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ORGANIZATION

OF THE

SERVICES OF SUPPLY

AMERICAN EXPEDITIONARY
FORCES

Monograph No. 7

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The following monograph, entitled "Organization of the Services of Supply, American Expeditionary Forces," prepared in the Historical Branch, War Plans Division, General Staff, is approved and published for the information of all concerned.

[322.06, A. G. O.]

BY ORDER OF THE SECRETARY OF WAR:

PEYTON C. MARCH,
General, Chief of Staff.

OFFICIAL:

P. C. HARRIS,
The Adjutant General.

GENERAL SCHEME OF MONOGRAPHS, HISTORICAL BRANCH.

(Where a title is given without special mark, the monograph is contemplated or in preparation; a title with a single * indicates a monograph completed and awaiting publication; a title with two ** indicates a published monograph.)

I. NARRATIVE HISTORY OF MILITARY OPERATIONS.

The Major Operations of the A. E. F. (G. O. 83, W. D., 1919.)

*" Cambrai." H. B. Monograph No. 5, W. D. Doc. 1017, 1920.

" Somme Defensive and Lys."

" Aisne and Montdidier-Noyon."

" Champagne-Marne and Aisne-Marne."

(*a*) " The 3d Division on the Marne."

" Somme Offensive, Oise-Aisne, Ypres-Lys."

**(*a*) " Operations 2d Corps in Somme Offensive." H. B. Monograph No. 10, W. D. Doc. 1016, 1920.

" St. Mihiel."

" Meuse-Argonne."

** " Blanc Mont (Meuse-Argonne-Champagne.) H. B. Monograph No. 9, W. D. Doc. 1010, 1920.

" Vittorio-Veneto."

* " Operations in North Russia, 1918–1919."

" Operations in Siberia, 1917–1920."

" Operations in Italy, 1917–1918."

II. STUDIES OF SERVICES OF SUPPLY.

** " Organization of Services of Supply, A. E. F." H. B. Monograph No. 7, W. D. Doc. 1009, 1920.

" Replacement of Personnel, A. E. F." H. B. Monograph No. 8.

" Procurement of Supplies, A. E. F."

" Initial Equipment and Supply, A. E. F."

III. SPECIAL TACTICAL STUDIES.

** " A Survey of German Tactics, 1918." H. B. Monograph No. 1, W. D. Doc. No. 883, 1918.

** " A Study in Troop Frontage." H. B. Monograph No. 4, W. D. Doc. No. 992, 1919.

** " A Study in Battle Formation." H. B. Monograph No. 6, W. D. Doc. No. 1012, 1920.

IV. MILITARY ACTIVITIES IN THE UNITED STATES.

** " Economic Mobilization in the United States for the War of 1917." H. B. Monograph No. 2, W. D. Doc. No. 885, 1918.

** " A Handbook of Economic Agencies of the War of 1917." H. B. Monograph No. 3, W. D. Doc. No. 908, 1919.

V. HISTORIES OF TROOP UNITS.

" Outline History of Divisions."

" Outline History of Regular Regiments.

PREFACE.

It is evident that within the limits of this monograph only a very small part of available material can be included. The difficulties have been those incident to selection rather than location of data.

The object of this monograph is to present its subject in its broadest aspect; but at the same time, by means of references to available sources, to point out the direction for more exhaustive study. Other more detailed monographs covering the general subject of the Services of Supply are contemplated by the historical branch, General Staff.

General sources of information are referred to by number. The bibliography appearing at the end of the monograph contains the numbered references.

Services and departments that functioned directly under General Headquarters are not discussed in this monograph.

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basin west of Metz, the coal region east of Metz, the vital railroad communications in this same region, and, finally, the fortress of Metz itself, offered important objectives for a strategic offensive launched from Lorraine.[4] (1) (21) (18)

But the front selected for the American Army must not only be suitable in itself—it must have a suitable and available line of communications. This line, based upon a sufficient number of French ports, must be able to maintain a constant flow of supplies from oversea bases (ports) to the railheads, and must also meet the requirements imposed by the movement of sick, wounded, and salvage from front to rear.

Previous to the arrival of Gen. Pershing in France a (2) military railway commission had been sent by the War Department to investigate rail transportation. This commission was just (3) completing its task, and its report stated that the railroads in the north of France were already overburdened by the traffic imposed by the French and English Armies, and that the channel ports of France, which were the British bases, were used to their utmost capacity. (4)

STUDY OF PORT CONDITIONS.

While en route to France, Gen. Pershing had appointed a Board on Ports,[5] which upon arrival investigated port conditions in France. This board fully agreed with the Military Railway Commission, and recommended that the American Government gradually take over for permanent use the ports of St. Nazaire, La Pallice, and Bassens, and for emergency use, Nantes, Bordeaux, and Pauillac. (5) (21)

French ports on the Mediterranean were not considered suitable at this time, owing to their greater distance and the large losses by submarine. (2) Marseille and Toulon were congested by the Salonika movements.

It will thus be seen that the United States was limited in the selection of ports in France to those on the Atlantic, and was unable to make use of the railroads in northern France. (18)

NOTE TO PART I.

Several months previous to Gen. Pershing's arrival in France an American military commission had been attached to the American embassy at Paris, and the correspondence of this commission refers to the earliest study made to locate a suitable front and line of communications for the American Expeditionary Forces. The following are extracts from this correspondence:

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[4] Page 6, Chapter I, Report of the Assistant Chief of Staff, G–4, General Headquarters, to the commanding general, Expeditionary Forces, on file Historical Branch, General Staff.

[5] Appendix B.

[Memorandum for Chief of Staff, dated May 19, 1917, from Chief, War College Division, General Staff.]

This memorandum states that on May 14 a cable was sent to Maj. James A. Logan, jr., at Paris, as follows: "Consult with French authorities relative to points of debarkation and establishment of bases, camps, line of communications, American forces. Inspect English and other bases and report results and recommendations without delay."

In his cable reply Maj. Logan states that French General Staff is preparing complete study of all suitable ports, which information will be submitted to War Council.

In a cable from Paris to the War Department, dated May 18, Maj. Logan states:

French contemplate placing principal American advance center of instruction in Belfort zone in camp already partially installed for reception troops. Other centers of instruction echeloned at different existing camps between Belfort and Bordeaux. * * * French General Staff study contemplating American line of communications from Bordeaux to Belfort, utilizing, if necessary, three lines of railroad which are at present least congested. * * * French General Staff notified that all ports from Belgium, including Cherbourg, at disposal of British and Belgian troops. These ports and connecting railroads working at about full capacity. Brest considered very favorable by our naval representative here, but French object on account of congested railroads this point and the fact that some railroads cross laterally all their own existing line of communications. * * * Marseille and Toulon good ports; but I am informed by the French General Staff that these are very congested, due to the Salonika movements, and in addition hardly suitable on account of longer distance from United States and greater submarine danger.

This correspondence on file with War College Division, General Staff.

Chapter I, Report of the Fourth Section General Staff, General Headquarters, American Expeditionary Forces, gives a review of the transportation conditions that existed in France upon arrival of the commanding general, American Expeditionary Forces.

II.—THE LINE OF COMMUNICATIONS SELECTED.

The problem of the selection of a front and a line of communications which confronted Gen. Pershing was thus reduced to the following:

(A) Selection of a front—

- (*a*) Suitable in size for an army of several million troops.
- (*b*) Located where conditions would be favorable to the exercise of American command.
- (*c*) Located in a region favorable to an offensive.
- (*d*) Located in a region with billeting facilities and favorable for training.

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(B) Selection of a line of communications—

(*a*) With railroads sufficient to reach the entire length of front.

(*b*) With trunk lines from ports upon which American traffic would be superimposed upon that of the French and passing through localities suitable for the location of depots.

(*c*) Available and suitable ports.

There was also presented the problem of flexibility in the line of communications [6] adopted. If the American forces were called upon to operate along a portion of the front, other than the one selected, our means of supply must be able to reach these forces. (18)

FINAL DECISIONS.

It is both interesting and pertinent at this point to quote from a memorandum (6) prepared during May, 1919, by Maj. Gen. J. G. Harbord, who was Chief of Staff, General Headquarters, at the time a line of communications was selected. Relative to conditions, as Gen. Pershing found them in France upon his arrival, Gen. Harbord states, as follows:

The channel ports and the railroads of northern France were congested by British and French traffic. The Mediterranean ports were 900 miles further from our shores than the other ports of France and submarine activity was greater and under less control in the Mediterranean than in the open Atlantic. This limited our selection to the Atlantic ports south of Brest, which port itself was unsuited for the discharge of supplies and at that time was reserved for naval use. * * * From the ports of western France there were available railroad lines to the northeast, including the double-track lines from Bordeaux and St. Nazaire forming a junction near Bourges, thence running east and north toward Dijon with radiations toward Epinal and Nancy. It was estimated that these lines, assisted by collateral lines which were available, could handle a traffic for American use of 50,000 tons per day. (21) These considerations, with the probability that pressure from the French would dictate the employment of our forces well toward the east, led to the selection of the ports of St. Nazaire, La Pallice, and Bassens for permanent use, with Nantes, Bordeaux, and Pauillac for emergency use. * * * The probability that our forces would be employed well toward the eastern end of the western front indicated the line of communications from the Atlantic to our front of perhaps an average length of 500 miles. * * * The immediate location of the intermediate and advance storage depended upon the courtesy of the French. The whole country was more or less given to installations for their own armies. The great majority of all available institutions were in use by the French or British, and the facilities which adequately served the population in time of peace were totally inadequate to the added strain imposed by our army of from two to four million men. * * * Certain railroad lines were not avail-

[6] See letter from the commanding general, American Expeditionary Forces, to the commanding general, Service of Supply, dated 23 May, 1918, quoted on pp. 10–11 in the Report of the Assistant Chief of Staff, G–4, General Headquarters, to the commanding general, American Expeditionary Forces, filed in the Historical Branch, General Staff.

able to us; certain lines running parallel to the front must not be crossed by more than a certain number of trains each 24 hours because needed for the rapid movement of troops from flank to flank.

The solution of this problem is contained in confidential cable No. 24, received July 2, 1917, by The Adjutant General, from Gen. Pershing. (7) This cable gives in outline the decision as to the front, the line of communications, and oversea bases.

The cable states that the only ports then available were those on the Loire and Gironde Rivers, and La Pallice, and La Rochelle. The main railroad line running northeast from these ports passed through districts favorable for the location of supply depots embraced by Orleans, Bourges, Montargis and Nevers. The general area selected for training was included by Neufchâteau, Nancy and Epinal. The First Division would be billeted in the vicinity of Gondrecourt (Meuse) and its artillery would go to Valdahon (Doubs). The cable stated further that the use of the ports mentioned would avoid interference with the British bases, and the rail routes indicated avoided routes used by French and British armies. The location of proposed depots was such as to facilitate supply, and the area to be used for billeting and training was unoccupied and included villages with ample billets. The cable stated, finally, that American troops would probably enter the lines north of Nancy.[7] (21)

III.—THE GEOGRAPHICAL DIVISION OF FRANCE FOR FRENCH ADMINISTRATIVE PURPOSES.

For their administrative purposes, the French divided the country primarily into two zones—the Zone of the Interior (Zone de l'Interieur), and Zone of the Armies (Zone des Armées). The former was under the direction of the Council of Ministers, and the latter under military control. The Zone of the Armies was further divided into two parts, Army Advance Zone (Zone de l'Avant) and the Army Service Zone (Zone d'Etapes). (18)

ZONE SYSTEM.

When the American military administrative system was created in France and superimposed upon the French, we followed to a great degree the French system. The French had a supply and transportation organization for the Zone of the Armies distinct from that of the Zone of the Interior. This system we adopted by creating regulating stations, having control of distribution of all supplies to the troops in the advance, acting under direction of General Headquarters. The responsibility of the Services of Supply ceased when

[7] Also report of Gen. Pershing to the Secretary of War, November 20, 1918, quoted in full in Report of Secretary of War, 1918.

the advance supply depots were filled, and troops from the interior reached these regulating stations.

On October 1, 1918, there was transmitted by General Headquarters to Headquarters, Services of Supply, a draft of a proposed general order modifying General Orders, Nos. 31 and 44, General Headquarters, Expeditionary Forces, series 1918. It is desirable to refer to the main features of these proposed general orders, as they represented the opinion of General Headquarters in a matter of reorganization based upon actual experience.[8] The main features were: (18)

It divided territorially the American Expeditionary Forces into two general zones—a zone of supply, and a zone of the armies. The zone of supply would contain the primary services of supply and, territorially, would comprise the intermediate and base sections as they then existed. The zone of the armies would coincide with the French zone of the armies. It was proposed to subdivide the zone of the armies into an army combat zone, the limits of which would be subject to readjustment from time to time, and an Army service zone which would contain such agencies and establishments as were necessary to the immediate and direct service of combat troops. A director of the Army service zone was created who was vested with the command of all service troops in the Army service zone, and he served directly under the Army commander.

Whether or not this proposed reorganization was in the interest of good administration it is impossible to determine, as the armistice of November 11 terminated further consideration of the question. It is well to consider in this connection that there was a constant pressure from the French Government to influence us to adopt their military administrative system, and to create zones and geographical divisions corresponding to theirs. Our administrative sections, at the request of the French, were drawn to conform generally to the lines of French military regions. In any study of the Services of Supply it should be kept constantly in mind, when considering our system created in France, that the French Government was always very much concerned that we conform to their already established system, and this we usually did, and thereby prevented many complications. Our supply system in France had to be superimposed upon that of the French, and with the least derangement of the French system.

[8] Two boards of officers were appointed in the American Expeditionary Forces to consider questions of reorganization of the American Expeditionary Forces. One board was appointed at General Headquarters on March 14, 1919. Its report is on file with the records of General Headquarters, American Expeditionary Forces. The second board was appointed per S. O. No. 141, Service of Supply, May 1, 1919. The report is on file in the Historical Branch, General Staff.

IV.—ORGANIZATION OF THE LINE OF COMMUNICATIONS (SERVICES OF SUPPLY).

(A) Relation of the Services of Supply to the War Department.

(B) Relation of the Services of Supply to General Headquarters.

(C) The interior development of the Services of Supply.

A. *Relation of the Services of Supply to the War Department.*—Until August 6, 1918, there were no direct relations between the Services of Supply and the War Department. On that date, however, the commanding general, Expeditionary Forces, authorized the commanding general, Services of Supply, to communicate direct with the War Department on all questions of supply and on matters relating to Services of Supply troops, provided no matters of policy were involved.[9] (21)

B. *Relation of the Services of Supply to General Headquarters.*—General Orders, No. 8, General Headquarters, Expeditionary Forces, July 5, 1917, created the Line of Communications of the American Expeditionary Forces, placing the commanding general of the Line of Communications in a relation to the commanding general, American Expeditionary Forces, similar to that of the chiefs of services. This organization imposed upon the commanding general, Expeditionary Forces, the duty of coordinating directly all the services and the Line of Communications; but as the American Expeditionary Forces increased in size it became evident that the General Headquarters thereof must free itself from a portion of these administrative duties.[10]

ORGANIZATION OF SUPPLY SYSTEM.

On February 16, 1918, General Orders, No. 31, General Headquarters, Expeditionary Forces,[11] were issued which changed the designation of the Line of Communications to Services of Supply, and charged the commanding general of these services with the coordination of all services and departments except the Adjutant General, Inspector General, and Judge Advocate. To facilitate this coordination, all service headquarters, excepting those particularly mentioned above, were moved to Tours, where the headquarters of the Services

[9] General Order No. 130, General Headquarters, Aug. 6, 1918. Also cable No. 1,562 from Pershing to The Adjutant General, Aug. 6, 1918. On file Historical Branch, General Staff.

[10] A board of officers was appointed per letter Chief of Staff, General Headquarters, Feb. 8, 1918, to investigate and report upon what changes should be made in the organization of the American Expeditionary Forces. Report of board on file in Historical Branch, General Staff.

[11] Two General Orders No. 31, General Headquarters, 1918, were issued, both dated Feb. 16. The first changed the designation of the Line of Communications to the Service of the Rear. The second General Order No. 31, or corrected copy, was issued one month later but bore the same date (Feb. 16) and this second order designated the old Line of Communications as the Services of Supply.

of Supply were located. The chiefs of the administrative and technical staff services were directed by this order to exercise all of their functions in the matter of procurement, supplies, transportation, and construction under the direction of the commanding general, Services of Supply. Each chief of service was authorized to designate an officer of his service to represent him with each section of the General Staff, at General Headquarters. A chief of utilities was created who, under the commanding general, Services of Supply, coordinated the Transportation Department, the Motor Transport Service, and the Director of Construction and Forestry. This Service of Utilities was abolished by General Orders, No. 114, General Headquarters, Expeditionary Forces, July 11, 1918. The Director of Construction and Forestry was placed under the Chief of Engineers, and the Motor Transport Corps was created a separate service.

General Orders, No. 44, General Headquarters, March 23, 1918, enunciated very fully the duties under General Orders, No. 31 of the commanding general, Services of Supply, and those of the chiefs of services. The commanding general, Services of Supply, was responsible for the procurement of all supplies both from the United States and from European sources. He was charged with the distribution of these supplies to the various depots; with the unloading of the troops and freight, and their transportation; the construction, maintenance, and operation of railroads. In these duties he was assisted by a technical staff consisting of the chiefs of the several supply and technical services. Each chief of service was directed to exercise a close personal control over all establishments of his department throughout the theater of operation, and he was responsible that the necessary supplies were delivered and maintained in depots. He was charged with the duty of seeing that the supplies pertaining to his service were replaced.

Commanding officers of supply depots were responsible that the supplies shipped by them were delivered, either to the consignee or, if destined for a zone served by a regulating station,[12] to the regulating officer. Regulating officers were responsible for the proper transportation and distribution of supplies in their zone. The responsibility of the commanding general, Services of Supply, in the matter of supplies[13] ceased when shipments were delivered at advance depots. (18)

[12] "A regulating station is a large railway yard where cars from the supply depots and from the rear are received and made up into trains for the divisions." General Orders No. 44, General Headquarters, Expeditionary Forces, on file Historical Branch, General Staff.

[13] Chapter III, Report of the Assistant Chief of Staff, G–4, General Headquarters, to the commanding general, Expeditionary Forces, contains detailed statement of the functions of base, intermediate, and advance storage; regulating stations, Army depots, and rail heads. On file Historical Branch, General Staff.

Previous to August 6, 1918, the General Staff, General Headquarters, Expeditionary Forces, was charged with all matters of supply and all cables relating to this subject were sent from General Headquarters. A similar course was followed in regard to all cablegrams relating to troop arrivals and replacements. However, on that date, General Orders, No. 130, General Headquarters, Expeditionary Forces, was issued, which charged the commanding general, Services of Supply, with all questions of supply under approved policies. This order directed that all cables to the War Department relating to supply matters not involving policy should be sent directly by the commanding general, Services of Supply, and charged him with many details previously handled by General Headquarters.

The above constituted the relation between General Headquarters and the Services of Supply as they existed on November 11, 1918.

C. *The interior development of the Services of Supply.*[14]—A description of the Services of Supply as they existed on November 11, 1918, would give only a very imperfect conception. The Services of Supply, as they existed on the date of the armistice, were a development, always in process of evolution; the direction of this evolution being toward decentralization. This decentralization appeared in the form of creating new and independent services for activities that before the war did not exist in our Army, or that were previously dependent upon or formed a part of the other services. Important instances are: The creation of the Motor Transport Corps, previously a part of the Quartermaster Corps; the Air Service, broken from the Signal Corps; also the creation of the Army Service Corps and the Renting, Requisition and Claim Service. There was only one effort to centralize activities. This consisted in combining the Transportation Corps, Construction and Forestry, and the Motor Transport Service under one head, directed by the Chief of Utilities. The Service of Utilities was, however, abolished after a short trial.

The following is a résumé of the salient facts in the interior development of the Services of Supply, arranged chronologically:

DEVELOPMENT OF SERVICES OF SUPPLY.

When the first American convoy landed at St. Nazaire the commanding general, Expeditionary Forces, by verbal order, designated that port as "Base Port No. 1," operating directly under his authority. On July 4, 1917, an advance section was created with head-

[14] Paragraphs 10, 11, 12, 13, 14, 32, and 33, Report of the Assistant Chief of Staff, G–4, General Headquarters, to the commanding general, Expeditionary Forces, on file Historical Branch, General Staff, quotes two important letters from the commanding general, Expeditionary Forces, to the commanding general, Services of Supply, stating the policy of the development of the Services of Supply.

quarters at Nevers, functioning also directly under the commanding general, Expeditionary Forces. The next step is found in General Orders, No. 8, General Headquarters, July 5, which designated a commanding general, Line of Communications, with territorial command, charged with supply, sanitary and telegraph service, and the facilities relating thereto. He was also charged with all construction work in the Line of Communications. A Transportation Department was created to operate, maintain, and construct all railways and canals under American control, also to construct and maintain roads, wharves, shops, and other buildings for railroad purposes; however, all construction work was continued under the commanding general, Line of Communications, as the Transportation Department at that time had no labor.

LINE OF COMMUNICATIONS.

On August 13, 1917, General Orders, No. 20, General Headquarters, Expeditionary Forces, defined the geographical limits of the Line of Communications as extending from the sea to points where delivery of supplies is made to the field transportation of the combat field forces, less such area as might from time to time be excepted. Paris was designated as the headquarters of the Line of Communications. This order designated the following railroad lines for American use:

(*a*) The line of St. Nazaire–Nantes–Angers–Tours–Bourges–Nevers–Dijon–Is-sur-Tille (regulating station), and points to the front.

(*b*) The line Bordeaux-Perigueux, Limoges–Bourges–Nevers–Dijon–Is-sur-Tille (regulating station), and points to the front.

(*c*) The railroad lines connected with the lines (*a*) and (*b*) from any ports at which our troops or materials may be landed, and all railway connections with the various depots and camps established in the vicinity of the same lines of railroad.[15]

SERVICE OF MILITARY RAILWAYS.

The Service of Military Railways was created, charged with the operation, maintenance, and construction of such railways as might be turned over to our forces while in France, and with the supervision of all movement of troops and supplies over lines operated by the French authorities. This supervision included all railways, both permanent and temporary, except those in the "Zone des Armées."

GENERAL PURCHASING BOARD.

General Orders, No. 23, General Headquarters, Expeditionary Forces, August 20, 1917, created a General Purchasing Board, established at Paris, with a General Purchasing Agent at its head. Each supply service had a representative on this board for the purpose of making such purchases in Europe as the service required. The

[15] Note to Part IV.

General Purchasing Agent coordinated and supervised the purchases, thereby preventing competition.

TRANSPORTATION DEPARTMENT.

General Orders, No. 37, General Headquarters, September 14, 1917, established a Transportation Department as one of the separate technical services of the Expeditionary Forces, providing for a Director General of Transportation and giving a general outline of organization.

REMOUNT SERVICE.

The Remount Service was organized by General Orders, No. 39, General Headquarters, Expeditionary Forces, September 18, 1917, and was attached to the Quartermaster Corps. General Orders, No. 122, General Headquarters, July 26, 1918, reorganized this service and created a Chief of the Veterinary Service, who operated under the Remount Service. On August 24, 1918, however, General Orders, No. 139, General Headquarters, placed the Veterinary Service under the Chief Surgeon, Expeditionary Forces.

MOTOR TRANSPORT SERVICE.

On December 8, 1917, General Orders, No. 70, General Headquarters, Expeditionary Forces, created the Motor Transport Service as a branch of the Quartermaster Corps.

ARMY TRANSPORT SERVICE.

The Army Transport Service was transferred from the Quartermaster Corps to the Transportation Department on December 18, 1917, by General Orders, No. 78, Headquarters, Expeditionary Forces.

GENERAL PURCHASING AGENT.

On January 13, 1918, the headquarters of the Line of Communications were moved from Paris to Tours. On March 4, 1918, General Orders, No. 5, Service of the Rear, charged the General Purchasing Agent with procuring civilian labor in Europe. He was directed to organize a Labor Bureau, which bureau was later transferred to the Army Service Corps, created by General Orders, No. 38, Headquarters, Services of Supply, 1918. The city of Paris and the Arrondissement of Tours were exempted from the jurisdiction of the intermediate section on March 20 by General Orders, No. 2, Headquarters, Services of Supply, 1918.

RENTS, REQUISITIONS, AND CLAIMS SERVICE.

A Renting, Requisitions, and Claims Service, functioning under the commanding general, Services of Supply, was created by General Orders, No. 50, General Headquarters, Expeditionary Forces, March 30, 1918. This service was charged with the renting and requisitioning of land and facilities in France, with billeting, and

with the settlement of certain claims. On July 11, 1918 (General Orders, No. 114, General Headquarters), the Service of Utilities was abolished.

ARMY SERVICE CORPS.

The Army Service Corps was created August 22, 1918, by General Orders, No. 34, Headquarters, Services of Supply.

TERRITORIAL SECTIONS.

Territorial administrative sections were created and adjusted from time to time as the necessity demanded.[16] These geographical sections may be roughly divided into two classes—those built around ports (or base sections), and the interior sections. The interior sections included the advance and intermediate sections.

ADVANCE SECTION.

The Advance Section was organized to extend the service of territorial command of the commanding general, Service of Supply, up to the point where delivery of supplies was made to the field transportation of combat forces. It should be noted, however, that when supplies from intermediate and base depots reached regulating stations further distribution was under the regulating officer, an agent of General Headquarters. The authority of the section commander would cease where it came into contact with that of the commanders in the field. The Advance Section included the two important regulating sections, Liffol-le-Grand (Vosges), and Is-sur-Tille (Côte d'Or);[17] also the following activities:

Air Service: 6 depots, 27 airdromes, 2 schools.
Quartermaster: 3 depots, 7 remount depots, 10 veterinary hospitals.
Ordnance: 9 supply depots.
Medical: 63 hospitals.
Motor Transport Corps: 4 overhaul parks, 1 depot, 1 reception park, 2 service parks, 21 centers.
Engineers: 1 depot, 1 light railway shop, 4 forestry districts.
Chemical Warfare Service: 1 depot.
Signal: 1 depot, telegraph and telephone lines.

INTERMEDIATE SECTION.

The Intermediate Section was the largest section in France. It included the great intermediate storage depot at Gièvres (Loir-et-Cher), where a large part of the supplies of the Expeditionary

[16] (21) Part I, paragraphs 15–16, and Part III, paragraph 1 of Final Report of Gen. Pershing to Secretary of War, Sept. 1, 1919, on file Historical Branch, General Staff.

[17] These two regulating stations were the only ones actually constructed by us. The following French regulating stations were used by us at various times: Creil (Oise), Mantes (Seine-et-Oise), Le Bourget (Seine), Noisy-le-Sec (Seine), St. Dizier (Haute-Marne), Gray (Haute-Saône), Connantre (Marne), Dunkerque (Nord). For a complete description of the functions of regulating stations see (18) Chapter III, also (21) Part III, par. 2–6.

Forces was stored. There was also another large intermediate storage depot under construction at Montierchaume (Indre),[18] but this depot was only 50 per cent complete at the time of the armistice. Mehun-sur-Yèvre (Cher) was an important point where the ordnance repair shops and the intermediate Ordnance Depot No. 4 were located. The first replacement depot was located at St. Aignan (Loir-et-Cher).[19] At Blois there was a depot for the classification and distribution of casual officers and soldiers arriving from the United States. Officers found physically or otherwise unfit for duty with combat troops were classified here.[20] The Intermediate Section was the main section for the training activities of the Air Service, which established at Issoudun (Indre) the Third Aviation Instruction Center, where the majority of the American pilots received advance training. The Air Service Production Center No. 2, the Supply Depot No. 3, and an acceptance park were located at Romorantin (Loir-et-Cher), one of the largest American aviation projects in France. The Seventh Aviation Instruction Center was at Clermont-Ferrand (Puy-de-Dôme), which was also a center for the training of mobile heavy artillery. Important hospital centers were located in this section, the largest of these being at Mars and Mesves (Nièvre), Allerey (Saône-et-Loire), Châteauroux (Indre), and Orleans. The headquarters of the section, Nevers, was the center for several hospital trains, the location of an important railroad center and of intermediate Quartermaster Depot No. 1, also a locomotive repair shop of the American Expeditionary Forces. The Motor Transport repair shops were located at Verneuil (Nièvre), 30 miles east of Nevers. The Central Records Office of the Expeditionary Forces was located at Bourges (Cher).[21]

BASE SECTION NO. 1.

The sections built around ports were as follows: Base Section No. 1, with headquarters at St. Nazaire, which developed into the greatest freight port of the Expeditionary Forces. The storage depot at Montoir was built near St. Nazaire. Another important port of this base section was Nantes, on the Loire River. Angers (Maine-et-Loire), Savenay (Loire-Inférieure), Meucon and Coetquidan (Morbihan), and Saumur were important installations of American activity within this section. At Angers was located the principal training base for engineer officers. Base Hospital No. 27 was also located

[18] See (18) pages 10, 11, 12, for a statement of the functions of Glèvres and Montierchaume.

[19] See monograph on Replacements, Historical Branch. There is on file in the Historical Branch a complete detailed report on the Replacement System prepared by the D. C. of S., Services of Supply.

[20] See (3) pages 74–91 for a description of the Reclassification System. See also (21) Part III, par. 10.

[21] Central Records Office operated directly under the Adjutant General, General Headquarters.

at Angers, which was in addition a replacement depot for transportation troops. Meucon was an artillery training camp and the location of an aerial observation school. Savenay (25 kilometers east of St. Nazaire) was an important hospital center of particular value as an evacuation point for sick and wounded. Coetquidan was an artillery training camp and an aerial observation school. Saumur was an important railroad junction and the location of a school of instruction for field artillery officers.

BASE SECTION NO. 2.

Base Section No. 2 included the ports on the River Gironde and the port of La Pallice (Charente-Inférieure). Later, La Pallice became part of Base Section No. 7. The headquarters was at Bordeaux, which was a terminus of one of the main lines of communication. There were assigned to the Americans and constructed by them at Bassens (Gironde) large dock facilities. Grouped around these were classification and storage warehouses. There was a large depot at St. Sulpice (Gironde) and a small depot was established at Coutras (Gironde). Ammunition storage facilities were constructed at St. Loubes (Gironde) and artillery training camps were at Sougé and Le Courneau (Gironde); remount stations were at Carbon-Blanc and Mérignac (Gironde), Bayonne, Biarritz, and Hendaye (Basses Pyrénées); a stevedore camp at Bassens; rest and embarkation camps at Grange-Neuve and Genicart (Gironde). Thirteen base hospitals and 13 sawmills were located within this section.

BASE SECTION NO. 3.

Base Section No. 3 was established primarily for the care of American troops passing through England to France. Rest camps for American troops were established along the route, Liverpool–Southampton. A large number of American air personnel were trained in this section and a number of base hospitals constructed. The headquarters were located at London.

BASE SECTION NO. 4.

Base Section No. 4 was established as an agency for receiving American troops and supplies arriving in France from England. The important points of American activities were Le Hâvre and Rouen (Seine Inférieure), Calais and Boulogne (Pas-de-Calais).

BASE SECTION NO. 5.

Base Section No. 5 was built around the port of Brest. Outside of this port was a debarkation port at Cherbourg (Manche), a locomotive terminal and repair shop at Rennes (Ille-et-Vilaine), and a coal port at Granville (Manche). The port of Brest was the most important port of debarkation for personnel in France, as it was

the only deep-water port available to the American forces. Headquarters were located at Brest.

BASE SECTION NO. 6.

Base Section No. 6 was established June 28, 1918, with headquarters at Marseille. This port was not used previously by the Expeditionary Forces on account of excessive submarine danger in the Mediterranean. No American troops were brought to France through this port and it was used only for freight. It was later used, however, as an embarking port for troops returning to the United States. A Motor Transport bark and a labor camp were maintained at Marseille and a storage depot was under construction at Miramas (Bouches-du-Rhône).

BASE SECTION NO. 7.

The first headquarters of this section were at La Pallice (Charente-Inférieure), but later moved to La Rochelle. At this point was received a large part of the coal of the Expeditionary Forces and here was the principal depot for the storage of oil and gasoline. A remount depot and car erection center were within this section. Important American activities were: La Rochelle, location of Camp Pullman, a car erection plant; La Pallice, port of entry and location of oil and gasoline storage; Aigrefeuille (Charente-Inférieure), the location of storage and classification yards; Rochefort (Charente-Inférieure), port of entry for coal and general cargo; Tonnay-Charente and Marens (Charente-Inférieure), Talmont (Charente-Inférieure), an approved site for a deep-water port; Montamon (Charente-Inférieure), a cement plant.

BASE SECTION NO. 8.

Base Section No. 8 consisted geographically of all Italy, with headquarters at Padua. This section was established to provide control over the various American activities in Italy. These activities consisted of a regiment of Infantry, aviation school at Foggia, hospital and ambulance units, Motor Transport Corps companies, and a detachment of aviators in training and on combat duty with the Italian Army. A quartermaster depot was located at Alessandria.

BASE SECTION NO. 9.

Base Section No. 9 was established to meet the requirements of the American Army of Occupation on the Rhine. The plan contemplated using the Rhine and Scheldt as a line of communications with Rotterdam and Antwerp as ports for the handling of supplies. Headquarters were at Antwerp.[22]

[22] For details concerning the sections, see the history of every section of the Services of Supply, on file in the Historical Branch, General Staff.

SECTION COMMANDERS.

The commanders of sections were usually generally officers appointed by the commanding general, Services of Supply. The section commander bore the same relation to the representative of the various services in his section as the commanding general, Services of Supply, bore to the chiefs of the services at Tours.

Section commanders were responsible for discipline, supply, and sanitation. From time to time questions arose in sections between the commanders and the representatives of services. These questions usually had reference to various projects carried on by the services in the section. Questions also arose regarding personnel pertaining to the various services serving in the section. Chiefs of services at Tours considered that their representatives in sections were the proper channel through which to give instructions. Section commanders considered that they, as the direct representatives of the commanding general, Services of Supply, were the proper channel. The approved policy covering these difficulties was that the section commander, in addition to his responsibility for attention to duty, discipline, supply, and sanitation, of all personnel in his section, was the proper channel for all communications between chiefs of services and their representatives in the section, excepting those of a purely routine and technical class. On the other hand, section commanders were not authorized to change projects which had been approved at Headquarters, Services of Supply, nor were they authorized to give priority in large matters. Section commanders were informed by Headquarters, Services of Supply, of all policies, and acting upon these policies they commanded the sections. The tendency of growth was toward increasing the authority of section commanders, transmitting to them policies, and holding them responsible for carrying them out. The Services of Supply was so large territorially, contained such a large personnel, and involved so many different activities, that decentralization was necessary. Section commanders pooled all motor transportation in their sections, and controlled the distribution of all labor, including casuals, combat and non-combat. When questions arose in sections relating to large questions of priority, they were referred to Headquarters, Services of Supply, where, after consultation with the chief of services involved, a decision was made.

STRENGTH OF SERVICES OF SUPPLY.

As an indication of the magnitude of its activities in regard to the number of personnel stationed in the Services of Supply, the following table shows the number of troops in the various sections on November 11, 1918: (3)

	Officers.	Men.	Nurses.	Total.
Advance Section	4,924	101,271	1,728	107,923
Intermediate Section	6,365	117,214	1,938	125,517
Paris	1,936	17,639	584	20,159
Base Section No. 1	4,628	93,119	502	98,249
Base Section No. 2	3,801	90,301	671	94,773
Base Section No. 3	1,505	27,580	.....	29,085
Base Section No. 4	219	3,944	.....	4,163
Base Section No. 5	718	15,211	.....	15,929
Base Section No. 6	380	8,870	.....	9,250
Base Section No. 7	375	11,559	.....	11,934
Headquarters, S. O. S.	2,379	16,544	134	19,057
Base Section No. 8, officers and men	.....	.....	.....	5,451
Depot divisions in S. O. S.	3,029	94,886	29	97,944
Casual officers' depot	334	4,772	.....	5,106
Total	30,593	602,910	5,586	644,540

There were also 23,772 civilians employed in the Services of Supply and carried on the strength returns of the American Expeditionary Forces, making a grand total on this date of 668,312.

NOTE TO PART IV.

The railroads mentioned in General Orders, No. 20, General Headquarters, 1917, were known as the "first line."

The regulating station Liffol-le-Grand was the objective of the second line, which left the first at St. Germain-du-Puy (several miles east of Bourges) and followed the Est Railway to its objective point by way of Cosne, Etais, Poinçon, Châtillon-sur-Seine, and Chaumont.

The third line left the first at Tours and ran over the Paris-Orleans system by way of Blois and Orleans, thence over the Est Railway, through Montargis, Sens, and Troyes to Chaumont, where it joined the second line to Liffol-le-Grand.

The fourth line left the third at Orleans and ran over the Est Railway by way of Malesherbes and Romilly to Troyes, where it joined the third line.

V.—ORGANIZATION OF HEADQUARTERS, SERVICES OF SUPPLY.

THE COMMANDING GENERAL, SERVICES OF SUPPLY.

As previously stated, the functions of the commanding general, Services of Supply, were finally defined by General Orders, No. 31, General Headquarters, February 16, 1918; General Orders, No. 44, General Headquarters,[23] March 23, 1918.

General Orders, No. 31, General Headquarters, created five sections of the General Staff, assigned to each its functions, and directed that subordinate commands should conform in principle to General Staff organization. (21) This permitted sufficient elasticity in the organization of the General Staff at Headquarters, Services of Sup-

[23] Appendixes F, G, H, I, J.

ply, and authorized such changes and reorganization as were from time to time found necessary. (18) General Orders, No. 1, Headquarters, Service of the Rear, February 16, 1918, organized the General Staff, Headquarters, Services of Supply, which was then known as the Service of the Rear. Special functions and duties not foreseen at the time General Orders, No. 31, were published were later assigned to the most suitable General Staff section, when the necessity arose. The original General Staff of the Services of the Rear consisted of a first, second, third, and fourth sections (G–1, 2, 3, and 4). No fifth section (G–5) was ever established, as training and instruction were supervised directly by General Headquarters. The Operations Section (G–3) was established and functioned until July 12, 1918, when it was absorbed by G–4.

CHIEF OF STAFF AND DEPUTY CHIEF OF STAFF.

There was a Chief of Staff and a deputy chief of staff. The duties of the former corresponded to those usually exercised by that office. The deputy chief of staff was at first the channel through which papers passed intended for the Chief of Staff, and final action of the commanding general, Services of Supply, but as these papers increased in volume this system was changed and the deputy chief of staff was engaged chiefly in questions of classification and assignment of personnel with special reference to reclassified personnel from Blois.[24]

G–1, SERVICES OF SUPPLY.

G–1 was chiefly concerned with:

(*a*) Supervision and direction of the replacing of troops through depot divisions, regional replacement battalions, and other agencies designated to handle this class of personnel.

(*b*) Disposition of casual officers and soldiers.

(*c*) Determining the number and kind of Services of Supply troops needed from the United States within the number allotted by higher authority and determining the priority in which said troops should be sent.

(*d*) Preparation of tonnage statistics and designation of priority for all tonnage from the United States.

(*e*) Matters pertaining to the supplies and equipment of Services of Supply troops.

(*f*) General control of leave areas, athletics, and entertainment.

(*g*) Preparation of graphics and charts showing Services of Supply activities in operation.

[24] For a description of the reclassification system, casual officers' depot at Blois, see report of commanding general, Services of Supply, to commanding general, General Headquarters, on file Historical Branch, General Staff.

In addition to the above, general supervision was maintained over all welfare activities and militarized societies.

Upon the signing of the armistice all matters in connection with the embarkation of troops for repatriation were placed under G–1 and an embarkation section was formed in that section to handle them.

A detailed discussion of the functions of this section is contained in the report of the commanding general, Services of Supply, to the commanding general, Expeditionary Forces. (3) (8)

G–2, SERVICES OF SUPPLY.

The function of G–2 (Intelligence) (3) (9) in the Services of Supply was to create a system of counterespionage as follows:

(*a*) To prevent enemy agents from entering France.

(*b*) To control the movements of civilians in such a manner as to prevent enemy agents from circulating along the American Army's line of communications.

(*c*) To detect enemy agents who might have succeeded in entering France.

(*d*) To prevent the transmission of information by enemy agents across the frontier.

G–4, SERVICES OF SUPPLY.

G–4 Headquarters, Services of Supply, were concerned with supplies, construction, hospitalization, transportation, labor, salvage, troop movements, grave registration, fire prevention, garden service, and billeting. This section maintained representatives at base ports and in training areas to expedite the arrival of supplies and equipment. (3) (10)

In charge of each section of the General Staff was an assistant chief of staff. A deputy assistant chief of staff was designated to act in the absence of the assistant chief of staff.

ADMINISTRATIVE STAFF, HEADQUARTERS, SERVICES OF SUPPLY.

The administrative staff at headquarters, Services of Supply, consisted of an adjutant general, inspector general, and judge advocate.

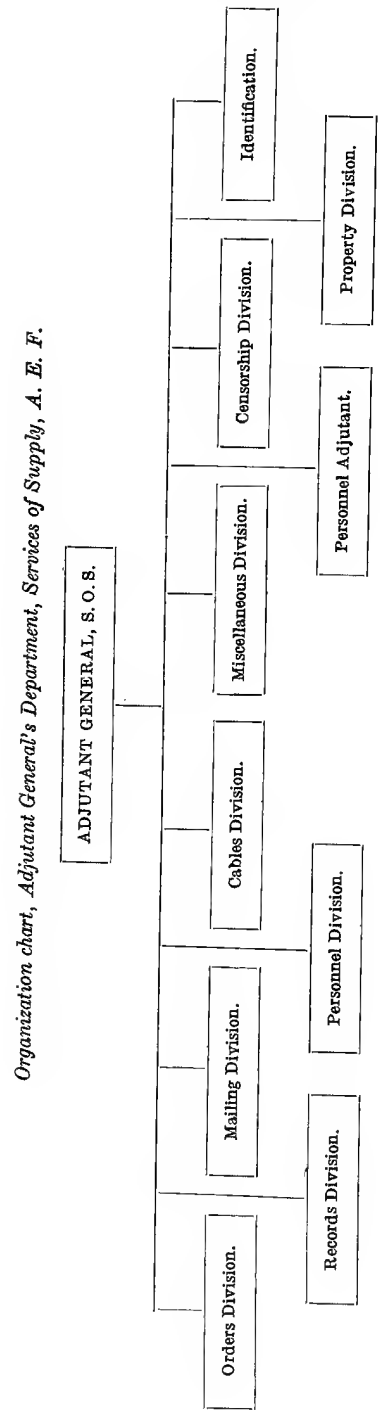
ADJUTANT GENERAL, SERVICES OF SUPPLY.

The Adjutant General's Department was subdivided as follows:

Statistical Division.—This division embraced the following subsections:

(*a*) Personnel section: This subsection kept complete record of personnel at headquarters, line of communications. On December 3, 1918, statistical subsections were established at each of the technical and supply services. The personnel section compiled, published and distributed various lists and directories.

Organization chart, Adjutant General's Department, Services of Supply, A. E. F.



(*b*) Troop-movement section: Furnished information covering location of organizations in the Services of Supply with their shipping, telegraphic, and postal addresses. A semimonthly station list of the troops in the Services of Supply was compiled and published.

(*c*) Returns section: Organized to compile and consolidate monthly returns of all troops in the Services of Supply.

(*d*) Tours section: A statistical section charged with keeping a card file of every enlisted man in Tours.

(*e*) Officers' qualification card section: This branch provided and procured officers on requisition for special services, selected through information covered by their qualification card.

(*f*) Soldiers' qualification card section: From the soldiers' qualification cards men were selected with special civil vocational qualifications for assignment where their special qualifications could be used to the best interests of the service. These cards were also used to select men with particular military qualifications as a result of specialized training at Army training schools.

Records Division.—This division had charge of Adjutant General records.

Cable and Code Division.—All cablegrams were indexed and filed in the form of a permanent record. On August 6, 1918, the commanding general, Services of Supply, was authorized to send cables direct to the War Department where they involved matters other than questions of policy.

Orders Division.—Organized to prepare general orders, special orders, and bulletins issued from Headquarters, Services of Supply.

Personnel Division.—Formed to carry on correspondence pertaining to individual officers and soldiers of the Services of Supply.

Chief Clerk's Division.—Organized to receive mail.

Identification Cards and Information Division.—Organized to issue identification cards to officers and to report and index same.

Mailing and Courier Division.—Charged with the duty of addressing and forwarding all official mail.

Headquarters, Printing Division.—Organized a plant for printing at Headquarters, Services of Supply.

Supply Division.—(Blank forms and Adjutant General's Office property.) Furnished the necessary supply of blank forms of the Adjutant General's Office for the Services of Supply. This division supplied officers and men with such post cards as were authorized.

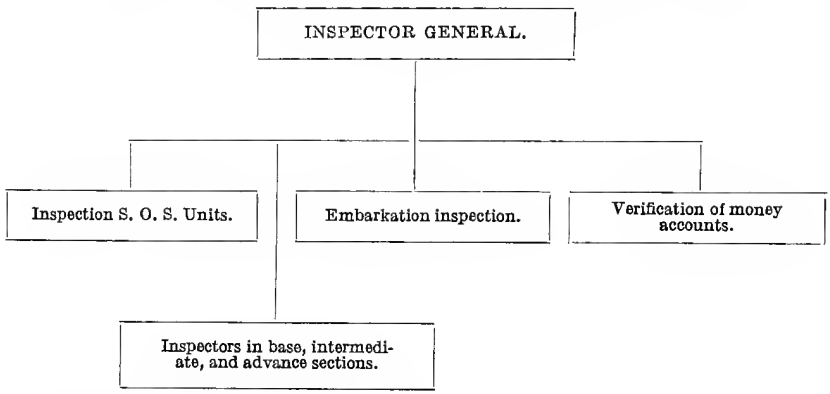
Censor Division.—Organized to censor mail.

Miscellaneous Division.—To this division was referred, in addition to miscellaneous matter, all translating done in headquarters. (3)

INSPECTOR GENERAL'S DEPARTMENT.

This department performed the usual duties assigned to the Inspector General. (3)

Organization chart, Inspector General's Department, Services of Supply.



JUDGE ADVOCATE'S DEPARTMENT.

General court-martial jurisdiction was granted the commanding general, Services of Supply, by the President under the special provisions of the eighth article of war on September 4, 1917. It was also granted to the commanding generals of Base Sections Nos. 1, 2, and 5, the advance section and intermediate section, on April 7, 1918, to the commanding general, District of Paris, on December 23, 1918, and to the commanding general, Base Section No. 8, on November 8, 1918. The general plan of organization in the Services of Supply called for a judge advocate and an assistant judge advocate for each section. Trial judge advocates were secured from line officers. Acting judge advocates were stationed in all sections.

The following special matters outside of the duties actually pertaining to his department were referred to the judge advocate: (3)

(*a*) Recommendations concerning the immunity of members of the American Expeditionary Forces from French criminal jurisdiction.

(*b*) Immunity of members of the American Expeditionary Forces and its agents from French civil jurisdiction.

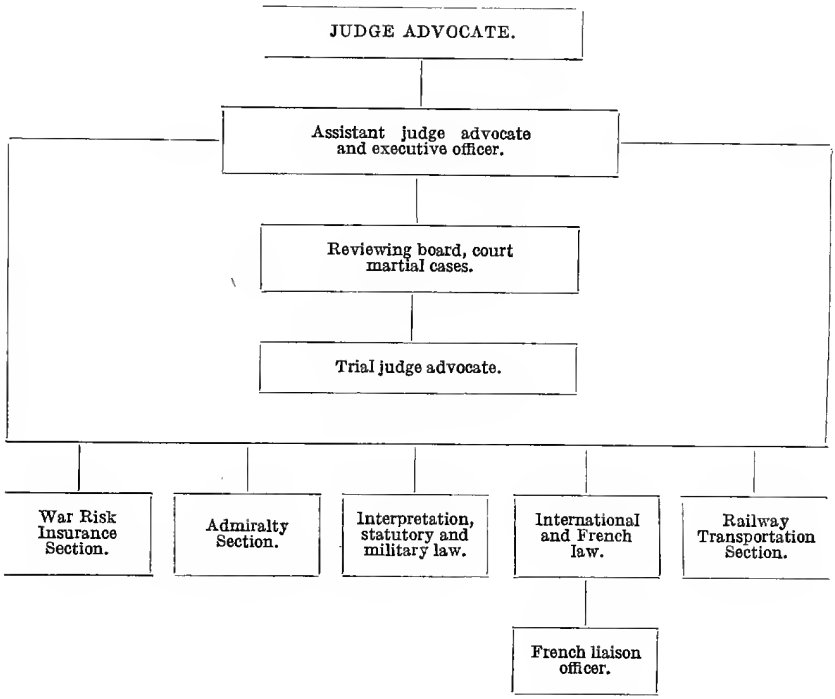
(*c*) The establishment of the Rents, Requisitions, and Claims Service.

ALLIED MILITARY MISSIONS AT HEADQUARTERS, SERVICES OF SUPPLY.

Two military missions were established at Headquarters, Services of Supply, French and British. The French mission was originally under the direction of the Organe Central des Relations Franco-

Americaines. Questions of a purely military nature were, however, referred by the mission directly to the French general staff.[25]

Organization chart, Judge Advocate's Department, Services of Supply.



French officers, constituting a part of the personnel of the mission, were attached to the various technical and supply services at Tours and to headquarters of the various sections to facilitate the settlement of Franco-American matters.

The British mission at Headquarters, Services of Supply, represented the[26] British Quartermaster General. It rendered valuable service by assisting the various supply services to obtain supplies and labor in Great Britain.

VI.—MILITARY BOARD OF ALLIED SUPPLY.

On April 19, 1918, Gen. Pershing addressed a letter to M. Clemenceau suggesting that there be vested in a central authority the

[25] There is on file in the Historical Branch, General Staff, a report by the French mission at Tours, dated April 16, 1919, prepared at the request of Headquarters, Services of Supply, giving a summary of their duties and a résumé of important questions settled through them.

[26] See memorandum on file in Historical Branch, General Staff, prepared by British mission, Headquarters, Services of Supply, giving a résumé of duties.

power to study questions of supply and adopt measures for the coordination of allied resources and utilities. On the same date he sent a cable to The Adjutant General relative to his suggestion. On May 3, Gen. Pershing addressed a second letter to the French Premier on the above subject.

On May 6, 1918, a conference was held in Paris to consider the unification of the supply service of the Allies. Representatives were present from France, Great Britain, Italy, and the United States. At this conference the coordination of the Allies' supply activities was approved in principle, but certain opposition developed as to matters of detail. On May 14 a second conference was held at Paris. British representatives did not appear, but filed a statement of their attitude. As a result of this conference the French and Americans entered into an agreement that provided for an interallied board whose decisions, if unanimous, would have force of law, provided (*a*) they concerned matters clearly defined; (*b*) each member had previously received from his government special power to agree to them.

The constitution of the Military Board of Allied Supply, afterwards ratified by the French, English, Belgian, Italian, and American Governments, was as follows: (11)

It is hereby agreed among the allied governments subscribing hereto:

(1) That the principle of unification of military supplies and utilities for the use of the allied armies is adopted.

(2) That in order to apply this principle and as far as possble coordinate the use of utilities and the distribution of supplies among the allied armies, a board consisting of representatives of each of the allied armies is to be constituted at once.

(3) That the unanimous decision of the board regarding the allotment of material and supplies shall have the force of orders and be carried out by the respective supply agencies.

(4) That further details of the organization by which the above plan is to be carried out shall be left to the board, subject to such approval by the respective governments as may at any time seem advisable.

We agree to the above and wish it to be submitted to the British and Italian Governments. (11)

The field of activity of the board was the rear of the British Army in France, the rear of the American Army in France, and the rear of the French Army only in the zone of the advance. The French zone of the interior, as distinguished from the French rear in the zone of the advance, was under French governmental civil authority. The headquarters of the Military Board of Allied Supply was established at Coubert (Seine-et-Marne).

The following General Orders authorized American representation on the allied board: (11)

"GENERAL HEADQUARTERS,
AMERICAN EXPEDITIONARY FORCES,
France, June 20, 1918.

General Orders,
No. 100.

* * * * * * *

SEC. 3, Par. 1. In order to unify, as far as possible, the supply of the allied forces, the principle of closer cooperation in the distribution of supplies in common use among the armies has been unanimously adopted by the allied governments. For the purpose of putting this principle into operation, the appointment of a Military Board of Allied Supply, consisting of one representative of each of the allied armies, has been agreed upon. In its capacity as the representative body of the several supply departments of the respective armies, this board is expected to study questions of supply, and adopt all proper measures for the coordination of allied resources and utilities.

Par. 2. The services of the Board of Allied Supply thus created will be fully utilized by officers of the various supply departments of the American Expeditionary Forces, who are enjoined to seek through this agency the equitable allotment of such supplies, and, in cooperating with corresponding supply officers of the allied armies, to take the most liberal attitude, to the end that every economy in the management and unification of allied supply systems may be accomplished.

Par. 3. Col. Charles G. Dawes, E. C., N. A., is designated as the representative of the American Expeditionary Forces on the Military Board of Allied Supply.

* * * * * * *

By command of Gen. Pershing.

JAMES W. MCANDREW,
Chief of Staff.

The following communication from Gen. Pershing to Col. Charles G. Dawes, American representative on the Military Board of Allied Supply, relates to American participation on this board: (11)

From: Commander in Chief.
To: Col. Charles G. Dawes, American Expeditionary Forces representative, Military Board of Allied Supply.
Subject: Establishment of staff, etc.

1. As the American member of the Military Board of the Allied Supply, you are authorized to establish a permanent staff at the headquarters of the board, to enable you to carry out the instructions contained in Section III, G. O. 100 c. s., these headquarters. This staff will consist of one or more representatives to be designated by the Commander in Chief and by the commanding general, Services of Supply, and such other personnel as you may consider necessary.

2. You are authorized to direct such travel by members of your staff as may be necessary in the performance of their duties, using this letter as your authority for issuing the necessary orders.

3. Under the provisions of Section III, General Orders, No. 100 c. s., these headquarters, which authorizes the Military Board of Allied Supply to make decisions, it has been directed that such decisions as you make with reference to supplies be communicated to general headquarters for execution.

4. Such information as may be required from time to time by the board will be furnished by the supply departments or other agencies of the American Expeditionary Forces, upon your request.

5. The mail address of the permanent headquarters of the board is "Section Franklin, Secteur Postal 141, via American Post Office 702." The telephone and telegraphic address is "Franklin."

By direction

LEROY ELTINGE,
Deputy Chief of Staff.

The following is a general summary of the principal activities of the Military Board of Allied Supply: (11)

(1) To enable the empty warehouse capacity of all the Allies to be used in common, should it be found necessary, there was prepared by this board a map showing the complete installations in rear of the three armies with details as to capacity.

(2) When the shortage in motor transport in the allied armies became acute, necessitating interallied use of the motor transport of any army, the board studied the question of a mobile motor-transportation reserve for the use of the marshal, commander in chief. The original plan was to create a potential motor reserve of 24,000 trucks. At the date of the armistice this potential reserve consisted of an equivalent of 11,000 3-ton automobile trucks.

(3) To enable such motor transport reserve to function, a special study of the question of the circulation of traffic in rear of the allied armies was considered. Interallied regulations governing road traffic in the zone of operations, governing troop movements, and the hauling of material by mechanical transport, were prepared. These regulations were approved by the general in command of each allied army and by Marshal Foch.

(4) The board established a school at Rozoy (Seine-et-Marne) for the instruction of motor transport and staff officers in connection with the interallied regulations governing motor transport in the rear of the allied armies.

(5) To form a link between the railhead and the motor transport and to release the motor transport for other uses, there was organized an interallied reserve of narrow-gauge railway (60 c. m.) matériel. For the training of officers in the use of this reserve, a school was established at Nangis (Seine-et-Marne).

(6) Through the efforts of the board the ammunition at the front was pooled by the French and American Armies.

(7) The board established a school for railroad regulating officers of the allied armies at St. Dizier.

(8) It provided regulations for the distribution of gasoline in the zone of the armies and the pooling of gasoline cans.

(9) When the shortage in forage became acute, particularly in the supply of hay, a composite study was made of the forage situation

in all the allied armies, as a result of which a uniform forage ration for these armies was adopted.

(10) To enable communication to be maintained by the headquarters of the marshal, commander in chief, and the various general headquarters during the contemplated advances, there was provided by the board an allied agreement providing for interallied construction and maintenance of second-line telephone and telegraph system. With the signing of the armistice this agreement provided the channel by which telephonic and telegraphic communication was secured in the occupied territories.

(11) The board investigated the labor situation in France and the allied armies, and demonstrated the impracticability of pooling the same.

(12) Had the war continued it was foreseen that a transport crisis would develop. The board therefore prepared a study setting forth the ration and other demands of the various armies which would have enabled a reduction in tonnage to the absolute minimum to be made.

(13) Advantage was taken of the existence of this board at the date of the armistice to secure from each of the allied armies a statistical statement of all troops, supplies, and means of transport existent as of date October 31, 1918.

(14) The last work of this interallied board was the securing of a coordinate statement and comparative study of the supply systems of the allied armies in France for future military study in the various armies.

As a general principle, the Military Board of Allied Supply handled policies of supply whenever there was an existing or prospective shortage of any type of supply in any of the allied armies.

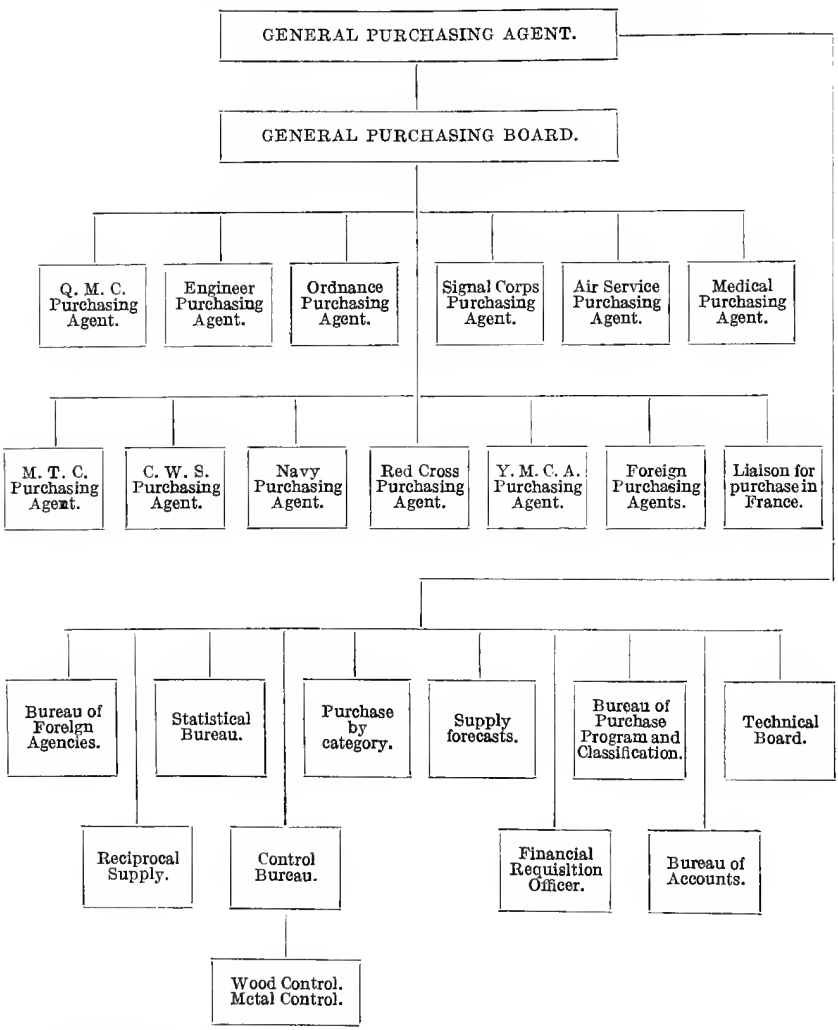
VII.—THE GENERAL PURCHASING BOARD AND THE GENERAL PURCHASING AGENT.

The General Purchasing Board was created by General Orders, No. 23, General Headquarters, Expeditionary Forces, August 20, 1917, and consisted of representatives of the following services, presided over by the general purchasing agent:

Quartermaster Corps.
Medical Corps.
Engineer Corps.
Air Service.
Signal Corps.
Ordnance Department.
Chemical Warfare Service.
Motor Transport Corps.

Each of these services disbursed its own appropriations, and it was the service representatives on the board who actually accomplished the purchasing. The general purchasing agent possessed no authority to make purchases under the law, but exercised control and veto of purchase. All orders for purchases were submitted for the general purchasing agent's approval.

Organization chart of Department of General Purchasing Agent.



Representatives of the General Purchasing Board were maintained in France, Great Britain, Spain, Portugal, Italy, and Switzerland, and through these agents passed all orders for purchases in

their respective territories. They were expected to locate available supplies and report same to the board. These agents worked in close cooperation with the purchasing officers of allied countries, with our diplomatic agents and with the representatives of the War Trade Board. Purchases were made by the General Purchasing Board only on order from the chiefs of the various services. In allied countries, the local purchasing agent worked through the Government representative; in neutral countries, purchases were made from individuals and firms.

When two or more services desired the same class of article only one service was authorized to make the purchase, after which the articles were equitably distributed. Approximately 10,000,000 ship tons [27] of supplies were purchased in Europe through the General Purchasing Board, from June, 1917, to November 11, 1918.

Minor activities of the general purchasing agent were varied. A statistical bureau was established which collected and compiled data relating to material procurable in Europe. Supply forecasts of the Expeditionary Forces were prepared which consisted of estimates of future requirements. There was a control bureau through which passed for approval orders and requisitions upon allied governments, the object of which was to prevent competition. Wood and metal bureaus were organized to allocate and control the above material. Civilian labor was first obtained by the general purchasing agent, who, for this purpose, organized a labor bureau,[28] which was later transferred to the Army Service Corps.[29] (17)

VIII.—ARMY SERVICE CORPS, AMERICAN EXPEDITIONARY FORCES.

PURPOSE OF ARMY SERVICE CORPS.

The Army Service Corps furnished personnel for a number of special and widely diversified activities which grew up in the Expeditionary Forces that were vitally necessary but did not pertain to any of the established staff corps and had not reached the size and importance of a corps and never did. "The officers and men on duty with these services were on a detached service status, constituting a material loss to their organizations, and they were often composed of personnel suitable for service at the front. The officers and men of these detachments suffered a distinct loss of morale because their promotion and recognition of service were unduly delayed. It was

[27] A ship ton is 40 cubic feet.

[28] Page 31 and paragraphs 86 and 87, Report of the Assistant Chief of Staff, G–4, General Headquarters to the commanding general, Expeditionary Forces, on file Historical Branch, General Staff.

[29] Paragraph 7, Part III, Final Report of General Pershing to the Secretary of War, September 1, 1919, on file Historical Branch, General Staff.

an administrative necessity to group these in one service." (3) The outstanding facts about it were:

SERVICES FURNISHED WITH OFFICERS AND MEN.

Headquarters Battalion, Services of Supply.
Headquarters detachment, rents, requisitions, and claims.
Headquarters detachment, central prisoner of war inclosure.
Rents, Requisitions, and Claims Service companies.
Cement mills companies.
Administrative labor companies.
Labor Bureau.
War Risk Insurance Bureau.
Guard companies.
Mails Division.
Leave Area Bureau.
Bordeaux embarkation detachment.
Intermediate section headquarters detachment.
Depot labor companies.
Garden service companies.
Headquarters printing company, Services of Supply.
Salvage and laundry units.
Organized August 22, 1918, by General Orders, No. 38, Headquarters, Services of Supply.
Initial strength, 233 officers and 4,577 enlisted men.
Authorized strength, 1,500 officers and 100,000 enlisted men.
Strength November 11, 929 officers and 19,494 enlisted men.
Maximum strength, 1,170 officers and 25,943 men, March 20, 1919.

ORGANIZATION.

The need of some organization to furnish these special activities with personnel became so pressing in May, 1918, that it was brought to the attention of the commanding general, Expeditionary Forces, by the commanding general, Services of Supply. On May 25, 1918, the commanding general, Expeditionary Forces, made a dual proposal to the War Department to accomplish the desired result. He urged that all officers of such miscellaneous services as the Provost Marshal's Department, the Post Office, the War Risk Bureau, and the like be commissioned in the National Army, and not in any particular branch of the line nor in any staff [30] corps. He asked also that a new service of enlisted men only, to be known as the Army Service Corps, be created. The outcome of this was an interchange of

[30] Cable 1189, commanding general, American Expeditionary Forces, to Adjutant General. Subparagraphs 1–D and E.

cables which culminated in the authorization of the corps by cable [81] July 23, 1918. The War Department, replying to the initial cable, suggested the impracticability of issuing commissions at large, and then the commanding general, Expeditionary Forces, asked that the corps be authorized, with 4,000 officers and 100,000 enlisted men; the officers to be in the ratio of 1 major to 4 captains to 6 first lieutenants to 6 second lieutenants, and the enlisted men of such grades provided by law for the Army at large as might be ordered by the commanding general, Expeditionary Forces, in addition to organizations transferred to the corps. The request for 100,000 enlisted men, as above outlined, was approved, but the number of officers was reduced to 1,500 in the ratio of 1 major to 2 captains to 5 first lieutenants to 5 second lieutenants.

Pursuant to authority in the cable authorizing the corps, the Army Service Corps was ordered in General Orders, No. 38, Headquarters, Services of Supply, August 22, 1918. (11) In this general order creating the corps certain of the organizations mentioned above were transferred to it and provision was made whereby the others were added later. The duties of the corps were defined as follows:

(*a*) The function of the Army Service Corps is to furnish the several detachments of the Services of Supply such commissioned, enlisted, and civilian personnel required, in addition to that otherwise provided, for general and specific administration and labor purposes.

(*b*) The duties of the Army Service Corps are to submit requisitions for the authorized commissioned and enlisted personnel of units under its control. To procure civilian employees and laborers. To organize the personnel in accordance with approved tables of organization. To keep the necessary records of personnel. To regulate the employment of civilian laborers employed by all branches of the Expeditionary Forces and contractors therefor. To perform such other duties necessary incident to the effective discharge of those specified above. To obtain records and minister to the personnel under its jurisdiction.

(*c*) The Army Service Corps organizations for administration and discipline are under the control of the commanding general of the section in which they are located; the chief of the technical service to which they are furnished, or his representative, assigns and directs their work. It is the duty of the Army Service Corps to maintain its organizations in condition to perform efficiently the duties required of them by the services to which they are assigned.

INTERNAL ORGANIZATION.

The internal organization was in two groups. The first was the Labor Bureau, with its several divisions, under a bureau chief, who was also deputy director of the corps. This bureau antedated the Army Service Corps a little over five months, and its incorporation into the corps made very little difference in its work. The other

[81] Cable 1598, Adjutant General to commanding general, American Expeditionary Forces, paragraphs 1–C and 1–D. Cable 1426, Commanding General, American Expeditionary Forces, to Adjutant General, subparagraphs 1–D, E, 1–F, and 1–G, on file Historical Branch, General Staff.

group, under an executive officer, maintained relations with all the other services using the personnel of the corps. An examination of the accompanying organization chart will show there was no coordinating officer of these two departments except the director of the Army Service Corps himself, and that the routine distribution of papers and correspondence had to be done in the director's own office.

THE LABOR BUREAU.

At the very outset of the American Expeditionary Forces it was evident that much of the labor necessary for the American forces would have to be done by European civilians. At first this labor was procured locally by the American commander concerned through the nearest French regional commander. Needless to say that this labor was entirely French. But it became apparent soon that other labor would have to be found and that all this civilian labor would have to be organized before it could be handled efficiently. To this end, by General Orders, No. 5, Services of the Rear, March 4, 1918, the general purchasing agent was charged with the procurement of civilian manual labor in Europe, other than labor procurable locally through the French regional commanders, and he thereupon organized the Labor Bureau in the form that obtained throughout its career.

Properly to organize the supply of labor, the following divisions were created: Procurement and transportation, medical, administrative labor companies and labor depots, contract and foreign relations, accounts and records, women's, and medical.

Including those who had been in the employ of the United States and those actually in the employ, the Labor Bureau had procured, up to November 11, 1918, 82,700 workers. Those actually in employ on the day of the armistice were as follows:

Men	30,800
Women	11,004
Total employed November 11, 1918	41,804
French (women)	11,004
French and mixed (men)	17,104
Chinese	7,476
Italians	3,297
Spanish	898
Moroccans	683
Annamites	461
Tunisians	350
Algerians	286
Portuguese	245
Total	41,804

The task of the Labor Bureau, speaking generally, was to feed, house, and care for laborers which it employed from Europe or through European agencies. In carrying out this work the first and most important division was that of procurement and transportation. The duties of this division summarized were: To keep agents in all of the principal employment agencies and in all countries from which suitable labor might be obtained; to seek out reliable French contractors; to have suitable contracts executed in the hiring of labor; to arrange transportation of labor from points of procurement to point of final destination and handle all details of such transportation. (11)

The Division of Labor Depots and Administrative Labor Companies took charge of laborers and organized them properly for military supervision, receiving them from the Procurement Division; made arrangement whereby labor was paid in accordance with contract; kept the Quartermaster Corps notified of what food, clothing, and other supplies would be needed and when and where; created depots for the receipt and organization of labor at St. Denis, Nantes, Lyon, Marseille, Toulouse, the labor from the north, west, and center of France being gathered at St. Denis and that from Lyon, Marseille, and from Italy and Spain and Portugal at Toulouse, while all from southwestern France assembled at Nantes. (11) The commanding officer of the labor depots sorted arriving labor into groups by nationalities and trades and sent it out upon requisition.

The Bureau of Accounts and Records kept account of all expenditures and receipts of the bureau, filed reports from the various divisions, and tabulated and submitted weekly a summarized statement of the reports of the chiefs of divisions.

By arrangement with the Medical Department, Expeditionary Forces, the Medical Division insured medical attention for civilian labor, provided sufficient hospital facilities, and took care of sanitation. (11)

The Division of Contracts and Foreign Relations made all contracts for labor, delivered copies of the contracts to the proper officials, kept a file of all labor requirements for the Expeditionary Forces, and notified the other divisions of the same, acted upon claims, acted as intermediary with the French and other governments in regard to labor, and kept in close touch with the French bureaus having to do with employment of labor. (11)

The Women's Division was just what its name implies, and all questions having to do with the administration of this class of labor were handled through it.

SPECIAL SERVICES.

The executive officer supervised all activities of the corps other than the Labor Bureau, and he was the corps adjutant in addition.

His department was divided into five parts: Officers' Division, Orders Division, Division of Statistics and Personnel, Division of Records, and the representatives in the base sections. The Officers' Division had charge of promotions and replacements and all other correspondence relating to officers, and also handled the discharge of enlisted men. The Orders Division was just what its name implies and the same was true of the Divisions of Records and of Statistics and Personnel. The duties of the representatives in the several base sections were to keep generally acquainted with the condition and needs of the Army Service Corps organization in their own sections and make the necessary reports and recommendations to the Army Service Corps headquarters. (11)

PERSONNEL.

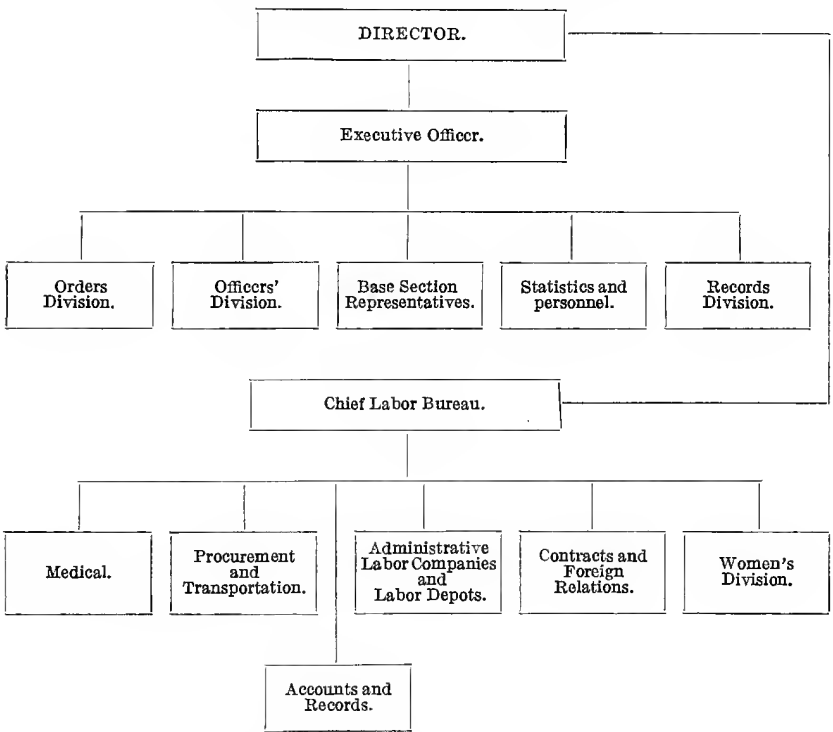
The personnel of the Army Service Corps was in two general groups, military and civilian, the civilian being much the larger. This personnel was drawn from three sources, drafts from the United States and replacements from the Expeditionary Forces for the military, and the labor market of Europe, Asia, and Africa, for the civilians. Because of the very nature of the corps, the growth of personnel was fitful. Calls on the corps were not uniform and the supply from the United States and from replacement depended upon so many things over which the corps had no control that at no time was it possible to make any arrangement for a fair relation of the supply to the demand. The military personnel from the United States was recruited as needed to supply particular demands. That from replacement, both officers and men, was made up of class B and C men. The supply from America was satisfactory generally, but it was felt, especially in the case of class B men, that personnel from replacement was not to be depended upon as a constant source of supply because of the liability of class B men to recall to combatant service as they regained their physical vigor. Had the war continued, men from the second draft in the United States would have been available and these men, especially those between 31 and 45 years old, would have given the Army Service Corps a personnel that it would have been reasonably sure of retaining.

The supply of civilian labor was fairly constant and generally in something like sufficient quantity. France alone could not have furnished all that was needed. The labor troops spared from Italy and the civilians recruited in Spain and Portugal and those recruited through the French in China, French Indo-China and in Northern Africa prevented anything like a serious shortage. Nevertheless, it was not possible, at the time of the armistice, to tell how well the supply would have kept pace with the demand if the war had lasted six months longer.

The requirements made by the European, Asiatic, and African people upon the United States were many and very specific. The rate of pay, the kind of clothing, and the kind of rations, which varied with the countries drawn from, were set forth in detail in the agreements and had to be adhered to strictly. (11)

In France labor was recruited through the government agencies and through well-known and reliable contractors. Often, however, contractors could not find the labor to do the work they had undertaken and at such times it was necessary for the Labor Bureau to come to their rescue and furnish the workmen required.

Organization chart, Army Service Corps, A. E. F.



In importing labor from Spain and Portugal care had to be taken to prevent persons of pro-German leanings from entering American service. In these two countries much difficulty was encountered in recruiting. This was due partly to apathy for the allied cause in Spain and to the desire of both countries to keep their laborers at home. Italy had a large number of refugees and the flow of this personnel was constant. The North African labor was good and that from China, especially from Annam, was efficient on lighter work but not adapted to heavy construction.

Female labor came from France and Great Britain. Very little attempt was made to organize that obtained in France, but the British women were militarized and came over in regularly organized units. They were a part of the Women's Army Auxiliary Corps, commonly known as "W. A. A. C's." The British women were especially efficient, nearly 200 of them being used in clerical work, headquarters, Services of Supply, and about 300 in the Central Records office at Bourges.

IX.—CHEMICAL WARFARE SERVICE, AMERICAN EXPEDITIONARY FORCES.

The Chemical Warfare Service in the Expeditionary Forces had to do with gas warfare, both offensive and defensive.

Authorized strength, 1,315 officers, 17,205 enlisted men. (3)

Strength at armistice, 1,114 officers, 12,414 enlisted men.

Supplies on hand November 11, 1918:

Box respirators		1,850,000
Protective gloves	pairs	184,794
M–2 masks		75,623
Canisters		903,345
Sag paste	tubes	2,228,092
Chloride of lime	tons	1,396
Livens projectors		4,095
Livens drums, filled		36,468
Stokes mortar bombs, smoke		5,022
Stokes mortar bombs, filled		39,105

ORGANIZATION.

The preliminary organization of a Gas Service was provided in General Orders, No. 8, General Headquarters, Expeditionary Forces, 1917. The Chief of Gas Service was charged with the conduct of the entire Gas and Flame Service. The Corps of Engineers, under this order, was to supply personnel and matériel for gas offense, and Medical Corps for gas defense. All gas, shell, and similar material was to be supplied by the Ordnance Department. (3)

The Gas Service was definitely authorized by General Orders, No. 31, Headquarters, Expeditionary Forces, 1917. Its duties under this order were the organization of personnel, supply of matériel, and the conduct of offensive and defensive measures. The headquarters of the service were organized to include the following sections: Administrative, Intelligence, Offensive, Defensive, Supply, Ordnance, Medical Director, and Laboratory. The Tables of Organization for the Gas Regiment call for one headquarters company, two Stokes companies, four cylinder and Livens companies. Personnel was proposed for army, corps, and division headquarters, and line of communication, including depots, filling stations, and training units.

When the Services of Supply were established, Gas Service headquarters were transferred to Tours, but a representative of the Chief of Gas Service was left at general headquarters. This time the service was reorganized into three main divisions—Military, Technical, and Production and Supply. The Military Division was to take care of all problems of gas offense and defense, and procured and disseminated gas intelligence. The Technical Division was to do all laboratory and field experimenting. The Procurement and Supply Division was to furnish all supplies for the service. The Offense and Defense branches of the Military Division were made separate divisions on May 1, 1918, and the Intelligence Branch was made a part of the Technical Division. By General Orders, No. 62, War Department, June 28, 1918, the Chemical Warfare Service was authorized, and in carrying out the details of this organization administrative divisions were created and their duties defined as follows: (19)

Defense Division was responsible for training all troops and defensive measures against gas. Its duties included the selection, instruction, and supervision of all gas officers in the field, the supervision of all gas-defense schools, and the training of isolated units in gas defense.

Offense Division was responsible for all offensive operation, including not only the operation of gas troops, but also the use of chemical warfare materials by the artillery and infantry, etc. It determined the gas, smoke, and incendiary materials in artillery shells, projector drums, trench mortars, bombs, and infantry grenades.

Production and Supply Division was responsible for procuring all supplies needed by the Chemical Warfare Service in the American Expeditionary Forces and for maintaining sufficient stocks.

Technical Division maintained supervision over the Chemical Warfare Service laboratory and the experimental field.

Intelligence Division procured and disseminated all gas intelligence received from the front and scientific data from the Chemical Warfare Service laboratory and the experimental field from the United States and from the Allies.

Personnel Office was responsible for procurement and distribution of Chemical Warfare Service personnel, established and controlled Chemical Warfare Service camps, and operated and controlled Chemical Warfare Service schools for training newly arrived personnel.

Medical director was the advisor to the Chief of Chemical Warfare Service on all medical questions connected with Chemical Warfare, and studied diagnoses and treatment of gas casualties, and issued pamphlets on these subjects for distribution to medical officers. (19)

PERSONNEL.

The personnel of the Chemical Warfare Service had a wide range as to scientific education, technical training, and mechanical skill. Many of the officers and men were experts in their several lines, others were of mediocre ability, and the rest were without any special training or skill whatever. The majority of both officers and men coming from civil life had had no military training, and none of them had ever applied their scientific and technical skill to the needs of warfare.[32]

To furnish this training, an officers' school was established at Hanlon Field near Chaumont in the fall of 1918. At this school the officers were given an intensive military course which covered briefly a wide range of military subjects. Upon completion of this course the officers were sent to the Gas Defense School and then were given a week's training in the offensive use of gas.

At the Army school and at the two corps schools, Langres and Gondrecourt, officers and noncommissioned officers from combat and pioneer units were trained in gas offense and defense and then returned to their units as gas officers and gas noncommissioned officers. In turn, these men instructed the officers and men of their organizations. Chemical Warfare Service officers and men were stationed also at the base ports from September, 1918, on and instructed troops as they arrived from the United States.

The personnel for the Chemical Warfare Service was drawn from scientific schools of America, from the several learned societies, from specialists in the business world, and from the ranks of employees of chemical and related concerns. A large part of the enlisted personnel was unskilled labor, and as such was drawn from the draft and from the ordinary volunteer lists.

MATERIAL.

The Chemical Warfare Service in France had very little to do with the manufacture of gas. It was concerned with the use of the finished product, whether offensive or defensive appliances, although it did have to look after the making of many masks in Europe, the repairing of masks, and the use and care of other apparatus.

The first material need was defensive, especially masks. In 1917 this presented some difficulty, because production of this kind in the United States had not progressed beyond the small factory stage, and so far the output was negligible. England and France had been making masks on a large scale for a long time. In the fall of 1917

[32] See page 12, C. W. S. Section, Part I, Appendix A—Report of board convened by paragraph 79, S. O. 141, Headquarters, Services of Supply, May 21, 1919. On file Historical Branch, General Staff.

only 20,000 respirators were received from the United States, so an order for 400,000 was placed with the British for delivery between December, 1917, and March, 1918. American masks began to arrive in quantity in April, 1918.

In production, the Chemical Warfare Service was in close relation with the Ordnance Department. On September 30, 1918, the Chemical Warfare Service material was divided into four classes, with the responsibility of the two services shown as follows:[33]

Class A included all offense gas supplies not used by gas troops. All tracer, illuminating, and signaling shells, and illuminating grenades were handled by the Ordnance Department exclusively. In the case of other shells and hand grenades the Chemical Warfare Service investigated the need for such materials, procured authorization from the General Staff, approved designs submitted by the Ordnance Department, and filled or inspected the grenades procured by that department. These were transported and issued by the Ordnance Department.

Class B included all gas supplies issued only to gas troops; all of which was handled by the Chemical Warfare Service.

Class C included all aviation, smoke, and incendiary materials. The Chemical Warfare Service suggested the use, procured the authority, approved the Ordnance Department designs, and filled and inspected these materials, and the rest of the work for this class was placed in the hands of the Ordnance Department.

Class D included all defensive gas material issued to troops and was handled entirely by the Chemical Warfare Service.

In November, 1917, authority was given to fill 10 per cent of all shells with gas. On June 24, 1918, the program was increased to include 15 per cent of all artillery projectiles up to and including 9.5 inches, inclusive. On September 27, 1918, the War Department was asked by cable for authority for program beginning November 1, 1918, which provided that 20 per cent of all projectiles produced be filled with gas for all calibers up to and including 9.2 inches. Beginning January 1, 1919, this was to be increased to 25 per cent and the production capacity for gas to be increased 35 per cent. About this time also it was decided that programs for gas-filled grenades should be handled by the Chemical Warfare Service and that 10 per cent of all hand grenades should be filled with gas.

After the first few months the greater part of the American Expeditionary Forces gas material came from the United States, although approximately 2,000 cylinders were filled with gas at Pont-

[33] Page 13, C. W. S. Section, Part L, Appendix A—Report of board convened by paragraph 79, S. O. No. 141, S. O. S., May 21, 1919, on file Historical Branch, General Staff.

de-Claix (Isère). One hundred thousand emergency filters were made and fitted on canisters, 200,000 Connells canisters, and a number of other defensive appliances were produced in England.

FACILITIES.

The location of the Chemical Warfare Service facilities in France were as follows:

Gas school.—Hanlon Field, near Chaumont.

Corps schools.—Gondrecourt (Meuse), Langres (Haute-Marne).

Gas equipment and filling stations.—Is-sur-Tille (Côte-d'Or), St. Dizier (Haute-Marne), Dunkerque (Nord).

Experimental field.—Hanlon Field, near Paris.

Chemical Warfare Service laboratory.—Puteaux, near Paris.

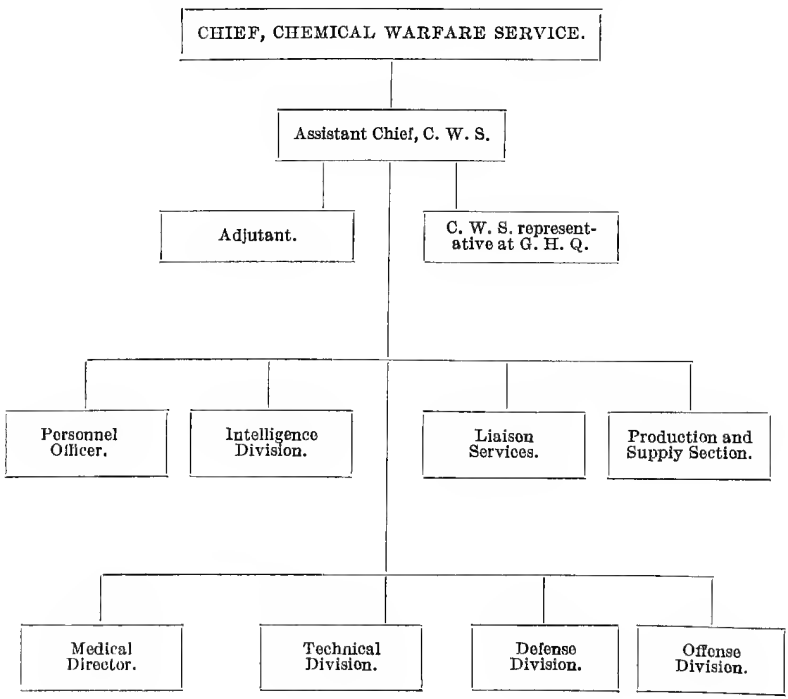
Chemical Warfare Service storage depots.—Montoir (Loire-Inférieure), St. Sulpice (Gironde), Gièvres (Loir-et-Cher), Poinçon (Seine-Inférieure), Clefcy (Vosges).

Army depots, First Army.—Landrecourt (Meuse), Marcq (Ardennes), Les Monthairons (Meuse).

Army depots, Second Army.—Leval (Belfort), Belleville (Meurthe-et-Moselle), Woinville (Meuse), Toul.

Chemical Warfare Service factory.—Pont-de-Claix (Isère).

Organization chart, Chemical Warfare Service, A. E. F.



X.—THE CHIEF ENGINEER, AMERICAN EXPEDITIONARY FORCES.

The activities of the Chief Engineer came under two general headings: *First*, those of a technical nature relating to organization, personnel, equipment, training, and distribution of Engineer combat units; and, *second*, those relating to construction and supply. Construction included wharves, warehouses, depots, shelters for troops, and rail facilities. The design of port and rail facilities, however, was a function of the Transportation Corps, the Engineers simply carrying out the design. Supply included the procurement, storage and distribution of technical engineers' supplies for combat troops wherever located, and the provision of everything needed in the way of materials and machinery for construction in the Services of Supply.

Strength at armistice:[34]

With armies	86,400
Construction	43,000
Forestry	18,500
Supply	7,600
Miscellaneous	18,500
Total	174,000

Construction:

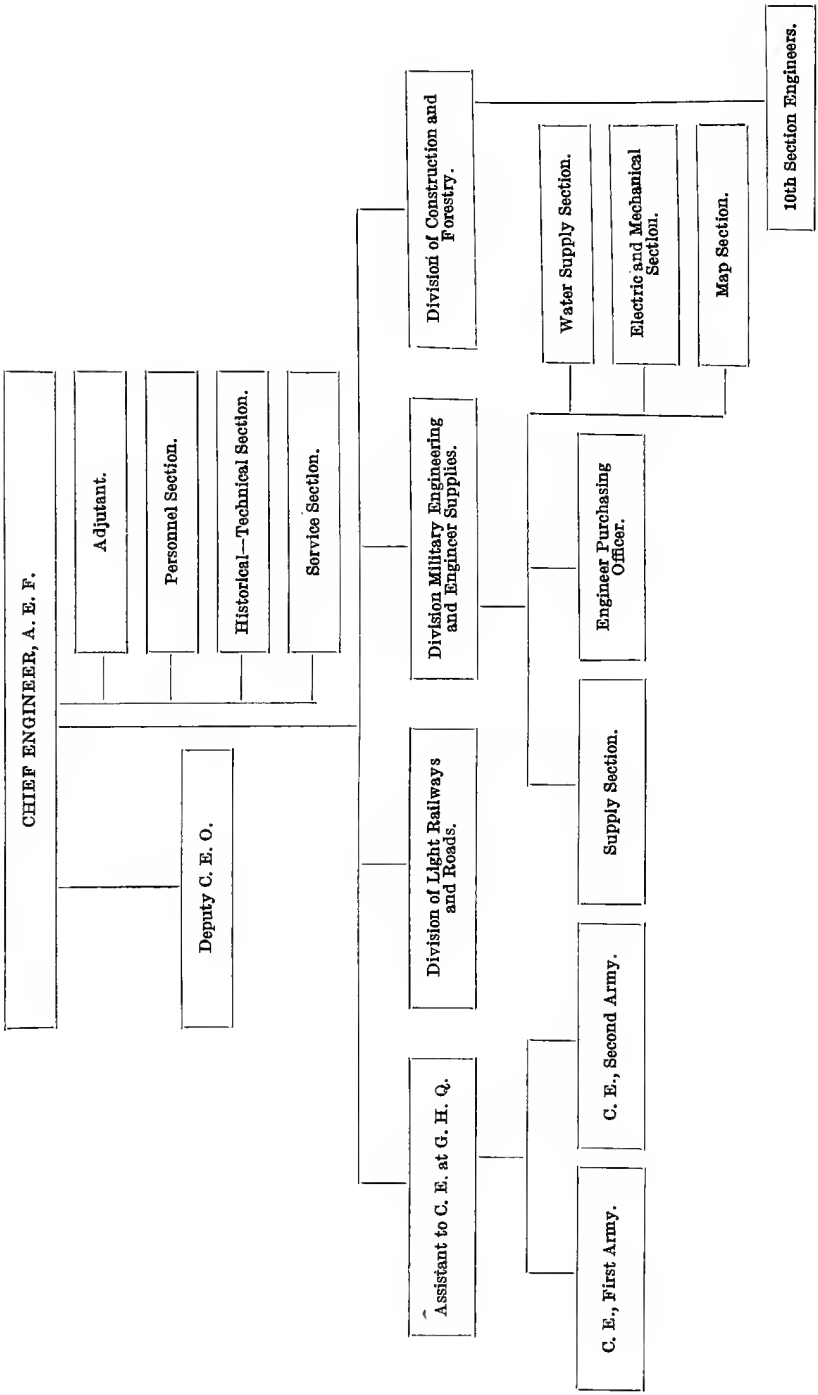
Docks, 15 berths, total length 6,360 feet.
Hospitalization, 280,000 beds.
Standard-gauge railroad, 1,026 miles.
Engine terminals, 10.
Railroad cut-off, 5.9 miles near Nevers.
Troop shelters, 16,000 barracks.
Covered storage, 22,415,000 square feet.
Remount stations, space for 27,700 animals.
Veterinary hospitals, space for 16,500 animals.
Cold storage, capacity for 14,200 tons.
Ice plants, capacity 500 tons a day.
Bakeries, capacity 1,250,000 tons a day.

Forestry output:

Lumber, 218,211,000 feet B. M.
Standard-gauge ties, 3,051,137.
Small ties, 954,667.
Piling, 39,095 pieces.
Fuel wood, 340,000 cords.
Miscellaneous round products, 1,926,603 pieces.

[34] Page 2, Engr. Section, Part I, Appendix A—Report of board appointed by paragraph 79, S. O. 141, S. O. S., May 21, 1919, on file Historical Branch, General Staff.

Organization chart of Corps of Engineers, A. E. F.



Engineer supplies procured, 3,314,662 short tons.
Light railways operated, 1,388.8 miles.
Freight handled on above, 860,652 tons.

ORGANIZATION.

Although the activities under the Chief Engineer later became well defined between those in the Services of Supply and those in combat areas, at first all these activities were administered from general headquarters. The large division came in March, 1918, when the headquarters, line of communication, which ultimately became Services of Supply, were moved from Paris to Tours and the general headquarters went from Paris to Chaumont. The first line of work to be detached from the Engineers and made a separate service was transportation. By General Orders, No. 37, Headquarters, Expeditionary Forces, 1917, the Transportation Service was put under a Director General of Transportation and was made an independent technical service of general headquarters. Later Engineer personnel was transferred to such other services as the Motor Transport Corps and the Chemical Warfare Service, which were made independent services. When headquarters were moved to Tours a Service of Utilities was created, and in that service was put the Transportation Service, the Motor Transport Service, the Department of Light Railways and Roads, and the Department of Construction and Forestry. Previous to this time light railways and roads had been two separate departments under the Director General of Transportation. But by July 11, 1918, it was found that the Service of Utilities was not satisfactory, and it was done away with, the Motor Transport Corps and the Transportation Corps again becoming independent services and the Department of Light Railways and Roads and the Department of Construction and Forestry remaining with the Engineers. This change then left the Engineer organization in the Expeditionary Forces with four main branches, which arrangement continued until some time after the armistice. The headquarters of the Chief Engineer Officer were at Tours, the headquarters of the Services of Supply. These four branches were:

(1) Assistant to Chief Engineer, Expeditionary Forces, at general headquarters.
(2) Department of Construction and Forestry.
(3) Department of Military Engineering and Military Supplies.
(4) Division of Light Railways and Roads.

The chief engineer officer maintained an office at general headquarters with an assistant chief engineer officer in charge. This assistant at general headquarters was concerned entirely with matters pertaining to the Engineer Service in the Zone of the Armies.

He had a Supply Section, and also controlled the Geologic, Camouflage, Searchlight, Engineer, Intelligence, Flash and Sound Ranging, and Bridge Sections.

The Division of Military Engineering and Engineer Supplies was divided into five sections, as follows:

(1) Supply Section.
(2) Water Supply Section.
(3) Electric and Mechanical Section.
(4) Office Service Section.
(5) Accounts and Contracts Section.

The main function of this division was procurement, storage, and distribution of engineering matériel. The procurement of supplies in Europe was done through a representative of the division in the office of the general purchasing agent in Paris. This officer had two functions. He was the representative of the division and was also the engineer purchasing agent of the Expeditionary Forces. The other function of this officer had to do strictly with military engineering. (15)

The Department of Construction and Forestry was created by General Orders, No. 8, Services of the Rear, 1918. It was charged with all construction work in the Services of Supply. The department was organized into divisions of Administrations, General Construction, Construction of Railroads and Docks, and Forestry. The several classes of general construction were: Storage, Air Service facilities, Ordnance facilities, Veterinary hospitals, refrigerating plants, shelter for troops, prisoner-of-war inclosures, Army schools and base, camp, convalescent, evacuation, and Red Cross hospitals, and the like. Port construction included docks and the warehouses thereon, railroad connections and lighters. The phases of railroad construction were engineer terminals, regulating stations, multiple tracking at congested points, cut-offs, connections with the ports and receiving, classification, and departure yards and tracks in storage depots.

The lack of ocean transportation made it necessary to obtain most of the lumber and other forestry products from European sources. Furthermore, the American Expeditionary Forces had to be self-sustaining in this kind of supplies, i. e., it had to arrange for purchase of the wood on the stump, and then do its own cutting and sawing. This forestry work was so closely related to nearly all kinds of construction that it was made a part of the Construction Department.

The Department of Light Railways and Roads, as noted above, originally formed two separate departments, under the director general of transportation, which were consolidated when the Service of

Utilities was created. It operated entirely in the Zone of the Armies, being concerned with the construction of 60-centimeter gauge railroad, the erection and repair of the rolling stock necessary for the same and the repair of French roads within its sphere of activities. It had nothing to do with the maintenance of roads in the Services of Supply, that duty being charged to the Department of Construction and Forestry. It had nothing to do with any standard gauge road. At the time of the armistice it had 165 narrow gauge locomotives and 1,695 cars and operated over a system of 1,388.8 miles of track.

PERSONNEL.

The commissioned personnel came from the Corps of Engineers of the Regular Army and from the vast body of engineering graduates in the United States. The several societies of civil, mechanical, mining, and structural engineers were largely responsible for the designation of the best men in their ranks as available for commissions. Engineer schools in the United States contributed much to the work of training men for commissions. The enlisted personnel was recruited in the ordinary way from selective draft and by transfer from other units. The commissioned personnel was already efficient in the lines of standard engineering and the enlisted personnel was in a like position. The technical work was already familiar to men recruited in the technical units and the rest of the duties of enlisted men was straight labor which was not hard to find.

The war in France, however, had developed many technical specialties such as flash and sound ranging, map-making from aerial photographs, camouflage, and the use of searchlight in antiaircraft operations with which the American officers and men were in a measure unfamiliar. It was through the medium of schools that the necessary instruction in these specialties, as well as in sound tactical principles, was given. In addition to these schools much instruction was given through assignment to duty with British and French organizations. A practice was made of sending a certain number of newly arrived officers to the front on trips of inspection and study under allied guidance. Provision was made also for the attendance of a small number of American engineers at the British and French schools. On October 8, 1917, Engineer Corps and Army schools were authorized by General Orders, No. 45, Headquarters, Expeditionary Forces. Two days later by General Orders, No. 46, general headquarters, the Engineer School and the Gas School at Langres were created. Corps schools were authorized soon after at Gondrecourt and Châtillon-sur-Seine. (15) While these schools drew their instructors and personnel from the Engineer establishment, the control of the instruction was, by authority of General Orders, No. 130,

Headquarters, Expeditionary Forces, 1918, under the general headquarters. The primary function of the corps schools was to fit officers of incoming divisions as promptly as possible to train their own men. The intention was later to make the mission of the schools the production of a high degree of skill among selected officers and noncommissioned officers and the instruction of officers in the duties of the next higher command. From the earliest days of the schools more attention was given to strictly pioneer and combat work and less to heavy construction than had been the practice in the British schools. This belief of the Americans that open warfare would prevail ultimately was amply justified in the summer of 1918. Heavy construction was taken care of by officers who had specialized in that kind of work in civil life. The training of engineer replacements was done at the School of Angers. Replacements fresh from America were handled here and after they had taken the course of instruction they were classified, rated, and sent to regiments. (15)

MATÉRIEL.

Engineer supplies procured for the Expeditionary Forces operation amounted to 3,314,662 tons, the cost involved being approximately $450,000,000. As already noted the procurement, storage, and distribution of this matériel was a function of the Department of Military Engineering and Engineer Supplies. Like every other service, supplies for the Engineers were procured through shipment from the United States and by purchase in Europe. (15) From the United States 1,496,489 tons were received and from Europe, 1,818,173 tons. Of the Engineer tonnage from the United States 963,816 were turned over to the Transportation Corps, and the balance distributed by the Engineers. Of the supplies procured in Europe 1,705,115 tons were bought from the allied governments and 113,058 in open market or by contract. The supplies bought in Europe consisted mainly in wooden barracks, hospitals and other buildings, heavy building material which could not be transported from America economically, also standing timber. The supplies from the United States were of the following general classes:

General machinery.
Iron and steel products.
Hardware and hand tools.
Railway rolling stock.
Railway motive power.
Track material and fastenings.
Automotive transportation.
Horse-drawn transportation.
Lumber.
Building material and supplies.
Liquids.
Explosives and accessories.
Unit accountability.
Office supplies.
Floating equipment and accessories.
Material and tools for locomotive and car repair and erection shops.

FACILITIES.

The principal Engineer facilities and their locations in the Expeditionary Forces were as follows:

Laboratories for water supply:
- Paris (Seine).
- St. Nazaire (Loire-Inférieure).
- Bordeaux (Gironde).
- La Rochelle (Charente-Inférieure).
- Dijon (Côte-d'Or).
- Neufchâteau (Vosges).
- Brest (Finistère).
- Nevers (Nièvre).
- Le Mans (Sarthe).
- London.

Camouflage shops:
- Dijon (Côte-d'Or).
- Paris (Seine).
- Nancy (Meurthe-et-Moselle).
- Mobile Shops with Armies.

Searchlight stations:
- Gièvres (Loir-et-Cher).
- Colombey-les-Belles (Meurthe-et-Moselle).
- Pont-sur-Seine (Aube).
- Fort Mont Valerien (Seine-et-Oise).
- Langres (Haute-Marne).
- With the Armies.

Map-making and reproduction plants:
- Langres (Haute-Marne).
- Mobile plants with Armies and Corps.

Light railway activities:
- Abainville (Meuse).
- Toul (Meurthe-et-Moselle).
- Rattentout (Meuse).
- Baccarat (Meurthe-et-Moselle).
- Meuse-Argonne Sector.

Sand and gravel supply:
- Deposits in Cher River at Vierzon.
- Deposits in Moselle near Nancy.
- La Baule (Loire-Inférieure).

Engineer schools:
- Langres (Haute-Marne).

Engineer schools—Continued.
- Châtillon-sur-Seine (Côte-d'Or).
- Gondrecourt (Meuse).
- Angers (Maine-et-Loire).

Engineer supply depots:
- Langres (Haute-Marne).
- Neufchâteau (Vosges).
- Liffol-le-Grand (Vosges).
- Pacy-sur-Armançon (Yonne).
- Châtillon-sur-Seine (Côte d'Or).
- Demange-aux-Eaux (Meuse).
- Barlsey-la-Côte (Meurthe-et-Moselle).
- Nevers (Nièvre).
- Etais (Côte-d'Or).
- Clermont-Ferraud (Puy-de-Dôme).
- St. Amand (Cher).
- Le Mans (Sarthe).
- Orly (Seine).
- Gièvres (Loir-et-Cher).
- Saumur (Maine-et-Loire).
- Nantes (Loire-Inférieure).
- St. Nazaire (Loire-Inférieure).
- Bordeaux (Gironde).
- Le Havre (Seine-Inférieure).
- Rouen (Seine-Inférieure).
- Brest (Finistère).
- Landerneau (Finistère).
- Marseille (Bouches-du-Rhône).
- Aigrefeuille (Loire-Inférieure).
- La Guerche (Cher).

Cement mills:
- Montagne (Gironde).
- Le Teil (Ardèche).
- Cruas (Ardèche).
- Couvrot (Marne).
- Beaumont (Seine-et-Oise).
- Guerville (Seine-et-Oise).
- La Souys (Gironde).

XI.—MEDICAL CORPS, AMERICAN EXPEDITIONARY FORCES.

Medical Corps units were in France before the arrival of the commanding general, Expeditionary Forces, and were among the last to leave. The most important figures in connection with the corps in Europe follow:

Maximum strength, January 11, 1919: 17,330 officers, 10,008 nurses, and 145,386 enlisted men.
Strength at armistice: 14,499 officers, 8,587 nurses, and 140,986 enlisted men.
Base hospitals, 60.
Major camp hospitals, 45.
Hospital centers, 27.
American Red Cross military hospitals, 7.
Convalescent hospitals, 2.
Convalescent camps, 13.
Medical supply depots, 7.
Medical laboratories, 6.
Medical supplies from United States, 108,753 tons.
Medical supplies from Europe, 99,487 tons.
Death rate of wounded, 5 per cent.
Wounded returned to duty, 75 per cent.
Deaths from diseases, 45 men per 1,000.
Venereal disease, 35.9 new cases per 1,000.[35]
Veterinary hospitals, exclusive of those with armies, 21.
Capacity of above, 27,614 animals.

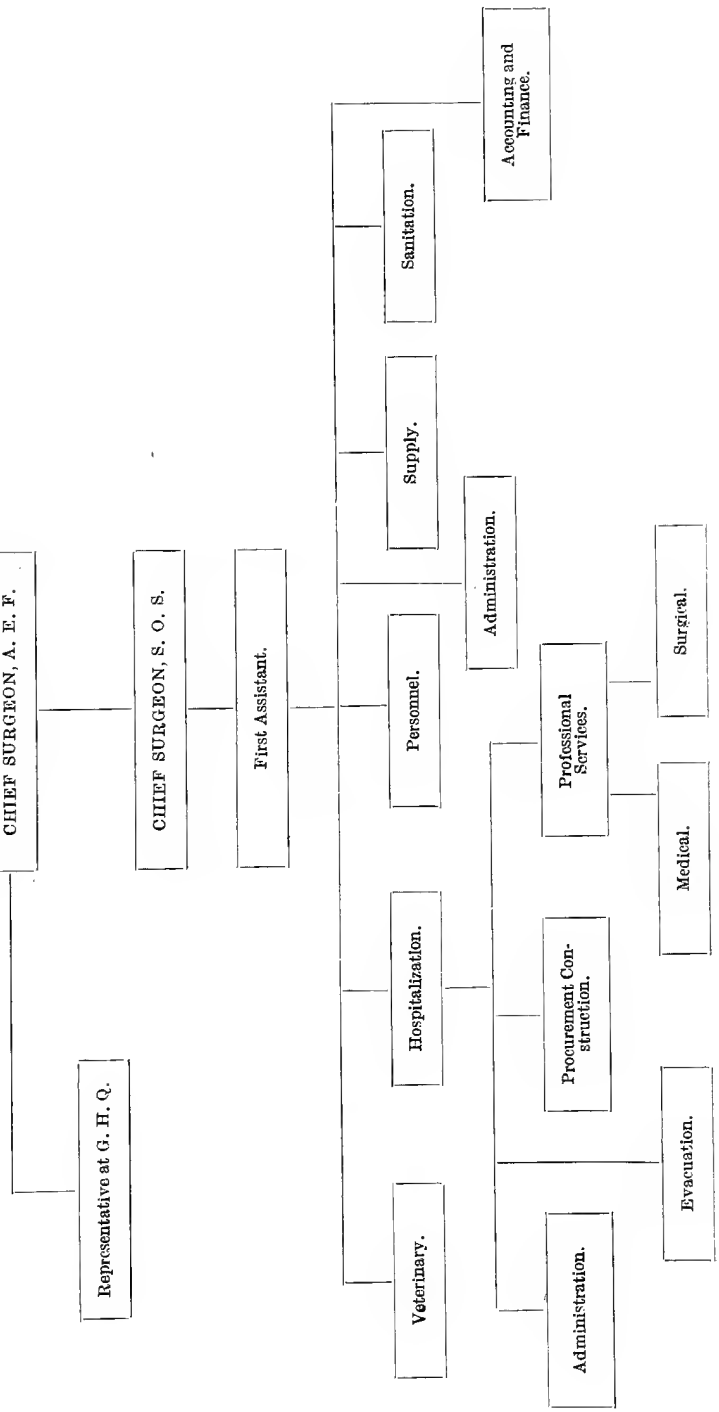
ORGANIZATION.

The first Medical Corps personnel, that of Army Base Hospital No. 5, arrived in France[36] May 25, 1917, and went to duty with the British Expeditionary Forces at Dannes (Pas-de-Calais) and Camiers (Pas-de-Calais). On September 4, during an airplane attack on the hospital there, one officer and three enlisted men of this unit were killed and three officers and six enlisted men were wounded. These were probably the first American casualties in the war. The first medical headquarters personnel arrived in Paris June 13, 1917, with Gen. Pershing's party. The office of the chief surgeon, Expeditionary Forces, remained in Paris until September 1, 1917, when it was moved to Chaumont with the other departments of general headquarters. It was removed to Tours, March 21, 1918.

The first work of the chief surgeon and his assistants was an inspection to determine the location of hospitals at base ports and

[35] Source, Bureau of Statistics, G. S. tables compiled from M. C. reports.
[36] Page 3, report of Capt. E. O. Foster as of Nov. 11, 1918, on file Historical Branch, General Staff.

Organization chart, Medical Department, A. E. F.



along the line of communications. As soon as these locations had been determined, in cooperation with the French and the construction services of the American Army, building was pushed and many of these base hospitals were completed in record time. Wherever possible existing buildings or partly constructed buildings were made use of.

The Medical Corps in the Line of Communications was made a separate department on July 18, 1917, when the office of Chief Surgeon of Base Groups and Line of Communications was created. Until March 21, 1918, this officer had charge of all hospitals, supplies, and personnel in his territory. By General Orders, No. 31, Headquarters, Expeditionary Forces, 1918, the duties of the chief surgeon, Line of Communications, were merged with those of the chief surgeon, Expeditionary Forces. By July 28, 1917, the divisions of the chief surgeon's office were as follows:

Hospitalization.—In charge of the location, construction, and repair of all hospitals, hospital trains and care of sick and wounded.

Sanitation and Statistics.—In charge of camps, quarters, disinfection and delousing, collection and evacuation of sick, health of commands, report of sick and wounded, statistics, and sanitary reports.

Personnel.—In charge of personnel of Medical, Dental, and Veterinary Corps, civilian employees and schools of instruction.

Supplies.—In charge of hospital equipment, medical, dental, and veterinary supplies, settlement of accounts and all ambulances and motor transportation.

Records and Correspondence.—Name describes its duties.

Gas Service.—This work was early taken over by the Chemical Warfare Service and is described in the section devoted to that service.

This division of duties remained until the office of the chief surgeon was moved from Chaumont to Tours. When this occurred a representative of the chief surgeon was assigned to general headquarters with an assistant on duty with each of the several General Staff groups. The work of the chief surgeon, after the removal to Tours, was divided into the following groups:

(1) Hospitalization, evacuation, and hospital administration.
(2) Sanitation, sanitary inspection, and medical accounting.
(3) Personnel.
(4) Medical supplies.
(5) Finance and accounting.
(6) Veterinary.

When war was declared the Army Nurse Corps contained only 400 nurses scattered over the United States and its possessions. The reserve had been organized under the American Red Cross. This

agency, therefore, under a former superintendent of Army nurses, had plans ready and had enrolled several thousand reserve nurses. The character, qualifications, and antecedents of each were carefully investigated before enrollment, the result being that the 10,008 nurses sent to the Expeditionary Forces formed a body of remarkably trained women who gave a service the standard of which was exceptionally high. When the first call was made only graduate nurses who had registered in accordance with the laws of their respective States were accepted. Later this requirement was waived and graduate nurses were accepted with the understanding that they would register within a year after they left active service. Experience showed that units definitely organized by a head nurse in civil hospitals and colleges, among women accustomed to work together, were more efficient.

MATERIAL.

There were over 3,000 items in the supply table of the Medical Corps. These varied all the way from delicate and expensive scientific instruments and hospital equipment to soap, gauze, and medicines. The Expeditionary Forces received 208,240 tons of these supplies, about 95 per cent coming from the United States and the balance from European markets.[37]

The first medical supplies arrived with the first convoy which reached St. Nazaire June 26, 1917, and from this time on there was a steady flow.

Storage facilities at ports governed the method of handling medicines and accessories at each port. At St. Nazaire, Bordeaux, and Marseille, where storage facilities were more extensive, medical officers were stationed to supervise the segregation of their supplies from those of other services. Generally all supplies for the corps were loaded into cars and shipped to base storage as rapidly as might be where they were divided into two classes. One class was placed in storage at the base ports and was known as "controlled stores." The other class, consisting of miscellaneous supplies in mixed boxes of small volume, was shipped directly to the intermediate depots. The base storage depots entered all "controlled stores" on warehouse receipts and copies of these receipts were forwarded daily to the Chief Surgeon at Tours, where stock records of all storage stations were kept. Medical stores were received from time to time at Brest, Le Havre, Cherbourg, Les Sables-d'Olonne, La Pallice, La Rochelle, and Rochefort, where the Medical Corps had no storage facilities. At these ports the supplies were shipped directly to Gièvres regardless of class.

[37] Page 116 of "Some Achievements of the Services of Supply" on file Historical Branch, General Staff.

Purchases in Europe were made by the medical member of the General Purchasing Board at Paris under the direction of the chief surgeon. Such supplies were shipped at times directly from the place of purchase to the hospital or depot requiring them, but generally all purchases in England or France were shipped to intermediate depots and distributed like supplies from the United States.

The stores for combat troops were controlled by the armies and were independent of the chief surgeon, who was concerned only with keeping a proper reserve for the armies' needs.

All requisitions were disposed of according to the quantities required. When items were large enough to make carload lots they were extracted to "Shipping notices" and sent to base storage depots for direct shipment. When less than carload lots or miscellaneous items of less than original packages were called for, the requisition was forwarded to the nearest issue depot. Requisitions from small hospitals were forwarded to nearest issue depot after modification and approval by the chief surgeon.

The locations of Medical Corps facilities were as follows:

Base hospitals:
- Vichy (Allier).
- Vicq (Allier).
- Vauclaire (Dordogne).
- Boulogne (Pas-de-Calais).
- Tours (Indre-et-Loire).
- Châteauroux (Indre).
- Nantes (Loire-Inférieure).
- Limoges (Haute-Vienne).
- Dijon (Côte-d'Or).
- Châtelguyon (Puy-de-Dôme).
- Beau Desert (Gironde).
- Allerey (Saône-et-Loire).
- Tottenham (England).
- Portsmouth (England).
- Dartford (England).
- Salisbury (England).
- Horsley Park (England).
- Pougues-les-Eaux (Nièvre).
- Toul (Meurthe-et-Moselle).
- Mesves (Nièvre).
- Langres (Haute-Marne).
- Caen (Calvados).
- Neufchâteau (Vosges).
- Etretat (Seine-Inférieure).
- Rouen (Seine-Inférieure).
- Bordeaux (Gironde).
- Savenay (Loire-Inférieure).
- Treport (Seine-Inférieure).
- Dannes (Pas-de-Calais).
- Camiers (Pas-de-Calais).
- Mars (Nièvre).

Base hospitals—Continued.
- Chaumont (Haute-Marne).
- Bazoilles (Vosges).
- Vittel (Vosges).
- Angers (Maine-et-Loire).
- Royat (Puy-de-Dôme).
- Contrexéville (Vosges).
- Hendecourt (Pas-de-Calais).
- St. Denis (Seine).
- Romorantin (Loir-et-Cher).
- Blois (Loir-et-Cher).
- Beaune (Côte-d'Or).
- Rimaucourt (Haute-Marne).
- Paris (Seine).
- Kerhornou (Finistère).
- Pau (Basses-Pyrénées).
- Revigny (Meuse).
- Commercy (Meuse).
- Pruniers (Loir-et-Cher).
- St. Nazaire (Loire-Inférieure).
- Clermont-Ferrand (Puy-de-Dôme).
- Vannes (Morbihan).
- Autun (Saône-et-Loire).
- Quiberon (Morbihan).
- Perigueux (Dordogne).
- Mont-Dore (Puy-de-Dôme).
- Hyères (Var).
- Brest (Finistère).
- Lafauche (Haute-Marne).
- Orleans (Loiret).
- Poitiers (Vienne).
- Vincenza (Italy).

Camp hospitals:
- Roanne (Loire).
- Gondrecourt (Meuse).
- Bourmont (Haute-Marne).
- Genicart (Gironde).
- Humes (Haute-Marne).
- Châteauvillain (Haute-Marne).
- Prauthoy (Haute-Marne).
- Mailly-le-Camp (Aube).
- Coetquidan (Ille-et-Vilaine).
- Souge (Gironde).
- Langres (Haute-Marne).
- Tours (Indre-et-Loire).
- Le Corneau (Gironde).
- Meucon (Morbihan).
- Romsey (England).
- Winchester (England).
- Southampton (England).
- Liverpool (England).
- Bar-sur-Aube (Aube).
- Gièvres (Loire-et-Cher).
- Riom (Puy-de-Dôme).
- Aix-les-Bains (Savoie).
- Le Mans (Sarthe).
- Bassens (Gironde).
- Joinville (Seine).
- Barisey-la-Côte (Meurthe-et-Moselle).
- Montigny-le-Roi (Haute-Marne).
- St. Nazaire (Loire-Inférieure).
- Le Valdahon (Doubs).
- Issoudun (Indre).
- La Courtine (Creuse).
- Bourbonne (Haute-Marne).
- Noyers (Loir-et-Cher).
- Nevers (Nièvre).
- St. Maixent (Deux-Sèvres).
- Brest (Finistère).
- Romorantin (Loir-et-Cher).
- Châtillon-sur-Seine (Côte-d'Or).
- La Rochelle (Charente Inférieure).
- Is-sur-Tille (Côte-d'Or).
- Landerneau (Finistère).
- Recey-sur-Ource (Côte-d'Or).
- Laignes (Côte-d'Or).
- Tonnerre (Yonne).
- Marseille (Bouches-du-Rhône).

Hospital centers:
- Allerey (Saône-et-Loire).
- Bazoilles-sur-Meuse (Vosges).
- Beau Desert (Gironde).
- Beaune (Côte-d'Or).
- Clermont-Ferrand (Puy-de-Dôme).

Hospital centers—Continued.
- Commercy (Meuse).
- Lérouville (Meuse).
- Kerhornou (Finistère).
- Langres (Haute-Marne).
- Mars (Nièvre).
- Mesves (Nièvre).
- Pau (Basses-Pyrénées).
- Perigueux (Dordogne).
- Rimaucourt (Haute-Marne).
- Riviera (Alpes-Maritimes).
- Savenay (Loire-Inférieure).
- Toul (Meurthe-et-Moselle).
- Tours (Indre-et-Loire).
- Vannes (Morbihan).
- Vichy (Allier).
- Vittel (Vosges).
- Contrexéville (Vosges).
- Nantes (Loire-Inférieure).

American Red Cross military hospitals:
- Neuilly (Seine).
- Paris (Seine).
- Auteuil (Seine).
- Liverpool (England).
- Paddington (England).
- London (England).
- Bellevue (Seine).

Convalescent hospitals:
- Nice (Alpes-Maritimes).
- St. Raphael (Var).

Convalescent camps:
- Savenay (Loire-Inférieure).
- Nantes (Loire-Inférieure).
- Angers (Maine-et-Loire).
- Paris (Seine)
- Langres (Haute-Marne).
- Liffol-le-Grand (Vosges).
- Limoges (Haute-Vienne).
- Tours (Indre-et-Loire).
- Beau Desert (Gironde).
- Mesves (Nièvre).
- Mars (Nièvre).
- Allery (Saône-et-Loire).
- Beaune (Côte-d'Or).

Medical supply depots and stations:
- Brest (Finistère).
- St. Sulpice (Gironde).
- Gièvres (Loir-et-Cher).
- St. Nazaire (Loire-Inférieure).
- Marseille (Bouches-du-Rhône).
- Is-sur-Tille (Côte-d'Or).
- Cosne (Nièvre).

Medical laboratories:
- Brest (Finistère).
- Bordeaux (Gironde).
- Neufchâteau (Vosges).
- St. Nazaire (Loire-Inférieure).
- Dijon (Côte-d'Or).
- Tours (Indre-et-Loire).

Veterinary hospitals:
- Neuilly-l'Evêque (Haute-Marne).
- Triconville (Meuse).
- Treveray (Meuse).
- Vaidahon (Doubs).
- Carbon Blanc (Gironde).
- Souge (Gironde).
- Toul (Meurthe-et-Moselle).

Veterinary hospitals—Continued.
- Neufchâteau (Vosges).
- Coetquidan (Morbihan).
- Meucon (Morbihan).
- Bourbonne (Haute-Marne).
- Gièvres (Loir-et-Cher).
- Commercy (Meuse).
- Lux (Côte-d'Or).
- Epinal (Vosges).
- Longuyon (Meurthe-et-Moselle).
- Sougy (Nièvre).
- Verdun (Meuse).
- Nevers (Nièvre).
- Trêves (Germany).
- St. Nazaire (Loire-Inférieure).

XII.—MOTOR TRANSPORT CORPS, AMERICAN EXPEDITIONARY FORCES.

The Motor Transport Corps had technical supervision over all motor transportation in the Expeditionary Forces.

Authorized strength, 1,985 officers and 44,485 enlisted men.

Strength at armistice, 1,135 officers and 26,957 enlisted men.[38]

Vehicles for which Motor Transport Corps (20) was responsible:

Passenger cars	7,551
Trucks	36,943
Motor cycles	13,784
Trailers	4,323
Bicycles	17,577

Reception parks, 9; service stations, 52; heavy repair shops, 5; reconstruction parks.

ORGANIZATION.

The Motor Transport Service, as it was first called, was controlled at first in the Expeditionary Forces by the Quartermaster Corps and was authorized as a division of the duties of the chief quartermaster, by General Orders, No. 70, Headquarters, Expeditionary Forces, December 8, 1917. (20) It was charged with the supply of motor vehicles, spare parts, tools, and accessories, the technical supervision of motor vehicles and their repair. No authority was given the Motor Transport Service for the operation of its vehicles and units after their assignment by competent orders to the other services. The chief of the Motor Transport Service was an assistant to the chief quartermaster. The Engineer and Signal Corps, the Ordnance and Transportation Departments, and the Field Ambulance Service assigned officers, one from each, to serve as assistants to the chief. The

[38] Page 1, Motor Transport Corps Section, Part I, Appendix A—Report board appointed by paragraph 79, S. O. 141, headquarters Services of Supply, 1919, on file Historical Branch, General Staff.

duty of these officers was to represent their own services in motor transportation matters. The chief quartermaster of each army was designated as the chief of Motor Transport Service for that army and he had as assistants representatives from each of the foregoing services just as the chief of the Motor Transport Service did; but the chief of each army motor transport service was subordinate to the particular army commander concerned, although authorized to communicate directly with the chief of the Motor Transport Service and the officer in charge of Advance Motor Transport Service Group, Services of Supply, in technical [39] matters. (20) This plan of organization remained in force until February 16, 1918, when the Motor Transport Service was removed from the control of the Quartermaster Corps and made a part of the Service of Utilities.[40] Under all these orders the Motor Transport Corps was given technical supervision and operation in the Services of Supply. In July, 1918, the Service of Utilities was abolished and the Motor Transport Service, as the "Motor Transport Corps," was made an independent service of the Services of Supply.[41] The duties of the service had already been defined in General Orders, No. 74, General Headquarters, May 11, 1918, as follows:

(*a*) The technical supervision of all motor vehicles.

(*b*) The procurement, reception, storage, maintenance, and replacement of all motor vehicles.

(*c*) The procurement, storage, and supply of spare and repair parts, tools, accessories, and supplies of all motor vehicles.

(*d*) The establishment and operation of all Motor Transport Service garages, parks, depots, and repair shops.

(*e*) The organization and technical training of Motor Transport Service personnel.

(*f*) The salvage and evacuation of damaged motor vehicles.

(*g*) The homogeneous grouping of motor vehicles.

(*h*) The operation, in accordance with instruction from the proper commanding officer as to their employment, of groups of motor vehicles of Class A as defined in paragraph 5.

Class A, as defined in paragraph 5, included all cargo carrying or passenger carrying motor vehicles for general transportation purposes in the Services of Supply, and the motorized portion of such reserve trains as might be held for general transportation in or in the rear of the army under control of the army commander.

Class B included all motor vehicles other than in Class A.

When the Motor Transport Service became the Motor Transport Corps the "chief" gave place to a "director." Assisting the direc-

[39] General Orders, No. 70, General Headquarters, 1917.
[40] General Orders, No. 31, General Headquarters, 1918.
[41] General Orders, No. 114, Headquarters, Services of Supply, 1918.

tor was a deputy director and an executive officer. The work of the director was handled through nine divisions, viz, Executive, Supply, Repair, Operations, Inspection and Engineering, Training, Liaison, and Plans and Projects.

The Executive Division coordinated the work of all other divisions and, in addition, controlled personnel, publications, finance, and accounting and statistics.

The Supply Division handled all the Expeditionary Force motor supplies.

The Repair Division had entire direction of repairs to all motor vehicles and controlled the distribution of spare parts and other accessories.

The Operations Division was charged with the assignment and distribution of motor vehicles, operation of convoys, and the supervision of motor vehicle operation in the Services of Supply.

The Inspection and Engineering Division inspected all Motor Transport Corps activities and handled the technical problems which were arising continually.

The Liaison Division maintained, largely by officers who made regular trips between Tours and Washington, close relation between the director of the Motor Transport Corps, Expeditionary Forces, and the chief of the Motor Transport Corps in the United States.

The Plans and Projects Division planned all buildings and other Motor Transport Corps projects.

For a few weeks there was a Reconstruction and Main Supply Depots Division, but its duties were absorbed by the Repair Division before it got fairly started.

REPAIR.

The beginning of all motor transport activities in France naturally was at the base ports where vehicles were received from ships and taken to reception parks. Here they were assembled, painted, numbered, registered and placed in perfect running order. Then they were sent to points of distribution. The reception parks were at St. Nazaire, La Pallice, Rochefort, Brest, Le Havre, Rouen, and Nantes.

Repair work was accomplished through three agencies: Service parks, overhaul parks, and reconstruction parks.[42] Service parks were units for minor repair work. They proved invaluable both in the Services of Supply and the Zone of the Armies. Some of them were equipped with machine shop trucks, tire presses and the like, which enabled them to take a part of the burden off the busier

[42] Page 15, Motor Transport Corps Section, Part I, App. A—Report board appointed by par. 79, S. O. 141, Headquarters, Services of Supply, 1919, on file Historical Branch, General Staff.

and better equipped shops. Others had only hand tools, but could be sent to points where needed on short notice. In general practice the personnel of a service park consisted of 1 first lieutenant and 35 enlisted men, but often it was found necessary to increase it to meet peculiar conditions. Usually the commanding officer of the unit was an expert mechanic and among the enlisted personnel were some men of unusual mechanical ability. These men were picked because they could do a great deal of work with very little equipment. The service parks were located in many sections of the Services of Supply, and in many centers in the Zone of the Armies, and three were assigned to each division.

Overhaul parks received vehicles for repair and overhaul from units to which assigned and also from service parks when the repair was too heavy to be handled at the service parks within reasonable time.[43] They were permanent or semipermanent, required heavy machinery and, in some cases, specially constructed buildings. These overhaul parks were established at Neufchâteau (Vosges), Sampigny (Meuse), Dijon, and Paris.

Reconstruction parks were establishments where vehicles damaged or worn beyond repair could be actually reconstructed or rebuilt. There were two: One at Verneuil (Nièvre) and one at Romorantin (Loir-et-Cher). That at Verneuil handled American makes of vehicles and that at Romorantin handled foreign makes and special light and heavy aviation trucks and trailers.

POOLING.

In the early months of the Expeditionary Forces, motor transportation was issued to units or to authorized individuals who operated the vehicles practically independent of central control. All vehicles thus assigned were devoted to the individual use of the assignee. There was neither coordination of operation nor proper control of vehicles. (20) This condition also necessitated more motor transportation than was required under a pooling arrangement, and a pool therefore would make motor transportation available to more persons in the military service. The same conditions had prevailed with regard to cargo transportation. Moreover, assignment to units or individuals made for excessive repair work and excessive consumption of spare parts. Consequently it was decided forthwith to pool all motor vehicles.

By pooling was meant collecting all motor vehicles under one authority for general transportation and assigning them from such

[43] Page 15, Motor Transport Corps Section, Part I, Appendix A—Report board appointed by paragraph 79, S. O. No. 141, Headquarters, Services of Supply, 1919, on file Historical Branch, General Staff.

collection to meet the actual needs in each specified case. Creation of a vehicle pool meant unity of control and did not mean that all vehicles must be parked in one place. (20) The general assignment of vehicles in the Services of Supply to the several sections was made by the Chief of the Motor Transport Corps, subject to policies laid down by G–4, Headquarters, Services of Supply, and the section commanders controlled section pools. The pool justified itself fully in the opinion of high command. It was found that it made for proper operation and maintenance, brought a greater return from a given amount of vehicle equipment, and tended to eliminate waste or misuse of motor transportation and needless varieties of vehicles. The pool was established first at Headquarters, Services of Supply, by General Orders, No. 1, Headquarters, Services of Supply, March 13, 1918.

PERSONNEL.

When war was declared and voluntary enlistments were at their maximum there was no motor transport service to absorb thousands of experienced motor men. When the Motor Transport Service was a part of the Quartermaster Corps it received only such personnel as the Quartermaster Corps thought it could afford to take away from other duties. When it began as a separate service it received only such personnel as the Quartermaster Corps and other services had already assigned to it. It was not until about three months before the armistice that the Motor Transport Corps was able to get definite action on its statements of personnel needs. The result was that personnel, or rather the lack of it, was conspicuously the great Motor Transport Corps problem in the Expeditionary Forces. (20) Personnel was always short; never more than 33 per cent of the requirement. It was necessary in the Services of Supply to use every possible makeshift in the way of operating and mechanical personnel. Men had to be secured from other services, no matter whether they had much or practically no motor experience. For months at the base ports the chief motor transport officer had to borrow thus from arriving organizations and after a time had to release men thus acquired to their own organizations and borrow other inexperienced personnel as replacement. Even line regiments were drawn upon. It was natural that these men would take no particular pride in equipment they were handling only in passing. Consequently equipment suffered.[44] Anybody who knew anything at all about repair work, no matter how little, had to be put on repair work.

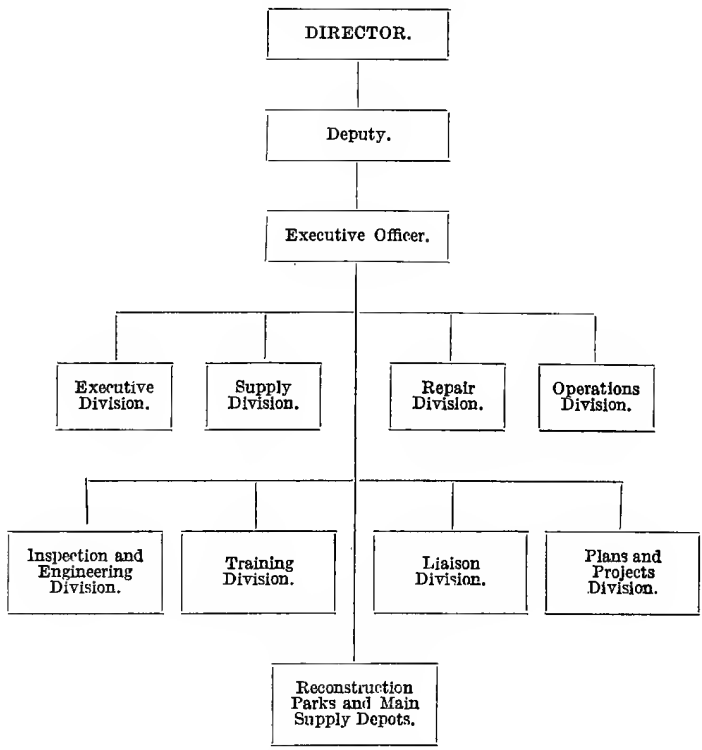
Commissioned officers for the Motor Transport Corps came from the ranks of motor experts in the United States, where they were

[44] Page 18, Motor Transport Corps Section, Part I, Appendix A—Report board convened by paragraph 79, S. O. 141, Headquarters, Services of Supply, 1919, on file Historical Branch, General Staff.

more numerous in 1917 than in any other country. These officers had had long training in civil life and this training showed itself in the Expeditionary Forces, especially in what they accomplished with such a paucity of matériel and men.

A number of Americans who had been in the service of the French joined the American Army. These men were of a high average of intelligence and ability and, in addition, were thoroughly experienced in war-time motor transportation. Many of them reached commissioned rank and the rest occupied responsible positions as noncommissioned officers.

Organization chart, Motor Transport Corps, A. E. F.



When the tables of personnel requirement were submitted in August, 1918, the corps asked for 44,485 men and 1,985 officers for an army of 1,300,000 in the Expeditionary Forces. This amount of personnel never was furnished. The strength of the Expeditionary Forces had passed that figure when the tables went into effect. The final result was that when the Motor Transport Corps had procured about half the number of officers and men needed for an army of

1,300,000 it had only about one-third the number needed to do the work for an army of the size which the Expeditionary Forces had then attained. In September, 1918, the War Department transferred the enlisted personnel of divisional supply trains to the Motor Transport Corps, but this increased the strength of the Motor Transport Corps only on paper, because this personnel was engaged in combat work, and Expeditionary Forces, by order, did not come under Motor Transport Corps control; at least it was impracticable to move them. A number of Engineer units which had been working with the Motor Transport Corps were transferred also in September, 1918. Newly arrived personnel was trained in schools at the base ports and at other points in France.

MATÉRIEL.

The matériel used by the Motor Transport Corps in the Expeditionary Forces consisted of passenger automobiles, light and heavy trucks, trailers, motor cycles, bicycles, spare parts, and repair equipment. About 2¼ per cent of this matériel came from European markets and the rest from the United States.[45] Altogether 160 makes of vehicles were used, of which 112 makes were European, but these 112 makes represented less than 3 per cent of the total number of vehicles. The history of the acquisition of American matériel does not form a part of this paper, but relates to the supply in the United States. Gasoline and lubricating oils were handled by the Quartermaster Corps.

ACTIVITIES.

The locations of the various Motor Transport Corps activities in the Expeditionary Forces were as follows:

Reception parks:
- St. Nazaire (Loire-Inférieure).
- Bordeaux (Gironde).
- Nantes (Loire-Inférieure).
- La Pallice (Charente-Inférieure).
- Rochefort (Charente-Inférieure).
- Brest (Finistère).
- Le Havre (Seine-Inférieure).
- Rouen (Seine-Inférieure).

Overhaul parks:
- Neufchâteau (Vosges).
- Sampigny (Meuse).
- Dijon (Côte-d'Or).
- Paris (Seine).

Reconstruction parks:
- Verneuil (Nièvre).
- Romorantin (Loir-et-Cher).

Spart parts depots:
- Langres (Haute-Marne).
- Verneuil (Nièvre).
- Nevers (Nièvre).
- Nogent-en-Bassigny (Haute-Marne

Supply depots:
- Verneuil (Nièvre).
- Romorantin (Loir-et-Cher).

Service parks:
- Coetquidan (Morbihan).
- Meucon (Morbihan).
- St. Nazaire (Loire-Inférieure).
- Savenay (Loire-Inférieure).
- Nantes (Loire-Inférieure).
- Angers (Maine-et-Loire).
- La Pallice (Charente-Inférieure).
- Rochefort (Charente-Inférieure).

[45] Appendix D, Report of G–4, General Headquarters, to the commanding general, American Expeditionary Forces, on file Historical Branch, General Staff.

Service parts—Continued.
Souge (Gironde).
Lormont (Gironde).
Libourne (Gironde).
Le Corneau (Gironde).
Bordeaux (Gironde).
Poitiers (Vienne).
Le Mans (Sarthe).
Paris (Seine).
Blois (Loir-et-Cher).
Montierchaume (Indre).
Bourges (Cher).
Clermont-Ferrand (Puy-de-Dôme).
Haussimont (Marne).
Châtillon-sur-Seine (Côte-d'Or).
St. Dizier (Haute-Marne).
Triaucourt (Meuse).
Sampigny (Meuse).
Colombey-les-Belles (Meurthe-et-Moselle).
Is-sur-Tille (Côte-d'Or).
Dijon (Côte-d'Or).
Lyon (Rhône).
Marseille (Bouches-du-Rhône).

Service parks—Continued.
Vannes (Morbihan).
Melun (Seine-et-Marne).
Saumur (Maine-et-Loire).
Tours (Indre-et-Loire).
Le Havre (Seine-Inférieure).
Rouen (Seine-Inférieure).
St. Aignan (Loir-et-Cher).
Limoges (Haut-Vienne).
La Courtine (Creuse).
Nevers (Nièvre).
Verneuil (Nièvre).
Chaumont (Haut-Marne).
Donjeux (Haut-Marne).
Toul (Meurthe-et-Moselle).
Neufchâteau (Vosges).
Langres (Haut-Marne).
Valdahon (Doubs).
Allerey (Côte-d'Or).
Decize (Nièvre).
Cannes (Alpes-Maritimes).
Loudéac (Côtes-du-Nord).
Issoudun (Indre).

XIII.—ORDNANCE DEPARTMENT, AMERICAN EXPEDITIONARY FORCES.

The problem of the Ordnance Department, Expeditionary Forces, was to acquire matériel from the United States and Europe and distribute it to meet the needs of American forces, and to requisition, distribute, and administer the personnel necessary to carry out this work. Outstanding facts about the department in the Expeditionary Forces are:

Strength:[46]

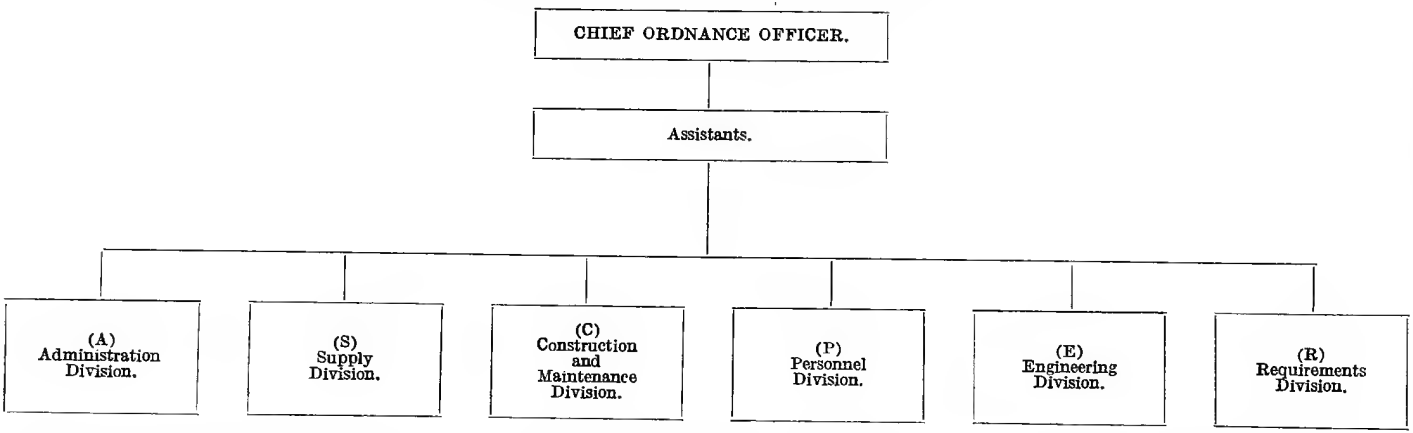
Authorized, 4,471 officers and 100,084 enlisted men.
On November 11, 1918, 1,661 officers and 20,339 enlisted men.
Maximum, 1,804 officers and 22,172 enlisted men.

ORGANIZATION.

The establishment of the Ordnance Department of the Expeditionary Forces was provided in General Orders, No. 1, Headquarters, American Expeditionary Forces, May 26, 1917, issued before Gen. Pershing and his party sailed from the United States, in which order the department was charged with administration matters overseas, through a chief ordnance officer. The first officers of the oversea department were chosen from line officers particularly qualified for ordnance work. (13) The chief ordnance officer reported di-

[46] History Ordnance, A. E. F., vol. 1, page 205, on file Hist. Branch, G. S.

Organization chart, Ordnance Department, A. E. F.



(A)
Coordinated work of the several divisions and collected for record or distribution all the information of general character and performed routine functions for common good of all the divisions.

(S)
Had charge of depots and of matériel to forces in the field.

(C)
Provided and maintained ordnance buildings and their facilities and was responsible for installing their equipment and aided in salvage of ordnance matériel.

(P)
Procured, assigned, instructed, and moved A. E. F. ordnance personnel; had charge of all officers, enlisted men and civilians and kept the records of same.

(E)
Handled design, experiment and determination of types; prepared all technical pamphlets, etc.; investigated matériel defects and advised and instructed in ordnance activities.

(R)
Maintained tables of requirements of all ordnance matériel; prepared priority schedules for procurement and shipment from United States and in France and cooperated with salvage service as source of supply.

rectly to the commanding general, Expeditionary Forces, and was also later a staff officer of the commanding general, Services of Supply. He had his headquarters in Paris until March, 1918, when he moved to Tours with the other supply services.

Properly and efficiently to conduct his department, the chief ordnance officer distributed the work among six divisions. These were, Administration, Supply, Construction and Maintenance, Personnel, Engineering and Requirements.

The Administration Division coordinated the work of the other divisions and collected for record or distribution all information of general character. The Supply Division was just what its name implies, and had charge of all depots and of the distribution of matériel to forces in the field. The Division of Construction and Maintenance provided and maintained ordnance buildings and their facilities; was responsible for the installation of the necessary machinery, tools and other equipment and their upkeep; operated the general ordnance repair shops; supervised the operation of all other ordnance repair shops, cooperated in the assignment of the personnel therefor, and cooperated with the salvage service in the repair and disposition of ordnance matériel.

The Personnel Division secured, assigned, instructed, and moved personnel, and had general supervision of all personnel in the Ordnance Department, and maintained a record of all.

The Engineering Division was charged with everything pertaining to the design, experiment, and determination of types; prepared all technical pamphlets, drawings, charts, and specifications pertaining to ordnance and ordnance stores that it was necessary to prepare in France; investigated defects in ordnance matériel and prescribed corrective measures; operated proving grounds and laboratories; advised and instructed other divisions in technical matters; maintained technical relations with allied forces and other American Expeditionary Forces services; and established, maintained, and administered courses of instruction in all ordnance activities.

The Requirements Division established and maintained tables of requirements of all ordnance matériel; prepared priority schedules for procurement and shipping of matériel from the United States and in Europe and made estimate of tonnage requirements; submitted all requisitions to the Ordnance Department in the United States; cooperated with the salvage service in matters pertaining to salvage as a source of ordnance supply; and maintained such records and statistics as were necessary for the performance of its duties.

PERSONNEL.

Like all other services in the Expeditionary Forces, the Ordnance Department was handicapped by a shortage of personnel, but plans were well under way when hostilities ended for the acquisition

of sufficient force to take care of the program already mapped out and to allow for a reasonable expansion. Ordnance personnel was supplied from officers and men in the military service before the declaration of war who were familiar with ordnance work, from civilians in the United States with technical and scientific training, and from Class B and Class C officers and men from combat units. Those from the first source were found efficient in nearly every case; those from the second became fairly efficient when properly trained, but courses of instruction were always necessary; while those from the third class were generally found unsatisfactory, a condition that prevailed in all services of supply.

The first call for ordnance personnel was for 351 officers and 9,798 men to take care of 20 combat divisions and 10 replacement and training divisions which were to be organized into 5 corps. This estimate was forwarded to the United States by the commanding general, Expeditionary Forces, on July 6, 1917. He asked at the same time for 11,000 laborers, expecting that this labor could be supplied partly from the United States and partly from Europe.[48] Soon it was found that this estimate was too small and that the proper kind of labor could not be had, and accordingly the work had to be done by skilled enlisted ordnance personnel. The estimate for personnel went through various changes until June 27, 1918, when a project was submitted calling for 10,819 officers and enlisted men. On July 18, 1918, the War Department was asked to ship 27,600 men between October, 1918, and July, 1919, and on July 21 of the same year a project was forwarded for 2,398 officers to be in France by July 1, 1919. This latter project was approved but subsequent changes were made in the personnel program until 4,471 officers and 100,084 enlisted men were authorized. It was contemplated that these forces should be organized into companies of 250 men, each one to have two officers for military administration. But in August, 1918, the Ordnance Department was ordered to take over the Ammunition Supply Service, which had been operated previously by the French. To carry on this work it was necessary to take away much of the ordnance personnel from the Services of Supply depots and many skilled mechanics. To replace these men, the commanding general, Expeditionary Forces, forwarded a cable calling for 21 officers and 1,641 men for Ammunition Supply for the First Army and a like number for the Second Army. It was intended to transfer the men thus procured to the units which had lost because of the assumption of the supply work; but the Services of Supply never regained the men taken away from it. Properly to handle ammunition supply, one company was planned to accompany each division from the

[48] Vol. V, page 30, History of Ordnance Department, American Expeditionary Forces, on file Historical Branch, General Staff.

United States. Each company was to consist of 6 officers and 216 enlisted men. (13)

There was confusion over the control of ordnance officers on duty with divisions. Whether they should be controlled by the chief ordnance officer or by the division commanders, never was definitely decided. Much confusion resulted over this dual claim to control and finally a check was made whereby it was found that some ordnance officers were claimed by two divisions and some were claimed by none. (13) Steps were being taken to remedy this situation when the armistice intervened.

On August 1, 1918, a classification of the personnel was completed which showed approximately the following results:

	Per cent.
One year at college	3.2
Two years at college	3.6
Three years at college	2.6
College graduates	5.7
Post graduates (two degrees)	0.9
College, no length stated	3.0
Total college men	19.0
High school	24.0
Business special schools	6.8
Grammar schools and nondeclarants	50.2
Total	100.0

The ordnance personnel sent overseas was divided into seven classes as follows:

(*a*) Personnel attached to line organizations.
(*b*) Automatic replacement troops.
(*c*) Mobile ordnance repair shops.
(*d*) Heavy mobile ordnance repair shops.
(*e*) Provisional ordnance depot companies and battalions.
(*f*) Casual officers.
(*g*) Casual enlisted men.

The movement of Class A men was automatic. They were assigned to line organizations in the United States and kept with them in France. Class B personnel was also sent overseas without special request and ordered to the concentration barracks at Mehun and then to ordnance schools before being distributed. Class C personnel was sent automatically also, one unit for each division, the units being given intensive training at Is-sur-Tille before joining divisions. Class D men were included in the original troop projects and went to organization and training centers before entering the Army area. Class E personnel was sent overseas upon request from headquarters, American Expeditionary Forces, and went to the concentration barracks at Mehun, whence the men were distributed to stations in the Services of Supply. Class F officers were ordered automatically

from the base ports to Tours for a one-day conference before assignment to duty. Class G personnel was ordered automatically to Mehun for classification and assignment.

For a time it was thought that many of the ordnance activities could be carried on by reclassified officers and men, but time proved that personnel, from combat divisions, classed physically as B or C, could not be used successfully except on very light duty. These men were generally returned to combat divisions when they got well. However, reports on reclassification finally showed that about 2,000 officers and men were on the lists who could be used in ordnance work, and on October 16, 1918, request was made for 1,000 of these officers. (13)

On July 17, 1918, the educational section of the Development Division was established for personnel instruction. This was made a function of the Engineering Division, which replaced the Development Division, and it was transferred to the Personnel Division when that division was created November 11, 1918. It was the duty of the educational section to establish, maintain, and administer courses of instruction for ordnance personnel in all branches of ordnance work and to provide such military instruction as might be necessary, and to cooperate with and assist the Personnel Division in the classification and assignment of personnel.[49] These schools were served by instructors picked from the commissioned personnel with special care; and from the outset the improvement in the men was so marked that the courses were constantly elaborated so that every phase of ordnance work was included finally. The location of these schools is given in the list of ordnance facilities below.

MATÉRIEL.

The greater part of the matériel for the Ordnance Department of the Expeditionary Forces was bought in Europe, this being especially true in the case of the heavier items. Broadly, Europe and the United States were the two sources of supply.[50] The principal reason for this was that the need for matériel became serious even before anybody could outline the requirements. Artillery, artillery ammunition, fire control instruments, and trench warfare matériel, were practically all furnished by France and England. Until the summer of 1918 machine guns and automatic rifles were supplied largely by the Allies and up to the same period much personnel and horse equipment had to be provided for by commercial substitutes purchased in the European markets. Requirements were handled through estimates based on initial equipment, wastage, consumption

[49] History of Ordnance Department, American Expeditionary Forces, Vol. I, pages 51 to 240; on file Historical Branch, General Staff.

[50] History of Ordnance Department, American Expeditionary Forces, Vol. I, pages 133, 137, 138, and 139; on file Historical Branch, General Staff.

and reserves, which estimates were filled from foreign availabilities and from the United States through automatic and exceptional supply.[51] Spare parts, accessories, etc., were procured on schedules by individual items and by sets; but changes finally settled the system down to schedules of so many spare parts for each 25,000 men in France, thus making the supply automatic.

A résumé of the combat matériel supplied through the Ordnance Department [52] is given:

	From France.	From United States.	From England	Total.
Guns:				
75 mm. guns	1,862	160	.....	2,022
155 mm. howitzers	796	2	.....	798
4.7-inch guns	.....	71	.....	71
5-inch S. C. guns	.....	26	.....	26
6-inch S. C. guns	.....	74	.....	74
155 mm. guns	233	.....	.....	233
8-inch howitzers	.....	88	120	208
9.2-inch howitzers	.....	.....	40	40
8-inch S. C. guns	.....	6	.....	6
10-inch S. C. guns	.....	15	.....	15
14-inch A. A. guns	66	18	.....	84
Total	2,957	460	160	3,577
Caissons:				
75 mm. gun	1,862	4,948	.....	6,810
155 mm. howitzer	796	1,198	.....	1,944
4.7-inch gun	.....	219	.....	219
Total	2,658	6,365	.....	9,023
Trench mortars:				
8-inch Stokes	.....	843	914	1,757
58 mm. mortars	136	.....	.....	136
6-inch Newtons	.....	48	513	561
240 mm. trench	101	.....	.....	101
Total	237	891	1,427	2,555
Automatic machine and 37 mm. guns:				
Browning machine guns	.....	30,089	.....	30,089
Vickers machine guns	.....	10,411	.....	10,411
Hotchkiss machine guns	5,255	.....	.....	5,255
Browning automatic rifle	.....	43,368	.....	43,368
Chauchat, cal. .30	19,241	.....	.....	19,241
Chauchat, cal. 8 mm	15,988	.....	.....	15,988
37 mm. guns	641	60	.....	701
Total	41,125	83,928	.....	125,053
Tanks:				
Renault	227	10	.....	237
Mark IV	.....	12	12	24
Mark V and Mark VI	.....	14	14	28
Total	227	36	26	289
Tractors:				
Artillery, 2½ tons	.....	5	.....	5
Artillery, 5 tons	.....	1,018	.....	1,018
Artillery, 10 tons	.....	933	.....	933
Artillery, 15 tons	.....	226	225	451
Artillery, 20 tons	.....	83	.....	83
Latil	28	.....	.....	28
Renault	104	.....	.....	104
Total	132	2,265	225	2,622

[51] History of Ordnance Department, American Expeditionary Forces, Vol. I, pages 133, 137, 138, and 139; on file Historical Branch, General Staff.

[52] History of Ordnance Department, American Expeditionary Forces, Vol. I, page 205; on file Historical Branch, General Staff.

Shells:		
From France		1,983,500
From United States		6,972,300
From England		427,100
Total		9,382,900
Small arms and ammunition:		
From France	rounds..	47,559,000
From United States	do....	1,475,549,000
Total	do....	1,523,108,000

FACILITIES.

The facilities of the department in the Expeditionary Forces consisted of ammunition depots, general storage depots, ordnance repair shops, schools of instruction, organization and training centers, and proving grounds and laboratories. The locations of these several facilities, as shown by the History of the Ordnance Department, American Expeditionary Forces, are as follows:

Ammunition depots:
- St. Loubes (Gironde).
- Foëcy (Cher).
- Issoudun (Indre).
- Jonchery (Haute-Marne).
- Donges (Loire-Inférieure).

General storage depots:
- Calais (Pas-de-Calais).
- Demange-aux-Eaux (Meuse).
- Gièvres (Loir-et-Cher).
- Is-sur-Tille (Côte-d'Or).
- Mehun (Cher).
- Miramas (Bouches-du-Rhône).
- Montoir (Loire-Inférieure).
- Nevers (Nièvre).
- St. Sulpice (Gironde).

Ordnance repair shops:
- Angers (Maine-et-Loire).
- Angoulême (Charente).
- Bourg (Gironde).
- Bourges (Cher).
- Chalindrey (Haute-Marne).
- Clermont-Ferrand (Puy-de-Dôme).
- Coetquidan (Morbihan).
- Colombey-les-Belles (Meurthe-et-Moselle).
- Courbevoie (Seine).
- Demange-aux-Eaux (Meuse).
- Doulaincourt (Haute-Marne).
- Foëcy (Cher).
- Gièvres (Loir-et-Cher).
- Haussimont (Marne).
- Is-sur-Tille (Côte-d'Or).
- La Courtine (Creuse).
- Langres (Haute-Marne).

Ordnance repair shops—Continued.
- Le Blanc (Indre).
- Le Corneau (Gironde).
- Libourne (Gironde).
- Limoges (Haute-Vienne).
- Mehun (Cher).
- Meucon (Morbihan).
- Neuvy-Pailloux (Indre).
- Orly Field (Seine).
- Romorantin (Loir-et-Cher).
- St. Jean-de-Monts (Vendée).
- Saumur (Maine-et-Loire).
- Souge (Gironde).
- Valdahon (Doubs).
- Void (Meuse).

Schools of instruction:
- Bourges (Cher).
- Foëcy (Cher).
- Is-sur-Tille (Côte-d'Or).
- St. Jean-de-Monts (Vendée).
- St. Aignan (Loir-et-Cher).
- Jonchery (Haute-Marne).

Organization and training centers:
- Angers (Maine-et-Loire).
- Angoulême (Charente).
- Clermont-Ferrand (Puy-de-Dôme).
- Libourne (Gironde).
- Limoges (Haute-Vienne).

Proving grounds and laboratories:
- Bourges (Cher).
- Gavre et Quiberon (Morbihan).
- Montluçon (Allier).
- Mehun (Cher).
- Versailles (Seine-et-Oise).

XIV.—QUARTERMASTER CORPS, AMERICAN EXPEDITIONARY FORCES.

The chief duties of the Quartermaster Corps in the Expeditionary Forces were to feed, clothe, and pay the Army, although it was charged with many others, including the supply of fuel and forage, salvage, grave registration, and, at one time, dock operation and motor transportation. It had to perform these varied functions for an Army of 2,000,000 men and, at the same time, prepare for an Army twice that size.

Maximum strength, 4,229 officers, 96,451 men, and 42 field clerks on December 15, 1918.

Strength at armistice, 4,027 officers, 96,006 men, and 38 field clerks.

Forage received, 824,410 tons; from United States, 391,215, and from Europe, 30,122.

Animals received, all sources, 243,560.

Remount depots, 35.

Mechanical bakeries, 4; field bakeries, 61; coffee-roasting plants, 3.

Ice-making plants, 7; cold-storage plants, 21.

Main gasoline-storage depots, 6; gasoline-storage and distributing stations, 28.

Motor gasoline consumed, 87,663,056 gallons; aviation gasoline consumed, 5,627,572 gallons.

Coal receipts to May 1, 1919, 1,953,777 tons.

Salvage depots, 4; salvage shops, 17.

Decreasing and rendering plants, 4.

Clothing received, 119,461 tons; from United States, 107,429; from Europe, 12,032.

Food, from United States, 1,313,525 tons; from Europe, 248,150; total, 1,561,675, in the following commodities:

	Tons.		Tons.
Meat	421,322	Fruits	88,300
Sugar	74,455	Vinegar	15,961
Tobacco	24,986	Rice	29,974
Butter	21,907	Coffee	40,972
Flour	412,050	Cinnamon	424
Beans	58,767	Salt	21,249
Milk	39,756	Potatoes	309,478
Pepper	871	Tea	203

Reserve of above on hand November 11, 1918, 93.75 days.[53]

[53] Some achievements of the Services of Supply Section, table "Subsistence in Depots Nov. 11, 1918."

Food consumption, pounds per man per day:[54]

Potatoes	1.1770	Salt	0.0477
Meat	1.0729	Vinegar	.0332
Flour	.8527	Candy	.0228
Sugar	.2409	Soap	.0228
Fruit	.2302	Baking powder	.0051
Beans	.1793	Pepper	.0019
Milk	.0976	Flavoring	.0013
Coffee	.0794	Cinnamon	.0009
Rice and hominy	.0734		
Butter	.0686	Total	4.2887
Tobacco	.0576		

ORGANIZATION.

Under General Orders, No. 8, July 5, 1917, the Quartermaster Corps in the Expeditionary Forces was charged with "the transportation of personnel and supplies; the supply of quartermaster transportation; repairs to all vehicles of all services, except artillery vehicles; clothing, quartermaster equipment; subsistence; fuel; forage; lights; water; camp sites; quarters and offices and equipment therefor; pay of personnel and general disbursements, laundries and baths; remounts; claims; salvage; quartermaster workshops and storehouses; burials; cemeteries; labor; quartermaster personnel; and coal storage and refrigerating plants. The same order that established the Transportation Department of the Expeditionary Forces determined the duties of the Quartermaster Corps.[55] This order charged each with the transportation of supplies and personnel, but the function of the Quartermaster Corps was confined by practice and not by order to the issue of transportation requests for the Expeditionary Forces. Later this function also passed to the Transportation Corps. By General Orders, No. 20, Headquarters, Expeditionary Forces, August 13, 1917, the Service of Military Railways was established and it was charged with the transportation of personnel and supplies in the place of the Quartermaster Corps, but the latter continued operating the ports through its Army Transport Service. On September 14, 1917, the Service of Military Railways became the Transportation Service. and on December 18, 1917, by General Orders, No. 78, Headquarters, Expeditionary Forces, the Army Transport Service was transferred to the Transportation Service with its equipment and personnel. On February 16, 1918, there was a reorganization, under General Orders, No. 31, Headquarters, Expeditionary Forces, whereby the Quartermaster Corps became one of the services of the Service of the Rear, later the Services of Supply. In this order the corps was charged with pay of personnel and

[54] Some achievements of the Services of Supply Section, table "Food—Total Issues and Rate of Consumption."

[55] General Orders, No. 8, General Headquarters, July 5, 1917, all on file Historical Branch, General Staff.

general disbursements; quartermaster matériel, including clothing, subsistence, fuel, and forage; transportation of water beyond the water point; remount service; laundries and baths; disinfection of clothing; salvage service; quartermaster shops, depots, and storehouse; cold storage and refrigeration; grave registration and inspection of Quartermaster Corps activities. To these later were added sales stores and rolling sales stores, effects depots, and garden service.

The initial work of the chief quartermaster, Expeditionary Forces, was to take care of the troops already in France and those coming with the first convoy, which arrived at St. Nazaire June 26, 1917, before the chief quartermaster had had time to organize his office on anything like a permanent basis. St. Nazaire had been selected as one of the French ports for American use and by the time the first convoy reached there officers and men were on hand to take care of it. Unloading the first convoy was done by French labor. It was at this port that the Army Transport Service began operations. It branched out to the other ports as they became available and its work was not interrupted by the transfer to the Transportation Department. The chief quartermaster moved from Paris to Chaumont with the commanding general, and then removed to Tours on March 11, 1918. The office of the chief quartermaster, line of communications, was absorbed by the office of chief of quartermaster when the latter moved to Tours. In the final plan of organization the chief quartermaster was assisted by a deputy chief quartermaster and assistants to the chief quartermaster and the following divisions:[56]

Administrative Division, which handled all records, mail, telegrams, and cablegrams, messenger service, precedent and research and administrative action on contracts.

Supplies Division, the work of which was distributed among 15 branches, viz, clothing, subsistence, bakeries, animal-drawn transportation, traffic, traveling officers, supplies and stationery, fuel, forage, cold storage and refrigeration, administration, storage and warehousing, garden service, gasoline and oil, and miscellaneous.

Personnel Division handled all quartermaster personnel in the Expeditionary Forces, preparation of priority schedules of quartermaster troops in the United States for shipment overseas, organization of new units in the Expeditionary Forces, and distribution of all quartermaster personnel, including labor organizations.

Finance Division handled supply of disbursing officers and funds for their disbursements, instruction of finance officers, and adjustment of certain classes of claims.

[56] Quartermaster Section, Part II, Appendix A—Report board convened by paragraph 79, Special Order No. 141, 1919, on file Historical Branch, General Staff.

Inspection Division, through traveling officers, inspected and reported on the several activities of the Quartermaster Corps.

Accounting Division examined and analyzed the accounts, both property and funds, and audited subsistence returns of all quartermasters in the Expeditionary Forces.

Salvage Service operated salvage depots and shops, rendering plants for the recovery of fats, kitchen economic activities, and laundries and disinfectors and police of the battle fields.

Remount Division acquired by purchase in Europe and shipment from United States all animals of the Expeditionary Forces.

Construction and Repair Division designed equipment, chevrons, and other insignia, made maps and organization charts, and did quartermaster illustrating. This division had no construction or repair function.

Graves Registration Service acquired, maintained, and controlled cemeteries, identified the dead, registered burials, and corresponded with relatives of deceased soldiers.

PERSONNEL.

The quartermaster personnel accompanying Gen. Pershing to France consisted of 16 officers, 10 enlisted men, and 12 field clerks. By November 11, 1918, there were 4,027 officers, 96,006 enlisted men, and 38 field clerks. The maximum was 4,229 officers, 96,451 enlisted men, and 42 field clerks. Besides these the Quartermaster Corps had transferred 600 officers and 18,000 enlisted men to the Motor Transport Corps and 300 officers and 13,000 enlisted men to the Transportation Corps. The commissioned personnel was drawn from the line of the Regular Army, from former quartermaster noncommissioned personnel of the Army, and from men with wide experience in commercial life. The enlisted men came from the usual sources—the selective draft and voluntary enlistments. Quartermaster personnel was slow in arriving. Although troops began to arrive in the latter part of May, 1917, there were less than 2,500 quartermaster officers and men in France by October 6 of the same year. Labor organizations did not appear in any appreciable amount until the middle of December, 1917, despite repeated representations of the commanding general, Expeditionary Forces. During January and February, 1918, the corps began to catch up with its quota, but in March and April the demand for combat troops became pressing, and priority schedules were changed so radically that Quartermaster Corps troop arrivals fell off seriously, and the shortage began to grow again. By the middle of April general headquarters had to take up this question and numerous cablegrams were sent urging an increase in the shipment of Quartermaster

Corps troops. In May, June, and July these shipments increased and the shortage became less serious, although it never did disappear.

MATÉRIEL.

The aim of the American Expeditionary Forces was to have always 90 days' reserve of supplies based upon the entire number of American troops in Europe. This decision was arrived at after a series of conferences with the chiefs of several services and the War Department was notified by cable September 7, 1917. It was told that this reserve was to be based on authorized issues where such issues were regular and on actual periodic consumption of other articles based on British and French experience. It was the aim of the Quartermaster Corps to keep the reserve at that figure, but it was able to do so only in the matter of subsistence. Other articles fell short just as in other services. The flow of tonnage was always worked out as nearly as possible so as not to interfere with the flow of troops. At no time was there as much ship tonnage available as was needed. This forced the purchase of many quartermaster supplies in Europe, as it did in other services.

The principal base storage depots were at Montoir (Loire-Inférieure), St. Sulpice (Gironde) and Miramas (Bouches-du-Rhône). The intermediate depots were at Gièvres (Loir-et-Cher) and Montierchaume (Indre), with an auxiliary depot at Paris. The advance depots were at Is-sur-Tille (Côte-d'Or) and Liffol-le-Grand (Vosges). Gièvres had the largest depot in the Expeditionary Forces and one of the largest storage places in the world.

The American soldier in France consumed 4.2887 pounds of food a day. The Quartermaster Corps managed to keep ahead of him all the time in subsistence, but was often behind in clothing. The daily production of bread increased from the first baking of 11,378 pounds on August 3, 1917, to 1,830,000 pounds on November 30, 1918. At the time of the armistice bakeries were being operated in practically every section of France. The largest bakery was at Is-sur-Tille, which was put into operation on December 1, 1918. This bakery had a capacity of 550,000 pounds a day, which could be increased to 750,000 in case of emergency. When hostilities ended plans were under way for two additional mechanical bakeries there.

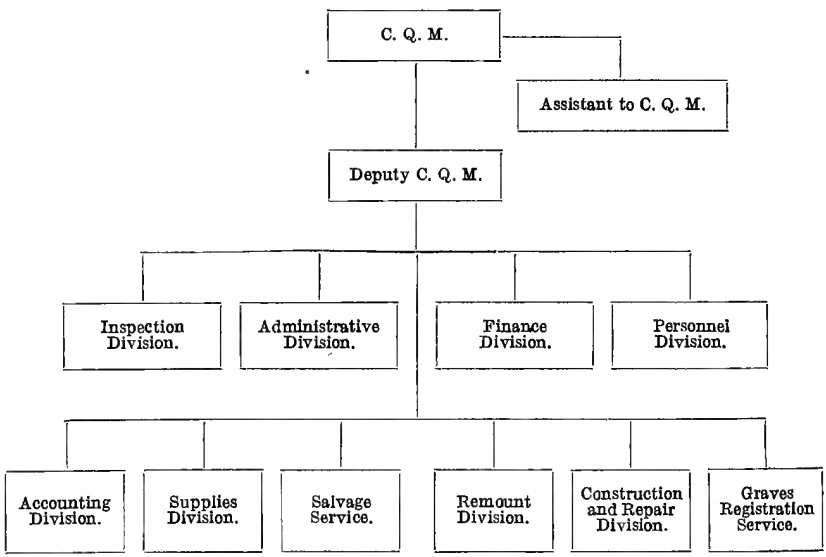
The Garden Service was started in the spring of 1918 and during the period of its operation it produced 75,000,000 pounds of vegetables at cost, not including the pay and subsistence of enlisted men, about one-third the prices prevailing in the open markets.

Four cold storage plants were added after the armistice. On November 11 there were 17 in operation, with a capacity of 10,374

tons, and 15 more were projected, with an additional capacity of 15,065 tons. The largest plant was at Gièvres. It had a capacity of 5,200 tons.[57]

Forage was always a serious problem in France because of the scarcity of ship tonnage. In all, the receipts were 824,410 tons, the bulk of which came from the United States. At one time the French refused to permit the American forces to buy in the open market, but offered to turn over certain monthly credits of hay from their reserve on condition that it be replaced pound for pound from America. At the signing of the armistice, the French had delivered only about 30 per cent of their contract, but in spite of this the American Forces had built up a 21-day reserve.

Organization chart, Quartermaster Corps, A. E. F.



Coal for the Expeditionary Forces came from England, and gasoline, oils, and other greases from the United States. Wood was procured from French forests and cut by American Forestry troops.

FACILITIES.

The facilities of the Quartermaster Corps were found in nearly every section of France. They were located with a view to the needs of the troops they were to serve or the sources of supply they were to draw from. The storehouse locations were governed by the line of communications and those of other activities depended

[57] Quartermaster Section, Part II, Appendix A—Report board convened by paragraph 79, Special Order No. 141, 1919; on file Historical Branch, General Staff.

upon climatic, geographical or agricultural conditions. The locations of these facilities were as follows:

Coffee roasting plants:
- Le Havre (Seine-Inférieure).
- Bordeaux (Gironde).
- Corbeil (Seine-et-Oise).

Mechanical bakeries:
- Bordeaux (Gironde).
- St. Nazaire (Loire-Inférieure).
- Is-sur-Tille (Côte-d'Or).

Field bakeries:
- Brest (Finistère).
- St. Nazaire (Loire-Inférieure).
- Savenay (Loire-Inférieure).
- Nantes (Loire-Inférieure).
- Montierchaume (Indre).
- Issoudun (Indre).
- Gièvres (Loir-et-Cher).
- St. Aignan (Loir-et-Cher).
- Orleans (Loiret).
- St. Maixent (Dordogne).
- Montmorillon (Vienne).
- Angoulême (Charente).
- Pons (Charente-Inférieure).
- Genicart (Gironde).
- Beautiran (Gironde).
- Le Corneau (Gironde).
- Marseille (Bouches-du-Rhône).
- Clermont-Ferrand (Puy-de-Dôme).
- St. Amand (Cher).
- Verneuil (Nièvre).
- Bourges (Cher).
- St. Florent (Cher).
- Beaune (Côte-d'Or).
- Dijon (Côte-d'Or).
- Châtillon Côte-d'Or).
- Paris (Seine).
- Meucon (Morbihan).
- Coetquidan (Morbihan).
- Angers (Maine-et-Loire).
- Saumur (Maine-et-Loire).
- Le Mans (Sarthe).
- Château-du-Loire (Sarthe).
- Tours (Indre-et-Loire).
- Blois (Loire-et-Cher).
- Cour-Cheverny (Loir-et-Cher).
- La Pallice (Charente-Inférieure):
- Limoges (Haute-Vienne).
- La Courtine (Creuse).
- Neuvic (Dordogne).
- Souge (Gironde).
- St. Sulpice (Gironde).

Field bakeries—Continued.
- Pontenx-les-Forges (Landes).
- Valbonne (Alpes-Maritimes).
- Vichy (Allier).
- Mars (Nièvre).
- Nevers (Nièvre).
- Mesves (Nièvre).
- Mehun (Cher).
- Allerey (Côte-d'Or).
- Is-sur-Tille (Côte-d'Or).
- Langres (Haute-Marne).
- Chaumont (Haute-Marne).
- Mailly (Saône et-Loire).
- Vittel (Vosges).
- Neufchâteau (Vosges).
- Gondrecourt (Meuse).
- Montigny-le-Roi (Haute-Marne).
- Rimaucourt (Vosges).
- Liffol-le-Grand (Vosges).
- Toul (Meurthe-et-Moselle).

Cold storage plants:
- Brest (Finistère).
- Grand Blotterau (Loire-Inférieure).
- La Pallice (Charente-Inférieure).
- Arcachon (Gironde).
- Tours (Indre-et-Loire).
- Orleans (Loiret).
- Vichy (Allier).
- Rimaucourt (Vosges).
- Bazoilles-sur-Meuse (Vosges).
- Bendorf (Germany).
- Savenay (Loire-Inférieure).
- Angers (Maine-et-Loire).
- Bassens (Gironde).
- Le Havre (Seine-Inférieure).
- Blois (Loir-et-Cher).
- Gièvres (Loir-et-Cher).
- Beaune (Côte-d'Or).
- Vittel (Vosges).
- Toul (Meurthe-et-Moselle).
- Hook of Holland (Holland).

Ice-making plants:
- Savenay (Loire-Inférieure).
- Allerey (Saône-et-Loire).
- Bazoilles-sur-Meuse (Vosges).
- Gièvres (Loir-et-Cher).
- Rimaucourt (Vosges).
- Grand Blotterau (Loire-Inférieure).
- Beaune (Côte-d'Or).

Main gasoline storage depots:
- La Pallice (Charente-Inférieure).
- Furt (Gironde).
- Gièvres (Loir-et-Cher).
- Blaye (Gironde).
- St. Loubes (Gironde).

Gasoline and oil distributing stations:
- St. Nazaire (Loire-Inférieure).
- Angers (Maine-et-Loire).
- Tours (Indre-et-Loire).
- Limoges (Haute-Vienne).
- St. Aignan (Loir-et-Cher).
- Romorantin (Loir-et-Cher).
- Orly Field (Seine).
- Sens (Yonne).
- Nevers (Nièvre).
- Clermont-Ferrand (Puy-de-Dôme).
- Toul (Meurthe-et-Moselle).
- Neufchâteau (Vosges).

Gasoline and oil distributing stations—Continued.
- Langres (Haute-Marne).
- Is-sur-Tille (Côte-d'Or).
- Miramas (Bouches-du-Rhône).
- Chatenay (Loire-Inférieure).
- Le Mans (Sarthe).
- Bordeaux (Gironde).
- Châteauroux (Indre).
- Issoudun (Indre).
- St. Amand (Cher).
- Silly-le-Poterie (Aisne).
- Coincy (Aisne).
- Verneuil (Nièvre).
- Clermont-en-Argonne (Meuse).
- Gondrecourt (Meuse).
- Rimaucourt (Vosges).
- Chavelot (Vosges).
- Marseille (Bouches-du-Rhône).

XV.—SIGNAL CORPS, AMERICAN EXPEDITIONARY FORCES.

The Signal Corps installed, leased, maintained, and operated the general service telephone and telegraph for the American Expeditionary Forces in the Services of Supply as well as in the Zone of the Advance. It maintained radio, press, and intercept stations and, on the formation of the Third Army, provided a network in that area as an auxiliary to the wire telegraph system. (14) (3)

Initial strength, 13 officers and 286 enlisted men.

Maximum strength, 1,665 officers and 34,206 enlisted men.

Strength November 11, 1,462 officers and 33,038 enlisted men.

Pole lines constructed, 1,742 miles.

Wire run on above, 20,708 miles; wire run on other than S. C. pole lines, 1,984 miles.

Leased wire maintained by the French and operated by S. C., 12,333 miles; leased wire both maintained and operated by S. C., 3,019 miles.

Stations served from 260 telephone offices, 8,152.

Number of local calls, 25,184,000; number of long-distance calls, 870,000.

Telegraph offices in operation, 102.

Messages handled to January 1, 1919, 8,685,960.

Still pictures taken, 40,344; moving picture film taken, nearly 2,000,000 feet.

Covered storage, 350,000 square feet; open storage, 1,500,000 square feet.

Miles of lines in combat area, 38,750.

ORGANIZATION.

This corps had the same experience as all other services in that it went through several reorganizations. By the terms of General Orders, No. 8, Headquarters, Expeditionary Forces, July 5, 1917, the chief signal officer was made a member of the Administrative and Technical Section of the staff of the commanding general, Expeditionary Forces, and was charged with the control of Signal Corps personnel and material and wire communication; message receipt and transmission; radio telephone and telegraph services; pigeon service; pyrotechnics; American codes and ciphers; photography; meteorology; technical inspection of signal organizations and establishments, and dispatch riders. The definition of these functions was elaborated somewhat but not changed in General Orders, No. 25, General Headquarters, August 12, 1917. (14) When the Service of the Rear, which became the Services of Supply, was created, the chief signal officer exercised his functions as a member of the technical staff of the commanding general, Expeditionary Forces, through the commanding general, Services of Supply, although retaining his status as a member of the staff of the former, through a representative at general headquarters. The work of the corps was separated broadly into that done in the Services of Supply and that in the Zone of the Armies. The former was accomplished through departments or divisions, and the latter through the corps, divisional or regimental signal officers. The headquarters of the chief signal officers were located first at Paris and then at Tours, moving to the latter place when the general headquarters were moved to Chaumont in March, 1918.

Originally the Air Service was a function of the Signal Corps, but this service was made a separate corps early in the history of the American Expeditionary Forces, and was so recognized in General Orders, No. 8, July 5, 1917, the first general order dealing with organization in the Expeditionary Forces.

The administration of the corps' affairs was distributed among nine divisions. These were Personnel, Telephone and Telegraph, Supply, Engineering, Photographic, Research and Inspection, Radio, Records, and Special Services.

The Personnel Division had the functions usually charged to the personnel office of any corps. It handled, in addition to supply and distribution of personnel, much of its special training, and it also was responsible for matters relating to the supply of officers and men from the United States.

The Telephone and Telegraph Division handled all wire communication for the American Army. It was one of the first divisions

of the Signal Corps' activities to begin functioning. What it accomplished can be seen in the second paragraph of this chapter. (14)

The Supply Division began to function coincidentally with the Telephone and Telegraph Division. It had to organize so that it could expand as the number of troops in the Expeditionary Forces increased, and after hostilities it contracted in the same ratio. Its first depot was at Nevers, but soon it became necessary to have larger establishments, and the depot at Gièvres was the first one of the more extensive program. It had branches at the base ports and at all the base storage depots.[58] Its depot for supplying the Photographic Section was opened at Paris in August, 1918, and after that all the supplies for that section were shipped there directly from the base ports. The division had to take care of purchases in Europe, as well as requisitions on the United States for material.

The Engineering Division had charge of all Signal Corps construction in France. This duty carried its members to every section of the country, and over to England and into the occupation area after the armistice.[59]

The Photographic Division was just what its name implies. It had representatives with each division and units in the Services of Supply. It paralleled every activity of the Army, but was handicapped seriously because of a lack of photographers with sufficient familiarity with military affairs. Often views of actions and of activities in the Services of Supply which would have been of inestimable value were missed, and many views, both still and motion, that were taken could have been left out and the material used to better advantage.[59]

The Research and Inspection Division grew out of the necessity for laboratories for the development of ideas at the battle front, and for the study of ideas to meet new needs in signaling as demonstrated by modern warfare. The inspection feature was the result of the necessity for testing signal apparatus arriving from the United States and from European factories, it having been found that factory inspection was not a safe guide because of the hard usage scientific instruments often had in transit. (14)

Their names best describe the functions of the Radio and the Records Divisions. The Special Service Division looked after the work of such services as were not taken care of by the divisions already mentioned. The Pigeon Service, Meteorology, Codes and Ciphers, and Visual Signaling were its most important branches. The division was created purely for organization purposes.

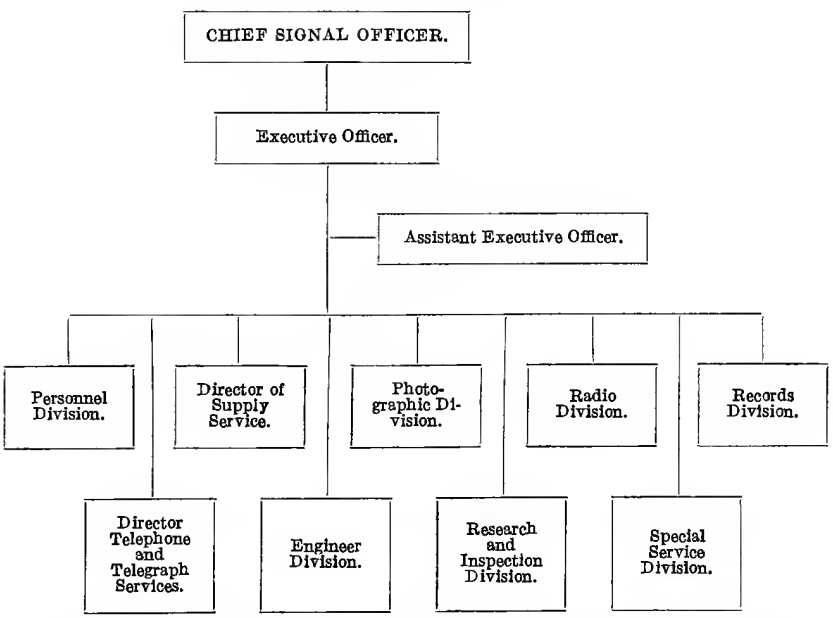
[58] Volume I, page 67, History of Signal Corps, American Expeditionary Forces; on file Historical Branch, General Staff.

[59] Volume 1, pages 16 and 19, History of Signal Corps, American Expeditionary Forces: on file Historical Branch, General Staff.

PERSONNEL.

Suitable personnel was hard to get and, moreover,[60] had to be specially trained in signal work after it had been acquired. In the rank and file of the National Guard, Signal Corps, there was a gratifying percentage of very fine types of young manhood, but there was a lack of organic strength and a disconcerting range in efficiency. Steps had been taken to organize the Signal Corps Reserve with the active cooperation of the officials of telephone, telegraph, and electric companies. These officials had helped in enrolling the men of their companies, and had even specified those of more advanced positions capable of becoming officers. From this source the most desirable recruits were had.

Organization chart, Signal Corps, A. E. F.



Because of the nature of the work, the Signal Corps had been distributed over vast territory in more or less small detachments engaged on telegraph, telephone, and kindred lines of work, including wireless and cable operation and maintaining communication between temporary field forces. When the Regular Army was expanded to full strength to meet war needs the National Guard units were also placed on a war footing. With the Signal Corps Reserve, these formed the nuclei for Signal Corps units of the Expeditionary Forces. Chambers of commerce, brokers' offices, public utilities com-

[60] Summary S. C. activities during period of preparation in United States; on file in the Historical Branch, General Staff.

panies, and like concerns kept the needs of the corps to the fore and aided materially in recruiting. Skilled men mustered into other arms of the service were transferred and the balance were obtained through the selective draft.

A course of standard instruction prepared by the chief signal officer was issued to signal units, through the general staff, in the form of training circulars. Divisional signal officers supervised the schools and field exercises of the field signal battalions. Practically all the Signal Corps officers were commissioned directly from civil life.[61] Men from telephone and telegraph companies found their way naturally into Signal Corps units and were valuable men. But other young men were needed, and it was necessary to instruct these in the elementary principles of electricity and their application to modern means of rapid communication. For this work facilities were provided at several colleges in the United States, and the work was continued after the units arrived in France.

MATERIAL.

Signal Corps material came from the United States on requisition and from the markets of Europe. In many cases it was necessary to install special machinery in French shops to turn out new instruments that were made especially to meet peculiar needs that had developed at the front. The call upon the American market made necessary the expansion on broad lines of many of the factories in the United States, and the conversion of other plants into establishments for the manufacture of signal supplies for the Army. From the standpoint of production the following broad classification [62] of Signal Corps material may be made: (14)

(1) Telephone and telegraph apparatus.
(2) Radio apparatus.
(3) Line construction material.
(4) Electrical supplies.
(5) Wire and cable.
(6) Wire reels and carts.
(7) Photographic supplies.
(8) Tool chests and kits, mechanical signals, meteorological apparatus and pigeons.
(9) Field glasses, wrist watches, etc.
(10) Signal equipment common to all branches of the service, such as pyrotechnics, flags, smoke signals, cloth panels, and panel lights.
(11) New devices growing out of the present war.

[61] Monograph on S. C. in file of Historical Branch, General Staff.
[62] Appendices to Vol. I, History of Signal Corps in American Expeditionary Forces, on file Historical Branch, General Staff.

The principal Signal Corps facilities were located as follows:

Supply depots:
- Gièvres (Loir-et-Cher).
- Is-sur-Tille (Côte-d'Or).
- Montierchaume (Indre).
- Montoir (Loire-Inférieure).
- St. Sulpice (Gironde).
- Paris (Seine).
- Orly Field (Seine).

Army parks:
- Toul (Meurthe-et-Moselle).
- Lieusaint (Seine-et-Marne).
- Parois (Meuse).

XVI.—TRANSPORTATION CORPS, AMERICAN EXPEDITIONARY FORCES.

This corps landed troops and supplies at 31 ports on the Atlantic and Mediterranean coasts of France and carried them to the front or to points in the interior, over 5,831 miles of railway, with an average haul of 580 miles. The facts about it between June 1, 1917, and June 1, 1919, are:

Authorized strength, 6,000 officers and 200,000 enlisted men to take care of an army of 4,000,000.

Maximum strength, 1,935 officers, 58,353 enlisted men, January 1, 1919.

Strength at armistice, 1,810 officers and 46,976 enlisted men.

Cargo landed, 9,577,945 tons.

Animals landed, 64,918.

Troops debarked, 1,967,267.

Troops embarked, 1,275,251.

Locomotives erected, 1,610.

Cars erected, 18,664.

French cars repaired, 57,533.

French locomotives repaired, 1,947.

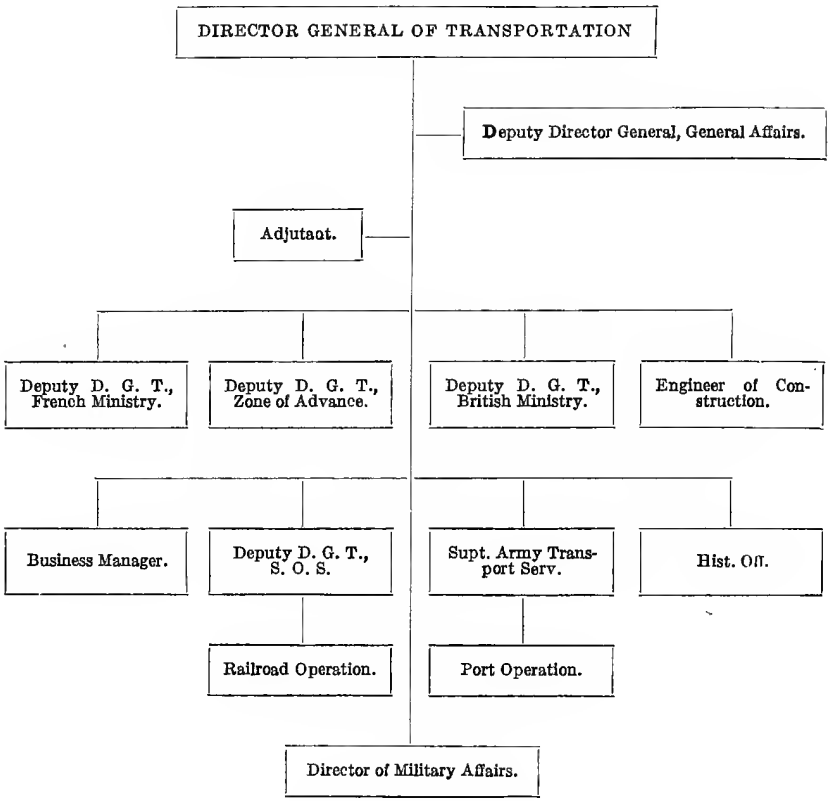
Shops built and equipped, car erecting shops at La Rochelle, locomotive erecting shops at St. Nazaire, and car and locomotive repair shops at Nevers.

Railroads made use of, Paris-Orleans, Etat, Est, Midi, Nord, and the Paris-Lyon-Mediterranean.

CONDITION OF FRENCH RAILROADS IN 1917.

The railroad situation in France was first studied by a commission sent over by the Secretary of War in May, 1917. It found that the French had to tear up a great deal of second track from double-track lines in order to get the necessary rails, and that the railroad systems were 1,200 locomotives short of normal because none had been bought to replace those seized or destroyed by the enemy and none of the bad order locomotives had been repaired. The shortage of freight cars was even greater in proportion. The French, therefore, had

Organization chart, Transportation Corps, A. E. F.



been compelled to call on the British to furnish additional rolling stock and assume a greater share of British transportation in Northern France. It was seen that similar demands would have to be made on the Americans. (2) (4)

At the beginning transportation was a function of the Corps of Engineers and was under the chief Engineer officer of the Expeditionary Forces. The service had to be organized in this way tentatively to meet immediate conditions. A permanent and satisfactory organization was not authorized until June 25, 1918, and not finally[63] accomplished until November 12, 1918. The location of the ports immediately available for the American Forces fixed the lines of communication and determined the transportation problem and, in the final analysis, affected to a great degree the selection of the field of American operation.

UNDER THE COMMANDING GENERAL, LINE OF COMMUNICATIONS.

In the absence of any organization, transportation was put in charge of the chief Engineer officer, and was first known as the "Transportation Department" by General Orders, No. 8, Headquarters, Expeditionary Forces, July 5, 1917. This arrangement was only intended to hold while the commanding general, Expeditionary Forces, and his staff were making a study of the general problem of supply. The Line of Communications became an established fact by General Orders, No. 20, general headquarters, August 13, 1917, whereby transportation was made a Department of Military Railways with a director who was a staff officer of the commanding general, Line of Cummunications. The Department of Military Railways was charged with the operation, maintenance, and construction of such railways as might be turned over by the French and the supervision of all movements of American troops and supplies over lines operated by the French. Construction was retained temporarily by the Engineers, until such time as enough transportation construction troops had arrived overseas to take care of the work. This arrangement was never changed and the Engineers always constructed transportation facilities, although transportation officials designed them.

TECHNICAL SERVICE OF GENERAL HEADQUARTERS.

Further study led the commanding general, Expeditionary Forces, to the conclusion that "rail transportation should be organized as a separate department of army field headquarters and coordinate with existing administrative and supply departments, since it occupies in this war a function apart from the Quartermaster and Engineer

[63] Chapter III, History of Transportation Corps, American Expeditionary Forces, containing General Orders, No. 52, Services of Supply, 1918, and General Orders, No. 35, Transportation Department, on file Historical Branch, General Staff.

Corps."[64] Acting on this conclusion, the commanding general appointed a director general of transportation by General Orders, No. 37, general headquarters, September 14, 1917, wherein the "Transportation Service" was created as a technical service of general headquarters.

PART OF THE SERVICE OF UTILITIES.

Soon the burden on general headquarters became so heavy that it was determined to create a general supply service. This was done in General Orders, No. 31, general headquarters, February 16, 1918, wherein the Transportation Service was made a part of the Service of the Rear, the first name for the Services of Supply. A few weeks later it was thought best, however, to coordinate the rail and motor transportation services and construction, and General Orders, No. 31, corrected, were issued March 12, 1918, whereby the name "Service of the Rear" became "Services of Supply" and a Service of Utilities was created, the component parts of which were the Transportation Service, the Motor Transport Service, the Department of Light Railways and Roads, and the Department of Construction and Forestry. The Army Transport Service had been made a department of the Transportation Service on December 8, 1917, the transfer being made by General Orders, No. 78, general headquarters. The Service of Utilities, however, was ended July 11, 1918, by General Orders, No. 114, Headquarters, Services of Supply. By the redistribution of the services under this order the Department of Light Railways and Roads and the Department of Construction and Forestry were charged to the chief engineer, Expeditionary Forces, and the Transportation Service and the Motor Transport Service were made separate departments of the Services of Supply. The railroad and dock organization continued in this relation to the commanding general, Services of Supply, even after the Transportation Corps was organized by General Orders, No. 52, Headquarters, Services of Supply, November 12, 1918.

A glance at the railroad map of France will show that the principal roads of France radiate from Paris like spokes from the hub of a wheel. With this condition, it is obvious that the bulk of traffic is always north and south and that Paris is the general receiving and distributing point for all of France. This peace-time situation was not adequate during the war, especially after the Americans arrived. With the theater of American operations almost directly east of the ports the American Army was to use, it was necessary that supplies be carried over the most direct route and over the route least likely to interfere with the densest flow of railway traffic. This

[64] Cable 171, paragraph 12, commanding general, American Expeditionary Forces, to The Adjutant General, Sept. 21, 1917, on file Historical Branch, General Staff.

was the east and west route through Tours, Nevers, and Dijon. The line of communications as set forth in General Orders, No. 20, general headquarters, 1917, took in a route covered mostly by the Paris-Orleans Railroad and by a small part each of the Est and Paris-Lyon-Mediterranean systems. This line took care of operation from the South Atlantic ports, beginning at St. Nazaire. But early in November, 1917, it was seen that Brest would have to be used by the American Army, and it became eventually the principal troop port. This necessitated the use of the Etat railway from Brest to Tours by way of Le Mans. When Marseille was opened, after the submarine situation in the Mediterranean was under control, the main line of the Paris-Lyon-Mediterranean Railroad on the east side of the Rhone was put into use.

The second line of communication used portions of the Est-Paris-Lyon-Mediterranean Railways, while the third and fourth lines of communication ran entirely over the Est system.

INTERNAL ORGANIZATION.

The internal organization of the Transportation Corps remained fairly constant at headquarters, but the general field organization was evolved only after many months of study and experiment. The director general of transportation was assisted by a deputy director general for general affairs, a deputy director general for the Services of Supply, a deputy director general for the Zone of the Advance, and deputy directors general with the British and French ministries, a business manager, an engineer of construction, a director of the Army Transport Service, and a director of military affairs. The deputy director general, Services of Supply, had charge of railroad operation within the Services of Supply; the deputy for the Zone of Advance had similar functions within that zone, and the deputies with the British and French ministries were the representatives of the director general with those two governments. The business manager had charge of requisitions, contracts, claims, accounts, and statistics. The engineer of construction designed all railroad and port facilities, and the director of the Army Transport Service had charge of port operations, and the director of military affairs of personnel.

The rail lines of communication were divided into grand divisions with a general superintendent at the head of each. Each of the principal ports was made a grand division and similar disposition was made of the inland water transport and the transportation service in England. (22)

At first the transportation field organization was by regiments on the engineer regimental table. It was soon found, however, that an engineer regimental table would not furnish enough troops for a

grand division to operate with efficiency and it was decided that organization on the basis of an infantry regiment would meet the needs better. But before a reorganization on this basis had gone very far the transportation problem had grown so that a more fluid organization was thought necessary. In the first place the regiment would have to be scattered if made up of entirely one kind of transportation specialist, and if made up of all kinds needed, there would not be enough of any kind. The same thing would hold true of a battalion. Then, too, the needs were not the same in any two grand divisions because of relations with the French. Finally it became evident that the unit of organization for transportation purposes should be a company of 250 men with 6 officers, 1 of whom, a lieutenant, should be the military administrator. The number of troops needed to operate a grand division was reckoned in multiples of 250. (2) This plan of organization was put into effect November 12, 1918, by General Orders, No. 52, Headquarters, Services of Supply, and General Orders, No. 35, Transportation Corps, and may be considered as the result of our experience in France.

PERSONNEL.

The Transportation Corps had to train most of its enlisted personnel and the greater portion of its junior officers. (2) Out of the draft it should have had all the stevedores, engineers, firemen, conductors, brakemen, yardmasters, and switchmen. Many of these men got away, however, to combatant units, and it was only possible to find enough of them in the Expeditionary Forces for five transportation battalions. The recruiting officers in the United States had to accept volunteers at the valuation placed on them by the railroad officials of America and these railroad officials frequently classified switchmen as yardmasters, firemen as engineers, and traffic men as railroad operators. The laborers supplied for the docks knew nothing about stevedoring and had to be trained. The Transportation Corps made hundreds of railroad men and stevedores out of green material. All the time taken to train these men could have been used to much better advantage if the right kind of men had been selected through some system whereby their qualifications could have been checked adequately. The commissioned personnel in the junior grades was in as bad shape. Men were commissioned as stevedores who had no experience. Former Army noncommissioned officers were given the higher grades because they showed up better in camps before the troops went overseas than the technical officers did. The result was that when technical operations began the technical officers did not have sufficient rank to enforce their orders and no promotion was possible for many months.

Another source from which commissioned and enlisted personnel was supplied for transportation was from reclassified men from the front or who had been disabled. Generally the former class failed just as badly in transportation and the latter class was equally unable to work along the railroads or at the docks.

Promotions served in the end to give the technical men the necessary rank, and time and teaching made the unskilled labor and unskilled commissioned personnel fairly skillful.

The higher transportation officials, both on the railroads and on the docks, were especially selected men and men of mark in their lines in civil life. These officers were efficient, and it was owing to this efficiency that the Transportation Corps was able to discharge its duties and deliver supplies promptly and in sufficient volume.

MATERIAL.

The first major projects for transportation were designed by engineer officers, but these were men who had been commissioned for railway work. They were recommissioned later in the Transportation Corps. After the ports and lines of communication had been selected, the necessity became obvious for the construction of such facilities as the new docks at Bassens, near Bordeaux, much double tracking, storage yards, and the like. Two officers drew up what was known as Requisition No. 6. This was the initial order for transportation material. The requisition was so drawn that practically everything that would be needed for transportation in France was listed, although the quantities were for initial work only. Everything from locomotives and freight cars to nails and screws, including all the necessary machinery for locomotive and car erection and repair, was mentioned. As the months went by it was found, generally, that it was only necessary to order in multiples of the items of Requisition No. 6. (12)

Although transportation was a separate service in the Expeditionary Forces, it was a function of the Corps of Engineers in America, and all material was ordered through the Chief of Engineers and shipped to France and distributed by the Engineer Supply Depot. This was logical because the service which did the designing naturally should do the ordering, while the distribution of the material should go to the service which was to use it in construction.

FACILITIES.

The facilities constructed for transportation were of the following general classes:

Locomotive and car erection and repair shops.
Inland waterway barge docks.
Piers and lighterage wharves.
Ammunition docks.
Port equipment and facilities.
Multiple tracking and cut-offs.
Wye connections.

Passing sidings.
Forestry sidings.
Hospital sidings.
Camp spurs.
Water facilities.
Coal-storage yards.
General shop and factory spurs.
Troop forwarding facilties.
Gasoline station spurs.
Artillery unloading spurs.
Storage depots.
Regulating stations.
Engine terminals.

Many of these facilities were too numerous, too small, and too much a matter of routine to list here; such as sidings, spurs, multiple tracking, etc. The major facilities, however, were:

General storage depots:
- Montoir (Loire-Inférieure).
- Gièvres (Loir-et-Cher).
- St. Sulpice (Gironde).
- Montierchaume (Indre).
- Is-sur-Tille (Côte-d'Or).

Ammunition storage depots:
- St. Loubes, near Bordeaux.
- Foëcy (Cher) in the Intermediate Section.
- Issoudun (Indre).
- Jonchery (Haute-Marne) in the Advance Section.
- Donges, on the Loire River near Nantes.

Engine terminals:
- Saumur (Maine-et-Loire).
- Perigueux (Dordogne).
- La March (Nièvre).
- At each general storage depot.

Regulating stations:
- Is-sur-Tille (Côte-d'Or).
- Liffol-le-Grand (Vosges).
- St. Dizier (Haute-Marne).
- Gièvres (Loir-et-Cher). (During the German offensive in the spring of 1918.)

Railheads:
- Neufchâteau (Vosges).
- Epinal (Vosges).
- Toul (Meurthe-et-Moselle).

Locomotive and car repair shops, Nevers (Nièvre).

Locomotive erecting shops:
- Parc-de-Mean (St. Nazaire).
- Rennes (Ille-et-Vilaine).

Car erecting shops, La Rochelle (Charente-Inférieure).

The ports at which Americans operated and the kind of freight handled were:

Debarkation: Brest and Cherbourg, St. Nazaire.

Heavy lifts and general cargo: St. Nazaire, Bassens, Nantes, La Pallice, Marseille, Bordeaux, Caen (Calvados), Honfleur (Calvados).

General cargo: Le Havre, Rouen, Montoir, Pauillac, French Bassens, Cette (Herault).

Explosives: St. Loubes, St. Pardon (Gironde), Donges.

Coal: Rochefort, Bayonne, Les Sables-d'Olonne (Vendée), La Rochelle, St. Malô (Ille-et-Vilaine), St. Brieuc (Côtes-du-Nord), Lorient, Granville, Marens (Charente-Inférieure), Surrol (Gironde), and Tonnay-Charente (Charente-Inférieure).

Oil: Furt (Gironde) and Blaye (Gironde).

Troop debarkation: Liverpool and Glasgow.

Troop embarkation: Southampton.

Coal: Cardiff, Barry, Penarth, Newport, Newcastle.

General cargo: London, Swansea, and Portsmouth.
Lumber: Hull and West Hartlepool.
Potatoes: Belfast.
General cargo, slightly: Leith, Blythe, Sunderland.

The rolling stock used by the American Army was of the American type for locomotives and both American and French type for cars. The corps received from America consolidation locomotives with a tractive effort of 36,000 pounds. They were shipped over knocked down and were erected at the St. Nazaire and Rennes shops. The American cars were shipped over the same way and were erected at the shops at La Rochelle. These cars were of 60,000 pounds capacity and included box cars, low and high side gondolas, and flat cars. In addition, as many French freight cars as could be spared were used by the American Forces. These cars were of the same classification but the range of their capacity was only from 10,000 to 20,000 pounds. As the track facilities at the ports and other points along the lines of communication were improved to allow switching other than by small turntables, as in the French practice, the use of French cars for other than shuttle service decreased until, at the time of the armistice, the greater part of freight of the American Expeditionary Forces was being transported in American cars.

The Transportation Corps did not operate the French railroads; it operated on them subject to French regulation. The reason for this was obvious. The French railroad traffic was a large part of the business of the roads and only French methods of operation, of which the Americans knew comparatively little, was necessary as long as French personnel was employed. The Americans ran their own trains, but under French regulation. Yard operation for Americans was wholly and entirely American, however. Just before the armistice the French requested the Transportation Corps to take over the Paris-Orleans Railroad entirely and operate it both for the French and the Americans after American methods. Had the war continued this transfer of entire control of this railroad was to have been effected January 1, 1919.

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[War Department, Historical Bureau.]

Transportation Corps Port and Shop Operations.

	Cargo tons.	Troops.	Animals.	Return of troops to United States.	Locomotives— U. S. A.	Locomotives— Erected by French.	Belgian locomotives received.	Cars erected by U. S. A.	Cars received from other sources.	French cars repaired.	French locomotives repaired.
June, 1917	24,524	12,162	.....	Total number troops returned prior to Nov. 11, 1918.	.....	.....	.....	.....	.....	.....	.....
July	23,780	3,562	2,899		.....	.....	.....	.....	.....	.....	.....
August	28,355	14,502	.....		.....	.....	.....	.....	.....	.....	.....
September	33,853	22,359	110		.....	.....	.....	.....	.....	.....	.....
October	98,585	37,771	.....		.....	.....	.....	.....	.....	.....	.....
November	124,641	29,521	.....		.....	.....	.....	.....	.....	.....	.....
December	113,825	37,522	3,774		48	.....	.....	.....	.....	.....	.....
January, 1918	162,016	47,763	3,694		48	.....	.....	.....	.....	.....	.....
February	192,239	33,455	6,559		57	22	.....	1	.....	29	.....
March	288,038	62,348	8,547		24	.....	.....	145	.....	38	.....
April	397,969	84,948	2,232		29	6	91	546	.....	37	.....
May	487,197	162,885	.....		71	13	25	1,177	.....	2,147	25
June	607,274	221,288	.....		129	10	63	1,320	53	5,908	29
July	641,959	301,526	.....		39	38	54	1,287	302	7,061	27
August	715,258	242,207	.....		127	10	65	2,395	255	6,271	42
September	767,648	311,969	1,839		223	.....	19	2,422	244	7,729	642
October	919,488	217,614	2,582	22,183	117	.....	33	2,542	119	9,118	308
November	920,972	112,626	20,881	Nov. 11–30, 1918 25,503	143	.....	.....	2,467	.....	7,655	350
December	916,059	6,574	11,801	98,669	147	.....	.....	2,284	60	7,440	369
January, 1919	740,362	936	.....	115,021	145	3	.....	1,463	.....	1,657	123
February	442,089	474	.....	179,068	157	.....	.....	325	.....	1,112	11
March	351,973	459	.....	214,348	.....	.....	.....	229	.....	540	16
April	340,523	159	.....	289,112	2	.....	.....	61	.....	399	4
May	245,116	2,997	.....	331,347	2	.....	.....	0	.....	392	1
Totals	9,577,945	1,967,627	64,918	1,275,251	1,508	102	359	18,664	1,033	57,533	1,947
Returned to Belgium							354				
Balance							5				

American Expeditionary Forces, Transportation Corps, Port Statistics.

1919.

Month.	Bordeaux, January 1.		La Pallice, January 1.		Rochefort, January 1.		St. Nazaire January 1.		Nantes, January 1.		Brest, January 1.		Havre, January 1.	
	Total tonnage.	Daily average.	Total tonnage.	Daily average.	Total tonnage.	Daily average.	Total tonnage.	Daily average.	Total tonnage.	Daily average.	Total tonnage.	Daily average.	Total tonnage.	Daily average.
January	155,332	5,011	62,779	2,018	55,748	1,798	186,370	6,011	65,277	2,016	75,829	2,447	48,812	1,575
February	114,267	4,081	42,255	1,509	26,417	943	144,503	5,162	41,332	1,476	51,052	1,823	7,430	265
March	87,661	2,828	52,014	1,678	.....	.....	111,055	3,582	20,721	668	39,367	1,270	.....	.....
April	89,952	2,998	56,956	1,899	.....	.....	90,668	3,022	1,984	496	40,989	1,366	.....	.....
May	49,277	1,590	56,213	1,813	.....	.....	71,913	2,320	.....	.....	21,675	699	.....	.....
Total to May 31, inc	496,489	3,288	270,217	1,700	82,165	1,391	604,509	4,003	129,314	1,376	228,912	1,516	56,242	953

Month.	Rouen, January 1.		Bayonne, January 1.		Marseille, January 1.		Rotterdam.		Antwerp.		Les Sables d'Olonne.		All ports.	
	Total tonnage.	Daily average.	Total tonnage.	Daily average.	Total tonnage.	Daily average.	Total tonnage.	Daily average.	Total tonnage.	Daily average.	Total tonnage.	Daily average.	ta tonnage.	Daily average.
January	23,194	781	5,946	192	53,849	1,737	.....	.....	.....	.....	7,426	234	740,562	23,889
February	609	23	1,709	61	1,854	66	.....	.....	.....	.....	10,670	382	442,089	15,781
March	12	12	.....	.....	.....	.....	32,498	1,250	8,645	865	.....	.....	351,973	11,354
April	.....	.....	.....	.....	.....	.....	25,895	863	34,079	1,136	.....	.....	340,523	11,351
May	.....	.....	.....	.....	.....	.....	10,729	346	35,309	1,139	.....	.....	245,116	7,907
Total to May 31, inc	23,815	397	7,646	129	55,703	944	69,122	795	78,033	1,099	18,096	307	2,120,263	14,041

American Expeditionary Forces, Transportation Corps, Port Statistics—Continued.

DETENTION, 1919.

Month.	Bordeaux.			La Pallice.			Rochefort.			St. Nazaire.			Nantes.			Brest.			Havre.		
	Boats.	Total days.	Aver.	Boats.	Total days.	Aver.	Boats.	Total days.	Aver.	Boats.	Total days.	Aver.	Boats.	Total days.	Aver.	Boats.	Total days.	Aver.	Boats.	Total days.	Aver.
January	47	905	19.28	23	432	18.78	23	378	16.43	41	739	18.02	27	569	21.07	40	364	9.10	17	266	15.65
February	45	927	20.60	17	410	24.12	15	200	13.33	41	514	12.54	15	185	12.33	29	242	8.34	3	24	8.00
March	29	265	9.14	12	170	14.17	.....	.....	.....	41	429	10.46	9	117	13.00	27	112	4.15	.....	.....	.....
April	41	385	9.39	15	155	10.33	.....	.....	.....	46	329	7.15	3	21	7.00	23	123	5.35	.....	.....	.....
May	30	372	12.40	11	172	15.63	.....	.....	.....	34	258	7.59	.....	.....	.....	17	65	3.82	.....	.....	.....
Total	192	2,854	14.86	78	1,339	17.17	38	578	15.21	203	2,269	11.18	54	892	16.52	136	906	6.66	20	290	14.50

Month.	Rouen.			Bayonne.			Marseille.			Les Sables d'Olonne.			Rotterdam.			Antwerp.			All ports.		
	Boats.	Total days.	Aver.	Boats.	Total days.	Aver.	Boats.	Total days.	Aver.	Boats	Total days.	Aver.	Boats.	Total days.	Aver.	Boats.	Total days.	Aver.	Boats.	Total days.	Aver.
January	11	63	5.73	3	23	7.67	19	484	25.47	9	36	4.00	.....	.....	.....	.....	.....	.....	251	4,241	16.90
February	3	8	2.67	1	9	9.00	6	196	32.67	10	76	7.60	.....	.....	.....	.....	.....	.....	182	2,812	15.45
March	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9	68	7.56	.....	.....	.....	119	1,144	9.61
April	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6	51	8.50	6	53	8.83	134	1,103	8.24
May	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	23	11.50	6	24	4.00	91	863	9.48
Total	14	71	5.07	4	32	8.00	25	680	27.20	19	112	6.42	17	142	8.35	12	77	6.42	777	10,163	13.0

Compiled from daily port reports.

XVII.—RENTING, REQUISITIONS, AND CLAIMS SERVICE, AMERICAN EXPEDITIONARY FORCES.

The Renting, Requisition and Claims Service in the American Expeditionary Forces provided the billeting, leased all lands and buildings, and passed on all questions arising out of those functions.

Maximum strength, 561 officers, 1,400 enlisted men, 45 field clerks, and 55 civilians.

Claims disposed of to March 15, 1919, 12,324.

Rental of billets used, 42,000,000 francs.

The service was organized on March 30, 1918, by General Orders, No. 50, general headquarters. It was made one of the Services of Supply and by this order its duties were:

(*a*) To rent all lands and buildings required for all departments of the United States military forces in France other than those obtained as provided in paragraph I, section II, General Orders, No. 29, 1918, general headquarters.

(*b*) To requisition all lands and buildings for all departments of the United States military forces in France, possession of which can not be acquired on reasonable terms by amicable agreement.

(*c*) To provide and supervise the billeting and quartering of the United States forces in France under General Orders, No. 18, general headquarters, 1918, and amendments thereto.

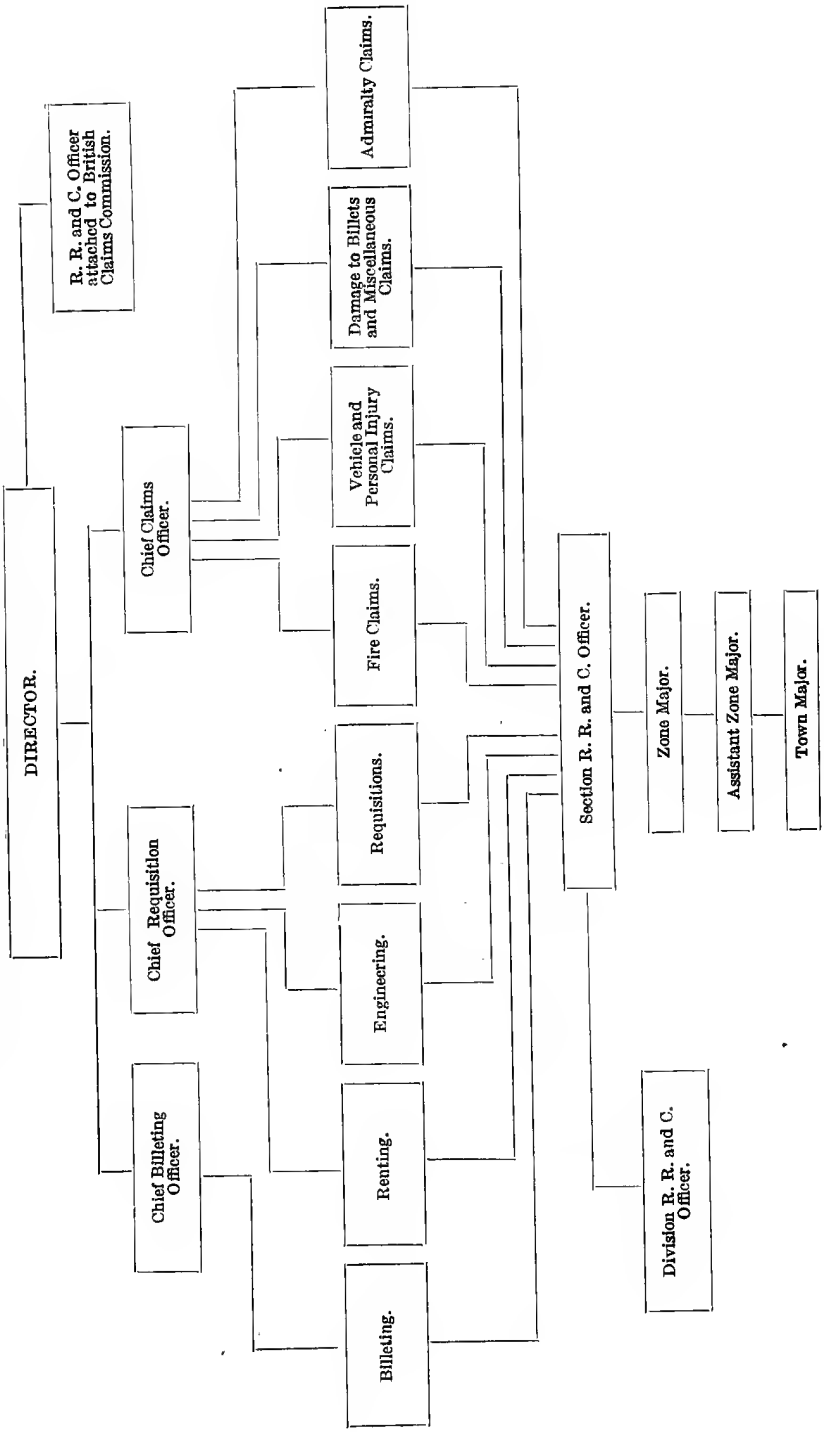
(*d*) To investigate, assess, and settle claims arising out of the exercise of the foregoing functions.

(*e*) To investigate all claims for injuries to persons and damages to property resulting from the acts or omissions of members of the military forces in France.

After April 18, 1918, the date on which the President of the United States signed the necessary enabling act, the claims department assessed and settled, in accordance with the law and practice of the country in question, all the claims "of inhabitants of France or any other European country not an enemy or ally of an enemy" for injuries or damages by the military forces.

The headquarters of the Renting, Requisitions, and Claims Service were at Tours and were under a director, who was responsible to the commanding general, Services of Supply. The director was also always judge advocate, Services of Supply, of the Expeditionary Forces, but the two services had no relation other than that the same officer was the head of each. The service, under the director, was in charge of three officials—the chief billeting officer, the chief renting and requisitions officer, and the chief claims officer. On the staff of every section commander was a section officer of the Rents, Requisition, and Claims Service and under him were district rents, requisition, and claims officers, zone majors, and town majors. Under

[*Organization chart, Renting, Requisition, and Claims Service, A. E. F.*



authority of General Orders, No. 78, general headquarters, 1918, the commanding general, Services of Supply, designated an officer for each tactical division as a division rents, requisition, and claims officer. This officer could be sent to the division or could be such officer of a division as the division commander might recommend. These officers were attached to the staff of the division commander, but they had the same jurisdiction as zone majors and were regarded as zone majors serving with troops. After the armistice, officers of the Rents, Requisition, and Claims Service were stationed in Belgium, Holland, and Luxemburg.

For the proper administration of billeting areas there was assigned to each area a company of the Rents, Requisition, and Claims Service troops of the Army Service Corps, with a total personnel of 45. This personnel was composed of 5 commissioned officers, to be used as zone and town majors, 11 noncommissioned officers, 10 privates first class, and 19 privates. The noncommissioned officers were interpreters, billet wardens, and clerks. The privates were billet wardens.

The principal function of the billeting department was to provide for and to supervise the billeting and quartering of American forces under the French law and to exercise the right to billet and quarter troops upon the inhabitants in France in the same manner as the French Army. The department organized all billeting areas. It first made a careful survey of the area, sent officers actually to secure the billets and billet troops upon their arrival, kept accounts of all billets occupied, prepared the billet distribution list, which it forwarded to the proper disbursing officers for settlement, and when the area was desired no longer, settled all claims. There were 127 areas at the disposal of the American forces in France, but 37 of these never were organized. The size of an area depended upon the kind of troops to occupy it. The area required for an infantry division was the largest and generally comprised about 30 communes to accommodate 1,200 officers and 30,000 men.

The renting and requisitions department was in charge of the acquisition of all American installations in France, and it endeavored to regulate the rental of properties acquired before the organization of the department. It drew up a form of lease that was acceptable to the French Government and French people and at the same time adequately protected the United States Government.

The claims department was authorized under the act of Congress approved April 18, 1918. Claims growing out of the acquisition and occupation of leased properties were not payable under this act and consequently were not handled by the claims department, but by the renting and requisitions department. The claims department, however, adjusted all other claims for damages against the Ameri-

can military forces except claims growing out of breach of contract. The claims adjusted by the department were divisible usually into the following classes:

Damage to billets.
Damage caused by fires and explosions.
Claims arising out of wrongful taking of property.
Claims for personal injury caused by negligence of American Expeditionary Forces personnel, of which by far the largest number were due to A. E. F. automobile accidents.
Admiralty claims except such as arose on the high seas.

By virtue of a decision of the Assistant Comptroller of the Treasury of the United States in France and an arrangement with the Navy officials, the claims department investigated and settled many claims against the Navy. A naval liaison officer was attached to the department. The decisions of the claims department were final, no machinery for appeals from such decisions having been provided.

The personnel for the service came from many sources. The officers assigned to the service were commissioned in the Army Service Corps, and the same corps also supplied the enlisted personnel. By far the greater number of commissioned officers were not assigned but attached, and these came from every branch of the Army. Among the officers were some of the best legal talent the Army produced. These men had had wide experience in civil life both in the legal settlement and in the investigation of claims, in realty transactions, and in admiralty. The enlisted personnel, which came from the Army Service Corps, was picked with a view of selecting men with qualifications for the peculiar service they were to render. Often it was hard to get enough men who possessed these peculiar qualifications, and it was necessary to take men most nearly meeting them and then put the men so selected through a course of training.

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The histories of the services, which constitute an important source for this monograph, consist not only of accounts of the activities of the several services, but also have many original documents appended. These documents are so numerous that it has been found necessary to refer to the histories in general and not to specific documents.

The Medical Department, A. E. F., prepared no history, but there is being prepared in the Office of the Surgeon General a complete medical history of the war.

The Air Service is not referred to in this monograph, as it functioned directly under G. H. Q. (G. O. 81, G. H. Q., 1918). However, this service prepared a complete history of its activities in the A. E. F., which is now filed in the office of this service in the War Department.

The activities of the Provost Marshal General are omitted, as this service was directly supervised by G. H. Q.

APPENDICES.

Appendix A.

EXTRACT FROM REPORT OF ASSISTANT CHIEF OF STAFF, G–3, TO THE COMMANDING GENERAL, AMERICAN EXPEDITIONARY FORCES.

EVENTUAL AMERICAN SECTOR.

Before the commander in chief left Washington certain features as to the part of the western battle front on which the American forces should be employed had been discussed. But no decision other than that our troops were to be employed in closer relation to the French than to the British front had been reached.

Naturally, the selection of the region in which the American Expeditionary Forces should be built up and operate, and the choice of lines of communication as well, was largely dependent upon the plans as to the size of those forces and as to whether or not they should be developed under their own flag. A small force could be employed anywhere along the front, and no distinctly American zone was necessary if our troops were, as they arrived, to be turned over to our allies. The commander in chief's original instructions had directed him to keep in view "That the forces of the United States are a separate and distinct component of the combined forces, the identity of which must be preserved." Before arriving in France the commander in chief had decided that a very large American force would be required, and his first observations after landing confirmed his view that all plans must be based upon the employment of several million Americans in France.

The primary considerations in the choice of the region in which we should operate were then that we should be able to develop and employ a force numbered by millions and that conditions should favor the retention of the identity of our forces.

Now, the course of the war, as fixed by the operations of 1914, had kept the masses of both sides in northern France and Belgium. Paris was all important to the French as were the channel ports to the British. It was manifest that our Allies must keep their masses in northern France and Belgium as long as the German chose to keep his masses in those regions. It was equally clear that the French must command the armies which covered the approaches to Paris and that the British must command the armies covering the channel ports. Both on account of the masses already there and because of the difficulties which it was evident must be encountered in preserving our identity, it appeared undesirable, therefore, to consider organizing and employing our forces in northern France.

On the other hand, Lorraine was occupied by comparatively few troops. This had long been a quiet sector and was, therefore, favorable for undertaking the training and development of a new army. The French had proposed that our first troops go to Lorraine for training and it was desirable that we agree at once to that proposal. But it was not likely that the French had made their proposals in view of the employment of millions of Americans as a distinctive American force. The commander in chief, therefore, at once (June 21) sent staff officers to Lorraine and studied the suitability of this as a region

in which not only to develop but to employ a great American army in a decisive offensive. From this visit and these studies the commander in chief decided that Lorraine satisfied both conditions. So far as concerned the possibilities of an offensive in this region it is sufficient to point out that the Briey iron basin to the west of Metz, the coal regions to the east of Metz, the vital railway communications in the same regions, and the fortress itself were at least as important to the Germans as were Paris and the channel ports to the French and British.

Such were the considerations on which the commander in chief decided, prior to July 1, to choose Lorraine for the development and employment of the American forces.

But the studies undertaken led to the further conclusion that the first operation to be undertaken by the first American Army to be formed should be the reduction of the Saint Mihiel salient. In the face of difficulties of all kinds this plan was ultimately realized. It is certain that the early decision upon the general region in which our troops were to operate, and, above all, the constant determination of the commander in chief to unite all American troops under their own flag, were indispensable factors in the realization of the allied victory.

LINES OF COMMUNICATION.

But while the considerations outlined in the preceding paragraph pointed to Lorraine as our eventual sector, the possibilities of supplying in that region forces of the size contemplated were dependent upon the availability and suitability of ports, railroads, and other facilities. Thus the choice of the immediate theater of operations and that of lines of communication were inseparable. The necessary studies were, therefore, carried on concurrently, and these studies required the closest cooperation between the various sections of the commander in chief's staff as well as with the French.

So far as ports were concerned, the question was simple, since the only ports which could be developed to meet the necessities of an army of several millions were those of southwestern France—Brest, St. Nazaire, La Pallice, and Bordeaux.

The choice of a region within which interior depots and other facilities could be located was more complicated. Existing rail facilities had to be considered. It was necessary to avoid crossing important supply lines used by our allies. Finally, while the region of interior depots must be primarily located with a view to supplying our troops in Lorraine, our depots must allow considerable latitude in the location of our troops, since eventualities of battle might require changes in plans. The region around Tours, Bourges, and Nevers satisfied these conditions. In short all considerations pointed to the development and employment of our forces in Lorraine, the use of the ports of southwestern France, and the utilization of the rail lines leading from those ports through Tours, Bourges, Nevers toward Epinal and Toul. After having personally discussed the questions involved with Gen. Petain, the commander in chief cabled, on July 1, 1917, the basic plan for the employment of our troops and that on which the Services of Supply developed.

No material change was made in this plan, and when the armistice was signed the Services of Supply projects had materialized to meet the needs of nearly 2,000,000 men, while further expansions for an additional 2,000,000 men were possible and were under way.

LOCATION OF TRAINING AREAS.

The same studies which pointed to the reduction of the Saint Mihiel salient as the first operation to be undertaken by a purely American Army also pointed to the desirability of grouping our training areas around Chaumont. To secure this, the cooperation of the French was necessary, and conversations were at once begun. Relations between headquarters, A. E. F., and both Gen. Foch's and Gen. Petain's headquarters were necessary. Gen. Foch, as chief of staff in the Ministry of War, controlled many matters in the Zone of the Interior. Gen. Petain, as commander in chief of the Armies of the North and Northeast, was supreme in the French Zone of the Armies.

The ultimate result was the acquisition by the American Expeditionary Forces of the training areas * * *. With but few exceptions each of these areas were capable of accommodating a division. But these training areas were not suitable, on account of the number of villages, for extensive firing for field artillery, and this fact had been recognized by officers of the operations section who visited the region in June, 1917. Consequently officers of the operations section undertook to secure suitable artillery ranges from the French, with the result that during June and July the camps of Le Valdahon, Coetquidan, Meucon, and Souge were placed at our disposal. Later additional camps were secured at La Courtine, Le Corneau, Clermont-Ferrand, Montmorillon and, for railroad artillery, at Mailly.

Appendix B.

American Expeditionary Forces,
On Board Steamship Baltic, May 31, 1917.

From: The Adjutant General.
To: Col. D. E. McCarthy, Chief Quartermaster.
Subject: Selection of base for American Expeditionary Forces.

1. It is the intention on arrival in France to detail a board, of which you are to be the senior member, to consider the advantages and disadvantages of such ports as may be indicated at that time as possible bases for the American Expeditionary Forces. These should include the adequacy of the suggested ports in space for anchorage, depth of water, protection from sea and submarines, docking and disembarking facilities, mean ordinary tide, climate, switching and entraining facilities, railways, rolling stock, etc., auto roads, dust, rain and other violent storms, shelter for troops or space, if necessary to erect the same, space for remount accommodations, storehouses or go-downs or space to erect them, ice plant and cold storage facilities, etc., etc.; in short the information necessary to enable the commanding general to reach a conclusion.

2. As the information referred to will be needed at the earliest moment practicable after a tentative port or ports are suggested, it is desired that your board meet informally on the *Baltic*, formulate its plan for making this study, and submit the same to the chief of staff.

3. The other members of the board, to whom copies of this letter have been furnished, are Col. Harry Taylor, Corps of Engineers; Col. Merritte W. Ireland, Medical Corps; Maj. Hugh A. Drum, General Staff, and Capt. Hugh B. Moore, quartermaster, O. R. C.

Adjutant General.

MEMORANDUM FOR THE ADJUTANT GENERAL:

Headquarters, American Expeditionary Forces,
Savoy Hotel, London, England, June 8, 1917.

Subject: Travel.

1. The commanding general directs that the board to investigate the matter of a base, of which Col. D. E. McCarthy is the senior member, proceed not later than Sunday, June 10, 1917, to the following places in France: Saint Nazaire, La Pallice, Bordeaux and the Gironde ports, Nantes, Nevers, and Marseille, visiting Marseille as the last port. The travel to Nevers should be to inspect the possibilities for a depot.

2. Attention of Col. McCarthy and his board should be invited to inclosed copies of telegrams, furnished by the American Military Mission in Paris, attention being particularly invited to Nos. 19 and 21. A telegraphic report, in cipher, of the recommendation of the board should be sent to the Adjutant General, American Expeditionary Forces, Paris, France, and may be sent before the port of Marseille is visited.

3. Capt. Gustav Porges, Quartermaster Corps, U. S. R., and John K. Manock, Quartermaster Corps, will accompany the board as interpreter and stenographer, respectively.

J. G. Harbord,
Lieut. Coloncl, Cavalry, Chief of Staff.

REPORT OF BOARD ON PORTS.

JUNE 20, 1917.

PROCEDURE OF THE BOARD:

The board, consisting of Col. D. E. McCarthy, Col. Harry Taylor, Eng., Col. Merritte W. Ireland, M. C., Maj. H. A. Drum, G. S., convened informally on board the steamship *Baltic* and studied the project of bases preliminary to arrival in France. The board left London on June 10 and arrived at Paris June 11. After consultation with the American Mission and French officials, the board, accompanied by two French officers, visited the following French ports in the order named: Nantes, St. Nazaire, La Pallice, Bordeaux, Bassens, Pauillac, and Verdun. Every courtesy was shown the board. The results of the board's investigations are given below.

FRENCH PLAN FOR HANDLING TROOPS AND SUPPLIES OF THE AMERICAN FORCES.

Succinctly the French plan for handling troops and supplies of the American forces is as follows:

1. The ports of the western coast of France are to be grouped into two zones. From each port zone a main line of railroad runs to the east, entering the zone of the armies in the vicinity of where the American forces are to be trained. The scheme contemplates the landing of troops and supplies in these two port zones and immediately reshipping them either to depots located in the interior of France or directly to the training areas of the American forces. In other words, the ports are not to be used as bases, but as reshipping points.

2. The northern zone of ports includes the main port of Saint Nazaire and Nantes, located on the Loire River, and the naval port of Brest. Brest is to be used if necessary. The railroad line of communications for this port zone runs through Saint Nazaire–Nantes–Tours–Orleans–Troye, with a line connecting from Tours to Nevers via Bourges.

3. The southern zone of ports included the ports on the Gironde River, which are especially the ports of Bassens and Pauillac. The port La Pallice is to be used as an annex to the ports of the Gironde. The railroad line of communications for this port zone, except for La Pallice, runs through Bordeaux–Limoges–Bourges–Nevers–Dijon. Due to railroad condition, the line of La Pallice is given as joining the Saint Nazaire–Tours line at Saumur.

4. The French contemplate turning over gradually and as needed to the American forces the magazine (depot) at Nevers. This depot, it is claimed, handles broad and all supplies for 200,000 men. The two railroad lines mentioned above reach Nevers. In order to provide for large forces, the French expect us to start at once the construction of several other depots on the two main lines. The location of these depots has not been definitely settled to date. The French plan also contemplates the landing of our troops and supplies in the following ratio at the various ports mentioned above: Two-fifths to be handled by the ports on the Gironde River, one-fifth at La Pallice, and two-fifths in the ports of the Loire River.

GENERAL CONSIDERATIONS.

1. *Labor.*—At every port that the board visited it was impressed by the great scarcity and poor quality of the labor used in discharging vessels. Due to the scarcity of labor and the prevailing practice of piecework payment, the cost of discharging cargoes is extremely high. But the scarcity of labor is of even greater importance than its high cost, as all available labor is now occupied in commercial work and none could be diverted to work of discharging

our vessels without seriously crippling the present commercial facilities. Everywhere the board was met by statements from the local authorities that additional labor was of the greatest importance and that labor for doing all of our construction work and work of operation should be given first consideration. In addition to the foregoing the commercial labor that we would have to use would not be subject to the necessary control in discharging ships, either in the conduct of the work or the efficiency and time in which the work was done, as they will not work overtime or nights except as it may suit their pleasure. The board is of the opinion that the labor question should receive immediate consideration and is of immediate importance, and also that the only solution is the supply of labor regularly enlisted in the military forces of the United States. The board feels that this question should be taken up at once and definitely settled.

In connection with the question of scarcity of labor it became apparent to the board that the American forces in France would have to provide the necessary man-power to cut and deliver the timber for use not only in connection with the docks, but also for fuel. *It is, therefore, recommended that any plan of bringing laborers to France from the United States should include foresters.*

The scarcity of labor for handling merchandise at all of the ports is referred to above. The remarks which are there made relative to the scarcity of labor for handling all classes of material apply equally to all classes of construction work. The only materials we can expect to find on the French markets would be cement, sand, stone, and timber. The French officials were very emphatic in their statements that we could not expect any reinforced iron structural beams or shapes, nor any skilled men or laborers for its erection. It became very evident that a large number of skilled workmen would be required for the dock construction and other forms of construction which must be undertaken in the establishment of the bases and ports. *It is, therefore, recommended that the organization of a regiment of skilled laborers, including bridge carpenters, masonry workers, plumbers, steam fitters, etc., be taken under consideration without delay.*

2. *Lumber.*—The board learns that there is a large supply of lumber available in the forests between Bordeaux and the Spanish border that will be available for dock construction and other construction purposes. The most advantageous manuer of obtaining timber from the standing trees would be by having a portable sawmill which could be installed near where the trees are felled. Whether one mill will be sufficient to produce the amount of lumber which will be requlred or not the board is unable to say. *It believes that one complete portable sawmill should be shipped as early as practicable and that the future needs should be investigated by some competent man with as little delay as possible in order that such additional machinery as might be required for future needs could be ordered without unnecessary delay.*

3. *Refrigerating plants.*—The board found practically no facilities in the way of ice plants or cold-storage plants at any of the ports investigated. *The board believes that these are necessary for the supply of American forces in France and that steps should be taken without delay to have all of the material except lumber, necessary for the construction of these plants, brought from the United States. The labor required for the construction of these plants should be American, specially skilled in this kind of work.*

4. *Slaughtering of animals.*—The board finds that the French in supplying beef to their troops follow the system of driving cattle on the hoof and slaugh-

tering them near the issue points in the zones of the army. Whether this system or the one of supplying cold-storage beef is followed by the American forces, men trained as butchers will be needed. *Steps should be taken to have men skilled in this work attached not only to each division, but also to the line of communication and its various bases.*

5. *Wells.*—In investigating the water supply at the various ports the board found that in only one case did this supply come from artesian wells. In the other cases the water supply came from surface wells. Conversations with the inhabitants and French engineers lead the board to believe that artesian wells are practicable in a number of localities along the coast line. *It is recommended that the question of bringing from the United States a crew of skilled well diggers with the necessary tools and machinery be considered.*

6. *Bases.*—The board has considered the system of establishing our bases in the interior in accordance with the French plan instead of along the coast line, as contemplated by our field service regulations. In view of the congestion existing at the various ports and also of the evident prevalence of venereal disease at these ports, *the board believes that concentration camps for troops and bases for supplies should be established in the interior of France, in the general zone to be controlled by the American forces.* This will result in the use of the ports as reshipping points.

7. *Railroad control.*—The question has come to the board as to the system to be followed in connection with the management and operation of railroad lines running from the reshipping ports to our bases and concentration points. The French advocate the system of their retaining control of these lines, using their own personnel for the operation thereof. In other words, they desire to be considered as the railroad company which transports the American troops and their supplies. The board has considered this point in connection with the other phase of the situation; that is, our complete control of the railroads needed for the supplies, etc., of our troops. *The board has come to the conclusion that the most efficient supply of the American forces in France will be secured by the control and operation of the railroad lines running from reshipping ports to our bases and our zone of operations.* However, the board realizes that for the present it is undesirable and unnecessary for the American military forces to take over the railroads. Nevertheless, the board believes that ultimately this will have to be done. *The board therefore recommends that in the initial agreement made with the French Government provision be included for our control at any time when the situation develops the necessity therefor of the railroad lines and communications used to supply the American forces.* The board feels that the accomplishment of such an understanding in the initial agreement will avoid serious difficulties in the future.

8. *Ports.*—The French plan contemplates the American use of the following ports:

	With berthage of—
Nantes	4 ships.[1]
St. Nazaire	5 ships.
La Pallice	3 ships.
Bordeaux	3 ships.[1]
Bassens	6 ships.
Pauillac	2 ships.[1]

[1] These ports looked upon as emergency ports only, on account of shallow water and poor dockage and railway facilities.

The board's conclusions as to the port facilities which should be turned over to the American forces were as follows:

	Berthage.
For permanent use:	
St. Nazaire	3 ships.
La Pallice	6 ships.
Bassens	10 ships.
For emergency use:	
Nantes	4 ships.
Bordeaux	3 ships.
Pauillac	2 ships.

The board further recommends that steps be taken without delay for the construction of the necessary additional wharves, storage buildings, etc., at the following ports on the basis indicated:

At Saint Nazaire for the disembarkation and forwarding of supplies and animals, a maximum of 150,000 men and 30,000 animals, with a rest camp for 15,000 men and 2,500 animals.

At La Pallice for the disembarkation and forwarding of supplies and animals, a maximum of 350,000 men and 100,000 animals, with a rest camp for 15,000 men and 2,500 animals.

At Bassens for the disembarkation and forwarding of supplies and animals, a maximum of 500,000 men and 200,000 animals, with a rest camp for 25,000 men and 10,000 animals.

9. *Control of ports.—The board recommends that the American forces have absolute control of all camps, barracks, stables, and other features connected with rest camps at the ports; also the docks, storehouses, railroad tracks, cranes, and other features pertaining to unloading ships at each port mentioned above; that in all other matters relating to the ports the American official at these ports confer with the designated French official in charge.* It is understood that the French contemplate placing at each one of the ports a French staff officer for the above purpose.

10. *American commander for service of rear.—The board recommends that steps be taken without delay to secure from the United States a general officer of the line of the Regular Army for the duty of commanding the service of the rear of the American forces.* This officer should be sent to France without delay and be supplied with an efficient staff. All questions relating to the service of the rear should be turned over to this officer for settlement under such general instructions as the commanding general may see fit. In order to secure cooperation and coordination and to free the general headquarters of the American Expeditionary Forces of the many minor but important details of the service of the rear, the board believes that the above action is necessary and should be taken without delay.

(Signed) D. E. McCarthy.

SUMMARY OF RECOMMENDATIONS.

1. The French plan of establishing concentration camps (instruction camps) and bases of supplies in the interior, and utilizing the ports as reshipping points, be accepted.

2. The initial agreement with the French Government relating to railroad facilities includes a provision which will insure American control of railway lines of communication whenever the situation makes such control necessary for the successful supply and operation of the American Army in France.

3. The French Government turn over gradually to the American forces for exclusive use the following port facilities:

For permanent use: At St. Nazaire, berthage for 3 ships; at La Pallice, berthage for 6 ships; at Bassens, the present dock facilities and sufficient river front to extend these facilities for berthage of 10 ships.

For emergency use: At Nantes, berthage for 4 ships; at Bordeaux, berthage for 3 ships; at Pauillac, berthage for 2 ships.

4. Steps be taken for the construction of wharves, storehouses, camps, etc., for the reshipping and transit accommodations indicated at the following points: At St. Nazaire, 150,000 men and 50,000 animals; at La Pallice, 350,000 men and 100,000 animals; at Bassens, 500,000 men and 200,000 animals.

5. American forces have absolute control at ports of all camp arrangements and facilities and all dockage and warehouse facilities connected with the berths assigned the American ships; all other features of port control to be arranged through French military staff officers.

6. A general officer of the line of the American Army, with a sufficient staff, be sent to France without delay and detailed as commander for the service of the rear.

7. A definite understanding be had with the French Government at the present time relative to reimbursement for use of docks, wharves, railroads, etc.

8. Americans enlisted in the military forces of the United States be brought to France for the following purposes: Dock laborers, foresters for construction work, including bridge carpenters, masonry workers, plumbers, etc.

9. Personnel and material be sent to France without delay for the following purposes: Collecting and sawing of timber in the French forests; for construction and operation of refrigerating plants; for the operation of slaughterhouses; and for the driving and operation of artesian wells.

10. There be accepted from the French Government, or the American Government immediately start the construction of, bases in the interior of France sufficient to provide ultimately for the maximum American force to be sent to France.

_____ _____,

Colonel, Quartermaster Corps, President.

EXTRACT FROM MEMORANDUM DICTATED AT TOURS, FRANCE, DURING MAY, 1919, BY MAJ. GEN. J. G. HARBORD, COMMANDING GENERAL, SERVICES OF SUPPLY.

The Field Service Regulations of the United States Army prior to the war contained an outline of a supply service through a line of communications. It contemplated a commanding general and a staff for that command, with an assistant chief of staff competent to give orders in the name of the commanding general in the several subsections of the line of communications. The conditions which confronted the American Expeditionary Forces on arrival in Europe were without precedent in our history. The distance of 3,000 miles from our own shores, the growing submarine menace, the unknown factor of the amount of tonnage that would be available, and the uncertainty as to the part of France in which we would operate, complicated our supply situation as compared to any other in our history. The channel ports and the railroads of northern France were congested by British and French traffic. The Mediterranean ports were 900 miles farther from our shores than the other ports of France, and submarine activity was greater and under less control in the Mediterranean than in the open Atlantic. This limited our selection to the Atlantic ports south of Brest, which port itself was unsuited for the discharge of supplies and at that time was reserved for naval uses. It became evident, however, early in 1918, that the French Atlantic ports would not suffice for our needs, and arrangements were made for the use of Mediterranean ports in spite of the longer distance and the submarine menace. From the ports of western France there were available railroad lines to the northeast, including the double track lines from Bordeaux and Saint Nazaire forming a junction near Bourges, thence running east and north beyond Dijon, with radiations toward Epinal and Nancy. It was estimated that these lines, assisted by collateral lines which were available, could handle a traffic for American uses of 50,000 tons per day. These considerations, with the probability that pressure from the French would dictate the employment of our forces well toward the east, led to the selection of the ports of Saint Nazaire, La Pallice, and Bassens for permanent use, with Nantes, Bordeaux, and Pauillac for emergency use. Several smaller ports, such as Saint Malo, Sables d'Olonne, and Bayonne, were used chiefly for the importation of coal, and from time to time certain ships were sent to Cherbourg and Le Havre. Brest later became a great passenger port.

The probability that our forces would be employed well toward the eastern end of the western front indicated a line of communications from the Atlantic to our front of perhaps an average length of 500 miles. The forces on the western front were still very evenly balanced. The probability of an offensive from any one of several directions had to be considered. Manifestly, with an aggressive enemy of equal strength, it would be unwise to crowd all our supplies immediately behind the front, even if transportation facilities permitted it. The probability of interruption by storm, congestion by development of new theaters, air attacks, etc., made it imprudent to divide the storage between that at the seaboard and that immediately behind the forces, and to limit the advance storage to merely the necessities of the time with the main storage at the bases. This led to the division of our supplies into base, intermediate, and advance storage. This system of distribution, with half the

storage at the base, would give us our supplies echeloned in depth and ready to be shipped with equal facility to various portions of the allied front, eliminating back and cross railroad hauls.

The state of the submarine warfare in June, 1917, was by no means encouraging. The Navy was hopeful but not to the point of confidence, and the enemy was building submarines faster than they were being destroyed. The resources of Europe in allied and neutral countries were unknown to us. Our allies were by no means sanguine as to our ability to transport, land, and supply a considerable army at a distance of 3,000 miles sea travel from our own country. The study by the French general staff placed the extreme limit of tonnage which we could ever hope to land in France at 30,000 tons per day. All these things considered by the General Staff led to the adoption of a reserve of 90 days' supplies for the American Expeditionary Forces, this for a force contemplated at that time as a maximum of 2,000,000 men. The same consideration determined a division of the storage into one-half at the base, one-third in the intermediate, and one-sixth in the advance. The immediate location of the intermediate and advance storage depended on the courtesy of the French. Their whole country was more or less given over to installations for their own armies. The great majority of all available institutions were in use by the French or British, and the facilities which adequately served the population in time of peace were totally inadequate to the added strain imposed by our Army from two to four million men. For these reasons it was necessary for us to construct entirely or to very greatly enlarge installations that were contemplated for the supply of our Army. Certain railroad lines were not available to us. Certain lines running parallel to the front must not be crossed by more than a certain number of trains each 24 hours because needed for the rapid movement of troops from flank to flank. The question of streams affording water for installations; the existence of power already developed for such installations as would require machinery; quantity of land available; topography suitable for the rapid erection of large storehouses and attendant tracks; and the amount of labor, particularly female labor for such installations as those for salvage; were considerations that weighed in the determination of the location of the intermediate storage. One-third of the storage facilities were provided at Gièvres and Montierchaume, the location of which points would admirably serve as a second line of supply for almost any part of the western front, and from there supplies could move east or north, depending upon the location of our armies. It was very evident to all that the initiative during the first half of 1918 would rest with the enemy and that we would have to place our forces to meet his attack; and this central location of the intermediate depots would admirably serve any part of the western front, a condition which was not true of any advance depot which we could locate. The location of Gièvres was such that when Paris was seriously threatened in July, 1918, this depot was able to supply direct the American divisions operating before Paris. Advance depots were planned in the advance section north of Dijon and in the neighborhood of Chaumont to serve what seemed as our most probable sector of activity. These depots directly served our Army when we were forced by the enemy to operate in the part of the line northeast of Paris.

In August, 1918, the diminution of the submarine menace and other conditions justified a reduction of the reserve to be carried from 90 to 45 days, distributed in the same proportion. The size of the force which we were then estimating upon had increased from two million to four million and the same depots which served the smaller army for 90 days would suffice for the larger army for 45 days.

APPENDIX D.

FULL COPY OF CABLEGRAM RECEIVED FROM PERSHING, JULY 2, 1917.

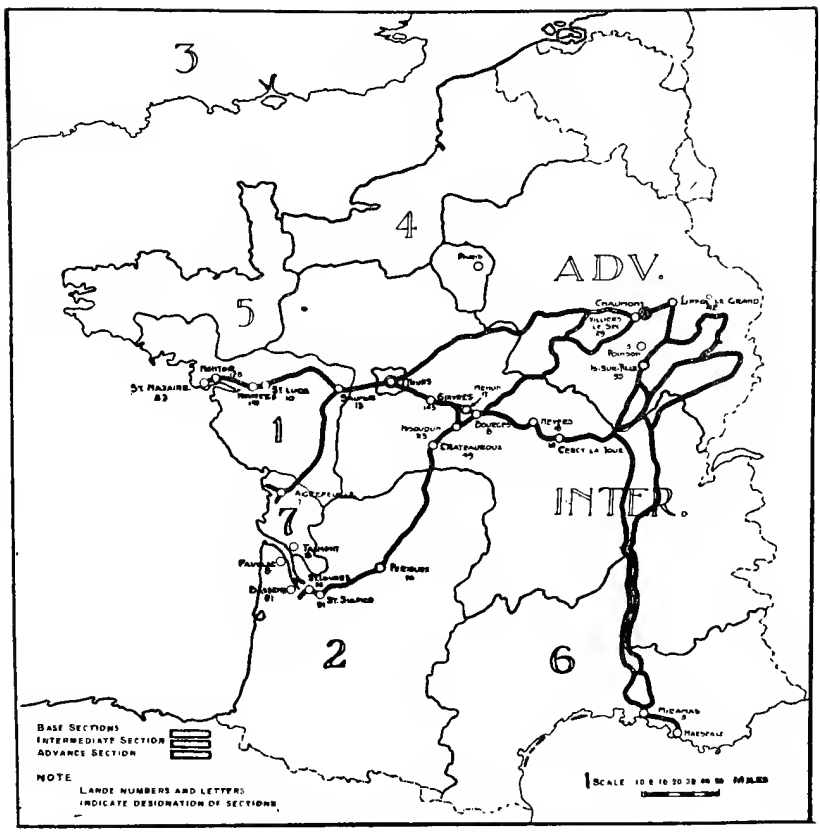
2 CO. PARIS.

THE ADJUTANT GENERAL, *Washington:*

Number 24. Confidential. Question of handling American Army and its cooperation with French Army, including points of debarkation, use of railroad lines, location of depots of hospitals, and zone(s) of operation has been fully discussed with Gen. Petain. Plan proposed well considered and finally agreed upon subject to such alterations as military situation may demand. Only available ports as yet already reported are those on Loire and Gironde Rivers and La Pallice, Rochelle, all of which are also commercial ports. *Main railroad lines* leading northeasterly pass through districts favorable for location supply depots embraced by Orleans, Bourges, and Montargis and Nevers. The general area for training is included by Neufchâteau, Nancy, Espinao. Method of training contemplates division of French troops camped near division of American troops, utilizing French officers and noncommissioned officers to instruct in various new appliances and tactical formations developed during the war. First division will be billeted in the vicinity of Gondrecourt. Artillery of First Division will go to Valdehon, near Besancon, where barracks and stables are available, and later joining infantry for liaison work. Use of the ports above mentioned avoids interference with British bases, while railway routes indicated avoid French and English line and staff with whom front. Location of area(s) for depots permit shipment supplies and direction training area(s) not hitherto used and contains considerable quantities supplies, with villages ample for billeting. After thorough discussion agreed our troops gradually occupy sections of the French lines instead of entering between French and English, as latter would unquestionably lead to confusion. American troops will probably enter north of Nancy, where country is open and fighting less severe, but will not be put in until thoroughly ready. Later on American troops will be used as circumstances dictate and as may be agreed upon. Most cordial relations have been established with French war office and with Gen. Petain, whose headquarters I have already visited several times. Have detailed American liaison officers with Gen. Petain, and several French officers are already on duty at my headquarters. Everything working harmoniously aud to my entire satisfaction. Shall visit British headquarters next week.

PERSHING.

Appendix E.



RAILROAD TRANSPORTATION

PRINCIPAL LINES OF FRENCH RAILWAYS USED BY AMERICAN EXPED FORCES AND CENTERS OF AMERICAN RAILROAD CONSTRUCTION

THE AMERICAN E F HAD CONSTRUCTED PRACTICALLY NO MAIN LINES BUT HAD CONFINED ITS EFFORTS TO TERMINAL AND STORAGE TRACKS, PRINCIPALLY ABOUT THE CENTERS SHOWN. THE TOTAL OF WHICH IS ALMOST ONE THOUSAND MILES

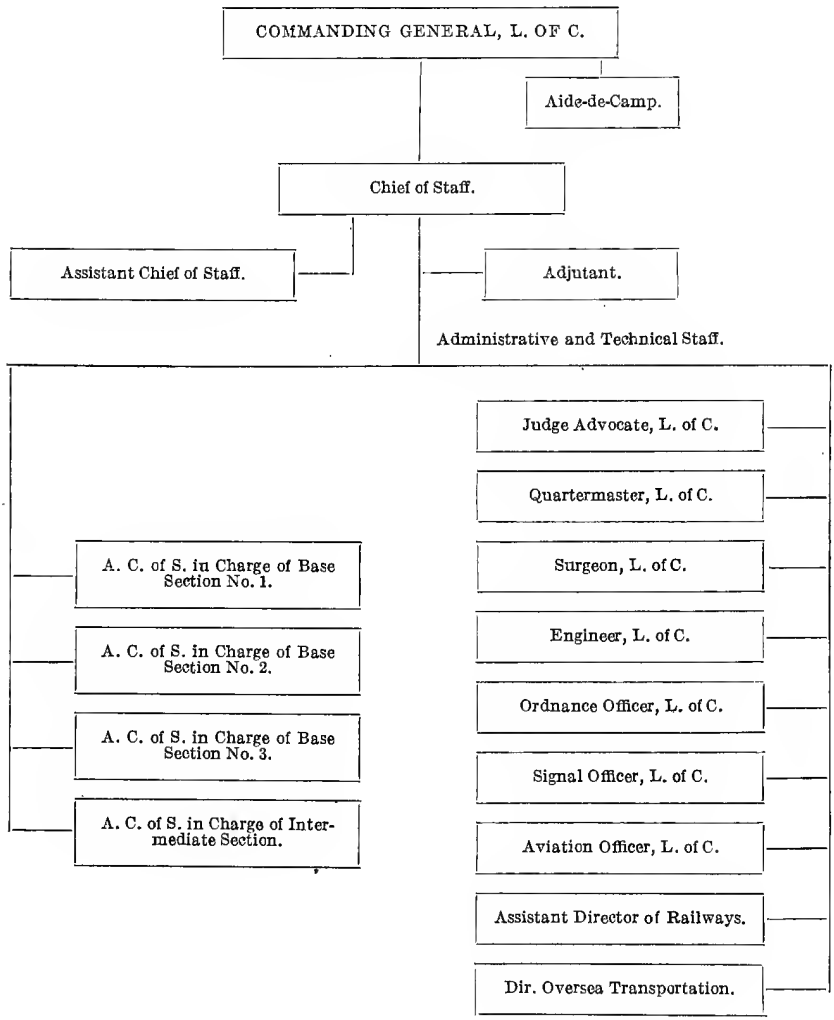
Centers of American R. R. Construction { Figures indicate number of miles of U. S. track constructed by Amer. E. F. }

Principal French Lines Used by American Exped Forces { Main lines / Second lines / Third lines }

APPENDIX F.

ORGANIZATION CHART OF LINES OF COMMUNICATION, AUGUST 29, 1917.

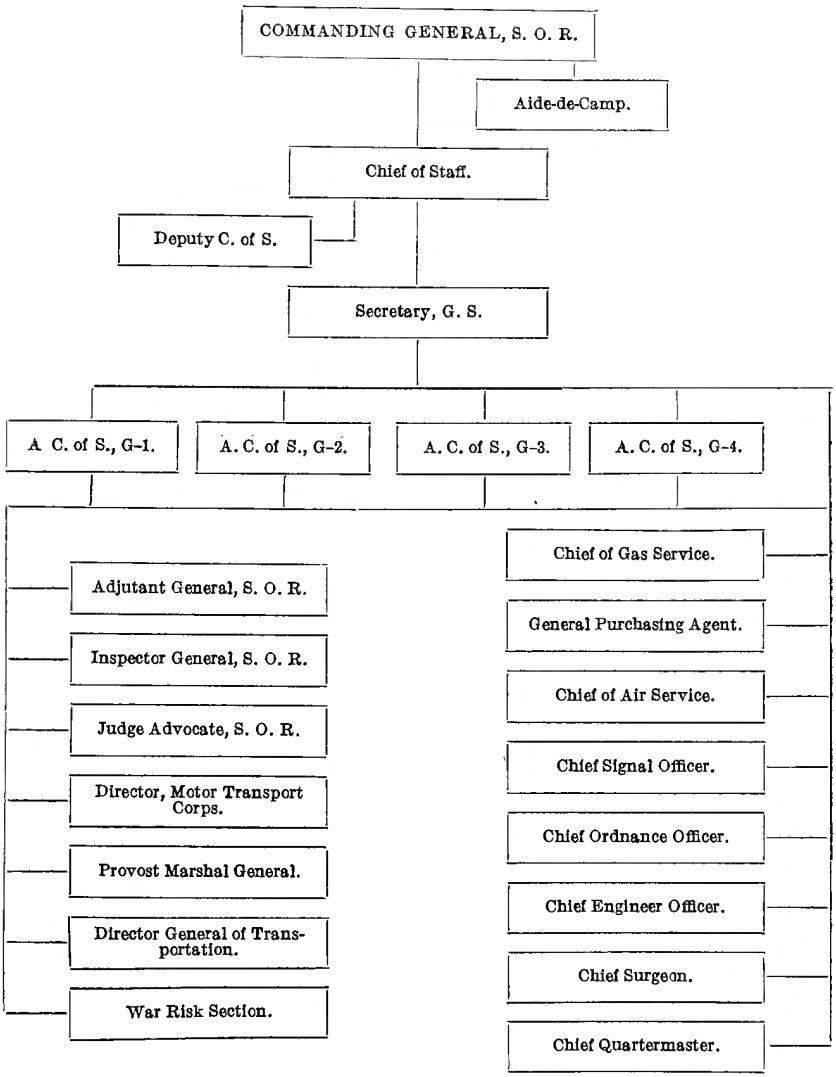
[G. O. 1, L. of C., 1917; also F. S. R.]



APPENDIX G.

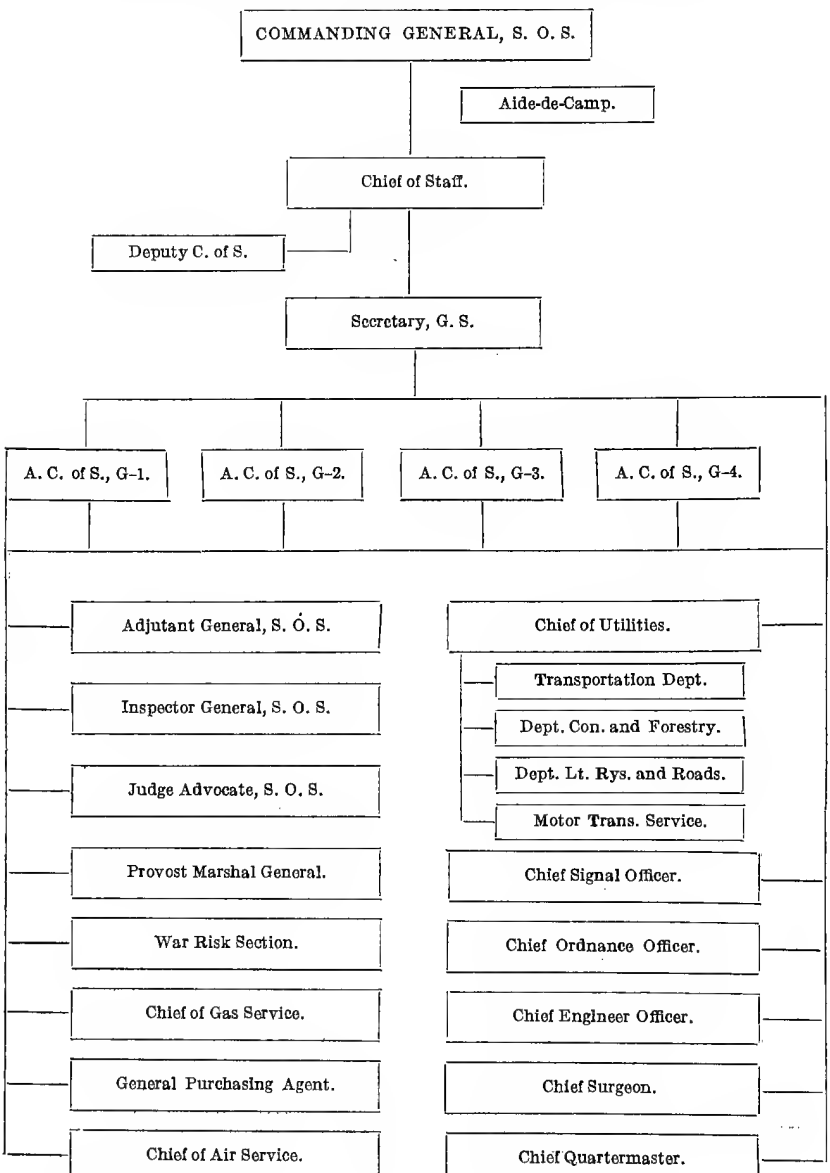
ORGANIZATION CHART OF SERVICE OF THE REAR. (UNDER FIRST COPY OF G. O. 31.)

[G. O. 1, S. O. R., February 16, 1918.]



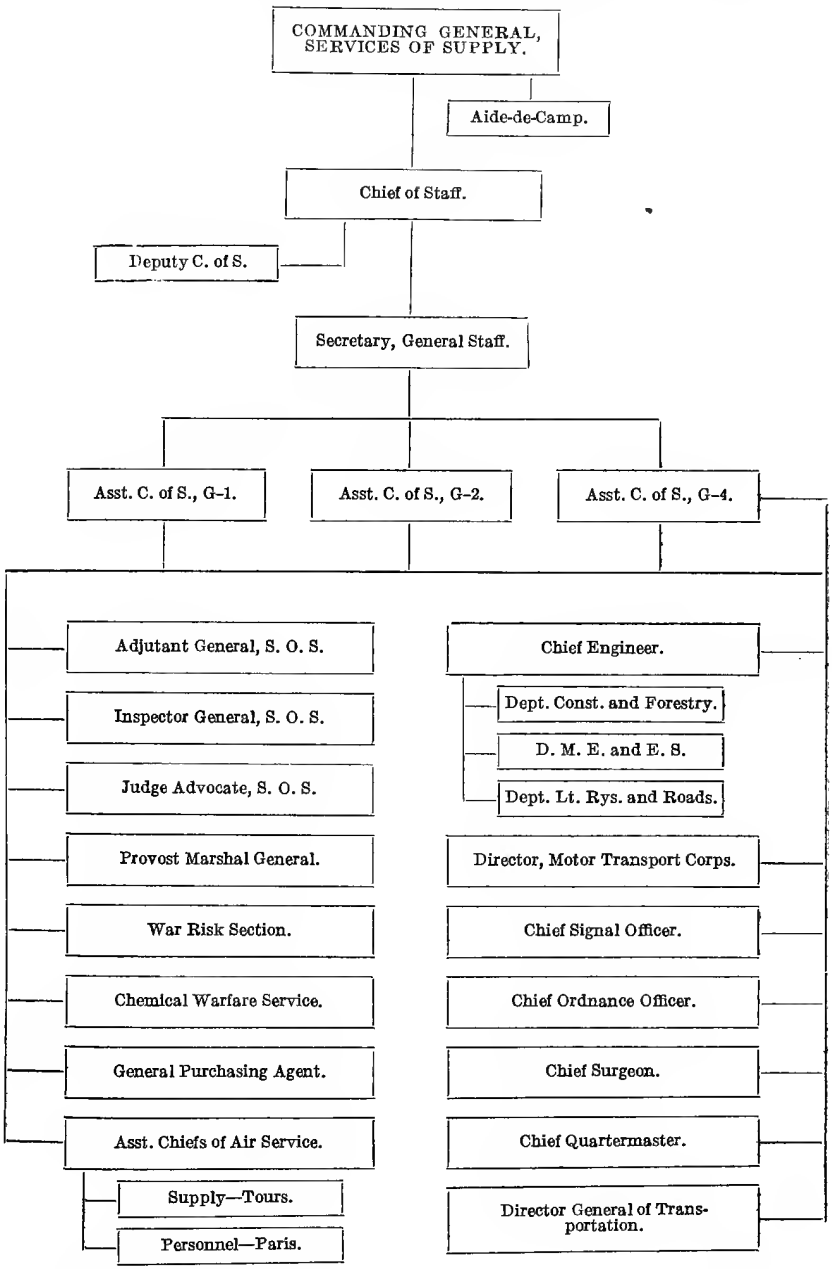
APPENDIX H.

ORGANIZATION CHART OF SERVICES OF SUPPLY. (UNDER SECOND COPY OF G. O. 31, ISSUED ABOUT MARCH 31, 1918.)

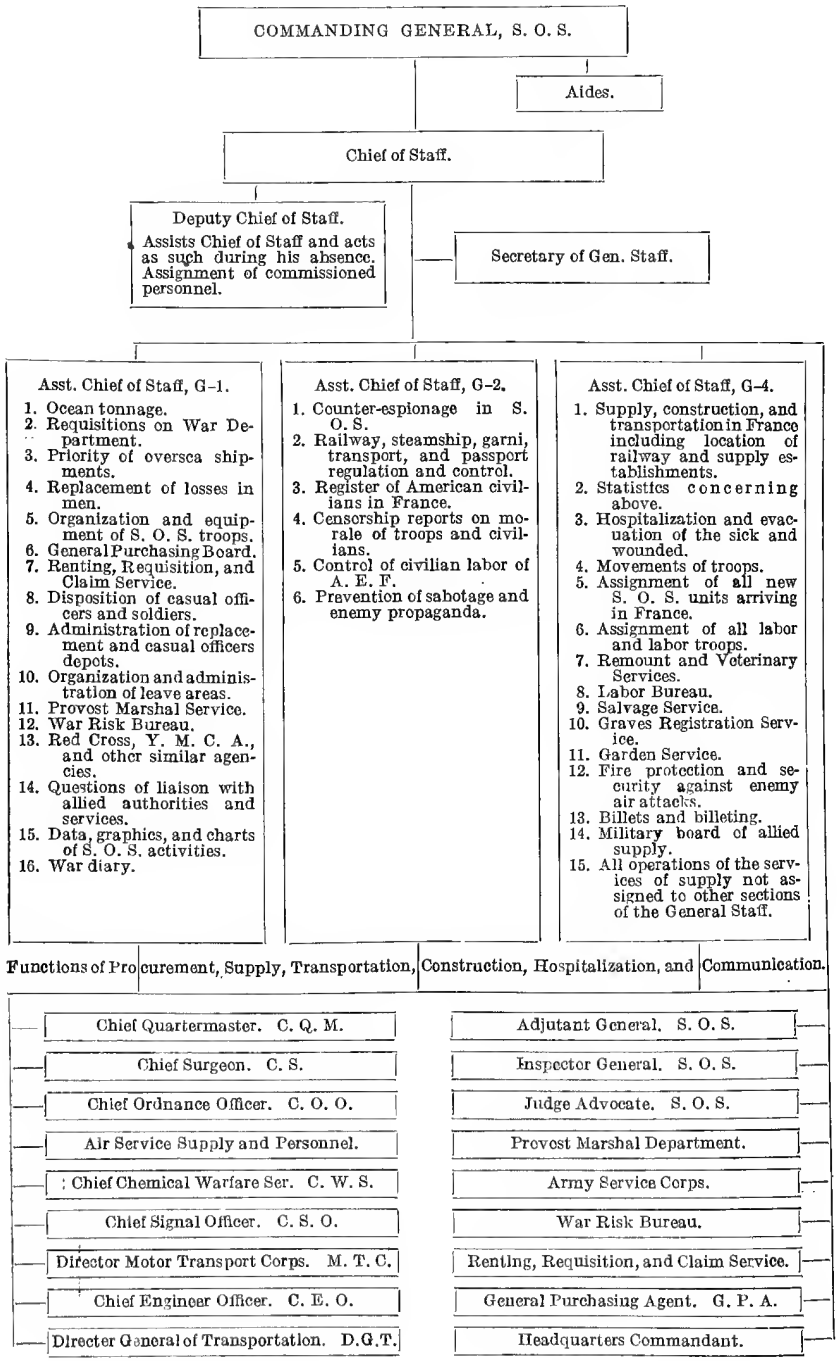


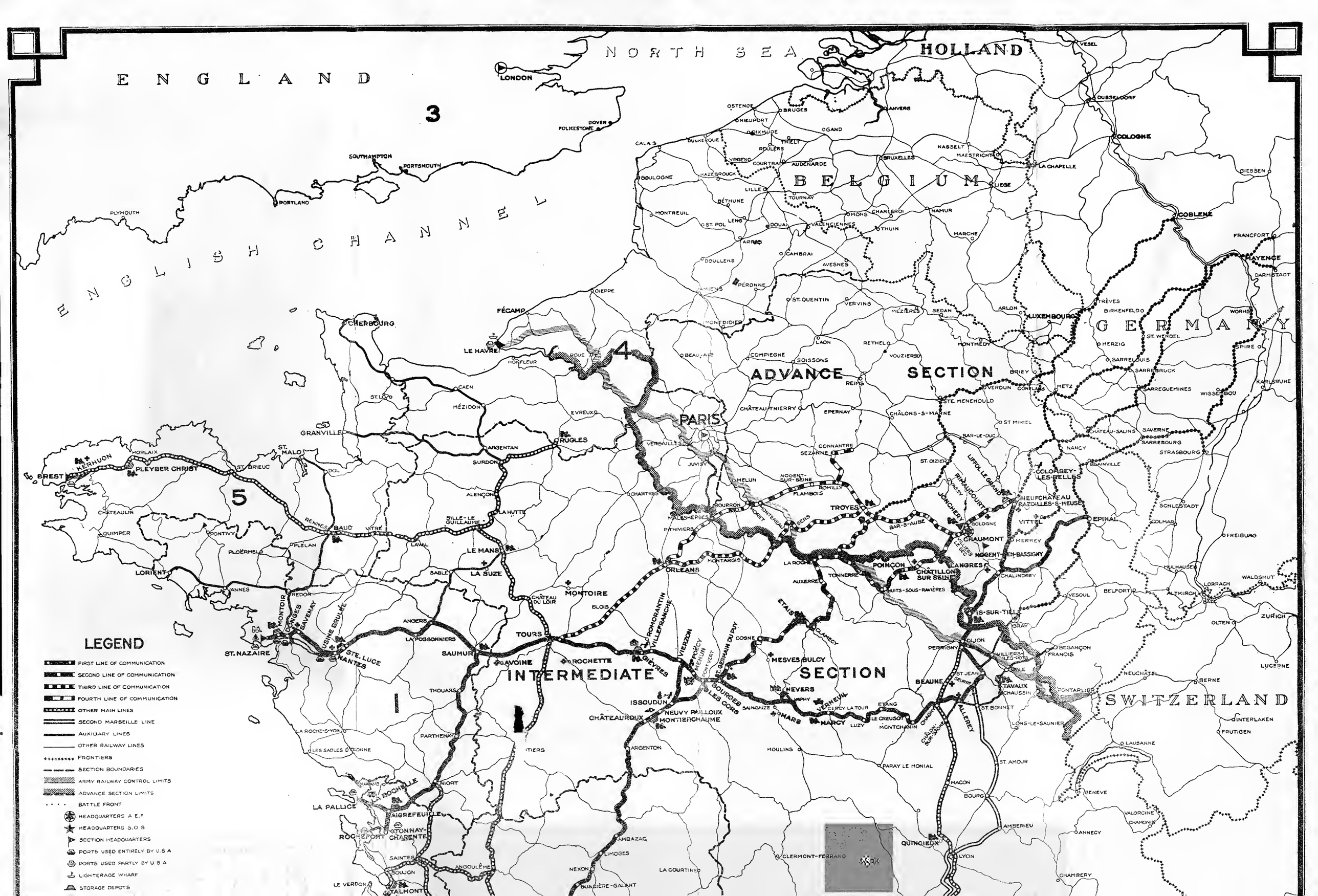
APPENDIX I.

ORGANIZATION CHART OF SERVICES OF SUPPLY, JULY 12, 1918.



ORGANIZATION CHART, HEADQUARTERS, SERVICES OF SUPPLY, NOVEMBER 11, 1918.




NORTH SEA
ENGLAND
ENGLISH CHANNEL
HOLLAND
BELGIUM
GERMANY
SWITZERLAND
ADVANCE SECTION
INTERMEDIATE SECTION
SECTION
3
4
5
1
LONDON
DOVER
FOLKESTONE
SOUTHAMPTON
PORTSMOUTH
PORTLAND
PLYMOUTH
CALAIS
BOULOGNE
DUNKERQUE
OSTENDE
BRUGES
NIEUPORT
DIXMUDE
GAND
ANVERS
VESEL
DUSSELDORF
COLOGNE
HASSELT
MAESTRICHT
LA CHAPELLE
BRUXELLES
YPRES
COURTRAI
AUDENARDE
ROULERS
THIELT
HAZEBROUCK
LILLE
TOURNAY
BÉTHUNE
MONTREUIL
ST. POL
LENS
DOUAI
VALENCIENNES
MONS
CHARLEROI
NAMUR
THUIN
LIEGE
MARCHE
GIESSEN
COBLENZ
FRANCFORT
MAYENCE
DARMSTADT
ARRAS
CAMBRAI
DOULLENS
AVESNES
PÉRONNE
AMIENS
DIEPPE
ST. QUENTIN
VERVINS
MÉZIÈRES
SEDAN
ARLON
LUXEMBOURG
TRÈVES
BIRKENFELD
WORMS
MANNHEIM
ST. WENDEL
HERZIG
SPIRE
SARREGUEMINES
SARREBRUCK
SARREGUIVIS
KARLSRUHE
WISSEMBOU
STRASBOURG
SARREBOURG
SAVERNE
CHÂTEAU-SALINS
BLAINVILLE
NANCY
LUNÉVILLE
COLOMBEY-LES-BELLES
NEUFCHÂTEAU
BAZOILLES-S-MEUSE
VITTEL
MERREY
EPINAL
SCHLESTADT
COLMAR
FREIBURG
MULHAUSEN
WALDSHUT
LORRACH
ALTKIRCH
BALE
ZURICH
OLTEN
LUCERNE
BERNE
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INTERLAKEN
FRUTIGEN
LAUSANNE
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CHAMONIX
ANNECY
CHAMBERY
AMBERIEU
LYON
QUINCIEUX
MACON
BOURG
ST. AMOUR
PARAY LE MONIAL
MOULINS
CLERMONT-FERRAND
LA COURTINE
BUSSIÈRE-GALANT
NEXON
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ANGOULÊME
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LE VERDON
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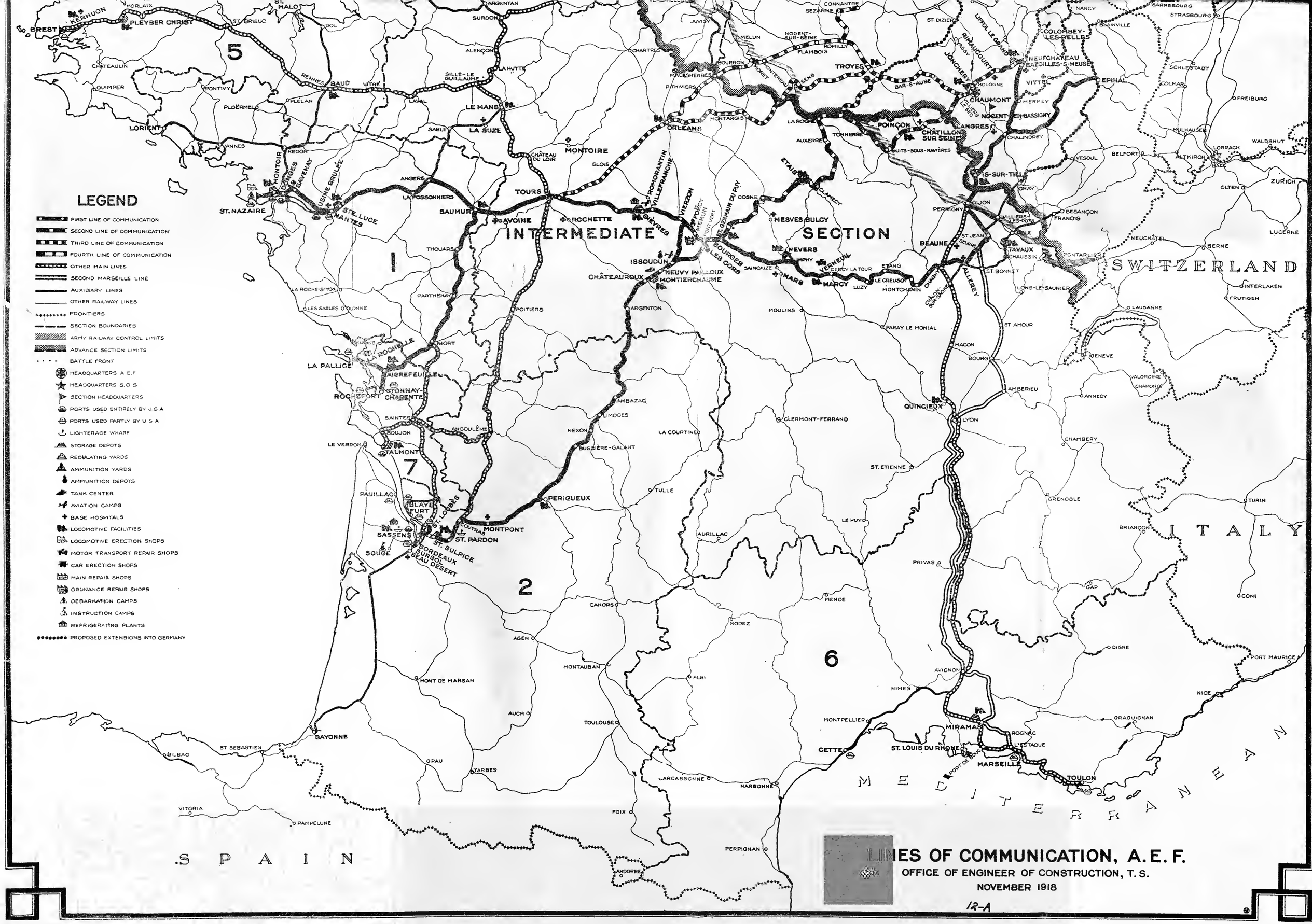
ROCHEFORT
TONNAY-CHARENTE
AIGREFEUILLE
LA ROCHELLE
LA PALLICE
NIORT
PARTHENAY
THIERS
ARGENTON
LES SABLES D'OLONNE
LA ROCHE-S-YON
ST. NAZAIRE
MONTOIR
DONGES
SAVENAY
USINE BRULÉE
NANTES
STE. LUCE
REDON
VANNES
LORIENT
QUIMPER
CHATEAULIN
PONTIVY
PLOËRMEL
PLÉLAN
RENNES
BAUD
VITRÉ
LAVAL
SABLÉ
LA SUZE
LE MANS
SILLE-LE-GUILLAUME
ALENÇON
LA HUTTE
DOL
ST. BRIEUC
ST. MALO
MORLAIX
PLEYBER CHRIST
BREST
KERHUON
CHÂTEAU DU LOIR
MONTOIRE
BLOIS
ANGERS
LA POSSONNIERS
SAUMUR
TOURS
AVOINE
ROCHETTE
ROMORANTIN
VILLEFRANCHE
GIÈVRES
VIERZON
ISSOUDUN
CHÂTEAUROUX
NEUVY PAILLOUX
MONTIERCHAUME
THOUARS
ORLEANS
MONTARGIS
PITHIVIERS
MALESHERBES
FONTAINEBLEAU
SENS
TROYES
BAR-S-AUBE
JONCHERY
RIVAUCOURT
ST. DIZIER
LA CHAPELLE
LANGRES
CHAUMONT
NOGENT-EN-BASSIGNY
POINÇON
CHÂTILLON SUR SEINE
AUXERRE
TONNERRE
JOIGNY
MONTEREAU
FONTAINEBLEAU
MELUN
NOGENT-SUR-SEINE
ROMILLY
FLAMBOIS
CHARTRES
VERSAILLES
JUVISY
PARIS
ÉPERNAY
CHÂLONS-S-MARNE
CONNANTRE
SEZANNE
ÉTAMPES
CHÂTEAU THIERRY
COMPIEGNE
SOISSONS
BEAUVAIS
LAON
RETHEL
VOUZIERS
MONTMÉDY
REIMS
VERDUN
CONFLANS
METZ
STE. MENEHOULD
ST. MIHIEL
BRIEY
LONGWY
ARGONNE
GRANVILLE
CAEN
MÉZIDON
EVREUX
HONFLEUR
LE HAVRE
FÉCAMP
CHERBOURG
ST. LÔ
MONT DIDIER
DOUAI
ARRAS
ABBEVILLE
BOULOGNE
CALAIS
DUNKERQUE
LEGEND
FIRST LINE OF COMMUNICATION
SECOND LINE OF COMMUNICATION
THIRD LINE OF COMMUNICATION
FOURTH LINE OF COMMUNICATION
OTHER MAIN LINES
SECOND MARSEILLE LINE
AUXILIARY LINES
OTHER RAILWAY LINES
FRONTIERS
SECTION BOUNDARIES
ARMY RAILWAY CONTROL LIMITS
ADVANCE SECTION LIMITS
BATTLE FRONT
HEADQUARTERS A.E.F.
HEADQUARTERS S.O.S.
SECTION HEADQUARTERS
PORTS USED ENTIRELY BY U.S.A.
PORTS USED PARTLY BY U.S.A.
LIGHTERAGE WHARF
STORAGE DEPOTS


LEGEND
FIRST LINE OF COMMUNICATION
SECOND LINE OF COMMUNICATION
THIRD LINE OF COMMUNICATION
FOURTH LINE OF COMMUNICATION
OTHER MAIN LINES
SECOND MARSEILLE LINE
AUXILIARY LINES
OTHER RAILWAY LINES
FRONTIERS
SECTION BOUNDARIES
ARMY RAILWAY CONTROL LIMITS
ADVANCE SECTION LIMITS
BATTLE FRONT
HEADQUARTERS A.E.F.
HEADQUARTERS S.O.S.
SECTION HEADQUARTERS
PORTS USED ENTIRELY BY U.S.A.
PORTS USED PARTLY BY U.S.A.
LIGHTERAGE WHARF
STORAGE DEPOTS
REGULATING YARDS
AMMUNITION YARDS
AMMUNITION DEPOTS
TANK CENTER
AVIATION CAMPS
BASE HOSPITALS
LOCOMOTIVE FACILITIES
LOCOMOTIVE ERECTION SHOPS
MOTOR TRANSPORT REPAIR SHOPS
CAR ERECTION SHOPS
MAIN REPAIR SHOPS
ORDNANCE REPAIR SHOPS
DEBARKATION CAMPS
INSTRUCTION CAMPS
REFRIGERATING PLANTS
PROPOSED EXTENSIONS INTO GERMANY
1
2
5
6
7
INTERMEDIATE SECTION
SWITZERLAND
ITALY
SPAIN
MEDITERRANEAN
BREST
KERHUON
PLEYBER CHRIST
MORLAIX
ST. BRIEUC
ST. MALO
DOL
ARGENTAN
SURDON
CHATEAULIN
QUIMPER
PONTIVY
PLOËRMEL
PLÉLAN
RENNES
BAUD
VITRÉ
LAVAL
ALENÇON
SILLE-LE-GUILLAUME
LA HUTTE
LE MANS
LA SUZE
SABLE
LORIENT
VANNES
REDON
MONTOIR
DONGES
SAVENAY
USINE BRULÉE
ST. NAZAIRE
STE. LUCE
NANTES
ANGERS
LA POSSONNIERE
SAUMUR
TOURS
CHÂTEAU DU LOIR
MONTOIRE
BLOIS
ORLEANS
MONTARGIS
CHARTRES
JUVISY
CONNANTRE
SEZANNE
NOGENT-SUR-SEINE
MELUN
ROMILLY
FLAMBOIS
MALESHERBES
PITHIVIERS
GOURRON
MORET
MONTEREAU
SENS
TROYES
BAR-S-AUBE
JONCHERY
RIMAUCOURT
LANGRES
POINÇON
CHÂTILLON SUR SEINE
AUXERRE
TONNERRE
LA ROCHE
ST. DIZIER
NANCY
BLAINVILLE
STRASBOURG
COLOMBEY-LES-BELLES
NEUFCHÂTEAU
EPINAL
VITTEL
BOLOGNE
CHAUMONT
MERPEY
NOGENT-EN-BASSIGNY
CHALINDREY
SCHLESTADT
COLMAR
FREIBURG
MULHAUSEN
WALDSHUT
LORRACH
ALTKIRCH
BELFORT
VESOUL
IS-SUR-TILLE
GRAY
OLTEN
ZURICH
LUCERNE
NEUCHÂTEL
BERNE
PONTARLIER
BESANÇON FRANOIS
DIJON
PERRIGNY
VILLIERS-LES-POTS
BEAUNE
ST JEAN DE LOSNE
TAVAUX
CHAUSSIN
ST BONNET
LONS-LE-SAUNIER
INTERLAKEN
FRUTIGEN
LAUSANNE
GENEVE
VALORCINE
CHAMONIX
ANNECY
CHAMBERY
GRENOBLE
TURIN
BRIANÇON
CONI
PORT MAURICE
NICE
ORAGUIGNAN
DIGNE
GAP
PRIVAS
AVIGNON
NIMES
MONTPELLIER
MIRAMAS
ROGNAC
L'ESTAQUE
MARSEILLE
TOULON
CETTE
ST. LOUIS DU RHONE
PORT DE BOUC
ST. ETIENNE
LYON
QUINCIEUX
AMBERIEU
MACON
BOURG
ST AMOUR
PARAY LE MONIAL
MOULINS
LE CREUSOT
MONTCHANIN
CHAGNY
CHÂLON-SUR-SAONE
ETANG
LUZY
MARCY
VERNEUIL
NEVERS
COSNE
ETAIS
CLAMECY
MESVES BULCY
ST. GERMAIN DU PUY
BOURGES
LES CORS
SAINCAIZE
VIERZON
ROMORANTIN
VILLEFRANCHE
POÉCY
MEHUN
CHÂTEAUROUX
ISSOUDUN
NEUVY PAILLOUX
MONTIERCHAUME
ARGENTON
POITIERS
PARTHENAY
THOUARS
LA ROCHE-S-YON
LES SABLES D'OLONNE
LA ROCHELLE
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AIGREFEUILLE
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SOUJON
TONNAY-CHARENTE
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ANGOULÊME
AMBAZAC
LIMOGES
NEXON
BUSSIÈRE-GALANT
LA COURTINE
CLERMONT-FERRAND
TULLE
PERIGUEUX
MONTPONT
ST. PARDON
ST. SULPICE
BORDEAUX
BASSENS
BEAU DESERT
SOUGE
PAUILLAC
BLAYE
FORT PATE
FORT LOUBES
COUTRAS
LIBOURNE
CAHORS
AGEN
MONTAUBAN
MONT DE MARSAN
AUCH
TOULOUSE
RODEZ
ALBI
MENDE
AURILLAC
LE PUY
BAYONNE
ST SEBASTIEN
BILBAO
VITORIA
PAMPELUNE
PAU
TARBES
CARCASSONNE
NARBONNE
FOIX
PERPIGNAN
ANDORRE
LINES OF COMMUNICATION, A.E.F.
OFFICE OF ENGINEER OF CONSTRUCTION, T.S.
NOVEMBER 1918
12-A