

CHAPTER 2

ARMS AND SERVICES

GENERAL

■ 25. The units comprising the field forces belong to the arms and the services.

The *arms* consist of the Infantry, the Cavalry, the Field Artillery, the Coast Artillery Corps, the Air Corps, the Corps of Engineers, and the Signal Corps. The Chemical Warfare Service also has combat units of chemical troops.

The *services* are charged with serving the line of the Army by performing the necessary functions of administration. For administrative functions of the arms and services, see FM 100-10.

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

INFANTRY

■ 27. 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.

■ 28. 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.

■ 29. 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 adequately reinforced by the support of artillery, tanks, com-

bat aviation, and other arms. 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.

■ 30. The principal weapons of Infantry are the rifle and bayonet, the automatic rifle, and the machine gun. Other weapons include mortars, pistols, grenades, light antitank weapons, and antitank guns.

■ 31. Light antitank weapons and antitank guns are allotted to infantry regiments; antitank guns are the primary armament of antitank companies and battalions.

■ 32. 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.

■ 33. 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.

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

■ 35. Infantry troops, with equipment and supplies, may also be transported by aircraft to seize decisive objectives or to operate in the enemy's rear area.

CAVALRY

■ 36. *Cavalry* consists of highly mobile ground units, horse, motor, and mechanized. Horse units may be transported in trucks or semitrailers in order to increase their mobility or to conserve animals.

■ 37. 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.)

■ 38. Cavalry is capable of 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.

■ 39. 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. Its missions should be selected accordingly. It should not ordinarily 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 its use.

■ 40. Cavalry 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.

■ 41. Cavalry executes missions of ground reconnaissance and security. In cooperation with the Air Corps, Cavalry locates the enemy, maintains contact with him, and procures essential information for the higher commander. Security missions include protection against ground attack and screening from ground observation.

■ 42. The efficiency of Cavalry depends in great measure upon the condition of its mounts and mechanized vehicles. Provision must be made for the rest and subsistence of animals and for the maintenance and upkeep of vehicles.

■ 43. *Horse cavalry* can operate over almost any terrain and under all conditions of weather. It is equipped with weapons similar to those of Infantry and has considerable fire power; it is provided with means for rapid signal communication, scout cars for reconnaissance, and motor transport for supply.

Horse cavalry habitually maneuvers mounted, but ordi-

narly fights on foot. As a rule, mounted maneuver is combined with dismounted action.

■ 44. *Mechanized reconnaissance units* are pushed well forward and to the flanks. They may be reinforced by armored or motorized units, heavy in fire power in order to delay or block hostile armored or motorized threats.

■ 45. The *cavalry regiment, horse and mechanized*, contains both porté horse units and mechanized reconnaissance units. Its primary mission is continuous ground reconnaissance. It may be used for any suitable cavalry mission. It should be reinforced when serious combat is anticipated.

■ 46. Cavalry may be attached to, or may be an organic part of, an infantry division; as such it is designated *division cavalry*. Its primary mission is continuous ground reconnaissance. Security and screening are secondary missions. It may be used for liaison during movement and combat.

FIELD ARTILLERY

■ 47. *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.

■ 48. Artillery fire possesses great power of destruction and neutralization. It compels hostile troops in the open to adopt widely deployed formations and has great moral effect. Fire from curved trajectory weapons reaches objectives defiladed against flat trajectory weapons or lacking adequate overhead cover.

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

■ 50. In order to carry out its principal combat missions, division field artillery is ordinarily 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.

■ 51. 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.

■ 52. 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 commander frequently cannot efficiently control 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 promptly attach artillery to the infantry (cavalry) (armored) units which it is to assist.

■ 53. 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).

■ 54. *Division artillery* is most effective in fire on unprotected personnel. Its principal mission is the support of infantry (cavalry) (armored) 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.

■ 55. The *corps artillery* has for its principal mission the neutralization or destruction of the hostile artillery. It is also employed in the destruction of hostile defenses, in long range interdiction fire, and in reinforcing the fires of division artillery. Artillery observation units (sound and flash) are included in the corps artillery.

■ 56. The *army artillery* includes only a headquarters and such units as are allotted from time to time by GHQ 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.

■ 57. The *GHQ reserve artillery* includes artillery firing units of various classes and artillery observation units. These units are habitually allotted to armies for employment under the army commander or for reallocation to lower units.

■ 58. 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, as far as practicable, respected in the composition of groupings.

COAST ARTILLERY CORPS

■ 59. The *Coast Artillery Corps* is characterized by the great amount of fire it can deliver against naval and air targets. Its armament comprises fixed and mobile seacoast artillery, fixed and mobile antiaircraft artillery, and submarine mines.

■ 60. In the defense of coast lines the missions of the Coast Artillery Corps are—

a. In conjunction with the Air Corps and the Navy, to protect the fleet (or detachments) while at, entering, or debouching from its bases; to defeat naval and air attacks against harbor defenses, naval bases, cities, or other important areas.

b. To support (with mobile seacoast artillery and antiaircraft artillery) the Infantry and the other arms in beach defenses.

- 61. In field operations, mobile seacoast artillery may serve as army or GHQ reserve artillery.
- 62. *Seacoast artillery* has great power and range and is especially equipped and trained to fire at moving naval targets.
- 63. *Fixed seacoast artillery* is protected from naval and air attack by fortifications. Its stability permits great accuracy of fire. Its elaborate and precise fixed equipment permits highly effective fire control and fire direction. Seacoast artillery is organized into groups and groupments in order to develop the maximum fire power and provide efficient fire direction.
- 64. *Mobile seacoast artillery* comprises railway, truck-drawn, and tractor-drawn artillery. Off the battlefield, these types are capable of moving long distances at fairly rapid rates. On the battlefield their mobility is low and they require a considerable time for emplacement. Mobile seacoast artillery provides additional gunfire for existing harbor defenses and is used in conjunction with other forces to protect harbors or coastal areas for which no permanent defenses have been provided.
- 65. To combat hostile aircraft, *antiaircraft artillery* is equipped with antiaircraft guns, automatic weapons, searchlights, detectors, sound-locators, and the equipment required for observation, fire control, and signal communication.
- 66. *Mobile antiaircraft artillery* in conjunction with the Air Corps supports and protects the other arms against hostile air observation and attack (see par. 81). It reinforces the antiaircraft measures of other troops, protects the vital elements of a command, and in rear areas protects airdromes and other sensitive points. When distance precludes the centralized tactical control of antiaircraft artillery units, the commander of the force may attach antiaircraft units to subordinate elements of his command, or may detach units to protect vital installations. It is so equipped that it can execute antitank and other ground missions when necessary.
- 67. An essential agency of antiaircraft artillery is its *intelligence service*. This service gathers and transmits information of the enemy's air activities for use in connection with the employment of the antiaircraft artillery units. The *aircraft*

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

■ 68. Coordinated antiaircraft defense of areas is facilitated by the organization of commands for air defense.

AIR CORPS

■ 69. The *Air Corps* combats hostile aircraft, operates in conjunction with ground and naval forces in land and sea warfare, and conducts independent attacks against enemy objectives on land and sea.

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

■ 71. The mobility, speed, and range of aircraft make possible their rapid intervention at critical points in a theater of operations, rapid movements between widely separated theaters (subject to availability of bases and service and maintenance personnel), and deep incursions into enemy territory.

The operating range and firepower, including bomb load, vary inversely one with the other, depending as they do upon the distribution of the useful load between fuel and ammunition.

■ 72. Tactical missions of aviation include air attack against surface matériel and personnel objectives, air fighting against hostile aircraft, reconnaissance and observation, mapping, and transport.

■ 73. The term *combat aviation* refers to bombardment and pursuit aviation. The term *bombardment aviation* is applied to units whose primary function is the attack of surface objectives. The term *pursuit aviation* is applied to units whose primary function is air fighting.

■ 74. The term *reconnaissance aviation* is applied to units whose primary function is reconnaissance of distant objectives. The term *photographic aviation* is applied to units whose function is photographic reconnaissance and air mapping photography. The term *observation aviation* is applied to units whose primary functions are reconnaissance and observation of near objectives, observation of artillery fire, and maintaining contact between elements of our own ground

forces. Balloon units are included within the term observation aviation.

■ 75. *Transport aviation* is employed to transport Air Corps personnel, certain Air Corps supplies, special units of Infantry and other troops dispatched on distant missions in friendly or hostile territory and emergency supplies to fast-moving or isolated ground units.

■ 76. The basic administrative and tactical unit of the Air Corps is the squadron. The group, composed of two or more squadrons of a single class (such as bombardment or pursuit) of aviation, is the principal tactical unit and contains all the essential elements necessary for operation, maneuver, and combat. The next higher Air Corps unit is the wing which consists of two or more groups of either the same or different classes of aviation.

■ 77. Military aviation is assigned to the GHQ air force, to oversea departments, to corps and larger units, to the zone of the interior or important areas, or may be held in GHQ reserve. (See par. 11.)

The aviation organically assigned to corps and armies is generally limited to observation units.

■ 78. The operations of both surface and air forces are directed to the attainment of a common objective. Missions which do not contribute to the attainment of the common objective are avoided.

■ 79. In the hands of the higher commanders, combat aviation constitutes a powerful means for influencing battle. The hostile rear area may frequently be the most favorable zone of action for combat aviation, since operations in this area permit the full utilization of striking power against concentrated targets with minimum losses and maximum results. On the other hand, massed air attack in direct support of the ground troops will often be required to obtain quick and decisive results. By a careful estimate of each situation, the higher commander must determine *where* and in *what* strengths the combat aviation will be employed to assure the accomplishment of the mission.

Support by combat aviation is also required by mechanized and motorized units, particularly when operating beyond the range of friendly artillery. In all cases, the effectiveness of

air support of ground troops is dependent upon careful coordination, close cooperation, and rapid signal communication.

■ 80. GHQ may direct all or part of its combat aviation to support the ground units as a whole or to support particular ground units. In either case, the aviation operates to further the mission of the supported unit and receives its missions and objectives from the commander of the forces which it is supporting. When, however, the tactical situation makes it impracticable for aviation so controlled to render effective support, GHQ should unhesitatingly attach for definite operations part or all of the aviation to units of the ground forces.

For further discussion of the operations of the GHQ Air Force, see FM 100-15.

■ 81. 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 can therefore reduce hostile air operations only to a limited extent. The desired coordination of all antiaircraft defense measures in any large area is usually effected by the organization of a command for air defense. Operations of aircraft in defense of ground troops and installations must be coordinated with those of the antiaircraft artillery. This applies particularly to the employment of pursuit aviation which is designed primarily for defensive missions in the antiaircraft security of important areas and ground installations, and the protection of ground troops and their observation aviation beyond the range of antiaircraft artillery.

■ 82. Aircraft communicate with the ground by various means, including radio, drop and pick-up messages, sound and visual signals, and, in the case of the balloon, telephone.

■ 83. Air bases, suitably located, are essential for the operations of heavier-than-air aviation. (See FM 100-10.)

CORPS OF ENGINEERS

■ 84. The *Corps of Engineers* has the primary missions of construction and demolition to increase the combat effectiveness of troops, facilitate their movement, and hinder the movement of the enemy.

■ 85. Engineers increase the combat power of other arms by performing combat missions, by technical assistance in the construction of protective works and camouflage, and by the supply of necessary equipment requiring special equipment and training.

Combat engineers participate actively in the penetration of hostile obstacles and the capture of fortified localities, and in the defense of road blocks or mine fields. Engineers may be assigned the task of constructing rearward defensive positions.

Adequate and timely engineer support in the movement and operations of mechanized and motorized units is of special importance.

Engineers are attached to units of other arms when such units cannot otherwise be given adequate engineer support.

■ 86. Important engineer missions include the construction, improvement, and maintenance of routes of communication, including ferrying and bridging operations; the preparation of landing fields; and the elimination of obstacles to movement, including the demolition of permanent works and the destruction of mine fields and wire entanglements.

The mobility and maneuverability of the field forces and the efficiency of their supply depend largely on the successful execution of these missions.

■ 87. The mission of hindering enemy movement is often of equal importance. The inherent mobility of enemy motorized and mechanized forces must be countered by coordinated and intensive use of obstacles and demolition. Obstacles may consist of hastily erected barriers, such as road blocks and mine fields, as well as of deliberately prepared zones of obstacles.

■ 88. The engineers make, reproduce, and supply maps and map substitutes, including those produced from air photographs.

■ 89. Special engineer missions include camouflage, topographic work, water supply, railway operation, the operation of power plants, water and sewage systems and certain other utilities, and the supply and repair of engineer materials and equipment.

■ 90. For the classification and detailed operations of engineer troops, see FM 100-10.

SIGNAL CORPS

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

■ 92. Signal Corps troops assigned to divisions, corps, and armies 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 communication. In addition, Signal Corps troops assigned to field armies include units which provide *signal intelligence*, *photographic*, *pigeon*, *signal repair*, and *supply service*.

The Signal Corps provides message center, local messengers, and wire communication for headquarters, GHQ Air Force; headquarters all air force units down to include air wings, headquarters air bases, and for headquarters of air task forces.

The Signal Corps provides radio used solely for administrative purposes at headquarters, GHQ Air Force, air force headquarters of defense commands, and air base headquarters. The Signal Corps also installs and operates a signal supply establishment at each air base.

Signal Corps troops establish and operate the aircraft warning service in accordance with the instructions of the commander responsible for air defense measures.

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.

■ 93. Wire (telephone, telegraph, and telegraph printer), radio, and messenger communication are the means of signal communication most frequently used. Other means of signal communication supplement and extend the service of these agencies.

■ 94. 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 installations of their own systems of signal communication.

CHEMICAL WARFARE SERVICE

■ 95. Troops of the *Chemical Warfare Service* engage directly in combat to assist other units of the field forces by the use of gas, smoke, and incendiaries.

■ 96. Chemical units are assigned to the GHQ reserve. They are attached to armies and lower units as the situation requires. They are profitably employed either in large units for large scale gas operations or in relatively small units for minor gas and smoke operations under division or lower unit control. A commander who attaches chemical units to units of the arms must restrict chemical operations so far as may be necessary to avoid interference by gas or smoke with the operations of other friendly troops.