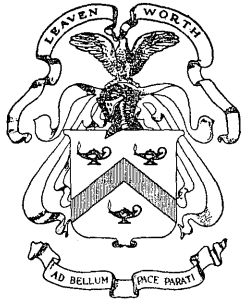
THE COMMAND AND GENERAL STAFF SCHOOL

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FIELD SERVICE STAFF MANUAL

(TENTATIVE)

FIELD SERVICE
STAFF MANUAL
(TENTATIVE)

THE GENERAL SERVICE SCHOOLS PRESS
FORT LEAVENWORTH, KANSAS
2251—4-8-25—450

1925

INTRODUCTION

THE GENERAL SERVICE SCHOOLS
FORT LEAVENWORTH, KANSAS
1925

Pursuant to instructions from the War Department the *Field Service Staff Manual* (*Tentative*) is printed with a view to its use for reference in the courses at The Command and General Staff School and at the War College during the scholastic year, 1925-1926, and for the purpose of securing constructive criticism as to form, text, and data contained therein.

LYTLE BROWN,
Colonel, Corps of Engineers (D. O. L.),
Assistant Commandant.

APPROVED:

HARRY A. SMITH,
Brigadier General, U. S. Army,
Commandant.

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FIELD SERVICE STAFF MANUAL

STAFF PRINCIPLES

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1. GENERAL CONSIDERATIONS.—*a. Development of staffs.*—The four fundamental elements of military organization are COMMAND, STAFF, TROOPS, and SERVICES. In the grouping of units under a single commander a point is soon reached where the details devolving upon the commander become so numerous that he has neither the time nor the physical endurance to attend to all of them in person and at the same time give his attention to the broader phases of his task. Consequently the commander of a battalion or squadron or a larger unit is provided with assistants who relieve him of the burden of details. This group of assistants is called *the staff* of the commander.

b. Classification of staffs.—(1) *Divisions and higher units.*—(a) The general staff, composed of officers of the General Staff Corps and the other commissioned personnel assigned to general staff duties.

(b) The technical, supply, and administrative staff, composed of the commissioned and enlisted personnel of the combat arms and of the administrative branches assigned to staff duty.

(2) *Brigades and lower units.*—A staff consisting of officers and enlisted men assigned to duties corresponding to those of the staffs of higher units.

(3) *All general officers.*—A personal staff consisting of such aides as are authorized by Tables of Organization.

c. Staff organization.—The organization of a staff is based upon the duties of the commander whom it serves. The duties of commanders are grouped functionally under four heads, namely: *personnel, intelligence, operations and training,* and *supply.* The subdivisions indicated by this classification, together with a coordinating head (chief of staff or executive) of the four subdivisions, exist in all staffs from the battalion to the general headquarters of the forces in the field.

2. PURPOSE OF STAFFS.—The sole purpose of staffs is *to assist* commanders in formulating and carrying out their decisions and *to serve* the troops in carrying out their missions.

3. AUTHORITY OF STAFFS TO COMMAND.—Except where command and staff functions are combined in one individual, *staff officers have no authority to command.* All policies, basic plans, and decisions, whether originating with the commander or with his subordinates, must be authorized by the

commander before they are put into effect. When the commander has given his approval to any policy, decision, or basic plan, his staff officers have authority to make decisions and to issue orders in the name of the commander in furtherance thereof, but not contrary thereto or in amendment thereof. There is but one commander and the decentralization of authority incident to the proper performance of staff duties is never permitted to constitute an excuse for disregarding the established chain of command.

4. STAFF COORDINATION.—*Teamwork* is essential to efficient staff functioning. *Cooperation* and *collaboration* by a staff are required within and between all its subdivisions. They are also required with the troops which the staff serves as well as with the staffs of lower, higher, and adjacent units. In combat, the commander's decisions having been made, *coordination of the combined arms and their supply incident to the plan of operations* become the paramount duty of a staff.

5. STAFF RECONNAISSANCE.—Staff reconnaissance is essential to the efficient performance of staff duties. It is only by *intimate contact with the troops served* that their needs may be known and filled. It is only by *personal observation of the terrain* that the tactical and logistic requirements may be successfully solved. It is only by a constant flow of accurate information that the commander may be correctly apprised of existing conditions which must be met and future contingencies which must be foreseen and met by well-coordinated tentative plans.

6. STAFF CONTROL.—In the higher units, the general staff, by reason of its comprehensive view of the situation, its special information of plans and its greater knowledge of tactical and strategical principles, controls and supervises the technical, supply, and administrative branches to secure coordination and to insure that their operations fully meet the requirements of the commander. While staff control is essential to the end that the policies, basic plans, and decisions of a commander will be carried out in spirit as well as in letter, *staffs are essentially coordinating agencies and not operating agencies.* In the name of the commander *they direct what is to be done but not how it is to be done. Noninterference* with the troops and branches served *should be the rule.*

7. STAFF RESPONSIBILITY.—Staff responsibility does not end when the policies, basic plans, and decisions of the commander have been converted into detailed orders or instructions, and have been issued to the troops. By far the more important duty devolving upon a staff is to "follow up" and *see that the will of the commander is understood and executed.* Staff inspections for this purpose prevent misunderstandings and misinterpretation of instructions, and insure that unity of thought and action so essential to success.

(NOTE:—Staff functions and duties are treated herein only in general terms under the four functional heads: personnel, intelligence, operations and training, and supply. The functions of corresponding staff officers in all headquarters of combat units are similar in character, but differ in their scope and detail. Therefore it will be noted that there are included in the treatment of staff functions and duties herein, certain functions of staff officers in divisions and higher units which are not applicable to the functions of the corresponding staff officers in lower units.)

8. STAFF FUNCTIONS AND DUTIES.—The underlying principles which govern the functions of staffs are the same for all staffs. There are, however, the following important differences between the staffs of higher and lower units in their organization and assignment of personnel for the performance of duties:

a. The staffs of divisions and higher units.—(1) *The general staff.*—The scope and importance of staff duties and the professional knowledge required for their successful execution increase with the size of commands. Hence the principal members of the commissioned personnel on the general staff of divisions and higher units are officers of the General Staff Corps.

(2) *The divisions of the general staff.*—To insure an equitable distribution of duties along functional lines, the general staff of divisions and higher units are subdivided into divisions following the nomenclature prescribed

in Army Regulations 10-15 for the War Department General Staff in so far as it is applicable. These are:

Personnel Division (First Division)
Military Intelligence Division (Second Division)
Operations and Training Division (Third Division)
Supply Division (Fourth Division)

The Chiefs of these divisions are designated Assistant Chiefs of Staff, G-1, G-2, G-3, and G-4, respectively.

(3) *Separation of general staff and administrative staff functions.*—Begining with the division and continuing through all higher units, command functions are so numerous that a complete separation of general staff and technical, supply, and administrative staff functions is necessary. In these units the general staff is charged primarily with coordination, direction, and supervision, whereas the function of operation is performed by the various technical, supply, and administrative agencies established for that purpose, under the coordination of the particular general staff divisions concerned.

(4) *Interior organization of divisions of the general staff.*—While the duties of the four divisions are similar in all staffs, the scope of their activities in the higher units requires that the divisions contain additional personnel and, usually, that they be subdivided into sections. The interior organization of these divisions is prescribed by the chiefs of divisions so as to fix responsibility for the initiation and supervision of work and so as to secure efficiency and teamwork throughout the division. This organization should be based on the principle that the chief of division determines all policies and plans for the division, the sections handling routine matters and the details of announced policies and plans. Except with respect to journals, reports, and diaries, general staff divisions are not offices of record; the office of the adjutant is the office of record for the unit general staff.

b. The staffs of brigades and lower units.—In brigades, regiments, and battalions, the divisions of the staffs generally are represented by one officer only and the duties of adjutant and chief of the personnel division on the staff of higher units are consolidated. These staff officers are designated Adjutant, Intelligence Officer, Plans and Training Officer, Supply Officer, and each performs the duties similar to those of the chiefs of corresponding general staff divisions of higher units. In all units below the division, staff personnel is normally furnished by combatant and technical, supply, and administrative troops. Certain other officers who may be on duty at the headquarters of the unit, and other officers who are primarily commanders of troops comprise what is referred to as to the technical staff of the commander (communications officers, munitions officers, liaison officers, and commanders of auxiliary arms). Strictly speaking none of these officers are members of the unit headquarters.

c. Dual functions of certain officers.—The commander of each combatant arm in a unit composed of two or more arms of the service, and certain technical, supply, and administrative staff officers commanding administrative units have both staff and command functions. In addition to exercising command over their organizations, they are advisers of the commander in regard to the tactical and technical employment of their respective arms or services. The two functions are entirely separate and distinct in character, in methods of procedure, and in source of authority, and are exercised separately and independently.

9. THE CHIEF OF STAFF OR EXECUTIVE—The chief of staff, or executive as he is called in units lower than the division, is the principal assistant and adviser of the commander. He transmits the will of the commander to those who execute it, and is the principal coordinating agency which insures the efficient functioning of the staff and of all troops of the command. Specifically he performs the following basic duties:

a. Formulates and announces policies for the general operation of the staff.

b. Directs and coordinates the work of the several staff divisions in all their relations with the technical, supply, and adminstrative staff, with the troops, and with each other.

c. Keeps the commander informed of the enemy situation and of the situation of the command as to location, strength, state of equipment, supply, and general effectiveness.

d. Prepares an estimate of the situation when called for.

e. Represents the commander during his temporary absence or when authorized to do so. In the regiment and battalion only, the second in command is designated by regulations as executive and succeeds automatically to the command when the commander ceases to function. In the cavalry squadron, the executive is the squadron adjutant, not the second in command.

f. Obtains basic decisions from the commander and takes the following action:

(1) Makes necessary decisions supplementary thereto and gives necessary instructions to the staff in furtherance of the basic decisions of the commander.

(2) Allots the detailed work of preparing plans and orders, obtains drafts of plans and orders from the four staff divisions, and submits to the commander a completed plan developed from the division plans with his recommendations thereon.

g. Reviews and coordinates all instructions that are to be published to the command and assures himself that they are strictly in accord with policies and plans of the commander.

h. By personal observation and through the four staff divisions, sees that the orders and instructions of the commander are executed both in spirit and in letter.

i. Makes a continuous study of the situation with a view to being prepared for future contingencies.

j. Assembles the routine staff division reports and, after their approval by the commander, forwards copies to higher headquarters.

10. THE DEPUTY CHIEF OF STAFF (in corps and higher units only).—The functions of the deputy chief of staff are:

a. To assist the chief of staff and to act for the latter in his absence.

b. The relations of the deputy chief of staff to other members of the staff and to the troops are similar to those of the chief of staff.

11. THE SECRETARY OF THE GENERAL STAFF (in corps and higher units only).—The functions of the secretary of the general staff are:

a. To act as executive officer for the chief of staff and deputy chief of staff.

b. To maintain an office of temporary record for the chief of staff and deputy chief of staff.

c. To route papers received in the office of the chief of staff to their proper destinations.

d. To forward to their destinations in the headquarters all papers emanating from or returning from consideration by the general staff of the command, and to establish a follow-up system to insure prompt action on and return of papers.

e. To receive officials visiting headquarters for the purpose of conferring with the commander or with the chief of staff or deputy chief of staff.

f. To collect statistical data for the commander, chief of staff, and deputy chief of staff.

12. THE SUBDIVISIONS OF THE STAFF.—Certain functions and duties that are common to all of the four divisions of a staff are enumerated as follows:

a. Records, reports, and maps.—Each division keeps a journal of its activities which contains briefs of important written and verbal messages, received and sent, and notations of reports, orders, and similar matters that pertain directly to the division. Copies of journals together with supporting documents, when assembled and consolidated as directed in

Army Regulations 345-100 consitute the diary of the unit. For form of journal see page 123. Each division prepares periodic or special reports of the situation as developed from the activities and point of view of the division. These reports are supported by such maps and appendices as may be necessary to make a complete record of the existing situation and of the operations for the period. For forms of reports see pages 124, 125, and 126. Each division usually keeps posted in its office a map showing the situation from the viewpoint of the division as well as any data furnished by other divisions which it may need.

b. Plans and orders.—In formulating and working up plans and orders, each division of the staff proceeds along the following lines:

(1) Furnishes information and data within the province of the division and bearing on the situation to the chief of staff or executive for the attention of the commander.

(2) Receives the commander's decision and any special instructions from the chief of staff or executive.

(3) Gives decisions and any special instructions within the province of the division to the technical, supply, and administrative staff officers concerned, and, when necessary or desirable, to commanders of combatant troops.

(4) Takes steps to procure necessary additional information.

(5) Receives the recommendations of the technical, supply, and administrative staff officers and commanders of combatant troops concerned.

(6) Coordinates the recommendations received and the data at hand.

(7) Drafts plans and orders. With respect to combat operations, each division drafts those sections of plans and orders that pertain to the functions of its particular division. However, the operations and training division of a staff is responsible for the completed draft of tactical plans and orders for combat; the supply division is responsible for the completed draft of administrative plans and orders for combat.

(8) Presents the draft to the chief of staff or executive.

(9) Issues the final plan or order after the draft is approved as written or approved with modifications.

(10) Prepares and issues supplementary plans or orders within the province of the division to insure proper execution of the original plan or order.

(11) Inspects to insure that so much of plans and orders within the province of the staff division are understood, are properly interpreted, and are executed in conformity to the commander's will.

13. THE PERSONNEL DIVISION.—(Represented by the adjutant in brigades, regiments, and battalions.) The personnel division is closely associated with the following technical, supply, and administrative staff officers and has supervision over many of their functions: the adjutant, the inspector, the chaplain, the judge advocate, the surgeon, the provost marshal, the headquarters commandant. It also has supervision over the educational, recreational, and quartering agencies. The personnel division is charged, in general, with those functions of the staff which relate to the personnel of the command as individuals. It is specifically charged with the supervision of activities concerning:

a. Classification, reclassfication, assignment, promotion, transfer, retirement, and discharge of all personnel.

b. Replacement of personnel, in accordance with priorities formulated by the operations and training division.

c. Decorations, citations, honors, and awards.

d. Leaves of absence and furloughs.

e. Discipline and punishment.

f. Sanitation and sanitary inspections.

g. Headquarters arrangements.

h. Military government.

i. Postal service.

j. Military police relations with military personnel and civilians.

k. The furnishing of information to the supply division as to the amount and location of shelter necessary for the command and for activities under its supervision. Administration of quartering areas.

l. Religious, recreational, and morale work, except that all programs of time are arranged in agreement with the operations and training division.

m. Red Cross and similar agencies, with the exception of such parts of these agencies as are wholly devoted to hospital or medical relief work.

n. Reports concerning and the handling of prisoners of war and enemy civilians. Questions concerning our prisoners of war in hands of enemy.

o. Strength reports and graphics, casualty reports, station lists, and other personnel statistics.

p. General regulations and routine administration which especially concern individuals, or routine not specifically assigned to another staff division.

q. Preparation of such parts of administrative orders or instructions as relate to the personnel division.

14. THE INTELLIGENCE DIVISION.—(Represented by the intelligence officer in brigades, regiments, and battalions.) The intelligence division has particularly close relations with the air service officer in arranging for aerial reconnaissance and with the engineer officer in insuring a supply of suitable maps. In addition, information furnished by the intelligence division is often of great value to other members of the technical, supply, and administrative staff in the operation of their branches, and the latter are, in turn, often able to assist the intelligence division in making technical reports on the enemy's *matériel* and works. The intelligence division is charged, in general, with the collection, evaluation, and dissemination of information of the enemy. Its primary function is to keep the commander and all others concerned informed regarding the enemy's situation and probable intentions. It specifically performs the following duties:

a. Collects information of:

(1) The terrain and the resources of the enemy's territory, and the characteristics of his people, of his military activities, and of his methods of combat.

(2) The enemy's order of battle, including the strength, composition, armament, condition, and morale of all his troops. The strength, position, and condition of reserves.

(3) The enemy's works and general defensive organization, including establishments such as permanent fortifications, field fortifications, roads, railroads, location of ammunition and supply depots, dumps, railheads, and regulating stations.

(4) The enemy's activity, circulation, and movements including artillery, air service, and radio.

b. Evaluates the information obtained, by analysis, classification, coordination, interpretation, and application to tactical use.

c. Transmits the information obtained to all concerned.

d. Supervises and coordinates the training and activities of all intelligence personnel.

e. Supervises and coordinates the measures necessary to prevent enemy agents from gaining information.

f. Prepares rules for the regulation of the activities of civilians, military attaches, observers, and press correspondents.

g. Determines the need for military maps and surveys for general military purposes; determines the general character of such maps that are to be produced; prepares schedules of distribution; supervises map reproduction and distribution.

h. Supervises preparation of codes and ciphers and endeavors to break down those of the enemy.

i. Prepares rules for and controls operation of censorship.

j. Makes translations.

k. Prepares such propaganda as may be directed by higher authority.

l. Inaugurates necessary measures to combat enemy's propaganda.

m. Maintains liaison with other intelligence agencies of the government and duly accredited foreign attaches and missions.

n. Receives and conducts visitors.

15. THE OPERATIONS AND TRAINING DIVISION.—(Represented by the plans and training officer in brigades, regiments, and battalions.) The chief of the operations and training division, from the very nature of his duties must maintain the closest cooperation and collaboration with the other staff divisions. He deals directly with the commanders of all combatant arms and technical units within the command, with the commanders of supporting units and with the commanders of other units with which the command may be associated. One of his most important duties is to arrange the details for coordination of effort and employment in combat of the combined arms. To this end full use if made of the expert advice and assistance of the chief of artillery, the commanders of air service, antiaircraft, tanks, engineer, and chemical troops, and of such specialists as the signal or communications officers and the machine gun and howitzer officers. When necessary these officers are called upon for plans, special maps, reports, or annexes to field orders. In this manner full advantage is taken of the detailed technical knowledge of these officers while at the same time causing their plans to harmonize with the general plan of action and the employment of the other arms and branches. The operations and training division is charged, in general, with those functions of the staff which relate to organization, training, and operations. It specifically performs the following duties:

a. Prepares plans for, secures approval thereof, and supervises:

(1) Mobilization of the command.
(2) Organization and equipment of combat units.
(3) Training including:
  (a) Selection of training sites.
  (b) Preparation of training programs and orders.
  (c) Organization and conduct of schools.
  (d) Rendition of training reports and maintenance of records of training.
(4) Attachment of units for tactical operations.
(5) Movement of combat troops.
(6) Security measures, reconnaissance, and maintenance of lateral communication in combat.
(7) Liaison with adjacent units.

b. Keeps informed of and studies:

(1) Location and effective strength and morale of combat troops.
(2) Needs for replacements and reinforcements.
(3) State of equipment and supplies.
(4) Enemy situation.
(5) Adaptability of terrain to combat operations.
(6) Instructions, tactical plans, and field orders received from the commander, chief of staff, or executive, and field orders or other instructions received from higher units.

c. Prepares field orders and is responsible for their distribution when approved; prepares estimates of the situation and plans for combat when required.

d. Recommends priorities for the assignment of replacements and equipment.

e. Locates straggler line and collecting point for stragglers after consultation with the chief of the personnel division with respect to disposition of stragglers by military police, and with the chief of the supply division with respect to road circulation and traffic control.

f. Supervises the system of signal communication.

g. Keeps in touch by personal visits with the commanders of subordinate combat units and with commanders of attached units and technical

troops, in person or by means of assistants, maintains direct observation of combat operations and troop movements.

h. Makes a continuous study of the situation in order to be prepared for contingencies that may arise.

16. THE SUPPLY DIVISION.—(Represented by the supply officer in brigades, regiments, and battalions.) The supply division is closely associated with the following technical, supply, and administrative staff officers and has supervision over most of their functions: the quartermaster, the ordnance officer, the engineer, the surgeon, and the provost marshal. The division keeps in constant touch with the operations and training division so as to forsee changes in the tactical or strategical situation which will necessitate changes in the supply arrangements and in traffic circulation and control. The supply division is charged, in general, with those functions of the staff which relate to supply. It deals with supply from the viewpoint of command. It is responsible for the assurance of such supply arrangements as will accord the utmost freedom of action to the command. It is specifically charged with the supervision of activities concerning:

a. Procurement, storage, and distribution of all supplies including ammunition and animals.

b. Transportation by land and water, including such ports of embarkation and debarkation and necessary auxiliaries as lie in the theater of operations of the unit concerned and the control of which is not held by the zone of the interior.

c. Highway circulation and control of traffic therein; circulation maps.

d. Recommendations as to new types of equipment including tables of equipment and as to changes in existing tables of equipment (with concurrence of operations and training division).

e. Procurement of real estate and facilities including leasing, repair, maintenance, and disposition of these facilities.

f. Construction of facilities relating to supply, shelter, transportation, and hospitalization, but exclusive of fortifications.

g. Preparation and distribution of administrative instructions and administrative orders.

h. Hospitalization and evacuation of men and animals, including such agencies or parts of agencies as may be wholly devoted to hospital and medical relief work.

i. Utilities.

j. Assignment and movement of supply, technical, and labor troops not employed as combat troops. (Orders for movement of these troops are issued by the operations and training division.)

k. Salvage and burial.

l. Collection and disposition of captured animals and *matériel.*

m. Property responsibility and accountability.

n. Funds, and priority of expenditure of same.

o. Tonnage, data, and supply statistics.

p. Continual study of the situation so as to be ready to meet prospective or emergency changes with adequate supply arrangements.

17. THE TECHNICAL, SUPPLY, AND ADMINISTRATIVE STAFF.—The technical, supply, and administrative staff is composed of a group of specialists designed to furnish advice to the commander and his general staff on technical matters and for the operation of supply, technical, and administrative agencies. The composition of this staff varies with each headquarters, only those members being provided who are necessary for technical advice and operation of the agencies prescribed by Tables of Organization. The functions of the technical, supply, and administrative staff fall broadly under one or more of the following heads for matters that pertain to the branch concerned: technical advice, supply, operation of facilities and activities, maintenance of *matériel,* administration.

a. The adjutant.—The principal duties of the adjutant are:

(1) Handling all official correspondence (except that pertaining to combat orders and instructions) in accordance with the law, regulations,

and approved policies. In cases for which no policy has been established, secures policy for same and all like cases.

(2) Organizing and maintaining the office of record for the headquarters.

(3) Securing prompt submission of all returns of personnel and forwarding such of same as are required to be forwarded, promptly. Keeping records of all personnel belonging to the command.

(4) Preparing and distributing of all general and special orders and all instructions except those pertaining to combat operations.

(5) Securing and supplying the command the blank forms and instructional matter furnished by The Adjutant General's Department.

(6) Initiating requests for replacements of personnel and such office supplies as may be required for headquarters offices.

(7) Classifying and assigning of all personnel joining the command.

(8) Preparing and distributing of the station list.

(9) Preparing reports on strength, casualties, captured *matériel*, prisoners of war, and incidental returns.

(10) Organizing and operating the postal service.

b. The inspector.—The principal duties of the inspector are:

(1) Inspections other than tactical, including money accounts and property.

(2) Investigations.

c. The judge advocate.—The principal duties of the judge advocate are:

(1) Legal adviser of the commander, and of other members of the command, in proper cases, on questions of law arising within the command or through its relations with civilians, the civil authorities, or other governments or their nationals.

(2) Supervision of administration of military justice: adviser as to whether military trials and other proceedings are properly conducted.

(3) Review and recommendations as to action to be taken on courts-martial cases.

d. The chaplain.—The principal duties of the chaplain are:

(1) Adviser of the commander and his staff in all religious and moral activities of the command.

(2) Supervision of the spiritual welfare of the command.

(3) Religious services including conduct of funeral services.

(4) The following additional duties pertain to the chaplains of divisions and higher units:

(a) Supervision and coordination of the work of the chaplains of subordinate units.

(b) Recommendations as to assignments and transfers of chaplains.

(c) Provision of the services of chaplains for units not specifically provided with a chaplain by Tables of Organization.

(d) Coordination of instruction of chaplains with respect to their work at stations of the medical service, and in correspondence with relatives after death of officers and enlisted men.

(e) Coordination of the religious work of the various welfare societies.

e. Commanding officer special troops and headquarters commandant.—(1) The principal staff duties of the commanding officer special troops and the headquarters commandant are:

(a) Safety and internal administration of the unit headquarters.
(b) Arrangements for the movement of the unit headquarters.
(c) Assignment of office space and quarters.
(d) Detail of orderlies and messengers for the unit headquarters.
(e) Maintenance of messes.
(f) Messing and quartering of casuals.
(g) Operations of the headquarters garage and stables.

(2) The commanding officer of special troops in the division performs the duties of provost marshal.

(3) The commanding officer of the brigade, regimental, or the battalion headquarters company performs staff duties similar to those prescribed for the commanding officer special troops and headquarters commandant.

f. The provost marshal.—The principal duties of the provost marshal are:

(1) Direct command or control of the military police organizations pertaining to the unit.

(2) Enforcement of traffic control regulations.

(3) Apprehension of stragglers, absentees, and deserters. In lower units recommendations as to the location of straggler lines.

(4) Collection, evacuation, and custody of prisoners of war including recommendations as to location of collecting points and inclosures.

(5) Maintenance of order and enforcement of police powers among members of the military forces and in areas occupied by troops.

(6) Cooperation with allied or civil police authorities, when necessary.

(7) Control of enemy civilians and of civil population when necessary.

(8) Counterespionage and criminal investigation activities. (Directed from headquarters of the theater of operations.)

(9) Control of circulation of individuals.

(10) Supervision of feeding of civilian population when necessary.

g. Machine gun and howitzer officer.—(In the division staff only.)

(1) The duties of the machine gun and howitzer officer are:

(a) Technical adviser of the commanding general and of the general staff on all matters relating to machine guns and howitzers, including training.

(b) Inspections for the purpose of keeping the commander and staff informed of the state of efficiency of machine gun and howitzer organizations and to assist these organizations by discovering and helping to remedy the matters in which they are deficient.

(c) When so directed, he assists the commanding general and staff and the brigade commanders by making recommendations as to the employment of machine guns and howitzers, and by the drafting of such special instructions regarding these weapons as it may be necessary to include in the division orders. He sees that these instructions are properly carried out.

(d) In the defense, when directed, he prepares the plan for coordination of the fire of machine guns and howitzers with that of the artillery as well as between adjacent divisions and the brigades within the division.

(e) In exceptional cases, he commands a group of weapons combined from the machine gun or howitzer companies.

(2) The regimental machine gun officer and the howitzer officer perform staff duties similar to the staff duties of the division machine gun and howitzer officer in so far as they are applicable to the regiment.

h. The tank commander.—The principal staff duties of the tank commander are:

(1) Adviser to the commander and his staff relative to the employment of tanks and their supply.

(2) Preparation of plans for the use of tanks, including recommendations for their allotment to lower units.

(3) Coordination of the utilization of tanks with other troops in subordinate units.

i. The artillery commander.—The principal staff duties of the artillery commander are:

(1) Tactical and technical adviser to the commander and the staff on the use of artillery.

(2) Preparation of plans for the use of artillery including its allotment to lower units.

(3) Liaison with the artillery of higher, lower, and neighboring units.

(4) Recommendations as to allocation of ammunition for the artillery of lower units.

(5) Coordination of the utilization of artillery in subordinate units.

(6) Preparation of plans for use of air service observation for artillery.

NOTE:—The term "artillery" as used herein also includes "anti-aircraft artillery."

j. The chemical warfare officer.—The duties of the chemical warfare officer are:

(1) Adviser to the commander and staff in all matters pertaining to chemical warfare.
(2) Supervision of chemical warfare training.
(3) With respect to chemical defense, responsibility that all needful steps are taken to minimize the effectiveness of the enemy's use of chemicals.
(4) With respect to chemical offensive, assists his command to secure the safe and effective use against the enemy of authorized chemical agents.
(5) The collection of information, both from his own troops and the enemy, concerning methods of utilization of chemical substances, the results obtained therefrom, and the nature thereof.
(6) Supply of chemical warfare service supplies and equipment, except chemically filled artillery or aircraft ammunition.
(7) Salvage and repair of chemical warfare equipment.

k. The air service commander.—The principal staff duties of the air service commander are:
(1) Tactical and technical adviser to the commander and staff on all air service matters.
(2) Preparation of plans for the use of air service including its apportionment.
(3) Supply of air service supplies and equipment.
(4) Procurement and operation of air service storage, maintenance, and repair facilities.
(5) Coordination of the utilization of the air service in subordinate units.

l. The signal officer.—The duties of the signal officer are:
(1) Control of the operation of signal troops pertaining to the unit as a whole.
(2) Adviser to the commander and staff on signal matters.
(3) Preparation of signal operation instructions and signal annexes.
(4) Preparation of codes and ciphers.
(5) Supply of signal equipment and supplies.
(6) Procurement and operation of signal maintenance and minor repair facilities.
(7) Technical inspection of signal equipment, within limits prescribed by the commander and recommendations relative to its care and utilization.
(8) Technical supervision, within limits prescribed by the commander, of all signal operations of the command, including training, assignment, replacement, and utilization of signal and communication personnel and units.
(9) Supervision of the operation of the signal communication system including the message center of the unit. The staff duties of brigade, regimental, and battalion communications officers are similar to the duties of signal officers of higher units in so far as those duties are applicable to their units.

m. The engineer.—The duties of the engineer are:
(1) Command of the engineer troops pertaining to the unit as a whole.
(2) Technical adviser to the commander and staff on all matters pertaining to the functions and activities of the engineer branch.
(3) Recommendations as to selection of defensive positions and supervision of their preparation.
(4) Supply of engineer equipment and supplies, including all material for construction and defensive work.
(5) Construction, repair, and maintenance of structures, railways, and roads.
(6) Military mining, demolitions, and removal of obstacles.
(7) Operation of railways, light and power plants, saw mills, water supply systems, and engineer shops.
(8) Installation of sewage disposal and heating plants, and of the machinery of mechanical plants including those pertaining to salvage.
(9) Making of surveys, mapping, and the procurement, production, and distribution of maps.

(10) Preparation and posting of signs for the direction of troops and traffic.

(11) Supervision of camouflage activities.

(12) Supervision, within limits prescribed by his commander, of engineer activities in subordinate units, including engineer work performed by troops other than engineers.

n. The surgeon.—The duties of the surgeon are:

(1) Command of the medical department troops pertaining to his unit as a whole.

(2) Technical adviser to the commander and staff on all matters pertaining to the health and sanitation of the command or of occupied territory, the care and disposition of sick and injured, the location and utilization of medical department units and establishments, and the training of medical department troops and of all troops in hygiene and first aid.

(3) Supply of medical, dental, and veterinary equipment and supplies.

(4) Operation of hospitals and other medical department establishments and of an evacuation service, and supervision, within limits prescribed by his commander, over the operations of elements of his branch in subordinate units.

(5) Administration pertaining to casualty and other reports, to records, and to personnel of the medical department.

o. The ordnance officer.—The duties of the ordnance officer are:

(1) Control of the operation of ordnance troops pertaining to his unit as a whole.

(2) Adviser to the commander and staff in ordnance matters.

(3) Supply of ammunition and other ordnance equipment and supplies.

(4) Operation of ordnance storage, maintenance, and repair facilities.

(5) Technical inspection of ordnance equipment.

(6) Supervision, within limits prescribed by his commander, of ordnance activities in subordinate units.

The staff duties of munitions officers within the brigade are similar to the duties of the ordnance officer in higher units in so far as they are applicable. He is primarily responsible for the receipt and distribution of ammunition within his unit and for ammunition records and reports.

p. The quartermaster.—The duties of the quartermaster are:

(1) Control of the operation of quartermaster corps troops and trains pertaining to the unit as a whole.

(2) Adviser to the commander and staff on quartermaster corps matters.

(3) Supply of quartermaster equipment and supplies including animals.

(4) Procurement and disposition of real estate and facilities including leasing.

(5) Procurement and operation of quartermaster utilities and of quartermaster storage, maintenance, and repair facilities.

(6) Installation and operation of the salvage service.

(7) Operation of the graves registration service.

(8) Transportation of troops and supplies by land and water.

(9) Technical inspection of motor and animal transportation and supervision, within limits prescribed by his commander, of quartermaster activities in subordinate units.

q. The finance officer.—The duties of the finance officer are:

(1) Payment of the command.

(2) Payment for supplies purchased or requisitioned and for damages or claims.

(3) Payment for labor hired.

(4) Audit of property accounts.

(5) Custody and disbursement of all government funds, including special funds pertaining to the headquarters.

(6) Custody of financial records.

(7) Adviser to the commander and staff on fiscal matters.

r. The regimental personnel adjutant.—The regimental personnel adjutant is assistant to the adjutant and is directly charged with responsibility for the personnel records pertaining to enlisted men. When available he acts as the agent of the division finance officer in the payment of troops. When the regiment enters the theater of operations he becomes the custodian of all funds of combat units.

s. Liaison officers.—Liaison officers are sent to adjacent coordinate units or from supporting to supported units as representatives of their commanders for the purpose of collecting and furnishing to their commanders information pertinent to the situation. Liaison officers from supporting units act as advisers to the commander of the unit to which they are sent on tactical and technical questions concerning the supporting arm.

t. Regimental and battalion reconnaissance officers.—(*Artillery.*)—The duties of artillery reconnaissance officers include reconnaissance for routes and positions, organization and operation of observation posts, and performance of topographical operations necessary for establishing the unit in position.

u. Commanding officer regimental service company.—The principal staff duty of the commanding officer regimental service company is responsibility for and administration of the regimental transportation when assembled.

v. Personal aides.—The duties of personal aides vary with the personality of their commanders. They keep the chief of staff or executive informed of the whereabouts of the commander and notify him of the purport of any verbal instructions given by the commander. In many instances they may be utilized as assistants in the different staff sections.

SECTION I

EVACUATION

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1. CLASSIFICATION OF CASUALTIES.—All casualties are classified as follows:

- Sick
  - communicable
  - noncommunicable
- Gassed
- Wounded
  - Slight
    - Walking
    - Transportable
      - Lying
      - Sitting
  - Medium
  - Severe
    - Nontransportable
- Dead

2. SICK CASUALTIES.—*a.* The number of casualties from sickness is influenced by the following resistance factors:

(1) Age.
(2) Physical condition.
(3) Length of service and training.
(4) Presence of communicable diseases.
(5) Type of duty.
(6) Climate.

b. (1) Sick casualties in a seasoned command in campaign, exclusive of slight cases that remain with regiments, cause an average daily increment of sick of about $\frac{1}{3}$ of 1%, or 66 cases per day for a division of 20,000 men. Of these:

½ or 33, remain with division hospitals.
½ or 33, require evacuation from the division, half sitting and half lying.

(2) A corps of three divisions and corps troops, totalling about 80,000 men may be expected to evacuate about 132 sick cases daily. This requires 22 ambulance trips, the equivalent of one-half hospital company for shelter, one-sixth the capacity of an evacuation hospital, and 5 ward cars in a hospital train. Of all sick evacuated from the division 4% die, 6% are invalided home or otherwise disposed of or remain in hospital for long periods and 90% return to duty. The daily noneffective rate of a field force, from sickness is about 4% of the entire command under average conditions.

3. BATTLE CASUALTIES.—Experience has shown that the number of battle casualties to be expected is dependent upon the degree of enemy resistance to be overcome. In the following tables this resistance is classi-

field. The local measure is for use with combat units likely to be more or less completely in contact with the enemy such as divisions, corps, or armies. The general measure is for use with a force as a whole including the zone of the interior.

MEASURE OF RESISTANCE—LOCAL

(Daily losses from all causes—figures include killed.)

OFFENSIVE		DEFENSIVE		EXAMPLES—
Resistance	*Losses*	*Resistance*	*Losses*	*Variable Conditions*
Class "A"	Very high 10%—15%	*Class "D"*	Low 1.5%—3%	Tired unit attacks strong position held by superior numbers of well led seasoned troops of high morale.
Class "B"	High 6%—10%	*Class "C"*	Medium 3%—6%	Attacking force fresh, position strong, numbers, leadership, and morale equal.
Class "C"	Medium 3%—6%	*Class "B"*	High 6%—10%	No particular ground organization or terrain advantages, numbers equal, average leadership and morale.
Class "D"	Low 1.5%—3%	*Class "B"*	High 6%—10%	Force in retreat but making best efforts at organized rearguard actions.
Class "E"	Very Low 0—1.5%	*Class "A"*	Very High 10%—15%	Debacle—No organized resistance.

The following data relative to battle casualties is approximately accurate for a severe engagement and can be used as the basis for calculations.

a. In open operations the ratio of killed to wounded is about 1.6, in trench operations it is about 1.4.

b. The transportation requirements of the wounded of a division with a 10% casualty list, are as follows:

Dead	15%	300
Able to walk to hospital station	45%	900

Of these 300 are able to walk farther to the rear.

Require transportation sitting	20%	400
Require transportation lying	17%	340
Require transportation lying to surgical hospital only (nontransportable)	3%	60
	100%	2000

INFANTRY DIVISION IN COMBAT

LOCAL CLASS "A" RESISTANCE—UNIT ON THE OFFENSIVE

2000 Casualties Resulting. (Includes killed and sick—1 day.)

Number	*Per cent*	*Class*	*Disposition*	*Average time of recovery*
300	15	killed	.....	.....
300	15	*slight and serious	remain in division	4 days
1400	70	serious	evacuation beyond division	.....
		1400 Evacuated	*beyond division.*	
280	20	medium	remain in Theater of Operations	15 days
1120	80	severe	evacuation to Zone of Interior	.....
		1120 Evacuated	*to Zone of Interior.*	
392	35	severe	to Zone of Interior Hospital	30 days
336	30	"	to Zone of Interior Hospital	50 days
280	25	"	to Zone of Interior Hospital	prolonged
112	10	"	to Zone of Interior Hospital	never for duty

NOTE:—In various echelons 4% or 80 deaths occur—these included in totals.
*Includes 60 cases—serious and nontransportable.

SUMMARY

Return to duty, 75%.....1508 (1000 to duty in T. of O.)
Lost to the Service, 25%..... 492 (includes the 80 deaths while in hospital.)

Total.....2000

MEASURE OF RESISTANCE—GENERAL

(*Cases* to be *handled daily*—killed eliminated)

Evacuated beyond Divisions

Resistance	*Conditions—fixed**	*Losses fall between*
Class "A"	Great resistance	.9 of 1% and .7 of 1%
Class "B"	Moderate resistance	.7 of 1% and .5 of 1%
Class "C"	Average resistance	.5 of 1% and .3 of 1%
Class "D"	Light resistance	.3 of 1% and .2 of 1%
Class "E"	Daily casual sick	.2 of 1% and .1 of 1%

*Fixed because of large size of force and tendency of conditions to average.

The average stay in hospital is 40 days for all cases eventually returning to duty. Conditions remaining unchanged, beds required remain constant except that long time cases increase the requirements at rate of 1% of strength per month.

Formula:—Beds required equal strength times resistance percentage times average stay in hospital plus 1% of strength per month.

Example:

Strength of forces 100,000.
Resistance Class "C".
Percentage cases .35 of 1%.
Average stay in hospital 40 days.
Long time cases 1% per month.

Solution:

100,000 times .35 of 1% times 40 plus 1% of 100,000 per month.
100,000 times .35 of 1% = 350 cases per day.
350 times 40 = 14,000 beds at M day.
1% of 100,000 = 1,000

15,000 beds at M day plus 1 month.

c. In estimating total casualties to be cared for, consideration must be given to those of the enemy left on the field. This will be very variable and must be estimated under the conditions of each situation.

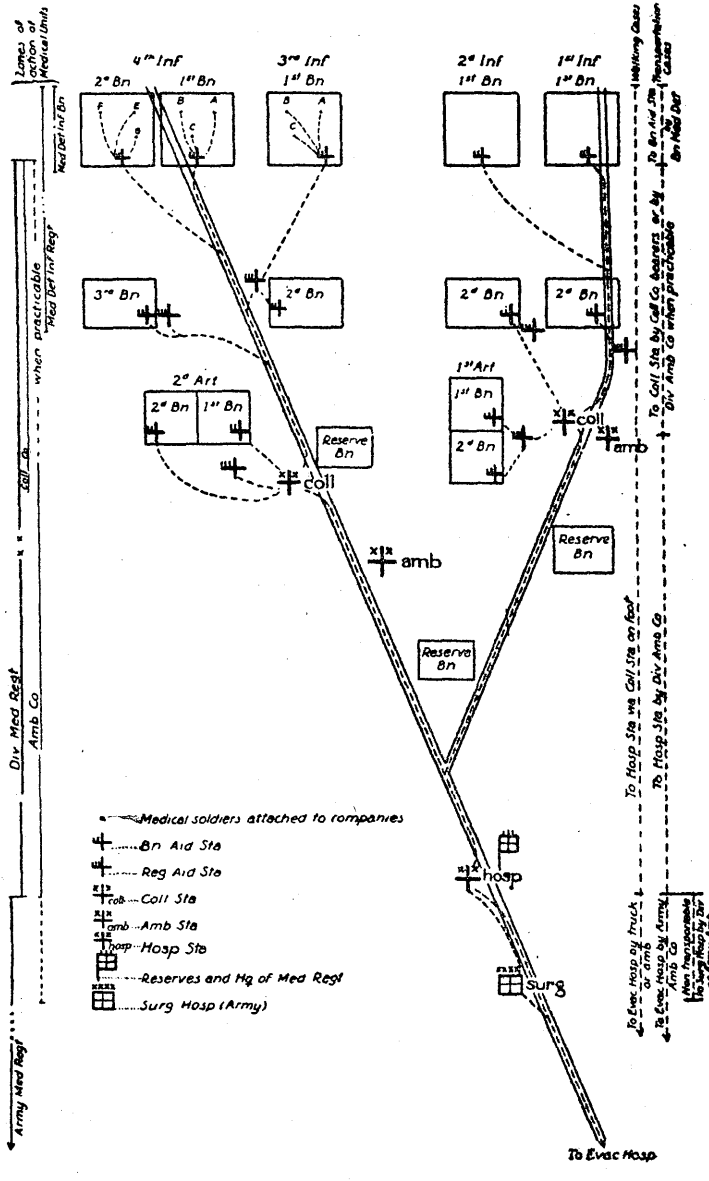
4. MAXIMUM CAPACITY OF MEANS OF TRANSPORTATION FOR CASUALTIES.

	Sitting	*Lying*	*Lying and sitting*	*Average speed miles per hour*
Standard litter	1	1	0	2
Wheeled litter	1	1	0	2½
Field wagon	9	4	5	3
Ambulance	9	4	6	4
Ambulance motor	9	4	6	12
¾-ton truck	9	4	5	10
2½—3-ton truck	16	6	7	10
Hospital train	720	360	500	20
Day coach	36–48			
Box car	20			

a. One litter squad can dress a patient, carry him 1000 yards, and return in one hour. Wheeled transportation can load, drive 2000 yards, and return in 40 minutes.

SCHEMATIC REPRESENTATION OF THE MEDICAL SERVICE OF A DIVISION

Not drawn to scale



SECTION II

FIELD ENGINEERING

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1. ROADS.

a. Minimum widths: One track: 9 feet; Two track: 18 feet

b. Ruling grades: Main roads: 5%; Side roads: 7%; Exceptional cases: 9%

c. Construction data:—(1000 yards one track road).

	Plank:	Rough macadam:
(1) Materials (wt in tons)	441 [1]	1770 [2]
(2) Transportation of materials		
(a) Escort wagon only (loads)	315	1265
(b) 1½ ton trucks only (loads)	300	1180
(c) 3 ton trucks only (loads)	150	590
(3) Labor (man hours)	4000 [3]	7500 [3]

d. Maintenance data (one mile two track macadam road).

(1) Favorable weather; average traffic:—2 men and a supply of 1 cubic yard of stone per day.

(2) Very wet or thawing weather, and heavy continuous traffic:— Average force of 30 men working 24 hours, and daily supply of 20 cubic yards of stone.

2. BRIDGES.

a. Floating:—

	Foot	Light Ponton	Heavy Ponton	Heavy Ponton (reinforced)
(1) Unit	264 ft.	Train of three light ponton divisions each 248 feet. Total 744 feet.	Train of three heavy ponton divisions each 225 feet. Total 675 feet.	Heavy bridge train constructs 350 feet.
(2) Assignment to divisions	264 ft. carried by Combat Engineer Regiment.	As required. normally to Cavalry Divisions.	As required.	As required.
(3) Capacity	Infantry in file.	Infantry in column. Cavalry in cloumn of twos. Vehicles 5000 [4] lbs. on one axle.	7000 [5] lbs. on one axle.	10000 [6] lbs. on one axle.
(4) Rate of construction	Assembled on bank. Can be launched in 10 minutes or less.	200 to 300 feet per hour.	200 to 300 feet per hour.	150 to 200 feet per hour.

b. Fixed:

	Artillery Portable	Standard Trestle	Pile Trestle
(1) Purpose:	Bridging deep trenches.	Replacing destroyed highway bridges.	Replacing destroyed highway bridges over streams with deep water or soft bottom.

(2) Dimensions:	12 feet long; roadway 7½ feet wide. In 2 sections of 720 lbs. each.	Bays 15 feet long; width of roadway 10 feet. Height of trestles variable. Weight of one bay with 20 foot trestle, 5 tons.	Same as for standard trestle.
(3) Capacity:	6000 lbs. on one axle.	35 ton tank or axle loads of 25 tons.	Same as for standard trestle.
(4) Rate of construction:	10 minutes.	10 to 15 feet per hour for heights not exceeding 22 feet.	5 to 10 feet per hour for heights not exceeding 30 feet.

NOTES:

[1] 6300 pieces hardwood 5" thick at 140 lbs. each.
[2] Stone at 2700 lbs. per cubic yard.
[3] Materials delivered on work.
[4] Includes all division loads except loaded 1½ ton and heavier trucks and artillery heavier than 75-mm. or 3-inch material.
[5] Includes all corps loads except loaded 3 ton and heavier trucks and artillery heavier than 155-mm. howitzer.
[6] Includes all corps loads except loaded 5 ton trucks and 155-mm. gun.

3. WATER SUPPLY.—*a.* Minimum daily requirements:

(1) In the field:
(a) Men:—1 gallon per man; cooking and drinking only. 5 gallons per man, all purposes.
(b) Animals:—6 to 10 gallons per animal; depending on weather and amount of work done.
(2) In semipermanent camp or cantonment:
10 gallons per man and per animal.

4. DEMOLITIONS.

a. Explosive carried by:

(1) Cavalry Regiment (75 lbs. per squadron)..... 150 lbs.
(2) Combat Engineer Battalion (mounted).....1140 lbs.
(3) Combat Engineer Regiment.....4160 lbs.

b. The following charges of T.N.T. in pounds are required to produce craters in common earth of the diameter given. Charge assumed to be at a distace below the surface equal to one-half the diameter of the crater:

Diameter of crater: feet	Charge: pounds
20	50
30	140
40	290
50	570

5. FIELD FORTIFICATIONS.

a. Battle Position:

(1) For general arrangement, depth, and frontages assigned units in defense, see Figure, 23—Diagram of a Regimental Sector of a Battle Position.
(2) Centers of Resistance:—
(a) Dimensions of: Maximum, yards 1000 x 900 Minimum, yards 500 x 400
(b) Intervals between: not more than 800 yards.
(3) Strong Points:—
(a) Dimensions of: Maximum, [1] yards 400 x 300 Minimum, yards 200 x 200
(b) Intervals between: not more than 400 yards.
(4) Combat Groups:—
(a) Dimensions of: Maximum, yards 150 x 75 Minimum, yards 100 x 50
(5) Normal priority of work:
1st: Machine gun emplacements.
2d: Reasonable field of fire.
3d: Fire trenches on line of resistance and support line.
4th: Continuous obstacle in front of line of resistance.
5th: Obstacles protecting combat groups of front line strong points.
6th: Temporary command and observation posts; aid stations; routes of communication.
7th: Completion of trenches and obstacles in front line strong points.
8th: Fire trenches and obstacles on battalion and regimental reserve lines.
9th: Completion of trenches and obstacles in centers of resistance.
10th: Permanent command and observation posts; shelters.
11th: Completion and improvement of trenches and obstacles in the position.

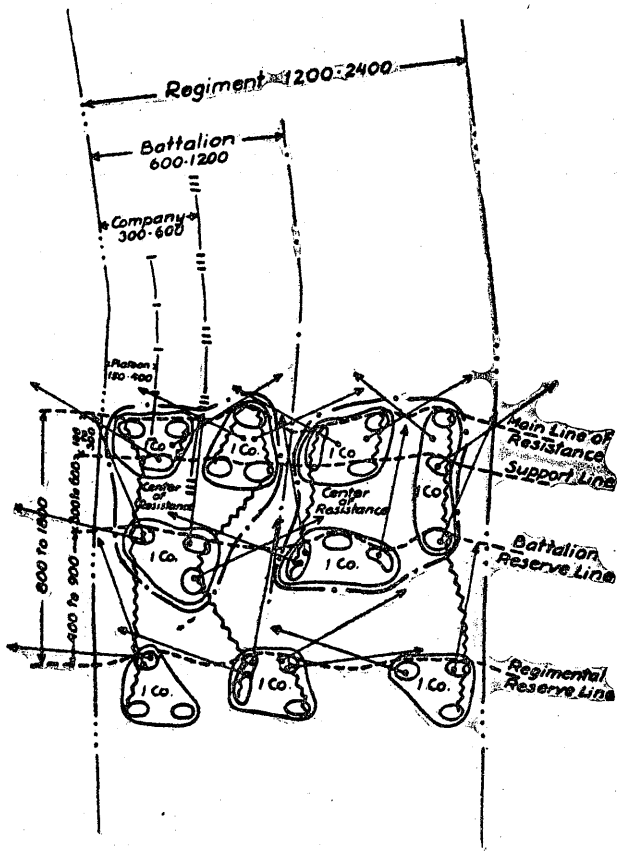


DIAGRAM OF A REGIMENTAL SECTOR OF A BATTLE POSITION

Showing organized tactical localities, frontages depths and possible disposition of machine guns. *Distances are in yards.*

b. Works:

(1) Trenches:

(a) Simple standing trenches requiring 9 cubic feet of excavation per linear foot generally will be constructed first, and later enlarged and improved.

(b) Rates of excavation:

Nature of soil	*Suitable proportion of tools*		*Cubic feet excavated per man*			*Totals*		
	Picks	*Shovels*	*1st hours*	*2d hours*	*3d & 4th hours*	*First 4 hours*	*Second 4 hours*	*8 hours*
Hard [2]	2	1	15	10	15	40	27	67
Average	1	1	23	15	22	60	40	100
Easy [3]	1	2	30	20	30	80	53	133

(2) Obstacles:

(a) A fully organized battle position requires obstacles approximating 9 times the length of front held.

(b) A single belt of double apron fence 100 yards long requires:
34 posts, 5 feet long, 3½-4 inches diameter.
68 pickets, 2-2½ feet long, 2½-3 inches diameter.
1400 yards barbed wire.
Labor; 25 man hours.

(3) Clearing:
Two man hours of labor required for clearing 100 square yards (10 x 10 yards) of brush wood and small trees (up to 12 inches diameter).

(4) Machine Gun Emplacement:
Simple shell hole type requires 12 man hours and about 200 pounds of materials.

(5) Shelters:

(a) Types:

Light: protect against 3 inch shells.
Medium: protect against 6 inch shells.
Heavy: protect against 8 inch and larger shells.

Heavy shelters should not be used in front lines on account of difficulty of exit.

(b) Floor space provided:

Troop shelter per man occupying	9.5 sq. feet
Aid station, per litter	28 " "
Command post, platoon	100 " "
Command post, company	200 " "
Command post, battalion	400 " "
Command post, regiment	600 " "
Command post, brigade	800 " "
Command post, division	1600 " "

(c) A heavy shelter for a platoon, with 30 feet of undisturbed earth cover will require about 10 days for construction.

(6) Camouflage:

(a) Relative importance of the elements of successful camouflage are:

1st: Proper choice of position	40%
2d: Camouflage discipline	25%
3d: Proper erection of camouflage material	20%
4th: Camouflage material used	15%

(b) Material for artillery and machine guns:

Gun	*Size and weight of nets* [1]
6 inch and larger	32 x 40 feet—100 lbs.
3 inch	32 x 32 feet— 75 lbs.
Machine guns	10 x 10 or 16 x 16 feet.

NOTES:

[1] May be larger on battalion and regimental reserve lines.
[2] All must be loosened with pick.
[3] Requires little or no picking.
NOTE:—Fish nets garnished with burlap, etc. These with posts, wire, etc., for erection, are carried by the unit. In stabilized situations wire netting in rolls 6 x 30 feet is furnished.

PENETRATION OF RIFLE BULLET

Material	Penetration in inches at	
	200 yards	600 yards
Commercial Steel	.30	0.10
1-inch gravel or broken stone	4.80	4.30
Brick masonry	2.40	1.20
Concrete	3.00	2.00
Sand, dry	18.00	12.00
Sand, wet	30.00	13.00
Earth, loam	30.00	16.00
Greasy clay	60.00	32.00
Oak	27.00	13.00

PROTECTION AGAINST ARTILLERY FIRE

Table of thickness in feet of undisturbed material required to resist the calibres indicated.

	77-mm.	105-mm.	150-mm.	170-mm.	210-mm.	250-mm.	305-mm.	420-mm.
Earth, dry, hard, compact	4	12	15	17	20	26	27	48
(a) Chalk or limestone, hard	3	9	11	13	15	20	21	36
(a) Sandstone or granite, hard	2	6	8	9	10	13	14	24

(a) In case rock is overlain by soft material which gives a tamping effect, thickness given in table must be increased according to following rule: For a tamping layer 3 to 5 feet thick, increase thickness given in table by 5 feet and one foot more for each additional foot of tamping layer.

Table of materials having resisting power equivalent to one foot of hard, dry, compact earth.

Material	Equivalent thickness, feet.
Loose, freshly turned earth	2
Earth, tightly tamped or packed	1.5
Broken stone	0.7
Logs, wired together (not less than 8" diam.)	0.4
Solid masonry (brick, stone, or plain concrete)	0.2
Concrete, reinforced (either massive or as bursters or beams, carefully wired together)	0.16

NOTE:—A row of steel I beams (5 x 3 inches) or 75 lb. rails with web vertical equals in resisting power, five feet of hard, dry, compact earth.

LOAD TABLE, ENGINEER MATERIALS

Item	Unit	Weight per unit lbs.	No. units per load		
			Escort Wagon	1½ ton Truck	3 ton Truck
Camouflage					
Wire netting	roll (6′ x 30′)	40	40	80	100
Fish nets	net (32′ x 32′)	75	15	25	35
	(32′ x 40′)	100	12	20	30
Pickets, wood 2½′	each	2½	800	1200	1500
Posts, wood, 5′	each	9	200	330	500
Posts, iron, screw, 5′	each	9	300	330	650
Posts, iron, screw, 1½′	each	3	900	1000	2000
Road plank, 10′ x 8″ x 5″	each	140	20	22	43
Stone, broken	cubic feet	100	28	30	60
Wire, barbed	50 yd. coils	15	185	200	400
Wire, barbed, commercial	80 to 100 rod reels	100	28	30	60

SECTION III

EQUIPMENT AND MATERIAL

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Table showing the performance, equipment, and characteristics of airplanes, balloons, and airships	Insert

DATA ON INFANTRY EQUIPMENT

Article	*Weights in pounds*	*No. in infantry division*
Machine gun	41.5 (a)	-------
Tripod for MG	51.5	-------
MG complete	93.0	96 (b)
MG cart loaded	134.0 (c)	96
MG Am cart loaded	260.0 (d)	96
37-mm. gun	160	12 (e)
37-mm. ammunition carts	358.4 (f)	12
3″ mortar	113	12
3″ mortar cart	321 (g)	12
3″ mortar (ammunition) cart	273 (h)	12

NOTES:

(a) Water jacket filled.

(b) This number does not include 14 with special troops, 45 antiaircraft, and 52 flexible and synchronized with air service.

(c) Load includes 1 gun and tripod, 5 boxes of ammunition at 18 pounds and 2 boxes of water at 22 pounds.

(d) Load includes 12 boxes of ammunition at 18 pounds and 2 boxes of water at 22 pounds.

(e) This number does not include 10 with tank company.

(f) Load includes 224 rounds at 1.6 pounds each.

(g) Load includes 1 mortar and 32 rounds at 6.5 pounds. Old projectile weighs 11 pounds.

(h) Load includes 42 rounds at 6.5 pounds.

INFANTRY WEAPONS IN THE DIVISION

Unit	*Guns, 37-mm.*	*Guns, machine*	*Mortars 3″*	*Rifles*	*Rifles, Automatic*	*Rifles with grenade dischargers*	*Pistols*
Division	12	96	12	8439	792(a)	648	9734
Brigade	6	48	6	3507	324	324	2538
Regiment	3	24	3	1733	162	162	1233
Battalion		8		483	54	54	322
Rifle Co				148	18	18	33
Rifle Plat				44	6	6	8
MG Co		8					146
MG Plat		4					57
How Co	3		3	16			93
How Plat	1		1	3			26

(a) Includes 12 0 in artillery brigade and 24 in engineer regiment.

INFANTRY AMMUNITION

Rounds per Weapon

Weapon	*With Gun*	*In Combat Train*	*In Division Train*	*Total in Division*
Rifle, cal. 30	100*	120*	60*	280
Automatic Rifle, cal. 30	440*	1000*	500*	1990
Machine gun, cal. 30	4250*	5750	3000	13000
Pistol	21	21	(a)	44
37-mm. gun	224	224	112	560
3″ trench mortar	74	120	67½	261½
Grenades	Per rifle	company		
Hand		312	156	468
Rifle		252	126	378

*Includes very limited number of armor piercing and tracer cartridges.
(a) 20,000 rounds pistol ammunition carried in division train.

INFANTRY AMMUNITION

Weights and Ranges

Kind	*Unit Weight*	*Weight Boxed—lbs.*	*Range—yards*
Cal. 30		90 per box of 1200 rounds	2500
Pistol, cal. 45		76 per box of 2000 rounds	
3″ trench mortar	11 lbs, 11 ozs.	45 per box of 3 rounds	750*
37-mm.	1¼ lbs.	121 per box of 60 rounds (HE) 105 lbs. per box (LE)	1800
Grenades			
Rifle (VB)	1.3 lbs.	46 per box of 36 rounds	180
Hand	22 oz.	40 per box of 24 rounds	50

*An improved trench mortar projectile, weight 6.5 pounds, with effective range of 1800 yards is contemplated.

INFANTRY AMMUNITION

Dispersion or Radius of Action

Kind	*At Range Yards*	*Dispersion Width, Yards*	*(Approximately) Depth, Yards*	*Radius Yards*
Cal. 30 Browning *	550	2.2	220	
Machine Gun	1050	3.3	110	
	1650	4.4	82	
	2200	5.5	55	
3″ trench mortar	300	16	20	30
	500	32	40	
	700	48	60	
37-mm.	250	6 Inches	34 Yards	
	500	18	32	
	750	32	28	
	1000	42	27	
	1500	72	26	
Grenade				
Rifle				30
Hand				30

*Dispersion figures for Browning machine gun give the dimensions of the effective zone (85%). In the case of the trench mortar and the 37-mm. gun, the figures are based upon a dispersion equal to twice the probable error of the weapon at the several ranges.

AMMUNITION CARRIED BY AN INFANTRY DIVISION

	Cal. 30 Rifle	*Cal. 30 Auto. Rifle*	*Cal. 30 MG*	*Cal. 45 Pistol*	*37-mm.*	*3" Mortar*	*Rifle Grenades*	*75-mm. Ammunition*	*Hand Grenades*
Soldier armed with the weapon	100			21					
Combat wagon of Inf. Rifle Co.	14640	10080		693			162		
Infantry MG Co., including 2 combat wagons			(A) 74000	6132					
Inf. Bn. Combat Tn.	43920	30240	40000	6762			486		
Inf. How. Co., including combat wagons	(B) 3520			3906	(D) 1344	(C) 852			
Tank Co.			59500	(E) 6342	2380				
Gun Section, 75-mm. artillery								(F) 124	
Caisson section								(F) 212	
Battery, 75-mm.								(G) 708	
75-mm. Bn. combat train								(F) 1908	
Total in Bn., 75-mm. Arty.								(H) 4032	
Total in Regt., 75-mm. Arty.								(H) 8064	
Total in FA Brig. Am. Tn.								(J) (K) 7425	
Total in Div. Tn.	(M) 500740	(N) 396000	(O) 621000	20000	(P) 2464	(Q) 1620	(R) 11664		
Grand total in Division					10220			(L) 23553	

NOTES:

(A) 9250 rounds per machine gun.
(B) Allowing 100 rounds per man armed with rifle.
(C) 284 rounds per mortar.
(D) 448 rounds per gun.
(E) 21 rounds per man and per man in vehicles.
(F) 106 rounds per caisson, 18 rounds per gun limber.
(G) Making 177 rounds per gun within the battery.
(H) Making 336 rounds per gun within the battalion.
(J) 99 rounds per wagon; total in wagon section, 2475.
198 rounds per truck; one truck considered as spare; total in truck section, 4950.
(K) Roughly $\frac{2}{3}$ of this, or $\frac{1}{3}$ of a day of fire—carried in trucks.
(L) This gives the following distribution of ammunition:

Within battery	177 rounds per gun.
Bn. Combat Tn.	159 rounds per gun.
Brigade Am. Tn.	155 rounds per gun.
Total	491

(M) 60 rounds for each rifle in the division.
(N) 500 rounds for each auto rifle in the division.
(O) 3000 rounds for each machine gun in the division.
(P) 112 rounds per 37-mm. gun.
(Q) 67½ rounds per mortar.
(R) 18 rounds per discharger.

INFANTRY—TANKS (ORGANIZATION)

Units	*Light Tanks*			*Heavy Tanks*		
	Combat		*Signal*	*Combat*		*Signal*
	Active	*Reserve*		*Active*	*Reserve*	
Bn	45	27	4	27	18	4
Co	15	9	1	9	6	1
Plat	5			3		

NOTE:

Readiness for action maintained by making maximum use of railroad transportation for heavy tanks and truck transportation for light tanks.
Light tank companies, organic part of infantry division.
Light and heavy tank battalions in GHQ Reserve.

CHARACTERISTICS OF TANKS

	Light	*Heavy*
Height	7 ft. 6 in.	10 ft. 3 in.
Weight	7 tons	50 tons
Length over all	15 ft. 7 in.	34 ft. 2½ in.
Width over all	5 ft. 9 in.	12 ft. (9 ft. with sponsons in).
Clearance	16 in.	20 in.
Personnel	1 driver.	1 officer.
	1 gunner.	11 enlisted.
Armament	1 machine gun or	2 six pounder guns and from
	1 37-mm. gun.	3 to 7 machine guns.
Ammunition carried, rounds	238 for 37-mm. gun or	208 for six pounders and
	4200 for machine gun.	15100 for machine guns.
Ammunition in C Tn	as above for each weapon.	as above for each tank.
Ammunition in Div Tn	50% of above.	50% of above.
Armor	Sides and turret .6 in.	Sides .5 in.
	Slopes .3 in.	Slopes .25 in.
Trench crossing	6 ft. wide.	18 ft. wide.
Slope climbing	3 ft. vertical.	5 ft. vertical.
Speed	1 to 5½ miles per hour.	1½ to 5 miles per hour.
Speed entrucked	45% slope.	45% slope.
	6 miles per hour.	----------
Road space, entrucked	1040 yards.	----------
Gas capacity	30 gallons.	240 gallons.
Gas consumption	1½ to 2 gallons per mile.	3 to 4 gallons per mile.
Durability	240 hours.	200 hours.

NOTE:

March of fifteen miles on their own power will necessitate several hours overhauling to put in condition for combat.

(See insert facing page 30.)

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CHARACTERISTICS OF ARTILLERY

	Caliber and Type	Projectiles: Kind	Projectiles: Weight (lbs)	Projectiles: Area effectively covered by burst (a): Range Yds	Projectiles: Area effectively covered by burst (a): Lateral Yds	Range: Extreme (Yds)	Range: Maximum effective: For barrage or where accurate fire is essential (Yds)	Range: Maximum effective: For fire on large areas (Yds)	Rate of fire: Rounds per piece per minute: Prolonged	Rate of fire: Rounds per piece per minute: Short Bursts	Rate of fire: Rounds per piece per minute: Maximum Possible	Day of Fire World War: Rounds per Piece	Time to Emplace in Firing Position Or Change From Firing to Traveling Position	Piece Transport	Ammunition Transport: Kind	Ammunition Transport: Rounds per vehicle	Total Weight of Cannon Carriage, and Limber or Car (Lbs)	Number of Loads	Weight of Maximum Load (Lbs)	Width of Track: Ft	Width of Track: Ins	Marches: Average rate, miles per hour	Marches: Average day's march, miles
Field — Light	1. 2.95-inch pack artillery	Shrapnel Shell	12.5 12.5	100 5	20 15	4,500 (f) 5,000	3,500 3,500	5,000 5,000	1	3	3	300	3 mins	Pack	Pack	10	830	4	235	2	8	3½	15
Field — Light	2. 75-mm. gun horse-drawn *Portée* Tractor-drawn	Shrapnel Shell (MK I)	16 11.2 to 13.0	150 5	25 15	6,000 (f) 8,800	5,000 7,000	6,000 8,500	2	6	25	300	3 mins 10 mins 3 mins	Horse Trucks Tractors	Cais. body Limber. Truck, 3T Wagon.	70 36 200 100	4,181	1		5 4	0 10	3½ 8 3½	20 60 25
Field — Medium	3. 4.7-inch gun	Shrapnel Shell	60 45	10	50	11,000 14,000			½	2	7	180	10 mins	Tractor 5-ton	Caisson body. Truck, 3T	28 60	9,818	1		5	0	3½	25
Field — Medium	4. 155-mm. howitzer	Shell	95	15	70	12,500	10,000	12,000	½	2	4	150	15 mins. or more	Tractor 5-ton	Caisson body. Truck, 3T	14 40	9.036	1		5	0	3½	25
Field — Heavy	5. 155-mm. gun	Shell	95	15	70	17,400	13,000	16,000	¼	1	4	100	2 to 6 hours (e)	Tractor 10-ton	Truck, 3T	40	29,410	1		7	6	3½	25
Field — Heavy	6. 8-inch howitzer (MK VI)	Shell	200			10,500	8,000	10,000	¼	1	3	100	1 to 4 hours (e)	Tractor 10-ton	Truck, 3T	20	21,700	1		7	4	3½	25
Field — Heavy	7. 240-mm. howitzer	Shell	356			16,400	13,000	16,000	¼	½	2	60	6 to 12 hours (e)	Tractor 10-ton	Truck, 3T	12	58,600	4	16,230	6	0	3½	25
Trench	8. 6-inch trench mortar	Shell	51			1,800		1,700	4	6	8	150	2 hrs and up (e)	Truck	Truck	32 per truck ton (d)	927	1				8	60
Railway	9. 7-inch gun, all-round fire	Shell (b)	153			16,900			7/10	2	2	90	30 mins	Car	Car	96	171,000	1	171,000	4	8½	20	200
Railway	10. 8-inch gun, all-round fire	Shell (b)	200			23,950			½	1	1	80	30 mins	Car	Car	96	174,000	1	174,000	4	8½	20	200
Railway	11. 10-inch gun, sliding mount	Shell (b)	510			28,000			1/5	1/5	1/5	50	3½ hours	Car	Car	48	387,100	1	387,100	4	8½	20	200
Railway	12. 12-inch gun, 10° limited traverse	Shell (b)	700			29,000			½	½	½	40	3½ hours	Car	Car	36	334,900	1	334,900	4	8½	20	200
Railway	13. 12-inch gun, sliding mount Mod 1918	Shell	700			45,000											550,000					20	200
Railway	14. 12-inch mortar, all-round fire	Shell (b)	700			15,291			4/10	4/10	4/10	50	30 mins	Car	Car	48	177,000	1	177,000	4	8½	20	200
Railway	15. 14-inch Navy gun, 5° limited traverse	Shell (b)	1,400			41,000			4/10	4/10	4/10	50	31 hours	Car	Car	25	539,760	1	539,760	4	8½	20	200
Railway	16. 14-inch gun, all-round fire (c)	Shell (b)	1,560			47,450			1	2	2	50	12 hours to 1 week	Car	Car		730,000	1	730,000	4	8½	20	200
Railway	17. 16-inch howitzer, all-round fire (c)	Shell (b)	2,100			24,500			1	2	2	50	12 hours to 1 week	Car	Car		680,000	1	680,000	4	8½	20	200
Antiaircraft	18. 3-inch gun, pedestal mount Mod 1917	Shrapnel Shell	15 15			Extreme range—12,750 yds, horizontally —25,050 ft, vertically			1	5	10	300		Truck	Truck	90 per truck ton (d)	15,280					8	60
Antiaircraft	19. 3-inch gun trailer mount, Model 1918	Shrapnel Shell	15 15			Extreme range—14,000 yds, horizontally —29,150 ft, vertically			1	5	10	300	5 mins	Truck	Truck	90 per truck ton (d)	14,085	1		5	0	8	60
Antiaircraft	20. 75-mm. gun, truck mount Model 1917	Shrapnel Shell	14.3 14.8			Extreme range—10,600 yds, horizontally —19,560 ft, vertically			1	5	10	300	5 mins	Truck	Truck	99 per truck ton (d)	8,400	1		5	2	8	60

(a) Approximate, only.
(b) Field ammunition, only, given here. Ammunition for use against armored ships not considered.
(c) Can be emplaced in 30 minutes for 7° limited traverse.
(d) Limited by volume
(e) Under exceptionally favorable conditions, especially in the case of small units, the minimum time given may be reduced. Adverse conditions, particularly in the case of the heavier types, may make it necessary to exceed maximum time given.
(f) Extreme limit of fuse.

DATA ON CHEMICAL WARFARE EQUIPMENT (A)

Article	*Approximate weight, lbs.*	*5-ton truck*	*3-ton truck*	*2-mule wagon*	*Men*
Livens Projector (C)	105	90	50	10	½
Livens shell boxes (1)	85	100	60	12	½
Livens shell, loose	65	150	90	15	1
Charges, boxed (4)	55	150	90	15	1
Charges, loose	10	1000	600	100	2
Stokes Mortars (B)					
Barrels complete	90	100	60	11	½
Stokes baseplates	120	75	45	8	½
Livens baseplates	28	350	200	35	2
Stokes shell, boxed (2)	60	100	60	12	½
Stokes shell, loose	20	400	240	40	2
Portable cylinders	50	200	120	20	1
Cylinders, empty	18	400	240	40	2
Stokes mortar bipod (D)	32	300	180	30	1

NOTES:

(A) Chemical warfare troops are not an organic part of the infantry division but may be attached to or operate with a division.

(B) The chemical warfare Stokes mortar is 4" caliber.

(C) Offensive materials are drawn from army depots for use with chemical troops.

(D) Defensive materials not listed. They consist of respirators for men and animals, chloride of lime, alarm devices, gas proof blankets for dugout protection, spare canisters, glycerine, antigas suits and gloves and protective paste. The division chemical officer procures these supplies, as well as smoke candles, as needed, from army depots, making the required distribution to regimental gas officers.

TABLE OR ORGANIZATION OF AIR SERVICE UNITS

(Division, Corps, Army, and GHQ)

		Units	*Officers*	*Warrant Officers*	*Enlisted Men*	*Airplanes*	*Balloons*	*Airships*
Division	Headquarters	1	1		5			
	Photo sec	1	1		20			
	Observation Sq	1	35		160	13		
	Totals		37		185	13		
Corps	Headquarters	1	6		26			
	Communications Section	1	2		56			
	Obsn Group (less 2 Sqs and 1 photo sec)	1	90	1	610	32		
	Balloon Group	1	45	1	906		4	
	Totals		143	2	1598	32	4	
Army	Headquarters	1	23	5	103			
	Hq Squadron	1	9		160	12		
	Communications Section	1	2		56			
	Airdrome Co	1	7		250			
	Attack Wing	1	405	4	2626	212		
	Observation Gp	1	161	1	950	58		
	Totals		607	10	4180	284		
General Headquarters	Headquarters	1	27	6	88			
	Hq Squadron	1	9		160	12		
	Communications Section	1	2		56			
	Airdrome Co	1	7		250			
			4008	45	29056	2106		
	Air Division (a)	1						
	Airship Brig (a)	1	320	12	6244			24
	Observation Gp (b)	1	161	1	950	58		
	Balloon Brig (b)	1	398	14	8002		32	
	Air Brigade (b)	1	1125	12	7968	556		
	Totals		4932	78	44806	2176	32	24

(a) Air force for operations under the control of G.H.Q.

(b) Reserve for six field armies. (From Air Division.)

TABLE SHOWING PERFORMANCE AND CHARACTERISTICS OF BALLOONS AND AIRSHIPS

	Balloons	Airships				
		Non-rigid			Semi-rigid	Rigid (Naval)
	Type R	AC-1	TC-II	RN-1	RS-1	Type ZR
Length	92	169.2	195.8	257.5	234.3	677
Width	27	48	44.5	52.4	73	80
Height		61.3	58	76.3	85	100
Volume (Cu. Ft.)	37,500	185,000	200,000	330,000	665,000	2,155,000
Wt. empty		8204	7468	14,200	25,035	76,000
Useful load (lbs.)		4296	4117	5,267	17,765	50,000
Speed (max.)		65	60	47.3	70	80
Endurance		24 hrs at 65 m 50 hrs at 45 m	17 hrs at 60 m 25 hrs at 40 m	17 hrs at max 26 hrs at cruis	23½ hrs at 70 m 35½ hrs at 45 m	
Radius of action		1600 to 2500 m	1100 to 1500 m	800 to 950 m	3000 to 5000 m	4000 M at 45 m
Ceiling (ft.)	3500 (b) 5000 (c)	10,000	10,000	12,000	12,000	
No. of motors		2	2	2	4	6
Total horse-power		250	300	640	1200	1800
No. in crew		7	9	8	10	20 to 25
Time of inflation	1 hr (cyl)* 7 hrs (F. Gen)					
Rate of descent (ft. per min. max.)	1600					

Notes:

*Hydrogen cylinders weigh 132 lbs. each. Their capacity is 191 cu. ft. hydrogen at 2000 lbs. pressure and 174 cu. ft. at 1800 lbs. pressure.
(b) With 2 Observers.
(c) With 1 Observer.

(See two inserts facing page 32.)

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TABLE OF ORGANIZATION OF AIR SERIVCE UNITS

		Attack					Bombardment					Pursuit					Ob servation				
		Units	*Officers*	*War-rant Officers*	*Enl. Men*	*Air-planes*	*Units*	*Officers*	*War-rant Officers*	*Enl. Men*	*Air-planes*	*Units*	*Officers*	*War-rant Officers*	*Enl. Men*	*Air-planes*	*Units*	*Officers*	*War-rant Officers*	*Enl. Men*	*Air-planes*
SQUADRON	Headquarters	1	5		67	1	1	5		91	1	1	5		61	1	1	8		65	1
	Technical		3		83			3		87			3		79			3		57	
	Flights	(d) 2 (s) 3	48		75	(d) 12 (s) 24	(d) 2 (s) 3	48		62	12 24	3	24		75	24	2	24		38	12
	Totals		56		225	(d) 13 (s) 25		56		240	13 25		32		215	25		35		160	13
GROUP	Headquarters	1	11	1	70	(o) 4	1	11	1	70	(o) 4	1	11	1	70	4	1	11	1	70	4
	Service Sq	1	8		200	(o) 2	1	8		200	(o) 2	1	8		200	2	1	8		200	2
	Photo Sec	1	1		20		1	1		20							2	2		40	
	Squadrons	4	224		900	(d) 52 (s) 100	4	224		960	(d) 52 (s) 100	4	128		860	100	4	140		640	52
	Totals		244	1	1190	(d) 58 (s) 106		244	1	1250	(d) 58 (s) 106		147	1	1130	106		161	1	950	58
WING	Headquarters	1	5	2	35	(o) 2	1	5	2	35	(o) 2	1	5	2	35	(o) 2					
	Communications Sec	1	2		56		1	2		56		1	2		56						
	Airdrome Co	1	7		250		1	7		250		1	7		250						
	Pursuit Gps	1	147	1	1130	106	2	294	2	2260	212	4	588	4	4520	424					
	Attack Gps	1	244	1	1190	(d) 58 (s) 106															
	Bomb Gps						1	244	1	1250	(d) 58										
	Totals		405	4	2661	(d) 166 (s) 214		552	5	3851	272		602	6	4861	426					
AIR BRIGADE	Headquarters						1	10	2	50											
	Hq. Squadron						1	9		160	(o) 12										
	Communications Sec						1	2		56											
	Wings						2	1104	10	7702	544										
	Totals							1125	12	7968	556										
AIR DIVISION	Headquarters						1	20	3	75											
	Hq. Squadron						1	9		160	(o) 12										
	Communications Sec						1	2		56											
	Air Brigades						3	3375	36	23904	1668										
	Pursuit Wgs						1	602	6	4861	426										
	Totals							4008	45	29056	2106										

		Balloons					Airships				
		Units	*Officers*	*War-rant Officers*	*Enl. Men*	*Bal-loons*	*Units*	*Officers*	*War-rant Officers*	*Enl. Men*	*Air-ships*
COMPANY	Headquarters	1	4		54		1	4		38	
	Technical Secs	3	4		116	1	4	4		132	1
	Totals	1	8		170	1	1	8		170	1
GROUP	Headquarters	1	6	1	36		1	8	1	45	
	Service Co	1	6		170		1	6		170	
	Photo Sec	1	1		20		1	1		20	
	Companies	4	32		680	4		32		680	4
	Totals		45	1	906	4		47	1	915	4
WING	Headquarters	1	4	2	18		1	4	2	14	
	Communications Sec	1	2		56		1	2		56	
	Airdrome	1	7		250		1	7		250	
	Groups	4	180	4	3624	16	3	141	3	2745	12
	Totals		193	6	3948	16		154	5	3069	12
BRIGADE	Headquarters	1	10	2	50		1	10	2	50	
	Communications Sec	1	2		56		1	2		56	
	Wings	2	386	12	7896	32	2	308	10	6138	24
	Totals		398	14	8002	32		320	12	6244	24

NOTES:— (d) = dual-engine.
(o) = observation.
(s) = single-engine.

To face page 32.

TABLE SHOWING THE PERFORMANCE, EQUIPMENT, AND CHARACTERISTICS OF AIRPLANES, BALLOONS, AND AIRSHIPS

	Observation			Pursuit			Attack	Bombardment		
	Division	*Corps* *b*	*Army* *a* *b*	*Pursuit Single-seater*	*Single-seater*	*Two-seater* *c*	*Single engine* *b*	*Day—(1 engine)* *c*	*Night—Short Distance*	*Night—Long Distance*
Speed at sea level (m.p.h.)	120	140	140	141	159	160	140	115	975	100
Ceiling	18,000	18,000	30,000	21,000	23,850	34,000	18,600	17,500	16,000	10,000
Time to reach service ceiling (min.)	55	40 to 16,500	40 to 25,000	50	25 to 22,000	37	40 to 16,500	30 to 15,000	63 to 12,000	20 to 7,000
Endurance in hours	4	7¾	7¾	2¼	2¾	3 at 20,000	7¾	6	5½	12
Radius of action (miles)	150	300	300	100	200	200	300	250	200	400
Machine Guns, fixed	2 30 cal	2	2	2	2	1–30 c 1–50 c	6	1		
Machine Guns, flex	2 30 cal	2	2			2 30 cal	2	2	5	8
Machine Guns, tail	0	0	0			1	0	1		2 to 4
37-mm. Guns							0			*c*1
Bombs—No. of frag. 25 lb.	10	10	10	4	4	10	14	10		
Bomb Loadings	4–100 various	4–100 various	4–100 various				4–100 various	1–2000 2–1100 3– 600 6– *300*	1–2000 2–1100 3– 600 6– *300*	1–5000 4–1100 various
Bombs—Total weight of	400	600	600	100	100	300	600	2,000	2,400	10,000
Radio, Telep., and Teleg. (send)	Yes	Yes	Yes			Yes	*c*	Yes	Yes	Yes
Radio, Telep., and Teleg., (rec.)	No	Yes	Yes	Yes	Yes	Yes	*c*	*c*	Yes	Yes
Armor (Motor, tanks, and crew)	No	No	No	No	No	No	No	No	No	No
Max. horse-power of motors	420	420	420	320	440	420	420	650	800	2,400
Camera	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. in crew	2	3	3	1	1	2	2	2	4	4
Oxygen tanks			Yes	Yes	Yes	Yes		Yes	Yes	

AIRDROMES

Size of—(Squadron) Yds	500 Square	600 x 400 Rect	600 x 300 L shaped, each leg of	
Size of—(Group) Yds	800 Square	1000 x 600 Rect	1000 x 500 L shaped, each leg of	
Distance behind front lines	Atk., Pur., and Obsn.—10–15 miles		Day Bomb 20–25 miles	Night Bomb 25–35 miles

Legend: *a.* Supercharged.
b. Tested and in production.
c. Planned or under test. Not yet a service type.
m.p.h.: Miles per hour.
Cal: Caliber.
Note: Pursuit planes carry special cameras. Not normal equipment.

SECTION IV

MAPS

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1. STANDARD MAPS.

	Fire Control or Training Map	*Tactical Map*	*Strategic Map*	*General and Geographic Maps*
Scale:	1:20,000	1:62,500*	1:250,000	1:500,000 to 1:16,500,000
Area covered:	Limited to important areas.	U. S. and possessions.	Not yet provided.	U. S.
Sheets:	20,000 yards east and west by 12,000 yards north and south.	15 minutes† by 15 minutes.	.....	Variable.
Contour interval:	20 feet.	Mutiple of 10 feet.	.....	.....
Grid:	1000 yard squares.	5000 yard squares.	.....	.....

2. SPECIAL MAPS.

Standard maps are used as the basis. The preparation of special maps in scales larger than 1:20,000 not encouraged. When necessary scales of 1:10,000 and 1:5,000 may be used. Normal scales will be 1:62,500 (1:63,360 in Philippine Islands) and 1:20,000.

Contour interval for special maps normally as follows:

Scale	*Contour interval*
1:62,500	20 feet
1:20,000	20 feet
1:10,000	10 feet
1:5,000	5 feet

3. GRID.

Grid system of standard maps of continental United States is zones 9° in longitude, the zones overlapping one degree, and letter from A to G inclusive from east to west. The zone letter is printed on all maps containing grids. In designating points by grid coordinates, the name of the map sheet and not the zone letter is used as a primary reference.

4. REPRODUCTION.

Rate at which single color work may be done by well trained men, with the equipment furnished for field use, is as follows:

	1 copy	*20 copies*	*200 copies*	*1000 copies*
Blue print	5 min.	1⅔ hrs.		
Duplicator	2 hrs.	2½ hrs.		
Cyclostyle	3 hrs.	3⅓ hrs.	5⅙ hrs.	
Hand Lithograph	4 hrs.	5 hrs.	14 hrs.	54 hrs.
Power Lithograph	4 hrs.	4 1/12 hrs.	4⅓ hrs.	5½ hrs.

*In Philippine Islands 1:63,360.

†In Philippine Islands 20 minutes by 20 minutes.

5. DISTRIBUTION AND DISPOSITION.

a. Distribution.—Engineer officer of each unit charged with map distribution except for confidential or secret maps requiring special distribution. He requisitions maps as needed.

b. Dispositions.—When a tactical unit relieves another, its engineer officer, or if it has no engineer officer, its commanding officer, is charged with turning over to the engineer officer or commanding officer of the succeeding unit, all serviceable maps, and destroying all unserviceable confidential maps.

SECTION V

ORDERS

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A form of order for a

MOVEMENT BY MARCHING

(WARNING ORDER)

Title
Place
Date and Hour

To.....(commanders concerned).

a. (1) Division moves by marching:
(2) Destination if known and approximate time of starting—as tomorrow early or at specified hour;
(3) Duty in new area (when it can be disclosed), as, to training area, to pass to corps or army reserve, to protect flank of corps or army, to relieve—division in line, to extend line, etc.

b. (1) Number of columns, if more than one, with units in each column, and column commanders.
(2) Route or routes to be followed.

c. When desirable:
(1) Designation of troops in advance guard; time advance guard or advance guards will start from or clear initial point or points;

(2) Instructions for:
  (a) Detachments (when time of issue of order is close to time of marching), as, outposts, quartering or advance parties, parties left behind;
  (b) Trains when they are not to accompany the command.
(3) Instruction with reference to:
  (a) rations and equipment to be carried;
  (b) surplus baggage;
  (c) salvage;
  (d) reports of equipment needed;
  (e) equipment available for issue.
(4) Relief in present area, etc.[1]

d. In a change of direction march, instructions to security detachments, and to units to be attached to flank guard; preparations for forming new advance guards.[2]

(Signature.)

Distribution:

NOTES:

[1] Steps must be taken to have division equipped for its probable mission on arrival in new area.

[2] The advance guard or a newly organized detachment will cover the change of direction and should be informed of its mission and its composition. Orders are issued to assure early forming of units to be attached (cavalry or artillery) and steps taken to form new advance guard and take up the march.

A form of order for a

MOVEMENT BY MARCHING

(FIELD ORDER)

Title
Place
Date and Hour

FIELD ORDERS
No.—

Maps:

1. Information of enemy and our own troops when advisable.
2. Decision of commander.
   a. To advance to or on a designated locality, or to change direction and march to or on.....
   b. Mission, as, to seize and hold a position, to establish a bridgehead, to cover flank of army, etc.
   c. Route[2] (when in one column) or zone of action (when in more than one column).
   d. Reference to march tables,[1] when used.

(In one column)	(In two columns)
TROOPS	TROOPS
a. Cavalry.	*a. Cavalry.*
Commander	Commander
Troops	Troops
b. Advance guard.	*b. Right column.*
Commander	Commander
Troops	Troops

c. Main body—in order of march:
Commander
Troops

d. Right (left) flank guard.
Commander
Troops

c. Left column.
Commander
Troops

d. Center column.
Commander
Troops

3. 3, 4, 5, 6.

a. Instructions for cavalry (the cavalry may be attached to the advance or flank guard).
(1) Place and time of departure.
(2) Roads or country to be covered or zone of action.
(3) Special mission, as, to maintain connection with corps or army cavalry or flank units, to seize and hold a specified position, to gain contact with enemy, to delay enemy if encountered, etc.
(4) Special reconnaissance.
(5) Route of march.
(6) Special reports desired, etc.

b. Instructions for advance guard.
(1) Place and time of departure.
(2) Distance at which it is to precede the main body (when advisable).
(3) Route.
(4) Special reconnaissance (to designated points, etc.).
(5) Conduct when enemy is encountered (when necessary), etc., or instructions for right column.
(1) Time and place of departure.
(2) Route or routes within zone of action.
(3) Zone of action.
(4) Contact with adjoining units.
(5) Security measures.
(6) Special missions, as, protection of flank, to secure a position, etc.

c. Instructions for main body.
(1) Place and time of departure or distance at which it is to follow advance guard, or instructions for left column (similar to those for right column).

d. Instructions for flank guard.
(1) Place and time of departure.
(2) Route.
(3) Special missions—to protect flank, to hold enemy beyond certain line until certain time.
(4) Special reconnaissance, etc., or instructions for center column (similar to those for right column).

e. Instructions for air service.
(1) Reconnaissance.
(2) Connection, especially with covering or flank guards.
(3) Selection of landing fields and time of moving thereto.
(4) Combat mission on encountering enemy (if necessary).
(5) Special reports desired, etc.

x. Instructions applicable to whole command which do not belong to another subparagraph; as
(1) Outposts—when relieved, subsequent duties, line to be established at end of march, and conduct in case of attack (when advisable).
(2) Halts.
(3) Instructions as to secrecy.
(4) Connections between columns.

(5) March discipline.
(6) Security of columns, as, each column will provide for own.
(7) Periodic reports of location of columns.
(8) Reconnaissance.
(9) Guides.

4. When an administrative order is issued, refer to it by number.
When one is not issued, give such instructions for trains, supply, and evacuation as are necessary in each case.

5. *a.* Signal communication—refer to annex, or indicate changes, when necessary.
b. Axes of signal communication—designate when offensive combat is a possibility; in any other situation, designate when particular reasons require that successive command posts or advance command posts be named.
c. Command posts—give initial and subsequent command posts of division and time of opening each; if desirable, may give same information for each column or next subordinate unit (these may be prescribed as *en route* but the location for night should be designated when possible).

(Authentication) (Signature.)

Annexes:
Distribution:

NOTES:

[1] When the march covers several days, a march table may be used which will include the instructions given the several columns in paragraph 3.
[2] In a flank march, the route is selected so as to retain space for deployment toward the enemy and special precautions are taken for flank protection.
[3] In a change of direction, the command must:
provide for security on the flank.
make full utilization of road net.
avoid the crossing of columns.
send the trains to safety.
[4] In a march through a defile the commander should:
gain the exit before the main body enters the defile.
provide for reconnaissance and security.
organize the column so as to be prepared for combat near the exit.
[5] In forced marches, the commander should:
arrange the halts and periods for meals to give troops the maximum rest.
assign the best roads to foot troops.
lighten the packs of troops.
[6] In night marches:
the routes should be carefully reconnoitered.
guides should be selected and posted to prevent units going astray.
close connection should be maintained.
ample time allowance should be made in all plans.

A form for a
MARCH TABLE

ANNEX NO..... TO FIELD ORDERS NO....., ...DIVISION
MARCH TABLE

Serial No.	*Organization and commander*	*Present location (date)*	*Zone of action or route*	*Location by (date)*	*Location by (date)*	*Remarks*
				May specify that advance or rear elements shall clear or be (north, etc.) of a certain line by a given time. Command posts, etc.	Additional columns are used for each day's march.	Instructions for the purpose of preventing interference among serials, to include hours of departure, clearing of initial or other designated points, dispositions *en route* or at destination, and for supply.

(Authentication) (Signature.)

A form of order for
MOVEMENT BY RAIL, OR RAIL AND MARCHING
(WARNING ORDER)

Title
Place
Date and Hour

To.....(commanders concerned).

a. (1) Division moves by rail (or rail and marching).
(2) Destination if known or can be disclosed.
(3) Duty in new location (if it can be disclosed), as, training, rest area, corps or army reserve, into the line.
(4) When movement begins.

b. (1) General statement of order of movement and probable date of commencement of movement of units.
(2) Length of time units will be en route.

c. General instructions with reference to:
surplus baggage
salvage
rations to be carried
report of equipment needed[1]
equipment available for issue[1]
quartering parties or advance detachments[2]

relief in present area, if any
statement whether any details will be left behind and nature of details.[3]

(Signature.)

Distribution:

NOTES:

[1] Steps must be taken to have division equipped for its probable mission on arrival in new area.
[2] Advance detachments and quartering detachments should always be sent when practicable.
[3] No details are left behind if it can be avoided. They may never rejoin.

A form of order for a
MOVEMENT BY RAIL, OR RAIL AND MARCHING
(FIELD ORDER)

Title
Place
Date and Hour

FIELD ORDERS
No. .... }

Maps:

1. Information of the enemy and our own troops when advisable.
2. Decision of commander or mission as given by higher authority—to move by rail or by rail and marching.
   Destination, if known or to be disclosed.
   When movement begins—reference to entraining and march tables.
3. Lettered subparagraph for each entraining point showing:
   Troops to entrain
   Roads available for march to station[1]
   Details of officers and men in charge of entraining point.[2]
   Lettered subparagraph for troops to move by marching[3] giving:
   Organizations marching
   Route
   Reference to march table.
   (x) Duration of journey.
   Detail of officers in charge of detraining points.
   Precautions as to secrecy.
   Details left behind (if any) with instructions when to rejoin.
4. Reference to administrative order.
5. Date and hour of opening and closing old and new CPs.[4]
   Rear echelon moves at.....date. (on last train).[4]

(Authentication) (Signature.)

Annexes:
Distribution:

NOTES:

[1] Avoid crossing of routes of units moving to entraining point.
[2] Have details to direct units upon arrival at entraining point to places alongside cars, to conduct details to load baggage to loading points, to maintain order at entraining point.
[3] When part of command move by rail and part by marching, motorized units march. Foot troops are sent by rail unless imperative that certain horse-drawn elements arrive early.
[4] Open new command posts at earliest moment. Not later than arrival of first units. Maintain a representative of the division commander at old command post until the last.

A form for an
ENTRAINING TABLE

ANNEX NO..... TO FIELD ORDERS NO....., ...DIVISION
ENTRAINING TABLE

Entraining Stations:
X.....
Y.....
Z.....

Detraining Stations:
X.....
Y.....
Z.....

Train From	*No Stations*		*Type*	*Units*	*Date Month*	*Time of Departure*	*Time of arrival Destination*
X	Y	Z					

(Authentication) (Signature.)

NOTES:

Part of engineers, medical regiment, division train, headquarters of units, and quartering detachments should be sent on early train.

Heavy equipment entrained and detrained at stations having good facilities.

Consider possible use of division upon arrival. Tactical situation may require a reinforced brigade, all the infantry, artillery, or machine guns on early trains.

Detraining points of organization selected so as to facilitate concentration of organization.

Field and combat trains are sent on same train with their units.

A form of order for a
MOVEMENT BY WATER
(WARNING ORDER)

Title
Place
Date and Hour

To.....(commanders concerned).

1. *a.* Division moves by water (or overseas).
   b. Destination if known or can be disclosed.
   c. Division moves by rail or marching, etc., to port of embarkation.
   d. Approximate date of movement (if it can be disclosed).

2. *a.* General statement of order of movement and when units will be ready to move.
   b. Equipment for move.
   c. Method of shipment of baggage, freight and animals (separate or unit shipment).
3. General instructions reference:
   surplus baggage,
   salvage,
   rations to be carried,
   physical examination of personnel.
   inspection of animals,
   report of equipment and personnel needed,
   equipment immediately available,
   advance detachments,
   number and nature of detachments to be left behind (sick, prisoners, guards, depot units, etc.).
4. Precautions as to secrecy, if necessary.

(Signature.)

A form of embarkation order for a

MOVEMENT TO PORT OF EMBARKATION

See Form for Field Order for Movement by Rail, Marching, or Truck.

Title
Place
Date and Hour

FIELD ORDERS
No. ....

1. The Division embarks [1] and [2]. Reference to embarkation tables.
2. Advance detachments to go aboard ship and when.
   Special instructions as to:
   reports and lists (required on embarkation, etc.),
   police of camp,
   detachments (left behind, or for baggage, freight, etc.),
   precautions as to secrecy.
3. When CP closes.

(Authentication) (Signature.)

Annexes:
Distribution:

NOTES:

[1] See "Rules for Navy Convoy of Military Expeditions."
[2] When the destination is a landing on hostile shores, the orders for initial landing and attack are prepared prior to embarkation.

A form for a
DEBARKATION ORDER
(WITHOUT OPPOSITION)

Title
Place
Date and Hour

FIELD ORDERS
No. ....

1. Command debarks [1]. Approximate time.
2. *a.* Order of debarkation.
   b. Instructions for:
   baggage and freight details,
   police of ship, etc.,
   sick and details left aboard,
   special reports and lists required on debarkation.
3. Command post (when and where new command post opens if known).

(Authentication) (Signature.)

Distribution:

NOTE:

[1] In a debarkation without opposition, the commander of troops on each vessel issues this order.

A form of order for a
MOVEMENT BY TRUCK AND MARCHING
(WARNING ORDER)

Title
Place
Date and Hour

To.....(commanders concerned).

a. (1) Division moves by truck and marching.
(2) Destination if known or can be disclosed.
(3) Duty in new location (if it can be disclosed), as training, rest area, corps reserve, etc.
(4) Time of movement[1] of
Truck column
Marching column
(5) Assistance, if any, to be given by division motor transport.
b. Length of time units will be en route if it can be disclosed.
c. General instructions reference:
equipment to be transported by truck,
rations to be carried,
surplus baggage,
salvage,
reports of equipment needed,[2]

equipment available for issue,[2]
quartering parties or advance detachments,[3]
relief in present area, if any,
statement whether any details will be left behind and nature of details.[4]

(Signature.)

Distribution:

NOTES:

[1] When all units do not move the same day the units to move first and the time of movement should be given.
[2] Steps must be taken to have the division equipped for its probable mission on arrival in new area.
[3] Advance detachments and quartering parties should always be sent when practicable.
[4] No details are left behind if it can be avoided.

A form of order for a
MOVEMENT BY TRUCK AND MARCHING
(FIELD ORDER)

Title
Place
Date and Hour

FIELD ORDERS
No. ....

Maps:

1. Information of the enemy and our own troops when advisable.
2. Decision of commander or mission as given by higher authority—to move by truck and marching[1], when movement begins. Destination, if known, or to be disclosed.
3. Lettered subparagraph for units moving by truck giving:
   organizations moving by truck,[2]
   duration of journey, if it can be disclosed,
   detail of officers in charge of entrucking and detrucking points.

   Lettered subparagraph for units marching[1] giving:
   organizations marching,
   detachments accompanying trains,
   if march tables not used then give,
   destination, if known or to be disclosed,
   time of marching,
   initial point,
   route,
   roads available for troops marching to initial point.

   x. (1) Precautions as to secrecy, restrictions as to roads.
   (2) Precautions as to security, as, against airplane attack, mounting of auxiliary weapons on vehicles, etc.
   (3) Provision for marking entrucking points, assembly of troops, at entrucking points.
   (4) Details left behind and instructions when and where to rejoin.
   (5) Precautions as to march discipline when necessary.
4. If an administrative order is issued refer to it by number. If not issued, given instructions for trains, supply, and evacuation as necessary in each case.

5. Date and hour of opening and closing old and new command posts. (Some representative of division commander is maintained at old command post until last element moves).

(Authentication) (Signature.)

Annexes:
Distribution:

NOTES:

[1] Avoid interference of columns by sending marching columns by different route or starting after the motor transport columns.
[2] Troops should arrive at entrucking point 15 minutes before entrucking begins.

A form for a

TROOP MOTOR TRANSPORT MOVEMENT TABLE

date.....

To accompany Field Orders No....., ...Division

1	2	3	4	5	6	7	8	9	10	11	
Group No.	Troops	Motor Transport assignment	Regulating Point and hour head passes same	Route from Regulating Point to Entrucking Point	ENTRUCKING POINT and hour head reaches same	Hour entrucking begins	Hour head leaves Entrucking Point	Route from Entrucking Point to Initial Point	INITIAL POINT—and hour head passes same	Order of clearance of INITIAL POINT	X

Extra columns may be added when necessary showing detrucking points, routes thereto, time of arrival, routes for return of transport to train bivouac or entrucking points, instruction to troops.

NOTES:

1. When the division conducts the move the entire table is prepared by G-3 in consultation with Motor Transport representative.
2. Where the division is moved by a higher unit, the Motor Transport representative prepares the table in consultation with G-3 of the Division.
3. Under Instructions to Troops in extra column there may be given when necessary the type and number of trucks furnished, number and type of trucks for baggage and equipment, equipment to be carried, time of loading baggage if different from troops, direction truck column moves out, restriction as to roads.

(Authentication)

(Signature.)

A form of order for an
ADVANCE GUARD

Title
Place
Date and Hour

FIELD ORDERS
No. ....

Maps:

1. Information of the enemy and of friendly troops, including destination or direction of march of main body.
2. Mission as given by higher authority—generally a statement that the command forms the advance guard for the larger designated unit.

Troops[1]

a. Cavalry:
Commander
Troops

b. Support:
Commander
Troops

c. Reserve—in order of march.

3. *a.* Instructions for cavalry—place and time of departure, roads or country to be covered, special missions.
   b. Instructions for support—place and time of departure, route, reconnaissance, special missions.
   c. Instructions for reserve—distance at which it is to follow support, reconnaissance.
   x. Instructions applicable to whole command which do not belong in another subparagraph.
4. Instructions covering such administrative details as affect troops of the advance guard only.
5. Place of commander or where messages are to be sent.

(Authentication) (Signature.)

Annexes:
Distribution:

NOTE:

[1] In small commands this column can be omitted the distribution being covered in the subparagraphs of paragraph 3.

A form of order for a
REAR GUARD

Title
Place
Date and Hour

FIELD ORDERS
No. ....

Maps:

1. Information of the enemy and of friendly troops, including destination or direction of march of main body.
2. Mission as given by higher authority—generally a statement that the command forms the rear guard of the larger designated unit.

Troops

a. Reserve—in order of march:
Troops

b. Support:
Commander
Troops

c. Cavalry:
Commander
Troops.

3. *a.* Instructions for reserve—place and time of departure, approximate distance from main body, reconnaissance, special missions, location, and occupation of delaying positions.
   b. Instructions for support—place and time of departure, or distance from reserve, any special reconnaissance, delaying positions.
   c. Instructions for cavalry—place and time of departure, roads or country to be covered, special missions, demolitions.
4. Such administrative details as affect the troops of the rear guard only—usually instructions for the trains of the rear guard to join train of main body.
5. *a.* Axis of signal communication—of main body if prescribed.
   b. Command post—initial location, or place to which messages may be sent.

(Authentication) (Signature.)

Annexes:
Distribution:

A form of order for

A HALT FOR THE NIGHT—CAMP WITH OUTPOST

Title
Place
Date and Hour

FIELD ORDERS
No. .... }

Maps:

1. Information of the enemy and of friendly troops.
2. Decision of commander—to go into shelter, general location.
3. *a.* Instructions for cavalry—reconnaissance, contact with enemy, special missions.
   b. Designation of troops and commander,[1] for outpost, general line to be held, special reconnaissance, connection with other outposts, if any.
   c. Instructions for troops not detailed for outpost duty—location of shelter areas, designation of area commanders,[2] observation of flanks and rear when necessary. In large commands, when shelter areas are assigned to groups, a separate lettered subparagraph may be assigned each group, containing the special instructions for that group. May refer to camp table or location map.
   d. Instructions for air service—location, reconnaissance, special missions.
   x. General instructions applicable to whole command, such as conduct in case of attack, etc.
4. If administrative order is issued, refer to it by number. If one is not issued, give such instructions as to supply, evacuation, traffic, trains, and personnel as are necessary.
5. Command posts of unit and of principal subordinate units when necessary.

(Authentication) (Signature.)

Annexes:
Distribution:

NOTES:

[1] When the advance guard is large, the order may direct the advance guard commander to establish the outpost.
[2] Omitted when the superior commander exercises immediate command of the camp.

A form for a

CAMPING TABLE

ANNEX NO..... TO FIELD ORDERS NO....., ...DIVISION
CAMPING TABLE

Unit	*Location (of camp)*	*Remarks*
		To clear up doubtful points and to avoid confusion, such as, time detached units will rejoin—routes to camp—precaution as to secrecy—security measures, etc.

(Authentication) (Signature.)

A form of order for an

OUTPOST

Title
Place
Date and Hour

FIELD ORDERS
No. ....

Maps:

1. Information of the enemy and of friendly troops.
2. Mission as given by higher authority—generally a statement that the command establishes the outpost, approximate line of resistance.

Troops[1]

a. Cavalry:
Commander
Troops

b. Supports: 2–3
No. 1
Commander
Troops

No. 2
Commander
Troops

No. 3
Commander
Troops

c. Detached Post:
Commander
Troops

d. Reserve:
Commander
Troops.

3. *a.* Instructions for cavalry—contact with enemy, roads or country to be especially watched, special missions.
   b. Instructions for supports—position each is to occupy, sections of line of resistance each is to hold, reconnaissance, intrenching, etc.
   c. Instructions for detached post—position to be occupied, duties, amount of resistance, reconnaissance, etc.
   d. Instructions for reserve—location, observation of flanks, etc.
   e. Instructions for artillery (if any is attached to outpost)—positions, barrages and other protective fires, etc.
   f. Instructions for machine guns, light mortars, and 37-mm. guns (if not attached to supports or reserve)—positions, areas to be covered by fire, special duties.
   x. Instructions applicable to whole command, such as conduct in case of attack, contact, mutual support.
4. Instructions for trains, rolling kitchens, location of aid stations.

5. Command posts: Of outpost and of such higher or lower units as may be necessary.

(Signature.[4])

(Authentication)

Annexes:
Distribution:

NOTES:

[1] For small outposts, the "*distribution of troops*" may be omitted and elements covered in appropriate subparagraphs of paragraph 3.
[2] Numbered from right to left.
[3] If desired, each support can be given a separate letter, corresponding changes being made in paragraph 3.
[4] It is sometimes necessary to issue two outpost orders: the first as above, containing general instructions; the second, issued after an inspection of the line, and containing more definite instructions, or involving changes affecting the entire outpost.

A form of order for
DEVELOPMENT FOR COMBAT
(WARNING ORDER)*

Title
Place
Date and Hour

FIELD ORDERS
No. ....

1. Information of enemy and own troops when advisable.
2. General plan of commander.
   To attack as soon as troops are in position, to march in readiness for battle—number of columns, composition, time of marching.
3. Mission of cavalry or advance guard.
4. Instructions reference field and service trains.
5. When march order or development order will issue.

(Signature.)

(Authentication)

Distribution:

NOTE:

*A warning order is seldom necessary.

A form of order for

DEVELOPMENT FOR COMBAT

(FIELD ORDER)

Title
Place
Date and Hour

FIELD ORDERS
No. ....)

1. Information of the enemy and of our own troops.
2. Decision of commander.
   To move into position in readiness—to attack as soon as in position—to march in readiness for battle giving number of columns.[1]
3. *a.* Instructions for cavalry:
   (1) Before development:
   To reconnoiter—gain contact—cover movement of division.
   (2) After development:
   Cover flanks—cover division.
   b. Instructions for advance guard or gaurds.
   To seize and hold line—push reconnaissance—conduct if enemy is encountered.
   c. Instructions for air service:
   (1) Reconnaissance.
   (2) Contact with covering detachment.
   (3) Selection of landing fields.
   (4) Special reports desired.
   (5) Combat missions (if necessary).
   d. Instructions for infantry[2] (for each subordinate unit), or each column.
   To move on a certain front—secure certain positions—time of movement—route or zone of action.
   e. Instructions for artillery.[3]
   (1) To move to locality—routes.
   (2) To cover development of command.
   f. Instructions for tank company.
   To move to position suitable for attachment to main blow.
   x. Instructions applicable to whole command which do not belong in another subparagraph as——
   (1) Instructions as to secrecy.
   (2) Security measures.
   (3) Special reports.
   (4) Conduct of columns on encountering enemy or reaching position.
   (5) Reconnaissance.
   (6) Subordinate commanders to report at—(place) for orders.
4. If an administrative order is issued, refer to it by number. If one is not issued, give such instructions for trains, supply, and evacuation as are necessary in each case.
5. Establishes command post of unit.

(Signature.)

(Authentication)

Annexes:
Distribution:

NOTES:

[1] When the advance in readiness for battle is made, paragraph 3 will give instructions for each column and may prescribe the organization of the column.
[2] The development may be facilitated by giving leading unit most distant objective.
[3] The artillery usually is held under the artillery brigade commander, all goes into action early and none held in reserve.

A form of order for an ATTACK

Title
Place
Date and hour

FIELD ORDERS
No —)

Maps:

1. Information of the enemy—strength, composition, position with its organization (lines, etc.), or changes in enemy's situation. Refer to G-2 Situation Map or G-2 Report, if issued, for details. Information of friendly troops such as—position of advance units or covering troops, troops within supporting distance with mission (as units on right and left), plan of higher unit, artillery or air service support of higher unit.
2. Decision of commander—designate attached units, give mission or objective, scheme of maneuver (whether envelopment, penetration, etc.), general formation, time of attack, line of departure (when entire command begins its attack from same line, otherwsie give line for each unit in appropriate subparagraph of paragraph 3), direction of attack, rate of advance when a rolling barrage is used, zone of action, boundary between units.
3. *a.*[1] Instructions for infantry (a separate lettered subparagraph is assigned to each infantry unit to which instructions are given)—give mission or objective, scheme of maneuver, time of attack (when different from that given in paragraph 2), line of departure (when not given in paragraph 2), direction of attack, zone of action (when not indicated in paragraph 2). Assistance to be given neighboring units, special instructions as to liaison, flank protection, routes of advance, and assembly positions when necessary.

   b. Instructions for artillery—mission (in general terms); general locations; organization of command (groupments, etc.); assignments to support; directions (missions or targets, manner of support) for fire during deployment, during preparation (including time allotted), during attack; special directions as to use of gas and smoke, and for moving into position; general instructions as to forward displacement; instructions regarding attached artillery. Refer to artillery annex for further details, when annex is issued.

   c. Instructions for cavalry—position, reconnaissance, special missions, as flank protection, in reserve, or preparation for pursuit.

   d. Instructions for air service—reconnaissance, combat and special missions. When necessary, amplify by annex.

   e. Instructions for tanks—generally attached to assaulting units.

   f. Instructions for reserve—composition, position, special missions, as flank protection, support of assault by fire where possible.

   g. Tactical instructions for engineers—assignments, special missions.

   x. Instructions applicable to the whole command which do not belong in another subparagraph; as, action of security detachments during deployment, instructions as to reconnaissance, secrecy, relief of units prior to attack, priority on roads, hour at which movements will be completed, etc.

4. When an administrative order is issued, refer to it by number. When one is not issued, give such instructions regarding supply, evacuation, traffic, trains, and personnel as may be necessary.

5. *a.* Signal communication—refer to annex (es) when necessary.
   b. Axes of signal communication—give axis of unit and of next lower units.
   c. Command post—give location of command posts of unit and of next lower units.

(Signature.)[2]

(Authentication)

Annexes:
Distribution:

NOTES:

[1] Subparagraphs of paragraph 3 should each account for the entire unit concerned.
[2] It is not always possible to issue a complete attack order like the above, disposing of an entire command. In unexpected encounters, for instance, orders will be fragmentary and must be given as the situation develops.

A form of order for a

RELIEF TO CONTINUE ATTACK

Title
Place
Date and hour

FIELD ORDERS
No —

Maps:

1. Information of the enemy—strength, composition, position with its organization (lines, etc.), or changes in the enemy's situation. Refer to *G-2 Situation Map* or *G-2 Report*, if issued, for details. Information of friendly troops, such as, position of advance units or troops to be passed through; troops within supporting distance with missions (as units on right and left); plan of higher units; support by artillery, air service, and other auxiliary arms of higher units.
2. Mission as given by higher authority—to relieve and pass through a unit in the line and attack, attack mission or objective, general formation, scheme of maneuver, time of attack, line of departure (when the entire command begins its attack from the same line, otherwise, give line for each unit in appropriate subparagraph of paragraph 3), direction of attack, rate of advance, zone of action, boundary between units, time command passes to relieving units.
3. *a.* Instructions for infantry (give separate lettered subparagraphs for each infantry unit considered)—elements to be passed through, time and place of starting, routes available or to be followed, formations for advancing, zone of action for advancing, instructions for attack, mission or objective, scheme of maneuver, time of attack (when different from that given in paragraph 2), line of departure (when not given in paragraph 2), direction of attack, zone of action (when not given in paragraph 2), assistance to be given neighboring units, special instructions as to liaison, flank protection.
   b. Instructions for artillery—mission (in general terms); general locations; organization of command (groupments or other method of coordinating employment of different units); assignments to support, directions (missions or targets, manner of support) for fire during preparation, during attack; special directions as to use of gas and smoke; designation of routes for incoming units;

general instructions as to forward displacement; instructions regarding any attached artillery (this may include artillery of unit being relieved). Reference to artillery annex when one is issued.

c. Instructions for cavalry—position, reconnaissance, combat and special missions, as flank protection, in reserve, or preparation for pursuit.

d. Instructions for air service—reconnaissance, combat, and special missions. (Refer to air service annex when issued.)

e. Tactical instructions for engineers—units to be attached to infantry or artillery units, combat missions.

f. Instructions for tanks—time and place of starting, route, position, or, if attached to infantry units, show attachment, time and place of joining.

g. Instructions for reserve—composition, time and place of starting, routes, locations for attack, special missions as flank protection and support of assault by fire where possible.

x. Instructions applicable to whole command which do not belong in another subparagraph—reconnaissance (refer to Intelligence Annex when necessary), provision for meeting points for guides, hour at which troops must be in position, routes and formation for advance (when not covered elsewhere), restrictions as to roads, instructions as to secrecy.

4. When an administrative order is issued, refer to it by number. When one is not issued give such instructions as to supply, evacuation, traffic, trains, and personnel as are necessary.

5. *a.* Signal communication—refer to annex (es) when necessary.
   b. Axes of signal communications—prescribe axis for unit and for next lower units.
   c. Command posts—prescribe location and time of opening for unit and next lower units.

(Signature.)

(Authentication)

Annexes:
Distribution:

A form of order for a

PURSUIT*

Title
Place
Date and hour

FIELD ORDERS }
NO — }

Maps:

1. Information of the enemy and of friendly troops.
2. Decision of the commander—(generally a statement that units will pursue at once with purpose of destroying, capturing, or securing terrain features, cutting off retreat, etc.).
   Zone of action, when such has been imposed on the command.
3. *a.* Instructions for troops on the encircling maneuver—route or zone of action if restrictions are desired, mission, time of starting, reconnaissance, special missions.

b. Instructions for infantry units in direct pressure—mission, zone of action, objective, main effort, flank protection, connection with adjacent units.
c. Instructions for artillery—assignment to pursuing columns, routes to join, mission, location and manner of support, instructions as to the use of gas, instructions regarding attached artillery.
d. Instructions for air service—reconnaissance, combat, special reports of location of own and enemy columns, landing fields, dropping grounds. (When annex is issued, refer to it by number.)
e. Instructions for tanks—assignment to reserve or to units, routes, positions.
f. Instructions for flank guard—composition, time of departure, route, mission.
g. Instructions for reserve—composition, position, route, special missions.
h. Instructions for attached engineers—missions, reconnaissance. (Usually attached to subordinate units.)
x. Instructions applicable to the whole command which do not belong in another subparagraph—formation of columns, any details of conduct of pursuit, limitations upon the pursuit, etc.

4. When an administrative order is issued, refer to it by number. When one is not issued, give such instructions regarding supply, evacuation, traffic, trains, and personnel as are deemed necessary.
5. *a.* Axes of signal communication—give axis of unit and of each subordinate unit, unless the route of each unit is definitely prescribed.
   b. Command posts—give location of command post of unit, command posts of subordinate units, if established.

(Authentication) (Signature.)

Annexes:
Distribution:

NOTE:

*Pursuit orders immediately following a successful attack are usually fragmentary. This form is applicable to situations when time is available or the situation permits its preparation before the initiation of the pursuit. Orders for organized pursuit resemble those for advance in one or more columns.

A form of order for a ZONE DEFENSE[1]

Title
Place
Date and hour

FIELD ORDERS
No —

Maps:

1. *a.* Information of the enemy.[2] (Refer to *G-2 Report, G-2 Situation Map,* for details.)
   b. Information of friendly troops.
2. *a.* Decision of commander—general line to be defended.
   b. Organization of the ground.[2]
   Show in general terms, the location of the line of resistance of the outpost area, the battle position, the reserve battle position, and switch positions. (In division, brigade, and, at times, in corps orders, the regimental reserve line of the battle position is shown.)
   c. Boundaries of sectors occupied by the command and by subordinate units or the boundary between subordinate units.

3. *a.* Infantry—assignment to sectors, special missions; use a separate subparagraph for each infantry unit holding a sector.
   b. Artillery—assignment and location of units to support units holding sectors; organization of command (groupment, etc.); special missions; indication of the amount of artillery to support the outpost area and battle position (amount to be given in percentages, proportion or number of batteries); provisions for antitank defense, instructions relative to time of opening fire, and the use of smoke and gas. (Amplify by annex.)[2]
   c. Reserves—designation of units; commander; positions; degree of readiness; work to be done in organization of position.
   d. Tanks—assignment to reserve or to primary subdivisions; positions.
   e. Cavalry—position (to cover one or both flanks, or main force held in suitable position to act in crises of engagement); reconnaissance.
   f. Air service—battle reconnaissance and observation, giving area within which observation is to be carried out; character of information especially desired; combat and special missions.[2]
   g. Engineers—organizations attached to infantry and artillery units for organization of positions; special work in connection with defensive organization.[2]
   x. Instructions applicable to the whole command which do not belong in another subparagraph.
   Conduct of defense:
   (1) Mission assigned the outpost troops.
   (2) Strength of outpost troops to be employed.
   (3) Conduct of the outpost troops in case of a general attack—definite instructions to withdraw or to hold designated tactical localities to the last, depending upon the mission and situation.
   (4) Counterattack—when made, by what units, and by whom they may be ordered.
   (5) Directions for coordination of infantry and artillery defensive measures.
   (6) General instructions as to missions of machine guns of reserve units; arrangements for coordination within organization and with adjacent organizations.)
   (7) Instructions for gas defense; gas alert and danger zones.
   (8) Special instructions for organization of the ground, priority of work.
   (9) Instructions regarding gathering of information. (Refer to Intelligence Annex.[2]
4. Refer to administrative order by number.
5. *a.* Signal communication—refer to annex (es).
   b. Command posts—prescribe for unit and for next lower unit.

(Authentication) (Signature.)

Annexes:
Distribution:

NOTES:

[1] The following form applies particularly to the organization of a defensive zone. For deployed and for position defense, modify paragraph 2 *b* so as to apply to a defensive position; omit the clause of paragraph 3 *b*, relating to artillery support of outpost area and battle position; and make appropriate changes in paragraph 3 *x* which will be much simplified.

[2] When time permits, and the situation requires, the various paragraphs of the field order are supplemented by annexes which contain details. These annexes are referred to at the end of appropriate paragraphs as follows:

Annex No ———— — Intelligence.
Annex No ———— — Organization of the Ground.
Annex No ———— — Artillery (may not be required in position defense; will not be used in deployed defense).
Annex No ———— — Air Service.
Annex No ———— — Machine Guns (generally in form of map showing machine gun fires).

A form for an

ORGANIZATION OF THE GROUND ANNEX

ANNEX NO— TO FIELD ORDERS NO—, —DIVISION
ORGANIZATION OF THE GROUND*

Title
Place
Date and hour

Maps:

1. *a. Decision of commander:*—to defend a given front.
   b. (1) General plan for organization of the ground, giving form of defense, designating position or zone, and stating which of the following elements, in addition to the battle area or position, are to be employed: outpost area or position, reserve battle position, switch positions, other areas or positions.
   (2) Sector boundaries.
2. *a. Battle area or position:*
   (1) Line of resistance—location, at least to the extent of giving accurately the points of intersection with sector boundaries (limiting points).
   (2) Regimental reserve line—location as in (1), when prescribed by division or higher headquarters.
   (3) Tactical localities to be organized, when prescribed by division or higher headquarters.

   b. Outpost area or position:
   (1) Line of resistance—location as in *a* (1).
   (2) Tactical localities—as in *a* (3).

   c. Reserve battle position:
   Same as in *a*.

   d. Switch positions:
   Each as in *b*.

   e. Other areas or positions:
   Each as in *b*, also give its purpose, if special.

   x. Works to be constructed:
   (1) Types of machine gun emplacements, trenches, obstacles, command and observation posts, artillery emplacements, shelters; etc., to be constructed in each area or position. Locations when necessary.
   (2) Special works—demolitions, inundations, tank obstacles, or tank mines, roads, trails, etc.
3. *Construction of works:*
   a, b, c, etc.—Assignment of units not already assigned, or of civilian labor when such is employed.
   x. (1) Priority in construction of areas or positions, and of works in each.
   (2) Instructions relative to camouflage.
   (3) Hours for work, or instructions as to time of completion.
   (4) Other instructions relative to conduct of work.
4. Locations of engineer supply establishments furnishing tools and materials for the work, including, when necessary, a statement of the kinds furnished by each.

5. Location of command post of engineer officer supervising the work.

(Authentication) (Signature.)

Annexes:[1]
Distribution:

NOTES:

*This form is applicable to situations where a complete and detailed study can be made, and the work carefully planned; or where organization of the ground can be perfected during prolonged occupation. In other situations, items not pertinent should be omitted.

[1] The information contained in paragraphs 1 *b* (2) and 2, can be shown largely or maps or plans, which are attached to or accompany the annex and, by suitable reference therein, are made part of the annex.

A form of order for a DEFENSE OF A RIVER LINE

NOTES:

The defense of a river line or of a coast line is a special defensive operation. There are two methods of defense of river lines.

(1) The defense at the river's edge or cordon system which has many of the characteristics of the passive defense.

(2) The defense back from the river line, which is best accomplished by a mobile defense which has many of the characteristics of the active defense.

1. The form of order used for defense at the river's edge is the same as that given for zone defense, page 56.

2. The following form is appropriate for defense back from the river line.

Title
Place
Date and Hour

FIELD ORDERS
No. ....

Maps:

1. Information of the enemy and of friendly troops.
2. Decision of the commander—to defend the river line between specified points by a defense back from the river line.
   a. By placing the force in a position in readiness.
   b. By placing the main body of the force in a defensive position. Organization of ground showing in general terms the organization of the outpost and delaying area, battle area and position of general reserve.
   c Boundary between brigades. (In proper cases where a defensive position is employed).
3. *a.* Instructions for units assigned to guard the river line.
   (1) Section for which responsible.
   (2) Location of main body of each unit.
   (3) Designation of probable points of enemy crossing to be defended.
   (4) Instructions for outposts and for patrolling of the river bank.
   (5) Organization of ground.
   b. Instructions for the artillery.
   (1) General mission.
   (2) Assignment and location of units to support units covering the river line.
   (3) Units attached to forces covering the river line (when applicable).
   (4) Units in general support (when applicable).

(5) Units withheld from action (when applicable).
(6) Instructions for reconnaissance of positions and routes, and preparation of firing data.
(7) Special missions.

c. Instructions for tanks, usually with general reserve for counterattack.
d. Instructions for the general reserve.
(1) Designation of units.
(2) Commander (when necessary).
(3) Location (position in readiness or defensive position).
(4) Degree of readiness required.
(5) Special missions, reconnaissance of routes, assistance to be given to other units.
e. Instructions for the cavalry.
(1) Reconnaissance or delaying missions on the enemy's bank of the river when situation permits.
(2) Assignment to guard a section of the river line.
(3) Units attached to infantry forces covering the river line.
(4) Assignment of units for flank protection and liaison with adjacent units.
(5) Instructions for patrolling river bank.
f. Instructions for air service, observation, and battle reconnaissance, giving area within which observation is to be carried out; character of information specially desired, combat and special missions.
g. Engineers; organizations attached to infantry units for organization of the ground special work in connection with the defense, demolitions, obstacles; for other details, refer to administrative order.
x. Instructions pertaining to whole command; demolition of bridges, conduct of the defense, enemy's patrols and reconnaissance, enemy's minor and major efforts to cross, mutual support, state of readiness, use of auxiliary weapons, special information and reports desired, arrangements for communication, etc.

4. Refer to administrative order by number.
5. *a.* Special arrangements for communication.
b. Command posts of unit and next lower units.

NOTE:

An intelligence annex and plan of signal communications may be required.

(Authentication) (Signature.)

Annexes:
Distribution:

A form of order for a

RELIEF

Title
Place
Date and Hour

FIELD ORDERS
No. ....

Maps:

1. *a.* Information of the enemy.
b. Information of friendly troops, including dispositions of relieved (or relieving) unit.
2. Mission as given by higher authority—generally to relieve (or to be relieved by) a designated unit, date and time of commencement and

completion of relief, destination of relieved unit. Reference to march and relief table for details of movement in the case of division. Time command passes to relieving unit.

3. *a.* Infantry. Dates on which infantry relief is to be carried out. Details of relief, or instructions that they will be arranged between commanders concerned.
   b. Artillery. General plan and dates of artillery relief. Details arranged by artillery commander.
   c. Tanks. Details of tank relief, or instructions that they will be arranged between commanders concerned.
   d. Signal units. Details arranged between commanders concerned so as not to interfere with movement of other combat troops.
   e Air service. Time at which relief, generally made at airdrome, will be effective.
   f. Engineers. Details arranged between commanders concerned so as not to interfere with movement of other combat troops.
   x. Passage of command of subordinate units—restrictions as to formations and hours of movement—areas or places to be avoided—guides—adoption of existing dispositions and plans of defense—advance parties—headquarters companies.
4. Reference to proper administrative order by number.
5. *a.* Signal communication—refer to annex (es).
   b. Command posts. Closing of old, and time and place of opening of new.

(Authentication) (Signature.)

Annexes:
Distribution:

A form of order for a

RAID

Title
Place
Date and Hour

FIELD ORDERS }
NO. .... }

Maps:

1. Information of the enemy, strength, composition, position with its organization (lines, trenches, shelter, etc., and how occupied), (limited to area to be raided and adjacent parts of the front which may affect the operation), or changes in enemy situation.
   Information of friendly troops, such as changes in location of units, artillery or aircraft support of higher units, assistance (support or diversions) by adjacent units.
2. Mission as given by higher authority—give area to be raided, mission (purpose of raid), general scheme of maneuver (including direction of advance and route of return), time, line of departure (if entire command launched from same line; if not, give line for each unit in appropriate subparagraph of paragraph 3).
3. *a.* Instructions for infantry—(a separate lettered subparagraph will be assigned to each infantry unit or party to which instructions are given)—give mission, scheme of maneuver (including zone of action and route of advance and return), time (if different from that given in paragraph 2), line of departure (if not given in paragraph 2). Assistance to be given neighboring units, special instructions as to liaison, flank protection.

Troops.

* * * * * * *

b. Instructions for artillery—missions in general terms; general locations (if changed for this operation or not known by infantry or raiding force); assignments to support; directions (missions, targets, method of support, *i.e.*, rolling barrage, box barrage, concentrations, etc.) for fire during time preceding the raid, during the preparation (including time allotted), during raid, during and after return of raiding troops; instructions as to use of special shell (gas, smoke, incendiary, etc.); instructions regarding attached artillery; reference to artillery annex if one is issued.

c. Instructions for machine guns—mission in general terms; general locations; assignments to support; directions (mission, targets, barrages) for fire during hours preceding raid, during preparation, during raid, during and after withdrawal of raiding troops; reference to annex if one is issued.

d. Instructions for howitzer platoons—mission in general terms; general locations; assignments to support; directions (missions, targets, barrages, concentrations) during different phases of raid, as above for machine guns.

e. Instructions for air service—reconnaissance, combat and special missions. If necessary, amplify by annex.

f. Instructions for tanks—generally attached to assault units.

g. Tactical instructions for engineers—assignments, special combat duties, such as wire cutting, destruction of enemy's shelters, mining.

h. Instructions for reserve or covering units—composition, position, special missions, such as covering withdrawal of raiding troops, flank protection, support assault by fire where possible.

i. Instructions for any troops not otherwise covered.

x. Instructions applicable to whole command which do not belong in another paragraph; such as, equipment, uniforms, place at which raiding troops check in on return, signals for beginning withdrawal and for completion of raid, special information desired in the order of its importance.

4. Administrative details; such as, litter bearers, evacuation of dead and wounded, disposition of prisoners and captured documents and material.

5. *a.* Communications: between the raiding force and next higher unit. Between units of the raiding force.

b. Command posts: next higher commander. Raid commander.

(Signature.)

(Authentication)

Annexes:
Distribution:

A form of order for a WITHDRAWAL FROM ACTION[1]

Title
Place
Date and Hour

FIELD ORDERS
No. ....

Maps:

1. Information of the enemy and of friendly troops.
2. Decision of commander—to withdraw from action, time movement is to begin, general purpose (usually to retire or to retire and occupy a position), direction of withdrawal and the order in which units withdraw, zone of action, or position to be occupied, subsequent mission.

Troops[2]

3. *a.* Instructions for covering force—commander, composition, mission, covering positions and when it is to be occupied, routes, when to retire.
   b. Instructions for cavalry not an element of covering force—reconnaissance, contact with enemy, special missions.
   c. Instructions for infantry (give separate lettered subparagraph for each infantry unit considered)—zone of action, time of withdrawal, assembly positions or sectors to be occupied in a defensive position, special missions.
   d. Instructions for artillery—attachment to subordinate units or routes of withdrawal, time of withdrawal and designation of new positions to be occupied, special missions.
   e. Instruction for air service—reconnaissance, combat, and special missions.
   f. Instruction for other troops (not part of covering force or attached to subordinate units)—routes of withdrawal, time, direction, assembly, positions, special missions.
   x. Instructions for whole command which do not belong in another subparagraph—guides, concealment, secrecy, special security measures, hour of passing of command of attached or special units, demolitions, obstructions, the time the movement is to be completed, special reports.
4. When an administrative order is issued, refer to it by number. When one is not issued, give such instructions as to supply, evacuation, traffic, trains, and personnel as are deemed necessary.
5. *a.* Axes of signal communication—prescribe that of unit.
   b. Command posts—prescribe for unit and for subordinate units when situation warrants.

(Signature.)

(Authentication)

Annexes:
Distribution:

NOTES:

[1] Withdrawals from action are made either during daylight or at night. In either case, two orders may be issued, *i.e.*, a withdrawal from action order, followed later by a retirement order or an order to occupy a defensive position. While the withdrawal from action and retirement orders may be issued separately they are usually combined into one.

[2] A "distribution of troops" is necessary only in those cases in which the unit withdraws from action in more than one column, or in which separate mixed commands are desirable. It is particularly applicable to a withdrawal from action made at night. It should show the composition of the several elements—covering forces, right and left columns, etc. When field or service trains march with any of the components of the distribution, they will be shown. When not shown it is assumed that they are otherwise disposed of in an administrative order. When combat trains are excluded from any unit, that fact will be shown.

A form of order for a

RETIREMENT[1]

Title
Place
Date and Hour

FIELD ORDERS
No. ....

Maps:

1. Information of the enemy and of friendly troops.
2. Decision of commander—to withdraw from action and to retire to or in the direction of .....; time of priority of withdrawal from action of major units; number of columns for the retirement.

Troops[2]

* * * * * * *

3. *a.* Instructions for covering force—commander, composition, position, routes to position, time command of outpost passes to covering force commander in case of a retirement initiated at night, mission during withdrawal from action, route of retirement and missions during retirement. (Usually constitutes the rear guard).
   b. Instructions for cavalry not an element of covering force—reconnaissance, contact with enemy, special missions during the withdrawal from action and the retirement.
   c. A separate lettered paragraph for each column giving its route; initial point; time of clearing initial point (assembly position in a daylight retirement is given instead of an initial point, the command being formed in column from the former); other instructions applicable to the situation such as flank protection.
   d. Instructions for air service—reconnaissance, combat, adjustment of artillery fire, special reports as to the location of the command, special landing fields, dropping grounds. When annex is issued refer to it by number.
   e. Instructions for rear guard, when not formed by covering force, give initial position, time it is to be assembled, distance from main body, reconnaissance, successive positions, special instructions.
   f. Instructions for flank guard—give place and time of departure, route, reconnaissance, special instructions.
   x. Instructions applicable to the entire command which do not belong in a separate lettered subparagraph—security, secrecy, priority on roads, reconnaissance of routes and positions, special reports as to location of units and situation.
4. When an administrative order is issued, refer to it by number. When one is not issued give such instructions regarding supply, evacuation, traffic, trains, and personnel, as may be necessary.
5. *a.* Signal communication—refer to annex (es) when necessary.
   b. Axes of signal communication—prescribe that of unit and of subordinate units when the latter is considered necessary.

c. Command posts—prescribe initial and subsequent command posts of unit and time of opening; if desired, command posts and time of opening of subordinate units may be prescribed. These may be prescribed as "en route" but their location for the night should be designated when possible.

(Signature.)

(Authentication)

Annexes:
Distribution:

NOTES:

[1] When a retirement is made by a force not engaged nor in actual contact with the enemy, the appropriate order follows the form of a march order which provides for a rear guard with the command in one or more columns.

[2] Under "*troops*" give composition of each column with its commander.

A form of order for a DELAYING ACTION [1]

Title
Place
Date and Hour

FIELD ORDERS
No. ....

Maps:

1. Information of enemy and of friendly troops.
2. *a.* Decision of commander—to delay advance of enemy, by holding in single position or in successive positions, direction of withdrawal, or zone of action (purpose of delay).
   b. Location of delaying positions.
   c. Boundary between units.
3. *a.* Instructions for infantry—(give separate lettered subparagraphs for each infantry unit considered)—zones of action (if not indicated in paragraph 2)—time of withdrawal, positions to be occupied, routes available, flank protection, assistance to be given adjacent units, reconnaissance.
   b. Instructions for artillery—mission (in general terms), general locations, assignments to support, directions (missions or targets, manner of support) for fire during occupation of position and delaying action, special instructions as to use of gas and smoke, routes or road priority for moving into position and during withdrawal, general instructions as to rearward displacement, instructions regarding artillery attached to subordinate units, if any.
   c. Instructions for cavalry—reconnaissance, contact with enemy, special delaying missions, flank protection, special information desired.
   d. Instructions for air service—reconnaissance, combat and special missions.
   e. Instructions for reserve—composition, location, time of starting and routes available. Special missions, as flank protection, preparation of next position, or demolition.
   f. Instructions for tanks—time of starting, route, position or location, attachment to units.
   g. Tactical instructions for engineers—units to be attached to infantry units, special work in connection with defensive organization, reconnaissance of routes of withdrawal.

x. Instructions applicable to whole command which do not belong in a particular subparagraph—security, secrecy, outpost when relieved, manner of withdrawal, use of local covering detachments, liaison, demolitions, priority on roads, special reports desired as to locations and movements.

4. If administrative order is issued, refer to it by number. If one is not issued, give such administrative instructions as may be necessary.

5. *a.* Axes of signal communication:
Give axis of unit and of next lower unit.
b. Command posts:
Give location of command post of unit and of next lower units for first position.

(Signature.)

(Authentication)

Distribution:

NOTE:

[1] If delaying action takes place on a single position form will follow closely the form for The Defensive—necessary details incidental to withdrawal being placed in appropriate subparagraphs.

A form of order for a
FORCED LANDING ON HOSTILE SHORES

Title
Place
Date and hour

FIELD ORDERS
No —

Maps:

1. *a.* Information of the enemy (usually reference to G-2 reports and studies issued independently of the order).
b. Statement of general plan of the expedition and missions of higher units—cooperation by other friendly forces including navy.
c. Support by the navy, and by the air service and other auxiliary arms of higher units.

2. Mission as given by higher authority—usually to land at a specified place at H hour on D day and establish a beachhead along a designated line, and to attack the enemy's positions, at H plus a specified number of hours, giving attack mission or objective, scheme of maneuver, line of departure, direction of attack, zone of action, rate of advance.

TROOPS

a. Group A: [1]
(1) Tactical commander
Troops
(2) Beach Party (navy)
Beach master
Beach detachment
(3) Shore Party (army)
Shore party commander
Shore detachment

b. Group B: [2]
c. Reserves:
Commander
Troops.

3. *a.* Subparagraph for each detachment to which instructions are given —time, place, manner, and rate of landing (usually reference to debarkation table), location and limits of beachhead to be established, objective, time of attack, scheme of maneuver, line of departure, direction of attack, zone of action, assistance to be given neighboring units, special instructions as to liaison with other landing points, flank protection.
   b. Instructions for artillery, if its landing is to be covered by this order —time, place, and manner of landing (usually reference to debarkation table), positions and missions after landing, provision for artillery liaison with the navy.
   c. Instructions for air service if it is to operate under this order—reconnaissance, combat and special missions, provision for air service liaison with the navy. When necessary amplify by annex.
   d. Tactical instructions for engineers—details attached to subordinate units, time, place, manner of landing of remainder (usually reference to debarkation table), special work in clearing beaches, demolition of obstacles, improvement and construction of landings and bridges.
   e. Instructions for signal troops—time, place, manner of landing (usually reference to debarkation table), positions and missions after landing.
   f. Instructions for reserves—time, place, and manner of landing (usually reference to debarkation tables), positions and missions after landing.
   x. Instructions applicable to the whole command which do not belong in another subparagraph—general conduct of landing, authority of troop unit commanders, shore party commanders and beach masters, organization of beachhead, general plan of defense of beachhead, use of gas and smoke by troops on shore.
4. Refer to administrative order by number.
5. *a.* Signal communication—refer to annex (es).
   b. Axes of signal communication—give naval axes from ships to shore, and shore axis of unit and of next lower units.
   c. Command posts—give location of command posts of unit and of next lower units on ship board and on shore if they are to be landed under the order.
   d. Time, place, and manner of landing headquarters (usually reference to debarkation table).
   x. General instructions regarding liaison with naval commanders and designation of ships controlling naval support of the unit.

(Signature.)

(Authentication)

Annexes:
Distribution:

NOTES:

[1] The force to be landed usually consists of the three elements shown. They are grouped to facilitate cooperation.
[2] Complete this and similar subparagraphs as in the case of *a*.

A form for an

ADMINISTRATIVE ORDER

Title
Place
Date and Hour

ADMINISTRATIVE ORDERS No. .... } To accompany Field Orders No.....

Maps:

1. SUPPLY.

a. Railhead. (Give location and date of drawing supplies therefrom.)

b. Class I supplies. (And other designated supplies.)
- (1) Distributing point or points. (Locations and organizations to be served at each, with time schedule).
- (2) Special instructions when necessary.
- (3) Refer to *Annex No.....—Quartermaster Plan,* when issued.

c. Ammunition.
- (1) Refilling point or points.
- (2) Distributing point or points. (Locations and organizations served at each).
- (3) Refer to *Annex No.....—Ammunition Plan,* when issued.

d. Water.
- (1) Location of distributing points (with organizations served at each), or method of supply.
- (2) Special instructions or cautions relative to condition of water, keeping water vehicles filled, chlorination.

e. Engineer.
- (1) Refilling point or points.—Location, description of material, organizations to be served at each.
- (2) Distributing point or points (when needed).—Locations, description of material, organizations to be served at each.
- (3) Special instructions relative to tool wagons, when necessary.

Note:—Similar subparagraphs pertaining to other supplies, such as ordnance, signal, medical, quartermaster, and air service are added when necessary.

2. EVACUATION.

a. Casualties.
- (1) Men.
  - (a) Collecting station or stations.
  - (b) Hospital station or stations.
- (2) Animals.
  - (a) Collecting station or stations.
  - (b) Special instructions of interest to the command.
- (3) Refer to *Annex No.....—Medical Plan,* when issued.

b. Burial. (Instructions as to cemeteries and burials.)
c. Salvage. (Collection and evacuation.)
d. Captured material. (Disposition and reports.)
e. Prisoners of war. (Collecting points, cages, and inclosures, disposition.)

3. TRAFFIC.

a. Circulation.

(1) Refer to *Annex No.....—Circulation Map,* when issued.
(2) Restrictions. (Assignment and use of reserved roads, limits as to time, daylight traffic, and special routes for ammunition vehicles and ambulances.)
(3) Control.
(a) Instruction to provost marshal relative to police arrangements on roads.
(b) Schedule of traffic priority including barrier line.
(c) Disabled vehicles.
(d) Distance between vehicles or groups of vehicles or men.

Note:—Other pertinent paragraphs may be added.

b. Construction and maintenance of routes.

(1) Roads and bridges.
(2) Direction signs. (Instructions other than routine.)
(3) Refer to *Annex No.....—Engineer Plan* (other than tactical), when issued.

c. Rear boundary. (When required.)

4. TRAINS.

a. Service.

(1) Special instructions as to location and movement.
(2) Special assignment or release.

b. Field.

(1) Instructions relative to location or for formation in column or other movements.
(2) Location of bivouacs, when required.

c. Combat. Same as *b* when separated from organizations for purpose of traffic control.

d. Instructions relative to liaison or other matters not covered in *a*, *b*, or *c*.

5. PERSONNEL.

a. Stragglers. (Location of straggler line and collecting points.)
b. Surplus baggage. (Disposition; usually refers to packs and equipment.)
c. Mail.
d. Shelter. (Instructions for quartering parties.)
e. Rear echelon of headquarters. (Location of, when required.)

6. MISCELLANEOUS.

Any administrative matters not otherwise covered.

(Authentication) (Signature.)

Annexes:
Distribution:

NOTE:

[1] All formal field orders which require changes in the administrative or supply situation should be accompanied by administrative orders. The administrative orders, however, should include only the necessary changes, referring to previous administrative orders in force for other details, or stating, in the "miscellaneous" paragraph, "Other administrative details: no change."

A form for a
PLAN OF SANITATION

ANNEX NO..... TO ADMINISTRATIVE ORDERS NO.....,
..... DIVISION.

PLAN OF SANITATION

.....Division
.....(Place)
.....(Date)

The following regulations for sanitation of this division are published for the information and guidance of all concerned:

1. DIVISION SURGEON.
2. MEDICAL INSPECTOR.
3. RESPONSIBILITY FOR SANITATION.
4. QUARTERS AND GROUNDS.
5. KITCHENS.
6. CLOTHING AND DRYING ROOMS.
7. FOOD AND DRINK.
8. WATER SUPPLY.
9. DISPOSAL OF WASTE.
10. LATRINES.
11. CLEANLINESS AND HABITS OF PERSONNEL.
12. PICKET LINES AND ANIMALS.
13. SANITARY SERVICE.
14. PHYSICAL INSPECTIONS AND PROPHYLAXES.
15. SICK CALL.
16. VETERINARY SERVICE.

(Signature.)

A form for a
FIELD ORDER, MEDICAL REGIMENT

Organization
Place
Date and Hour

FIELD ORDERS
No. ....

Maps:

Par. 1. *a.* Enemy organization, strength, position.
b. Our corps or army, supporting troops.
c. Mission of our organization, intention and plan of maneuver, hour of attack, line of departure, boundaries, artillery preparation, dispositions of troops.

2. Mission and general action of medical regiment, time and route of movement.

3. *a.* Collecting battalion, movement, station, functions, time, route.
   b. Ambulance battalion as in *a.*
   c. Hospital battalion as in *a.*
   d. Veterinary company as in *a.*
   x. (1) Reserves.
   (2) Routes to position when the same for all units.
4. *a.* Service Company as in 3 *a,* and location medical refilling point.
   b. Ambulance routes.
   c. Evacuation.
5. Division surgeon's office and command posts.

(Signature.)

Distribution:

A form for a

TRAINING ORDER

.....Division
.....(Place)
.....(Date)

GENERAL ORDERS
No. ....

1. TRAINING PERIOD.
2. GENERAL PRINCIPLES GOVERNING TRAINING.
3. SCHOOLS.
4. TACTICAL RIDES AND MAP MANEUVERS.
5. GAS DEFENSE.
6. TARGET PRACTICE.
7. ALLOTMENT OF TIME.
8. COMPANY PERIOD.
9. BATTALION PERIOD.
10. REGIMENTAL PERIOD.
11. BRIGADE PERIOD.
12. AUXILIARY ARMS AND BRANCHES.
13. DIVISION SPECIAL PROGRAM OF TRAINING.

(Signature.)

Distribution:

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ORGANIZATION AND ROAD SPACES

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ORGANIZATION AND ROAD SPACES

INFANTRY DIVISION ORGANIZATION

Division Headquarters and Staff.

Infantry

2 Infantry Brigades,
Each Infantry Brigade:

Hq. & Hq. Co.	1 Inf. Regt.	1 Inf. Regt.

Artillery

Brig. Hq. & Hq. Btry.	Am. Tn.	1 Regt. 75-mm. guns	1 Regt. 75-mm. guns

Each Artillery Regiment has 24—75-mm. guns.

Engineers

1 Combat Engineer Regiment.

Hq.	Hq. & Serv. Co.	1 Bn.	1 Bn.

Air Service

Hq.	1 Obsn. Sq.	1 Photo Sec.

13 Observation Planes.

Medical

1 Medical Regiment.

Hq.	Serv. Co.	Sn. Bn.	Amb. Bn.	Hosp. Bn.	Med. Sup. Sec.

40 motor ambulances. 96 trucks.
20 animal-drawn ambulances.

Special Troops

Hq. & Hq. Co.	M. P. Co.	Serv. Co.	Ord. Co.	Lt. Tank Co.	Sig. Co.

74 trucks. 25 tanks.

Division Train (QMC)

Hq. 2 Motor Repair Sections.
1 Motorcycle Co. 32 motorcycles.

Motor Battalion:	1 Co.	1 Co.	1 Co.	1 Co.	27 trucks per Co.
Animal Battalion:	1 Co.	1 Co.	62 wagons per Co.		

CAVALRY DIVISION ORGANIZATION

Division Headquarters and Staff.

Cavalry

2 Cavalry Brigades,
Each Cavalry Brigade:

Hq. & Hq. Tr.	M. G. Sq.	1 Cav. Regt.	1 Cav. Regt.

Artillery

1 Battalion 75-mm. Horse Artillery: 12 guns.

Engineers

1 Combat Engineer Battalion (mounted).

Medical

1 Ambulance Co., animal-drawn. 20 ambulances.

Special Troops

Hq. & Hq. Tr.	Sig. Tr.	Ord. Co.	Vet. Co.

Division Train (QMC)

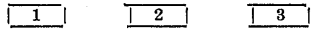
Train Headquarters.
2 Wagon Cos.—62 wagons per company.
4 Pack Trains—50 pack mules per train.

CORPS ORGANIZATION

Hq. and Staff.



Infantry Divisions



Special Troops

Hq. Special Troops
Hq. Company
Military Police Bn. — Hq. and 4 Cos.
Signal Battalion — Hq. & Hq. Co., Construction Co., Operation Co.
Ordnance Company — Heavy Maintenance.
Ordnance Company — Ammunition.
Field Remount Depot — 400 Animals.
Remount Squadron
Service Battalion — Hq. and 4 Companies.

Corps Artillery

Corps Artillery Hq.

Corps Artillery Brigade

Hq and Hq Btry.
1 Ordnance Co.—Maintenance, attached.
155-mm. Gun Regt., Hq. and Hq. Btry., Service Btry., 3 Bns. Bn. has 8 pieces. Bn. has Hq. and Hq. Btry. and Bn. Combat Tn.
3 155-mm. Howitzer Regts., 72 Howitzers. Organization same as gun regiment.
Am. Tn. — 6 Transport Btries. (28 trucks each). 3 Am. Btries., Hq. and Hq. Det.
Observation (Flash) Bn., Hq. and Hq. Det., 2 Batteries.

Antiaircraft Regiment (C.A.C.)

Hq. & Hq. Battery — Service Battery
Machine Gun Bn. — Hq & 4 Batteries. 48 Machine Guns.
Gun Battalion — 3 Batteries. 12 Guns 75-mm.
1 Searchlight Battery 12 Lights.
Bn. Hq. and Combat Train.

Corps Engineer Service

Corps Engineer Hq.
Corps Engineer Regiment — Hq. and Hq. and Service Co. — 2 Bns., Bn. Hq. and 3 companies each.
3 Auxiliary Engineer Bns. — Hq. and Service Plat. and 4 Companies, each.

Corps Air Service

Hq. Corps Air Service | / | 1 Branch Intelligence office | | 1 Air park | |
| | 1 Photo Section | | 1 Communications Section
| | | 2 Observation Squadrons (13 planes each).
| / | | | | | 1 Balloon Group, 4 Balloon Cos. (1 Balloon each). Hq. Balloon Group.

1 Balloon park | |

Corps Medical Service

Corps Medical Hq. | / |
1 Medical Regiment including | / | Reg. Hq. | | Service Co. | | 1 Vet. Co.
| / | | | 1 Sanitary Bn., Hq. & 2 Companies.
| / | | | | 1 Amb. Bn., Hq. & 3 Cos. (1 animal-drawn) 20 Ambulances each.
| / | | | 1 Hosp. Bn., Hq. & 2 Companies.
| | 1 Medical Supply Section.
| | 1 Medical Laboratory Section.

Corps Train

| / | | | Tn. Hq. Corps Transport Officer & 2 M. T. Commands.

Motor Transport

| | | | | | 5 M.T. Commands. | | | 2 Motorcycle Cos. (32 Motorcycle and Side car) each.
| | | | | | | | 8 Motor Repair Section.
| | | | | | | | | | | | | | | | | | | | | | | | | 25 M. T. Cos. 1 Company operates Passenger Cars. (24 Cos. operate 27 trucks each. 18 Cos. 3-ton; 6 Cos. 1½-ton.)
| | | | | | | | | | |

Wagon Train

| / | | | | Hq. and 3 Companies (90 Cargo Wagons each).

ARMY ORGANIZATION

Hq. & Staff.

| |

Army Corps

| 1 | | 2 | | 3 |

Cavalry 2 Divisions—Each of

1 Cavalry Brigade
| Regt. | Regt. | MG Sq 430 | Hq. Tr. |
F. A. Bn. (horse)
| 3 Btrys. | | C Tn. |
| | Ord. Co. (Maintenance)
| | Vet. Co.

| | | / | MG | Sq | | Hq. Tr. |
1 Amb. Co. Hq. Troop Signal T.
Combat Eng. Bn.
| / | | | | Hq. & 3 Cos. | | (Animal) | / | | |

Div. Train
| / | | | | | | | Tn. Hq. 2 Wagon Cos. (62 wagons each) 4 Pack Tns. (50 pack mules each).

Army Artillery

Army Artillery Hq. | / |

Antiaircraft Artillery Brigade

| Hq. | Regt. | Regt. | Regt. | Hq. 3 Regts. (See Corps Table for details.)
Am. Tn.
| / | | | | | | | | Hq. and 6 Transport Btrys. (28 trucks each)

Other Combat Artillery Organizations from G.H.Q. Reserve.

Army Engineer Service

Hq. | Regt | Regt. | Regt. | 3 Regts. | | | | | | 6 Aux. Engr. Bns.
Hq. 3 Cos.
| | | | | 1 Topographical Bn. | | | | Water Tank Tn. 75,000 gallons.
| | | | | | 5 Heavy Bridge Tns. | | 2 Light Bridge Tns.
675 ft. Bridge equipage each. 744 ft. each.
1 Camouflage Co. | | 1 Engineer Dump Truck Tn.

Army Air Service—390 Planes.

Hq. Hq. Sq. 12 planes. | | | 3 Communications Sections.
| | | | 3 Airdrome Cos.
1 Observation Group—58 planes.
Sq | Sq | Sq | Sq | | | | 2 Photo Sections.
Hq. (4 planes), 4 Squadrons—13 planes each, 1 Air Park—2 planes, 1 Branch Int. office.

1 Attack wing—320 planes

	1 Attack Group	1 Pursuit Group	1 Pursuit Group
Hq.	Sq Sq Sq Sq	Sq Sq Sq Sq	Sq Sq Sq Sq
2 planes	106 planes	106 planes	106 planes
	Hq. Attack Group 4 planes	Hq. Pursuit Group 4 planes	
	4 Squadrons 100 planes	4 Squadrons 100 planes	
	1 Photo Section	1 Air Park 2 planes	
	1 Air Park 2 planes		

Tanks (Are G.H.Q Reserve)

Army Medical Service

Hq. | Reg | | | 4 Medical Regiments.
| | | | | | | | | | | | | | | | 15 Evacuation Hospitals (750 beds each)
| | | | | | | | | | | | | | 12 Mobile Surgical Hospitals (250 beds each)
1 Convalescent Hospital (5,000 beds) | | 1 Army Medical Laboratory.
| | | | 3 Supply Depots. | | | | 3 Veterinary Evacuation Hospitals.

Special Troops

Hq. Special Troops. | | Hq. Troop.
| | | | | | | M. P. Bn. Hq. and 5 Companies.

Army Signal Service.

Chief Signal Officer.

Bn	Bn
	2 Signal Bns. Hq., 1 Operation Co., 1 Construction Co. each.
1 Meteorological Co.	1 Pigeon Co., 60 Mobile lofts.
1 Radio Company.	

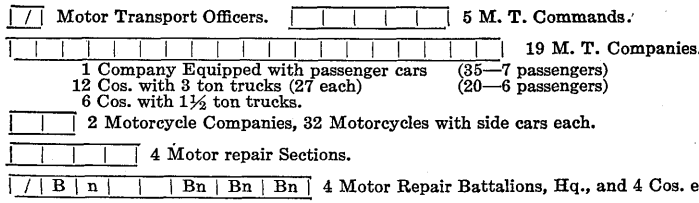
Army Ordnance Service

1 Ordnance Co (Hq).
| | | | 3 Ordnance Cos. (Depot).
| | | | 3 Ordnance Cos (Amm).
| | 1 Ord. Co. (Heavy Maintenance).

Army Quartermaster Service

| | Field Remount Depot 1200 Animals | | | | 3 Remount Squadrons.
| | | | | | | | | 8 Service Battalions.

Army Train (QMC)



ABRIDGED REFERENCE TABLE OF ROAD SPACES IN INFANTRY DIVISION

	Troops and Combat Trains		*Troops, Combat and Field Trains*		*Troops, Combat, Field and Service Trains*	
	Yards	*Miles*	*Yards*	*Miles*	*Yards*	*Miles*
Infantry division	26145	14.9	32900	18.7	49510	28.1
Infantry brigade, reinforced by one artillery regiment, one engineer company, one ambulance company, animal, one collecting company	11550	6.6	14630	8.3	——	——
Infantry brigade	6260	3.6	8340	4.7	——	——
Infantry brigade (less 1 regiment)	3230	1.8	4300	2.4	——	——
Infantry regiment	3030	1.7	4040	2.3	——	——
Infantry regiment (less 1 battalion)	2210	1.2	3045	1.7	——	——
Infantry battalion	820	0.5	995	0.6	——	——
Infantry battalion (less 1 rifle company)	670	0.4	810	0.5	——	——
Artillery brigade	9455	5.4	11535	6.6	13230	7.5
Artillery brigade (less 1 regiment)	4925	2.8	6025	3.4	7720	4.4
Artillery brigade (less 1 battalion)	7490	4.2	9310	5.3	11005	6.3
Artillery regiment	4530	2.6	5510	3.1	——	——
Artillery regiment (less 1 battalion)	2565	1.5	3285	1.9	——	——
Artillery regiment (less 1 battery)	4120	2.3	5045	2.9	——	——
Engineer regiment	1100	0.6	1350	0.8	2205	1.3
Engineer regiment (less 1 battalion)	685	0.4	875	0.5	1730	1.0
Engineer regiment (less 1 company)	965	0.5	1195	0.7	2050	1.2
Tank company	1090	0.6	1090	0.6	——	——

Trains

	Motor Transport		*Animal Transport*		*TOTAL*	
	Yards	*Miles*	*Yards*	*Miles*	*Yards*	*Miles*
Division field trains	410	0.2	6345	3.6	6755	3.8
Service trains, complete	12595	7.1	4015	2.3	16610	9.4
Service trains (less air service)	11755	6.7	4015	2.3	15770	9.0
Service trains (less air service, 1 ambulance company, animal, and 1 sanitary company)	11620	6.6	3525	2.0	15145	8.6
Division train	5560	3.1	2580	1.5	8140	4.6
Artillery brigade ammunition train	1140	0.6	555	0.3	1695	0.9
Medical regiment	3830	2.3	600	0.3	4430	2.5
Medical regiment (less ambulance and collecting battalion)	2005	1.1	110	0.06	2115	1.2
Medical regiment (less 1 ambulance company, animal, and 1 collecting company)	3695	2.1	110	0.06	3805	2.2
Engineer regiment train	615	0.35	——	0.14	855	0.5
Ordnance company	610	0.3	——	——	610	0.3

NOTE:—The above table is an abridgment of the complete table and any units, or any combination of units, not listed therein can be obtained by reference to the complete table.

(See two inserts facing page 78.)

To face page 78.

ROAD SPACES FOR UNITS OF A CAVALRY DIVISION

(War Strength)

Road Spaces, Yards Per Unit

UNITS	Troops	C Tn	Troops and C Tn	F Tn	Troops, C Tn and F Tn	Trains	TOTAL
SPECIAL TROOPS							
Headquarters troop (division)	185	0	185	175	360	.....	.....
Signal Troop (mounted and animal-drawn)	100	0	100	20	120	.....	.....
Signal Troop (motorized)	40	340	380	0	380	.....	.....
Signal Troop (combined)	140	340	480	20	500	.....	.....
Ordnance Company*	.....	.....	.....	.....	.....	.....	.....
CAVALRY							
Rifle platoon	32	0	32	0	32	.....	.....
Machine rifle platoon	44	0	44	0	44	.....	.....
Troop	160	20	180	35	215 (1-8)	.....	.....
Squadron	560	80	640	140	780	.....	.....
Headquarters Troop (Regiment)	150	20	170	105	275	.....	.....
Service Troop (Regiment)	0	270	270	670	940	.....	.....
Regiment	1350 (3-4)	270	1620	700	2320 (1½)	.....	.....
Machine gun platoon	68	0	68	0	68	.....	.....
Machine gun troop	260	40	300	35	335	.....	.....
Machine gun squadron	885 (½)	140	1025	220 (1-8)	1245 (¾)	.....	.....
Headquarters Troop (Brigade)	150	0	150	55	205 (1-8)	.....	.....
Brigade	4000 (2¼)	680	4710	1675	6385 (3½)	.....	.....
ARTILLERY							
Battery, separate FA Bn (horse) (75-mm.)	340	105	445	75	520	.....	.....
Headquarters Battery (Battalion)	220	70	290	0	290	.....	.....
Battalion Combat Train	0	600	600	425	1025	.....	.....
Battalion	1700 (1)	600	2300	425	2725	.....	.....
ENGINEERS (MOUNTED)							
Company	100	70	170	55	225	.....	.....
Battalion	375	375	750	270	1020	.....	.....
DIVISION							
Division	10665	2500	13165	4240	17405	.....	.....
Total (mounted and animal-drawn)	10665	2500	13165	4240	17405	.....	.....
Total (motorized)	40	340	380	.....	380	.....	.....
Total (combined)	10705 (6+)	2840	13545 (7¾)	4240 (2¼)	17785 (10+)	.....	.....
TRAINS							
Headquarters Medical Squadron (animal)	.....	.....	.....	.....	.....	12	.....
Collecting Troop (animal)	.....	.....	.....	.....	.....	83	.....
Collecting Troop (motor)	.....	.....	.....	.....	.....	27	.....
Ambulance Troop (animal)	.....	.....	.....	.....	.....	247	.....
Ambulance Troop (motor)	.....	.....	.....	.....	.....	302	.....
Hospital Troop (animal)	.....	.....	.....	.....	.....	127	.....
Hospital Troop (motor)	.....	.....	.....	.....	.....	108	.....
Veterinary Troop (animal)	.....	.....	.....	.....	.....	80	.....
Veterinary Troop (motor)	.....	.....	.....	.....	.....	27	.....
Medical Squadron (animal) total	.....	.....	.....	.....	.....	549	.....
Medical Squadron (motor) total	.....	.....	.....	.....	.....	464	.....
Medical Squadron, combined total	.....	.....	.....	.....	.....	1013	.....
Ordnance Company (motorized)†	.....	.....	.....	.....	.....	350	.....
Division Train	.....	.....	.....	.....	.....	.....	.....
Wagon Company	.....	.....	.....	.....	.....	1300 (¾)	.....
Pack Train	.....	.....	.....	.....	.....	230 (1-8)	.....
Train Headquarters	.....	.....	.....	.....	.....	100	.....
Total Division Train	.....	.....	.....	.....	.....	3620 (2)	.....
Total Trains and Division Trains (animal-drawn)	.....	.....	.....	.....	.....	4170 (2 3-8)	.....
Combined (animal-drawn and motorized)	.....	.....	.....	.....	.....	4985	.....
DIVISION GRAND TOTAL	10705 (6+)	2840	13545 (7¾)	4240 (2¼)	17585 (10+)	4985	22570 (12⅛)

The following has been used as a basis in computing the foregoing road spaces:

(a) 1 yd per horse—cavalry in column of fours
(b) 2 yds per animal—spare mules
(c) 4 yds per animal—pack animals
(d) 20 yds per motorcycle—motorcyclists, solo or side car (riding)
(e) 15 yds per vehicle—animal-drawn vehicles, 2 animals, not tandem
(e) 20 yds per vehicle—animal-drawn vehicles, 4 animals
(e) 25 yds per vehicle—animal-drawn vehicles, 6 animals
(f) 20 yds per vehicle—3-in. gun or caisson (includes the animals)
(d) 27 yds per vehicle—motor cars
(d) 27 yds per vehicle—trucks
(d) 5 yds per trailer.

These are accurate road spaces; no allowance is made for elongation, as this will depend on the terrain, number of absentees, etc.

NOTES:

*See Trains.
†Carried from special troops.

(a) The sergeants, officers, etc., will be given proper relative space; for example, the captain will take up space of four horses, unless it is assumed he rides with a lieutenant, in which case he takes up space of two horses.

(b) It is assumed the spare mules go two abreast; if there is one seperate spare mule, he takes up as much space as 2.

(c) It is assumed that pack mules march in single file.

(d) Small numbers of these will generally be omitted, because they would not logically form part of a column or would be in extra spaces or would be off on special missions; they will be figured only when they form part of a column.

(e) 1, 3, 5, etc., animal-drawn vehicles take up same space as 2, 4, 6, etc., animal-drawn vehicles.

In any cases not covered by above a proper assumption has been made based on the provisions of Field Service Regulations and the regulations of the several arms.

Where easily convertible, the number of yards is represented approximately in miles shown in parentheses.

Where the sum of the road space of the subdivision of a unit does not equal the road spaces given for the unit, allowance has been made for the distances between subdivisions, and for road spaces of headquarters detachments.

For movement by rail, forty standard trains are required.

To face page 78.

TABLE FOR CORPS MOVEMENTS

(See Tables for Army Movements and Movements of GHQ Reserve Units)

UNITS	W.D. Organization tables as of Nov., 1922	Personnel and Animals		MARCHING ROAD SPACE				TRUCK MOVEMENTS		RAILWAY MOVEMENTS
				Foot Troops and Animal Elements	Motor Elements: Motor Columns; Trucks, Automobiles, Motorcycles	Motor Elements: Tractor Columns; Tractor and Tractor Carriers	Total	Foot troops and Animal Elements (For motor elements see preceding columns): Men carried in Trucks (For road space see note c)	Foot troops and Animal Elements (For motor elements see preceding columns): Remainder of Foot Troops and Animal Elements Marching	Standard Type railway trains
		No. of Men and Officers	No. of Animals	Miles	Miles	Miles	Miles	Number Men	Road Space Miles	Number of Trains
1 INFANTRY DIVISION (total)	1W	20,030	6,955	19.1	8.6	0.4	28.1	11,252	16.0	72
1 Infantry Brigade (less F Tn)	21W	6,408	1,150	3.5	0.13	....	3.6	5,223	2.0	16
Field Trains Inf Brig	.....	.....	.....	1.1	0.15	....	1.2	.....	1.1	....
1 Inf Regt (less F Tn)	23W	3,154	557	1.7	0.02	....	1.7	2,594	0.9	8
Field Trains Inf Regt	.....	.....	.....	0.52	0.03	....	0.6	.....	0.52	....
1 Artillery Brigade (75-mm.) (total)	31W	3,400	3,432	6.7	0.8	....	7.5	.....	6.7	20
Field Trains Arty Brig	.....	.....	.....	1.2	0.03	....	1.2	.....	1.2	....
Ammunition Train Arty Brig	56W	169	131	0.3	0.6	....	0.9	.....	0.3	2
1 Artillery Regiment (75-mm.)	33W	1,571	1,607	3.0	0.08	....	3.1	.....	3.0	10
Field Trains Arty Regt	.....	.....	.....	0.5	0.01	....	0.5	.....	0.5	....
1 Engineer Regt (combat) (total)	63W	872	299	1.0	0.3	....	1.3	549	0.7	3
Field Train Engr Regt	.....	.....	.....	0.2	....	....	0.2	.....	0.2	....
Engineer Train Engr Regt	.....	.....	.....	0.14	0.35	....	0.5	.....	0.14	....
Air Service Infantry Division	71W	234	.....	....	0.5	....	0.5	.....	.....	1
Medical Regiment, Inf Div	81W	962	167	0.3	2.2	....	2.5	(471b)	0.3	5
Special Troops, Inf Division	3W	918	195	0.5	0.8	....	1.3	257	0.4	3
Tank Company, Inf Division	10W	151	.....	....	0.2	0.4	0.6	.....	.....	1
Field Trains, Inf Division	.....	.....	.....	3.6	0.2	....	3.8	.....	3.6	....
Division Train, Inf Division	91W	788	562	1.5	3.1	....	4.6	.....	1.5	7
Service Trains, Inf Division	.....	.....	.....	2.3	7.1	....	9.4	.....	2.3	....
3 Infantry Divisions (total)	.....	60,090	20,865	57.3	25.8	1.2	84.3	33,756	48.0	216
CORPS TROOPS (total)	101W	23,859	1,730	5.8	56.2	5.4	67.4	6,374	4.1	107
Special Troops (total)	103W	3,146	199	0.9	3.9	....	4.8	2,287	0.3	9
Headquarters Company	104W	443	56	0.03	0.12	....	0.2	357	0.03	1
Military Police Bn	105W	632	132	0.3	0.8	....	1.1	332	0.2	1
Signal Bn	107W	498	.....	0.1	1.1	....	1.2	295	.....	2
Ordnance Co Hv Maint	112W	305	.....	....	1.3	....	1.3	.....	.....	2
Ordnance Co Am	113W	170	.....	0.04	0.2	....	0.2	148	.....	(a)
Field Remount Depot	114W	165	30	0.13	0.05	....	0.2	144	0.1	1
Service Bn	116W	1,077	.....	0.3	0.35	....	0.6	1,011	.....	2
Artillery Brigade (total)	131W	10,265	.....	....	28.5	5.3	33.8	.....	.....	48
1 Regt (155 G)	139½W	1,855	.....	....	4.8	0.8	5.6	.....	.....	8
Field Tn Regt (155 G)	.....	.....	.....	....	0.8	....	0.8	.....	.....	....
1 Regt (155 How)	133W	1,749	.....	....	4.7	1.5	6.2	.....	.....	9
Field Tn Regt (155 How)	.....	.....	.....	....	0.6	....	0.6	.....	.....	....
Advance Parties per Bn	.....	.....	.....	....	0.2	....	0.2	.....	.....	....
1 Obsn (Flash) Bn	153W	225	.....	....	0.5	....	0.5	.....	.....	....
Field Trains Arty Brig	.....	.....	.....	....	2.7	....	2.7	.....	.....	....
Ammunition Tn Arty Brig	156W	1,058	.....	....	4.0	....	4.0	.....	.....	6
Antiaircraft Regiment	120W	1,549	.....	....	4.2	....	4.2	.....	.....	6
1 Machine Gun Bn	121W	655	.....	....	1.6	....	1.6	.....	.....	3
1 Gun Bn	126W	644	.....	....	1.8	....	1.8	.....	.....	2
Corps Engineer Service (total)	161W	4,468	79	1.3	2.0	....	3.3	4,087	0.2	10
1 Engr Regt (Gen Service)	163W	1,215	77	0.4	0.8	....	1.2	1,024	0.2	4
1 Aux Engr Bn	169W	1,077	.....	0.3	0.4	....	0.7	1,021	.....	2
Corps Medical Service	181W	955	209	0.4	2.4	....	2.8	(479b)	0.4	5
Medical Regiment	81W	943	167	0.3	2.2	....	2.5	(471)	0.3	5
1 Collecting Bn	86W	319	33	....	0.1	....	0.1	(229)	.....	1½
1 Ambulance Bn	87W	185	108	0.3	0.9	....	1.2	.....	0.3	2
1 Hospital Bn	88W	273	.....	....	1.2	....	1.2	.....	.....	1½
CORPS AIR SERVICE (total)	171W	1,786	.....	....	4.0	.09	4.09	(1,376b)	.....	6
1 Hq	172W	40	.....	....	.07	....	.07	(24b)	.....	....
1 Com Sec	180W	61	.....	....	.1	....	.1	(44b)	.....	....
1 Obsn Gp (reduced)	171W	700	.....	....	1.18	.03	1.2	(537b)	.....	2
1 Obsn Sq	72W	200	.....	....	.33	....	.33	(152b)	.....	1
1 Bln Gp	176W	975	.....	....	1.7	.05	1.75	(765b)	.....	3
1 Bln Co	178W	178	.....	....	.3	....	.3	(141b)	.....	¾
Corps Train (total)	191W	3,246	1,243	3.2	16.4	0.1	19.7	.....	3.2	29
Motor Transport	195W	2,500	.....	....	16.3	....	16.3	.....	.....	21
24 MT Companies	95W	.....	.....	....	11.3	....	11.3	.....	.....	21
1 Co Passenger Cars	95W	80	.....	....	0.5	....	0.5	.....	.....	....
1 Co 1½-ton Trucks	95W	80	.....	....	0.5	....	0.5	.....	.....	....
Co 3-ton Trucks	95W	80	.....	....	0.5	....	0.5	.....	.....	....
1 Motorcycle Co	97W	56	.....	....	0.8	....	0.8	.....	.....	....
Wagon Train	191W	700	1,219	3.2	....	....	3.2	.....	3.2	7
TOTAL CORPS with 3 Divs (less units which may be attached)	101W	83,949	22,595	63.1	82.0	6.6	151.7	40,130	52.1	323

NOTES:

(a) Included in Artillery Brigade Table.

(b) In column "men carried in trucks," parentheses indicate that the unit usually moves in transportation belonging to its own arm or branch. Figures are given for use when the above method is impracticable.

(c) To obtain approximate road space for truck movements:

(1) Troop with baggage, packs, and equipment:

For 1½ ton trucks, $\frac{\text{number of men}}{600}$ = road space in miles.

For 3 ton trucks, $\frac{\text{number of men}}{1200}$ = road space in miles.

(2) Troops with packs and equipment only:

For 1½ ton trucks, $\frac{\text{number of men}}{800}$ = road space in miles.

For 3 ton trucks, $\frac{\text{number of men}}{1600}$ = road space in miles.

(3) Troops without baggage, packs, and equipment:

For 1½ ton trucks, $\frac{\text{number of men}}{1100}$ = road space in miles.

For 3 ton trucks, $\frac{\text{number of men}}{2200}$ = road space in miles.

(d) In making the computations in the above table the method indicated in footnotes, *Table of Road Spaces for Units of Infantry Division* has been followed, with the following exceptions: 30 yards per vehicle; motor car, truck, or amublance; 20 to 30 yards per tractor. Assignment to motor vehicles is as follows: 5 men per motor car, 2 men per truck, ambulance, or motorcycle and side car.

RATES OF MARCH (miles per hour)

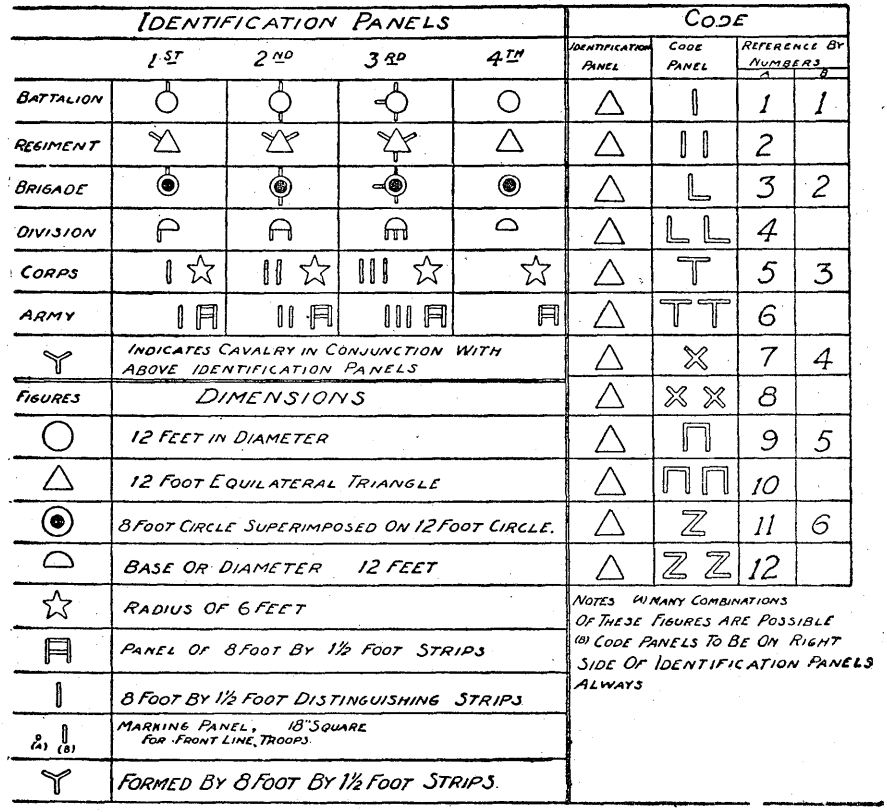
Unit	*On Roads*		*Across Country*		*Remarks*
	Day	*Night*	*Day*	*Night*	
Infantry Division (applies to all foot troops)	2½	2	1½	1	
Field Artillery Brigade (Division Artillery)	3½	3	2½	2	
Engineer Regiment	Same	as infantry	division		Motorized elements same as Division Service Trains—motorized.
Division Service Trains (animal-drawn elements)	2½	2			Applies to all animal-drawn field and service trains.
Motorized elements	8	6 (lights) 5 (no lights)			The air service usually moves at least twelve hours later than the remainder of the division.
Automobiles and Motorcycles	20	15 (lights) 10 (no lights)			
Tank Company, tanks on trucks in columns "On Roads"	4	3 (lights) 2½ (no lights)			
Under their own power in columns "Across Country"			2	1	
Cavalry Division	5	4	4	3	
Battalion Horse Artillery	Same	as cavalry	division		
Field Artillery Regiment (155-mm. how)	3½	3	2½	2	All tractor columns move at same rate.
Gas Regiment	Same	as infantry	division		Animal-drawn elements same as Division Service Trains—animal.
Chemical Ammunition Train	Same as Division	motorized ele Service	ments Trains		

NOTES:—1. These figures are furnished to secure uniformity in the solution of problems.
2. Rates given above will generally be lowered by dust, heat, snow, sleet, mud, or other adverse conditions. Small elements of any of the above units can move at a more rapid rate for short distances.

SECTION VII

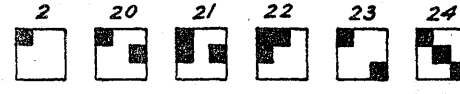
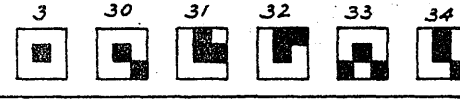
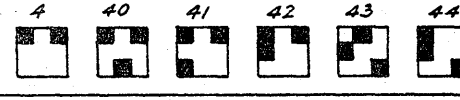
SIGNAL COMMUNICATIONS

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Normal radio nets, infantry division	Insert
Combat wire net infantry division	Insert
Identification panels	81
Identification panels, division artillery	82
Animals and vehicles, signal company, infantry division	83
Weights and measurements of important items of signal communication, field equipment, signal troop, cavalry division	83



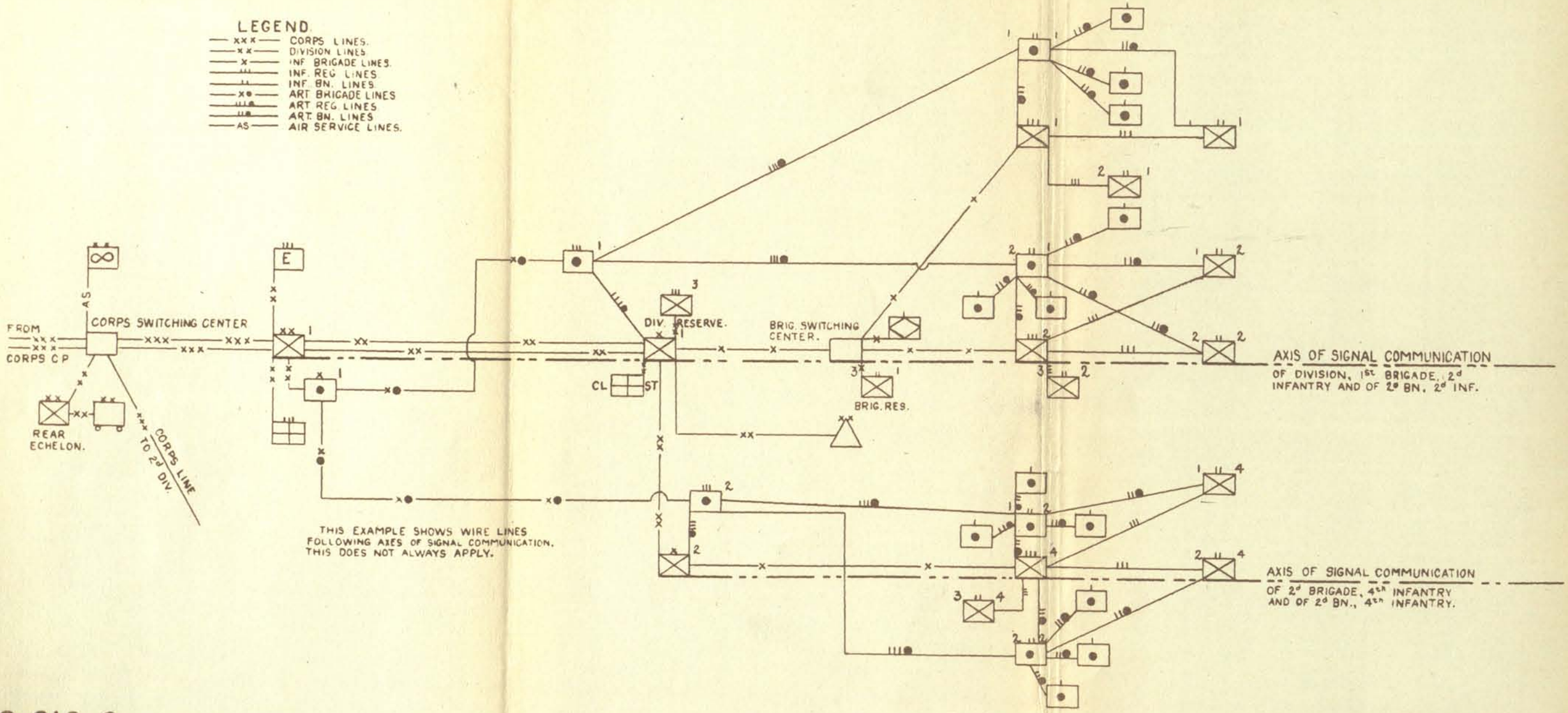
IDENTIFICATION PANELS

Division Artillery

Units	Panels
Brigade Command Post	
Series 1 Regimental and Battalion Command Posts.	
Series 2. Regimental and Battalion Command Posts.	
Series 3. Regimental and Battalion Command Posts.	
Series 4. Regimental and Battalion Command Posts	
Particular panels assigned individual units by each Division. The command posts of a regiment and its own battalions are assigned panels in the same series	

COMBAT WIRE NET - INFANTRY DIVISION.

ONE METHOD OF ESTABLISHING A WIRE NET.



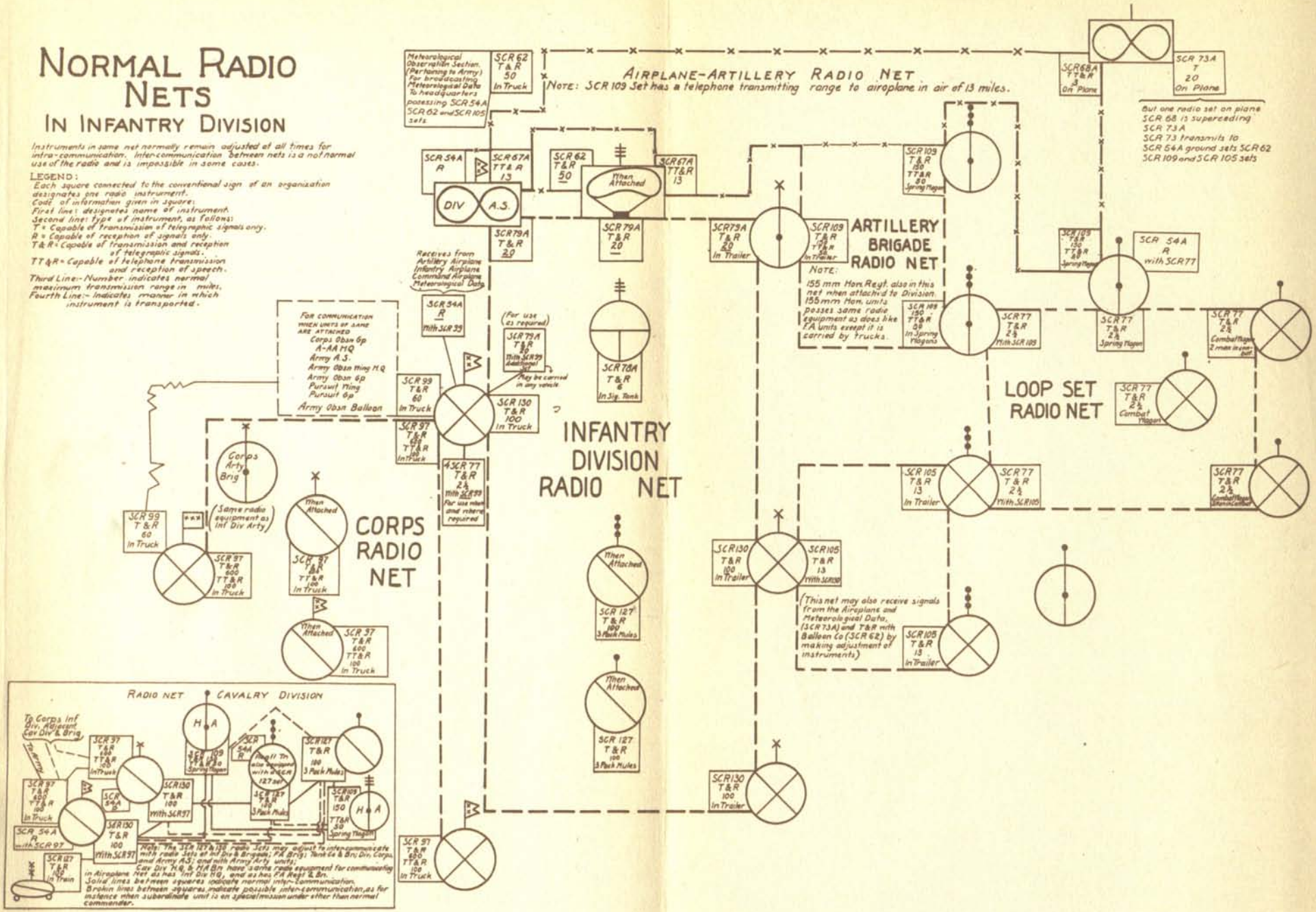
O.C. SIG. O.
SEPT. 20, 1924.

NORMAL RADIO NETS

IN INFANTRY DIVISION

Instruments in same net normally remain adjusted at all times for intra-communication. Inter-communication between nets is a not normal use of the radio and is impossible in some cases.

LEGEND:
Each square connected to the conventional sign of an organization designates one radio instrument.
Code of information given in square:
First line: designates name of instrument.
Second line: type of instrument, as follows:
T = Capable of transmission of telegraphic signals only.
R = Capable of reception of signals only.
T&R = Capable of transmission and reception of telegraphic signals.
TT&R = Capable of telephone transmission and reception of speech.
Third Line:- Number indicates normal maximum transmission range in miles.
Fourth Line:- Indicates manner in which instrument is transported.



ANIMALS AND VEHICLES, SIGNAL COMPANY, INFANTRY DIVISION

Article	*Number*	*Weight, lbs.*	*Bulk (cu. ft.)*
Animals:			
Horses, draft	16	-------	-------
Horses, riding	13	-------	-------
Vehicles:			
Cars, motor, 5 passenger	1	2250.	485.
Motorcycles, with side cars	6	3480.	624.
Trucks:			
Cargo, ¾ ton	2	8800.	1954.
Cargo, 11½ to 28 ton	6	36000.	6334.
Trailers:			
Kitchen	1	3200.	422.
Cargo, ¾ ton	1	2500.	1152.
Tank, water	1	1500.	416.
Wagons, escort, complete with harness	2	3672.	1514.

WEIGHTS AND MEASUREMENTS OF IMPORTANT ITEMS OF SIGNAL COMMUNICATION: FIELD EQUIPMENT, SIGNAL TROOP, CAVALRY DIVISION

Article	*Number*	*Weight, lbs.*	*Bulk (cu. ft.)*
Buzzer, Service, type E E 63	14	5	.10
Carts, Wire, type N complete	4	7200	840.
Keep, Telegraph, Bibroplex, (bug)	2	10	.20
Panels, Cavalry Division, Set, type A P-16	1	15	.94
Reel Carts, pack, type RL 16	1	96	30.
Sets:			
Battery charging, type SCR-82	1	669	32.
Simplex telegraph, E E 76	2	25	.40
Radio receiving, type SCR 54A	1	167	6.27
W. W. radio telegraph, type SCR-130	1	578	21.16
Switchboards:			
Telegraph, 4 line	2	6	.15
Monocord, 4 line, type BD-9	8	8	.25
Monocord, 12 line, type BD-11	4	20	.70
Camp, type BD-14	2	3695	10.24
Telephones:			
Camp, type EE-4	36	648	8.33
Camp, type EE-5	20	210	3.47
Trailer, storage battery	1	2250	608.
Trucks:			
Radio, army, type SCR-97	1	10555	1197.
Wire:			
Field, 11-strand, single mi	100	6200	300.
Outpost TP light, mi	4	748	12.

SECTION VIII

SUPPLY

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List of conventional signs	86
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Supplies prescribed for the corps	89

SUPPLY

(See "List of Conventional Signs", page 211, T.R. 550-10.)
(See "Outline of Administrative System," page 212, T.R. 550-10.)

TIME ALLOWANCES FOR CLASS I DISTRIBUTION

Method	*Minimum time per unit of 20000 men*
Railhead distribution (railway) train to field trains of entire division	6 hours
Loading of supply column at railhead with one day's class I supply	2 hours
Railhead loading of supply column, sorted, for 3 distributing points	4 hours
Distribution to brigade at one distributing point	1 hour
Distribution to regiment or division special troops at one distributing point	½ hour
Distribution to battalion or smaller separate units at one distributing point	¼ hour

LIST OF CONVENTIONAL SIGNS


Division Command Post


Reserve Depot , Zone of Interior


Base Depot, C Z.



Advance " C Z.


Remount " C Z.


Intermediate Depot, C Z.


" " Zone of Interior


Ammunition " C Z.



Salvage Depot


Ammunition Depot, Army


" Park, Corps


" Dump or D.P. Div


Q.M. Depot, Army


..... Distributing Point Div.


Engr. Dump or D.P. Div.



Regulating Station



Railhead



Refilling Point



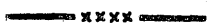
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Supply Column, C Z.

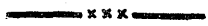

Evacuation Hospital, Army



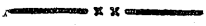
General Hospital, C Z.



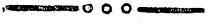
Army Boundary



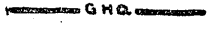
Corps Boundary



Division Boundary

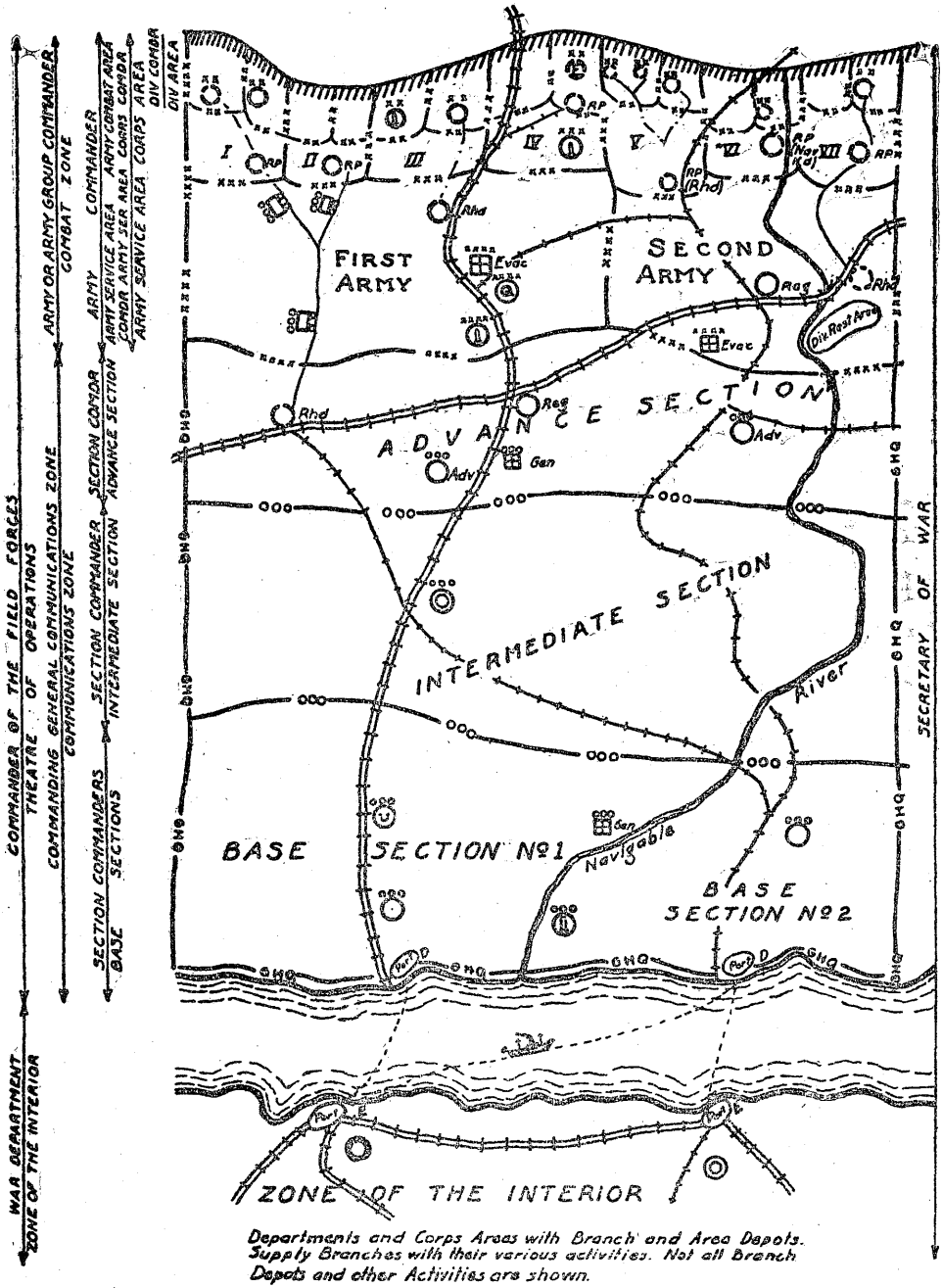


Communications Zone Boundary



Boundary of Theater of Operations

OUTLINE OF THE ADMINISTRATIVE SYSTEM
SHOWING THE ORGANIZATION AND CONTROL IN A
THEATER OF OPERATION



Departments and Corps Areas with Branch and Area Depots. Supply Branches with their various activities. Not all Branch Depots and other Activities are shown.

DATA ON AMMUNITION

	Cal. 30 Rifle	*Cal. 30 Auto. rifle*	*Cal. 30 MG.*	*Cal. 45 Pistol*	*37-mm.*	*3" mortar*	*Hand Grenades*	*Rifle Grenades*	*75-mm. Am.*
How packed	Box	Box	Box	Box	Box	Box	Box	Box	Box
Package: No. of rounds	1200	1200	1200	2000	60	3	32	36	9
Package: Weight in pounds	97	97	97	110	105	34	54	43	180
Package: Cu. ft.	1.5	1.5	1.5	0.9	1.2	1.2	0.9	0.7	3.0
MG cart			(G) 1250						
MG Am. cart			(G) 3000						
37-mm. Am. cart					224				
Mortar cart—Mortar						32			
Mortar cart—Ammunition						42			
Tank, 37-mm.					(B) 238				
Tank, MG.			4250						
Inf. Rifle Company—Combat wagon	(D) 14640	(C) 10080		(E) 693				(B) 162	
Inf. MG Company—2 Combat wagons			(F) 40000	(E) 3066					
Inf. How. Company—Combat wagon	(H) 1920			(E) 1953	224	210			
75-mm. gun limber									18
75-mm. Caisson limber									36
75-mm. Caisson body									70
Escort wagon	28000	28000	28000	44000	1380	222	1472	2088	99
¾ ton truck	18000	18000	18000	26000	840	135	836	1260	
1½ ton truck	36000	36000	36000	54000	1680	264	1760	2520	
2 ton truck	48000	48000	48000	72000	2280	354	2368	3348	
3 ton truck	72000	72000	72000	108000	3420	531	3552	5004	198

NOTES:

(A) 190 armor piercing shell and 48 case shot.
(B) 9 grenades per discharger.
(C) 560 rounds per auto rifle.
(D) Because of limitations as to capacity of wagon, 120 rounds carried for only 122 rifles.
(E) 21 rounds per pistol.
(F) 5000 rounds per machine gun.
(G) 250 rounds in belts per box.
(H) 120 rounds per rifle.
(I) Packed 9 in a box.

SUPPLIES PRESCRIBED FOR THE CORPS

	Within division—on each vehicle or animal or on combat or field train	*On division train*	*Within corps troop units*	*On corps train*	*Total in corps*	*Approximate weight of corps train loads*
Rations	5 days	1 day	3 days	1 day for corps troops, plus 1 day for all troops of corps.	5 days for corps troops, 7 days for divisions.	55 tons for corps troops, plus 190 tons for all troops of corps.
Grain	3 days	1 day	3 days	1 day for corps troops, plus 1 day for all troops of corps.	5 days for all troops of corps.	10 tons for corps troops, plus 115 tons for all troops of the corps.
Gasoline and oil	2 days	1 day	2 days	1 day for corps troops.	3 days for all vehicles.	90 tons in containers, plus 175 tons carried in tank trucks of train.
Artillery ammunition	1½ days of fire (including loads of FA Brig. Am Tn.)		1½ days of fire	½ day of fire for division and corps artillery.	2 days of fire for all artillery with the corps.	550 tons
Infantry ammunition	Rounds per weapon: Rifle 120 Machine gun 6000 Auto rifle 1000 37-mm. gun 224 Trench mortar 135 Rifle grenade 36	½ of this amount per weapon (*)	As needed	Same as division train.	This allowance gives a total of 340 rounds per division rifle and a like proportion for other infantry division weapons; does not include any reserve for corps troops.	240 tons

(*) The division train also carries 20000 rounds caliber 45 pistol ammunition.

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TRANSPORTATION

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CLASSIFICATION OF TRAINS WITHIN THE DIVISION

Designation	*Composition*	*Plan of March*
Combat	All personnel, vehicles, and animals employed by regiments and smaller units for transporting ammunition reserve and special equipment required during combat. (1)	Normally remain with unit to which attached and follow it into action. (2)
Field	All personnel, vehicles, and animals employed by headquarters, or by regiments or smaller units, for the reception, transportation, and issue of the authorized allowance of baggage, rations, and forage.	Unless otherwise specified in orders, field trains accompany their organizations. (3)
Service (8)	Division train. Artillery Brigade Ammunition Train. Ordnance Company. Service Company. Certain vehicles of the engineer regiment (4), medical regiment (5), and division air service (6).	As directed in administrative order. (7)

NOTES:

(1) This includes also rolling kitchens, water carts, and those vehicles required for the technical service of engineer, signal, and medical troops.

(2) In marches when combat is not expected, and in marches in the presence of the enemy, to facilitate mobility and early deployment and entry into action; superior commanders may at times temporarily separate combat trains from the troops to which they pertain. This is usually done in the case of artillery in the main body of a force of several arms.

(3) In marches in the presence of the enemy, these trains may be grouped into marching columns and follow the tail of the combat troops in order of march of their respective organizations, at such distance and speed as the tactical and supply situations warrant. (7)

(4) Such tool wagons and cargo trucks of the transport platoon as are not marched with the combat train of the regiment to meet foreseen situations; generally include the infantry tool wagons and trucks carrying bridge and fortification accessories.

(5) Such parts of the personnel and transportation as is not being employed with troops on the march.

(6) When not separated from the division.

(7) Trains so grouped are organized into animal-drawn and motor sections and placed under command of designated officers, or of the senior officer present with each group.

(8) The division train, the artillery brigade ammunition train, the ordnance and service companies, such parts of the trains of the engineer and medical regiments, as are not otherwise employed, and the train of the air service, when the air service is not separated from the division, may be grouped, wholly or in part, for march purposes. When so grouped they are called *service trains.* They are released by definite orders to their respective organization chiefs of branch for operation whenever such action is required.

BASIS OF COMPUTATIONS FOR LOADS OF CARGO VEHICLES (1)

Class	*Unit*	*Allowance*
Ration weights	Garrison	5 pounds per ration
	Field	4½ pounds per ration
	Reserve	3 pounds per ration
	Grain (2) (3)	10 pounds per animal
Gasoline (6) allowances	Trucks and tractors	20 gallons per day
	Tanks	30 gallons per day
	Cars and motor ambulances	10 gallons per day
	Motorcycles	2 gallons per day
	Airplanes (4)	10 gallons per 100 horsepower per day (5)
Oil (7)	All vehicles	3% of gasoline by weight
Ammunition weight	155-mm. gun or howitzer	100 pounds per round
	75-mm. gun	20 pounds per round
	37-mm. gun	1½ pounds per round
	30 caliber, rifle	100 pounds per box of 1200
	45 caliber, pistol	76 pounds per box of 2000
	Light mortar, French ammunition	6½ pounds per round
	Rifle grenade	85/72 pounds per round
Baggage allowances (8)	General officer	150 pounds
	Colonel or lieutenant colonel	100 pounds
	Major	75 pounds
	Captain or lieutenant	50 pounds
	Company headquarters (9)	500 pounds
Wagon and cart capacity	Wagon, escort, R & B, 4-mule	2,500 pounds
	Wagon, escort, combat, 4-mule	2,500 pounds
	Wagon, combat, infantry, 4-mule	2,500 pounds
	Wagon, spring, ¾ ton, 4-horse	1,500 pounds
	Wagon, spring, 2-horse	700 pounds
	Cart, ration, 2-mule	700 pounds
	Cart, water, 2-mule	180 gallons

NOTES:

(1) Based on tables of organization and fundamental allowances where available. In some instances, loads have been used which conform to weight and bulk capacity of the vehicles assigned.

(2) 10 pounds assumed for both horse and mule.

(3) The grain of organizations to which field trains are assigned is carried in the filed trains; the grain of organizations to which no field trains are assigned is considered as a part of the load to be carried in the particular vehicles assigned to the supply of that organization.

(4) Aviation gasoline required.

(5) Allowance made on assumption that each plane flies 1½ hours per day.

(6) Gasoline in containers weighs about 8 pounds per gallon.

(7) Oil in containers weighs about 9 pounds per gallon.

(8) Assumed as logical in the field in campaign.

(9) Company baggage includes such articles as special tools, office facilities, records, and equipment needed and which are not carried in the combat train.

CLASSIFICATION AND LOADS OF CARGO VEHICLES OF INFANTRY REGIMENT

Units	Combat Train				Field Train				In Troop Column			
	Vehicle	*Type of load*	*Cargo weight W*	*Cargo capacity W*	*Vehicle*	*Type of load*	*Cargo weight W*	*Cargo capacity W*	*Vehicle*	*Type of load*	*Cargo weight W*	*Cargo capacity W*
Rifle Co	1 kitchen, rolling (Z) 1 cart, water (Z) 1 wagon, combat (Z)	A B C	 2500	 2500	1 cart, ration (Z) 1 wagon, R & B (Z)	G G	700 2310	700 2500				
M G Co	1 kitchen, rolling (Z) 1 cart, water (Z) 2 wagons, combat (Z)	A B D	 5000	 5000	1 cart, ration (Z) 1 wagon, R & B (Z)	H H	700 2102	700 2500	8 carts, MG 8 carts, Am, MG	O P		
Bn Hq & Hq Co	1 kitchen, rolling (Z) 1 cart, water (Z)	A B			1 cart, ration (Z) 1 wagon, R & B (Z)	M M	700 2500	700 2500				
Regt Hq & Hq Co	1 kitchen, rolling (Z) 1 cart, water (Z) 1 truck and trailer	A B F	 4000	 4000	1 cart, ration (Z) 2 wagons, R & B (Z)	G G	700 3200	700 5000				
How Co	1 kitchen, rolling (Z) 1 cart, water (Z) 3 wagons, combat (Z)	A B N	 7584	 7500	1 cart, ration (Z) 1 wagon, R & B (Z)	H H	700 2500	700 2500	6 carts, Mortar 3 carts, Am, 37-mm.	Q R		
Med Det	1 cart, water 4 wagons, medical	A E	 10000	 10000	1 wagon, R & B	G	2500	2500				
Serv Co	1 kitchen, rolling (J) 1 cart, water (J)	A B			1 cart, ration 6 wagons, R & B 2 trucks, ¾ ton	GK GK GK		700 15000 3000				
					Total		14240	18700				
Total in Regiment	18 kitchens, rolling (Z) 19 carts, water (18Z) 18 wagons, combat (Z) 4 wagons, medical 1 truck and trailer	A B C E F	 44400 10000 4000	 45000 10000 4000	18 carts, ration (Z) 25 wagons, R&B (24Z) 2 trucks, ¾ ton		12600 53336 3000	12600 62500 3000	24 carts, MG 24 carts, Am, MG 6 carts, mortar 3 carts, Am, 37-mm.	O P Q R	6000 6240 1899 1008	6000 6240 1899 1008
Total wt., lbs. Total wt., tons			59084 29.54	59000 29.50			68936 34.47	78100 39.05			15147 7.57	15147 7.57

NOTES:

A. Unconsumed portion of 1 day's rations.
B. Water for unit.
C. 120 rounds for 122 rifles, 560 rounds per automatic rifle, 21 rounds for 33 pistols and 9 grenades each for 18 dischargers.
D. 5000 rounds per machine gun, 21 rounds per pistol, 1 range finder, 2 refilling machines, spare and repair parts.
E. Medical supplies, equipment, including 4 litters per company, and personnel.
F. Regimental signal equipment.
G. 1 day's reserve and 2 days' field rations and baggage for unit.
H. Same as G and 2 days' grain.
J. Marches with field train.
K. 2 day's grain for service company and extra regimental stores.
M. Same as H and signal and radio equipment. The R & B wagons may march with combat train.
N. One for each platoon, each loaded with 210 rounds mortar and 224 rounds 37-mm. ammunition.
O. 2 water boxes, 5 ammunition boxes (250 rounds per box), and 1 machine gun to each cart. Weight, 250 lbs.
P. 2 water boxes, 12 ammunition boxes (250 rounds per box) to each cart. Weight, 260 lbs.
Q. 3 carts carry 1 mortar and 32 rounds each. Weight, 321 lbs.
3 carts carry 42 rounds each. Weight, 312 lbs.
R. 224 rounds each. Weight, 280 lbs.
Z. Vehicles part of service company.
W. Basis for data is given in table on page 92.

LOADS OF CARGO VEHICLES OF INFANTRY BRIGADE HEADQUARTERS

Combat Train		Field Train			
Vehicle	*Type of Load*	*Vehicle*	*Type of Load*	*Cargo Weight W*	*Cargo Capacity W*
1 kitchen, rolling	A	1 cart, ration	E	610	700
1 cart, water	A	1 wagon, R & B	E	2500	2500
1 truck, cargo, 1½ or 2 ton	B				
1 cart, wire	B				
1 trailer, radio	C				
1 truck, cargo, ¾ ton	D				
Total weight, pounds				3110	3200

NOTES:

A. Mess equipment, water and unconsumed part of one day's ration for 12 officers and 88 men.

B. 10 miles heavy wire and 15 miles light wire.

C. 2 sets, radio: 1 for communication with higher and adjacent units; 1 to lower units.
2 reel carts, hand pack.
2 switchboards, 4-line.
2 switchboards, 12-line.
7 telephones, EE 4, for official use.
4 telephones, EE 5, for service maintenance.

D. Personnel and facilities, staff and intelligence sections.

E. One reserve ration and two field rations for 12 officers and 88 men; two day's grain for animals; 50 gallons gasoline; 750 pounds officers' baggage.

W. Basis for data is given in table on page 92.

CLASSIFICATION AND LOADS OF CARGO VEHICLES OF 75-MM. FIELD ARTILLERY REGIMENT, HORSE DRAWN

Units	Combat Train				Field Train				In Troop Column			
	Vehicle	*Type of load*	*Cargo weight W*	*Cargo capacity W*	*Vehicle*	*Type of load*	*Cargo weight W*	*Cargo capacity W*	*Vehicle*	*Type of load*	*Cargo weight W*	*Cargo capacity W*
Battery	1 kitchen, rolling	A			1 cart, ration (S)	G	700	700	1 cart, reel	M		
	1 cart, water	B							1 wagon, spring	N		
	1 wagon, battery	F	2239	2239					6 caissons with limbers	K	9540	9540
	1 wagon, store	H	2037	2037					4 limbers, guns	O	1080	1080
Bn Combat Train	18 caissons	K	28620	28620								
	1 kitchen, rolling	A										
	1 cart, water	B			1 cart, ration (S)	G	700	700				
	1 wagon, B & S combination	I	2239	2239								
Bn Hq & Hq Btry	1 wagon, R & B (Z)	C	2500	2500					1 cart, reel	P		
									1 wagon, spring	R		
Regt Hq and Hq Btry	1 wagon, B & S combination	I	2239	2239								
	1 kitchen, rolling	A										
	1 cart, water	B			1 cart, ration (S)	G	700	700				
Med Det	3 wagons, medical	E										
	2 ambulances, motor	Q										
Service Battery	1 cart, water	B			31 wagons, R & B	D	58317	77500				
	1 kitchen, rolling	A			1 truck, ¾ ton	D	1500	1500				
					1 cart, ration (S)	G	700	700				
Total for regiment in pounds							66817	86000				
Total for regiment in tons							33.40	43.00				

NOTES:

A. Unconsumed part of 1 day's ration.
B. Water for unit.
C. Kitchen equipment, reserve and field rations, cooks, in lieu of rolling kitchen.
D. 1 day's reserve and 2 days' field rations, grain, baggage, and equipment for regiment.
E. Medical supplies, equipment.
F. Spare parts, tools, etc.
G. Capacity utilized for rations.
H. Spare parts, material for maintenance, cleaning and repair.
I. Same as I and tools.
K. 106 rounds ammunition each.
M. Wire.
N. 5 miles twisted pair wire and instruments.
O. 18 rounds ammunition each.
P. Wire and fire control instruments.
Q. Medical supplies.
R. Radio instruments and personnel.
S. Marches with service battery.
Z. Vehicle is part of service battery.
W. Basis for data is given in table on page 92.

LOADS OF CARGO VEHICLES OF FIELD ARTILLERY BRIGADE AMMUNITION TRAIN

Unit	*Vehicle*	*Type of load*	*Cargo weight W*	*Cargo capacity W*
Train headquarters	1 truck, ¾ ton	A		1500
	1 wagon, escort	B		
Transport battery	Battery headquarters:			
	1 truck, cargo, FWD	D	1150	6000
	1 truck, light repair	C		
	1 truck, FWD, supply	C		
	1 trailer, kitchen	E		
	Wagon section:			
	2 wagons, escort	F	3556	5000
	25 wagons, escort	G	49500	62500
	Truck section:			
	1 truck, cargo, FWD	H	4000	6000
	26 trucks, cargo, FWD	J	99000	156000
Ammunition battery,	1 truck, cargo, FWD	H	4000	6000
	1 kitchen, rolling	K		
	1 truck, cargo	L	1464	6000

NOTES:

A. One day reserve ration, two days field rations. and baggage for officers and the headquarters.
B. Medical supplies and baggage.
C. Special trucks loaded according to their technical requirements.
D. 50 reserve rations, 1 day ..... 150 lbs.
100 field rations, 2 days ..... 450 lbs.
Officers' baggage ..... 50 lbs.
Organization baggage ..... 500 lbs.
E. Unconsumed portion of one day ration.
F. 33 reserve rations, 1 day ..... 99 lbs.
66 field rations, 2 days ..... 297 lbs.
244 grain rations, 2 days ..... 2610 lbs.
Officers' baggage ..... 50 lbs.
Organization baggage ..... 500 lbs.
G. 99 rounds 75-mm. ammunition per wagon; total in section, 2475 rounds.
H. 500 gallons gasoline (10 drums).
J. 198 rounds ammunition per truck (one truck not loaded, considered as spare); total rounds in sections, 4950.
K. Unconsumed part of one day ration for organization. Animals for the rolling kitchen are included in wagon section of the transport company.
L. 72 reserve rations, 1 day ..... 216 lbs.
144 field rations, 2 days ..... 648 lbs.
Officers' baggage ..... 100 lbs.
Organization baggage ..... 500 lbs.
W. Basis for data is given in table on page 92.
X. The above table is based on War Department Tables of Organization, 1921, and is subject to changes in the said table of organization, using the assumptions given in notes.

LOADS OF CARGO VEHICLES OF HEADQUARTERS FIELD ARTILLERY BRIGADE INFANTRY DIVISION

Subdivision	*Vehicle*	*Type of load*	*Cargo weight W*	*Cargo W capacity E*
Troops	1 cart and reel, 6 horse	A		
	1 car, reconnaissance	B		
	1 wagon, R and B	C		2500
Field train	6 wagons, R and B	D	15000	15000

NOTES:

A. Wire and instruments.
B. Personnel and radio outfit.
C. Mess equipment, kitchen, unconsumed part of one day's ration for 12 officers and 77 men; facilities for staff and intelligence sections.
D. 89 reserve rations, 1 day ..... 267 lbs.
178 field rations, 2 days ..... 801 lbs.
174 grain rations, 2 days ..... 1740 lbs.
Officers' baggage ..... 725 lbs.
Organization baggage, including radio, telegraph and telephone equipment, etc.
E. Weights in pounds
W. Basis for data is given in table on page 92.

LOADS OF CARGO VEHICLES OF COMBAT ENGINEER REGIMENT

Unit	Combat Train				Field Train			
	Vehicles	*Type of load*	*Cargo weight (W)*	*Cargo capacity (W)*	*Vehicles*	*Type of load*	*Cargo weight (W)*	*Cargo capacity (W)*
Company	1 kitchen, rolling	A			1 wagon, R & B	I	2480	2500
	1 cart, water	B						
	1 truck, 1½ ton	C	3000	3000				
	2 wagons, tool	D	5000	5000				
Hq and Hq and Serv Co (X)	10 mules, pack	E	2500	2500	6 mules, pack	J		1500
	1 kitchen, rolling	A			5 wagons, R & B	K		
	1 cart, water	B						
	12 wagons, tool, Inf	F	30000	30000				
	12 trucks, 1½ ton	G	36000	36000				
	6 trucks, ¾ ton	H	9000	9000				
Total in regiment	7 kitchens, rolling				6 wagons, R & B		14880	15000
	7 carts, water				6 mules, pack		1472	1500
	12 wagons, tool, Inf		30000	30000	5 wagons, R & B		9560	12500
	12 wagons, tool		30000	30000				
	18 trucks, 1½ tons		54000	54000				
	6 trucks, ¾ ton		4500	9000				
	10 mules, pack		2500	2500				
Total in lbs.			121000	125500			25912	29000
Total in tons			60.50	62.75			12.95	14.50

NOTES:

A. Unconsumed part of 1 day's ration.
B. Water for unit.
C. Blacksmith, carpenter, demolition and reserve tools. Drafting, illuminating, duplicator, office, photographic, reserve pioneer and sketching equipment. 40 rounds of ammunition per rifle, for company headquarters section and 30 rounds per rifle for entire company.
D. Each wagon carries complete set of carpenters, demolition, pioneer and sketching equipment for use by one platoon and 40 rounds ammunition per rifle for the platoon.
E. 10 mules carry two sets engineer pack equipment consisting of carpenter and horseshoer tools, pioneer demolition equipment. Five packs per set.
F. Each wagon carries intrenching tools for an infantry battalion, axes, picks, shovels, saws, handbags, nails, etc.
G. 1 for electric lighting sets.
2 for foot bridge (285 ft.).
1 for map reproduction equipment.
1 for regiment headquarters tools and equipment.
1 for ammunition and explosives.
2 for water supply equipment.
4 for barbed wire, sandbags, explosives, bolts, nails, and other supplementary equipment.
H. 3 carry equipment and supplies for medical detachment.
3 usually empty and are used for quick delivery of tools and material in small amounts.
I. 1 day's reserve, 2 days' field, 2 days' grain ration, and baggage for organization.
J. Can carry 1 day's reserve, 2 days' field, and 2 days' grain rations for mounted platoon when necessary.
K. 1 day's reserve, 2 days' field ration, 2 days' grain, baggage, and office equipment for organization.
W. Basis of data is given in table on page 92.
X. 1 day's field ration for regiment is approximately 2 tons; 1 day's grain: 1½ tons.

LOADS OF VEHICLES OF MEDICAL REGIMENT

Unit	*Vehicles*	*Type of load*	*Cargo weights (W)*	*Cargo capacity (W)*
Service Co (X)	1 truck, cargo, ¾ ton	H		7500
	1 trailer, kitchen	A		
	1 trailer, tank, 180 gal	B		
	2 trucks, cargo, 1½ ton	H		6000
	3 trucks, cargo, 1½ ton	C		9000
Veterinary Co.	1 ambulance, veterinary	E		
	2 trucks, cargo, 1½ ton	H		6000
	2 wagons, escort	C		5000
	1 kitchen, rolling	A		
Collecting Bn. (3 Cos.)	3 trailers, kitchen	A		
	3 trailers, tank, 180 gal	B		
	3 trucks, cargo, ¾ ton	C		9000
	6 trucks, cargo, 1½ ton	H		9000
Ambulance Bn. (3 Cos.)	40 ambulances, motor	E		
	2 trailers, kitchen	A		
	2 trailers, tank, 180 gal	B		
	2 trailers, spare parts	D		
	4 trucks, cargo, 1½ ton	CH		12000
	20 ambulances, animal-drawn	E		
	1 kitchen, rolling	A		
	1 wagon, spring	G		
	2 wagons, escort	C		5000
Hospital Bn. (3 Cos.)	3 trailers, kitchen	A		
	3 trailers, tank, 180 gal	B		
	6 trucks, cargo, ¾ ton	C		9000
	51 trucks, cargo, 1½ ton	CFH		153000
Total for regiment	9 trailers, kitchen	A		
	9 trailers, tank, 180 gal	B		
	2 trailers, spare parts	D		
	10 trucks, ¾ ton	CH		15000
	68 trucks, 1½ ton	CFH		204000
	40 ambulances, motor	E		
	20 ambulances, animal-drawn	E		
	1 ambulance, veterinary	E		
	2 kitchens, rolling	A		
	4 wagons, escort	CH		10000
	1 wagon, spring	G		

NOTES:

A. Mess equipment and unconsumed portion of 1 day ration.
B. Water for unit.
C. 1 day reserve and 2 days field rations, grain, gasoline, oil, baggage, organization equipment and medical supplies.
D. Repair parts for motor vehicles.
E. Transportation of sick and wounded and of essential medical supplies to regimental detachments.
F. Equipment for 750 bed hospital.
G. Mess equipment, water cans and unconsumed part of 1 day ration for ambulance company, horse-drawn.
H. Hauls all or major part of personnel.
W. Basis for data is given in table on page 92.
X. One day field ration for the regiment is approximately 2 tons; one day grain, 1 ton. Hence daily supply can be hauled by the service company, except for gasoline. One day gasoline for the regiment is approximately 20,000 pounds (2482 gallons); oil 300 pounds. Except when all elements of the regiment are on the move, only a small part of this will be required daily. The various organizations of the regiment furnish transportation for this resupply as needed.

LOADS OF CARGO VEHICLES OF AIR SERVICE OF INFANTRY DIVISION

Unit	*Vehicle*	*Use*
Observation squadron	1 truck	Field lighting
	1 truck, machine shop	
	1 truck	Radio
	1 truck	Radio repair
	3 trucks, tank, 750 gals.	Gasoline
	2 trucks, tank, ¾ ton	Gasoline
	1 truck, tank, ¾ ton	Water
	2 trailers, 300 gals.	Gasoline
	1 trailer	Kitchen
	11 trucks, cargo, 1½-2 tons	A
	6 trailers, cargo, 1½ tons	A
Photographic section	2 trucks	Photographic
	1 truck, tank, ¾ ton	Gasoline
	1 truck, cargo, 1½ or 2 tons	A
	2 trailers	Photographic

NOTE:

A. Air service supply, baggage and personnel.

LOADS OF CARGO VEHICLES OF INFANTRY DIVISION TRAIN X

Unit	*Vehicle*	*Type of load W*	*Cargo weight W*	*Cargo capacity W*
Train headquarters	1 truck, cargo, ¾ ton	A		
	1 ambulance, motor	B		
2 motor repair sections	2 trucks, MT machine shop			
	2 tractors, 5 tons			
	2 trailers, stockroom			
	2 trailers, tire press			
	2 trucks, wrecking			
	2 trucks, tank, 750 gals.			
	6 trucks, cargo	D		21000 C
	2—¾ ton			
	2—1½ or 2 tons			
	2—3 or 5 tons			
Motor transport company	2 trucks, cargo, ¾ ton	E, F	2160	3000
	1 trailer, kitchen			
	2 trucks, tank, gasoline			
	27 trucks, cargo, 1½ tons G			
Motorcycle company	2 trucks, cargo, ¾ ton	H	1500	3000
Wagon company	2 wagons, escort	J	5000 K	5000 K
	60 wagons, escort			

NOTES:

A. Personnel and headquarters baggage.
B. From attached medical; personnel and medical supplies.
C. Minimum capacity given.
D. One day reserve ration, 2 days field ration, kitchen equipment, organization baggage and officers' baggage for 1 officer and 35 men; spare motor transport parts and material: personnel of the sections.

E. 80 reserve rations, 1 day ..... 240 lbs.
160 field rations, 2 days ..... 720 lbs.
Organization baggage ..... 500 lbs.
Officers' baggage ..... 100 lbs.
Ammunition, cal. 30 & 45 ..... 600 lbs.

F. Unconsumed part of one day's ration.
G. 3 trucks, per company, not considered as available for cargoes, this allowance being made for vehicles undergoing repairs

H. 80 reserve rations, 1 day ..... 240 lbs.
160 field rations, 2 days ..... 720 lbs.
Organization baggage ..... 500 lbs.
Officers' baggage ..... 100 lbs.

An indeterminate amount of spare parts and supplies needed for motorcycles and automobiles of the division headquarters garage complete the loads of the trucks.

J. 152 reserve rations, 1 day ..... 456 lbs.
344 field rations, 2 days ..... 1498 lbs.
Organization baggage ..... 200 lbs.
Officers' baggage ..... 100 lbs.
Ammunition ..... 1500 lbs.

3754 lbs.

The balance of capacity is used for the transport of a part of the 2 days grain required for the two wagon companies. Since, however, this grain weighs approximately 5 tons, the greater part of it must be carried in the cargo vehicles of the train. See note K.

K. Division train cargo tonnage available:
4 companies of 24 trucks of 1½ tons (see note G) ..... 144 tons
2 companies of 60 wagons of 1¼ tons ..... 150 tons

Total ..... 294 tons
Tank trucks, 8 x 750 gallons ..... 6000 gallons

Prescribed loads:
Part of 2 days grain of train (see note J) ..... 5 tons
1 day field ration (19,997 x 4½ pounds) ..... 45 tons
1 day grain (6944 x 10 pounds) ..... 35 tons
Ammunition (see note L) ..... 80 tons
Part of 1 day gasoline and oil in drums ..... 25 tons

Total ..... 190 tons
Gasoline in tank trucks ..... 6000 gallons
Surplus capacity over prescribed loads ..... 104 tons

L. Ammunition computations:

The figures are based on the following allowances considered by the War Department in the determination of the composition of the train:

Rifle ammunition, per rifle, for 8997 rifles ..... 60 rounds
Machine gun ammunition, per gun, for 207 guns ..... 3000 rounds
Automatic rifles, per rifle, for 792 rifles ..... 500 rounds
Pistol ammunition ..... 20000 rounds
37-mm. gun ammunition, per gun, for 22 guns ..... 112 rounds
Mortar ammunition, per mortar, for 12 mortars ..... 67½ rounds
Rifle grenades, per rifle, for 648 rifles ..... 18 rounds

These amounts are in most instances about one-half of the loads that can be carried by the combat trains.

This gives the following totals:

Cal. 30, rounds	1556820	126,200 lbs.
Cal. 45, rounds	20000	760 lbs.
37-m., rounds	2464	3,450 lbs.
3" light mortar, rds.	810	
Grenades, rifle	11664	17,496 lbs.

W. Basis for data is given in table on page 92.
X. The above table is based upon War Department Tables of Organization, 1921, and is subject to changes in the said table of organization, using the assumption given in notes.

LOADS OF CARGO VEHICLES OF DIVISION HEADQUARTERS AND SPECIAL TROOPS OF INFANTRY DIVISION

Unit	*Vehicle*	*Type of load*	*Cargo weight W*	*Cargo capacity W*	
Div. Hq. and Hq. Co.	4 kitchens, rolling	A			
	2 carts, water	B			
	1 wagon, escort	T			
	4 carts, ration	C		2800	S
	3 trucks, 1½ ton	C		9000	
	4 wagons, R and B	C		10000	
	Total		16891	21800	
Signal Co.	1 truck, radio, army	Q			
	1 truck, radio, division	Q			U
	4 carts, wire	Q			
	1 trailer, kitchen	E			
	1 trailer, ration	D	1404	1500	
	1 trailer, tank	F			
	5 trucks, ¾ ton	G	7500	7500	S
	9 trucks, 1½ ton	G	27000	27000	
	2 wagons, combat	H	5000	5000	
	1 trailer, storage btry	I			
	Total		40904	41000	
Light Tank Co.	25 trucks, Mack	J			
	1 truck, arty. load D	K			
	1 truck, cargo, ¾ ton	N	1500	1500	
	6 trucks, cargo, 1½ ton	N	18000	18000	
	1 truck, tank, gas	M			SV
	1 trailer, tank, water	F			
	1 trailer, kitchen	E			
	1 truck, arty. repair	L			
	Total		19500	19500	
Ordnance Co.	3 trucks, load B	O			
	3 trucks, load D	O			
	2 trucks, SA repair	O			
	3 trucks, arty. repair	O			
	3 trucks, light repair	O			S
	3 trucks, 3 ton	O	18000	18000	
	2 trucks, ¾ ton	P	2794	3000	
	1 truck, tank, gas	M			
	1 trailer, kitchen	E			
	Total		21000	21000	
Service Co.	1 kitchen, rolling	E			
	1 wagon, R and B	P	2424	2500	S
M. P. Co.	1 kitchen, rolling	E			
	1 cart, ration	R		700	
	1 wagon, R and B	R		2500	S
	Total		3195	3200	

NOTES:

A. 2 for each echelon carrying unconsumed part of 1 day's ration.
B. 1 for each echelon carrying water for unit.
C. 2 ration carts, 1 truck, and 2 wagons for forward echelon. Remainder for rear echelon carry 1 day's reserve, 2 days' field, 2 days' grain, division and company baggage, and cal. 30 and 45 ammunition for unit.
D. 2 days' field ration for unit.
E. Mess equipment and unconsumed part of 1 day's ration.
F. Water for unit, capacity, 300 gallons.
G. Rations, baggage, grain, personnel, and signal supplies.
H. Telephone equipment.
I. Generator and reserve storage batteries.
J. 1 light tank each.
K. Spare parts for tanks.
L. Tools, material, and spare parts.
M. 750 gallons gasoline.

N. 4 trucks carry supplies and equipment, 1 day's reserve and 2 days' field rations, and baggage for unit. Also 700 gallons gasoline in drums. Total weight, 8212 pounds. 3 trucks act as tenders to tank platoons and carry equipment, supplies, machine guns, etc.

O. Tools, spare and repair parts of ordnance equipment of tanks, artillery and infantry.

P. 1 day's reserve and 2 days' field rations, organization baggage and ammunition for unit.

Q. 9 radio sets as follows: 1 for corps net, 2 for division net, 1 for airplane net, 4 for special nets, 1 for receiving. Carts carry 14 miles heavy field wire.

R. 1 day's reserve and 2 days' field rations, 2 days' grain, baggage and caliber 45 ammunition for unit.

S. No division into combat and field trains.

T. Medical supplies and equipment.

U. In troop column.

V. Ammunition for the tanks is carried as follows:

Tanks armed with machine guns	4,250 rounds
Tanks armed with 37-mm. guns	
armor piercing shells	190 rounds
case shot	48 rounds

W. Basis for data is given in table on page 92.

LOADS OF CARGO VEHICLES OF DIVISION HEADQUARTERS AND SPECIAL TROOPS OF CAVALRY DIVISION

Unit	*Vehicle*	*Type of load*	*Cargo weight*	*Cargo capacity*
Division Headquarters and Headquarters Troop	1 wagon, R & B	A	3146	2500
	1 wagon, R & B	B		2500 G
	1 wagon, spring	C		1000
	1 wagon, R & B	D	3360	2500
	5 wagons, R & B	E		12500 H
	3 horses, pack	F		
	1 wagon, medical	T		
Signal Troop	1 truck	I		1500
	5 trucks	K		15000
	1 trailer, kitchen	L		
	1 trailer, ration	M	934	1500
	1 trailer, tank	N		300 gal
	1 truck, radio, army	O		
	1 trailer, storage battery	P		
	1 truck	Q		1500
	1 truck	Q		3000
	1 truck	R		1500
	2 trucks	R		6000
	1 wagon, combat	R		2500
	4 carts, wire	R		
Ordnance Company	1 kitchen, trailer	L		
	3 trucks, S A repair	S		
	2 trucks	S		12000
	4 trucks	S		6000
	2 trucks, light repair	S		

NOTES:

A. 1 day's reserve and 2 days' field rations, 2 days' grain and baggage for forward echelon headquarters troop and division headquarters detachment attached.

B. Division headquarters. Records and baggage.

C. As ordered. For headquarters troop.

D. Same as Note A except for rear echelon. Surplus cargo is carried in the 5 R & B wagons of division headquarters.

E. For division headquarters Baggage and personnel of rear echelon.

F. 1 for picket line, 1 for kitchen outfit, 1 for rations for 1 meal.

G. Forward echelon.

H. Rear echelon.

I. Utility and general service.

K. Personnel, 2 days' grain, baggage, signal supplies and equipment.

L. Mess equipment and unconsumed portion of one day's ration.

M. 1 day's reserve and 2 days' field rations.

N. Water.

O. 3 ratio sets; 1 for employment to higher units, 1 to lower units, 1 to airplanes.

P. Generator and reserve storage batteries.

Q. Operators, supplies, and equipment for message center and Telegraph and Telephone Sections.

R. Wire, line materials, and tools for Construction Platoon. 6 miles heavy and 5 miles light wire carried in trucks, 14 miles heavy wire carried in carts.

S. Special trucks are loaded according to their nomenclature. Other trucks carry 1 day's reserve and 2 days' field rations, baggage, and ordnance equipment consisting of spare parts for 75-mm. guns, rifles, automatic rifles, machine guns, pistols, etc.

T. Medical supplies and equipment.

LOADS OF CARGO VEHICLES OF CAVALRY REGIMENT

Units	Combat Train				Field Train				In Troop Column			
	Vehicle	*Type of load*	*Cargo weight W*	*Cargo capacity W*	*Vehicle*	*Type of load*	*Cargo weight W*	*Cargo capacity W*	*Vehicle*	*Type of load*	*Cargo weight W*	*Cargo capacity W*
Troop	1 wagon, combat (Z)	A	2407	2500	1 wagon, spring (Z) 1 wagon, R & B (Z)	B C	 2612	1000 2500	3 horses, pack 6 horses, pack	D E		600 1200
Sq Hq and Hq Det	1 wagon, combat (Z)	F	470	2500	1 wagon, spring (Z) 1 wagon, R & B (Z)	B C	 1231	1000 2500	5 horses, pack	G		
Regt Hq and Hq Tr	2 wagons, spring (Z) 1 wagon, combat (Z) 1 wagon, pioneer (Z)	B H I	 2781 1648	2000 2500 2500	1 wagon, spring (Z) 2 wagons, R & B (Z)	B C	 3284	1000 5000	3 horses, pack 6 horses, pack 8 horses, pack	D K L		600 1200 1600
Service Troop	None				1 wagon, spring 1 wagon, R & B 9 wagons, forage	B C M	 2684 27680	1000 2500 22500				
Total in Regiment	9 wagons, combat 2 wagons, spring 1 wagon, pioneer 1 wagon, escort	 N			10 wagons, spring 11 wagons, R & B 9 wagons, forage				81 horses, pack			

Notes:

A. 120 rounds for 102 rifles, 2400 rounds for 6 machine rifles, 21 rounds for 131 pistols, 40 rounds cartridges for Very pistol, 1 litter and sketching equipment.

B. As ordered. Load will vary according to situation. May be used with either combat or field train or separately.

C. 1 day's reserve and 2 days' field rations, blacksmiths supplies, and baggage for unit.

D. 1 carries picket line, 1 carries kitchen outfit, 1 carries rations for one meal.

E. Automatic rifle, spare barrel, and 480 rounds ammunition.

F. 120 rounds for 25 rifles, 21 rounds for 35 pistols, 1 range finder, 1 litter, 1 wall tent (for message center), and sketching equipment.

G. 3 carry one radio set and 2 carry other signal equipment.

H. 120 rounds per 100 rifles, 21 rounds for 121 pistols, drafting and sketching equipment, communications equipment and 2 litters.

I. Intrenching equipment including 13 axes, 65 pick mattocks, 130 shovels, etc. Not supplied if part of a cavalry division.

K. Each carries one pack radio set.

L. Pioneer and demolition outfit.

M. Two days' grain for all animals of the regiment. The excess cargo over the capacity of the 9 wagons, is distributed among the different R & B wagons of the regiment.

N. Medical supplies.

W. Basis for data is given in table on page 92.

Z. Vehicles from part of service troop.

LOADS OF CARGO VEHICLES OF HEADQUARTERS AND HEADQUARTERS TROOP CAVALRY BRIGADE

COMBAT TRAIN			FIELD TRAIN		
Vehicles	*Type of load*	*Cargo capacity*	*Vehicles*	*Type of load*	*Cargo capacity*
2 carts, reel pack	A		1 wagon, spring	C	1000
1 cart, wire	A		2 wagons, R & B	D	5000
1 truck, 1½ ton	A	3000			
1 truck, radio	B				

NOTES:

A. Equipment for wire section, communications platoon, includes: 3 breast reels, 2 switchboards, 8 telephones, 3 miles heavy and 25 miles light wire.

B. 3 Radio sets; 1 for employment to higher units, 1 to lower units, 1 to airplanes.

C. As ordered.

D. 1 day's reserve and 2 days' field rations, 2 days' grain, blacksmiths' supplies and baggage.

LOADS OF CARGO VEHICLES OF CAVALRY MACHINE GUN SQUADRON

Units	Combat Train				Field Train				In Troop Column			
	Vehicle	*Type of load*	*Cargo weight*	*Cargo capacity*	*Vehicle*	*Type of load*	*Cargo weight*	*Cargo capacity*	*Vehicle*	*Type of load*	*Cargo weight*	*Cargo capacity*
Machine Gun Troop	2 wagons, combat (Z)	A	3740	5000	1 wagon, spring (Z) 1 wagon, R & B (Z)	B C	 2366	1000 2500	3 horses, pack 30 horses, pack	D E		600 6000
Sq Hq and Hq Det	None				1 wagon, spring 1 wagon, R & B 4 wagons, forage	B C F	 1491 11240	1000 2500 10000	1 horse, pack	G		200
Total in Squadron	2 wagons, combat 1 wagon, medical (attached)	H			4 wagons, spring 4 wagons, R & B 4 wagons, forage				100 horses, pack			

NOTES:

A. 120 rounds for 48 rifles, 6025 for 6 machine guns, 21 rounds for 110 pistols, 40 pounds cartridges for Very pistol, 1 litter, special machine gun equipment.

B. As ordered. Load may vary according to situation, may be used with either combat or field train or separately.

C. 1 day's reserve and 2 days' field rations, blacksmiths supplies, and baggage for units.

D. 1 carries picket line, 1 carries kitchen outfit, 1 carries rations for one meal.

E. 6 carry each a machine gun and tripod, 24 carry ammunition.

F. 2 day's grain for all animals in the squadron. The excess cargo over the capacity of the 4 wagons is distributed among the R & B wagons of the squadron.

G. Signal equipment. Excess equipment distributed in troop combat wagons

H. Medical supplies.

Z. Vehicles part of Transportation Section.

LOADS OF CARGO VEHICLES OF 75-MM. FIELD ARTILLERY BATTALION (HORSE)

Units	Combat Train (Called maintenance section of the battery)				Field Train (Service platoon)				In Troop Column			
	Vehicle	*Type of load*	*Cargo weight*	*Cargo capacity*	*Vehicle*	*Type of load*	*Cargo weight*	*Cargo capacity*	*Vehicle*	*Type of load*	*Cargo weight*	*Cargo capacity*
Battery	1 kitchen, rolling 1 cart, water 1 cart ration, 1 wagon, battery 1 wagon, store	A B E C D		700					1 cart, reel 1 wagon, spring 6 caissons with limbers 4 limbers, gun	F G H I	9540 1080	9540 1080
Battalion Combat Train	18 caissons 1 kitchen, rolling 1 cart, water 1 cart, ration 1 wagon, battery 1 wagon, store	H A B E C D	28620	28620 700	16 wagons, R & B	K	34135	40000				
Hq and Hq Battery	1 kitchen, rolling 1 cart, water 1 cart, ration	A B E		700					1 cart, and reel 1 wagon, spring	L M		
Total in Battalion	5 kitchens, rolling 5 carts, water 5 carts, ration 4 wagons, battery 18 caissons 1 wagon, escort	N			16 wagons, R & B				3 carts, reel 1 cart and reel 4 wagons, spring 18 caissons with limbers 4 limbers, gun			

NOTES:

A. Unconsumed part of one day's ration.
B. Water for unit.
C. Spare parts, tools, etc.
D. Spare parts, material for maintenance, cleaning and repair.
E. Capacity utilized for rations.
F. Wire.
G. 5 miles twisted pair wire and instruments.
H. 106 rounds ammunition each.
I. 18 rounds ammunition each.
K. 1 day's reserve and 2 days' field rations, 2 days' grain, baggage, and equipment for the battalion.
L. Wire and fire control instruments.
M. Radio instruments and other communications equipment.
N. Medical supplies.

LOADS OF CARGO VEHICLES OF ENGINEER BATTALION (MOUNTED)

Unit	Combat Train				Field Train			
	Vehicle	*Type of load*	*Cargo weight*	*Cargo capacity*	*Vehicle*	*Type of load*	*Cargo weight*	*Cargo capacity*
Company	8 mules, pack 2 wagons, tool 1 wagon, spring	A B D		1600 5000 1000	2 wagons, R & B	C		5000
Headquarters and Service Platoon	4 wagons, tool 3 wagons, tool 1 wagon, spring	E F D		10000 7500 1000	3 wagons, R & B	C	7500	7500
Total in Battalion	24 mules, pack 13 wagons, tool 4 wagons, spring 1 wagon, medical (attached)	 G			9 wagons, R &B			

Notes:

A. 5 carry engineer pack equipment and 3 are available to carry rations and forage for detachments when necessary.

B. Blacksmiths, carpenters, demolition, office, photographic, pioneer, sketching and tinsmiths equipment. 500 rounds ammunition for 2 automatic rifles, 10 rounds for 73 rifles and 14 rounds for 20 pistols.

C. 1 day's reserve and 2 days' field ration, 2 days' grain ration, baggage and special equipment.

D. General utility.

E. 1 set of intrenching equipment, consisting of 13 axes, 65 pick mattocks, 130 shovels, etc., for each cavalry regiment.

F. Drafting, electric lighting, illuminating, map reproduction, office, photographic, pioneer, pipe fitting, sign painting, and surveying equipment, 10 rounds ammunition for 44 rifles and 14 rounds for 18 pistols.

G. Medical supplies.

CARGO AND PERSONNEL VEHICLES OF MEDICAL SQUADRON

Units	*Vehicles*	*Type of load 165W*	*Cargo Capacity 165W*
Collection Troop	1 wagon, escort	A or C	2500
	1 wagon, spring	B	1000
	1 truck, cargo	A or C	1½-2 ton
Ambulance Troop	10 ambulances, animal-drawn	D	
	10 ambulances, motor	D	
	1 wagon, escort	A or C	2500
	1 wagon, spring	B	1000
	1 truck, cargo	A or C	1½-2 ton
	1 trailer	E	
Hospital Troop	4 wagons, escort	A or C	10000
	1 wagon, spring	B	1000
	4 trucks, cargo	A or C	6-8 tons
Veterinary Troop	1 wagon, escort	A or F	2500
	1 truck, cargo	A or F	1½-2 ton

REMARKS:

A. 1 day's reserve and 2 days' field rations, 2 days' grain, baggage, and organization equipment.
B. General utility and mess equipment
C. Medical supplies and equipment.
D. Sick and wounded and essential medical supplies.
E. Repair parts for motor vehicles.
F. Veterinary supplies and equipment.
W. Basis for data is given in table on page 92.

LOADS OF CARGO VEHICLES OF CAVALRY DIVISION TRAIN

Unit	*Vehicle*	*Type of load*	*Cargo weight (W)*	*Cargo capacity (W)*
2 Wagon Company Headquarters	4 wagons, R & B	A	15612	10000
2 Wagon Companies	120 wagons	B		300000
4 Pack Trains	200 pack mules	C		40000
Medical Detachment (attached)	1 wagon, medical	D		25000

NOTES:

A. 1 day's reserve and 2 days' field rations, baggage, blacksmiths supplies, and 2 days' grain, for men and animals of the wagon companies. The excess load over the capacity of the headquarters wagons is carried on frieght section of train.

B. Division train cargo, tonnage available:

2 wagon companies of 60 wagons	150 tons
4 pack trains of 50 pack mules (see note C)	20 tons
Total	170 tons

Prescribed loads:

Load in excess of capacity of R & B wagon (see note A)	2.8 tons
7463 field rations, 1 day	16.8 tons
9617 grain rations, 1 day	48.1 tons
65 rounds cal. 30 ammunition for 4489 rifles	12.2 tons
1220 rounds cal. 30 ammunition for 154 machine rifles	7.8 tons
6500 rounds cal. 30 ammunition for 45 machine guns	12.2 tons
1368 rounds 75-mm. ammunition (114 rounds per gun)	16.7 tons
Total	116.6 tons
Surplus capacity over prescribed loads	53.4 tons

C. Each train normally carries for its own use 1 day's reserve and 2 days' field rations, 1 mess and kitchen outfit and 2 days' grain. The remaining capacity is loaded as situation requires.
D. Medical supplies.
W. Basis for data is given in table on page 92.

MOTOR TRANSPORT DATA TO MOVE INFANTRY DIVISION

Personnel usually moving with its own transport	*Personnel remaining to be moved by motor transport*	*Extra transportation required if materiel is to be moved by truck*
Division headquarters Tank company Ordnance company (1) Field artillery brigade Division air service Division train, carrying division service company Medical regiment (2) Elements of remainder of the division as follows: 1 person with each ridden animal, bicycle, and motorcycle. 2 persons with each cart, wagon, truck (1) trailer, and motorcycle with side car. 3 persons with each rolling kitchen. 5 persons with each motor car. (3) Approximate marching road space of above troops and animal column, 16 miles Approximate running road space of above motor column, 9 miles. Total approximate road space of divisional units not moving in the truck column sent to the division to move the foot troops, 25 miles.	In division headquarters company and headquarters of special troops..... 96 In signal company..... 69 In military police company..... 86 In personnel attached to division special troops..... 6 Total in division special troops.....257 In infantry brigade headquarters and headquarters company..... 35 In infantry regimental headquarters, headquarters company, service company, howitzer company, and attached personnel.....266 In infantry battalion.....776 In infantry regiment.....2594 Total in infantry brigade 5223 In combat engineer regiment..... 549 Total in infantry division .....11252 ⅛ of 1% of the division sick and (2) carried in ambulances. To move the above personnel and the 471 of the medical regiment, troops, packs, and personal equipment, at rate of 10 men per truck ton, requires 1173 truck tons. The corps and army train have each available 1080 truck tons. Approximate running road spaces are: Using army train, and 3-ton trucks for the extra 93 truck tons required.....9 miles Using army train, and 1½-ton trucks for the extra 93 truck tons required.....9.6 miles Using corps train, and 3-ton trucks for the extra 93 truck tons required.....11.7 miles Using corps train, and 1½-ton trucks for the extra 93 truck tons required.....12.3 miles	Machine guns, 3″ mortars, 37-mm. guns, loads of carts and one man per cart, 59 truck tons (4). Carts of above, 85 truck tons (5). Rolling kitchens, 54 trucks (6). Field artillery guns; caissons, cannoneers and ammunition, 96 3-ton trucks (7).

NOTES:

(1) In computing the capacity of the transportation of the ordnance company for moving personnel, 3 persons were allowed with each light repair truck, and 6 with each artillery repair, small arms repair, and artillery supply truck.

(2) The medical regiment can move by means of its own transport and at the same time carry about 125 sick. When necessary to use the medical regiment for medical collection during the move, which would be exceptional, truck transportation must be provided for 471 men of that regiment. This would make the total in the division to be moved by truck, 11723. No deduction is made on account of the normal percentage of sick carried in ambuances.

(3) These road spaces were approximated as follows:

Personnel of machine gun and howitzer companies transported in trucks (after deducting personnel accompanying the transport of the companies), but which does *not* reduce the road space of the marching troops.....1496

Personnel of other units transported in trucks which *does* reduce the road space of the marching troops (11723 less 1496).....10027

Road space of these troops at 2 men per yard.....5114 yards

Remaining length of troop and animal column when the 11723 men are transported in trucks (32990 less 5114).....27876 yards (about 16 miles)

Length of motor column (not including the trucks sent to the division to move the 11723 men).....15765 yards (about 9 miles)

(4) The carts, with one man as driver, march.

(5) The animals with driver march. A 1½-ton truck will carry 3 carts, and a 3-ton truck 6. If wheels are removed from carts, a truck can be loaded to its weight capacity.

(6) The animals with drivers march. One truck will carry two kitchens without the limbers, but one of the kitchens must be knocked down for 1½-ton truck.

(7) The animals with drivers march. One 3-ton truck can carry two axles (one gun and one limber, or two limbers, or gun and caisson) and cannoneers and ammunition.

TROOP MOTOR TRANSPORT MOVEMENT TABLE

Maps: (1) To accompany Field Order No....., ...Division. Date.....

1	2	3	4	5	6	7	8	9	10	11	
Group No.	Troops	Motor Transport Assignment	DISPERSION POINT, and hour head passes same	Route from Regulating Point to Entrucking Point	ENTRUCKING POINT, and hour head reaches same	Hour entrucking begins	Hour head leaves Entrucking Point	Route from Entrucking Point to Initial Point	INITIAL POINT, and hour head passes same	Order of clearance of Initial Point	(2)
										(3)	

NOTES:

(1) Table is made out by the unit conducting the move.

(2) Columns may be added as needed, as for example, when the destinations are known and may be disclosed there may be columns showing locations of detrucking points, routes thereto, time of arrival thereat, and time and routes for return to train bivouac or entrucking points.

(3) Authentication to appear at lower right-hand corner of table.

COMPUTATION SHEET

RP = Regulating Point.
EP = Entrucking Point.
IP = Initial Point.

For determining hours to be entered on Troop Motor Transport Movement Table

1	2	3	4	5	6	7	8	9	10
Group No.	Number of trucks assigned	Length of group in minutes	Hour head of group passes RP (to each add entry in column 3+delay of next group at RP to find next hour)	Time distance RP to EP	Hour head of group arrives at EP (4+5)	Time distance EP to IP	Hour head of group passes IP (to each add entry in column 3 to find next hour) (a) (b)	Hour head of group leaves EP (8 minus 7)	Hour entrucking begins (9 minus 15 minutes)

(a) A method of determining the hour to be entered at head of column 8 is as follows: to the hour of arrival of head of column at RP add the total delay of all groups at RP + time length of longest route through area, RP to IP (from 5 and 7) + 30 minutes for inspection and entrucking.

(b) To find hour last group clears area, add last entry in column 3 to last entry in column 8.

ROAD FORMATION, COLUMN MOTOR TRANSPORT COMPANIES

Distance in yards between Units	*Moving*	*Halted*	*Closed at Entrucking Point*
Companies	50	50	3
Sections	40	20	3
Vehicles	20	3	3

BASIS FOR COMPUTING ROAD SPACES FOR VARIOUS ELEMENTS OF THE ARMY

½ yd. per man—infantry in column of squads.
(a) 1 yd. per horse—cavalry in column of fours.
(b) 2 yds. per animal—spare mules.
(c) 4 yds. per animal—pack animals.
(d) 4 yds. per bicycle—bicyclist (riding).
(d) 20 yds. per motorcycle—motorcyclists, solo or side car (riding).
8 yds. per cart—machine gun carts, chemical carts, ammunition carts, etc.
15 yds. per cart—water carts, ration carts.
(e) 15 yds. per vehicle—animal-drawn vehicles, 2 animals, not tandem.
(e) 20 yds. per vehicle—animal-drawn vehicles, 4 animals.
(e) 25 yds. per vehicle—animal-drawn vehicles, 6 animals.
(e) 30 yds. per vehicle—animal-drawn vehicles, 8 animals.
(f) 20 yds. per vehicle—3-in. gun or caisson (includes the animals).
(d) 27 yds. per vehicle—motor cars.
(d) 27 yds. per vehicle—trucks.
(d) 20-30 yds. per tractor—tractors (of varying length).
(d) 5 yds. per trailers.
These are accurate road spaces; no allowance is made for elongation.

DATA ON RULES OF THE ROAD

1. The following important points form the basis of all rules of the road:

(a) As far as the nature of the road allows, keep to the right of the road.

(b) Avoid double banking. Double banking is not forbidden for faster moving vehicles over slow ones, provided that all columns are provided with free spaces.

(c) Avoid halting on the road.

(d) Keep road clear of obstacles.

(e) A moving column has the right of way over any part of a crossing column at a halt.

(f) Main road traffic has the right of way over that from side roads.

(g) Subject to (f) above, axial (1) traffic has the right of way over belt (2) traffic.

NOTES:

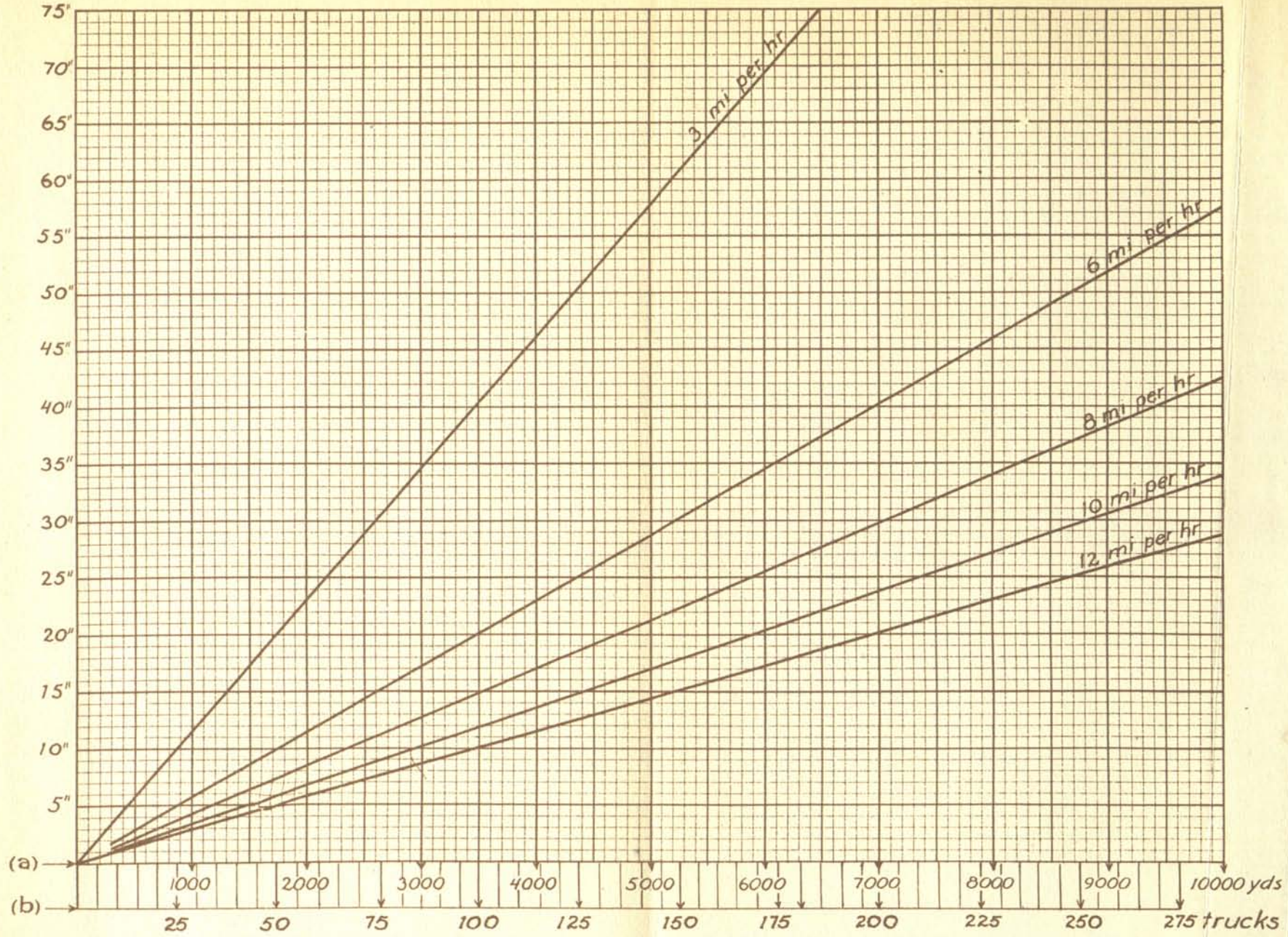
(1) Axial traffic is that moving to front or rear.
(2) Belt traffic is that moving parallel to the front.

2. *a.* The engineers are charged with procurement and posting of all route signs. Organization will post their own areas to show the locations of elements, officers, and individuals of their organization, obtaining signs when necessary from the engineers.

b. Signs will be made similar to example herewith, black letters on white background, letters from 6 to 18 inches in height according to the facility in reading required by the speed of passing traffic.

(See two inserts facing page 112.)

MOTOR TRANSPORT CONVERSION CHART



(a) For converting yards into time distance.

(b) For converting trucks to be loaded into time lengths (see columns 2 and 3 Computation Sheet).

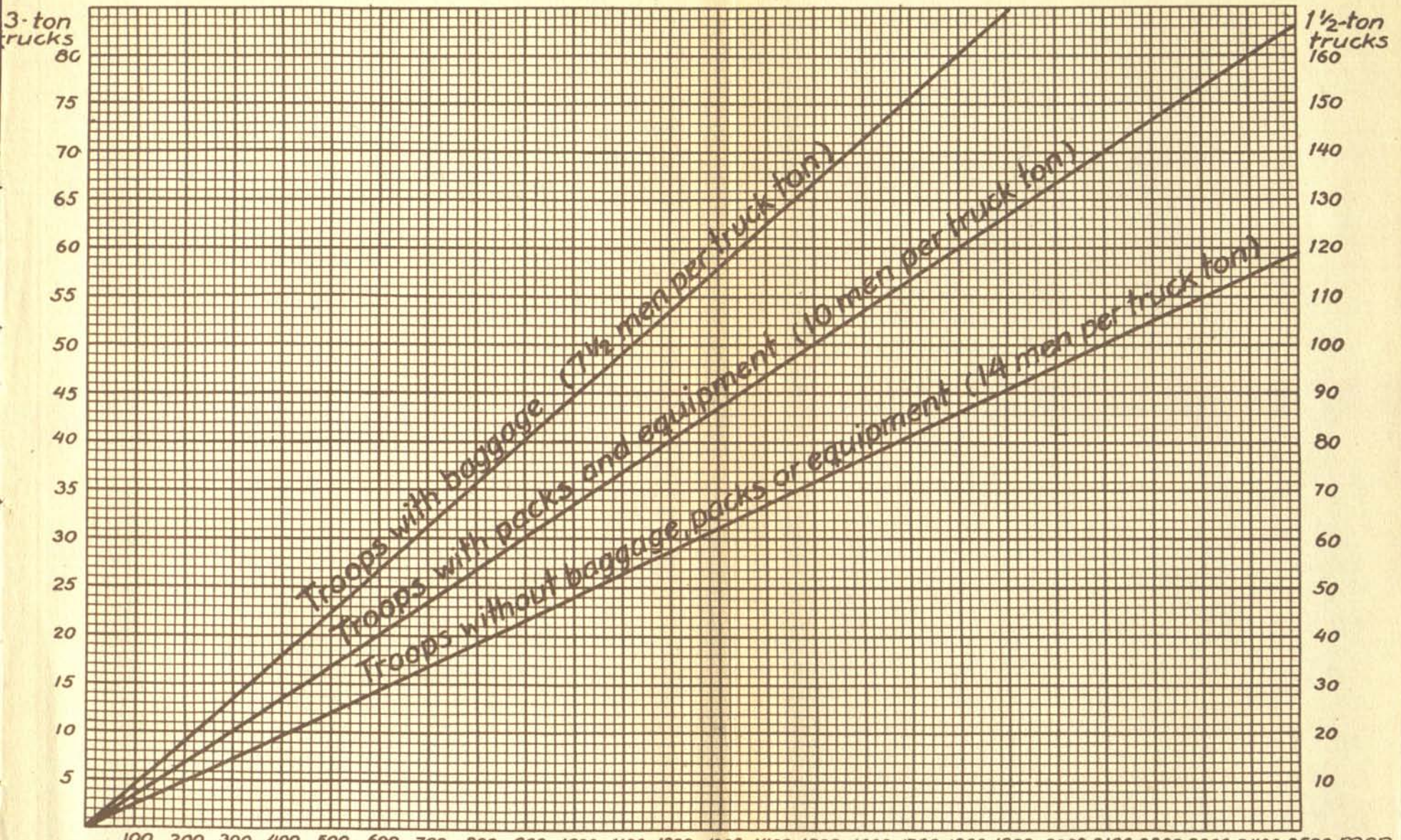


CHART FOR DETERMINING NUMBER OF TRUCKS REQUIRED

To face page 112.

RAIL TRANSPORTATION REQUIRED TO MOVE THE PERSONNEL AND THE WAR SET EQUIPMENT OF AN INFANTRY DIVISION AT AUTHORIZED PEACE STRENGTH

No	Unit	Personnel				Animals			Vehicles Animal-Drawn					Vehicles—Motor								Passenger Cars										Animal Cars		Vehicle Cars		Baggage Cars		Freight Cars		No.
																						Under 24 hours				Over 24 hours												"A" Set		"A" Set		
		Officers and Warrant Officers	Enlisted Men	Aggregate	Attendants for animals (included in aggregate)	Horses	Mules	Aggregate	Ambulances	Carts, ration, water, etc.	Kitchens, rolling	Wagons, battery, escort, etc.	Caissons, Guns, and Limbers	Ambulances	Cars, passenger	Tractors	Trailers	Tanks, fighting and signal	Trucks	Airplanes	Aggregate vehicles loaded on flats, gondolas, or automobile cars.	Day Coaches—capacity 48. 3 per sons each double seat.	Additional double seats—Day coach	Additional single seats—Day coach	Box cars—capacity 40 persons (if used)	Standard Sleepers—capacity 32	Addition berths—Standard Sleeper	Tourist Sleepers—capacity 48 persons	Additional sections—3 H. M. each—Tourist Sleeper	Additional berths—Tourist Sleeper L	Additional berths—Tourist Sleeper U	Box cars—capacity 25 persons (if used)	Kitchen cars	Stock cars—capacity 20	Box cars—capacity 18 (if used)	Flats or gondolas—36 ft.	Automobile cars	Weight of baggage Pounds	Cars required	Weight of freight Pounds	Box cars required—Capacity 60,000 lbs.	
1	Hq. & Hq. Co., Inf. Brig.	8	65	73	2	15	14	29	.....	1	1	2	.....	.....	1	.....	.....	.....	1	.....	6	1	7	2	2	.....	8	1	5	.....	.....	3	½	1 9/20	1 11/18	1½	½	1947	1/30	23579	¾	1
2	Service Company, Inf. Regt.	5	168	173	2	8	21	29	.....	3	1	1	.....	.....	.....	.....	.....	.....	2	.....	7	3	9	.....	4½	.....	.....	3	7	5	1	7	½	1 9/20	1 11/18	2½	.....	3984	1/15	10755	¾	2
3	Howitzer Company, Inf. Regt.	2	63	65	2	7	23	30	.....	1	1	2	.....	.....	.....	.....	.....	.....	.....	.....	4	1	5	.....	1½	.....	.....	1	4	2	1	2½	½	1½	1⅜	1	.....	1477	1/10	18307	¾	3
4	Machine Gun Co., Inf. Regt.	3	78	81	2	6	27	33	.....	1	1	1	.....	.....	.....	.....	.....	.....	.....	.....	3	1	10	1	2	.....	.....	1	9	3	1	3	½	1 13/20	1 9/16	.....	.....	2197	1/30	18514	¾	4
5	Rifle Company, Inf. Regt.	3	93	96	1	.....	10	10	.....	1	1	1	.....	.....	.....	.....	.....	.....	.....	.....	3	2	.....	.....	2½	.....	.....	2	.....	.....	.....	4	½	½	10/18	.....	.....	1810	1/37	8625	¾	5
6	Hq. & Hq. Co., Inf. Bn.	2	41	43	2	8	20	28	.....	.....	.....	5	.....	.....	.....	.....	.....	.....	.....	.....	5	.....	13	2	1	.....	.....	.....	13	2	.....	1⅜	½	1 8/20	1 10/18	1	.....	1077	1/55	10501	¾	6
7	Infantry Battalion	14	398	412	5	14	77	91	.....	4	4	9	.....	.....	.....	.....	.....	.....	.....	.....	17	8	7	2	10½	.....	.....	8	3	14	.....	16½	2	4 11/20	5 1/18	5	.....	9479	⅛	54890	1	7
8	Infantry Regiment	62	1520	1582	21	81	289	370	.....	17	15	32	.....	.....	1	.....	.....	.....	3	.....	68	32	8	1	39	2	.....	31	4	.....	.....	63	6	19	21	20	1	34878	1	244824	5	8
9	Hq. & Hq. Co., Inf. Brigade	8	49	57	2	20	7	27	.....	2	.....	1	.....	.....	1	.....	.....	.....	2	.....	6	1	2	1	1½	.....	8	.....	15	.....	2	2	½	1 7/20	1⅜	2	½	1646	1/37	15956	⅛	9
10	Infantry Brigade	132	3089	3221	44	182	585	767	.....	36	30	65	.....	.....	3	.....	.....	.....	8	.....	142	66	3	.....	80	4	4	64	.....	.....	.....	124	13	39	43	42	2	71400	2	505605	11	10
11	Hq. & Hq. Battery, F.A. Regt.	8	46	54	3	49	8	57	.....	3	1	2	1	.....	2	.....	.....	.....	.....	.....	9	1	1	.....	1½	.....	8	.....	14	.....	1	2	½	2 17/20	3 3/16	2	1	1326	1/43	14571	½	11
12	Service Battery, F.A. Regt.	5	103	108	13	12	143	155	.....	2	1	31	.....	.....	.....	.....	.....	.....	1	.....	35	2	.....	.....	2½	.....	.....	2	.....	.....	.....	4	½	7 15/20	6 11/16	12	.....	2656	1/22	14922	½	12
13	Hq. & Hq. Det. & Comb. Tn., F.A. Regt.	7	85	92	5	92	.....	92	.....	1	.....	1	6	.....	.....	.....	.....	.....	.....	.....	8	1	13	.....	2¼	.....	.....	1	10	7	2	3½	½	4 12/20	5 2/18	2⅔	.....	2049	1/29	32535	1	13
14	Battery, F.A. Regt.	4	114	118	7	120	9	128	.....	3	1	3	22	.....	.....	.....	.....	.....	.....	.....	29	2	5	.....	3	.....	.....	2	3	4	2	4½	½	6 8/20	7 2/18	10	.....	3273	1/18	35189	1	14
15	Battalion, F.A. Regt.	19	427	446	24	452	24	476	.....	10	3	10	72	.....	.....	.....	.....	.....	.....	.....	95	8	12	2	10½	.....	.....	8	3	19	.....	17	2	25 16/20	26 8/18	32⅔	.....	11869	½	136002	4	15
16	Regiment, 75-mm. Guns (R.D.)	56	1032	1088	60	1003	211	1214	.....	25	8	56	145	2	2	.....	.....	.....	1	.....	239	21	6	2	26	2	.....	20	4	.....	.....	41	5	61	68	81	1	24619	1	305628	9	16
17	Ammunition Train, F.A.Brig.	3	65	68	1	5	4	9	.....	.....	1	.....	.....	.....	1	.....	.....	.....	3	.....	5	1	8	1	1⅔	.....	.....	1	5	3	1	2⅔	⅓	9/20	⅓	1⅓	⅓	1663	1/29	4139	1/10	17
18	Hq. & Hq. Battery, F.A. Brig.	11	43	54	4	41	20	61	.....	1	.....	6	.....	.....	4	.....	.....	.....	.....	.....	11	1	.....	2	1⅓	.....	11	.....	13	.....	2	1⅔	⅓	3 1/20	3 7/18	2⅓	2	2006	1/36	15614	⅓	18
19	Field Artillery Brigade	126	2172	2298	125	2052	446	2498	.....	51	17	118	290	4	9	.....	.....	.....	5	.....	494	45	4	1	55	4	.....	43	.....	.....	.....	84	11	124	140	146	5	50491	3	631009	19	19
20	Hq. & Hq. Serv. Co., Eng. Regt.	12	190	202	7	51	84	135	.....	1	1	13	.....	.....	1	.....	.....	.....	21	.....	37	4	1	.....	5	.....	12	3	13	.....	.....	8	⅓	6 15/20	7½	15⅓	½	4337	1/13	83633	1½	20
21	Company, Eng. Regt.	3	90	93	1	4	18	22	.....	1	1	3	.....	.....	.....	.....	.....	.....	.....	.....	5	1	14	2	2⅓	.....	.....	1	13	3	2	4	⅓	1 1/10	1 4/16	1½	.....	1961	1/30	11327	⅓	21
22	Battalion, Eng. Regt.	10	270	280	4	13	54	67	.....	3	3	9	.....	.....	.....	.....	.....	.....	.....	.....	15	5	12	.....	7	.....	.....	5	8	10	2	11	1½	3 7/20	3 13/18	4½	.....	6846	⅓	34707	1	22
23	Combat Engineer Regiment	32	730	762	15	77	192	269	.....	7	7	31	.....	.....	1	.....	.....	.....	21	.....	67	15	9	.....	19	1	.....	15	.....	.....	.....	30	4	14	15	25	1	18606	1	161024	4	23
24	Observation Sq., Div. A.S.	32	137	169	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	2	.....	7	.....	15	13	38	3	8	1	4½	1	.....	2	13	.....	2	7	½	.....	.....	23	1	5082	1/11	916862	1⅔	24
25	Photo Section, Div. A.S.	1	21	22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	.....	4	.....	4	.....	7	1	½	.....	.....	.....	11	1	.....	1	.....	.....	.....	2	.....	565	.....	18793	⅓	25
26	Division Air Service	34	162	196	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	2	.....	7	.....	19	13	42	4	1	1	5	1	.....	4	.....	.....	.....	8	1	.....	.....	25	1	5911	1	934899	2	26
27	Medical Regiment	26	277	303	9	66	104	170	21	.....	.....	5	.....	20	2	.....	9	.....	38	.....	95	6	2	.....	8	1	.....	6	.....	.....	.....	12	1	9	10	36	1	10718	1	97020	2	27
28	Motor Transport Co., Q.M.C.	1	44	45	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....	31	.....	33	.....	15	.....	1½	.....	.....	.....	14	1	2	1⅝	½	.....	.....	16	½	1587	1/36	3312	1/16	28
29	Motor Repair Section, Q.M.C.	1	18	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	2	.....	6	.....	10	.....	6	1	½	.....	.....	.....	6	1	.....	¾	.....	.....	.....	6	½	620	.....	2986	1/16	29
30	Wagon Co. (2 Sections) Q.M.C.	2	98	100	14	4	269	273	.....	.....	.....	62	.....	.....	.....	.....	.....	.....	.....	.....	62	1	12	2	2¼	.....	.....	1	12	2	.....	3½	½	14	16	21	.....	2696	1/22	31004	1	30
31	Division Train, Q.M.C.	12	327	339	28	13	538	551	.....	.....	.....	124	.....	.....	4	1	4	.....	69	.....	202	6	7	2	8	.....	.....	7	.....	.....	.....	13	1	28	32	57	2	9269	1	78205	2	31
32	Hq., Special Troops, Inf. Div.	3	8	11	1	3	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	1	½	.....	.....	.....	2	3	2	½	.....	3/20	3/18	.....	.....	330	.....	2932	1/16	32
33	Hq. & M. P. Co., Inf. Div.	16	177	193	4	54	24	78	.....	2	1	4	.....	.....	.....	.....	.....	.....	3	.....	10	3	15	.....	4½	.....	.....	3	13	4	2	8	⅓	3 18/20	4⅓	3⅔	.....	5139	1/11	12252	⅓	33
34	Signal Company, Inf. Div.	6	150	156	2	29	.....	29	.....	4	.....	2	.....	.....	1	.....	4	.....	10	.....	21	3	3	1	4	.....	.....	3	1	6	1	6	⅓	1 9/20	1 11/18	7⅔	½	4042	1/14	33139	⅔	34
35	Light Tank Company, Inf. Div.	5	105	110	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	2	25	35	.....	63	2	4	2	2¼	.....	.....	2	3	5	.....	4½	⅓	.....	.....	32⅓	½	3661	1/16	10614	½	36
36	Motorcycle Company, Inf. Div.	1	36	37	.....	.....	.....	.....	.....	.....	.....	.....	.....	16	.....	.....	.....	.....	2	.....	18	.....	12	1	1	.....	.....	.....	12	1	.....	1½	⅓	.....	.....	1	⅛	2076	1/29	19226	1	36
37	Ordnance Co. Maint., Inf. Div.	1	48	49	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	20	.....	21	1	.....	1	1½	.....	.....	.....	16	1	.....	2	⅓	.....	.....	10	.....	2360	1/25	3766	1/15	37
38	Medical Attached, Inf. Div.	2	15	17	1	.....	4	4	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	5	1	½	.....	.....	.....	4	2	2	½	.....	4/20	4/18	⅓	.....	470	.....	2308	1/16	38
39	Special Troops, Infantry Div.	34	539	573	7	86	28	114	.....	6	1	7	.....	.....	18	.....	7	25	70	.....	134	11	12	2	15	1	.....	12	.....	.....	.....	20	3	6	7	55	9	17092	1	89543	2	39
40	Division Hq., Infantry Div.	26	.....	26	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8	2	1	1	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1223	1/49	7147	½	40
41	Infantry Division	554	10385	10939	272	2658	2478	5136	21	136	85	415	290	25	42	1	27	25	238	13	1318	223	.....	.....	271	17	.....	215	.....	.....	.....	416	47	261	290	448	23	256101	12	3010057	53	41

NOTES:

1. The foregoing tables are based on *Peace Strength* and include attached Medical, Chaplains, etc.
2. Any variations from *Peace Strength* of the units to be transported must be provided for either by increase or decrease in the tables, as the case may be.
3. *"B" Set Equipment not included* in tables.

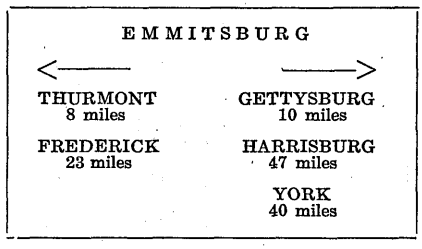
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CARS AND TRAINS REQUIRED TO MOVE AN INFANTRY DIVISION (1) (7)

Unit	Men	Box	Anls.	Box	Vehicles	Flat	Total Cars		Standard Trains		Remarks (2)
							Box	Flat	No.	Type	
Hq & Hq Co & Hq Div Sp Tr	206	8.2	113	6.3	17	5.2	14.5	5.2			
Sig Co	150	6.0	29	1.6	27	10.0	7.6	10.0			
Serv Co	100	4.0	10	0.6	2	0.7	4.6	0.7			
MP Co	150	6.0	33	1.8	5	1.5	7.8	1.5			
Mtcl Co	54	2.2			50	9.0	2.2	9.0			
Attached Medical	15	0.6	10	0.6	1	0.3	1.2	0.3			
Total							37.9	26.7	3	B	
Lt Tk Co	120	4.8			50	20.8	4.8	20.8	1	D	25 men and supply and repair vehicles move with MT Cos, Div Tn.
Ord Co (maint)	105	4.2			20	9.5	4.2	9.5			Moves with FA Serv Btry.
Inf BHQ & Hq Co	88	3.5	38	2.1	10	2.8	5.6	2.8			Med: 7m, 9a, 3v, and Hq Sec Serv Co. Space available for additional small detachments.
Inf Regt Hq & Hq Co	136	5.4	49	2.7	11	3.8	8.1	3.3			
Total							43.6	18.8	4	B	
How Co	127	5.1	48	2.7	16	3.5	7.8	3.5			Med: 7m.
Serv Co (less dets)	134	5.4	58	3.2	11	3.3	8.6	3.2			How Co Sec, Serv Co.
Total							65.6	26.8	4	B	Med: 7m.
Rifle Co	200	8					8.0				Med: 22m, 9a, 1v, and Bn Sec, Serv Co.
MG Co	141	5.6	25	1.4	16	2.7	7.0	2.7			
Bn Hq & Hq Co	139	5.6	105	5.8	26	7.0	11.4	7.0			
Total							508.8	116.4	24	A	
75-mm. Brigade: BHQ & Hq Btry	75	3.0	87	4.8	12	4.3	7.8	4.3			Med: 7m, 6a, 1v.
Regt Hq & Hq Btry	87	3.5	100	5.6	9	2.7	9.1	2.7			
Total	(BHQ and Regt Hq and Serv Btry)				(less dets)		16.9	7.0	1	B	In this case Brig Hq messes Regt Hq
							16.2	5.7	1	B	
Serv Btry (less dets)	92	3.3	69	3.8	15	4.7	7.1	4.7			Less Bn Secs, Serv Btry.
Ord Co (above)							4.2	9.5			
Total							11.3	14.2	1	C	
Btry	136	5.4	142	7.9	17	5.3	13.3	5.3			Med: 18m, 19v, 2v Det Serv Btry: 24m, 41a, 8v.
Bn Hq & Hq Btry	93	3.7	121	6.7	12	3.8	10.4	3.8			
Total							201.2	78.8	12	B	
Bn C Tn	157	6.3	172	9.6	24	7.6	15.9	7.6			Med: 5m, 3a, Det Serv Btry; 4m, 8a, 2v.
Wag Sec, T Btry, Am Tn	32	1.3	131	7.3	27	9.0	8.6	9.0			Includes 9 anls of Tn Hq.
Total							72.2	39.4	4	B	
Am Tn (less Wag Sec)	130	5.2			38	18.0	5.2	18.0	1	D	Med per T.O.
Comb Engr Regt Co	106	4.2	23	1.3	5	1.5	5.5	1.5			
Bn	318	12.7	71	4.0	15	4.5	16.7	4.5			
T Plat	70	2.8	94	5.2	40	16.2	8.0	16.2	1	C	Includes 14 spare mules.
Regt Hq & Hq & Serv Co (less T Plat)	120	5.8	77	4.3	3	1.0	10.1	1.0			Med: Per T.O.
Total	Regt (less T Plat)						43.5	10.0	2	A	
Div AS (less airplanes)	195	7.8			39	17.0	7.8	17.0	1	C	If airplanes are shipped add 6.5 box cars. Space available on BHQ and Regt Hq trains.
Med Regt Sn Co	100	4.0	10	0.6	6	2.0	4.6	2.0			
Sn Bn Hq	6	0.2	3	0.2			0.4				
Sn Bn	306	12.2	33	2.0	18	6.0	14.2	6.0			
Amb Co (anl)	61	2.4	108	6.0	23	7.7	8.4	7.7			
Amb Co (m)	55	2.2			29	9.7	2.2	9.7			
Amb Bn Hq	6	0.2				0.3	0.2	0.3			
Amb Bn	177	7.0	108	6.0	82	27.3	13.0	27.3			
Hosp Co	80	3.2			24	11.3	3.2	11.3			
Hosp Bn Hq	7	0.3			1	0.3	0.3	0.3			
Hosp Bn	247	9.9			73	34.3	9.9	34.3			
Vet Co	70	2.8	41	2.3	6	2.3	5.1	2.3			
Serv Co	40	1.6	12	0.7	8	2.7	2.3	2.7			
Regt Hq & Supply & Lab. Secs	20	0.8	10	0.6	7	2.3	1.4	2.3			
Total	Amb Bn (less anl and Amb)			drawn Vet Co	amb and Vet	co)	4.6	19.7	1	D	
Total	Amb Co (anl and Amb Bn Hq)						13.5	10.0	1	B	
Total	Med Regt (less Med Bn)						27.8	45.3	3	C	
Div Tn (QMC)											Mtcl Co moves with DHQ & Sp Trs
Mt Co	80	3.2			33	15.8	3.2	15.8			Med: 2m
M Rep Sec	35	1.4			10	4.5	1.4	4.5			
Dets Lt Tk Co	25	1.0			13	4.3	1.0	4.3			
Wag Co	154	6.2	280	15.6	62	20.7	21.8	20.7			Med and Vet 4m and 4a.
Tn Hq	13	0.5	2.0	0.1	3	1.0	0.6	1.0			Med: 2m, 1a, 1v.
Total	4 MT Cos, 2 M Rep Sec, Det Tk Co						16.6	76.5	4	D	
Total	2 Wag Cos and Tn Hq						44.2	42.4	3	A, C, D	
							Total		72 trains		

NOTE:

(1) References are to note on page 114.



STANDARD TYPE RAILWAY TRAINS FOR THEATER OF OPERATIONS (1)

Type	*Kind of Cars*			*Cars in train*
	Box	*Flat*	*Pass.* (3)	
A	23	5	1	30 (2)
B	19	10	1	31 (2)
C	12	17	1	31 (2)
D	7	21	1	30 (2)

NOTES:

(1) Computed on the following assumptions:
(a) 1 box car holds 25 men or 18 animals (4).
(b) 1 flat car holds 6 carts, 3 wagons or 2 trucks (1½ ton or over).
(2) Exclusive of a caboose on each train.
(3) One extra on train carrying forward echelon of division headquarters.
(4) 40 men can be placed in a box car and 20 animals in a stock car when necessary.

STANDARD LOADING FOR THE INFANTRY DIVISION (1) (2) (7)

Type	*No. of trains*	*Troops carried on each train* (4)
A	24	½ Inf. Bn.
B	4	Inf. How. Co. and Serv. Co. (less dets.).
B	4	Inf. Regt. Hq. and Hq. Co., and ⅓ (Inf. BHQ and Hq. Co.
B	12	F.A. Btry. and dets. of Bn. Hq. and Hq. Btry.
B	4	F.A. C. Tn. and ¼ (Wag. Sec. T. Btry. Am. Tn.).
B	1	F.A. Regt. Hq. and Hq. Btry., and F.A. BHQ and Brig. Hq. Btry.
B	1	F.A. Regt. Hq. Btry. and Serv. Btry. (less dets.).
C	1	F.A. Serv. Btry. (less dets.) and Ord. Co.
D	1	F.A. Am. Tn. (less Wag. Sec. T. Btry.).
A	2	Engr. Bn. and ½ Regt. Hq. and ½ Hq. and Serv. Co. (less T. Plat.).
C	1	T. Plat. Hq. and Serv. Co., Engr. Regt.
C	1	Div. A.S. (less airplanes).
C	3	1 Sn. Co., 1 Hosp. Co., and part of Sn. and Hosp. Bn. Hqrs. and dets. Med. Regt.
B	1	1 Amb. Co. (anl.) and Vet. Co.
D	1	2 Amb. Cos. (M) plus Amb. Bn. Hq.
B	3	Part of (DHQ and Hq. Co., Hq. Div. Sp. Trs., MP. Co., Sig. Co., Serv. Co., Mtcl. Co. (5).
D	1	Lt. Tk. Co. (less dets.). (6)
AC and D	3	Dets. of Wag. Co. and Tn. Hq., Div. Tn. (5)
D	4	MT. Co. and ½ M. Rep. Sec., Div. Tn., and dets. Lt. Tk. Co.
Total	72	27 Type A, 30 Type B, 7 Type C, and 8 Type D.

NOTES:

(1) Computed on the following assumptions:
(a) 1 box car holds 25 men or 18 animals. (3)
(b) 1 flat car holds 6 carts, 3 wagons, or 2 trucks (1½ ton or over).
(c) Motorcycles and bicycles are not assigned special space, except for the motorcycle company.

(2) Tabulation shows the grouping of units for standard loading, but the number and kind of cars may be determined for any combination of loading should special "make up" of trains be desired.

(3) 40 men can be placed in a box car and 20 animals in a stock car when necessary.

(4) Each unit listed includes its attached medical troops and the detachment of the service company that normally functions with it.

(5) These units are distributed among the three trains to suit the military situation; the train carrying division headquarters carries an extra passenger car.

(6) Supply and repair trucks of tank company move with motor transport company of division train.

(7) The above tables are based upon War Department Tables of Organization, 1921, and are subject to changes in said tables of organization, using the assumptions given in notes.

(See insert facing page 114.)

To face page 114.

RAIL TRANSPORTATION REQUIRED TO MOVE THE PERSONNEL AND THE WAR SET EQUIPMENT OF A CAVALRY DIVISION AT AUTHORIZED PEACE STRENGTH

No.	Unit	Personnel				Animals			Vehicles Animal-Drawn				Vehicles				Passenger Cars										Animal Cars		Vehicle Cars		Baggage Cars		Freight Cars		No.
																	Under 24 hours				Over 24 hours												"A" Set		"A" Set		
		Officers and Warrant Officers	Enlisted Men	Aggregate	Attendants for Animals (included in aggregate)	Horses	Mules	Aggregate	Ambulances	Carts, reel, ration, water, etc.	Wagons, escort, medical, etc.	Caissons, Guns, and Limbers	Cars, passenger	Trailers, cargo, kitchen, tank, etc.	Trucks	Aggregate vehicles loaded on flats, gondolas, or automobile cars	Day coaches—capacity 43—3 persons each double seat.	Additional double seats (Day Coach)	Additional single seats (Day Coach)	Box cars—capacity 40 persons (if used)	Standard Sleepers—Capacity 32 persons	Additional Berths (Standard Sleeper)	Tourist Sleepers—Capacity 48 persons	Additional sections—3 E. M. each (Tourist Sleeper)	Additional Berths (Tourist Sleeper) L	Additional Berths (Tourist Sleeper) U	Box cars—capacity 25 persons (if used)	Kitchen Cars	Stock Cars Capacity 20 animals	Box Cars—capacity 18 animals (if used)	Flats or gondolas—36 ft.	Automobile cars—36 ft.	Weight of baggage Lbs.	Cars required	Weight of frieght Lbs.	Box Cars required—capacity 60,000 lbs.	
1	Hq. & Hq. Troop, Cavalry Regt.	8	36	94	6	119	12	131			6		1			7	1	13	1	2½		8	1	10		2	3½	½	6 11/20	7 5/18	2	1	1375	1/43	32396	1	1
2	Service Troop, Cavalry Regt.	5	114	119	6	52	73	125			12					12	2	5	2	4			2	4	5		4½	½	6 5/20	6 17/18	4		1721	1/34	20547	½	2
3	Troop, Cavalry Regt.	3	96	99	5	113	4	117			2					2	1	15	1	2½			1	14	3	1	3⅝	½	5 17/20	6 9/18	¾		956	1/60	21224	½	3
4	Squadron Hq. & Hq. Det., Cav. Regt.	4	21	25	2	34	20	54			6					6		7	2					6	4	1	1		2 14/20	3	2		461		9618	½	4
5	Squadron, Cavalry Regt.	13	309	322	20	373	32	405			12					12	6	4	2	7			6		13	1	12 2/25	1½	20 5/20	22 9/18	4		3279	1/18	73290	1¼	5
6	Cavalry Regiment	46	850	896	55	950	161	1111			45		1			46	17	8	1	21	1	14	16	9		2	34	4	56	62	15	1	10457	1	210063	5	6
7	Hq. & Hq. Det., Machine Gun Sqd.	3	33	36	2	21	26	47			6					6		11	1	1				10	3	1	1¼	½	2 7/20	2 11/18	2		629		10320	¼	7
8	Machine Gun Troop, M. G. Sqd.	4	101	105	7	144	12	156			4					4	2		2	2½			1	15	4	1	4	½	7 16/20	7 12/18	1½		1035	1/57	30633	1	8
9	Machine Gun Squadron, Cav. Regt.	17	346	363	26	462	66	528			19					19	7		1	9			6	10	17	2	14	2	27	30	7		3972	1/15	106025	3	9
10	Hq. & Hq. Troop, Cavalry Brigade	10	78	88	3	76		76		1	1		1		2	5	1	12	1	2½		10	1	9			3⅜	½	3 16/20	4 4/18	½	1	1393	1/43	21087	½	10
11	Cavalry Brigade	119	2124	2243	142	2438	388	2826		1	110		3		2	116	44			54	4		42				86	11	143	159	38	2	26279	3	547278	14	11
12	Bn. Hq. & Combat Tn.	8	115	123	9	113	76	189		1	18	6				25	2	6		3		8	2	3		1	4½	½	9 9/20	10 9/18	8½		1752	1/32	25181	½	12
13	Battery	4	127	131	8	174		174		1	3	22				26	2	9		3½			2	7	4	2	5½	½	8 14/20	9 12/18	9		1281	1/45	21183	½	13
14	Separate Bn. 75-mm. H.A., Cav. Div.	24	516	540	36	655	80	735		4	28	72				104	11			13	1		10				21	2	37	41	35		6059	1	92338	2	14
15	Hq. & Hq. & Serv. Plat. Comb. Eng. Bn.	6	60	66	4	52	42	94			11		1			12	1	4	2	1⅜			1	2	6	2	2½	½	4 14/20	5 4/18	3⅜	1	1078	1/55	24315	½	15
16	Company, Combat Eng. Bn., Mtd.	3	90	93	5	86	26	112			5					5	1	13	1	2⅝			1	12	3	1	3½	½	5 12/20	6 4/18	1⅜		879	1/60	15926	½	16
17	Combat Engineer Bn., Mounted	17	340	367	22	320	124	444			27		1			28	7			9			7				14	2	23	25	9	1	3954	1	75056	2	17
18	Ambulance Company (Animal-drawn)	2	61	63	5	14	94	108	20		3					23	1	3	1	2			1	2	2	2	3	1	6	6	8		944	1	14724	1	18
19	Hq. Div. Tn., Cavalry Division	2	5	7		6		6										2	1	⅜				1	2	2	¼		6/20	6/18			221		2186	1/20	19
20	Wagon, Co., Div. Tn., Cav. Div.	2	98	100	13	4	273	277			62					62	1	13		2⅜			1	12	2	1	3½	½	13 17/20	15 7/18	20¾		2696	1/22	23882	½	20
21	Pack Train, Div. Tn., Cav. Div.		14	14	3	1	64	65										3	2	⅜				3		2	½		3 5/20	3 11/18			95		10523	¼	21
22	Division Train, Cavalry Div.	8	268	276	41	30	806	836			125					125	5			6			5				10	2	42	47	42		6278	1	93479	2	22
23	Hq. Special Troops, Cav. Div.	3	8	11		14		14										3	2	⅜				2	3	2	½		14/20	14/18			307		3507	1/15	23
24	Hq. Troop, Spec. Troops, Cav. Div.	15	137	152	8	130	32	162			9		6			15	3			3⅜			2	11	15		6	½	8 2/20	9	3	3	3044	1/19	26439	½	24
25	Signal Troop, Spec. Trps., Cav. Div.	3	75	78	2	44		44		4			1	4	8	17	1	9	1	2			1	8	3	1	3	½	2 4/20	2 8/18	6	1	1500	1/40	39336	⅔	25
26	Ordnance Co. (M), Sp. Trp., Cav. Div.	1	35	36										1	11	12		12		1				11	1	2	1½	½			6		739		3123	1/18	26
27	Veterinary Co., Sp. Trps., Cav. Div.	2	36	38	2	32	10	42	1		2			2	2	7		12		1				11	2	1	1½	½	2 2/20	2 6/18	3		666		9982	⅛	27
28	Attached Medical, Sp. Trp., Cav. Div.	1	5	6		6		6										2		1/6				1	1	2	¼		6/20	6/18			128		2544	1/23	28
29	Special Troops, Cavalry Div.	25	296	321	13	226	42	268	1	4	11		7	7	21	51	7			8	1		6				13	2	14	15	18	4	6384	1	84931	2	29
30	Headquarters, Cavalry Division	29		29														9	2	1	1						1¼						1364	1/45	10107	⅛	30
31	Cavalry Division	343	5729	6072	401	6121	1922	8043	21	10	414	72	14	7	25	563	120			147	11		113				235	31	408	452	188	9	77541	11	1465191	38	31

NOTES:

1. The foregoing tables are based on *Peace Strength* and include attached Medical, Chaplains, etc.
2. Any variation from *Peace Strength* of the units to be transported must be provided for either by increase or decrease in the tables, as the case may be.
3. *"B" Set Equipment not included* in tables.

CARS AND TRAINS REQUIRED TO MOVE A CAVALRY DIVISION (1) (5)

Unit	Men		Animals		Vehicles		Total Cars		Standard Trains		Remarks (2)
	No.	Box Cars	No.	Box Cars	No.	Flat Cars	Box	Flat	No.	Type	
DHQ and Hq Tr	146	5.9	180	10.0	15	5.0	15.9	5.0			Includes Med. Sec DHQ consisting of 9m, 12a. Includes attached Med: 8m, 10a, 1v. Grouped with Med Sq.
Div Sp Tr Hq	16	0.6	24	1.4	1	0.3	2.0	0.3			
Sig Tr	75	3.0	44	2.5	22	11.5	5.5	11.5			
Ord Co (maint)	35	1.9			12	5.2	1.9	5.2			
Total DHQ and Sp Tr							25.3	22.0			
Hq, Med Sq	7	0.3	9	0.5			0.8				Grouped with DHQ and Sp Tr.
Coll Tr	50	2.0	49	2.7	3	1.2	4.7	1.2			
Amb Tr	50	2.0	53	3.0	24	9.8	5.0	9.8			
Hosp Tr	50	2.0	46	2.6	9	3.7	4.6	3.7			
Vet Tr	50	2.0	54	3.0	2	0.8	5.0	0.8			
Total Med Sq							20.1	15.5			
DHQ and Sp Tr and Med Sq							45.4	37.5	2 1	B C	
DHQ and Hq Tr	90	3.6	97	5.4	10	3.3	9.0	3.3			Attached Med: 5m, 8a, 1v; Hq Sec Serv Tr, and 2a for Chaplains.
Regt Hq and Hq Tr (8)	126	5.0	173	9.6	8	3.0	14.6	3.0			
Total in Div							76.4	18.6	4	A	
Serv Tr (less dets) (8)	84	3.4	127	6.4	11	3.7	9.8	3.7			Attached Med: 3m, 3a. 20 anls to box car; use stock cars if available.
Total in Div							39.2	14.8	2	B	
Sq Hq and Hq Det	61	2.4	99	5.0	12	4.0	7.4	4.0			Attached Med: 14m, 14a, Sq Sec Serv Tr. 20 anls to box car; use stock cars if available.
Cav Tr	126	5.0	145	7.3			12.3				
Total Sq							44.3	4.0			
Total in Div							354.4	32.0	16	A	
MG Sq Hq and Hq Det	55	2.2	116	6.5	19	6.3	8.7	6.3			Attached Med: per Tables of Organization.
MG Tr	105	4.2	148	8.2			12.4				
Total MG Sq							45.9	6.3			
Total in Div							91.8	12.6	4	A	
Hq and Hq Btry FA Bn	76	3.0	103	5.7	6	1.6	8.7	1.6			Attached Med: 6m, 10a, 1v.
C Tn, FA Bn (horse)	194	7.8	318	17.7	39	12.6	25.5	12.6			
FA Btry (horse)	161	6.4	221	12.3	17	4.3	18.7	5.3			Attached Med: 4m, 4a.
Total Bn Hq and Hq Btry and C Tn							34.2	14.2	2	B	
Total Btrys							56.1	15.9	3	B	
Hq and Hq and Serv Plat, combat Engr Bn	72	2.9	117	6.5	13	4.3	9.4	4.3			Attached Med: per Tables of Organization.
Co, Combat Engr Bn	90	3.6	112	6.2	5	1.7	9.8	1.7			
Total Bn							38.8	9.4	2	A	
Tn Hq, Div Tn	17	0.7	21	1.2	1	0.3	1.9	0.3			Attached Med: per Tables of Organization.
Wag Co	98	3.9	273	15.2	62	20.7	19.1	20.7			
P Tn	14	0.6	65	3.6			6.2				2 box cars for aparejos.
Total Div Tn							64.9	41.7	4	B	

Total Trains for Division: 26 Type A, 13 Type B, 1 Type G; Aggregate 40.

NOTE:

(1) References are to notes on page 116.

STANDARD LOADING FOR THE CAVALRY DIVISION (1) (6)

Trains		*Troops carried on each train* (4)
Type	*No.*	
2B, 1C	3	DHQ and Sp Tr and Med Sq (7).
A	4	Regt Hq and Hq Tr and ½ (BHQ and Brig Hq Tr) (8).
B	2	Two Regt Serv Trs (less Dets) (8).
A	16	½ Cav Sq.
A	4	½ MG Sq.
B	2	½ (Hq and Hq Btry, FA Bn [horse]) and ½ (C Tn, FA Bn [horse]).
B	3	FA Btry (horse).
A	2	½ (Combat Engr Bn [horse]).
B	4	1 P Tn, ½ Wag Co, and Dets Tn Hq, Div Tn.
Total	40	26 Type A, 13 Type B, and 1 Type C.

NOTES:

(1) Computed on the following assumptions:
(a) 1 box car holds 25 men or 18 animals, 1 stock car holds 20 animals. (3)
(b) 1 flat car holds 6 carts, 3 wagons, or 2 trucks (1½ ton or over).
(c) Motorcycles and bicycles are not assigned special space.
(2) "m" indicates man, "a" indicates animals, "v" indicates vehicles.
(3) 40 men can be placed in a box car and 20 animals in a stock car when necessary.
(4) Each unit listed includes its attached medical troops and the detachment of the service troop that normally functions with it.
(5) Tabulation shows the grouping of units for standard loading, but the number and kind of cars may be determined for any combination of loading should special "make up" of trains be desired.
(6) The above tables are based upon War Department Tables of Organization, 1921, amended to include medical squadron and attached medical troops, and are subject to changes in the said tables of organization, using the assumptions given in note.
(7) These units are distributed among the three trains to suit the military situation; the train carrying forward echelon of division headquarters carries an extra passenger car.
(8) When moving alone, a cavalry regiment requires five (5) trains. In this case the regimental headquarters and headquarters troop and regimental service troop (less detachments) are grouped for transportation on one type A train, the small excess overload, which occurs only at full strength, is moved on trains assigned to one of the squadrons.

NOTES ON CAPACITY OF TRANSPORT

Pack mule: average net cargo, 250 pounds.
Escort wagon:
(1) Body: 9′-10″ x 3′-4″ x 21″; 56 cubic feet.
(2) Average net weight of cargo, 2765 pounds.
1½ ton truck:
(1) Body: 10′ x 5′-1″ x 2′; 100 cubic feet.
(2) Average net weight of cargo, 3000 pounds.
3 ton truck:
(1) Body: 12′ x 6′-6″ x 2′; 156 cubic feet.
(2) Average net weight of cargo, 6000 pounds.

TABLE OF WEIGHTS OF VEHICLES

Vehicle	*Weights on Axles, lbs.*		*Distance between Axles*	*Widest Wheel Track C to C*
	Front	*Rear*		
75-mm. gun	1600	2600	10′-10″	5′
75-mm. caisson	2200	2900	6′-11″	5′
155-mm. howitzer	2800	6000	13′	5′
155-mm. gun	11200	18200	14′-7″	7′-5″
Escort wagon, loaded	1800	3200	6′	6′
1½ ton truck, loaded	2200	6600	12′	4′-8″
3 ton truck, loaded	5700	11400	14′	5′-6″

CAPACITY OF WIRE-CARRYING VEHICLES

Vehicle	*Capacity in miles of wire* (1)	*Remarks*
Reel cart pack	1	(2) There are two kinds of wire supplied to the division.
Wire cart, 2 horse	2½	*a.* Heavy twisted pair, having such tensile strength that it can be used from animal-drawn carts or laid from a truck. Weight, 236 pounds per circuit mile.
Escort wagon	5 (3)	*b.* Light twisted pair, for use on hand or breast reels. Weight, 185 pounds per circuit mile.
1½ ton truck	10 (3)	*c.* Both kinds of wire are 8 cubic feet per circuit mile.
3 ton truck	20 (3)	

NOTES:

(1) Either kind of wire.
(2) Telegraph wire not considered as it is not used within the division.
(3) On reels on which received.

CONSOLIDATED TABLE OF SHIP TONS REQUIRED FOR OVERSEAS SHIPMENTS
(40 cubic feet)

Unit	*T. of O.*	*Officers*	*Warrant Officers*	*Enlisted Men*	*Animals*	*Cargo tons less personnel and animals*
Infantry Regiment	23P	61	1	1520	361	1177.35
Headquarters		6			6	8.20
Headquarters Company		1		65	8	25.55
Service Company		4	1	168	219	763.92
Howitzer Company		2		63	11	23.70
Battalion Hq. & Hq. Company		2		41	8	15.92
Rifle Companies		3		93	0	17.33
Machine Gun Company		3		78	23	41.29
Attached Medical		6		30	24	28.32
Infantry Regiment	23W	116	1	3037	557	1691.23
Headquarters		9			9	12.27
Headquarters Company		3		121	13	75.31
Service Company		6	1	273	354	908.83
Howitzer Company		4		105	23	41.14
Battalion Hq. & Hq. Company		7		76	15	30.72
Rifle Company		5		200	0	34.12
Machine Gun Company		5		141	25	56.37
Attached Medical		11		87	36	57.61
Attached Chaplain		2			2	1.70
Infantry Division	1P	531	23	10385	5110	9327.83
Cavalry Regiment	423P	45	1	850	1111	664.80
Headquarters & Headquarters Troop		8		86	113	81.24
Squadron Headquarters		4		21	32	12.10
Service Troop		4	1	114	223	285.49
Troop		3		96	111	42.69
Attached Medical		7		32	45	17.73
Cavalry Regiment	423W	58	1	1096	1384	859.08
Headquarters & Headquarters Troop		9		112	141	92.20
Squadron Headquarters		4		31	43	18.49
Service Troop		4	1	122	230	290.26
Troop		5		126	145	69.64
Attached Medical		7		44	57	21.81
Artillery 75-mm. Pack Regiment	533P	56	1	1031	1318	708.20
Headquarters & Headquarters Battery		7		56	80	40.09
Battalion Headquarters		5		34	46	26.62
Combat Train		2		43	159	67.18
Service Battery		4	1	97	218	172.02
Battery		4		116	94	48.17
Attached Medical		7		28	46	19.45
Artillery 75-mm. Pack Regiment	533W	74	1	1520	2039	1142.07
Headquarters & Headquarters Battery		12		86	130	61.19
Battalion Headquarters		8		67	97	47.76
Combat Train		4		86	279	127.18
Service Battery		6	1	164	347	262.05
Battery		4		155	125	72.14
Attached Medical		8		34	60	26.13
Artillery 155-mm. Howitzer Regiment Tractor-drawn	133P	63	1	1091		3308.12
Headquarters & Headquarters Battery		7		60		169.41
Battalion Headquarters		5		32		88.33
Service Battery		5	1	97		334.46
Combat Train		2		42		199.59
Battery		4		114		308.89
Attached Medical		6		28		87.15
Artillery 155-mm. Howitzer Regiment Tractor-drawn	133W	84	1	1694		4177.42
Headquarters & Headquarters Battery		12		86		190.25
Battalion Headquarters		8		66		135.41
Service Battery		8	1	159		398.17
Combat Train		3		118		388.21
Battery		4		144		321.82
Attached Medical		7		33		87.21

CONSOLIDATED TABLE OF SHIP TONS REQUIRED FOR OVERSEAS SHIPMENTS—(*Continued*)

Unit	*T. of O.*	*Officers*	*Warrant Officers*	*Enlisted Men*	*Animals*	*Cargo tons less personnel and animals*
Artillery 75-mm. Regiment Horse-drawn	33P	55	1	1032	1191	1471.43
Headquarters & Headquarters Battery		7		46	32	33.00
Battalion Headquarters		4		27	33	35.35
Combat Train		3		58	65	89.64
Service Battery		4	1	103	135	201.16
Battery		4		116	128	152.85
Attached Medical		6		29	36	20.51
Artillery 75-mm. Regiment Horse-drawn	33W	75	1	1495	1607	1854.83
Headquarters & Headquarters Battery		12		80	93	96.30
Battalion Headquarters		8		501	61	48.40
Combat Train		3		148	161	243.92
Service Battery		6	1	148	167	231.74
Battery		4		136	142	148.79
Attached Medical		11		53	51	49.40
Artillery 75-mm. Guns Tractor-drawn	518W	69	1	1179		2176.59
Headquarters & Headquarters Battery		12		85		152.91
Battalion Headquarters		8		61		112.27
Service Battery		6	1	152		317.64
Battery		5		133		236.67
Attached Medical		5		22		58.99
Artillery 75-mm. Guns Portee	523W	69		849		1674.10
Headquarters & Headquarters Battery		12		70		113.84
Battalion Headquarters		8		50		84.84
Service Battery		6		75		205.91
Battery		5		97		184.28
Attached Medical		5		22		58.99
Artillery: Regiment Antiaircraft	120P	47	1	949	0	1847.72
Engineer Regiment General Service	163P	30	1	726	72	1365.71
Headquarters & Headquarters & Service Company		6	1	170	12	684.72
Battalion Headquarters		1			2	.79
Company		3		90	9	101.87
Attached Medical		4		16	4	68.99
Engineer Regiment General Service	163W	43	1	1171	77	1417.16
Headquarters & Headquarters & Service Company		10	1	190	26	719.93
Battalion Headquarters		2			2	.79
Company		4		160	7	104.30
Attached Medical		5		21	5	69.85
Engineer Combat Regiment	63P	31	1	730	269	1232.44
Headquarters & Headquarters & Service Company		6	1	170	124	752.87
Battalion Headquarters		1			1	.76
Company		3		90	22	69.82
Attached Medical		5		20	11	58.88
Engineer Combat Regiment	63W	45	1	826	299	1293.43
Headquarters & Headquarters & Service Company		10	1	170	144	803.69
Battalion Headquarters		2				.79
Company		4		106	23	71.94
Attached Medical		7		20	13	56.54
Engineer Battalion (Topographical) Army	263W	21		573		1452.67
Engineer Battalion (Topographical) G.H.Q.	263W	21		573		2062.89
Engineer Battalion (Topographical) Other than above	263W	21		573		835.82
Engineer Battalion (Topographical) Army	263P	16		336		1254.58
G.H.Q Engineer Headquarters	562W	32	4	130		132.38
Army Engineer Headquarters	262W	28	2	105		433.47
Corps Engineer Headquarters	162W	5		17	2	117.10
Corps Engineer Headquarters	162 P	3		16	2	113.90
Combat Engineer Battalion Mounted	466P&W	17		340	444	599.92
Engineer Battalion Camouflage	568W	21		573		673.11
Engineer Shop & Depot Company	668W	4		160		30.00

CONSOLIDATED TABLE OF SHIP TONS REQUIRED FOR OVERSEAS SHIPMENTS—(*Continued*)

Unit	*T. of O.*	*Officers*	*Warrant Officers*	*Enlisted Men*	*Animals*	*Cargo tons less personnel and animals*
Engineer Battalion Railway	563P	16		336		241.54
Engineer Battalion Railway	563W	21		573		281.16
Engineer Dump Truck Train	267P	3		90		715.04
Engineer Dump Truck Train	267W	4		160		1342.70
Engineer: Auxiliary Battalion	169P	14	0	529	0	204.17
Heavy Bridge Train	266P&W	4	0	160	243	206.12
Light Bridge Train	266P&W	4	0	160	189	171.02
Signal: Corps Battalion	107P&W	19	0	479	0	687.65
Q. M. C. Remount Troop	196P&W	4		150	22	92.19
Remount Squadron	115P&W	4		150	22	92.16
Field Remount Depot	214W	22		510	126	416.27
Wagon Company, 2 sections	98P	2		98	273	489.06
Wagon Company, 2 sections	98W	2		150	276	493.61
Wagon Company, 3 sections	198W	3		227	403	730.54
Pack Train	499P&W	0		14	65	33.00
Q. M. C. Supply Company	690W	5		250		11.08
Railhead Company	692W	4		100		21.62
Laundry Company	696P&W	1		37		140.90
Bakery Company	697P	1		21		87.77
Bakery Company	697W	3		85		87.84
Salvage Company	698P&W	1		29		27.32
Sales Commissary Unit	699P&W	1		14		22.28
Clothing and Bath Unit	700P&W	1		21		35.29
Service Company for Infantry Division	9W	2		100	10	26.64
Motor Transport Units:						
Motor Transport Command	194W	3		11		22.58
Motor Transport Company	95W	2		78		436.03
Motor Repair Section	96W	1		35		161.23
Motorcycle Company	97W	2		54		179.76
Motor Repair Battalion	294W	43		1194		1164.97
Medical Regiment Infantry Division	81W	60	1	882	167	2655.40
Regimental Headquarters		5				.20
Service Company		4	1	80	10	150.10
Veterinary Company		3		70	50	84.40
Headquarters Collecting Battalion		2				12.10
Collecting Company		4		96		86.67
Headquarters Ambulance Battalion		2				12.30
Ambulance Company Animal-drawn		2		56	107	187.90
Ambulance Company Motor-drawn		2		56		466.20
Headquarters Hospital Battalion		2				12.40
Hospital Company		8		92		333.90
Medical: Surgical Hospital	284W	19	20 x	90		56.64
Evacuation Hospital	283W	38	50 x	281		99.06
Medical Supply Depot	287W	8	0	160		104.66
Air Service: Air Park	175P	6	0	178		511.92
Photo Section	79P&W	1	0	21		97.68
Communication Section	180P	1	0	31		96.82
Observation Squadron	73W	36	0	165		700.69
Observation Squadron	73P	32	0	137		690.54
Bombardment Squadron	574W	57	0	247		758.33
Bombardment Squadron	576W	57	0	247		2626.41
Pursuit Squadron	277W	33	0	221		725.29
Pursuit Squadron	277P	24	0	137		608.54
Balloon Company	178W	9	0	175		215.30
Tanks: Heavy Company	513W	22	0	232		1459.85
Light Company	516W	6	0	130		1124.10
Maintenance Company	517W	4	0	174		485.98
Ordnance: Depot Company	213P	1	0	41		46.37
Ordnance: Ammunition Company	113P	2	0	83		53.20
Heavy Maintenance Company	112P	2	0	118		1134.39
Military Police Battalion	105P	16	0	421	94	197.20

TABLE OF MEASUREMENTS AND SHIP TONNAGE FOR OVERSEAS SHIPMENTS
(40 cubic feet)

Articles		*Cubic Feet*	*Ship Tons*
Airplanes, biplane	crated	3632	90.80
monoplane	"	3632	90.80
observation	"	900	22.70
bombardment	"	6481	162.00
pursuit	"	455	11.40
D. H. 4 B.	"	900	22.70
Ambulances, animal-drawn	"	162	4.50
motor	"	352	8.80
Balloons	"	71	1.75
Bicycles, 6 in. crate	crates	57	1.45
Caisson, bodies, 155-mm.	crated	150	3.75
75-mm.	uncrated	150	3.75
Carts, ration	crated	69	2.30
water	"	153	3.80
reel, pack	"	50	1.25
wire, 2 horse	"	250	6.50
ration, 2 mule	"	68	1.70
37-mm.	boxed	27	.70
37-mm. ammunition	crated	27	.70
M. G. ammunition	"	26	.65
M. G.	"	26	.65
reel, 4 horse	uncrated	120	3.00
ammunition reel, 6 horse	"	120	3.00
wire	crated	360	9.00
Cars, motor, 7 passenger	"	480	11.00
5 passenger	"	272	6.80
reconnaissance	"	470	11.00
Guns, 155-mm. or 6"	uncrated	640	16.00
37-mm.	boxed	10	.26
75-mm.	uncrated	280	7.00
machine	boxed	3	.10
machine antiaircraft	"	3	.10
antiaircraft	crated	30	.80
Howitzers, 155-mm.	uncrated	293	7.30
Horses and mules		300	7.50
Kitchens, rolling	crated	405	10.10
Motorcycles with side car	"	40	1.00
solo	"	18	.40
Mortars, 3 inch	boxed	7	.20
Tractors, 10-ton	semi-crated	724	18.00
5-ton	" "	402	10.10
Tanks, fighting light	crated	740	18.50
signal light	"	680	17.00
Trailers, 3" field guns, M. 1918	"	473	11.80
water, 180 gallons	"	300	7.50
cargo, ¾-ton	"	506	12.65
cargo, 1½-ton	"	300	7.50
kitchen	"	248	6.20
radio	"	960	24.00
ration	"	150	3.75
tank (est.)	"	350	8.75
M. G. antiaircraft	boxed	78	1.95
photo, 5-ton	crated	762	19.00
spare parts, Medical	"	175	4.35
stock room	"	485	12.10
storage battery	"	960	24.00
tire press, 5-ton	"	450	11.50
Trucks, cargo, heavy	"	500	12.50
special machine shop	"	680	17.00
3—5-ton machine shop	"	1360	34.00
3—5-ton A.S. radio repair	"	1200	30.00
artillery repair	uncrated	845	21.10
artillery supply	"	940	23.50
cargo, ¾-ton	crated	506	12.65
cargo, 1½—2-ton	"	444	11.10
cargo, 3—5-ton	"	500	12.50
light repair	uncrated	340	8.50
radio Army	"	375	9.40
radio Divisional	"	375	9.40
small arms repair	crated	845	21.10
air compressor (est.)	"	845	21.10
office	"	506	12.65
power saw	"	501	12.50
F. W. D.	"	500	12.50

TABLE OF MEASUREMENTS AND SHIP TONNAGE FOR OVERSEAS SHIPMENTS—*Continued*

Articles		*Cubic Feet*	*Ship Tons*
field lighting	crated	600	15.00
Mack	"	887	22.15
M. T. machine shop	"	775	19.40
photographic	"	775	19.40
radio A.S.	uncrated	375	9.40
radio repair	crated	1200	30.00
wrecking	"	1402	35.05
searchlight	uncrated	1080	27.00
Wagons, chess, 4 mule (Engr.)	knocked down	150	3.75
ponton, 6 mule (Engr.)	" "	200	5.00
ponton, 4 mule (Engr.)	" "	150	3.75
ponton, tool, 4 mule (Engr.)	" "	150	3.75
trestle, 6 mule (Engr.)	" "	200	5.00
trestle, 4 mule (Engr.)	" "	150	3.75
escort	" "	61	1.50
medical	" "	61	1.50
battery	uncrated	477	11.90
comb. battery and store	"	501	12.50
spring	crated	192	5.10
store	"	150	3.75
tool	"	132	3.30

SECTION X

MISCELLANEOUS FORMS AND TABLES

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Journal for Staff Sections

FORM FOR {G-1, B-1, R-1, Bn-1 / G-2, B-2, R-2, Bn-2 / G-2, B-3, R-3, Bn-3 / G-4, B-4, R-4, Bn-4} JOURNAL

..... JOURNAL (3)

From (date and hour) (unit)
To (date and hour) (date)

Time (1)	*Serial No.*	*Time* (2) *dated*	*Incidents, messages, orders, etc.*		*Disposition*	*Remarks*
			in	*out*		

Authentication.

(1) Refers to time of receipt or sending in this office.
(2) Refers to time information was sent and thus calls attention to age of information.
(3) The journal is the "daybook" of the section or unit. It contains briefs of important written and verbal messages received and sent, and notations of periodic reports, orders, and similar matters that pertain directly to the section. Copies of messages and other data pertaining to one section and furnished by it for purposes of information of other sections are not entered in the journals of the latter. If the item be received or issued in verbal form, the entry herein is detailed; if in document form, the entry may be a notation referring to a file or a brief synopsis of contents.

FORM FOR G-1, B-1, R-1, Bn-1, PERIODIC REPORT

.....REPORT (1) (2)

From: (Date and Hour)
To: (Date and Hour)

(unit)
(date)

No. .....

Maps:

1. LOCATION OF REAR ECHELONS.
   (Situation at close of period.)
2. STRENGTH OF THE COMMAND. (By organization.)
   (Men, animals.)
3. EVACUATIONS. (By organization.)
4. CASUALTIES. (By organization.)
   a. Killed.
   b. Sick.
   c. Gas cases.
   d. Wounded.
   e. Captured.
   f. Missing.
5. REPLACEMENTS. (Received or expected.)
6. PRISONERS OF WAR.
7. CAPTURED MATERIAL.
8. STRAGGLERS.
9. MORALE.
   (Show state of subdivisions, if not uniform.)

(*authentication by chief of section.*)

NOTES:

(1) Submitted as ordered by the commander.
To be supported by such maps and appendices as are necessary to make a complete record of the existing situation and of the operations during the period.
Separate or independent units not provided with a staff corresponding to the four general staff sections submit one report based on the topical headings of the four section reports.

(2) When a marked change has occurred in any organization, this fact will be noted.

FORM FOR G-2, B-2, R-2, Bn-2, PERIODIC REPORT

..... REPORT (1)

From: (date and hour)
To: (date and hour)

(unit)
(date)

No. .....

Maps:

1. ENEMY FRONT LINE (or nearest elements).
2. ENEMY'S STRENGTH, DISPOSITIONS, AND MOVEMENTS.
   a. Units in contact.
   Unit: location of flanks; estimated combat efficiency (strength, training, physical condition, morale, and other pertinent factors).

b. Reserves.

Unit: kind of reserves; location; estimated combat efficiency, (strength, etc.); time necessary to engage.

c. Changes since last report.

Unit: nature of change, time.

d. Movements.

Kind; amount; {from..... / to..... / or / direction} {time; unit, if known or deducible.}

3. ENEMY'S SUPPLY AND EQUIPMENT, including supply system and location of establishments.
4. WEATHER AND VISIBILITY.
5. ENEMY'S OPERATIONS DURING THE PERIOD. (2)
   - *a.* Cavalry.
   - *b.* Infantry and auxiliary weapons.
   - *c.* Artillery.
   - *d.* Tanks.
   - *e.* Airplanes.
   - *f.* Balloons.
   - *g.* Chemical warfare.
   - *h.* Miscellaneous.
6. MISCELLANEOUS.
   - *a.* Estimated enemy's casualties (including prisoners).
   - *b.* Enemy's defensive organization (trenches, emplacements, observation posts, etc.).
7. ENEMY'S KNOWLEDGE OF OUR SITUATION.
   - *a.* Observation.
   - *b.* Reconnaissance.
   - *c.* Our prisoners and documents lost; inhabitants.
8. ENEMY'S PROBABLE INTENTIONS.
   - *a.* Lines of action open to enemy (with discussion of each).
   - *b.* Conclusion as to line of action that will be adopted.

(*authentication by chief of section.*)

(1) Same as on G-1 Report.
(2) Omit any subheading under which there is nothing to report.

FORM FOR G-3, B-3, R-3, Bn-3, PERIODIC REPORT

.....REPORT (1)

From: (date and hour)
To: (date and hour)

(unit)
(date)

No. .....

Maps:

1. OUR FRONT LINE (or most advanced elements.)
2. LOCATION OF TROOPS.
   (Situation at close of period, including command posts, boundaries, or any troops in movement.)

3. INFORMATION OF ADJACENT UNITS AND SUPPORTING TROOPS.
4. WEATHER AND VISIBILITY.
5. OUR OPERATIONS FOR THE PERIOD. (2)
   a. Cavalry.
   b. Infantry and auxiliary weapons.
   c. Artillery.
   d. Tanks.
   e. Airplanes
   f. Balloons.
   g. Chemical troops.
   h. Miscellaneous.
6. COMBAT EFFICENCY.
   (Arrived at by consideration of the status of training, the losses in officers, men, animals, and material, the morale, and any other conditions peculiar to the unit considered. For divisions, this report should show efficiency of combat regiment; it may include other units, as special troops.)
7. RESULTS OF OPERATIONS.

(authentication by chief of section)

(1) Same as on G-1 Report.
(2) Omit any subheading under which there is nothing to report.

FORM FOR G-4, B-4, R-4, Bn-4, PERIODIC REPORT.

.....REPORT(1)

From: (date and hour)
To: (date and hour)

(unit)
(date)

No. .....

Maps:

1. LOCATION OF TECHNICAL AND ADMINISTRATIVE TROOPS, TRAINS, RAILHEAD, AND ESTABLISHMENTS.
   (Changes during and locations at close of period.)
2. STATUS OF SUPPLY.
   (Including losses of material and possibilities of resupply.)
   a. Rations; garrison, field, reserve, trench.
   b. Munitions situation report; caliber, type, fuses, expenditures, receipts, and balance. For division and larger units, reduce to days of fire. Credits at depots and when it can be received in unit.
   c. Equipment.
   d. Other supplies.
3. STATUS OF EVACUATION.
   (By whom made and progress of.)
4. CONDITION OF ROADS AND STATUS OF CIRCULATION.
5. SALVAGE AND BURIAL.
   (Amounts, kinds, reissues and evacuations of salvage; burials by whom and where.)
6. ACTIVITIES.
   (Should cover those of section and technical and administrative staff, other than routine, namely those of particularly important or unusual nature.)

(authentication by chief of section).

NOTE:

(1) Same as on G-1 Report.

CAMPING AND BIVOUAC AREAS (1)

Unit (2)	SEMI-PERMANENT CAMP (6) (5)		BIVOUAC (7) (8)	
	Dimensions, Yards depth x breath	*Acres*	*Dimensions, Yards* depth x breath	*Area in acres*
Division headquarters and special troops	305 x 350	22	110 x 275	6.3
Infantry brigade headquarters and headquarters company	435 x 25	2.3	170 x 20	.7
Infantry regiment	435 x 540	48.5	170 x 285	10
Infantry brigade	435 x 1135	102	170 x 600	21
Headquarters field artillery brigade and headquarters battery	435 x 30	2.7	210 x 20	.9
Field artillery regiment (75-mm. gun)	435 x 500	45	210 x 440	19.1
Ammunition train	435 x 70	6.3	210 x 60	2.6
Field artillery brigade	435 x 1170	105.2	210 x 1000	43.4
Combat engineer regiment	435 x 155	14	170 x 100	3.5
Division air service includes landing field (3)	600 x 600	75	600 x 600	75
Medical regiment	370 x 440	33.6	170 x 240	8.5
Division train	400 x 330	27.3	140 x 320	9.3
Total for a division		481.1		200.3
Field artillery regiment (155-mm. howitzer) (4)	435 x 575	51.7	225 x 230	10.7
Cavalry regiment	435 x 370	33.3	190 x 255	10.0

NOTES:

(1) The dimensions and areas in the foregoing tables serve as a general guide only, in the selection of camp sites. Tactical and terrain considerations determine the actual dimensions and areas.

(2) Areas are computed on the basis of war strength organization.

(3) When a suitable landing field for the Division Air Service is not available, this unit remains with the corps.

(4) The area given for field artillery regiment (155-mm. howitzer) can be used as a guide in selection of camping areas for other tractor-drawn artillery regiments.

(5) In semi-permanent camps the computed areas are based on:

(a) The use of large pyramidal tents for enlisted men at the rate of 8 men per tent.

(b) The use of small wall tents for officers.

(c) An interval of 8 yards between centers of adjacent pyramidal tents and width of 20 yards for company streets between centers of tents on opposite sides of street.

(d) One yard per animal on picket line and a width of 10 feet per vehicle.

(e) An interval of 20 yards between adjacent picket lines, rows of guns, or carriages in park.

(6) The areas given provide for comfort and convenience, except under unusual terrain conditions. These areas can be reduced 20% by narrowing company streets and using the space between company latrines and the organization tents for carriage parks and picket lines. No parade or drill grounds or atheltic fields are included.

(7) In bivouacs the computed areas are based on:

(a) The use of single shelter tents, in one row, with 10 yards distance between rows, center to center.

(b) One yard per animal on picket line and a width of 10 feet per vehicle.

(c) An interval of 12 yards between adjacent picket lines, except when picket lines are formed between guns, gun carriages, or wagons.

(d) A distance of 20 yards, center to center, between rows of guns, carriages, or wagons.

(e) The parking of tractors limbered to their loads with an interval of 5 yards, center to center, between adjacent tractors.

(f) The areas represent minimum requirements under favorable conditions of terrain. A slight contraction of area can be effected by using double shelter tents or double rows of shelter tents. These bivouac areas are increased whenever practicable, particularly for sanitary reasons and where the camp is to be occupied for more than one night.

(g) The number of acres in a rectangular tract equals the product of one-seventieth of the length in yards by one-seventieth of the breath in yards. One acre = 4840 sq. yds.

MISCELLANEOUS UNITS AND EQUIVALENTS

LENGTH

1 archine (Russia) = .77 yards = 27.999 inches.
1 centimeter = .3937 inches.
1 cho (Japan) = 119.303 yards.
1 foot = .3048 meters.
1 inch = 2.54 centimeters.
1 kilometer = .62137 miles = 1093.61 yards.
1 meter = 39.37 inches = 3.28 feet = 1.093 yards.
1 mile = 1.609 kilometers.
1 pic (Egypt) = 2.466 feet.
1 sashen (Russia) = 7 feet.
1 verst (Russia) = 1166.64 yards.

VOLUME

1 bushel = .35242 hectoliters.
1 cu. centimeter = .061 cu. inches.
1 cubic foot = .02832 cu. meters.
1 gallon = 3.785 liters.
1 gallon (England) = 1.2 gallons (U.S.) = 1 imperial gallon.
1 hectoliter = 2.8375 bushels = 90.8 quarts (dry).
1 jarra (Mexico) = 7.226 quarts.
1 kokon (Japan) = 1.578 quarts.
1 kokon oats (Japan) = 1.55 cwt.
1 kokon barley (Japan) = 2.066 cwt.
1 kokon rice (Japan) = 2.805 cwt.
1 liter = 1.0567 quarts (liquid).
1 cu. meter = 1.308 cu. yards = 35.316 cu. feet.
1 quart (liquid) = .946 liters.
1 stere = 1.0 cu. meters (wood) = .2759 cords.
1 to (Japan) = .496 bushels = 3.968 gallons.
1 vedro (Russia) = 2.7 gallons.
1 cubic yard = .765 cu. meters.

AREA

1 acre = .4047 hectares.
1 are = 100 sq. meters = 107.639 sq. feet.
1 arpent (Canada) = .845 acres.
1 cho (Japan) = 2.45 acres.
1 deciatine (Russia) = 2.699 acres.
1 hectare = 2.471 acres.
1 jock (Austria) = 1.4 acres.
1 manzana (Central America) = 1.726 acres.
1 morgen (Prussia) = $\frac{5}{8}$ acres.
1 tonde (Denmark) = 40 acres.

WEIGHT

1 arroba (Cuba) = 25.358 pounds.
1 arroba (Mexico) = 25.366 pounds.
1 bale of cotton (U.S.) = 4.464 cwt. (gross).
1 bale of cotton (India) = 3.571 cwt. (gross).
1 bale (Turkey) = 280 pounds.
1 barrel flour (U.S., Canada) = 1.75 cwt.
1 bushel of oats = 32 pounds (U.S.) = 34 pounds (Canada).
1 bushel barley = 48 pounds.
1 cental = 100 pounds.
1 centner (Germany, Austria, Denmark) = 110.23 pounds.
1 cwt. (England) = 112.0 pounds.
1 fanega (Spain) = 1.6 bushels.
1 kilogram = 2.20463 pounds.
1 kin (Japan) = 1.322 pounds.
1 kwan (Japan) = 8.267 pounds.
1 livre = .5 kilograms.
1 lood (Holland) = 10 grams.
1 minot (Canada) = 1.073 bushels.
1 pikul (China) = 133.276 pounds.
1 pikul (Japan) = 132.278 pounds.
1 pood (Russia) = 36.1129 pounds.
1 pound = .45359 kilograms.
1 pund (Sweden) = .937 pounds.
1 quintal = 220 pounds.
1 ton (England) = 2240 pounds.
1 metric ton = 2204 pounds.
1 zentner (Germany) = 110.23 pounds.

TEMPERATURE

1 degree centigrade = 1.8 Fahrenheit.
1 degree Réaumur = 2.25 Fahrenheit.

CONVENIENT APPROXIMATE RULES

Metric units $\times$ 4 = inches.
Meters $\times$ $3\frac{1}{3}$ = feet.
Meters plus 10% = yards.
Kilometers $\times$ $\frac{5}{8}$ = miles.