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FM 6-5

WAR DEPARTMENT

**FIELD ARTILLERY
FIELD MANUAL**



ORGANIZATION AND DRILL

FM 6-5

**FIELD ARTILLERY
FIELD MANUAL**



ORGANIZATION AND DRILL

Prepared under direction of the
Chief of Field Artillery



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BY ORDER OF THE SECRETARY OF WAR:

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(II)

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FIELD ARTILLERY FIELD MANUAL

ORGANIZATION AND DRILL

(The matter contained herein supersedes Field Artillery Field Manual, volume I, October 20, 1931, and TR 430-145, July 16, 1934.)

PART ONE

ORGANIZATION, TRAINING, AND MOUNTED CEREMONIES

CHAPTER 1

ORGANIZATION AND TRAINING

	Paragraphs
SECTION I. General.....	1- 3
II. Organization.....	4-14
III. Training.....	15-26

SECTION I

GENERAL

■ 1. **PURPOSE AND SCOPE.**—This manual contains in condensed form the approved principles and doctrines for the training and employment of Field Artillery. Field Service Regulations, Field Manuals, Technical Regulations, and Training Manuals cover subjects referred to but not treated in detail.

■ 2. **MISSION OF THE FIELD ARTILLERY.**—The mission of the Field Artillery is to assist the other arms, especially the Infantry and the Cavalry, in combat by fire power.

■ 3. **RELATION TO OTHER ARMS.**—Success in battle depends largely upon mutual support between the artillery and the Infantry or other associated arm. Accordingly, there must be a mutual understanding between the artillery and the supported arm regarding each other's methods of action, powers, and limitations, as well as sure and rapid means of communication not only within the artillery itself but between the artillery and the supported arm.

SECTION II

ORGANIZATION

■ 4. GENERAL.—For command and administrative purposes, the Field Artillery is organized into batteries, battalions, regiments, and brigades, and for ammunition supply purposes into battalion combat trains and ammunition trains. The details of organization are prescribed in Tables of Organization. Each table also shows for purposes of information the principal items of equipment for the unit to which it pertains. Detailed allowances of equipment are prescribed by Tables of Basic Allowances.

■ 5. CLASSIFICATION.—Field Artillery is classified as follows:

a. *Based on tactical employment.*—(1) Division artillery, corps artillery, army artillery, and GHQ Reserve artillery.

(2) The terms "army artillery" and "corps artillery" do not include the organic artillery (artillery shown as part of a unit by Tables of Organization) of subordinate units. To refer to all the artillery in an army or in a corps, the expression "artillery with the ——— Army," or "artillery with the ——— Corps" is used.

b. *Based on weight or caliber.*—Light artillery, medium artillery, and heavy artillery. Light artillery includes the 105-mm howitzer and all guns and howitzers of smaller caliber; medium artillery, the 155-mm howitzer; heavy artillery, the 155-mm gun and all guns and howitzers of larger caliber.

c. *Based on means of transportation.*—Horse-drawn artillery, horse artillery, pack artillery, and motorized artillery. Motorized artillery is subdivided into truck-drawn and tractor-drawn artillery.

d. *Based on type of armament.*—Units may also be classified as gun and howitzer units, depending upon the type of armament.

■ 6. DIVISION ARTILLERY.—The organic artillery of divisions is given in Tables of Organization. From a tactical point of view, all artillery placed under the command of a division commander, including the organic artillery of the division, is considered division artillery.

■ 7. **CORPS ARTILLERY.**—The organic artillery of the corps is given in Tables of Organization. From a tactical point of view, all artillery placed under the command of a corps commander and not reallotted by him to the several divisions is considered corps artillery.

■ 8. **ARMY ARTILLERY.**—The organic artillery of the army is given in Tables of Organization. From a tactical point of view, all artillery placed under command of an army commander and not reallotted by him to the several corps is considered army artillery.

■ 9. **GHQ RESERVE ARTILLERY.**—The GHQ Reserve artillery includes all artillery which comes under the command of the field forces and which is not an organic part of divisions, corps, and armies. It is a pool consisting of a number of brigade headquarters and separate regiments, each to be allotted at the discretion of the commander in chief in accordance with the requirements of the contemplated operations.

■ 10. **BATTERIES.**—Batteries, the smallest administrative units in the Field Artillery, are also tactical units. They are designated, depending on their special functions, as headquarters batteries, gun or howitzer batteries, ammunition batteries, and observation (sound-and-flash) batteries. Considered administratively, battalion combat trains are analogous to batteries.

a. Headquarters and headquarters batteries.—A headquarters and headquarters battery is assigned organically to each brigade, regiment, and battalion of Field Artillery. Differing in detail as to organization, depending on the functions of the unit to which assigned, a headquarters and headquarters battery is organized for purposes of command, intelligence, reconnaissance, observation, signal communication, liaison, fire direction, survey, and supervision of supply.

b. Gun and howitzer batteries.—(1) Gun and howitzer batteries are organized primarily for the delivery of fire. (See chart below.) Each is equipped with pieces of like type and caliber and has personnel and equipment necessary for transport, signal communication, and the delivery of fire. Gun and howitzer batteries normally operate as part of a

battalion. The principal subdivisions of the battery are as follows:

(a) *Battery headquarters.*—This consists primarily of the battery detail. It also includes the first sergeant and the battery clerk, who assist the battery commander in matters relating to administration.

(b) *Firing battery.*—This element of a battery is charged with executing the fire missions. It is organized into four gun or howitzer sections and, in certain types of batteries, an ammunition section. In general, a gun or howitzer section consists of the piece; the personnel who serve it; and the means of transportation for the piece, personnel, and a certain amount of ammunition. The ammunition section consists of caissons or trucks for ammunition transport and the necessary operating personnel.

(c) *Maintenance section.*—This section is organized to assist the battery commander in maintenance and supply. In gun and howitzer batteries, it consists of the kitchen and the supply and maintenance vehicles all manned and equipped. Included in the personnel of this section are the supply sergeant, stable or motor sergeant, mess sergeant, mechanics, and cooks.

(2) In time of peace and when the exigencies of campaign permit, a battery commander may prescribe a functional organization for his battery for the better instruction of his officers and the more efficient supervision of the administrative elements of his command. In this case, duties are assigned to his lieutenants so that each will be in charge of a department as shown in the chart on page 6.

c. *Ammunition batteries.*—An ammunition battery is organically a part of an ammunition train organized for the transport and service of ammunition. Ammunition batteries are organized and assigned as indicated in Tables of Organization.

d. *Battalion combat trains.*—Organically part of a battalion, a battalion combat train is organized to furnish a mobile reserve of ammunition for the batteries and a means of transporting ammunition to the batteries. The principal subdivisions of a battalion combat train are train headquarters, ammunition sections, and a maintenance section.

ORGANIZATION OF A BATTERY FOR COMBAT

Battery Commander (BC)

---Bglr

Selection and occupation of position.
Conduct of fire.

BATTERY HEADQUARTERS

1st Sgt
|
Reconnaissance Officer (RO)
Clk

BATTERY DETAIL

Preparation and observation of fire.
Communication.
Reconnaissance.

FIRING BATTERY

Executive (Ex) ---Asst Ex

Delivery of fire.
Ammunition supply.
Defense against aircraft.
Close defense of the position.

MAINTENANCE SECTION

Supply Sgt

Care of sick animals.
Subsistence and forage.
Supply and repair.
Motor maintenance.

ORGANIZATION OF A BATTERY FOR ADMINISTRATION AND TRAINING

BC

Lt "A" Ex (Dept A)	Lt "B" Asst Ex (Dept B)	Lt "C" RO (Dept C)
<p>Care of wheeled matériel except motor vehicles. Supervision of battery office. Supply. Recreation.</p>	<p>Care of animals and leather equipment or of motor vehicles and motor accessories. Care of stables and forage or of motor shop, fuel, and oils.</p>	<p>Care of fire control and signal equipment. Police of barracks. Supervision of battery mess.</p>
<p>Service of the piece. Command of the firing battery. Dismounted instruction. Close defense. Defense against aircraft. Calisthenics. Athletics.</p>	<p>Marches and shelter. Equitation. Driving and draft. Motor vehicle operation. Maneuvers limbered. Manipulation and maintenance of horse equipment. Maintenance of motor vehicles.</p>	<p>Manipulation and maintenance of personal equipment. Defense against chemical attack. Training of the detail in combat duties.</p>

Administration

Training

e. Observation (sound-and-flash) batteries.—Organized into platoons and sections as indicated in Tables of Organization, an observation battery conducts sound-ranging, flash-ranging, and high burst-ranging operations.

■ 11. BATTALIONS.—*a. Gun or howitzer battalions.*—The battalion is primarily a tactical unit. It consists of a headquarters and headquarters battery; a battalion combat train, except in certain GHQ Reserve artillery units; and two or more gun or howitzer batteries.

b. Observation battalions.—See Tables of Organization.

■ 12. REGIMENTS.—A regiment is both an administrative and a tactical unit and consists of a regimental headquarters and headquarters battery, a band, a certain number of gun or howitzer battalions, and an attached chaplain and medical personnel. The medical personnel is that necessary to provide for guarding the health of the command and, in mounted units, for the treatment of sick and injured animals. The organization of the medical detachment is such as to permit the establishment of aid stations for each battalion and for the regiment when necessary.

■ 13. AMMUNITION TRAINS.—Ammunition trains are organized and assigned as indicated in Tables of Organization. The principal subdivisions of an ammunition train are a train headquarters and a number of ammunition batteries. Ammunition trains are organized to provide a mobile reserve of ammunition and the transportation and labor necessary for the transport and handling of artillery ammunition.

■ 14. BRIGADES.—There are two types of organic field artillery brigades—the division artillery brigade and the corps artillery brigade. Detailed organization of these brigades is given in Tables of Organization. The GHQ Reserve artillery contains a number of separate brigade headquarters and headquarters batteries, available, when necessary, for command purposes with reinforcing artillery.

SECTION III

TRAINING

■ 15. PRINCIPLES.—All training will be in accordance with the doctrines and principles promulgated by the War Department.

■ 16. OBJECT.—The object of training in the Field Artillery is to confirm its personnel in the performance of habitual duties so that it may meet effectively the exacting demands of battle.

■ 17. BASIC TRAINING.—Thorough training of the individual soldier is the basis of efficiency. Precision and attention to detail are essential in this instruction in order that the soldier may acquire those habits of implicit obedience and accurate performance of his individual duties which are indispensable for unit efficiency.

■ 18. SEQUENCE.—Training will be progressive. It will start with the basic (recruit) training of the individual soldier and will proceed through the successive units of command, beginning with the squad or team and culminating in combined maneuvers. This procedure does not preclude the concurrent training of higher and lower units.

■ 19. BASIC ELEMENTS.—The basic elements of field artillery training are firing, mobility, and signal communication. They are of equal importance and must be stressed equally in training.

a. *Firing*.—The basis of efficiency in firing is fire discipline. It is attained by thorough training of the individual soldier, and maintained by short, frequent, brisk drills in which precision is stressed. Officers, after they have been perfected in the theory of artillery firing, will be trained in its practical application to the technique of conducting the fire of a battery; then will be given practice in applying the technical and tactical considerations involved in directing the fire of two or more batteries.

b. *Mobility*.—Efficiency in mobility implies that a field artillery unit will be able to initiate and terminate a march at the times designated with all elements constantly intact, and upon the termination of a march will be in a condition for combat or further movement. Efficiency in mobility is dependent upon good march discipline, requires a thorough knowledge of the means of transportation, and is developed by frequent drills and marches over varied terrain.

c. *Signal communication*.—Efficiency in communication is obtained by so training the personnel selected for communi-

cation purposes that they will be able to install rapidly, maintain continuously, and utilize effectively all the means of signal communication furnished the particular field artillery unit concerned. Proficiency in communication is obtained by thorough training, both theoretical and practical, of the selected individuals, and by frequent exercises over varied terrain, involving diversified tactical situations.

■ 20. TRAINING ORDERS.—Training orders are usually grouped into two classes as follows:

a. Programs.—A training program gives the general plan for training the command over a considerable period of time. Training programs of all units are based on those of the next higher unit. Commanders of separate battalions and higher units usually issue this program in the form of a training order; battery or similar unit commanders may prepare a master schedule if one is not furnished by the battalion or regimental commander. When appropriate, there is appended to the training program a master schedule outlining in some detail the training for the period, together with other appendixes found desirable.

b. Schedules.—Training schedules provide for daily training in accordance with the training program emanating from the next higher commander. Training schedules include master schedules covering all or a certain phase of training and weekly schedules containing specific instructions for daily and hourly training. A weekly schedule is issued by the commander of a battery or similar unit for all training within the unit. Normally such schedules are issued by a higher commander only for such training as will be conducted under his personal direction.

■ 21. TRAINING PERIODS AND OBJECTIVES.—The length of training phases or periods will be designated in training programs. For each phase in the sequence of training provided in the program, a training objective (the attainment of a standard of proficiency in a certain subject by a specified date) will be designated. In time of peace, the training periods are subdivisions of the training year. In the event of mobilization for war, their length will depend on the time available for training purposes.

■ 22. RECRUIT TRAINING.—*a.* This phase of training may be effected in the battery to which the recruit is assigned or preferably, in a special recruit organization. The method used will be influenced by the number and character of recruits and the state of training of the battery. The length of the recruit training period will depend upon the considerations determining the training method, as well as upon climatic conditions, availability of trained instructors and, in time of emergency, the time available for training purposes.

b. Basic *disciplinary* training embraces instruction in the Articles of War; Army Regulations; local orders; military discipline and customs and courtesies of the service; uniform regulations; personal hygiene and sanitation; physical training to include swimming; mounted and dismounted instruction without arms; care of personal equipment; pitching shelter tents; and dismounted inspections and ceremonies. Basic *technical* training embraces instruction in the pistol, dismounted, including firing; interior guard duty; preparation of equipment for marches and inspections; marching and camping; essential nomenclature and operation of matériel with which the soldier must work; care of animals or motors and the equipment pertaining thereto; harnessing, riding, and driving animals; driving and driver maintenance of motor vehicles; duties of cannoneers operating individually and as members of a gun or howitzer squad; and basic specialist instruction. Sequence of subjects during this phase is such as to develop an early all-around fitness in the individual for higher training. During this period the recruit should not be placed on rosters for daily duties such as guard, police, or fatigue, except in an emergency.

■ 23. BATTERY TRAINING.—During this phase individuals and groups (drivers, cannoneers, and specialists) are grounded in the technique of their duties. In addition, instruction is given in marching, camping, administration, supply, maintenance, reconnaissance and occupation of position, and service practice, to the end that the battery shall become an efficient combat unit.

■ 24. SUBSEQUENT TRAINING PHASES.—During battalion, regimental, brigade, and combined training phases, the develop-

ment of a complete and well-coordinated unit under all conditions of service will be sought.

■ 25. **MOBILIZATION TRAINING.**—Mobilization training is more centralized than peacetime training. Training programs are drawn to secure a well-rounded training of individuals from the beginning, and if the training period should be curtailed, to have the unit at its maximum state of efficiency, considering the time already spent in its training. The least important subjects are eliminated; those most essential to enable the recruit to take his place in the team are given first priority. Training is intensified and the amount of training per day is increased.

■ 26. **TRAINING FOR HIGHER COMMAND.**—Personnel should be trained to think quickly and logically and to assume responsibilities unhesitatingly. Officers and noncommissioned officers will be trained in the duties of the next higher grade in order that replacements may be made on the field of battle without detriment to the command.

CHAPTER 2

MOUNTED CEREMONIES

■ 27. **GENERAL.**—The subject of ceremonies is covered in detail in FM 22-5. Only so much of mounted ceremonies as is particularly applicable to field artillery units is included in this chapter. Unless excepted herein, the rules for dismounted ceremonies apply when appropriate.

a. At formations for ceremonies in which field artillery organizations of different types take part, the organizations are formed in order from right to left in line or from head to rear in column, as follows: horse artillery; horse-drawn artillery; pack artillery; truck-drawn artillery; tractor-drawn artillery; light, medium, heavy.

b. At ceremonies, the pieces of horse-drawn artillery are in front unless the formation is in double section.

c. Enlisted men mounted on chests fold their arms while at the halt and the walk; at the trot and the gallop they hold to the side rails or the straps. Those in motor vehicles fold their arms if seated, otherwise they hold on.

d. Horse-drawn artillery passes in review at a walk and at faster gaits when ordered. When passing at gaits other than the walk, no salutes are made except by the commander of the troops when he leaves the reviewing officer.

e. Officers in motor vehicles salute with the hand.

■ 28. REVIEWS.—Formation for review, procedure for the reviewing party, presentation and honors, inspection, and march in review are as prescribed in FM 22-5, with the following modifications and such obvious changes as are applicable to field artillery units:

a. After the command **PASS IN REVIEW**, and the band is in position, the battalion commander of the unit next to the band commands: 1. **BY THE RIGHT FLANK**, 2. **MARCH**. At the command **MARCH**, if the units are formed in line at normal intervals, all units move out together, the band playing. If units are formed in line with reduced intervals, the movement is executed successively from the right. Without command from the battalion commander, the column changes direction at the points indicated so as to pass in review in column of batteries at full distances with guide to the right. If in a battalion review, the battalion commander takes his post 30 yards in front of the band immediately after the second change of direction. If in a regimental or brigade review, each battalion conforms to the movements of the leading battalion, its commander taking post 30 yards in front of the leading battery commander. When closed in mass, the above distances are suitably reduced.

b. In horse-drawn units when sufficient space is available, the leading battery executes **BY THE RIGHT FLANK** after passing at least 100 yards beyond the reviewing officer and then proceeds by appropriate changes in direction to the ground originally occupied, increasing the gait as necessary to prevent blocking batteries in rear. The other batteries execute the same movements successively on the same ground. When space is restricted, each battalion commander gives the necessary orders for the changes of direction after passing the reviewing officer.

c. For motorized and pack artillery, the review terminates when the rear element has passed the reviewing officer. In

horse-drawn units, when the leading battalion arrives in column on the ground originally occupied, the battalion commander, if so directed, gives commands for passing in review at an increased gait; battalions following conform. The review for the combat train of a horse-drawn battalion terminates when it has passed the reviewing officer. It thereupon conducts itself as previously ordered by the battalion commander.

d. The above is the normal method of passing in review, but each battalion may pass in column of batteries at closed interval, in double section column or flank column, or in any suitable formation the reviewing officer may direct. For truck-drawn artillery, each battalion in line of section columns is an appropriate formation for passing in review. To effect this, the initial formation of each battalion is column of batteries in line of vehicles.

e. Each regiment may be formed in line with normal or closed intervals, in line of masses, or in such other formation as may be prescribed. When not formed in line with normal intervals (the usual review formation) the review is conducted according to the principles prescribed for the normal formation, each unit being placed in march in time to follow the preceding one at the proper distance.

f. In field artillery brigade and regimental reviews, the brigade (regimental) commander and staff take post 30 yards in front of the line of regimental (battalion) commanders when in line and 30 yards in front of the leading regimental (battalion) commander when in column. In passing in review, the brigade (regimental) commander takes post 30 yards in front of the leading regimental (battalion) commander when about 100 yards from the reviewing officer.

■ 29. INSPECTIONS.—The inspections herein prescribed partake, in part, of the nature of ceremonies. Such inspections do not in any sense replace the detailed inspections which organization and other commanders should make of matériel and equipment. If the battery commander (in horse-drawn units) dismounts to make the inspection, the chiefs of platoon and section immediately dismount and turn over their horses.

a. Gun or howitzer battery, horse-drawn (fig. 1).—(1) The battery being in double section line, the battery commander commands: 1. PREPARE FOR INSPECTION, 2. ACTION FRONT.

(a) At the second command, the first and second platoons are unlimbered and prepared for firing. The instruments and equipment of the detail are displayed for inspection. The chief of the fifth section moves his section to the rear by a left about, and after gaining sufficient distance executes a second left about and forms the section in double section abreast of the limbers of the piece sections. The horsed elements and led horses of the detail form on this same line in rear of the instruments.

(b) The chiefs of the first and second platoons take post opposite the center of their platoons 4 yards in front of the line of muzzles. The chief of the detail (reconnaissance officer if present) takes post on this line opposite the center of the detail. The chief of the fifth section takes post opposite the center of the section 4 yards in front of the line of lead drivers. The first sergeant takes post midway between the limbers of the second and third sections 4 yards in front of the line of lead drivers.

(c) In the detail, the vehicle drivers, the signal corporal with the reels, and the chief of section (instrument sergeant) remain mounted. All others form in double rank behind the displayed instruments and equipment except three orderlies holding the led horses and two linemen remaining with the reels.

(2) All the carriages being in position, the battery commander commands: 1. RIGHT, 2. DRESS, verifies the alinement of the officers and the two ranks of carriages, commands: FRONT, and posts himself, when not acting as inspector, opposite the center of the battery and 8 yards in front of the line of muzzles.

(3) The guidon is 4 yards from the right flank of the line of limbers, abreast of the lead drivers, the buglers on the right of the guidon. The chiefs of section cause all limber, caisson, and tool chests to be opened for inspection and tool kits to be displayed. Gunners' tool kits are opened and laid out on the trails of the pieces.

(4) When acting as inspector, the battery commander inspects the reconnaissance officer and chiefs of platoon from

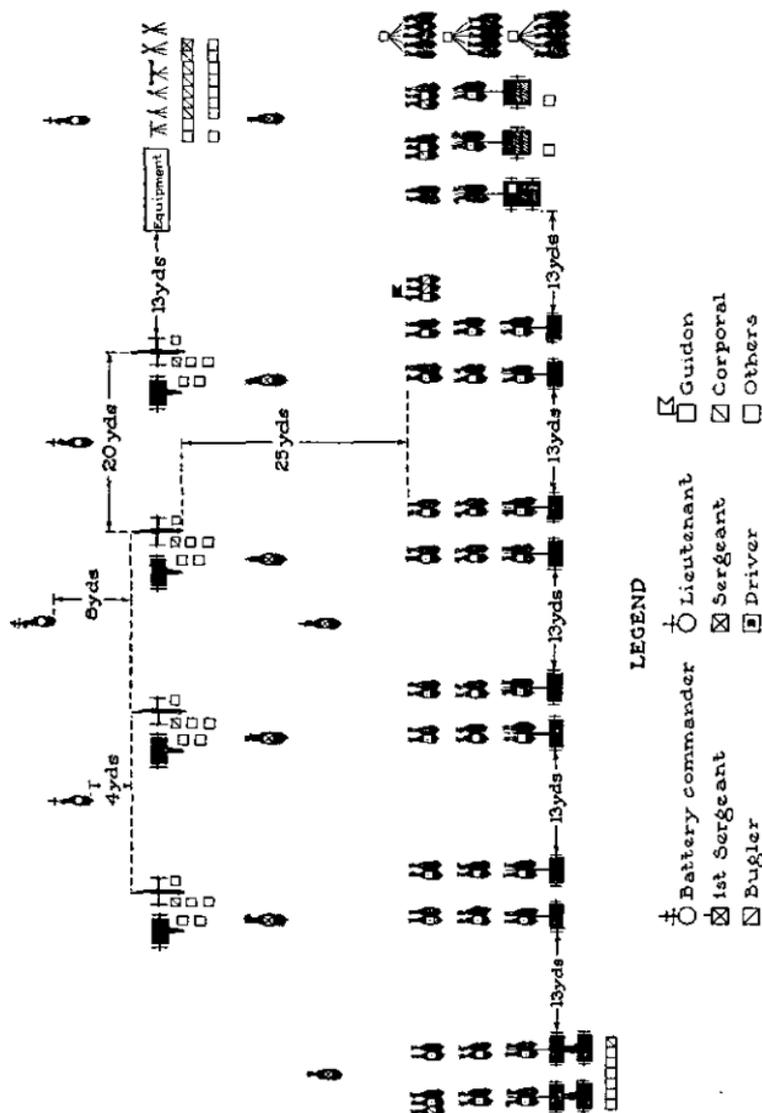


FIGURE 1.—Battery inspection, 75-mm gun battery, horse-drawn.

NOTE.—The maintenance section, if present, is posted to the left of the fifth section.

right to left and then the first sergeant; he then moves to the right flank of the limbers, where he returns saber and inspects the guidon and buglers. Followed by a bugler, he then moves to the right flank of the battery where, in case

he desires to inspect dismounted, he dismounts and turns over his horse. He then inspects the detail and sections in order from right to left. The detail is inspected in the order: chief of section, instruments and equipment, horsed elements. Each piece section is inspected in the order: chief of section, piece and caisson, limbers. The fifth section and the maintenance section (if present) are then inspected, commencing in each case with the chief of section. The foregoing procedure may be varied at the discretion of the inspecting officer. When the battery commander commences the inspection of the right platoon, the chiefs of the other platoons give their platoons **AT EASE**, calling them to attention as the battery commander approaches. Each chief of platoon accompanies the battery commander during the inspection of his platoon. As soon as a platoon is inspected, its commander causes it to take the march order and then gives it **AT EASE**. The platoon commander faces his platoon while it is at ease.

(5) The inspection having been completed, the battery commander causes the battery to limber front and rear, mounts the cannoneers, and commands: 1. **FORM DOUBLE SECTION LINE**, 2. **MARCH**. The first and second platoons form double section line, and the chiefs of the other platoons move their platoons in double section up on the line.

(6) Should the inspector be other than the battery commander, the latter, having prepared his battery for inspection and taken his post, salutes when the inspector arrives in front of him. The inspector returns the salute and inspects the battery commander. The latter having been inspected returns *saber* and accompanies the inspector during the inspection of the battery.

b. Gun or howitzer battery, motorized (fig. 2).—While the inspections herein prescribed are intended to apply primarily to light truck-drawn artillery, the principles apply, with modifications necessitated by differences in matériel and organization, to other types of motorized artillery.

(1) The battery being in line, the personnel mounted, the command is: **PREPARE FOR INSPECTION**. All personnel dismount. The pieces are uncoupled, run 2 yards to the rear, and prepared for action. Chiefs of section cause all chests to be opened, hoods of vehicles to be raised, and all tools and

accessories to be uniformly displayed. Fire-control instruments and other detail equipment are uniformly displayed 2 yards in the rear of the vehicle in which they are normally carried. The cannoneers take their posts at the pieces un-

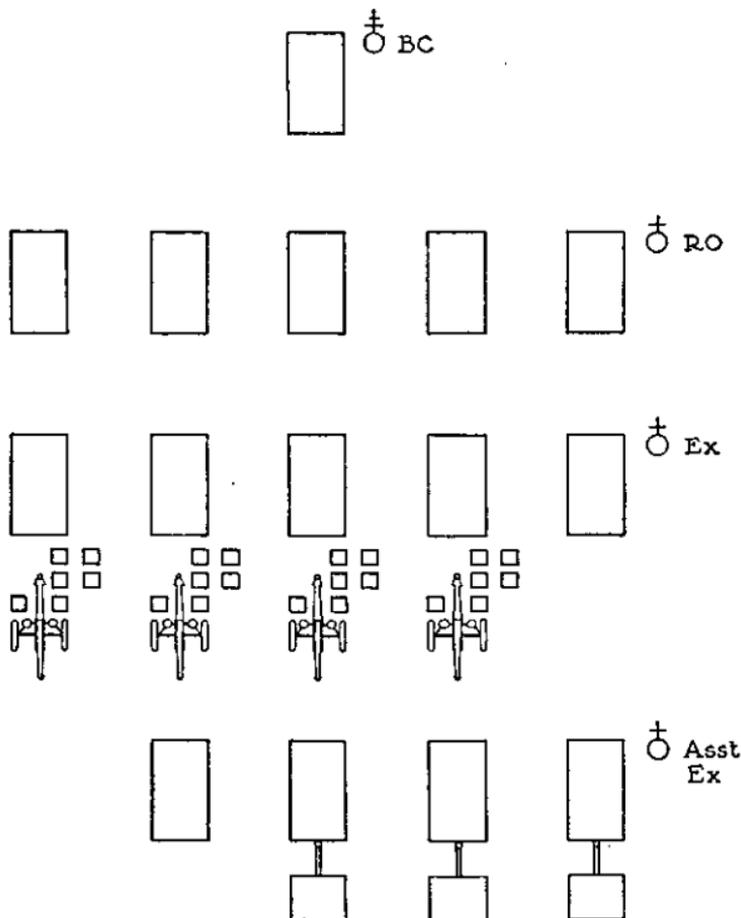


FIGURE 2.—Battery inspection, 75-mm gun battery, truck-drawn.

coupled, other personnel taking posts at the vehicles dismounted. Each chief of subdivision takes post in line with the line of radiators of his subdivision 2 yards to the right of the right wheel of the right vehicle. When not acting as inspector, the battery commander takes post as prescribed for the battery in line.

(2) When acting as inspector, the battery commander inspects the subdivisions of the battery in the order: battery headquarters, firing battery, ammunition section, maintenance section. The vehicles of each subdivision are inspected in order from right to left. When the battery commander commences his inspection of the leading subdivision, the chiefs of other subdivisions give their men AT EASE, calling them to attention as the battery commander approaches. During the inspection of each subdivision, its chief accompanies the battery commander. As soon as a subdivision is inspected, its commander causes the hoods to be closed, the tools secured, and in the case of the firing battery the pieces to be placed in march order, then gives the subdivision AT EASE. The subdivision commander faces his subdivision while it is at ease.

(3) The inspection having been completed, the battery commander causes the pieces to be coupled and the personnel to mount.

(4) Should the inspector be other than the battery commander, the battery commander, having prepared his battery for inspection and taken his post, salutes when the inspector arrives in front of him. The inspector returns the salute and inspects the battery commander. The latter, having been inspected, returns saber and accompanies the inspector during the inspection of the battery.

(5) Batteries of heavy artillery are not uncoupled and prepared for action at formal inspections.

c. Headquarters battery, combat train.—The inspection is conducted in general as described above for a gun or howitzer battery. Horse-drawn headquarters batteries are formed in double section line, headquarters instruments and equipment being displayed 13 yards to the right of the line. Motorized units form in line. The command ACTION FRONT is omitted.

d. Battalion.—(1) The battalion being in column of batteries (in double section line for horse-drawn units), on the approach of the inspector the battalion commander commands: PREPARE FOR INSPECTION.

(2) The batteries are prepared for inspection as prescribed in *a*, *b*, and *c* above.

(3) The buglers join their batteries. The drum major conducts the band, if there is one, to the rear of the column,

passing by the right flank, then places it, facing to the front, 36 yards in rear of the last battery, and opens ranks.

(4) The standard moves to the front and takes post 6 yards in rear of the center of the line of the noncommissioned staff.

(5) The inspector inspects the battalion commander and accompanied by the latter inspects the staff. The battalion commander and his staff, as soon as inspected, return saber and accompany the inspector.

(6) The inspector, commencing at the head of the column, inspects the standard, the batteries in their order in column, and the band. The standard may be dismissed as soon as inspected.

(7) The battery commander of each battery not undergoing inspection dismounts all personnel and brings the men to rest. As the inspector approaches the battery, the battery commander brings it to attention and in horse-drawn units mounts the drivers. As soon as the battery commander has been inspected, he returns saber and accompanies the inspector. The inspector proceeds as in battery inspection. At its completion the battery commander limbers or couples, forms double section line to the front in horse-drawn artillery, dismounts the battery, and brings the personnel to rest.

(8) Upon intimation from the inspector, the battalion commander may direct that each battery in turn be dismissed as soon as inspected.

(9) The band plays during the inspection.

(10) The battalion may be inspected in line, the inspection being conducted according to the same principles as when formed in column. The battalion commander and his staff are inspected at their posts in front of the center of the line; the band, which remains at its post on the right, is next inspected; then the batteries and the standard in order from right to left.

(11) If the battalion commander is the inspector, the inspection is conducted according to the same principles.

e. Regimental.—Regimental inspection is conducted in a manner similar to that prescribed for a battalion. When the regiment is formed in column, the regimental commander and his staff take post 30 yards in front of the band. The

regiment may be inspected in line, the inspection being conducted according to the same principles as when formed in column.

f. Personal field equipment while in ranks.—See FM 22-5.

■ 30. ESCORTS.—*a. Escort of the standard.*—The ceremony is executed mounted by the light and medium field artillery only, and is conducted in a manner similar to that prescribed for dismounted ceremonies with the following modifications:

(1) The escort marches in flank column, the standard bearers (or bearer) at the center of the column.

(2) When halted facing the entrance to the regimental commander's office or quarters, the escort is formed in line, the standard bearers midway between the two center sections on a line with the muzzles. The senior lieutenant, the standard bearers, and a sergeant designated by the commander of the escort dismount, their horses being held by a bugler, and obtain the standards. They then mount and form facing the center of the escort, the bugler returning to his post. The battery commander commands: 1. PRESENT, 2. SABER. The officers of the escort present saber, the regimental standard, if present, and the guidon salute, the buglers sounding *To the Standard*.

(3) In a motorized battery, all officers and men are dismounted after the battery has been formed facing the regimental commander's office or quarters. They are mounted after the buglers have sounded *To the Standard*. After the escort has been marched back to the regiment and has been halted in line opposite the center of the regiment, they are again dismounted.

(4) The lead drivers of the escort, when halted facing the regiment, will be 90 yards in front of the line of batteries.

b. Escort of honor.—(1) The procedure corresponds to that prescribed for dismounted ceremonies.

(2) The escort forms in line when practicable. It marches in an appropriate formation.

c. Funeral escort.—The conduct of funerals and the size of funeral escorts are as prescribed in FM 22-5, with the following modifications applicable to Field Artillery in funeral escorts:

(1) When the escort, if mounted, is formed opposite the point at which the casket is received, cannoneers remain mounted in horse-drawn units; they dismount in truck-drawn units.

(2) The escort marches in flank or section column.

(3) Arriving at the grave, the escort will be formed *in battery* with the muzzles pointing away from the grave, and the gun squads formed in rear of their pieces facing the grave. During the reading of the services, dismounted members of the escort conform to the procedure prescribed for funerals.

(4) When it is impracticable for the carriages to approach the grave or temporary repository, they will be left outside the inclosure. If volleys are to be fired by the artillery, the order in battery will be formed outside the inclosure, sufficient personnel being left therewith to execute the fire.

(5) If the escort consists of artillery only, the command will be dismounted and, except the personnel left with the pieces and limbers, will be formed dismounted and will execute the remainder of the ceremony as prescribed for the funeral escort, dismounted.

CHAPTER 3

STANDARDS AND GUIDONS

■ 31. MANUAL OF THE STANDARD.—*a. Dismounted.*—See FM 22-5.

b. Mounted.—(1) *Position of the standard at stand to horse.*—At stand to horse, the ferrule of the lance rests on the ground on line with and touching the toe of the left shoe, lance vertical, left hand at the height of the neck, elbow and forearm closed against the lance.

(2) *Position of the standard at to mount and mounted.*—At the command PREPARE TO MOUNT, the lance is raised slightly from the ground while stepping back. Upon halting, the ferrule is placed on the ground about 1 foot in front of the left forefoot of the horse. The left hand continues to grasp the lance as well as a lock of the mane. After mounting, the lance is grasped with the right hand and is then raised over the horse's neck and over the reins and is lowered on the right of the saddle, the ferrule being inserted in the stirrup socket.

(3) *Position of the standard at the carry (mounted).*—The ferrule is inserted in the stirrup socket, the right hand grasping the lance, forearm nearly horizontal (the arm through the sling), lance vertical. Carry standard is the habitual position of the standard when troops are mounted.

(4) *Position of standards for motorized organizations.*—For ceremonies, the standards of motorized organizations, except when dismounted, are carried in a vertical position in improvised fixtures attached as directed by the regimental or separate unit commander near the right and left doors of the cab, in such positions as not to obscure the view of the driver. On the march, except for ceremonies, motorized organizations carry the standards as directed by unit commanders.

(5) *Position of the standard at the standard salute (mounted).*—Mounted, the ferrule is raised from the socket of the stirrup and the standard is lowered to the front until the lance is horizontal and passes under the right arm close to the armpit.

(6) *Position of the standard while dismounting.*—At the command PREPARE TO DISMOUNT, the lance is raised from the stirrup socket, passed over the horse's neck and over the reins, and lowered to the ground about 1 foot in front of the left forefoot of the horse. The lance is then grasped in the left hand.

■ 32. GUIDON.—See FM 22-5.

PART TWO

TRACTION AND DRILL

CHAPTER 1

ANIMAL TRACTION AND THE DRIVER

	Paragraphs
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SECTION I

GENERAL

■ 33. REFERENCES.—*a.* FM 25-5 contains detailed instructions in horsemanship, remount training, and animal management, to include feeding and watering; stable management; field management; prevention and first aid treatment of disease; shoeing; duties of stable personnel; and transportation by rail, water, and motor.

b. Training Manuals provide the details of training and duties of saddlers and horseshoers.

■ 34. OBJECT OF INSTRUCTION.—The objective of instruction of the driver of animal-drawn units is proficiency in harnessing and unharnessing; in the proper fitting, cleaning, and care of harness; and in managing and maneuvering a single pair and ultimately an artillery team in draft. Individual instruction mounted (FM 25-5) should precede instruction as an artillery driver.

■ 35. USE OF TERMS.—The two horses assigned to a single driver are called a "pair"; the horse on the left side is called the "near" horse, and the horse on the right, the "off" horse. The driver rides the near horse. The pairs assigned to draw a carriage are termed collectively a "team." A team usually consists of three pairs, designated in the order from front to rear as "lead," "swing," and "wheel" pair. When a team consists of four pairs, they are designated from front to rear as "lead," "lead swing," "wheel swing," and "wheel." The middle pair of a team of five pairs is called the "middle swing" pair. The driver stands to horse on the near side of his near horse, and when necessary to control the off horse also holds the coupling rein, detached from the saddle, in his right hand.

SECTION II

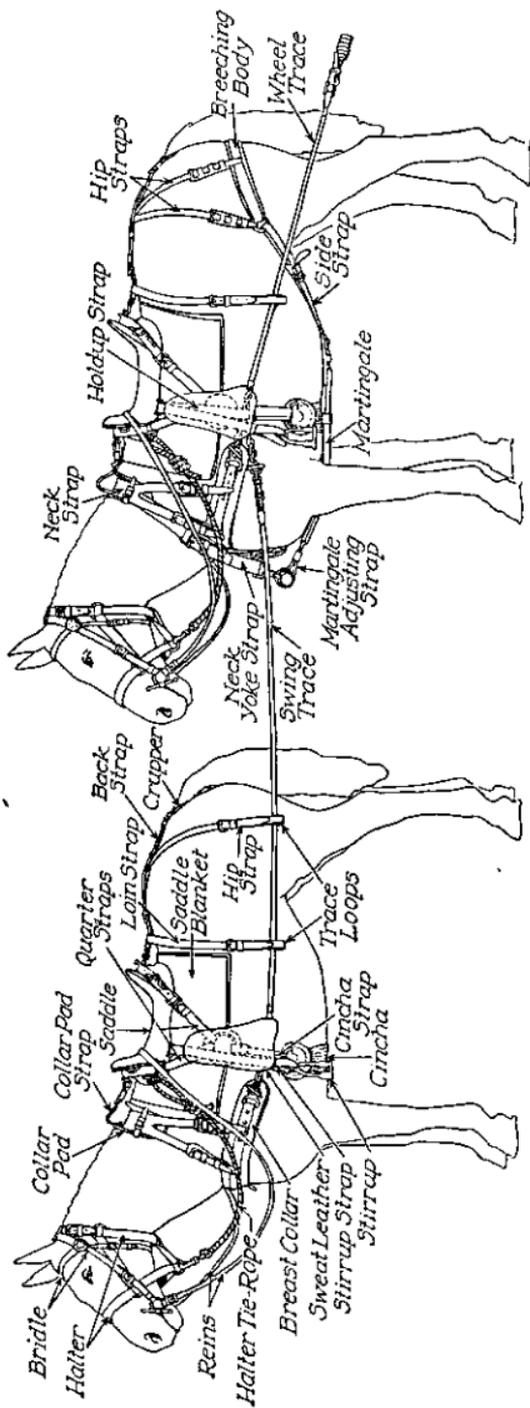
HARNESSING AND UNHARNESSING

■ 36. NOMENCLATURE OF HARNESS.—The nomenclature of field artillery harness is shown in figure 3.

■ 37. DISPOSITION OF HARNESS IN GARRISON.—The harness of a pair is arranged on two pegs and two spikes fastened to the

heelpost. On the upper peg is placed the off saddle with its attachments over the seat; the blanket across the saddle, folded edge next to the pommel; the collar on the blanket, bearing surface down, neck strap and pad away from the heelpost. On the lower peg, the near saddle and harness are arranged as prescribed for the off harness. The neck yoke, with martingales attached, and both bridles are hung on a spike driven into the side of the heelpost at the height of the upper peg. The traces are hung on a spike placed above the upper peg. The harness sack covers all the harness on pegs. If the harness pegs are on the left heelpost (facing the manger), the cantles of the saddles are placed against the heelposts; otherwise the pommels are against the heelpost.

■ 38. DISPOSITION OF HARNESS AND HORSE EQUIPMENT IN THE FIELD.—For harnessing and unharnessing, wheel pairs are tied to the left wheels of limbers, swing pairs to the right wheels of limbers, and lead pairs to the right rear wheels of carriages. Before unharnessing, the swing driver places the pole prop under the pole to relieve the automatic pole support of the harness weight; after harnessing, he returns the prop to its traveling position. In unharnessing, drivers place their saddles astride the limber pole in the order of pairs in teams, wheel pair saddles next to the footboard, the near saddle of each pair to the rear. Pommels of wheel saddles are to the front, others to the rear. Wheel traces are detached from the collars only and are laid back, with the neck yoke, on the footboard. Each saddle is placed with its attachments over it, the blanket across the saddles, and the bridle, collar, and traces (except wheel traces) over the blanket. The horse equipment of the chief of section, and, in horse artillery, of the gunner and cannoneers Nos. 1 and 2, is placed on the footboard of the piece limber; that of the caisson corporal and mounted cannoneers Nos. 3, 4, and 5 on the footboard of the caisson body; that of higher-numbered mounted cannoneers on the footboard of the caisson limber. In an ammunition section, the horse equipment of the chief of section and of mounted cannoneers with the first caisson is placed on the footboard of the first caisson limber; that of the ammunition corporal and other cannoneers of the section on the footboard of the second caisson



NEAR LEAD (OR SWING) HARNESS.

NEAR WHEEL HARNESS.

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FIGURE 3.—Nomenclature of field artillery harness.

limber. The horse equipment of other mounted men is disposed as directed by the battery commander. The harness and horse equipment are covered with paulins securely tied in place.

■ 39. To HARNESS.—*a. By detail.*—The drivers standing to heel, the instructor gives in succession the commands indicated below. As each command of execution is given, the drivers perform the duties specified and then stand to heel awaiting the next command. After his pair is harnessed, each driver stands to horse. 1. BY DETAIL, 2. HARNESS. Remove the harness sack. 3. COLLAR. Beginning with the off horse, remove its collar from the peg; unsnap the halter tie rope; place the collar, body up, over the horse's head and then turn the collar over so that the neck strap, collar pad, and body of the collar will be in place; snap the halter tie rope to the halter. In a similar manner place the near collar on the near horse. 4. SADDLE. Put the blanket on the off horse and then the saddle with its attachments; let down the cinch and cinch strap and fasten the cinch; buckle the pad strap to the saddle; turn back the back strap and, in the case of the wheel harness, the breeching; fasten the crupper. Saddle the near horse in like manner. 5. TRACES. Lay the middle of the traces of the off horse over the horse's back behind the saddle, toggles on opposite sides; beginning with the off trace, pass the toggles through the trace loops from the rear and attach them to the D-rings on the collar. Attach the traces of the near horse in a similar manner. The rear ends of the traces are left hanging over the backs of the horses, except that, when harnessing for drill by pair, these ends may be brought forward and fastened to the toggles of the opposite traces at the D-rings of the collars. Traces may be left off when harnessing for drill by pair. 6. BRIDLE. Bridle the off horse; secure the roller, and then bridle the near horse. Unless otherwise instructed, halters are removed before bridling. 7. COUPLE. Turn the pair about so as to face the stable driveway and attach the coupling rein to the off ring on the pommel of the near saddle. 8. YOKE. The wheel driver takes down the neck yoke and places himself between his horses, facing in the same direction in which they are facing; he fastens

the neck-yoke strap of the off horse, then that of the near horse; passes the martingale of the near horse between the forelegs and through the standing loop on the cinch; attaches the hooks at the ends of the side straps to the martingale D-ring; secures the martingale of the off horse similarly; then passes out in rear of the near horse.

b. Without detail.—The command is: HARNESS. At this command the drivers harness, following the successive steps prescribed in *a* above.

c. In the field.—The order of harnessing is: collar, bridle, saddle, traces, couple, yoke.

■ 40. TO UNHARNESS.—*a. By detail.*—The commands are as indicated below; each driver at the command of execution performs the duties indicated and then stands to heel awaiting the next command. 1. BY DETAIL, 2. UNHARNESS, 3. UN-YOKE. At the third command, the wheel driver passes between his horses from the rear and, beginning with the near horse, unhooks the side straps and draws the martingales through the standing loops on the cinches; unsnaps each neck-yoke strap and hangs the neck yoke on its spike. 4. UN-COUPLE. Each driver uncouples. If the horses are facing the stable driveway, they are turned to face the manger. 5. UNBRIDLE. Unbridle the near horse; halter and tie to the manger; hang the bridle on its spike. Release the lead rein roller and unbridle the off horse. 6. TRACES OFF. Disengage the near trace of the near horse and lay its middle over the saddle, toggle on the near side; disengage the off trace and lay it beside the near trace, toggle on the off side; place the traces on their spike. Similarly, remove and hang up the traces of the off horse. 7. UNSADDLE. Beginning with the near horse, unfasten the crupper and place the attachments in the saddle; unfasten the pad strap; complete the unsaddling and place the saddle on the lower peg; remove the blanket and place it over the saddle. Unsaddle the off horse in like manner. 8. COLLAR OFF. Unsnap the tie rope and remove the collar of the near horse, then secure the tie rope. Similarly remove the collar from the off horse. Lay each collar across the saddle above the blanket. Cover the harness.

b. Without detail.—The command is: UNHARNESS. At this command the drivers unharness, following the steps indicated in *a* above.

c. In the field.—The order of unharnessing is: unyoke, uncouple, traces off, unsaddle, unbridle, collar off.

SECTION III

ADJUSTMENT AND CARE OF HARNESS AND HORSE EQUIPMENT

■ 41. INSTRUCTION OF DRIVERS.—Drivers must be impressed with the importance of constant and unremitting attention to the adjustment and fit of harness. They must be made to appreciate that every sore and every abrasion is due to a cause which must be removed. Injuries, whatever the cause, must be noted at once and reported to the proper superior. *Sore shoulders and sore necks are avoidable in the Field Artillery. Drivers, chiefs of sections, and officers are deficient in professional ability if their animals develop such injuries.*

■ 42. ADJUSTMENTS.—*a. Collar.*—The lower edge should be just above the point of the shoulder. The choke strap, which may be left off the harness when so directed by the battery commander, is adjusted so as to prevent the collar from slipping up and bearing on the windpipe. The forks of the neck strap should keep the body of the collar horizontal when in draft.

b. Back strap.—This strap should admit the breadth of the hand between the strap and the horse's back, and the ring should be at the highest part of the croup.

c. Pad strap.—This strap should be loose; its sole function is to prevent the collar pad from falling when the horse lowers his head.

d. Hip straps and breeching body.—The straps should permit the breeching body to slope forward and downward in prolongation of the side straps, the upper part of the body about 3 inches below the point of the buttocks.

e. Side straps.—These straps should be short enough to cause the breeching body to bear quickly should the horse be required to check the carriage, but not so short as to impede the animal's movements when in draft.

f. Martingale.—The adjusting strap of the martingale should be of a length to hold the D-ring safe on the martingale well through the standing loop on the cinch.

g. Neck yoke.—The neck-yoke straps should not carry the weight of the pole but should be sufficiently tight to prevent undue lateral displacement of the pole.

h. Loin straps.—These straps should be adjusted so that in draft the traces will be straight and without downward pull on the trace loops, the bottoms of which should be 2 inches below the traces.

i. Traces.—The rule for lead and swing pairs is to allow about 1 yard from head to point of buttocks when in draft. The length of the wheel traces is fixed. Care must be exercised that the traces for any one horse are adjusted to the same length.

j. Coupling rein.—This rein should be loose enough not to interfere with the off horse when he is turning to the right in draft, but still tight enough to check him if he starts to swing out from the near horse.

k. Hold-up straps.—With the breast harness as issued, the effect of placing a team in draft is to cause excessive pressure to be transmitted to the neck of each wheel horse. In order to transfer this pressure from the neck to the larger bearing surface of the back, the traces should be supported by hold-up straps fastened to the stirrup staples of the saddles of the wheel pair. The straps should be so adjusted that the traces in front of the hold-up straps will be in a horizontal plane when the team is in draft.

l. Bridle and saddle.—See FM 25-5.

■ 43. CLEANING AND CARE OF HARNESS AND HORSE EQUIPMENT.—*a. General.*—Harness and horse equipment should be kept clean, serviceable, and in good repair; leather parts soft and pliable; and metal parts free from rust and dirt, with appropriate parts painted. All cleaning should be carried on under the immediate supervision of an officer. Harness and horse equipment should habitually be cleaned immediately after use; ordinarily about 30 minutes should be allowed for unharnessing and care of equipment. Bits and all leather parts of the harness should be wiped with a damp cloth, the bits then being dried and rubbed with an oil-moistened cloth.

Broken or unserviceable parts of the equipment should be repaired or replaced.

b. Saddle blankets.—These should be kept soft, clean, and free from wrinkles. Occasionally they should be hung out in the sun and then brushed. When necessary, blankets should be thoroughly cleaned by repeated immersions in tepid water and then, without wringing or pressing, hung up to dry.

c. Periodic cleaning.—At intervals of from 1 to 2 weeks, depending upon climatic conditions and the nature of the service, harness should be taken apart completely, thoroughly overhauled, cleaned, and dressed. Appropriate metal parts, such as trace chains, should be painted; other metal parts, including buckles, should be cleaned; and the leather equipment cleaned and dressed, as prescribed in chapter 3, Basic Field Manual, volume I.

d. Cleaning by detail.—Cleaning may be by detail, an officer or noncommissioned officer inspecting each article cleaned before permitting the driver to proceed to the next. The order of cleaning by detail is as follows: blanket, bridle, saddle with attachments, collar with attachments, traces.

SECTION IV

PRELIMINARY MOUNTED INSTRUCTION

■ 44. INTERVALS AND DISTANCES.—The length of the horse is assumed to be 3 yards, and of a hitched carriage with a three-pair team, 17 yards.

a. Intervals.—Between pairs in line, 3 yards; between teams in line, 3 yards for each pair; between hitched carriages, one hitched carriage length.

b. Distances.—Between pairs in column, 1 yard; between teams in column, 2 yards; between hitched carriages, 2 yards.

■ 45. TO LEAD OUT.—Horses being harnessed, the instructor indicates the order for leading out and the place for and character of the formation, and commands: LEAD OUT; or 1. FIRST (OR SUCH) SECTION, 2. LEAD OUT; or 1. TO YOUR CARRIAGES, 2. LEAD OUT; or 1. FIRST (OR SUCH) SECTION, 2. TO YOUR CARRIAGES, 3. LEAD OUT. At the command of execution, animals are led out, the drivers, when necessary, de-

taching the coupling rein from the near saddle and holding it in the right hand.

■ 46. TO MOUNT AND DISMOUNT.—*a. At a halt.*—The command is: 1. DRIVERS PREPARE TO MOUNT (DISMOUNT), 2. MOUNT (DISMOUNT); or 1. DRIVERS, 2. MOUNT (DISMOUNT). Having mounted, each driver takes his whip and hangs it by the loop from his right wrist; he then takes the lash of the off bridle reins in his left hand, the lash coming in under the little finger and passing out over the forefinger.

b. Marching.—Being at a walk, the command is: 1. DRIVERS, 2. DISMOUNT. Without checking the pace, each driver dismounts, places the bridle reins of his horse over the pommel and walks beside his animal without touching the reins, unless necessary to guide or steady the pair. Ordinarily drivers do not mount while marching.

■ 47. ALINEMENTS.—The base unit being established in position, the command is: 1. RIGHT (LEFT), 2. DRESS, 3. FRONT. At the command DRESS, drivers, other than the base driver or drivers, look to the flank designated and aline themselves. At the command FRONT, eyes are turned to the front. The instructor may supervise the alinement from either flank.

■ 48. GUIDES.—*a. As soon as the march in line has begun, the instructor designates one of the flank elements as guide of the movement, thus "Guide right (left)." Other elements aline themselves on the guide and maintain their intervals from that flank. Guides are responsible that the direction and rate of march are properly maintained.*

b. When marching in column of pairs, teams, or carriages, or marching obliquely, the leading element is without indication the guide.

c. The guide of a team or carriage is the lead driver. The guide of a section in section column is the guide of its leading carriage; in double section, the guide of its left carriage.

■ 49. RESTS.—When dismounted, the driver remains close to his pair, either standing to horse or holding the reins of his horse. The duties of the driver on the march during a period of rest are given in chapter 1, part three.

■ 50. To **HOO**K AND **UNHOO**K TRACES.—Teams being in proper order in column of pairs, at the command **HOO**K TRACES, each lead and swing driver goes to the rear of his off horse by the off side and hooks traces, beginning with the outer trace of the off horse and ending with the outer trace of the near horse. At the command **UNHOO**K TRACES, the drivers indicated above unhook traces in the reverse order of hooking traces, first going to the rear of the near horses by their near sides. As each trace is unhooked it is laid over the horse's back in the rear of the saddle.

■ 51. To **POST** TEAMS WITH CARRIAGES.—The command is: **TEAMS TO YOUR CARRIAGES**. When the team reaches its proper position, the wheel driver commands: 1. **TEAM**, 2. **HALT**, and places his pair for hitching. If the traces have not been hooked prior to leading out, they will be hooked before hitching.

■ 52. To **HITCH**.—The command is: 1. **DRIVERS**, 2. **HITCH**. Each wheel driver, passing behind the near horse, places himself on the right of the pole between his horses and engages the end of the pole in the pole ring of the neck yoke; he then attaches the traces of the off horse, beginning with the near trace; moving at a double time around the carriage, he then fastens the traces of the near horse, beginning with the off trace.

■ 53. To **UNHITCH**.—The command is: 1. **DRIVERS**, 2. **UNHITCH**. Each wheel driver unhitches, performing the operation in the opposite order from that indicated for hitching. As traces are unfastened, their ends are passed over the horses' backs behind the saddle or secured to the breeching body as may be directed. Having unhitched, the drivers mount if the command for dismounting has not been given; otherwise they stand to horse.

■ 54. To **DISMISS** THE DRIVERS.—Teams being unhitched and traces unhooked, the command is: 1. **BY THE RIGHT (LEFT) (RIGHT AND LEFT)**, 2. **FILE OFF**, or **FALL OUT**. At the command **FILE OFF**, drivers execute the movement by pairs, teams, or sections, depending on the formation. The leading driver (drivers) on the designated flank (flanks) initiates the move-

ment. If the command is **FALL OUT**, drivers lead their teams directly to the place designated for unharnessing.

SECTION V

MANAGEMENT OF THE PAIR

■ 55. **GENERAL.**—The driver rides the near horse, which is managed by the legs, reins, and weight; the off horse is managed by the bridle, reins, and whip. The voice used quietly is a valuable aid in managing the pair.

■ 56. **THE WHIP.**—While driving, the whip is carried hanging from the right wrist; at ceremonies it is carried pointing obliquely to the left over the driver's left forearm. Before dismounting, the whip is inserted in the near pommel ring of the near saddle. The whip, applied by gentle taps on the left shoulder of the off horse, should cause him to move his forehand to the right; applied on the right shoulder, it should cause him to move his forehand to the left; applied on the near side slightly in rear of the place for a rider's leg to act, it should cause him to move his haunches to the right; applied similarly on the off side, it should cause him to move his haunches to the left; applied behind the saddle on the croup near the right hip, it should cause him to move straight to the front, remaining close to his mate. Any uses of the whip other than the foregoing will be detrimental to draft.

■ 57. **THE VOICE.**—This aid must be reserved for occasions when it is needed to produce a definite effect. A low chirrup or cluck, used in connection with the other aids, serves to attract the horse's attention and to increase the gait. It is effective in keeping the horse in the collar during a heavy or difficult pull. A low, quiet "Whoa", used in connection with the aids, assists in decreasing the gait or halting the horse. A gentle, reassuring tone may be used to calm a frightened animal.

■ 58. **REINS OF THE OFF HORSE.**—These reins are used to gather, steady, and halt the off horse, check his gait, and rein him back. When necessary to apply some force on these reins, the driver draws them toward his right thigh, using the

right hand, but still holding the lash in the left hand. To assist in turning an untrained horse to the right, the driver may reach over with his right hand and apply the right rein direct. The coupling rein may be used to turn the off horse to the left, but it must not be used to check his gait. The driver should never use the lash of the off rein as a whip.

■ 59. MANEUVERING THE PAIR.—Drivers are instructed in managing and maneuvering a single pair before their training with teams hitched and in draft is begun. The near horse is gathered as explained in FM 25-5, the off horse by a slight pressure or slight additional pressure on the bit. When maneuvering the pair, both horses should be gathered before moving from a halt, before halting, and before changing gait or direction.

■ 60. MANEUVERING THE TEAM.—Following instruction in maneuvering the pair, teams are formed with traces unhooked, and the drivers are instructed in the commands and movements pertaining to the team hitched. This instruction is continued with the traces hooked, to the end that the drivers will be prepared to take up the management of their horses in draft.

SECTION VI

DRAFT

■ 61. GENERAL.—The mobility of a battery depends upon its draft efficiency. Care should be exercised in the pairing and teaming of horses; in general, the heaviest pair of a team should be placed in the wheel position and the tallest pair in the lead.

■ 62. CHANGING GAITS.—a. In starting a carriage, all horses of a team simultaneously should apply power to their collars. At the preparatory command, drivers gather their horses and stretch their traces; at the command of execution, drivers apply the proper aids to cause each horse to step slowly into the collar and hold there, quietly straining at his task until the slower horses in the team overtake his motion and add sufficient power to move the carriage. The same general principles apply in passing to a faster gait.

b. In stopping the carriage, drivers hold their horses out of draft and halt with the gradual stopping of the carriage. The wheel driver may assist in stopping the carriage by holding his horses back in the breeching. The brake, applied carefully and gradually, should be used habitually in stopping and in slackening the speed of the carriage.

■ 63. **BACKING.**—Backing should be avoided if possible. The wheel driver is responsible for backing the carriage; the other drivers must give him complete liberty of trace.

■ 64. **TURNS.**—In making the normal turn at a walk, the lead driver directs his pair so that the horse on the inside of the turn moves over the arc of a circle of which the radius is 6 yards. The horse on the outside of the turn must quicken his movements slightly, but should be held behind the inside horse until the turn is completed. When moving at increased gaits, the radius is increased sufficiently to permit the horses to execute the movement with ease, and the gait is moderated when necessary to avoid overturning the carriages.

■ 65. **TO TURN IN LIMBERING.**—*a.* The limber is brought squarely across the trail so that the inside wheel will pass within about 1 foot of the lunette. When the heads of the wheel horses are opposite the lunette, the lead driver turns his pair as sharply as practicable away from the lunette through 180° and moves in the new direction until he is approximately opposite the lunette, where he turns his pair away from the lunette through 90°. The wheel driver continues straight across the trail with his pair until the axle is opposite the lunette. When the axle is nearly in line with the trail, the wheel driver halts his pair. He then turns his pair on the center of the axle as a pivot. The swing pair conforms to the movement of the lead pair.

b. The lead driver slowly straightens his pair in direct prolongation of the trail, and the swing and wheel drivers follow his movements by slowly swinging their horses toward the same line. When the horses are straight on this line, the turn, if properly made, should have placed the pintle of the limber in prolongation of the trail. The wheel driver then backs the limber sufficiently to permit limbering.

Throughout the movement it is essential that the traces of the lead and swing pairs remain loose. They are stretched the moment the limbering is completed.

■ 66. TRAINING IN DRAFT.—*a.* A horse will not pull unless he is confirmed in the belief that when he applies his strength the load behind him will yield. To allow repeated trials and failures in pulling ruins the draft efficiency of a team. During a difficult pull, a team may be permitted to stop and rest. When the signal to move again is given, sufficient cannoneers should assist at the carriage to insure starting it. During a heavy pull, horses should be allowed full freedom of rein. At times it will be advantageous to mount cannoneers on the off horses, as horses can exert a greater power of traction when ridden. Teams should not be permitted to rush a hill or other difficult pull. A steady, uniform walk is the best gait.

b. Cannoneers should be instructed and practiced in assisting the horses by working on the wheels and on drag-ropes attached to the carriage. For ordinary pulls, a rope may be attached around the trail of the carriage. For short, hard pulls, it may be attached around the felloe near the ground and passed over the tire of the wheel. A stalled carriage may often be started by turning the pole to one side as far as it will go and then straightening and moving the team in that direction.

c. To avoid whip of the pole, carriages should be driven squarely across sunken roads, ruts, narrow ditches, etc.; when necessary, the brake is applied so that the traces are kept taut and the horses kept in draft continuously.

■ 67. GAITS.—The average rates of speed of the authorized gaits are as follows: the walk, 4 miles per hour; the trot, 8 miles per hour; the gallop, 12 miles per hour. In marches on metaled roads, the trot used should not be in excess of 6 miles per hour.

CHAPTER 2

MANEUVERS LIMBERED—THE BATTERY

	Paragraphs
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SECTION I

FORMATIONS

■ 68. GENERAL.—The leading caisson of an ammunition section in the normal order in park is called the first caisson, the other the second caisson. Movements prescribed for the piece and caisson of a gun section apply with obvious modifications to the first and second caissons, respectively, of an ammunition section.

■ 69. BATTERY DETAIL.—The battery detail corresponds to a platoon of two sections.

■ 70. FORMATIONS OF THE SECTION.—The section is said to be in—

a. Section column when one carriage is in rear of the other with 2 yards' distance from the heads of the lead horses of the second carriage to the rear of the first carriage.

b. Double section when the two carriages are abreast with 2 yards' interval between adjacent wheels.

c. Flank column when the two carriages are abreast with 17 yards' interval between adjacent wheels.

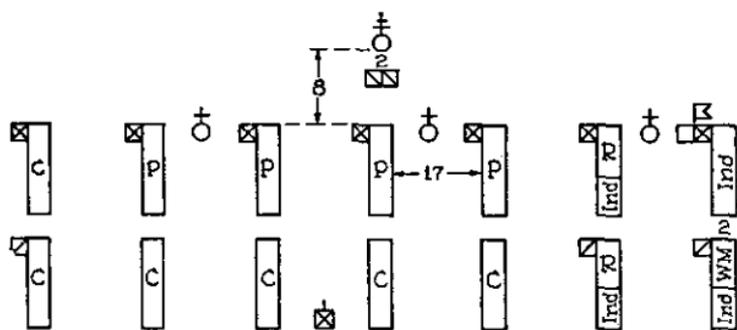
■ 71. FORMATIONS OF THE BATTERY, LIMBERED:—*a. Order in line.*—The battery is formed as indicated in figure 4. The sections may be formed in the reverse order. Each section is in section column, pieces being either in front or in rear of their caissons.

b. Order in double section line.—Similar to the order in line, except that each section is formed in double section. The caissons are all on the same flank of their pieces.

c. *Order in section column.*—The sections, each in section column, follow each other in the order, or reverse order, of their positions in the order in line. Pieces are either in front or in rear of their caissons.

d. *Order in double section column.*—Similar to the order in section column, except that sections are in double section. The caissons are all on the same flank of their pieces.

e. *Order in flank column.*—The sections, each in flank column, follow each other in the order, or reverse order, of their positions in the order in line. The caissons are all on the same flank of their pieces.



Legend

♠ BC	□ Guidon	r Piece
○ Lieut	▣ Bugler	C Caisson
⊠ 1st Sgt	Ind Individually	R Battery reel
⊞ Sgt	mounted men	RC Reel and cart
⊡ Corp	WM Mountain wagon	Trk Truck
⊞ Driver		

Distances and intervals are in yards.

FIGURE 4.—Order in line, 75-mm gun battery, horse-drawn.

NOTE.—The maintenance section, if present, is posted to the left of the fifth section.

■ 72. **ORDER IN BATTERY.**—The pieces and caissons of the gun sections, placed for action, are in line in the order, or the reverse order, of their permanent numbers from right to left; the caissons of the fifth section, unlimbered, are placed one on each flank of this line, or are otherwise disposed as directed by the battery commander; the limbers are disposed as explained in paragraph 112.

■ 73. INTERVALS AND DISTANCES.—*a. Intervals.*—The interval between adjacent wheels of hitched carriages in line is 17 yards; in double section line the interval between adjacent wheels of adjoining sections is 13 yards.

b. Distances.—(1) The distance between hitched carriages in column, from the rear of one carriage to the heads of the lead horses of the carriage which follows, is 2 yards.

(2) In column or in line, the distance between a carriage and a mounted gun squad is 2 yards. In double section or in flank column, the distance between caissons is such as to permit each caisson to march abreast of its piece. In line, the distance between caissons of the ammunition section is such that the caissons are abreast of the pieces and caissons of the gun sections. In battery, when the limbers are posted in rear of their carriages, the distance from the heads of the lead horses to the rear of the caissons in the line of pieces is 25 yards.

■ 74. POSTS OF INDIVIDUALS.—*a.* The posts of individuals for drill purposes are shown in the table below.

b. Cannoneers take posts as prescribed in the FM 6-series for the Service of the Piece. In horse batteries, with the carriages limbered, gun squads when not specifically directed otherwise are in rear of their caissons, dressed toward the side of the guide; in section column they dress to the right; in flank column, double section column, and double section line they form on the outer flank of the caisson, the front rank alined on the axle of the limber. Led horses of the cannoneers of horse batteries are posted 2 yards in rear of the caisson limber.

c. Officers and noncommissioned officers leave their posts when necessary for better performance of their duties.

■ 75. DISPOSITION IN PARK.—Carriages are arranged in the order in line, pieces in front, in normal order of sections from right to left, at intervals as directed by the battery commander.

■ 76. TO FORM THE BATTERY IN PARK.—*a.* (1) The battery being formed dismounted, the first sergeant forms the chiefs of section, drivers' squads, and battery detail into a group. This group is marched by the senior chief of section to the horses. Upon arriving at the position of the horses, the chief

Posts of individuals, horse-drawn batteries

Individuals	Order in line or double section line	Order in section column or double section column	Order in flank column	Order in battery
Captain.....	8 yards in front of the battery opposite the center.	Opposite the center of the column and 15 yards from the left flank.	Opposite the center of the column and 15 yards from its flank; on the left when the right section leads, and on the right in the reverse order.	Halfway between the two center sections, 10 yards in rear of the line of the trail spades.
Platoon commander.....	Halfway between his sections, and in line with the lead drivers of his leading carriages.	Opposite the center of his platoon, 4 yards from the left flank.	Halfway between the pieces and caissons, and in line with the lead drivers of his leading carriages.	Halfway between the guns of his platoon, and 5 yards in rear of the line of the trail spades.
First sergeant (when not acting as chief of platoon).....	Halfway between the center sections, opposite the rear of the rear carriages.	Opposite the center of the battery, 4 yards from the right flank.	Opposite the center of the column and 4 yards from its flank; on the right when the right section leads, and on the left in the reverse order.	Halfway between the two center sections, 20 yards in rear of the line of the trail spades.
Chief of section.....	Boot to boot with the lead driver of his leading carriage, or, if in double section, of his piece.	Same as in line.....	Boot to boot with the lead driver of his piece.	2 yards in rear of the lunette of his caisson and opposite its center.
Guidon.....	Abreast of the guide of the battery, and 2 yards to his left.			
Buglers.....				

Boot to boot with each other, 2 yards in rear of the captain.

of section in charge halts the detachment and commands: **HARNESS**. The drivers fall out and harness, and individually mounted men saddle; the horses of chiefs of section are saddled by men detailed for that purpose.

(2) The drivers having been marched off, the gun squads are formed into a group by the first sergeant and marched to the gun park by the senior gunner. Upon arriving at the park, the squads are posted with their carriages if the latter are not in the gun shed, otherwise the detachment is halted and the detachment commander commands: **FORM PARK**. At this command, the cannoneers fall out and run the carriages out of the shed by hand.

(3) The park being in order, the senior gunner posts the cannoneers at the carriages limbered, and commands: **PUT YOUR CARRIAGES IN ORDER**. At this command, carriages are prepared for hitching, extra cannoneers being detailed to perform the necessary police duty.

(4) As soon as the horses are harnessed, the first sergeant commands: **LEAD OUT**. At this command, sections lead out in turn and form in column. The first sergeant then mounts the drivers, conducts the column to the park, posts the teams with their carriages, and causes them to be hitched.

(5) In horse batteries, when the carriages have been prepared for hitching, the senior gunner directs the gunners to march their squads to the horses and to saddle.

b. In the field, the duties enumerated in *a* above are performed at the first sergeant's command: 1. **DRIVERS**, 2. **HARNESS AND HITCH**.

c. The lieutenants reach the park or the stables at such time as is necessary for them to superintend the details of their departments. They take their posts as chiefs of platoon as soon as the teams are posted with the carriages and in time to superintend the hitching. Each chief of section inspects his section when hitched and reports the result to his chief of platoon. Each chief of platoon, having received the reports of his chiefs of section, makes a general inspection of his platoon and commands: **REST**. Platoons are called to attention upon the approach of the battery commander, and as soon as he has taken his post platoon commanders report in succession from right to left, "Detail in order, sir" (the de-

tail being on the right), or "First (such) platoon in order, sir", or report deficiencies noted as a result of the inspections. Following these reports, the first sergeant makes his report as prescribed for dismounted formations.

■ 77. **TO DISMISS THE BATTERY.**—*a.* As soon as the battery is parked, chiefs of section inspect their sections and report injuries or losses to their respective chiefs of platoon; the latter make appropriate reports to the battery commander as in the formation of the battery. The battery commander then gives such instructions as may be necessary and directs the first sergeant, "Dismiss the battery." Officers fall out.

b. The first sergeant commands: 1. DRIVERS, 2. DISMOUNT, 3. UNHITCH, 4. UNHOOK TRACES. He conducts the teams to the stables and then commands: FALL OUT, whereupon each chief of section takes command of his section. The assistant executive, assisted by the first sergeant and stable sergeant, superintends the work of the drivers. The executive, assisted by the chief mechanic, superintends the work of the cannoneers in caring for the carriages.

c. In the field, the first sergeant, when directed to dismiss the battery, commands: 1. DRIVERS, 2. DISMOUNT, 3. UNHITCH AND UNHARNESS. Chiefs of section then take charge of their sections.

d. In horse batteries, while the drivers are unhitching, gun squads are marched by the senior gunner to the stables or picket line. At the command FALL OUT, they unsaddle and care for their equipment. Sufficient cannoneers are left to care for the horses; the remainder return to the park to care for the matériel.

e. In garrison, the battery should be formed dismounted, marched to the barracks by the first sergeant, and there dismissed.

SECTION II

COMMANDS AND SIGNALS

■ 78. **GENERAL.**—*a.* Commands may be given orally or by means of the arm, bugle, or whistle. Oral commands may be supplemented by signals.

b. Chiefs of platoon repeat the commands of the battery commander or give appropriate commands to their platoons in time to insure the proper execution of the maneuver. The chiefs of platoon ordinarily give their commands orally, supplemented, if necessary, by the appropriate arm signal. They see that the commands of the battery commander are understood and correctly executed by their platoons.

c. Chiefs of section repeat the commands of their chiefs of platoon, or give appropriate commands to their sections in time to insure the proper execution of the maneuver. Chiefs of section ordinarily give their commands orally, supplemented, if necessary, by arm signals, and see that the command is understood and correctly executed.

d. Commands are of two kinds; first, preparatory commands, which indicate the movement to be executed, such as FORWARD; and second, commands of execution, such as MARCH. A well-defined pause should be made between the two kinds of commands when used together; in mounted movements both should be more or less prolonged. Oral commands should be given facing the unit; arm signals should be given facing in the same direction as the unit.

■ 79. WHISTLE SIGNALS.—*a. Attention.*—One short blast.

b. Battery commander's party report.—One long, followed by one short blast, the whole signal repeated once.

c. Cease firing.—One long blast.

d. Chiefs of section report.—Three long blasts.

e. Officers report.—Two long blasts.

■ 80. ARM SIGNALS.—These signals may be made with either arm or with the saber, but are generally made with the right arm. The signal for the command of execution, MARCH, consists in extending the arm vertically and then lowering it sharply to the side. In movements involving a change in the direction of march, it is desirable for the battery commander to move in the new direction after making the preparatory signal. Arm signals are as follows:

a. Action front (right) (left) (rear).—Extend the arm vertically and lower it quickly, palm vertical, several times to the front (right) (left) (rear).

b. Attention.—Extend the arm vertically and move it laterally several times through a small arc.

c. Back.—Carry the hand to the shoulder and move the open hand, palm extended, several times in the desired direction. This signal is given facing the desired direction of movement.

d. By the right (left) flank.—Extend the arm vertically and lower it to the right (left) until horizontal.

e. Caissons front.—Extend the arm horizontally to the front, palm down, and move it several times through a small horizontal arc.

f. Cease firing.—Raise both arms vertically and hold them in that position until the signal is understood.

g. Change direction to the right (left).—Extend the arm vertically, lower it to the left (right) until horizontal, and describe a horizontal semicircle to the front and right (left).

h. Close intervals.—Point to the section on which intervals are to be closed and then signal right (left) (right and left) oblique, according as the intervals are to be closed on the right, left, or an interior section.

i. Countermarch.—Extend the arm vertically and describe quickly several small horizontal circles.

j. Decrease the gait.—Raise the right elbow to a position above and to the right of the right shoulder and extend the forearm upward and to the left, right hand above the head, palm to the front. To indicate an increased or decreased gait for a maneuver, the appropriate signal is made immediately after the preparatory signal for the maneuver.

k. Double section, right (left) oblique.—Extend the arm horizontally to the right (left), palm vertical, and move it several times through a small vertical arc.

l. Extend intervals.—Point to the section on which intervals are to be extended and then give the appropriate signal for obliquing.

m. Flank column, right (left) oblique.—Extend the arm horizontally to the right (left), palm down, and move it several times through a small horizontal arc.

n. Forward.—Extend the arm vertically and lower it to the front until horizontal.

o. Guide.—After the signal of execution, point at the guiding element.

p. Halt.—Raise the arm vertically to the full extent of the arm. Signal of execution, lower the arm slowly to the side.

q. Increase the gait.—Carry the closed fist to the shoulder and rapidly thrust it vertically upward several times to the full extent of the arm. (See *j* above.)

r. Limber or pack.—Extend both arms laterally, palms down.

s. On right (left) into line.—Signal a change of direction to the right (left) and then signal left (right) front into line.

t. Pieces front.—Extend the arm horizontally to the front, palm vertical, and move it several times through a small vertical arc.

u. Prepare to dismount.—Extend the arm diagonally upward to the side, palm down, and wave the arm downward several times.

v. Prepare to mount.—Extend the arm horizontally to the side, palm up, and wave the arm upward several times.

w. Right (left) about.—Extend the arm horizontally to the left (right) and describe slowly a large horizontal circle-and-one-half to the front and right (left).

x. Right (left) by section.—Point at the right (left) section and then signal forward.

y. Right sections forward.—Carry the closed fist to the shoulder and thrust it forward several times to the full extent of the arm.

z. Right (left) front into line.—Extend the arm vertically and describe several large vertical circles on the right (left) side.

aa. Right (left) into line.—Signal a change of direction to the right (left), followed by describing several small vertical circles with the arm extended.

ab. Right (left) oblique.—Extend the arm obliquely upward to the right (left) front and lower it, describing a large vertical circle on the right (left) side.

ac. Route order.—Extend the arm vertically and move it slowly back and forth from right to left through a wide arc.

SECTION III

MANEUVERS

■ 81. GENERAL.—*a.* Movements that may be executed toward either flank are explained as toward but one flank.

b. Any movement may be executed either from the halt or when marching, unless otherwise prescribed.

c. All mounted movements not specially excepted may be executed at the trot or gallop. To execute a movement at an increased or decreased gait, the command TROT (GALLOP) (WALK) precedes the command MARCH. Gaits are increased or decreased one degree at a time.

d. Movements explained for smaller units are applicable, in general, to larger units with appropriate changes in commands.

e. When, because of differences in length of elements, proper intervals and distances do not obtain during maneuvers, the prescribed intervals or distances will be secured gradually by appropriate modifications of pace.

f. If, in forming elements abreast of each other, the command 1. BATTERY (PLATOON) (SECTION), 2. HALT is given during the movement, only those elements halt which have reached their new positions; the others continue the march and halt on reaching their positions.

g. To correct errors while marching or to suspend the movement, the command is: 1. IN PLACE, 2. HALT. All halt and stand fast. To resume the movement, the command is: 1. RESUME, 2. MARCH.

h. To revoke a preparatory command, the command is: AS YOU WERE.

■ 82. GUIDES.—*a.* Each chief of section supervises the gait and direction of march of his section. The rules for guides are similar to those set forth in paragraph 48. The guide of a battery marching in flank column is the guide of the leading carriage on the flank designated by the battery commander.

b. The battery commander may place himself in front of a carriage and command: GUIDE ON ME. The carriage in rear of the battery commander follows his movements and becomes the guiding carriage.

■ 83. **THE GUIDON.**—On leaving park, the guidon posts himself with the guide of the battery. In all subsequent movements, except during an oblique march, he changes position when necessary so as to be with the guide of the battery.

■ 84. **DIRECTING CARRIAGES.**—In changes of formation, carriages which establish the direction and rate of march of the new formation are termed "directing carriages."

■ 85. **ESSENTIAL CHANGES IN GAITS.**—In the maneuvers hereinafter described, the two general rules following apply as to essential changes in gait.

a. Rule 1.—When a change of formation requires certain carriages to gain ground so as to reach specified positions abreast of the directing carriages, the battery commander may or may not announce an increased gait. If an increased gait is announced, the directing carriages maintain their gait; the others move at the gait announced until they have reached their new position, when they take the gait of the directing carriages. If an increased gait is not announced, the directing carriages reduce their gait one degree; the others maintain their gait until they reach their new position, when they take the gait of the directing carriages. If the movement is executed from a halt, or while marching at a walk, and an increased gait is not ordered, the directing carriages advance three carriage lengths toward the front of the new formation and halt.

b. Rule 2.—When a change of formation requires the directing carriages to gain ground in order to precede the other carriages, the battery commander may or may not announce an increased gait. If an increased gait is announced, the directing carriages take the increased gait at once; the others take it in time to follow the movement in their proper order. If an increased gait is not announced, the directing carriages maintain their gait; the others reduce the gait one degree and take the gait of the directing carriages in time to follow the movement in their proper order. If the movement is executed from a halt or while marching at a walk, and an increased gait is not ordered, the directing carriages move at a walk; the others remain halted,

or halt, and take the gait of the directing carriages as prescribed above.

■ 86. **ALINEMENTS.**—The battery is alined in a manner and by commands similar to those given in paragraph 47. The battery commander supervises the alinement from a position on the flank toward which the alinement is made and in line with the wheel driver of the base carriage, facing down the line. The first sergeant similarly superintends the alinement of the wheel drivers of the rear-rank carriages. In horse batteries, gun squads aline themselves to the flank ordered under the supervision of their gunners.

■ 87. **TO MARCH TO THE FRONT AND TO HALT.**—The commands are, respectively: 1. FORWARD, 2. MARCH; and 1. BATTERY, 2. HALT.

■ 88. **TO MARCH BY THE FLANK.**—The command is: 1. BY THE RIGHT (LEFT) FLANK, 2. MARCH. Except as noted below, all carriages simultaneously turn to the right. If the battery is in line with closed intervals, the movement is executed by sections successively instead of simultaneously. If executed while marching at closed intervals, all sections except the one on the designated flank halt at the second command and then follow by a successive movement. This movement is not executed from section column unless it is intended to march by the flank but a short distance and then resume section column.

■ 89. **TO MARCH TO THE REAR.**—*a. By an about.*—The command is: 1. RIGHT (LEFT) ABOUT, 2. MARCH. All carriages simultaneously execute the about. In horse batteries, because of the presence of the gun squads, the leading carriages, on making the about, modify their gait slightly to obtain the prescribed distances.

b. By a countermarch.—Being in order in line or in section column, the command is: 1. COUNTERMARCH, 2. MARCH. The leading carriage of each section executes left about, followed in trace by its rear carriage.

■ 90. **BEING IN LINE AT CLOSED INTERVALS, TO MARCH TO THE REAR.**—The command is: 1. RIGHT SECTIONS FORWARD, 2. MARCH, 3. RIGHT (LEFT) ABOUT, OR COUNTERMARCH, 4. MARCH,

5. GUIDE RIGHT (LEFT). At the second command, the right section of each platoon moves forward so as to clear the left section. If an increased gait is ordered, the right sections take the gait indicated; otherwise the left sections reduce the gait one degree, or, if halted, remain halted. As soon as the right sections are clear of the left sections, the fourth command is given and all sections take the gait of the right sections. On completion of the about or countermarch, the fifth command is given, and the rear sections increase the gait to reach their positions in line.

■ **91. TO MARCH OBLIQUELY.**—The command is: 1. RIGHT (LEFT) OBLIQUE, 2. MARCH. At the second command, carriages oblique simultaneously and move on parallel lines, alined from front to rear and right to left. The movement should be such that on executing a second oblique in either direction carriages will have the proper distances, intervals, and alinements.

■ **92. TO CHANGE DIRECTION WHEN IN COLUMN.**—The command is: 1. COLUMN RIGHT (LEFT), 2. MARCH. If in section column, the leading carriage makes a 90° turn followed in trace by the other carriages. If in double section or flank column, the outside carriages increase the gait one degree during the turn. COLUMN HALF RIGHT (LEFT) may be executed.

■ **93. TO CHANGE DIRECTION WHEN IN LINE.**—The command is: 1. BATTERY RIGHT (LEFT) WHEEL, 2. MARCH. The pivot section executes COLUMN RIGHT; the others move to their positions in line by twice executing COLUMN HALF RIGHT. (Rule 1.) BATTERY RIGHT (LEFT) HALF WHEEL may be executed.

■ **94. PASSAGE OF CARRIAGES.**—Being in line or section column, the command is: 1. PIECES (CAISSONS) FRONT, 2. MARCH. The carriages designated in the command are the rear carriages; each inclines to the left, passes the leading carriage, and takes position in front of it. (Rule 2.)

■ **95. TO CLOSE OR TO EXTEND INTERVALS IN LINE.**—The command is: 1. ON (SUCH) SECTION, 2. TO (SO MANY) YARDS, 3. CLOSE (EXTEND) INTERVALS, 4. MARCH. The indicated section moves straight to the front; the others incline toward or

away from the indicated section and move to the front when at the proper interval. (Rule 1.)

■ 96. TO FORM SECTION (DOUBLE SECTION) COLUMN TO THE FRONT FROM LINE (DOUBLE SECTION LINE).—The command is: 1. RIGHT (LEFT) BY SECTION, 2. MARCH. The right section moves straight to the front; the others successively (simultaneously) change direction to the right and then successively to the left so as to follow in column. (Rule 2.)

■ 97. TO FORM LINE (DOUBLE SECTION LINE) TO THE FRONT FROM SECTION (DOUBLE SECTION) COLUMN.—The command is: 1. RIGHT (LEFT) FRONT INTO LINE, 2. MARCH. The leading section moves straight to the front; the others move into their positions by two obliques. To form at closed intervals, the command is: 1. AT (SO MANY) YARDS, 2. RIGHT (LEFT) FRONT INTO LINE, 3. MARCH. (Rule 1.)

■ 98. TO FORM LINE TO THE RIGHT (LEFT) FROM SECTION COLUMN.—The command is: 1. RIGHT (LEFT) INTO LINE, 2. MARCH. The leading section executes COLUMN RIGHT and moves forward; the others move forward, successively execute COLUMN RIGHT, and move into their positions in line to the right of the leading section. The second section in column inclines to the right to clear the leading section when the latter is moving at a slower gait. Line may be formed at closed intervals, the first command being preceded by the command AT (SO MANY) YARDS. (Rule 1.)

■ 99. TO FORM LINE ON THE RIGHT (LEFT) FROM SECTION OR DOUBLE SECTION COLUMN.—The command is: 1. ON RIGHT (LEFT) INTO LINE, 2. MARCH. Executed as in RIGHT INTO LINE, except that the second section in the column inclines to the left in order to clear the leading section and that each section passes beyond the preceding one before turning to the right. Rule 1 applies, except that the leading section is habitually halted on advancing three carriage lengths in the new direction. Line may also be formed at closed intervals, the first command being preceded by the command AT (SO MANY) YARDS.

■ 100. TO FORM FLANK COLUMN FROM SECTION COLUMN.—The command is: 1. FLANK COLUMN, 2. RIGHT (LEFT) OBLIQUE,

3. MARCH. Rear carriages of sections simultaneously oblique to the right and then to the left when by so doing they will have their prescribed intervals. Carriages in rear of the leading section close at the gait of the obliquing carriages. (Rule 1.)

■ 101. TO FORM LINE TO THE FRONT FROM FLANK COLUMN.—The command is: 1. RIGHT (LEFT) FRONT INTO LINE, 2. MARCH. Carriages on the right execute RIGHT FRONT INTO LINE; those on the left move by the right flank, each forming in section column behind the leading carriage of its section. (Rule 1.)

■ 102. TO FORM LINE TO THE FLANK AT CLOSED INTERVALS FROM FLANK COLUMN.—The command is: 1. AT (SO MANY) YARDS, 2. RIGHT (LEFT) INTO LINE, 3. MARCH. RIGHT INTO LINE is executed, each section moving successively by the right flank. (Rule 1.)

■ 103. TO FORM SECTION COLUMN FROM FLANK COLUMN.—The command is: 1. PIECES (CAISSONS) FRONT, 2. MARCH. The designated carriage of the leading section moves straight to the front; the other carriage of this section obliqued in time to follow in the track of the designated carriage. The other sections execute the movement similarly. (Rule 2.)

■ 104. TO FORM DOUBLE SECTION COLUMN FROM FLANK COLUMN.—The command is: 1. DOUBLE SECTION, 2. RIGHT (LEFT) OBLIQUE, 3. MARCH. Carriages on the left incline sharply to the right and move abreast of their right carriages. (Rule 1.)

■ 105. TO FORM DOUBLE SECTION LINE FROM LINE.—The command is: 1. DOUBLE SECTION, 2. RIGHT (LEFT) OBLIQUE, 3. MARCH. In each section, the rear carriage inclines to the right and places itself abreast of the leading carriage. (Rule 1.)

■ 106. TO FORM DOUBLE SECTION COLUMN FROM SECTION COLUMN.—The command is: 1. DOUBLE SECTION, 2. RIGHT (LEFT) OBLIQUE, 3. MARCH. Each section forms double section; carriages in rear of the leading one close at the gait of the carriages which incline to form double section. (Rule 1.)

- 107. TO FORM LINE FROM DOUBLE SECTION LINE.—The command is: 1. PIÈCES (CAISSONS) FRONT, 2. MARCH. Each section forms in section column. (Rule 2.)
- 108. TO FORM SECTION COLUMN FROM DOUBLE SECTION COLUMN.—The command is: 1. PIÈCES (CAISSONS) FRONT, 2. MARCH. Each section forms in section column successively. (Rule 2.)
- 109. TO FORM FLANK COLUMN FROM DOUBLE SECTION COLUMN.—The command is: 1. FLANK COLUMN, 2. RIGHT (LEFT) OBLIQUE, 3. MARCH. Each carriage on the right inclines sharply to the right and takes position in flank column at the prescribed interval. (Rule 1.)
- 110. MANEUVERING WHEN IN DOUBLE SECTION.—Being in double section, the section is maneuvered as if it were a single carriage. Similarly, the double section line or column is maneuvered as explained for the order in line or in section column with obvious exceptions due to the formation.

SECTION IV

FORMATION IN BATTERY AND RESUMPTION OF MARCHING FORMATION

(FM 6-series for the Service of the Piece should be studied in connection with this section.)

- 111. FORMING IN BATTERY.—*a.* Frequently, especially when occupying staggered positions and where concealment of the evidences of occupation would be furthered thereby, batteries are established in position by having each section conducted to and established in position by its chief of section.
- b.* In forming in battery with regular intervals between sections, the double section line or column may be formed preliminary to taking the order in battery; the former for unlimbering for action either to the front or to the rear, the latter for unlimbering for action to the flank.
- c.* When going into position to fire or practice fire discipline, the battery commander, chiefs of platoon, and chiefs of section dismount. One of the buglers takes the battery commander's horse, the other the horses of the executive and

his assistant. The chiefs of section turn their horses over to the swing drivers of the pieces.

d. In horse batteries, cannoneers are usually dismounted before approaching the position.

e. The caissons of the fifth section are disposed as directed by the battery commander.

■ 112. DISPOSITION OF LIMBERS.—*a.* At ceremonies and drills, limbers moving at a trot are posted 25 yards in rear of their carriages. In limbering, the gait is a walk unless otherwise ordered.

b. In active service and in instruction simulating it, limbers are conducted by the first sergeant to a place previously designated by the battery commander. They are disposed to take the best advantage of cover. Both in limbering and unlimbering, the gait is a walk unless otherwise ordered.

■ 113. TO UNLIMBER TO FIRE.—The command is: ACTION FRONT (REAR) (RIGHT) (LEFT).

■ 114. TO LIMBER.—The command is: LIMBER FRONT AND REAR (REAR). If in rear of the pieces, the limbers move out simultaneously and incline well to the left before moving into positions for limbering. If posted other than in rear of the pieces, the limbers move toward the nearest flank of the position in section column, and on approaching the position the piece and caisson limbers separate and form two columns, each column moving toward the trails of the corresponding carriages.

■ 115. FORMATIONS AFTER LIMBERING FRONT AND REAR.—*a.* *To march in line.*—The command is: 1. PIECES (CAISSONS) FRONT, 2. MARCH. The designated carriages move straight to the front; the others execute a right about and increase the gait as necessary.

b. *To form double section line.*—The command is: 1. FORM DOUBLE SECTION LINE, 2. MARCH. Caissons stand fast, pieces incline to the right, execute left about, and place themselves on the right of their respective caissons.

c. *To form flank column.*—The command is: 1. FLANK COLUMN, 2. PIECES BY THE RIGHT (LEFT) FLANK. 3. MARCH. All carriages move by the flank toward the direction indicated, caissons maneuvering as necessary to form flank column.

d. To form double section column.—The command is: 1. DOUBLE SECTION, 2. PIECES BY THE RIGHT (LEFT) FLANK, 3. MARCH. All carriages move by the flank toward the direction indicated, caissons maneuvering as necessary to form double section column.

■ 116. FORMATIONS AFTER LIMBERING REAR.—*a. To march in line.*—The command is: 1. PIECES (CAISSONS) FRONT, 2. MARCH. The designated carriages move as the leading carriage in each section.

b. To form double section line.—The command is: 1. FORM DOUBLE SECTION LINE, 2. MARCH. Caissons stand fast, pieces move up on the left of their caissons and halt.

c. To form flank column or double section column.—Execute by the same commands and in the same manner as described in paragraph 115 *c* and *d*.

SECTION V

HEADQUARTERS BATTERIES AND COMBAT TRAINS

■ 117. HEADQUARTERS BATTERY, BATTALION.—The formation for ceremonies and maneuvers is given in figure 5. The maneuvers of this unit are similar to those of a gun battery.

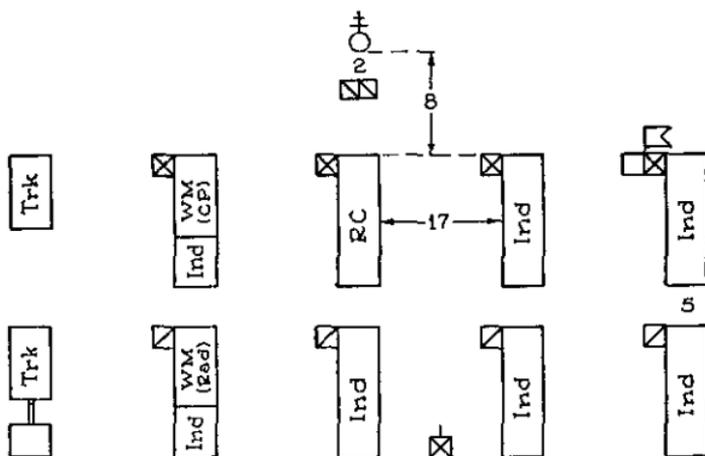


FIGURE 5.—Order in line, battalion headquarters battery, horse-drawn regiment. (For legend, see fig. 4.)

NOTE.—At the discretion of the battalion commander, the trucks may form with the combat train.

■ 118. **MOTORIZED UNITS OF HORSE-DRAWN REGIMENTS.**—Maneuvers are limited to those necessary for ceremonies, to form park, and for marching in column. The principles applicable are analogous to those prescribed in chapter 4, part two, for motorized organizations.

a. Headquarters battery, regiment.—The formation for ceremonies and maneuvers is given in figure 6.

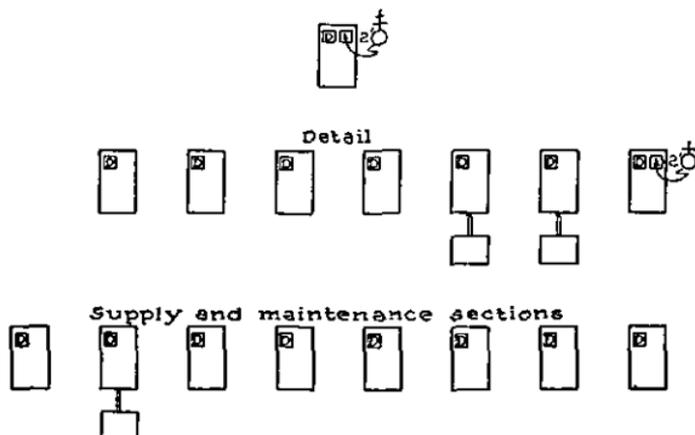


FIGURE 6.—Order in line, regimental headquarters battery, horse-drawn regiment. (For legend, see fig. 4.)

NOTE.—Three vehicles for the regimental commander and his commissioned and noncommissioned staff and the motorcycles with side cars have been omitted from this figure.

b. Battalion combat train.—The formation for ceremonies and maneuvers is given in figure 7.

CHAPTER 3

MOTOR TRACTION AND THE DRIVER

■ 119. **REFERENCES.**—*a.* FM 25-10 contains detailed instructions on operation, maintenance, and inspection of motor vehicles to include general principles of motor transport; the military automotive driver; marches or motor movements; pioneer work, field expedients, and difficult operations; military automotive maintenance; loading for movement by rail or water.

b. Manufacturers' handbooks accompanying vehicles should be used to obtain detailed information concerning the construction, operation, and maintenance requirements of commercial vehicles. Appropriate Technical Regulations cover the construction and maintenance of vehicles supplied by the Ordnance Department.

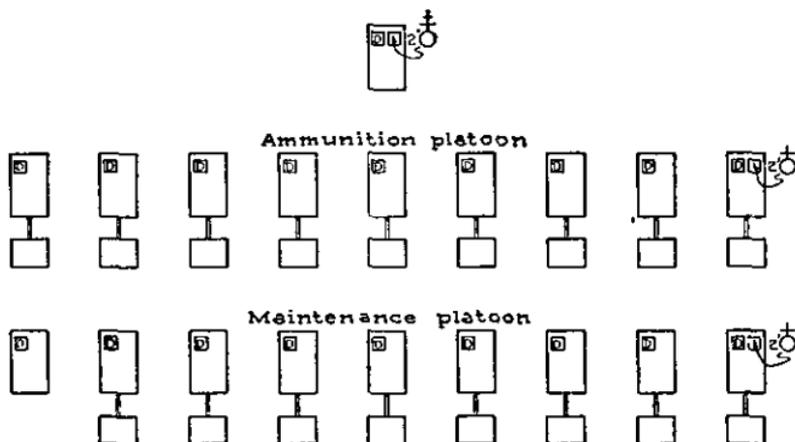


FIGURE 7.—Order in line, battalion combat train, horse-drawn regiment. (For legend, see fig. 4.)

NOTE.—Three motorcycles with side cars (not shown), if present, are posted as prescribed by the commanding officer.

■ 120. OBJECTIVE OF TRAINING.—The service required of field artillery motor transport involves its employment in both strategic and tactical operations. The training of motorized units, therefore, must enable them to operate with facility both on roads over considerable distances and off roads over varied terrain of the battlefield. In addition, it may be required to march in the zone of the interior under conditions where minimum conflict with civilian traffic is of prime importance and where resultant decentralization of control imposes increased responsibility of the individual operators.

CHAPTER 4

MANEUVERS COUPLED—THE BATTERY

	Paragraphs
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SECTION I

GENERAL

■ 121. SCOPE.—The provisions of this chapter apply, primarily, to the light truck-drawn artillery, but with obvious modifications are applicable to all calibers of motorized artillery.

SECTION II

FORMATIONS

■ 122. FORMATIONS OF THE BATTERY.—*a. Order in line.*—The battery is formed as indicated in figure 8. The order of vehicles from right to left may be reversed in each line.

b. Order in section column.—The vehicles of each subdivision of the battery are in column, the subdivisions following in the order: battery headquarters, firing battery, and the fifth and maintenance sections.

c. Order in battery.—The pieces placed for action are in line in the order or the reverse order, of their permanent numbers from right to left. The motor vehicles are at such places as the battery commander may direct.

d. Order in line of vehicles.—The formation is the same as the order in line, except that the vehicles are arranged in a single line, subdivisions in the order (or the reverse order) from right to left as in *b* above.

e. Order in flank column.—This formation is one which would result from a simultaneous movement to the flank by all vehicles from the order in line.

■ 123. INTERVALS AND DISTANCES.—*a. Intervals.* The interval between adjacent wheels of vehicles in line is 17 yards or as directed by the battery commander. In flank column, the interval is that which results from the movement to the flank from the order in line.

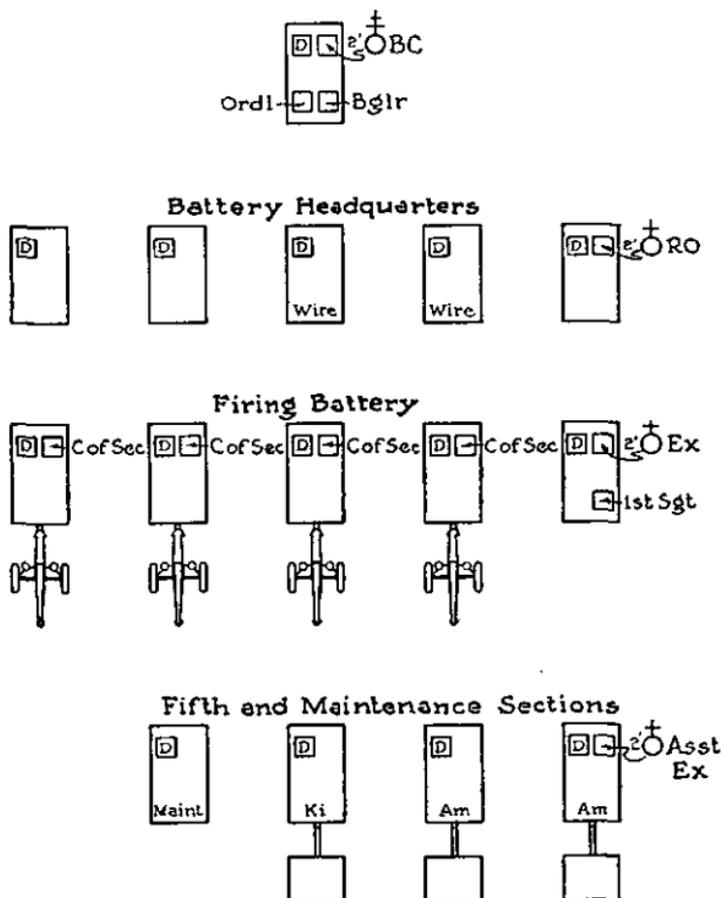


FIGURE 8.—Order in line, light truck-drawn battery. (For legend, see fig. 4.)

NOTE.—For maneuver purposes, the battery is divided into battery headquarters, guns and their prime movers, and fifth and maintenance sections. The general formation applies to any piece battery, even though the number and assignment of vehicles present with the unit differs from that illustrated.

b. Distances.—(1) *In line.*—The distance between subdivisions of the battery in line at a halt is 5 yards, measured from the rear of the longest element of any subdivision to the front of the following subdivision.

(2) *In column.*—The distance between vehicles in column at a halt is 5 yards. When marching at very slow speeds, a distance of 5 yards can be maintained. As the speed of the battery is increased, the distance between vehicles must likewise be increased. Under no circumstances should the distance be less than one and one half times the minimum distance in which the vehicle can be stopped from the particular speed and on the particular road surface in use.

■ 124. **POSTS OF INDIVIDUALS.**—The posts of individuals for the battery in line are shown in figure 8. Except for officers, who are posted dismounted as shown, individuals, when dismounted, are 2 feet outside the wheels and facing to the front. Cannoneers take post as prescribed in the FM 6-series for the Service of the Piece. In flank column, the battery commander's car is opposite and 15 yards from the head of the battery and on whichever flank the maneuver places it. In section column, his car is at the head of the battery. In all formations, the posts of individuals other than the battery commander are determined by the location of their respective vehicles in the formation. Officers and noncommissioned officers leave their posts when necessary for the better performance of their duties.

■ 125. **DISPOSITION IN PARK.**—Carriages are arranged in the order in line, pieces uncoupled.

■ 126. **PREPARING TO LEAVE PARK.**—*a.* The battery being in line dismounted, in front of the park, the first sergeant commands: **POSTS.** The enlisted personnel hasten to take their posts dismounted as indicated in paragraph 124, the battery headquarters under the supervision of the reconnaissance officer, the firing battery under the supervision of the executive, and the fifth and maintenance sections under the supervision of the assistant executive. Necessary adjustments in assignment of personnel are made, the pieces are coupled, and the drivers make the prescribed inspections of their vehicles (FM 25-10). Each driver, after inspecting his vehicle, reports the result to

his chief of section who, in turn, reports to his chief of subdivision. Each chief of subdivision, having received the reports, makes a general inspection of his subdivision and commands: **REST**. Subdivisions are called to attention when the battery commander takes his post in front of the right flank of the battery, and the chiefs of subdivision report in order from front to rear (when formed in the gun shed, from right to left), "Battery headquarters in order, sir," or "Firing battery in order, sir," or "Fifth and maintenance sections in order, sir," or report deficiencies noted as a result of the inspections. Following these reports, the first sergeant reports, "Sir, the battery is present or accounted for," or "Sir, (so many) noncommissioned officers and privates absent."

b. The battery commander then commands: **MOUNT**. The personnel, except the battery commander and chiefs of subdivision, mount the vehicles, and the battery commander commands: **START ENGINES**. As each engine is started, the driver raises his left hand as a signal that his vehicle is ready to move. Each chief of subdivision, when his subdivision is ready to move, executes the same signal. The battery commander and chiefs of subdivision mount at the command of execution for the first movement.

■ 127. To **DISMISS THE BATTERY**.—*a.* As soon as the battery is parked, the battery commander takes post dismounted in front of the right flank of the battery and commands: **STOP ENGINES, DISMOUNT**. Chiefs of section inspect their sections and report damage or losses to their respective chiefs of subdivision, who in turn report to the battery commander as in the formation of the battery. The battery commander then gives such instructions as may be necessary and directs the first sergeant, "Dismiss the battery." Officers fall out.

b. The first sergeant then commands: **FALL OUT**, whereupon each chief of section takes charge of the work of routine maintenance. Each officer supervises the work of his department.

c. In garrison, when the matériel is in order, the battery is formed dismounted, marched to barracks by the first sergeant, and there dismissed.

SECTION III

COMMANDS AND SIGNALS

■ 128. GENERAL.—*a.* The commands and signals given in chapter 2, part one, are applicable to the maneuvering of motorized units where appropriate; those given in paragraph 129 are special for motorized units. Commands may be given orally or by means of the arm, bugle, or whistle. Oral commands may be supplemental by signal.

b. Chiefs of subdivision repeat the commands of the battery commander or give appropriate commands to their subdivisions in time to insure the proper execution of the maneuver. The chiefs of subdivision ordinarily give their commands orally or by arm signal, and see that the commands of the battery commander are understood and correctly executed by their subdivisions.

c. Chiefs of vehicle repeat the commands of their chiefs of subdivision or give appropriate commands to their drivers to insure the proper execution of the maneuver. The senior man riding on a vehicle is the chief of vehicle.

■ 129. SIGNALS.—Signals are as prescribed in FM 25-10 with the following additions:

a. Change gear range.—These signals are given at the halt only.

(1) *High range.*—Move the arm up and down several times, fingers pointed upward.

(2) *Low range.*—Move the arm several times from the vertically extended position downward with the fingers pointed downward.

b. Couple.—Extend both arms laterally, palms down.

c. Gear shifting.—To indicate the gear to be used in starting the vehicles, or to which a shift is to be made at any subsequent time, extend the arm vertically and show the number of fingers corresponding to the gear desired, as follows:

(1) *First.*—Index finger only.

(2) *Second.*—Index and second fingers.

(3) *Third.*—Index, second, and third fingers.

(4) *Fourth.*—Index, second, third, and fourth fingers.

(5) *Reverse*.—The closed fist.

d. Right (left) by vehicle.—Point at the right (left) vehicle and then signal forward.

SECTION IV

MANEUVERS

■ 130. **GENERAL**.—*a.* The number of maneuvers prescribed herein are limited to those essential for combat and ceremonies. Mobility in truck-drawn units is attained primarily by road marching and field maneuvers in contradistinction to drill-ground maneuvers.

b. Movements which may be executed toward either flank are explained as toward but one flank.

c. Any movement may be executed either from a halt or when marching, unless otherwise prescribed.

d. When, because of the differences in lengths of elements, proper intervals and distances do not obtain during maneuvers, the prescribed intervals or distances will be secured gradually by appropriate changes of speed.

e. If, in forming elements abreast of each other, the command **HALT** is given during the movement, only those elements halt which have reached their new positions; the others continue the march and halt on reaching their positions.

■ 131. **GUIDES**.—Each chief of vehicle supervises the speed and direction of march of his vehicle. As soon as the march in line or flank column has begun, one of the flank elements is designated as guide of the movement, thus, "Guide right (left)." Other elements aline themselves on the guide and maintain their intervals from that flank. Guides are responsible that the proper direction and rate of march are maintained.

■ 132. **DIRECTING VEHICLES**.—In changes of formation, vehicles which establish the direction and rate of march of the new formation are termed directing vehicles.

■ 133. **GUIDON**.—The battery guidon is mounted in a suitable bracket on the battery commander's car.

■ 134. ALINEMENTS.—The base vehicle being established in position, the command is: 1. RIGHT (LEFT), 2. DRESS, 3. FRONT. At the command DRESS, drivers other than the base driver look to the flank designated and aline their vehicles. Vehicles cover from front to rear. Each chief of subdivision supervises the alinement of his subdivision from a position on the flank occupied by his vehicle and in line with the radiator of the base vehicle, facing down the line.

■ 135. TO MARCH TO THE FRONT AND TO HALT.—The commands are, respectively: 1. FORWARD, 2. MARCH; and 1. BATTERY, 2. HALT.

■ 136. TO MARCH BY THE FLANK.—The command is: 1. BY THE RIGHT (LEFT) FLANK, 2. MARCH. Except as noted below, all vehicles simultaneously turn to the right. If the battery is in line with closed intervals, the movement is executed by files of vehicles successively instead of simultaneously. If executed while marching at closed intervals, all vehicles except those on the designated flank halt at the second command and then follow by successive movement. Movements by the flank while marching should not be attempted except at very slow speeds, and then only according to a prearranged plan and on a prearranged signal. This movement is not executed from column except when it is intended to march by the flank but a short distance and then resume the formation in column.

■ 137. TO MARCH TO THE REAR BY AN ABOUT.—The command is: 1. RIGHT (LEFT) ABOUT, 2. MARCH. All vehicles simultaneously execute the about, turning on the shortest practicable radius.

■ 138. TO MARCH OBLIQUELY.—The command is: 1. RIGHT (LEFT) OBLIQUE, 2. MARCH. At the second command, vehicles oblique simultaneously, moving in parallel lines, alined from front to rear and from right to left. The movements should be such that, on executing a second oblique in either direction, carriages will have the proper distances, intervals, and allnements.

■ 139. TO CHANGE DIRECTION WHEN IN COLUMN.—The command is: 1. COLUMN RIGHT (LEFT), 2. MARCH. If in section column, the leading vehicle makes a 90° turn followed in trace

by the other vehicles. If in flank column, the file of vehicles on the designated flank executes the movement prescribed for vehicles in section column. Vehicles on the outside of the turn independently increase the speed and conform to the movement of the corresponding vehicles on the inside flank. COLUMN HALF RIGHT (LEFT) may be executed.

■ 140. TO FORM SECTION COLUMN TO THE FRONT FROM LINE.—The command is: 1. RIGHT (LEFT) BY VEHICLE, 2. MARCH. The right vehicle of the leading subdivision moves straight to the front; the other vehicles of the subdivision successively incline to the right and then to the left so as to follow in column. A similar movement is successively executed by the other subdivisions of the battery so as to follow in column. If executed while marching and an increased speed is not announced by the battery commander, all vehicles except the directing vehicle reduce the speed sufficiently to execute the maneuver, resuming the original speed at such time as will enable each vehicle to take its proper place in column. If an increased speed is announced, the directing vehicle takes up the increased speed; other vehicles take up the new speed in time to take their proper place in column. The battery commander places his car in front of the directing vehicle, which thereafter conforms to the speed set by the battery commander's car.

■ 141. TO FORM LINE TO THE FRONT FROM SECTION COLUMN.—The command is: 1. RIGHT (LEFT) FRONT INTO LINE, 2. MARCH. The leading vehicle of the leading subdivision moves straight to the front six vehicle lengths and halts; other vehicles of the leading subdivision move to their positions by two obliques. A similar movement is executed successively by the subdivisions in rear. Line may be formed at any desired interval by instructing the necessary personnel prior to the movement as to the interval desired, by the use of stakes to mark the location of the vehicles, or by the use of markers who individually place the leading vehicles in the formation. A single line of vehicles may be formed by the same command, the necessary personnel first being informed as to the formation desired. This movement is executed by the entire battery as described for the leading subdivision.

SECTION V

FORMATION IN BATTERY AND RESUMPTION OF MARCHING FORMATION

■ 142. FORMING IN BATTERY.—Batteries of motorized artillery are usually established in position from section column, each section being independently conducted to and established in position by its chief. The order in battery may be formed by the command ACTION FRONT (REAR) (RIGHT) (LEFT). The movement is executed as prescribed in the FM 6-series for the Service of the Piece.

■ 143. DISPOSITION OF MOTOR VEHICLES.—The piece trucks are conducted by the first sergeant to a place designated by the battery commander. In active service or instruction simulating it, they are disposed to take advantage of concealment and cover. The ammunition trucks halt at points designated by the battery commander for unloading ammunition and thereafter join the other vehicles under the direction of the first sergeant.

■ 144. TO COUPLE.—The command is: COUPLE. The movement is executed as prescribed in the FM 6-series for the Service of the Piece.

■ 145. FORMATION AFTER COUPLING.—The battery is in line and may be maneuvered accordingly.

SECTION VI

HEADQUARTERS BATTERIES AND COMBAT TRAINS

■ 146. FORMATIONS AND MANEUVERS.—These batteries are formed as illustrated in figures 9, 10, and 11. They are maneuvered in accordance with the principles prescribed for the piece battery.

CHAPTER 5

MOUNTED FORMATIONS AND MANEUVERS OF THE BATTALION, REGIMENT, AND BRIGADE

■ 147. THE BATTALION.—Formations and maneuvers for horse-drawn units apply with obvious modifications to horse artillery. Where, in the case of the horse-drawn battalion,

the formation prescribed is impracticable for the combat train, the combat train will take an appropriate formation.

a. *Formations.*—(1) *Line.*—The battalion is in line, each battery in the order in line, the headquarters battery on the right, the combat train on the left, or in the reverse

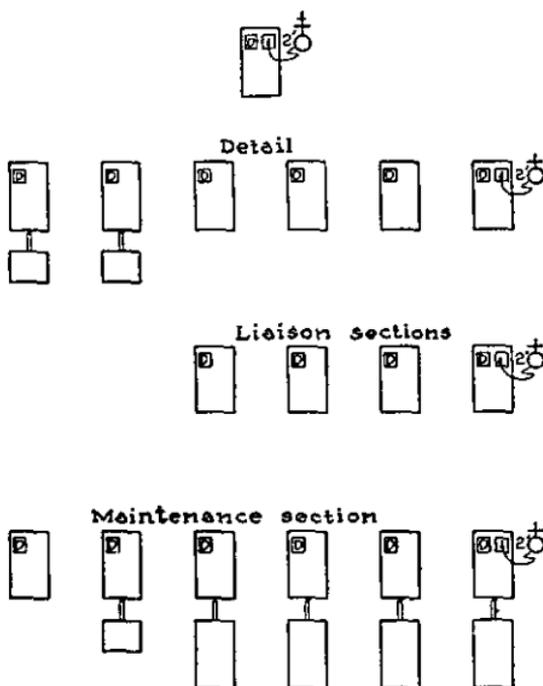


FIGURE 9.—Order in line, battalion headquarters battery, light truck-drawn regiment. (For legend, see fig. 4.)

NOTE.—For maneuver purposes, the battery is divided into the detail, liaison sections, and maintenance section. Until tractors are issued, battery maintenance vehicles will form on the left of liaison sections. In the figure, three vehicles for the battalion commander and his commissioned and noncommissioned staff have been omitted.

order. Normally, the interval between batteries is twice the interval between sections of the battery in the case of horse-drawn batteries and twice the interval between the vehicles in the case of truck-drawn batteries.

(2) *Column of batteries.*—The battalion is in column, each battery in the order in line, headquarters battery leading,

combat train last, or in the reverse order. The distance between batteries is one battery front unless *closed in mass*, when the distance becomes one carriage length for horse-drawn units and as may be prescribed for truck-drawn units.

(3) *Column of batteries in double section line.*—This formation is applicable to horse-drawn units. Distances are as given in (2) above.

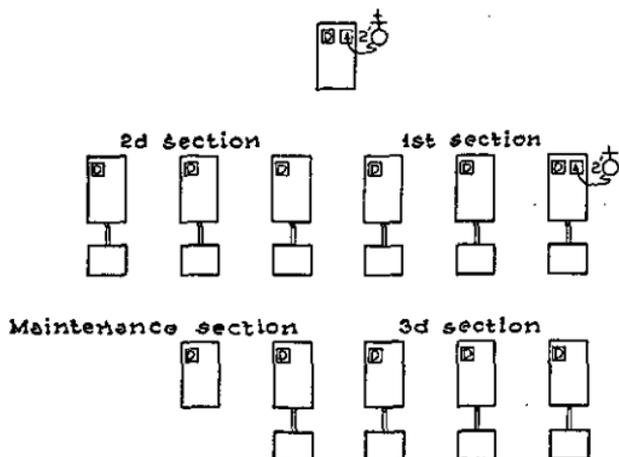


FIGURE 10.—Order in line, battalion combat train, light truck-drawn regiment. (For legend, see fig. 4.)

NOTE.—Two motorcycles with side cars (not shown), if present, are posted as prescribed by the commanding officer.

(4) *Column of batteries in line of vehicles.*—This formation is applicable to truck-drawn units. Each battery is formed in line of vehicles. Distances are as the battalion commander may prescribe.

(5) *Line of section (double section) (flank) columns.*—Line of double section columns is applicable to horse-drawn units. The battalion is in line, each battery in the order in section (double section) (flank) column. Normal interval in each case is, respectively, such as would result if the batteries had executed a simultaneous change of direction to the flank from a formation of the battalion in the order in section, double section, on flank column. Closed interval is one carriage length or such as the battalion commander may prescribe.

(6) *Section, double section, or flank column.*—Double section column is applicable to horse-drawn units. The distance between batteries is one carriage length for horse-drawn units and as may be prescribed for truck-drawn units.

b. *Posts of individuals.*—(1) *The battalion commander.*—
(a) *Order in line.*—Opposite the center and 30 yards in front of the line of battery commanders.

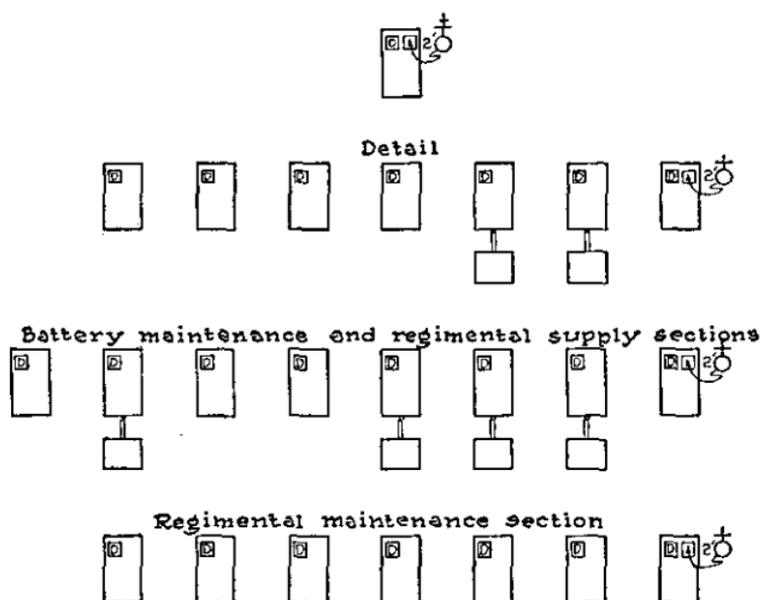


FIGURE 11.—Order in line, regimental headquarters battery, light truck-drawn regiment. (For legend, see fig. 4.)

NOTE.—Three vehicles for the regimental commander and his staff and the motorcycles and side cars have been omitted from this figure.

(b) *Column of batteries.*—Thirty yards in front of the battery commander of the leading battery.

(c) *Order in section column, double section column, and flank column.*—Thirty yards in front of the leading carriages or vehicles.

(2) *Commissioned staff.*—(a) *Horse-drawn battalions.*—In line 3 yards in rear of the battalion commander, the second officer from the right being immediately in rear of the bat-

talion commander. Usually staff officers are arranged from right to left in order of rank, the senior on the right. They may be arranged as directed by the battalion commander.

(b) *Motorized battalions.*—When dismounted, the staff is posted as in FM 22-5. The vehicles of the battalion commander and his staff are posted to his left rear, the car of those members of the commissioned staff not riding with the battalion commander being 5 yards behind the latter's car. When mounted, the battalion commander and his staff take post in the vehicles so placed.

(3) *Noncommissioned staff and enlisted personnel.*—(a) *Horse-drawn battalions.*—In line 2 yards in rear of the commissioned staff, agents on the left, buglers on their right.

(b) *Motorized battalions.*—When dismounted, they are in line 1½ paces in rear of the commissioned staff. Their vehicles are on the left of and in the same line as the vehicles of the commissioned staff. When mounted, they take post in the vehicles so placed. When moving out, these cars follow the cars of the commissioned staff.

c. *To form the battalion.*—Officers draw and return saber with the battalion commander. Sabers are habitually drawn at ceremonies except when riding in motor vehicles. In the order in line, when batteries are being alined, the battery commander of the right battery superintends the alinement from the flank nearer the point of rest; other battery commanders from the flank farther from the point of rest. Battalions may be formed in any convenient formation. When formed other than as prescribed below, the adjutant joins the battalion commander when the formation is completed and reports the battalion formed.

(1) *Horse-drawn battalions.*—*Adjutant's Call* having been sounded, the adjutant and the sergeant major, respectively, post themselves facing each other 6 yards outside the points where the right and the left of the right battery of the battalion are to rest. Batteries approach the line from the rear and are posted in succession from right to left so that the heads of the lead horses will be on the line established by the adjutant and the sergeant major. When the right battery has been established, the sergeant major takes his post. All batteries are alined to the right. When the line has been formed,

the adjutant moves at a trot or a gallop by the shortest line to a point opposite the center of the battalion and midway between the battalion commander and the line of battery commanders, halts, faces the battalion commander, salutes with the hand, and reports, "Sir, the battalion is formed." The battalion commander returns the salute with the hand, and the adjutant then takes his post with the staff. As soon as the adjutant has taken his post, the battalion commander draws saber. When being formed for ceremonies as part of a regiment, the battalion is established in position in a manner similar to that prescribed above, except that the adjutant does not report the battalion formed. When the battalion has been formed, the adjutant moves directly to his post with the remainder of the staff, which is in position facing the front. When the adjutant reaches his post, the battalion commander faces to the front and draws saber.

(2) *Motorized battalions.*—These battalions are formed in a similar manner with the following exceptions: The adjutant and the sergeant major ride in motor vehicles. To establish the line, they place their motor vehicles in positions similar to the positions of the adjutant and the sergeant major in horse-drawn organizations. During the alinement of the batteries of the battalion, they may dismount for the better performance of their duties. When the line has been formed, they move to their posts at a previously prescribed speed. When the adjutant's car reaches the point midway between the battalion commander and the line of battery commanders, it halts; the adjutant dismounts; the car proceeds immediately to its position in rear of the battalion commander's car. The adjutant makes his report as previously described for horse-drawn units and takes his post with the staff. The battalion commander and his staff dismount before receiving the report of the adjutant. Battery commanders and chiefs of subdivisions dismount to aline their respective units. Having performed this duty, they take their posts and remain dismounted until a movement has been ordered or a command to mount has been given. When a movement has been ordered, the staff mounts; the battalion commander, battery commanders, and chiefs of subdivisions mount, each as he gives the command of execution for the movement.

(3) *To dismiss the battalion.*—The battalion commander commands: DISMISS YOUR BATTERIES, or sends appropriate instructions.

d. Maneuvers.—Commands of the battalion commander are transmitted by agents or are given by arm, saber, bugle, or word of mouth. Battery commanders repeat commands or give such commands as may be necessary; bugles are not used by batteries when maneuvering as part of a battalion. The battalion is maneuvered in accordance with the principles heretofore prescribed for a battery.

■ 148. THE REGIMENT.—*a. Formations.*—Formations of the regiment are similar to those prescribed for the battalion, the intervals and distances between battalions normally being twice those between batteries. In horse-drawn units, a formation in line with battalions closed in mass is termed "a line of masses." The normal interval between battalions in this formation is two carriage lengths. The headquarters battery forms on the right of the battalions. At ceremonies the band is 30 yards to the right of the right battalion. In motorized regiments, or if the nature of the terrain or other considerations require it, the band may be otherwise disposed. In forming horse-drawn units for ceremonies, the regimental headquarters battery and the combat trains are normally formed into a provisional motorized battalion and formed on the left of the regiment.

b. Posts of individuals.—At ceremonies, the post of the regimental commander is opposite the center of the regiment and 30 yards in front of the line of battalion commanders. His staff takes post in general as prescribed for the battalion staff (par. 147b). The post of the standards is between the battalions of a two-battalion regiment or between the batteries of the center battalion of a three-battalion regiment.

c. To form the regiment.—Battalion commanders are informed as to the place and order of formation and form their battalions accordingly. When forming in line, the adjutant indicates to the battalion commander of the right battalion the point of rest and the direction of the front. The adjutant then takes post facing the regiment, opposite its center and midway between the regimental commander and the line of battalion commanders. The regiment having been formed,

the adjutant faces the regimental commander, salutes with the hand, and reports, "Sir, the regiment is formed." The regimental commander returns the salute with the hand, and the adjutant takes his post with the staff. The regimental commander and staff then draw sabers. When the regiment is formed other than as above, the adjutant joins the regimental commander when the last unit is in place and reports the regiment formed.

d. Maneuvers.—The commands of the regimental commander usually are transmitted by agents. Battalion commanders maneuver their battalions so as to place them in the formation desired.

■ 149. THE AMMUNITION TRAIN.—The ammunition train is formed and maneuvered according to the principles prescribed for the battalion.

■ 150. THE BRIGADE.—The brigade is formed as the brigade commander may direct. Commands of the brigade commander usually are transmitted by agents.

CHAPTER 6

DISMOUNTED DRILL

■ 151. GENERAL.—Dismounted drill is prescribed in FM 22-5. All field artillery dismounted formations and movements conform, in general, to FM 22-5, except as indicated in paragraph 152.

■ 152. TO FORM THE BATTERY.—*a. 75-mm truck-drawn gun battery.*—The provisions of paragraph 149, FM 22-5, apply with the following modifications:

(1) At the command **FALL IN**, the battery forms in three subdivisions from right to left as follows: battery headquarters, gun sections, and the fifth and maintenance sections. Each of these subdivisions is considered a platoon. The battery headquarters falls in in four ranks, each rank arranged in the order prescribed by the battery commander. The gun sections fall in in numerical order from front to rear, each rank consisting of a gun section arranged in the order from right to left: chief of section, gunner, cannoneers in numeri-

cal order, drivers, automatic rifleman, and bugler (1st section). The fifth section and the maintenance section fall in in two ranks, the fifth section in the front rank, the maintenance section in the rear rank, each section arranged in the order prescribed by the battery commander.

(2) Reports are not made within platoons or by platoons. At the command REPORT, given by the first sergeant, the senior noncommissioned officers of the various subdivisions report in the following order: battery headquarters, first section, second section, third section, fourth section, fifth section, and maintenance section.

(3) For close-order drill and for ceremonies, the first sergeant equalizes the strengths of the subdivisions (platoons). Sufficient personnel should be shifted to the fifth and maintenance sections to form a third rank, or if it is desired to form two platoons only, these sections should be broken up and the personnel attached to the battery headquarters or the gun sections.

(4) The first sergeant then designates a platoon guide for each of the platoons. No platoon sergeant or second in command is designated. As soon as the platoon guides have taken their posts the first sergeant makes his report to the battery commander.

(5) The battery headquarters is commanded by the reconnaissance officer, the gun sections by the executive, and the fifth and maintenance sections by the assistant executive. The battery has no second in command.

b. 75-mm horse-drawn gun battery.—The provisions of a above apply with the following exceptions:

(1) Four platoons of four ranks each are formed as follows: battery headquarters, first platoon, second platoon, and third platoon.

(2) The first platoon consists of the first and second gun sections; the second platoon, of the third and fourth gun sections. Each section falls in in two ranks, the chief of section and the gun squad in the front rank, the drivers, automatic riflemen, and bugler (1st section) in the rear rank. In the third platoon, the fifth section and the maintenance section each fall in in two ranks in the order prescribed by the battery commander.

(3) The battery headquarters is commanded by the reconnaissance officer, the first platoon by the executive, the second platoon by the assistant executive, and the fifth and maintenance sections by a noncommissioned officer designated by the battery commander.

c. Other batteries.—All other batteries and detachments form dismounted in accordance with the principles described in *a* and *b* above.

PART THREE

MARCHES AND SHELTER

CHAPTER I

MARCHES

■ 153. GENERAL.—A more detailed treatment of marches is contained in FM 25-5 and FM 25-10. The logistics of marches is covered in FM 6-20.

a. The character of marches in time of war depends in general on the proximity of the enemy.

b. Considerations especially applicable to marches in time of peace are given in paragraphs 160 and 161.

c. The battalion is the usual march unit in horse-drawn and pack artillery; the battery, in motorized artillery.

■ 154. PREPARATION OF THE COMMAND FOR A MARCH.—When a march is contemplated, the division or other appropriate unit commander should issue a warning order and notify subordinates of the route, length, and duration of the march, camping areas, and such administrative and supply arrangements as are pertinent. Based upon these instructions, subordinates issue the orders and instructions necessary to insure that everything is in readiness for beginning the march at the time ordered. These instructions cover the subjects of animals or motors, matériel, administration and supply, clothing, tentage, and equipment, including equipment to be turned in to the supply services.

■ 155. ROUTE RECONNAISSANCE.—When practicable, the route should be reconnoitered in advance of the march. Such a reconnaissance just prior to movement of units in combat areas, or on cross-country movement, is imperative. Route

reconnaissance has as one of its principal objectives the determination of necessary pioneer work. The reconnaissance party should have sufficient men and pioneer equipment for making minor repairs to roads, culverts, and bridges. Bridges are inspected for strength. Fords are carefully inspected and the route and critical points thereof marked. For animal-drawn units, suitable watering places are located.

■ 156. FORMATION OF COLUMNS.—*a.* The position of artillery units in column with other troops is discussed in FM 6-20.

b. Groups of vehicles of like speeds are marched as a unit wherever possible. The marching of artillery units, especially truck-drawn units, in column with troops of lesser mobility is avoided unless the tactical situation demands it. In tractor-drawn artillery, the tractors and light vehicles, whenever practicable, are formed into separate columns, unless the tractors have a road speed comparable to that of the truck column.

■ 157. HOUR OF STARTING.—In general, when tactical or other paramount considerations do not require a different hour, the march should start about an hour after daylight. The hour designated should permit proper performance of pre-march duties. Starting a march in darkness is preferable to ending it in darkness. When it is anticipated that a march will start before daylight, all possible preparation for the march should be made the night before.

■ 158. RATES AND LENGTHS.—*a.* The rate of march of artillery, when marching in a mixed column, is governed by that of the troops with which it is marching.

b. Rates and lengths of marches vary, depending upon the type of road, grades, traffic, climatic conditions, and equipment, training, and condition of the unit.

c. When animals of a unit are not in condition, the first 2 or 3 days of an extended march should be comparatively short, the first day's march not exceeding 7 to 8 miles, the second 10 to 12 miles, and the third 14 to 16 miles. Marches should normally be foreseen and animals conditioned to perform them. Avoidance of sore shoulders, sore necks, and sore backs is difficult if unconditioned horses are called upon for marches.

d. On a march in hot weather, a clinical thermometer is often of the greatest service since the horse's temperature is the surest index of his fitness to continue work. The temperature of a horse under normal conditions is from 97.5° to 101.3° F. It rises with exertion. If this rise is small there is no danger, but if it reaches 103° to 104° precautions must be taken. If there be a further rise to 105°, work must be given up entirely.

■ 159. GAITS AND SPEEDS.—*a. Horse-drawn artillery.*—The maintenance of a good average rate throughout the entire march is desirable. To maintain any gait without a break is fatiguing to both men and horses; hence, the walk should be alternated with the trot under favorable road conditions. Trot periods should not exceed 20 minutes. Once or twice during each day's march, when the roads are good and the unit is at a walk, the drivers and individually mounted men should be required to dismount and walk.

b. Truck-drawn artillery.—Speeds and distances between vehicles vary greatly with the type of matériel, traffic congestion, condition of roads, and training of drivers. The distance between vehicles also varies with the speed of the column.

■ 160. CONDUCT OF THE MARCH.—*a.* Precautions must be taken to insure that units follow the correct route. This may be accomplished by the use of guides or route markers, the latter being particularly appropriate for truck-drawn units. These precautions are especially necessary in passing through cities and towns.

b. Field artillery units habitually march in section column and at route order. Elements of march units should be rotated daily in the leading position. If, while marching, an obstacle is encountered by any subdivision, its chief without waiting for orders takes appropriate action for negotiating or avoiding the obstacle.

c. When a carriage falls out of column for adjustment or repair, it is drawn well off the road to the right, and when ready to resume the march takes the first convenient place between march units. It regains its proper place during the first or succeeding halts.

d. In crossing a bridge, unless there is an ample margin of safety in the load capacity of the bridge, the distances between carriages are increased so that not more than one carriage will be on any span at one time. To reduce the strain on a bridge, all carriages should be kept moving, and in truck-drawn and tractor-drawn units the prime movers may be uncoupled and crossed separately, the trailed loads being drawn across by towing or by the use of a winch. Similarly, in horse-drawn units the teams may be unhitched and crossed separately, the carriages being crossed by hand or long tow rope. Should any bridge or culvert be weakened or destroyed by the passage of an artillery unit, the necessary repair is a function of that unit, unless other troops have been detailed for that duty.

e. Dangerous railroad and highway crossings should be guarded by markers. These may be posted by the route-marking detail for the entire column, or by each battery or march unit commander in turn as his unit approaches the crossing. Whether crossings are marked or not, drivers must be impressed with their individual responsibility for exercising caution to insure safety.

f. When two columns meet at a crossing of their routes, the one halts which is so directed in orders. If priority is not covered in orders, it is determined by the senior commander present.

g. In peacetime marches, especially for truck-drawn units, the march policy should be such as to cause the minimum of interruption and interference to the normal flow of civilian traffic; such traffic should be accommodated in every possible way.

■ 161. Towns.—Cordial relations should be established with the authorities of municipalities to be passed through. Arrangements should be made as to use of streets, water, and utilities; pertinent ordinances should be noted and scrupulously observed. When feasible, columns use side streets, avoid congested districts, and march well closed up. Police escort should be requested, especially for motor columns passing through large cities. All municipal traffic regulations (including stop signs and lights) should be rigidly ad-

hered to unless the column throughout its entire length is under escort of municipal police.

■ 162. MARCH DISCIPLINE.—*a.* Constant and thorough supervision by officers and noncommissioned officers is essential to good march discipline. They ride where they can best supervise the march of the units they command, being careful, however, to avoid delaying traffic on the road when riding or driving on the left flank of the column.

b. When cannoneers are required to walk, they keep to the right of the column or in the intervals between sections and to the right of the left line of wheels. Under no circumstances should dismounted men march between the front and rear wheels of a limbered carriage. Cannoneers should be required to remain with their sections. A driver on foot marches beside his near horse.

c. Straggling, falling out of column, lounging in the saddle, and failure to keep to the right of the road are evidences of poor march discipline.

d. Artillery always marches well to the right of the road. On two-way roads the left side of the center line must be kept clear. At halts, artillery pulls well off to the right of the road, and during peacetime marches leaves sufficient distance between appropriate subdivisions so that two-way traffic may pass.

e. When marching on paved roads, all wheels should habitually be kept on the pavement in order to preserve even and uniform draft.

■ 163. HALTS.—*a. General.*—(1) When practicable, the time and length of halts should be made known in advance in order that full advantage of the time may be taken for adjustments, repairs, and care of animals and motors.

(2) For Field Artillery marching alone, normal halts are as follows:

(a) For horse-drawn, horse, and pack artillery—

First hour..... 10 to 15 minutes.

Each successive hour..... 5 to 10 minutes.

(b) For tractor-drawn artillery—

First hour..... 10 to 15 minutes.

Every two or three hours there-
after (for reservicing)..... 10 to 15 minutes.

(c) For truck-drawn artillery—

First hour----- 10 to 15 minutes.

Every two hours thereafter---- 5 to 10 minutes.

(3) In very hot weather, on bad roads, or in hilly country, halt periods should be longer and more frequent for animal-drawn units.

(4) Judgment should be exercised in selecting the place for a halt; it should not be made in a village or other place where the objects of the halt would be defeated. In no event should a halt be made in an exposed location when in the presence of the enemy. During halts, repairs and adjustments to motors should be made, harness and saddles adjusted, and men permitted to attend to the calls of nature.

(5) In long marches, a midday halt of from 30 minutes to 1 hour is made to permit the animals and personnel to rest and eat, and to make a thorough inspection of all animals and vehicles. Unnecessarily long halts on the road should be avoided since both men and animals rest better in camp.

b. Horse-drawn units.—(1) All officers and men of horse-drawn units must be made to realize that the hourly halts are primarily for the purpose of caring for the animals.

(2) Any injuries caused by harness or saddlery must be discovered and reported at once and adjustments made to prevent further injury.

(3) During long, hard pulls, organizations should be halted long enough to permit animals to blow.

(4) During the regular halts, drivers, assisted by such cannoneers as may be necessary, perform the following duties:

(a) Lower limber props.

(b) Raise the collars and collar pads.

(c) Examine the necks and shoulders.

(d) Wipe the sweat from the bearing surfaces of the collars and collar pads with a cloth and see that these bearing surfaces are clean and smooth.

(e) Examine the adjustment of the harness and packs, making any necessary changes.

(f) Look over the animals to determine their condition and locate abrasions (par. 158*d*); examine their feet to locate stones and loose shoes.

(g) Wipe out the animals' nostrils with a moist sponge.

(h) Remove mud from the bearing surfaces of the harness, particularly the martingales.

(i) When the draft has been such as to cause steady and constant pressure against the shoulders, stimulate circulation by hand rubbing, being careful, upon finishing, to leave the hair smooth and flat.

(5) Drivers must remain constantly with their pairs. If for any reason a driver must leave his pair, a cannoneer should be substituted to remain with the pair during the driver's absence.

c. *Motorized artillery*.—During scheduled halts, the routine inspection and maintenance is performed by drivers and maintenance personnel (FM 25-10).

■ 164. CARE OF ANIMALS.—a. *Prevention of sore necks*.—(1) The use and proper adjustment of hold-up straps for wheel horses are essential.

(2) When a horse develops a sore neck and must be kept in draft, the neck strap and collar pad should be removed and the collar body supported by double or forked straps, the double ends of each strap buckled in the buckles by which the neck strap is fastened to the collar, the single end fastened by a snap to the pommel halter squares of the saddle.

(3) Proper adjustment of the pole support spring will result in obviating pressure on the wheelers' necks due to the weight and vertical whip of the pole. When necessary, the neck-yoke strap may be replaced by a quarter strap connecting the loop on the collar body with the ring at the end of the neck yoke. The adjustment of this strap should be such as to take care of the horizontal swing of the pole.

b. *Feeding*.—On marches, both in time of peace and in time of war when possible, feeding should be at regular hours. Grain should be carried for the animals and fed promptly at the noon hour, even though the destination be relatively near. In war, feeding a little at every opportunity should be practiced.

c. *Watering*.—(1) It is of the utmost importance that animals be properly watered on a march. After a hard march, animals should not be allowed to drink immediately

their fill of cold water. An officer must be detailed to oversee the watering of the command, and each organization will be brought to the watering place and the animals watered under his supervision.

(2) In cold weather, many animals refuse to drink early in the morning but will drink after being on the road a few hours; if a good place exists about one or two hours out, it is better for the animals to water there than before starting. In hot, sultry weather, frequent watering is an aid to completing the march in good condition, and when practicable animals should be watered about once in every 2 hours of marching. The methods of watering on the march are watering in a stream with the teams unhitched, the driver riding the near horse and leading the off horse; driving into a stream with teams hitched to carriages; watering in canvas troughs; and watering by bucket.

■ 165. NIGHT MARCHES.—In campaign, night marches will be frequent; in peacetime, they may be made to avoid the heat of the day or traffic congestion, or to train the command in night marching. Plans must be carefully prepared and clearly communicated in advance to the troops. Routes and camp sites are reconnoitered and unmistakably marked in advance. March discipline is rigidly enforced. Every precaution is taken to obviate uncertainty or loss of way, to maintain contact, and to provide concealment, especially from air observation. In the combat zone, smoking is prohibited, and lights are sparingly used and kept shaded from the air. The rate of march is materially slower than during daylight, especially when marching without lights. The use of tail and stop lights with limited visibility is essential for truck-drawn units. On the rear of vehicles not provided with tail and stop lights, distinctive marking will aid a driver in rear to see the vehicle ahead.

CHAPTER 2

SHELTER

■ 166. CONTROLLING FACTORS.—Shelter in the field is governed by tactical requirements when in the presence of the enemy; otherwise, the location, type, and assignment of shelter are

based upon the purpose to be fulfilled, the comfort of troops, and the necessities of sanitation, administration, and supply.

■ 167. CLASSIFICATION.—The varieties of shelter in the field are termed bivouacs, camps, cantonments, and billets. Bivouacs are for short occupancy; Field Artillery uses shelter tents and paulins, or improvised expedients, for personnel. Bivouacs facilitate readiness for action. Camps are of longer duration. Heavy canvas is issued for shelter of personnel, and open sheds may be constructed for animals. Sanitary measures and means are more elaborate; water may be piped. In cantonments, frame buildings, huts, and sheds are provided for shelter. Billeting is the use, as shelter, of private and public buildings and utilities by troops. In camps and cantonments, extensive measures are taken by the troops themselves to increase their comfort; and in bivouacs and billets, to the extent warranted by tactical conditions.

■ 168. SELECTION OF SHELTER AREAS.—*a.* Camp sites should have abundant pure water, easily obtainable; satisfactory drainage; porous soil with tough turf; firm footing for motor vehicles; supplies readily obtainable; sufficient area to accommodate the command; and weather exposure conducive to comfort and good health. They should be near a highway, but distant enough therefrom to be free from dust and noise. Concealment from air reconnaissance is an essential characteristic of bivouacs in the combat zone. Dusty, polluted, or damp soils, proximity to stagnant water, and dry stream beds are to be avoided. In campaign, when contact with the enemy is likely, tactical necessity frequently forces the use of inferior sites.

b. Terminal points for each day's march should be selected at least 24 hours in advance of the arrival of the command. A suitable detail, called a quartering party and usually commanded by an officer, should be sent forward to select the site of the camp or to locate billets. Quartering parties are charged with the selection of sites and billets for each unit of the command; the preparation of maps and sketches to facilitate occupation of the camp site; guiding the units upon their arrival; making appropriate arrangements with respect to supply; and, in the case of billets, informing the commander of troops with regard to local standing orders

and instructions. Preparation of the camp site and the leading of units thereto by the advance detail should be such that an organization can, without halt or delay, move all its vehicles into their approximate lines and locations immediately upon arrival at the site selected.

■ 169. CAMP FORMATIONS.—*a.* When tactical considerations and space permit, field artillery units usually bivouac, camp, or are billeted by battalion.

b. Motorized artillery may bivouac along the roadside, using one or both sides of the road, with the vehicles off the road and parallel, oblique, or perpendicular thereto, depending upon the space available. The road must be kept open for general traffic, with sentinels and warning lights judiciously located. Tents and facilities are placed off the road. In truck-drawn artillery, the vehicles themselves afford considerable shelter for the personnel.

c. The arrangement of camps must be such as to reduce to a minimum the danger from fire. Kitchens must be placed as distant as practicable from stores of gasoline and oil.

■ 170. ASSIGNMENT OF AREAS.—*a.* In accordance with the tactical situation, the commander of a unit assigns shelter areas to the next smaller commands, and the commanders of the latter locate their respective commands to the best advantage in the areas assigned them. The integrity of units should be maintained and the mixing or dispersion of units avoided, except where dispersion is necessary to obtain concealment and protection.

b. Motorized units should, when practicable, be assigned locations near the road. The character of the footing should be considered in connection with the type of vehicle to be accommodated; tractors, for example, may often occupy ground too soft for other vehicles, while trucks should not be assigned locations on soft ground or on soil which will become soft in case of rain or snow. Heavy vehicles, when the footing is poor, should be placed nearest the road when necessary to park them off the road. Vehicles and units should be located with regard to convenience in servicing, and vehicles which will be likely to leave and return frequently should have easy access to the route which they will follow.

■ 171. MAKING CAMP.—*a. Horse-drawn units.*—Each battery forms park on the lines designated by the quartering party. The battery commander directs the lieutenants to take charge of their departments and proceed with the work incident thereto. The first sergeant arranges for the details of men to perform the various duties connected with making camp. Picket lines are stretched, and the animals unharnessed and tied on the line. Animals and harness are given the necessary care, and tents are then pitched. Men are fed unless the noon meal has been eaten on the road. Following this, stables are held. Harness and matériel are cleaned, inspected, and any necessary repairs made. A well-planned and orderly routine is essential.

b. Motorized units.—Immediately after the vehicles have been parked, the drivers and assistant drivers, under their chiefs of section, perform the work of caretaking under the supervision of the motor officer and the motor sergeant. Motor maintenance personnel check vehicles while engines are still warm and initiate necessary repairs at once. Shelter tents are ordinarily pitched upon the completion of the caretaking period. The caretaking of motor vehicles should be completed during daylight when possible. Caretaking is interrupted for meals.

c. Special details.—The necessary picket line, park, and other guards are posted at once. Security sentinels and personnel for defense against air and mechanized attack are posted promptly.

■ 172. PICKET LINES.—*a.* In horse-drawn units in bivouac or temporary camp, the animals are tied on picket lines stretched between the vehicles; in general, two lines are provided, one along the line of pieces and one along the line of caissons. The lines are secured to the top of the felloe of one wheel of each of the adjacent carriages. Animals are grouped by teams and sections. When time is available, continued improvement of picket lines is carried out.

b. Animals should be tied on the picket line with halter shanks of just sufficient length to allow them to lie down immediately under the line. Kickers and biters should be tied separately.

c. To prevent exposure to contagion and to avoid dispersion of animals, it is advisable to use picket lines when troops are billeted, except in extremely severe weather or when the use of such lines would unduly expose the command to air observation.

■ 173. **TENT PITCHING.**—Shelter tents are pitched in the formation prescribed by the commander and in the manner prescribed in chapter 3, Basic Field Manual, volume I.

■ 174. **BREAKING CAMP.**—*a.* In general, the procedure of a horse-drawn battery in breaking camp is as follows: Immediately after reveille and before breakfast, the men feed the animals, perform their toilets, strike tents, and make up their rolls. After breakfast, the battery is formed, and the drivers and individually mounted men report to the picket line for watering, grooming, and harnessing. The cannon-eers are detailed to load wagons, police camp, close latrines, strike the officers' tents, and perform the other work that is to be done. When watering facilities are limited, it may be necessary to harness some sections while others are watering. Animals are hitched immediately after they have been harnessed and watered. Before the start of the march, the camp is thoroughly policed and sanitary precautions taken with respect to latrines, kitchen pits, picket lines, and the like; prior to departure, camp should be inspected as regards police, sanitary conditions, and property which may have been inadvertently left behind.

b. In motorized units, the procedure except for drivers is substantially the same. Immediately after breakfast, drivers are sent to their vehicles. Motors are started and allowed to warm up. In cold weather, special precautions must be taken in order that there will be no delay due to the difficulty of starting cold motors. Time may be saved on the road for tractor-drawn units, unless the tractors have a road speed comparable to that of the truck column, by utilizing personnel in the light vehicles for policing camp; the tractors start first and are overtaken on the road by the light vehicles.

c. The battalion commander prescribes the hour of reveille. When the battalion is a part of a larger command, the hour

of departure will be designated for it; if the unit is alone, the start is made as soon as the command is in order and the site policed. The use of permanently assigned details will decrease the time necessary to break camp.

■ 175. WATER SUPPLY.—*a.* Immediately upon making camp, a guard should be placed over the water supply. If water is obtained from a stream, places should be designated, beginning upstream, for drinking and cooking, for watering animals, for bathing, and for washing clothes, in the order named.

b. The use of water from unauthorized sources should be prohibited. Water that is not known to be pure should be boiled for 20 minutes, allowed to cool, and then aerated by being poured from one clean container into another; it may be purified by chlorination.

c. Dipping water from receptacles and the use of a common drinking cup should be prohibited.

d. On the march and in camp, the daily requirements of water may be estimated at 6 gallons per man, 5 gallons per motor vehicle, and 10 gallons per animal.

■ 176. KITCHENS.—*a.* Food should be protected from flies, dust, rain, and sun. Facilities must be provided for cleaning and scalding the mess equipment of the men. Kitchens and the ground around them must be kept scrupulously clean.

b. When no other arrangements have been made for garbage disposal, solid refuse should be burned promptly either in the kitchen fire or in improvised incinerators. If the necessary fuel for their operation can be procured, an incinerator for each kitchen is the most satisfactory arrangement.

c. In temporary camps, liquid refuse from kitchens should be strained through sacking or other screening into seepage pits dug near the kitchen. Liquid which appears on the surface of the ground should be carefully covered with earth or sprinkled with lime.

d. In billets, a building is desirable for use as a combined kitchen and mess.

■ 177. WATERING AND FEEDING ANIMALS (FM 25-5).—The following procedure is applicable for daytime marches. For night marches, the routine should be varied as appropriate.

When remaining in camp, the usual garrison procedure applies.

a. Watering.—Where practicable, unless they have been watered on the road, animals are watered at stables or about 1 hour after camp is pitched, and again at afternoon stables or about 4:30 or 5:00 p. m. In hot weather, it often is advantageous to water about 8:00 or 9:00 p. m. In the morning, animals are watered prior to harnessing or as soon thereafter as practicable. If an early start is made, watering may be postponed until after about 2 hours on the road.

b. Feeding.—Arrangements for feeding on a march vary; they depend on length of march, climate and weather, hours of starting and finishing march, time of issue of forage, and condition of animals. A convenient plan for feeding on a march which is to terminate by noon or soon thereafter follows:

(1) At reveille, one third of the grain allowance.

(2) At midday, one third of the grain allowance.

(3) At stables, before watering, about one fourth of the hay allowance.

(4) After evening water call (about 4:00 or 5:00 p. m.), one third of the grain allowance and the remainder of the hay allowance.

■ 178. FIELD SANITATION.—*a.* The purpose of field sanitation is the prevention of sickness by extermination of disease-bearing insects, by preventing their access to infectible objects, and by sterilizing accessible disease germ sources. Sanitary measures include rigid requirements for cleanliness of camp areas and personnel; immediate covering of human excreta; destruction of flies and mosquitoes and their breeding places; protection of food and men from contact with insects by screens and mosquito bars; disinfection of polluted ground, especially in the vicinity of kitchens, latrines, picket lines, and locations previously used for such installations; sanitary disposal of kitchen refuse by incineration or by burial; proper cleaning, washing, and scalding of mess kits; obtaining and maintaining pure or potable water; inspection for and segregation or removal of disease carriers.

b. Upon making camp, kitchen and latrine locations are specified; sources of possible infection are determined, correc-

tive measures taken, and, if necessary, the sources placed under guard; kitchen pits are dug. The scope of the initial sanitary measures ordered will vary with the length of time that the camp is to be occupied and the sanitary conditions existing at the time of its occupation.

c. Daily routine in a camp occupied for more than one day should include the following: thorough police of the entire area and burning of refuse; airing of bedding and clothing, weather permitting; burning out or other disinfection of latrines; rigid inspection of kitchens and mess equipment, and means of garbage disposal; sick call; and disinfection of polluted soil around kitchens, latrines, and picket lines.

d. An inspection should be made by every organization commander before leaving camp to see that sanitary measures are complete.

e. Special care must be exercised with respect to sanitary conditions when troops are in billets. All billets should be inspected before occupation and after evacuation, and their condition noted and reported upon. Daily inspection by officers should be made of the billets of men and animals.

■ 179. SECURITY.—a. In campaign, the general security of the camp is usually provided by outposts and outguards furnished by the other arms. However, field artillery units must always take the necessary precautions to prevent surprise, especially against air attack, and provide for their own immediate security, even though the security of the camp is the responsibility of another arm. Antiaircraft protection by the automatic rifles of the unit must be available at all times.

b. The artillery furnishes its own interior guard by battalion or regiment. The size of the guard must be sufficient to provide sentinels from each battery for its picket lines and parks, to enforce orders with respect to water supply, prisoners, etc., and to guard property.

c. In motorized units, the guard has additional duties, which include exercising special vigilance toward the discovery and prevention of fires, and, in cold weather, operating certain vehicles in order to facilitate the starting of motors.

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