
| Orders | 810 | 196 |
| Principles | 804 | 194 |
| Purpose | 803 | 194 |
| Reconnaissance | 808 | 195 |
| Reserves | 811 | 196 |
| Surprise | 805 | 195 |
| Characteristics | 798–800 | 193 |
| Defense | 814–818 | 197 |
| Obstacles and mines | 816 | 197 |
| Raids | 802 | 194 |
| Searchlights | 730, 801 | 175, 194 |
| Partisan | 947–954 | 231 |
| Snow and extreme cold | 882–918 | 213 |
| Team, organization and purpose | 20 | 4 |
| Towns, in | 819–823 | 198 |
| Woods, in | 829–834 | 200 |
| Zone | 3 | 1 |
| Command: | | |
| Doctrines of | 106–117 | 23 |
| Unity of | 99 | 21 |
| Command post: | | |
| Changes in location | 145–146 | 29 |
| Echelons | 141–143 | 28 |
| Location | 144, 427 | 29, 93 |
| Secrecy | 148 | 30 |
| Signal communication system | 145, 147 | 29 |
| Commanders: | | |
| Conduct in battle | 127–132 | 26 |
| Intelligence responsibilities | 166–167 | 34 |
| Leadership | 107 | 23 |
| Mission | 110 | 23 |
| Personal qualities | 87–90 | 13 |
| Responsibility | 109, 116 | 23, 24 |
| Staff | 116 | 24 |
| Communication centers | 154–155 | 31 |
| Communication trenches | 594 | 139 |
| Communications zone | 4 | 1 |
| Company, composition | 13 | 3 |
| Concealment | 212 | 44 |
| Conduct: | | |
| Attack of organized position | 458–475 | 104 |
| Defense | 625–633 | 147 |

| | Paragraph | Page |
|---|---|---|
| Delaying action | 662 | 158 |
| | 666–672 | 159 |
| Coordination of offensive action | 408–434 | 88 |
| Corps, composition | 12 | 3 |
| Corps of Engineers. (See Engineers, Corps of.) | | |
| Counterattack: | | |
| Composition of forces | 642 | 153 |
| Conduct of | 626–627 | 147 |
| Decision | 643 | 153 |
| Direction of | 641 | 152 |
| Location of reserves | 563 | 130 |
| Plans for | 634–636 | 149 |
| Time of launching | 638, 644 | 151, 153 |
| Counterintelligence | 206–219 | 43 |
| Counter Intelligence Corps | 219 | 45 |
| Counterreconnaissance | 201–205 | 41 |
| Cover | 595–596 | 139 |
| Covering force (See also Outpost): | | |
| Defense | 545–553 | 125 |
| Troop movements | 226–228 | 48 |
| War of movement | 436–440 | 96 |
| Withdrawal: | | |
| Daylight | 691–692 | 164 |
| Night | 698–699 | 167 |
| Daylight withdrawal. (See Withdrawal.) | | |
| Defensive action: | | |
| Against airborne attack | 610–624 | 142 |
| Air support | 544–545 | 125 |
| | 574–584 | 134 |
| | 625 | 147 |
| Antiaircraft security | 564, 583 | 131, 136 |
| Antimechanized defense | 537 | 123 |
| | 567–570 | 132 |
| | 573–574 | 133 |
| | 579, 606 | 135, 142 |
| | 634 | 149 |
| Conduct | 625–633 | 147 |
| Counterattack. (See Counterattack.) | | |
| Delaying action | 654–674 | 155 |
| Demolitions | 591 | 138 |
| Employment of reserves | 634–644 | 149 |
| Frontages and depths | 552 | 127 |
| | 556–559 | 128 |
| | 600–604 | 140 |
| Main battle position | 554–562 | 127 |
| Objectives | 526–527 | 120 |
| Obstacles and mines | 534, 549 | 122, 126 |
| | 576–578 | 134 |
| | 588–648 | 138, 154 |

| | Paragraph | Page |
|---|---|---|
| Organization of fire | 565–584 | 131 |
| Organization of ground | 585–599 | 137 |
| Readjustments of position | 645–651 | 153 |
| Reconnaissance and selection of position | 528–542 | 121 |
| Reserves | 563–564 | 130 |
| Security | 543–553 | 125 |
| Termination | 652–653 | 155 |
| Wide front | 600–609 | 140 |
| Defensive-offensive: | | |
| At river lines | 791–792 | 191 |
| Planned | 500–504 | 113 |
| Defiles: | | |
| Air support | 921–922 | 223 |
| Antiaircraft security | 345 | 74 |
| Attack | 923 | 223 |
| Defense | 921–922 | 223 |
| Definition | 919 | 222 |
| Demolitions | 922 | 223 |
| Passage | 920 | 222 |
| Delaying action: | | |
| Antiaircraft security | 670 | 159 |
| Antimechanized defense | 668 | 159 |
| Chemical agents | 661, 669 | 157, 159 |
| Conduct | 662 | 158 |
| | 666–672 | 159 |
| Control | 673–674 | 160 |
| Coordination | 665 | 158 |
| Frontages and depths | 665 | 158 |
| Methods of accomplishing | 655 | 156 |
| Obstacles and mines | 661, 668 | 157, 159 |
| Positions | 658–659 | 156 |
| Protection of flanks and rear | 657 | 156 |
| Purpose | 654 | 155 |
| Reserves | 671 | 160 |
| Signal communication | 660 | 157 |
| Terrain | 656 | 156 |
| | 661–662 | 157 |
| Towns | 828 | 200 |
| Withdrawal | 663–664 | 158 |
| Demolitions: | | |
| Defensive action | 591 | 138 |
| Defiles | 922 | 223 |
| Mountain operations | 878 | 211 |
| Retrograde movements | 678 | 162 |
| Security | 241 | 52 |
| Withdrawal | 689 | 164 |
| Desert operations | 942–946 | 229 |
| Development: | | |
| For combat | 319–322 | 69 |
| | 325 | 70 |

| | Paragraph | Page |
|---|---|---|
| War of movement | 441–443 | 98 |
| Distribution of forces in the offense | 380–386 | 81 |
| Division: | | |
| Airborne | 1039–1046 | 261 |
| Armored | 1030–1038 | 258 |
| Composition | 13 | 3 |
| Infantry | 1022–1029 | 256 |
| Double envelopment | 391 | 83 |
| Economy of force | 103 | 22 |
| Engineers, Corps of | 53–57 | 13 |
| Envelopment | 388–392 | 82 |
| Essential elements of information | 170–172 | 35 |
| Estimate of the situation | 118–123 | 24 |
| Ferrying operations | 349–351 | 74 |
| Field Artillery. (See Artillery.) | | |
| Fire support coordination center | 421–964 | 95 |
| Flank guards. (See Guards.) | | |
| Fortified position, attack of: | | |
| Air support | 727, 746 | 174, 178 |
| Assault | 735–741 | 176 |
| Break-through | 742–749 | 178 |
| Exploitation | 750–751 | 180 |
| Frontage | 744 | 178 |
| Phases | 724–725 | 173 |
| Principles | 726 | 174 |
| Reconnaissance | 728 | 174 |
| Reserves | 732 | 176 |
| Signal communication | 729 | 175 |
| Tactical groupings | 729–730 | 175 |
| Training | 731 | 176 |
| Frontages and depths: | | |
| Defensive action | 552 | 127 |
| | 556–559 | 128 |
| | 600–604 | 140 |
| Delaying action | 665 | 158 |
| Fortified position, attack of | 744 | 178 |
| Offensive action | 398–400 | 86 |
| Penetration | 395 | 85 |
| Group, composition | 15 | 8 |
| Group of armies, composition | 10 | 3 |
| Guards: | | |
| Advance: | | |
| Definition and purpose | 226 | 48 |
| Formation | 234 | 50 |
| Operation | 233 | 50 |
| Retirement | 722 | 171 |
| Strength and composition | 231 | 49 |

| | Paragraph | Page |
|---|---|---|
| Troop movements | 229–236 | 49 |
| War of movement | 436–440 | 96 |
| Flank: | | |
| Definition and purpose | 237 | 51 |
| Retirement | 723 | 172 |
| Rear: | | |
| Definition and purpose | 238 | 51 |
| Retirement | 717–721 | 170 |
| Halts: | | |
| Marches, during | 239 | 51 |
| | 335–337 | 72 |
| Order | 254 | 53 |
| Security during | 240–257 | 51 |
| Harbor defense | 48–49 | 12 |
| Holding attack. (See Secondary attack.) | | |
| Infantry: | | |
| Air-transported | 29. 1027 | 7, 257 |
| Capabilities | 28 | 7 |
| Fighting method | 26 | 6 |
| Maneuverability | 27 | 6 |
| Mission | 24 | 6 |
| Motorized | 29, 1025 | 7, 257 |
| Weapons | 25 | 6 |
| Infantry division: | | |
| Operations | 1024–1029 | 257 |
| Organization | 1022–1023 | 256 |
| Information, transmission of | 196–200 | 40 |
| Initial point | 328–330 | 71 |
| Intelligence, combat | 165–178 | 34 |
| Joint amphibious operations | 955–967 | 233 |
| Jungle operations: | | |
| Armament | 932–933 | 227 |
| Characteristics | 924–927 | 224 |
| Conduct | 938–941 | 228 |
| Defensive action | 928 | 225 |
| Movement | 934 | 227 |
| Offensive action | 929–931 | 226 |
| Reconnaissance | 937 | 228 |
| Sanitation and health | 940 | 228 |
| Security | 926 | 224 |
| Signal communication | 936 | 228 |
| Supply | 935 | 227 |
| Surprise | 926 | 224 |
| Leadership | 80–96 | 17 |
| Line of Departure | 419–422 | 91 |
| Main attack: | | |
| Characteristics | 382 | 81 |

| | Paragraph | Page |
|---|---|---|
| Direction | 384–386 | 81 |
| Missions | 380–321 | 81 |
| Main line of resistance | 554 | 127 |
| Maneuver | 101 | 22 |
| Marches: | | |
| Advance guards | 229–236 | 49 |
| Antiaircraft security | 319 | 69 |
| Antimechanized defense | 308, 316 | 66, 68 |
| Approach | 319–322 | 69 |
| Assembly areas | 323–324 | 69, 73 |
| | 341–343 | |
| Bridge crossings | 347–348 | 74 |
| Casualties | 338–340 | 72 |
| Commander, location | 312 | 67 |
| Composition of columns | 314–315 | 68 |
| Control | 307 | 66 |
| | 344–345 | 74 |
| Cross-country | 319 | 69 |
| Development for combat | 319–322 | 69, 70 |
| | 325 | |
| Doctrine | 326–351 | 70 |
| Ferrying operations | 349–351 | 74 |
| Flank guards | 237 | 51 |
| Foot | 291–292 | 62 |
| Forced | 303 | 65 |
| Fordable streams | 346 | 74 |
| Formations | 308–311 | 66 |
| | 314 | 68 |
| Halts | 335–337 | 72 |
| Location of commanders and staffs | 312 | 67 |
| Motor | 293–299 | 63 |
| Mountain operations | 855–862 | 207 |
| Night | 300–302 | 65 |
| Objectives | 306 | 66 |
| Order in column | 315–316 | 68 |
| Orders | 317 | 69 |
| Routes | 306 | 66 |
| Security | 226–239 | 48 |
| Signal communication | 313 | 67 |
| Snow and extreme cold | 897–900 | 217 |
| Tactical considerations | 304–325 | 65 |
| Zone | 306 | 66 |
| Mass | 102 | 22 |
| Mechanized units. (See Armored cavalry.) | | |
| Medical Corps | 66–68 | 14 |
| Meeting engagement | 435, 442 | 96, 99 |
| Military operations, objective | 97 | 21 |
| Mines: | | |
| Defense at night | 816 | 197 |
| Defensive action | 576, 648 | 134, 154 |

| | Paragraph | Page |
|---|---|---|
| Delaying action | 661, 668 | 157, 159 |
| Retrograde movements | 678 | 162 |
| River line operations | 738 | 190 |
| Submarine | 49 | 12 |
| Towns, combat in | 824 | 199 |
| Withdrawal | 689 | 164 |
| Woods, combat in | 834 | 201 |
| Mission: | | |
| Army Field Forces | 7 | 2 |
| Army of the United States | 7–8 | 2 |
| Motor movements. (See Movements.) | | |
| Mountain operations: | | |
| Air support | 846–877 | 205 |
| Antimechanized defense | 849 | 206 |
| Characteristics | 835–850 | 202 |
| Defensive action | 871–877 | 211 |
| Demolitions | 873 | 211 |
| Equipment | 838–839 | 203 |
| Marches | 855–862 | 207 |
| Offensive action | 863–870 | 209 |
| Reconnaissance | 851–854 | 206 |
| Reserves | 870, 878 | 210, 212 |
| Security | 859, 862 | 208, 209 |
| Signal communication | 850 | 206 |
| Terrain factors | 835–837 | 202 |
| Training | 840 | 203 |
| Weather | 839 | 203 |
| Movements: | | |
| Air | 362–368 | 76 |
| General | 288–290 | 62 |
| Motor | 293–299 | 63 |
| Rail | 352–361 | 75 |
| Retrograde: | | |
| Air support | 679 | 162 |
| Antiairborne security | 683 | 163 |
| Antiaircraft security | 683 | 163 |
| Chemical agents | 678 | 162 |
| Combat aviation | 679 | 162 |
| Definition | 675 | 161 |
| Delaying action. (See Delaying action.) | | |
| Demolitions | 678 | 162 |
| Motor transportation | 680, 682 | 162, 163 |
| Obstacles and mines | 678 | 162 |
| Plan | 677, 684 | 161, 163 |
| Purpose | 676 | 161 |
| Reconnaissance | 681 | 162 |
| Retirement. (See Retirement.) | | |
| River line | 796–797 | 192 |
| Withdrawal. (See Withdrawal.) | | |

| | Paragraph | Page |
|---|---|---|
| Turning | 389–390 | 83 |
| Water | 369–375 | 78 |
| Night combat. (See Combat.) | | |
| Night marches. (See Marches.) | | |
| Night withdrawal. (See Withdrawal.) | | |
| Objectives: | | |
| Assignment of: | | |
| Amphibious operations | 955–956 | 233 |
| Mountain operations | 837 | 203 |
| Night operations | 806 | 195 |
| Partisan warfare | 953–954 | 232 |
| River line operations | 759 | 182 |
| Snow and extreme cold | 909 | 220 |
| Woods, combat in | 833 | 201 |
| Defensive action | 526–527 | 120 |
| Offensive action | 376–379 | 80 |
| Retirement | 706 | 168 |
| Obstacles: | | |
| Defense at night | 816 | 197 |
| Defensive action | 534, 549 | 122, 126 |
| | 577–578 | 134 |
| | 583, 648 | 138, 154 |
| Delaying action | 661, 668 | 157, 159 |
| Retrograde movements | 678 | 162 |
| River line operations | 787, 789 | 189, 190 |
| Security | 241 | 52 |
| Towns, combat in | 826 | 200 |
| Offensive action: | | |
| Air support | 386, 388 | 82 |
| | 430, 523 | 94, 119 |
| Antiaircraft security | 519–520 | 118 |
| Antimechanized defense | 519–521 | 118 |
| Attack of organized position (See Organized position, attack of) | | |
| Coordination | 408–434 | 88 |
| Defensive-offensive | 500–504 | 113 |
| Distribution of forces | 380–386 | 81 |
| Forms | 387–397 | 82 |
| Frontages and depths | 398–400 | 86 |
| Objectives | 376–379 | 80 |
| Purpose | 100 | 21 |
| Pursuit | 505–518 | 114 |
| Reserves | 401–407 | 87 |
| Security | 519–523 | 118 |
| Termination | 524–525 | 119 |
| War of movement | 435–443 | 93 |
| Operation orders | 133–140 | 27 |
| Ordnance department | 73–75 | 15 |

| | Paragraph | Page |
|---|---|---|
| Organized position, attack of: | | |
| Air support | 449–450 | 100 |
| | 457, 464 | 104, 105 |
| | 473, 482 | 107, 110 |
| Assault | 476 | 108 |
| Assembly areas | 451 | 102 |
| Conduct | 458–475 | 104 |
| Contaminated area | 469 | 106 |
| Continuation of attack | 477–483 | 108 |
| Plan of attack | 450–451 | 101 |
| Preliminary operations | 444–448 | 99 |
| Preparations | 449–457 | 100 |
| Reconnaissance | 444–445 | 99, 100 |
| | 447 | |
| Relief of units | 484–499 | 110 |
| Withdrawal, enemy | 479–481 | 109 |
| Outguards | 245 | 52 |
| Outposts: | | |
| Combat | 552–553 | 127 |
| Defensive action | 545–553 | 125 |
| Detached post | 247 | 53 |
| General | 550–551 | 126 |
| Mission | 546 | 125 |
| Patrols | 249–250 | 53 |
| Reconnaissance | 248 | 53 |
| Sentinels | 246 | 52 |
| Strength and composition | 241–242 | 52, 125 |
| | 547 | |
| Partisan warfare: | | |
| Air support | 954 | 233 |
| Conduct | 951, 954 | 232, 233 |
| Planning | 948, 950 | 231 |
| Purpose | 947 | 231 |
| Raids | 951 | 232 |
| Supply | 949 | 231 |
| Suppression | 952–953 | 232 |
| Passage of lines | 484–499 | 110 |
| Penetration | 393–397 | 84 |
| Phase lines | 307 | 63 |
| Piecemeal attack | 441 | 98 |
| Pigeons | 161, 850 | 32, 206 |
| Position: | | |
| Attack | 320–325 | 69, 89 |
| | 414 | |
| Delaying action | 658–659 | 156 |
| Main battle | 534–540 | 122 |
| | 554–562 | 127 |
| Organization for defense | 585–599 | 137 |

| | Paragraph | Page |
|---|---|---|
| Rear: | | |
| Defense | 593 | 133 |
| Withdrawal | 688 | 164 |
| Principles of war | 97–105 | 21 |
| Psychological warfare | 208, 217 | 43, 45 |
| Pursuit: | | |
| Air support | 503 | 115 |
| | 512–513 | 116 |
| Conduct | 510–514 | 116 |
| Direction | 516 | 117 |
| Encircling maneuver | 515 | 117 |
| Object | 505–508 | 114 |
| Preparations | 509 | 115 |
| Signal communication | 517 | 117 |
| Supply | 518 | 117 |
| Quartermaster Corps | 69–72 | 15 |
| Raids: | | |
| Night | 802 | 194 |
| Partisan warfare | 951 | 232 |
| Rail movements. (See Movements.) | | |
| Rear guard. (See Guard.) | | |
| Reconnaissance: | | |
| Agencies | 182–185 | 38 |
| Air | 193–195 | 40 |
| Classification | 179 | 37 |
| Defense | 528–542 | 121 |
| Execution | 186–192 | 38 |
| Information: | | |
| Sources | 181–185 | 37 |
| Transmission | 196–200 | 40 |
| Jungle operations | 937 | 223 |
| Mountain operations | 843 | 204 |
| | 851–854 | 206 |
| Night operations | 808 | 195 |
| Night visual and photographic | 194 | 40 |
| Purpose | 179–180 | 37 |
| River lines | 753, 760 | 181, 182 |
| | 793 | 191 |
| Snow and extreme cold | 896 | 217 |
| War of movement | 436 | 96 |
| Reconnaissance aviation, responsibility | 193 | 40 |
| Reconnaissance in force | 192 | 39 |
| Regiment, composition | 16 | 3 |
| Reliefs: | | |
| Defensive action | 649–651 | 155 |
| Offensive action | 484–499 | 110 |
| Reserves: | | |
| Airborne operations | 1012 | 253 |
| | 1018–1019 | 254 |

| | Paragraph | Page |
|---|---|---|
| Amphibious operations | 958, 960 | 234 |
| Attack: | | |
| Fortified position | 732 | 176 |
| Organized position | 477, 483 | 108, 110 |
| Counterattack | 634–644 | 149 |
| Defensive action | 560–564 | 130 |
| | 605–608 | 141 |
| Defiles | 922 | 223 |
| Delaying action | 671 | 160 |
| Jungle operations | 928 | 225 |
| Mountain operations | 870, 878 | 210, 212 |
| Night combat | 811, 816 | 196, 197 |
| Offensive action | 401–407 | 87 |
| River line operations: | | |
| Attack | 764 | 184 |
| Defense | 789, 792 | 190, 191 |
| Snow and extreme cold | 913 | 221 |
| Towns, combat in | 823, 827 | 199, 200 |
| Woods, combat in | 832 | 201 |
| Retirement: | | |
| Advance guard | 722 | 171 |
| Air support | 715 | 170 |
| Antiaircraft security | 711, 723 | 169, 172 |
| Command post | 714 | 170 |
| Considerations | 702 | 168 |
| Definition | 701 | 167 |
| Flank guard | 723 | 172 |
| March formations | 703, 705 | 168 |
| March routes | 704, 708 | 168, 169 |
| Objective | 706 | 168 |
| Order | 707 | 169 |
| Rear guard | 717–721 | 170 |
| Security during | 710–715 | 169 |
| Signal communication | 714 | 170 |
| Traffic control | 709 | 169 |
| Retrograde movements. (See Movements.) | | |
| River line operations: | | |
| Attack: | | |
| Air support | 754 | 181 |
| Antiaircraft security | 780 | 187 |
| Antimechanized defense | 788 | 190 |
| Assault waves | 771–772 | 185 |
| Assembly areas | 769–770 | 185 |
| Bridges | 778, 783 | 186, 188 |
| Control | 784 | 188 |
| Deception, feints | 761 | 183 |
| Exploitation | 786 | 189 |
| Ferries | 774 | 186 |
| Objectives | 759 | 182 |

| | Paragraph | Page |
|---|---|---|
| Plan of attack | 763, 775 | 184, 187 |
| Preparations | 765–767 | 184 |
| Purpose | 755–758 | 181 |
| Reconnaissance | 760 | 182 |
| Reserves | 764, 789 | 184, 190 |
| | 792 | 191 |
| Signal communication | 767 | 184 |
| Supporting fires | 777–782 | 187 |
| Tactical groupings | 764 | 184 |
| Terrain considerations | 762 | 183 |
| Time | 768 | 185 |
| Traffic control | 785 | 188 |
| Defense: | | |
| Air support | 795 | 192 |
| Antiaircraft security | 792, 796 | 191, 192 |
| Bridge and ford destruction | 788, 794 | 190, 192 |
| Defensive-offensive operations | 790–792 | 190 |
| On river bank | 787–789 | 189 |
| Security | 793 | 191 |
| General | 752–754 | 180 |
| Mines | 788 | 190 |
| Obstacles | 787, 789 | 189, 190 |
| Retrograde | 796–797 | 192, 193 |
| Searchlights | 730, 801 | 175, 194 |
| Secondary attack: | | |
| Characteristics | 383 | 81 |
| Mission | 380–381 | 81 |
| Sectors, defense | 557–558 | 128 |
| Security: | | |
| Advance guard. (See Guards.) | | |
| Against: | | |
| Air attack | 269–273 | 57 |
| Airborne attack | 279–281 | 59 |
| | 610–624 | 141 |
| Armored attack | 264–267 | 55 |
| Biological attack | 287 | 60 |
| Chemical attack | 282–285 | 59 |
| Radiological attack | 286 | 60 |
| Bivouac areas | 258–263 | 54 |
| Commanders' responsibility | 222 | 47 |
| Counterintelligence | 209–216 | 43 |
| | 218 | 45 |
| Counterreconnaissance | 201 | 41 |
| Defensive action | 543–553 | 125 |
| Definition | 105, 220 | 23, 47 |
| Delaying action | 657 | 156 |
| Demolitions | 241 | 52 |
| General | 220–225 | 47 |

| | Paragraph | Page |
|---|---|---|
| Halts | 255 | 54 |
| Jungle operations | 926 | 224 |
| Marches | 226–239 | 48 |
| Mission | 221 | 47 |
| Mountain operations | 859–862 | 208 |
| Movement | 226–239 | 48 |
| Obstacles | 241 | 52 |
| Offensive action | 519–523 | 118 |
| Retirement | 710–715 | 169 |
| Snow and extreme cold | 901–905 | 218 |
| War of movement | 438 | 97 |
| Warning systems | 223 | 47 |
| Withdrawal: | | |
| Daylight | 691–692 | 164 |
| Night | 697–699 | 166 |
| Services, composition | 22 | 5 |
| Signal communication: | | |
| Airborne operations | 1016 | 254 |
| Amphibious operations | 965–967 | 237 |
| Command post | 147 | 29 |
| Communication centers | 154–155 | 31 |
| Considerations, basic | 149–164 | 30 |
| Delaying action | 660 | 157 |
| Jungle operations | 936 | 228 |
| Means of | 152 | 30 |
| Mountain operations | 850 | 206 |
| Offensive action | 409 | 88 |
| Officer, communication | 153 | 31 |
| Pigeons | 161, 859 | 32, 206 |
| Pursuit | 517 | 117 |
| Radio | 157–158 | 31 |
| Responsibility for | 149–151 | 30 |
| Retirement | 714 | 170 |
| River line operations: | | |
| Attack | 767 | 184 |
| Defense | 792 | 191 |
| Snow and extreme cold | 889 | 215 |
| Sound | 160 | 32 |
| Visual signals | 159 | 32 |
| Wire communication | 156 | 31 |
| Signal Corps | 58–61 | 13 |
| Simplicity | 98 | 21 |
| Ski troops | 883 | 213 |
| Snow and extreme cold: | | |
| Air support | 889, 911 | 215, 220 |
| Antiaircraft security | 905 | 219 |
| Conduct of operations | 885 | 217 |
| Defensive action | 915–918 | 221 |
| General considerations | 882–894 | 213 |
| Marches | 897–900 | 217 |

| | Paragraph | Page |
|---|---|---|
| Halts | 255 | 54 |
| Jungle operations | 926 | 224 |
| Marches | 226–239 | 48 |
| Mission | 221 | 47 |
| Mountain operations | 859–862 | 208 |
| Movement | 226–239 | 48 |
| Obstacles | 241 | 52 |
| Offensive action | 519–523 | 118 |
| Retirement | 710–715 | 169 |
| Snow and extreme cold | 901–905 | 218 |
| War of movement | 438 | 97 |
| Warning systems | 223 | 47 |
| Withdrawal: | | |
| Daylight | 691–692 | 164 |
| Night | 697–699 | 166 |
| Services, composition | 22 | 5 |
| Signal communication: | | |
| Airborne operations | 1016 | 254 |
| Amphibious operations | 965–967 | 237 |
| Command post | 147 | 29 |
| Communication centers | 154–155 | 31 |
| Considerations, basic | 149–164 | 30 |
| Delaying action | 660 | 157 |
| Jungle operations | 936 | 228 |
| Means of | 152 | 30 |
| Mountain operations | 850 | 206 |
| Offensive action | 409 | 88 |
| Officer, communication | 153 | 31 |
| Pigeons | 161, 859 | 32, 206 |
| Pursuit | 517 | 117 |
| Radio | 157–158 | 31 |
| Responsibility for | 149–151 | 30 |
| Retirement | 714 | 170 |
| River line operations: | | |
| Attack | 767 | 184 |
| Defense | 792 | 191 |
| Snow and extreme cold | 889 | 215 |
| Sound | 160 | 32 |
| Visual signals | 159 | 32 |
| Wire communication | 156 | 31 |
| Signal Corps | 58–61 | 15 |
| Simplicity | 98 | 21 |
| Ski troops | 883 | 213 |
| Snow and extreme cold: | | |
| Air support | 889, 911 | 215, 220 |
| Antiaircraft security | 905 | 219 |
| Conduct of operations | 885 | 217 |
| Defensive action | 915–918 | 221 |
| General considerations | 882–884 | 213 |
| Marches | 897–900 | 217 |

| | Paragraph | Page |
|---|---|---|
| Offensive action | 906–914 | 219 |
| Reconnaissance | 896 | 217 |
| Security | 901–905 | 218 |
| Signal communication | 889 | 215 |
| Submarine mines | 49 | 12 |
| Supply by air: | | |
| Airborne troops | 1021 | 255 |
| Desert operations | 945 | 230 |
| Jungle operations | 934 | 227 |
| Pursuit | 518 | 117 |
| Surprise: | | |
| Defensive action | 541 | 124 |
| Jungle operations | 926 | 224 |
| Means of | 104 | 22 |
| Mountain operations | 865 | 209 |
| Night operations | 805 | 195 |
| Offensive action | 424 | 93 |
| Partisan warfare | 949 | 231 |
| Security against | 207–208 | 43 |
| Tank units. (See Armored cavalry.) | | |
| Task forces, organization and purpose | 20, 1029 | 4, 258 |
| Technical services | 22 | 5 |
| Termination of defensive action | 652, 653 | 155 |
| Termination of offensive action | 524–525 | 119 |
| Terrain | 124–126 | 25 |
| Theater of operations | 2 | 1 |
| Theater of war | 1 | 1 |
| Time of attack: | | |
| General | 423 | 92 |
| Night | 807 | 195 |
| Towns, combat in | 819–828 | 198 |
| nsmission of information | 196–200 | 40 |
| ...sportation Corps | 76–79 | 16 |
| Troops: | | |
| Airborne: | | |
| Doctrine | 968–973 | 238 |
| Employment: | | |
| Engineers | 974–1021 | 242 |
| Fortified position, attack of | 745 | 178 |
| Mountain operations | 847 | 205 |
| Organized position, attack of | 462 | 105 |
| Pursuit | 515 | 117 |
| Movements. (See Movements.) | | |
| Organization | 6–21 | 2 |
| Ski | 888 | 218 |
| Turning movements | 389–390 | 88 |
| Unity of command | 99 | 21 |
| Unity of effort | 99 | 21 |

| | Paragraph | Page |
|---|---|---|
| War of movement: | | |
| Advance guards | 436–440 | 96 |
| Air support | 436 | 96 |
| Characteristics | 435 | 96 |
| Covering force | 436–440 | 96 |
| Development | 441–443 | 98 |
| Piecemeal attack | 441 | 98 |
| Reconnaissance | 436 | 96 |
| Security | 438 | 97 |
| Warning system | 52 | 12 |
| Water movements. (See Movements.) | | |
| Weather, effect of | 124–126 | 25 |
| Withdrawal: | | |
| Air support | 690, 694 | 164, 16[illegible] |
| Antimechanized defense | 691, 697 | 164, 16[illegible] |
| Daylight | 690–694 | 164 |
| Definition | 685 | 163 |
| Delaying action | 663–664 | 158 |
| Demolitions | 689 | 164 |
| Factors affecting | 686–689 | 163 |
| Mines | 689 | 164 |
| Night | 695–700 | 166 |
| Rearward position | 683 | 164 |
| Reconnaissance | 681 | 162 |
| Woods, combat in | 829–834 | 200 |
| Zone: | | |
| Combat | 3 | 1 |
| Communications | 4 | 1 |
| Offensive action | 419–421 | 91 |
| Zone of interior | 5 | 2 |

FIELD MANUAL

# FIELD SERVICE REGULATIONS OPERATIONS

CHANGES No. 1

DEPARTMENT OF THE ARMY
WASHINGTON 25, D. C., *25 July 1952*

FM 100-5, 15 August 1949, is changed as follows:

## CHAPTER 6

## SECURITY

### Section VII. SECURITY AGAINST AIRBORNE ATTACK, GUERILLA ACTION AND INFILTRATION.

279. *a.* The threat from airborne attack, guerilla action, and infiltration requires special security measures. Responsibility for these * * * entire danger area.

*b.* Many of the security measures taken against armored attack constitute common protection against airborne attack, guerilla action, and infiltration. Security measures common to all include warning systems, certain reconnaissance measures and the provision of mobile reserves.

280. (Superseded) *a.* Measures common to security against airborne attack, guerilla action, and infiltration are a comprehensive warning system; adequate signal communications, perimeter defense of logistical and service installations as well as combat unit positions; reconnaissance, both ground and air; training of all personnel for combat against hostile airborne troops, guerillas, and infiltrators; plans for prompt and aggressive action against these forces; and rehearsals of the plans.

*b.* Security measures for antiairborne defense should provide for the attack of incoming enemy aircraft by fighter aircraft and antiaircraft fire, and the destruction of airborne forces while they are in the process of landing or immediately thereafter. When the possible drop or landing zones are limited, as in island or mountainous warfare, they may be denied to the enemy by use of obstacles; mining; and, where possible, by use of artillery. Field fortifications may also be constructed in areas of probable airborne attack.

*c.* Security measures for antiguerilla defense should include frequent aerial reconnaissance and ground patrols throughout the area, permanent guards at critical localities on lines of communications,

armed escort for motor convoys and trains. Friendly civilians may be used as guides and agents in order to determine the movement or general location of guerillas. These same measures are applicable against infiltrators who have reached the rear areas, inasmuch as they operate the same as guerillas after penetrating the combat area.

*d.* Security measures to prevent or limit infiltration by the enemy are reconnaissance and active patrolling, particularly by front-line units during periods of reduced visibility; thorough mopping-up operations during the progress of an attack; planning fires along favorable avenues of approach; placing mine fields; trip flares, barbed wire, and other antipersonnel obstacles along favorable avenues of approach for infiltrators; ambushes by friendly forces in front of the main line of resistance; battlefield illumination; use of war dogs with patrols and security posts; search of civilian refugees passing through the lines; and check points located at critical points throughout the area.

281. For additional details relative to security measures against airborne attack, guerilla action, and infiltration, see chapter 9.

610. *a.* Airborne assaults are characterized by speed of execution and flexibility in choice of objectives. Airborne forces may * * * can be expected.

*b.* Airborne attacks are * * * local air superiority. After initial landing, and prior to the build-up phase, airborne troops require a brief period of reorganization and are limited in motor transport, heavy fire support, and armor.

610.1 (Added) *a.* Plans for defense against airborne attack must be integrated with plans for defense against guerilla action and infiltration. It can be expected that guerilla action and/or the infiltration of large numbers of enemy troops will be executed in conjunction with airborne attacks.

*b.* All personnel must be thoroughly trained and capable of engaging in combat operations. Service elements must receive combat training in addition to technical training. They must be able to protect themselves and their installations. All military personnel available to a commander must be employed in an integrated defense against airborne attack, guerilla action, and infiltration. Where airborne attack or large scale guerilla action against vital objectives seems

probable, higher commanders may assign combat troops to assist in the defense.

612. *a.* All units, command * * * civil defense organizations.
*b.* Rescinded.

612.1 (Added) *a.* Accurate and timely intelligence is essential for planning a defense against airborne attack. Intelligence of enemy airborne capabilities is generally developed at theater level. Detailed intelligence, however, must be developed by commanders charged with the preparation of plans for, and the conduct of the defense against, airborne attacks.

*b.* Detailed intelligence includes the location of possible drop and landing zones, logical airborne objectives, subversive or partisan elements of the indigenous population capable of assisting the airborne forces, avenues of approach to drop or landing zones, and possible defensive positions and routes of communications thereto for friendly defensive forces.

613. *a.* The demoralization inherent * * * available road net.
*b.* (Superseded) Once plans have been developed, they are continuously examined to insure that changing conditions are reflected by appropriate revision. Administrative plans and orders require particular attention with respect to defense against airborne attack. Enemy airborne or air action may seriously disrupt logistical arrangements. Plans must provide for logistical support of the combat forces and for the defense of the logistical establishment itself as well as security for installations, convoys, and trains. Precise plans and instructions for evacuation or destruction of supplies and equipment must be prepared, in order to deny their capture by the enemy.

614. (Superseded) *a.* Logical airborne objectives and drop and landing zones determine the disposition of defense units. This is modified by the availability of forces, the mission and proposed employment of the available forces, weather, terrain, adequacy of communication system, time and space factors for the movement of defending troops to the threatened areas as compared with time and space factors required by the enemy for build-up of his forces, and time required by the enemy to execute his mission after build-up has been accomplished.

*b.* Generally, forces cannot be provided to make all areas simultaneously secure against attack. Where troops are limited, minimum

defense measures should include an efficient warning system, planned and rehearsed local defense measures by all units, and a mobile reserve prepared to move on short notice to previously reconnoitered positions to launch a counterattack. Where sufficient means are available, the plan for the disposition of troops should provide a system of warning and combat detachments near all probable landing areas with provision for supplementary motorized patrols and local reserves for counterattacks. In addition, plans should insure a centrally located mobile reserve, strong in armor and firepower, to attack airborne units before they can be reinforced with heavier supporting weapons. The entire organization should be characterized by flexibility to meet the attacker's advantage of surprise and initiative.

614.1 (Added) *a.* Defending forces consist of local security forces and mobile striking forces. Local security forces provide close-in defense of installations and critical areas. They occupy prepared defensive positions and strong points in the event of attack and contain the airborne force until the arrival of the mobile striking force. Mobile striking forces are centrally located insofar as practicable and are strong in armor. Upon initiation of an airborne attack, they attack the airhead to destroy the forces therein before the enemy can reinforce them. Care must be taken in the disposition and commitment of the mobile striking force to provide maximum mutual support in order to preclude defeat in detail.

*b.* Higher commanders retain under their control additional striking forces which are committed once the location of the main airborne force has been determined. When committed, these forces are placed under the commander of the area in which the airborne attack has occurred.

615.1 (Added) *a.* Speed in meeting airborne attacks is essential to capitalize on the initial disorganization of airborne forces after they have landed; to deny the enemy unhampered opportunity to augment his forces; and to destroy the enemy forces before they can accomplish their mission. The methods adopted must inflict maximum damage as well as deny the enemy freedom of maneuver. Offensive methods combine fire and manpower to achieve maximum shock action, taking full advantage of the disorganization of the enemy airborne force incident to its landing.

*b.* The defense is conducted to counter the various phases of an airborne attack and consists of passive measures and active measures.

Passive measures include dispersion, concealment, camouflage, and realistic use of dummy installations and positions. Active measures consist of warning system, local security measures, and the conduct of the defense which is characterized by counterattack. Combining speed and flexibility, the defending forces exploit the inherent weaknesses of airborne operations.

615.2 (Added) On first knowledge of an enemy airborne attack, suitable fighter aircraft in the area takes to the air to destroy enemy aviation, both transport and fighter. Air support is made available to destroy enemy aviation supporting the airborne attack, to furnish air support to friendly forces, and to isolate the attacker from his logistical support and prevent the arrival of reinforcements.

616. *a.* Rescinded.

* * * * * * *

621. Rescinded.

623. (Superseded) The importance of an adequate and reliable warning and communications system cannot be overemphasized. The system must integrate early warning systems and local warning systems as well as provide for communications between command posts and units engaged. Alternate means of communications must be provided and all facilities protected from sabotage and guerilla action. Full use is made of existing commercial facilities as an alternate means of communications. The allocated commercial facilities must be reasonably secure and plans for their use must insure prompt availability on very short notice.

## Section III.1 DEFENSE AGAINST GUERILLA ACTION AND INFILTRATION. (Added)

624.1 Defense against guerilla action and infiltration must be closely integrated with the defense against airborne attack. Plans must provide for the common use of forces, warning systems, communications, and command structure. See paragraph 610.1.

624.2 *a.* Guerilla action and infiltration are characterized by mobility, surprise, deception, and decentralized operations. Favored targets, because of their defense weaknesses, are command posts, lines of communications, isolated security detachments, artillery positions,

and logistical installations. Guerillas and infiltrators strike swiftly, inflict maximum damage, and withdraw as rapidly as they strike. The attacks are seldom supported by armor, reliance being placed on light automatic weapons, mortars, demolitions, and light artillery.

*b.* Swamps, forests, and mountainous areas provide excellent cover and concealment for assembly areas and hide-outs for guerillas and infiltrators. These areas should be thoroughly searched and kept under constant observation from the air and ground. If search and mop-up of these areas is impractical, they should be sealed off and isolated by patrols and by strong points holding vital terrain features and blocking routes of exit.

*c.* Periods of haze, fog, inclement weather, and darkness serve to screen movements of guerillas and infiltrators and provide them the greatest opportunity for surprise in attacks or sabotage. Movement of large groups of displaced persons may also screen and cover guerilla and infiltrator activities. Under such conditions maximum security precautions must be taken by defending forces.

624.3 *a.* Accurate and timely intelligence is essential to successfully combat guerillas and infiltrators. This should include intelligence concerning: strength, composition, and location of guerilla forces and infiltrators; terrain, with particular emphasis on areas suitable for hide-outs and the routes thereto; plans and movements of guerilla forces and infiltrators; identity of guerilla leaders; civilian supporters; communication facilities; and sources of supply.

*b.* An effective counterintelligence net is equally important. Through civilian supporters and agents, guerilla forces develop a highly effective intelligence system. Great care must be taken through secrecy, deception, and screening of civilian employees, to prevent accurate information of operations and troop movements from falling into the hands of guerillas and infiltrators.

*c.* The normal combat methods of procuring information are applicable in defense against guerilla action and infiltration. Additional means of procuring information are the planting of agents within the guerilla forces, monitoring guerilla communication facilities, use of local civilians to report guerilla movements and locations, and the use of observation and warning posts throughout the area. Reconnaissance and patrolling, both ground and air, are extensive and are carried out day and night. Ground patrols must be of sufficient strength to defend themselves.

624.4 When planning for defense against guerilla action and infiltration, the commander must consider the extent of the threat to the area, terrain, possible targets for guerillas and infiltrators, suitable areas for guerilla and infiltrator bases, forces available, and must closely correlate military plans with the political, administrative, and economic aspects of the area. Plans must be broad and realistic, based upon known tactics and capabilities of the enemy and coordinating the political, administrative, and military phases of the operations. Detailed plans must be developed for specific areas. Continuity of command and policy are essential. Provisions are made for extensive ground and aerial reconnaissance, and adequate warning system, coordination with plans of adjacent areas, local defense of installations and critical areas, and the use of local civilians as guides, agents and antiguerilla units. Routine means of securing an area or installation should be altered frequently to prevent guerilla forces from obtaining detailed accurate information about the composition and habits of the defense. The plan must provide for bold, aggressive operations against guerilla forces and infiltrators, since it is only by offensive action that guerilla forces and infiltrators can be suppressed.

624.5 *a.* Defense against infiltration is designed to prevent or limit infiltration of enemy forces through front lines and to destroy those who have succeeded in penetrating the forward positions.

*b.* Measures which prevent or limit infiltration are—extensive reconnaissance and patrolling by front-line units (particularly at night); the use of war dogs; carefully prepared fire plans; battlefield illumination; ambushes by friendly forces in front of the main line of resistance; patrols and sentries screening gaps between units; and the thorough search of the area as an attack progresses. Barbed wire, trip flares, mine fields, booby traps, and other antipersonnel obstacles along possible routes into and through friendly lines are essential. Frequently, enemy personnel disguised as civilians will mingle with refugees passing through the front-line areas. Counteractions are the systematic search of all civilians moving toward the rear and the establishment of collecting points for interrogation and further processing of civilians.

*c.* Once infiltrators have penetrated to rear areas, they operate in the same manner as guerillas. Therefore, defensive measures adopted against guerillas are applicable to infiltrators.

624.6 *a.* Once guerilla forces have been located in the area, immediate steps are taken to initiate offensive action against them. Friendly forces so employed must be adequate to insure success, since failure will embolden the guerillas and encourage others to support and join them. Where terrain permits, armor and artillery should support the attacking force. Tactical air support is provided and light aircraft are used for reconnaissance, control, and observation of fires.

*b.* To achieve success in antiguerilla operations, surprise is essential. It is achieved by strict security restrictions during planning, by conducting reconnaissance and patrolling in such a manner that plans are not divulged, and by the use of cover plans to mislead the guerilla forces. Surprise may be obtained by attacking during inclement weather or at night and by approaching guerilla strongholds over difficult terrain or along little known trails.

*c.* Offensive action against guerillas must be coordinated between adjacent commands engaged in antiguerilla operations. If a command is carrying out antiguerilla operations in one area while a nearby command is passive, the guerillas will move into the quiet area until danger has passed and then return. Continuous pressure must be maintained until the guerilla menace ceases to exist.

624.7 The most effective method of destroying guerillas is to encircle them, blocking all avenues of escape simultaneously to prevent withdrawal of the guerillas prior to the attack. Airborne troops are particularly effective in this type of operation. Airborne troops, or troops transported by helicopters, must be dropped or landed sufficiently far from the main guerilla force to prevent their being attacked prior to reorganizing after landing. Where terrain, lack of time, or insufficient troops preclude encirclement, enveloping attacks are launched followed by aggressive pursuit of the hostile forces which succeeded in withdrawing or which were dispersed during the main engagement. Troops transported by helicopters can be landed according to desired tactical employment; preserving tactical unity, and reducing the delay necessary for reorganization.

624.8 *a.* Forces employed to combat guerillas may be furnished by either combat or service troops. Dependent upon the size of the guerilla force and the extent of the area involved, forces employed will vary in size from small patrols to large units of combined forces. Patrols may be formed by troops manning logistical installations to attack and destroy small guerilla bands operating in the vicinity of

the installation. The destruction of strong guerilla forces or those widely dispersed is usually executed by combat units.

*b.* Special antiguerilla units may be formed to combat guerillas. These units must be prepared for prolonged operations, using guerilla methods. Personnel making up these units are usually selected volunteers, supplemented with screened civilians who act as guides and interpreters. They are an effective means of conducting operations with small forces and are principally employed to destroy small guerilla bands, harass guerilla communications and supply, and, in conjunction with other antiguerilla units or combat units, attack and destroy large guerilla forces.

624.9 In addition to prompt and aggressive offensive action against guerillas and infiltrators, other measures must be adopted. These are: the all-around defense of installations and troop positions; establishment of security detachments at critical localities on lines of communications, patrolling of lines of communications; armed escort for convoys and trains; constant patrolling throughout the area; guards and patrols around installations to prevent surprise; liberal use of mines, trip flares, booby traps, and other physical obstacles; and a reliable and extensive communication system. The movement and location of guerillas must be promptly reported and closely followed so that offensive action may be taken.

624.10 Except in front-line-combat areas, guerilla forces and infiltrators cannot exist without civilian support. Consequently, every effort should be made to prevent these irregular forces from receiving support from the civilian population. Such an effort can be assisted by isolating guerilla forces from the civilian population and from each other. More important, however, is the necessity for winning the support of the indigenous population away from the guerillas and infiltrators. This can best be accomplished by the establishment of cooperation and good will between the civil population and the military forces. In those instances where control of indigenous government is vested in the commander and administered by his organization for Civil Affairs/Military Government, adherence to basic military government principles will do much toward diverting the civil population from activities designed to prevent the maintenance of good order and public safety. Propaganda plays an important part in winning the good will and trust of the local populace.