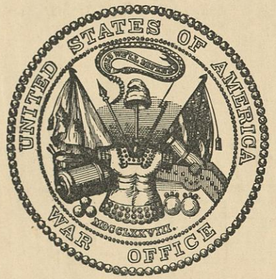


U. S. GOVERNMENT PRINTING OFFICE: 1929

FROM THE SECRETARY OF WAR

Extract from letter, June 8, 1919 - From Secretary of War to General James G. Harbord, Commanding General, S.O.S., July 29, 1918-May 26, 1919.

"Nothing I can say will increase your own knowledge of the importance of the Services of Supply, but I have a confident judgment that our enemies were beaten by Bordeaux, St. Nazaire and Tours just as they were beaten at St. Mihiel and in the Argonne forest. Your command was one of the victorious armies.

Cordially yours,

NEWTON D. BAKER"

TABLE OF CONTENTS

F O R E W O R D

It was the high privilege of the United States of America to enter the World War in defense of the ideals for which it stands, at a moment when it seemed possible, if not probable, that the powers which initiated this crime against civilization might triumph.

Unquestionably, its success in transporting an Army of over two million and vast quantities of supplies across three thousand miles of submarine infested ocean, in spite of the best efforts of the enemy, played a great part in bringing about that breakdown in morale which inevitably precedes surrender. This was possibly fully as much of a factor in the final success of the Allied Arms as was America's actual military participation.

The man who was sent to the front line carried with him but two days' rations and one day's ammunition. His business, while there, was to fight. The work of the Services of Supply was to equip him, and get to him in a continuous and unbroken flow, everything necessary to maintain him. To accomplish this task for the A.E.F. required the united and unremitting efforts of over 600,000 of the 2,000,000 men who came to France.

For the sake of brevity and clearness, the graphic method has been largely used and a number of the diagrams are those which were prepared and continuously kept up for the information of the General Staff.

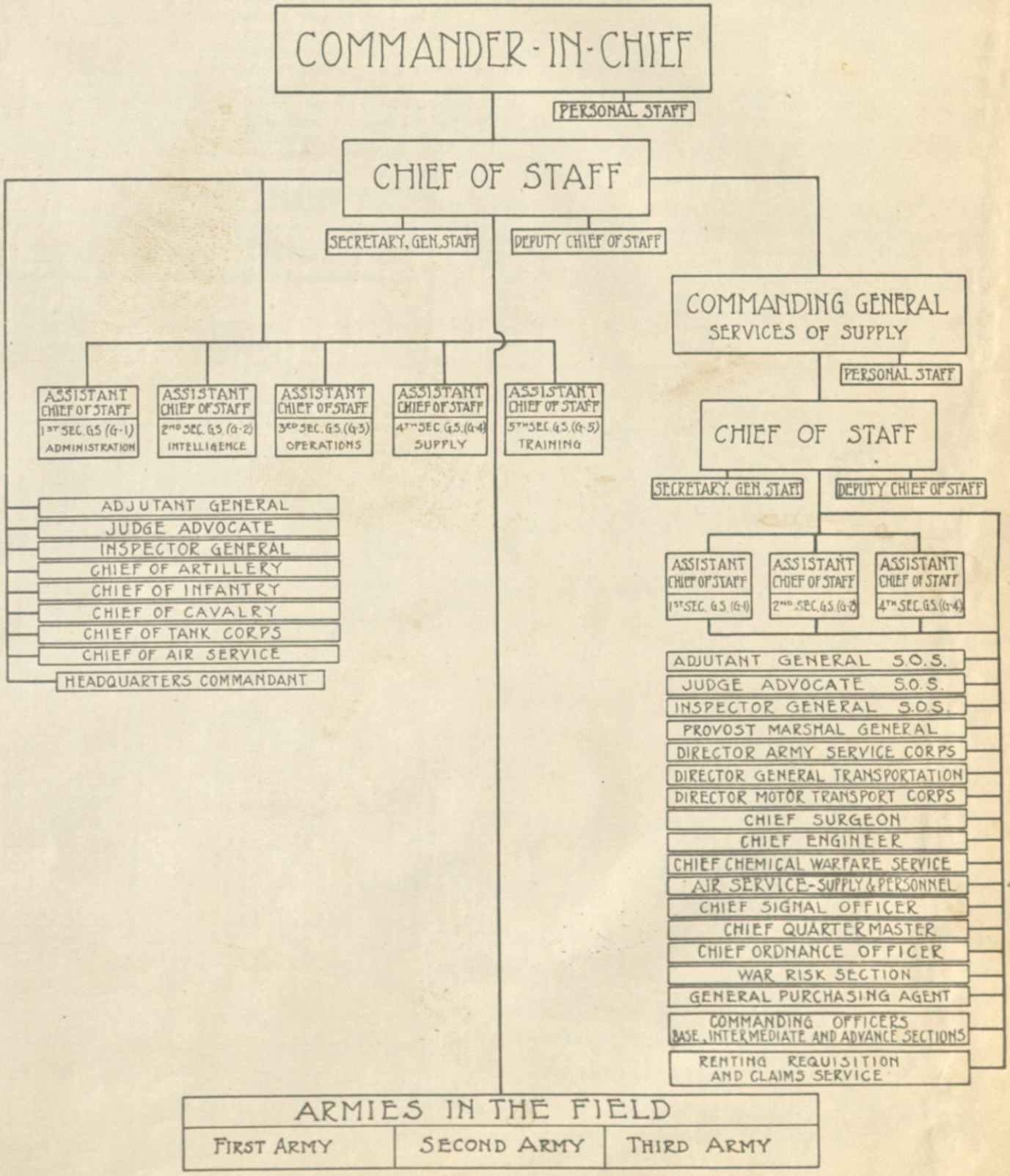
The majority of the figures have been brought up to May 1, 1919 only, but data on the return of troops have been extended to September 1, 1919, at which time the last division had sailed from France.

In a few cases, where figures were significant merely during active military operations, they have been carried to November, 1918 only.

It is to be hoped that this book may in some measure bring to its readers a realization of the fact that the war could not have been fought without the men behind, who labored at the thankless tasks of construction and supply; and we wish here to record that without pomp or circumstance, they did their duty as American soldiers and thoroughly and completely, literally and figuratively, lived up to their typically American slogan:

"Deliver the Goods!"

DIAGRAM OF ORGANIZATION
AMERICAN EXPEDITIONARY FORCES
NOVEMBER 11, 1918.



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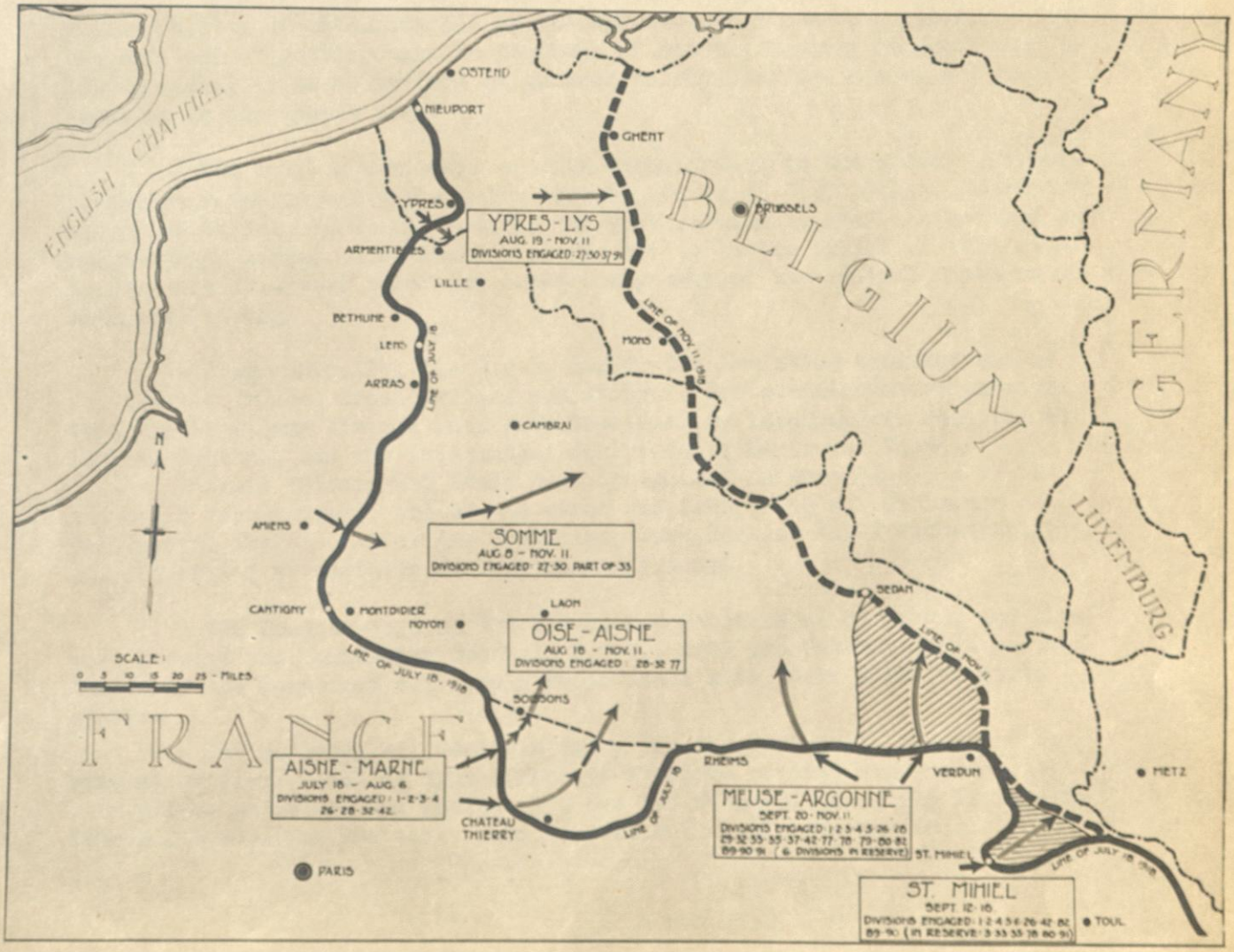
THIRTEEN MAJOR OPERATIONS IN WHICH AMERICANS PARTICIPATED

Operation	Approximate number of Americans engaged
West Front - Campaign of 1917:	
Cambrai, November 20 to December 4	
West Front - Campaign of 1918:	
German offensives, March 21 to July 18	
Somme, March 21 to April 6	2,200
Lys, April 9 to April 27	500
Aisne, May 27 to June 5	27,500
Noyon-Montididier, June 9 to June 15	27,000
Champagne-Marne, July 15 to July 18	85,000
Allied offensives, July 18 to November 11	
Aisne-Marne, July 18 to August 6	270,000
Somme, August 8 to November 11	54,000
Oise-Aisne, August 18 to November 11	85,000
Ypres-Lys, August 19 to November 11	108,000
St. Mihiel, September 12 to September 16	550,000
Meuse-Argonne, September 20 to November 11	1,200,000
Italian Front - Campaign of 1918	
Vittorio-Veneto, October 24 to November 4	1,200

INTERESTING TOTALS ON AMERICAN PARTICIPATION			
Americans seeing active service in front line	1,390,000	Prisoners captured	50,000
American divisions seeing active combat service	29	Artillery captured	1,378
Days of battle	200	Trench mortars captured	708
Major operations	13	Machine guns captured	9,650
Miles of front held October 1918	101	Killed	50,000
Battle advance, all divisions, miles	485	Wounded	220,000



ORGANIZATION OF THE SERVICES OF SUPPLY

The Field Service Regulations, United States Army, published just prior to the outbreak of the present European War set forth the broad principle upon which the organization of the Services of Supply is founded.

As stated in Article 5, F.S.R., a Line of Communications is established for each important force about to engage in field operations involving a movement from a base, and the mission of the Line of Communications is to relieve the combatant forces from every consideration except that of defeating the enemy.

The mission, assigned in the F.S.R. to the Line of Communications was carried out for the A.E.F. by the organization of the Services of Supply.

Upon the Commanding General, S.O.S., therefore, rested the entire responsibility of obtaining all of the men and materials with which to fight the war, and of getting them to the zone of action; General Headquarters retaining authority as to matters of general policy, and the distribution of supplies in the combat area.

The problem presented to this organization in the matter of transportation, procurement and supply, across a route of 3,000 miles, exposed to submarine attack, is unquestionably the most formidable ever encountered and successfully solved in military history, and it is the object of this report to set down in a very brief and summary way some of the salient features of this undertaking.

Geographically, the S.O.S. before the Armistice included all of Continental France, Great Britain and Italy. For administrative purposes this territory was divided into Base Sections, an Intermediate Section, an Advance Section, and two independent districts of Paris and Tours.

Great Britain and Italy were designated as Base Sections No. 3 and No. 8 respectively, all of the other sections being sub-divisions of Continental France. After the Armistice, Base Section No. 9 was established, consisting essentially of Belgium and Holland.

The Headquarters of the S.O.S. was established at Tours, and here were located the Commanding General, S.O.S., with his General Staff and the Chiefs of the Technical and Supply Departments with their administrative staffs.

The geographical sections were, for the most part, commanded by general officers, each of whom exercised absolute control over matters of discipline, policing, and sanitation, and was responsible to the Commanding General, S.O.S. for the activities carried out within his section.

The organization of the S.O.S. comprised such vast enterprises giving rise to so many decisions, enunciations of policy and problems of co-ordination, that it was impossible for the Commanding General himself, to pass upon all matters requiring his attention. For this reason it was necessary for him to delegate a considerable portion of his executive authority to his General Staff Officers. To exercise this delegated authority, the General Staff of the Commanding General, S.O.S. was organized with three Assistant Chiefs of Staff, each of whom, under the Chief of Staff, presided over one of the three sections into which the General Staff was divided, designated as G-1, G-2, and G-4.

In general, G-1 exercised delegated authority over all matters relating to the procurement of personnel and material from the U.S. and Europe; G-2 controlled problems of intelligence and counter-espionage; G-4 authorized construction, supervised transportation, and guaranteed the flow of supplies.

The Chiefs of the Technical Services and Supply Departments had full responsibility for the functioning of their own departments. Where the activities of one department involved the cooperation of another, coordination was secured by the Commanding General and his General Staff. The Chiefs of the Technical Services and Supply Departments directly under the Commanding General were:

Chief Ordnance Officer
Chief Engineer
Chief Chemical Warfare Service
Chief Quartermaster
Chief Signal Officer
Chief Surgeon
Director General of Transportation
Director Motor Transport Corps

Under the Chief Engineer, were the Director of Construction and Forestry, the Director of Military Engineering and Engineer Supplies, and the Director of Light Railways and Roads.

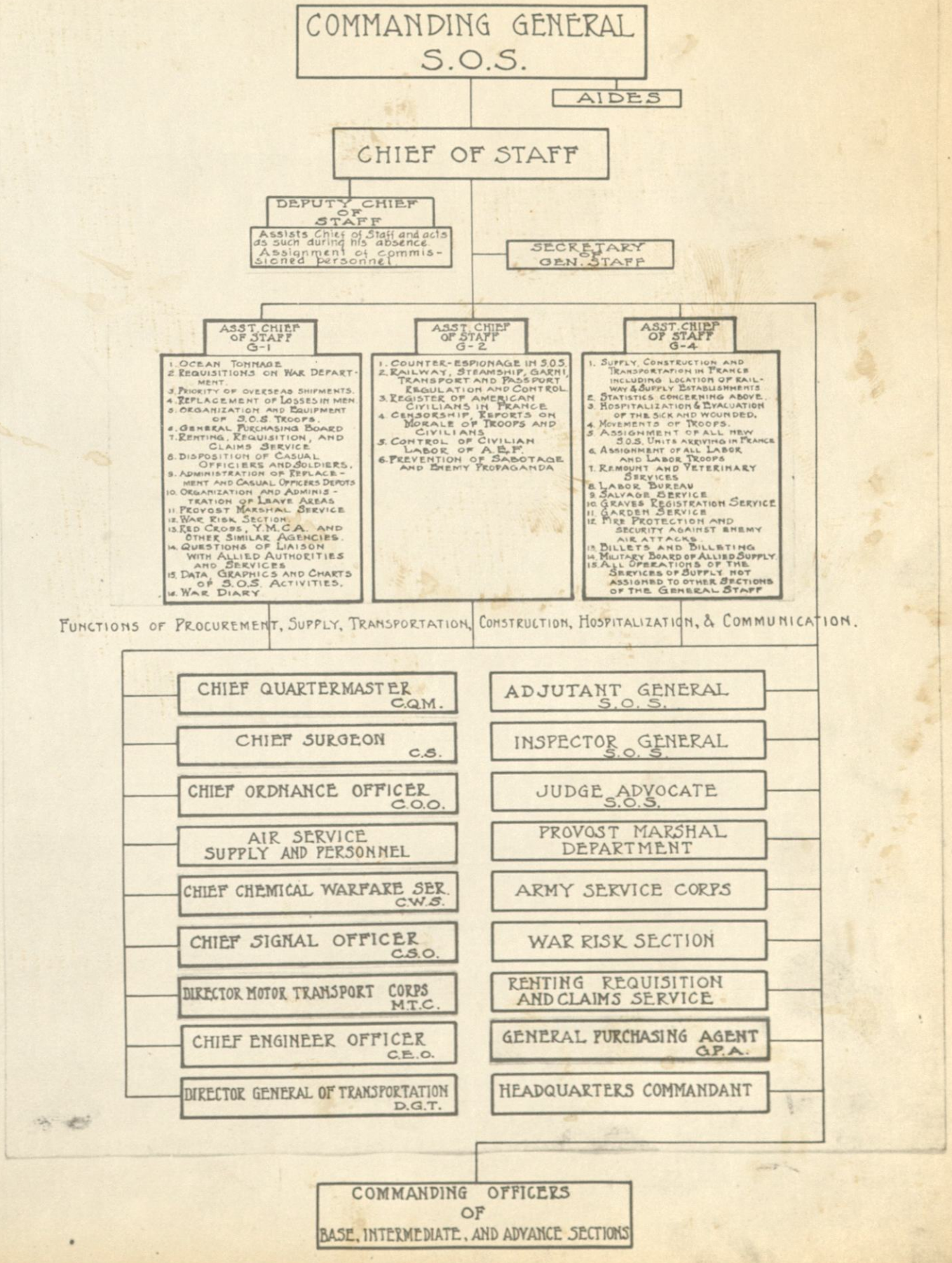
Somewhat different from the above was the position of the Air Service. This being a fighting arm, the Chief functioned directly under General Headquarters, but was represented in the S.O.S. by the Assistant Chiefs of Air Service at Paris and at Tours, who handled all matters of supply and personnel.

Other main branches of the Service coming under S.O.S. control were:

General Purchasing Agent
Director Army Service Corps
Renting, Requisition and Claims Service
War Risk Section
Adjutant General, S.O.S.
Judge Advocate, S.O.S.
Provost Marshal Department, S.O.S.
Inspector General, S.O.S.

It would be impracticable here to give a complete list of the subsidiary activities of each Service or Department, but this will be covered to some extent by the material in the following pages.

ORGANIZATION CHART
HEADQUARTERS SERVICES OF SUPPLY
NOVEMBER 11, 1918.



ADMINISTRATIVE SECTIONS

Geographically, the Services of Supply at the time of the Armistice, consisted of all of France, Great Britain, and Italy. For purposes of administration, this territory was divided into eight Base Sections, an Intermediate Section and an Advance Section, and the District of Paris, each under a Commanding Officer, reporting to the Commanding General, S.O.S. After the Armistice, Base Section No. 9 was added, consisting essentially of Belgium and Holland.

General Headquarters at Chaumont controlled general policies and military operations, while the S.O.S. Headquarters at Tours was charged with all matters relating to supply. The Arrondissement of Tours was directly under the control of the Commanding General, S.O.S.

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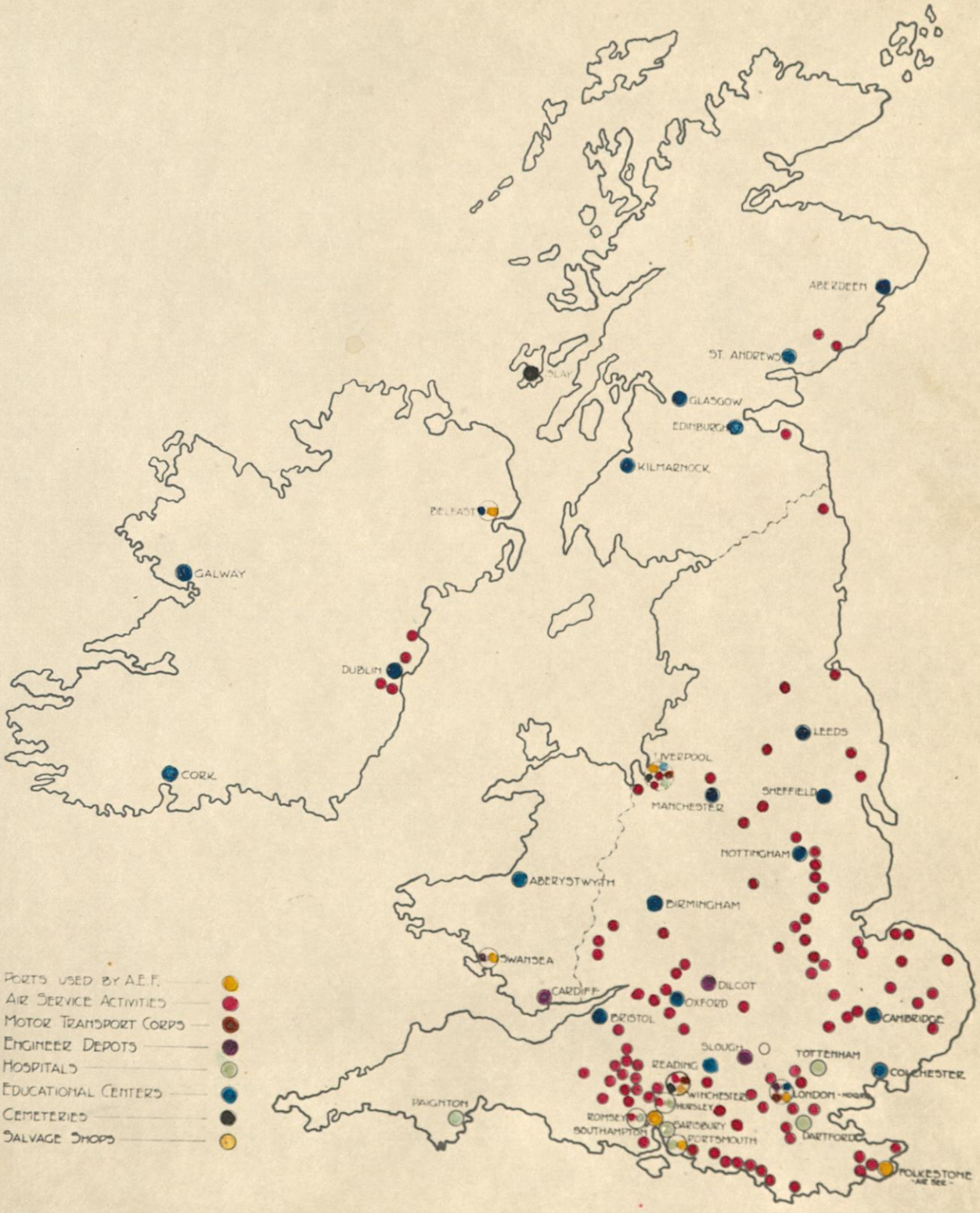


A.E.F. ACTIVITIES IN THE BRITISH ISLES

STATISTICS BRANCH - GENERAL STAFF
HDQRS. S.O.S. - A.E.F.

A.E.F. ACTIVITIES IN ITALY

STATISTICS BRANCH - GENERAL STAFF
HOQRS. S.O.S. - A.E.F.

SOME INTERESTING TOTALS

Total troops arrived in the A.E.F. to	March 1, 1919	2,084,475
Man days in A.E.F. to	Sept. 1, 1919	615,000,000
Man miles on sea and in A.E.F. over and back,		14,000,000,000
Total A.E.F. casualties to	June 3, 1919	290,334
Total deaths in the A.E.F. to	June 3, 1919	78,555
Prisoners of war captured by the A.E.F.		49,969
Supplies received from all sources to	May 1, 1919	13,922,765 tons
Supplies received per man per day to	Nov. 30, 1918	58.9 lbs.
Ton miles on sea and in A.E.F. - all supplies		25,000,000,000
Tonnage discharged in France to	May 1, 1919	1,332,827 tons
Standard gauge railroad built by A.E.F.		1,002 miles
Standard gauge locomotives received to	May 1, 1919	1,867
Standard gauge cars received to	May 1, 1919	19,697
Covered storage space constructed and acquired		25,961,144 sq.ft.
Total barracks constructed (16,000 buildings)		300 miles
Motor vehicles received to	May 1, 1919	128,500
Lumber produced by the A.E.F. to	May 1, 1919	217,884,337 bd.ft.
Food consumed in the A.E.F. to	May 1, 1919	2,306,675,768 lbs.
Coal produced by the A.E.F. to	May 1, 1919	1,953,777 tons
Gasoline consumed in the A.E.F. to	May 1, 1919	93,290,628 gals.
Barbed wire used		34,000 miles
Animals received in the A.E.F. to	May 1, 1919	243,560
Normal hospital capacity provided		223,256 beds
Emergency hospital capacity provided		299,835 beds
Wire in A.E.F., - Signal Corps lines		134,250 miles
Airplanes received in the A.E.F. to	Jan. 1, 1919	6,624

TROOP PROGRAM AND STRENGTH OF THE A.E.F.

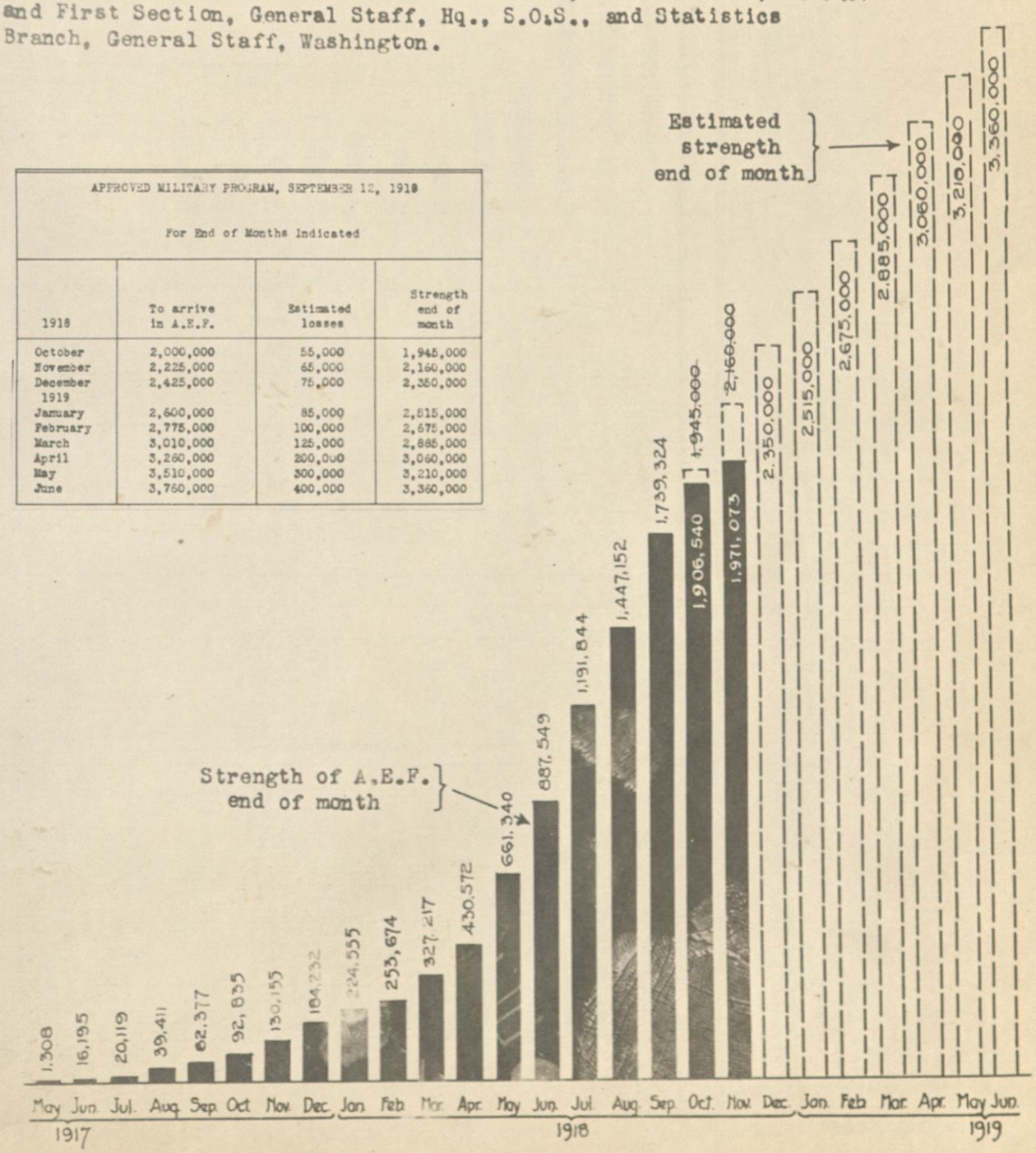
The early plans for an American Army in Europe called for troop strength of about 2,000,000 by July 1, 1919. These plans were changed from time to time, as the military needs and possibilities of transport dictated, and at the time of the armistice, the approved military program contemplated the receipt in France by July 1, 1919 of 3,760,000 men, or allowing for estimated losses a strength upon that date of 3,360,000.

Source of information: First Section, General Staff, G.H.Q., and First Section, General Staff, Hq., S.O.S., and Statistics Branch, General Staff, Washington.

APPROVED MILITARY PROGRAM, SEPTEMBER 12, 1918

For End of Months Indicated

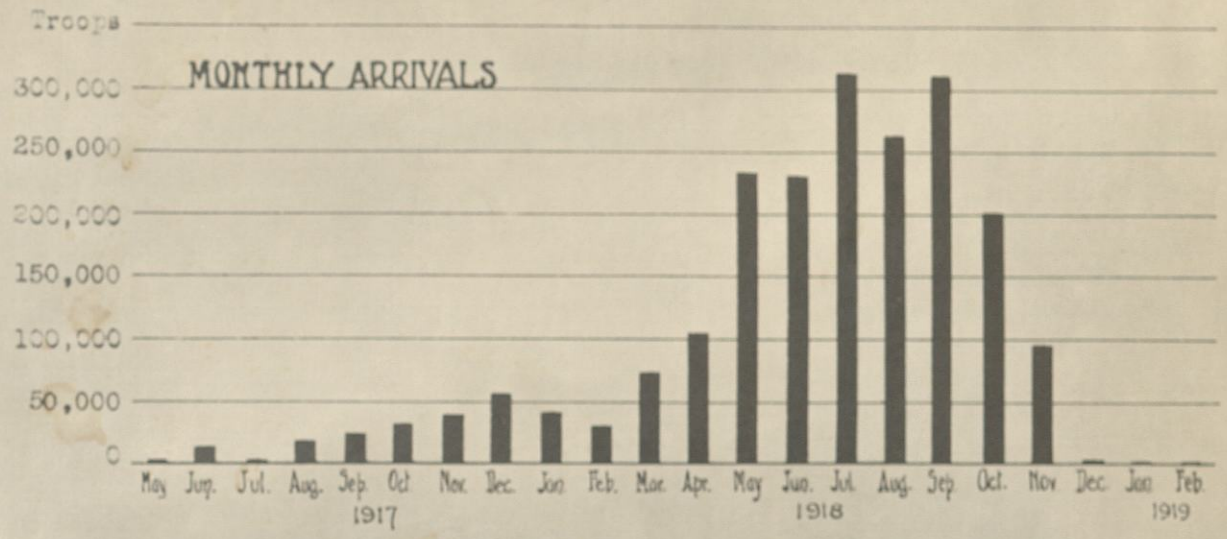
1918	To arrive in A.E.F.	Estimated losses	Strength end of month
October	2,000,000	55,000	1,945,000
November	2,225,000	65,000	2,160,000
December	2,425,000	75,000	2,350,000
1919			
January	2,600,000	85,000	2,515,000
February	2,775,000	100,000	2,675,000
March	3,010,000	125,000	2,885,000
April	3,260,000	200,000	3,060,000
May	3,510,000	300,000	3,210,000
June	3,760,000	400,000	3,360,000

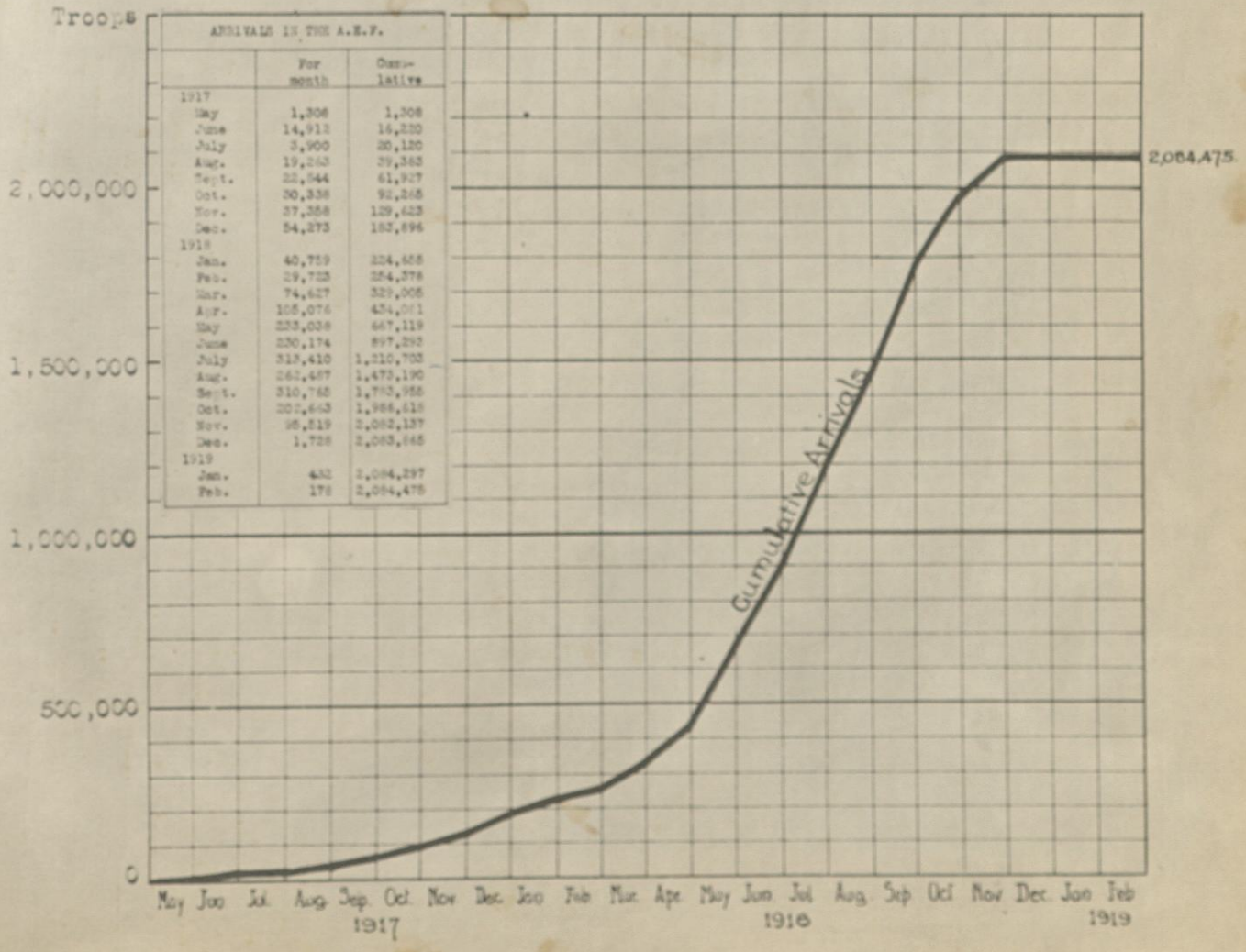


ARRIVAL OF TROOPS IN A.E.F.

Figures include marines but not civilians.

Source of information: A.G.O., and G-1, G.H.Q.





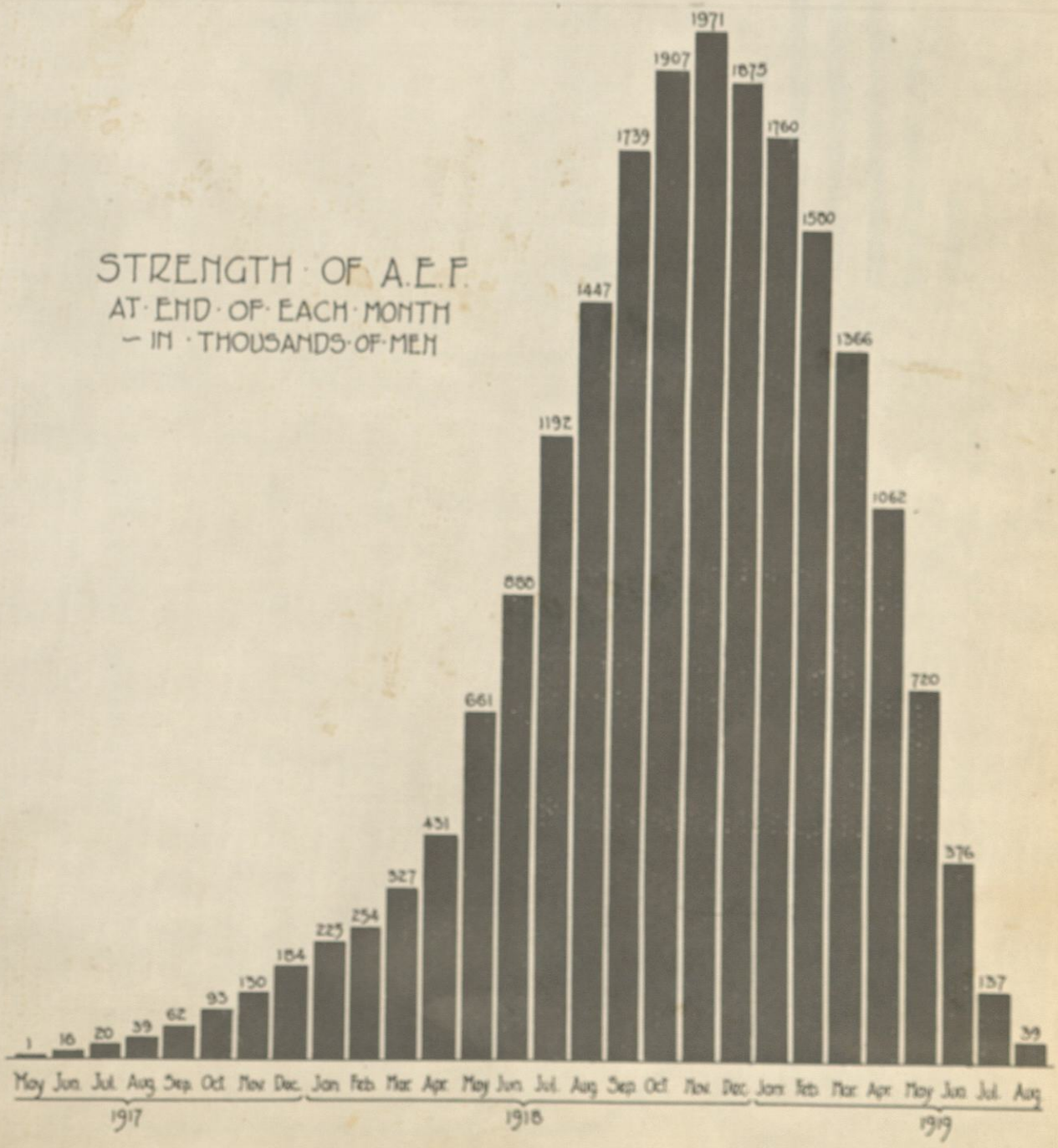
ARRIVALS IN THE A.E.F.

	For month	Cumulative
1917		
May	1,308	1,308
June	14,913	16,220
July	3,900	20,120
Aug.	19,263	39,383
Sept.	22,544	61,927
Oct.	30,338	92,265
Nov.	37,358	129,623
Dec.	54,273	183,896
1918		
Jan.	40,759	224,655
Feb.	29,723	254,378
Mar.	74,627	329,005
Apr.	105,076	434,081
May	233,038	667,119
June	230,174	897,293
July	313,410	1,210,703
Aug.	262,487	1,473,190
Sept.	310,765	1,783,955
Oct.	202,663	1,986,618
Nov.	95,519	2,082,137
Dec.	1,728	2,083,865
1919		
Jan.	432	2,084,297
Feb.	178	2,084,475

STRENGTH OF THE A.E.F.

Figures include marines but not civilians.

Source of information: A.G.O., and G-1, G.H.Q.



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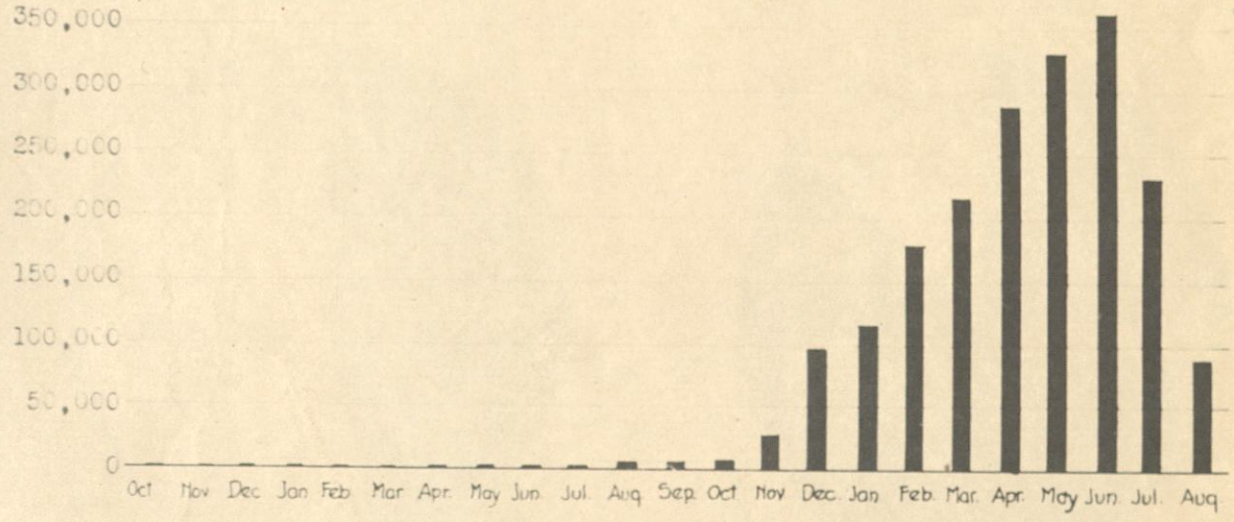
RETURN OF TROOPS TO THE UNITED STATES

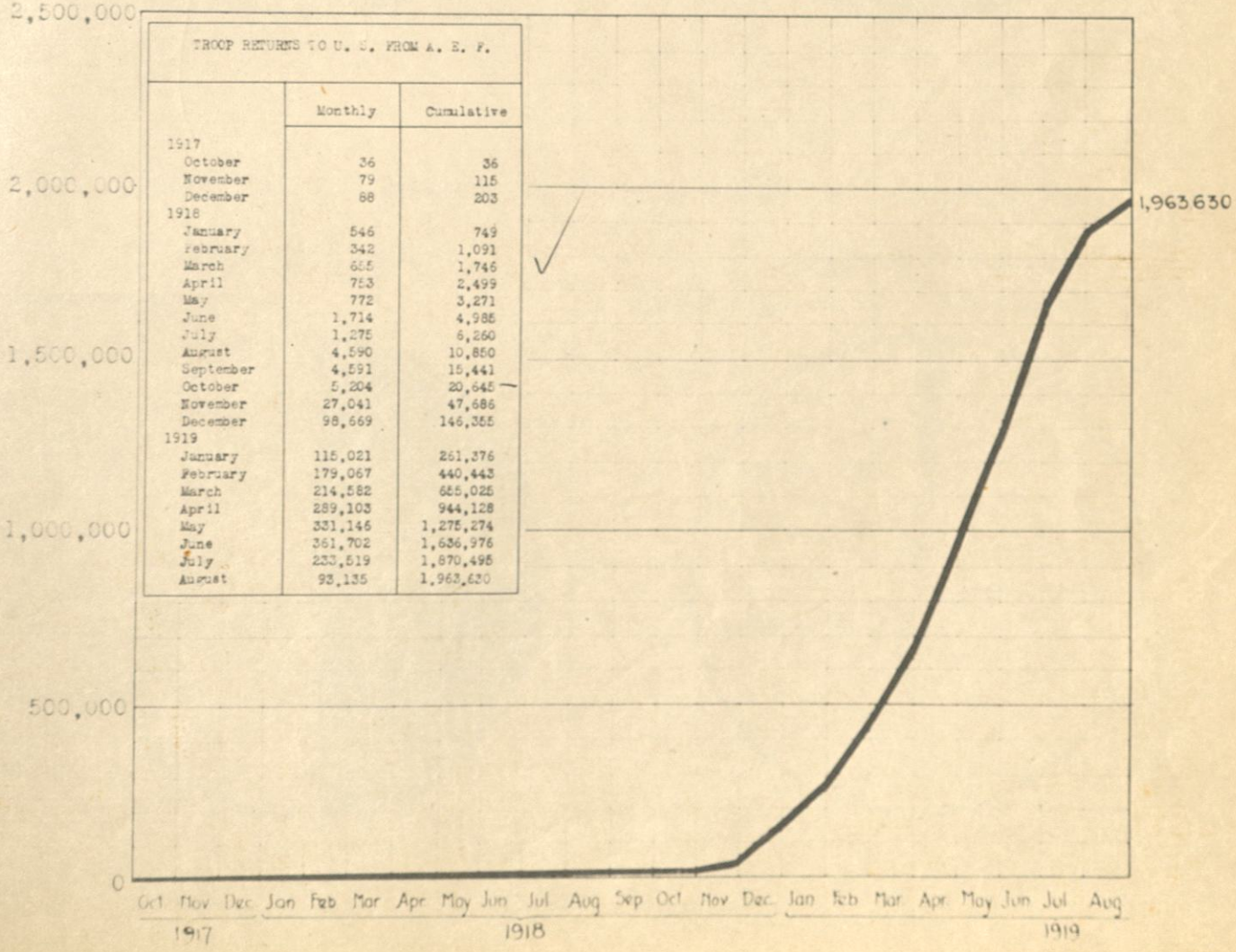
Figures include marines and attached civilians.

Source of information: First Section, General Staff, hq.. S.O...



TROOP RETURNS TO U. S. FROM A. E. F.

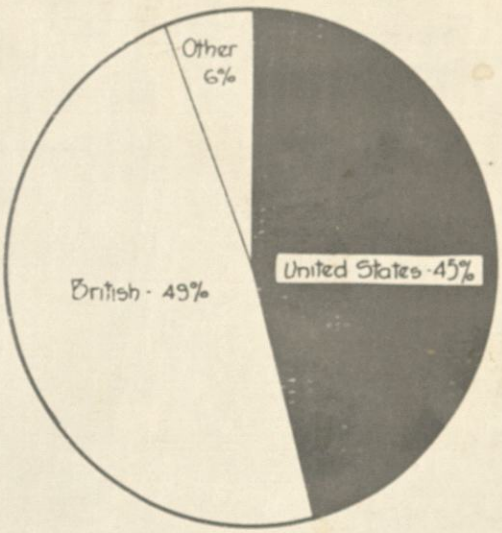
	Monthly	Cumulative
1917		
October	36	36
November	79	115
December	88	203
1918		
January	546	749
February	342	1,091
March	655	1,746
April	753	2,499
May	772	3,271
June	1,714	4,985
July	1,275	6,260
August	4,590	10,850
September	4,591	15,441
October	5,204	20,645
November	27,041	47,686
December	98,669	146,355
1919		
January	115,021	261,376
February	179,067	440,443
March	214,582	655,025
April	289,103	944,128
May	331,146	1,275,274
June	361,702	1,636,976
July	233,519	1,870,495
August	93,135	1,963,630



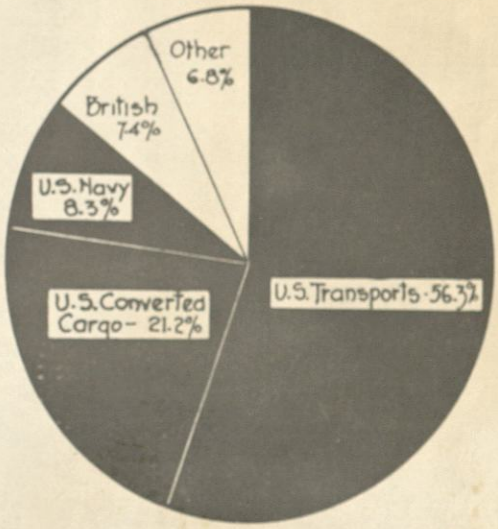
TROOP ARRIVALS AND DEPARTURES - BY FLAG OF SHIP AND BY PORT

PERCENT OF A.E.F. TRANSPORTED TO AND FROM EUROPE BY SHIPS OF VARIOUS NATIONALITIES

TO EUROPE

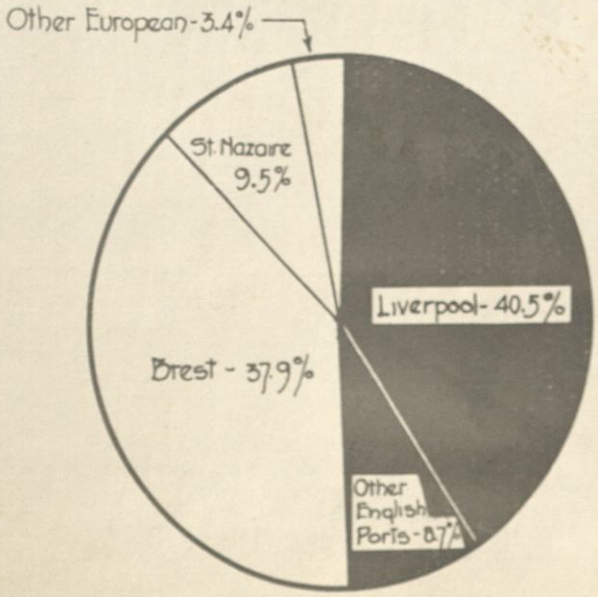


FROM EUROPE

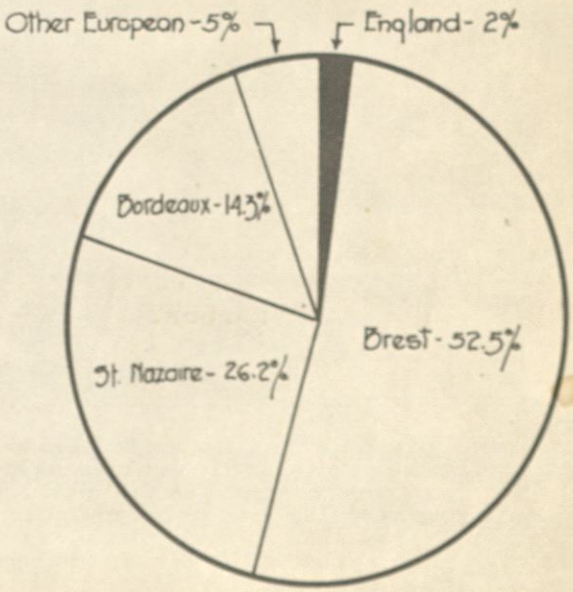


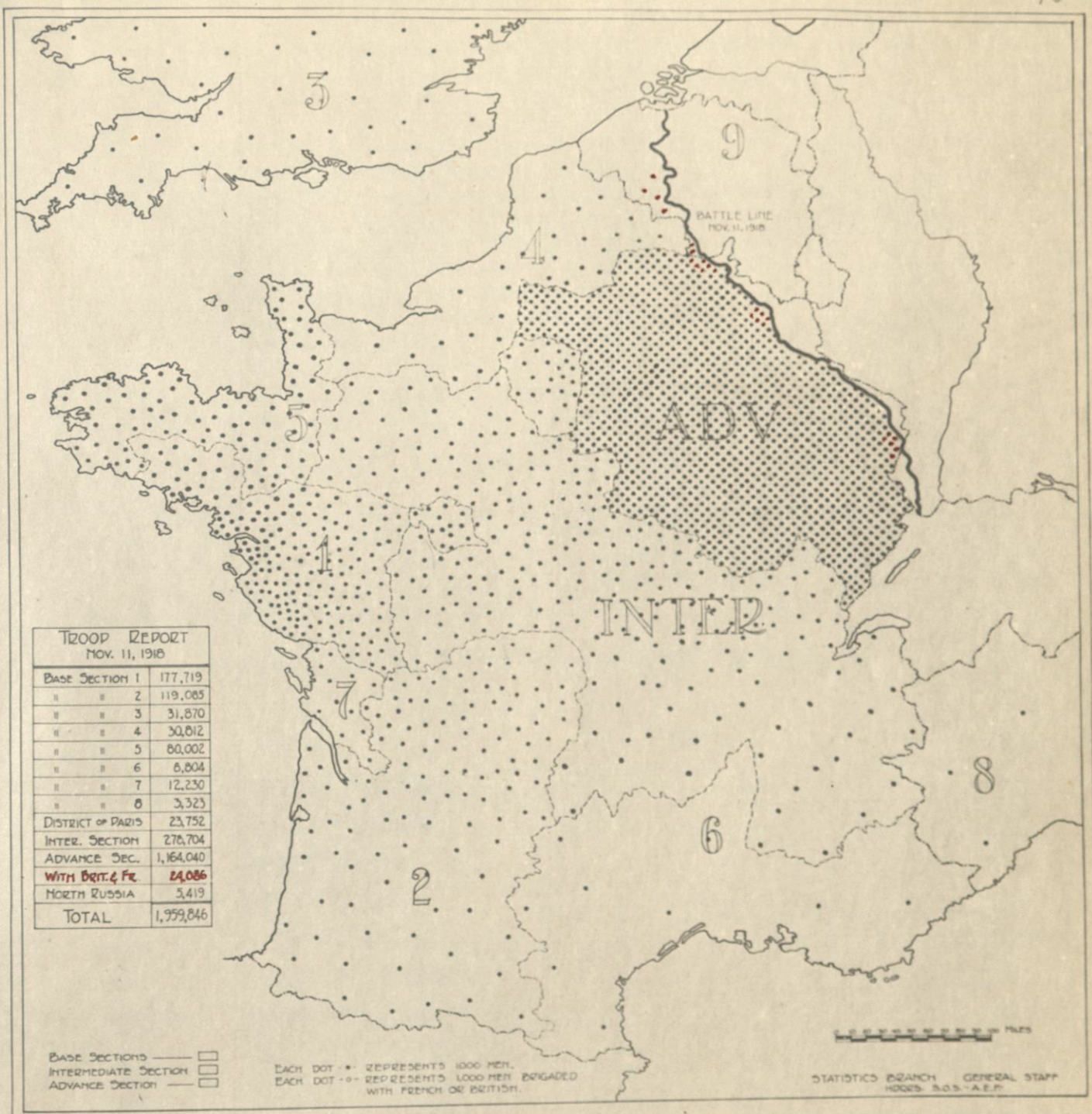
PERCENT OF A.E.F. ARRIVING AND DEPARTING THROUGH VARIOUS EUROPEAN PORTS

ARRIVING IN EUROPE



DEPARTING FROM EUROPE





TROOP REPORT NOV. 11, 1918	
BASE SECTION 1	177,719
" " 2	119,085
" " 3	31,870
" " 4	30,812
" " 5	80,002
" " 6	6,804
" " 7	12,230
" " 8	3,323
DISTRICT OF PARIS	23,752
INTER. SECTION	278,704
ADVANCE SEC.	1,164,040
WITH BRIT. & FR.	24,086
NORTH RUSSIA	5,419
TOTAL	1,959,846

DISTRIBUTION OF TROOPS
NOVEMBER 11, 1918.

The above map shows, in a general way, the location of the American forces in France at the date of the armistice. Each dot represents 1,000 men and they are distributed over the several base, intermediate and advance sections in proportion to the number of troops occupying each section, but no attempt has been made to indicate the exact location of troops within the relative sections.

The map, however, clearly indicates that the majority of troops were concentrated in the advance section, and also that there was a greater concentration in the base sections joining the main ports than in the center of France.

The red dots indicate the number and general position of troops brigaded with and assisting the Allies.

PER CENT OF S.O.S. TROOPS IN THE A.E.F.

By S.O.S. troops are meant those employeed in supply and construction work, as distinguished from troops operating in the line.

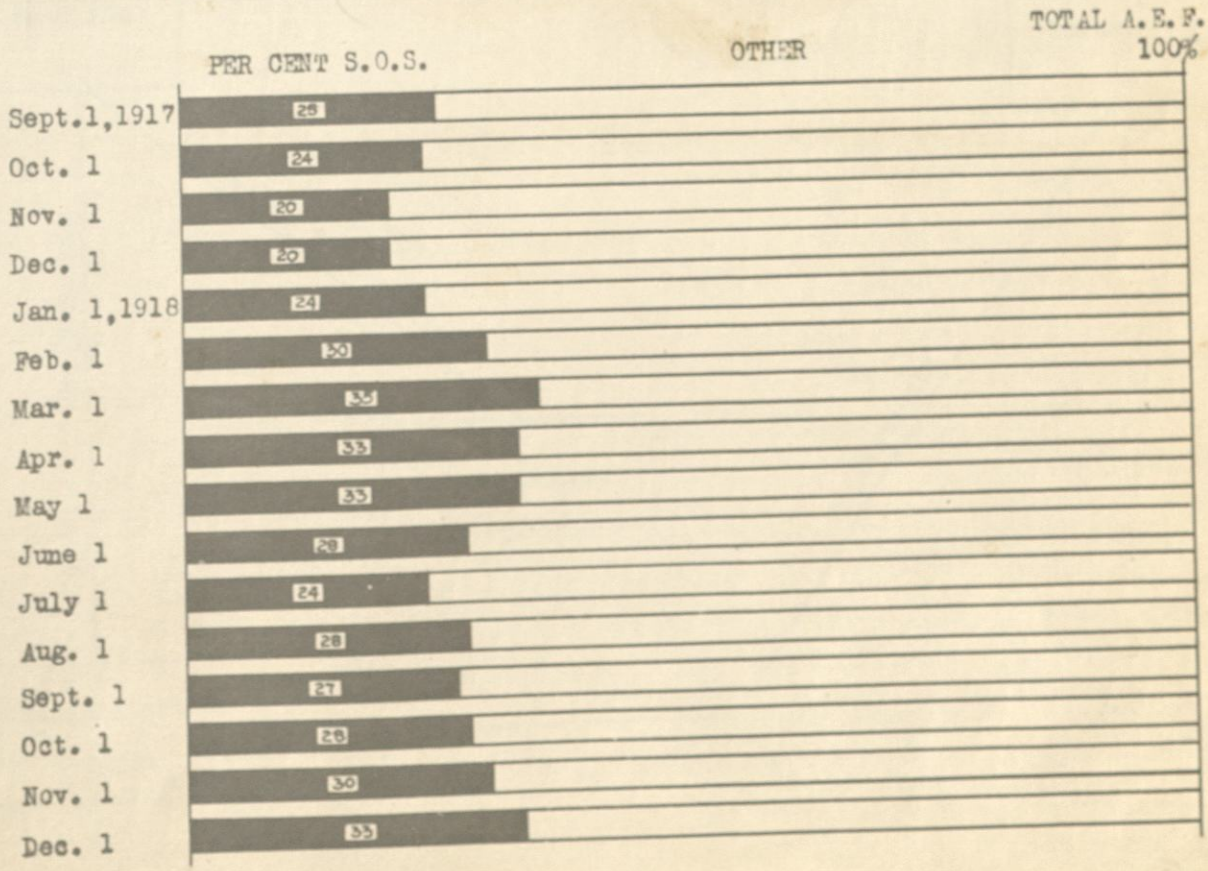
Among the duties assigned them may be mentioned:

Dock and port construction and operation.
Building barracks, camps and hospitals.
Construction, operation and maintenance of railroads.
Telephone, telegraph and electric line erection and operation.
Care and handling of stores in depots and in transit.
Logging, saw mill and quarry operation.
Road building and maintenance.
Motor transport assembly, convoy and repair.
Erection and repair of locomotives and cars.
Building and operation of Ordnance repair shops.
Assembling, testing and repair of airplanes.
Operation of bakeries and refrigerating plants.
Salvage and repair of equipment.
And other tasks too numerous to specify.

The number of troops assigned to these duties varied, as the diagram below indicates, from 20 to 35 per cent of the total A.E.F., which figure included S.O.S. troops with combat forces as well as combat troops assigned to S.O.S. duty.

The figures were arrived at from the following reports: G.H.Q., Consolidated Strength Report; S.O.S. Base Sections Report.

Source of information: First Section, General Staff, Hq. S.O.S.



HANDLING OF TROOPS ON ARRIVAL IN FRANCE

The following procedure was used in distributing American troops as they arrived at base ports in France, depending upon whether they came as Divisional, Corps or Army units, S.O.S. Organizations, Casuals, or Replacements.

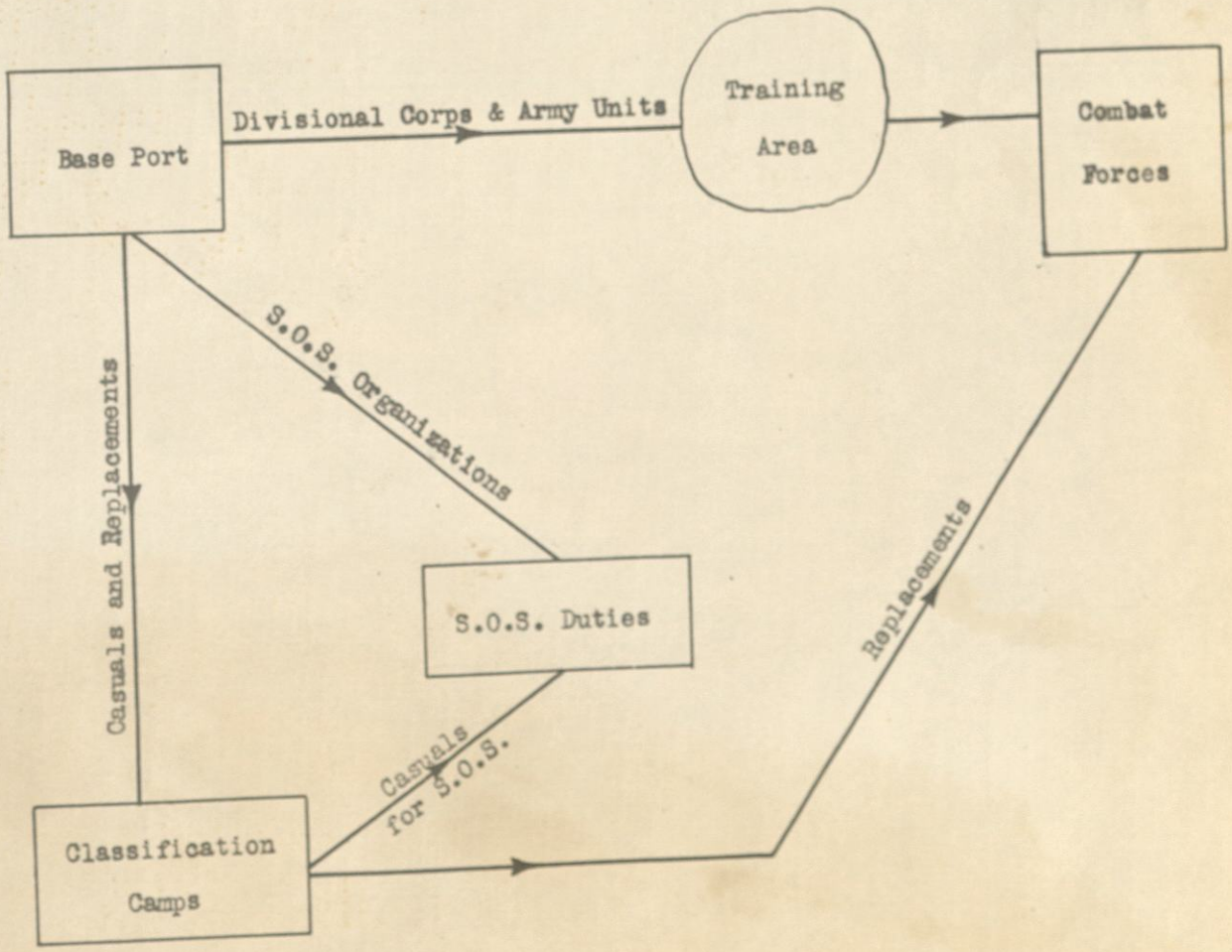
Combat organizations were usually sent directly from ports of debarkation to the Advance Section where they received training for front line duty.

Occasionally they trained in S.O.S. areas, and were then moved directly to a Corps or an Army.

Individual units intended for S.O.S. duty, immediately after disembarking at a French port, were sent directly to their ultimate destination.

Replacements and Casuals were automatically sent by the Commanding General of the base port to camps established for the various services.

Here they recuperated, and after classification were sent to specific stations for duty.



PLAN OF BREST AND VICINITY

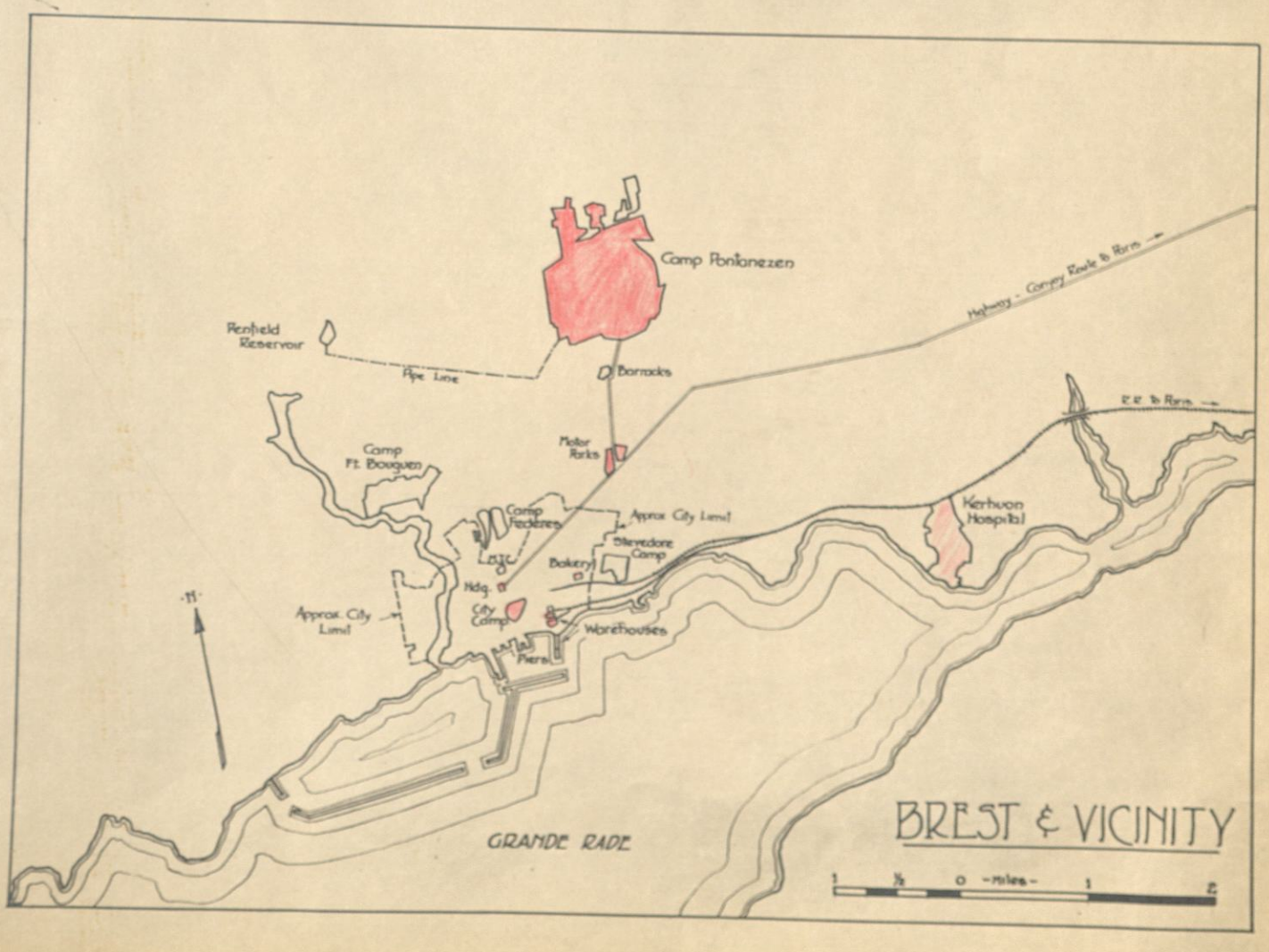
Brest is probably the best known port in France to the members of the A. E. F. Through it passed over one-third of the American forces upon arrival, and more than one-half of our entire army upon its return voyage.

Here was located the largest camp built in the A. E. F. - Pontanezen, with a capacity of 80,000 men, - stevedore, engineer, and other activities, and the large Hospital Center of Kerhoun.

An independent water supply, with reservoir of 25,000,000 gallons capacity, and a large pumping plant, was constructed by the A. E. F. for its use alone.

Brest was not used largely as a freight port, inasmuch as it was necessary to unload the larger vessels with lighters, while lying in the roadstead; but the Americans, nevertheless, built 900 feet of docks (two berths) and two more were assigned by the French for A. E. F. use. It was an excellent troop and naval port, however, and its harbor could accommodate vessels of the deepest draft, such as the enormous troop transport Leviathan.

On the map below, the American activities are shown in red.



CAMPS

For the purposes of the above map, camps have been divided into nine main classes, but these designations are general only, and it frequently happened that a camp was used for various purposes at different times according to the needs of the situation.

The terms used are self-explanatory, except possibly the following, which are here defined:

Depot:—— Camps for the care of non-combatant troops employed in the immediate vicinity.

Replacement & Casual —— Camps to which replacements and casuals (men not attached to organizations) were sent for classification, training and assignment to duty.

Rest:—— Camps for the care of troops passing through, or while resting and recuperating.

In all, the A.E.F. constructed approximately 16,000 barrack buildings, or over 300 miles end to end, with a shelter capacity of 1,000,000 men.

PONTANEZEN BARRACKS

The largest American Rest Camp,and the principal point of interest at Brest from an American standpoint, was Camp Pontanezen, where 80,000 troops could be accommodated, located about two and one-half miles north of the docks.

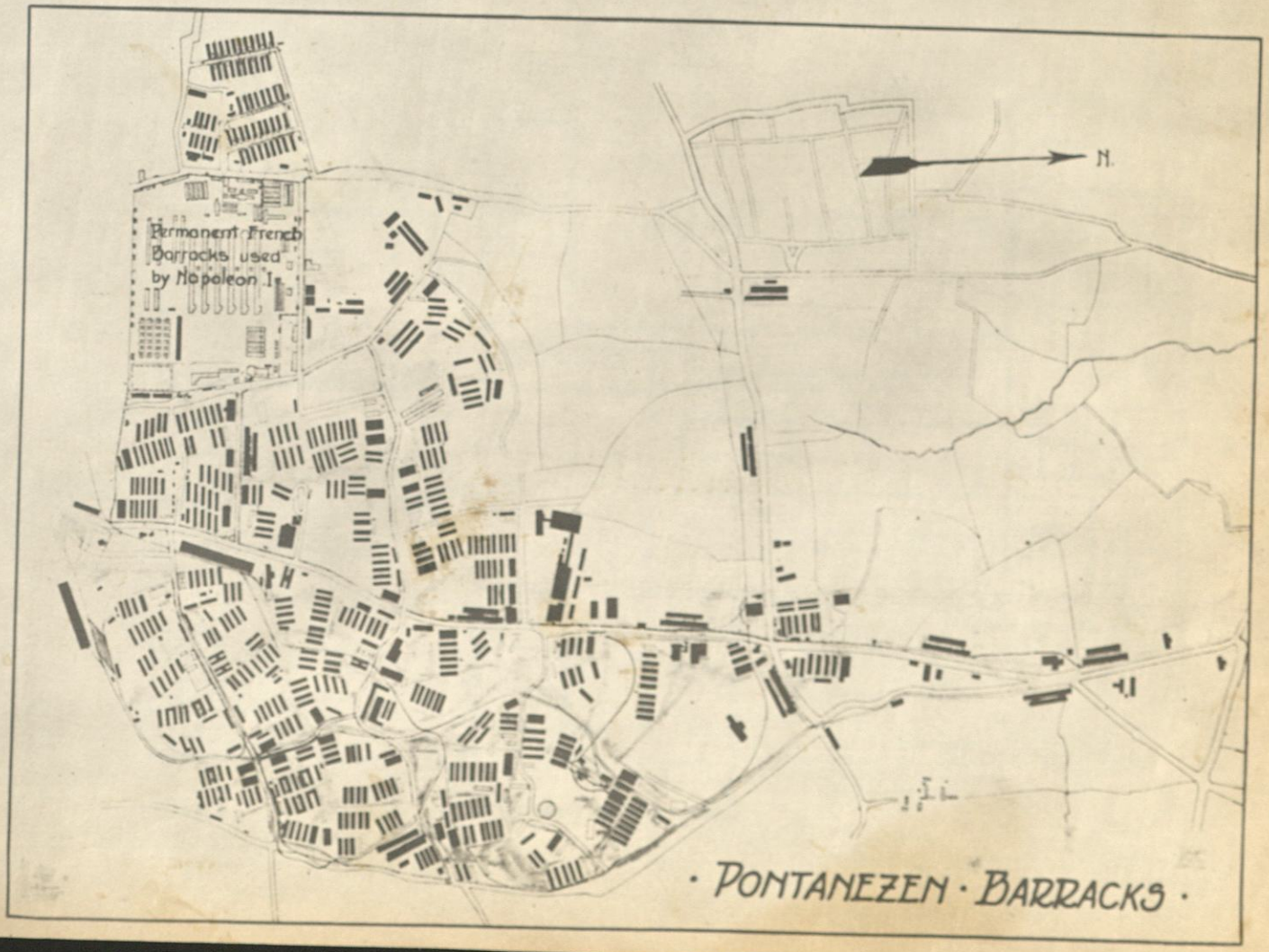
Prior to September, 1918, when construction was started on the barracks, the troops were housed in wall and shelter tents; and during this period, and while constuction was in progress, considerable discomfort was experienced, due to the rain and mud.

In spite of these difficulties, which seriously hampered the work, this camp was built up into a model of its kind, and consisted of 700 corrugated iron barracks, with a capacity of 55,000 men, and 5,300 tents, capable of caring for 25,000 more.

For it were provided 15 mess halls, each with a capacity of 5,000 men an hour; three large bathing plants; a steam laundry; amusement halls, and numerous other facilities. A permanent garrison of 13,500 troops were stationed here and employed in engineer construction, camp administration, maintenance, guard and police.

During the summer of 1918, this camp handled about 20,000 troops per week; but in one ten-day period, 100,000 men were housed and forwarded.

After the Armistice, Pontanezen was used as an embarkation camp, fed largely from the Le Mans Area. There were normally about 60,000 men in camp, and the average stay was from one to five days.



PREPARATION OF TROOPS FOR RETURN

The return of troops for demobilization in the U.S. involved essential elements which differed radically from those affecting the preparation of troops for field service. In the mobilization of the army for action, men were selected for their individual qualifications, and physical fitness for war service.

In the demobilization of the A.E.F. the all important consideration was the return of these men to the U. S. in health, with clean and neat equipment and with records complete and correct. The problem of embarkation in France resolved itself into the following components:

1. Release of troops from active service in the field
2. The concentration of troops thus released in billeting areas in the vicinity of embarkation ports
3. Preliminary preparation for embarkation of the organizations themselves

General Headquarters designated the units which were to be released, Divisions 1 to 7 (Regular Army), being the last to be returned. After release by G.H.Q., S.O.S. Headquarters took charge of them, supervised their movements to embarkation camps or ports, and were responsible for them until they boarded ship for home.

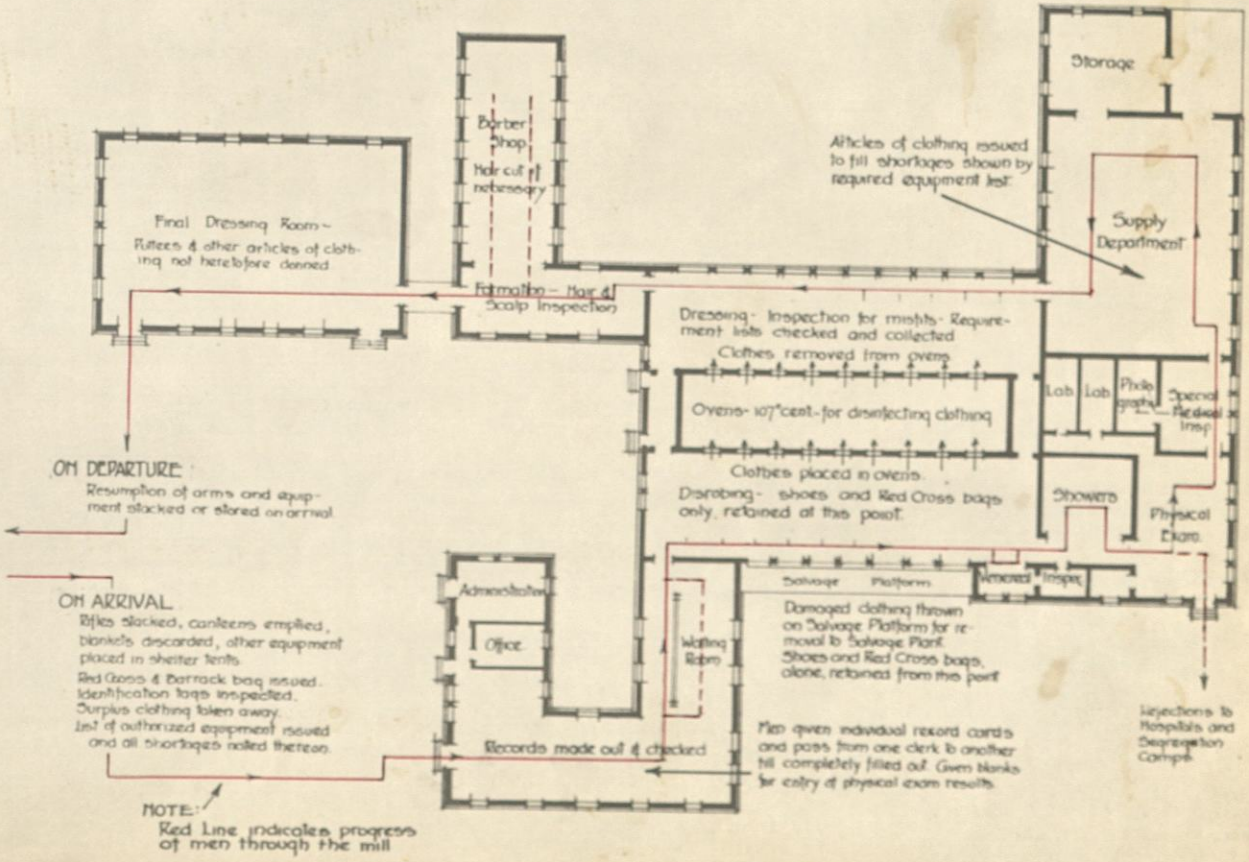
So far as possible, divisions were returned as units and were sent to specified ports in the United States, from which they could easily be transported to proper demobilization camps.

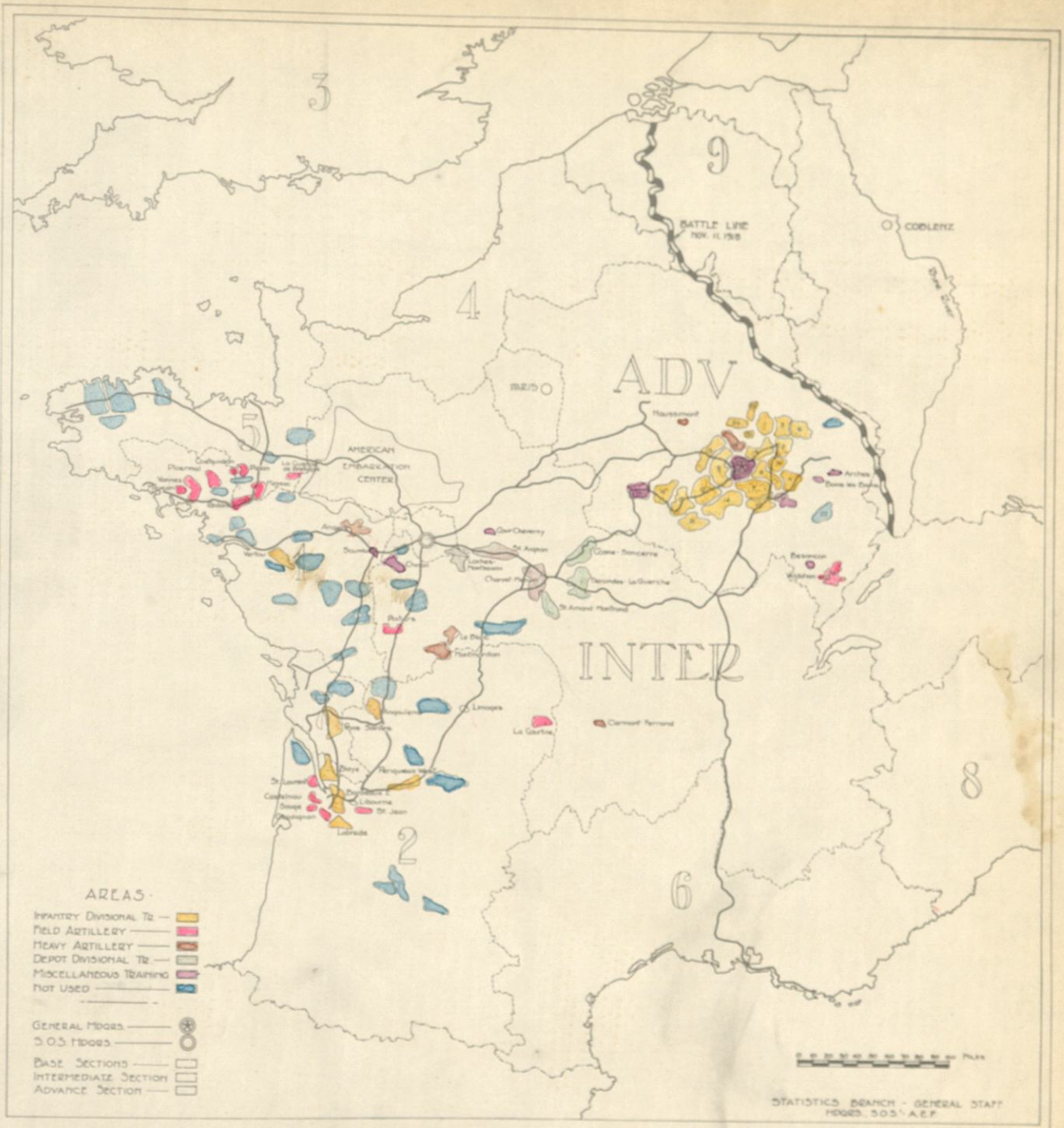
Casuals, (men not belonging to, or detached from, regular units) were formed into casual companies under the charge of casual officers and retained this organization until they reached the United States.

Each man was prepared for embarkation by a system of checking of records, physical examination, inspection, and re-equipment.

This system was known as the "mill" and its method of operation is shown below.

THE MILL



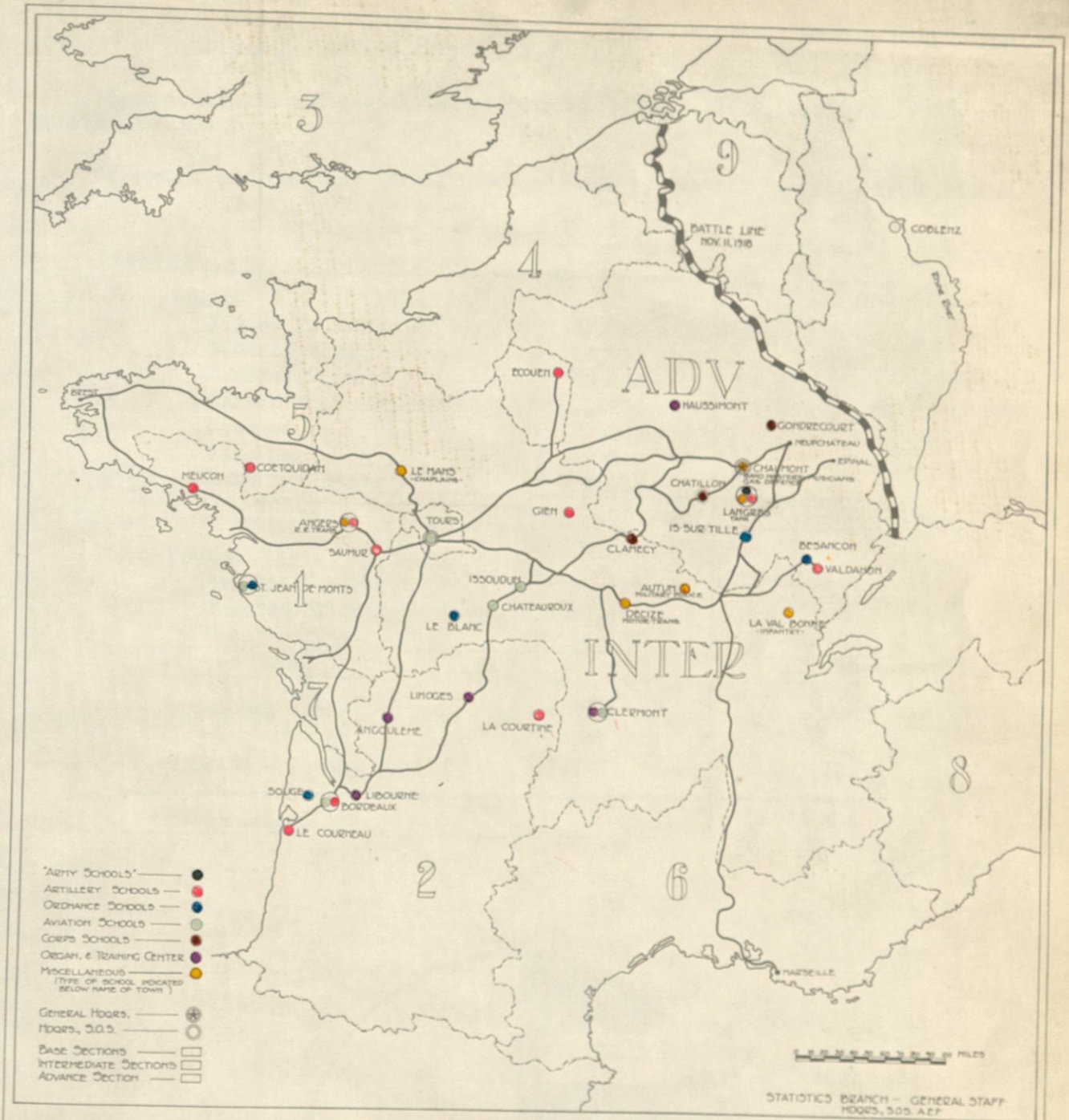


BILLETING & TRAINING AREAS

To properly care for and train the incoming units of the A.E.F., it was necessary to establish between the seacoast and the front billeting areas of various types, the character and size of which depended upon the use to which they were to be put, the geographical location, etc. In some cases, it was necessary to build large camps and barracks, while in others, practically all of the personnel could be billeted in existing French cities and villages.

Upon arrival, combat units were sent to specified areas for training, according to character. Replacements were forwarded to Depot Divisional Areas, where they were classified, given training, and forwarded as requested to fill up gaps in the combat forces.

When the return home of the A.E.F. began, a large area, known as the American Embarkation Center, was opened at Le Mans to care for such troops as could not be moved direct to ports. This center comprised many billeting areas and camps, and had a total capacity of about 260,000.



MILITARY TRAINING CENTERS

One of the chief difficulties in the creation of an army or in the expansion of an existing army consists in the development of a body of line officers who will be competent instructors and leaders for their men. To bring into being and to maintain such an officer personnel, thoroughly imbued with the American principles of a vigorous offensive, was the purpose for which military training schools were organized in the A.E.F. These schools were of three main types:

Candidates schools: to train enlisted men of the infantry, artillery, engineers and signal corps for commissions. These schools graduated a total of 10,976 men and plans had been made before the Armistice to increase enormously their capacity.

Corps schools: especially designed to train officers to serve as replacements in divisions already in the line. Three such schools were established, and they graduated 13,916 officers and 21,330 non-commissioned officers.

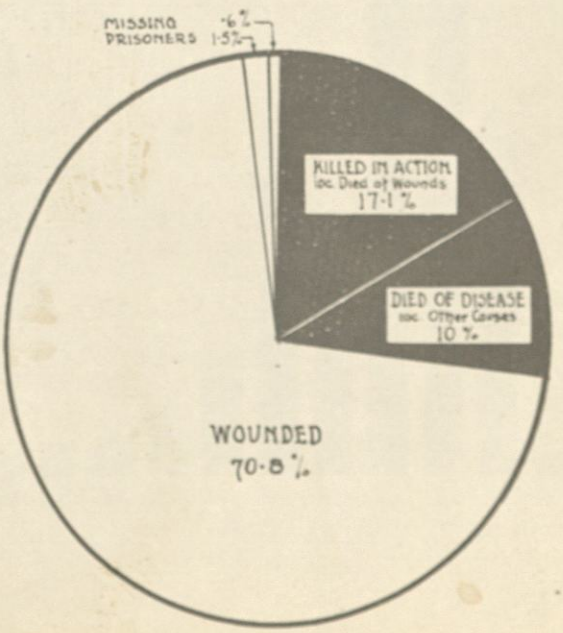
Army schools: to co-ordinate the work of the corps schools and to give their graduates still more intensive training. A group of army schools, including the Staff College, was established at Langres. More than 13,000 officers and men graduated there.

SUMMARY OF AMERICAN CASUALTIES IN THE A.E.F.

Figures include all casualties reported to June 3, 1919, Cablegram #558 and Couriergram 46A.

Source of information: Final Casualty Report, Central Records Office, A.G.O., A.E.F.

DEATHS		
Killed in Action	34,785	
Died of Wounds	14,713	
Died of Disease	23,238	
Deaths from Accidents	1,799	
Drowned	268	
Suicide	240	
Cause not stated	3,512	
TOTAL		78,555
WOUNDS		
Wounded Severely	90,827	
Wounded Slightly	80,483	
Undetermined	34,380	
TOTAL		205,690
PRISONERS		4,480
MISSING - To May 25		1,609
TOTAL CASUALTIES		290,334



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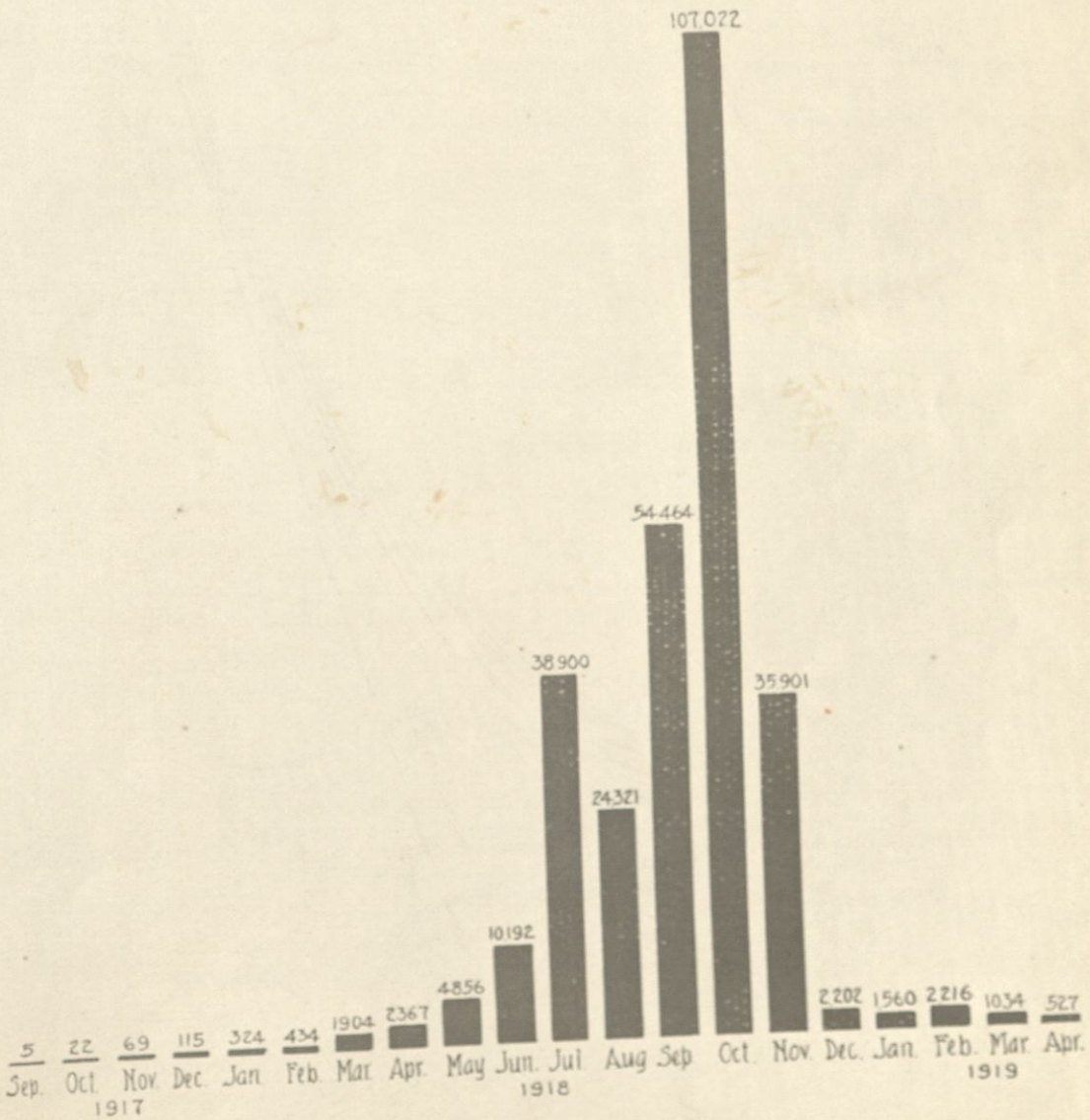
MONTHLY CASUALTIES IN AMERICAN EXPEDITIONARY FORCES

Casualties comprise deaths from all causes, wounded and prisoners, but do not include 1,609 reported as missing, (1,582 from divisions, and 27 from miscellaneous services).

Source of information: Final Casualty Report, Central Records Office, A.G.O., A.E.F.

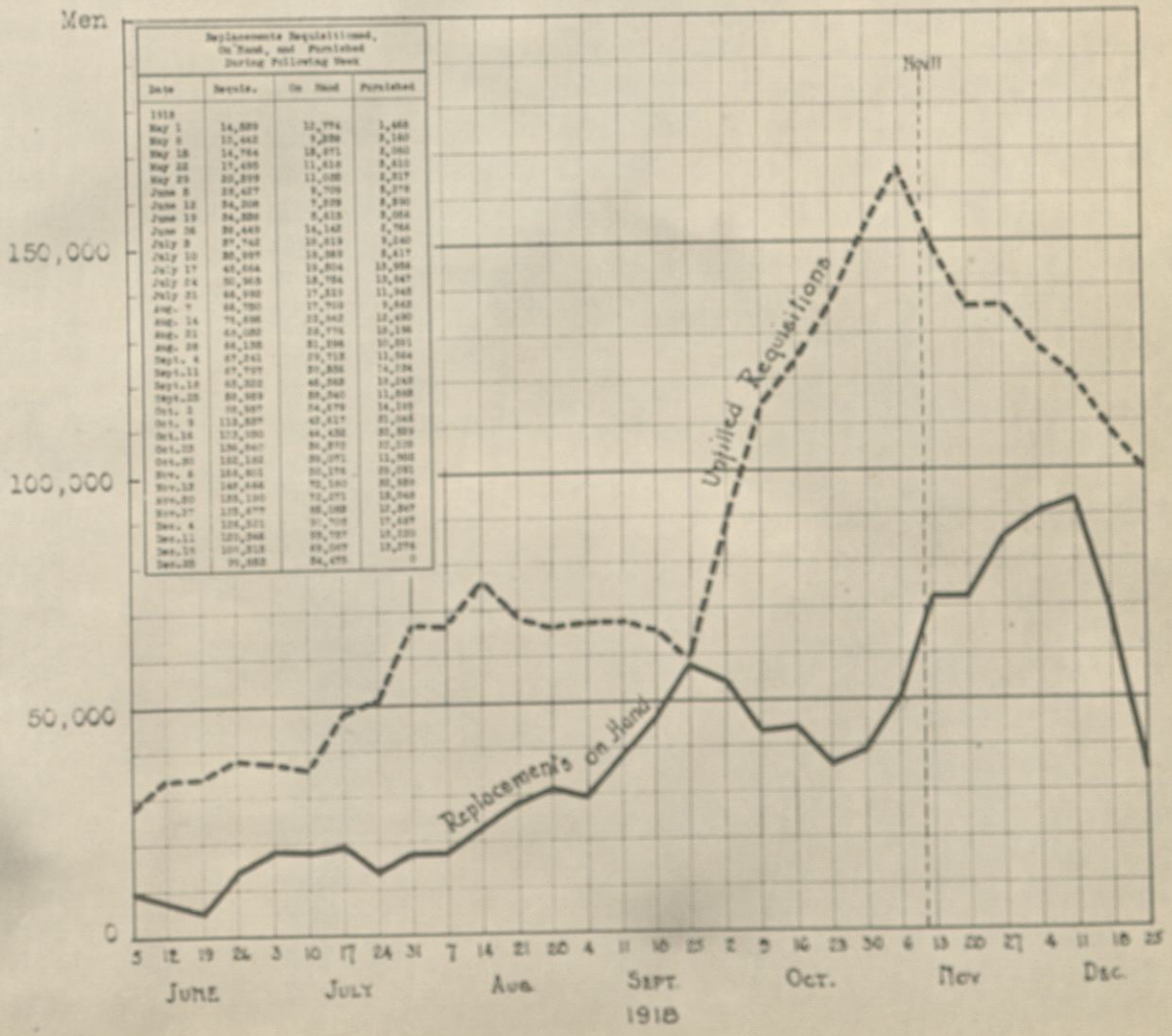


REPLACEMENT OF PERSONNEL

The number of replacements on hand in France against unfilled requisitions from combat and S.O.S. organizations is shown on the diagram below. It will be noted that only at one period (September 25) were there enough replacements to take care of the outstanding requisitions, and this shortage increased very markedly up to the time of the armistice, at which time there was a shortage of about 100,000. The total replacements received to January 1, 1919 and the sources of supply were as follows:

Replacements from U. S.	258,000
Replacements from reduction of Depot Divisions and skeletonizing of Combat Divisions	178,000
Class "A" casuals from hospitals, etc., returned to their organization as replacements	245,000

Source of information: Personnel Division, G-1, G.H.Q., and First Section, General Staff, Hq., S. O. S.

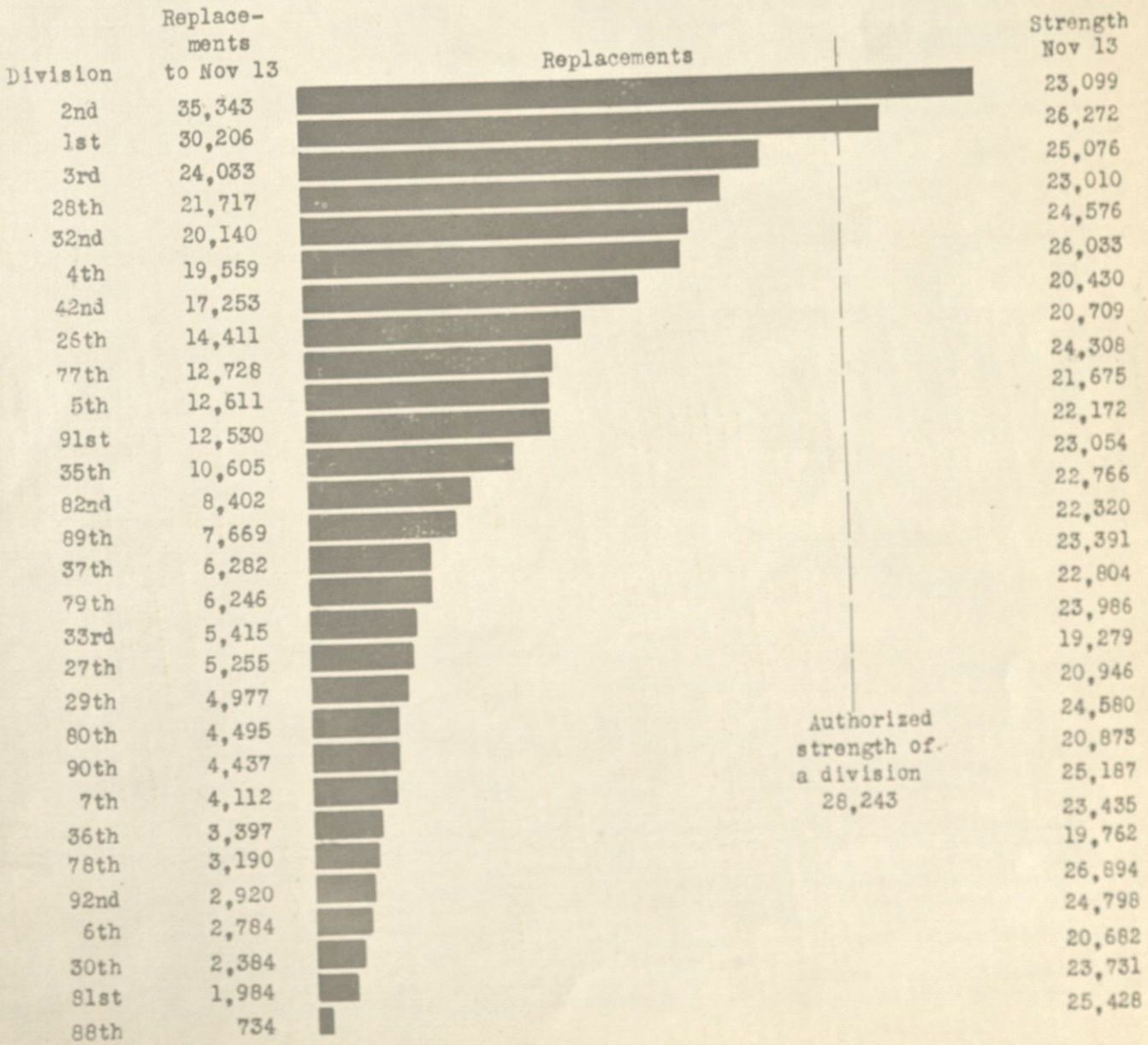


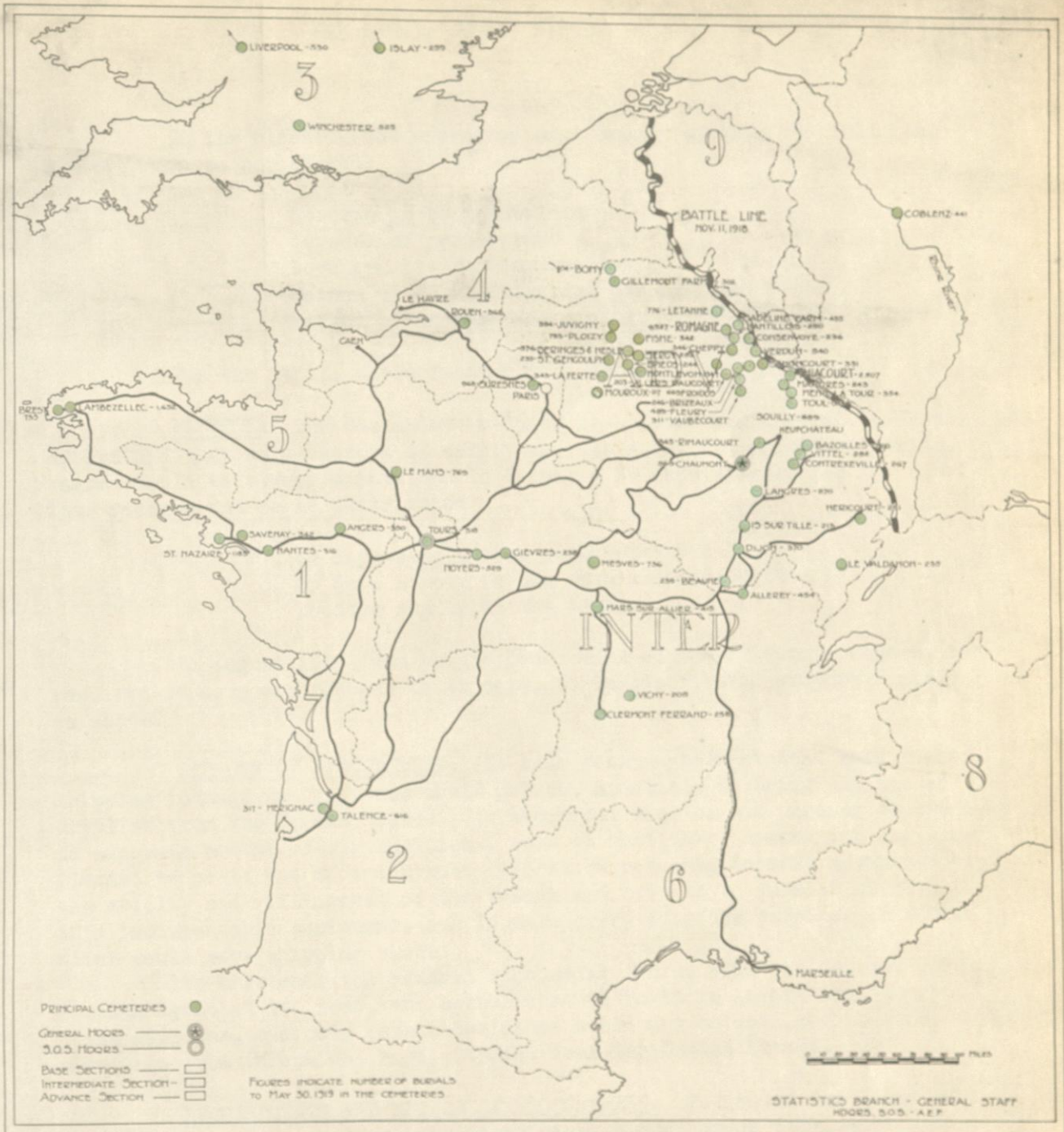
REPLACEMENTS FURNISHED DIVISIONS AFTER ENTERING LINE TO NOVEMBER 13, 1918.

No figures are available for replacements furnished before May 1, 1918. At that time 1st, 2nd, 26th and 42nd Divisions had entered the line.

Figures include such casuals and men evacuated from hospitals as reported received by divisions or included in troop movement reports from depot divisions.

Source of information: Personnel Division, G-1, G. H. Q., A. E. F.





PRINCIPAL A.E.F. CEMETERIES

One of the tasks receiving the most earnest and conscientious attention of the A.E.F., was the locating and registering of all American graves and the transfer of the bodies to permanent cemeteries where they could be carefully cared for.

This work was under the supervision of the Graves Registration Service of the Quartermaster Corps and it was its duty to maintain accurate and complete records as to the location and identification of the bodies of all officers, soldiers and attached civilians of the A.E.F. who died serving in Europe. Deaths were reported by burial officers; the graves were then verified, plotted and properly marked with crosses inscribed with name, rank and date of death.

Every possible effort was made to identify bodies buried as unknown and to locate those of men known to be killed but not found, because of difficulties and dangers often attending burials under enemy's fire.

The principal A.E.F. cemeteries in France are shown in the above map and the plans for the summer of 1919 contemplated a concentration in the two largest of these – Romagne and Thiaucourt – of about 33,000 and 3,300 graves respectively.

THE A.E.F. SUPPLY SYSTEM

In the planning and operation of a supply system, the following factors must be considered:

Reserve to be maintained
Sources of procurement
Requirements for consumption
Method of requisition and procurement
Method of storage and distribution

For the A.E.F. these factors were determined as follows:

RESERVE: The Commander-in-Chief soon after his arrival in France determined that as a measure of safety against submarine and other losses, there should be always maintained in France a 90 days reserve for the A.E.F. This reserve was to be distributed

45 days supply near Base Ports
30 days supply in the Intermediate Section
15 days supply in the Advance Section

In August 1918, due to the overcoming of the submarine menace, the required reserve was reduced to 45 days, to be distributed proportionately as above.

SOURCES OF PROCUREMENT: It soon became apparent that sufficient shipping tonnage was not, and would not be, available to bring all needed supplies from the United States. Furthermore, America was unready to supply an adequate amount of war munitions, such as artillery, ammunition and airplanes; hence it was of the utmost importance not only to take advantage of the ability and willingness of the French and British to furnish us with this indispensable equipment, but to make every possible purchase in Europe which would save shipping space.

To this end, the General Purchasing Board, with the General Purchasing Agent at its head, was established in Paris to locate and secure these supplies, and only such material as could not be obtained to good advantage from Europe was requisitioned from the United States.

REQUIREMENTS AND METHOD OF PROCUREMENT: To reduce the labor of requisitioning for supplies, and to maintain a continuous flow, what was known as the Automatic Supply was devised and put into operation.

Each supply service was directed to prepare tables showing for each item the amount necessary to equip and maintain 25,000 men for four months. This amount was to accompany every shipment of 25,000 men from the United States, and would provide equipment, one month's maintenance, and the three months required reserve. Further tables were prepared giving one month's maintenance for each 25,000 men, and these supplies were to be shipped monthly automatically, based upon the strength of the A.E.F.

Anything not included in the Automatic Supply Tables was designated Exceptional Supply, and was to be furnished only upon special requisition.

There was never enough shipping to carry out these plans as outlined, but they were adhered to so far as practicable.

In order to insure maximum utilization of cargo space, to see that this was allotted to the services in accordance with the urgency of their respective needs, the following system was adopted:

On tentative estimates of requirements by the services, each was allotted by the First Section, General Staff, (G-1) S.O.S., a portion of the total ship space which the War Department announced as available for the coming month.

Each service then presented a tentative cablegram calling for supplies previously reported to be at the seaboard in America. Items were arranged in order of their urgency and amounted to the total tonnage allotted to the Service.

G-1 passed upon these lists, made such other changes as were advisable, and consolidated all in a Priority Cable which was sent to the War Department to govern flotations for the following month.

On August 20, 1918, the Commanding General, S.O.S. appointed a Special Board of Officers to investigate and report upon the tonnage requirements of the several services based upon a revised troop schedule, contemplating an A.E.F. strength by July 1, 1919 of 3,360,000 men. This board published a detailed report of requirements sub-divided between materials which could probably be obtained in Europe, and those which would have come from the U.S. The total estimated monthly requirements for the above force together with the amounts actually received, are shown on a succeeding page.

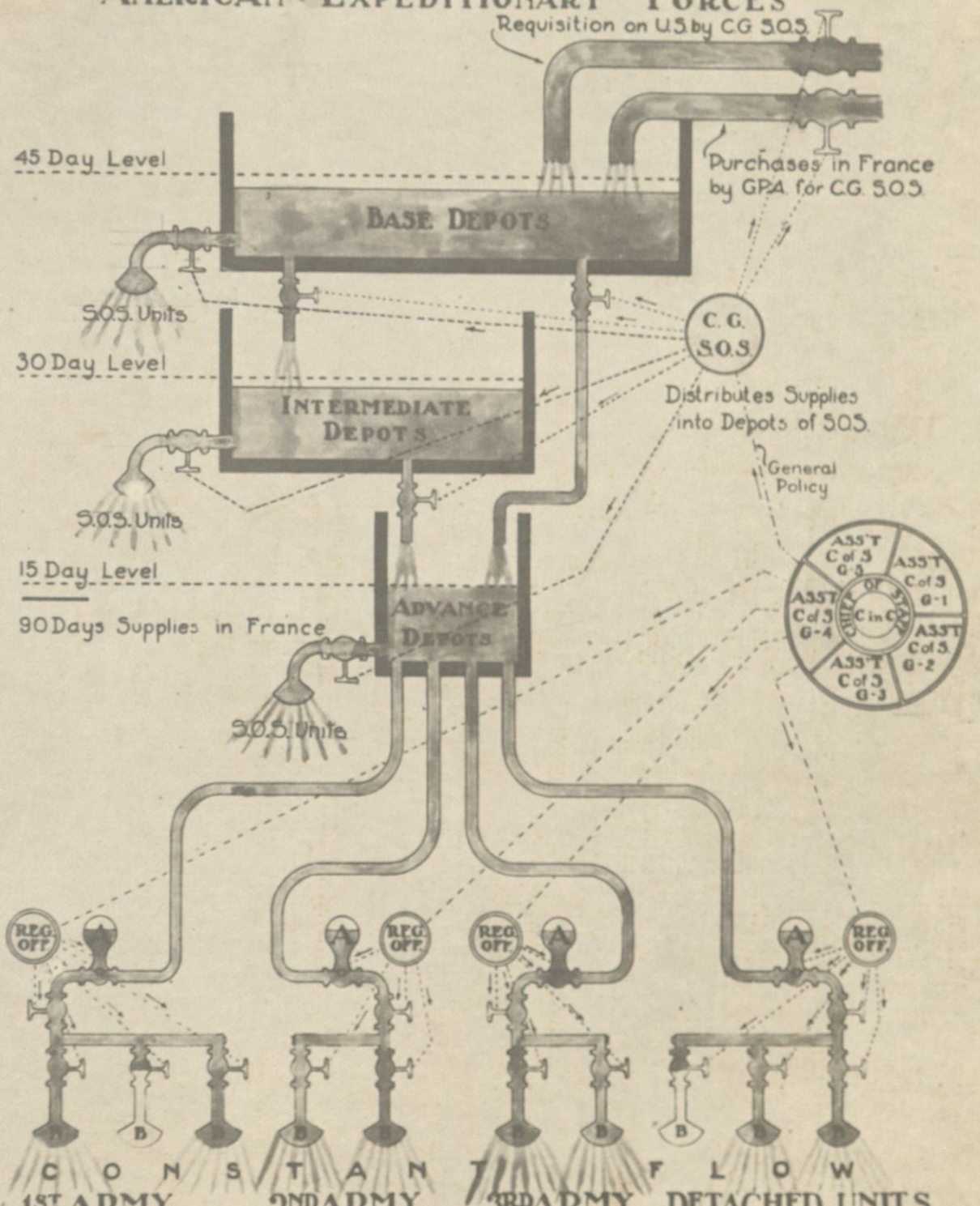
STORAGE AND DISTRIBUTION: Supplies arriving in Europe were either stored in Base Depots near the ports, or were forwarded to the Intermediate or Advance Depots in accordance with the instructions from the chiefs of the supply services, S.O.S., upon whom rested the responsibility of seeing that the depot stocks were kept at the proper level. In these depots, space was assigned to the several supply services in accordance with their needs, and the goods were received, handled and sent out by the representatives and personnel of these several services.

Supplies for the combatant forces were handled through what were known as Regulating Stations. The Regulating Officers in charge of these were under G-4, G.H.Q. It was their duty to keep track of the location and strength of the units in the field and the railheads to which their supplies should be shipped.

Certain classes of supplies, such as rations, forage, fuel, etc., were forwarded automatically every 24 hours upon the basis of strength reports, while all other material was shipped only upon requisition from the Army, Corps, and Division Headquarters.

The Regulating Officers issued instructions to the Advance and Inter-mediate Depots for the shipment of the supplies needed, and the responsibility of the S.O.S. ended with the delivery of these to the Regulating Stations.

DIAGRAM ILLUSTRATING THE FLOW OF SUPPLIES IN THE AMERICAN EXPEDITIONARY FORCES



A-Pneumatic Buffer- Storage at Regulating Stations sufficient only to overcome unavoidable irregularity of shipment from Depots and to insure uniform flow at Railheads. Permits no over-accumulation.

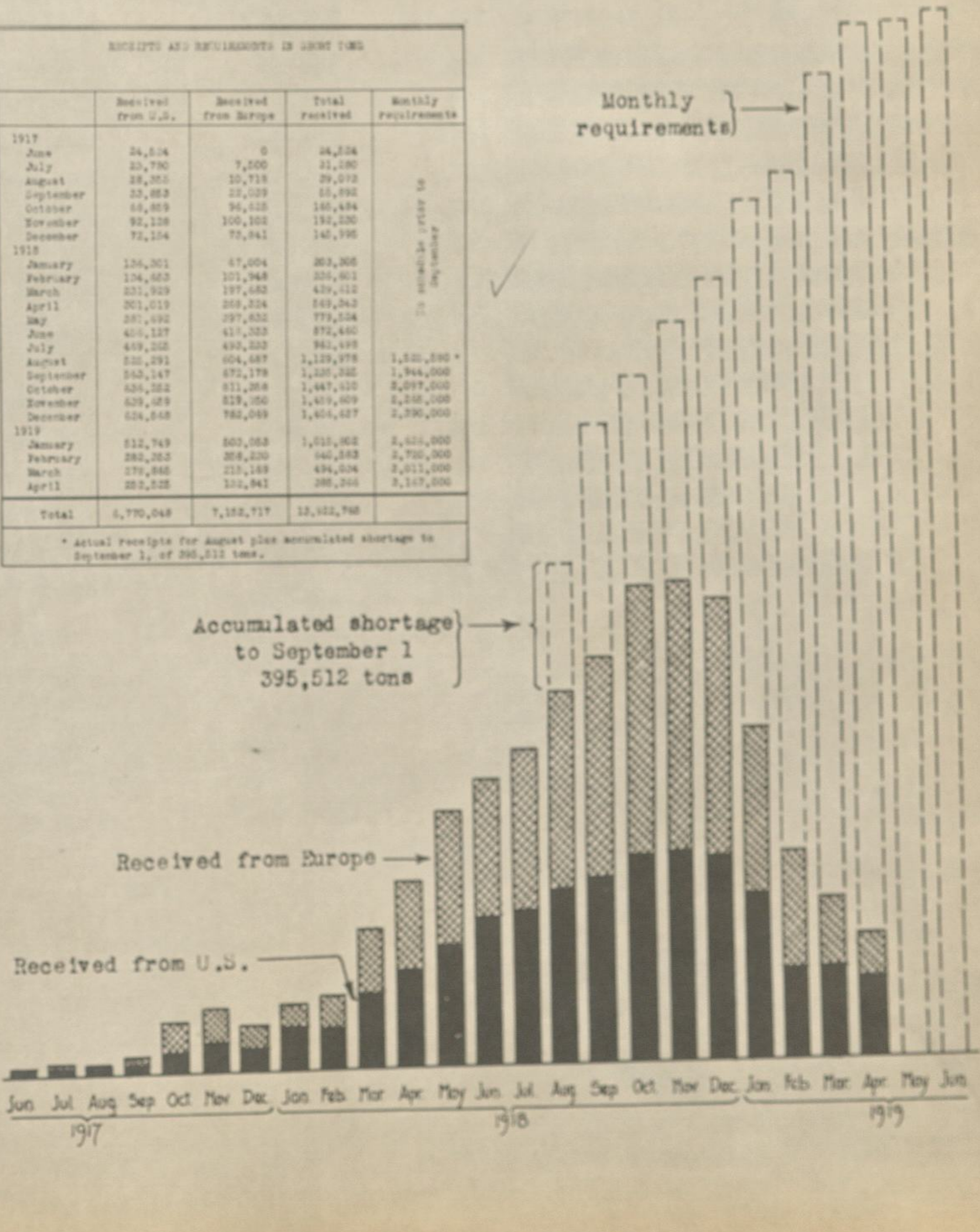
B-Railheads. Points at which supplies are delivered to organizations.

TOTAL SUPPLIES REQUIRED VS. RECEIPTS FROM ALL SOURCES

Requirements shown are based upon studies made in August and September 1918, by the Tonnage Board appointed by the Commanding General, S.O.S., and provide for a strength in France by July 1, 1919 of 3,360,000 men.

It was estimated that there had been accumulated by September 1918 a shortage of 395,512 tons. This is shown in the diagram as superimposed upon the receipts for August 1918.

Source of information: Tonnage Board, Hq., S.O.S.; First Section, General Staff; Statistical Bureau, Transportation Service, and Supply Services, Hq., S.O.S.



RECEIPTS AND REQUIREMENTS IN SHORT TONS

	Received from U.S.	Received from Europe	Total received	Monthly requirements
1917				
June	24,534	0	24,534	No estimate prior to September
July	23,780	7,500	31,280	
August	18,355	10,718	29,073	
September	33,853	22,039	55,892	
October	68,859	96,625	165,484	
November	92,128	100,102	192,230	
December	72,154	73,841	145,995	
1918				
January	136,301	67,004	203,305	
February	134,653	101,948	236,601	
March	231,929	197,483	429,412	
April	301,019	268,224	569,243	
May	381,692	397,632	779,324	
June	455,127	417,333	872,460	
July	469,265	493,233	962,498	
August	525,291	604,687	1,129,978	1,525,490 *
September	563,147	672,178	1,235,325	1,944,000
October	636,252	811,258	1,447,510	2,097,000
November	629,429	819,350	1,449,609	2,248,000
December	624,848	782,069	1,406,427	2,390,000
1919				
January	512,749	503,053	1,015,802	2,424,000
February	282,353	358,230	640,583	2,720,000
March	278,865	215,169	494,034	2,811,000
April	252,525	132,841	385,366	3,147,000
Total	6,770,048	7,152,717	13,922,765	

* Actual receipts for August plus accumulated shortage to September 1, of 395,512 tons.

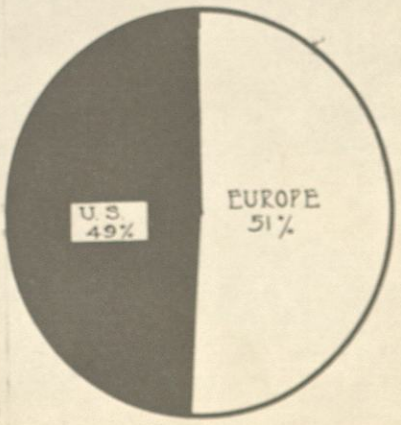
TOTAL PROCUREMENT - UNITED STATES AND EUROPE

Total short tons of material of all classes received by the A.E.F. from U.S. and from Europe to May 1, 1919.

Source of information: Statistical Bureau, Transportation Service, and Supply Services, Hq. S.O.S.

Class	Short tons received from U.S.	Short tons received from Eur.	Percentage from U.S. & from Europe
Motor Transport	260,067	7,986	97 / 3
Transportation	961,438	73,463	93 / 7
Miscellaneous	230,688	20,961	92 / 8
Clothing	107,429	12,032	90 / 10
Foodstuffs	1,554,774	200,354	89 / 11
Forage	719,630	93,699	88 / 12
Miscellaneous Q.M.	1,025,708	283,925	78 / 22
Ordnance	980,817	313,162	76 / 24
Signal	41,340	15,157	73 / 27
Air Service	120,344	82,860	59 / 41
Chemical Warfare	13,966	13,049	52 / 48
Medical	108,753	99,487	52 / 48
Engineer	600,094	684,436	47 / 53
Lumber & For. Products	45,000	1,583,670	3 / 97
Coal & Other Fuel	0	3,668,476	100
TOTAL	6,770,048	7,152,717	

TOTAL RECEIPTS	Short tons
From U.S.	6,770,048
From England	2,485,019
From other European sources	4,667,698
TOTAL	13,922,765



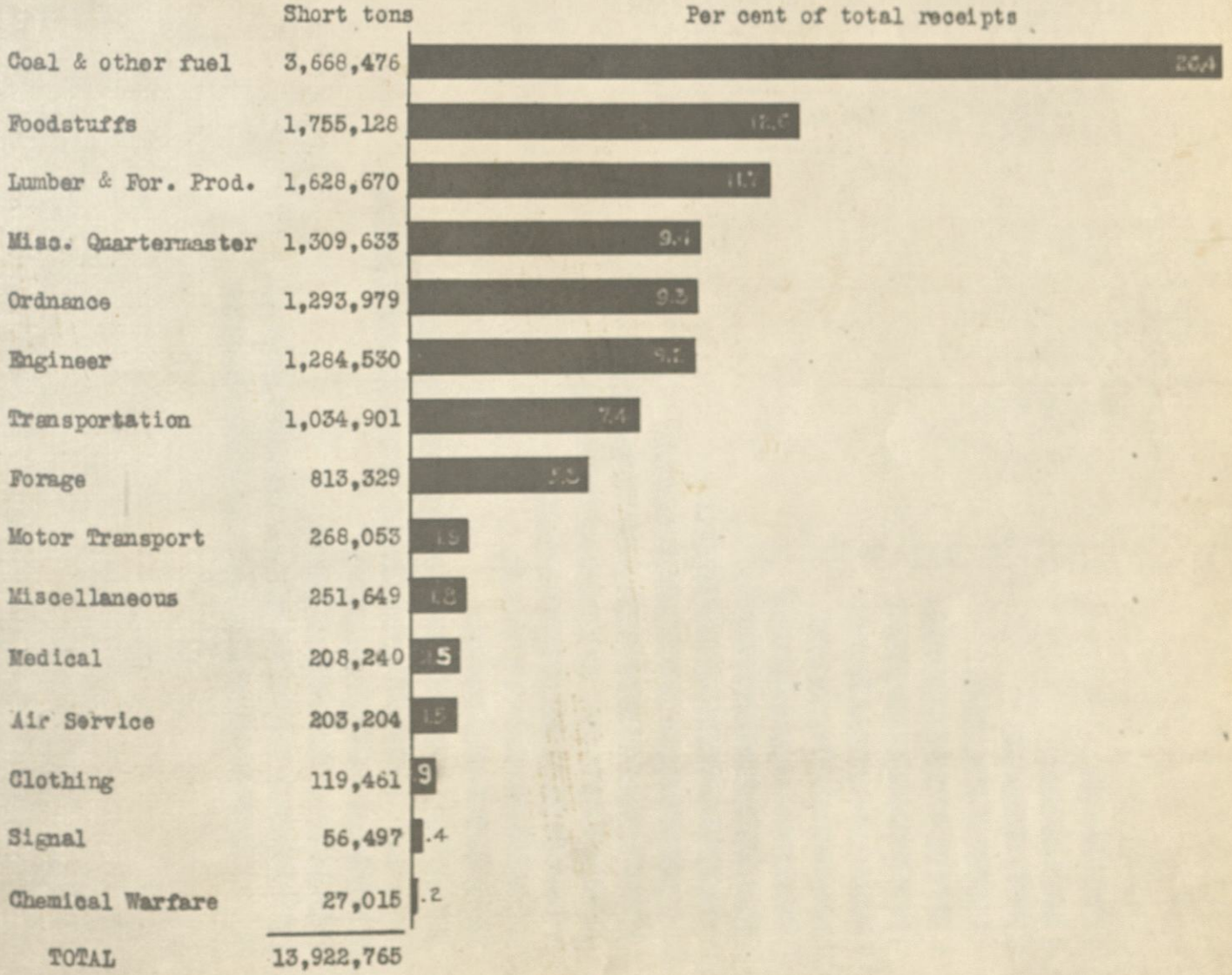
CLASSIFIED PROCUREMENT FROM ALL SOURCES

The diagram below indicates the general classification of total receipts of materials by the A.E.F. from both American and European sources, to May 1, 1919.

It will be noted that by far the largest item is coal and other fuel, this being almost one-fourth of the entire receipts.

What might be termed actual fighting material, such as; arms, ammunition, airplanes, etc., constitute but a trifle over 10 per cent of the total.

Source of information: Statistical Bureau, Transportation Service, Hq., S.O.S.

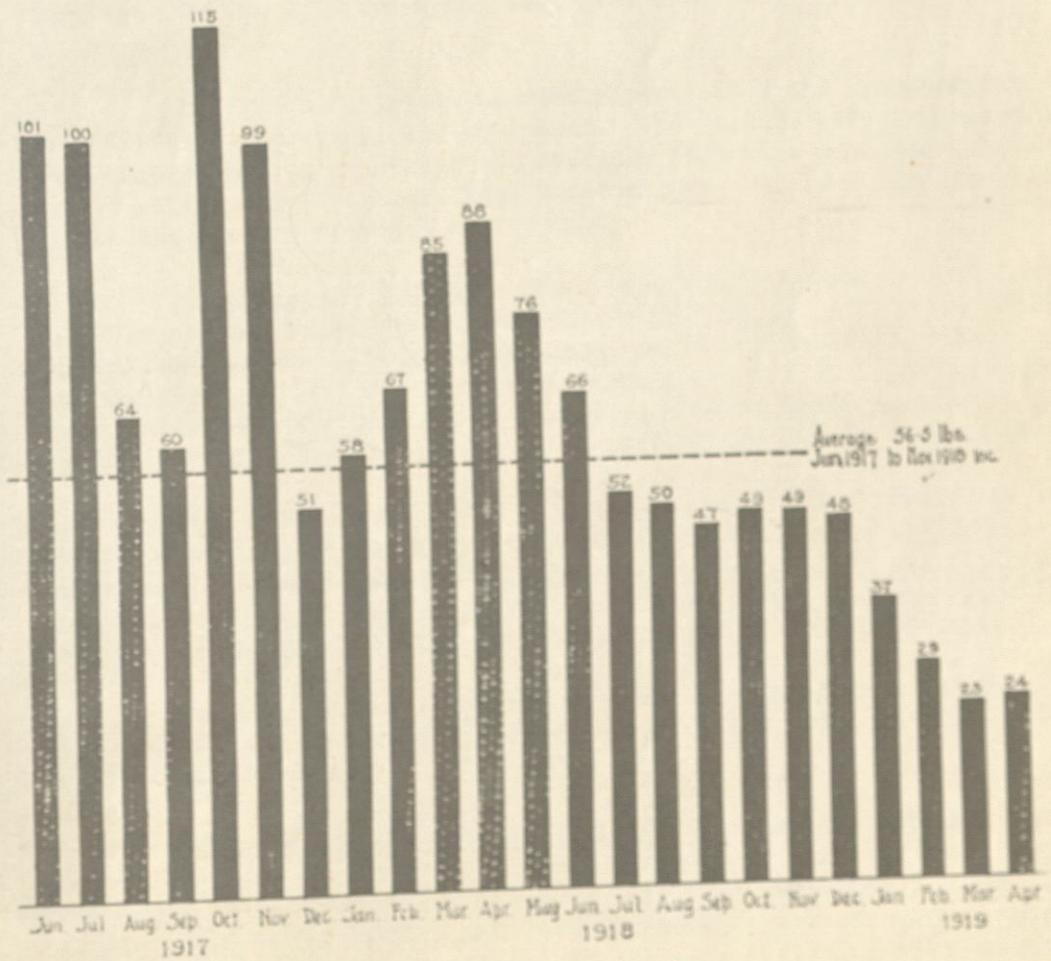


TOTAL RECEIPTS IN POUNDS PER MAN PER DAY

Includes material of every nature received by A.E.F. from all sources. Strength figures used are for end of month.

Source of information: Transportation Service, Hq. S.O.S.; G-1 and A.G.O., G.H.Q.; and Supply Services, Hq. S.O.S.

MONTHLY RECEIPTS IN POUNDS PER MAN PER DAY



TRANSPORTATION SERVICE

The Transportation Service was charged with the unloading of troops and supplies at base ports, their movement across France quickly and in sufficient volume, and the inception and design of all the transportation facilities necessary to meet the program of the Commander-in-Chief.

To accomplish this involved the procurement from the French of all berths they could possibly spare, the design of additional berths, the operation of trains over already congested French lines, the provision of storage in the Base, Intermediate and Advance Sections, and the acquisition of the necessary stevedore and railroad personnel.

RAILROADS USED: The railroad systems used by the A.E.F. comprised portions of several French roads aggregating some five thousand route miles, extending from thirty ports for an average distance of about five hundred miles to the Front as it existed in the summer of 1918.

As the American forces advanced additional lines were taken over comprising in all about one thousand route miles in the strip of territory between the 1918 front and the Rhine something over one hundred miles to the east.

The French railroads handled a portion of the troops and supplies with their own personnel and equipment. The balance were handled under the joint direction of French and American officials with American equipment. After the Armistice, American equipment was used almost exclusively for the western movement of troops.

PERSONNEL AND TONNAGE: The Transportation Service with less than 1,000 personnel began operations in June 1917 at one port - St. Nazaire. On the last day of November 1918, cargo was being unloaded at thirty ports and the strength of the Service had reached a total of 53,360 officers and men. After the signing of the Armistice some of these ports were closed, and this process continued during the rest of the A.E.F. stay in France.

All port operations were controlled by the Army Transport Service which operated as one of the divisions of the Transportation Service, and had charge of the unloading, reloading, and repair of ships in port, and the handling of all freight until turned over to the Railway Operating Department for shipment to the interior, or to port storage depots.

The average daily tonnage unloaded increased from 767 tons in July 1917 to 29,661 tons in October 1918, and the total to May 1, 1919 was 9,332,827 short tons.

ERECTION OF CARS AND LOCOMOTIVES: The erection of cars and locomotives from the United States, and the repair of those of France and Belgium began in December 1917, and from that time until May 1, 1919, 18,664 cars from the United States and 1,033 from other sources were erected, and 56,742 French cars were repaired. In the same period, 1,504 locomotives were erected for the A.E.F., and 102 for the French. In addition to these 359 locomotives were received from Belgium, overhauled and put into American

use, and on May 1, 1919 all but 32 of these had been returned to Belgium. During this period, the Transportation Service also repaired 1,943 French locomotives.

The following were some of the main projects designed by the Transportation Service and constructed by the Division of Construction and Forestry:

PORT DEVELOPMENT: The principal dock project of the American Army was that at American Bassens. The docks at this point consisted of ten berths of 410 feet each, served by four tracks along the front of the docks. Electric gantry cranes were used for unloading cargoes from ships and placing the supplies on cars. Immediately back of the dock tracks were classification sheds and warehouses. The project was also served by large receiving classification and departure yards and engine terminals, which were connected with the Paris-Bordeaux line of the Paris - Orleans Railway.

STORAGE: The major storage projects were those at Montoir, St. Sulpice, Gievres and Chateauroux. The principal regulating stations were at Is-sur-Tille and Liffol-le-Grand. Montoir and St. Sulpice were classed as base storage depots, and were constructed to receive general cargo from St. Nazaire and from the Bordeaux group of ports respectively. At both places, engine terminals were planned with proper facilities for watering, coaling, inspection and repairs - those at St. Sulpice being in operation.

Gievres and Chateauroux (also known as Montierchaume) were the two large Intermediate Storage Depots, Gievres being almost complete, while at Chateauroux less than one third of the total project had been built when all construction work was terminated by the Armistice.

In addition to their functions as Regulating Stations, Is-sur-Tille and Liffol-le-Grand combined those of Advance Storage Depots. The plans for Is-sur-Tille were made in conjunction with the French and differed considerably from the typical A.E.F. layout. They comprised receiving, classification, departure, and open and covered storage yards, and included a complete engine terminal. Liffol-le-Grand was a supplement to Is-sur-Tille. Practically all of the 408,000 square feet of covered storage had been completed, the tracks had been laid for the entire 1,144,000 square feet of open storage, and the engine terminal was about 80% completed.

TRACKING PROJECTS: One of the major track projects was the Nevers Cut-Off. This was constructed to avoid congestion of traffic entailed by the movement of trains through the Nevers yard. It also saved 8.6 miles of haul for American traffic. It was a double track railroad 5.5 miles long, and was put into service on October 19, 1918. Other major tracking projects were the four-tracking from Bourges to Pont Vert; third-tracking from Bassens to St. Sulpice, double-tracking at Nantes, connecting the Etat and Paris-Orleans Railroads at Nantes, the wye connection at Perigueux, and double-tracking necessary to connect the storage depot at Montoir with the port of St. Nazaire.

ENGINE TERMINALS: The engine terminals and yards, exclusive of those located at storage depots were at Saumur, Perigueux and Marcy. The plans included facilities for inspection, coaling, storing, watering and minor repairing of locomotives and the necessary yards.

Maps and plans of the projects at Bassens, St. Sulpice, Gievres and Is-sur-Tille are shown on pages following.

OPERATION OF CROSS CHANNEL FLEET

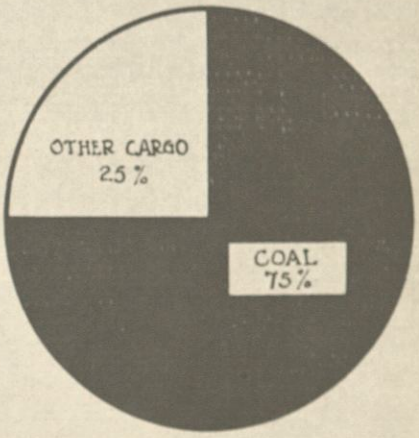
By "Cross Channel Fleet" is meant the fleet used for transporting A.E.F. supplies between the British Isles and France. This consisted largely of smaller vessels which were not suitable for transatlantic service and among which were some of the wooden vessels constructed by the Emergency Fleet Corporation.

Source of information: Office of Army Transport Service, Hq., S.O.S.

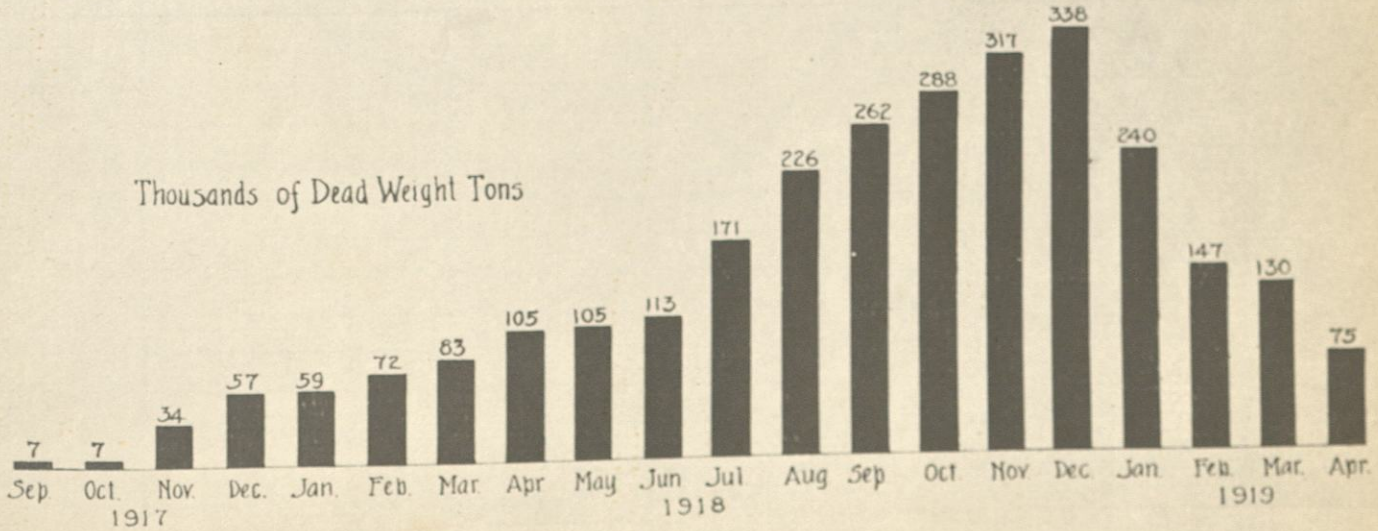
Cross Channel Discharges in France

Discharges to May 1, 1919

Short Tons	
Coal	1,868,476
Other Cargo	616,543
Total	2,485,019



Total Dead Weight Tonnage of Cross Channel Fleet - End of Each Month



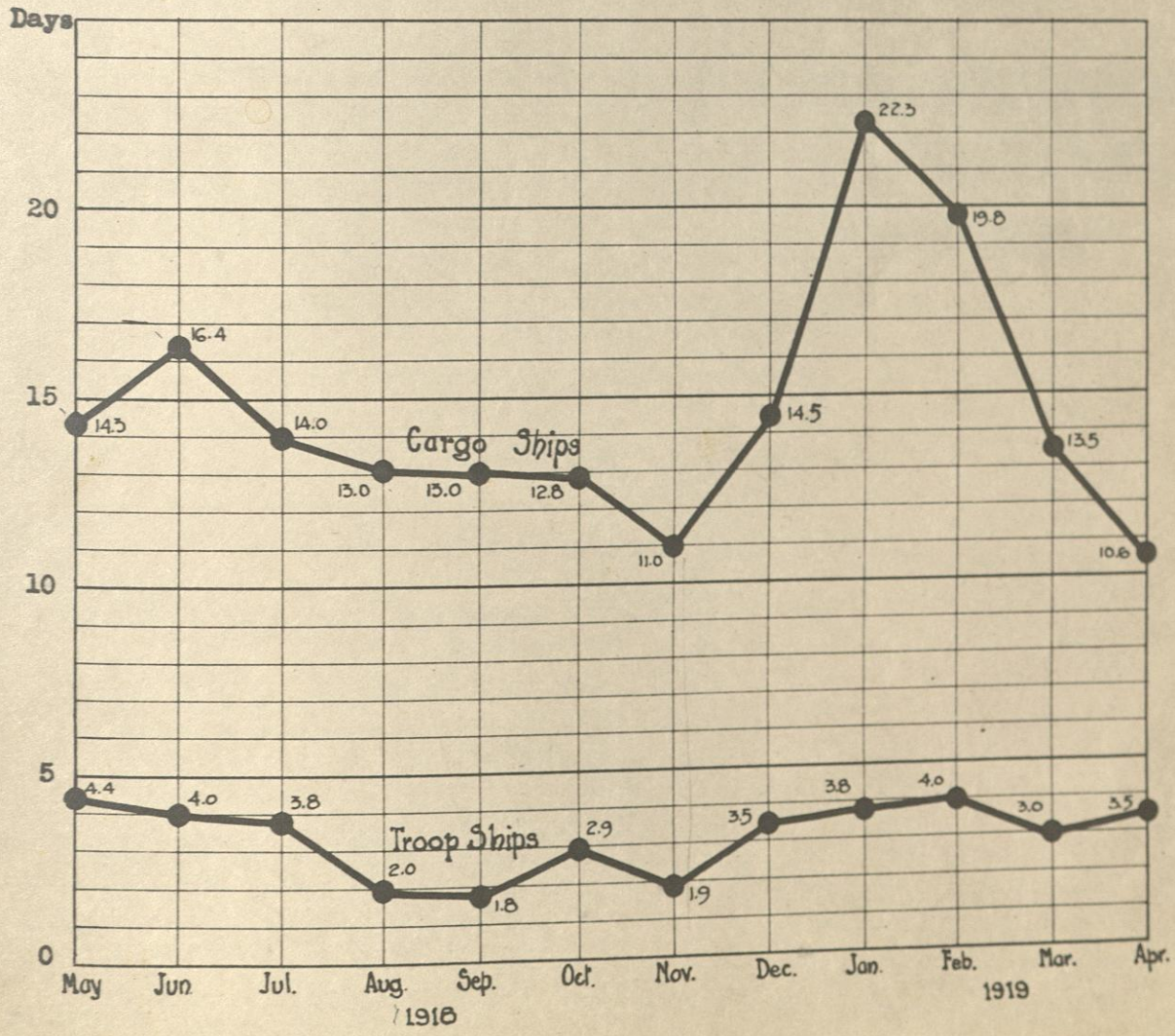
DETENTION OF TRANSATLANTIC SHIPS IN FRENCH PORTS

Army troop and cargo transports were operated by the Navy. Upon arrival at French ports they were turned over for discharge to the Army Transport Service, which upon completion of this task turned them back again to the Navy for return to the U.S.

Detentions here shown cover time in hands of A.T.S. only.

Source of information: Statistical Bureau, Transportation Service, Hq. S.O.S.

AVERAGE DETENTION BY ARMY TRANSPORT SERVICE



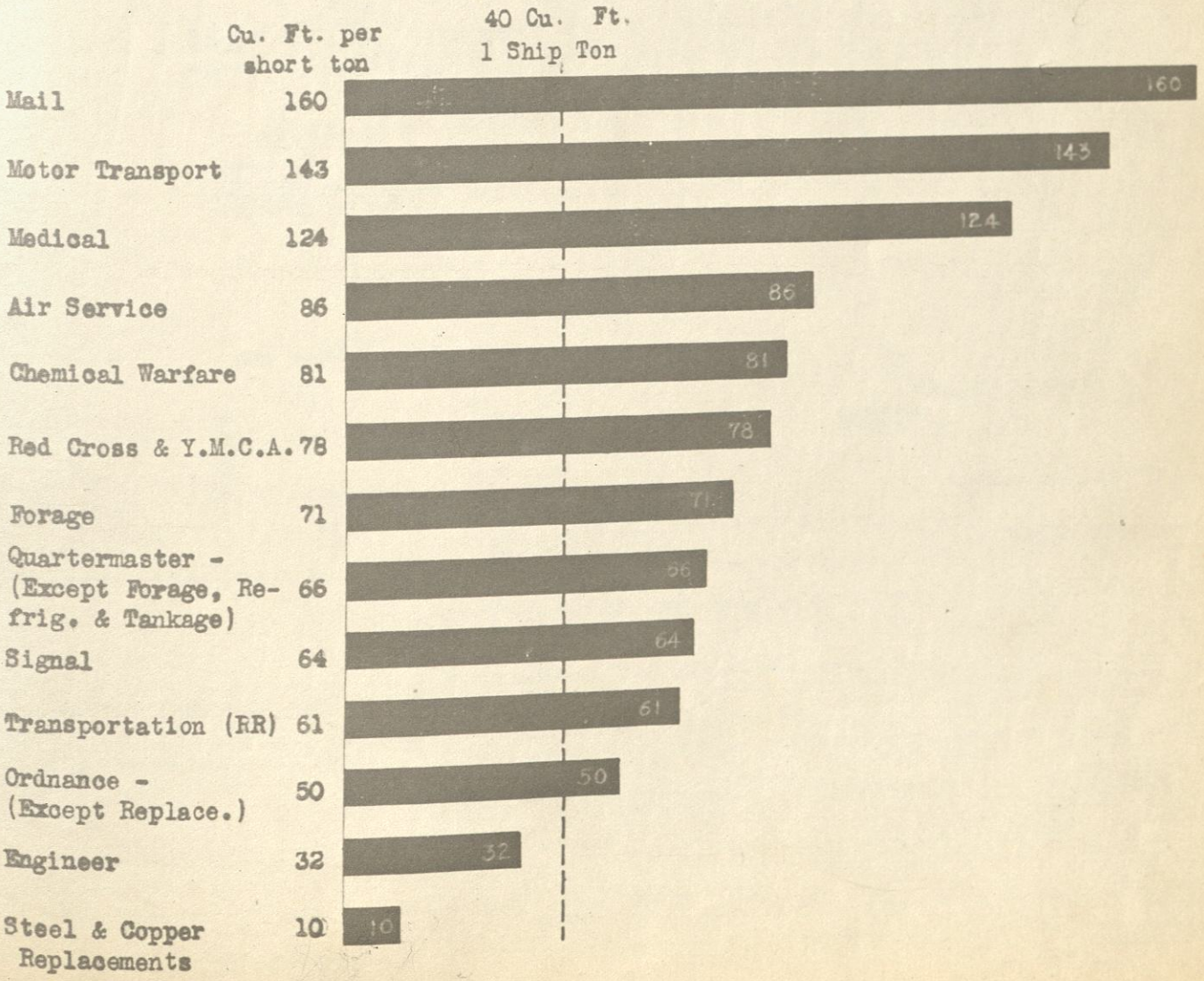
CUBIC FEET PER SHORT TON IN TRANSATLANTIC CARGO

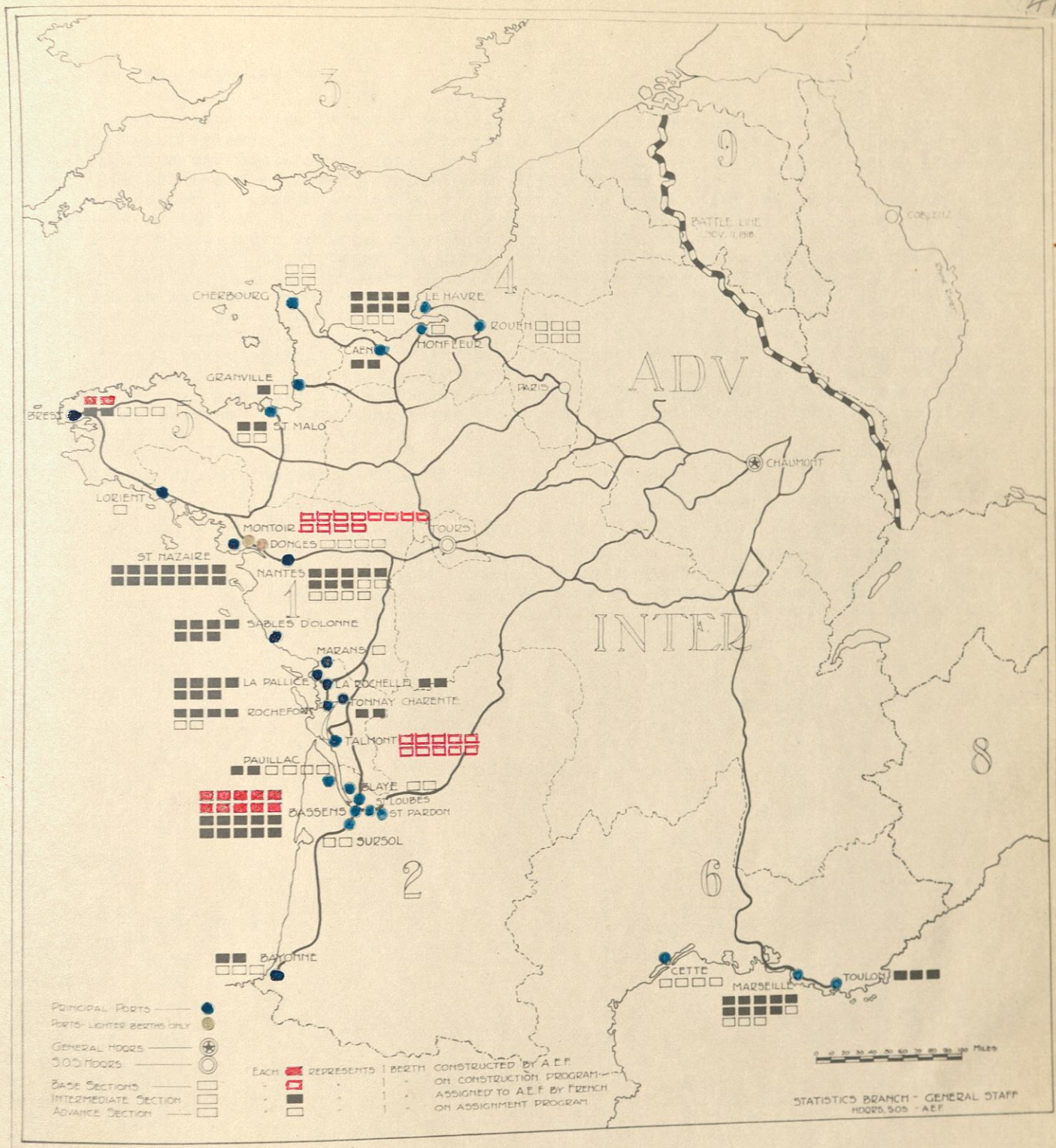
The character of material which the cargo transports were called upon to carry was extremely varied, this, of course, having its effect upon the cargo loading. The unit upon which cargo is based is the "ship" ton which may be defined as a short ton - 2,000 pounds, unless the material is of such a nature that 2,000 pounds of it will occupy more space than 40 cubic feet, in which case the ship ton is 40 cubic feet.

Figures on the relation between the short ton and the ship ton for various classes of supplies are therefore, of considerable value in estimating the shipping required to carry a certain tonnage of materials, and the diagram below gives the cubic feet per short ton of various classes of material, based upon an analysis of ship manifests for vessels arriving in French ports during the months of July to November 1918, inclusive.

The average for all cargo for these months was about 57 cubic feet per short ton. It will be noted that in only two cases, that of engineer supplies and steel and copper replacements, did the bulk of a short ton fall below 40 cubic feet.

Source of information: First Section, General Staff, Hq., S.O.S.





PORT DEVELOPMENT

The use by the British of the northern French ports and their lines of communication compelled the A.E.F. to confine its early plans largely to the western coast of France. Later, when the submarine menace became less acute in the Mediterranean the ports around Marseille were included in the program.

A large amount of new construction was initiated and plans were laid for a development by July 1, 1919, of a system capable of discharging 100,000 tons per day. This program and the extent of its accomplishment up to the date of the Armistice is shown below:

- Berth Program and Accomplishment -

	French Const.	Am. Const	Total
In use November 11, 1918	85	12	97
To be assigned or constructed	49	22	71
Total planned for July 1, 1919	134	34	168

The above does not include two lighterage berths in use November 11, 1918.
Upon the signing of the Armistice, all construction was cancelled except the completion of three berths of the Montoir project.

SUMMARY OF PORT OPERATIONS

In the following table ports have been divided into groups; the Bordeaux group covering the ports near Bordeaux, the St. Nazaire group those near St. Nazaire, etc. Wherever Bordeaux is mentioned in any succeeding pages, this is intended to mean the Bordeaux group, inasmuch as no American tonnage was actually unloaded at Bordeaux proper.

The number of berths available for American use are divided into three classes; those constructed by the A.E.F., those definitely assigned to the A.E.F. by the French, and certain other berths which were assigned as needed for temporary use.

The number and location of the latter varied from day to day, but at the time of the armistice averaged about 14, which have been apportioned in the table below among those ports where this practice was most prevalent. In addition to the berths which were available on November 11 there is shown in the column headed "program for July 1, 1919" the number of berths which were expected to be available upon that date, and in the last column the estimated discharge capacity.

It will be noted that many of the larger projects such as a 10-berth deep draft dock at Talmont, and an 8-berth dock at Montoir were not yet in operation. If the estimated discharge capacity had been realized it would have been possible by the middle of the summer to discharge 100,000 tons per day, or more than three times what was actually being accomplished at the time of the armistice.

Source of information: Statistical Bureau, Transportation Service, Hq., S.O.S.

GROUP	DATE		VESSEL BERTHS					Total short tons discharged to May 1'19	Average short tons per day Oct. 1918	Esti.daily discharge capacity July 1 '19
	Opened	Closed	Const'd. by A.E.F	Definitely assigned to A.E.F. by French	Tempo-rarily assigned by French	Total available November 11, 1918	Program for July 1, 1919			
BORDEAUX GROUP										
Fr. Bassens	10/17	- -	0	10	0	10	10			
Am. Bassens	4/18	- -	10	0	0	10	10			
Blaye	- -	- -	0	0	0	0	2	2,196,970	6,656	26,200
Pauillac	1/18	- -	0	2	0	2	6			
Sursol	- -	- -	0	0	0	0	2			
Talmont	- -	- -	0	0	0	0	10			
ST.NAZAIRE GROUP										
St.Nazaire	6/17	- -	0	14	0	14	14			
Montoir	3/19	- -	0	0	0	0	8	2,552,323	7,343	18,500
Donges	- -	- -	0	0	0	0	4			
MARSEILLE GROUP										
Marseille	6/18	- -	0	9	0	9	13			
Cette	- -	- -	0	0	0	0	4	487,301	2,947	15,000
Toulon	9/18	11/18	0	3	0	3	3			
LA PALLICE GROUP										
La Pallice	10/17	- -	0	7	0	7	7			
La Rochelle	- -	- -	0	0	2	2	2			
Marans	- -	- -	0	0	0	0	1	1,415,776	4,641	13,200
Tonnay Charante	- -	- -	0	0	2	2	2			
Rochefort	2/18	3/19	0	4	0	4	6			
BREST GROUP										
Brest	10/17	- -	2	2	0	4	7			
Granville	10/18	2/19	0	1	0	1	2	740,219	1,437	11,000
St. Malo	10/18	- -	0	2	0	2	4			
Lorient	- -	- -	0	0	0	0	1			
NANTES	10/17	4/19	0	8	0	8	14	906,455	3,350	7,000
LE HAVRE GROUP										
Le Havre	8/17	3/19	0	6	2	8	11			
Honfleur	- -	- -	0	0	0	0	1	563,261	1,721	4,000
Caen	- -	- -	0	0	2	2	2			
BAYONNE	3/18	2/19	0	0	2	2	5	96,433	448	2,500
ROUEN	3/18	2/19	0	0	0	0	6	210,379	831	2,000
LES SABLES	8/18	3/19	0	3	4	7	7	53,398	254	1,600
CHERBOURG	6/18	12/18	0	0	0	0	4	7,195	33	- -
ROTTERDAM	3/19	- -	0	0	0	0	0	58,393	- -	- -
ANTWERP	3/19	- -	0	0	0	0	0	42,724	- -	- -
TOTAL			12	71	14	97	168	9,332,827	29,661	101,000

PORT UNLOADING CAPACITIES

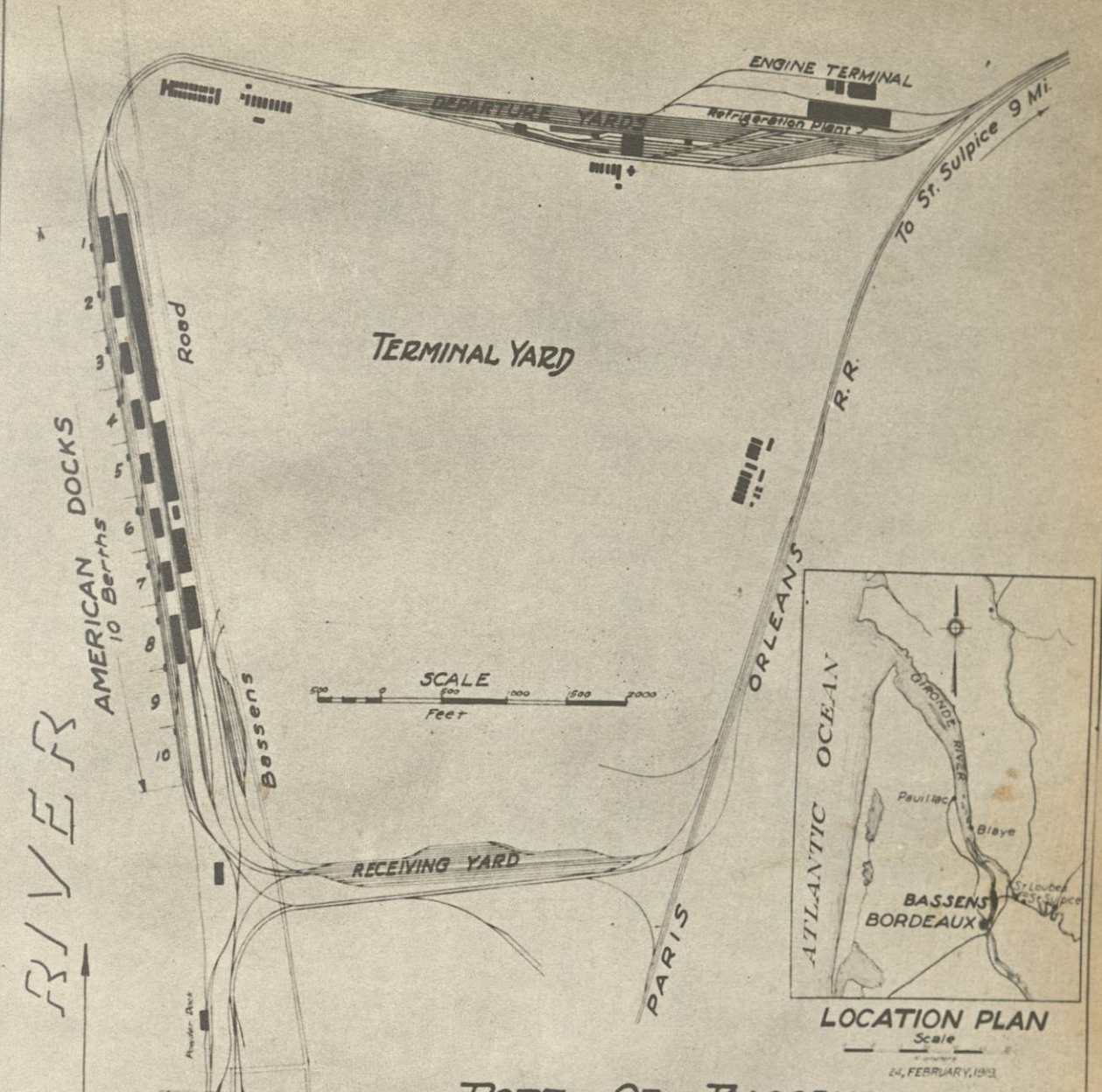
Plans for port development were laid for a discharge capacity by July 1, 1919 of approximately 100,000 tons per day, or 50 pounds per man per day for an army of 5,000,000. At the time of the Armistice the average daily discharge was nearing 30,000 tons, and the American type of docks equipped with gantry cranes such as the American Bassens were just getting under way.

It was expected that the above dock would alone handle 12,600 tons per day as against 4,500 tons for the adjoining French dock of the same number of berths.

The groups shown below comprise the ports listed in the table of Summary of Port Operations on the preceding page.

Source of information: Statistical Bureau, Transportation Service, Hq. S.O.S.

Group	Short tons Daily Disch. Oct.	Est.Cap July 1, 1919	Daily Discharge October / Estimated Capacity July 1, 1919
Bordeaux	6,656	26,200	
St. Nazaire	7,343	18,500	
Marseille	2,947	15,000	
La Pallice	4,641	13,200	
Brest	1,437	11,000	
Nantes	3,350	7,000	
Le Havre	1,721	4,000	
Bayonne	448	2,500	
Rouen	831	2,000	
Les Sables	254	1,600	
Cherbourg	33	0	



· PORT · OF · BASSENS ·

The American Docks at Bassens, constituting the largest port development project completed by the American forces in France, were begun November 11, 1917, and four months later docked their first ship. They were located six miles from Bordeaux on the Garonne River, and were 4,100 feet long, and with accommodations for ten vessels. A ten-berth project directly adjoining and known as French Bassens, was turned over to the A.E.F. for its use, the whole constituting the port of Bassens.

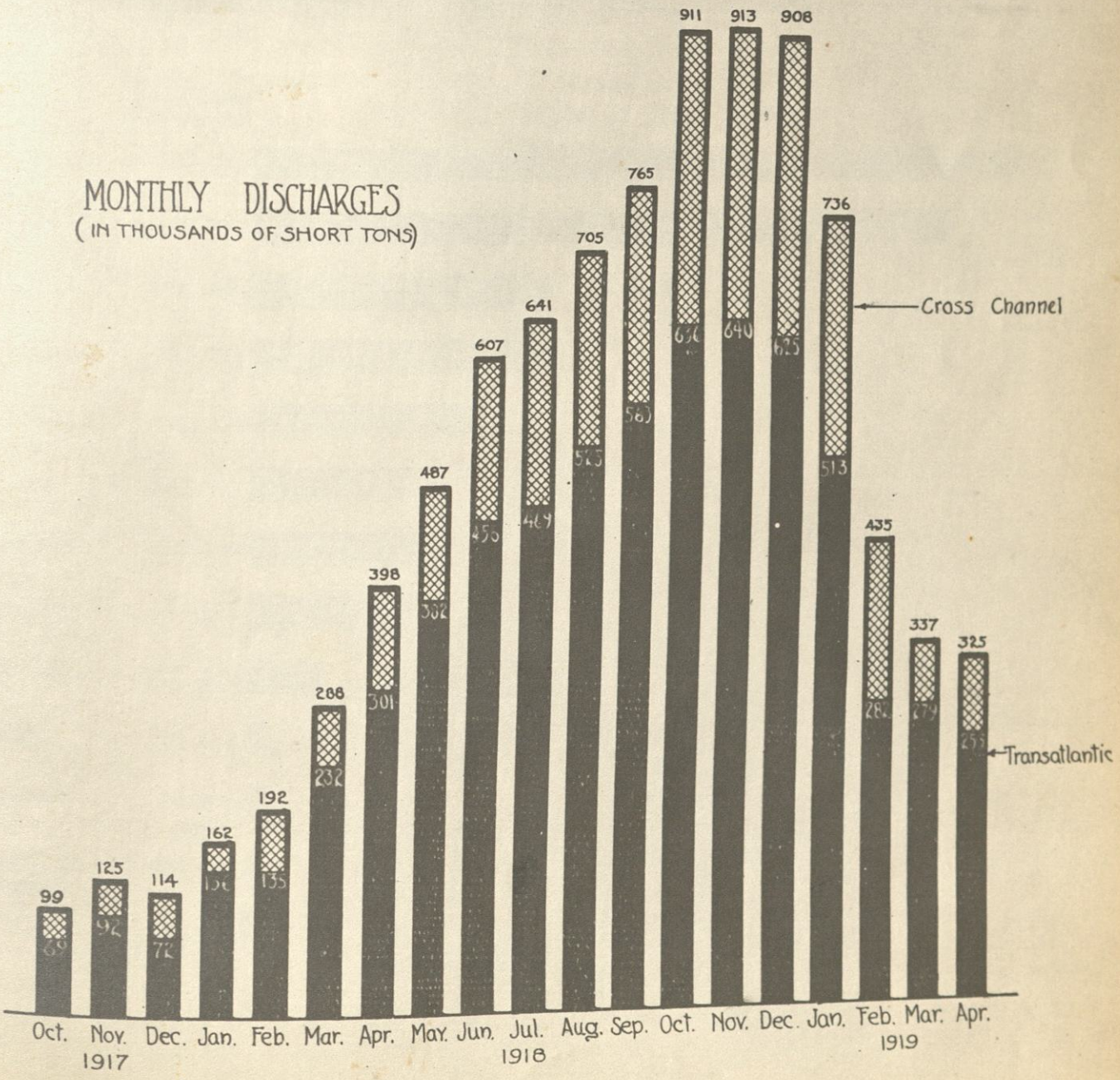
Extending along the entire length of the docks were four railroad tracks, three of which, on the American section, were spanned by 20 of the most modern electrically operated Gantry cranes; supplies being loaded directly from the ships into the cars. On the French docks, 19 stationary steam cranes handled the freight from the ships to the waiting cars.

A comprehensive trucking system for serving the docks, including receiving and departure yards, connecting with the Paris-Orleans Railway main line, and with the St. Sulpice storage depot, was constructed, and large warehouses were erected along the docks for storage purposes. The covered storage space so furnished was 950,000 square feet at the docks alone.

CARGO DISCHARGED IN FRANCE MONTHLY

No monthly figures for transatlantic and cross channel cargo are available previous to October 1917. This tonnage for the four preceding months amounted to 111,000 short tons.

Source of information: Statistical Bureau, Transportation Service, Hq. S.O.S.



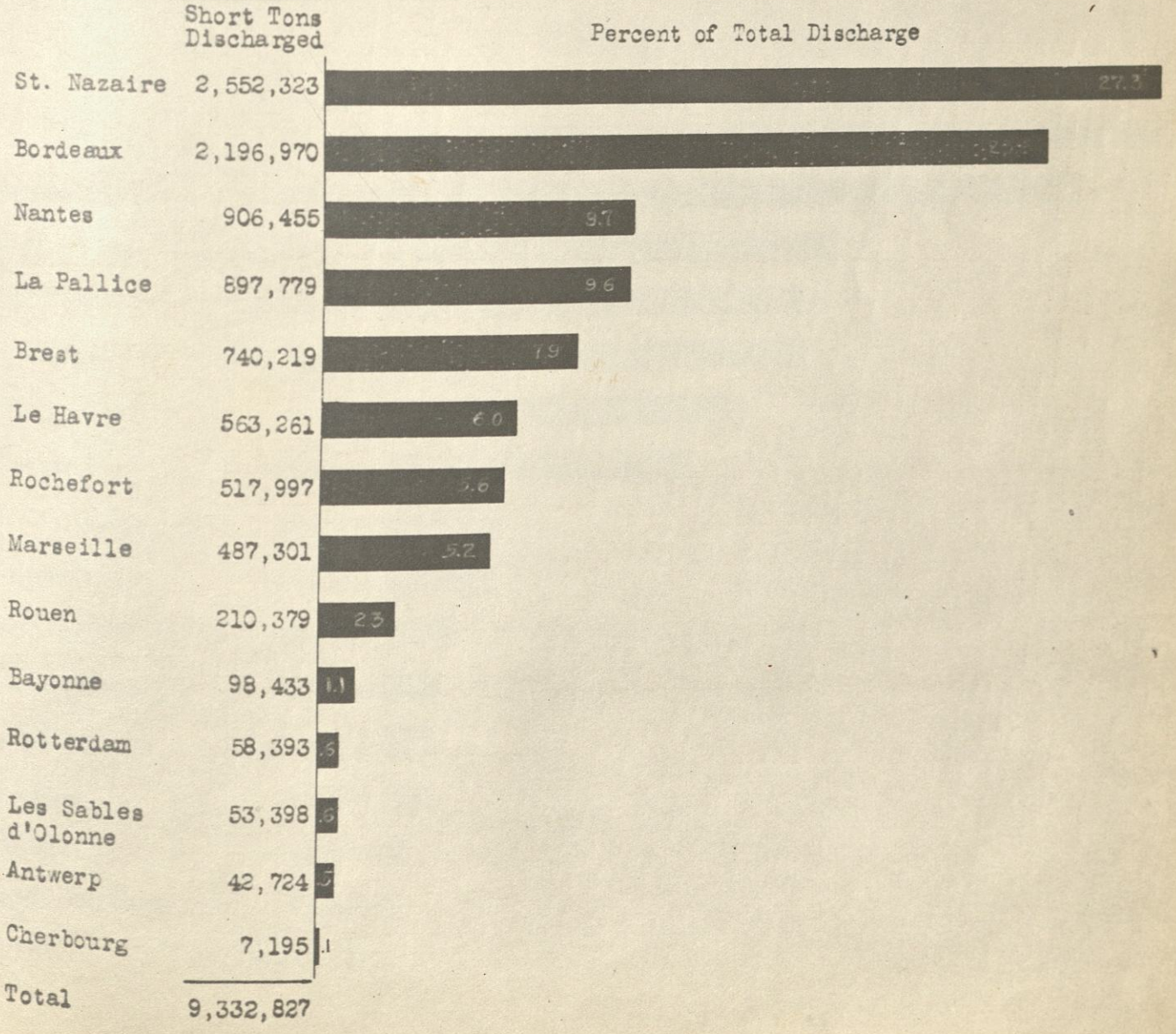
TOTAL TONNAGE DISCHARGED IN FRANCE, BY PORTS

In the following diagram the total tonnage discharged in France for the A.E.F. to May 1, 1919, is given by ports, and it will be noted that these coincide with the port groups given in the table on the Summary of Port Operations, with the exception of Rochefort. This is given separately below, although included with the La Pallice group in the table above referred to.

The greatest tonnage was unloaded at the port of St. Nazaire, but had the plans for construction matured, the Bordeaux group would have become the largest point of discharge.

Figures given are as reported by the Transportation Service, which did not report upon a number of the smaller ports separately, but included them in the group discharges below.

Sources of information: Statistical Bureau, Transportation Service, Hq., S.O.S.

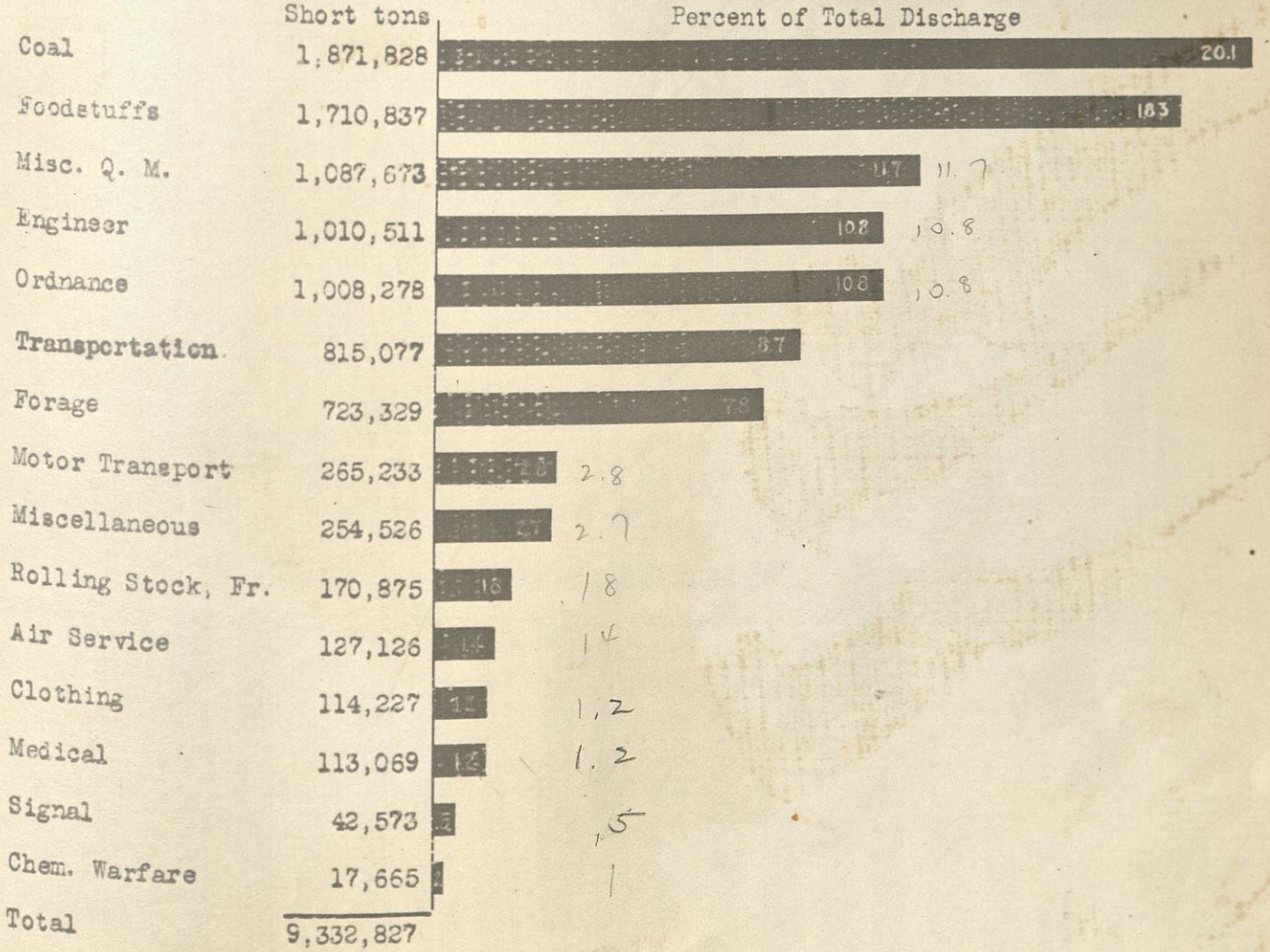


CLASSIFIED CARGO DISCHARGED IN FRANCE, TO MAY 1, 1919

The figures below cover the cargo of all classes discharged in France for the A.E.F. and include transatlantic and cross-channel, as well as 77,760 tons of interport cargo, this being material which was simply transported from one port to another by water.

Of this interport cargo, 28 per cent was foodstuffs, and 49 per cent engineer material.

Source of information: Statistical Bureau, Transportation Service, Hq., S.O.S., and Statistics Branch, General Staff, Washington.



RELATION OF TRANSATLANTIC CARGO DISCHARGED TO STRENGTH OF A.E.F.

The figure of 30 lbs per man per day is an estimate of probable needs made in the spring of 1918 and is given here for comparison only.

It was not used as a basis for requirements or priority schedules which were made up from studies of specific needs and availabilities.

Strength figures used are for end of month.

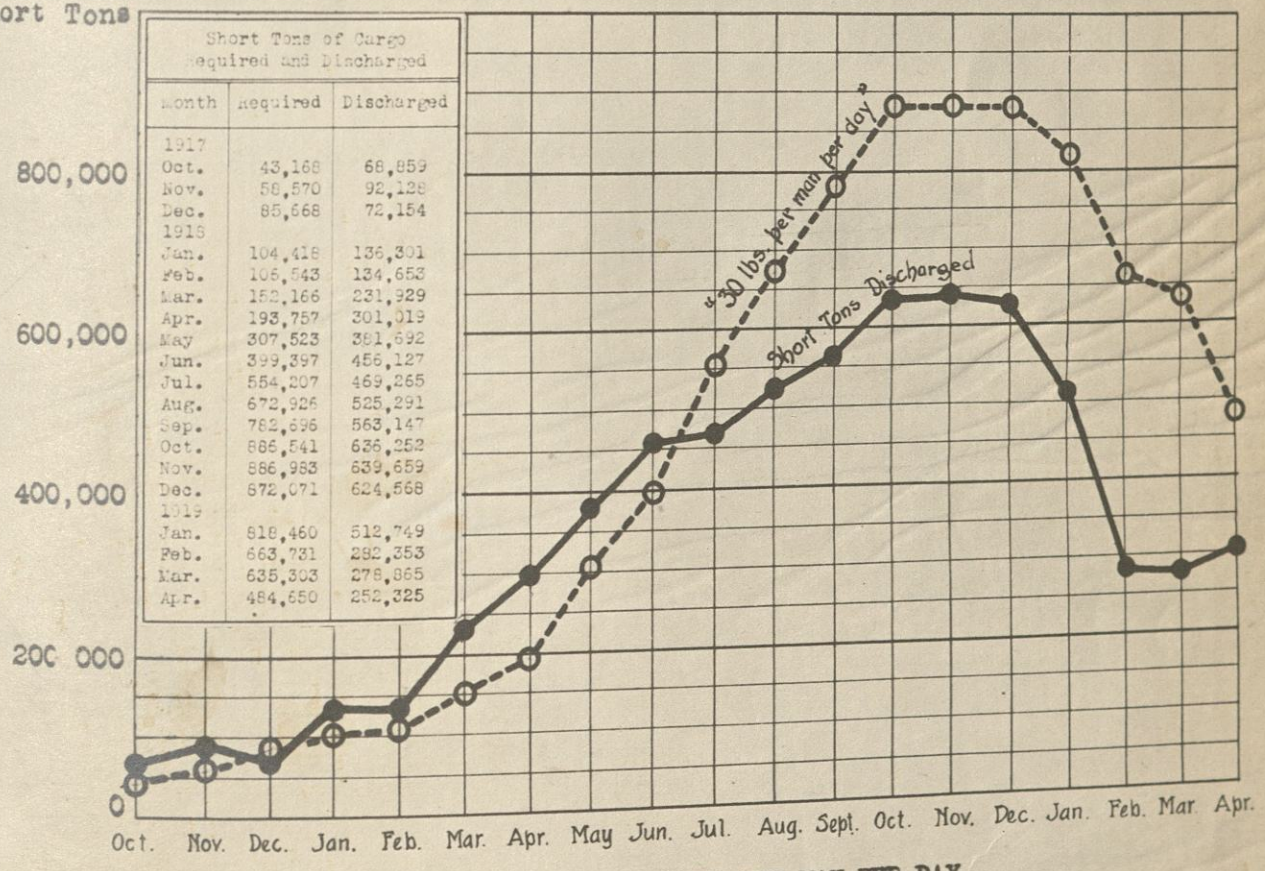
Source of information: Transportation Service, Hq. S.O.S.; G-1, and A.G.O., G.H.Q.

MONTHLY DISCHARGES VS 30 POUNDS PER MAN PER DAY

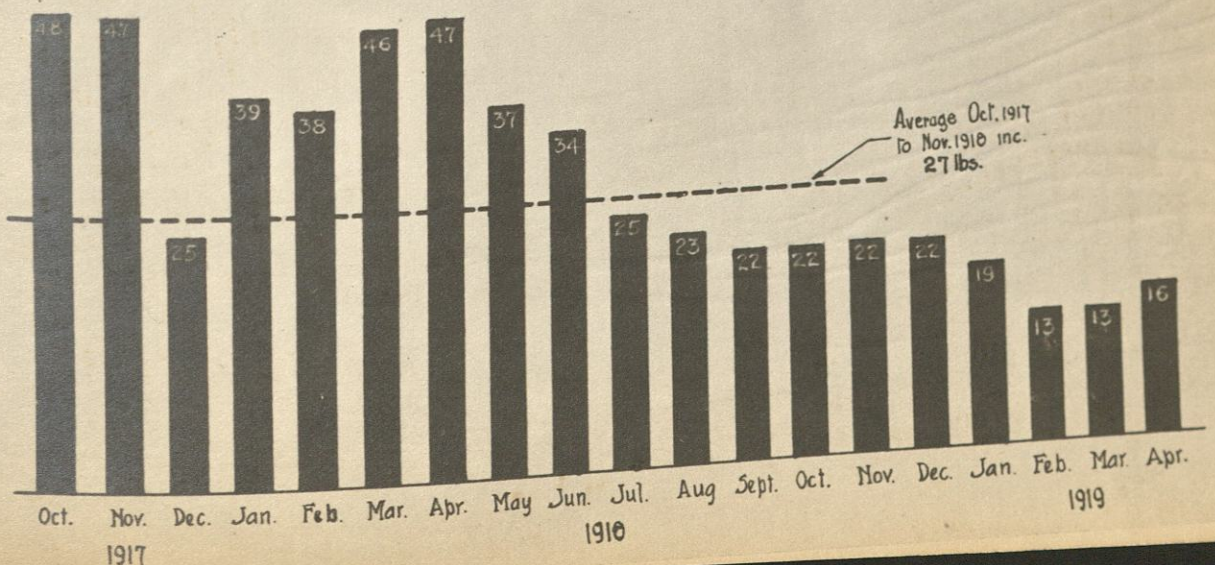
Short Tons

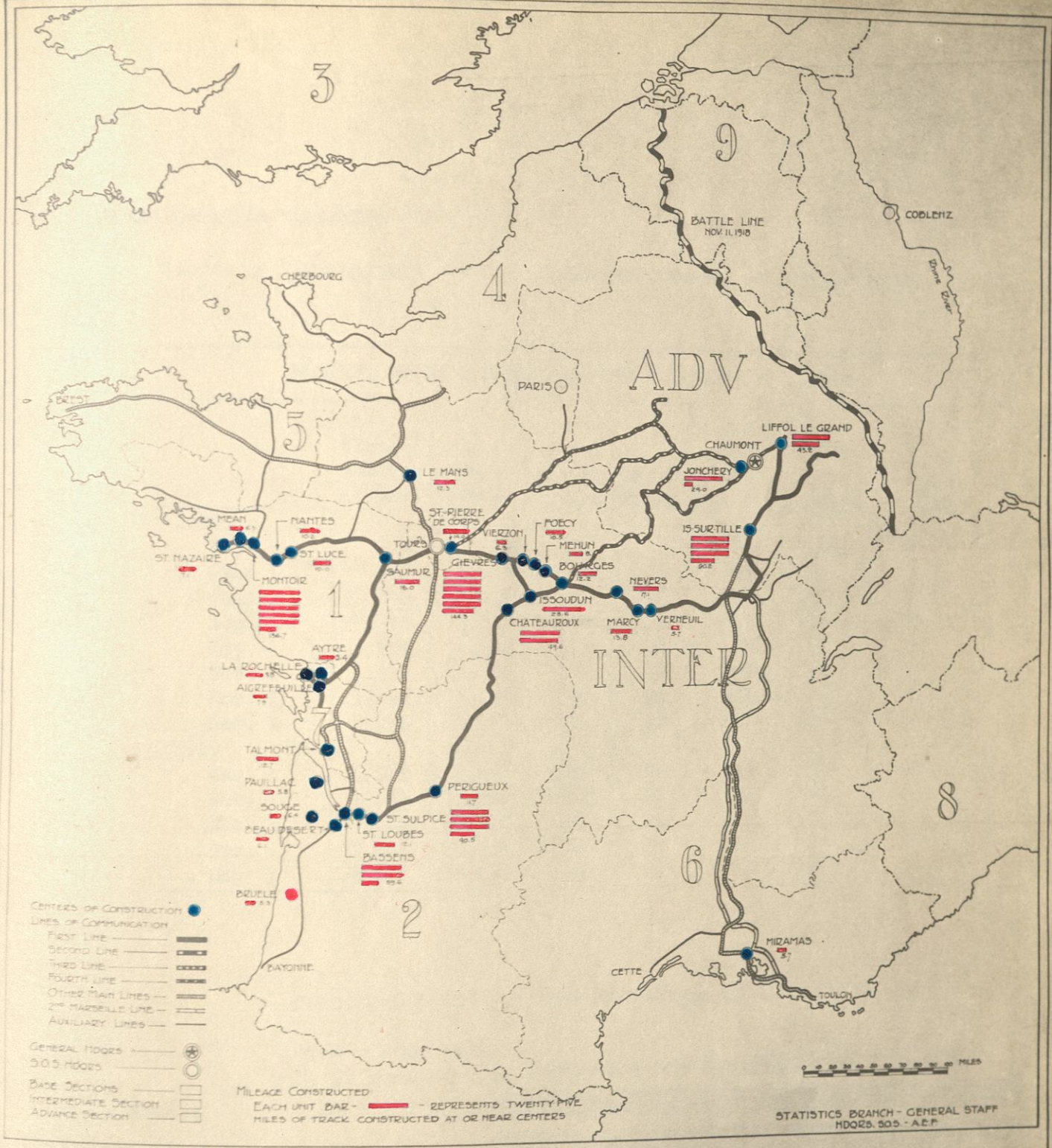
Short Tons of Cargo Required and Discharged

Month	Required	Discharged
1917		
Oct.	43,168	68,859
Nov.	58,570	92,128
Dec.	85,668	72,154
1918		
Jan.	104,418	136,301
Feb.	106,543	134,653
Mar.	152,166	231,929
Apr.	193,757	301,019
May	307,523	381,692
Jun.	399,397	456,127
Jul.	554,207	469,265
Aug.	672,926	525,291
Sep.	782,696	563,147
Oct.	886,541	636,252
Nov.	886,983	639,659
Dec.	872,071	624,568
1919		
Jan.	818,460	512,749
Feb.	663,731	282,353
Mar.	635,303	278,865
Apr.	484,650	252,325



POUNDS DISCHARGED PER MAN PER DAY





MAIN · LINES · OF · COMMUNICATION · - · AND · CENTERS OF · AMERICAN · RAILROAD · CONSTRUCTION

The lines of communication available to the American Army in France were, for reasons previously outlined, based essentially upon Atlantic Ports and the railways connecting these ports with the front in eastern France.

These roadbeds were found to be in surprisingly good condition and it was estimated that the first line of communication shown above would carry 25,000 tons per day - the second line 15,000 tons additional, and the third line a still further 10,000 tons, making a total of 50,000 tons per day.

The main need was for locomotives, rolling stock, terminal facilities and storage and classification yards, and to these the American effort was confined.

The total standard gauge construction to May 1, 1919, was 1002.028 miles and the location and extent of each project of 5 miles or over is shown to scale upon the map above.

TRANSPORTATION EQUIPMENT

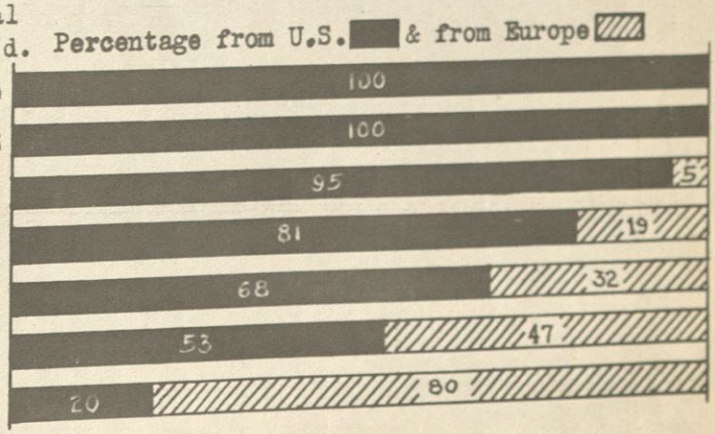
Source of information: Office of Director General of Transportation, Hq. S.O.S.

ROLLING STOCK ERECTED AND PORT EQUIPMENT AVAILABLE

	*Locomotives on hand	Cars Erected	Locomotive Cranes	Gantry Cranes	Barges and Lighters	Tugs and Tenders	Floating Derricks
1918							
May 1	303	692	56	0	25	4	0
June 1	405	1,869	64	0	50	11	0
July 1	585	3,242	64	6	59	12	2
Aug. 1	678	4,887	110	6	61	13	2
Sep. 1	870	7,481	119	8	73	17	2
Oct. 1	1,112	10,147	131	8	105	18	2
Nov. 1	1,262	12,808	128	16	191	24	2
Dec. 1	1,396	15,275	140	19	237	35	4
1919							
Jan. 1	1,538	17,619	149	31	242	38	4
Feb. 1	1,506	19,082	155	40	238	38	5
Mar. 1	1,581	19,419	137	40	226	34	5
Apr. 1	1,546	19,636	109	40	221	37	5
May 1	1,538	19,697	61	40	207	35	5

PROCUREMENT FROM U.S. AND FROM EUROPE TO MAY 1, 1919

	From U. S.	From Europe	Total Rec'd.
Gantry Cranes	40	0	40
Floating Derricks	5	0	5
Stan. Gauge Cars	18,664	1,033	19,697
Stan. Gauge Locos.	1,508	359	*1,867
Tenders and Tugs	26	12	38
Barges & Lighters	132	118	250
Locomotive Cranes	32	127	159



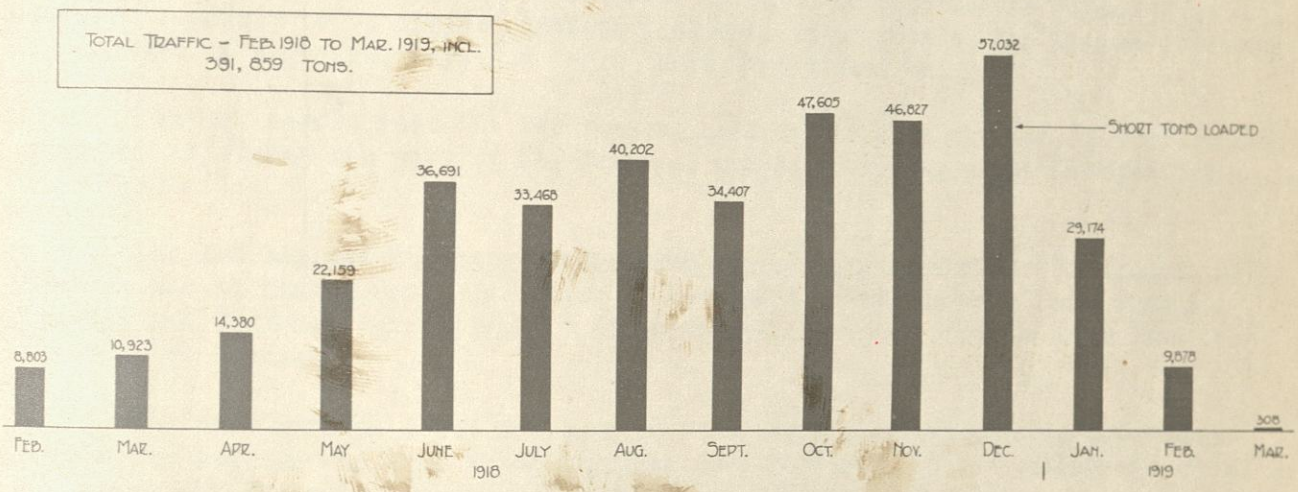
*Does not include 500 German locomotives turned over according to terms of the Armistice, but does include 175 American Consolidated locomotives erected and turned over to the French up to March 1, 1919.

~~61~~
51

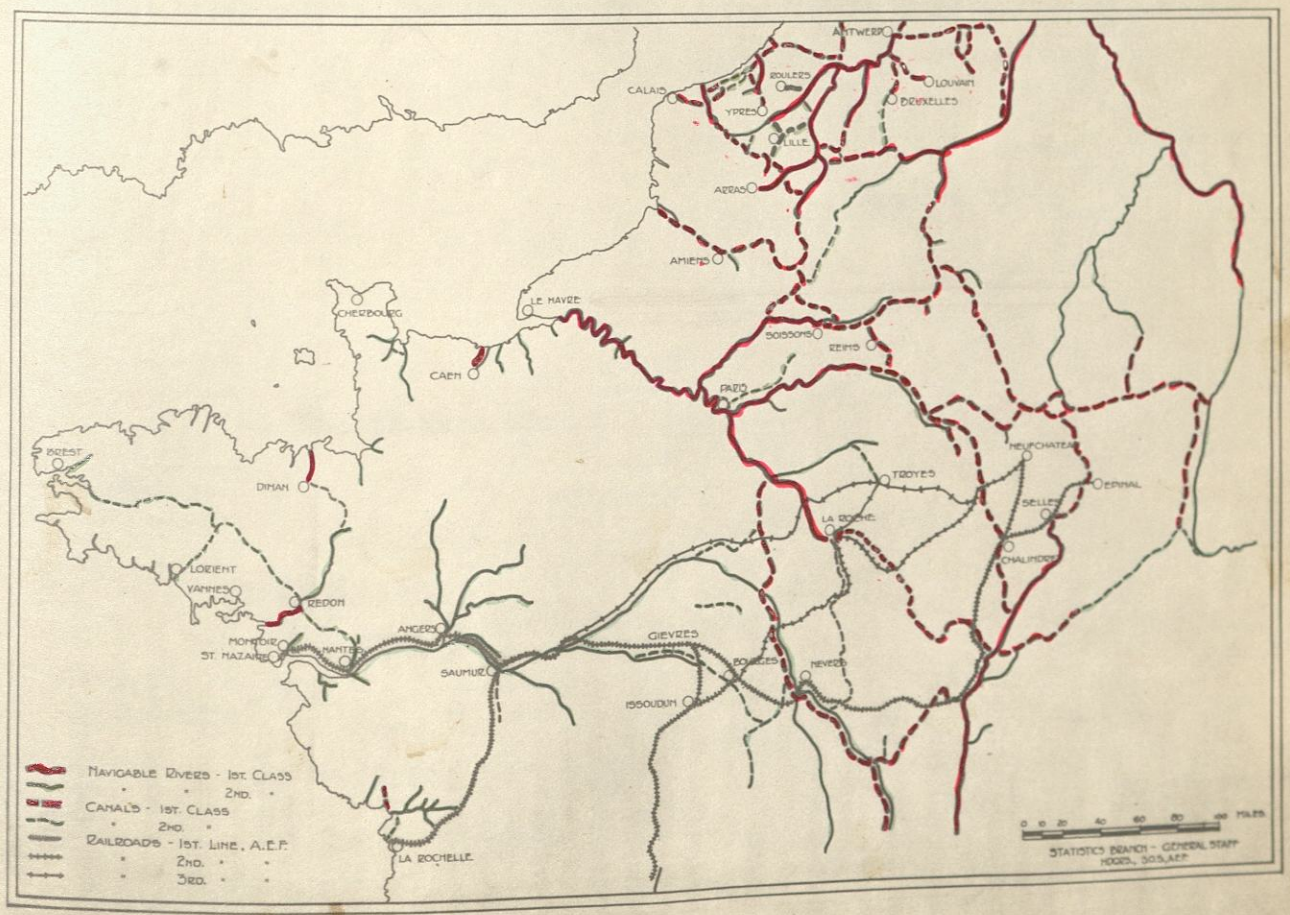
INLAND WATERWAY TRANSPORTATION

SOURCE OF INFORMATION: HISTORICAL OFFICER, TRANSPORTATION SERVICE, HQ., S.O.S., A.E.F.

MONTHLY A.E.F. INLAND WATERWAY TRAFFIC



INLAND WATERWAYS OF NORTHERN FRANCE & BELGIUM



THE STORAGE PROBLEM

When it was decided that the principal ports to be used by the A.E.F. should be those of Western France; - principally the St. Nazaire and Bordeaux groups, it was evident that the chief storage depots must be located along the main lines of communication connecting those ports with the battle line in Eastern France.

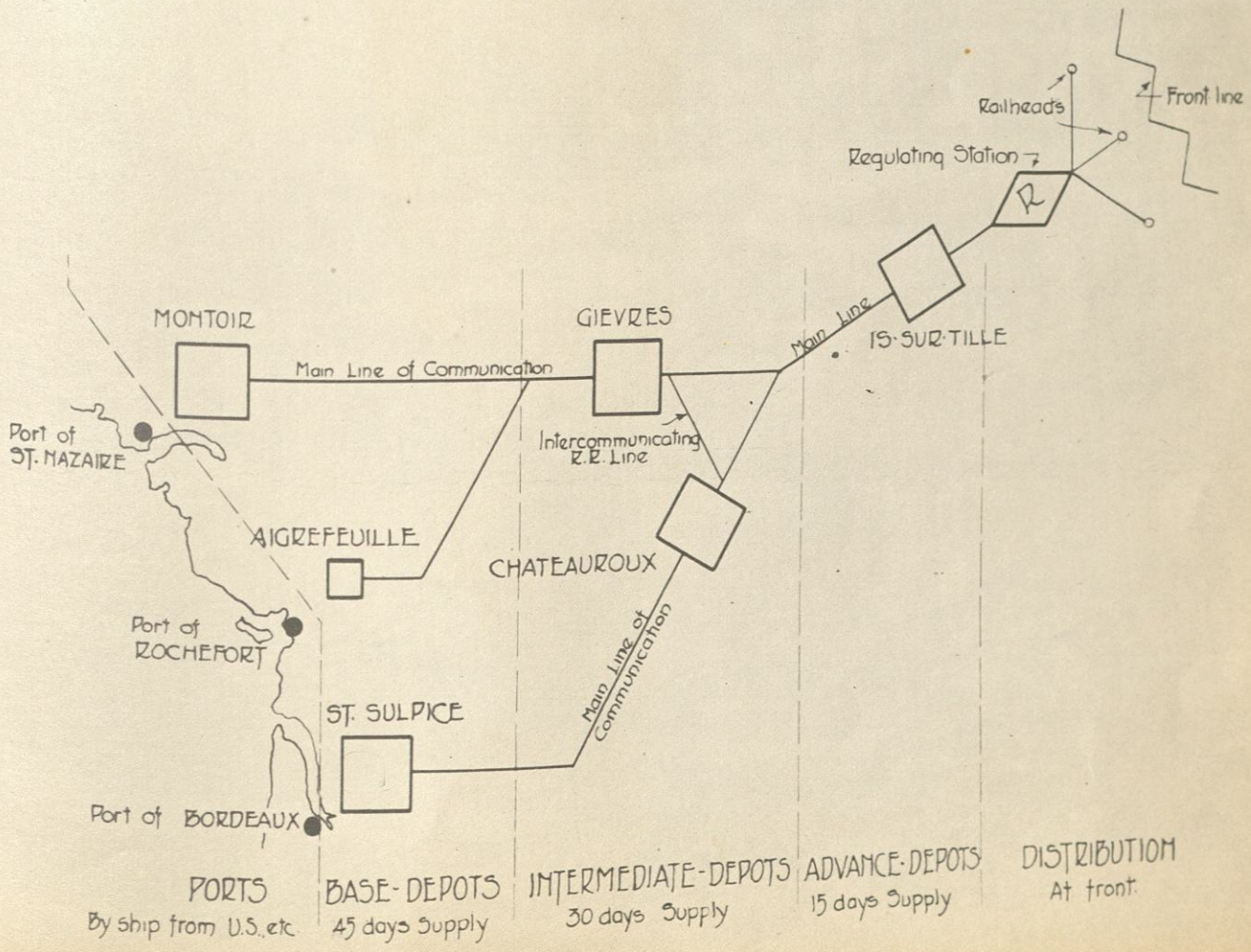
Further, the order of the Commander in Chief to provide for 90 days' (later 45 days') supply to be divided between the Base, Intermediate, and Advance sections, determined in a general way, how large these depots must be.

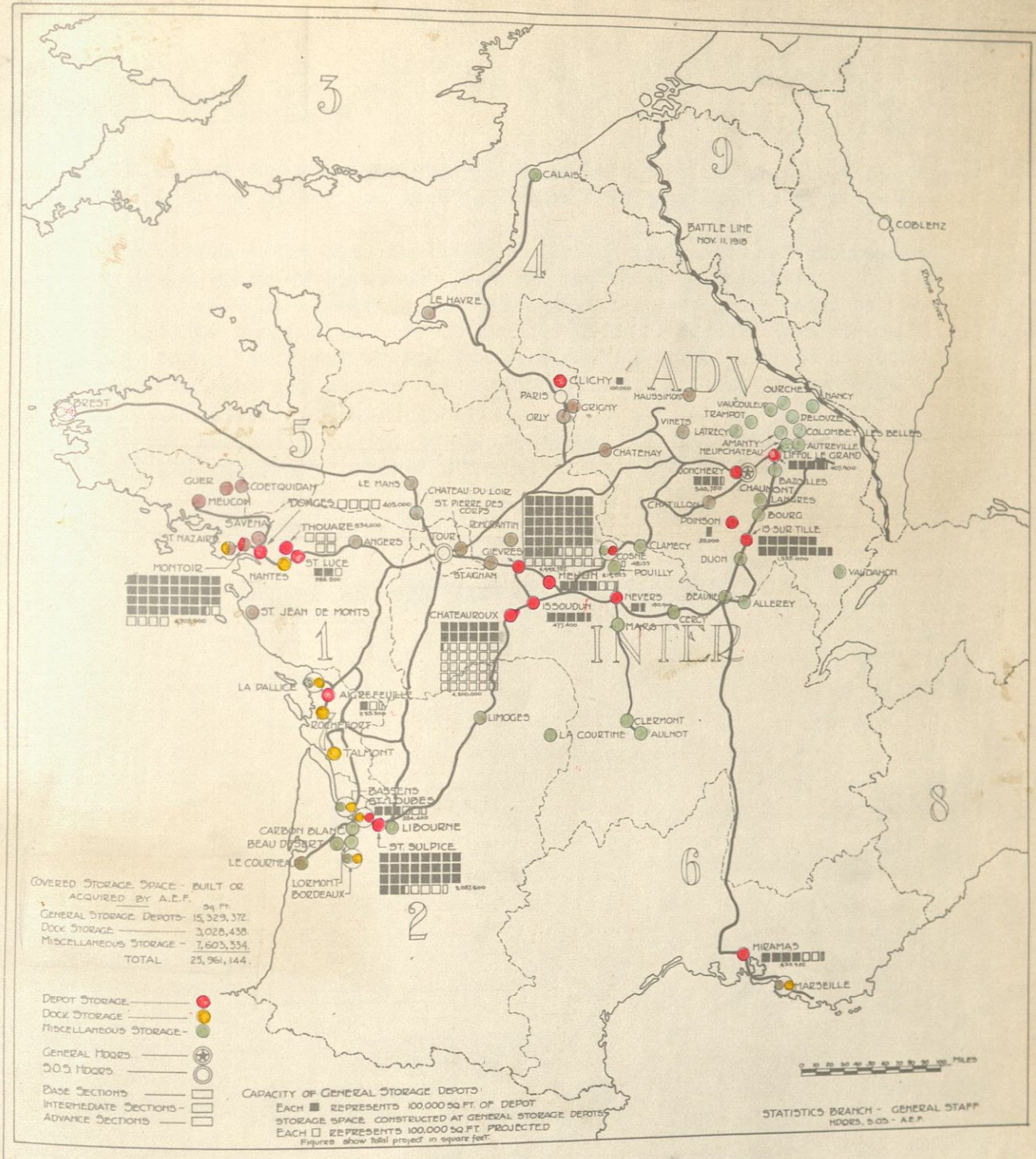
The net result was that two immense base depots were planned and constructed, Montoir, adjoining the port of St. Nazaire, and St. Sulpice, about 15 miles from Bordeaux.

The two big intermediate depots were placed about the center of France, at Gievres and at Chateauroux, just west of the junction of the main lines from St. Nazaire and Bordeaux respectively. Intercommunication was provided by a line from Issoudun to Gievres.

The main advance depot was located at Is-sur-Tille, which also acted as a regulating station and from which supplies were forwarded to the railheads serving the combatant forces.

This is shown graphically in the diagram below. There were, of course, many depots at other points, but the main flow of traffic was along the lines indicated.





STORAGE DEPOTS

Storage requirements for the A.E.F. necessitated the construction at the ports and in the Intermediate and Advance Sections of great General Storage Depots. In these, the relative size of which is shown graphically on the above map (each unit - ■ - equivalent to a warehouse 1000 feet long and 100 feet wide) covered storage space sufficient to house supplies for 3,000,000 men for 45 days was provided.

In addition, however, much other storage space had to be provided for such purposes as the care of goods in transit through the ports and the housing of miscellaneous supplies intended for local use and consumption. The locations of these latter projects are shown above as Dock Storage and Miscellaneous Storage, respectively.

Of the total of 25,961,144 square feet of covered storage space available, about 90% was constructed by the A.E.F. and 10% taken over from the French.

DEPOT COVERED STORAGE SPACE

Early in the war the Commander-in-Chief laid down the principle that there should at all times be kept on hand in France a 90 days supply for the entire A.E.F.

The best estimates then available indicated that to house this reserve covered storage space of 21 square feet per man would be required.

Later experience - notably the discovery that many goods could be stored in the open under tarpaulins without serious injury - reduced this figure to nine square feet. This amount was for storage of reserve only and did not include space required for storage of materials in transit through ports, nor that for goods intended for local consumption.

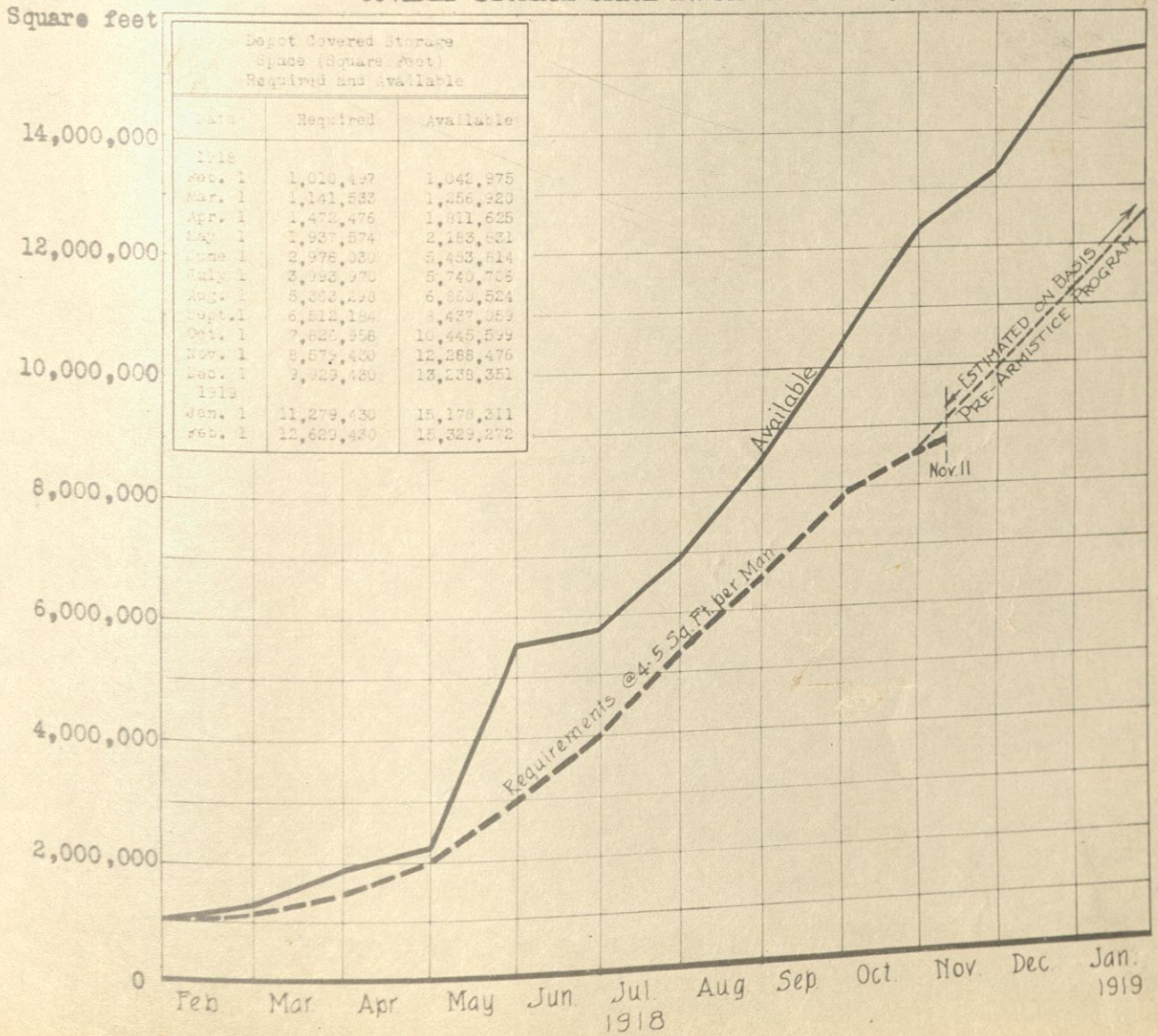
With the reduction of the submarine menace the required reserve was cut to 45 days, and the necessary covered storage to 4.5 square feet per man.

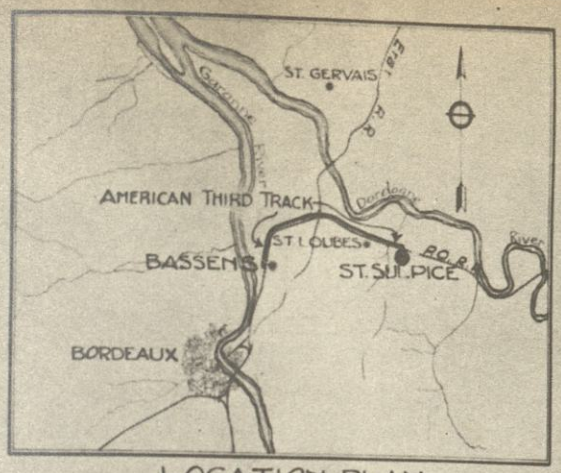
Source of information: Office of Director of Construction and Forestry, Hq. S.O.S.

COVERED STORAGE SPACE AVAILABLE AND REQUIRED

Depot Covered Storage Space (Square Feet) Required and Available

Date	Required	Available
1918		
Feb. 1	1,010,447	1,042,975
Mar. 1	1,141,533	1,256,920
Apr. 1	1,472,476	1,811,625
May 1	1,937,874	2,183,821
June 1	2,976,080	5,483,614
July 1	3,998,970	5,749,706
Aug. 1	5,302,498	6,860,524
Sept. 1	6,812,184	8,437,089
Oct. 1	7,622,958	10,445,599
Nov. 1	8,579,430	12,288,476
Dec. 1	9,929,480	13,238,351
1919		
Jan. 1	11,279,630	15,178,211
Feb. 1	12,629,480	18,329,272





LOCATION PLAN

SCALE IN KILOMETERS

SCALE IN MILES

ST. SULPICE STORAGE DEPOT

SCALE

Feet

24, FEB., 1919

ST. SULPICE BASE STORAGE DEPOT

This Big Base Depot was located fifteen miles northeast of Bordeaux and nine miles from Bassens, as shown on the small location plan above. It was built to provide storage facilities for the overflow of the Bassens docks, with which it was connected, not only by the main line of the Paris-Orleans Railway, but by a special track built by the American Engineers as well.

Whenever possible, material unloaded at the docks was sent inland, but this was not always possible, and some depot of this kind was necessary.

The general lay-out of the depot, in accordance with American practice, resembled a huge feather, the main tracks forming the central ribs, with the warehouse sidings emerging at an angle therefrom.

The track of land occupied was three miles in length and three-quarters of a mile wide. The original plan called for 140 warehouses, 90 feet wide and 600 to 900 feet long. The status at the time of the Armistice when construction work was stopped was:

	107
Number of warehouses built	
Covered storage space	2,627,000 sq. ft.
Open storage space	3,760,000 sq. ft.
Railroad track laid	90.5 miles

STATISTICS BRANCH GENERAL STAFF
No. 505 A.E.F.

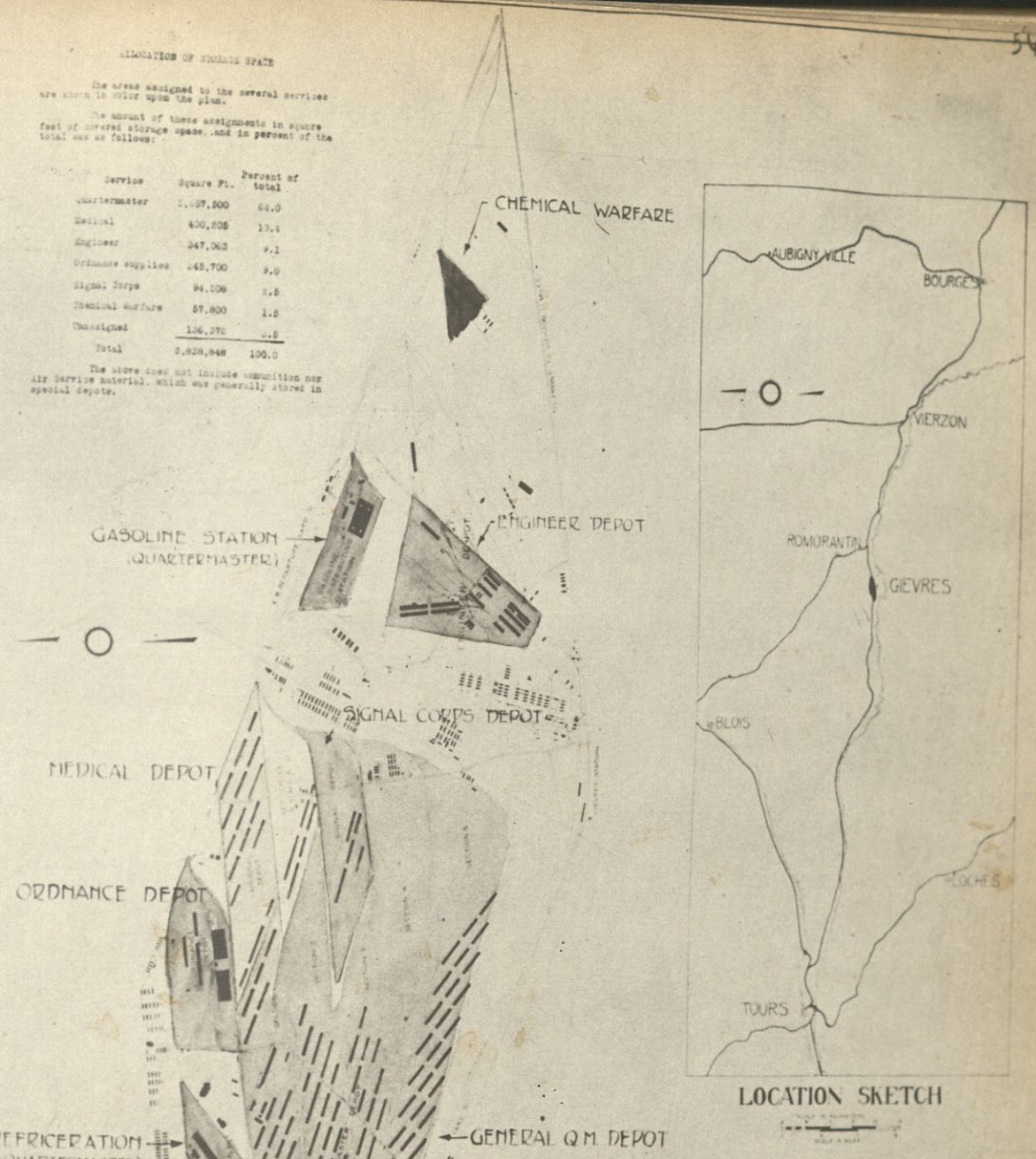
ALLOCATION OF STORAGE SPACE

The areas assigned to the several services are shown in color upon the plan.

The amount of these assignments in square feet of covered storage space, and in percent of the total was as follows:

Service	Square Ft.	Percent of total
Quartermaster	1,697,500	64.0
Medical	400,205	13.4
Engineer	247,063	9.1
Ordnance supplies	245,700	9.0
Signal Corps	94,206	2.5
Chemical Warfare	57,800	1.5
Unassigned	136,374	0.5
Total	2,838,848	100.0

The above does not include ammunition nor Air Service material, which was generally stored in special depots.



GIEVRES STORAGE DEPOT

MAP AS OF 11 NOV 1918

GIEVRES STORAGE DEPOT

This was one of the two enormous storage centers constructed by the A. E. F. in the Intermediate Section, and was located almost in the center of France, on the main line of communication between the port of St. Nazaire and the American battle front.

It constituted a city in itself, with a permanent operating personnel of 20,000 to 25,000, with extensive railroad yards, one of the largest cold storage plants in the world and innumerable other industries.

The very small black dots on the plan each represents a standard barracks building, capable of housing 100 men, while the large marks are huge warehouses, averaging 500 feet long by 50 feet wide.

Some idea of the vast size of this undertaking may be obtained from the following figures:

Total length	7	miles
Total width	1½	miles
Area	6	sq. miles
Warehouse buildings	180	
Covered storage space	2,838,846	sq. feet
Open storage space	10,000,000	sq. feet
Railroad track in grounds	144	miles
Gasoline storage capacity	2,000,000	gallons
Cold storage plant	7,500	tons capacity
Coal storage capacity	200,000	tons

IS SUR TILLE REGULATING STATION AND ADVANCE STORAGE DEPOT

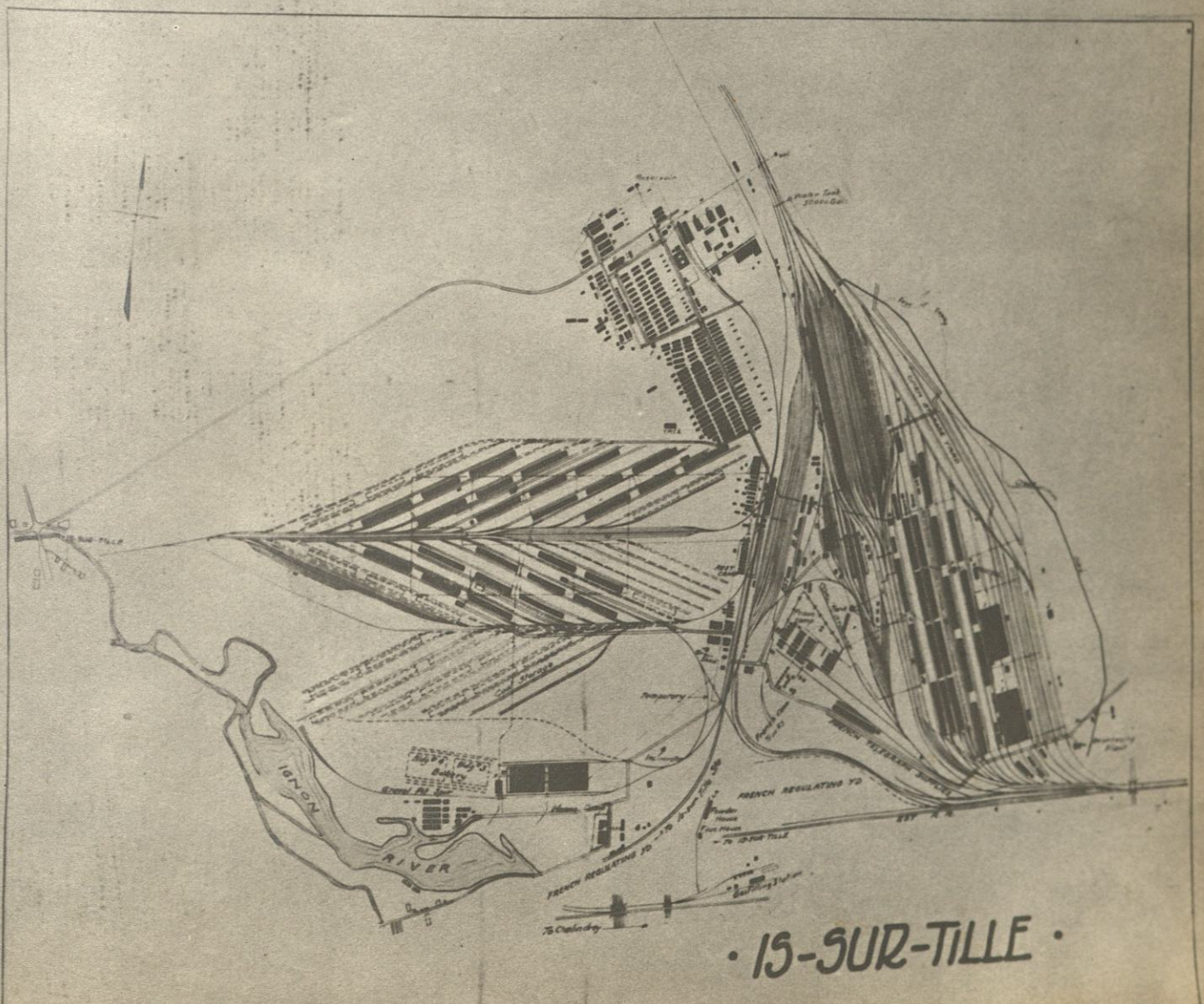
The Regulating Station acted as the distributing point for supplies needed by the combat forces at the front. The Services of Supply procured, stored and forwarded all material, but consigned it merely to the organization or unit for which it was intended. The duty of the Regulating Officer on the other hand, was to keep in constant touch with these units, to receive the goods forwarded by the S. O. S., make them up into trains - or Rames, as they were called - and forward them to the proper railhead.

In its physical aspect, a Regulating Station was fundamentally a large railroad yard, with classification and storage tracks, and generally with some warehouse space attached thereto.

Is-sur-Tille was the first Regulating Station established by the A. E. F., and through it the majority of the American forces were rationed. At its maximum period - August 2-30, 1918 - it was handling supplies for 796,785 men and 122,799 animals, distributing them to 46 railheads and 62 other shipping points.

In connection with its functions as a Regulating Station proper, Is-sur-Tille combined that of the largest A.E.F. Advance Storage Depot, with covered storage space of 1,350,000 square feet, and open storage space of 4,186,000 square feet.

The general lay-out of the project can be seen from the map below, and it will be noted that the storage was subdivided into two main depots, known as the East and West Depots, respectively, with the classification yards between. The total length of track constructed by the A. E. F. in the yards and sidings was 90.2 miles.



MOTOR TRANSPORT CORPS

When the war was declared against Germany, April 6, 1917, motor transportation was almost non-existent in the United States Army. Its vast importance was appreciated and all services proceeded at once to arrange for their individual needs. There were six services directly interested in motor transportation and their independent operations soon produced confusion.

To improve this condition in the American Expeditionary Forces, the reception and care of all motor vehicles, except certain special types and motor transportation of the Air Service, was delegated to the Motor Transport Service of the Chief Quartermaster's Office, which was organized December 8, 1917.

This service, on February 16, 1918 was made a department of the Service of Utilities, and on July 11, 1918, was made an independent corps.

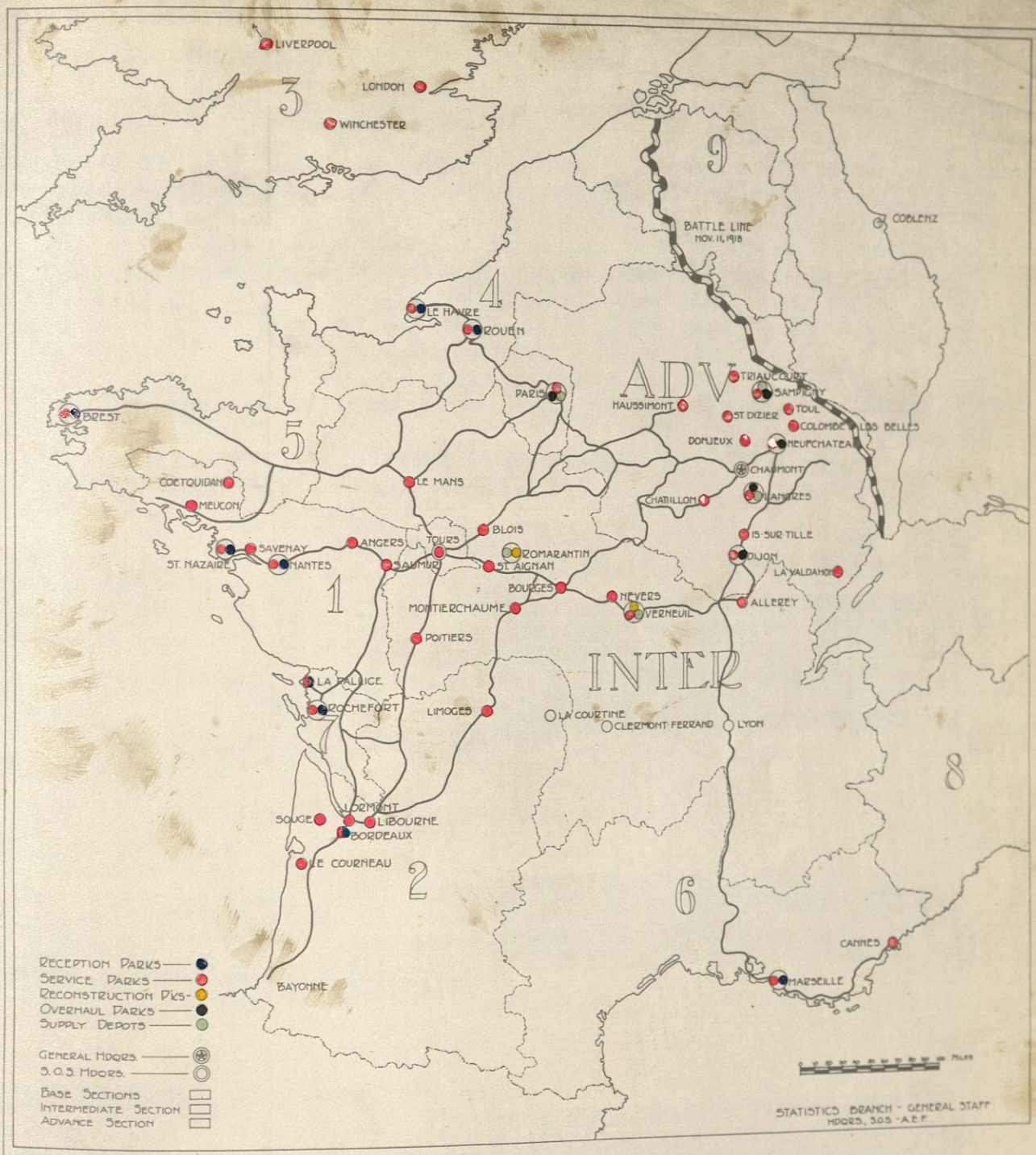
Its functions as defined in G.O. #74, G.H.Q., were as follows:

(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 parts, repair parts, tools and accessories, and supplies of all motor vehicles
(d) The establishment and operation of all M.T.S. garages, parks, depots and repair shops
(e) The organization and technical training of M.T.S. personnel
(f) The salvage and evacuation of damaged motor vehicles
(g) The homogeneous grouping of motor vehicles
(h) The operation of practically all motor vehicles in the Services of Supply

To discharge these duties, the Motor Transport Service organized Reception Parks at Ports for the reception and assembling of vehicles, repair shops varying in scope from the truck units with troops to a main reconstruction plant where any vehicle might be entirely rebuilt; a main supply depot with sub-depots for handling spare parts, etc.; and supervisory and operating services wherever needed in the American E.F. In addition, Motor Transport Schools were operated for the instruction of mechanics and drivers.

In common with other departments, the work of the Motor Transport Corps was handicapped by a continuous shortage of personnel and equipment.

There was normally available about 30 per cent of the required personnel, and 50 per cent of the needed transportation.



MOTOR TRANSPORT ACTIVITIES

To care for incoming motor vehicles, Reception Parks were located at base ports where machines were received, assembled, tested and held ready for forwarding in convoy formation.

Motor vehicles for the armies, constituting about 90 per cent of the total, were normally forwarded to reception parks at Dijon or Langres, assigned by the Motor Transport Officer of the Advance Section to the combat units as needed, and were thereafter under the control of the commanding officer of the unit to which assigned.

Motor vehicles for the S.O.S., on the other hand, were not assigned to a particular corps or service; but for each Administrative Section were pooled, and under the control of a Motor Transport Officer, who allotted them according to the needs of the situation.

Cars were maintained by Service Parks, where adjustments and repairs of a minor character were made; Overhaul Parks, which were equipped to do repairing of a more extensive nature; and two large Reconstruction Parks in which wrecked or worn out vehicles of any kind could be entirely rebuilt.

Gasoline supply was under the Quartermaster Corps, which operated the storage, distributing and filling stations.

MOTOR VEHICLE PROCUREMENT TO MAY 1, 1919

Due to the great demand for motor transport on the part of the French and English, it was necessary to bring almost all of the motor vehicles required by the A.E.F. from the United States.

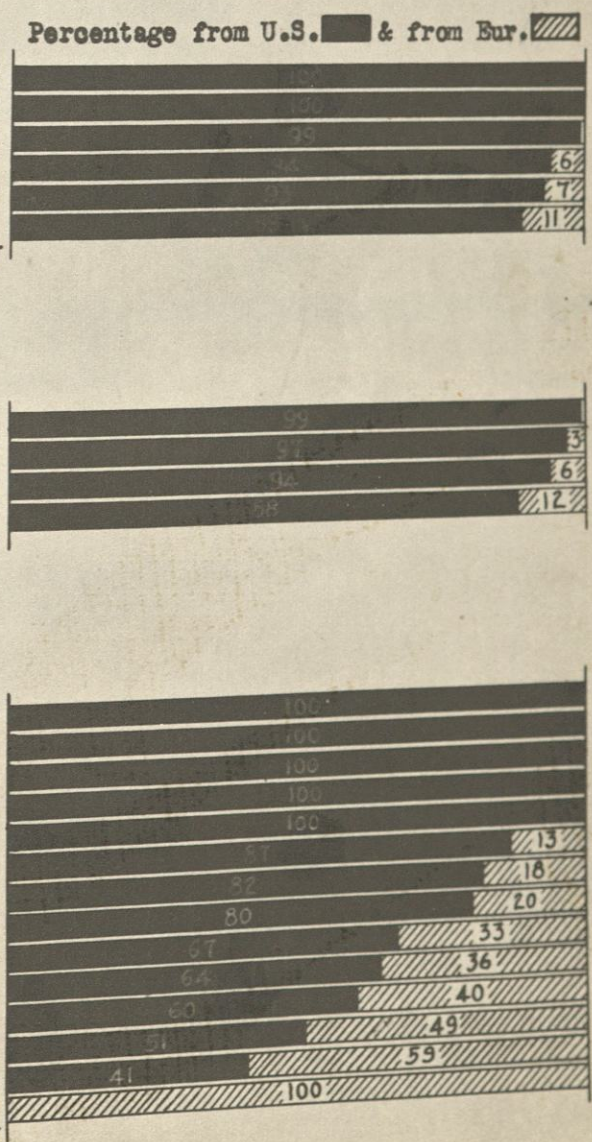
Only a few types were purchased in Europe and these mostly in the earlier stages of the war. The total percentage obtained from European sources was as follows:

Passenger vehicles	3 per cent
Cargo trucks	7 per cent
Special vehicles	23 per cent
Total, all vehicles	6 per cent

Bicycles and trailers, although not strictly motor vehicles, are included as shown below.

Source of information: Director Motor Transport Corps, Hq., S.O.S.

	Total from U. S.	Total from Europe	Total rec'd.
PASSENGER VEHICLES			
Bicycles	27,726	0	27,726
Reconnaissance	767	0	767
Ambulances	7,239	20	7,259
Motorcycles	21,611	1,300	22,911
Motor Cars	9,515	755	10,270
Omnibusses	16	2	18
TOTAL	66,874	2,077	68,951
CARGO TRUCKS			
Light Delivery	10,011	45	10,056
5 Ton and Over	2,650	82	2,732
1½ and 2 Ton	12,656	804	13,460
3 and 4 Ton	19,158	2,611	21,769
TOTAL	44,475	3,542	48,017
SPECIAL TYPE VEHICLES			
Caterpillar	2,240	0	2,240
Artillery Repair	783	0	783
Artillery Supply	556	0	556
Equipment & Repair	123	0	123
Anti-Aircraft Trucks	30	0	30
Machine Shop Trailers	106	16	122
Tank Trucks	793	173	966
Machine Shop Trucks	131	32	163
Trailers	3,818	1,902	5,720
Laboratory Trucks	92	52	144
Kitchen Trailers	174	114	288
Tractors	144	139	283
Fire Eng. & Disen.	17	24	41
Winch Trucks	0	73	73
TOTAL	9,007	2,525	11,532
GRAND TOTAL	120,356	8,144	128,500

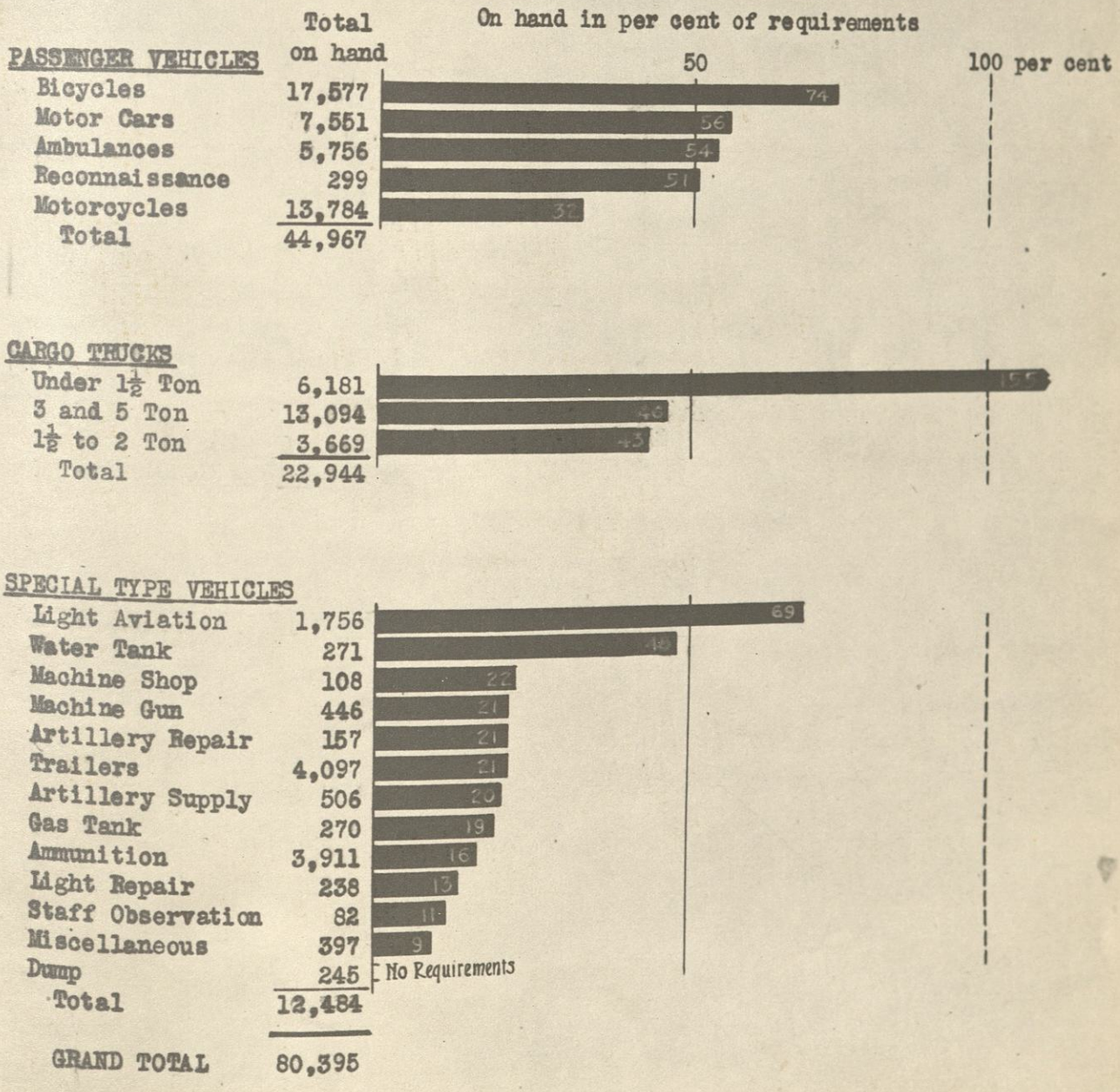


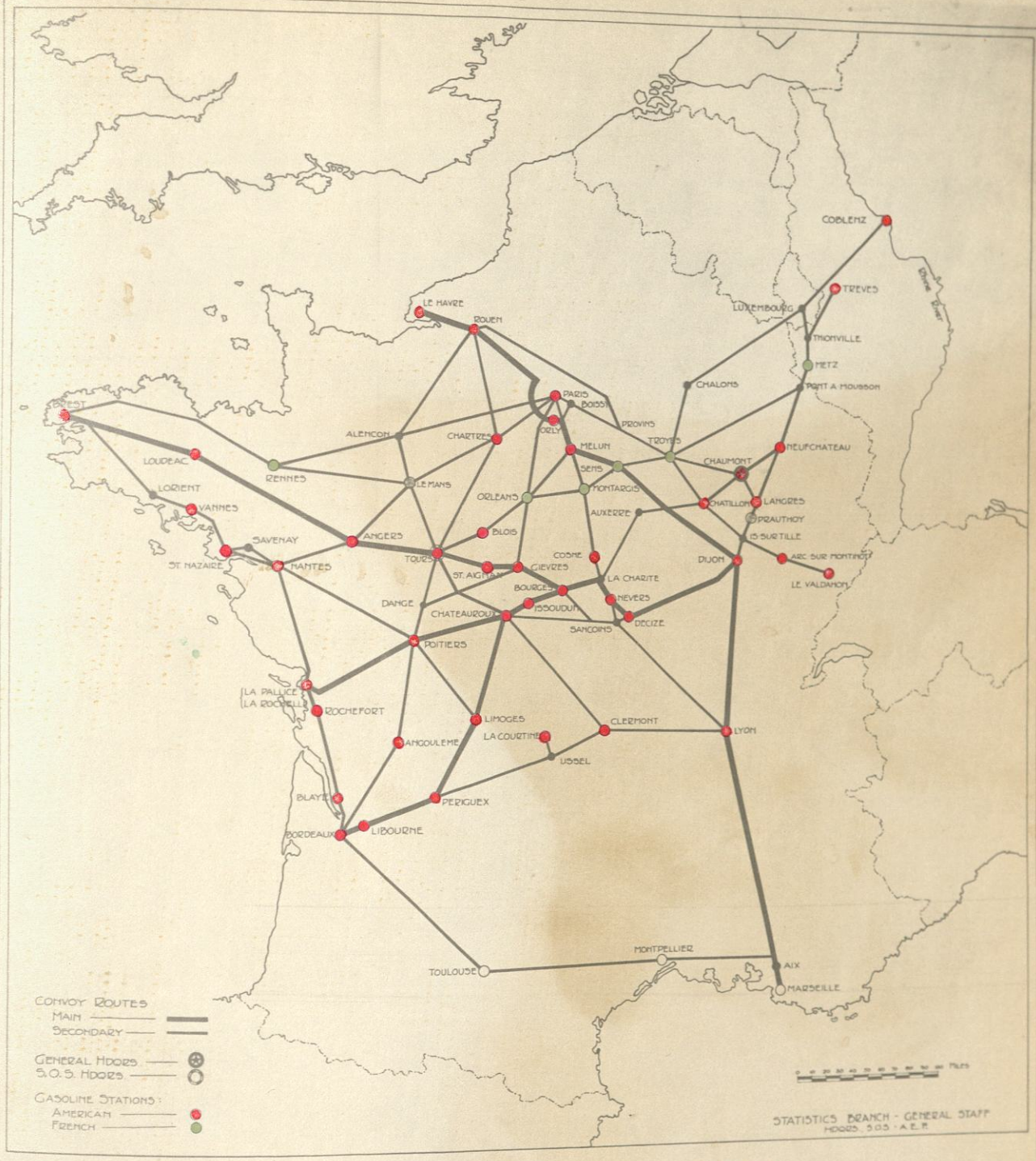
MOTOR VEHICLES ON HAND NOVEMBER 11, 1918

Requirements are based upon the official tables of organization in effect November 11, 1918 showing the motor vehicle requirements for a complete army.

For the purposes of the diagram it has been assumed that the requirements are directly proportional to the troop strength.

Source of information: Office of Director Motor Transport Corps, Hq. S.O.S.





CONVOY ROUTES

Practically all motor vehicles received from the United States and England were assembled at base reception parks and driven in convoy formation, an average five-days journey, to points of assignment, or to the parks at Dijon or Langres for detail distribution.

Convoy routes, numbered and carefully marked with road signs, were established from time to time, and these were strictly adhered to.

Each convoy operated on the roads under carefully formulated regulations, was in charge of a motor transport corps officer and carried cargo from base ports to destination or points along the route. Pilots were furnished routing sheets, maps and instructions, and informed of location of gasoline stations and camps where shelter and food could be obtained.

Information of number and location of convoys was furnished to the office of Director, M.T.C., each night by telegraph, so that his office could supervise their movements.

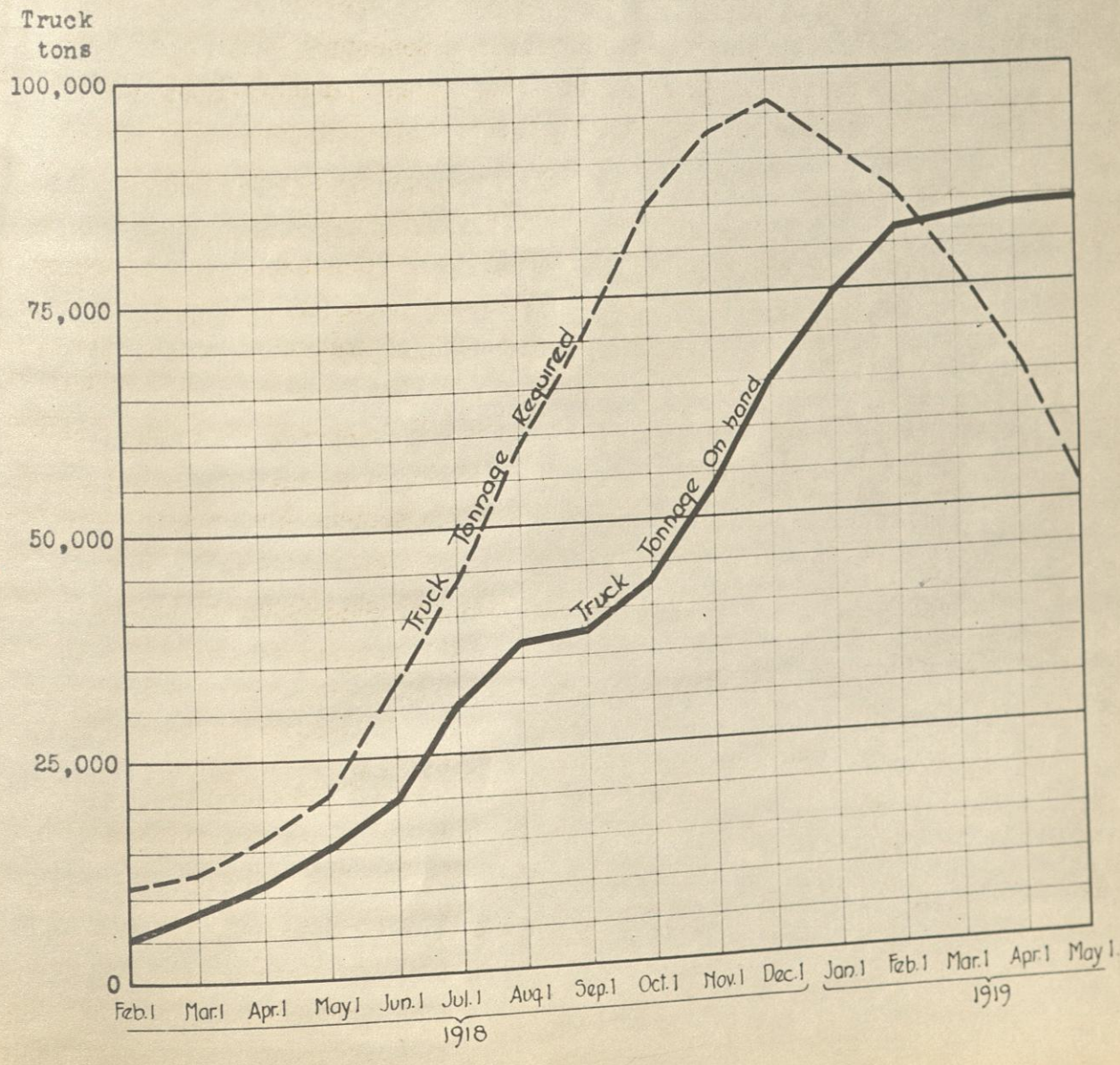
TRUCK TONNAGE IN THE A.E.F.

By truck tonnage is meant the rated truck capacity in short tons.

Requirements shown are upon the basis used by the Motor Transport Corps up to the date of the armistice, which called for approximately 49 truck tons per 1,000 men in the A.E.F.

According to the diagram, there was a shortage at the close of hostilities of approximately 35,000 truck tons, or the equivalent of 12,000 standard 3-ton trucks.

Source of information: Office of Director of Motor Transport Corps, Hq., S.O.S.



ENGINEER DEPARTMENT

The organization of the Engineer Department, in the form it had assumed when hostilities ended, consisted essentially of the following four main branches of the Office of the Chief Engineer, A.E.F., whose headquarters were at Hq. S.O.S.

(1) Assistant to the Chief Engineer, A.E.F., at G.H.Q.
(2) Division of Construction and Forestry
(3) Division of Military Engineering and Engineer Supplies
(4) Division of Light Railways and Roads.

On November 11, 1918, there were under the direct command or the technical supervision of the Chief Engineer, A.E.F., 174,000 officers and men. The Engineer Department was the largest of the technical services of the A.E.F.

THE ASSISTANT TO THE CHIEF ENGINEER AT G.H.Q., was concerned entirely with matters pertaining to Engineer Service in the zone of the armies and to relations between the Chief Engineer, A.E.F., and the General Staff. A Board on Military Engineering, was a component of the G.H.Q., office of the Chief Engineer, A.E.F.

THE DIVISION OF CONSTRUCTION AND FORESTRY, was charged with all construction in the S.O.S., including railway and dock construction for the Transportation Corps, and with all forestry and lumber production duties. The field operations of construction were carried out through Section Engineers, one for each Base, Intermediate and Advance Section, reporting to the Director of Construction and Forestry. The Division of Construction and Forestry prior to the armistice, included four principal sections: Administration, general construction, railroads and docks, and forestry. Forestry operations were conducted through district forestry commanders. After the armistice a Roads Section was formed to direct an extensive program of road repair in France and Luxembourg.

THE DIVISION OF MILITARY ENGINEERING AND ENGINEERING SUPPLIES, was concerned mainly with the procurement, storage and distribution of engineer material and equipment. The Engineer Purchasing Office functioned as the European purchasing agency for the supply section and also had direction over cement manufacture. A Water Supply Section and an Electrical-Mechanical Section, both dealing exclusively with operations in the zone of the armies, reported to the Director of Military Engineering and Engineer Supplies. After the Armistice the Engineer Purchasing Officer was charged with duties relating to the sale of Engineer material.

THE DIVISION OF LIGHT RAILWAYS AND ROADS, was primarily an agency for estimating light railway and road requirements in trained personnel and in construction and operation equipment, and for making provision for their delivery to the construction and operation forces in the Army zones, which were under the command of the Chief Engineers of the Armies. The Division of Light Railways was abolished February 20, 1919.

FACTS AND FIGURES ON ENGINEER ACCOMPLISHMENT IN A.E.F.

SHELTER FOR TROOPS: Barracks erected totalled 16,000, or 300 miles of barracks.

HOSPITAL CONSTRUCTION: Space for 280,000 beds provided, of which 141,000 represented new construction. Total hospital barracks 7,700 or 127 miles of wards.

PORTS: Ten-berth dock, 4,100 feet long, built at Bassens; two berths at Brest: and three at Montoir. Lighterage dock 750 feet long completed at St. Loubes.

RAILROADS: 1,002 miles of standard gauge track constructed. Bridge 2,190 feet long built across Loire River for Nevers railroad cut-off.

STORAGE DEPOTS: 25,961,144 square feet of covered storage space provided, equivalent to 500 acres of warehouses.

REMOUNT DEPOTS AND VETERINARY HOSPITALS: Facilities provided involved construction of 2,210,000 square feet of stabling for animals.

WATER SUPPLY: At St. Nazaire storage reservoirs of 400,000,000 gallons capacity provided; two filter plants, with combined capacity of 4,000,000 gallons daily built; 15 pumps with total daily capacity of 30,000,000 gallons installed. At Brest pumping stations, reservoirs and pipe lines were built.

REFRIGERATION: Plants with total cold storage space for 14,900 tons of meat and manufacture of 500 tons of ice per day were built.

ELECTRICAL INSTALLATIONS: Generating stations involving 6,500 kilowatts, rotary converter substations of 5,500 kilowatts, and 125 miles of transmission lines were designed or under construction.

GASOLINE AND OIL STORAGE: Sea-coast and intermediate storage tank stations for more than 9,500,000 gallons provided.

ROADS: The maximum force on road work totalled 110,000 men, handling 90,000 tons of crushed stone per week.

FORESTRY: Production to May 1, 1919 was:

Lumber	217,884,337 board feet
Railroad Ties	3,955,618 pieces
Piling & Round Products	2,954,563 pieces
Fuelwood	431,147 cords

LIGHT RAILWAYS:

Tonnage Transported (To Feb. 1, 1919)	860,652 tons
Total trackage under American control	2,220 kilometers
Captured German Trackage (Inc.above)	1,740 kilometers
60 cm Locomotives on hand Nov. 30	347
60 cm Cars on hand Nov. 30	3,281

PROCUREMENT OF ENGINEER MATERIAL

The diagram below indicates the receipts from the United States and from Europe of all material procured by the Engineer Department to May 1, 1919.

The totals therein given will be found considerably higher than those under the heading "Engineer" upon pages relating to total procurement. This is due to the fact that the following include all transportation equipment, as well as lumber and forestry products, which were procured by the Engineers but which are classified separately in records of summary procurement and discharges at ports.

Material is listed in accordance with the standard Engineer classification.

The material purchased in Europe as below, amounted to over 59 per cent of the total, but by far the largest items were building material, lumber, and forestry products. If these are left out of consideration, the total from Europe would amount to but a trifle over 11 per cent.

Source of information: Office of Engineer Purchasing Officer, A.E.F.; Statistical Bureau, Transportation Service, Hq., S.O.S.

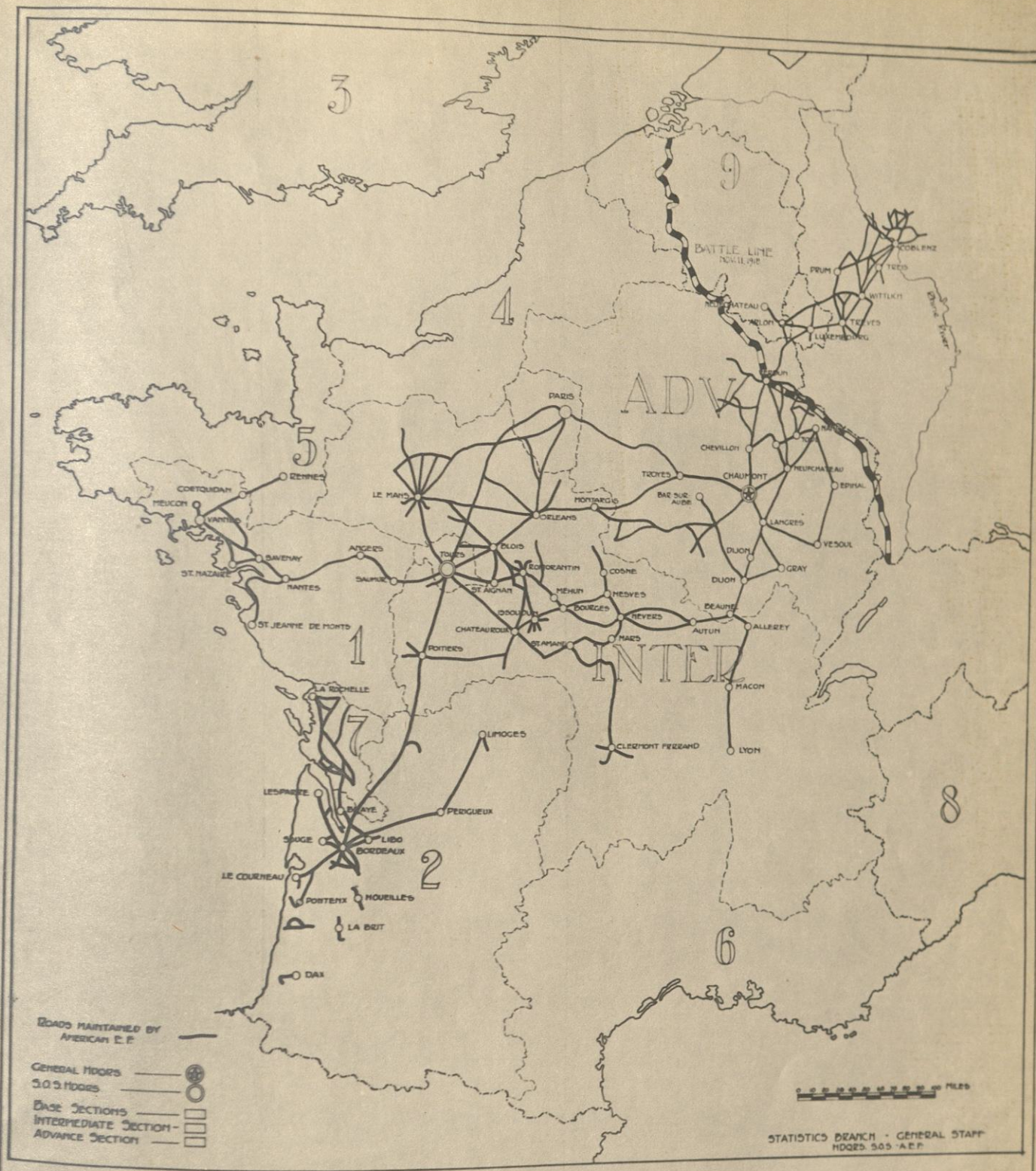
	Short tons			
	From U. S.	From Europe	Total Received	Percentage from U.S. ■ & from Eur. ▨
Railway Motive Power	150,106	1,617	151,723	99
Track Material & Fasten.	509,081	7,792	516,873	99
Railway Rolling Stock	358,288	7,868	366,156	98
Automotive Transportation	23,052	659	23,711	97 3
Erection Shop Equipment	10,843	286	11,129	97 3
Horse Drawn Transport.	8,301	1,150	9,451	88 12
Hardware & Hand Tools	27,900	6,616	34,516	81 19
Iron & Steel Products	252,576	83,175	335,751	75 25
Engineer Supplies	54,287	39,521	93,808	58 42
General Machinery	47,354	36,391	83,745	57 43
Liquids	7,363	6,310	13,673	54 46
Floating Equipment	10,517	9,690	20,207	52 48
Explosives & Accessories	991	1,183	2,174	46 54
Office Supplies, Misc.	2,329	3,135	5,464	43 57
Building Material	102,811	551,939	654,750	16 84
Lumber & Forestry Prod.	40,726	1,583,670	1,624,396	3 97
Unit Accountability	7	567	574	99
TOTAL	1,606,532	2,341,569	3,948,101	

ISSUES AND STOCKS OF ENGINEER SUPPLIES

Amounts of certain representative engineer supplies received and quantities issued to May 1, 1919, also stock in depots May 1, 1919 and November 11, 1918. Figures are in short tons.

Source of information: Office of Chief Engineer, A.E.F.

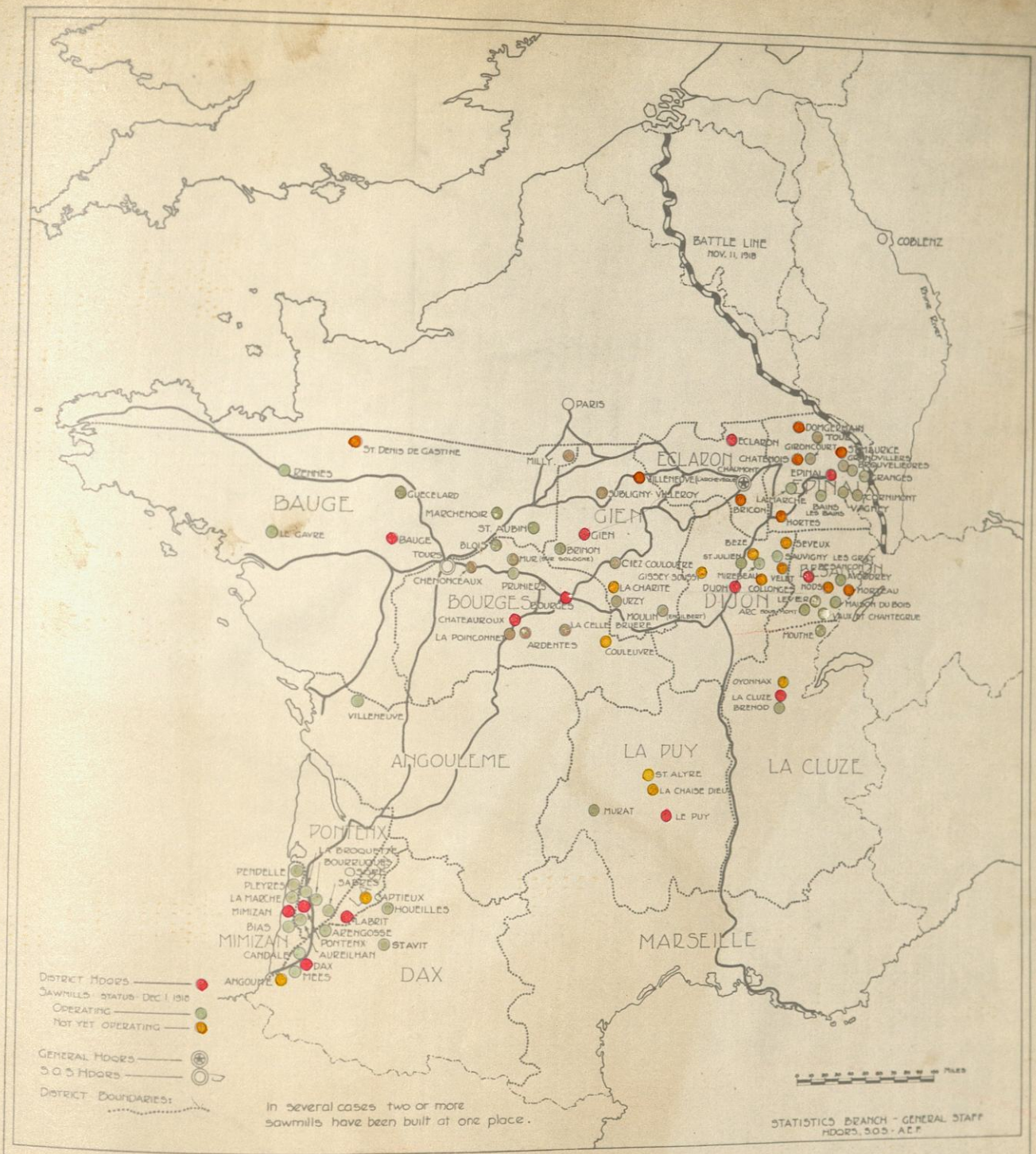
	Unit	Total receipts to May 1'19	Total issued or expended to May 1'19	Stock in Depots May 1'19	Stock in depots Nov.11'18
Stan. Ga., Track, 80 and 67½ lb. rail	Tons	347,270	195,158	152,112	52,510
Switches & Acc. Fas.(Std.)	Tons	107,569	80,499	27,070	6,276
Narrow Gauge Rail	Tons	34,854	9,815	25,039	18,422
Switches & Acc.Fas. (Narrow)	Tons	21,226	4,745	16,481	423
60 cm Mfg. Track	Tons	48,766	48,587	179	5,308
40 cm Mfg. Track	Tons	4,747	2,642	2,105	2,718
MISCELLANEOUS					
Bar Iron and Steel	Tons	24,258	11,090	13,168	11,020
Barbed Wire	Tons	22,400	10,000	12,400	11,140
Canvas	Yds.	6,438,426	4,110,517	2,327,909	2,759,037
Copper Wire and Cable	Tons	6,286	2,323	3,963	2,775
Corrugated Iron	Tons	23,340	3,581	19,759	16,501
Expanded Metal	Tons	6,002	75	5,927	4,713
Guy Cable	Tons	3,035	395	2,640	300
Iron Pipe & Fittings	Tons	47,500	35,900	11,600	34,580
Paints and Oils	Tons	8,280	4,100	4,180	1,185
Rope	Feet	8,295,208	5,811,883	2,483,325	980,000
Roofing Paper & Felt	Sq.Ft	73,804,460	58,691,260	15,113,200	6,760,800
Sand Bags	No.	95,040,600	81,737,043	13,303,557	18,345,000
Sheet Steel	Tons	56,901	50,623	6,278	2,267
Shovels, Hand	No.	1,042,105	461,046	581,059	729,429
Structural Steel	Tons	56,754	15,624	41,130	26,000
Wall Board	Sq.Ft	12,316,000	10,842,376	1,473,624	371,172
MACHINERY					
Air Compressors	No.	322	153	169	173
Concrete Mixers	No.	446	264	182	190
Derricks	No.	575	90	485	143
Elec. Generators 1-25 KW	No.	950	164	786	896
Electric Motors	No.	931	520	411	353
Gasoline Engines	No.	976	360	616	470
Graders	No.	73	7	57	73
Pile Drivers	No.	26	25	1	19
Power, Hand & Trench Pumps	No.	17,270	2,351	14,919	8,524
Road Rollers	No.	94	79	15	42
Steam Shovels	No.	53	48	5	21
Track Layers	No.	4	4	0	0
Tractors	No.	115	73	42	37



ROADS USED AND REPAIRED

Up to the time of the Armistice, the Division of Construction and Forestry was responsible for the maintenance and repair of all roads except those in the Advance Section.

In January, 1919, the repair of all roads used by the A.E.F. in France and Luxembourg, as shown by the above map, amounting to approximately 2,300 miles, was turned over to this Division, and on March 1, 1919, there were about 110,000 men engaged on this work – ditching, draining, repairing and placing upon the roads approximately 90,000 tons of crushed stone per week.



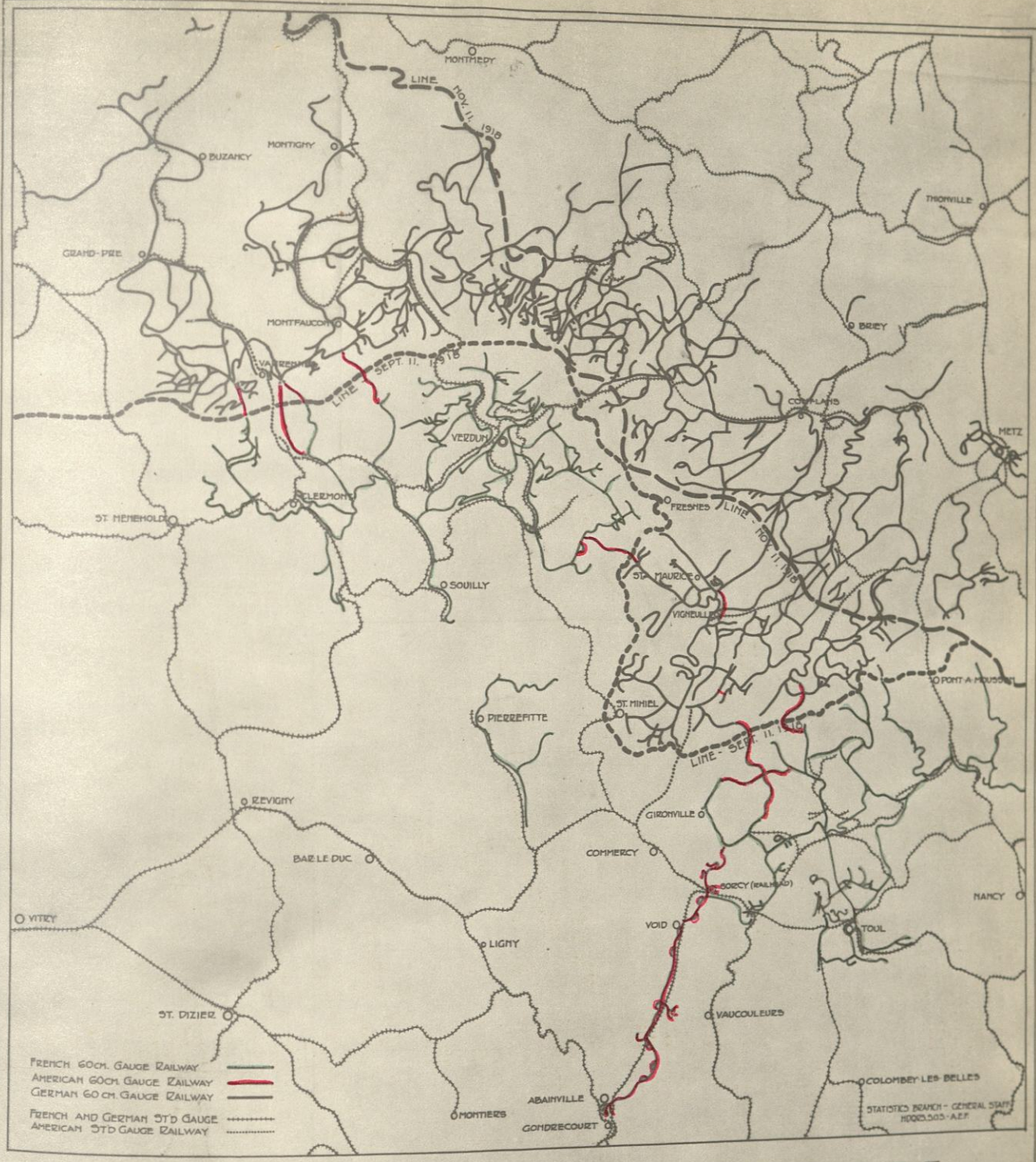
FORESTRY OPERATIONS

Lack of ocean transport made it essential for the American forces to obtain practically all their forestry products from France and other European sources. Furthermore, the shortage of lumber and cut timber in France, and the heavy demands of the French and British Armies, forced the A.E.F. to establish its own logging camps and sawmills.

Certain areas of the French Government Forests were assigned for American cutting, forestry districts were outlined and in December, 1917, work was begun by the Forestry Engineers.

At the time of the Armistice, there were under way 90 forestry activities, including 81 sawmills, employing nearly 20,000 troops. The output of these operations up to May 1, 1919, amounted to:

Lumber	217,884,337	board feet.
Railroad ties	3,955,618	pieces.
Piling and round products	2,954,563	pieces.
Fuel wood	431,147	cords.



COMBAT RAILWAY SYSTEM OF THE A.E.F.

JANUARY — 1919

The extent to which the light or combat railway has become a factor in modern warfare can be realized when it is understood that the network shown above covers only about one fourth of the western front.

These lines were used primarily for carrying supplies and ammunition forward from the standard gauge railheads, but they served many other purposes as well, such as evacuating the sick and wounded.

They were pushed up close behind the lines, often being laid, maintained and operated under shell fire. Locomotives were of two types — steam and gasoline, — the latter having the advantage of an absence of smoke.

There was on hand at the time of the Armistice 60cm. equipment as follows:— 175 steam, and 172 gasoline locomotives and 3,281 cars.

Light Railways under A.E.F. control immediately after the Armistice

Constructed by A.E.F.	200 km.
Constructed by French	280 "
Taken over from Germans	1,740 "
TOTAL	2,220 km.

CANCELLATIONS OF CONSTRUCTION PROJECTS AND EQUIPMENT

Effect of General Order $54, Hq., S.O.S.

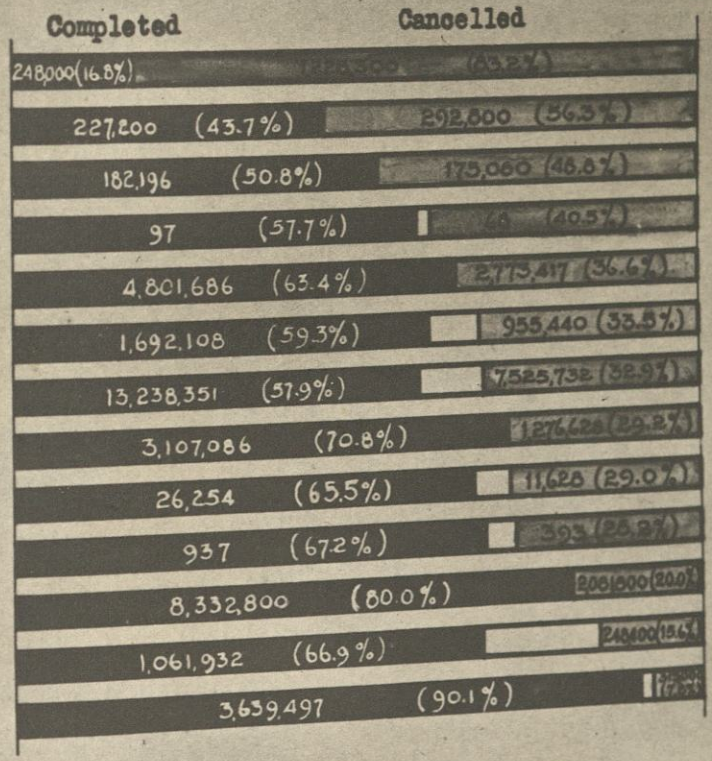
Upon the signing of the armistice immediate steps were taken to halt the war program, and three days later, on November 14, General Order $54, S.O.S. was issued, making wholesale cancellations and curtailments in all departments.

The following diagram indicates the effect of this order upon construction projects and certain important items of Engineer equipment.

The estimated saving due to cancellations shown amounted alone to nearly $500,000,000, while savings in other departments brought the total to a very much higher figure.

The full length of the bar indicates in each case 100 per cent of the authorized project, the black portion the amount constructed or acquired to November 11, the red portion the amount cancelled by the above order, and the white spaces the balance which it was intended to complete.

Source of information: Division of Construction and Forestry; and Statistical Bureau, Transportation Service, Hq., S.O.S.



CONSTRUCTION PROJECTS	Unit	Total Project
Coal Storage	Tons	1,476,300
Oil Storage	Bbls.	520,000
Base Hospitals	Beds	358,961
Port Development	Berths	168
Air Service Stor. Space	Sq.Ft.	7,575,103
Remount Depots	Sq.Ft.	2,852,460
Dep. Cov. Stor. Space	Sq.Ft.	22,873,003
Dock Cov. Stor. Space	Sq.Ft.	4,386,714
Camp Hospitals	Beds	40,106
Railway Construction	Miles	1,395
Const. in Div. Areas	Sq.Ft.	10,414,600
Veterinary Hospitals	Sq.Ft.	1,587,664
Misc. Storage Space	Sq.Ft.	4,039,868
EQUIPMENT		
Cars, Standard Gauge	one	98,000
Tugs & Floating Derricks	one	143
Barges and Lighters	one	877
Cranes	one	736
Locomotives, Stan. Gauge	one	4,000

QUARTERMASTER CORPS

It was the chief duty of the Quartermaster Corps to clothe, feed and pay the soldier, although it was charged as well with many other functions, including the supply of fuel, forage, and at one time, of motor transportation. To furnish these supplies, the Quartermaster Corps required more tonnage and more storage space than all the other services combined.

The task of performing these varied functions for an army of 2,000 000 men and preparing for a force of 4,500,000 was stupendous. The difficulties encountered were serious, although practically the same as those affecting the work of the other supply services, namely: lack of personnel, limited tonnage, distance from home ports, insufficient transportation and the difficulty of procuring manufactured clothing, equipment and materials from home markets. Yet the Quartermaster Corps, operating as one of the largest wholesale and retail business establishments in the world, proved itself markedly successful. The largeness of the problem was fully realized, and the steps taken to meet it did not fall short. The Quartermaster Corps "played on the safe side". It prepared for unexpected issues, making large purchases in Europe to supplement supplies received from the United States. At the same time it was not unmindful of waste and extravagance, and organized the Salvage Service to conserve all manner of equipment and supplies.

Food was not lacking at camps, billets, or at the front, and it was of the best that could be procured. The storage depots were well stocked and little criticism was heard. Clothing and equipment were provided in the same liberal manner. The doughboy was not allowed to go without essential articles, no matter how much equipment he threw away under the strain of combat conditions.

Procurement, however, was only one part of the problem. Transportation, storage, classification, protection and distribution demanded constant attention. This was especially true during the days of activity at the front, when the various articles of food had to be balanced in correct daily proportions at the depots and consigned to the divisions operating miles away and constantly on the move.

Men did not need much money at the front, but there were times when they found difficulty in getting it anywhere. The Quartermaster Corps immediately began an investigation of the pay system; and, from experience in France, the pay book of the individual soldier was evolved. With this book in his possession, the enlisted man should never be delayed in receiving what is due him.

The main Quartermaster activities were grouped under the following heads:

SUPPLY: Including subsistence, clothing, fuel, forage, animal-drawn transportation, gasoline, warehousing, cold storage, bakeries, and garden service.

SALVAGE: Including repair shops, laundries, kitchen economics, bathing and disinfecting plants, and baggage service.

FINANCE

REMOUNT

GRAVES REGISTRATION

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FOOD, PROCUREMENT FROM U.S. AND EUROPE

About the only item of subsistence which the American Expeditionary Forces could rely upon Europe to furnish in quantity was fresh vegetables. Of these, all of which are included in the potato ration, more than two-thirds were obtained in France.

Some idea of the enormous quantities involved in the figures below can be obtained from the fact that they include almost one thousand tons of pepper- an article which the average housewife uses in fractions of ounces.

Taking all items into consideration, the foodstuffs brought from the U. S. constituted more than 84 per cent of the total.

Source of information: Office of Chief Quartermaster, Hq., S.O.S.

	Pounds received From U. S.	From Europe	Total	Per cent from U.S. & Europe
Meat	853,653,142	0	853,653,142	100
Sugar	148,908,543	0	148,908,543	100
Tobacco	49,933,328	332	49,933,660	100
Butter	43,813,563	0	43,813,563	100
Flour	817,623,172	6,477,456	824,100,628	99
Bean	112,799,899	4,735,636	117,535,535	96
Milk	76,134,427	3,377,700	79,512,127	96
Pepper	1,675,499	66,048	1,741,547	96
Fruits	164,608,553	12,092,447	176,701,000	93
Vinegar(gals)	3,776,760	338,475	4,115,235	92
Rice	47,622,497	12,325,760	59,948,257	79
Coffee	63,194,830	18,759,685	81,954,515	77
Cinnamon	664,593	194,289	858,882	77
Salt	23,219,114	19,278,000	42,497,114	55
Potato	203,569,830	415,386,250	618,956,080	33
Tea	0	406,325	406,325	100
Total	2,611,197,750	493,438,403	3,104,636,153	

RATIONS

Source of information: G.O. #176, G.H.Q., October 11, 1918

The term ration as used in the army is the amount of food assigned to each man for his daily consumption.

The Garrison Ration was the standard balanced ration in use in the American Expeditionary Forces. The Field Ration, the Reserve Ration, and the Travel Ration, all modifications of the Garrison Ration, were authorized for issue under appropriate conditions. The Special Reserve Ration was packed in galvanized iron cans, hermetically sealed, and was authorized for issue to troops in active operations.

The Garrison Ration is divided into various main components or classes, in each of which a considerable variety is provided for. The meat component may be fresh meat, canned beef, fish, sausages, etc. The fruit component may be evaporated fruit, figs, dates, syrup, jam, etc.

The daily weights of the individual components may vary depending upon whether one or another of the various substitutes is used, as for example, if fresh beef or mutton is used, the daily allowance is 1.25 pounds, while if canned fish, the ration would be one pound.

In the diagram following, the particular item used for plotting each bar is indicated and in general is the largest item in its respective component group.

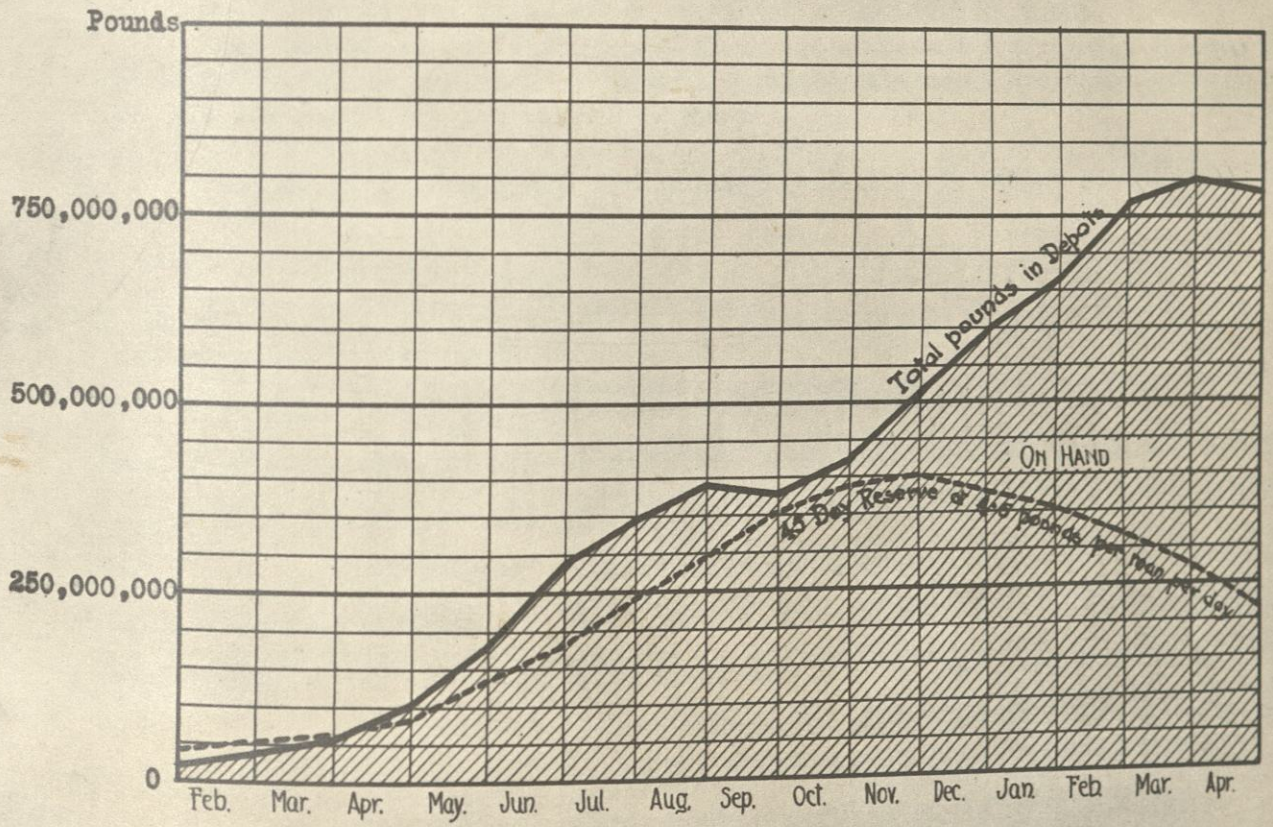
Component	Pounds	Per Cent of Total Ration
Meat (fresh beef)	1.25	28.5
Potato (potatoes)	1.25	28.5
Bread (soft)	1.	22.8
Sugar	.20	4.6
Fruit (Jam)	.188	4.3
Bean	.1	2.3
Rice and Hominy	.075	1.7
Coffee	.07	1.6
Milk	.0625	1.4
Candy	.05	1.1
Vinegar	.04	.9
Salt	.04	.9
Butter	.0312	.7
Tobacco	.025	.6
Baking Powder	.005	.1
Pepper	.00125	0
Cinnamon	.000875	0
Flavoring	.000875	0
TOTAL	4.389700	

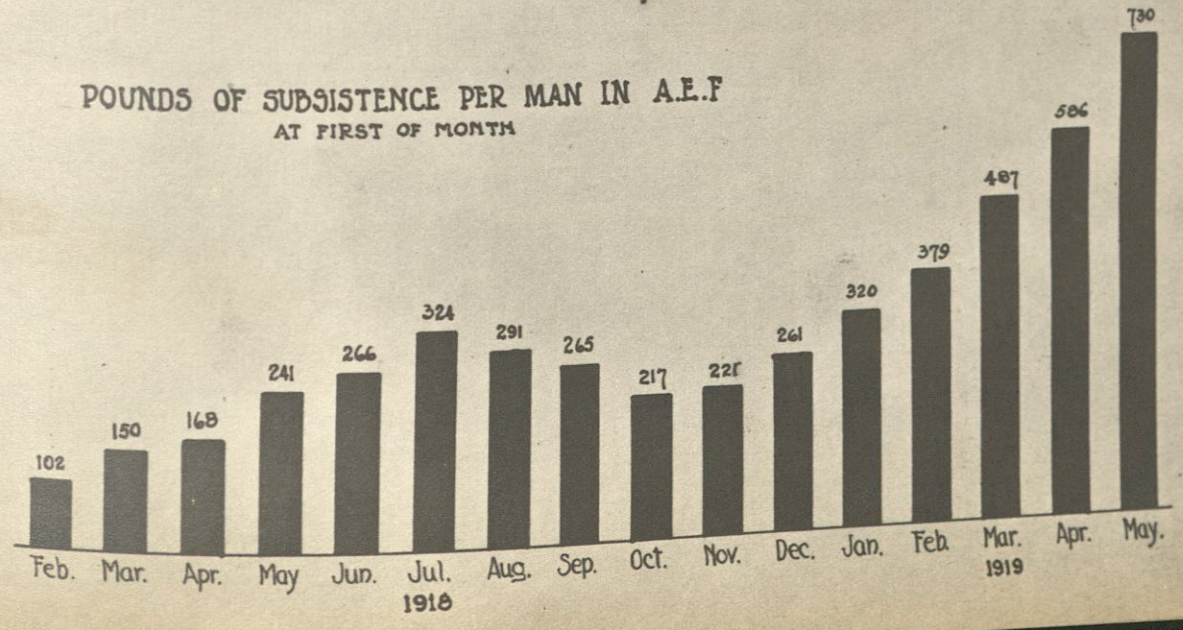
TOTAL SUBSISTENCE ON HAND IN A.E.F. DEPOTS

In the upper diagram is shown against the actual stock in depots a curve representing a 45 days reserve for the men in France upon the basis of 4.5 lbs. per man per day - the approximate weight of the balanced ration.

This curve is shown for comparison only, and as a matter of practice it was not possible to measure reserve in this manner, since it might have been sufficient in total quantity, but badly balanced as to components.

Source of information: Office of Chief Quartermaster, Hq. S.O.S.





SUBSISTENCE IN DEPOTS, NOVEMBER 11, 1918

The stock on hand is shown below, both in the number of rations on hand, and days' supply, the latter based on the strength of the A.E.F. upon that date.

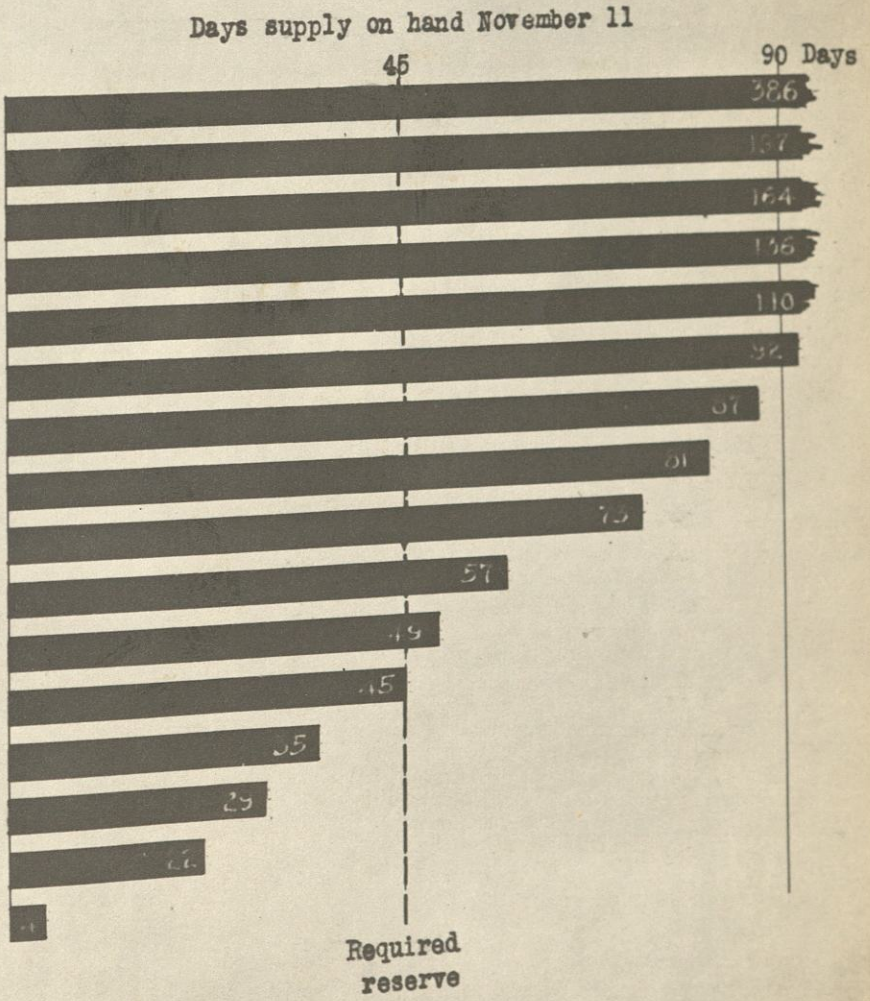
The stocks of practically all ration components were considerably above the required 45 days' reserve.

Two of the four items shown in the diagram as below the required reserve, were the fruit and potato components. In these cases, this is accounted for by the fact that being largely of a perishable nature, a considerable quantity was purchased locally, and the depot stocks therefore not kept at as high a point as in the case of imperishable goods, or items which could not be obtained in Europe.

The number of rations on hand means the number of days'supply for one man. In other words, in the case of tobacco it would have been possible to supply a million men for 760 days with the stock in depots.

Source of information: Daily Subsistence Report, Office of Chief Quartermaster, Hq., S.O.S.

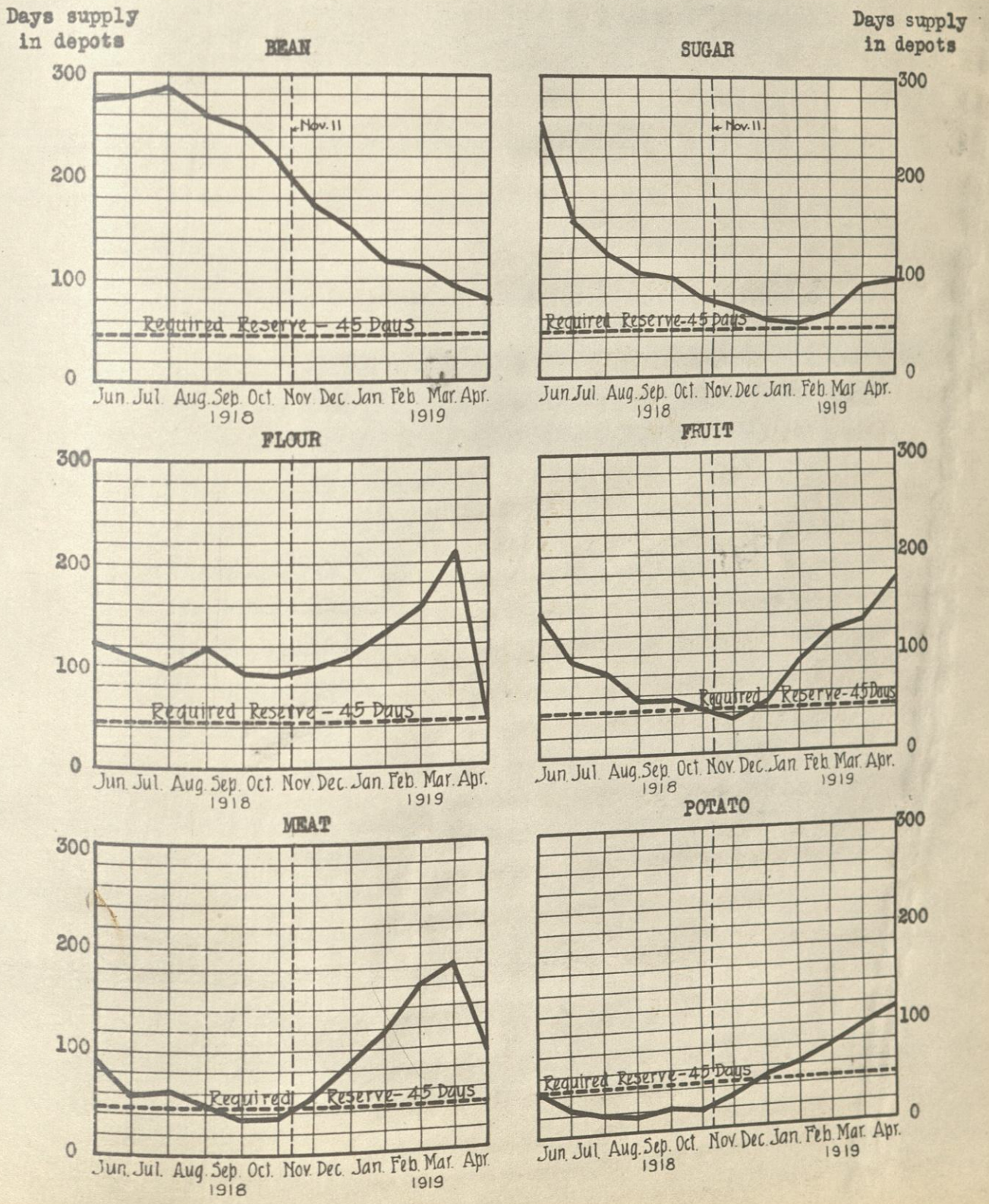
Ration components	Rations on hand
Tobacco & Cigs.	760,785,500
Beans & Sub.	389,754,130
Pepper	323,283,200
Milk	267,491,696
Cinnamon & Sub.	216,454,657
Flour & Sub.	182,579,328
Vinegar	172,354,400
Butter & Sub.	160,706,720
Sugar	143,038,465
Rice & Hominy	113,178,507
Salt	97,038,050
Meat	89,291,430
Fruit & Sub.	70,158,046
Coffee & Sub.	56,956,572
Potatoes & Sub.	42,919,787
Candy	7,677,344



MAIN RATION COMPONENTS ON HAND

Days supply in depots. Components shown include substitutes.
The sudden drop between the March and April stocks in the supply of flour and meat was largely due to sales to the Allies.

Source of information: Office of Chief Quartermaster, Hq., S.O.S.



FOOD - TOTAL ISSUES AND RATE OF CONSUMPTION

Rate of consumption is based on actual issues. It does not necessarily represent normal requirements as amount of issue often depended upon available stocks and prescribed allowance, which varied from time to time. Ration components named include substitutes.

Source of information: Office of Chief Quartermaster, Hq. S.O.S.

Ration Component	Total issues June 1,'17 to Apr.30, '19 (pounds)	Rate of consumption in pounds per man per day for year ended April 30, 1919
Potato	620,517,252	.1770
Meat	581,135,722	.0729
Flour	464,507,910	.8527
Sugar	130,201,980	.2409
Fruit	123,027,018	.2302
Bean	97,546,172	.1793
Milk	52,547,797	.0976
Coffee	43,221,020	.0794
Rice & Hominy	39,716,466	.0734
Butter	37,233,542	.0686
Tobacco	31,107,466	.0576
Salt	26,107,637	.0477
Candy	24,301,860	.0462
Vinegar	18,431,575	.0332
Soup	12,029,125	.0228
Baking Powder	2,800,955	.0051
Pepper	1,049,175	.0019
Flavoring Ext.	711,076	.0013
Cinnamon	482,019	.0009
TOTAL	2,306,675,768	

AVERAGE CONSUMPTION PER MAN PER DAY 4.3 POUNDS

SUPPLY OF RATIONS AT THE FRONT

Source of information: Office of Chief Quartermaster, Hq. S.O.S.

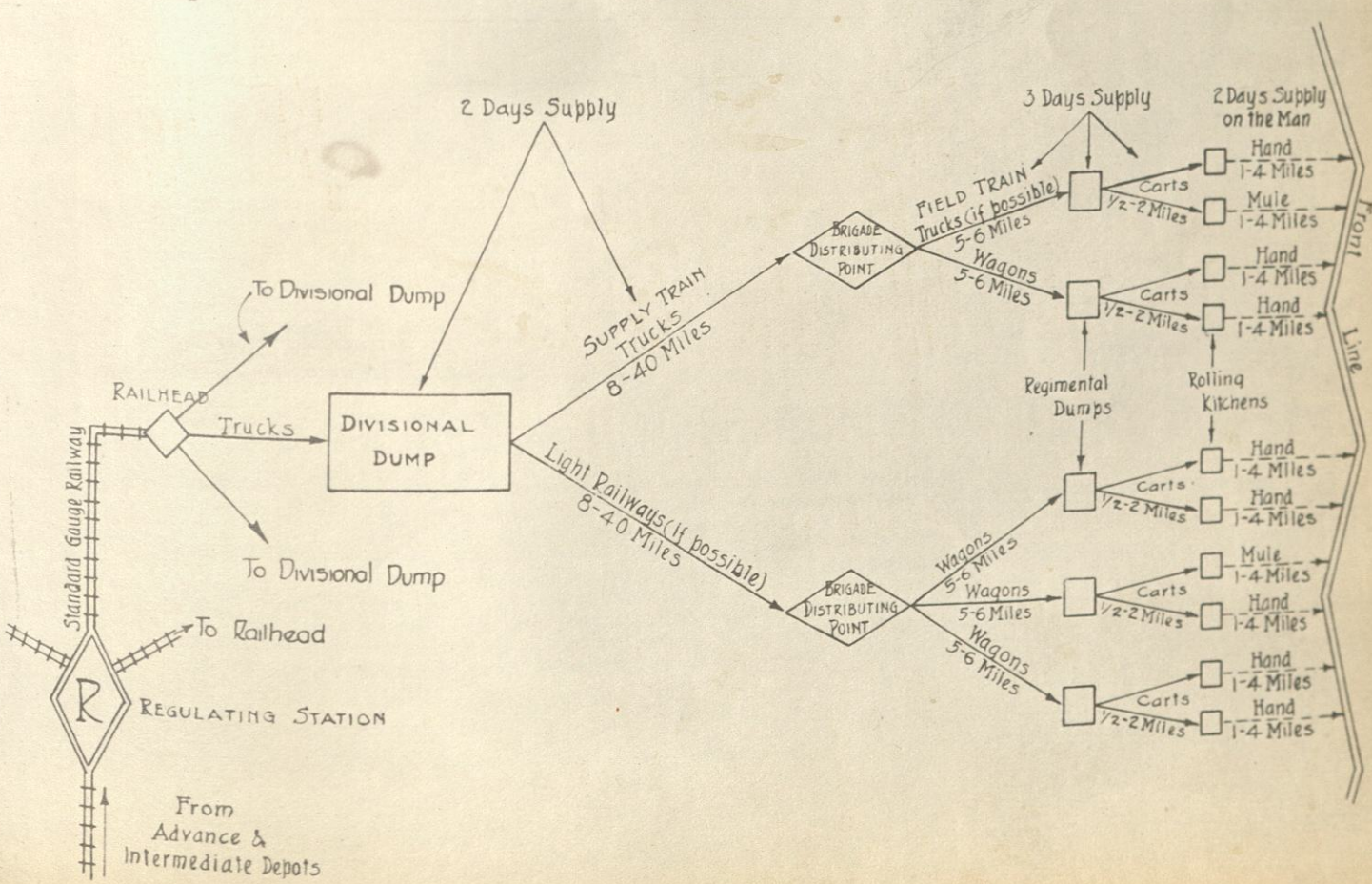
The Intermediate or Advance Depots forwarded to the Regulating Stations, automatically every twenty-four hours, a day's supply of rations, consisting essentially for each division of three cars of bread, one of fresh vegetables, one of meat and one containing in proper proportions the other components of the balanced ration. There were also shipped daily three cars of hay, two of oats, and two of gasoline.

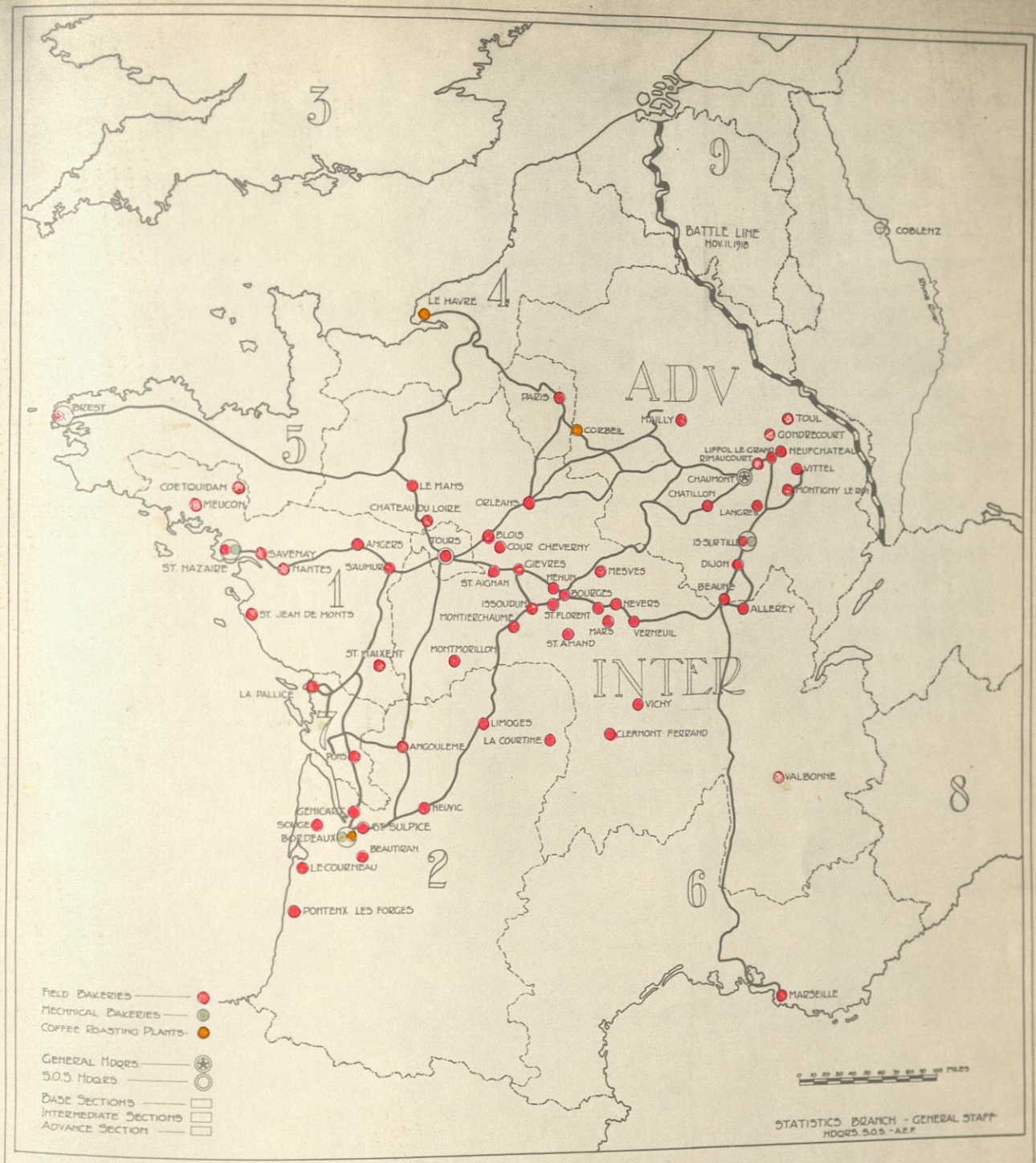
These cars were consigned simply to the divisions for which they were intended, it being the duty of the regulating station to keep in touch with each division and forward the rations and such other supplies as were consigned to it to the proper railhead.

From the railheads, supplies were forwarded by light railways, trucks, and wagons substantially as shown in the diagram below to the rolling kitchens situated one to four miles behind the front.

Food for the men in the trenches was carried up from the rolling kitchens either by hand or on pack animals - effort being made by the use of jacketed receptacles, etc., to get food to the men while hot.

In practice it was rarely practicable to carry out the theoretical plan exactly as outlined, on account of the variation of terrain, combat conditions, etc., but an attempt was made to conform to it so far as possible.





BAKERIES & COFFEE-ROASTING PLANTS

Bakeries for the supply of the American forces were scattered widely over France and were of two main classes, viz:

Field Bakeries :— These were composed of small movable units, which could be readily placed at any point desired and expanded or contracted by varying the number of units. The work in these bakeries was done by hand.

Mechanical Bakeries:— Large permanently housed bakeries equipped with power driven machinery. Mechanical bakeries were built at Is-sur-Tille, Brest, Bordeaux and St. Nazaire, the one at Is-sur-Tille being the largest in France, with a capacity of 800,000 lbs. per day.

Several coffee roasting plants were under construction at the time of the Armistice, where the green coffee as received from South America could be cleaned, roasted and ground. The only one of these completed was at Bordeaux, but two French plants at Corbeil and Le Havre were also doing this work under contract for the A.E.F.

BAKERIES AND BREAD

Source of information: Office of Chief Quartermaster, A. E. F.

Bakeries

At the principal A. E. F. Regulating Station, Is-sur-Tille, a large mechanical bakery was established with British machinery. It was the largest single bakery in the world; and, with a capacity of 800,000 lbs. of bread per day, was able to feed more than half the combat troops in France on the date of the Armistice. This mechanical bakery, when in full operation, used 600,000 lbs. of flour, 10,000 lbs. of salt and 1,000 lbs. of yeast a day; and required fifty American freight cars for the daily shipment of baked loaves. Each car was thoroughly cleaned and inspected before and after loading. Windows were covered with burlap to give protection against the weather and to allow a free circulation of air. The bread cars were given priority over all other subsistence cars in despatch to the front.

At the date of the Armistice, the Is-sur-Tille bakery was actually producing 470,000 lbs. of bread a day, or a supply for 16 divisions. Bread for a large number of combat troops and for the entire S. O. S. was supplied by 59 field bakeries, operating at various points. These field bakeries are movable and designed to provide sufficient bread for one division. Before 1917, American forces in the field depended upon field bakeries. It has been demonstrated, however, that the mechanical bakery can produce bread at one-third the cost and with one-fifth the personnel required for the field bakery.

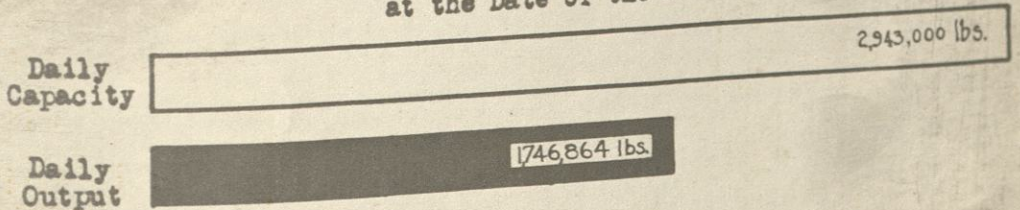
Bread

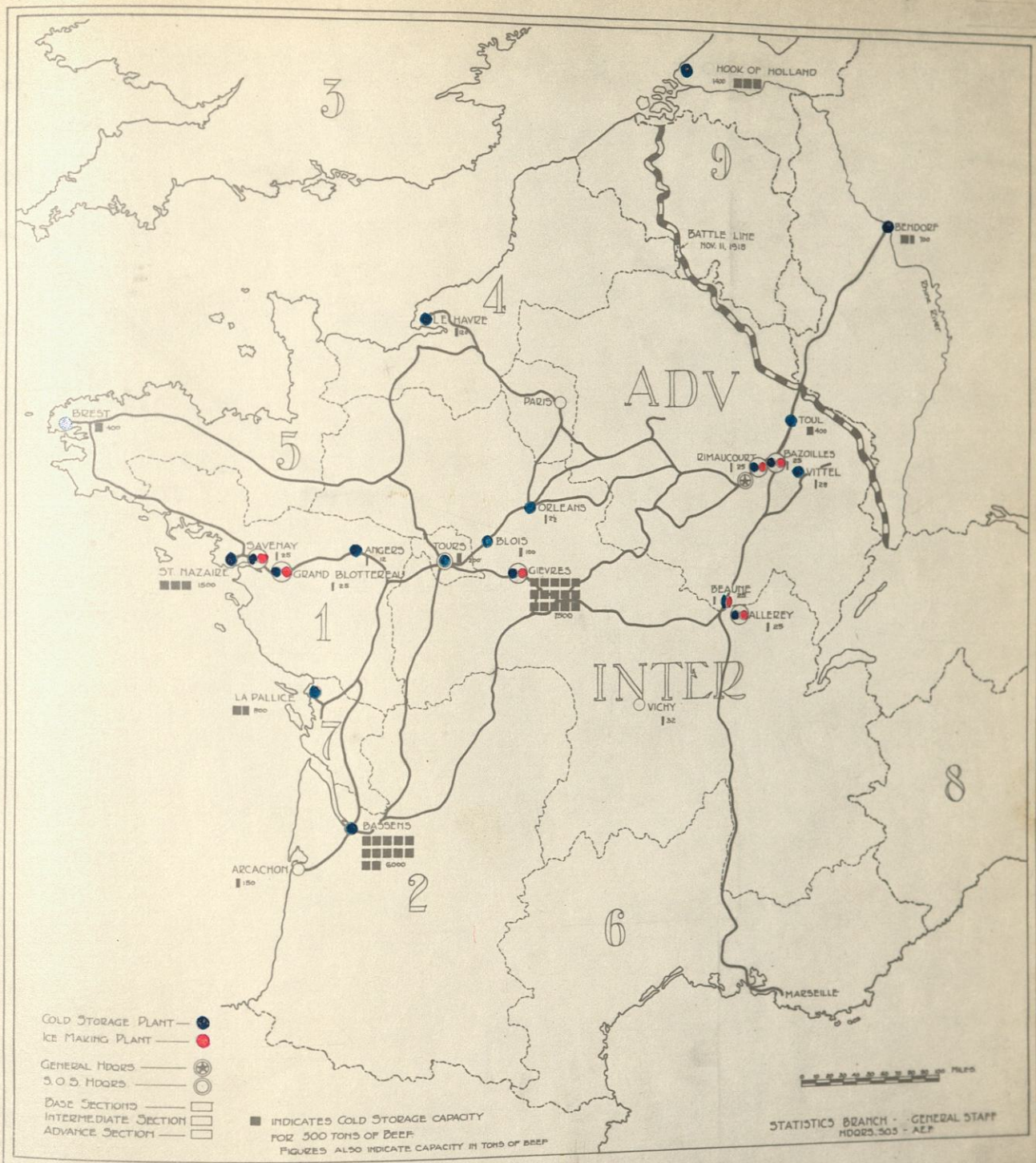
Two varieties of bread were furnished by these bakeries, namely:

Garrison Bread: Designed for consumption within 24 to 36 hours. Baked in 2-lb. loaves - six sections of 2 lbs. each.

Field Bread: Baked in 2 and 4-lb. loaves of a stiffer mixture of dough than garrison bread; completely crusted, fairly impervious to the air, and retaining its quality up to 21 days. This was used for issue to troops in the field when garrison bread could not be advantageously distributed.

BAKERY CAPACITY AND OUTPUT
at the Date of the Armistice





REFRIGERATION & ICE · MAKING

Practically all of the fresh meat used by the A.E.F. was brought from the United States. Most of it was frozen beef in quarters, shipped on refrigerator vessels. At the time of the armistice, successfull experiments had been conducted on boning the beef in America, and compressing it into blocks, and shipping these, frozen, with a great saving of tonnage and of labor in the preparation in the A.E.F.

To care for this meat upon its arrival in Europe, it was necessary to construct, in addition to such cold storage space as could be obtained in France, large refrigerating plants in the base, intermediate and advance sections. These were built by the Division of Construction and Forestry upon plans prepared by experts from the Quartermaster Corps.

Refrigerating space for the accommodation of 14,200 tons was completed by the time of the armistice, the two largest installations being those at Gievres and Bassens, with storage capacities of 7,500 tons and 6,000 tons respectively.

In connection with these, several ice plants were constructed, the largest that at Gievres, which was rated at 375 tons per day.

Beef was shipped in insulated cars, the meat retaining a temperature below the freezing point under these conditions, for several days.

EQUIPMENT OF TYPICAL INFANTRYMAN FOR OVERSEAS SERVICE

Weight of equipment carried was approximately sixty-five pounds.

EQUIPMENT FURNISHED BY QUARTERMASTER·DEPT.

On Person

- Overseas cap
- Overcoat
- Coat, wool
  Shirt, flannel
  Undershirt, — winter
- Belt, Waist (under coat)
- Breeches, wool
  Drawers, — winter
- Puttees, spiral
- Stockings
- Shoes

Carried in pack or haversack:

	No.				
Shirt, flannel	1	Blanket	1	Mirror	
Undershirts, — winter	3	Slicker	1	Razor	
Drawers, — winter	3	Gloves		Razor-blades	
Stockings, pr.	3	Mittens		Tooth Brush	
Breeches, pr.	1	Towels		Shaving Brush	
Shoes, pr.	1	Hairbrush		Soap.	
Tent (Shelter half)		Comb			

(Lighter underwear issued for summer service.)

EQUIPMENT FURNISHED BY ORDNANCE·DEPT.

- Bayonet & Scabbard
- Pack Carrier
- Haversack - containing Condiment can, Meat can & cover, Knife, fork & spoon.
- Helmet
- Cartridge belt.
- Shovel & carrier
- Canteen, canteen cover & cup.
- Rifle

FURNISHED BY MEDICAL·DEPT.

First aid packet.

FURNISHED BY CHEMICAL WARFARE SERVICE

- American Gas Mask.
- French Gas Mask. (in early months)

GASOLINE, CONSUMPTION IN THE A.E.F.

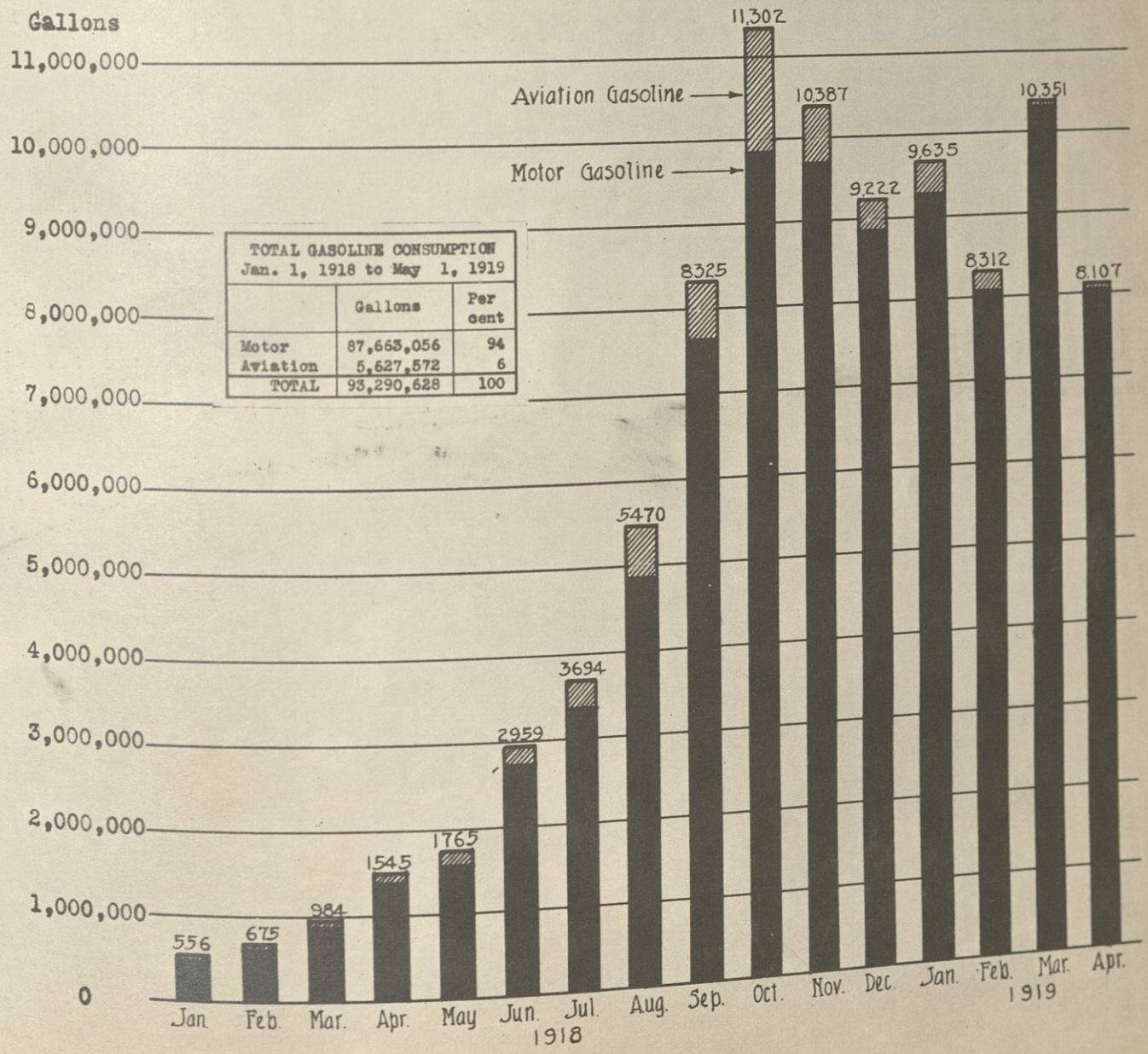
Figures are for motor gasoline shipped by the A.E.F. from points of storage at seaboard, and quantities delivered at inland points by the French Government.

Large figures for March were due to filling of inland stations, which had a total capacity of about 3,800,000 gallons. Data on deliveries by French after January 1919 were not available. Figures for aviation gasoline represent actual consumption.

The average consumption "per man per day" in the A.E.F. from January 1918 to April 1919 inclusive, was .17 gallons. This included both motor and aviation gasoline.

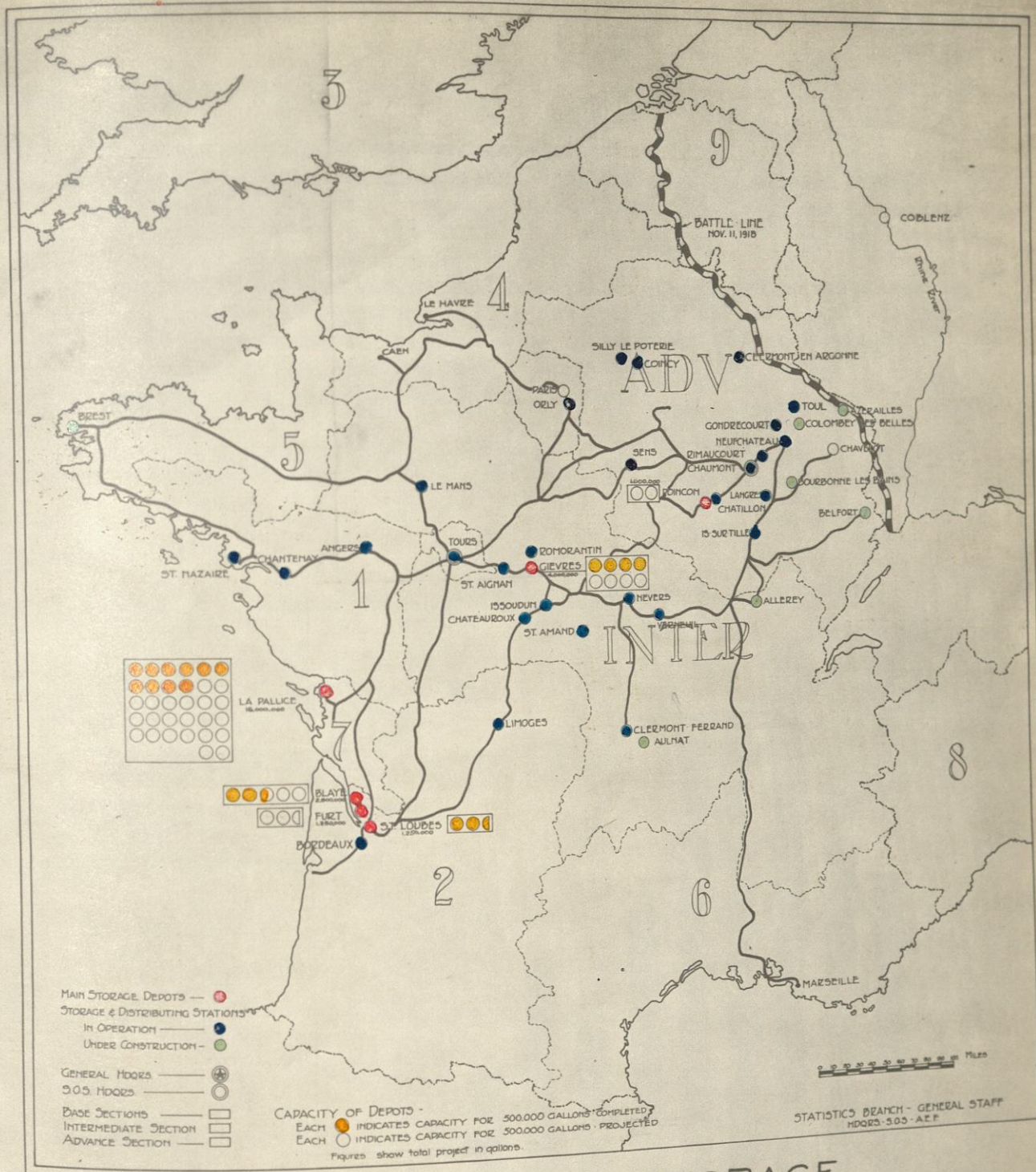
Source of information: Office of Chief Quartermaster, Hq., S.O.S.

MONTHLY CONSUMPTION IN THOUSANDS OF GALLONS



TOTAL GASOLINE CONSUMPTION
Jan. 1, 1918 to May 1, 1919

	Gallons	Per cent
Motor	87,663,056	94
Aviation	5,627,572	6
TOTAL	93,290,628	100



GASOLINE & OIL STORAGE

Practically all of the gasoline used by the American forces was obtained from America, most of it coming in tank steamers to specified ports where large storage facilities were provided.

The main seaboard depot was La Pallice, which had a completed capacity of 5,000,000 gallons with 11,000,000 gallons additional projected.

Tank cars and trucks conveyed the gasoline to the main intermediate depot at Gievres, and to many smaller storage and distributing stations with capacities of 7,500 to 15,000 gallons each.

Work on an advance depot of 1,000,000 gallons capacity at Poincon was discontinued at the signing of the Armistice.

A considerable amount of gasoline and practically all of the lubricating oil was received in 50 gallon drums and 5 gallon cans which made convenient receptacles for the distribution to other points than the regular storage stations.

COAL PROCURED MONTHLY IN THE A.E.F.

Coal was procured almost exclusively from England.

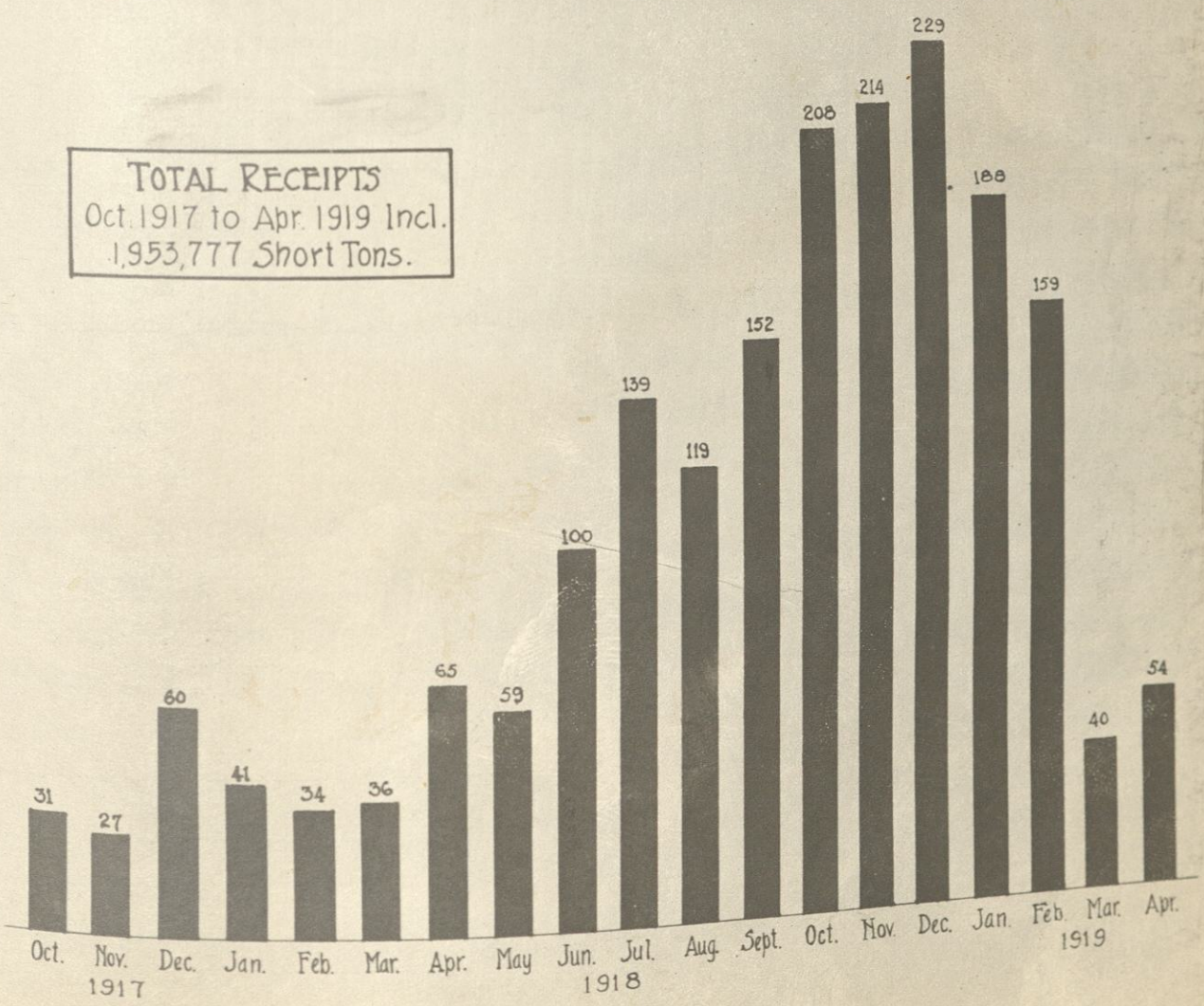
Under the convention entered into October 3, 1917, the total tonnage was to be delivered to the French Government. Against the credit thus established, the French Government was to supply units and organizations of the American Expeditionary Forces with coal as needed at points desired.

Figures in the diagram are the importations by the A.E.F. and not the net amount received by them from France. On November 15, 1918 there was due the American Expeditionary Forces by the French, on the covenant above referred to, 253,660 tons, most of which had been returned by the spring of 1919.

Figures given include 40,000 tons of coke.

Source of information: Office of Chief Quartermaster, Hq., S.O.S.

MONTHLY COAL RECEIPTS IN THOUSANDS OF SHORT TONS



CLOTHING PROCUREMENT

Total quantities of certain representative items of clothing received from the United States and from Europe to May 1, 1919. Clothing carried by troops not included. Figures are in thousands.

The initial equipment of clothing for the average soldier for overseas service was substantially as follows:

Breeches & trousers, wool	2	Overcoat	1
Belts, waist	1	Puttees, spiral (pr.)	1
Cap, overseas	1	Shirts, flannel	2
Coat, wool	1	Shoes, field (pr.)	2
Drawers, winter	4	Slicker	1
Gloves, wool (pr.)	1	Stockings, wl. heavy (pr.)	4
Blankets, wool	1	Undershirts, winter	4

Source of information: Office of Chief Quartermaster, Hq., S.O.S.

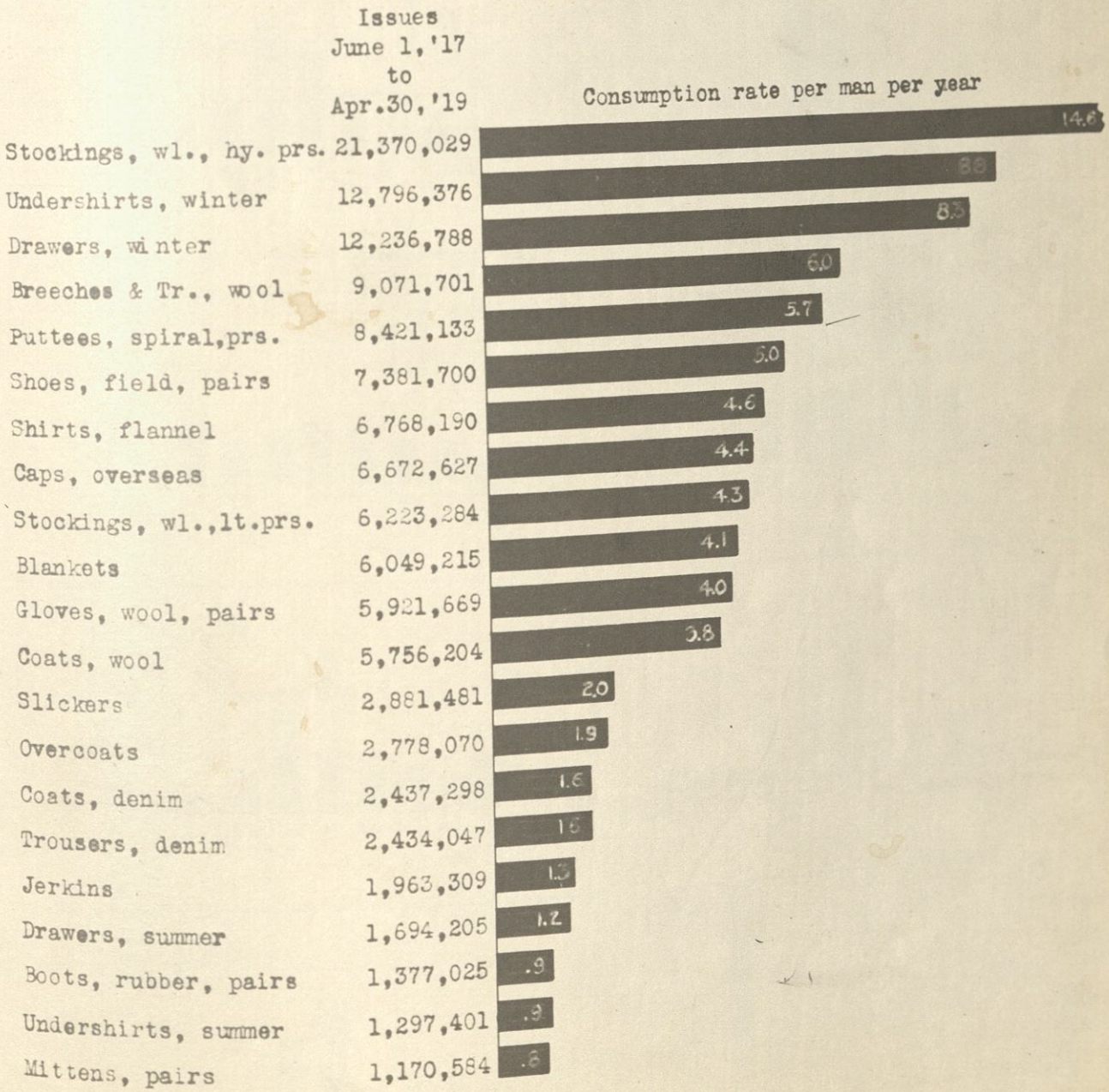
	Received From U. S.	Received From Europe	Total Rec'd.	Percentage from U.S. & from Europe
Slickers, all kinds	3,178	0	3,178	100
Jerkins, all kinds	3,174	0	3,174	100
Overcoats	2,485	0	2,485	100
Mittens, all kinds	5,038	52	5,090	99
Boots, rubber	1,915	79	1,994	96
Shirts, wool	8,922	741	9,663	92
Breeches & Tr., wl.	10,183	1,309	11,492	89
Blankets, all kinds	3,987	579	4,566	87
Gloves, wool	7,796	1,150	8,946	87
Stockings, wl., hy.	28,390	4,622	33,012	86
Drawers, wool	16,179	2,842	19,021	85
Coats, wool	6,000	1,118	7,118	84
Puttees, spiral	8,360	1,618	9,978	84
Undershirts, wool	15,196	2,912	18,108	84
Shoes, field	10,532	2,117	12,649	83
Caps, overseas	3,626	4,472	8,098	45 / 55

(Figures in Thousands)

CLOTHING - TOTAL ISSUES AND ANNUAL CONSUMPTION RATE

A.E.F. consumption rate per man per year of principal articles of clothing, based upon actual issues. Total issue figures are net. They do not include articles issued but later returned to stock.

Source of information: Office of Chief Quartermaster, Hq. S.O.S.



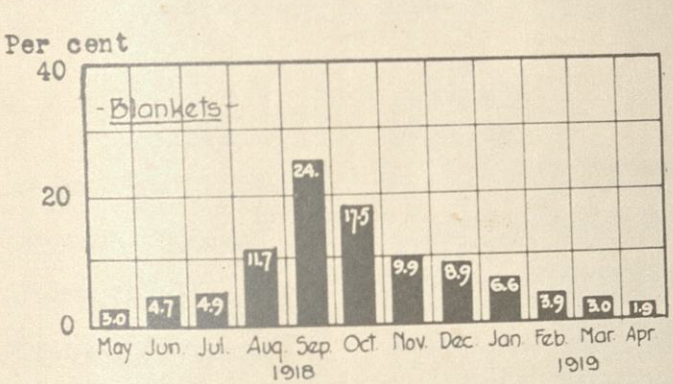
CLOTHING, MONTHLY ISSUES OF IMPORTANT ARTICLES

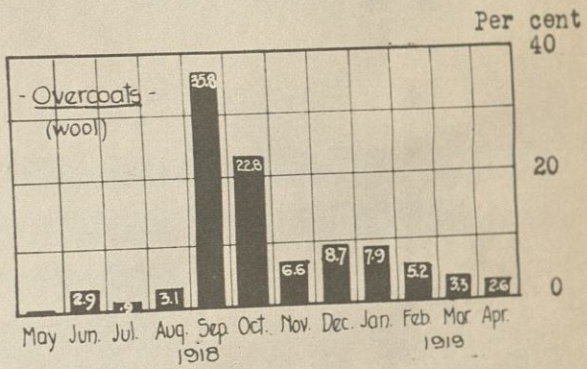
Issues of clothing are not uniform over the entire year, heavy articles being issued in the early fall, and light articles in the spring.

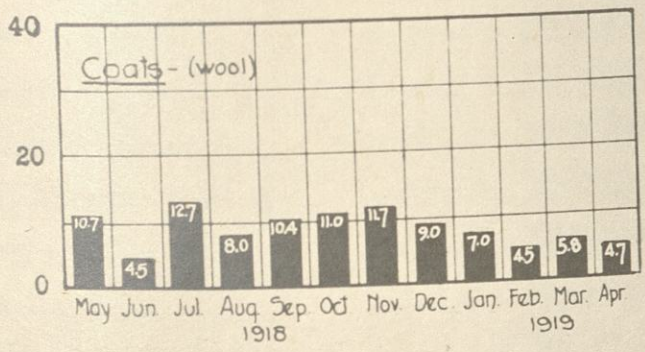
Taking the issue per man per year at 100 per cent, the following diagrams show for certain representative items the percentages issued during the various months.

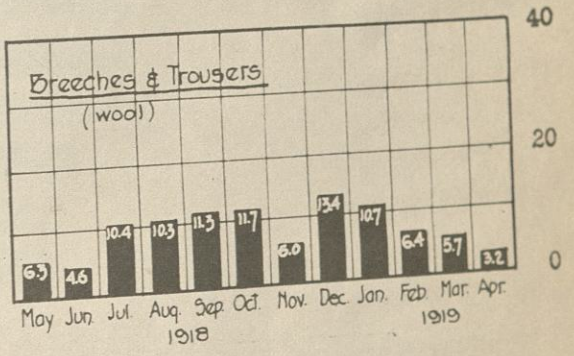
Figures are based upon the actual net A.E.F. issues for the year May 1, 1918 to May 1, 1919.

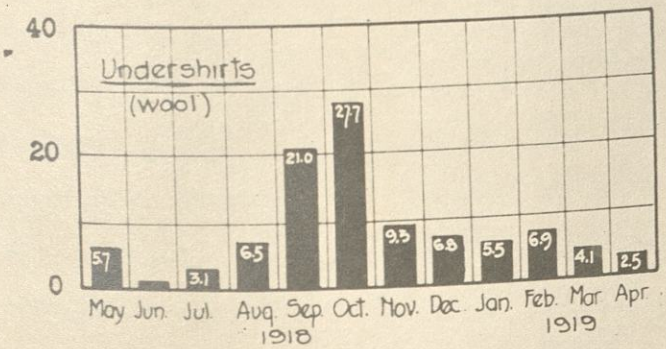
Source of information: Office of the Chief Quartermaster, Hq., S.O.S.

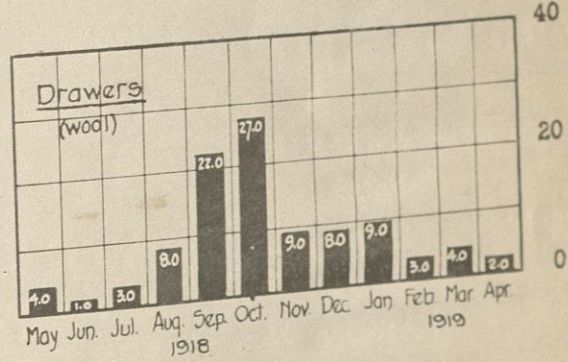


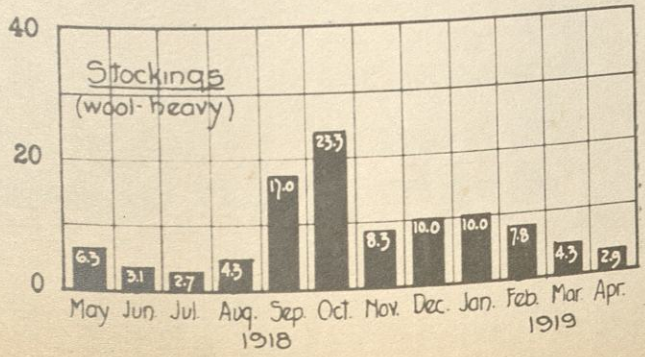


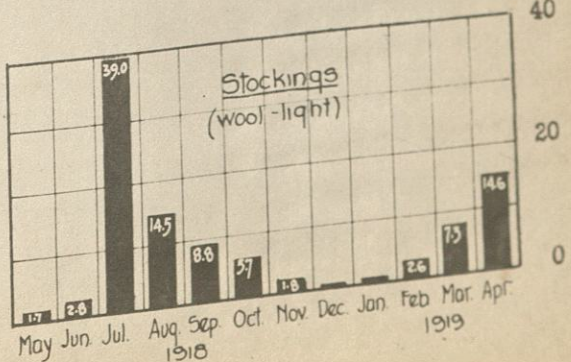












CLOTHING, STOCK OF PRINCIPAL ITEMS IN DEPOTS, NOVEMBER 15, 1918

Stocks are shown in per cent of estimated yearly consumption for 2,000,000 men. The estimates are based on actual issue rates for the year May 1, 1918 to May 1, 1919. Stock cannot properly be shown in terms of months' supply, as consumption of seasonal articles varies greatly throughout the year.

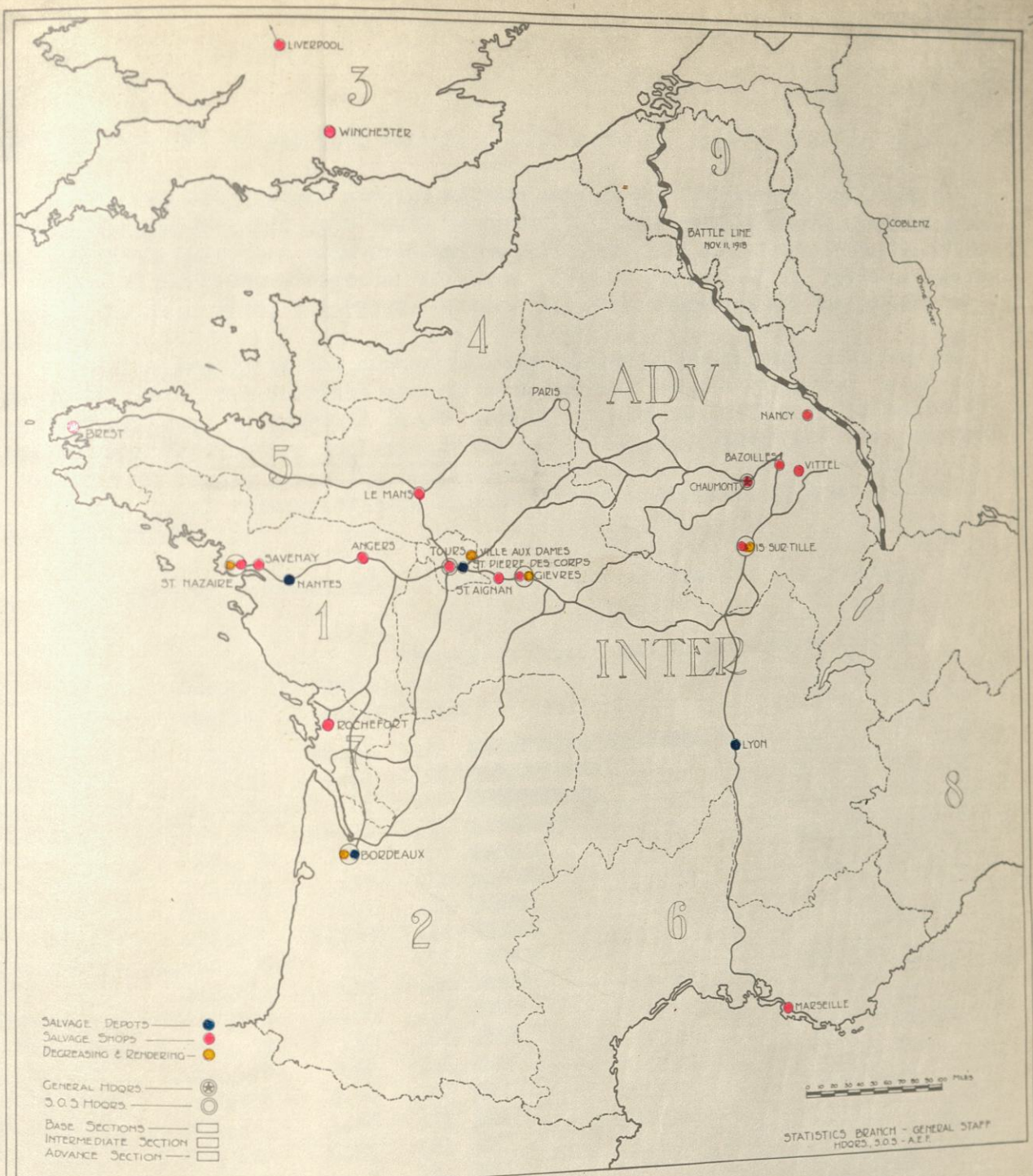
Some idea of what the stocks below mean, however, in terms of months' supply can be obtained by keeping in mind that if the issue were uniform, 12.5 per cent of the annual consumption would constitute 45 days' reserve. Upon this basis, only 5 of the 23 items shown below were below this point.

Source of information: Office of Chief Quartermaster, Hq., S.O.S.

Article	Stock on hand Nov. 15	Stock on hand in per cent of annual consumption
Undershirts, summer	2,672,737	148
Drawers, summer	2,181,208	92
Stockings, wl., light	4,187,693	48
Trousers, denim	1,520,094	45
Jerkins, all kinds	1,118,799	42
Coats, denim	1,354,172	42
Boots, rubber	765,178	41
Gloves, wool	2,737,927	34
Stockings, wl., hy.	9,327,076	32
Drawers, winter	4,971,991	30
Coats, wool	1,697,446	22
Shoes, field	1,998,082	20
Shirts, flannel	1,815,040	20
Undershirts, winter	2,994,395	17
Puttees, spiral	1,865,948	16
Gauntlets, assorted	239,169	16
Belts, waist	533,901	15
Breeches & Tr., wl.	1,678,397	14
Slickers	432,403	11
Blankets	877,983	11
Overcoats, wool	344,105	9
Caps, overseas	391,128	5
Mittens, all kinds	70,783	4

100 per cent

12½ %



SALVAGE SERVICE ACTIVITIES

In addition to equipment turned in to the salvage service from camps and billeting areas, articles of all kinds were collected at the front by special squads and returned to depots and shops through the railheads and regulating stations, as transportation could be secured. During the Meuse-Argonne offensive, one salvage squad was assigned to a division. Few trucks were available; and, at the date of the armistice, 4000 loads of salvaged materials were piled along the roads in the 1st Army area.

The Kitchen Economics Branch restored to use large quantities of condemned food supplies; and, through its de-greasing plants, used waste supplies from the kitchen in the manufacture of soap and dubbin.

At its maximum, the salvage service was operating five depots, twenty-one shops, sixty-five laundries, five hundred and ten disinfectors, and over a thousand baths, in addition to large bathing plants established at ports and embarkation areas.

SALVAGE SERVICE, REPAIR COST JUNE 1, 1918 TO MARCH 31, 1919

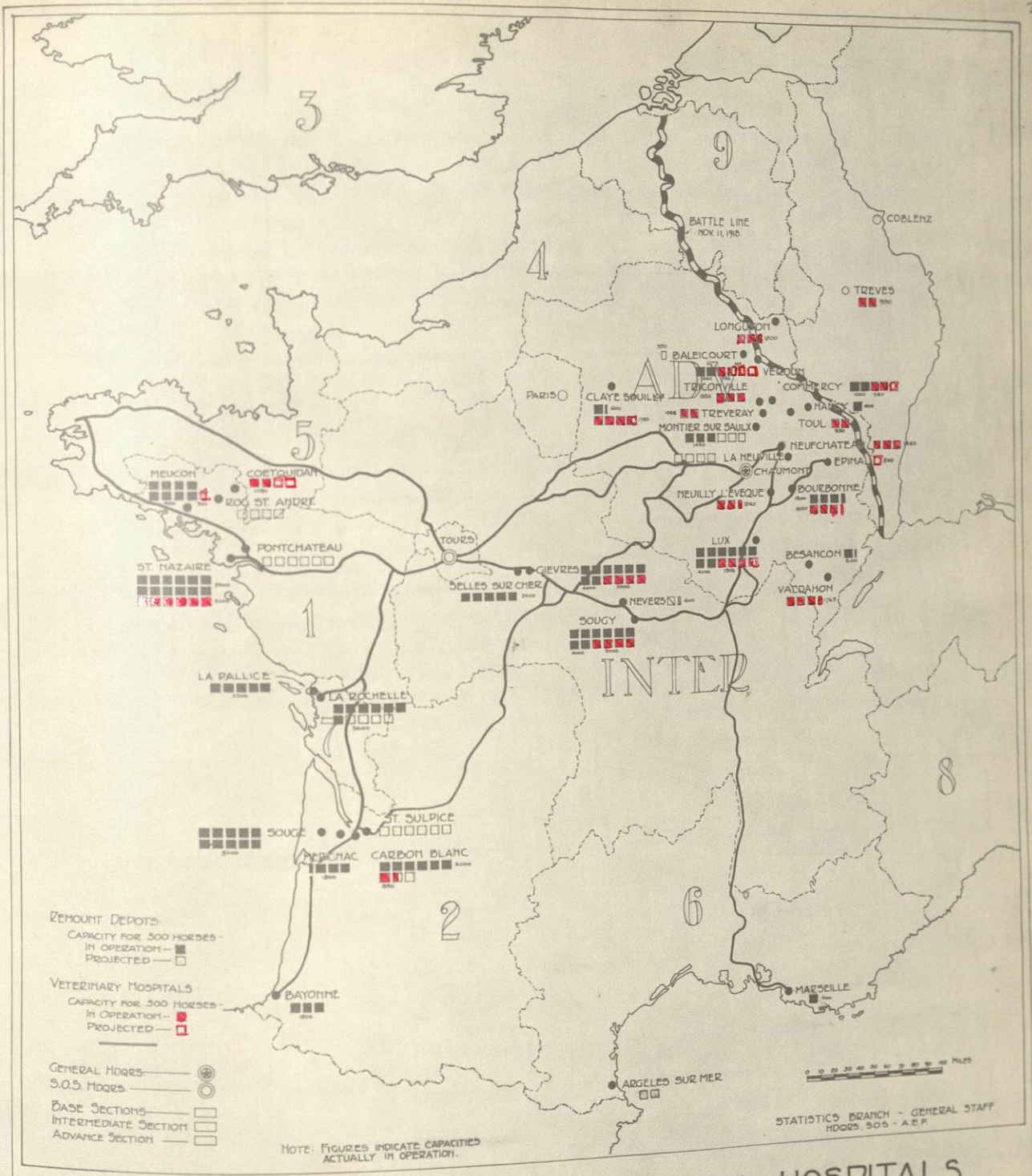
During the present war the salvage service has demonstrated that what was in former wars a distinct loss could be turned into a tremendous asset. Tonnage space and raw materials were conserved and an unlimited field opened for the utilization of material heretofore regarded as waste. Over 90 per cent of all articles received during the year 1918, regardless of condition, were renovated and turned back to service.

Below are given the number of items handled by the salvage service up to March 31, 1919, the original cost of each article, the average cost of repair, and this repair cost interpreted in per cent of the cost new. All articles handled by the salvage service are included in the tabulation, even though the repair may have consisted of simply a washing or pressing.

The total recoveries made by this service to April 30, 1919 were valued at $125,367,325.

Source of information: Office of Chief Quartermaster, Hq., S.O.S.

	Number Handled	Orig. cost	Average cost Repair	Repair cost in per cent of cost new — Repair Cost — Original cost 100%
Helmets, steel	262,403	$2.05	$.95	46
Shoes, garrison	394,116	4.50	1.05	23
Stockings, cotton	1,120,855	.16	.03+	22
Shoes, field	1,808,382	6.81	1.12	17
Haversacks	223,665	3.89	.52	13
Pack Carriers	181,528	.87	.11	13
Shelter halves	174,306	1.81	.22	12
Leggins, canvas	404,281	1.05	.12+	12
Stockings, wool	1,463,205	.35	.04+	12
Boots, hip	147,842	6.15	.61+	10
Hats, service	289,564	2.00	.19	9
Undershirts, cot.	1,969,169	.60	.05	8
Drawers, cotton	1,944,478	.60	.03	5
Belts, cartridge	204,716	3.60	.23	6
Slickers	208,805	3.85	.22	6
Breeches, wool	2,274,142	4.82	.21	4
Bags, barrack	438,587	.97	.04	4
Coats, denim	564,671	1.55	.06	4
Coats, wool	2,041,423	6.78	.28	4
Bed Sacks	941,142	1.10	.04	4
Undershirts, wl.	1,796,409	2.00	.05	3
Drawers, wool	1,679,720	2.00	.04	3
Trousers, denim	562,325	1.55	.03	3
Overcoats	689,831	13.56	.22	3
Puttees, spiral	355,243	2.20	.03	3
Shirts, flannel	1,419,081	3.50	.05	3
Blankets	1,645,887	6.50	.07	3



NOTE: FIGURES INDICATE CAPACITIES ACTUALLY IN OPERATION.

REMOUNT DEPOTS & VETERINARY HOSPITALS

The program of construction for animal shelter was based upon the assumption that 10% of the animals in France would require housing.

Remount Depots with veterinary hospitals in close proximity were established at the principal base ports, to care for animals arriving from overseas sources until they could be forwarded, and large depots and hospitals were provided in the Intermediate and Advance Sections.

Space was actually available on Feb. 1, 1919, for animals as follows:

	Remount Depots	Veterinary Hosp.	Total
Constructed by A.E.F.	27,700	16,500	44,200
Taken over from French	12,000	11,100	23,100
Total	39,700	27,600	67,300

This total of 67,300 was over 33% of the maximum number of animals ever with the A.E.F.

ANIMALS IN THE A.E.F.

The shortage of shipping, the fact that an animal requires approximately as much space as 4-1/2 tons of cargo, and finally that ships carrying animals must be especially fitted up for that purpose, all combined to render the situation as to animal supply exceptionally difficult.

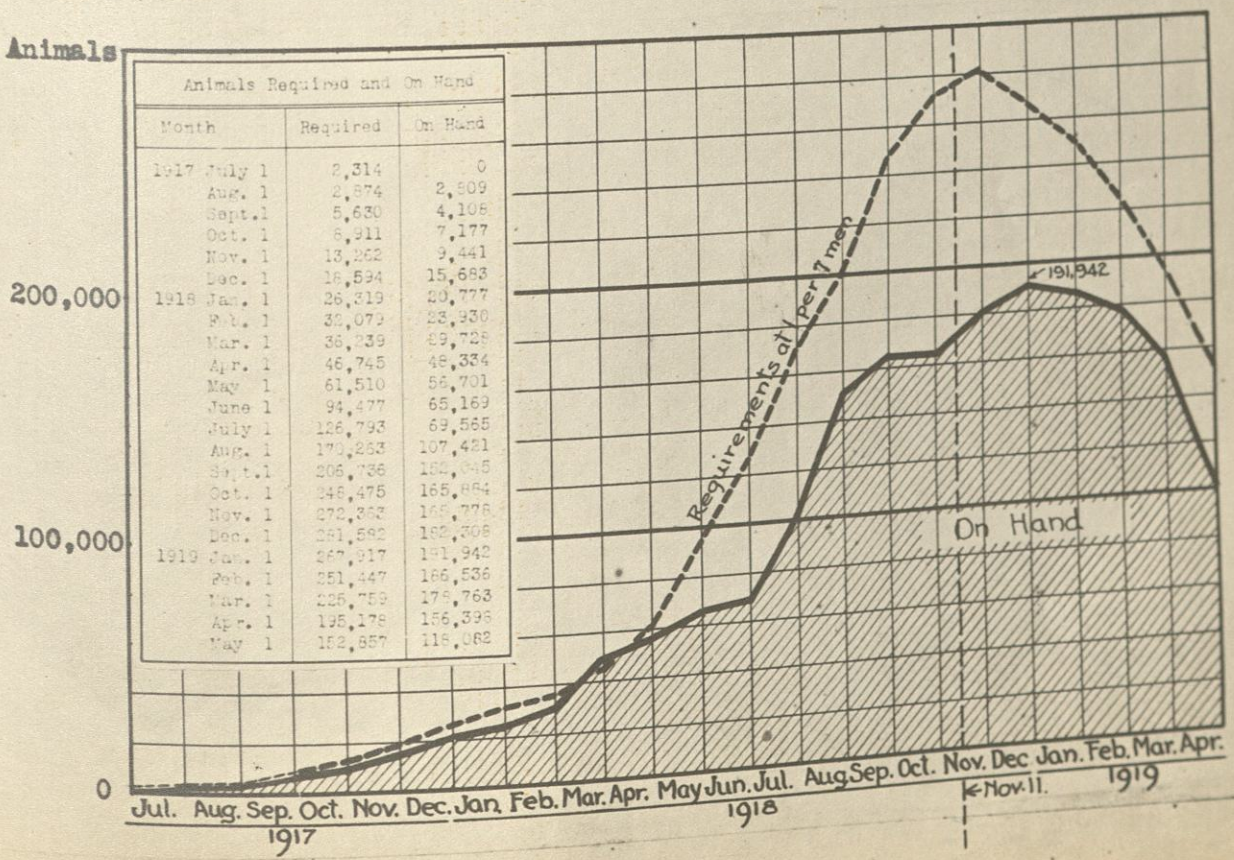
Europe proved incapable of supplying our needs and in the fall of 1918 it was found necessary to refit a number of cargo vessels as animal transports.

The total received up to May 1, 1919 and the sources of supply were as follows:

Received from	Horses	Mules	Total
United States	38,773	28,952	67,725
Great Britain	13,602	7,657	21,259
France	126,922	8,992	135,914
Spain	1,823	16,639	18,462
Total	181,120	62,240	243,360

Tables of Organization at the outbreak of the war called for approximately one animal for every five men. Due to the limited use of cavalry and the increased employment of motor transportation, the A.E.F. was estimating requirements at about one animal for every seven men.

The relation of this requirement to the actual supply is shown in the diagram below and it will be noted that the shortage was becoming increasingly great during the latter months of the war, amounting at the time of the Armistice to over 100,000 animals.



Animals Required and On Hand

Month	Required	On Hand
1917 July 1	2,314	0
Aug. 1	2,874	2,809
Sept.1	5,630	4,108
Oct. 1	8,911	7,177
Nov. 1	13,262	9,441
Dec. 1	18,894	15,683
1918 Jan. 1	26,819	20,777
Feb. 1	32,079	28,930
Mar. 1	38,939	89,728
Apr. 1	46,745	46,334
May 1	61,510	56,701
June 1	94,477	65,169
July 1	126,793	69,565
Aug. 1	170,283	107,421
Sept.1	206,736	152,[illegible]
Oct. 1	248,475	165,864
Nov. 1	272,352	169,776
Dec. 1	281,582	182,308
1919 Jan. 1	269,917	191,942
Feb. 1	251,447	166,536
Mar. 1	225,759	178,763
Apr. 1	195,178	156,396
May 1	152,857	118,082

FORAGE - PROCUREMENT AND SUPPLY ON HAND

The daily allowance of forage per animal in the A.E.F. was changed from time to time, but a ration of 14 pounds of hay, 12 pounds of oats and 2 pounds of bran was considered the most satisfactory standard.

This ration weighed approximately seven times as much as the standard garrison ration for troops; or, in other words, to supply 200,000 animals required as much tonnage as to ration 1,400,000 men.

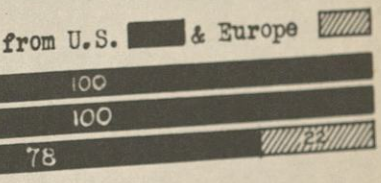
It was expected that a large proportion of the forage, particularly hay, could be secured in Europe, but this was found impossible and all of the oats and bran, together with 78 percent of the hay had to be brought from the United States.

The situation with regard to forage was at times extremely critical and frequently the stock at the advance rationing depots dropped as low as one days supply.

The amount, sources of procurement and total days supply in A.E.F. depots is shown in the diagrams below.

PROCUREMENT FROM U.S. AND FROM EUROPE TO MAY 1, 1919

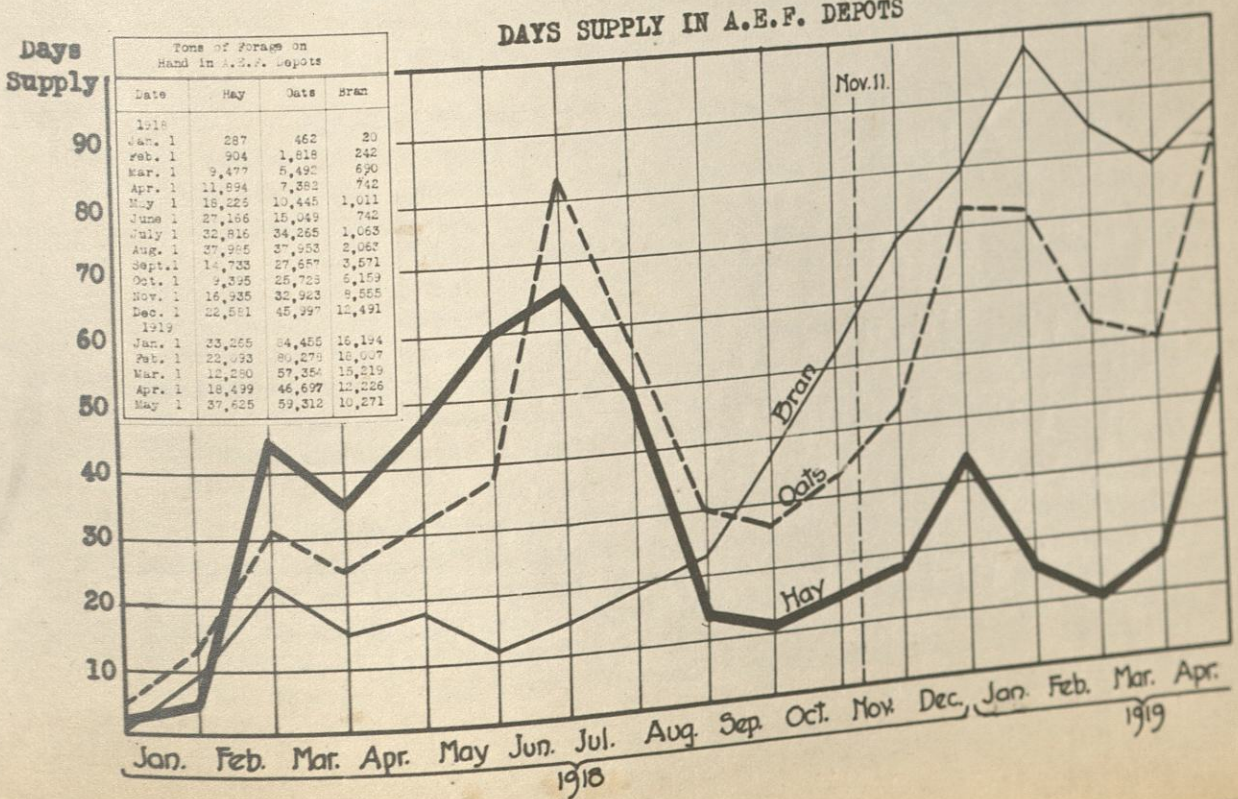
	Short tons received From U. S.	From Europe	Total Received
Oats	391,215	0	391,215
Bran	30,122	0	30,122
Hay	312,956	90,117	403,073
TOTAL	734,293	90,117	824,410



DAYS SUPPLY IN A.E.F. DEPOTS

Tons of Forage on Hand in A.E.F. Depots

Date	Hay	Oats	Bran
1918			
Jan. 1	287	462	20
Feb. 1	904	1,618	242
Mar. 1	9,477	5,492	690
Apr. 1	11,894	7,382	742
May 1	18,226	10,445	1,011
June 1	27,166	15,049	742
July 1	32,816	34,265	1,063
Aug. 1	37,985	37,953	2,067
Sept.1	14,733	27,857	3,571
Oct. 1	9,395	25,728	6,159
Nov. 1	16,935	32,923	8,555
Dec. 1	22,581	45,997	12,491
1919			
Jan. 1	33,265	84,455	16,194
Feb. 1	22,993	80,478	18,007
Mar. 1	12,290	57,354	15,219
Apr. 1	18,499	46,697	12,226
May 1	37,625	59,312	10,271



MEDICAL DEPARTMENT

No problem in connection with the conduct of a military campaign is of more importance than the care of the health of the fighting forces.

In former wars, disease has always been a more formidable adversary than the enemy, and has exacted a higher death toll.

It speaks volumes for the efficiency of the American medical service, that not only has the disease death rate in the present war been the lowest in military history, but for the first time it has been less than deaths from battle, averaging only seventeen per thousand per year.

Further, the system of evacuation and care of the wounded had reached such a high level that but 5% of the wounded died, while over 70% were able to return to duty.

The duties of the Medical Department comprised essentially:

1. The initiation and supervision of sanitary measures to insure the health of troops and of the inhabitants in occupied territory.
2. The care, methodical disposition and transportation of the sick and wounded.
3. The establishment and administration of hospitals and other formations necessary for the care of the sick and wounded.
4. The supply of sanitary material to meet the needs of the sick and other medical activities.
5. The preparation and preservation of proper records of the sick and wounded, and of medical department personnel
6. The care and treatment of sick and disabled animals

For our forces in France, this work was administered through the office of the Chief Surgeon, A.E.F. This office was sub-divided into administration, personnel, hospitalization, transportation, supply, finance, sanitation and veterinary activities.

The problem of hospitalization was the greatest and most urgent one. It was met partly by the construction of new hospital buildings, partly by obtaining from the French buildings of every sort which were in any way suitable as hospitals. The coincidence of heavy battle casualties with the peak of the influenza-pneumonia epidemic in the fall of 1918 taxed, to the utmost the resources of housing and personnel, but all needs were met by a system of crisis expansion by tentage.

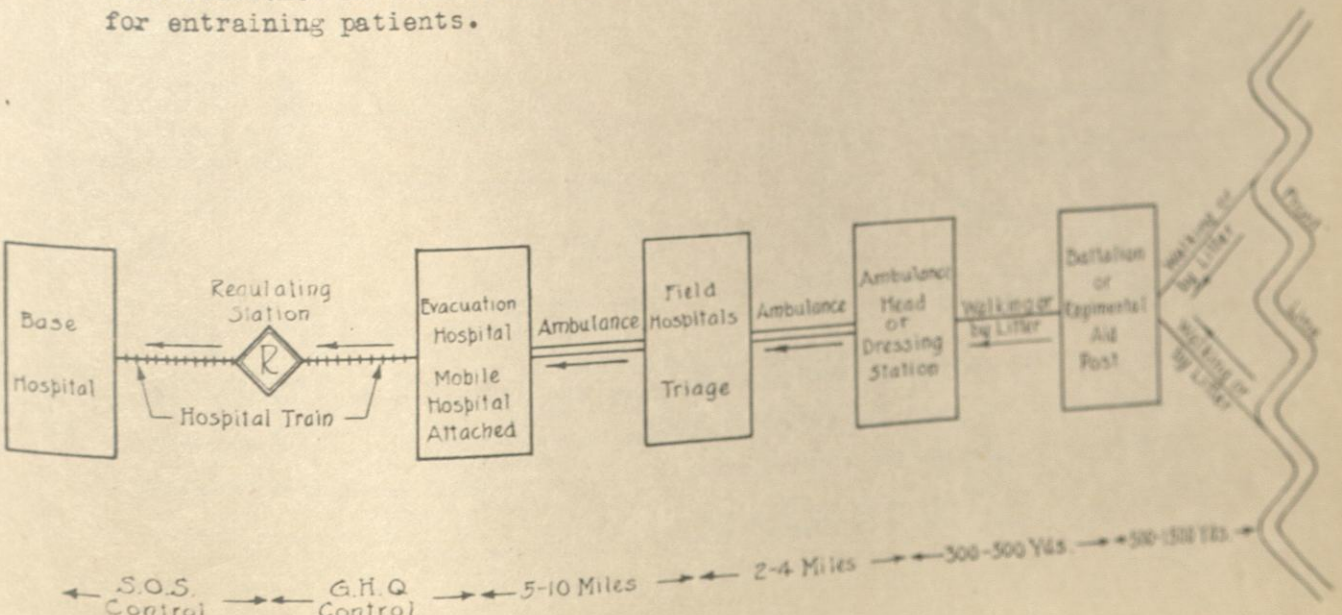
The work of sanitation in the A.E.F. presented many difficult problems because of the nature of the country, its climate, and the great dispersion of our new troops throughout inhabited rural districts. The health of the troops was, however, remarkable, especially noticeable being the absence of serious epidemics of contagious diseases, such as usually afflict troops in campaign. The only one of consequence was the influenza-pneumonia epidemic in the Fall of 1918, but even this was much less serious in the A.E.F. than in the United States.

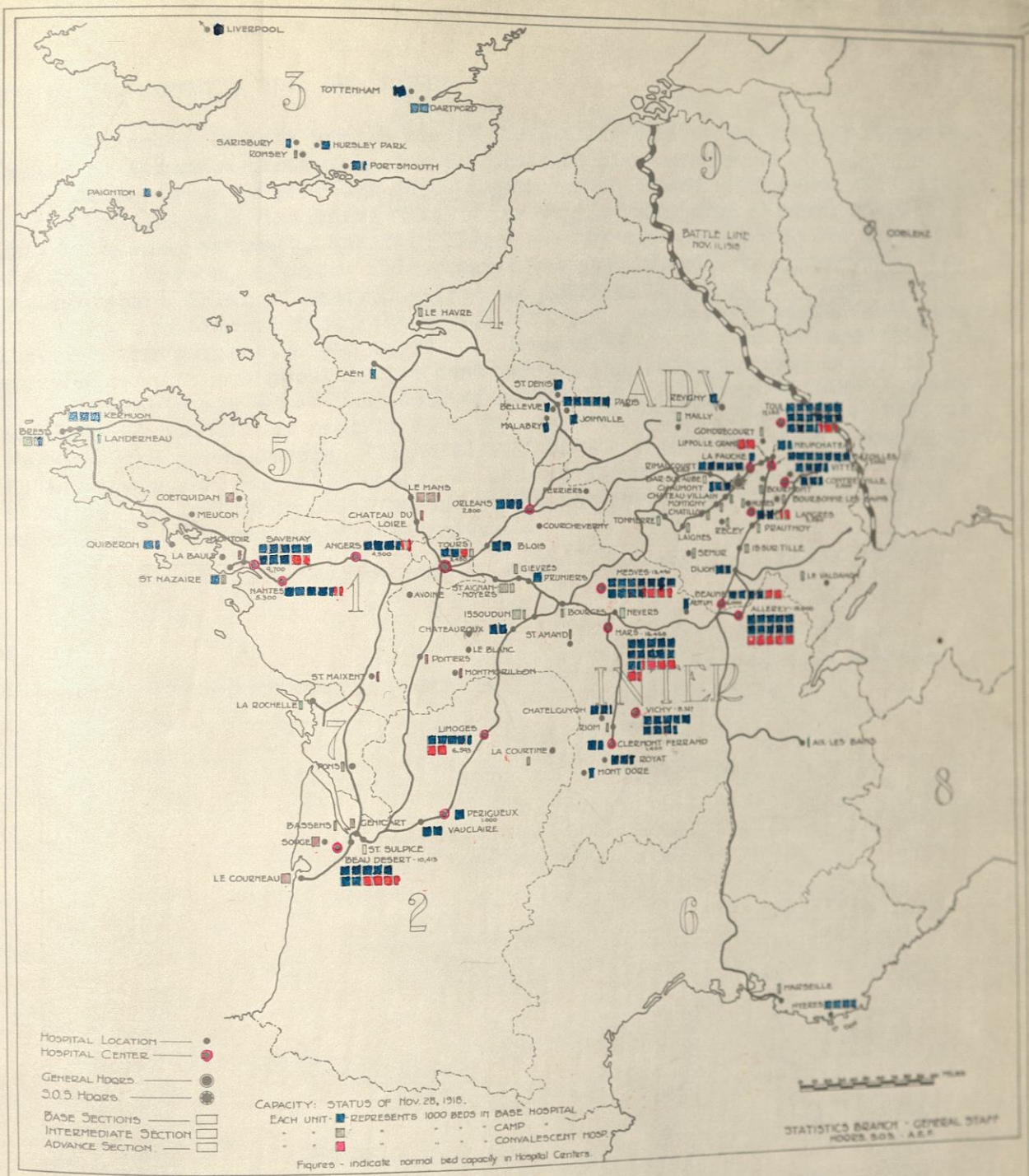
EVACUATION OF THE SICK AND WOUNDED

Battalion and regimental aid posts were the most advanced stations for the collection of casualties in battle. From these posts, they were brought to the Ambulance Head or Dressing Station, which was the farthest advanced point for motor transports. The slightly wounded reached the Dressing Station by walking, the others were carried by litter bearers. From the Dressing Station, patients were carried to the Triage, which was operated by one or more of the four Field Hospital Units of the Division. At the Triage, slightly sick and wounded, particularly the psycho-neurosis or "shell-shock" cases, were held, and the other patients distributed to the other field hospitals, the very severely wounded being sent to one of them especially equipped to operate upon and care for such cases.

The transportation of patients from Field Hospitals to Evacuation and Mobile Hospitals was accomplished by the sanitary Train of the Corps, supplemented by Evacuation Ambulance Companies, assigned from the Army. From Evacuation and Mobile Hospitals, patients were sent in hospital trains to Base Hospitals, which were their final destination.

There were 21 hospital trains in service which were acquired by purchase in England and France. These had a capacity of between 300 and 400 lying cases each, but as many as 670 patients have been transported in one train. The division sanitary trains which carried the patients between Dressing Stations and Field Hospitals, or sometimes served the Evacuation or Mobile hospitals directly, were allowed 41 GMC ambulances. These were supplemented by the Corps Sanitary Train, consisting of two ambulance companies of 12 ambulances each. In addition evacuation ambulance companies, consisting of 20 ambulances each, were stationed at Evacuation and Mobile Hospitals in numbers to meet the need for entraining patients.





HOSPITALS

Hospitalization for the A.E.F. was fundamentally divided into two main classes: Front Line Hospitals, which were movable and accompanied troops; and Rear Line, which occupied fixed postions. Only the latter are shown on the above map. These were further classified as:

Camp Hospitals — Serving troops in a limited local area — standard unit, 300 beds.

Base Hospitals — Receiving patients evacuated from the front line and camp hospitals - standard unit 1000 beds, with crisis expansion to 2,000 beds.

Hospital Centers — A new departure in army hospitalization — a group of base hospitals and convalescent camps, under central administration.

Convalescent Camps — Camps, operating as a part of hospital centers, to which patients were transferred for classification or to hasten their recovery.

Total space was provided for 280,000 beds - 141,000 in buildings constructed by A.E.F. and 139,000 in French buildings taken over. The American construction alone amounted to 7,700 standard hospital barracks, or 127 miles of wards.

ACTUAL AND EXPECTED SICK AND INJURED

In order to have some basis for hospitilization in the A.E.F., it was necessary to assume a percentage for the probable sick and injured.

Experience in previous wars, together with that of the French and British in the present war, indicated that 15 per cent of the total strength would probably be a safe estimate, and this figure was therefore assumed by the Office of the Chief Surgeon, A.E.F. This program was made official by a memorandum from the Assistant Chief of Staff, G-4, to the Chief of Staff, S.O.S., June 1, 1918.

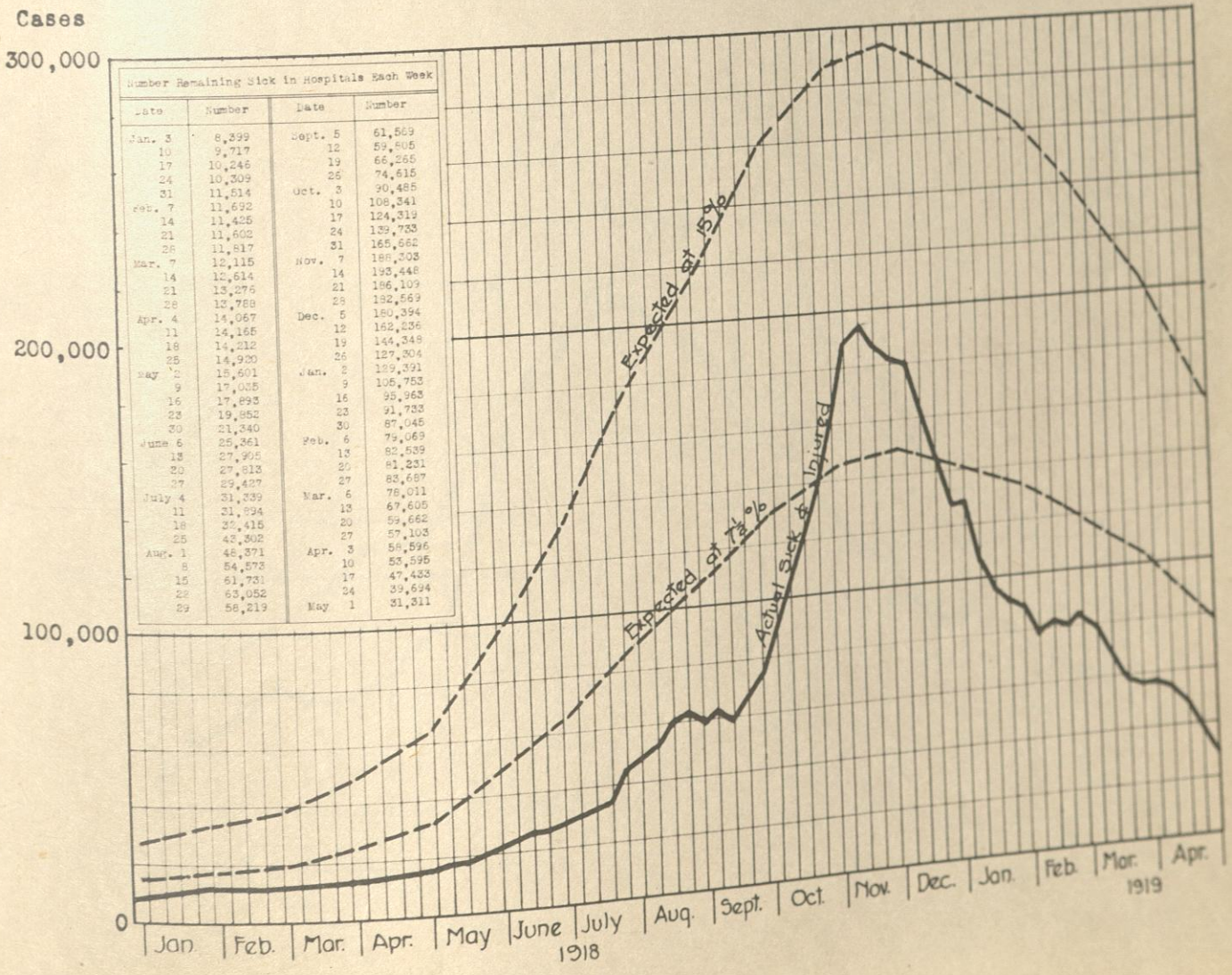
As a matter of fact, the actual sick and injured never reached this figure, although the percentage was rapidly increasing at the time of the armistice. The maximum reached was about 10 per cent for the week ended November 14, 1918.

Immediately after the close of hostilities, this hospitilization program was reduced to 7.5 per cent by G. O. No. 54, Hq., S.O.S., November 14, 1918, as shown in the curve labeled "Expected at 7.5%". Figures for those remaining sick in hospitals, as per table below, do not correspond exactly with beds occupied shown on the following page for the reason that they are taken from different reports, and time not exactly coincident.

Source of information: Office of Chief Surgeon, Hq., S.O.S.

Number Remaining Sick in Hospitals Each Week

Date	Number	Date	Number
Jan. 3	8,399	Sept. 5	61,569
10	9,717	12	59,805
17	10,246	19	66,265
24	10,309	26	74,615
31	11,514	Oct. 3	90,485
Feb. 7	11,692	10	108,341
14	11,425	17	124,319
21	11,602	24	139,733
28	11,817	31	155,662
Mar. 7	12,115	Nov. 7	168,303
14	12,614	14	193,448
21	13,276	21	186,109
28	13,788	28	182,569
Apr. 4	14,067	Dec. 5	160,394
11	14,165	12	162,236
18	14,212	19	144,348
25	14,900	26	127,304
May 2	15,601	Jan. 2	129,391
9	17,035	9	105,753
16	17,893	16	95,963
23	19,852	23	91,733
30	21,340	30	87,045
June 6	25,361	Feb. 6	79,069
13	27,905	13	82,539
20	27,813	20	81,231
27	29,427	27	83,697
July 4	31,339	Mar. 6	78,011
11	31,894	13	67,605
18	32,415	20	59,662
25	43,302	27	57,103
Aug. 1	48,371	Apr. 3	58,596
8	54,573	10	53,595
15	61,731	17	47,433
22	63,052	24	39,694
29	58,219	May 1	31,311



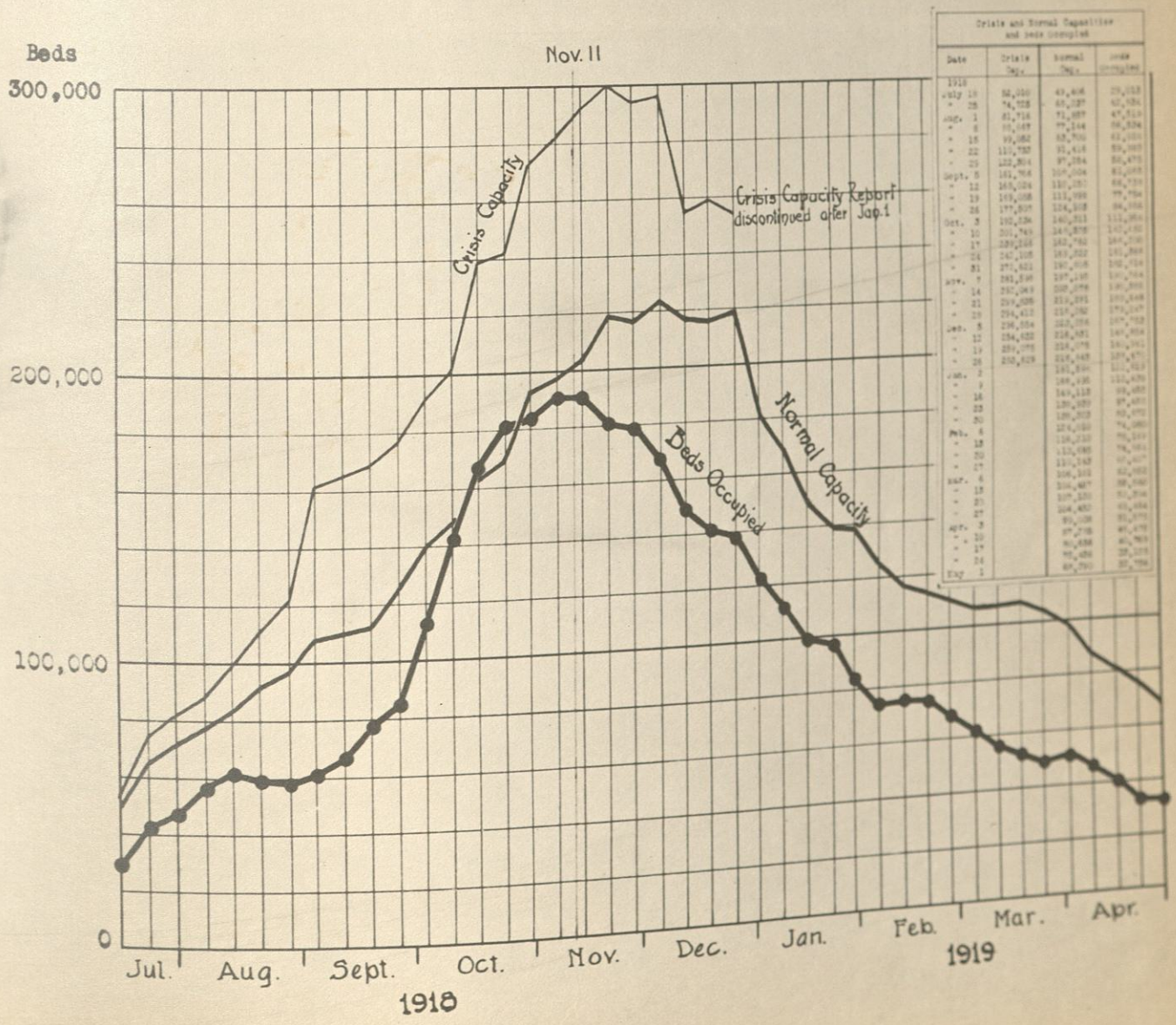
BEDS OCCUPIED VS. NORMAL AND CRISIS CAPACITIES

The curves below cover base, camp, and Red Cross hospitals, and convalescent camps.

The crisis capacity shown represents the normal capacity plus an emergency expansion by means of tents, and by placing beds closer together.

It will be noted that only once during the period shown did the number of beds occupied exceed the normal capacity, this being at the time when the severe influenza epidemic coincided with the heavy fighting in the Argonne-Meuse operations. Even at this point, however, the crisis capacity exceeded the beds occupied by over 60,000.

Source of information: Office of the Chief Surgeon, Hq., S.O.S.



SAVENAY HOSPITAL CENTER

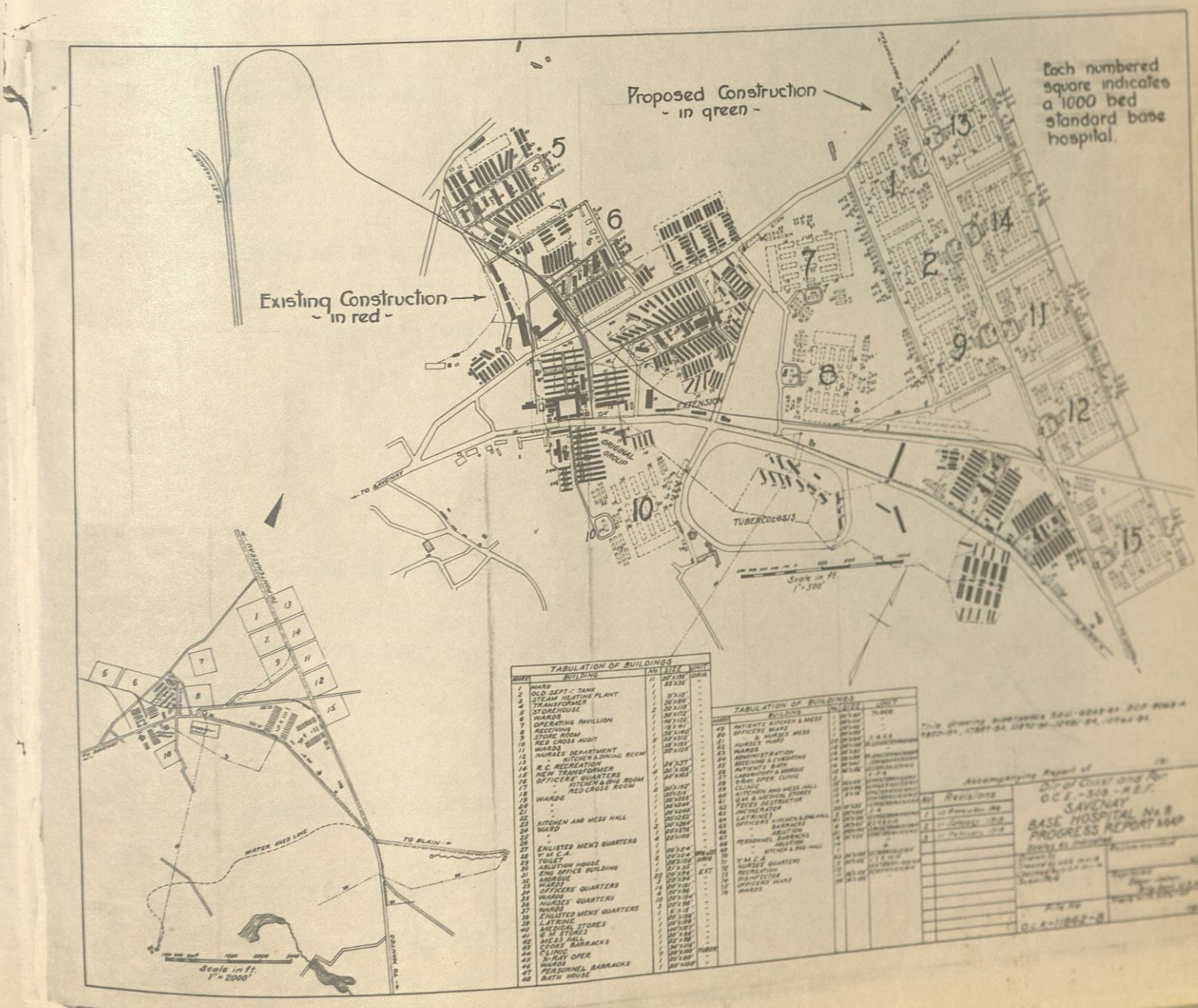
The Hospital Center plan was an American innovation in this war, and had never been used before in army hospitalization. The fundamental idea was a group of base hospitals and convalescent camps under centralized administration, with a commanding officer and staff responsible for the whole.

Each base hospital unit functioned separately with its own accommodations and personnel, but was subject to the general control of the commanding officer of the Center.

The standard base hospital was equipped to care for 1,000 patients under normal conditions, but an emergency expansion to double the size was provided for by means of tents, utilization of aisle space, etc.

The map below gives a general idea of the lay-out of one of the A. E. F. Hospital Centers - that at Savenay. At the time of the Armistice, accommodations for 9,700 patients were available, and it was planned to add to these, as shown by the dotted lines, 11 standard base hospitals.

The convalescent camp forming a part of this Center does not appear upon the map, as it was located about one mile to the east.



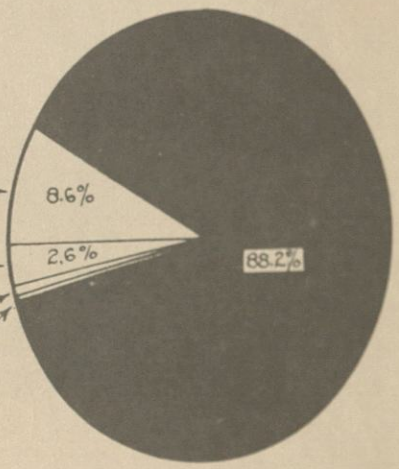
DISPOSITION OF HOSPITAL CASES

The following diagrams cover an analysis of 925,945 patients passing through A. E. F. hospitals between the dates of June 5, 1918 and February 1, 1919. The excellent work done by the Medical Corps is well illustrated by the fact that of the disease cases only 2.6 per cent died, while 88.2 per cent were able to return to duty; and of the wound and injury cases but 5.2 per cent died and 71.4 per cent were turned out fit for service.

Source of information: Office of Chief Surgeon, Hq., S.O.S.

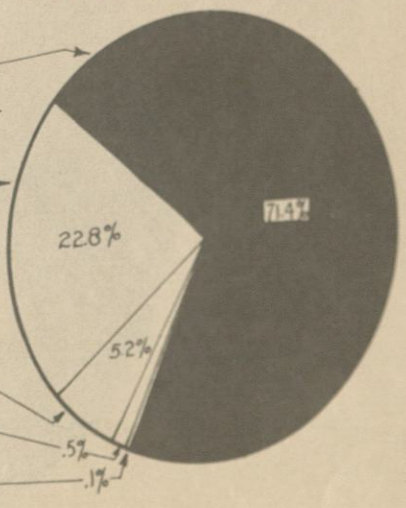
DISPOSITION OF 689,179 DISEASE CASES

Returned to duty	608,185
Invalided home	59,305
Died	18,067
Deserted from hospital	3,505
Otherwise disposed of	117
	689,179



DISPOSITION OF 236,766 WOUND AND INJURY CASES

Returned to duty	169,080
Invalided home	54,153
Died	12,376
Deserted from hospital	1,059
Otherwise disposed of	98
	236,766



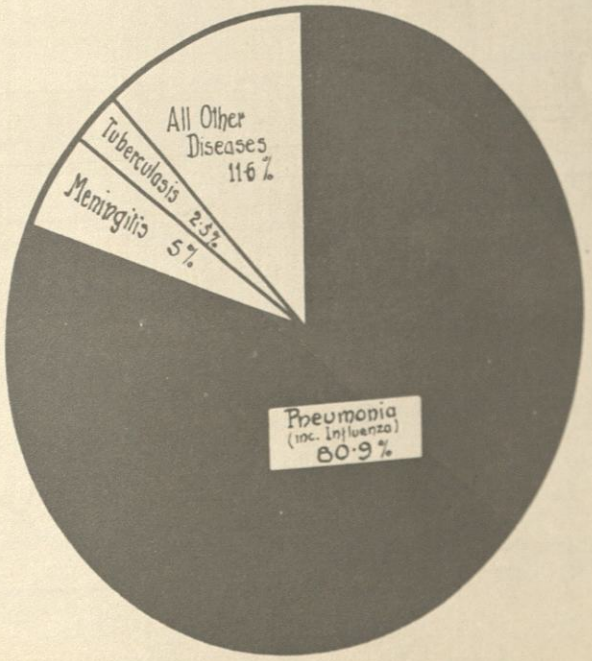
ANALYSIS OF DEATHS FROM DISEASE IN A.E.F., JULY 1917 TO JUNE 3, 1919.

Figures include all deaths from disease reported to June 3, 1919, Cablegram #558 and Couriergram # 46A.

Source of information: Final Casualty Report, Central Records Office, A.G.O., A.E.F.

	Deaths
Pneumonia	18,047
Meningitis	1,163
Influenza	808
Tuberculosis	594
Appendicitis	106
Septicemia	180
Typhoid Fever	166
Nephritis	136
Peritonitis	129
Scarlet Fever	69
Other Diseases	1,840
TOTAL	23,238

PERCENTAGE OF DEATHS FROM DISEASES SHOWN



DEATHS IN ACTION AND FROM DISEASE IN THE A.E.F.

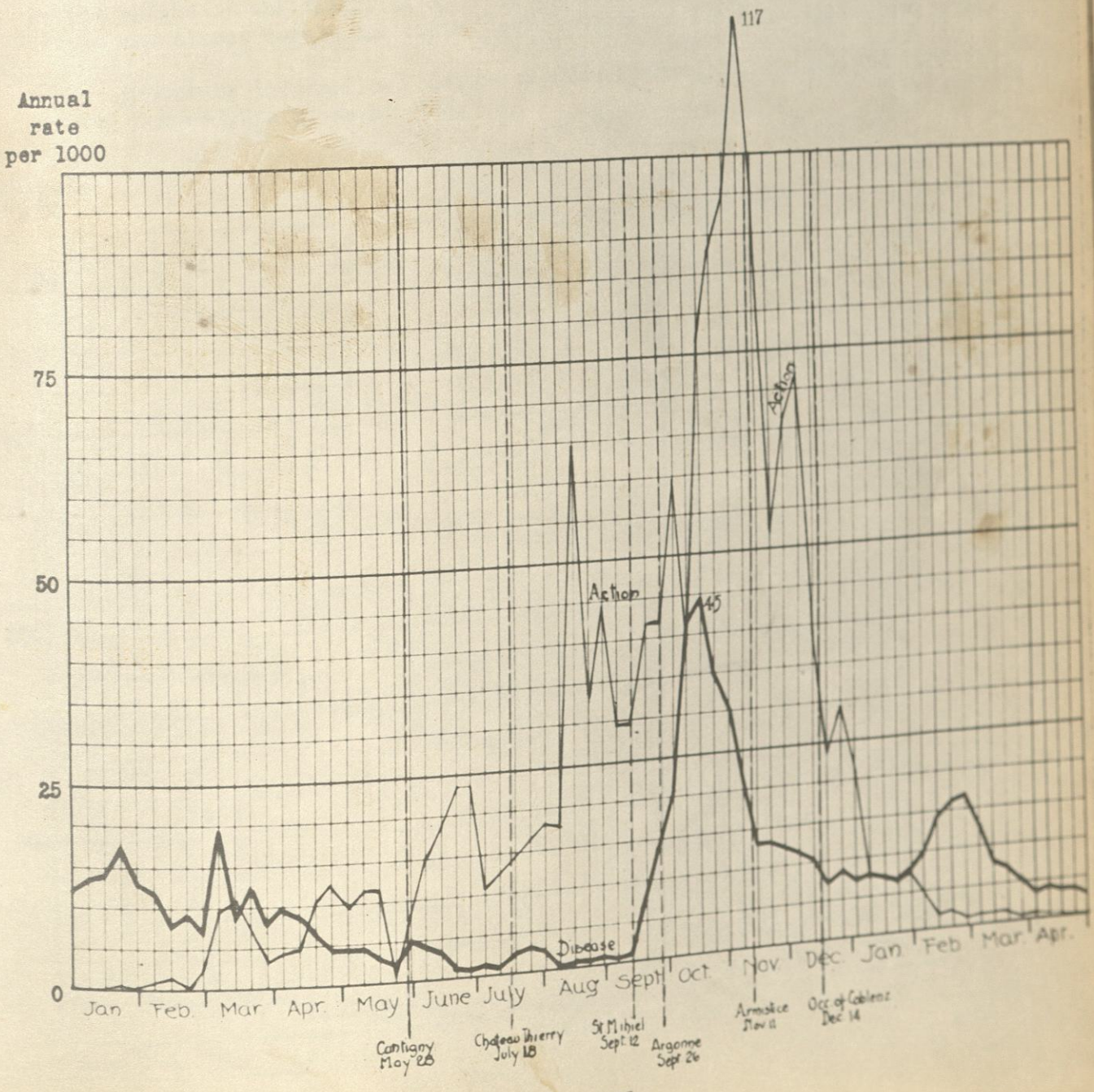
Annual rate per thousand.

The curves are plotted for deaths reported during the week.

There is necessarily a time lag between the occurrence and its report, especially as to deaths in action.

For comparison, there are shown on the diagram the dates of the major American engagements, the position of which with reference to the "action" curve would indicate that this lag ranged from three to four weeks.

Source of information: Office of Chief Surgeon, Hq., S.O.S.



DEATHS FROM PNEUMONIA IN THE A.E.F.

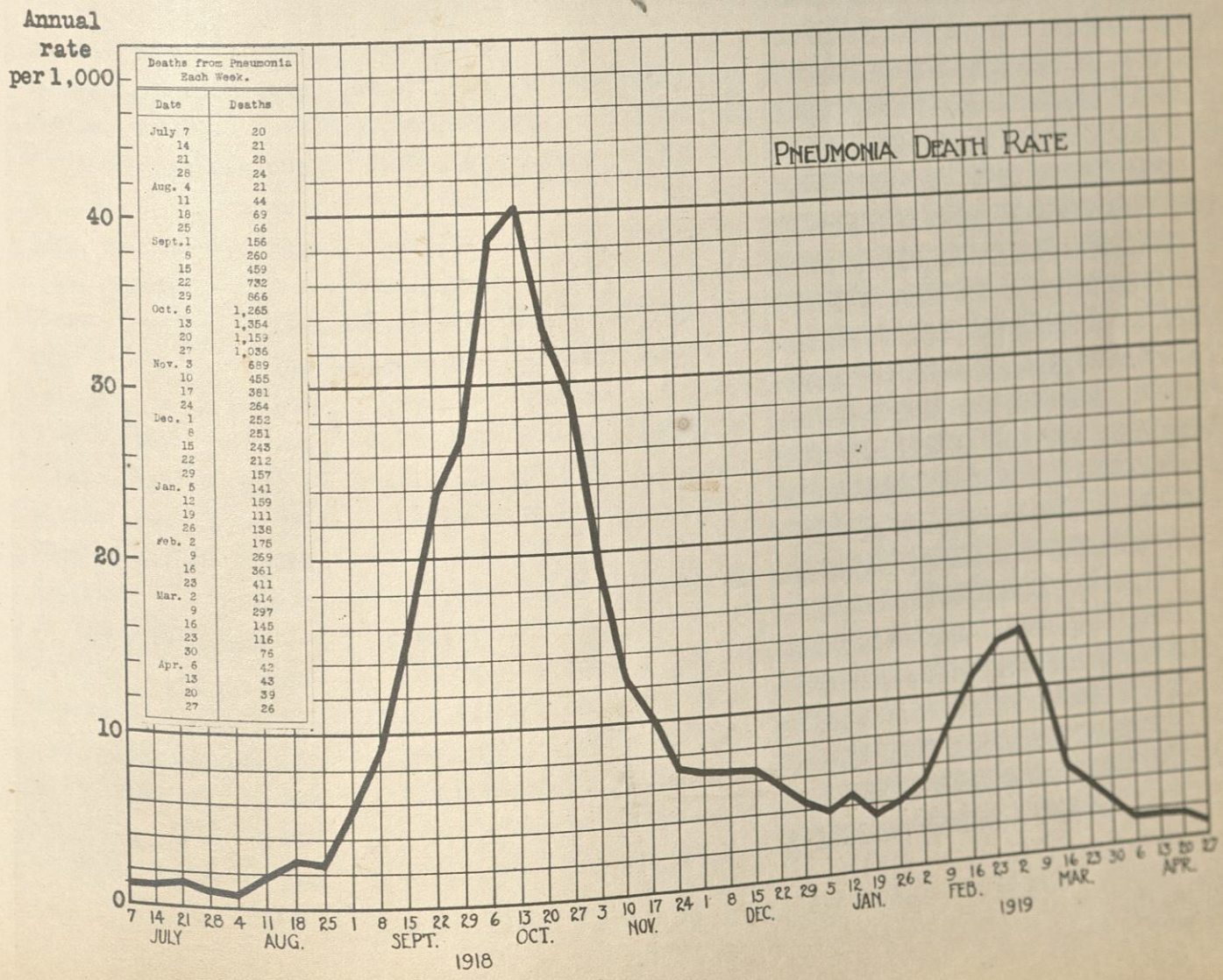
Pneumonia caused over 80 per cent of the deaths from disease, both in the A.E.F. and the army in the United States.

In September and October of 1918 occurred the historic influenza-pneumonia epidemic, which was widespread over the entire United States, and to a somewhat lesser extent among the A.E.F. The effect of this epidemic is clearly shown on the diagram below, and also that of the lesser epidemic which occurred in February and March of 1919 at the time of the troop movement home.

In the diagram influenza figures are included, although relatively few deaths resulted from the influenza itself, but were generally due to the pneumonia which followed.

From July 1917 to June 3, 1919 there were 18,047 deaths from pneumonia and 808 deaths from influenza.

Source of information: Office of Chief Surgeon, Hq., S.O.S.



Deaths from Pneumonia Each Week.

Date	Deaths
July 7	20
14	21
21	28
28	24
Aug. 4	21
11	44
18	69
25	66
Sept. 1	156
8	260
15	459
22	732
29	866
Oct. 6	1,265
13	1,354
20	1,159
27	1,036
Nov. 3	689
10	455
17	381
24	264
Dec. 1	252
8	251
15	243
22	212
29	157
Jan. 5	141
12	159
19	111
26	138
Feb. 2	176
9	269
16	361
23	411
Mar. 2	414
9	297
16	145
23	116
30	76
Apr. 6	42
13	43
20	39
27	26

ISSUES OF MEDICAL SUPPLIES TO MAY 1, 1919

Quantities of certain representative items of Medical supplies received in A.E.F. and amounts issued.

Source of information: Office of Chief Surgeon, Hq. S.O.S.

Item	Unit	Total issues to May 1,'19	Total receipts to May 1'19	Per cent issued	Total receipts 100%
Iodine	gals.	7,500	8,055	93	
Blankets	one	2,216,824	2,570,542	86	
Beds	one	326,786	389,986	84	
Pillows	one	549,229	658,074	84	
Pillowcases	one	1,810,843	2,224,919	81	
Mattresses	one	326,786	418,500	78	
Muslin, unbleached	yds.	300,000	387,385	77	
Towels, bath	one	1,036,800	1,343,842	77	
Sheets, cotton	one	3,440,122	4,487,268	77	
Footpowder	lbs.	1,971,576	3,024,029	65	
Aether	lbs.	588,281	913,480	64	
Slippers	prs.	209,920	351,640	60	
Aspirin	ozs.	230,287	402,041	57	
Pins, common	pkgs.	123,626	217,719	57	
Bandages,gau.,com.	one	37,407,570	66,077,610	57	
Pajamas, suits	one	608,500	1,192,469	51	
First-aid packets	one	2,505,396	5,567,427	45	
Carbolic acid	lbs.	34,000	79,924	43	
Soap	lbs.	1,028,162	2,426,856	42	
Towels, hand	one	1,100,000	2,611,136	42	
Gauze	yds	32,802,966	107,055,986	31	
Iodine swabs	one	1,750,000	6,694,474	26	
Pins, safety	one	3,100,000	16,212,048	19	
Cotton, absorb.	ozs.	1,250,000	11,052,977	11	
Alcohol, ethyl	gals.	50,000	611,616	8	

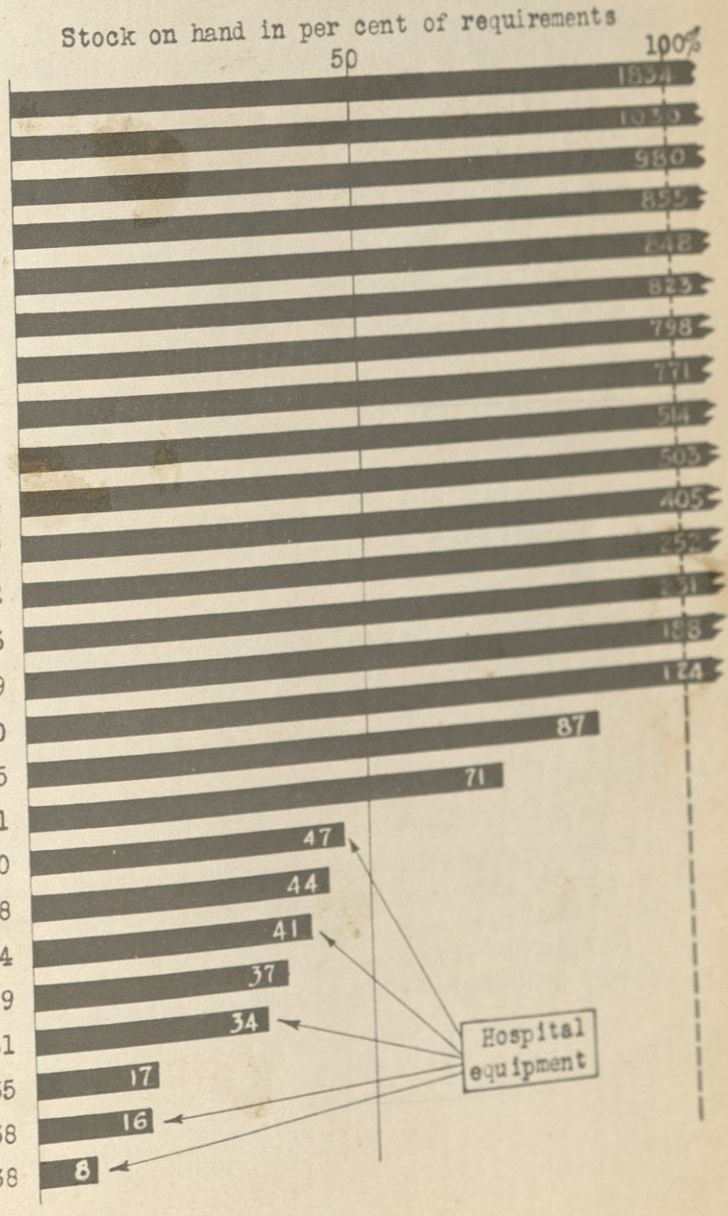
MEDICAL SUPPLIES ON HAND NOVEMBER 11, 1918

The diagram indicates that, in general, the Medical Department was in good shape as to supplies at the time of the armistice.

Shortages were apparent principally in hospital equipment, such as, beds, bedding, etc.

Source of information: Office of Chief Surgeon, Hq., S.O.S.

Item	Unit	Stock on hand Nov. 11
Alcohol, ethyl	gals.	275,075
Slippers	prs.	247,240
Towels, hand	one	1,411,536
Gauze	yds.	92,375,767
Pillows	one	254,403
Pins, safety	one	11,851,848
Bandages, gauze, comp.	one	41,372,640
Cot., absorb.	ozs.	9,250,977
First-aid Packets	one	3,081,727
Carbolic Acid	lbs.	49,544
Pajamas, suits	one	291,469
Towels, bath	one	145,092
Iodine swabs	one	4,159,926
Pins, common	pkgs.	67,559
Aether	lbs.	190,280
Muslin, unbleached	yds.	62,505
Aspirin	oz.	122,641
Beds	one	11,200
Soap	lbs.	238,818
Mattresses	one	14,814
Foot powder	lbs.	168,329
Pillowcases	one	244,661
Iodine	gals.	1,135
Blankets	one	76,838
Sheets, cotton	one	57,838



ORDNANCE DEPARTMENT

The Ordnance Department in France was charged with the procurement, supply, and issue of artillery materiel, ammunition, tanks, tractors, special motor vehicles, machine guns, small arms, and personal and horse equipment, and with their maintenance. The office of the Chief Ordnance Officer was at Hq. S.O.S. The total maximum personnel comprised 1,804 officers and 21,248 enlisted men.

The main subdivisions were as follows:

SUPPLY: Received, stored, and issued all ordnance materiel. Operated base depots at Montoir, Miramas, Saint-Sulpice, and La Pallice (under development) for general supplies, and at Usine Brulee, Saint-Loubes, and Donges for ammunition; intermediate depots at Gievres and Mehun for general supplies, and at Issoudun and Foecy for ammunition; advanced depots at Is-sur-Tille for general supplies and Jonchery for ammunition.

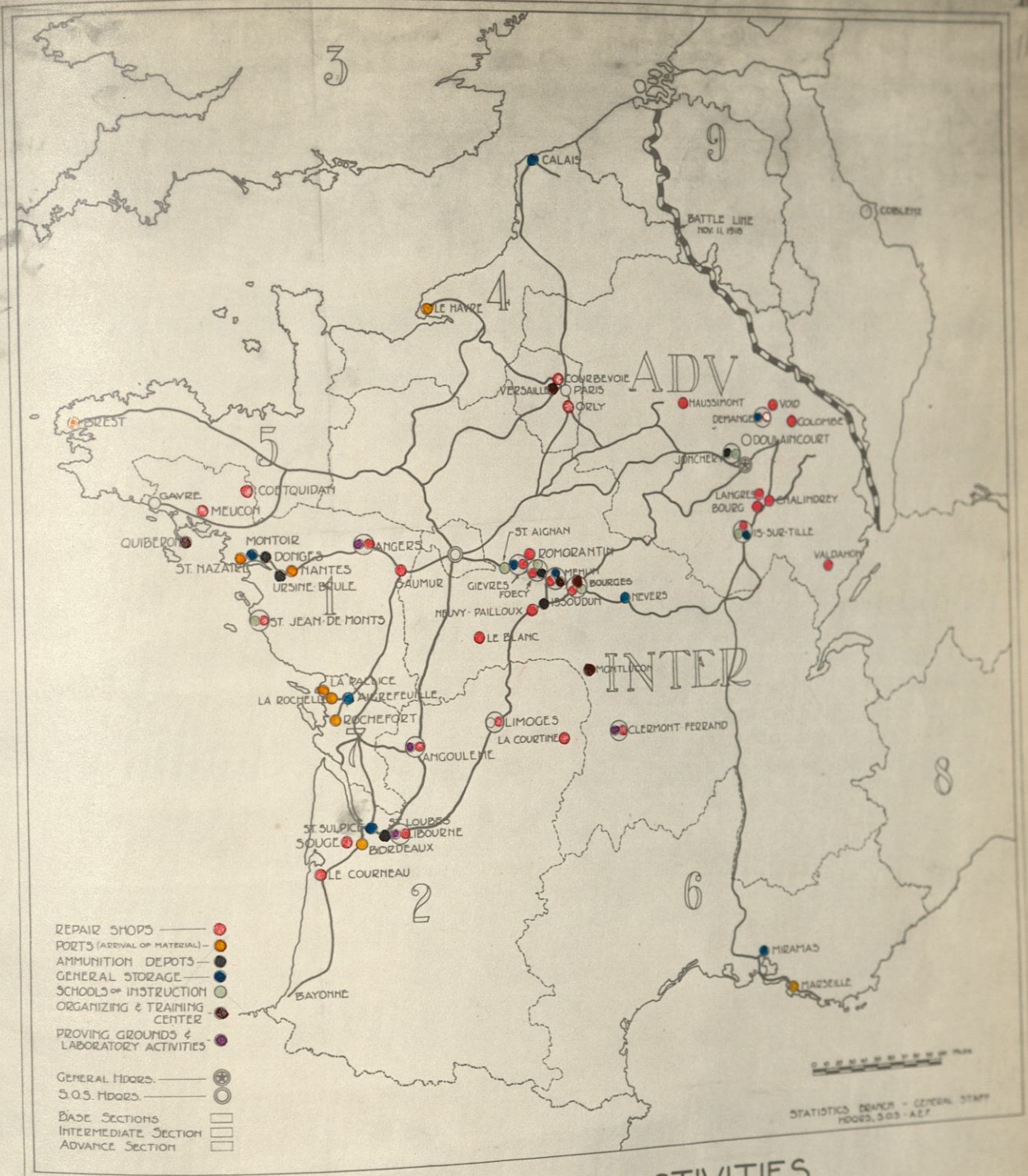
CONSTRUCTION AND MAINTENANCE: Prepared surveys and general plans for depots. Operated general repair shop at Mehun; loading plant at Dijon; erection shops at Bordeaux; aerial armament shops at Orly Field, Courbevoie, and Romorantin; advanced repair shops at Is-sur-Tille, Doulaincourt, and Haussimont, and shops at fourteen training centers; shops for tank assembly (under construction) at Neuvy Pailloux and for tank repair at Chalindrey.

ENGINEERING: Covered design, development, and test of materiel. Maintained liaison with French and British technical services. Operated design offices at Tours, Paris, and other cities, and proving grounds at Bourges and (under development) at Mehun, Gavre, and Quiberon. Maintained laboratory facilities at Bourges and Montlucon. Furnished technical information and assistance at the front and to all other ordnance activities.

INSTRUCTION: Maintained schools for artillery at Is-sur-Tille, for ammunition at Jonchery, Foecy, and Bourges, for machine guns and aircraft armament at Saint-Jean de Monts, and ordnance instructors at O. and T. centers, training camps, and corps, and army schools.

PURCHASING: Chief Office, Paris; branch, London.

ARMIES: Chief Ordnance Officer with each army. Supplied, issued, and maintained all ordnance materiel; operated army supply depots, ammunition dumps, advanced dumps for supplies, repair centers, and shops with each army, and mobile repair shops of motorized artillery regiments, divisions, and corps. Maintained inspection service of artillery, machine guns, equipment, and ammunition.



ORDNANCE ACTIVITIES

Ordnance storage depots were divided into two main classes – Ammunition Depots, where explosives of all kinds were received and stored; and General Storage Depots, where non-explosive material was cared for.

At artillery training points, there were established in connection with Ordnance Repair Shops what were known as Organization and Training Centers, where Artillery troops were given instruction in the handling and maintenance of the equipment they were to use.

Schools were opened for the technical training of Ordnance personnel. At the Proving Grounds and Laboratories connected therewith, testing of Ordnance materiel and experimental work was carried out.

In addition to local repair shops, a great central plant was established at Mehun with facilities for repairing and rebuilding all kinds of small arms and artillery up to the very heaviest calibres. Much work was also done by mobile Ordnance repair shops, these being machine shops mounted upon trucks which followed the fighting forces, making repairs in the field wherever possible.

ARTILLERY AND SMALL ARMS PROCUREMENT TO MAY 1, 1919

Source of information: Office of Chief Ordnance Officer, Hq. S.O.S.

	Received From U. S.	Received From Europe	Total	Per cent from U.S. ■ & Europe ▨
ARTILLERY				
4.7" Gun	71	0	71	100
5" Seacoast Gun	26	0	26	100
6" Seacoast Gun	74	0	74	100
8" Seacoast Gun	6	0	6	100
10" Seacoast Gun	15	0	15	100
12" Seacoast Mortars	6	0	6	100
14" Naval	8	0	8	100
8" & 9.2" Howitzer	88	160	248	35 / 65
75 mm A.A.	18	66	84	21 / 79
75 mm Field Gun	160	1,862	2,022	8 / 92
155 mm Howitzer	2	796	798	1 / 99
155 mm Gun	0	233	233	0 / 100
12" Seacoast Gun	0	0	0	
240 mm Howitzer	0	0	0	
Total	474	3,117	3,591	
TRENCH WARFARE				
3" Stokes Mortar	845	854	1,699	50 / 50
6" Newton Mortar	48	413	461	10 / 90
58 mm Mortars	0	136	136	0 / 100
240 mm Mortars	0	107	107	0 / 100
Total	893	1,510	2,403	
SMALL ARMS				
Rifles	1,761,000	0	1,761,000	100
Pistols & Revol.	560,000	0	560,000	100
Machine Guns	44,111	5,255	49,366	89 / 11
Auto. Rifles	43,368	35,229	78,597	55 / 45
37 mm Gun	60	641	701	9 / 91
Total	2,408,539	41,125	2,449,664	

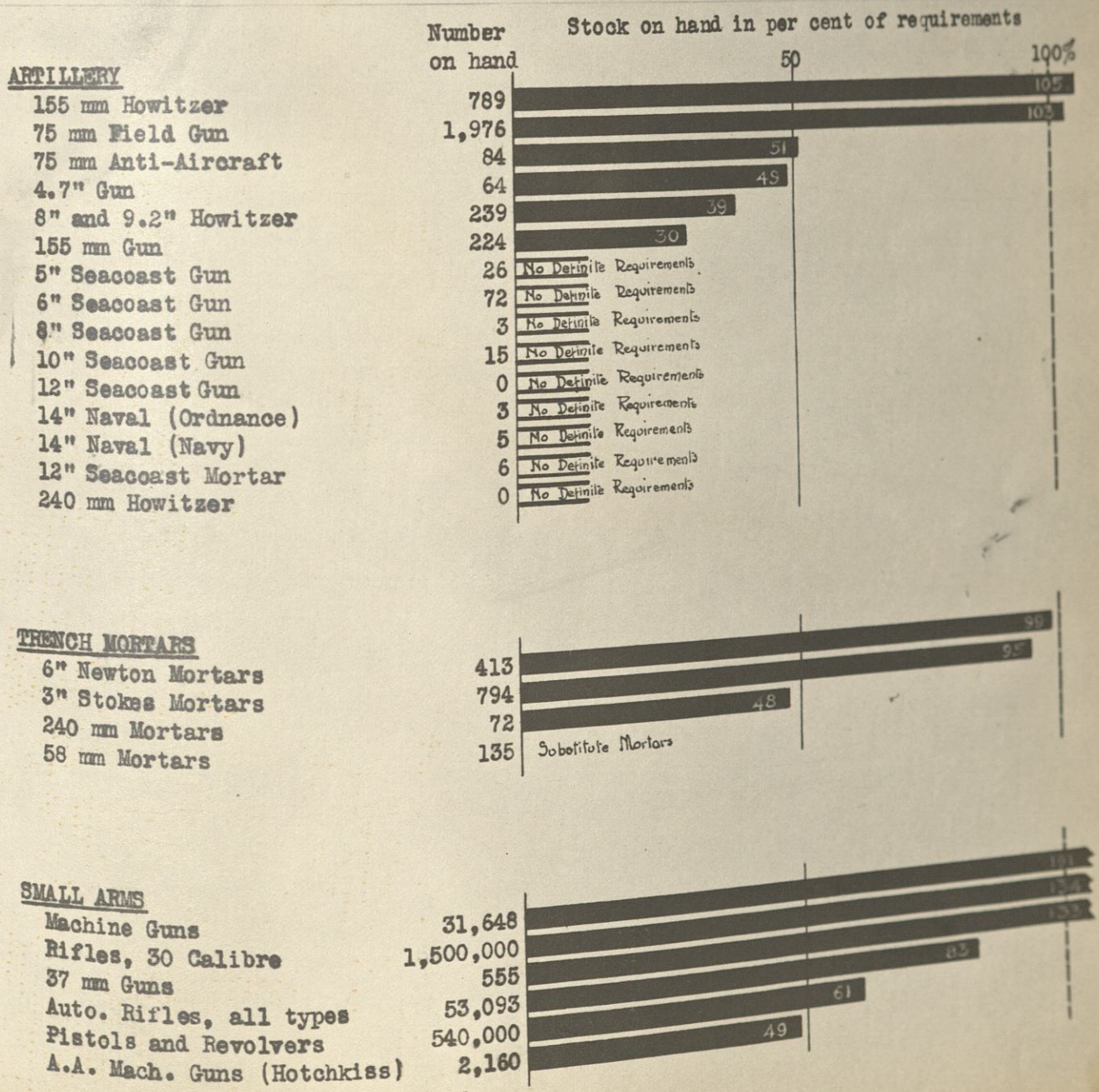
ARTILLERY AND SMALL ARMS IN FRANCE ON NOVEMBER 11, 1918

Requirements include initial equipment and three months reserve, and are based upon equipment tables of November 1, 1918, G-1, G.H.Q., and are computed for personnel and organizations as shown by charts showing "Composition of Corps and Armies" as of November 13, 1918, and "Summary of Troops" as of November 6, 1918 issued by G-1, Hq. S.O.S.

These equipment tables provide for 80 - 75 mm A.A. Guns, 120 - 75 mm Guns, 288 - 155 mm G.P.F. guns and 288 - 8", 9.2" or 240 mm Howitzers in each Army and 24 - 155 mm G.P.F. guns and 24 - 4.7" guns in each Corps in addition to Divisional Artillery.

Converted S.C. Guns were being mounted on special mounts at time of Armistice.

Source of information: Office of Chief Ordnance Officer, Hq. S.O.S.



ST. LOUBES AMMUNITION STORAGE DEPOT

In the storage of Ordnance material, a sharp division was made between general stores requiring only ordinary conditions of warehousing, and the storage of ammunition, which, on account of its dangerous character, had to be handled away from centers of population and in warehouses specially constructed, and widely distributed in small units to minimize the danger of loss from fire and explosion.

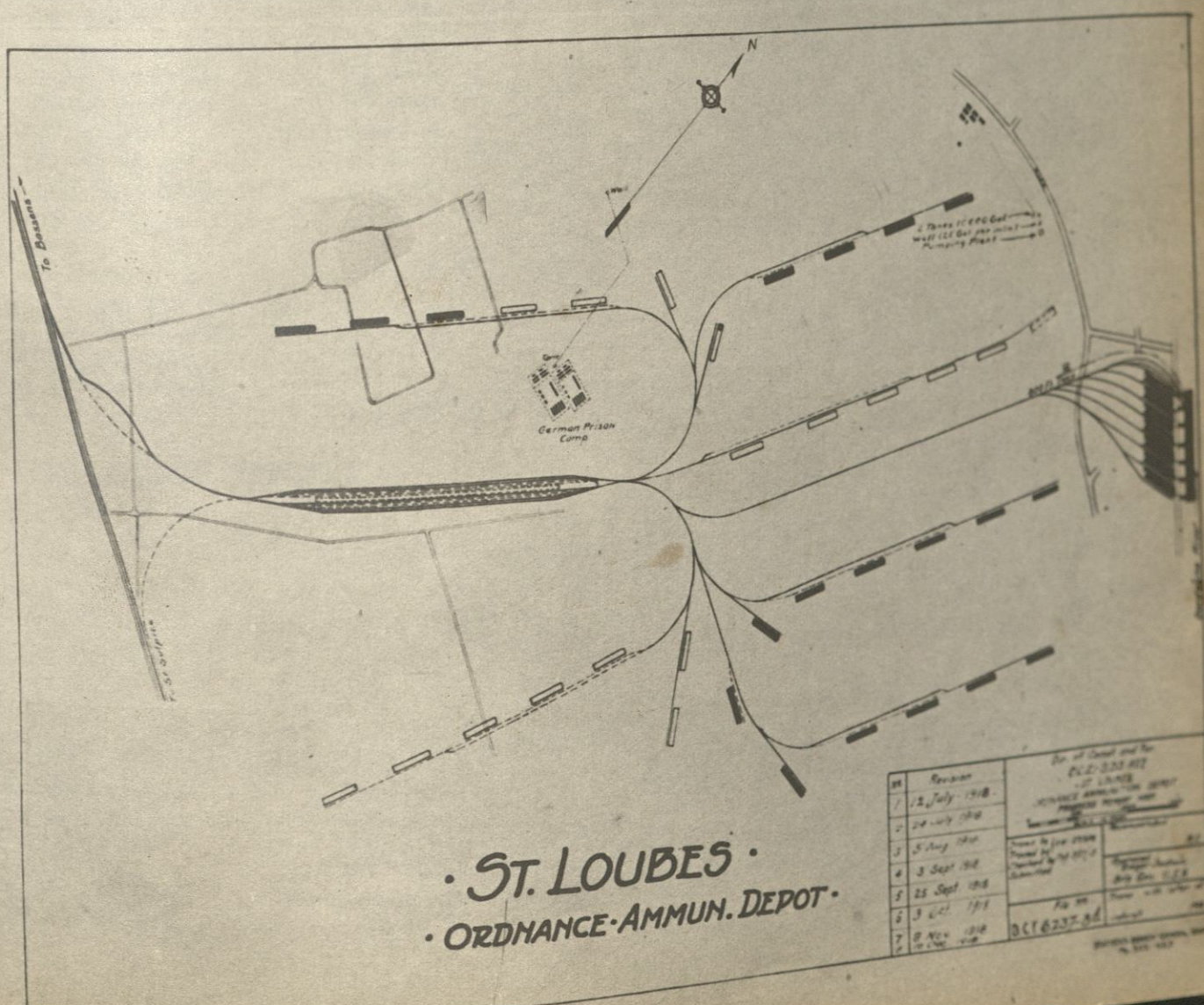
The general layout of a typical ammunition depot - that at St. Loubes - is shown below. The extent to which the warehouses were separated is well illustrated and the striking constrast between a project of this character and a General Storage Depot may be noted by comparing this plan with one of St. Sulpice or of Gievres.

St. Loubes, 15 miles from Bordeaux, was located on the Dordogne River, and was provided with a wharf 600 feet long to which ammunition was brought in lighters from the ships which had transported it across the Atlantic.

The ammunition was transferred from the wharf to sorting platforms - a group of which may be seen at the extreme right of the plan - where it was classified and either loaded directly into cars for the front, or transferred by rail to the storage units of the depot.

Depot storage was divided between artillery ammunition, small arms and fixed ammunition, grenades and trench mortar ammunition, and pyrotechnics. In the case of artillery ammunition, buildings were divided by sand bag partitions, projectiles being stored in one section, propellant in another, and fuses in a third.

In loading for the front, each car was made up complete in itself - carrying always an equal number of projectiles, propellant and fuses. The advantage of this method when a car was likely to be destroyed or to become lost, is obvious.



AMMUNITION PROCUREMENT TO NOVEMBER 11, 1918

Artillery and small arms ammunition received in the A.E.F. from the U. S. and Europe.

Practically no ammunition was received from European sources after November 11, and almost all the ammunition then afloat was returned to the U. S. Figures showing receipts from foreign sources are the best available, but are not entirely complete, as all bills for ammunition delivered at the front had not been received, at the date of going to press.

Source of information: Office of Chief Ordnance Officer, Hq., S.O.S.

	Rounds received from			Percentage from U.S. ■ & from Eur. ▨
ARTILLERY AMMUNITION	U. S.	Europe	Total	
14" Naval	2,231	0	2,231	100
6" Gun	600	0	600	100
4.7" Shrapnel	131,224	0	131,224	100
75 mm Shrapnel	3,982,989	1,505,984	5,488,973	73 27
75 mm Gas	174,978	431,268	606,246	29 71
75 mm H. E.	1,241,420	5,804,158	7,045,578	18 82
155 How. Shrapnel	250	17,095	17,345	1 99
75 mm Smoke	0	73,798	73,798	100
155 mm H. E.	0	1,735,760	1,735,760	100
155 Gas	0	63,969	63,969	100
155 Smoke	0	2,735	2,735	100
155 G.P.F., H.E.	0	352,977	352,977	100
8" Howitzer	0	308,124	308,124	100
9.2" Howitzer	0	102,835	102,835	100
Total	5,533,692	10,398,703	15,932,395	
TRENCH WARFARE AMMUNITION				
Grenades	371,840	5,737,795	6,109,635	94 6
3" Stokes Bombs	0	915,446	915,446	100
58 mm Bombs	0	124,352	124,352	100
6" Newton Bombs	0	149,931	149,931	100
240" mm Bombs	0	56,701	56,701	100
Total	371,840	6,984,225	7,356,065	
SMALL ARMS AMMUNITION (Thousands of rounds)				
30 Calibre	1,029,717	0	1,029,717	100
45 Calibre	172,275	0	172,275	100
8 mm	220,453	228,729	449,182	49 51
37 mm	777	2,305	3,082	25 75
Total	1,423,222	231,034	1,654,256	

AMMUNITION EXPENDITURES

Amounts of chief types of artillery and small arms ammunition expended by the A.E.F. to November 11, 1918.

Expenditures are arrived at by subtracting from total receipts in the A.E.F., the amounts on hand in depots, in transit, with armies, and in training areas on November 11th, 1918.

In addition to the sizes shown some ammunition of special calibers was fired by the A.E.F., this being French ammunition and used in French guns.

Source of information: Office of Chief Ordnance Officer, A.E.F.

	Total rounds expended to Nov.11,'18	Total rounds received to Nov.11,'18	Per cent expended (Total receipts 100%)
ARTILLERY			
155 Howitzer Smoke	2,735	2,735	100
75 mm Smoke	67,810	73,798	92
155 Howitzer Shrapnel	14,757	17,345	85
155 G.P.F., H.E.	295,759	352,977	84
155 Howitzer, H.E.	1,302,327	1,735,760	75
75 mm H.E.	4,933,068	7,045,578	70
4.7" Shrapnel	61,055	131,224	47
14" Naval	995	2,231	45
75 mm Gas	256,410	606,246	42
6" Seacoast	246	600	41
75 mm Shrapnel	1,546,724	5,488,973	29
8" Howitzer	72,232	308,124	23
155 Howitzer, Gas	5,694	63,969	9
9.2" Howitzer	6,010	102,835	6
Total	8,565,822	15,932,395	
TRENCH WARFARE			
3" Stokes Bombs	579,105	915,446	63
Grenades	2,967,444	6,109,635	48
6" Newton Bombs	26,470	149,931	18
58 mm Stokes Bombs	8,267	124,352	7
240 mm Bombs	3,553	56,701	6
Total	3,584,939	7,356,065	
SMALL ARMS AMMUNITION			
37 mm	2,371,472	3,081,893	
30 Calibre	384,686,133	1,029,716,562	
8 mm	167,475,580	449,181,804	
45 Calibre	53,706,159	172,274,648	
Total	608,239,344	1,654,254,907	

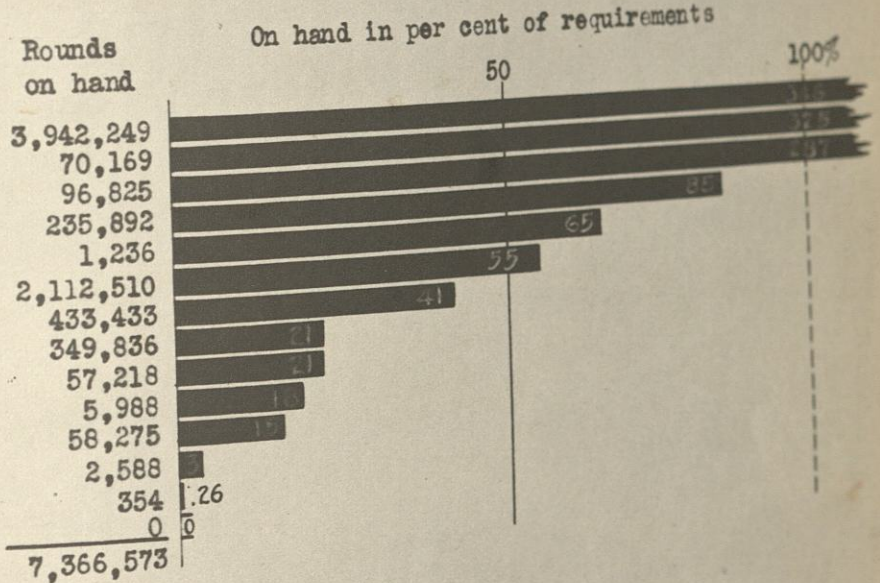
AMMUNITION ON HAND NOVEMBER 11, 1918

The amounts on hand include stocks in depots, in transit, with armies, and at depots and schools.

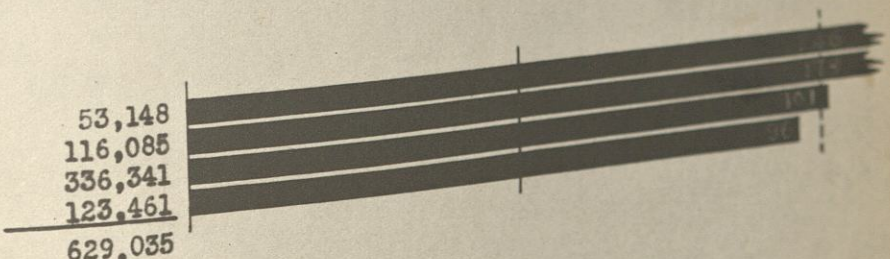
Requirements are based upon a 75 days supply at ordinary rates of fire and computed for number of guns needed for initial equipment except for those guns for which there was a deficit, in which cases they are computed for the guns available.

In addition to ammunition shown in this report, there were large French stocks upon which American armies drew as occasion required.

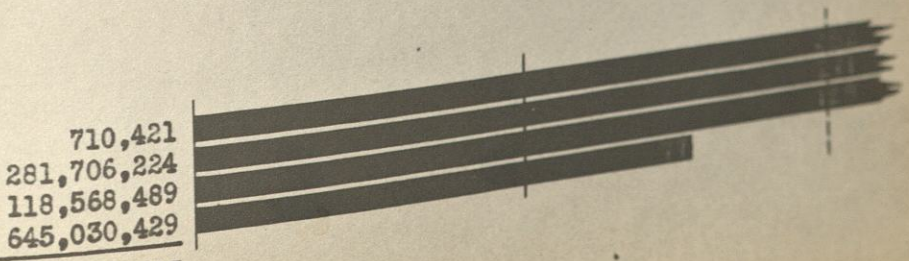
Source of information: Office of Chief Ordnance Officer, Hq. S.O.S.



ARTILLERY AMMUNITION	Rounds on hand
75 mm Shrapnel	3,942,249
4.7" Shrapnel	70,169
9.2" Howitzer	96,825
8" Howitzer	235,892
14" Naval	1,236
75 mm H.E.	2,112,510
155 mm H. E. Howitzer	433,433
75 mm Gas	349,836
155 mm G.P.F., H.E.	57,218
75 mm Smoke	5,988
155 mm Gas Howitzer	58,275
155 mm Shrapnel Howitzer	2,588
6" Gun H.E.	354
155 mm Smoke Howitzer	0
Total	7,366,573

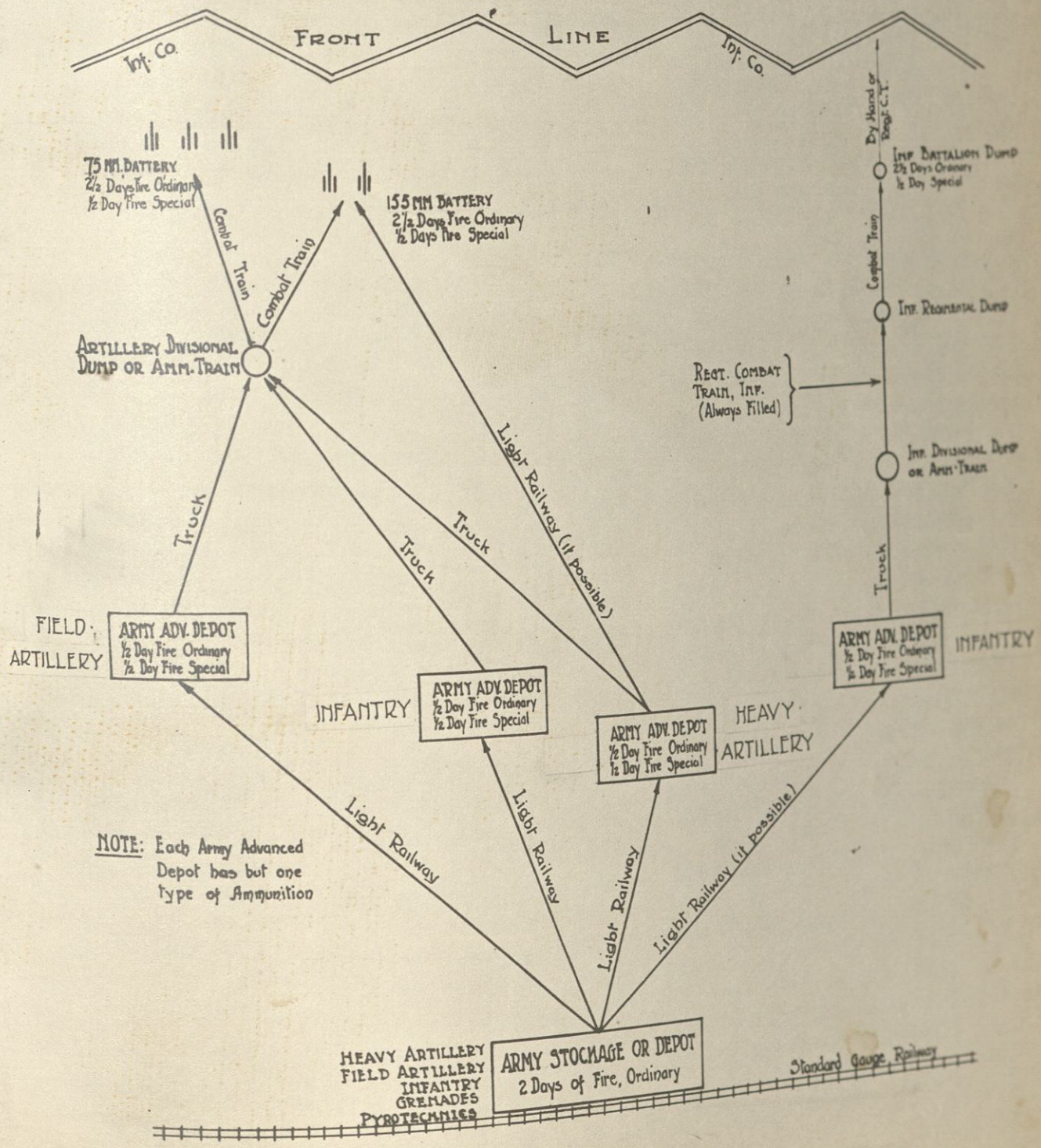


TRENCH WARFARE AMMUNITION	
240 mm Trench Mor. Bombs	53,148
58 mm Trench Mor. Bombs	116,085
3" Stokes	336,341
6" Newton Bombs	123,461
Total	629,035



SMALL ARMS AMMUNITION	
37 mm Gun	710,421
8 mm	281,706,224
45 Calibre	118,568,489
30 Calibre	645,030,429
Total	1,046,015,563

General Plan for Ammunition Supply at the Front



PERSONAL AND HORSE EQUIPMENT PROCUREMENT

Total quantities of certain representative items of Personal and Horse Equipment received from United States and from Europe to May 1, 1919.

Source of information: Office of Chief Ordnance Officer, Hq. S.O.S.

	Total received From U. S.	From Europe	Total received	Percentage: from U.S. ■ & from Eur. ▨
Axes, hand	434,260	0	434,260	100
Axe Carriers, hand	408,240	0	408,240	100
Cans, Condiment	3,231,460	0	3,231,460	100
Canteens	4,132,860	0	4,132,860	100
Canteen Covers	4,268,090	0	4,268,090	100
Carriers, Pack	3,420,910	0	3,420,910	100
Haversacks	3,524,550	0	3,524,550	100
Pick Mattocks	584,500	0	584,500	100
Pick Mattock Carriers	554,840	0	554,840	100
Pouches, First Aid	3,734,770	0	3,734,770	100
Shovels, Intrenching	1,768,730	0	1,768,730	100
Shovel Carriers	935,760	0	935,760	100
Bridles, Cav. & Art.	276,360	0	276,360	100
Saddles, Cav. McCl.	82,290	0	82,290	100
Saddles, Field Art. McC.	78,980	0	78,980	100
Saddles, Mule	8,610	0	8,610	100
Blankets, Saddle	356,040	7,012	363,052	98
Cans, Meat	3,670,100	275,000	3,945,100	93
Harness, Art., Lead	54,730	8,890	63,620	86
Cups	4,332,610	713,600	5,046,210	85
Cutters, Wire	382,670	71,550	454,220	84
Forks	5,278,510	1,581,950	6,860,460	77
Knives	3,959,130	1,271,550	5,230,680	76
Spoons	4,675,660	1,617,250	6,292,910	74
Knives, Tr. & Scab.	248,300	86,850	335,150	74
Cutters, Car., Wire	412,460	213,800	626,260	66
Helmets, Steel	1,351,410	750,742	2,102,152	64
Harness, Art. Wheel	24,200	22,840	47,040	51

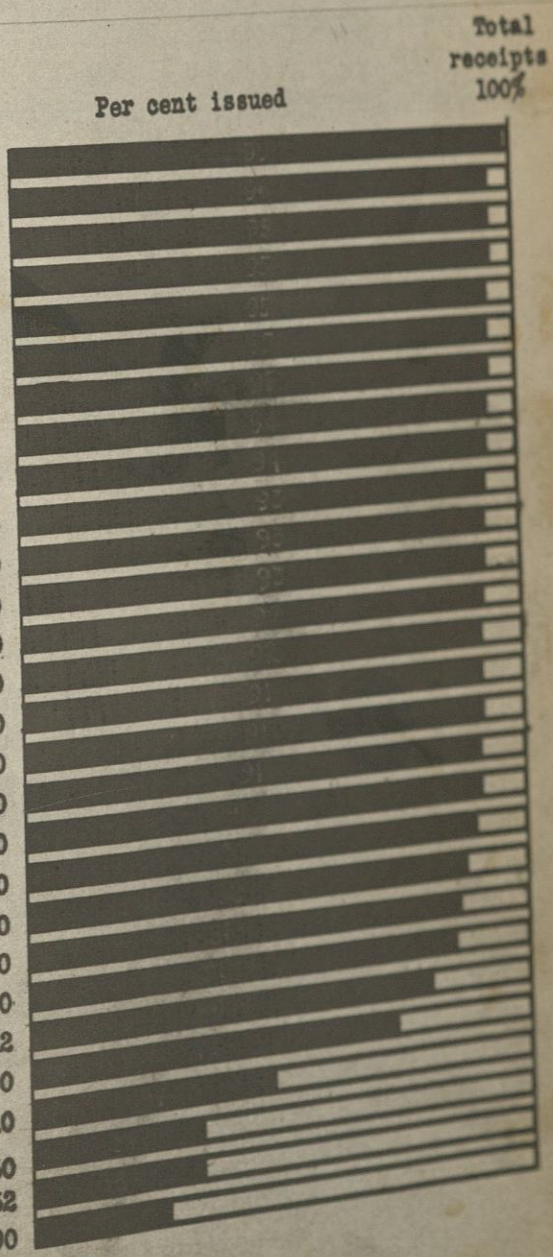
ISSUES OF PERSONAL AND HORSE EQUIPMENT TO MAY 1, 1919

Quantities of certain representative items of Personal and Horse Equipment received in A.E.F. and amounts issued.

Issues as used herein are obtained by subtracting stock in depots May 1 from receipts to same date.

Source of information: Office of Chief Ordnance Officer, Hq. S.O.S.

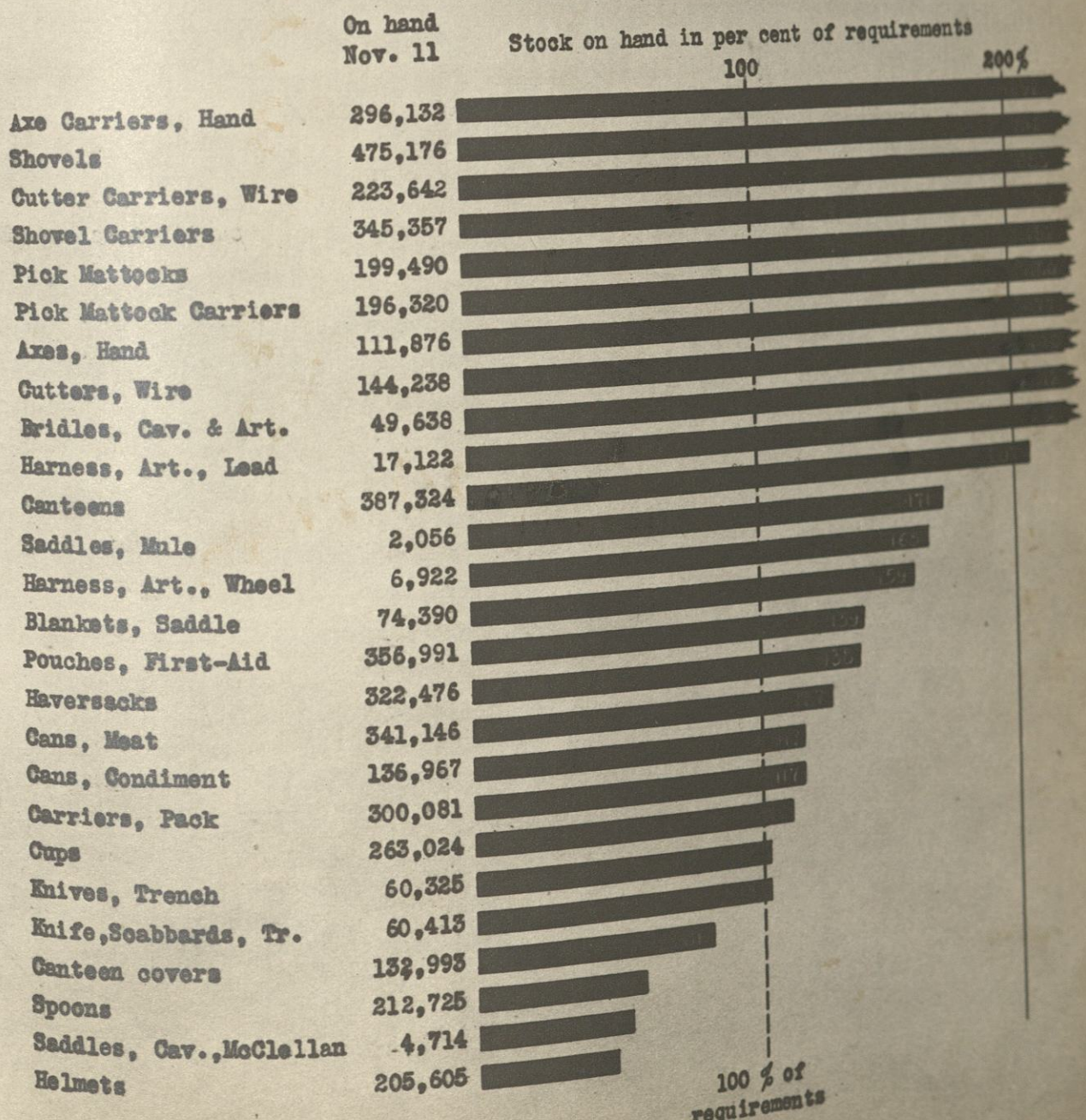
Item	Total issued	Total received	Per cent issued
Pouches, First Aid	3,713,688	3,734,770	
Carriers, Pack	3,271,324	3,420,910	
Cutters, Wire	433,149	454,220	
Haversacks	3,349,853	3,524,550	
Axes, hand	411,875	434,260	
Cutter Carriers, Wire	593,333	626,260	
Shovels, Intrenching	1,673,557	1,768,730	
Cans, Condiment	3,037,093	3,231,460	
Pick Mattocks	548,995	584,500	
Axe Carriers, Hand	380,737	408,240	
Shovel Carriers	871,285	935,760	
Cups	4,678,442	5,046,210	
Spoons	5,802,223	6,292,910	
Cans, Meat	3,612,676	3,945,100	
Pick Mattock Carriers	507,855	554,840	
Knives	4,785,270	5,230,680	
Forks	6,267,322	6,860,460	
Canteens	3,762,556	4,132,860	
Canteen Covers	3,823,732	4,268,090	
Harness, Artillery, Wheel	41,269	47,040	
Harness, Artillery, Lead	54,746	63,620	
Knives, Trench & Scabbard	286,762	335,150	
Helmets, Steel	1,683,848	2,102,152	
Saddles, F.A. - McClellan	57,230	78,980	
Saddles, Mule	4,092	8,610	
Bridles, Cav. or Art.	93,026	276,360	
Blankets, Saddle	121,651	363,052	
Saddles, Cav. - McClellan	21,931	82,290	



PERSONAL AND HORSE EQUIPMENT ON HAND NOVEMBER 11, 1918

Stocks of representative items of Personal and Horse equipment in S.O.S. depots. Requirements are based upon 45 days reserve for men in A.E.F.

Source of information: Office of Chief Ordnance Officer, Hq. S.O.S.



CHEMICAL WARFARE SERVICE

The functions of the Chemical Warfare Service fell naturally into two main groups:

FIRST: Defense:- Comprising the design, manufacture and procurement of all materials necessary for the proper defense against gas attack, and the instruction of troops in the use of such defensive apparatus.

SECOND: Offensive:- Which pertained to all matters related to launching of gas attacks against the enemy, the experimenting with, and manufacture of, poisonous gases and the training of special troops for gas offensive work.

More specifically the work of the Service was as follows:

CHEMICAL WARFARE OFFICERS: After training at one of the gas schools, these were attached to the staffs of the various organizations; issued gas supplies, and supervised the gas training of the units. During active operations these officers supervised defensive measures against enemy gas, and advised G-3 and artillery commanders on the tactical use of gas shell, smoke, and incendiaries, suggesting proper targets, the kind of shell to be used, and the number required to produce the desired result.

CHEMICAL WARFARE TROOPS: One regiment of gas and incendiary troops operated at the front, and two additional regiments were in the process of formation. These were army troops, and specialized in the projection of gas by means of cylinders, Livens projectors and 4 in. Stokes Mortars, the Stokes bombs being filled with gas, smoke or incendiaries.

PRODUCTION: The Chemical Warfare Service produced respirators (gas masks), defense supplies, and all toxic gases. It advised the Ordnance Department as to the proper shell to be used. Beginning January 1, 1919, 25% of all artillery shell were to be filled with gas.

EXPERIMENTAL WORK: Chemists, physiologists, and engineers worked at the C.W.S. Laboratory and Experimental Field on gas warfare problems. They endeavored to produce better protective devices, and new gases, and to devise more effective means of projecting gas.

CHEMICAL WARFARE PROCUREMENT

Total receipts of certain representative items of Chemical Warfare equipment received from the United States and from Europe to May 1, 1919.

Many of these were first utilized in the present war, and their functions are therefore here defined.

Box respirators - Gas masks of modern type, with canisters for holding the charcoal and chemicals.

Sag paste - A paste applied to the skin to prevent burning from mustard gas.

Anti-dimming compound - A compound to be rubbed upon the eye pieces of the gas mask to prevent their becoming covered with moisture.

The gas filled drums were fired from a type of mortar known as the Livens projector, and the gas, smoke and thermite bombs from 4" Stokes mortars.

Source of information: Office of Chief of Chemical Warfare Service, Hq., S.O.S.

		Received			Percentage from
DEFENSIVE SUPPLIES	Unit	From U. S.	From Europe	Total Received	U. S. / Europe
Box Respirators	one	3,763,721	613,623	4,377,344	86 / 14
Spare Canisters	one	1,686,907	405,990	2,092,897	81 / 19
Sag Paste	tube	3,148,391	793,080	3,941,471	80 / 20
Chloride of Lime	ton	1,860	786	2,646	70 / 30
Horse Respirators	one	354,665	166,407	521,072	68 / 32
Klaxon Horns	one	19,691	11,680	31,371	63 / 37
Dug-out Blankets	yd.	23,542	216,906	240,448	10 / 90
Anti-Dimming Compound	tube	100,000	2,277,030	2,377,030	4 / 96
Police Rattles	one	0	83,067	83,067	0 / 100
Protective Gloves	one	0	451,246	451,246	0 / 100
OFFENSIVE SUPPLIES					
Projectors, Livens 4'	one	5,278	2,754	8,032	66 / 34
Projectors, " 2'9"	one	7,972	13,842	21,814	36 / 64
Drums, Gasfilled C.G.	one	0	25,833	25,733	0 / 100
Drums, Gasfilled N.C.	one	0	10,438	10,438	0 / 100
Stokes Mortars 4"	one	0	216	216	0 / 100
Bombs, Gas 4"	one	0	74,336	74,336	0 / 100
Bombs, Smoke W.P.	one	0	17,248	17,248	0 / 100
Bombs, Thermite 4"	one	0	14,644	14,644	0 / 100

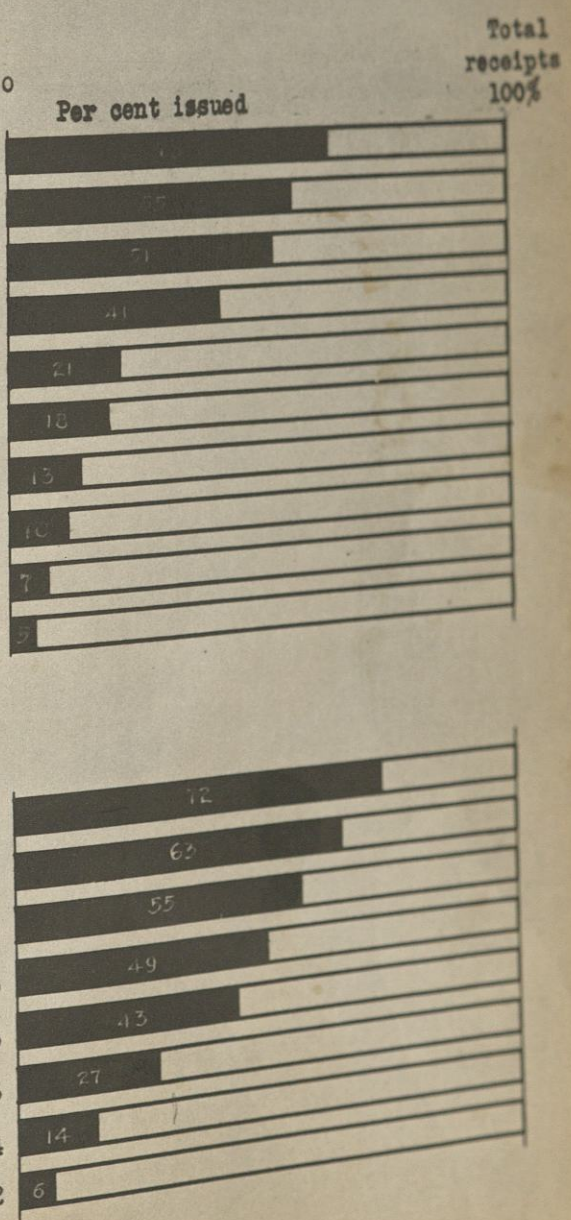
ISSUES OF CHEMICAL WARFARE EQUIPMENT TO MAY 1, 1919

Amounts of certain representative items of Chemical Warfare Equipment issued to May 1, 1919 and total receipts to same date.

Issues as used below are obtained by deducting from total receipts the amounts on hand in depots on May 1.

Source of information: Office of Chief of Chemical Warfare Service, Hq. S.O.S.

		Total issues to May 1,'19	Total receipts to May 1,'19
DEFENSIVE SUPPLIES	Unit		
Box Respirators	one	2,737,648	4,377,344
Dugout Blankets	yd.	132,370	240,448
Horse Respirators	one	266,647	521,072
Chloride of Lime	ton	1,078	2,646
Protective Gloves	one	94,527	451,246
Klaxon Horns	one	5,764	31,371
Spare Canisters	one	271,573	2,092,897
Police Rattles	one	8,520	83,067
Sag Paste	tube	271,056	3,941,471
Anti-Dimming Compound	tube	112,704	2,377,030
OFFENSIVE SUPPLIES			
Bombs, Thermite 4"	one	10,486	14,644
Bombs, Smoke W.P. 4"	one	10,912	17,248
Drums, Gasfilled N.C.	one	5,770	10,438
Drums, Gasfilled C.G.	one	12,553	25,733
Stokes Mortars, 4"	one	92	216
Bombs, Gas 4"	one	19,780	74,336
Projectors, Livens 2'9"	one	3,149	21,814
Projectors, Livens 4'	one	503	8,032

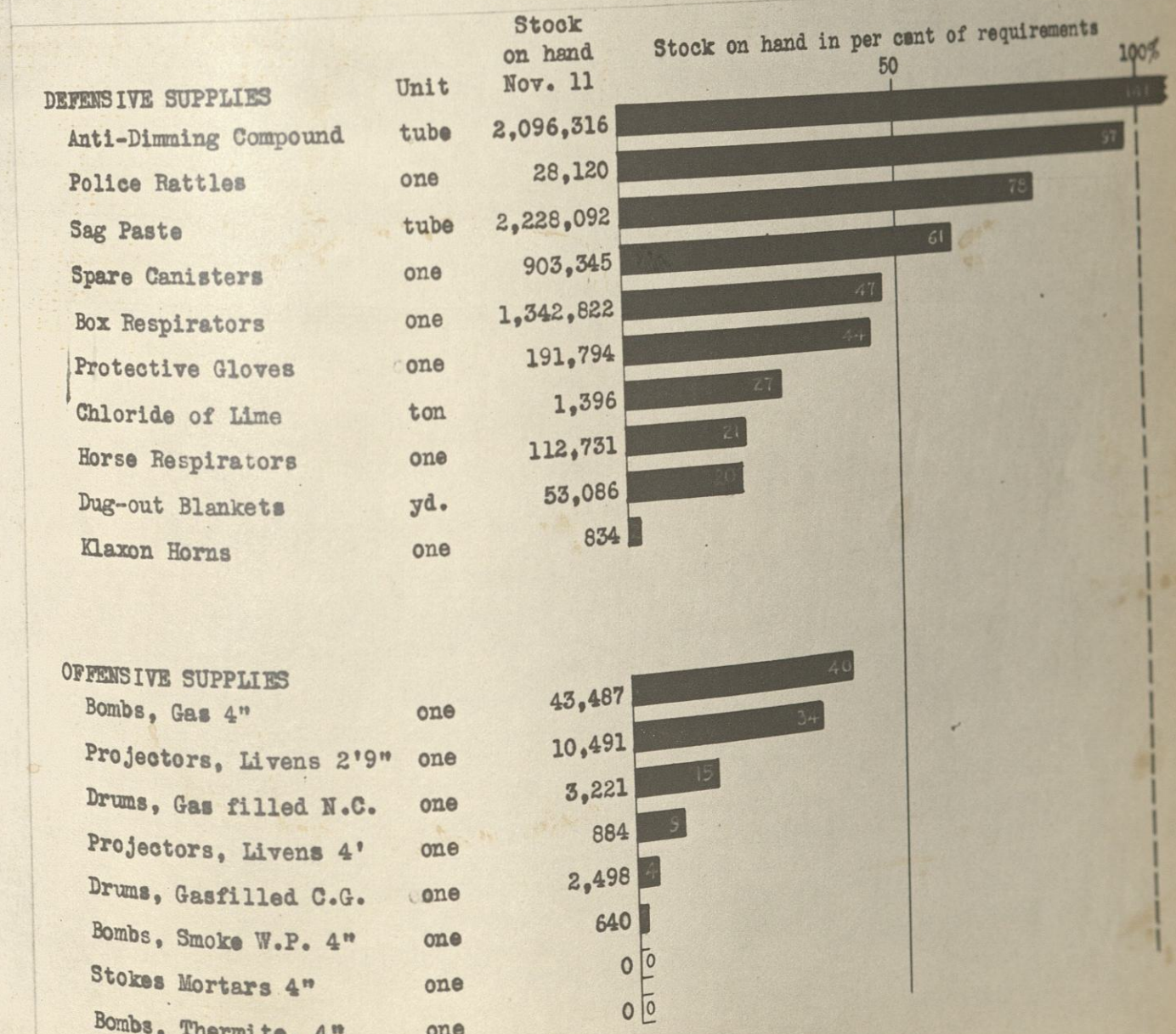


CHEMICAL WARFARE EQUIPMENT ON HAND NOVEMBER 11, 1918

Stocks of representative items of Chemical Warfare equipment in depots November 11, 1918 and their relation to requirements of same date.

Requirements are based upon one months issue to troops in the field, plus depot increment to cover requirements of troops to arrive during month, and amount necessary to maintain a 45 days depot reserve for 30 divisions.

Source of information: Office of Chief of Chemical Warfare Service, Hq. S.O.S.



SIGNAL CORPS

The provision of means of communication for military purposes, by telegraph, telephone, radio and otherwise, was the chief work of the Signal Corps. This included installation, maintenance and operation of the communication systems of the Army, as well as the procurement, storage and distribution of Signal Corps supplies. In addition to these duties in the A.E.F., the Signal Corps provided the general meteorological and photographic services, besides compiling and printing the various codes used both in combat and in the handling of the American Army's personnel and supplies.

The Signal Corps of the A.E.F. was under the direction of the Chief Signal Officer, A.E.F., who was stationed at the headquarters of the S.O.S., the Assistant Chief Signal Officer being at General Headquarters.

Each Army, Army Corps and Division also had a Chief Signal Officer, and there was a Signal Officer in charge of operations in each of the Base Sections, the Intermediate Section and the Advance Section.

The communication of intelligence was divided into two fields:

First: - Communication from the Base Ports up to the lines of combat. These activities called for the construction, installation and operation of telegraph, telephone and radio equipment in every way analogous to the commercial system of the United States. The unit for work in the S.O.S. was a telegraph battalion, consisting of 10 officers and 212 soldiers.

Second: - Communication within and between the units of the fighting forces. This involved communication during active military operations at the front and the interception of enemy communications. In this field, communication was carried on not only by telegraph, telephone and radio, but by visual signaling and by means of pigeons. The unit for work at the front was a signal battalion, consisting of 14 officers and 459 soldiers.

Among the important phases of Signal Corps work in the S.O.S. were the activities of the Supplies Division, which provided, handled and distributed all of the supplies and equipment. Of equal importance and of unusual interest were the investigations carried on by the Research and Inspection Division, where some of the ablest electrical and radio engineers in America worked upon the design and improvement of Signal Corps Apparatus with the result that American practice was at many points beyond that of our allies or the enemy.

The first of the Signal Corps personnel to reach France consisted of 7 officers, 6 soldiers and 2 civilians, who arrived on June 13, 1917. On November 30, 1918 this Corps comprised 1,665 officers, 34,206 soldiers and 320 civilians.

TELEPHONE AND TELEGRAPH SYSTEM

From June 24, 1917 when the telephone system of the Signal Corps commenced to function, up to May 1, 1919, over 40,000,000 local and 1,350,000 long distance calls were handled by its service.

From August 9, 1917 to May 1, 1919 the telegraph messages sent over Signal Corps lines numbered more than 12,000,000.

SUMMARY OF THE A.E.F. TELEPHONE AND TELEGRAPH SYSTEM AT ITS MAXIMUM

SIGNAL CORPS POLE AND WIRE PLANT

Pole Line Erected	
Long line	2,000 miles
Local	500 "
Total	2,500 "
Wire Plant	
Long line system	28,000 miles
Wire on poles built by Signal Corps	3,250 "
Wire strung by Signal Corps on French pole lines	20,500 "
Wire leased from French & operated by Signal Corps	
Total	51,750 "
Combat lines largely in Signal Corps pole lines and buried systems	39,000 miles
Local lines and cable system	43,500 "
Grand Total	134,250 miles

TELEPHONE SYSTEM

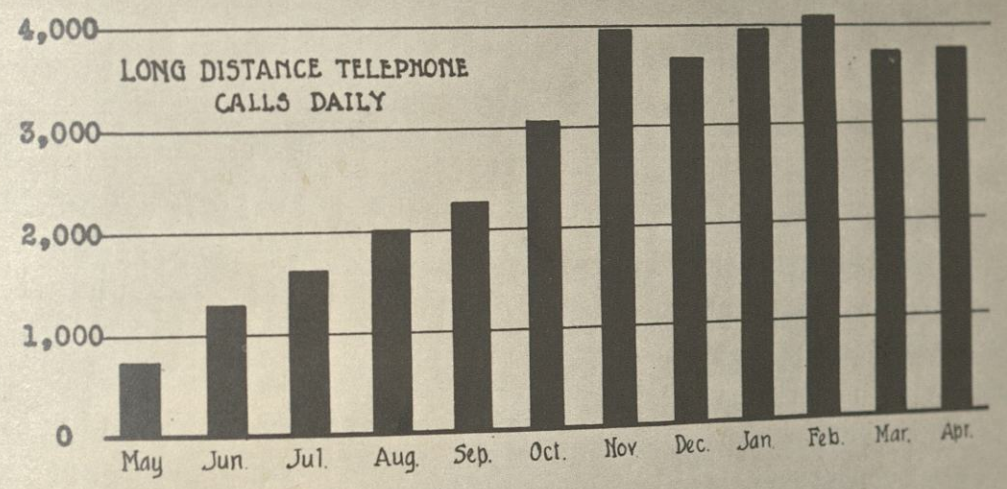
Telephone Central Offices	
Semi-permanent Signal Corps system	273
Combat Signal Corps system	123
Total	396
Telephone Stations	
Semi-permanent Signal Corps system	9,268
Combat Signal Corps system	3,064
On Systems other than Signal Corps but under supervision of Signal Corps	2,522
Total	14,854

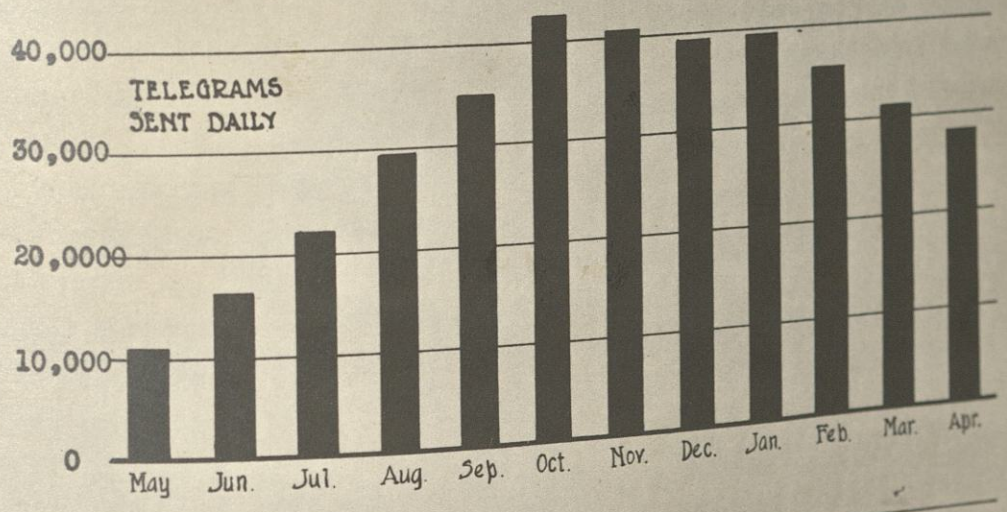
A.E.F. SIGNAL CORPS TRAFFIC

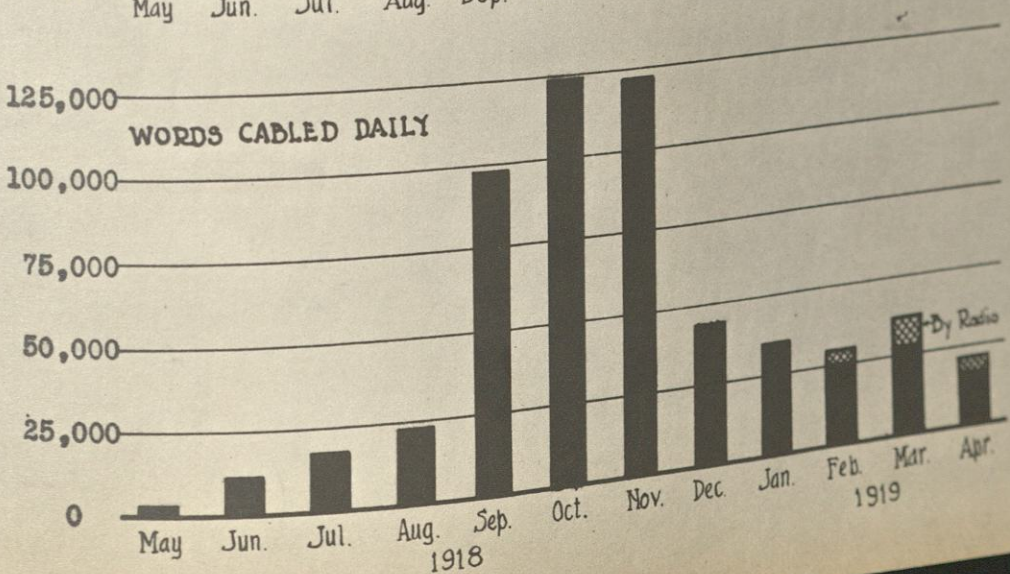
The urgency of war demanded that the A.E.F. have a rapid and accurate means of communication, inasmuch as mails in France were slow and uncertain. The telephone and telegraph systems were built up and used largely to carry communications which are ordinarily sent through the mails.

The diagrams below indicate an immediate drop after the armistice in the use of the cable, but a holding up for a considerable time longer of the long distance telephone and telegraph traffic.

Source of information: Office of Chief Signal Officer, Hq., S.O.S.





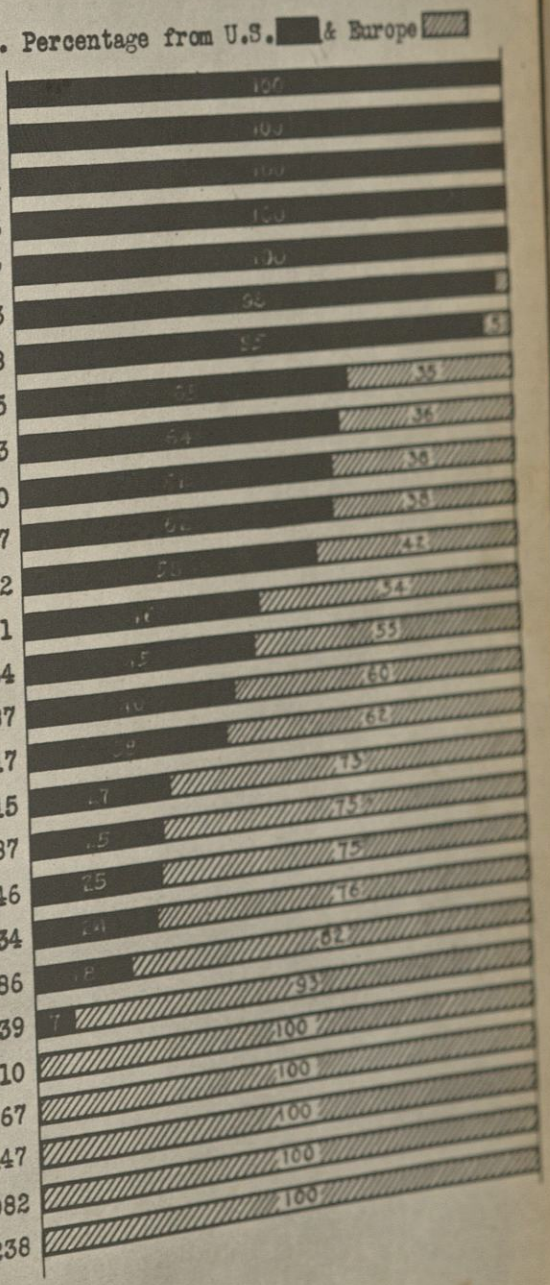


SIGNAL CORPS EQUIPMENT PROCUREMENT

Total quantities of certain representative items of Signal Corps equipment received from U.S. and from Europe to May 1, 1919.

Source of information: Office of Chief Signal Officer, Hq. S.O.S.

	Unit	From U. S.	From Europe	Total Rec'd.	Percentage from U.S. & Europe
Buzzers, service M 1914	one	3,503	0	3,503	
Carts, wire complete	one	185	0	185	
Chests, tool, mech #1&2	one	842	0	842	
Wire, O.D.,T.P. #17 B&S	mi.	18,183	0	18,183	
Wire, copper #12, N.B.S.	mi.	32,167	0	32,167	
Telephones, field	one	30,282	711	30,993	
Wire, field, single	mi.	17,259	1,009	18,268	
Pliers, all kinds	one	64,547	34,218	98,765	
Glasses, field	pr.	40,263	22,910	63,173	
Wire, outpost, T.P.	mi.	23,090	14,330	37,420	
Batteries, dry	one	275,139	172,238	447,377	
Bags, tool, service com.	one	1,598	1,164	2,762	
Switchboards, all kinds	one	13,052	15,659	28,711	
Climbers, linemans	pr.	4,344	5,420	9,764	
Crossarms, all kinds	one	88,014	129,673	217,687	
Sets, T.P.S. all kinds	one	1,197	1,920	3,117	
Reels, breast	one	4,187	11,328	15,515	
Watches, wrist	one	15,649	45,638	61,287	
Kits, flag	set	29,366	87,780	117,146	
Radio Sets, all kinds	set	874	2,760	3,634	
Projectors, complete	one	2,982	13,204	16,186	
Charging Sets, all types	one	17	222	239	
Buzzerphones	one	10	3,500	3,510	
Accumulators, all kinds	one	0	16,967	16,967	
Amplifiers, type 3 ter	one	0	1,147	1,147	
Panels, (not marking)	sets	0	43,082	43,082	
Poles, all kinds	one	0	149,238	149,238	



ISSUES OF SIGNAL CORPS EQUIPMENT TO MAY 1, 1919

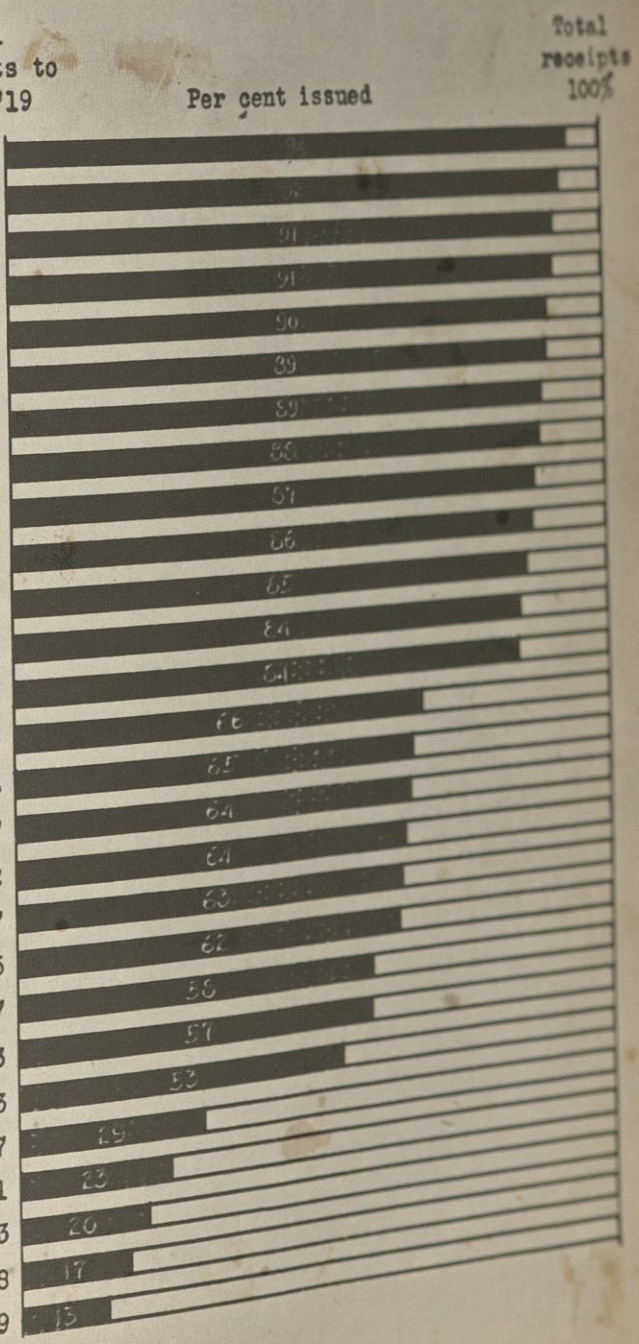
Quantities of certain representative items of Signal Corps equipment received in A.E.F. and amounts issued.

Issues as given herein are obtained by subtracting stock in depots May 1, from receipts to same date, except in the case of switchboards and of wire, field, single, which are taken from Signal Corps records of issue to May 1.

The figures given below therefore are net issues to May 1, 1919. For example, in the case of Telephones, field, the Signal Corps records of issues give total of 28,593, of which 22,533 were later returned to stock, making net expenditures to May 1, 1919, 6,060.

Source of information: Office of Chief Signal Officer, Hq. S.O.S.

Item	Unit	Total Issues to May 1'19	Total Receipts to May 1,'19	Per cent issued
Reels, breast	one	14,556	15,515	
Pliers, all kinds	one	90,831	98,765	
Radio sets,(no amp.& rec)	set	3,309	3,634	
Sets, T.P.S., all kinds	one	2,837	3,117	
Kits, flag	set	105,150	117,146	
Chests, tool, mech.	one	753	842	
Wire, Copper #12 N.B.S.	mi.	28,530	32,167	
Climbers, linemans	pr.	8,599	9,764	
Projectors, complete	one	14,080	16,186	
Amplifiers, Type 3 ter	one	988	1,147	
Poles, all kinds	one	127,503	149,238	
Buzzerphones	one	2,954	3,510	
Bags, tool, serv. comp.	one	2,308	2,762	
Wire, outpost, T.P.	mi.	24,805	37,420	
Glasses, field	pr.	40,866	63,173	
Batteries, dry	one	286,547	447,377	
Panels,(except marking)	set	27,351	43,082	
Crossarms, all kinds	one	136,204	217,687	
Carts, wire, complete	one	115	185	
Watches, wrist	one	35,224	61,287	
Buzzers, service M 1914	one	2,010	3,503	
Wire, O.D.T.P. #17 B&S	mi.	9,544	18,183	
Accumulators, all kinds	one	4,874	16,967	
Switchboards, all kinds	one	6,611	28,711	
Telephones, field	one	6,060	30,993	
Wire, field, single	mi.	3,029	18,268	
Charging sets, all types	one	32	239	



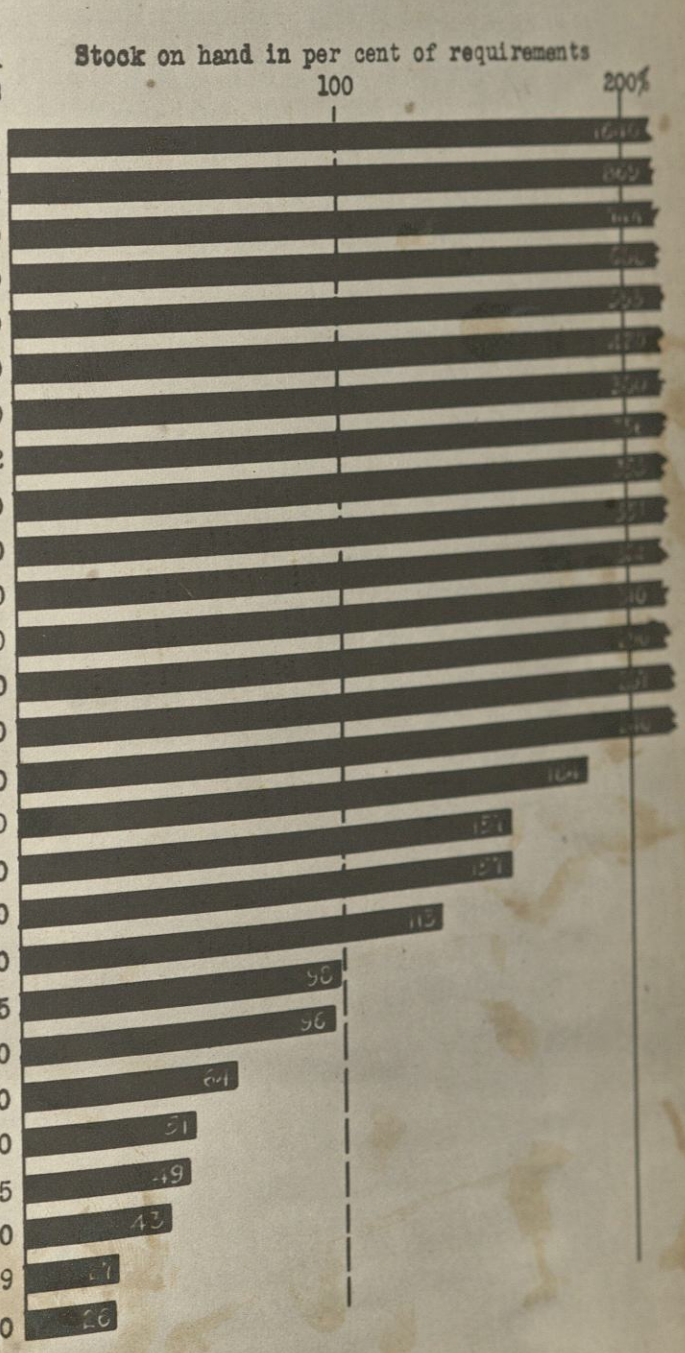
SIGNAL CORPS EQUIPMENT ON HAND DECEMBER 1, 1918

Stocks of representative items of Signal Corps Equipment in depots December 1, 1918, and their relation to requirements of same date.

Requirements are based upon 45 days reserve for 30 divisions except for cross arms, poles, and #12 copper wire which are based upon the construction of 100 miles of standard 10 wire line and 200 miles of light 8 wire line per month.

Source of information: Office of Chief Signal Officer, Hq. S.O.S.

Item		Stock on hand Dec.1 '18
Chests, tool, mech.	one	640
Wire, O.D.,T.P. #17	mile	10,416
Reels, breast	one	7,900
Switchboards	one	15,000
Panels,not marking	set	6,150
Climbers, linemans	pr.	4,300
Bags,tool,serv.comp.	one	2,350
Charging sets	one	192
Watches, wrist	one	36,500
Crossarms, 8 to 10 pin	one	58,000
Pliers, all kinds	one	77,500
Buzzers, serv., 1914	one	2,650
Wire, copper #12 N.B.S.	mi.	4,350
Accumulators	one	12,500
Batteries, dry	one	263,500
Glasses, field	pr.	24,500
Kits, flag	set	11,500
Wire, field, single	mi.	3,000
Buzzerphones	one	720
Radio Sets, all kinds	set	1,035
Poles, all kinds	one	16,400
Wire, outpost, T.P.	mi.	14,000
Amplifiers, type 3 ter	one	180
Sets, T.P.S. all kinds	one	475
Telephones, field	one	2,400
Carts, wire, complete	one	29
Projectors, 14 & 24 cm.	one	1,000



AIR SERVICE

To the Air Service fell the task of getting trained and equipped air squadrons to the front, tactically organized, and in sufficient number to act as a proper support to the American Forces in the field. It was also responsible for the provision of balloons and balloon personnel, and in general, for the supply, housing, repair and maintenance of all aviation material.

Some of the difficulties surrounding this task were the newness of military aviation, and the lack of knowledge concerning it which prevailed in the United States, the exactitude necessary in the production of each item of supply, the fact that 3,000 miles separated the zone of operations from the home production base, and the almost entire absence of trained Air Service personnel, both commissioned and enlisted.

Furthermore, under the stimulus of war, Air Service practice was changing so rapidly that by the time a plane based upon previous experience had been designed, manufactured and placed on the front, new developments might have rendered it obsolete.

The wisdom, therefore, of the decision of the Air Service to take advantage of the ability of the French and British to furnish our forces with their latest types while development work was proceeding in America is obvious.

Planes as used at the front may be divided into four main groups:

Pursuit or Chasse Planes - Light, fast, one seated planes mounting one or more machine guns, whose function is to seek out and destroy enemy aircraft.

Fighter or Combat Planes - Medium or large sized heavily armed two or three seated planes, mounting two to six or more machine guns and often a small cannon. Some are armored, equipped with wireless, are rapid, and have a good climb, but are not as fast as pursuit planes.

Observation or Reconnaissance Planes - Medium and large sized biplanes carrying at least one observer in addition to the pilot. Used for photographic work, obtaining information regarding enemy position, directing artillery fire etc. Armed for defense only.

Bombing (Day and Night) - Generally large bi- and triplanes with heavy bomb loads, and high powered motors. Used for raids against enemy positions such as ammunition dumps etc. The observation plane was frequently used as a day bomber.

The principal service planes in use by our forces at the close of the war with the number of each received to the end of 1918 were:

			Received
Pursuit & Combat	Spad	French	1,097
	SE-5	English	32
	S.I.A.	Italian	19
			369
Observation	Breguet	French	678
	Salmson	French	142
	A.R.1 & 2	English	1,440
	DeHavilland 4	American	
Bombing	Breguet	French	(See observation)
	DeHavilland 4	American	" "
	Voison	French	10

AIR SERVICE (continued)

In all, 6,624 airplanes of 52 types were received by the A.E.F. up to January 1, 1919, of which 5,181 came from Europe and 1,443 from the U. S.

Of those received from Europe, 4,880 were received from France, 282 from England, and 19 from Italy.

Of the American planes all but three were DeHavilland 4, and all were equipped with Liberty engines.

Up to the same date there were received 4,715 spare engines, 1,568 from France, 183 from Italy, 14 from England, and 2,950 from the United States.

Of the spare engines from the United States, 2,710 were Liberty and 240 Hispano Suiza.

Planes and engines received from the United States were sent to the Air Service Production Center at Romorantin for erection, while materials purchased in Europe were sent to Air Service Depots or to the American Acceptance Park No. 1 at Orly.

At the time of the armistice, Air Service squadrons in the A.E.F. numbered 285, of which 178 were service squadrons.

In addition to these units, there were 35 Balloon Companies and 39 Photographic Sections.

On the same date there were at the front 45 airplane squadrons with 547 available planes, 23 Balloon Companies, 12 Photographic Sections and 7 Air Park Squadrons.

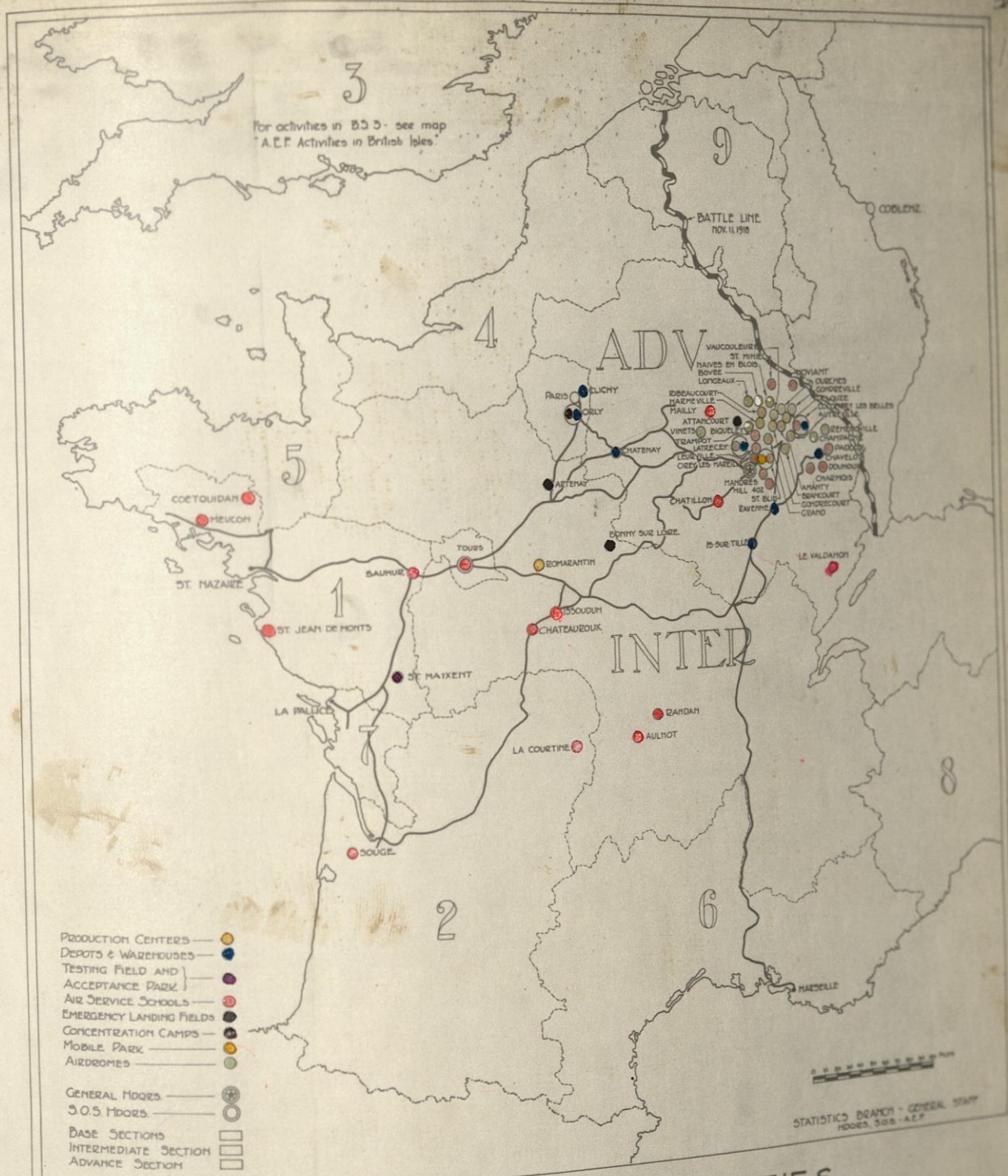
The total personnel of the A.E.F. Air Service on this date was 7,738 officers, and 70,595 enlisted men.

The Chief of Air Service was located at General Headquarters.

The Paris office, under an assistant Chief of Air Service was divided into the Supply Section, (French aviation manufacture was concentrated in Paris), the Executive Section, the Technical Section, the Night Bombardment Section, and the Aircraft Armament Section.

The Assistant Chief of Air Service at Tours maintained an office consisting of the Training, Balloon, Photographic, Designs and Projects, Information, Personnel, Radio and Cables Sections.

In addition to the many representatives of the various sections of the Air Service at different points in Europe, there were permanent Air Service headquarters in Great Britain and Italy, the commanding officers in charge of which were responsible for all Air Service activities in their respective countries.



AIR SERVICE ACTIVITIES

The designations given in the key are self explanatory, except the following, which are here defined.

Production Center — Large erection and repair shop, where planes, received knocked down from the United States, were assembled, rebuilt and tested.

Testing Field —— Field for the testing of either new or repaired planes to ascertain if they were in good flying condition.

Acceptance Park — Field for the testing of foreign built planes before acceptance.

Mobile Park —— Repair center carrying a supply of spare parts. From this park, trucks carrying parts, tools and mechanics were sent out to make repairs in the field wherever possible.

Airdromes —— Shelter for planes and balloons.

Concentration Camp - Camp to which Air Service personnel was sent upon arrival to await distribution to schools, etc.

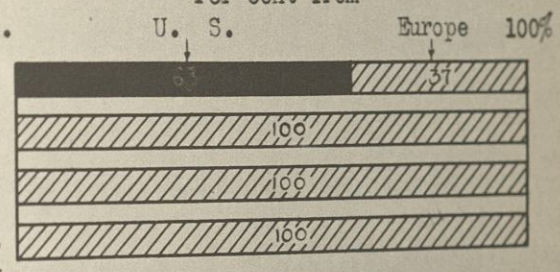
AIRPLANE PROCUREMENT AND MONTHLY RECEIPTS

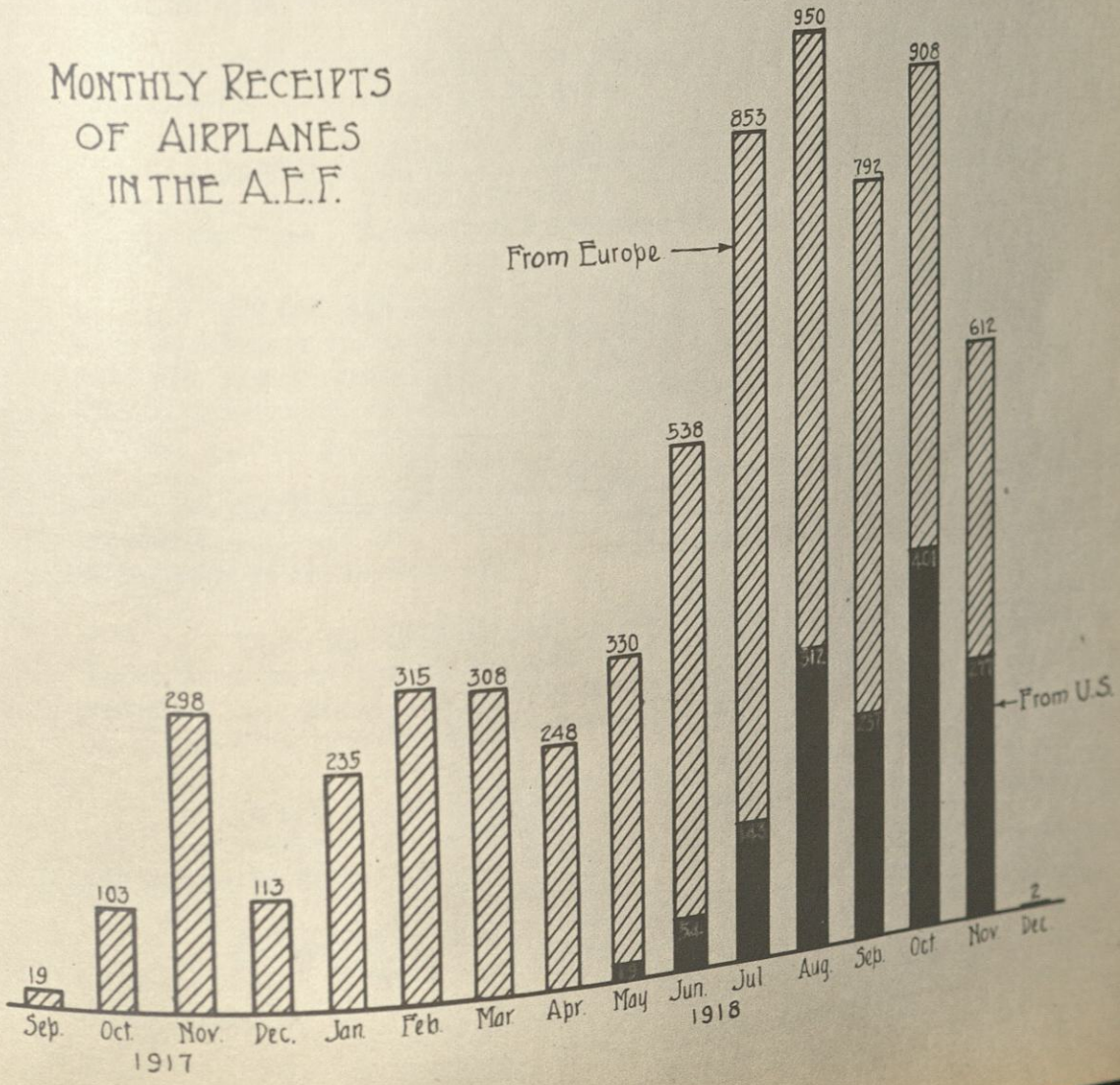
Airplanes received from United States and from Europe to January 1, 1919.

Source of information: Office of Chief of Air Service, A.E.F.

PROCUREMENT IN U.S. AND IN EUROPE

Type	From U. S.	From Europe	Total Rec'd.
Observation	1,443	833	2,276
Pursuit	0	1,153	1,153
Bombing	0	379	379
Training	0	2,816	2,816
TOTAL	1,443	5,181	6,624





The creation of the Office of the General Purchasing Agent of the A.E.F. was brought about by the supply and shipping emergency which made it essential that everything possible be procured abroad.

The function of the G.P.A. was to supervise the procurement of all supplies in Europe.

He did not himself make direct purchases, but coordinated and directed the activities of the purchasing agents of the several supply services constituting the General Purchasing Board of which he was the chairman.

The following were some of the main sub-divisions of the office of the General Purchasing Agent with their functions:

BUREAU OF FOREIGN AGENCIES: Exercised supervision and control of orders sent to foreign countries, and of the G.P.A. representatives in those countries, whose duty it was to locate and report upon available supplies, and to make such purchases as directed by the purchasing agents of the several services.

PURCHASE BY CATEGORY DEPARTMENT: Established categories of supplies used by more than one service, and designated specific services to purchase each category

STATISTICAL BUREAU: Collected and compiled information regarding material procurable in Europe.

BUREAU OF PURCHASE, PROGRAM AND CLASSIFICATION: Compiled and classified lists of requirements as shown on quarterly forecasts of the supply services, standardized nomenclature, etc.

CONTROL BUREAU: Approved all orders and requisitions on foreign governments, and examined prices charged. Liaison was maintained with the French authorities, and when prices asked were too high, the French Government requisitioned the material at a fair price and turned it over to the A.E.F.

TECHNICAL BOARD: Maintained touch with the power requirements of the A.E.F. and the electrical power available in France, and gave technical advice on matters relating to light and power.

BOARD OF CONTRACTS AND ADJUSTMENTS: Prepared contracts and agreements between different departments of the A.E.F. and corresponding departments of the French and British Governments, and aided in the settlement of obligations resulting from such agreements.

FINANCIAL REQUISITION OFFICER: Requisitioned and received from the Treasurer of the United States, the necessary funds for the A.E.F., and acted as banker for the Disbursing Officers of the various services.

BUREAU OF ACCOUNTS: Recorded and compiled information with respect to claims, contracts and agreements between United States and European countries.

BUREAU OF RECIPROCAL SUPPLY: Handled matters relating to the furnishing of raw materials to foreign governments and private firms to replace material manufactured for the A.E.F.

TRANSATLANTIC CARGO UNLOADED IN FRANCE AND TRANSATLANTIC CARGO SPACE SAVED BY PURCHASES IN EUROPE TO DECEMBER 31, 1918.

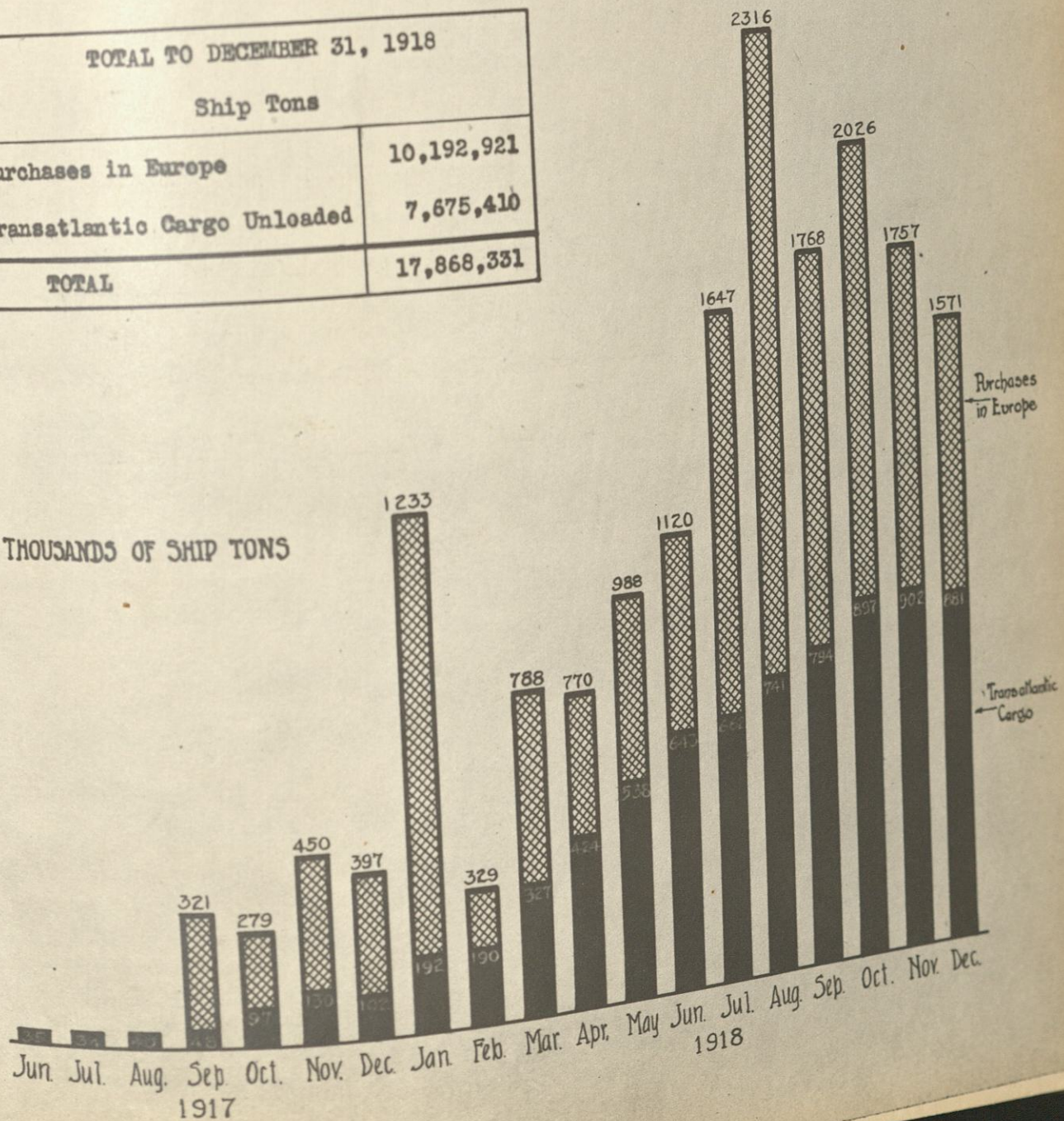
Solid portion of column indicates transatlantic cargo discharged, cross hatched portion cargo space which would have been required to transport supplies purchased in Europe. Of the supplies shown as purchased in Europe, however, approximately 2,500,000 ship tons required Cross Channel transportation.

The figures here given for European purchases are made up partly from records of orders placed during the month and partly from records of deliveries and should not be taken as necessarily representing receipt of goods during the particular month indicated.

Special attention is called to the fact that all figures are in ship, or space, tons (40 cubic feet) and do not therefore correspond to figures in short tons as given on other pages of this report.

Source of information: Office of General Purchasing Agent, A.E.F.

TOTAL TO DECEMBER 31, 1918 Ship Tons	
Purchases in Europe	10,192,921
Transatlantic Cargo Unloaded	7,675,410
TOTAL	17,868,331



RENTING, REQUISITION AND CLAIMS SERVICE

The chief duties of the Renting, Requisition and Claims Service were to arrange for the renting and requisition of property needed by the A.E.F.; to handle claims for damages made by the inhabitants of friendly European countries against the American military forces; and to provide and supervise billeting areas in France.

RENTING AND REQUISITIONS: This Department was in charge of the acquisition of all property desired by the A.E.F. in France, the rental of which, including large tracts of land at Paris, Gievres, Montoir, Bassens, St. Sulpice, Talmont, Is-sur-Tille and Chateauroux, totaled about $500,000 a month.

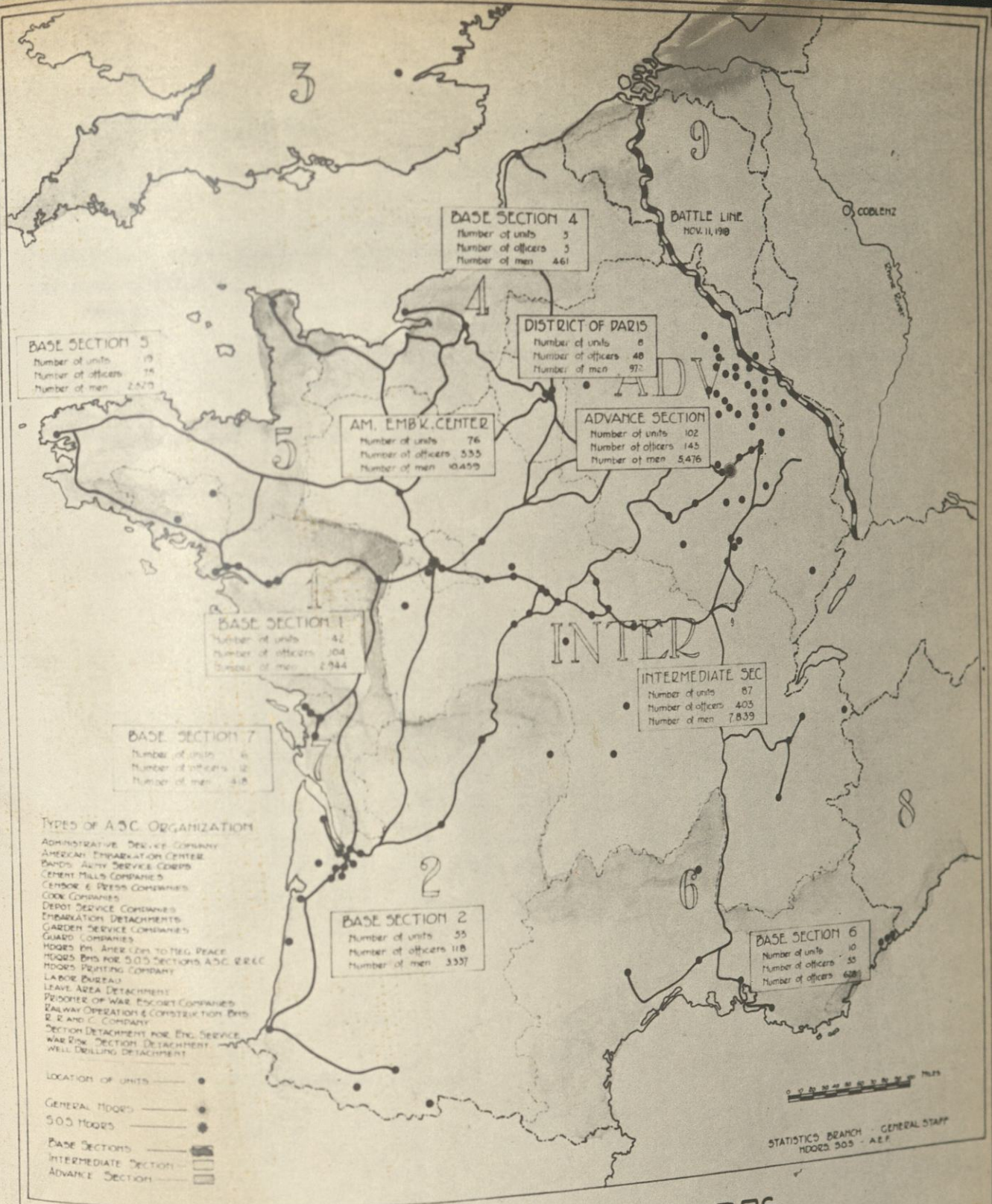
Forms of leases were drawn and executed and at the conclusion of American occupancy, settlements were arranged with the owners or tenants. In the larger projects the number of tenants interested in each was often from 2,000 to 15,000.

CLAIMS: This Department was chiefly concerned with claims arising out of damages to billets, fires, explosions, theft, personal injuries from automobile accidents and the operation of army vessels in European territorial water. Congress required that all cases should be settled in accordance with the law or practice of the country in which they occurred and a study of the laws of France, England, Italy, Belgium, Luxemburg, Switzerland, Spain and Monaco, was thus made necessary.

Up to May 1, 1919, approximately 35,000 claims had been investigated and disposed of. Most of these were for amounts which were relatively small and were settled by R. R. & C. officers in the field, but the largest claims, such as one for $1,000,000 in connection with a forest fire, had to be considered by the Commander-in-Chief.

BILLETING: American troops were billeted in France in the same manner as the French. Arrangements in each area were made by the Zone Major and the Town Major, representing the Billeting Department of the R. R. & C. Service. Under their direction a survey of the facilities in the area was completed, the quartering of the troops supervised, necessary records kept and final adjustments made with the inhabitants when the area was evacuated.

When entering a commune for the first time, it was the duty of the Town Major to call upon the Mayor and establish friendly relations with the civil authorities and inhabitants. He then went with the Mayor or his representative to each billet, estimated the number of officers, men and horses that could be provided for, and labeled the building with a placard showing its serial number and capacity. About $10,000,000 was paid for billets, in accordance with the rate of eighteen cents a day for an officer and one cent a day for a private, as established by French law more than 50 years ago.



ARMY SERVICE CORPS

The Army Service Corps was formed on August 22, 1918, to furnish personnel for many new and special services unexpectedly required by the S.O.S., and to provide a qualified organization to guide the activities and care for the needs of many individuals and small groups scattered all over France and operating practically "on their own."

For administration and discipline, the Army Service Corps organizations were under the control of the commanding general of the section in which they were stationed. The chief of the technical service to which they were furnished, or his representative, assigned and directed their work. It was the duty of the Army Service Corps to maintain these organizations in condition to perform efficiently the duties required of them.

On the map are indicated the locations of Army Service Corps units in April, 1919, and there are listed thereon the various types of organizations maintained by this service. There were 408 such organizations in France during the spring of 1919.

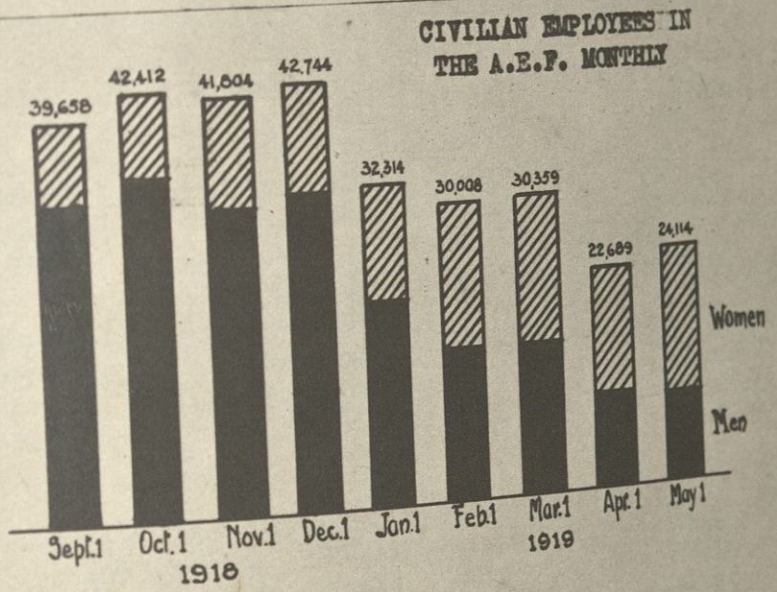
CIVILIAN LABOR IN THE A.E.F.

A modern war involves a great amount of physical labor which requires no military training.

The efficient prosecution of the war is therefore aided by the minimum use of combat troops for tasks of this character and the substitution of civilian labor wherever possible.

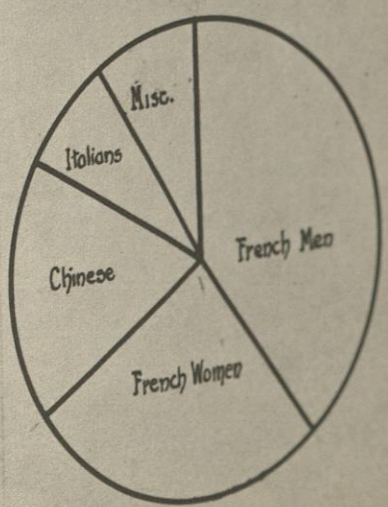
Responsibility for securing and organizing labor and clerical workers for the A.E.F. rested largely upon the Labor Bureau of the Army Service Corps, which, working with the French Bureaux des Placements, established labor depots and agencies in various parts of France.

Source of information: Labor Bureau, Army Service Corps, Hq. S.O.S.



ANALYSIS BY NATIONALITIES - NOV. 11, 1918

French Men	17,104	40.2%
French Women	11,004	25.8
Chinese	7,476	17.5
Italians	3,297	7.7
Spanish	898	2.1
Moroccans	683	1.6
Annamites	461	1.1
British (WAAC)	440	1.0
American Women	400	.9
Tunisians	350	.8
Algerians	286	.7
Portugese	245	.6
TOTAL	42,644	100.0 %



ADJUTANT GENERAL'S DEPARTMENT

The Adjutant General's Department is charged with the compilation of complete data regarding personnel, individually and collectively, and with the handling of official records, correspondence and orders. The Adjutant General for the A.E.F., with headquarters at G.H.Q., maintained the Central Records Office at Bourges, where complete records of all individuals were kept. Adjutant's work in the S.O.S., was under the Adjutant General, S.O.S., at Tours.

During the war, more important developments were made in the personnel work of the Adjutant General's Office than in any other branch of this Department. Great Britain suffered heavily in the early days of hostilities because men invaluable to essential industries and technical branches of the service were sacrificed in the infantry. Profiting by her experience, the United States established a card system for the classification of officers and men according to their civil and military training and experience. It was the Adjutant General's Department which was responsible for this classification and for using it to fit the right man in the right place. Work of this character in the A.E.F. centered at the replacement depots, and especially at the largest, St. Aignan, where men of experience in the same trade or branch of military service were grouped together, and the strength of the depot, thus, classified, was posted daily at headquarters, for use in filling replacements.

It was also the duty of this Department to keep up-to-date records on the location and strength of organizations, and to see that all papers were properly prepared for embarkation. Twice a month a "Station List" was issued. On November 11, 1918, the list at Hq. S.O.S. consisted of 105 pages, and showed the location of 5,674 S.O.S. organizations, units, detachments and headquarters, at 1,150 different towns and camps in France.

In various other ways also the Adjutant General's Department was concerned with the status of A.E.F. personnel. Through it were issued all travel orders, all promotions, decorations and citations. Pay-rolls were prepared by this Department, which also issued identification cards to officers, and kept thousands of service records of enlisted men at Bourges.

Beginning in August, 1918, the Commanding General of the S.O.S. was authorized to communicate directly with Washington. By that time, there were eight series of cablegrams to and from the A.E.F. Cables were filed and indexed by the Adjutant General's Office at Tours, which also coded and decoded the S.O.S. messages.

The Adjutant General's Department was charged with many miscellaneous duties, including the maintenance of printing establishments, the publishing of official documents and the distribution of such papers as General Orders, Bulletins, and blank forms.

PROVOST MARSHALS AND MILITARY POLICE

Officers and enlisted men were not ordinarily under the direct jurisdiction of the French authorities, and it was the duty of the Provost Marshal, acting through the Assistant Provost Marshal (APM) and his corps of assistants, the Military Police (MP), to maintain order in the A.E.F.

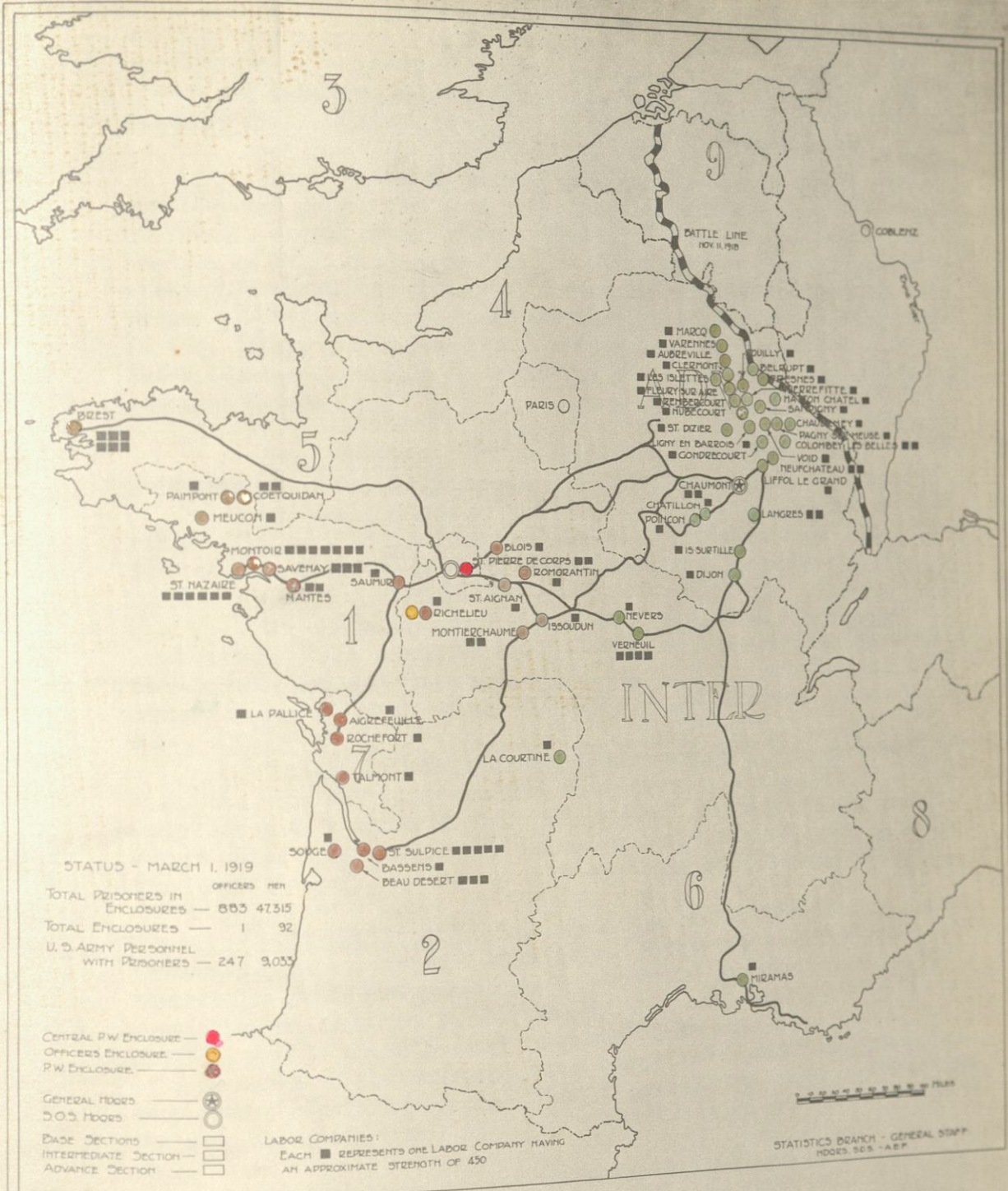
The offense of being absent without leave (AWOL) was the most common with which they had to deal. This was due rather to the desire of the doughboy to escape, for a time, the limitations of discipline, than to any conscious effort to avoid the rigors of arduous labor or the dangers of the trenches.

In order to control the movements of Americans when absent from their stations, all members of the A.E.F. were required to register with the local APM on arrival and departure from railroad stations, and to show authority for their presence at a town whenever this was demanded. It was also the duty of the MPs to control traffic movements on the roads in the American areas.

Until just before the Armistice, military policemen were secured from various combat and S.O.S. organizations, and were without prior instruction in their duties. This branch of the Provost Marshal General's Department, however, bearing so directly upon relations with the French people, and upon the morale of the A.E.F., was later recognized as a separate corps and a school for the training of MPs was begun in October at Chateau du Loir

APM AND MP STATIONS, MAY 1, 1919

	Number of Stations	
	APM	MP
Intermediate Section	45	196
Advance Section	53	112
Base Section No. 2	22	58
Base Section No. 1	13	23
Germany (Occupied territory)	18	21
Base Section No. 6	8	16
Base Section No. 7	3	7
Base Section No. 4	6	7
Base Section No. 5	4	6
Alsace-Lorraine	2	6
British Isles	5	5
Paris	1	3
Luxemburg	0	2
Belgium (B.S. #9)	2	2
Italy	1	1
TOTAL	183	465



PRISONERS OF WAR

After capture by combat troops, prisoners of war were passed successively through Divisional, Corps and Army cages, in each of which they were examined by the Intelligence Service. Soldiers were then evacuated to the Central Prisoner of War Enclosure at St. Pierre des Corps, or the Auxiliary Enclosure at Souilly, to be organized into labor companies.

These laborers, working under American Escort Companies and German non-comissioned officers, were engaged in the maintenance of roads, stevedore work at ports, in the motor shops at Verneuil, in the construction of camps, railroads and piers, and on salvage work. They were equipped with renovated clothing dyed, and were given the same food as that provided for American troops. Privates and non-commissioned officers were paid, according to grade, from four to twenty cents for each day they worked.

Officers were confined within the grounds of a chateau at Richelieu. They were not required to do work of any kind. Amusements and facilities for athletics were provided by the Y.M.C.A., the Red Cross and from the officers' funds. Lieutenants were paid $83.33 a month, and officers of higher rank $95.25

The Judge Advocate is the advisor of the military authorities on legal questions, and is responsible for the administration of military justice. He customarily gives personal counsel to individual officers and soldiers, and is, in brief, a corporation counsel, district attorney and a country lawyer, all in one.

Under our constitutional government, executive agencies like the Army can exercise no authority, take no single step, expend no single penny, except by the express sanction of some statute, law, rule, regulation or accepted precedent. To find necessary sanction for desirable achievements, to protect military officials from overstepping their proper powers, and to advise on all questions of International Law, Civil Law, Criminal Law, both French and American, were among the duties which constantly engaged the attention of the Judge Advocates at Headquarters, S.O.S.

LEGAL PROBLEMS: At the suggestion of the Judge Advocate's Department, S.O.S., Congress passed an Act permitting the adjustment of claims for damages made by civilians of friendly nations against the A.E.F. The work of handling these claims developed into the R.R. & C. Service, the Director of which was identical with the Judge Advocate, S.O.S.

The frequency of ship collisions resulted in delegating to the hands of the Judge Advocate, S.O.S., authority to investigate and adjust difficulties arising therefrom, and in addition, the unusual power of making claims in behalf of the United States and accepting payment therefore.

Financial questions and problems arising in connection with War Risk Insurance and allotments were among the most complex with which the Judge Advocate's Office at Tours had to deal. The thorough and practical way in which they were handled is perhaps best evidenced by the fact that the Judge Advocate, S.O.S. was later appointed Chief Finance Officer, A.E.F.

MILITARY JUSTICE: Military justice in the Army is administered by courts martial, composed of officers. Trials are conducted under the supervision of the Judge Advocate's Department. A general court martial, consisting of from five to thirteen officers, has almost unlimited jurisdiction, and is the only court which can try an officer. A special court, of from three to five officers, cannot impose severe penalties; and a summary court, consisting of one officer, is more limited still in its powers. The records of all trials must be reviewed by the Judge Advocate's Department.

General court martial trials were all reviewed by a branch of the office of the Judge Advocate General which was established at G.H.Q. Final decisions on cases handled there up to July 1, 1919, and the action taken by the reviewing authorities were as follows:

	Number of Convictions	Number of Acquittals	Total cases	Per cent of total sentences Approved	Disapproved
Officers	958	453	1,411	85	15
Men	3,983	1,149	5,132	93	7
Others	46	13	59	93	7
TOTAL	4,987	1,615	6,602	91%	9%

INSPECTOR GENERAL'S DEPARTMENT

The sphere of the Inspector General's Department "includes every branch of military affairs, except when specially limited". It originated in the War of Independence and little change has taken place in its functions since the days when General George Washington appointed Baron Von Steuben the first Officer in Charge. It has no property or money accountability; it has personnel only. Its job is to see that the military machine runs smoothly; that neither through accident nor design does any grit get into the gears.

Its functions in the S.O.S. were chiefly three: (1) Inspection of troops, (2) Inspection of property, and (3) Inspection of money accounts.

In the inspection of troops, particular attention was paid to the state of discipline and the observance of military customs and regulations regarding dress and appearance. As the troop return movement began, special emphasis was placed on this phase of the Inspector General's work. In January and February, 1919, alone, about 150,000 officers and men were inspected at the American Embarkation Center.

The general care of property, the detection of pilfering, and the handling of motor vehicles and animals were matters of special interest to the Inspector General, who had officers stationed at all the Base Ports and Section Headquarters.

For the examination of money accounts, officials of the United States Treasury were commissioned in the Inspector General's Department. A large part of their duty consisted in giving advice and instruction to disbursing officers who had come into the service with little knowledge of Government methods.

Among other matters requiring the attention of this Department were:

System of record keeping at Central Records Office
Condition of company records
Distribution of General Orders, Bulletins, etc.
Deficiencies in military justice
Efficiency of mail service in the A.E.F.
Activities of welfare societies
Suitability of soldiers' personal equipment
Visits of the A.E.F. to Paris
Examination of company funds

A.E.F. DISBURSEMENTS BY COUNTRIES AND SERVICES

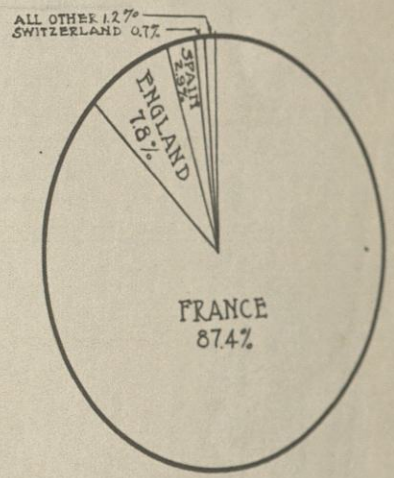
Totals June 1, 1917 to November 30, 1918 inclusive.

Pay of the Army is included in "Disbursements by Countries". Approximately $225,000,000, or 90 per cent of the total pay, was disbursed to men in France.

Source of information: Bureau of Accounts, Finance Officer, A.E.F.

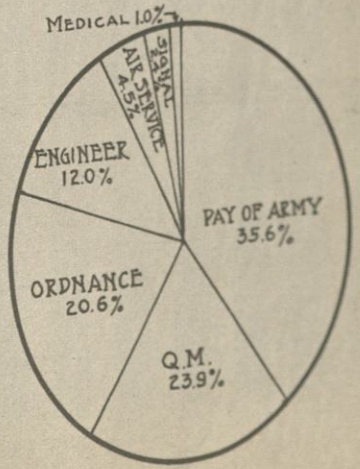
DISBURSEMENTS BY COUNTRIES

France	$619,009,412.44	87.4%
England	55,037,675.67	7.8
Spain	20,326,805.70	2.9
Switzerland	5,384,444.37	.7
Italy	1,876,830.67	.3
Portugal	5,667.33	
All other	6,161,241.80	.9
TOTAL	$707,802,077.98	100.0



DISBURSEMENTS BY SERVICES

Pay of Army	$252,203,006.56	35.6%
Quartermaster	168,903,043.83	23.9
Ordnance	145,604,609.93	20.6
Engineer	85,261,681.28	12.0
Air Service	31,658,708.30	4.5
Signal	16,746,546.51	2.4
Medical	7,415,455.96	1.0
Miscellaneous	9,025.61	
TOTAL	$707,802,077.98	100.0

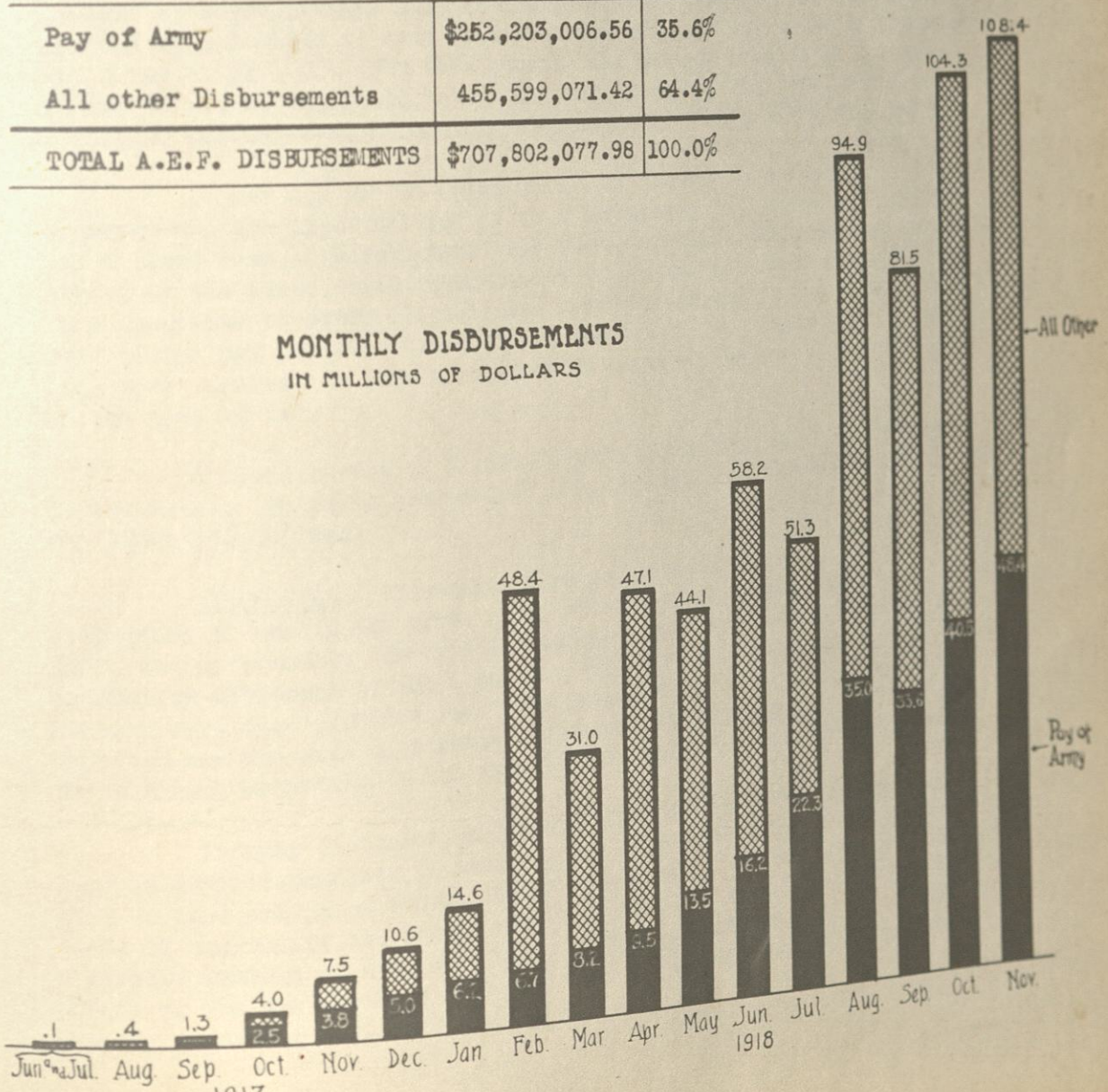


MONTHLY DISBURSEMENTS BY THE A.E.F.

Total monthly disbursements by the A.E.F. subdivided between pay of the Army and other expenditures.

Source of information: Accounting Division, Office of Chief Quartermaster, A.E.F.; Bureau of Accounts, Finance Officer, A.E.F.

TOTAL A.E.F. EXPENDITURES TO NOVEMBER 30, 1918		
Pay of Army	$252,203,006.56	35.6%
All other Disbursements	455,599,071.42	64.4%
TOTAL A.E.F. DISBURSEMENTS	$707,802,077.98	100.0%



WAR RISK SECTION

The War Risk Section, Hq. S.O.S., was the agent in the A.E.F. for the Bureau of War Risk Insurance of the United States Treasury. It was a military organization but it was entirely concerned with questions of insurance and allotments arising under the War Risk Act of October 6, 1917.

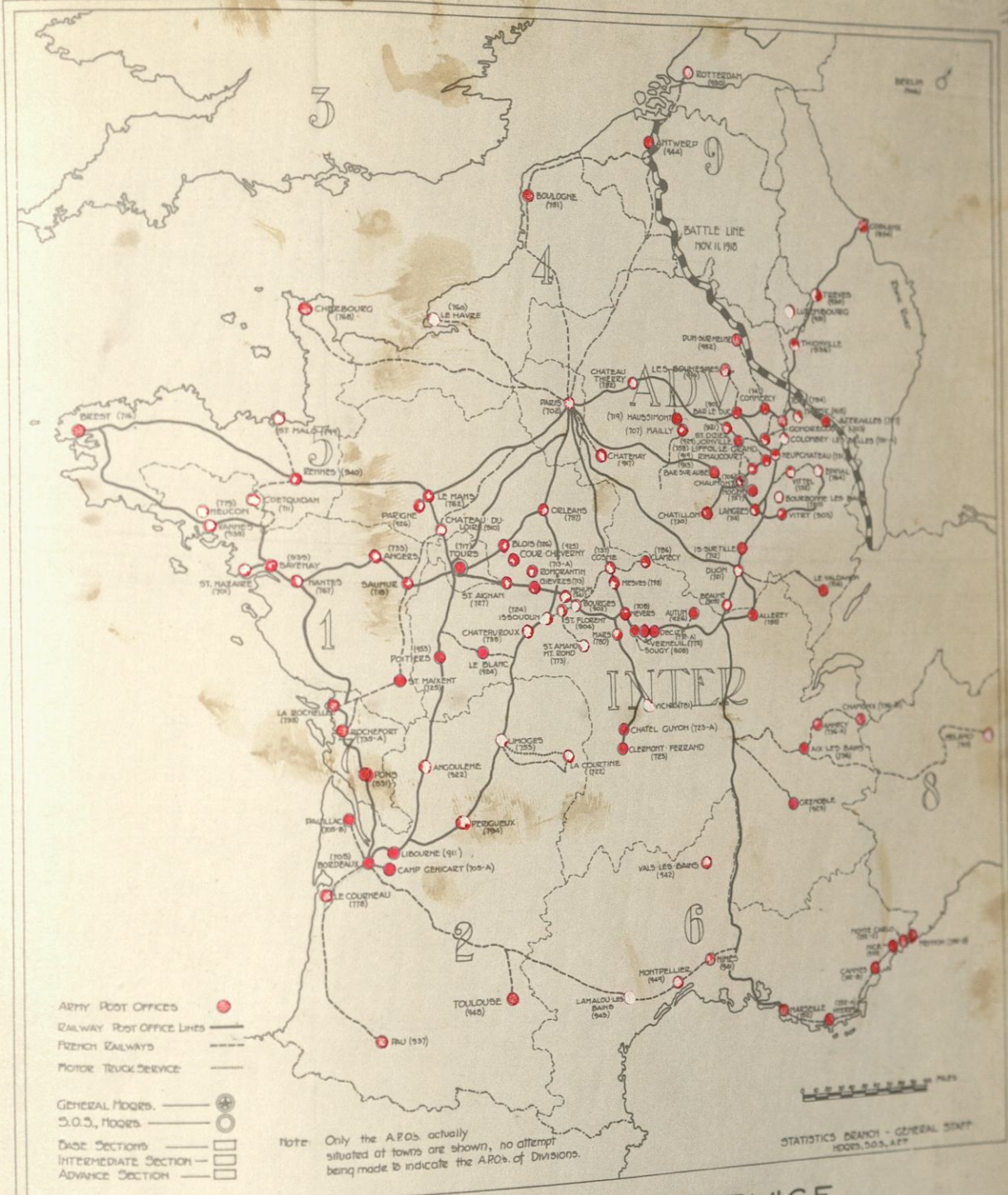
INSURANCE: The War Risk Act enabled any officer or enlisted man within a limited period of time after his entry into the service to insure himself at a low premium against death or total disablement. The beneficiaries were limited to near relatives and the maximum amount of insurance was fixed at $10,000. For this amount, the monthly premium at the age of 20 was $6.40; at 40, $8.10, etc. In case of death, the beneficiary under a $10,000 policy received monthly allotments of $57.50 for twenty years.

It was one of the chief duties of the War Risk Section to present to every man the opportunities of this insurance, to receive applications, and to send them to Washington. For this purpose, a field service was maintained at the ports, with instructions to present the facts regarding War Risk Insurance to every eligible man upon his arrival in the A.E.F. Here most of the new policies taken out in the A.E.F. were negotiated, as men took more interest in insurance after an ocean voyage and a nearer approach to the zone of war.

A total amount of $1,620,438,000 of new insurance was taken out in the A.E.F. Policies averaged $9,000, so that this represented insurance for about 175,000 men.

ALLOTMENTS: Allotments were payments to the dependents, relatives or friends of men in the army. They were of three kinds; compulsory, voluntary, and Government. Every enlisted man with a wife or child was compelled to make an allotment of $15 a month. Voluntary allotments of from $5 to $15 a month were also provided for. The Government paid to the dependents of enlisted men who made allotments additional amounts varying from $5.00 to $50 a month, according to the relationship and number of the dependents.

In many instances, allotments made by men in the A.E.F. were not paid to their dependents in America, and it was the duty of the War Risk Section to take charge of complaints of non-payment. By investigating the situation, by explaining the regulations involved, and by cabling or despatching a courier message to Washington, if necessary, much was done to improve the morale of the men in the A.E.F. who might otherwise have felt a greater anxiety regarding their home folks.



POSTAL EXPRESS SERVICE

On July 1, 1918, the Postal Express Service was organized to take over the A.E.F. mail service, which had formerly been managed by civilians of the U.S. Post Office Department. The system adopted was in accordance with American practice at home and included a Central Post Office at Bourges, where mail was sent if it required a more complete or up-to-date address. On 15 of the 24 railroad lines used, mail was sorted daily en route, not in the modern cars built for that purpose but in common ordinary box cars, generally known in the A.E.F. as "side-door Pullmans", and bearing the never-to-be forgotten label, "Hommes 40, Chevaux 8."

As absolute secrecy had to be maintained regarding the locations of units in France, post offices were indicated by code numbers instead of by the names of cities, towns, or organizations in which they were located. Here the responsibility of the Postal Express Service ended. From the Post Office on, mail was handled by orderlies belonging to units and organizations.

During the period of active warfare, a letter took about 21 days from New York to delivery in France, but after the Armistice, twelve day mail service to Coblenz was not uncommon.

To guarantee quick delivery of official matter too valuable or too urgent for the ordinary channels, the Motor Dispatch Service and the Courier Service were established in the fall of 1918.

A.E.F. MAIL

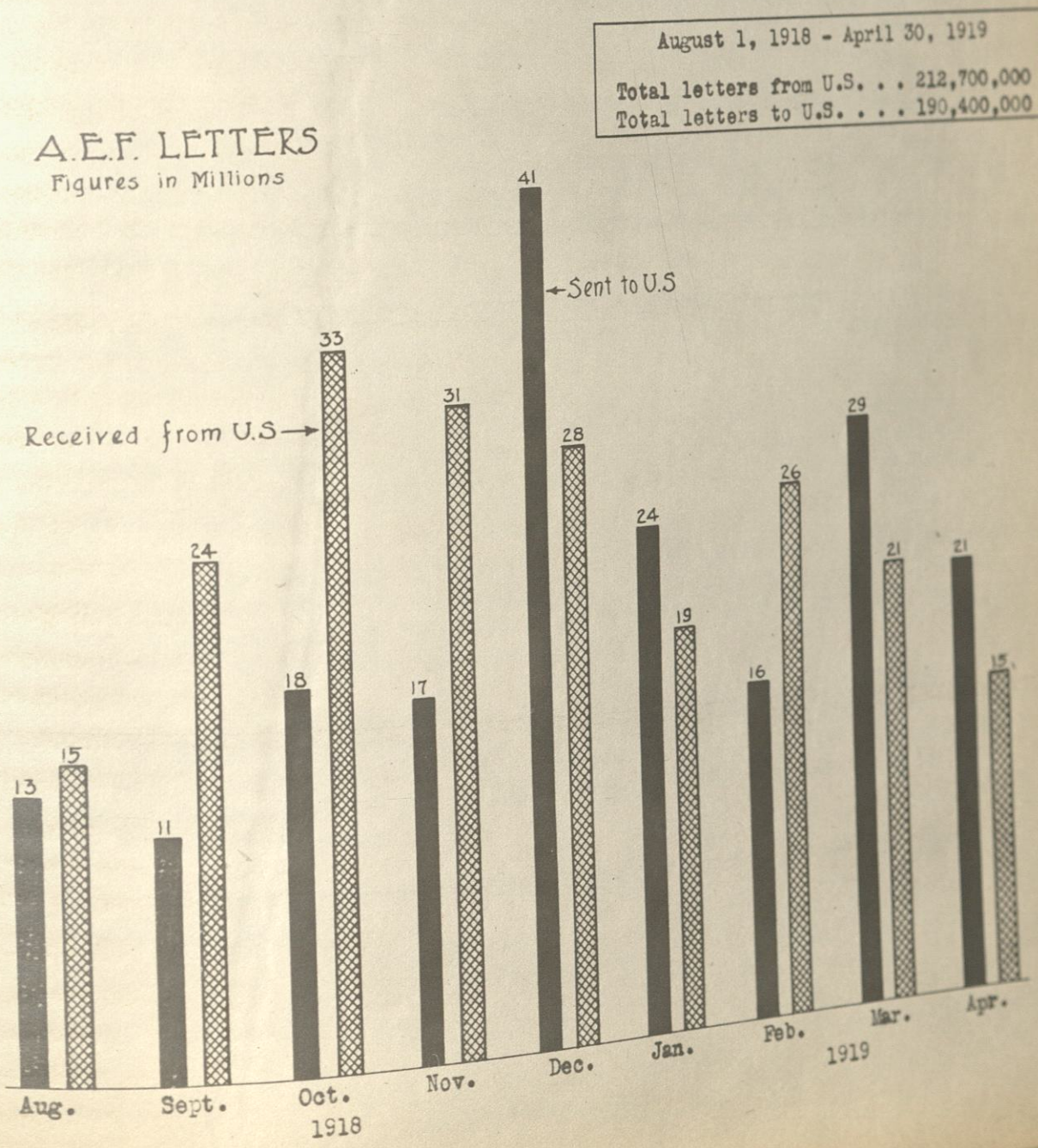
Every man in the A.E.F. received a letter from the United States three times a week, and sent one home almost as frequently. This was the average from August, 1918, to April, 1919.

During the same period one mail sack of packages and papers came from the U.S. once a month for every 30 men in the A.E.F. Packages were of course more numerous at Christmas time, when 175 extra mail cars were required by the Postal Express Service.

Source of information: Office of Chief, Postal Express Service, A.E.F.

August 1, 1918 - April 30, 1919

Total letters from U.S. . . 212,700,000
Total letters to U.S. . . . 190,400,000



WELFARE ACTIVITIES

To release all possible Army personnel for the direct business of war, activities for the maintenance of morale and for the comfort of the troops were conducted by various independent organizations, supported by the voluntary contributions of the American people. These societies were: American Red Cross, Y.M.C.A., Y.W.C.A., Knights of Columbus, Salvation Army, Jewish Welfare Board, and American Library Association. After the Armistice, Welfare Officers were appointed by the Army to co-ordinate and supervise the work of these societies.

The Red Cross expended a large proportion of its A.E.F. funds for hospital supply, supplementing the work of the Medical Department, and in maintaining on the lines of communication, canteens, dispensaries, small recreation huts, and bathing facilities.

At the request of General Pershing, the Y.M.C.A. conducted Army canteens, and inaugurated the educational, athletic and entertainment programs, which were operated with and expanded by the Army itself after the Armistice. The Y.M.C.A. also conducted sightseeing trips, held religious services and maintained hotels, huts, tents and theaters for the officers and enlisted men.

Recreational, religious and athletic activities were also promoted by the Knights of Columbus, which featured the free distribution of hot drinks, "smokes" and candy.

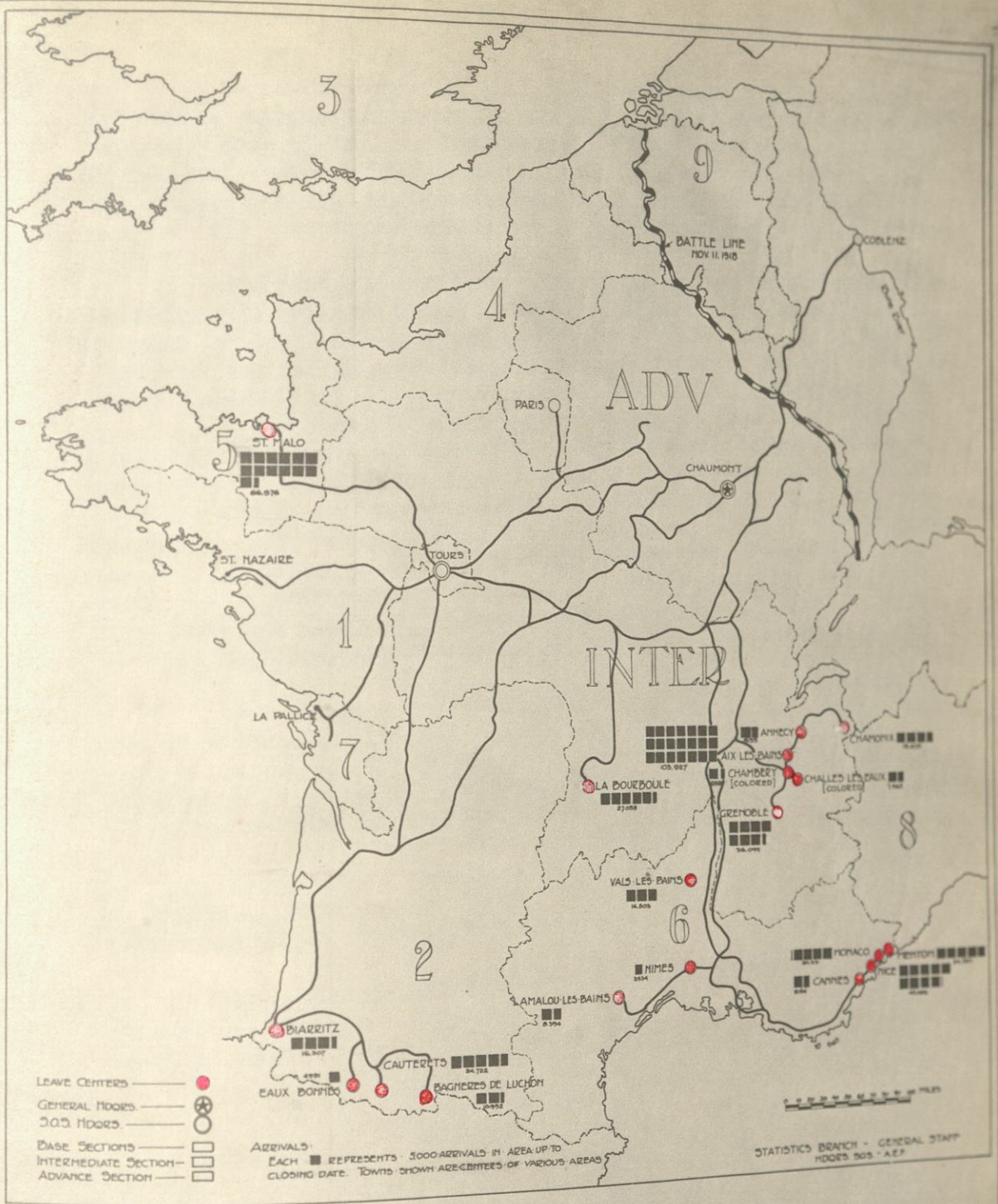
The service of hot chocolate, coffee, and particularly doughnuts, by the Salvation Army in the front lines was one of the picturesque and most highly appreciated incidents of welfare work with the American Forces during the European War.

American women played an important part in the work of the Y.M.C.A. Red Cross, and Salvation Army; and, under the auspices of the Y.W.C.A., hostess houses for all American women with the A.E.F., as well as special clubs for nurses and telephone operators were conducted.

Up to February 1, 1919, the American Library Association had shipped to France 1,800,000 volumes, or one book for each man in the A.E.F. About 20 main libraries were established at strategic points, and branches were maintained in 648 Y.M.C.A., and 100 other centers. Books were also mailed directly to soldiers at their request.

The strength of these organizations at the time of the Armistice was as follows:

Y.M.C.A.	4,510
American Red Cross	3,895
K. of C.	434
Salvation Army	143
Y.W.C.A.	97
American Library Association	8
Jewish Welfare Board	2
TOTAL	9,089



LEAVE AREAS

Before the Armistice, leaves and leave areas were terms practically unknown in the A.E.F. With the end of active operations, however, and the prospect of a long wait in Europe for most of the Army, the Commander-in-chief directed that a liberal policy be adopted with regard to leaves for officers and men.

The general plan adopted was to give enlisted men a weeks vacation at Government expense at one of the famous pleasure resorts of France. A hundred and fourteen special trains were run weekly to the principal leave areas, where contracts had been made to quarter and ration men at good hotels under such conditions of ease and comfort as would ensure a complete rest and change from military duties.

Entertainment was in the hands of the Y.M.C.A., which rented a casino and accompanying theatre in practically every area, and with a total force of 300 men and 400 women, planned a daily program of dances, moving pictures, athletics, historical trips and a canteen ever ready to serve. A seven-day leave cost the Government about $25.00 for each man.

Officers were allowed a fourteen-day leave every four months. They were permitted to visit all parts of France, and to go to Italy, England and Belgium in restricted numbers.

Beginning January 1, 1919, G.H.Q. initiated a program intended to provide suitable entertainment each night in every important center occupied by American troops. Entertainment officers were appointed in Armies, Corps, Divisions and S.O.S. Sections, with instructions to effect the fullest cooperation with the Entertainment Department of the Y.M.C.A., which had provided most of the entertainments in the S.O.S. prior to the Armistice.

The next six months saw professional and amateur activities of all kinds in full swing as the Commander-in-Chief gave hearty support to every program destined to keep up the morale of the A.E.F., and send it home imbued with the very highest American standards of fun and recreation. A considerable number of professional entertainers had been brought over from the U.S. by the Y.M.C.A., but in general it was planned that the soldiers should furnish their own amusement. Every division, regiment, battalion, company and detachment was urged to form small shows for entertainment purposes within its immediate vicinity. Talent of a superior order immediately began to show itself; and some system of training, equipping and supervising became necessary. For this purpose "Play Factories" were established in every section of the S.O.S., where entertainers were formed into units and coached by professional talent of the Y.M.C.A. The show was then equipped, censored and booked throughout the section.

At Tours, a more pretentious Play Factory, which had the use of one of the large theaters in the city, was operated by the Y.M.C.A. This factory trained and put on the road weekly as many as eight or nine complete shows, with a total personnel of 250. These shows were booked by the Entertainment Bureau at Hq. S.O.S., which mapped out the schedules for entertainments which were used in more than one section. There were 167 of these shows, with a total personnel of 4,441. The largest and most elaborate of these was the one-ring Bordeaux Circus, which successfully toured the S.O.S. in May, June and July.

Entertainment work was subdivided for administrative purposes into twelve sections. Facilities, performances and attendance from February 1, 1919 to July 1, 1919, were as follows:

Section	Maximum no. of theaters and huts	Maximum seating capacity	Total performances	Average daily attendance
Le Mans	175	140,000	14,721	76,567
B.S. No. 1	133	98,000	7,680	38,191
Advance Section	120	104,000	5,591	31,441
B.S. No. 5	42	34,000	4,747	29,045
B.S. No. 2	127	102,000	6,367	22,643
Tours Arrndemt.	10	21,000	2,545	13,774
Inter. Section	136	109,000	3,766	12,434
St. Aignan	21	17,000	1,656	8,549
B.S. No. 6	37	22,000	2,015	6,652
Paris District	26	20,000	789	4,196
B.S. No. 7	11	9,000	295	1,763
B.S. No. 4	22	18,000	394	879
Misc. (Circus)	1	- -	34	1,748
TOTAL	861	694,000	50,580	247,882

ATHLETICS IN THE A.E.F.

Prior to the Armistice, athletics were promoted as much as possible by the Y.M.C.A., and beginning in 1919, they were made part of the Army program. The policy adopted favored participation of large numbers of men in all types of athletics, rather than the training of a few experts. Official championships were conducted in the main sports, however, and at the instigation of the Y.M.C.A., Inter-Allied games, on the Olympic plan, were held June 22 - July 6 at Pershing Statium, Paris.

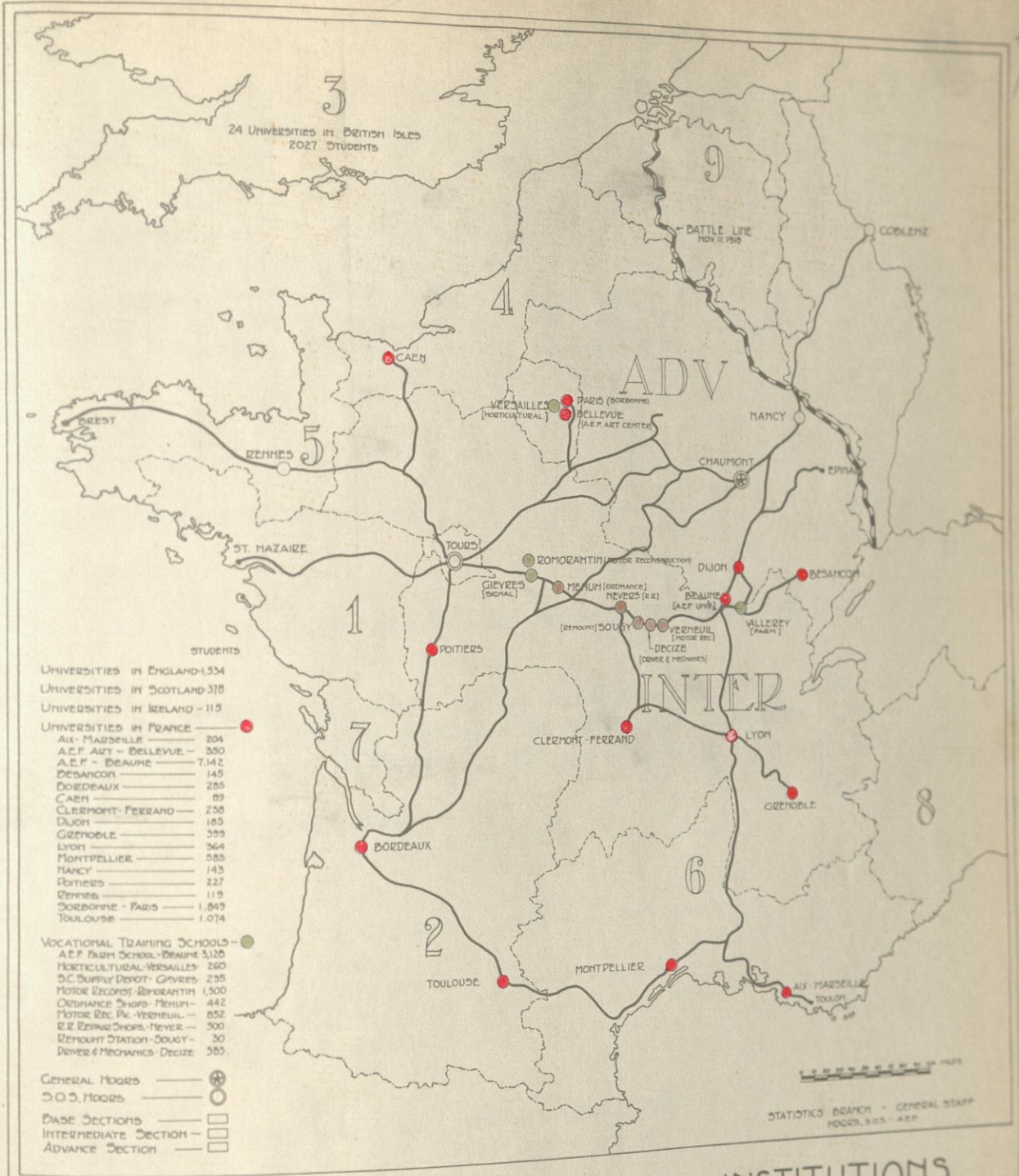
Source of information: Fifth Section, General Staff, G.H.Q., and the Department of Athletics, Y.M.C.A.

A.E.F. CHAMPIONSHIPS

Sport	Winner	Second place
Baseball	American Embarkation Center	3rd Division
Basketball	Int. Sect., S.O.S. (Tours)	Base Sect. #1 S.O.S. (St. Nazaire)
Boxing & Wrestling	Second Army	First Army
Football	89th Division	No second place
Soccer Football	Am. Embk. Center (80th Div.)	Third Army (6th Div.)
Swimming	Third Army	Int. Sect. S.O.S.
Tennis	Base Sect. #2 S.O.S.	Int. Sect. S.O.S.
Track and Field	Int. Sect. S.O.S.	Base Sect. #5, S.O.S.

AVERAGE DAILY PARTICIPATION IN ATHLETICS
(Compulsory exercise not included)

	Prior to Armistice Aug. - Nov. '18	After the Armistice Dec. '18-Apr. '19
Baseball, standard	2,178	15,575
Baseball, indoor	2,566	14,013
Basket Ball	1,125	10,465
Boxing	879	3,797
Football	3,353	6,433
Football, Soccer	2,310	11,402
Quoits	1,031	2,508
Setting up Drill	2,920	11,631
Tennis	417	671
Track & Field Athletics	391	10,626
Volley Ball	2,576	9,613
Wrestling	256	1,307
Informal games	3,855	71,615
Other games	127	2,962
Average participants daily	23,984	172,618



NON-MILITARY EDUCATIONAL INSTITUTIONS

After the Armistice, great emphasis was placed on general education, as it was recognized that the A.E.F. was a civilian army which should return to the United States prepared to take an active and intelligent part in the future progress of the country. Even before the end of hostilities, a general educational program had been outlined by the Y.M.C.A. which assisted the Training Section of the General Staff (G-5) in carrying it out.

Wherever 500 or more men were grouped together, it was the plan to provide post schools with primary and grammar school courses. High school subjects and vocational training were given at division educational centers, established in each Army Corps, Division and S.O.S. Section.

A group of more advanced vocational schools were established in the S.O.S., and at Beaune was organized the A.E.F. University with its large agricultural annex nearby. About 6,000 students attended French universities and 2,000 more went to higher institutions in the British Isles. A total of over 200,000 soldiers became students after the Armistice.