WAR DEPARTMENT FIELD MANUAL

FM 100-5

This manual supersedes FM 100-5, 22 May 1941, including C 1, 16 September 1942; C 2, 12 November 1942; and C 3, 26 April 1943.

FIELD SERVICE REGULATIONS

OPERATIONS

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FM 100-5, Field Service Regulations, Operations, is published for the information and guidance of all concerned. It contains the doctrines of leading troops in combat and tactics of the combined arms and constitutes the basis of instruction of all arms and services for field service. Additional doctrines pertaining to the defense of coast lines and landing operations on hostile shores are discussed in FM 31-10 and 31-5.

Field Service Regulations will be interpreted in the light of FM 27-10. FM 100-5 should be studied in connection with FM 100-10, 100-15, and 100-20.

While the fundamental doctrines of combat operations are neither numerous nor complex, their application is sometimes difficult. Knowledge of these doctrines and experience in their application provide all commanders a firm basis for action in a particular situation. Knowledge and experience 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 important in the successful prosecution of war. They provide the enemy a fixed pattern of operations which he can more easily counter.

It is a function of command to coordinate the tactic and technique of the ground, air, and sea forces, a well as that of the arms and services subordinate t these forces, in order to develop in the forces em ployed on a given task the teamwork essential t success.

[A. G. 300.5 (5 May 44).]

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For explanation of symbols, see FM 21-6.

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CHAPTER 1

ORGANIZATION

TERRITORIAL ORGANIZATION

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

2. *Theater of operations* is a term used to designate that portion of the land, sea, and air areas of the theater of war necessary for military operations, either offensive or defensive, pursuant to an assigned mission, and for the administration incident to such military operations. The theater is organized for tactical control and administrative control to the extent indicated by War Department instructions.

3. The *combat zone* comprises that area of the theater required for the armies. It is divided for tactical control into army, corps, and division areas, each 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 armies.

4. The *communications zone* is that part of the theater of operations, contiguous to the combat zone, which contains the lines of communication, establishments for supply and evacuation, and other agencies required for the immediate support and maintenance of the field forces in the theater of operations.

For military terms not defined in this manual see TM 20-205.

5. The *zone of the interior* comprises the area of the national territory exclusive of areas included in the theater of operations.

6. The details of organization of the theater of war and its territorial subdivisions are given in FM 100–10, 100–15, and in instructions relative to mobilization published by the War Department. As indicated therein, definite territorial responsibilities are assigned to commanders of theaters, oversea departments, defense commands, base commands, and task forces.

ORGANIZATION OF TROOPS

7. Troop organization includes command, combat (tactical), and service (administrative) elements. Most tactical units contain service elements and have some administrative functions. But a unit is not designated as administrative unless it performs all or nearly all administrative functions for its components.

8. The *Army of the United States* is organized to provide a War Department General Staff under the Secretary of War and the Chief of Staff; an air force, under a Commanding General, Army Air Forces; a ground force, under a Commanding General, Army Ground Forces; and a service force, under a Commanding General, Army Service Forces; and such oversea departments, task forces, base commands, defense commands, commands in theaters of operations, and other commands as may be necessary to the national security.

The *mission of the Army Air Forces* is to procure and maintain equipment peculiar to the Army Air Forces, and to provide air force units properly organized, trained, and equipped for combat operations.

The *mission of the Army Ground Forces* is to provide ground force units properly organized, trained, and equipped for combat operations.

The *mission of the Army Service Forces* is to provide services and supplies to meet military requirements except those peculiar to the Army Air Forces. To provide service units properly organized, trained, and equipped for field operations.

9. The *field forces* consist of the Chief of Staff, the War Department General Staff, and components of air, ground, service, and sea forces organized separately or in combination into armies, task forces, defense commands, base commands, commands in theaters of operation, other commands as may be required for the national security, and a War Department reserve. For a description and discussion of theaters of operations, task forces, and armies see FM 100–15.

10. An *air force* (ch. 3) is composed of a headquarters and a sufficient number of subordinate air elements of suitable type necessary for the accomplishment of the air mission in a theater. For security and administration, troops of the various arms and services are included in an air force. (See sec. III, ch. 1, FM 100–20.)

11. The term *large units* as used in this manual refers to divisions and larger units. A more detailed discussion of the larger units is found in FM 100–15.

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

13. An *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 from time to time to corps. The army is an administrative as well as a tactical unit.

14. A *corps* consists of a corps headquarters, certain organic corps troops, and such infantry (cavalry, ar-

mored) divisions as may be assigned to it. The corps is primarily a tactical unit.

15. The *division* is the basic large unit of the combined arms. It comprises a headquarters, infantry (cavalry, armored) units, field artillery units, and certain troops of other arms and services. It is an administrative as well as a tactical unit.

16. In each arm or service, the *company* (troop, battery) or similar unit is the basic administrative unit. It contains all the agencies required for subsistence, interior economy, and administration. For purposes of tactical control and training, each company is subdivided into smaller units.

17. The *battalion* (squadron) 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 and attached. Unless organized as a separate battalion it has few administration functions.

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

19. The *group* is a tactical unit and consists only of a headquarters and two or more battalions.

20. A *brigade* is ordinarily a tactical organization composed of two or more regiments or groups of the same arm, together with a headquarters and headquarters company or similar unit. When organized as

a separate brigade it may include units of other arms and services and may have administrative functions.

21. For economy and flexibility in the assignment to tasks, the means not habitually required by a unit are pooled and organically assigned to a higher unit. These means may then be allotted to subordinate units in accordance with their requirements for particular operations.

22. To insure unity of effort or 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, the unity of tactical organizations is preserved as far as practicable. In an infantry division, the term *combat team* is usually applied to a task force consisting of a regiment of infantry, a battalion of light artillery, and essential units of other arms in suitable proportion.

23. The details of organization of the field forces and the amounts and kinds of transportation and major items of equipment are published in current War Department Tables of Organization and Equipment. The organization of large units and pertinent technical and logistical data are given in FM 101–10.

CHAPTER 2

ARMS AND SERVICES

GENERAL

24. The units comprising the field forces belong t the arms and services of the ground, air, and servic forces.

The *arms* consist of the Infantry, Cavalry, Field Ar tillery, Coast Artillery Corps, Corps of Engineers, an Signal Corps. The Chemical Warfare Service also ha combat units of chemical troops.

The *services* consist of the Adjutant General's De partment, Judge Advocate General's Department Quartermaster Corps, Ordnance Department, Corps o Engineers, Chemical Warfare Service, Signal Corps Medical Department, Corps of Chaplains, Corps o Military Police, Finance Department, and Transporta tion Corps which are charged with serving the Army by performing the necessary functions of administra tion and supply. For administration and supply func tions of the arms and services, see FM 100–10.

25. No one arm wins battles. The combined actio of all arms and services is essential to success. Th characteristics of each arm and service adapt it to th performance of its special function. The higher com mander coordinates and directs the action of all, ex ploiting their powers to attain the ends sought.

INFANTRY

26. 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.

27. 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.

28. Infantry is capable of limited independent action through the employment of its own weapons. Its offensive power decreases appreciably when its freedom of maneuver is limited or when it is confronted by an organized defensive position. Under these conditions or against a force of the combined arms, the limited firepower of infantry must be reinforced adequately by the support of artillery, tanks, and other arms. Coordination with combat aviation is also essential. The defensive power of infantry reaches a maximum when it occupies an organized defensive position or when the enemy's freedom of maneuver is restricted.

29. The principal weapons of infantry are the rifle and bayonet, the automatic rifle, the machine gun, and the mortars. Other weapons include carbines, pistols, grenades, light antitank weapons, antitank guns, and close support howitzers.

The intrenching tool is an essential article of equipment of the infantry soldier. It is important in attack as well as in defense in order to hold ground without excessive casualties during interruptions of the advance.

30. Infantry can maneuver on 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.

31. The mobility of infantry has been increased greatly by the use of motor transport for the movement of troops, equipment, and supplies. Infantry units completely motorized are suited specially for the close support of mechanized units or for prompt dispatch as mobile reserves to distant areas accessible by road.

Infantry troops, with equipment and supplies, may also be moved by air or water transport to seize decisive objectives or to operate in the enemy's rear area.

CAVALRY

32. Cavalry consists of highly mobile ground units of two types: horse units and mechanized reconnaissance units.

The efficiency of cavalry depends in great measure upon the condition of its mounts and vehicles. Provision must be made for the rest and subsistence of animals and for the maintenance and upkeep of vehicles. Horse units may be transported in trucks or semitrailers in order to increase their mobility or to conserve animals.

HORSE CAVALRY

33. Cavalry is characterized by a high degree of battlefield mobility. Its special value is derived from the rapidity and ease with which its fire power can be moved from one position or locality to another. (See also ch. 15.)

34. Horse cavalry capabilities are offensive combat; exploitation and pursuit; seizing and holding important terrain until the arrival of the main forces; ground reconnaissance; ground counterreconnaissance (screening), both moving and stationary; security for the front, flanks, and rear of other forces on the march, at the halt, and in battle; delaying action; covering the retrograde movements of other forces; combat

liaison between large units; acting as a mobile reserve for other forces; harassing action; and surprise action against designated objectives deep in hostile rear areas.

35. Horse cavalry obtains its best results by the rapidity and flexibility of its methods in attack and defense rather than by the sustained offensive or defensive operations that are required of infantry. It should be assigned missions which will permit exploitation of its mobility. It is particularly effective on terrain not suited for armored or motorized units. Ordinarily it should not be employed against objectives which require the sustained power of infantry. When no suitable or necessary missions exist for cavalry, it should be held in reserve, awaiting the opportunity for appropriate employment.

36. Horse cavalry can operate over almost any terrain and under all conditions of weather. It fights on a relatively broad front and in slight depth. In offensive combat, relatively weak forces may contain a less mobile enemy on the front while the principal forces strike in flank and rear.

Horse cavalry habitually maneuvers mounted, but ordinarily fights on foot. As a rule, mounted maneuver is combined with dismounted action.

37. Horse cavalry is equipped with weapons similar to those of infantry and has strong fire power; it is provided with means for rapid signal communication, reconnaissance vehicles and armored cars for reconnaissance, and motor transport to supplement its animal transportation for supply.

MECHANIZED CAVALRY

38. *Mechanized cavalry* units are organized, equipped, and trained to perform reconnaissance missions employing infiltration tactics, fire, and maneuver. They

engage in combat only to the extent necessary to accomplish the assigned mission.

Reconnaissance units on reconnaissance missions contribute to the security of the main force by reporting the locations of enemy forces and by giving timely warning of ground and air attacks. Information and warnings are transmitted directly to units whose security is threatened and to higher headquarters. When opposing main forces close, mechanized cavalry may be employed on reconnaissance missions toward an exposed flank, used to maintain liaison with adjacent units, or placed in reserve.

39. Mechanized cavalry units perform distant, close, and battle reconnaissance within zones or areas, or along designated routes or axes. Units may be employed dismounted on reconnaissance missions when the use of vehicles is impracticable. The zone assigned will vary with the size of the reconnaissance unit, the routes available to the enemy, the effect of terrain and weather on visibility and movement, the information desired by the higher commander, and the facility with which reserves can be moved within the zone.

The frontage for a platoon reconnoitering a zone should not exceed four miles. A troop with one platoon in reserve initially can reconnoiter a zone ten miles in width, while a squadron with one reconnaissance troop and the light tank company in reserve initially can reconnoiter a zone twenty-five miles wide.

The rate of advance of units engaged in reconnaissance can be ten miles per hour on open terrain under favorable conditions, but unfavorable conditions may reduce the rate even to that of dismounted reconnaissance.

The time interval by which reconnaissance units precede the main force in an advance must be determined in each instance after a consideration of all factors which may affect the rate of advance of the reconnaissance units.

40. *Night reconnaissance* is less effective than daylight reconnaissance and is limited ordinarily to dismounted patrolling, observation of routes, and the use of listening posts.

41. Operations of mechanized cavalry and aviation are complementary. Aviation provides information which facilitates the execution of ground reconnaissance missions and conserves ground reconnaissance elements.

FIELD ARTILLERY

42. Field Artillery contributes to the action of the entire force through the fire support which it renders other arms. It has two principal missions in combat:

a. It supports infantry (cavalry, armored) units by fire, neutralizing or destroying those targets which are most dangerous to the supported arms.

b. It gives depth to combat by counterbattery fire, by fire on hostile reserves, by restricting movement in rear areas, and by disrupting hostile command agencies.

43. 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 defiladed against flat-trajectory weapons or lacking adequate overhead cover.

44. 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 positions. 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 artil-

lery fires are maneuvered is dependent upon adequate control, close liaison with supported troops, sufficient observation, and dependable signal communication.

45. 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 (cavalry, armored) units and the remainder is retained in general support of the division as a whole.

46. 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 changes position when necessary to deliver the supporting fires requested and to maintain close liaison with the supported unit.

47. Whenever the situation permits, both direct support and general support artillery are retained under centralized control. Field artillery operates most effectively in this manner. However, the division artillery commander frequently 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 insufficiency of signal communication. In such situations he should attach artillery promptly to the infantry (cavalry, armored) units which it is to assist.

48. *Corps (army) field artillery* may be retained under corps (army) control, or part or all of it may be attached to divisions (corps). Units held under corps

(army) control may be directed to furnish special assistance to designated divisions (corps).

49. *Division artillery* is most effective in fire on unprotected personnel. Its principal mission is the support of infantry (cavalry, armored) units by fire on those targets which are most dangerous to the supported units. It 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.

50. *Corps artillery* includes a headquarters, observation battalion (sound and flash), and such units as may be attached from time to time by higher headquarters and retained under the direct control of the corps commander.

It has for its principal mission the neutralization or destruction of hostile artillery. It is employed also in the destruction of hostile defenses, in long range interdiction fire, and in reinforcing the fires of division artillery (see par. 89).

51. *Army artillery* includes such units as are allotted from time to time by higher headquarters and retained under the direct control of the army commander for support of the army as a whole. It has for its principal missions distant interdiction and destruction fire, and reinforcement of the fire of corps artillery.

52. When occasion requires, particularly when there is a great massing of field artillery, temporary groupings of field artillery units may be formed for convenience in the execution of missions. These groupings are based upon the nature of the mission to be executed rather than upon type or caliber. Tactical unity is, so far as practicable, respected in the composition of groupings.

53. The Coast Artillery Corps comprises two sections: *seacoast artillery and antiaircraft artillery.* Its armament consists of fixed and mobile seacoast artillery, controlled submarine mines, and fixed, semimobile, and mobile antiaircraft artillery.

54. The missions of seacoast artillery are to—

a. Protect, in conjunction with the Army Air Forces and the Navy, elements of the fleet while at, entering, or debouching from their bases and to defeat naval and air attacks against harbor defenses, cities, or other important installations.

b. Support the combined arms in beach defense.

c. Support the combined arms in field operations while acting as army or theater reserve artillery.

55. *Fixed seacoast artillery* is equipped with large caliber, long range guns, searchlights, and radars, and is trained specially to fire at moving naval targets. Its stability permits great accuracy of fire. Its elaborate and precise fixed equipment permits highly effective fire control and fire direction. For tactical control, seacoast artillery is organized into battalions and groups.

56. *Mobile seacoast artillery* comprises railway and motor-drawn artillery. It provides additional gun fire for existing harbor defenses and is used with the other arms to protect harbors or coastal areas for which no permanent defenses have been provided.

Mobile seacoast artillery is used with the field forces as heavy, supporting artillery. Off the battlefield, it is capable of moving long distances at fairly rapid rates. On the battlefield its mobility is low and considerable time is required for emplacement.

57. *Controlled submarine mines* are used to supple-

ment the offensive action of other weapons in repelling hostile naval attack and to limit or prevent freedom of maneuver by hostile naval forces both surface and submarine.

58. *Antiaircraft artillery* is equipped with antiaircraft guns, automatic weapons, searchlights, radars, barrage balloons, and the equipment required for observation, fire control, and signal communication. 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.

Antiaircraft artillery may also 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. When used on these missions little air defense should be expected and consequently it should not be employed against these targets unless the air threat is secondary.

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

Coordinated antiaircraft defense of areas is essential and is facilitated by the establishment of air defense commands.

CORPS OF ENGINEERS

59. The Corps of Engineers has the primary mission of increasing the combat power of the field forces by construction or destruction, especially that which

facilitates the movement of troops or impedes that of the enemy.

60. Engineers facilitate the movement of troops by the removal and passage of enemy obstacles, mine fields, and road blocks; the construction and repair of routes of communication (except signal communication), including ferrying and bridging operations and the preparation of airfields; and the supply of engineer tools and equipment.

61. The mission of hindering enemy movement is often of great importance. The inherent mobility of enemy motorized and mechanized 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.

62. Engineers make, reproduce, and supply maps and map substitutes, including those produced from air photographs.

63. Special engineer missions include water supply, the operation of all utilities not assigned to other arms and services, and the supply, repair, and maintenance of engineer materials and equipment, including camouflage materials.

SIGNAL CORPS

64. Signal troops have the primary combat mission of providing signal communication for the command to which they are assigned.

Means of signal communication include messenger, wire (telephone, telegraph, and teletypewriter), radio, facsimile, pigeon, visual, and sound.

65. Signal troops assigned to divisions, corps, armies,

and theaters comprise construction units for the installation of wire circuits; and operating units for the installation of wire centrals and radio stations, and the operation of message centers, messenger, wire, radio, and visual communications. In addition, signal troops assigned to field armies and theaters include units which provide signal intelligence, photographic, pigeon, signal repair, and supply services.

66. **a.** The Signal Corps provides signal centers, local messengers, and wire and radio communications for all headquarters of the air forces to which have been assigned signal troops. In general, this will include all air headquarters except those of groups and squadrons.

b. The Signal Corps provides radio used solely for administrative purposes at headquarters, Army Air Forces, air force headquarters of defense commands, and air base headquarters. The Signal Corps also installs and operates a signal supply and repair establishment at each air base (TM 11–452).

c. The Signal Corps provides radio equipment for the following air navigational aids:

(1) Radio compass and marker beacon receivers.

(2) Airborne radar.

(3) Ground control interception (GCI) for homing aircraft.

(4) Army airways communications system (AACS).

(*a*) Radio range.

(*b*) Marker beacon.

d. Signal troops establish and operate the aircraft warning service (FM 11–25) including—

(1) Ground observer system.

(2) Radar installations.

(3) Communications for ground control interception (GCI).

(4) Aircraft identification.

e. The *signal intelligence service* is charged with the interception of enemy wire and radio transmission

and the location, by radio position finding, of enemy radio transmitters operating on the ground and in airplanes. It is charged with the location of radio transmitters operating in violation of proclamations or orders, and with the interception of radio transmissions of friendly stations to detect violations of regulations governing the use of codes and ciphers and of radio procedure. The signal intelligence prepares and solves codes and ciphers. (For further details, see FM 11–35.)

57. The Signal Corps exercises technical supervision over the entire signal service of the field forces. It supplies other arms and services with the technical equipment required for the installation of their own systems of signal communication.

CHEMICAL WARFARE SERVICE

68. Combat troops of the Chemical Warfare Service engage directly in combat to assist other units of the field forces by the use of gas, smoke, incendiaries, and high explosives.

Chemical units are theater of operations forces. They are attached to armies and lower units as the situation requires. Chemical units may be employed profitably in mass for large scale gas operations or in small units for minor operations under divisions or lower unit control. Normally a chemical battalion is attached to a division and may in turn be broken down into a weapons company or platoon under infantry regiment or battalion control, firing HE concentrations to supplement artillery fire or to relieve artillery for other missions, and firing gas or smoke missions. These units are employed well forward.

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

69. For details of the tactical employment of chemical combat troops, see FM 3–5, and for classification and functions of Chemical Warfare Service units, see FM 100–10.

CHAPTER 3

THE AIR FORCES

GENERAL

70. The *air force* is the largest tactical unit of the Army Air Forces. It may contain a strategic air force, a tactical air force, an air defense command, and an air service command. The organization of an air force is not rigid but conforms to the task to be performed. The combined action of these forces is necessary for the successful accomplishment of the air mission and for missions coordinated with ground and sea forces. The air commander is responsible for the conjunction and cooperation of the subordinate air forces. The coordination of air, ground and sea forces is a function of command and is the responsibility of the theater or task force commander exercising command over these three forces.

71. The Army Air Forces operate against hostile air power, sea power, and land power independently or in conjunction with ground and naval forces.

72. Air operations may be restricted by hostile air force operations, by antiaircraft measures, by the lack of air bases, and by adverse weather conditions.

73. The inherent flexibility of air power is its greatest asset. Its mobility, speed, and range make it possible to apply air power in mass against selected areas in turn. To exploit this capability fully the control of available air power is centralized and command is exercised through the air force commander. Successful centralized control also involves flexible advance plans sufficiently detailed to meet any development.

74. Definition of air force terms:

a. *Combat aviation* refers to bombardment and fighter aviation.

b. *Bombardment aviation* applies to aircraft and units whose primary function is the attack of surface objectives.

c. *Fighter aviation* applies to all aircraft and units whose primary function is air fighting. *Fighter-bomber* aircraft are fighters modified to attack surface objectives.

d. *Reconnaissance aviation* applies to units whose primary function is to secure information for military commands, both ground and air, through visual and photographic means.

e. *Photographic aviation* applies to air units which perform photographic reconnaissance beyond the responsibilities or capabilities of reconnaissance aviation and perform special photogrammetric mapping missions for engineer topographic troops. Its services are usually reserved for the use of theater or other similar headquarters.

f. *Troop carrier aviation* (including gliders) applies to air units which carry airborne troops, ground troops, and cargo.

g. *Liaison aviation* is the term applied to aircraft and air units whose primary functions include courier or messenger service and observation of artillery fire. Liaison aircraft are light and unarmed. They can use small and hastily prepared landing fields. They are vulnerable to small arms fire and are seldom used over or near defended hostile areas. They may be an integral part of ground units.

h. *Air transport aviation* is employed to transport by air, personnel, material, and mail for all War Department agencies.

i. *Service center* is a mobile organization provided to establish and operate the necessary third echelon maintenance, reclamation, and supply points within close supporting distance of combat air units. Service

centers normally are set up on the basis of one for each two combat groups.

THE STRATEGIC AIR FORCE

75. The *strategic air force* is the long range arm of the air forces. It consists of units equipped with long range bombardment aviation and long range fighter escort units necessary to accomplish its mission of attacking strategic objectives. It also has photographic aviation units for necessary mapping and photographic reconnaissance.

76. The strategic air force employs heavy bombers for the accomplishment of its mission. Long range fighter escort is used to increase the defensive fire power of the bomber formation and to further the effectiveness of the bombers by insuring penetration of the strategic targets. The fighters also are employed to protect the bomber bases which are vulnerable to enemy air attack.

77. The attrition of enemy aircraft is incidental to the mission of the strategic air force but is nevertheless a furtherance of the first *mission* of the air forces in general, that is, to destroy the enemy air force.

78. The strategic air force may be assigned tactical air force missions with the tactical air force when the action is vital and decisive, but this deviation from basic employment is rare.

79. Whenever a hostile nation is subject to regular bombardment by our air forces, it will be necessary to concentrate a large part of the effort against that nation's aircraft factories to curtail production of fighter aircraft to the point where strategic bombing of other targets is economical.

80. On some occasions, part of the mission of the

strategic air force will be the long range reconnaissance of the sea approaches to the combat zone.

THE TACTICAL AIR FORCE

81. The *tactical air force* consists of light and medium bombardment units, fighter aviation units, reconnaissance aviation units, and an aircraft warning service (see FM 31–35 and 100–20).

82. The mission of the tactical air force is to obtain the necessary degree of air superiority; to prevent the movement of hostile troops and supplies into the theater of operations and especially into the combat zone; and to participate in a combined effort of the air and ground forces, in the battle area, to gain objectives on the immediate front of the ground forces.

83. The tactical air force employs fighter aviation for the destruction of enemy aircraft in the air. It employs light and medium bombardment aviation for destruction of enemy aircraft on the ground and enemy aircraft bases. The aircraft warning service is employed to increase the efficiency of the offensive role of fighter aviation as well as to protect our own installations.

84. Because of the speed and powers of evasion inherent in all aircraft, air fighting is generally of brief duration and the results are often indecisive. As a result, unless greatly superior, aviation is incapable of controlling the air in the same sense that surface forces can control an area and, therefore, can reduce hostile air operations only to a limited extent.

85. The decision to launch a combined operation and to wage subsequent offensives is strongly influenced by the prior attainment of air superiority in the area of operations. The hostile rear area is the most favorable area of action for combat aviation, since operations in this area permit full utilization of striking

power against concentrated targets with minimum losses and maximum results. These attacks disrupt the enemy's communications, destroy his supplies, delay reinforcements, and when timed with the effort of the friendly ground forces, assist in turning a retirement into a rout.

86. Air attacks against selected objectives in the battle area in furtherance of the combined air-ground effort require team work, mutual understanding, and close cooperation between ground and air commanders. Such attacks are directed against targets readily identified from the air, and safety is provided for friendly troops by phase lines or bomb safety lines which are set up and rigidly adhered to by both ground and air.

87. Reconnaissance aviation employs several types of aircraft to accomplish its mission of obtaining information about the enemy. It utilizes both air photography and air reconnaissance to achieve this information. The air headquarters and the ground units must exchange liaison officers and provide them with suitable means of communications to insure quick transmission of requests from the ground units and to disseminate speedily the results of air reconnaissance.

88. Aircraft may communicate with the ground by various means including radio, dropped messages, sound, pyrotechnics, lights, smoke, and maneuvers of aircraft. Because of the high speed of modern aircraft, pick-up of messages is feasible only with liaison type aircraft.

89. When high performance aircraft is used in adjusting long range artillery fire the Army Air Forces is responsible for providing the necessary radio communication between the artillery unit conducting the firing and the aircraft adjusting the fire.

THE AIR DEFENSE COMMAND

90. *Air defense* is the direct defense against hostile air operations as distinguished from the indirect defense afforded by counter air force operations. Its means may include fighter aviation, antiaircraft artillery, searchlights, barrage balloons, and aircraft warning service.

91. The mission of the air defense command is to prevent, oppose, and reduce the effectiveness of hostile air action in the zone to which the command is assigned. It accomplishes this mission by both active and passive defense. Active air defense comprises all measures aimed at destroying or threatening destruction of hostile aircraft and their crews in the air. Passive air defense is provided by warning of impending air attack, dispersion, camouflage, blackouts, and other measures which minimize the effect of hostile air attack.

92. Suitable methods of distinguishing between friendly and hostile aviation must be devised early in the operations and disseminated to all air and antiaircraft units in the theater to increase the effectiveness of the air defense and to protect friendly aviation.

93. The air defense command employs fighter aviation, aircraft warning service, antiaircraft artillery, searchlights, and barrage balloons for active defense. All antiaircraft units employed in air defense operations within the air defense area of a fighter command are under the command of the fighter commander. Tactics and technique of air defense are covered in FM 1–25 and 4–100.

THE AIR SERVICE COMMAND

94. The air service command consists of all air force

service units such as air quartermaster, ordnance, signal, chemical, medical, engineer depots, and service centers.

95. The mission of the air service command is procurement, supply, repair, reclamation, construction, transportation, salvage, and other services required by the tactical units of an air force. This command provides all repair and maintenance of equipment beyond the responsibility of first and second echelons of maintenance.

96. Units of the air service command should operate as far forward in the combat zone and as near the air bases of tactical units as is consistent with the safety of these organizations. For further details of organization, function, and methods of operation of an air service command, consult Army Air Forces Regulations 65–1.

CHAPTER 4

LEADERSHIP

97. Leadership is based on knowledge of men.

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

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.

99. War places a severe test on 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 must also be physically qualified to endure the hardships of field service and be constantly fortified by discipline based on high ideals 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.

100. In spite of the advances in technology, the worth of the individual man is still decisive. The open order of combat accentuates his importance. 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.

101. The dispersion of troops in battle caused by the influence of modern weapons makes control more difficult. Cohesion within a unit is promoted by good leadership, discipline, pride in the accomplishments and reputation of the unit, and mutual confidence and comradeship among its members.

102. 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.

103. Troops are influenced strongly by the example and conduct of their leaders. *A leader must have superior knowledge, will power, self-confidence, initiative, and disregard of self. 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.* Mutual confidence between the leader and his men is the surest basis of 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.

104. A good commander avoids subjecting his troops to useless hardships; 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.

105. The commander should extend prompt recognition for services well done, lend help where help is needed, and give encouragement in adversity. Considerate 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 will then be able to judge their needs and combat value. A commander who unnecessarily taxes the endurance of his troops will only penalize himself. 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.

106. 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.

107. The combat value of a unit is determined in great measure by the soldierly qualities of its leaders and members and 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 constitutes a reliable basis for success in battle.

108. A poorly trained unit is likely to fail in a critical moment due to demoralizing impressions caused by unexpected events in combat. This is particularly true

in the first engagements of a unit. Therefore, training and discipline are of great importance. Every leader must take energetic action against indiscipline, panic, pillage, and other disruptive influences. Discipline is the main cohesive force that binds the members of a unit.

109. A wise and capable commander will see that the men assigned to the component groups of his unit are compatible and that the composition of the groups is changed as little as possible. He will provide each group with a leader in whom its members have confidence. He will so regulate the interior administration of the unit that all groups perform the same amount of work and enjoy the same amount of leisure. 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.

110. Good morale and a sense of unity in a command cannot be improvised; they must be thoroughly planned and systematically promoted. They are born of just and fair treatment, a constant concern for the soldier's welfare, thorough training in basic duties, comradeship among men, and pride in self, organization, and country. The establishment and maintenance of good morale are incumbent upon every commander and are marks of good leadership.

111. The first demand in war is decisive action. Commanders inspire confidence in their subordinates by their decisive conduct and their ability to gain material advantage over the enemy. A reputation for failure in a leader destroys morale. The morale of a unit is that of its leader.

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.

Neglect renders him unable to bring a normal mind to the solution of his problems, and reacts unfavorably on his whole command.

CHAPTER 5

THE EXERCISE OF COMMAND

DOCTRINES OF COMBAT

112. The ultimate objective of all military operations is the destruction of the enemy's armed forces in battle. The ability to select objectives whose attainment contributes most decisively and quickly to the defeat of the hostile armed forces is an essential attribute of an able commander.

113. Simple and direct plans promptly and thoroughly executed are usually decisive.

114. *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 combined arms is vested in the senior officer present eligible to exercise command.

115. Through offensive action a commander exercises his initiative, preserves his freedom of action, and imposes his will on the enemy. A defensive attitude may be deliberately adopted, however, 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. The selection by the commander of the right time and place for offensive action is a decisive factor in the success of the operation.

116. Numerical inferiority does not necessary commit a command to a defensive attitude. Superior hostile

numbers may be overcome through greater mobility, better armament and equipment, more effective fire, higher morale, and better leadership. Superior leadership often enables a numerically inferior force to be stronger at the point of decisive action.

117. A *strategically defensive mission* is frequently most effectively executed through offensive action. It is often necessary for an inferior force well disposed for combat to strike poorly disposed hostile forces early before changes in the enemy disposition can be made.

118. Concentration of superior forces, both on the ground 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.

119. *Surprise* must be sought throughout the action by every means and by every echelon of command. It may be obtained by fire as well as by movement. Surprise is produced through measures which either deny information to the enemy or positively deceive him as to our dispositions, movements, and plans. Terrain which appears to impose great difficulties on operations may often be utilized to gain surprise. Surprise is furthered by variation in the means and methods employed in combat and by rapidity of execution.

Surprise often compensates for numerical inferiority of force.

120. To guard against surprise requires a correct estimate of enemy capabilities, adequate security measures, effective reconnaissance, and readiness for action

of all units. 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.

COMMAND

121. Command is the authority which an individual in the military service lawfully exercises over subordinates by virtue of rank or assignment.

122. 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; his must be the master mind.

123. 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.

124. A willingness to accept responsibility is the foremost 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.

125. 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 inactivity. 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.

126. In spite of the most careful planning and anticipation, unexpected obstacles, frictions, and mistakes are common occurrences in battles. A commander must school himself to regard these events as commonplace and not permit them to frustrate him in the accomplishment of his mission.

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

128. All the troops assigned to the execution of a distinct mission should be placed under one command, to function as a task force for the duration of the operation. So long as a commander can exercise effective control, he does not disturb the established chain of command in his forces. Better support or coordination frequently can be effected by decentralized control such as during marches or in rapidly changing situations.

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

ESTIMATE OF THE SITUATION

130. In any operation, the commander must evaluate all the available information bearing on his task, estimate the situation, and reach a decision. Estimation

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

131. The estimate often requires rapid thinking, with consideration limited to essential factors. In campaign, exact information concerning the enemy can seldom 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 commander must take calculated risks.

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

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

134. For further details, see FM 101–5.

TERRAIN

135. That part of the commander's estimate dealing with terrain often exercises a decisive influence upon his decision and plan. Proper evaluation and utilization of the terrain reduce the disadvantage 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, woods, and open spaces, but also artificial features such as roads, railroads, and towns. The commander seeks always to utilize the terrain to his own advantage and to the enemy's disadvantage.

136. The mission is the basic factor in the commander's estimate. This may be frequently resolved in terms of terrain. Thus it may be vital to hold certain dominating ground, to protect a certain defile, or to capture such features. Where possible, reducing the mission to terms of terrain may aid in the proper evaluation of the terrain.

137. Maps are the basis for terrain studies, but must be checked by air reconnaissance, air photographs, 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.

138. Terrain should always be evaluated in terms of the following five factors: observation, fields of fire, concealment and cover, obstacles, and routes of communication.

139. Features such as ridges, streams, woods, and towns usually divide the terrain more or less into separate areas. Such an area frequently consists of a valley lying between two ridges, or an open space between two woods. When the terrain features inclosing the area prevent direct fire and observation into it from positions outside, the area is called a *compartment.*

140. A compartment of which the longer axis extends in the direction of movement of a force, or leads toward or into a defensive position, is called a *corridor.* A compartment which extends generally across the direction of movement of a force, or its front, is called a *cross-compartment.*

CONDUCT IN BATTLE

141. The commander's decision for his unit as a whole, and the missions to subordinate units are com-

municated to subordinates by clear and concise orders.

142. 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.

143. Whenever the commander leaves his command post, he should orient his staff as to further plans to be made or measures to be taken in anticipation of future contingencies, and should inform his staff where he can be reached.

144. During the decisive phase of battle, the place of the commander is near the critical point of action.

145. A commander influences the course of subsequent action by his leadership, by the use of his reserves, by the concentration of artillery, and by other supporting units.

146. 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 fast that the gains made can be capitalized only by the most aggressive and far-sighted leadership.

147. Losses must be anticipated by the commander and his staff who will take timely measures for replacement of men, units, transports, and weapons, and for replenishment of ammunition and other supplies. 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 some training to weld replacements into the team before the unit is assigned a new and important mission.

STAFF

143. The staff assists the commander to the extent that he may require, by providing information, data, and advice; by preparing detailed plans and orders in accordance with his directions; and by exercising such supervision over the execution of his orders as he may prescribe. *A staff officer, as such, does not exercise command.*

149. The organization, functions, and duties of the various sections of the staff and the employment and duties of liaison officers are prescribed in FM 101–5.

COMBAT ORDERS

150. 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 purpose as soon as possible.

151. 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.

152. Usually it is desirable to issue an order to warn 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.

153. 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, but nothing more.

154. 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 for 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, do not inspire confidence and have no place in an order.

155. 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.

156. Orders issued by subordinates should not be mere repetitions of those from higher authority with additions of their own. New orders are clearer and more satisfactory.

157. During the planning stage it usually is desirable to confine knowledge of contemplated operations to the minimum number of commanders and staff officers. As the hour for action approaches, successive echelons of command should be given timely information of the commander's intentions so at the time of

entry into action no unit will be in doubt as to its mission or the plan of the higher commander.

158. In every unit, standing operating procedure is prescribed by the commander whenever practicable. This procedure covers those features of operations which lend themselves to a definite or standardized course of action without loss of effectiveness.

159. For details pertaining to combat orders, annexes, and standing operating procedure, see FM 101–5.

COMMAND POSTS

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

161. The forward echelon consists of those staff agencies required to assist the commander immediately in tactical operations. The rear echelon, primarily administrative, consists of the remaining staff agencies.

162. The command post is the location of the forward echelon of a headquarters. All agencies of signal communication center at the command post.

163. 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.

164. In the selection of a command post, consideration is given to the disposition of troops in the plan of operations, routes of communication, requirements of signal communication, space for staff activities, cover, concealment, and security. Facilities for obser-

vation, ground or air, are desirable. In the case of divisions and larger units, the presence of existing wire lines is important.

Remote location of a command post with respect to subordinate units places an unnecessary burden on the means of signal communication, delays the transmission of orders and information, and makes tactical control difficult.

The ability of mechanized units and airborne troops to strike quickly in rear areas indicates the necessity of locating command posts within protected areas. A forward location facilitates control.

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.

165. Frequent changes in the location of the command post are avoided, particularly in large units. 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 contemplated changes in command post locations.

166. 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 rapidly moving situations, it may be necessary to direct subordinate units to select and report the locations of their own command posts. 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, so far as such locations can reasonably be foreseen, and may similarly assign an axis of signal communication to each of its major subordinate units.

167. 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 airplanes, mechanized 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 their locations to such troops. 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 but in their place guides are posted to point the way and messengers are given more precise instructions.

SIGNAL COMMUNICATION

168. The efficient exercise of command and the prompt transmission of information and instructions require the establishment of reliable means of signal communication. Signal communication is effected by technical means and by messengers. Entire dependence cannot be placed upon any one means; alternate means must be provided. (See pars. 64 and 176; also FM 11–5 and 24–5.)

169. 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.

170. 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 unit supporting another by fire

is responsible for the establishment and maintenance of signal communication with the supported unit.

171. 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 will generally be the basic means in a given situation (see pars. 177–182).

172. The command posts and advance message centers are the control points of the signal communication system. When headquarters are in movement, signal communication is maintained between command posts and within columns.

173. *Early information must be given to the signal or communication officer of a unit relative to projected operations and the movement and new location of command posts,* in order to facilitate the prompt establishment of signal communications. The necessary instructions therefor are prepared by the unit signal or communication officer in accordance with the directions of the commander. A communication officer of a higher unit maintains close cooperation with the signal or communication officer of the subordinate unit.

174. *Message centers* are operated by signal 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 message center. In the case of a message of importance, the writer may confer with the message center in regard to the means of transmission (see pars. 177–182).

The message center transmits messages in accordance with precedence indicated by the writer.

The message center is not responsible for those messages which are—

a. Transmitted directly by the writer to the addressee by telephone or personal agency.

b. Handled by the military or civil postal service.

c. Local messages between staff sections of the same headquarters located at the same place.

d. Handled by the army airway coommunication system.

175. *Advance message centers* are established whenever needed for the reception and relay of messages. Information as to their location must be promptly transmitted to the troops.

Advance message centers are frequently employed in the reconnaissance operations of large units as collecting points for messages of several reconnaissance detachments.

176. *Means of signal communication* include wire, radio, visual and sound communication, pigeons, and messengers.

177. *Wire communication* (telephone, telegraph, and teletypewriter) constitutes the basic technical means of signal communication for the infantry division and the larger unit headquarters. It is not always suitable, 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 may fail to function.

Wire communication is susceptible to interception without physical contact and should seldom be used to transmit CLEAR-TEXT CLASSIFIED messages.

178. *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 terrain features, the weather, time of day, and season of the year. Its use is limited by the number of channels available to a given geographical area.

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 to the enemy of information contained therein. 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 it may be prohibited by higher commanders.

179. *Visual signal communication* (lamps, flags, pyrotechnics, panels, and airplane maneuvers) is not suitable for long messages or over long distances but finds especial application for communicating within and between small units and with airplanes by a few short signals in accordance with a prearranged code.

180. *Sound communication* (principally 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.

181. *Homing pigeons* are a means of communication from front to the rear.

182. In spite of the advances of technical means of signal communication, the messenger system is still the backbone of army signal communications.

The efficiency of the messenger system depends on the individual messenger. He must be chosen for his sturdiness, courage, self-reliance and extreme loyalty.

Messengers are required to transport maps, overlays, and to deliver messages, which require additional verbal 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 should always be available at the message center; they are dispatched on special missions as required by the situation. Local messengers serve the units dispersed around the division command post or rear echelon.

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 is sometimes required when on 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.

183. Early signal communication in landing operations is paramount. This requires combat loading of signal personnel with signal equipment and coordination of signal procedure for ground, air, service, and naval forces prior to embarkation.

184. See FM 101–10 for further details.

CHAPTER 6

MILITARY INTELLIGENCE AND RECONNAISSANCE

Section I. MILITARY INTELLIGENCE

GENERAL

185. Information of the enemy and of the terrain over which operations are to be conducted must be evaluated to determine its probable accuracy and, together with other items of information, must be interpreted to determine its probable significance. It then becomes military intelligence.

186. From adequate and timely military intelligence the commander is able to draw logical conclusions concerning enemy lines of action. Military intelligence is thus an essential factor in the estimate of the situation and in the conduct of operations.

187. Military intelligence functions, procedure, and forms are covered in detail in FM 30– series.

COLLECTION OF INFORMATION

188. The intelligence available initially concerning the enemy and the theater of operations is obtained from intelligence studies made by the War Department and furnished the field forces prior to operations. This is supplemented by more detailed information obtained in the field from study of recent maps and map substitutes, captured documents and equipment, hostile and neutral press and radio; from interrogation of inhabitants, repatriates, prisoners, and deserters; from reports of agents, air and ground

reconnaissance and observation, troops in contact with the enemy, aircraft warning service, and special information services of component units; and from radio direction finding and other sources.

189. The search for information of the enemy is continuous and unremitting and is predicated primarily upon an understanding of enemy capabilities and the careful coordination of all intelligence activities.

190. Collection of military information by subordinate units proceeds in conformtiy with routine procedure, standing operating procedure, and specific orders. Information collected by higher headquarters is transmitted automatically to lower headquarters.

191. The *essential elements of information* consist of that information of the enemy, of the terrain not under our control, of meteorological conditions in territory held by the enemy, or hydrographic conditions needed by a commander in a particular situation in order to make a sound decision and avoid being surprised. The essential elements of information constitute the basis for orders governing the search for information.

In the combat zone the following items are usually included among the essential elements of information: what are the strength, composition, and dispositions of the enemy; what lines of action, which can interfere with our mission, are within the physical capabilities of the enemy; when and under what circumstances can he put each into effect; and whether, when, and in what strength he can be reinforced. The essential elements also include unknown details of terrain which may affect our own maneuver. They may also include items of information desired by higher, lower, or adjacent units, and data on suitable distant objectives for air or mechanized units and on meteorological conditions at or en route to such objectives.

Ordinarily, the military intelligence required by the essential elements of information relating to the enemy is deduced from numerous items of information which serve as indications of enemy action. Reconaissance agencies are directed to search primarily for these indications.

COLLECTING AGENCIES

192. The effectiveness of collecting agencies available to a combat unit vary with its size, facilities available, and distance from the front. The organic collecting agencies of each combat unit are prescribed by appropriate Tables of Organization. Additional collecting agencies may be attached to units which are operating alone.

193. Collecting agencies transmit to the intelligence officer all items of information immediately upon obtaining them, except where it is evident to the agency the information is of a static nature, and can be held for inclusion in a periodic intelligence report.

194. The commander is responsible for all intelligence activities of his unit. He coordinates the activities of the reconnaissance agencies, avoiding duplication of effort by the assignment of missions and objectives and by informing each reconnaissance detachment of reconnaissance to be executed by others. He makes the necessary requests for information to higher and adjacent units.

The commander establishes zones of responsibility for air reconnaissance by designating air boundaries. Air reconnaissance must extend to such distances as to assure against surprise by hostile air or ground forces.

Orders for reconnaissance or observation should state definitely the information desired, where it is to be sought, and the destination and time of reports.

Section II. RECONNAISSANCE

GENERAL

195. *Reconnaissance* is the directed effort in the field to gather information of the enemy, terrain, or resources. It is classified as distant, close, and battle. (See FM 2–15.)

196. The *purpose of reconnaissance* is to gain information upon which to base tactical or strategical operations.

197. *Information concerning the enemy* may include his location, dispositions, strength, organization, composition, movements, attitude, equipment, supply, and morale.

198. *Information concerning the terrain* may include battle positions, character of roads, streams, cover, concealment, and bivouac areas.

199. The *sources of 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.

200. *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. They cannot, however, obtain a complete picture of the enemy situation to any great depth in rear of the hostile screen. They require the

cooperation of aviation in order to conserve their combat strength.

201. *Reconnaissance units of horse cavalry,* when available, are of great value on reconnaissance missions because of their ability to execute detailed ground reconnaissance within an appropriate area (see FM 2–5).

202. *Mechanized reconnaissance units* are of great value on distant reconnaissance missions, and for reconnoitering on an extensive front. (See FM 2–7, 2–15, and 17–100.)

203. When adequate reconnaissance elements are not available, a reconnaissance unit consisting of available reconnaissance elements and motorized infantry, or of motorized infantry exclusively, may be employed. It may be desirable to reinforce such a unit with other arms.

204. Close and intensive reconnaissance by infantry, artillery, and engineer units supplements the more distant reconnaissance. *Infantry reconnaissance* assumes special importance when horse or mechanized reconnaissance units are lacking or weak. It is constant and intensive when the opposing forces are in contact and especially during combat.

205. Small *engineer groups* should constitute a portion of ground reconnaissance units to obtain and report information concerning routes of communication and movement, demolitions, land mines, and obstructions.

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

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

208. 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.

209. Orders for the developments of a command frequently assign zones of reconnaissance to subordinate units. Each unit is habitually responsible for reconnaissance within its zone of advance or action. Flank units are also responsible for reconnaissance on their open flanks.

210. While orders for intelligence activities issued by a large unit may be included in an intelligence annex to a field order, it will usually be necessary to issue part or all of them in fragmentary form.

211. *Air reconnaissance* extends the zone covered by ground reconnaissance and obtains information which will enable ground units to give effective direction to their reconnaissance. Photographs of the areas reconnoitered are of great value to both air and ground reconnaissance agencies.

Under favorable conditions, aviation can furnish early information of the enemy's general dispositions and movements to a considerable depth in rear of his security forces. It cannot provide continuous or de-

tailed information, and frequently its negative information is unreliable, since it is subject to definite limitations resulting from inclement weather, darkness, forested terrain, antiaircraft fire, the activities of hostile combat aviation, and passive measures of antiaircraft defense.

212. *Night visual and photographic reconnaissance* by means of artificial illumination will detect heavy troop and vehicle movements. Reconnaissance flights made shortly after dawn and before dark offer a favorable opportunity for discovery of night movements.

213. The establishment of an effective system of air-ground liaison and coordination is a function of command.

214. Missions to aviation for air reconnaissance of specific roads, railroad centers, and exits of towns and woods must be stated in orders. These objectives are closely observed both day and night to discover the enemy's main forces and reinforcements, and their direction of movement.

215. It is a function of reconnaissance aviation to cooperate with the ground units by the execution of reconnaissance, artillery, and liaison missions. Normally the adjustment of fire for light and medium artillery and the providing of liaison aviation service to field artillery units is accomplished by the employment of organic air observation for field artillery.

EXECUTION OF RECONNAISSANCE

216. Reconnaissance is so executed that contact must be gained at the earliest practicable moment and, once gained, must never be lost. Reconnaissance is a responsibility of all units and is habitually directed to

the front and to any open flank. As the situation requires, it is also directed to the rear.

217. Ground forces assigned to reconnaissance 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.

218. Terrain features that afford observation of the hostile dispositions constitute special objectives of reconnaissance. Active and aggressive action of patrols in seizing key terrain features is imperative.

219. Weak reconnaissance elements seek to avoid combat unless it is necessary for gaining essential information. If the enemy is superior, the reconnaissance mission is often more easily accomplished by containing the enemy's reconnaissance or security forces in front while pushing reconnaissance around their flanks.

220. Frequently essential information can be obtained only through attack. Reconnaissance units attack when their mission requires it.

221. 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 also be prepared for the possibility that such reconnaissance may bring on a general engagement.

222. Arrangements as to details of cooperation and direct signal communication between air and ground agencies must be made for each phase of operations. The commander of the aviation unit must be informed of the routes of advance of any ground units with which he must communicate, and the locations of command posts, advance message centers, intermediate dropping grounds, and temporary landing fields.

223. To obtain information of the terrain and the existing situation, all commanders should make a personal reconnaissance. Reconnaissance parties are sent forward to obtain detailed information of the terrain and to determine routes and covered areas available for the development of the command; to select assembly areas for the various elements of the command; to select a position for the covering force; to select sites for installation of antimechanized and antiaircraft defenses, land mines, and, when ordered, areas to be gassed; and, if required, to locate the zone of resistance for the organization of the defense.

224. Without orders from the higher commander, each unit executes the reconnaissance necessary to its own operations within its own zone of action and toward any unsupported flanks.

TRANSMISSION OF INFORMATION

225. All subordinates of a command are responsible that their immediate commander is promptly and fully informed of the situation.

226. 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.

227. Items of information that appear unimportant to a collecting agency should be reported as they may be of significance to a higher commander when considered in conjunction with other information. Negative information is frequently important; likewise, confirmation that the situation during a specific period of time has remained unchanged. First contact with the enemy and new identifications are always reported by the most rapid means available. Other reports of reconnaissance are made as required in orders.

228. Front line troops are frequently so closely engaged in combat that they are unable to report as often as desired by the higher commander. Commanders make provision for obtaining prompt information by special reconnaissance and by sending liaison agents to higher, subordinate, and adjacent units. These provisions do not relieve subordinate commanders from making every effort to keep their superiors fully informed of the situation.

229. The best information will be of no use if it arrives too late at the headquarters for which it is intended.

230. 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.

231. 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.

232. The commander provides signal communication channels to expedite the transmission of information

obtained by reconnaissance elements and requires signal communication personnel to transmit promptly and accurately the results of reconnaissance missions.

233. During pauses in combat, or whenever the situation demands, subordinate commanders make brief intelligence reports to the next higher headquarters. Periodic reports are made as ordered by the higher commander.

234. As required by the situation, military intelligence is disseminated to subordinate units in field orders, messages, or copies of periodic or special intelligence reports. The means of dissemination must be appropriate to the time available.

235. The methods of reconnaissance employed by the several arms are described in their respective Field Manuals.

CHAPTER 7

SECURITY

GENERAL

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

237. 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. Security is always necessary, whether in movement, at the halt or in combat. In bivouac and in movement, security is provided in all directions. Forces assigned to security missions are secondarily charged with reconnaissance.

238. Adequate and timely information is the basis of all security measures. Continuous reconnaissance is therefore an essential part of security.

239. Security and reconnaissance forces operate in accordance with different considerations. In general, security forces operate primarily with reference to the command to be secured; reconnaissance forces operate primarily with reference to the enemy.

240. Reconnaissance influences security by indicating to the commander the measures to be taken to protect his forces. Information furnished through reconnaissance is a guide to the commander for determining the strength, composition, and disposition of his security detachments.

241. Each commander is responsible for the security of his command. This includes the protection of his lines of communication unless such protection is furnished by the higher commander. The superior commander prescribes security measures for the protection of the command as a whole or coordinates those adopted by subordinate commanders. He insures that measures adopted are appropriate to the hostile threat. Subordinate commanders provide additional security required for their own local protection. When contact is imminent, security measures are increased.

242. 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 and in the air. Special measures are taken to warn of the approach of hostile mechanized or air forces.

243. *Security detachments* weaken the available forces of a command and in some situations constitute a partial commitment of the command to action. They are given sufficient strength to preserve the commander's freedom of action, and no more. In their composition, consideration is given to the desirability of preserving tactical unity. It is desirable that they possess mobility at least equal to that of the forces they are expected to oppose.

244. An advancing force secures itself to the front by mobile reconnaissance elements sent out in advance of the command and by an advance guard.

Depending upon the composition of the command, the mobile reconnaissance elements vary from armored units, cavalry, and aviation, in the case of large units, to small cavalry detachments, motorcyclists, or men in trucks in the case of small units.

The advance guard consists of a fraction of the command sent out on the route or routes of advance

in front of the main body to protect it against surprise and observation; to clear the way by driving back weak enemy forces, by removing obstacles, and by repairing bridges and roads; and to secure for the main body the time and space required for its deployment for action in accordance with the plan of the commander. (For details, see ch. 9.)

245. A command moving within the theater of operations secures itself by a rear guard, a fraction of the command which follows the main body in the zone of march, usually by bounds, for the purpose of protecting it from attack observation or interference by hostile ground forces. (For details, see ch. 12.)

246. In addition to its advance or rear guards, a command whose flanks are not protected by adjacent units will often find it necessary to detail flank guards to protect the exposed flanks (see ch. 9).

247. A resting or defending force secures itself by an outpost, a fraction of the command disposed to cover its front, flanks, and rear, to protect it against surprise attack and observation by hostile ground forces. (For details, see ch. 8.)

248. There is a similarity in the formation of advance, flank, and rear guards and outposts. Each comprises reconnaissance groups which send out patrols or post sentinels for observation. These reconnaissance groups are backed up by a support echelon, the principal element of resistance. In large security detachments, a reserve is provided. The reserve constitutes the principal maneuvering and reinforcing element for offensive or defensive action as determined by the mission of the security detachment, which mission in turn depends upon the plan for the subsequent employment of the command as a whole.

249. An echelon of command which depends upon another for security to its front, flanks, or rear is responsible for maintaining contact with the unit upon which it depends. This is accomplished by means of liaison agents which it sends to the unit upon which it depends and by means of combat patrols which move between the two to maintain contact.

SECURITY AGAINST MECHANIZED FORCES.

250. *Terrain* and the road net influence the employment of mechanized forces. A map study, supplemented by air and ground reconnaissance, will disclose avenues of approach which may favor or impede mechanized operations. A skillful use of natural barriers, properly strengthened and protected, affords the best antimechanized defense. However, reliance for protection against mechanized attack cannot be placed on terrain alone. When approaches are favorable, special measures are taken for antimechanized protection, especially by exposed march columns.

251. Security against mechanized units requires an efficient warning system which includes an intelligence and a signal communication system carefully coordinated to insure early and continuing information of the presence and action of hostile mobile forces. Timely warning permits an increased readiness for action. Mechanized reconnaissance detachments operating well to the front and flanks are especially suitable for giving warning. All ground observation and reconnaissance agencies are required to make an immediate report of a mechanized threat to the nearest commander by the most expeditious means available. In addition to security measures adopted by a command as a whole, subordinate units conduct local reconnaissance to prevent a surprise mechanized attack.

252. The means of protection against mechanized attack are active and passive. The active means include antitank guns, artillery, combat aviation, antiaircraft artillery which is capable of firing at horizontal or minus elevations, tank and tank destroyer units, chemicals, and individual weapons to the limit of their effectiveness. Passive means include reconnaissance, concealment, cover, natural and artificial obstacles, buildings, demolitions, antitank mines, and organized localities. Usually active and passive means are used in combination.

253. Security against mechanized attack must be organized from two standpoints: the local protection of the troops and the protection of the command as a whole.

The first is the mission of the antitank weapons organically assigned to lower units.

The second is the mission of the tank destroyer units at the disposal of the higher commander. These units, because of their great mobility, are available for employment at a distance from the command or for concentration at the decisive locality. Mobile units capable of effective employment against mechanized forces are held for maneuver against hostile mechanized vehicles which succeed in breaking through. To insure the prompt transmission of information and orders to units, arrangements are made for rapid means of signal communication with them.

254. The coordination of the means of antimechanized protection is a command responsibility. Commanders of subordinate units are given missions for antimechanized defense which are specific with respect to time, place, purpose, and cooperation with other units, but which leave to them the details of execution (see ch. 11).

SECURITY AGAINST CHEMICALS

255. It is the responsibility of each commander to take

measures to provide security for his command against chemical agents.

256. The means of providing security against chemical attack consist of an adequate warning system, the provision of individual and collective protective equipment, provision for the prompt decontamination of individuals, equipment, and supplies, and tactical measures which minimize the effects of chemical agents.

257. An adequate warning system comprises reconnaissance to locate and define contaminated areas, gas sentinels, and an alarm system to alert the command when a chemical attack begins or impends.

258. *Individual equipment* consists principally of gas masks and protective clothing. Men must be trained and disciplined in the use of this equipment. Failure in this respect results in excessive casualties and incurs the danger of panic.

259. *Collective equipment* includes gasproof shelters, or protective covers for equipment and supplies, and decontaminating equipment and supplies. Gasproof shelters are provided in all permanent fortifications; their use in field fortifications increases with the elaboration of the field fortifications.

Prompt decontamination of individuals, equipment, supplies, and occupied areas reduces casualties and losses of equipment and supplies.

260. *Tactical measures* include troop dispositions which take advantage, as far as practicable, of terrain unfavorable for gas concentrations and the avoidance or evacuation, to the extent possible, of gassed areas. Alternate positions for units and supporting weapons are selected in advance.

ANTIAIRCRAFT SECURITY

261. Regardless of the effectiveness of the security measures taken by the higher command through the offensive action of its combat aviation, all units must consider the probability of air attack and reconnaissance and provide appropriate security measures.

262. *Measures* taken by ground troops for antiaircraft security vary with the situation, the degree of visibility, the concealment and cover offered by the terrain, and capabilities of the enemy's aviation. Protective measures comprise warning, concealment, dispersion, and fire.

263. The first requirement of antiaircraft security is an efficient warning system. Air guards are detailed by all units to give timely warning of the approach of hostile aviation. In addition, an aircraft warning service is, whenever practicable, organized within an area for the purpose of detecting and tracing movements of hostile air forces and transmitting warning of the approach and departure of such forces.

264. Upon receiving an air alarm signal, 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, troops will deploy off the road and continue the march. Motorized troops continue the march. Horse elements seek protection by dispersal and the utilization of all available concealment and cover.

265. When the situation indicates the necessity for continued movement and a command is subjected to frequent air attacks, maximum advantage is taken of dispersion and available concealment and cover without unduly delaying the movement. Troops must be

prepared to accept some casualties rather than delay arrival at their destination at the appointed time.

266. Measures taken for concealment aim to defeat both visual reconnaissance and air photography. Protective measures taken to defeat the camera will ordinarily deceive the eye of the air observer.

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. All commanders are required to take appropriate countermeasures to prevent detection.

267. Shadows cast by the sun early in the morning and late in the afternoon facilitate concealment. Ground haze or mist may constitute an effective screen against air observation. A low ceiling makes air reconnaissance dangerous for the air observer. During darkness, blackout frequently provides effective concealment.

Woods and villages afford concealment from air observation and reconnaissance; they serve to screen troops in shelter, in assembly, in position, and in movement.

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.

268. A command diminishes its vulnerability to air observation and attack by adopting dispersed formations. Dispersion in formation may be accomplished by increased width and depth of disposition, by reduced density within columns or groups, and by increased speed in movement between successive terrain lines affording concealment or cover.

269. The antiaircraft security of a column depends initially on the efficacy of the concealment in its last bivouac. During a movement, the important periods during which antiaircraft security must be provided are the formation of the march column, the passage of defiles or crossings en route, and the movement into shelter or assembly positions at the end of the march. During temporary halts, troops and vehicles clear the road and take full advantage of all nearby cover.

270. At night, special precautions must be taken against reconnaissance by hostile aviation using flares. When a unit is illuminated it halts and remains motionless. No lights visible to air observers are permitted to be used by troops and vehicles.

271. All units take measures for immediate protection against low-flying aircraft by using their own weapons which are suitable for fire against aircraft. All troops charged with this duty are constantly prepared for immediate action, but will fire only upon order of an officer or responsible noncommissioned officer. No aircraft will be fired upon unless it has been clearly recognized as hostile or is positively identified as hostile, or attacks with bombs or gun fire. Commanders of all echelons personally are responsible that the above restrictions are observed.

272. The antiaircraft fire of other units reinforces the fire of antiaircraft artillery which operates especially against aviation flying beyond the effective range of weapons of other arms.

273. In the forward area of the combat zone, antiaircraft artillery protects forward airdromes, principal troop concentrations, and assembly positions, and covers the movement of troops through defiles and critical localities. Driving hostile aviation to higher

altitudes decreases the effectiveness of air attack and observation. Since antiaircraft artillery automatic weapons will be handicapped in giving protection at night, additional dependence must be placed on passive measures. (See pars. 417 and 614.)

274. In the rear area, antiaircraft artillery cooperates with friendly aviation in protecting important establishments from air attack.

275. The threat from troops transported by and landed from aircraft requires that special security measures be instituted against them. Responsibility for these measures extends down through all echelons of command, the measures adopted within each echelon being coordinated in such a way to provide a unified system over the entire danger area. In general, the security measures adopted are designed to gain early information, to attack incoming enemy transports by combat aviation and antiaircraft fire, to destroy parachute troops while in the act of landing or immediately afterward when they are most vulnerable, to obstruct all possible landing fields not required for friendly air operations (airdromes, open fields, and straight stretches of level highway), and to isolate and destroy all landing forces by immediate attack before they can be resupplied and reinforced with supported weapons. Defensive measures must not be reduced to routine; routine will assist the enemy in gaining surprise.

COUNTERRECONNAISSANCE

276. *Counterreconnaissance* includes measures to screen a command from hostile observation. It is executed principally by aviation, antiaircraft artillery, cavalry, armored units, and security detachments. The commander coordinates the action of all of his ground force counterreconnaissance agencies by assigning to each a mission in accord with its capabilities. The air

force commander will coordinate his forces in a similar manner, maintaining close liaison with the ground forces commander.

277. Bombardment aviation contributes materially to counterreconnaissance by attacking hostile airdromes. Fighter aviation, employed for counterreconnaissance on fronts where it is important to conceal our own activity from hostile air reconnaissance, attacks all hostile aviation. Complete elimination of hostile air reconnaissance cannot be expected. Where secrecy is desired, ground forces must conceal their movements and dispositions.

278. Combat aviation in counterreconnaissance is supplemented by antiaircraft artillery and the weapons of other 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.

279. 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.

Offensive counterreconnaissance is most effectively executed by the defeat of the hostile reconnaissance forces. The activity of hostile patrols is most completely eliminated by the defeat of the stronger supporting detachments.

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

When a broad front must be covered, it may be necessary to resort to delaying action to impede temporarily the operations of hostile reconnaissance forces.

Aviation assists counterreconnaissance by attacking hostile aviation attempting to cross the zone of counterreconnaissance and by reporting hostile ground movements, especially the approach of highly mobile units.

280. The counterreconnaissance screen may be either moving or stationary. A moving screen is applicable to situations where the movement of a force must be screened; a stationary screen is used to screen the dispositions or concentration of troops or prevent the enemy from reconnoitering an area. (See FM 2–7, and 17–100.)

COUNTERINTELLIGENCE

281. The object of *counterintelligence* is to destroy the effectiveness of the enemy intelligence system.

Counterintelligence measures available to a command include secrecy; discipline; concealment; tactical measures designed to deceive the enemy; restrictions on the preparation, transmission, and use of documents; signal communication security; precautions in the movements of troops and individuals; regulation of the activities of newspaper correspondents, photographers, radio news commentators, and visitors; censorship; counterespionage, and counterpropaganda. (See FM 30–25.)

282. It is imperative that all members of the military service realize that thoughtless or talkative persons may become a menace to their country and to the lives of their comrades. Officers, enlisted men, and civilian employees must not discuss military instructions, plans, operations, movements, or the composition or location of troops in the presence of civilians or other unknown persons. In making preparations for operations, it frequently will be advisable to take

special precautions to maintain secrecy. Secrecy precautions must not jeopardize the success of operations by withholding information necessary to the forces involved.

283. All members of the military service should understand that if they are captured the enemy will make every effort to obtain information from them. They will be instructed to give correctly their name, rank, and serial number, and maintain absolute silence when asked any other questions. Any other information given may prejudice the success of operations and endanger the lives of their comrades.

284. Troops should make maximum use of natural and artificial concealment. Natural concealment and cover should be supplemented by camouflage. Since photographs frequently disclose things not visible to an observer's unaided eye, commanders should prevent the making of trails, tracks or other telltale marks in the vicinity of any work. In general, it is useless to attempt to camouflage a position where work has already been begun which the enemy has had an opportunity to observe and register.

In general, troop movements in the combat zone should be made under cover of darkness and with restrictions on the use of lights. If the enemy possesses a powerful air force, a blackout system must be employed. Under favorable conditions, smoke can be placed over restricted areas for limited periods of time to conceal information of great importance.

285. A commander who is ingenious and resourceful in the use of tactical stratagems and ruses will often find methods of deceiving or misleading the enemy and of concealing his own intentions.

Feints, demonstrations, and simulated concentrations may be employed to mislead the enemy regarding the strength, time, or place of attack. The main

attack may be accompanied or preceded by secondary attacks made in such a manner as to conceal the location of the main attack. A carefully screened withdrawal may be employed to deny the enemy the choice of the time and place of attack. Marches by day and return at night and the movement of empty truck columns have been employed to create the impression of great activity. Fake concentrations; simulated bivouacs, airdromes, and radio installations; dummy field fortifications, artillery positions, tanks, and airplanes; and many other such means have been successfully employed. It often is practicable to deceive the enemy regarding our plans and intentions by changing any routine procedure which may have come to his attention.

The dissemination of false information designed to deceive or mislead the enemy as to our intentions, capabilities, morale, or dispositions, such as, for example, the deliberate loss of orders or prisoners always introduces an element of danger because our own plans and decisions are apt to be influenced by the assumption that the enemy has been deceived. Such measures may be adopted only by the theater commander or by his authority.

286. Counterreconnaissance is employed on fronts where it is especially important to conceal the disposition of troops from hostile investigation.

287. Precautions are taken in the safeguarding and transmission of secret, confidential, and restricted documents. All orders, pamphlets, maps, diagrams, publications, or manuals and similar matter, except messages, originating in the theater of operations are classified as ***Restricted*** unless given a more restrictive classification. Military personnel in the front lines, on reconnaissance, or on missions over the enemy's lines, will not, under any circumstances, have in their

possession any documents, except those absolutely necessary for the execution of their missions.

288. Secrecy in the transmission of messages is of the utmost importance. Commanding officers are responsible for the maintenance of signal security within their commands. The signal intelligence service is responsible for the surveillance of friendly signal communication. The use of codes and ciphers is restricted to personnel specially trained in cryptography.

289. Before leaving a camp, concentration area, rest area, bivouac, or any other assigned area in the theater of operations, troops will make a systematic search of the area to insure that no documents or other evidence of potential intelligence value to the enemy remains.

290. The objects of censorship are to prevent information of military value from reaching the enemy, to insure that only accurate accounts of military activities are published or broadcast and to maintain friendly relations with allied and neutral nations.

CHAPTER 8

HALTS AND SECURITY DURING HALTS

HALTS

291. Halts are made to rest troops after marches and to prepare for subsequent operations. Security, comfort of troops, and future operations influence the selection of the location for a halt.

292. Considerations governing halts during a march are set forth in chapter 9.

SHELTER

293. In the theater of operations, troops are sheltered in billets, bivouacs, camps, or cantonments. (See FM 100–10.)

294. The situation and probable future action dictate the distribution of troops in shelter areas.

When contact with the enemy is remote, march considerations and comfort of the men govern dispositions for the halt. In large units, troops are sheltered as close to the route of march as practicable and are distributed in depth to facilitate shelter and supply, and the anticipated order of march.

When contact with the enemy 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 self-defense are concealed and dispersed in protected areas, generally well to the rear, or with troops equipped for defense.

295. During pauses in combat, troops, while prepared for all around defense, rest in position on the ground held.

296. Based on ground, photo, or map reconnaissance, the commander selects and announces the shelter areas at the earliest possible moment. Quartering parties from each unit then proceed to the assigned areas to apportion, mark, and provide guides for the new areas so that units may march directly thereto without halting or congesting the main routes.

OUTPOSTS

297. An *outpost* is a security detachment to protect a resting command or a defensive position against annoyance, surprise, and observation by ground forces.

298. Enemy capabilities, terrain, and the location of the main body determine the location and nature of the outpost.

299. A resting command provides all around outpost protection so disposed as to insure antimechanized, antiairborne, and antiaircraft security; to control roads; and, if practicable to deny artillery observation posts to the enemy.

300. The strength and composition of an outpost vary with the distance, mobility, armament, and attitude 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. An outpost should be no stronger than is consistent with reasonable security.

Patrols in close contact with the enemy and resisting detachments on avenues of approach provide economical protection.

In close terrain and during periods of darkness or

low visibility, security forces are usually stronger and closer to the main body.

An outpost may comprise varying proportions of the following arms:

Infantry, generally the principal element with a high proportion of automatic and other infantry supporting weapons.

Artillery, to support outpost infantry.

Engineers, to lay mine fields and construct other barriers.

Tank destroyer units, to destroy hostile tanks.

Cavalry, to extend the zone of reconnaissance or to maintain contact between adjacent units.

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

302. The general mission of each outpost element is to give warning and gain time for forces behind it.

303. The missions of the reserve are to reinforce the troops in front, to counterattack, or, if the outpost has been given a delaying mission to take up a position covering the retirement of the supports.

304. *Supports* constitute the principal echelon of resistance of the outpost. They provide their own security and the observation service of the outpost by establishing outguards and sending out patrols. They are placed at the more important points dominating or controlling the approaches into the outpost area. A support is generally placed near a road. Each support is assigned a sector which is clearly defined by recognizable boundaries. Supports vary in strength from a platoon to a company. Machine guns and other supporting weapons are attached to supports

as required. Supports are numbered consecutively from right to left.

305. An *outguard* varies in strength from four men to a platoon, depending on its location and the number of sentinels it is to furnish. Posts at a short distance from the support may be held by weak outguards while important posts at a considerable distance must be held strongly. Outguards are numbered consecutively from right to left in each support. (See FM 7–20 and other appropriate manuals.)

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.

306. *Sentinels* to observe the foreground 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 are generally posted in pairs.

307. *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 between wide limits depending on terrain and on the situation.

308. Outposts conduct reconnaissance within the limits required by their security mission. More distant reconnaisance is conducted by the higher commander.

309. *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.

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

311. *During an advance,* the outpost established at halts is usually furnished by the advance guard. A new advance guard usually is designated when the movement is resumed. The outpost ordinarily stands relieved when the support of the advance guard passes the outpost area.

312. 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.

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

314. The *halt order* of the commander of the troops assigns locations to the elements of the command, designates the position to be held in case of attack, and contains instructions relative to security. This order either provides for an outpost under centralized control by naming the outpost commander and detailing the outpost troops or it requires column commanders to organize outposts for their commands In either situation, the commander of troops designates the general line to be held and the limits of the front to be covered by the outpost system. He indicates what action the outpost 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 by the main body or by the outpost commander.

315. The elements of the outpost conceal their locations and movements from ground and air observation. They prepare their positions for all around defense. They make the maximum use of long-range interdiction fires by artillery and automatic weapons. They attempt to deceive the enemy as to the true disposition of the main body.

CAVALRY AND MECHANIZED OUTPOSTS

316. *Cavalry and motorized or armored units* secure themselves by far-reaching reconnaissance and by depth of their dispositions in the bivouac area.

When at a distance from the enemy and not protected by other troops, they send out security detachments (companies, platoons) to hold critical points on the routes of approach from the front, flanks, and rear. These detachments preferably are posted along some protective terrain line that the enemy will be forced to pass in his advance (defiles, streams, crossings) and provide for their own security by posting out-guards and sending out patrols. Additional outguards are posted near the main body.

In close proximity to the enemy, security measures approach a more continuous outpost organization. When the security troops occupy an extensive front, outpost sectors are assigned to the various security detachments. When necessary, portions of the main body are held in readiness for immediate action. The mobility of a motorized or mechanized unit permits the location of its outpost at some distance from the main body. When there is danger of attack, increased readiness for action is obtained for outguards and supports by having animals and vehicles ready for movement.

SECURITY MEASURES WITHIN SHELTER AREAS

317. Security in a shelter area is obtained by active and passive measures.

318. An *interior guard* is established to defend 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.

In hostile territory, interior guards are made stronger. Guards for bridges and railway stations, searching parties for enemy wire and radio installations, holding of hostages, closing roads to civilian traffic, and other special security measures often are necessary.

319. *Antitank and antiaircraft weapons* are emplaced. Antiaircraft weapons should not reveal the location of a concealed bivouac by premature fire.

320. A highly mobile, aggressive force should be designated to provide antiairborne security.

321. One officer at each headquarters and in each company or similar unit and one noncommissioned officer in each platoon are constantly on duty to alert the command in case of attack.

322. The area commander designates a rallying position and the route thereto for each subordinate unit. Intermingling or crossing of units is avoided.

323. *Passive measures* are concealment, camouflage, dispersion, and cover. Individual cover is provided by digging fox holes. All troops should be impressed with the necessity of individual camouflage protective measures.

324. To alert all the troops, the alarm is sounded. If the area commander decides to alert only certain troops, he notifies them by quickest means available.

325. When alerted, each unit assembles and reports its readiness to the commander. In an alert, quiet and order are maintained. Each man must know where to go and what to do.

326. On the approach of hostile aviation, the interior guard sounds the alarm if danger is imminent. All troops take the prescribed antiaircraft measures.

CHAPTER 9

TROOP MOVEMENTS

GENERAL

327. Troop movements are made by marching (by foot, animal, or motor), by rail, by water, by air, and by various combinations of these methods. The method to be employed depends upon the situation, the size and composition of the unit to be moved, the distance to be covered, the urgency of execution, the condition of the troops, and the availability, suitability, and capacity of the different means of transportation.

328. For the organization of systems of transportation, and circulation and control of traffic in the theater of operations, see FM 100–10.

329. For technical and logistical data pertaining to troop movements, see FM 101–10.

330. *Motor transportation* is employed extensively to increase the mobility of foot troops and conserve their strength. Air transportation is used for the movement of troops for special purposes.

331. A successful march 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.

332. The ability of a command to achieve decisive results on the battlefield depends in a large measure upon the marching capacity of the troops. While

mechanical means of transport are employed extensively for troop movements, sustained mobility on or near the battlefield requires that all troops be thoroughly conditioned to march exertions; therefore, from the first days of training, advantage is taken of every opportunity to perfect troops in marching.

333. Special attention to the care of troops and the means of transportation is essential to successful marching. Commanders take the necessary measures prior to a march to place men, animals, and transportation in the best possible condition and exercise the necessary supervision during and after the march to maintain them in that condition. Troops are not kept in column nor under arms any longer than necessary. Full use is made of available transportation to carry the rolls of the troops and the equipment and loads of the animals in need of relief.

334. Food and drink obtained from local sources are regarded as contaminated and consumption is prohibited until approved by proper authority.

335. Extremes of weather constitute one of the greatest sources of hardship on a march. Thorough familiarity with provisions of FM 21–10 is therefore incumbent on all concerned.

MOVEMENT BY MOTORS

336. The ability of a command to concentrate superior forces quickly at the decisive place and time will often depend upon its skill in the use of its organic motor transportation. Whether the normal loads of motor vehicles are advanced 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 vehicles issued for the movement of active weapons such as prime movers or weapons carriers, all trucks of any unit are considered as a pool of transportation to be used as required.

337. The distance moved is largely dependent upon the time required to complete the movement, the enemy's capabilities to interfere with the movement, and the cover and terrain suitable for the assembly, detrucking, and deployment of the main body. The time required to complete the move is affected by the number and condition of roads; distance between entrucking and detrucking areas; vehicular speed maintained; number of trips required; time-length of columns; delay caused by enemy interference or other obstructions; the time-lag between the issuance of orders and the beginning of execution; and the time consumed in loading and unloading personnel and equipment in turn-arounds.

338. In the execution of movements, a commander divides his command into tactical groupings which are moved successively by furnishing them with additional transportation obtained either from other elements of the command or from units whose movement is deferred, or by initially organizing each group so that it has the transport means to move itself in two or more trips.

As far as practicable, each tactical grouping is composed of the same type of units. It should include the units (combat teams) normally associated in combat, and the organic weapons, ammunition, and rations of such units, so that each tactical grouping will constitute a complete fighting force.

339. Foot and motor movements may be combined. Foot troops may march from the initial point while awaiting their transportation, or may be detrucked short of their destination.

340. Preparations for and the conduct of movements by successive trips are greatly faciliated by the adoption of standing operating procedures. Otherwise the plans and orders for such movements are so time-consuming in their preparation as to nullify the potential mobility of the command.

341. When combat is probable, special attention is given to the protection of the detrucking area, to the composition of the tactical grouping moving in the first trip, and to the security of the zone of movement between the separate elements of the command.

TACTICAL CONSIDERATIONS

342. The factors which exercise the greatest influence upon dispositions for marching are the composition and proximity of the hostile ground forces and the activity of hostile aviation. Distance no longer gives to armies the same degree of protection and freedom of action as in the past. When the hostile forces include mechanized elements contact with such elements should be expected from any direction not protected by friendly forces or terrain barriers.

When contact with enemy ground forces is remote, the principal object of march disposition 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. Separate roads are assigned to columns having different rates of movement, or their movements by the same road are echeloned in time.

When contact with the enemy is probable, tactical considerations govern march dispositions. Columns are constituted in accordance with their tactical missions. Adequate provisions are made for security.

Service troops and kitchen and baggage trains may be held in a protected area and moved forward under cover of darkness.

343. A large unit advancing against the enemy is assigned either successive objectives or a direction of movement, and either 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.

344. *When the enemy main forces are distant,* a large unit usually moves in a broad and deep formation in order to retain the power of maneuver and to achieve the rapidity of movement essential to the initiative. Reconnaissance troops reconnoiter the assigned zone of reconnaissance and gain contact with the hostile forces. Security against motorized and mechanized forces is provided in the zone of reconnaissance through the successive seizure of road centers and natural terrain lines by the aggressive action of mobile detachments operating well to the front and on unsupported flanks.

345. *With the closer approach to the enemy,* the zone of reconnaissance becomes less extensive and less time is available to prepare for action. Readiness for combat requires a diminution in the depth of the formation. Columns are constituted in accordance with tactical missions.

346. Commanders dispose their tactical groupings in order to permit flexibility of maneuver and readiness for deployment in the direction of the enemy.

A *formation in depth* provides maximum flexibility

of maneuver but delays deployment. 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 assures the availability of units intended for maneuver.

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.

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 linear and columnar formations.

The commander's movement order prescribes the time and place of departure of his columns so as to produce the desired formation and includes such instructions pertaining to subsequent coordination as can be foreseen.

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 terrain (phase) lines. These 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 issues his orders during the movement.

347. When contact with strong forces prepared for battle is imminent, the commander assures himself of

continued possession of terrain suitable for subsequent maneuver and prepares his command for combat. He coordinates further advance by prescribing terrain 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 regulated by halting certain columns or by changing the duration of their rest periods.

348. 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 communication 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.

349. *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 vehicular radio. Liaison airplanes may be used to maintain contact between columns and to report their arrival at successive march objectives. Full use is made of existing commercial signal communications systems.

350. A column comprises 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 require the presence of an engineer unit with

the advance guard or near the head of each principal column.

351. 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.

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

Artillery is placed within the column in order to insure its protection but primarily to insure its availability for early and adequate support of the security forces and the initial action of the main body.

Antitank weapons must be disposed and employed in order to provide protection to the moving column. Antitank weapons are attached to security detachments.

Motor vehicles required in the exercise of command and control of the column ordinarily advance by bounds in the interval between the main body and the security detachment. Other motor elements pertaining to staff parties march at the head of their units.

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.

353. Orders for troop movements must be issued sufficiently in advance to permit preparation by the troops. For items to be included in a march order, see FM 101–5.

354. The routes should be reconnoitered and marked prior to the commencement of the march. 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.

355. *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. Overextension in depth is avoided by increasing the number of columns on the front of advance.

In difficult terrain, foot and mounted troops constitute the elements of a command most capable of cross-country movement.

356. With the 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.

357. 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.

358. The result of the complete development of the command is to distribute the troops in accordance with the commander's plan of action.

The development of a division usually terminates in the occupation of assembly positions by front line units preliminary to deployment for attack or defense.

359. Assembly positions are so selected as to be, as far as practicable, screened from air and ground observation and reconnaissance. Terrain which provides turn-arounds for motor vehicles, natural protection against a mechanized 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 position of a division in daylight is usually beyond the effective range of hostile artillery. The assembly position is protected by antitank weapons and local security detachments. The artillery is so disposed that it can protect the occupation of the assembly position.

360. Massing of units in close formation in assembly positions 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. Each unit makes its own provisions for local all-around security.

361. When a command executes its development under cover of darkness, all preparations for the maneuver are completed, as far as practicable, before dark. A covering force is sent forward without delay to gain contact with the enemy; routes of advance are reconnoitered and marked; if necessary artillery protects the occupation of the assembly position by occupying suitable firing positions before dark or completing its preparations for night firing. In general, the provisions for night marches apply.

362. *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.

When troops are being concentrated by night marches, movement before dark except by small detachments and single vehicles should be prohibited, and daybreak should find the troops either in position or in concealed localities.

363. Night marches must be prepared carefully. Prior reconnaissance of routes and assembly areas is important. Special precautions are taken to insure the maintenance of direction and connection within the column. Guides and connecting groups are furnished whenever practicable.

364. When concealment is sought during night marches, measures to avoid disclosure 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 and mounted elements between successive areas of concealment; silencing all radios; and when near the enemy, the maintenance of silence by personnel, and so far as practicable the suppression of noises made by vehicles, motors, and equipment.

365. *Forced marches* impair the fighting power of troops and are undertaken in cases of necessity only. The completion of the march must find the troops in condition to accomplish the object of the movement. Requirements for increased rates of march are met, wherever practicable, by the use of motor transportation.

The length of marches of foot and mounted troops is increased by increasing the number of marching hours per day, rather than by increasing the hourly rate of march. The march may be broken into short

stretches by halts of several hours' duration. A long forced march practically becomes a succession of daily marches of greater average length with shorter intervals of rest.

366. For march details, see FM 101–10.

MARCH TECHNIQUE

367. In each arm and service, movement is based upon a *march unit.* In foot and mounted units, the battalion or squadron constitutes the march unit. In motorized and mechanized units, the march unit will be composed ordinarily of a number of vehicles easily controlled by one commander; the company, troop, or battery, or exceptionally the battalion, is the most satisfactory march unit. Small separate units may be constituted as march units or attached to march units.

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.

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

Irregularities in the rate of march in columns are absorbed, as far as practicable, within the space between march units. In motor columns, irregularities are also absorbed between vehicles.

369. A march column is formed by the successive arrival of its component units at an initial point located in the direction of march. It should be inconspicuous to hostile air observation and easy to identify on the ground.

370. Initial points, and the time at which the heads of columns pass and the tails of columns clear the

initial points, are stated in the march order or in a march table accompanying it.

When a large unit marches in several columns, the march order may fix an initial point for each column, or designate an initial line to be reached or cleared at a prescribed hour by a specified element of each column. When an initial line is designated, each column commander fixes an initial point and time of passage in such manner as to pass the initial line as prescribed in the orders of the higher commander.

371. Commanders of subordinate units of a 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.

372. 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.

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

373. The time to be fixed for the start of the march depends upon the situation, the length of the march, and the time at which the troops must arrive at their destination.

374. The *rates and lengths of march* vary with the situation, weather, time of day, character of the roads, condition of the troops, nature of the terrain, and the obstacles that must be overcome. Average rates and lengths of march are given in FM 101–10.

The elongation of a column varies with speed of

movement, road conditions, weather, condition of the troops, and the march disposition adopted for anti-aircraft protection.

In each march unit, the leading element under the direction of its commanding officer regulates the rate of march in accordance with instructions issued for the march.

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

376. 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.

377. *Rest periods 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. Unit commanders are promptly notified of the time and approximate length of any halts not provided for in the march order.

378. After the first halt, which usually lasts 15 minutes, columns containing foot elements halt 10 minutes each hour; mounted troops halt from 5 to 10 minutes each hour. The halts of motor columns are made every 2 or 3 hours.

All march units of foot troops halt simultaneously and resume marching simultaneously; all march units of mounted, 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 and troops fall out or dismount to rest. The road must be left clear by units at a halt.

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.

379. 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 in proximity to the route of march. Mounted units are located near sources of water supply.

380. 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 marches at the tail of each march unit. He is charged with keeping the unit closed up and with preventing straggling. He examines men who fall out on account of sickness or sore feet. He 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.

A detachment of military police marches in rear of the combat troops of each column. It arrests men found absent from their units without authority and, except in cases of men apprehended for serious offenses, turns them over to their units at the first opportunity with a statement of the circumstances of

their apprehension. For organization and duties of military police, see FM 19–5.

381. One of the medical officers attached to a troop unit marches at the tail of the unit. He examines men authorized to wait his passage. 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 at the tail of the regiment. One or more medical vehicles march at the tail of each regiment and similar unit for the transportation of men who become sick or disabled.

For details concerning collection and evacuation of casualties, see FM 100–10.

382. 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 promptly removed from the road.

383. Assemblies from march columns occur incident to long halts, occupation of assembly positions during development for combat, entrucking and detrucking, 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. Whenever practicable, arrangements for the occupation of the area are based upon detailed reconnaissance.

384. 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 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.

Provision is made for traffic control and security. (See ch. 7 and FM 25–10.)

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

385. Special precautions are taken to avoid congestion and delay during the passage of obstacles and defiles. Provision is made promptly for antiaircraft protection. The massing of troops, especially in the vicinity of an obstacle or defile, is to be avoided.

386. *Fordable streams* are reconnoitered and provisions are made in advance for avoiding confusion and unnecessary delay at crossings to 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.

387. 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 cut out of the column for crossing at some other point.

388. Foot troops crossing bridges march without cadence. In crossing on a ponton bridge, mounted men lead their animals in column of twos; pairs of draft animals in front of the wheel pair are led; motor vehicles travel slowly, holding to the center of the bridge and maintaining the distance prescribed by the engineer officer.

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

390. In *ferrying operations,* foot troops are first brought to assembly areas, under cover, 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 where instructions for embarking and disembarking and for conduct during the crossing 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.

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 arrangement of the loads and for handling of the boats. Individual equipment is loosened so that it may be removed easily.

391. Vehicles may be ferried. While awaiting passage they are held under cover at a point where they will not block the approaches. Vehicles are loaded as di-

rected by the engineer officer in charge. They usually are secured by brakes and blocking. Horses may be crossed by swimming. In unloading, the debarkation point is cleared promptly.

MOVEMENTS BY RAIL

392. The general organization, operation, and control of rail transportation are discussed in FM 100–10.

Check lists for orders, and entraining and detraining tables are contained in FM 101–5. Technical and logistical data pertaining to rail movements are contained in FM 101–10.

393. For distances less than 150 miles, it is generally expedient to move an infantry division by motor transportation (organic or attached); for distances between 150 and 350 miles, by forwarding vehicles over the highway while troops move by rail; and for distances beyond 350 miles, both troops and their vehicles by rail. Smaller units may be moved by rail over shorter distances.

394. 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.

395. 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. However, the movement is frequently direct-

ed to a regulating station from which the several units are routed to detraining stations.

396. The commander of the troops is responsible for the preparation of plans and tables regulating entrainment and departure of the elements of his command. He is assisted by a representative of the railway. The services of experienced commercial railroad employees should be utilized to the maximum in planning troop movements by rail.

397. The order in which elements are forwarded is determined by tactical and administrative factors.

398. 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.

399. 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.

400. 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.

401. Each unit moves to its entraining point in time to complete its entrainment before the scheduled hour of departure. Units should be directed to arrive at their designated entraining points at an hour amply sufficient to allow entraining but not so early as to result in congestion on routes to or at the entraining

point. Premature entraining of personnel should be avoided.

402. The responsibility of the entraining officer ceases, and the responsibility of the commander of the transportation grouping (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.

403. A representative of the command and an officer of the railway 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 command determines the distribution of the troops in the detraining area, in accordance with the commander's instructions.

MOVEMENTS BY AIR

404. *Air transport* may be employed advantageously for moving troops and supplies at high speed.

405. Troops transported by air are formed into tactical groupings which correspond to the carrying capacity of the available transport. These groupings are constituted according to their tactical missions and are landed in accordance with the requirements of security and in the order of their probable participation in subsequent operations.

406. Essential items of equipment, and personnel and equipment necessary to the exercise of command are distributed among the available airplanes.

407. Security of the landing area is essential to a successful movement by air. Airborne troops may be

used for this purpose. For operations by airborne troops, see chapter 14.

MOVEMENTS BY WATER

408. Water transport is characterized by large personnel and tonnage capacity, great range, and comparatively slow speed.

409. Waterborne movements are especially vulnerable to attack by hostile air, sea, and undersea forces. They must be accompanied by special means for protection. Transports normally travel in convoy under naval command and with a naval escort.

410. The ability of troops transported by water to land on any shore within a great range, facilitates surprise.

411. Troops to be transported by water are formed into tactical groupings corresponding to the carrying capacity of the available transports. These groupings are constituted according to their tactical missions, and are landed in accordance with the requirements of security and in the order of their probable participation in subsequent operations.

The distribution of troops, equipment, and supplies throughout the transports of a convoy is dependent upon the contemplated operations upon landing. For landing operations on hostile shores, it is essential that the combat loading insure that the organic and special equipment and supplies to be used are readily available on the same transport. Personnel and equipment necessary to the exercise of command are distributed among the available transports.

412. For operations by troops landing on hostile shores, see FM 31–5.

413. Instructions relative to security may be included in a march order or may be issued separately in fragmentary form.

414. The early information furnished by the reconnaissance elements becomes the first step in the security measures of the command.

Liaison and direct communication between reconnaissance elements and security detachments will be habitual.

Each column provides its own all-around security.

415. Troops will not fire on any aircraft unless it is clearly recognized as hostile, positively identified as hostile, or the aircraft attacks with bombs or gun fire. (See par. 271.)

416. *Active means of protection against air attack* include fighter aviation, antiaircraft artillery, and organic weapons.

417. *Antiaircraft protection* is employed at critical points along the route of march such as initial points, bridges or other defiles, detrucking areas, bivouac areas, and assembly areas.

If sufficient antiaircraft artillery is available, some may be distributed within the column to supplement organic weapons. Troops must be thoroughly trained in antiaircraft fire and indoctrinated in the effectiveness of their organic weapons against low flying aircraft.

418. *Antiairborne protection,* particularly at bridges or other defiles, should be provided. Highly mobile forces are particularly effective against airborne troops.

419. A *covering force* may be sent forward early to secure critical terrain well to the front.

420. Security along the axis of movement is provided by an advance guard whose mission is to prevent unnecessary delay of the main body, and to protect it against surprise and ground observation. The advance guard insures for the main body the time and space required for its deployment for action. When contact with important enemy forces is made, the action of the advance guard depends upon the plan for the employment of the main body. The advance guard commander is given early information of this plan.

421. 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, when attached are kept well forward in advance guards.

422. *Reconnaissance aviation* may transmit urgent information directly to advance guard commanders.

423. Ample communication between elements of the advance guard and between the advance guard and the main body must be assured.

424. 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, under conditions of low visibility and restricted observation, or when the advance guard is small.

425. The advance guard accomplishes its mission by reconnoitering the terrain to the front and on each side of the line of march, overcoming isolated hostile resistance, reconnoitering and preparing so far as practicable the route of advance for the movement of the troops (removal of obstacles and mine fields, repair of 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. It seizes and holds important features of the terrain, particularly those that will cover from hostile observation the deployment of the main body and provide good observation and defilade for the employment of the artillery. According to circumstances, it pushes back hostile covering detachments, or opposes an enemy advance in force long enough to permit the main body to make its dispositions.

426. The *formation of an advance guard* is such as to assure 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.

427. The considerations governing the advance guard of a combined force of all arms apply also to the security of the more mobile forces, cavalry, armored, and completely motorized units. The principal modifications result from the superior mobility of these units. Advance guards operate at greater distances from the main body and with greater distances between their own elements. The zone of reconnaissance is more extensive, both to the front and flanks. Close cooperation of reconnaissance aviation is of special importance.

428. When hostile resistance is met, the leading elements of the advance guard deploy successively on a broader front. Prompt support of leading elements is necessary. Artillery occupies positions early and renders fire support. Precautions are taken against infiltration of hostile elements.

429. 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. (See ch. 8.)

430. When the flanks of the command are not protected by adjacent units, it will frequently become necessary to provide protection by the detail of 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.

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. (For further details of composition and operation, see Field Manual of appropriate arm.)

431. In order to complete all-around security, a rear guard is detailed with the mission of protecting the rear of the main body from surprise, harrassing action, attack, and hostile ground observation. (For the strength, mission, and operations of a rear guard for a retiring force, see chapter 12. For composition and

operation of rear guards, see Field Manual of appropriate arm.)

432. *Troop movements by air transport* require special security measures.

In flight, security is provided for such 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 are protected by fighter aviation and ground forces, including antiaircraft artillery and antitank weapons.

Unloading points within the hostile lines are protected by fighter and bombardment aviation and by airborne troops dropped or landed in advance. Surprise, boldness, and detailed planning are the essence of such operations.