THE GENERAL BOARD

United States Forces, European Theater

MECHANICS OF SUPPLY

IN FAST MOVING SITUATIONS

MISSION: Prepare a study with conclusions and recommendations on the Mechanics of Supply in Fast Moving Situations requiring departures from planned procedures and established War Department doctrine.

The General Board was established by General Orders 128, Headquarters European Theater of Operations, US Army, dated 17 June 1945, as amended by General Orders 182, dated 7 August 1945 and General Orders 312 dated 20 November 1945, Headquarters, United States Forces, European Theater, to prepare a factual analysis of the strategy, tactics, and administration employed by the United States forces in the European Theater.

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FOREWORD

This study consists of a main report on the general subject with an added report from the Air Forces. The main report covers the mechanics of supply in fast moving situations for all forces of the European Theater of Operations, ground, air and naval, as considered by The General Board together with the Board's conclusions and recommendations. It contains the results of examinations of available pertinent records and consultations with key personnel of the Theater having an intimate knowledge of the subject. The added report is a separate study of the mechanics of supply of the Air Forces in fast moving situations as prepared by the IX Air Force Service Command for the United States Air Forces, European Theater. The IX Air Force Service Command was the supply service organization supporting the Air Forces on the continent during and subsequent to combat operations. It represents the views of Air Force personnel only and was not presented to nor concurred in by other headquarters of the European Theater. The General Board has made no attempt to coordinate the views expressed therein with the overall problems of the various commands in the Theater. The study is included as a part of this report for such future value as it may have as an expression of Air Force views on this subject.

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MECHANICS OF SUPPLY IN FAST MOVING SITUATIONS

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MECHANICS OF SUPPLY IN FAST MOVING SITUATIONS

INTRODUCTION

1. General. The object of this study is to review the mechanics of supply in fast moving situations such as that experienced by United States forces in the European campaign of World War II requiring departures from planned procedures and established War Department doctrine, and to recommend procedures and organizations considered suitable for a campaign under similar conditions. As will be seen in the study, the campaign quickly developed so differently from that foreseen in the original plans that departures from the planned procedures and logistical operations were numerous. A mass of documents and statements of individuals have been reviewed. These form the basis for factual statements included therein, and the more important are listed in the bibliography following each chapter.

2. Conception of a Fast Moving Situation. The entire period of the European campaign for United States forces from 6 June 1944 to 8 May 1945 was selected for study. In terms of rate of advance, the campaign cannot be considered as having been fast moving throughout. For the forces in the north, it was very fast moving from about 1 August 1944 to the middle of September 1944, and the advance from the landing in southern France was rapid from the beginning to also the middle of September 1944. Advances of all forces again were fast from the latter part of February 1945 to the end of the campaign. It is considered that the mechanics employed and the supply structure developed after 15 September 1944 were an outgrowth of, or were conditioned by, those evolved during the rapid advances before that time. In effect, therefore, the campaign from the viewpoint of supply mechanics was fast moving throughout.

3. Organization of this Study. The material in Part One has been included to assist the reader in his study of the remainder of the paper. The mechanics and supply arrangements discussed in Parts Two, Three, and Four are related to and evolved from the course of the campaign, and existed within the theater supply structure and Communications Zone general organization. Conclusions and recommendations follow each chapter.

4. Subjects Selected for Study. The assigned mission for this study is so broad in scope that this report could have embraced the entire field of logistics. The almost insurmountable difficulties presented to all agencies concerned with supply resulted in the many expedients discussed. Subjects selected were those that could be presented within the time and means available and in general include the mechanics applicable to all services and agencies involved in the support of the combat forces. The critical analyses of the expedients discussed are made with a view to our profiting from experience and are not intended as criticism of actions taken by any agency.

5. Definition. For the purpose of this report, "mechanics of supply" is regarded as the procedures and arrangements employed for

manipulating, distributing, and controlling the flow of supplies in the rear of and to the combat forces. They do not embrace the physical means employed in the movement of supplies. Further, the mechanics studied have been limited to those employed by and within the Communications Zone, and between the Communications Zone or its elements and the armies, particularly those in the Central Group of Armies. Mechanics employed within the armies have not been examined but the part played by the armies in the subjects studied have been set forth throughout the report.

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MECHANICS OF SUPPLY IN FAST MOVING SITUATIONS

PART ONE

BACKGROUND

CHAPTER 1

BRIEF OF THE CAMPAIGN *

SECTION 1

SECURING THE LODGEMENT AREA

6. The Plan. American Forces landed on the Normandy Coast at 0630 hours 6 June 1944 under the command of Lieutenant General Omar N. Bradley with the mission of establishing an initial lodgement area on the continent from which to base future operations. The general plan of the campaign provided for the early capture of the port of Cherbourg (O 1423) and a steady expansion of the lodgement area until at D plus 90 it was to include most of that part of France lying north of the Loire River and west of the Seine River. The Brest Peninsula was to be reduced rapidly and the ports therein developed. A major port was to be constructed at Quiberon Bay for the introduction of troops and supplies. It was visualized that after the line of the Seine River had been reached a period of three months would ensue during which supplies and troops would be built up preparatory to an advance to the east.

7. The Assault. Landings were made on two beaches: OMAHA, west of Bayeux (T 8079) and UTAH, along the east side of the Cotentin Peninsula. The plans for the assault had been made months before and were closely coordinated between army, air and naval forces. Construction of pre-planned artificial ports with sunken vessels and rapid organization of the beaches enabled the landing forces to be built up with men, vehicles and supplies.

8. Administrative Control. According to plan, First United States Army under the 21 Army Group (British), was to command all United States ground forces on the continent until the establishment of an army rear boundary. The Advance Section, Communications Zone, then was to be the Communications Zone representative on the continent and attached to the 1st United States Army Group (later 12th Army Group), until Headquarters, Communications Zone moved to the continent. Twelfth Army Group became operational on 1 August 1944 with its commander responsible for decisions on matters affecting all ground forces until 1 September 1944. The Communications Zone

* The statements made in this chapter are based on The General Board Study Number 1 "Strategy of the European Campaign".

opened on the continent on 7 August 1944, but neither it nor the Advance Section was attached to 12th Army Group.

9. Cherbourg. It was estimated that the port of Cherbourg would be captured by D plus 6 and operating to some extent by D plus 11, however it was not until D plus 21 that Cherbourg fell to the First Army. The port was badly battered and littered with sunken vessels and it was approximately 30 days later before it became operational.

10. The Breakthrough. While the campaign for Cherbourg was progressing the American forces on the south had been battling through the Normandy bocage to break out of the beachhead. On 25 July 1944, First Army, following a heavy carpet bombing by several thousand planes, launched the attack from St. Lo (T 5064) which, paced by armored columns, reached the coast at Granville (T 1234), 30 July 1944.

11. The Drive Eastward. On 1 August 1944, the 12th Army Group and The Third Army became operational. By 27 August 1944, United States forces had advanced east to the general line of the Seine River and had occupied most of France from Brest (V 9599) to that line, north of the Loire River, in the United States sector.

12. Invasion of Southern France. On 15 August 1944, the United States Seventh Army together with French Army "B" invaded the southern coast of France and pushed northward rapidly against moderate resistance. When the 6th Army Group became operational on 15 September 1944 it assumed command of these forces.

SECTION 2

ADVANCE TO THE SIEGFRIED LINE

13. Further Movement to the East. In spite of the status of the supply structure which had been expanded quickly during the month of August to the west and east over lines reaching more than 200 miles in extent, operations to the east were continued at a rapid pace and reached the general line of the Siegfried Line-Moselle River in force within the first two weeks of September 1944. Brest (V 9599) surrendered on 17 September 1944. Antwerp (J 6895) was captured by the British on 5 September 1944 and during this same period 21 Army Group (British) advanced to the general line of the Albert Canal and to the north. Due to the early capture of Le Havre (L 9928), Rouen (M 2016), Antwerp (J 6895) and some of the channel ports, it was decided that the German forces in the Brittany Peninsula in the vicinity of Lorient (G 7520) would be contained only, and the project for the use of Quiberon Bay as a United States port of entry was abandoned.

14. Assault of Siegfried Line. Until 16 December 1944 various relatively local offensives by Allied forces were launched, with very little advance in the north but with the southern lines, including those of the 6th Army Group, advancing to the Siegfried Line and the Rhine River south of that line. The Ninth Army, which had become operational on 5 September 1944 and directed operations against Brest, was moved east into the center of the 12th Army Group sector on 25 September 1944, but on 21 October 1944 was shifted to the north of First Army. During this time rail transportation facilities were extended to the east and the general supply capabilities from the rear were greatly improved, so that logistical support of an advance by all the armies to the Rhine River was assured.

SECTION 3

ARDENNES CAMPAIGN AND FINAL OFFENSIVES

15. German Offensive. The German offensive in the Ardennes Sector and withdrawl from that area extended from 16 December 1944 to about the end of January 1945. Except for relatively small forces, the Germans were unable to advance north of the general line St.Vith (P 8538)-Marche (P 2984) and south of Bastogne (P 5658). Although supply operations were interfered with during this period and motor transportation facilities were drawn from the Communications Zone to assist the movements of the Armies, major supply installations were not damaged and general supply capacities on 31 January 1945 had been somewhat improved.

16. Movement to the Rhine River. Beginning with small advances early in February 1945 and continuing at an increased pace in the latter part of that month, Allied forces had completed advances to the Rhine River throughout its entire length by 24 March 1945. By that date the Rhine had been crossed in several localities, including Remagen and points south of Koblenz (L 9096).

17. Advance East of the Rhine. Beginning 22 March 1945 Allied forces crossed the Rhine,and advanced to the northeast in force, encircling the Ruhr area and extending by 4 April 1945 to the general line Karlsruhe (R 4846)-Wursburg (N 5935)-Fulda (E 3819)-Eisnach (H 8067)-Kassel (C 2004)-Herford (B 6491)-Osnabruck (W 2109)-Arnheim (E 7578). After further advance to the northeast, with the United States forces on the Muldo and the Elbe Rivers, on 17 April 1945 adjustments were made in the areas allotted to the United States Armies and the Third Army was freed for a thrust to the southeast. The cleaning up of the First and Ninth Army areas and the movements of the Third Army and 6th Army Group to the southeast completed the campaign 9 May 1945. In the latter part of March 1945 the Fifteenth United States Army had begun the takeover of the occupation of Germany west of the Rhine River and command of the 66th Division and its containing responsibilities in the Brittany Peninsula.

18. Unconditional Surrender. The unconditional surrender of Germany was signed at Reims, France (T 3080) on the morning of 7 May 1945 and the forward movement of Allied troops was stopped. To allow time for all German units along the 550 mile front, in St. Nazaire (N 5764), Lorient (G 7520), and the Channel Islands to receive notice, 0001 hours 9 May 1945 was the time set for termination of active operations.

CHAPTER 2

COMMAND STRUCTURE

SECTION 1

NORTHERN FRANCE

19. Major Commands. During the planning stages for the invasion of Northern France the following headquarters were some of those established in the European Theater to formulate plans and prepare for continental operations:

a. Supreme Headquarters, Allied Expeditionary Force, (SHAEF).
b. Headquarters, European Theater of Operations, (ETOUSA).
c. Headquarters, Services of Supply, (SOS).
d. Headquarters, 21 Army Group (British).
e. Headquarters, 1st United States Army Group, (FUSAG).
f. Headquarters, First United States Army.
g. Headquarters, Forward Echelon, Communications Zone, (FE Com Z).
h. Headquarters, Advance Section, Communications Zone, (ADSEC).

20. Responsibility for Mounting. The overall coordination of administrative matters in the European Theater and responsibility for mounting operations for the United States forces in the assault on the continent was vested in Headquarters, European Theater of Operations.[1] Headquarters, Services of Supply was established as the agency charged with direct supply support of all ground forces and for providing common items of supply to the United States air and naval forces. That headquarters, in turn, delegated certain of its responsibilities for mounting operations to base sections in the United Kingdom.[2] Later, on 7 June 1944, Services of Supply was redesignated as Communications Zone preparatory to movement to the continent.[3]

21. Initial Command. During the assault phase, the Commander in Chief, 21 Army Group (British), exercised overall command of all ground forces on the continent. This included responsibility for the coordination of all administrative support of the ground forces and supply of common items to the air and naval forces. Initially the support furnished the air forces consisted of unloading and movement of all air force supplies and equipment to air force dumps. Later, deliveries of air force supplies and equipment were made either to an air force depot or to a supply point not more than 40 miles from an air installation. The air force was to be responsible for the operation of all air force depots except class III which were to be operated by the ground forces.[4] To effect coordination in allied administrative matters and in United States administrative planning for and early operations in OVERLORD,[5] a United States Administrative Staff was established in Headquarters, 21 Army Group (British) consisting of G-4 Section and representatives of G-1 and certain special staff sections of 1st United States Army Group. Assistant Chief of Staff G-4, 1st Army Group headed this staff as Deputy of the British Major General in charge of administration. In addition to the coordination of all administrative procedures affecting United States ground forces, the Administrative Staff was to insure that agreements with the air forces were uniform for the entire United States sector. Coordination with the air and naval forces on all subjects of common interest was to be effected by the United States ground force staff concerned.[6]

22. Plans for Development of Communications Zone. Headquarters, Forward Echelon, Communications Zone was organized to plan the overall

development of the Communications Zone and, after an army rear boundary had been designated, to exercise technical supervision over the operations of the Advance Section and other Communications Zone Sections as established, and when necessary to take command of the Communications Zone on the continent until the main Headquarters moved from the United Kingdom. Late in May 1944 the Forward Echelon duties for the continent were reduced to staff supervision only for Headquarters, Communications Zone when established.[7] Plans also provided that Communications Zone agencies would take over supply operations on the continent at the earliest date possible.[8]

23. Initial Support of United States Forces. Headquarters, First Army under the command of 21 Army Group (British) was initially the senior United States Headquarters ashore and as such was responsible for administrative coordination of all United States forces on the continent.[6] An advance section of the Communications Zone was organized and attached to First Army to assist that army and to be prepared to become a part of the Communications Zone when an army rear boundary was established.[6]

24. Responsibility of the Army Group. Headquarters, 1st Army Group (later 12th Army Group) was to command all United States ground forces on the continent under 21 Army Group (British) when two United States armies became operational. This command involved coordination of all administrative matters between the Communications Zone and the United States armies.[9] Headquarters, 12th Army Group would not enter into the direct supply chain but would coordinate the forward operations of the Communications Zone with the armies. Further, where necessary, it would allocate supplies or supply support to the several armies operating under its command.[10] The armies would deal directly with the Communications Zone Headquarters on the continent in all routine supply matters. Normally, however, their contacts would be through Headquarters, Advance Section which was the Communications Zone agency charged with direct close support of the armies.[10] The channel for submission of requisitions and receipt of supplies would be through the Regulating Stations as agencies of Headquarters, Advance Section.[11] Later, when Supreme Headquarters, Allied Expeditionary Force and Headquarters, European Theater of Operations were established on the continent responsibility for administrative coordination between Communications Zone, Army Group, and Air Forces would pass to the Theater Headquarters.[12]

25. Establishment of Major Commands on the Continent. On 1 August 1944, 12th Army Group (formerly 1st Army Group) became operational, as did Third Army, and took command of the latter and First Army.[13] The Commanding General of the Army Group was given responsibility for decisions on matters affecting the United States forces ashore, but was not given command of the Communications Zone.[14] The 12th Army Group maintained close liaison with the Advance Section during the entire campaign to effect all possible coordination with the armies. Headquarters, Communications Zone opened on the continent on 7 August 1944 and assumed direct responsibility for all Communications Zone activities. The organization and development of the Communications Zone on the continent are discussed in Chapter 4, below. Theater Headquarters was established on the continent on 1 September 1944, and in accordance with the plan, 12th Army Group was relieved of its coordinating responsibility. With the establishment of Supreme Headquarters in France, operational control of the 12th Army Group passed from the Commander-in-Chief 21 Army Group (British) to the Supreme Commander.[9]

SECTION 2

SOUTHERN FRANCE

26. The forces which invaded the southern coast of France on 15 August 1944 were mounted and initially supported by the North African Theater of Operations (later designated Mediterranean Theater of Operations). When the southern forces had joined with the northern forces on 15 September 1944, the 6th Army Group came under the operational control of the Supreme Commander. However, the administrative support of 6th Army Group remained the responsibility of the Mediterranean Theater until 20 November 1944 when it passed to the European Theater. On that date the Communications Zone, European Theater established Headquarters, Southern Lines of Communication for the purpose of carrying out the Communications Zone responsibilities in support of 6th Army Group. This organization is discussed in Chapter 4 below and in General Board Report "Organization of the European Theater of Operations".

SECTION 3

FINAL ORGANIZATION

27. General. The establishment of the administrative and supply structure in Northern France and the activation of the Southern Lines of Communication in Southern France are set forth in Sections 1 and 2, above. There were no additional changes in the overall structure prior to VE-Day; however, there were adjustments within the Communications Zone which are discussed in Chapter 4 below.

28. Relationship Between Major Commands. The major commands concerned with coordination and provision of supply support of the United States forces in the European Theater as it ultimately developed were: Headquarters, European Theater of Operations; Headquarters, Communications Zone, European Theater of Operations; Headquarters, 12th Army Group; and Headquarters, 6th Army Group. A discussion of the detailed relationship between these commands, particularly SHAEF, ETOUSA, and Headquarters, Communications Zone is considered too involved and unnecessary for inclusion in this study. This subject is covered completely in another study of The General Board, "Organization of the European Theater of Operations", to which reference is made for an understanding of the detailed relationship between these major commands.

CHAPTER 2

BIBLIOGRAPHY

1. Paragraph 1 h (1), Joint Administrative Plan for Operation "OVERLORD", Headquarters, First US Army Group, 19 April 1944.

2. File AG 381, Volume 1, 1944, Headquarters, Services of Supply.

3. GO 60, Headquarters, ETOUSA, 7 June 1944.

4. Paragraph 2 a (2) (c), Joint Administrative Plan for Operation "OVERLORD", Headquarters, First US Army Group, 19 April 1944.

5. Memo, 21 Army Group (British), "Operating Procedure US Adm Staff, 21 Army Group", dated 15 February 1944.

6. Letter, SHAEF, File 322, "Organization of United States Forces (Adm)", 9 February 1944.

7. Letter, ETOUSA, file AG 323/361 OPGA, "Forward Echelon Communications Zone", dated 27 May 1944.

8. Paragraph 1 c (1), Joint Administrative Plan for Operation "OVERLORD", Headquarters, First US Army Group, 19 April 1944.

9. Letter, ETOUSA, file 381.099, "Organization and Command of US Forces", dated 6 June 1944.

10. Memo, FUSAG, "Relationship Between Communications Zone and Senior US Field Force Commander on the Continent", 9 July 1944.

11. ETOUSA SOP No. 7, "Supply Procedure on the Continent", (Revised), 7 June 1944.

12. Letter, ETOUSA, AG 381.099, "Organization and Command of US Forces", 19 July 1944.

13. GO Number 73, ETOUSA, 14 July 1944.

14. Letter, SHAEF, "Organization of US Forces on the Continent", 14 July 1944.

CHAPTER 3

LOGISTICAL DIFFICULTIES ON THE CONTINENT

SECTION 1

FUNDAMENTAL CAUSES

29. General. The many factors bearing on the supply mechanics and supply structure which developed during the campaign are set forth throughout the report. The problems which confronted the Communications Zone are evident from a reading of Chapter 1 of this report. However, it is believed that a brief statement of the underlying causes should be included here for an understanding of the handicaps under which the Communications Zone operated.

30. Phasing of Requirements. During the planning of operations prior to D-Day it was evident that the Communications Zone might well be faced with severe difficulties as a result of inability to build up adequate reserves for its efficient operation. The build-up of supply reserves was planned and controlled by First Army to D plus 14 and by 1st Army Group (FUSAG) from that date to D plus 41. The Communications Zone was charged with phasing the requirements from D plus 41 onward, since it was contemplated that the Communications Zone would be established by that time and could proceed from that day with its functions of obtaining and furnishing supplies and equipment required by all forces.[1]

31. Narrow Margin for Supply. Since cargo capacity would be limited in the early days of OVERLORD, due principally to a lack of adequate port facilities in the lodgement area for the reception of large ships, it was impossible to plan for the build-up of large reserves in addition to daily requirements during this early period. It was expected that even up to D plus 90 the reserves that might be built up could be none too much for the establishment of depot stocks and the filling of supply lines to the armies, the air forces, and the Communications Zone's own establishment. These supply lines, too, were based on a relatively slow advance which contemplated our forces in the Brittany Peninsula but not east of the Seine River at D plus 90, and a considerable delay before further advance from the Seine. The build-up of Service troops and the absolutely necessary equipment and supplies up to D plus 90 were based on the prime requirements of securing the lodgement area and sufficient time for proper logistical preparation in the rear areas before an advance east of the Seine.[2]

32. Estimate of Communications Zone Capabilities. An estimate by Headquarters, 1st United States Army Group (FUSAG) in May 1944 of the ability of the Communications Zone to meet the requirements up to D plus 40 indicated a fair certainty of meeting by that date only the army reserve requirements and the daily requirements as foreseen before D-Day, with a very small reserve or level of supply for all forces, in the Communications Zone for operating purposes.[3] It was estimated also that if the Communications Zone had sufficient port capacity and received from the United States the shipping with the supplies ordered, the levels after D plus 50 would build up to the extent that by D plus 90 almost all of the required reserves for the air forces would be established on the continent, and the Communications Zone would have about five units of fire of Class V and tonnages of other classes in general equivalent, for all forces ashore, to about ten days of supply. The requirements as planned under the supervision

of Headquarters, USAG, and Headquarters, 21 Army Group (British) for United States forces were greater than the optimistic estimate of what could actually be furnished by D plus 90. Since real requirements would only be known as the operations on the continent progressed, it was hoped that the estimated maintenance requirements would be found to be high and theater reserves could be built up from the excess maintenance brought to the continent. At best the Communications Zone would not be in too good a position to meet the planned operations.

33. The Course of Operations. Operations in the initial stages did not proceed as planned. First, there was a delay in the capture and opening of the port of Cherbourg. The Quiberon Bay area was never cleared during the campaign, and that project as well as the contemplated use of Brest was dropped. The destruction of the rail net west of Paris (S 0545) was such that for a long period it was inadequate to haul the enormous tonnages required for the armies. With the fast advance east of the Seine beginning at the end of August 1944, or about D plus 85, the daily maintenance supply lines were stretched in a period of 15 days to an average additional distance of over 200 miles. Obviously if the armies were to be supplied with everything they required during this period it would take several days of supply away from rear depots for the filling of these supply lines. This situation of an inadequate reserve build-up, the long supply lines, and the unprecedented transportation difficulties in the extension of the lines of communication up to the Siegfried Line - Moselle River, placed the whole of the Communications Zone effort in a bad position. A final major factor which unquestionably affected the Communications Zone plans and actions as concerned development of a sound long range program was the optimism, and even action taken in high places, toward an early termination of hostilities in the fall of 1944.

CHAPTER 3

BIBLIOGRAPHY

1. Joint Administrative Plan for Operation OVERLORD, Headquarters, FUSAG, 19 April 1944

2. Plan Operation OVERLORD, 30 July 1943.

3. Memo for General Bradley -- Headquarters, FUSAG, "Overlord Supply Situation; D plus 41 to D plus 90", 16 May 1944.

CHAPTER 4

ORGANIZATION AND DEVELOPMENT OF THE COMMUNICATIONS ZONE ON THE CONTINENT

SECTION 1

NORTHERN FRANCE

34. General. The planned organization, supply functions and responsibility of the Communications Zone were, initially, as set forth in Chapter 2 above and generally adhered to the policies outlined in FM 100-10, "Field Service Regulations Administration", dated 18 November 1943. There were several changes in the organization prior to VE-Day, however, the supply functions and responsibilities remained unchanged throughout the campaign. The actual supply mechanics employed, such as requisitioning procedures, credit systems, allocation and priorities system, back ordering procedures, control of supply levels, documentation of supply shipments, etc., are covered in detail in Part Four of this study.

35. Development. Operations of the Communications Zone were decentralized, as it progressively developed, by division of its areas into section areas. These sections were established in succession until they consisted of an advance section, three base sections and three intermediate sections. All sections were responsible for the operations of all general and branch depots within their respective areas. The relationship of the section commanders to the tactical commanders in their areas, also to the air and naval commanders, was defined as being similar to the relationship in the United States between the Commanding General of a Service Command and the commanders of tactical units within the Service Command. Each section commander had the authority of command authorized by law, army regulations, and custom, for the Commanding General, Communications Zone, over all Communications Zone individuals, units and installations in his section, except those of Headquarters, Communications Zone. Lines of communication in general extended from west to east until the opening of Antwerp (J 6895) and the integration of the Southern Lines of Communication into Communications Zone, European Theater of Operations.[1]

36. Plans for Establishment of Communications Zone Sections. The Communications Zone plans provided that the senior Communications Zone Headquarters ashore would receive and distribute supplies to the ground forces pending the arrival of the next senior headquarters. As a result of this principle, Headquarters, Advance Section, Communications Zone, would be responsible for the provision of supply support until the establishment on the continent of a higher Communications Zone headquarters. Base Section No. 1 (later designated Brittany Base Section), was to be established next in the Brittany Peninsula. This section was to have the responsibility for the development of the Quiberon Bay area and the line of communications to Rennes (Y 0124). It was to provide direct administrative support to all combat and other troops in its assigned area. The duties of the section included the receipt and storage of supplies and their movement. When Headquarters, Forward Echelon, Communications Zone assumed command of the entire Communications Zone area, Base Section No. 1 would continue the development of the Quiberon Bay area and progressively the entire Brittany Peninsula and Advance Section would provide direct support for the advance to the

east. When circumstances permitted, a rear boundary of the Advance Section would be designated and the responsibility for command and operation of the Cherbourg Peninsula and Normandy area would pass to Headquarters, Base Section No. 3 (later designated Normandy Base Section). The Advance Section would continue to be responsible throughout the campaign for providing close support of operations to the east and would displace forward directly in rear of the armies. Later plans provided that as the operation progressed, the Loire Section was to be established and relieve Advance Section of the Communications Zone activities in the area relinquished east of the Brittany Base Section. Its duties would be similar to those of the sections previously established. The Seine Section would be activated and would occupy Paris (S 0545). Initially, its duties would be the administering of relief to the civil population and the rehabilitation of Paris for further military operations. It would provide for the reception and accommodation of Headquarters, Communications Zone. As this section was developed, it was to assume the Communications Zone responsibilities and duties previously performed by the Advance Section in that area. Next the Oise Section would be organized and progressively relieve Advance Section of the Communications Zone responsibilities in the area east of the Seine Section. It was to operate and maintain lines of communication and installations in its area. The forward boundary of the Oise Section was to move forward progressively taking over territory and installations from Advance Section as the latter moved forward behind the armies. The Channel Base Section, when established, was to develop and operate Communications Zone activities in the Le Havre (L 9928) - Rouen (M 2016) area as it was made available.[1]

37. Creation of the Section Areas. The establishment of the section areas was carried out generally in accordance with the plan. The Advance Section preceded the Communications Zone to the continent, and assumed the responsibilities that had been delegated to it. Initially, Advance Section troops operated as First Army service troops under Army command and personnel of the Advance Section Headquarters prepared for the assumption of responsibility for supply support. The transition took place gradually, function by function and service by service, as agreed upon between the Army and Advance Section Headquarters until a "Forward Operating Boundary" of the Advance Section was established. This permitted the Advance Section to perform its functions under the direct control of the First Army. However, plans for the exercise of command by Forward Echelon, Communications Zone were changed and Headquarters Communications Zone opened on the continent on 7 August 1944 (D plus 62). There was a departure from the plan in the establishment of the base sections in that Base Section No. 3 was established on the continent prior to Base Section No. 1. This was due to the fact that Quiberon Bay was not captured and the plans for developing the ports of that area were later abandoned. Base Section No. 3 assumed responsibility for the Cherbourg area on 7 August 1944, and on 16 August 1944, was redesignated Normandy Base Section. Brittany Base Section, (previously designated Base Section No. 1) was established on 16 August 1944 at Rennes, France. The Loire Section was established at Le Mans, France (V 4062), on 28 August 1944 and dissolved 30 November 1944 when its area passed to control of Brittany Base Section. The Seine Section was organized in Paris on 27 August and assumed the Communications Zone responsibilities for that area. Oise Section became operational on 15 September 1944 at Reims, France (T 3080). Channel Base Section was activated on 15 September 1944 with temporary Headquarters at Le Havre; on 27 November 1944 the Headquarters was moved to Lille, France (H 6837). Within the territory included in this section were the ports of Le Havre, Rouen, Ghent, and Antwerp.[2]

SECTION 2

SOUTHERN FRANCE

38. Southern Lines of Communication. On 15 August 1944, the Seventh United States Army and French Army "B" (later designated First French Army) landed on the southern coast of France. The operation was mounted and initially supported by the North African Theater of Operations, subsequently redesignated Mediterranean Theater of Operations. During the assault phase the Seventh Army was responsible for the administrative direction of all forces ashore. As in northern France all supplies were landed on the beaches pending the capture and rehabilitation of the ports. To assist the Seventh Army with the supply of the initial forces, personnel and units of the Coastal Base Section (later designated Continental Base Section) operated under army control. Later these units passed from army control and became responsible for furnishing administrative support and for establishing the base section at Marseille, France. Due to the rapid advance of the combat forces it became necessary to establish an advance section and Continental Base Section was redesignated Continental Advance Section and moved forward in rear of the armies as the latter advanced. The Delta Base Section was organized and became responsible for the duties previously performed by the Continental Base Section. On 15 September 1944, when the southern forces had joined with the northern forces, the 6th Army Group came under the operational control of the Supreme Commander, Allied Expeditionary Force; however, the administrative support of 6th Army Group continued to be furnished by the Mediterranean Theater until 20 November 1944.[3] On that date the Mediterranean Theater was relieved of this responsibility by the European Theater and control of the Continental Advance and Delta Base Sections passed to the European Theater. Headquarters, Southern Lines of Communication was organized by the Communications Zone, European Theater, as the agency responsible for performing the duties of the Communications Zone in support of 6th Army Group.[4] Following the consolidation with the European Theater, the Continental Advance Section continued to furnish direct support to the armies of 6th Army Group with the Group Headquarters furnishing guidance where necessary to the Southern Lines of Communication. The army requisitions were processed through Headquarters, Continental Advance Section which was responsible for calling the supplies forward from the base section. There was no regulating station in Continental Advance Section, nor was there an intermediate section until after the integration of Southern Lines of Communication into Communications Zone on 12 February 1945.

SECTION 3

REORGANIZATION

39. Consolidation and Expansion. During the months of December 1944, and January 1945, representatives of the Army Service Forces, Washington, D.C., visited the European Theater and reviewed the operations of the Communications Zone. It was noted that the Southern Lines of Communication was no longer essential as a separate entity and should be consolidated with Headquarters, Communications Zone, and it was recommended that the Communications Zone consist of two advance sections (one in support of each Army Group), one intermediate section across the whole front, and three base sections.[5]

On 10 February 1945, the Brittany Base Section was abolished and its territory taken over by the Normandy Base Section. The Burgundy District was organized as a part of the Continental Advance Section. The Southern Lines of Communication was dissolved on 12 February 1945 and Delta Base Section and Continental Advance Section came under the direct control of Communications Zone. When this was accomplished the field organization of the Communications Zone consisted of two advance sections, one intermediate section, three base sections, and the Seine Section. The Communications Zone standing operating procedures were placed into effect in the Continental Advance Section and Delta Base Section in order that the same policies and systems would operate on a theater-wide basis. Later, on 21 March, Oise Intermediate Section was extended to include that part of Continental Advance Section known as the Burgundy District, thus making Oise Section the one main intermediate section. This reorganization resulted in having one advance section supporting each of the Army Groups, with one long intermediate section behind both Advance Sections.[6] In the meantime, depots were being organized in depth, the systems and procedures employed within the Communications Zone were studied and revised and a progress reporting system instituted. This system enabled all sections to have more accurate information on which to base their plans and control their activities, resulting in closer coordination between all agencies of the Communications Zone. Stock levels were adjusted and the base, intermediate, and advance sections reorganized to provide greater flexibility in the Communications Zone supply structure.

40. Operations in Germany. As the armies advanced into Germany, the Advance Section followed and supported the 12th Army Group. After it crossed the German border, however, the Advance Section operated in army territory without territorial responsibility. The Oise Intermediate Section was progressively expanded to include areas released by Advance Section until it had assumed Communications Zone responsibilities to, but not beyond, the German border. Likewise, the Continental Advance Section supported the 6th Army Group in Germany in the same manner and here also the Oise Intermediate Section assumed the Communications Zone responsibilities to the German border. The Channel Base Section was expanded, when the armies crossed the Rhine river in the north, until its eastern boundary reached the German border.[7] This was the final organization of the Communications Zone and was in effect on V-E Day.

CHAPTER 4

BIBLIOGRAPHY

1. Plan, Headquarters, Communications Zone, "Policy and Procedure for the development of the Continental Communications Zone", dated 29 August 1944.

2. Historical Report of the Transportation Corps in the European Theater, Volume V, Part 3, October - November - December 1944.

3. Historical Record, Transportation Officer, Headquarters SOLOC - 15 August 1944 - 31 January 1945.

4. General Order No. 61, Headquarters, Communications Zone, ETOUSA, dated 3 November 1944.

5. Memo for General Lee from General Somervell, dated 24 January 1945.

6. Estimate of the Communications Zone Supply Situation (Report No. 1) dated 17 February 1945.

7. Estimate of the Communications Zone Supply Situation (Report No. 2) dated 7 March 1945.

THE GENERAL BOARD
UNITED STATES FORCES, EUROPEAN THEATER
APO 408

MECHANICS OF SUPPLY IN FAST MOVING SITUATIONS

PART TWO

LEVELS OF SUPPLY AND DEPOT STRUCTURE

CHAPTER 1

LEVELS OF SUPPLY

SECTION 1

PLANS

41. General. Initial planning for Operation OVERLORD contemplated from the beginning that an operational reserve would be accumulated on the continent to provide for supply line requirements in army areas and for a theater reserve for emergency needs and supply line requirements to the armies and the Communications Zone's own establishments. Reserves would be increased to the extent possible in the Communications Zone to increase the safety factors and for economy of operation. Actually the requirements were not achieved during the landing and immediately thereafter because of lack of shipping and reception capacity.

42. Plans for Build-Up. Theater levels were prescribed by the War Department as follows:[1]

Class of Supply	Maximum	Minimum
I and III	60 days	30 days
II, IV and V	75 days	45 days

Joint Administrative Plan[2] of 19 April 1944 prescribed an overall United States sector reserve of 14 days supply of class I, II, III, and IV and five units of fire of class V for all troops ashore to be in the Communications Zone by D plus 41. This was not attainable and subsequent modifications provided a build-up by D plus 41 to only seven days supply of class I, three days of class II, III and IV, and two units of fire except antiaircraft ammunition which would be built up to seven units of fire. Priorities for the build-up of these levels were in the following order: Antiaircraft ammunition, class I, class V, class III and class II and IV. Next priority was to achieve seven days supply of class I and five units of fire class V in addition to the foregoing. At that time the armies would have seven days supply of class I, II, III and IV, and seven units of fire class V.[3] Communications Zone plan was based on the assumption that army levels at D plus 41 would be seven days supply of all classes except ammunition and seven units of fire of ammunition. Theater levels in Communications Zone at that date would be limited to small quantities of class I, III and V accumulated within the scheduled build-up planned by Headquarters 1st Army Group. At D plus 90 theater reserves in Communications Zone were planned at 21 days supply for all classes and five units of fire. This assumed that army levels would be maintained throughout at seven days

supply and seven units of fire[4].

43. Assessment of Adequacy of Planned Levels. First United States Army Group in commenting on the attainable levels for D plus 41 stated that such a reserve situation in the Communications Zone would present an almost impossible operating task for the Communications Zone; that reserves at that time were not considered sufficient to enable the Communications Zone to fill the forward supply lines; and that such a situation made the operation logistically precarious? In mid-June 1944, the Assistant Chief of Staff, G-4, European Theater of Operations, prepared a study on the levels of supply to be maintained in the continental communications zone. Certain quantities of the War Department authorized theater levels of supply would remain in the United Kingdom. His conclusions were that the prescribed theater level of supply should remain unaltered and that the War Department's established minimum levels should be maintained on the continent for all items and that fast moving items should be stocked to maximum levels. These prescribed minimum levels were 30 days class I and III and 45 days for all other classes as indicated in paragraph 42 above. He further concluded that class V supply reserve on the continent should be prescribed in units of fire for combat troops in accordance with recommendations of the army group commander. In the case of class III, 21 days in bulk was considered adequate. Ammunition reserve remaining in the United Kingdom would not be forwarded unless called for by the tactical commander. Further class IV supplies would be shipped to the continent only to meet operational requirements.[6]

SECTION 2

OPERATIONS

44. When 12th Army Group became operational, administrative instructions[7] were issued which established authorized army levels at seven days of supply of class I and III and seven units of fire of class V. A 30-day level of supply for spare parts was also authorized. It was provided that any part of these levels could be maintained at the discretion of army commanders in Advance Section Zones. In the rapid advances which took place during the ensuing two months, it was not possible to maintain these levels. On 27 August the authorized army levels of class I and III were reduced to five days of supply, and for class V, to three units of fire[8]. On 22 September the authorized levels for class I and III were further reduced to three days of supply.[9] As the logistical situation improved it was possible to establish more desirable levels for the armies and on 23 October 12th Army Group authorized the armies five days supply of class I and III and five units of fire class V except certain critical items of Ordnance ammunition which were placed on an allocation and credit basis. During this time the authorized levels of supply of class IV had remained at seven days, but levels in First Army were considerably higher as it entered the continent with large operational reserves of this class of supply. Further, substantial quantities were moved direct to the armies from the United Kingdom in replacement vehicles on a prescheduled basis so the authorized level was largely meaningless. No army level had been established for class IV, as much material was considered as project equipment to be called for only as required. On 24 November, however, army levels for class II and IV were fixed at 30 days.[10]

45. The Advance Section Levels. The Advance Section Communications Zone plan provided for maintaining in advance dumps a limited number of days of supply of various classes but during the pursuit across France the desired reserves were not obtainable. It was not

until after the armies had stopped their rapid advance and the rail system had been rehabilitated that forward depots could be stocked. Even then it was first necessary to fill the armies' requirements before any semblance of balanced stocks could be achieved in the Advance Section[11].

46. Supplies Landed on the Continent. An indication of the difficult position of the Communications Zone is evident in the following figures showing supplies actually landed on the continent as compared with the desired schedule:[12]

	D 60	D 90
Planned (long tons)	1,640,000	3,070,000
Actual " "	1,032,000	1,944,000

The real needs of the field forces varied widely from those anticipated prior to D-Day. Shortages developed in some items such as certain types of heavy caliber ammunition, while in some instances due to changed circumstances and the type of enemy opposition encountered the supplies included in the initial tonnage landed were not of the required type or were in excess of requirements; e.g., antiaircraft ammunition. Thus all of the tonnage landed was not usable at the time. These conditions were not unexpected, but nevertheless served to complicate the situation. The bulk of the supplies were landed on a pre-invasion shipping schedule covering the first 90 days of operations and many ships, especially those coming direct from the United States, were loaded according to plans long before actual requirements were known.

47. Levels of Supply for Operation DRAGOON. Levels of supply for Operation DRAGOON were established by the War Department at the same scale as for Operation OVERLORD. The plan for build-up of supplies in Southern France was at a somewhat greater rate than could be contemplated for Operation OVERLORD, providing for a build-up in class I and III at the rate of two days supply every three days from D-Day onward. In class V, five units of fire were to accompany all troops and plans to D plus 30 were to maintain this level for all troops ashore throughout that period.[13] Subsequent plans contemplated building up a 45 day level of all classes in Southern France by 1 December 1944, with increase to authorized theater levels as rapidly as possible thereafter. It was not possible to achieve this rate of build-up however, because of the larger supply responsibilities that were incurred.[14] It was also planned to build up army levels to 15 days for class I, III, V and 30 days for class II and IV as soon as the build-up would permit. After Headquarters, 6th Army Group became operational, levels of supply for the armies under its command were established at seven days in class I and III, 15 days for class II and IV (except spare parts and major assemblies established in general at 30 days), and 15 days supply for class V. When this action was taken, class V was on the same credit basis as was in effect in the remainder of the theater.[15] The Continental Advance Section level was established at 15 days for all classes of supply for the armies it supported and troops in its area. It was not until late November that any real progress was made in achieving these levels in the advance section.[16]

SECTION 3

CONSIDERATION OF LEVELS

48. General. Other than the extensive and detailed consideration given to the establishment of appropriate levels of supply in pre-D-Day planning, the most exhaustive consideration of theater levels occurred following the visit of the Army Service Forces representative from the Zone of the Interior to the European Theater in December 1944 and January 1945. The opinion and comments of a number of responsible officers and headquarters on the subject at that time are set forth in considerable detail below as it is deemed that these completely explore the fundamental factors and principles bearing on supply levels. Levels established and maintained prior to that time had been largely on an expedient basis conditioned by the rate of build-up and capacity of the lines of communication.

49. Comments of the Army Service Forces Representatives. The Army Service Forces representatives noted that army levels of supply prescribed by 12th and 6th Army Groups and levels in the two advance sections were not uniform at the end of 1944. The levels authorized by 12th Army Group for the armies under its command at that time were five days for class I and III, 30 days for class II, and seven to ten maintenance days of supply for class V. (Maximum quantity that may be expended based on a specified number of rounds per weapon per day). No established level for class IV had been fixed inasmuch as this was project equipment depending upon the type of operations. In 6th Army Group, army levels were established at seven days for class I and III, 15 days for class II except spare parts and major assemblies specified by item at approximately 30 days, and 15 days for class IV and V. The opinion was expressed that the levels in the 6th Army Group seemed more logical as it was considered that 30 days class II supply was far too much for the armies if they were to be as mobile as they should be. At the same time the total level for the theater was considered worthy of re-examination, since it appeared that the Communications Zone was having difficulty in receiving and moving supplies to the forward area which were in urgent demand. It was recommended that a study be instituted at once for the purpose of cutting down, where practicable, overall levels so that transportation and other facilities would not be used in handling stocks in excess of actual theater requirements. To prevent undue handling of supplies and congestion it was recommended also that priority and fast moving supplies be stocked in quantity in forward areas and that low priority and slow moving supplies be in rear areas.[17]

50. Action Taken on Army Service Forces Representatives Comments. As a result of the comments of Army Service Forces representatives, the Headquarters European Theater of Operations published revised standing operating procedures,[18] on 2 February 1945 prescribing levels to be established and maintained in the various echelons of the theater. Army levels were established at five days supply for class I and III, 30 days supply for class II and IV noncontrolled items, and seven maintenance days supply for class V. Although Army Service Forces representatives considered a 30 day level for class II supplies to be high for the armies, this level was established initially by the theater in deference to Army Group and Armies' desires until the matter could be reviewed further. Levels for the advance sections were set at ten to 15 days for class I, five days for class III, ten to 15 days for certain class II and IV items, and 13 maintenance days supply for class V. Levels for intermediate or base depots were fixed at 30 to 40 days for class I, 20 to 30 days for class II and IV, and

13 maintenance days supply for class V. In class III, five days were to be in the intermediate section and 30 days in base depots. The levels for class II and IV did not apply to controlled items. Following the issuance of this standing operating procedure, the Communications Zone addressed proposals[19] to the armies and army groups for levels of supply to be maintained in the army areas and the sections of the Communications Zone. In spite of the standing operating procedure, it was proposed that army levels be established at seven days supply for class I, 15 days supply for class II (with exceptions which might be desired and recommended), seven days supply for class III, 15 days supply for class IV (or adequate class IV to meet immediate operational requirements), and 15 days supply for class V. To support the levels in army areas it was proposed that the advance sections maintain ten days supply class I, 15 days class II, ten days class III, 15 days class IV (or enough to meet operational requirements), and 15 days class V. It was indicated that theater levels would probably be fixed at approximately 50 days class I, 60 days class II, 30 days class III, 60 days class IV, and 74 days class V (exclusive of levels in armies, except for Monthly Material Status Report (MMSR) items and ammunition). Theater levels not maintained in the army and advance sections would in general be distributed approximately on an equal basis between base and intermediate section areas.

COMMENTS ON COMMUNICATIONS ZONE PROPOSAL.

51. Army Levels. As a result of the foregoing proposal all armies and many chiefs of services in the armies and army groups as well as G-4s submitted comments which took exceptions to the proposal and gave reasons therefor. It was generally agreed that it is not possible to set a rigid level of supply to be maintained by an army which will be proper under all circumstances. The appropriate level of supply for an army could only be determined by consideration of many variable factors including the tactical situation, the length of the supply line within the army, and the time for resupply from the rear. It was further considered that the proper army and advance section levels should be based on the combined resources of both, adjusted to meet the tactical plan. It was pointed out that in an offensive mission relatively large reserves should be available to the army, but if supply points suitable for storage and issue were not immediately available in the army area, it would be more practicable to have the bulk of the reserves in forward advance section depots. If conditions were reversed with better handling and transportation facilities in an army area, then the bulk of forward supply material would be stored there. In a defensive mission, supply would be echeloned in depth to the rear. Decision as to army levels was thus largely dependent upon the amount and location of balanced stocks available for immediate support of the army. Further consideration must be given to the ability of the Communications Zone to maintain continued supply to its advance depots. Another factor bearing on establishment of an appropriate level was stated to be the normal cycle for requisitions and resupply from the forward area plus sufficient extra days to allow for a possible interruption in the flow. It was pointed out further, that the number of days supply in an army area fluctuates widely due to large increases or decreases in the size of the army. If too low a level is established, it results in the army being unable to build sufficient reserves to meet a sudden large increase in the size of the army. It was also stated that the army group commander, and not the communications zone, should be the authority for fixing army levels because of the various operational factors involved as indicated above. Within levels established by the army group, the army commander should be given wide discretion in the quantity of supply carried in the army

area and hence the prescribed level should be the maximum within which he would normally operate. It was not considered practicable to include all supplies of the various services in one level of supply. Exception was taken primarily to the levels prescribed for class II and IV. In practice it was believed to be absolutely necessary that a 30 day level of Ordnance class II and IV be maintained in the armies because the tremendous assortment and variety of parts and materials was such that anything less than a 30 day level would not produce a sufficient quantity of many critical and fast moving items to permit proper distribution. In the case of Signal class II and IV, it was stated that a total of 15 days supply of certain items might be expended by a separate unit in a two or three day engagement. In the case of class V supplies, it was considered that the existing credit system did not lend itself to the fixing of a definite level since the armies received these supplies by credit on the basis of actual availability. (See Chapter 2, Part Four). Army Commanders were at that time authorized to retain any portion of their credits in advance section depots or the army areas as desired. In general, the proper army level for class I and III was agreed to be seven days of supply.[20]

52. Communications Zone Levels. With regards to proposed communications zone levels, it was felt proper that Headquarters, Communications Zone should estimate the amount needed in various echelons of supply, but that such amounts should not remain unalterable under operating conditions. These changed from time to time and the reserves should be distributed to meet them. It was considered that decisions in the past had been made to stock certain quantities in a definite area and then, in spite of changing conditions or impending changes, emphasis would be placed on carrying through with the decisions regardless. It was felt that to attempt to split the theater level of class II and IV supplies between advance, intermediate and base echelons as well as the armies would undoubtedly result in not having sufficient supplies at any one level with which to cover proper distribution and that the additional personnel and documentation involved would impede rather than expedite the delivery of the required items to the army. In general, it was deemed that two communications zone echelons with supporting depots for all class II and IV supplies was not then advisable; that theater stocks of these supplies not maintained in the armies should be concentrated in a minimum number of depots in the communications zone. As a basic principle, the advance section stocks should be sufficient to insure a constant flow to the armies of probable maximum daily requirements. The advance section levels should not exceed such requirements unless the communications zone planned that certain advance section depots would become intermediate depots as the front line advanced or unless there should exist tactical reasons for increasing normal Advance Section stocks.[20]

53. Recommendations of Headquarters, 12th Army Group. After considering the comments as briefly set forth above, Headquarters, 12th Army Group recommended minimum required levels for advance section forward areas for support of the armies at ten days for class I and III; from 15 to 20 days, according to service, for class II and IV; and 15 days for class V. Identical levels were recommended to be authorized for armies with the exception of Ordnance class II and IV which was set forth at 30 days. In the case of Engineer and Signal class IV, operational requirements over and above the recommended level of 20 days should also be in the army area. It was considered that the levels in the Advance Section and in the armies constituted the reserves available for 12th Army Group. When the situation would permit, the reserves actually in the hands of the armies would be less than those indicated, in which case the difference should be available in forward areas in addition to normal forward area levels. It was emphasized that no

attempt should be made to establish reserves in both Advance Section and intermediate depots of class II, IV and V until one of them was in proper shape to maintain flow to the armies while the other was being stocked. In general it was felt that, in the forward area, reserves of class I and III should be in the Advance Section; further, that experience in the theater had indicated that class II, IV and V reserves should be placed in depots of sufficient size to allow the complete filling of requisitions by such depots or groups of depots.[21]

54. Levels Prescribed by Theater Headquarters. On 12 March Headquarters, ETOUSA established definite levels of supply to be maintained in the army service areas and in advanced section.[22] It was stated that in view of the obvious advantages in uniform stock levels authorized to be maintained in armies and each advance section, and to afford maximum support to the armies while maintaining their mobility, the levels prescribed would be attained at the earliest possible date. Levels were established at seven days for class I and III in the army areas and ten days in advance section, and at 15 days for class II, IV and V in the armies and in advance sections. Specific exceptions in the 15-day level for class II were authorized as agreed between army groups and Headquarters, Communications Zone, such exceptions to apply to both army groups. It was also stated that class IV levels would vary not only to meet immediate operational requirements but also to prepare for projected operational requirements; and that the prescribed levels of all classes were to be maintained subject to the immediate or projected tactical situation.

55. Comments of Headquarters, 12th Army Group on ETOUSA Directive. Headquarters, 12th Army Group took exception to the establishment and maintenance of fixed levels, stating that requirements for reserves in armies faced with different tactical situations might not be uniform and that the same principles applied equally to army groups. It was pointed out that previous army group recommended levels submitted to the Communications Zone were not the requirements over an extended period or the maximum operational level to be used by the armies under any and all conditions. It was further stated that class V levels were influenced both by availability and by the tactical mission, availability to the army groups being dependent upon allocations of credits by SHAEF. Under a credit system the maintenance of uniform levels was not desirable. Finally it was emphasized that the army group should be authorized to continue to prescribe maximum levels for the armies in accordance with tactical situations.[23]

56. Comments of Army Group, G-4. The reasons for the 12th Army Group position were set out in a memorandum prepared by the Assistant Chief of Staff, G-4 of that headquarters which formed the basis of its counter proposals to headquarters, ETOUSA as outlined above. He stated that the flexibility of supply operations of the armies depended upon the use of combined stocks in the advance section and army service areas; since it was uneconomical for the armies to carry larger reserves than necessary for their proper functioning, surplus stocks should be left in the advance section whenever practicable; on the other hand there were times when amounts greater than those authorized would be necessary, particularly in class I, III and V; in any case the amounts actually carried would vary between the armies constantly depending on mission, area, size and composition of the army. He deemed it essential that the various authorized levels in the army service areas be determined by the group headquarters subject to authorization or instructions of the United States Staff at SHAEF working with the Advance Section and Communications Zone to insure constant flow from the rear to point of use. Until advance sections' stocks were adequate and properly balanced to insure constant flow, the amounts needed in army areas would vary from those established by the ETOUSA directive. The

basic principle of the need for and use of reserves was that stocks should be sufficient to guarantee desired flow of supplies to the users in whatever operations might be undertaken. He did not believe the army group justified in establishing maximum levels unless the situation in rear of the army group was such as to warrant such action. The levels prescribed should be used as a guide for theater distribution of levels but the armies should be free to requisition on the basis of expected required daily maintenance and knowledge of probable flow at that time. Accordingly, he believed that the levels already specified by ETOUSA should be those toward which all should work for use in normal operations but that the armies should not be directed to maintain any specified amounts.[24]

57. Levels of Supply in Southern Lines of Communication. Prior to the dissolution of Headquarters, Southern Lines of Communication, that headquarters formulated plans[25] for the establishment of a base, intermediate and advance section. Levels of supply to be maintained in each section were prescribed, and although the plan was never carried into execution, it is believed worthy of note in this study. War Department approved levels for the Southern Lines of Communication were established at 60 days for class I and III, 75 days for class II(except Quartermaster at 60 days), and 75 days for class IV and V. At that time levels in the armies which Southern Lines of Communication were supporting were established by Headquarters 6th Army Group at seven days for class I and III, 15 days for class II and IV, (Except spare parts and major assemblies established in general at 30 days), and 15 maintenance days supply for class V. It was proposed to maintain Continental Advance Section levels at five days for class I and III, ten days for class II and IV, and ten maintenance days of supply of class V. In the projected intermediate section, levels for all classes were contemplated at 30 days, except for certain specific types and categories. The levels in the Delta Base Section were planned as the remaining theater level stocks and were stated to amount to approximately 24 days for class I, 40 days for class III, 35 days for class II and IV, and 20 days for class V. It was considered however, that the level of supplies of class III for the Southern Lines of Communication should be reduced to 45 days and distributed between areas at seven days in the armies and Continental Advance Section, ten days in the intermediate section and 21 days in the base section. Some of the factors bearing on levels of supply in army areas were indicated at that time by an estimate of the supply situation[26] issued by Headquarters, Southern Lines of Communication. It was noted that it had generally been possible to maintain adequate army supply levels although authorized levels had not always been met. Recent large increase of forces without corresponding shifting of supplies together with adverse effect of weather conditions on transportation had resulted in reduction of army stocks to dangerously low levels. The need was expressed for a freer interchange of supplies within the Communications Zone.

ADDITIONAL GENERAL COMMENTS ON SUPPLY LEVELS.

58. Comments of Theater Service Forces Representatives. Theater Service Forces Representatives in commenting on the attempts to establish definite levels of supply in the advance, intermediate and base sections, state that it was impossible to carry out the recommendations of the Army Service Forces representatives to the letter. The levels prescribed for the various Communications Zone depots by Headquarters, ETOUSA totaled exactly the levels authorized for the theater. When it is considered that as much as ten days of supply may be in movement between ports and depots or between depots, they point out that the levels indicated could not be reached within the limits authorized by the War Department. They add that it is not possible to ship a balanced

stock of all items of class II and IV supplies to filler and issue depots so long as transportation facilities are limited.[27]

59. Comments of Responsible Supply Officers. Since the conclusion of operations in the European Theater, additional comments on levels of supply by experienced staff officers from high headquarters have included the opinion that army levels should be sufficient to insure adequate supply three days beyond the delivery period of re-supply from rear areas. Nearly all comments have emphasized the necessity for concentrating class II and IV supply for most services in a few points in order to have balanced stocks available for issue and to maintain effective stock control of the thousands of different items in these categories. In a fast moving situation it has also been stated that this requirement precludes establishment of stocks of these items in forward areas. In general it was considered that only "live" supplies should be maintained in the advance section at a sufficient level and in proper position to provide close support to the armies thus making possible comparatively low levels, particularly in class I, III and V, in the army areas to facilitate their mobility. Ordnance officers state that because of the great variety of class II and IV items, a 15 day requisitioning interval is the only acceptable figure as requisitions cannot be submitted more frequently and any greater interval is too unwieldly to reflect changing conditions. This indicates that levels of these classes in any area where they are stocked should not be less than 15 days. To provide for shipping time in addition to the 15-day requisitioning period, the proper minimum levels for class II and IV is considered to be 30 days both for the armies and communications zone depots. In addition, any lesser level for the armies is not considered feasible due to fluctuations in ordering and shipping time caused by rapidly extending and shortening of supply lines.[28]

SECTION 4

DISCUSSION

60. War Department Definition. Field Manual 100-10 states that the operating level of supply is the quantity of supplies, over and above the minimum level of supply, authorized as a working stock during the time interval between successive arrivals of normal sustaining shipments, measured in days of supply or in specific quantities of an item. If we add to this the minimum level, or the quantity of supply authorized as a reserve to be drawn against as necessitated by interruption in normal supply routine, we have the maximum quantity authorized to be on hand in the particular command.

61. Consideration of Stocks to be Included in Authorized Levels of Supply. The Field Manual does not indicate what is meant by a working stock. However, it is generally understood that, dependent upon the items or class being handled, the levels of supply will vary with the time required for handling, receiving, recording, and issuing, and the requirements for selection of the items. In the European Theater an army level of supply included not only the stocks at any particular point needed in the operation of receiving and distributing at that point, but also the amounts on the way to the consumer—that is the amounts needed to fill the supply lines and keep the flow at the desired rate—and those in the hands of lower echelons of the army.[29] Since the objective of a supply system is to deliver desired supplies at the desired time at the points where they are needed, it is felt that all authorized levels should include the amounts in transit forward of the points of distribution for which levels are authorized.

62. Army Supply Lines. The extent of the front of an army and the depth of its area are subject to constant change and, aside from the uncertainties of the flow in the supply lines themselves, the operating level of supply must permit some flexibility. The army supply depots cannot be moved day by day in keeping with the movement of the front lines, but must be moved from time to time and in accordance with the most economical use of service troops and transportation available. In the European Theater prior to operations it was considered that the average depth of an army area would be about 50 miles and that it would not be economical and might be almost impossible with the army facilities alone to operate at a depth greater than 75 miles. A fast moving situation results in expedients and often in a depth greater than 75 miles but, since in such circumstances the consumption of ammunition becomes less than under average conditions, army facilities are able to stretch to a greater depth.

63. Communication Zone Supply Lines. The forward section of a communications zone immediately in the rear of armies, commonly known as the advance section, is an organization which should be mobile. Its rear boundary may not be subject to change as often as that of an army, but the extent of its area is continually being increased by the movement forward of the rear boundary of the army, until it in turn can reduce its area by moving its rear boundary forward. Hence, although the number of its supply lines forward from its depots or distributing points will normally not be as many as those of the armies, the lines are continually increased in length and its levels must provide therefor. In the communications zone there may be some sections which are fixed in area and do not have the problems resulting from movement of their supply points and changes in the length of their supply lines.

64. Forward Area Levels. We must then have in forward areas such as those in the advance section, and in the armies a level of supply which is kept as low as possible to economize on the transportation and labor required to move supply points, but at the same time they should contain sufficient quantities of all items to insure a steady flow to points forward in accordance with the operating procedure established. If supplies are not available in sufficient quantity, or transportation facilities are not sufficient to insure a steady flow, each forward supply point will desire to have greater stocks for protection of its own interests with resultant uneconomical operation. A fast moving situation will almost invariably have deficiencies in the operation of the supply lines. The quantities in forward areas will be increased if it is possible to handle them, in an attempt to insure reasonably constant flow and to permit the establishment of a greater number of supply points over a fast increasing area. It may be seen that levels of supply for armies should be considered as authorized maximum levels; that armies should reduce these levels whenever practicable but that such reductions should be available on call in the area immediately behind them; also that the forward communications zone sections should have, whenever practicable, its own level of supply to meet its requirements and in addition that part of the army level of supply not called forward into the army area.

65. Forward Area Considerations. The nearer one is to the front line, the more apprehensive he is concerning his ability to meet the demands forward, the demands of the ultimate user. If there are fears concerning the ability of the organization in rear to comply with the requirements of the elements it is supporting, the tendency will be to accumulate greater stocks or levels in the forward area. This is not desirable, and maxima should be determined by proper higher headquarters which has responsibility for the whole and is familiar enough with the

entire situation to make sound decisions with respect thereto. In the case of armies, the army group headquarters (if one exists) should make decisions whenever practicable. If it has not sufficient information on conditions in rear, it should obtain advice from and be guided by the next higher authority, ordinarily theater headquarters.

66. Factors Bearing on Distribution of Theater Levels. The distribution of levels within the theater will be dependent on the principles discussed above; on the overall theater levels on hand; on availability and capacity of supply lines, rail, motor, water, and air; and on terrain, suitability of sites, geography, and the tactical situation.

67. Necessity for Maintenance of Forward Levels. In principle, the larger amounts of the theater levels established in the communications zone should be as far forward as practicable. If a large depot can be established for instance in the intermediate section rather than in rear thereof, obviously the transportation lines, and hence the time required for delivery toward the front will be reduced with corresponding reduction in the uncertainties of maintaining the desired flow. Also shipments may be made from ports or rear bases to these intermediate depots in large quantities, even entire shiploads, in addition to shipments necessary to maintain balanced stocks needed in distribution of daily requirements. The faster moving the situation may be, the more it becomes necessary to keep the larger depots forward, to insure the availability of all items required and the filling of requisitions from the armies.

68. Balanced Stocks. It is obvious that levels maintained in the forward areas should consist of balanced stocks. Supporting depots should provide the means of maintaining all items in the forward area in the quantities necessary to provide constantly such balanced stocks. Since it is ordinarily impossible to maintain balanced stocks in rear (base) depots of the communications zone, particularly if they are fed from ports receiving commodity loaded ships (unless unloaded on a selective basis which is wasteful of shipping), completely balanced stocks are best maintained in intermediate depots. There selectivity for proper response to forward area and armies' immediate detailed needs can be met if the principles set out in the preceding paragraph are followed in a fast moving situation. The levels in these depots must be adequate to meet maximum and emergency requirements. This is of particular importance in the case of items, the consumption of which fluctuates through a wide range.

69. Special Levels. Levels may also be specially authorized for contemplated operations or for a particular anticipated requirement. This is particularly applicable to ammunition and critical items. As an example, 12th Army Group authorized the armies a 20-day level of ammunition (See Chapter 2, Part Four), but the armies could increase this level out of daily maintenance requirements during quiet periods for use in active periods, particularly the first two or three days of an attack. As indicated in paragraph 51 above, the armies could retain the excess on credit in communications zone forward depots. Special authorized levels might also be provided to fill not only maintenance requirements but also provide for complete issue, as for example, stockage for issue of winter clothing or reserves for prompt issue of protective equipment in the event of sudden initiation of Chemical Warfare operations.

SECTION 5

CONCLUSIONS AND RECOMMENDATIONS

70. Conclusions. It is concluded that:

a. Army levels should be established on the basis of:

(1) Type of operations and expected army areas of operation.

(2) Necessity for maintaining mobility.

(3) The quantity necessary to maintain flow of supplies to its units during requisitioning and shipping time for resupply from the communications zone, and for possible interruptions in that flow.

(4) Availability of supplies in rear of armies.

b. The army commander must be given sufficiently wide latitude to vary his stocks on hand within his authorized levels in accordance with the day to day situation. Uniform, fixed levels to be maintained by all armies should not be prescribed by higher headquarters; maximum levels should be authorized for the armies but subject to constant review and to change in accordance with changing conditions.

c. When regular resupply is established, army reserves for supplies consumed at a generally uniform rate may be maintained at a lower level than those whose consumption varies widely from day to day.

d. Reserves in the forward area of the communications zone should be established and maintained with priority over those in rear echelons; they may not necessarily be in the advance section.

e. The basis for determining appropriate levels for Communications Zone forward area reserves is in general similar to the basis governing army levels.

f. Appropriate special levels of fast moving supplies should be established and maintained in the forward area of the communications zone.

g. The intermediate area of the communications zone should contain the major balanced stocks of theater reserves. In general, items which exist in small quantities should be concentrated at a single central point in this area to provide adequate stockage for proper distribution.

h. The level of supply for base (rear) depots should be specified as the balance of the theater reserves not maintained in the armies, in other sections of the communications zone or in transit; that level may not necessarily be in balanced stocks.

71. Recommendations. It is recommended that the lessons learned from supply operations in the fast moving situation experienced in the European Theater, and the principles considered to be sound as set forth in the preceding paragraph, be reflected in War Department publications, in army teachings, and in the planning and conduct of future operations.

CHAPTER 1

BIBLIOGRAPHY

1. Letter, War Department, file AG 400 (11 Jan 44), dated 20 January 1944, Subject: "Levels of Supply for Overseas Areas, Depots, Theater and Bases".

2. Joint Administrative Plan for Operation "OVERLORD", (FUSAG, 9th Air Force, Western Naval Task Force), 19 April 1944.

3. Letter, Headquarters FUSAG, file 370.2/1 (G-4) 19 April 1944, Subject: "Allocation of Tonnages".

4. Appendix "L" Communications Zone Plan, Headquarters, Forward Echelon, Communications Zone, 14 May 1944.

5. Headquarters, FUSAG, G-4 Memo to General Bradley, 16 May 1944, Subject: "Overlord Supply Situation, D plus 41 to D plus 90".

6. Headquarters, European Theater of Operations, Office of the Assistant Chief of Staff, G-4, Letter, Subject: "Preliminary Report: US Supply 'Reserve' Policy", 17 June 1944, to G-4 SHAEF.

7. Administrative Instructions No. 1 Headquarters, 12th Army Group, 29 July 1944.

8. Administrative Instructions No. 13, 12th Army Group, 27 August 1944.

9. Administrative Instructions No. 31, Headquarters, 12th Army Group, 22 September 1944.

10. Change 2, ADSCP, Headquarters, 12th Army Group, 24 November 1944.

11. Appendix "B", page 16, Advance Section, Communications Zone Operational History, 1943 to 1945.

12. From Statistics Section, Headquarters, Forward Echelon, Communications Zone.

13. COMZ History, Page 5.

14. Statement of Col. Carter Page, G-4 SOLOC & SOS NATOUSA in Memo Headquarters, TSFET, Subject: "Supply of DRAGOON", 30 October 1945.

15. Letter, Headquarters, Southern Lines of Communication, Subject: "Plans for Maximum Utilization of Southern Lines of Communication", 3 February 1945.

16. COMZ Compendium, Volume Two, page 824.

17. Memorandum for Supreme Commander, 25 December 1944, by Major General L.K. Lutes, Subject: "Report of Supply Situation - Northern France".

Memorandum for General Lee from Lt. General Brehon Somervell, 24 January 1945.

18. Standing Operating Procedure No. 7, Supply Procedures on the Continent, 2 February 1945.

19. TWX, Headquarters, Communications Zone, reference No. EX-93501, dated 2 February 1945.

20. TWX, Headquarters, First United States Army, reference No. CX828, dated 8 February 1945.

Memo, Ordnance Officer, First US Army, 3 February 1945, to G-4 First US Army and Ordnance Officers, ETOUSA and 12th Army Group.

Letter, Headquarters, Third US Army, file AG 400 (Gen) GNMCD-3, Subject: "Levels of Supply", dated 8 February 1945.

Letter, Headquarters, Ninth US Army, 8 February 1945, file 400 GNMDD, Subject: "Supply Procedures on the Continent".

Memo from QM (Brig. General J. W. Younger) to G-4, 12th Army Group, 8 February 1945, Subject: "Levels of Supply".

Memo to Maj. General Crawford from Brig. General R. G. Moses, 12 February 1945.

Memo to Col. Counts by Brig. General R. G. Moses, 7 February 1945.

21. Letter, Headquarters, 12th Army Group, file 499 (G-4)-Supply, Subject: "Levels of Supply", dated 15 February 1945.

22. TWX, Headquarters, ETOUSA, reference No. EX-19609, dated 12 March 1945.

23. TWX, Headquarters, 12th Army Group, 14 March 1945.

24. Memo to General Crawford by Brig General R. G. Moses, 14 March 1945, Subject: "Levels of Supply".

25. Headquarters, SOLOC, letter, SUBJECT: "Plan for Maximum Utilization of SOLOC", 3 February 1945.

26. Letter, Headquarters, SOLOC, file 400-General-O, 1 February 1945, Subject: "Estimate of Supply Situation", (Report No. 5).

27. Letter, Headquarters Theater Service Forces, 10 November 1945, Subject: "Review of General Board Studies", to The General Board.

28. Paragraph 1e (5), Memo, Third Army to General Board, 2 November 1945.

Memo from Lt. Col. Ralph M. Hower, QM Section, The General Board to G-4 Section, The General Board, 8 November 1945, inclosure 1, paragraph 5d.

Inclosure 1, Memo Col. Lynde, Ordnance Officer, Fifteenth Army to G-4, The General Board, 8 November 1945, Subject: "Mechanics of Supply in Fast Moving Situations".

Letter, Office Chief of Ordnance, file SPOFS, Subject: "Overseas Parts Supply for United States Army", dated 25 November 1943.

CONAD History, Page 72.

29. Joint Administrative Plan for Operation OVERLORD, Headquarters, 1st US Army Group, 19 April 1944.

DEPOT STRUCTURE

SECTION 1

PLANS

72. Pre D-Day. Plans developed prior to D-Day provided that beach areas would be under the command initially of the Commanding General, First Army. During this period dumps would be established as early as possible in fields back of the beaches and operated until the establishment of beach maintenance area dumps located within five miles of the beach. The maintenance area dumps were to be expanded, and subsequent to the capture of Cherbourg (O 1423) there would be three maintenance areas; one each in the rear of Cherbourg, Utah Beach and Omaha Beach. When a Communications Zone had been established, the Advance Section, Communications Zone was to set up depots immediately in rear of or within army zones as agreed with the army commanders. The armies would draw from those depots while the Advance Section stocked other depots in areas newly won by the advancing combat forces.[1] Initially and until about D plus 40 lines of communication would extend in a north-south direction along the axis Cherbourg - Vitre (Y 35). The flow of supplies would be over the beaches and through the ports Normandy and the Cherbourg peninsula, south to the using units. After D plus 40 the lines of communication gradually would change to a west-east direction along the axis Brest (V 9599) - Le Mans (V 4062). During this time a general storage area roughly bounded by Rennes (Y 0124) - Vitre (Y 35) - Laval (Y 6917) - Segre (J 5904) - Chateaubriant (J 2208) would be established to accommodate the theater reserve supply build-up.

73. Types of Depots. The pre-D-Day plans provided also that as soon as practicable branch depots would be established. Furthermore, where practicable for more than one supply service to operate within the same facilities, general depots would be established as required. Distributing points would be set up for local distribution at locations where a major storage distribution installation was not warranted.[2] Advance Section, however, planned to have only service dumps and depots in its areas as it advanced. It was considered that the limitation of storage and transportation facilities in the Advance Section area, and its inability to construct necessary facilities, would prohibit the use of general depots.[3] Receipt of supplies on the continent for stocking Communications Zone depots would be automatic, based on prescheduled shipments for the first 90 days of operations. The plans further provided that class I, III and V distribution depots would be located as far forward as conditions would permit. During Stage II (after designation of an army rear boundary and prior to the time Headquarters, Communications Zone was established on the continent) the commanding officers of general and branch depots would be appointed by the commander of the section in which the depot was located, the appointment of branch depot commanders being upon the recommendation of the representatives of the chief of service of the area commander concerned. During Stage III (after the opening of Headquarters, Communications Zone on the continent) commanding officers of general and branch depots would be appointed by the Commanding General, Communications Zone, the latter appointments being on recommendations of the chief of service concerned.[2]

74. Depot Structure. In the initial stages, depots in rear areas were to be limited to those absolutely essential. Issue of supplies to the armies would be from designated depots in the Advance Section. However, supplies could also be called forward from depots in a base section and deliveries made directly to supply points within the army areas. The designated issue depot in the Advance Section would accordingly furnish the supplies on hand and extract the unfilled items to the base section depot designated by prearrangement to support the Advance Section. Balanced stocks in depots of the Advance Section would be maintained by prearranged shipments from depots in the Communications Zone or by requisitions submitted by the Advance Section on supporting base sections, in accordance with instructions of Headquarters, Communications Zone. In the absence of specific instructions for the replenishment of its depots, Headquarters, Advance Section would submit replenishment stock requisitions to Headquarters, Communications Zone which would designate depots in the base section to supply the Advance Section depots.[4]

75. Later Plans. In late August 1944, Headquarters, Communications Zone provided that the number of depots would be held to a minimum to effect a saving of overhead, facilitate administrative control and to avoid excessive distribution of supplies and equipment. The general depot organization would be utilized to the maximum and the individual service depot would be the exception. A base depot area would be located at Le Mans (V 4062). This depot and those to be later established in the vicinity of Paris (S 0545) would constitute the main base depots in support of the advance beyond the Seine River. As the operations progressed additional depots were planned to be opened in the Soissons (S 8297) - Compeigne (N 4209 - Mons (J 3314) - Namur (J 9612), and Meziores (O 8133) areas. It was contemplated that the elimination of one or more of these depot areas might be possible depending upon the speed with which the operation might develop. Transient depots at the ports would be established as required. Other depots or dumps along the line of communication would be established only by the prior approval of Headquarters, Communications Zone.[5]

76. Responsibilities. Each Communications Zone section commander was to be responsible for the operation of all general and branch depots in his section. The chiefs of supply services were charged with responsibility for prescribing stock levels, maintaining stock levels as limited by tonnage allocations, allocating incoming supplies to depots in accordance with levels prescribed, general supervision of the technical operations of the depots, and for other technical matters connected therewith. The Chief Quartermaster of the Communications Zone was charged with staff supervision of all general depots.[5]

SECTION 2

OPERATIONS

77. General. The development of the depot structure in actual operations departed to a considerable extent from that planned for a variety of reasons. (See Chapter 3, Part One). In the early stages of operations temporary depots were quickly established ashore. The advance of the line of combat was behind schedule, with the result that there was considerable confusion and crowding of installations, troops and headquarters in the beachhead area. This resulted in many difficulties which caused the delay in establishment of communications zone depots in that area and delayed the development of

orderly operations of those depots when established. In some cases army and communications zone depots were of necessity operated virtually one on top of the other. Consequently the handling of supplies during this stage failed to measure up to expectations.[6] This was also due in part to phasing back of service troops to permit a greater number of combat troops to be brought ashore resulting in service troops not being available in the numbers planned or required to handle properly the quantities of supplies landed across the beaches.[3] The capacity of the port of Cherbourg (O 1423) was planned and later developed to some three times that contemplated in original plans, without time for increasing the corresponding capacity to clear the port area or the provision of adequate depots to receive the increased capacity. As a result many supplies were outloaded and placed in scattered dumps and depots in the immediate Cherbourg area and were never moved again. When the breakout from St. Lo (T 5064) occurred, and the armies started to move fast, it became increasingly difficult to deliver even daily maintenance requirements to the armies over the long hauls from beach dumps. Forward ports were not immediately opened and the situation set the stage for acute depot problems. It would have been at this time virtually impossible to develop an adequate depot system in depth consisting of base, intermediate and forward issue depots. The depot system in the vicinity of the Normandy ports and beaches was established within the limitation of space and facilities available. However, when transportation was sufficiently developed, an adequate depot system in depth to handle supplies received through the ports east of the Seine had not been provided to meet the conditions of the operation as they actually occurred.[3] (See paragraph 33 above).

78. Army Depots and Maintenance Areas. In the advance west of the Seine River, First Army maintenance area was moved from the general vicinity of St. Lo to the La Loupe (R 0408) area, a distance of some 125 miles. Third Army stocks, which were very limited, were moved successively along the axis Coutances (T 2357) - Avranches (T 2416) - Laval (Y 6917) - Le Mans (V 4062) to Fontainebleau. East of the Seine First Army dumps were moved successively along the line La Loupe (R 0408) - Hirson (O 3853) and finally to the Liege (K 4628) area. Third Army dumps were moved from Fontainebleau to the Chalons (T 5545) - Somsesous (T 4021) area and finally to the Verdun (U 2965) - Nancy (U 8712) area. During this period the armies utilized all available motor transportation at their command to move supplies forward into the depots from rear areas and even as far back as the beaches, thus augmenting Communications Zone facilities on the suddenly extended lines of communications.[7] At the same time the armies were having great difficulty in moving their own dumps forward, and as the rear boundaries advanced they left substantial tonnages of supplies in Advance Section areas which they considered as army stocks. The Advance Section assisted to the extent possible in moving these supplies direct to army supply points. This situation was not entirely satisfactory since flexibility was sacrificed and there was a tendency to leave small isolated dumps behind. Late in September 1944, 12th Army Group prescribed that all supplies left in rear of an Army boundary would pass unreservedly to the Communications Zone.[8] However, hauling by armies from rear areas continued to some extent for many months.

79. Advance Depots. The advance of the armies after the breakthrough partially alleviated the shortage of storage areas. The next planned maintenance area was to be in the Vire (T 6331) - Villedieu (O 12) area. This was developed only for some ammunition and Quartermaster supplies. The rapid advance of the armies left this area too far in the rear to be of much value and Le Mans (V 4062) was next

chosen as a maintenance area. Again the advance of the armies was so rapid that this area was only partially developed. It was used for only a short time by Ordnance, Engineer and Quartermaster Services. Following this an attempt was made to develop a maintenance area in Chartres (R 3802). Further attempts were made to establish dumps or depots at Soissons (S 8297), Sommesous (T 4021) and Reims (T 3080). However, the pressing need for all supplies which could be moved to the armies and the long maintenance line suddenly created prevented any of these from being developed into anything resembling either base or intermediate depots, although a large Quartermaster class II and IV depot was later build up at Reims.[8]

80. Development from September to December 1944. When the rapid advance of the armies was stopped, plans were initiated for the establishment of large depots in the Verdun (U 2965) and Liege (K 4628) areas. The plans contemplated that with further advance of the armies these would be intermediate depots.[9] However, since they would receive tonnages direct from Antwerp (J 6895) after its opening, because of a lack of adequate base depots to serve that port, it was evident that they would become base depots. Actually they became virtually the only major depot areas for class I, III and V beyond the Normandy beaches and ports, and at Marseille (T 41), existing on the continent for a number of months and thus combined the functions of base, intermediate and issue depots. The optimism which prevailed at the end of the pursuit across France was responsible to some extent for failure to develop at that time proper plans and initiate action for the establishment of an integrated depot system. However, no alternate plans were made, as was pointed out by representatives of the Army Service Forces from the Zone of the Interior in their visit to the European Theater at the end of 1944. Furthermore, the overall depot receiving capacity was inadequate to receive the quantity of supplies which transportation facilities were capable of clearing from the ports. Minor depots were established in and around the Paris area but none were set up in the base sections other than those operating in the Cherbourg area. The situation existing at the time of the visit of the Army Service Forces representatives in late December 1944 is illustrated by the reported[9] distribution of supplies (except Ordnance vehicles and bulk POL) then on the continent as follows:

Normandy and Brittany	47.0%
Seine Area	15.0%
Oise Area	12.9%
Channel Area	.7%
Advance Section	24.3%

In class II and IV items, which were particularly short in the armies, the distribution was 53% in Normandy and Brittany and 47% in Advance Section. Those in Advance Section were largely Engineer supplies or items of other services not usable or immediately required by the armies.[3] Ammunition was distributed 45% west of Paris and 55% east of Paris.[9]

81. Factors Bearing on Developments. There were many factors affecting the development of the depot structure other than those previously mentioned. A major factor, until at least November, was the long lines of communication, with rail and truck capacity for little else than daily maintenance and clearance of ports and beaches. This, above all others at the time, was the controlling and limiting factor.[7] The abandonment of the Quiberon Bay Project[10] early in September modified to a considerable extent the ability to develop the maintenance area as planned for the Rennes - Vitre - Laval - Segre - Chateaubriant area. Further, service troops were not phased

in during the build-up at the rate initially contemplated. Signal communications, due to the circumstances, were not adequate to effect a maximum efficiency of control.[6] The congestion in the beach areas has been referred to above. This was accentuated by the necessity to accelerate unloading of ships standing off shore with the result that there was little opportunity to store properly and classify the offloading supplies.[6,11] A further factor was the inability of the Communications Zone to obtain sites near Antwerp in the British area and the difficulty in finding suitable facilities to accommodate large depots in the Communications Zone area. For example, SHAEF had directed that a principal maintenance area would not be set up near Paris.[3] In Le Havre (L 9928), however, storage space more than adequate to meet the needs of all the services for shipments through that port was available and tentatively allocated to the several Communications Zone services. However, G-4 Communications Zone reports the matter was dropped at that point because of the optimism for an early termination of the war.[12]

82. Effects of Developments. The result of all these factors was that an integrated depot system was not developed and sufficient depots with adequate capacity to receive and handle incoming supplies from the new and expanded ports were not established. It is considered desirable to examine further the effects and sequence of events which took place as a result of the depot system which evolved during the latter months of 1944.

83. Antwerp, Liege and Verdun. Late in September plans were initiated for the establishment of major depot areas in the Liege - Verdun areas. No maintenance areas had been contemplated for Verdun (U 2965) as Nancy (U 8712) and Metz (U 8658) were considered preferable but were not then available.[11] Supplies in the Liege and Verdun areas were built up to enormous tonnages in class I, III and V.[13] They were receiving unclassified supplies direct from the Normandy ports and beaches and later from other channel ports as they were opened. No depots were established in the vicinity of Le Havre (L 9928) and Rouen (M 2016). In the Antwerp area, the British would not agree to the build-up of base depots.[11] Sufficient additional depot capacity was not provided prior to the opening of Antwerp, to receive the large tonnages which were planned to be cleared through that port. It was decided that shipments would be made direct to Liege and Verdun. Receiving capacity of depots in these areas, however, proved to be inadequate to handle the tonnage which was offloaded at Antwerp.[11] Various agencies recommended the establishment of additional base depots and in late November and early December action was taken to provide these.[11] As base depots cannot be developed to a fully operating stage in a brief space of time, congestions rapidly developed. The additional depots were established in the Charleroi (J 6606) - Mons (J 3314) areas. Before these became fully operational tremendous tonnage piled up on the quay-side at Antwerp and serious congestions developed in the Liege and Verdun depots which were receiving heavy shipments also from the Seine and Channel Ports. This resulted in a rapid increase in the loaded rail car situation with a consequent loss of the full effectiveness of the transportation facilities then available. The stocks in these depots were growing to a great magnitude and Headquarters, Advance Section reports that the increasing volume of supplies, together with the work of classifying and storing, was becoming sufficient to interfere to some degree with the preparation of issues to the armies.[11] These installations had become at once base, intermediate and advance depots. G-4 Communications Zone states that in the fall of 1944 there were not any true base depots.[15]

84. Effect of the Ardennes Campaign. With the launching of the German offensive in the Ardennes, a threat to those major depot areas resulted in an embargo on further shipment into them during the ensuing crucial period. This caused a clogging of the rail lines as there were no other base or intermediate installations into which trains could be diverted for unloading. Port clearance was stopped and tonnages on the quays and in the port area grew unchecked with the continued unloading of ships. It was not until mid January that desired tonnages were once again being received from the ports into Verdun and Liege and congestion on the rail lines and in the ports was beginning to clear up.[11] In the meantime steps had been taken to establish other depots in the rear of the advance section, both as a result of the crisis imposed by the German offensive and the need for increased depot receiving capacity required for clearance of ports.

85. Comments by Army Service Forces Representatives. It is considered pertinent at this time to present some of the comments on the existing situation and the recommendations presented by the Army Service Forces representatives from the Zone of the Interior during their visit in December 1944 and January 1945. It was noted, as set forth above, that no alternate plans for development of an echeloned depot structure had been provided and that the Commanding General, Communications Zone was now being forced to take immediate action to establish intermediate depots. This included action to establish class II and IV depots in the Seine and Oise areas and to expand other depots in the Channel and Oise base sections. It was pointed out that this was the only sound solution since such depots must be provided where suitable reserves could be classified and made available for immediate distribution. In this connection, it was emphasized that the point had been reached for class II and IV supplies where movement of tonnage without adequate selectivity for priority items was worthless. Also indicated was the desirability of stocking fast moving and priority supplies in the forward areas with slow and lower priority items in areas to the rear and the desirability of establishing a general depot area in the region, Dijon (O 0461) - Nancy (U 8712) without further delay. The general depot structure which should be immediately developed was outlined; this to consist of base, intermediate (filler), advance (issue) and key depots. The establishment of these was considered an emergency situation which must be treated as such because the lack of organization of depots in depth was stated to be a bottleneck for the entire supply system. It was also pointed out that the expeditious clearing of the backlog of supplies which had accumulated in the ports, in addition to handling the regular incoming shipments, required an overall depot reception capacity somewhat greater than normal. In summarizing, it was again stressed at that time that the most important factors in improving logistical support were better planning, the organization and development of a depot system in depth, and a proper stock control together with the organization and operation of an efficient transportation system.[9, 16]

86. Reorganization of Depot Structure. Action had been, in fact, initiated to reorganize the depot structure and expand depot capacity in line with the suggestions and recommendations outlined above prior to the time of the Army Service Forces representatives visit to the Theater. Progress, however, was slow which is indicative of the problem and time involved in establishing such an organization in the absence of prior plans or proper early action for its orderly development. The Control Division of the Communications Zone submitted weekly reports[17] on progress and on 8 March 1945 reported[18] that intermediate depot sites, except for class II and IV Ordnance and Quartermaster supplies in the Dijon (O 0461) -

Nancy (U 8712) area, had been selected and some of the depots were in actual operation. No base depots had yet been provided to service the ports of Le Havre (L 9928) and Rouen (M 2016) and it was considered physically impracticable to set up base depots for the port of Antwerp (J 6895). It was planned to have the Liege (K 4628), Charleroi (J 6606), Mons (J 3314) and Lille (H 6837) areas serve as base, intermediate and advance areas until the Advance Section moved forward. At that time no instructions had been published by the Communications Zone for the guidance of its personnel on the establishment of the depot structure which would designate each depot by type and mission. The above cited report further pointed out that other supply procedures could not be standardized until such instructions had been published. The subject of levels of supply to be maintained in the advance, intermediate and base sections was closely allied with the problem. This subject is covered in detail in Chapter 1 above. It is sufficient here to note that the Control Division considered the establishment of such levels as vital to the proper functioning of the depots and depot system. The extent of the progress made was further indicated by the small reduction of backlog in the ports which during a period of approximately two months had been reduced from 307,000 tons to only 281,000 tons. Good progress had been made at Antwerp but the overall progress was slow.

PLAN FOR ORGANIZATION OF DEPOT STRUCTURE IN DEPTH.

87. Revised Depot System. On 19 March 1945 the Communications Zone published the necessary plan and procedures for the establishment of an echeloned depot structure. This provided for issue, filler, base and key depots.[19]

88. Types of Depots. An issue depot was defined as a depot normally in an advance section, assigned responsibility for storing supplies within prescribed levels and for issuing supplies required to meet the needs of the armies and other organizations in the combat zone, or to meet the needs of organizations in a designated area of the communications zone. A filler depot was defined as one normally in an intermediate section assigned responsibility for storing the principal portion of theater supplies within prescribed levels and for replenishing supplies upon request from issue depots. It might also be responsible for issuing supplies to troops and organizations in a designated area of the communications zone and for receiving and storing supplies received from local procurement in the area. A base depot was defined as one normally in a base section assigned responsibility for receiving, classifying and storing supplies shipped from ports or local manufacturers and for providing a warehouse to clear ports or to store excess theater stocks. It was further responsible for replenishing supplies of filler depots upon direction of the chiefs of services concerned and might issue supplies to troops and organizations in a designated area of the communications zone. A key depot was one assigned responsibility for centrally storing the entire communications zone stock of selected items and issuing supplies upon request from installations and organizations. It was stated that the adequate and expeditious supply to armies and other organizations in the communications zone governed the assignment of the supply mission of any particular depot.[19]

89. Location. In order to provide direct and prompt supply to the armies, issue depots would be established immediately in the rear of each army and would move forward with the advance of the armies. To provide effective replenishment of issue depots, the principal quantities of theater stocks would be in filler depots

in the rear of the issue depots. Key depots would be established to store and issue the communications zone stocks of an item, the nature and supply of which was such as to require centralized storage and control. Base depots would be forward of ports and in rear of the filler depots. This directive indicated that physical limitations or inability to establish this depot system in depth would make it necessary for a depot to perform both base and filler missions and even, in extreme cases, an issue mission to the armies. Such cases would be the exception and would be corrected to the standard organization in depth as quickly as possible.[19]

90. Responsibility. The chiefs of services were directed to designate with the approval of the Assistant Chief of Staff, G-4, Communications Zone, depots where one or more of the supply missions would be performed. Movement of supplies into base, key and filler depots was to be controlled by the chiefs of services while replenishment of issue depot stocks were to be accomplished by submission of replenishment requisitions on filler depots. Section commanders would be responsible for all matters pertaining to supplies within the section and for the operations of depots; they were also responsible for recommending the location of new depots and rendering reports on the storage, reception and clearance capacity of depots within the section for each class of supply. The chiefs of services would designate filler depots responsible for replenishment of each issue depot. When the responsibility for the supply of troops or organizations in any given area of the communications zone was assigned to a base depot, the chief of service would provide adequate stockage of items thereat to meet supply requirements. They would also determine items to be stocked in all depots of their respective services and convert the authorized depot level expressed in days of supply into specific quantities of items, furnishing this data to each depot. This would be done for the guidance of all concerned, to provide realistic requirements by item of quantities to be maintained on hand in each depot.[19]

91. G-4 Responsibility. The Assistant Chief of Staff, G-4, Communications Zone was charged with the responsibility for the supervision of the establishment of the depots as the tactical situation developed and expended. In addition he would supervise the supply activities of the Chiefs of Services to determine the effectiveness of maintenance of the theater stock levels, approve recommended depot designations submitted by Chiefs of Services and arrange for the publication of a current depot installation list. This depot installation list would indicate all depots classified as to mission, class of supply handled and assigned replenishment or issue responsibility. Its purpose was to facilitate the systematic submission of requisitions by regulating stations and issue depots on the proper filler depot or depots assigned replenishment or issue responsibility and was to be distributed throughout the theater specifically for this purpose.[19]

92. Depot Supply Levels. The authorized theater levels of supply were to be distributed in depth between issue, filler, and base depots. Issue depots would maintain levels at ten days for class I and III and 15 days for class II, IV and V. Levels in filler depots were established at 25 days for class I, 30 days for class II, IV and V, and 15 days for class III. The levels in base depots were prescribed at 15 days for class I, II, IV and V and 5 days for class III.[19]

93. General Depots. No provision was made for general depots. Although early plans provided for the establishment of these, they were at no time organized during the campaign.[20]

94. Final Developments. On 14 April 1945, the Assistant Chief of Staff, G-4, Communications Zone reported that intermediate depots in the Nancy (U 8712), Toul (U 6510), Metz (U 8658) area had been put into operation for all services and classes and that base depots had been set up for Le Havre and Rouen with the exception of Ordnance class V. Base depots for the ports of Antwerp and Ghent with the exception of Engineer and Quartermaster class II and IV supplies had also been set up and it was estimated that the latter would be completed by 25 April 1945.[21] In the meantime, however, the Advance Section had turned over all of its installations to the Oise Intermediate and Channel Base Sections on 6 April 1945[22] and from that time until the end of the campaign there were virtually no Advance Section depots in existence. The Communications Zone, in accordance with plans, exercised no area control in Germany.[23] However, the Advance Section had planned, prior to the advance to the Rhine River and across Germany, to operate as ADSOC dumps, as appropriate, the army maintenance areas in Germany west of the Rhine. This did not work out because transportation prevented forwarding other than minimum daily maintenance requirements to the armies with the result that, except for army stocks, these maintenance areas were not used and no ADSOC tonnages were placed in them.[22]

SECTION 3

COMMENTS OF THEATER AGENCIES

95. Comments of Theater Service Forces Representatives. Theater Service Forces representatives state that it is not practical to ship a balanced stock of all items of class II and IV supplies to filler and issue depots so long as transportation facilities are limited. There must be selectivity at base depots near the ports so that available transportation is devoted to the items which are most urgently needed. When transportation facilities are limited, these items which are in low priority should remain at the base depots until such time as they can be moved without straining the transportation system. They also state that one of the main lessons learned in the course of operations was the need for establishing base depots in the vicinity of ports to permit classification and sorting of supplies before shipping them forward so as to utilize the available transportation to the best advantage. Experience proved the impossibility of establishing depots immediately in the rear of the armies in a fast moving situation. They add further that the existence of intermediate depots and the successive movement of supplies from base to intermediate and from intermediate to advance section would have made the transportation problem worse, rather than better, in the latter months of 1944 and would have required additional personnel which was not available. During rapid advances all transportation must be devoted to moving the daily maintenance forward fast enough to keep the armies going.[24]

96. Comments of the Office of the Chief Quartermaster, Communications Zone. The Office of the Chief Quartermaster, Communications Zone in commenting on the final prescribed depot structure for the theater states that the classification of depots must be standardized and changes kept to an absolute minimum. It is pointed out that base depots, in fact, have the same type of mission as a filler depot inasmuch as supplies in the latter are replenished by shipments from the base depots. That office contends that intermediate depots should be responsible for storing the principal portion of theater supplies within prescribed levels. Because of transportation limitations which are likely always to be present, the need for base depots at

the major ports has been clearly demonstrated. This is necessary since supply emphasis from the port forward must be on items and not on tons, and selective loading direct from shipside is impossible except on rare and special occasions. Since supplies for the theater were necessarily requisitioned far in advance of known requirements, receipts upon arrival were in many cases not required until some time in the future, if at all. It was wasteful to transport these supplies further inland than was absolutely necessary. Base depots provide the means for holding these excess supplies and for classification into items for shipment forward. It is stated that base depots do not eliminate the necessity for a sound, effective depot system in depth from the base to the forward areas. They do, however, provide for more effective operation of intermediate and advance depots. Since installations forward of base depots can be stocked on a selective basis, intermediate depots must be prepared to replenish those items stored in advance depots and to meet promptly the needs of the armies and other forward area troops for those items not stored in advance depots. It is contended that transportation in the early stages of operations was sufficient only for meeting daily maintenance requirements making the establishment of depots forward of the beaches impossible.[25]

97. Comments of the Office of the Chief of Transportation, Communications Zone. The Office of the Chief of Transportation, Communications Zone states that experience in the theater has amply demonstrated the soundness of a basic depot plan which provides base depots for quick reception of tonnages from ship discharge and port clearance; intermediate depots, where tonnages from base depots are translated into items; and issue depots, where wanted items move forward from intermediate depots on the basis of forward requirements and are issued to the troops. Throughout the operations in the European theater, depots never had adequate capacity to receive and handle incoming supplies. As a result many of the supplies so landed remained unclassified in beach and port areas. It is emphasized that depots must be disposed with respect to the overall transportation system and the axis of advance.[26]

98. Other Comments. Since the conclusion of operations many other comments and recommendations on depot structure have been made by most of the major headquarters of the theater and many of their staff officers. Some of these are contained in the preceding chapter on levels of supply. The Control Division, Headquarters, Communications Zone states that the actual depot structure failed to coincide with the system provided in the theater standing operating procedure of March 1945 since depots actually in operation were frequently assigned missions irrespective of their location. Because of the rapid advance of the armies, actual experience revealed that it was impractical to initiate a program for the relocation and re-establishment of communications zone depots in order to realize a theoretical objective.[27] G-4, Communications Zone states that ships awaiting discharge fulfilled the function of both filler and issue depots, during the late months of 1944, as they were called into the docks from their offshore position for unloading of specific items. This filled a gap when normal depot organization was not existent although admittedly was a waste of cargo ships.[28] Some of the staff sections of Third Army state that forward depots of the communications zone should be controlled by the army they support and should be located and moved as the army directs.[29] Headquarters, Seventh Army states that during the early stages of their advance up the Rhone Valley it was found that even the army could not establish adequate class II and IV depots. Transportation difficulties also prevented an early build-up of balanced supplies in forward Continental Advance Section depots, thus requiring

those supplies to be moved direct from the rear area to the army. It is contended that the limited amount of rail transportation available in a fast moving operation will never allow the forward stock piling of all supplies to meet any unforseen emergency. Change of plans and requirements result in the receipt of items that are no longer required. That headquarters, in line with many others, emphasizes the principle that forward depots should be built up and maintained before depots in the rear are stocked.30

SECTION 4

CONCLUSIONS AND RECOMMENDATIONS

90. Conclusions. It is concluded that:

a. In a fast moving situation, the point will probably sooner or later be reached when transportation will be unable to deliver more than minimum daily maintenance requirements to the combat forces.

b. If a theater is being supplied by sea or air, or both, from the zone of the interior, depots must be established in or close to ports to avoid utilizing transportation unnecessarily in port clearance activities.

c. Base depots should be established as close as possible to the rear boundary of the communications zone to make maximum transportation available for moving selected needed items forward of these base depots for the most effective support of the combat forces in a fast moving situation.

d. Depot structure must be related to and developed in conformity with the transportation system and with the course of operations.

e. Depots with balanced stocks should be established well forward prior to the start of an offensive which may develop into a fluid combat situation, and should be pushed forward during such operations to the extent possible until transportation can no longer be devoted to anything but movement of essential daily maintenance requirements.

f. The principle of an echeloned depot system for maximum flexibility is sound but it must not be developed without regard to the conditions of operations which may require modification.

g. Intermediate depots should be established only when the depth of the communications zone indicates their desirability and then not until forward depots are in proper shape to provide forward requirements and can be maintained during build-up of intermediate depots. When the depth of the communications zone and transportation net dictates their desirability, and subject to other operational considerations, intermediate depots should be established and developed to stock the principal portion of theater balanced supplies.

h. Individual and overall depot capacities for receiving, handling, storing and outloading must be ample to facilitate maximum efficiency of transportation and to meet not only normal but also emergency loads for reception and issue.

i. Depot capacities must be related to levels established for the area of the communications zone in which located, as cited in the conclusions and recommendations of the foregoing chapter.

100. Recommendations. It is recommended that the lessons learned from supply operations in the fast moving situation experienced in the European Theater, and the principles considered to be sound as set forth in the preceding paragraph, be reflected in War Department publications, in army teachings, and in the planning and conduct of future operations.

CHAPTER 2

BIBLIOGRAPHY

1. Advance Section Plan "Neptune", 30 April 1944.

2. "Communications Zone Plan," Headquarters Forward Echelon, Communications Zone, 14 May 1944; revised 22 May 1944.

3. Statement of Col. Marshall Stubbs, AC of S, G-4 Advance Section, Communications Zone.

4. ETOUSA SOP Number 7, "Supply Procedures on the Continent", 12 May 1944 (Revised 7 June 1944).

5. Headquarters, Communications Zone, "Policy and Procedure for the Development of the Continental Communications Zone", dated 29 August 1944.

6. Operations Report Neptune, Omaha Beach Engineer Special Brigade Group, 30 September 1944.

7. Field Force Logistics, 12th Army Group G-4 Section, 31 July 1945, Phases III and IV.

8. Advance Section Communications Zone "Operational History" 1943-1945, Section III.

9. Memorandum for: Supreme Headquarters Allied Expeditionary Force, through CG, Communications Zone from Director Plans and Operations, ASF, Subject: "Report on Supply Situation-Northern France", 25 December 1944.

10. SHAEF Messages FWD 14066 SHCCT, 7 September 1944.

11. Advance Section, Communications Zone "Operational History", 1943-1945, Appendix B.

12. G-4 Communications Zone History, Chapter IV, Page 90.

13. Advance Section, Communications Zone "Operational History", 1943-1945, Section IV, Table "5", Appendix "2" (Daily Tonnage Reports).

14. Report, Control and Planning, Office of the Chief of Transportation, Communications Zone, March 1944 through 9 May 1945.

15. G-4, Communications Zone History, Section II, Page 5.

16. Memorandum for: General J.C.H. Lee from Commanding General, Army Service Forces, 24 January 1945.

17. File, Headquarters, Communications Zone, "G-4 Action on Sommervell Memorandum of 24 January 1945".

18. IBID, Report, 6 March 1945, Pars. 13, 14, 17, and 35.

19. European Theater of Operations SOP Number 7, "The Depot Supply System and Requisitioning Procedures", 19 March 1945.

20. Verbal Statement of Lt. Col. L. M. Driscoll, Supply Officer, Office of the Chief of Ordnance, Headquarters, Communications Zone.

21. Headquarters, Communications Zone Inter-Office Memorandum from AC of S, G-4 to Control Division, "Implementations of General Somervell's Recommendations", 14 April 1945.

22. ADSEC "Operational History", 1943-1945, Section V, Par. 8.

23. Twelfth Army Group "Operation Eclipse", Annex 6.

24. Letter, 10 November 1945, from Headquarters, Theater Service Force USFET, Subject: "Review of General Board Studies."

25. Section II, Letter, Office of Theater Chief Quartermaster, 1 November 1945, Subject: "Quartermaster Supply Operation in the Communications Zone During Combat".

26. Report of Chief Control and Planning Division, Office of Chief of Transportation, Communications Zone, on Operations from March 1944 through 9 May 1945.

27. Headquarters, Communications Zone Control Division Memo, 8 May 1945, Subject: "Status of Recommended Projects".

28. G-4, Communications Zone History, Section II, Page 11.

29. Comments of Third Army Engineer, Ordnance and Quartermaster Officers, contained in Memo, Headquarters Third Army, 2 November 1945, to The General Board.

30. 1st Ind., Headquarters Seventh Army, 29 November 1945, to letter, The General Board, file R 401/4, TGBDD, 27 October 1945, Subject: "Mechanics of Supply in Fast Moving Situations".

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APO 408

MECHANICS OF SUPPLY IN FAST MOVING SITUATIONS

PART THREE

REGULATING STATIONS

CHAPTER 1

FUNCTIONS AND OPERATIONS OF REGULATING STATIONS

SECTION 1

INTRODUCTION

101. General. The subject of regulating stations is one which should be covered more comprehensively than is possible in this study embracing, as it does, so many of the matters involved in supply of a fast moving situation. Regulating stations were from the planning stage, throughout the operations and up to this writing one of the most controversial subjects among experienced supply officers of the European Theater. The conclusions and recommendations presented herein are the best which can be arrived at in the time available with the resources at hand. Furthermore, they are subject to developments of other elements of the Army's field supply structure which are at present under consideration for adoption, i.e., the status and functions of the Transportation Corps, the Logistical Corps and Divisions. The subject has been limited to the supply operations of regulating stations and regulating officers. The processing of requisitions, however, is discussed more fully in Chapter 1, Part Four of this study. Air supply, medical evacuation, and evacuation of materials, involving the regulating stations, are subjects of other studies undertaken by The General Board.

SECTION 2

PLANS

102. Decision to Employ. During the planning phase for Operation OVERLORD there were divided opinions as to whether regulating stations should be used in the continental campaign. The Transportation Corps, in particular, did not want any regulating stations. Headquarters, 1st Army Group believed that they would be required and was instrumental in obtaining the organizations which were eventually used.[1]

103. Command. After the decision had been reached to employ regulating stations, there was again some divided opinion as to what

headquarters should exercise command over them. Some quarters thought that the regulating stations should be placed under the control of the Army Group Headquarters since the Army Group Commander was to be the Ground Force Commander for a while, at least. Headquarters, 1st Army Group did not agree with this proposal and supported the Headquarters, Services of Supply which contended that if regulating stations were used they should be in the Communications Zone. The Army Group Headquarters took this position because it was not organized to exercise full control and Supreme Headquarters, Allied Expeditionary Force would command in the field at an early date leaving the Army Group with no real authority over the Communications Zone. The agency controlling the regulating stations must have full information on capabilities and the power to enforce decisions. The regulating stations were assigned to the Communications Zone and it is here that a major departure was made from Army Field Service Regulations which provide that the regulating officer is an agent of the Theater Commander. Standing Operating Procedures (SOPs)[2,3] provided that initially regulating stations would be established only in the Advance Section, Communications Zone and would be established by that section at the earliest practicable date. Command was thus fixed as being under the Commanding General, Advance Section, Communications Zone.[1]

104. Functions and Operations. Communications Zone plan provided for regulating officers who would be responsible for the systematic and orderly movement of supplies and personnel to the correct railheads and/or truckheads and for the evacuation to the proper destination of casualties, prisoners and salvage.[4] (No subsequent directive charged regulating officers with evacuation "to the proper destination" and it is considered that this requirement was not correctly stated since the regulating officer cannot be charged with responsibility for flow of traffic beyond his sphere of control. It would have been appropriate to charge him with evacuation of casualties, prisoners and salvage from the army areas; directing dispatch to destinations furnished him by proper authority.) Classification, dispatch areas and other traffic control points would be organized to insure continuity of supply and the prevention of congestion on the line of communication and at rail or truck terminals. European Theater of Operations SOPs provided that regulating stations would be established in proximity of the army rear boundary as agencies in administrative support of the forces in the combat zones.[2,3] Their organization and functions would be as set forth in Field Service Regulations Administration, FM 100-10 except for command and supply functions. The regulating officer would receive and process in accordance with SOPs all requests and requisitions submitted by the forces in the combat zone, and in such areas of the Communications Zone as might be specified by the commander of the section in which the regulating station would be located. He would control the movements of personnel and supplies to and from the combat zone and also control such movements within the Communications Zone as might be specified by the section commander. He would not be given any area command beyond that of his station which would be organized so that it might readily displace forward as the situation would require. He would assist the section commander in preparing recommendations to the army commander for the location of railheads. The functions of the regulating station would be limited to those of a traffic control agency. Headquarters, Advance Section, Communications Zone Plan provided that the Transportation Corps of that headquarters would be responsible for the establishment of regulating stations to control supply flow at the army rear boundary.[5]

105. Provision of Field Service Regulations. Since the early plans provided that regulating stations would function in accordance with Field Service Regulations Administration, FM 100-10, reference

must be made to that manual for a full understanding of the contemplated operations of the regulating stations. In addition to the specific operations and missions set forth above, this manual indicates that no movement may be initiated in the regulating officer's area without his authority. Railhead reserves may be held on cars only on his authority. Based on the recommendation of the army commander and the policies of the theater commander he establishes and enforces traffic priorities and provides for the distribution of returning cars to depots in the rear. He is advised at all times of changes in status of supplies, location of units and establishments in the army area and of the military plans and intentions of the army commander. He maintains direct contact with the headquarters of the theater of operations, communications zone and the armies. From the theater headquarters he receives information on allocation of credits in communications zone depots, priorities, number of beds assigned in hospitals and hospital trains available. From the manager of the Military Railway Service he receives information on status of railway equipment, trains and schedules available. From the communications zone he receives information regarding men, animals and supplies awaiting transportation to the combat zone. From the army served he receives daily reports of strengths of major elements, number of evacuable cases, changes recommended in location of railheads, number of prisoners and other personnel to be evacuated and similar information. He orders supplies on credit in communications zone depots to the combat zone in accordance with the desires of the army commander and the transportation available. It may also be noted that the manual indicates that a regulating station serves a definite area of the combat zone limited on the basis of available lines of communications, strength of forces involved and capacity of the regulating station. If conditions permit, these areas should be coincident with the army areas of the combat zone, one regulating station being established for each army. It is also indicated that when the situation permits, a regulating station is established at a location where necessary facilities exist or can be quickly provided for switching and classification yards. Preferably, this would be at a junction of two or more rail lines or routes leading from the supply and evacuation establishments in the rear. The regulating station should also be linked with other regulating stations so that traffic may be maneuvered laterally as well as to and from the communications zone. It is also indicated that the station should be near enough to the combat zone to enable trains departing at dark to arrive at their destination before daylight. The field manual states that rail will be the principal means of transport but that the principles for controlling the flow of traffic to and from the combat zone will remain the same regardless of the type of transport. It is also indicated that the theater commander may establish regulating stations for the control of air traffic within the theater. It is enjoined that the functions of the regulating station must be confined to that of a traffic control agency.

SECTION 3

OPERATIONS

106. Establishment of Regulating Stations. Headquarters, Advance Section, Communications Zone which had been given command of regulating stations issued no instructions regarding their employment other than as indicated in Section 2.[6] Following the establishment of an army rear boundary, a regulating station was placed in support of each of the First and Third Armies by Headquarters, Advance Section. Prior

to that time no regulating stations were used and none were, in fact, needed as First Army had direct control of all available resources on the continent. When the regulating stations became operational, headquarters, Advance Section appointed a direct representative of the Commanding General, Advance Section, to each of the army headquarters, who was also designated as regulating officer. The regulating stations were made available to these officers as their agencies for executing their instructions. These officers were made responsible for assuring a systematic and orderly movement of required supplies from the Communications Zone to points designated by the army and for evacuation from the army to the Communications Zone.[7] Because of the many functions other than supply which Advance Section performed for the support of the armies and of the necessity for keeping such functions closely integrated between the armies and the Advance Section, those officers were selected on the basis of wide experience and sound judgment. They were to act for the Advance Section, not only in directing the operations of the regulating stations but also other Advance Section agencies such as rail construction, signal construction, pipeline construction, ordnance installations and similar matters. They advised the armies as to the general policies on supply and made recommendations on locations of service areas based on detailed knowledge of Communications Zone problems and capabilities.[8] Thus these officers were agents of the Advance Section, Communications Zone, and in effect operated as forward echelons of the Advance Section with each army.

107. Location. The Regulating Officer maintained his position at the office of the G-4 of the army supported in most instances.[9] The regulating stations were located where they could best perform their missions. Each of the stations followed a policy of establishing themselves in the vicinity of the army headquarters supported.[10] This was done in order to maintain communication with the army headquarters at all times and to permit close coordination with the supply agencies of both Advance Section and the armies. This policy then required the regulating stations to be prepared to move as the army headquarters moved and resulted in frequent displacement during periods of fluid operations.

108. Early Operations. The 24th Regulating Station was established in support of the Third Army and the 25th Regulating Station in support of the First Army on 1 August 1944. They had but little prior training in their technical operations before arriving on the continent in late July. In the week or so preceding the time they became operational, they were given as much training as possible in the mission and method of operation of the Advance Section, Communications Zone.[11] However, at the outset of their operations no one had a clear conception of just what was expected of a regulating station.[12] During the first month there was very little the regulating station could do in the actual regulation of supply traffic because rail traffic was virtually non-existent and for motor traffic the main problem was one of expediting rather than regulating.[13] The functions performed by the regulating stations during this phase did, however, set the pattern of the future operations of the stations. Lack of communications and documentation resulted in considerable confusion and the armies pressed the regulating officers for information of supplies coming up from the rear. These stations then departed from any "book" conception of their normal operations and resorted to many expedients in their efforts to assist the armies. Many detachments were established along the lines of communications for the purpose of locating and expediting urgently required supplies. Personnel of the stations travelled along the supply lines for the same purpose. They were also sent to established railheads, airheads, and truckheads

which were frequently moved and shifted as the situation demanded.[14] The personnel stationed along the supply lines set up traffic control points at strategic points of diversion. These traffic control points maintained information as to location of supply depots for all classes and services in so far as possible. Routes to and from the supply points were furnished convoy commanders and drivers of straggler vehicles. Daily reports were maintained giving data on tonnage and a breakdown by classes and services. Constantly changing tactical situations required the diversion of certain supplies from one point to another. These changes were sometimes given to the traffic control point by administrative order but more often by personal orders of officers from the G-4 Sections of the armies involved in the operations. Personnel of the traffic control point made a reconnaissance of roads leading to supply depots, frequently furnished guides and obtained much of their information from the convoy commanders. An extensive courier system was inaugurated to overcome the inadequate signal communication service in an effort to provide some advance information to the armies of supplies enroute.[15]

109. Operations on the Red Ball Express. When the Red Ball Express highway was established, the regulating stations continued their unorthodox operation in expediting supply over that line of communication to the armies. Requisitions were processed through the regulating station back to base sections through Headquarters, Communications Zone, by-passing the Advance Section maintenance area (See Chapter 1, Part Four). Supplies were consigned by the depots to the regulating stations who were responsible for directing convoys to proper army depots. The system of tonnage allocation which applied to the Red Ball operations required a close check of the supplies received by the armies each day. To accomplish this, both regulating stations then in operation established control points and passing and terminal points on the Red Ball route. These points were in some cases operated on a joint basis to identify and break apart the supplies for the First and Third Armies. The passing points communicated with the regulating station in any possible way, when and however they could, to furnish the armies with information of supplies enroute. The Advance Section G-4 established a control group at diversion points where all convoys were stopped and destination instructions reviewed. Signal communication was established by radio with Advance Section Headquarters. Personnel at all those points attempted to expedite supplies and performed functions similar to Rail Transportation Offices (RTO's). Operations were still being improvised from day to day.[16]

110. Railway Operations. As rail operations developed during September the regulating stations began to play their part in the movement of supplies by rail to the armies. Personnel were established at all railheads to check incoming supplies and in some cases the regulating stations actually manned the railheads. They also maintained personnel at reconsignment points at Versailles (R 8838) and Paris (S 0545) to assist in routing supplies to the proper army. Lack of documentation was a principal reason for the regulating stations assuming this function. The regulating stations also established RTOs along some sections of the rail lines to check on the forward movement of supplies and to forward information to the armies. The Advance Section, Regulating Station (Provisional) was organized on 26 September 1944 in support of the Ninth Army as no additional regulating stations were then available in the theater. Supplies for this army initially came in through Verdun, France (U 2965) as did those for Third Army. The new station as well as the 24th Regulating Station and the G-4 Transportation Section of Third Army established personnel at Verdun to control movements through this critical point. There was not always close coordination between these agencies which resulted in congestion and confusion at that point. It was not

until the end of the year that the Third Army Headquarters withdrew its personnel leaving the 24th Regulating Station responsible for the routing and diversion of all rail traffic for that army.[17] At times during the campaign both the Provisional Regulating Station and 25th Regulating Station established sub-stations at key rail points. The former set up a "Forward" regulating station at Longuyon (U-4596) which was for a period the consignment point for both Third and Ninth Armies. This station reconsigned trains to Ninth Army railheads and received tonnage and forwarding reports from other rail points which were consolidated and forwarded to the main regulating station. The 25th Regulating Station in support of the First Army established a sub-station at Liege, Belgium (K-4628) which supervised the passing of supplies from the control of the Advance Section to that of the station.[18]

111. Consignment Points and Railheads. As rail was developed to and into the army areas during the latter months of 1944, consignment points were established near the army rear boundary. The regulating stations maintained personnel at these points for routing trains to the proper army railhead. Trains were consigned to these points from the rear and with information as to the location or movement of army railheads, personnel at these points were enabled to properly reconsign the trains to the proper railhead location. No trains were made up at these points and a minimum of switching was done. Incoming trains were stopped for identification, checked as to proper make-up, record purposes, and correct reconsignment. As the armies moved forward and new rail lines and railheads were opened the consignment point would be advanced. The old consignment point was manned until supplies enroute to the point were no longer arriving; in the meantime forwarding trains to the new consignment point. During this period the regulating station got into the railhead business to a greater or lesser degree in each army area. In Ninth Army all army railheads were operated by the regulating officer. In First and Third Armies some railheads were operated by the regulating station, however, the majority were manned by the Army. Railhead teams, however, were maintained at all army railheads to check and report on the receipt of supplies.[19]

112. Operations in a Retrograde Movement. During the Ardennes campaign the 25th Regulating Station in support of First Army reversed all previous procedures by directing empty cars into forward railheads for evacuation of supplies, supply depots and dumps to the rear. Personnel of the station called forward necessary trains and supervised in some instances their loading, evacuation and unloading at new locations. The 24th Regulating Station in support of Third Army assisted in arranging for shipment of supplies from the rear to new railheads prior to the arrival of troops as that army faced to the north.[20]

113. Operations Across the Rhine. During the early months of 1945 the regulating stations operated in a comparatively normal manner continuing to maintain personnel at consignment points and railheads. Documentation was still a serious problem and personnel were sent back along the line of communication to locate and report on supplies moving forward. When Fifteenth United States Army was given an operational role along the Rhine River, the 26th Regulating Station which had been previously designated to support that army also entered operations. After the crossing of the Rhine serious bottlenecks developed on the critical rail bridges over that River which were rapidly constructed behind the advancing armies. Conflicts between the regulating stations quickly developed, as these bridges produced a bottleneck over which supplies to more than one army were moving. The system of consignment points was no longer workable as the regulating officers called forward trains without coordination with the other stations concerned.

an important cause of the rail congestion which ensued was the accumulation of reserves on wheels during the period immediately prior to the opening of the Rhine bridge. Headquarters, Advance Section, expresses the opinion that the regulating stations should have exercised a tighter control on requisitioning so as to have held the mobile supply reserve to the essential minimum. In the confusion, representatives of the army supply services and other agencies worked independently in their attempts to move forward selected trains. The armies, instead of taking delivery of all materials which they had ordered, attempted to institute a partial acceptance plan. To overcome this difficulty the Advance Section was forced to establish a traffic control point at each of the critical bridges. At these points representatives of all agencies concerned were formed into committees under the chairmanship of the Advance Section, G-4 representative. These committees established priorities for the movement of supplies within the capacity of the bridges, to insure in so far as possible an adequate flow to each army being serviced. It was some time before these committees could clear the congestion to the west of these bridges, and the normal flow to consignment points in the interior of Germany was not established until several weeks after the close of combat operations.[21]

FACTORS AFFECTING OPERATIONS.

114. General. From the brief outline of operations of the regulating stations set forth in the paragraphs above it is evident that there were several major factors affecting those operations. The principal factors were the command relationship; relationship with the armies; signal communications; documentation; available facilities; depot structure; character of military operations; length, adequacy and development of the lines of communication; and type of transportation operating on the lines of communication.

115. Command Relationship. Possibly the greatest factor affecting operations was the command relationship of the regulating stations which determined the authority of the regulating officer. Since they were not agents of the theater commander, it was impossible from the very beginning for them to function as contemplated in Field Service Regulations. Their sphere of influence was restricted and without the authority of the theater commander they could not enforce decisions. The Advance Section, Communications Zone, in actual fact was a regulating station, performing the functions of the regulating station in addition to its other responsibilities. This was essential since Advance Section was responsible for regulation of available capacity under 12th Army Group priorities, established at critical times as between the armies under its command. (See Chapter 2, Part Four, below.) The regulating officers were agents of the Advance Section which itself could exercise no authority over either the Communications Zone or the armies in regulating transportation beyond its own area. The four regulating officers stationed with the First, Third, Ninth and Fifteenth United States Armies submitted reports and comments on their operations during the campaign. It is interesting to note that the Chief of Staff, Advance Section, Communications Zone in commenting on these reports, states that there was no uniformity in the approach or in the experiences of the regulating officers. Each army functioned somewhat differently and accepted or restricted the activities of the regulating officer as it desired. The Chief of Staff, Advance Section, Communications Zone also states that the relationship of the regulating stations and the Advance Section to the Communications Zone, the Theater, the army, and Army Group Commanders was always somewhat ambiguous. It was essential that the closest personal contacts be maintained with the army and Army Group G-4's as well as with all agencies of the Communications Zone.[22] All regulating stations reported that at various times movements were

initiated without their authority or contrary to their instructions and occasionally embargos were effected without consulting with, or notification to, the regulating officer. This is a manifestation of their lack of authority and, in the case of embargos, of the effectiveness of such control as they were able to exert on transportation.

116. Army Relationship. To a greater or lesser extent the regulating officers became agents of the army with which they were serving. In some cases the regulating officer and station personnel were utilized virtually as a transportation section of the army headquarters. The relationship with the army exerted the greatest influence on the sphere of influence of the regulating officer. The regulating officer with Ninth Army states that traffic control could not be effectively realized until delivery into the army area where he was at all times able to exert effective control on the traffic situation. The regulating officer with Third Army indicates that his control was effective to the army boundary where it became an army function. This is the most striking indication of the wide variation in the operations of the regulating officers. It might well be noted here that the control of rail and motor transport on the lines of communication into the army areas present vastly different problems. As regards railway regulation, it is entirely feasible to make the Communications Zone responsible for delivery to army points. In the case of motor transport, however, regulation is more difficult if the army has much traffic in the rear of army depots. As area control forward of its rear boundary is exercised by the army, the Communications Zone must obtain clearance from, or release control to, the army for movement forward of the rear boundary. Throughout the campaign none of the regulating officers were able to control the reserves on rail in the army areas and repeatedly had to resort to request for command action to expedite turn-around of rail cars. To obtain this action it was necessary to place the request through the Advance Section and Headquarters, Communications Zone to the Army Group which issued such orders as it deemed appropriate. The Army Group, however, cannot be considered to have been able always to weigh properly the requirements between the armies and the Communications Zone, a definite function of a theater commander.[23]

117. Signal Communications and Documentation. The inadequacy of signal communication facilities and deficient documentation resulted in the unusual operations of the regulating stations over the length of the lines of communication. During periods when communications to critical points along the supply routes and when supply installations were inadequate, the regulating officers were powerless to effect any degree of regulation whatsoever. The lack of information of action taken on requisitions and advice as to supplies enroute as well as incomplete documentation of shipments caused the regulating officers to establish control and information points along the lines of communication and to operate extensive courier service. This was also a major factor in the entrance of the regulating stations into railhead operations. This was a phase of their activities which is contemplated neither by Field Service Regulations, FM 100-10 nor by plans for the employment of regulating stations in the theater.[24]

118. Available Facilities. Throughout the campaign the character of operations of the regulating stations was influenced by available facilities. At no time were facilities available for any regulating station to marshal trains or supplies for forwarding to army unloading points and the Assistant Chief of Staff G-4, Advance Section, believes that this will hold true in future operations.[25] As rail facilities were developed, operations changed with the opening of railheads and later, the establishment of consignment points.

119. Depot Structure. Until the comparatively late establishment of key, filler and issue depots it was impossible for the regulating stations to handle requirements of all services in a uniform manner. This is covered in greater detail in Chapter 1, Part Two, above. However it may be noted here that each service tended to establish its own supply system and the regulating stations frequently resorted to the physical transmission of requirements between depots in order to assure that certain supplies would move to army supply points as intended.[26] The issue of supplies from base depots was frequently contrary to shipping instructions, or shipments were improperly consigned, and resulted in much of the day to day improvisation of the regulating stations.[27]

120. Type of Military Operations. The activities of the regulating stations varied also with the character of military operations during the campaign. During periods of pursuit they were unable to effect any regulation whatsoever. During relatively static operations the activities of the stations gradually assumed a standard procedure, which however was not that contemplated for such organizations. In a retrograde movement the stations performed much valuable service in expediting and exerting some control over the evacuation of depots, supplies and personnel.

121. Lines of Communication. The lines of communication and the type of transportation employed on those lines caused major changes in the operations of the regulating stations throughout the several phases of the campaign. When hauling was done primarily by trucks on express highways, the regulating officers could do little but expedite delivery to the army areas. It is apparent that this means of transportation does not lend itself to the same procedures as rail transportation. It is true that, as stated in Field Service Regulations, FM 100-10, the fundamentals for controlling the flow of traffic are applicable regardless of the type of transport. However, a road net is substantially more flexible than a rail net in that generally more avenues of travel are available and this tends to complicate the system. For this reason, while the principles of control are applicable, motor transportation procedures must be more elaborate and must be varied to fit existing circumstances in order to attain the same degree of control. In connection with rail transportation the regulating stations were able to perform much useful service when each army was served by at least one rail line. Difficulties developed when lines common to more than one army were utilized in the forward movement of supplies. When a common line had insufficient capacity for the armies served, the regulating stations acting independently could do little but add to the confusion. It became necessary for a controlling agency superior to the regulating officers to be established for the determination of priorities of movement.

122. Regulating Stations in Continental Advance Section.[28] No regulating stations were established by Continental Advance Section (COMAD) in support of the armies of 6th Army Group. As support of these armies was for several months over a single line of communication, regulation of traffic presented no problem other than that of expediting the flow of supplies. This was performed by Headquarters, COMAD which received and processed army requisitions to its depots or to the Delta Base Section and followed up the delivery of supplies to the armies. The 27th Regulating Station was assigned to COMAD, but personnel of that station were employed as RTOs. In March 1945, the Communications Zone directed the establishment of a regulating station. The COMAD requested Headquarters Communications Zone to withdraw its directive because it was believed that the performance of regulating stations in other areas had proved that they were of little or no value as traffic control agencies. When Communications Zone disapproved that request,

the Commanding General, CONAD established a regulating station utilizing the section chiefs of his own headquarters. The transportation officer was appointed regulating officer and each chief of the supply services was designated chief of his service in the regulating station. Representatives of the regulating officer and of the Assistant Chief of Staff, G-4 were sent to Headquarters, Seventh Army and First French Army. The mission of this detachment was to receive all demands of the armies for supplies, register them in a log and immediately forward them to the regulating station itself by the fastest means available. The G-4 representative was present in each army headquarters for the purpose of obtaining any changes in priority for movement of supplies due to change of circumstances or the urgency existing at the time requisitions were submitted. Upon receipt of the requisition in the regulating station (Headquarters, CONAD), the supply service representatives immediately arranged for the preparation of shipment and the regulating officer arranged for the means of shipment. At the same time he notified the advance detachment concerned of the status of the requisitions and of the supplies as they moved forward. The advance detachment kept the interested sections of the army headquarters advised as to the status of their demands. The current status was entered in the detachment log and a duplicate log was maintained in the regulating station so that information on any particular requisition was kept current as supplies moved forward. Within the movement program as published monthly by the Assistant Chief of Staff, G-4, Communications Zone, the transportation officer (regulating officer) determined by ten-day periods the capacity and capabilities of all forms of transportation under his control for moving supplies and personnel to the army concerned. The various customers, including the services of the advance section, submitted bids for movement of supplies and personnel. When the bids exceeded the lift capacity of transportation, the various customers were contacted to obtain their desired priority for movement and to arrange reduction in their bids. Since CONAD was supporting the 6th Army Group, any arbitration necessary was made by the Assistant Chief of Staff, G-4, 6th Army Group. After the bids were accepted and brought within the capabilities of transportation, a program of movement was issued so that Military Railway Service and Motor Transportation Service would know the daily tonnage of supplies or number of personnel to be moved. This program was published and distributed to all concerned including the Chief of Transportation, Communications Zone. The advance detachment of the regulating station received requests for change in the ten-day program which might be demanded by a change in the tactical or logistical situation. In turn, the regulating officer was notified of all such changes and took immediate action to effect them within the means available. The armies established and operated their own railheads and the regulating station maintained no personnel at those points.

123. Restatement of Responsibility. On 19 March 1945, Headquarters ETOUSA issued revised SOPs 27 in which the supply responsibilities of the various agencies were set forth. It was stated that the regulating officer would act as liaison between army and advance section and would carry out Communications Zone supply principles and policies as delegated by the section commander. He would receive from the armies and forward to designated depots all requisitions and requests for supplies. He would provide current and accurate supply information to armies and other troops and organizations concerning the status of their requisitions. He was charged with the responsibility for the control of movement of personnel and supplies to and from the combat zone in accordance with established procedure as well as such movements within the Communications Zone as might be specified by the section commander. He would assist the section commander in preparing recommendations to the army commander for location of railheads and truckheads. He would

organize the regulating station so that it might readily be displaced forward as the situation developed.

CONCLUSIONS AND RECOMMENDATIONS OF RESPONSIBLE OFFICERS.

124. Regulating Officer with First Army. The regulating officer with First Army believes that the Advance Section, Communications Zone was a regulating station itself and, because of the peculiar combination of the Theater and Communications Zone Headquarters, it possessed the authority of a theater regulating agency. In turn the regulating officers, as agents of the Advance Section had, through that headquarters, the full power of a theater agency. His final remarks however do not support this assumption, when he states that the operating agencies within the theater were not completely aware of this "theater quality" of the Advance Section and its regulating stations. He feels that an overall regulating agency in the forward part of the Communications Zone was necessary and the Advance Section was that agency. Unreliability of signal communications preclude direct control over the regulating stations from a theater headquarters far removed from the forward area where quick decision and immediate reaction is required. He further recommends that the regulating officer be an ex-officio member of the G-4 Section of the army commander.[30]

125. Regulating Officer with Third Army. The regulating officer supporting the Third Army stated at the end of the campaign, that overcoming difficulties as they became apparent by exercising considerable ingenuity and utilizing its personnel and equipment to the fullest extent, the regulating station showed its ability to operate as a controlling agency. The value of such an organization in the supply chain to insure the arrival of needed supplies when and where required was repeatedly demonstrated throughout the operation. In late 1944, however, he felt that it was impossible for the regulating station to perform the function prescribed in Field Service Regulations, FM 100-10. At that time he recommended a reorganization of the regulating station, contemplating the use of 12 officers and 25 to 30 men to augment the staff of regulating officers and remain with the army headquarters. He believed that a more efficient procedure could be evolved, using this personnel to receive the requirements of the Army G-4, physically deliver these requirements to the issuing agencies, and follow through on shipments.[31]

126. Regulating Officer with Ninth Army. The regulating officer with Ninth Army contends that the traffic control possibilities are not, in practice, as broad as those anticipated by the field manuals. He maintains that a regulating station performs two principal functions, i.e., it is a supply and requisitioning agency and a traffic control and information agency. He recommends appropriate changes in the field manuals to reflect this dual function. He also states that it is impossible for the regulating officer to exercise any control between Communications Zone ports and depots on the one hand and the consignment points on the other. In this case he is referring to consignment points close to army rear boundaries as used in the European campaign. He further recommends that a railhead team be added to the regulating station for the purpose of handling transportation requirements of the railheads and for the recording of arrivals, departures, loadings and unloadings of cars, and to make a daily yard situation report to the regulating station. He contends that the regulating officer should be solely responsible for control and priorities of movement within the army area and that no order for holding, diversion, reconsignment, embargo or stoppage of loading or movement should be issued by any agency without first submitting the proposition to the regulating officer for his concurrence.[32]

127. Regulating Officer with Fifteenth Army. The regulating officer with Fifteenth United States Army recommends no changes in Field Service Regulations, FM 100-10, stating that the fundamentals in so far as regulating stations are concerned are sound and workable. He stresses the importance of maintaining a regulating officer as an agent of the theater commander. His conclusions are that the difficulties in the operation of regulating station during the campaign stemmed from the lack of authority of the regulating officers as a result of the command structures in the European Theater.[33]

128. Regulating Officer of the Continental Advance Section. The regulating officer, COMAD, recommends that the regulating station as such be eliminated in future operations and that its functions be performed by the advance echelon of the Transportation Corps and the supply services of the advance section or Logistical Corps or Divisions operating in support of ground and air forces. He points out that the Transportation Corps performs the function of traffic control through its various echelons whether the movement be rail, motor, or water. Any supply function which the regulating officer might have is actually performed by the advance section of the communications zone supporting a particular part of the ground forces or air forces. Based on his experiences with both of the advance sections, he believes that the regulating stations did not function as Field Service Regulations intended. He believes that the organization and procedures used in the COMAD are the ones most productive of quick reaction to the customer's demands and of the most efficient utilization of all means of transportation available to support an operation. It avoided one of the greatest difficulties which arose by having a regulating officer call forward supplies without the complete knowledge of the capabilities of the various means of transportation or fluctuation which constantly occurred within those means. He states that such action caused congestion at various points of the transportation systems and consequently reduced the efficiency of movement.[28]

129. Assistant Chief of Staff, G-4 Advance Section. The Assistant Chief of Staff, G-4, Advance Section states that the regulating stations were not well designed to perform the work they were called upon to do. He believes that in future operations facilities will not be available for any regulating station to marshal trains or supplies and forward selected materials to any point. He believes that an organization different from that which is now present in the regulating stations is required for performing the functions that should be imposed upon a regulating officer. Such an organization may be determined after a statement of its responsibilities. He believes that the regulation of the movement of supplies from the communications Zone to the armies can be performed better by a regulating officer who is the direct representative of the theater commander than by any other system that may be devised. He states that the point at which supplies pass from the Communications Zone to the armies is the point at which practically all difficulties between the armies and Communications Zone originate. By having this point controlled by the theater commander, all conflicts which arise between the two parallel agencies may be quickly decided by the higher headquarters, thus eliminating misunderstanding and possible confusion. It would also place in the theater commander's hands direct control of the support of the Communications Zone to the armies. He recommends that a regulating officer be provided in similar operations and that his operations and responsibilities consist of the following:

a. Working in accordance with policies of the theater, army group and communications zone commanders, he will receive requisitions for supplies from the armies; he will forward army requests for supplies

to the appropriate communications zone headquarters or depot; he will furnish the armies with all available information of anticipated receipts of supplies; he will receive from the armies information of what supplies are received at army railheads; he will receive detailed information from the armies of their desires concerning the forwarding of supplies; with this information he will be able to control forward movements of supplies desired by the army or army group as the communications zone is capable of delivering them.

b. He will provide for evacuation from the armies.

c. Movements on lines of communication into and out of the army area will be made only upon his authority.

d. He will be positioned where he can best perform his mission.[34]

130. Assistant Chief of Staff, G-4, 12th Army Group. The Assistant Chief of Staff, G-4, 12th Army Group states that with an organization such as the present Communications Zone, which has a very definite mission and all the means at its disposal to accomplish that mission, the regulating station as contemplated in Field Service Regulations may not be needed. However, some organization is needed near the forward end of the axis of communications to each army which will be constantly familiar with the army's problems and plans, and which can act for the advance section in keeping an orderly flow to the army in accordance with overall priorities set by higher headquarters. There was apparent in the organization here a need also for an overall regulating agency with full power to act in directing the total flow of traffic to the several armies, especially when total requirements could not be met, and when emergencies arose requiring the shifting of the flow between armies. He states that this should not be an actual traffic operating agency,(which should exist anyway in the communications zone) but be an agency of the theater or army group headquarters to direct the operating agencies. The need for such an organization was evidenced many times and, if it had been operating efficiently, would have resulted in economy of traffic and equipment, and in greater availability of supplies at the needed points in times of overall shortages. It is further his opinion that with a real theater headquarters containing an active G-4 Section in existence and on the job, keeping informed and ready to act, some of the difficulties in the Communications Zone as claimed by the Assistant Chief of Staff, G-4, Advance Section, (see par. 129 above) would have been eliminated. Apparently there was no one in the field to make decisions promptly and to keep the operating machinery in motion. He further points out that even a theater regulating agency would have to coordinate movements into army areas with the army concernod.[1]

131. Chief of Staff, Communications Zone. Chief of Staff, Communications Zone, points out that Section VI, Chapter 2, FM 100-10 is predicated on the basic assumption which runs throughout the chapter that rail provides the principal means of transporting supplies to and from the combat zone. (See also statement in Section VII, par 86, FM 100-10.) He states that this assumption did not generally hold true in the European Theater of Operations and that it is not likely to be valid in future operations. It is his opinion that the principal means of transport will probably be by road, with air transport also playing a major part. Consequently, there is a need for an agency which will coordinate road, rail and air transport between the communications and combat zones. He states that the regulating stations as now constituted are not capable of performing such coordination. For that reason, the regulating station as laid down in Field Service Regulations is obsolete

and another agency with broader functions must be devised. He feels that consideration should be given to the possibility of combining the functions of the regulating station with those of the advance section of the communications zone, providing control of traffic of all kinds with certain responsibilities for direct support with supplies and installations.35

132. Chief Quartermaster, Communications Zone. Chief Quartermaster, Communications Zone states that the connecting link between the communications zone and the army or army group should be an improved regulating station and that its mission should be carefully redefined and broadened. It is his opinion that it should be the contact agency with the army and the army group, and that it needs few troops. It requires a small staff having a knowledge of all phases of military transport. It must know the status of requisitions and the status of supplies shipped, their location enroute and time of delivery to the armies. He considers that such a regulating station should serve directly under and receive its command orders from the commanding general, communications zone. Its technical information would come from the chiefs of services of that headquarters.36

SECTION 4

CONCLUSIONS AND RECOMMENDATIONS

133. Conclusions. It is concluded that:

a. The regulating stations could not and did not operate during the European campaign as contemplated in field service regulations. They lacked authority for effectively controlling movement of supplies when a conflict existed between an army or armies and the communications zone. Field service regulations concept of regulating stations is unworkable in a fast moving situation.

b. Regulating stations were not set up at a particular point on the lines of communication.

c. Since the armies were always ready and able to receive whatever the communication zone was able to deliver throughout the greater part of the campaign, the regulating stations were concerned more with expediting than with regulating.

d. Advance sections were, in fact, regulating agencies.

e. The actual mechanical operations of regulating the flow of supplies to the armies in accordance with their desires should be vested in the communications zone.

f. A theater agency is required in the forward area to anticipate and take timely action to maintain a smooth and properly balanced flow of supplies to the armies.

134. Recommendations. It is recommended that:

a. Regulating Stations as contemplated in Field Service Regulations, FM 100-10 be abolished and that the concept of such agencies be brought in consonance with further recommendations below.

b. Such terms as "traffic control" and "traffic regulation" be well defined in future revisions of field service regulations and that, based on the definitions adopted, the activities of all agencies

involved in traffic control and regulation be precisely delineated.

c. In future similar operations an appropriate theater or other overall headquarters agency, clothed with the necessary authority and supplied with adequate information on which to base its decisions, be established in forward areas for the purpose of supervising movements into and out of army areas and establishing priorities when required; that this agency refrain from supply and movement operations; and that its instructions be executed by operating agencies of the communications zone and the armies as appropriate.

d. The mechanics involved in regulating the flow of supplies to the combat zone be made a responsibility of the communications zone; that an appropriate organization and procedure be established within the communications zone to execute this mission; and that the planning for future campaigns be directed toward the elimination of the many deficiencies in supply operations discussed in Section 3 above which in this campaign resulted in the unorthodox and varied use of the regulating station.

CHAPTER 1

BIBLIOGRAPHY

1. Statement of Brig. General R. G. Moses, AC of S, G-4, FUSAG (later designated 12th Army Group)

2. ETO SOP No. 7, "Supply Procedures on the Continent (Revised)," 7 June 1944.

3. SOP No. 33, ETO, "Regulating Stations in the Communications Zone", 24 June 1944.

4. Communications Zone Plan, Forward Echelon, Headquarters, Communications Zone, file AG 381, 14 May 1944.

5. Headquarters, Advance Section, Communications Zone, "Neptune Operation Plan", 30 April 1944.

6. Statement of Colonel Marshall Stubbs, AC of S, G-4, Advance Section, Communications Zone.

7. Headquarters, Advance Section, Communications Zone, "Letter Orders", 1 August 1944.

8. Advance Section, Communications Zone, "Operational History, 1943 to 1945", Section III, Paragraph 9.

9. Report of Operations, "Regulating Officers", by Col. Marshall Stubbs, AC of S, G-4, Advance Section, Communications Zone, undated, Paragraph 1.

10. Operations of the 24th Regulating Station by Col. G. S. Speidel, Regulating Officer, undated, Paragraph 2.

    History of 24th Regulating Station, Page 25, report of 31 July 1944.

    History of ADSEC Regulating Station, (Provisional) Part I, Pages 6 and 7.

    History of 42d Regulating Station, Part II, Pages 1, 2, and 3.

    Historical Report of 25th Regulating Station, Page 10.

11. Operations of Regulating Stations, by Col. A. G. Viney, Assistand Chief of Staff, ADSEC, undated, Paragraph 3.

    Historical Report of the 25th Regulating Station, Pages 5 and 6.

12. Historical Report of the 25th Regulating Station, Page 7.

13. Operations of the 24th Regulating Station, by Col. G. S. Speidel, Regulating Officer, undated, Page 3.

14. Operations of the 24th Regulating Station, by Col. G. S. Speidel, Regulating Officer, undated, Page 3.

    History of the 24th Regulating Station, Report of 12 August and 23 August 1944.

    Historical Report of the 25th Regulating Station, Pages 7 and 8.

15. History of the 24th Regulating Station, Page 48, Summary of Operations to 21 August 1944.

Historical Report, 25th Regulating Station, Page 8.

16. Historical Report, 25th Regulating Station, Pages 9, 10 and Annex L, Report from Quartermaster, 4 September 1944.

Advance Section, Communications Zone Operational History 1943 to 1945, Page 75.

Operations of the 24th Regulating Station, by Col. G. S. Speidel, Regulating Officer, undated, Paragraph 4.

17. History of the ADSEC Regulating Station (Provisional), Part 1, Pages 1 and 5.

History of the 24th Regulating Station, Report of Transportation Section for week ending 11 November 1944, and for week ending 1 January 1945.

Historical Report of the 25th Regulating Station, Pages 10, 11, and 12.

18. ADSEC Regulating Station (Provisional), Pages 6 and 7.

Historical Report, 25th Regulating Station, Pages 12 and 13.

19. Operations of the 42d Regulating Station, by Col. Lawrence E. Sexton, Paragraph 1e.

History of the 24th Regulating Station, Page 116.

History of the 25th Regulating Station, Page 13.

20. Historical Report of the 25th Regulating Station, Page 13.

Operations of the 24th Regulating Station, Col. G. S. Speidel, Regulating Officer, undated, Paragraph 13.

21. Historical Report of the 25th Regulating Station, Page 15.

History of the 42d Regulating Station, Page 3.

Advance Section, Communications Zone Operational History 1943 to 1945, Page 152 and Appendix "C".

Operations of the 24th Regulating Station, by Col. G. S. Speidel, Regulating Officer, Paragraph 15.

22. Operations of Regulating Stations, by Col. A. G. Viney, C/S, Advance Section, Paragraph 6.

23. History of the 24th Regulating Station, Page 116.

Operations of the 42d Regulating Station, Col. Sexton, Regulating Officer, Paragraphs 1a, 1c, 1d.

Notes on Regulating Stations by Brig. General R. G. Moses, AC of S, G-4, 12th Army Group.

24. Historical Report, 25th Regulating Station, Appendix "Q", Journal Entry for 11 September 1944.

Operations of the 24th Regulating Station, by Col. G. S. Speidel, Regulating Officer, undated, Pages 15 and 17.

25. Reports of Operation, Regulating Officers, Col. Marshall Stubbs, AC of S, G-4, Advance Section, Page 5.

26. Operations of the 24th Regulating Station, by Col. G. S. Speidel, Regulating Officer, undated, Paragraph 18.

27. Report of Operations of 26th Regulating Station, 26 July 1945, by Col. William M. Goldston, Regulating Officer.

28. Interview with Col. L. A. Ayers, Regulating Officer and Transportation Officer, Continental Advance Section.

29. ETOUSA SOP No. 7, 19 March 1945.

30. Historical Report, 25th Regulating Station, Section III, "Recommendations of Col. Charles H. Blumenfeld".

31. Operations of the 24th Regulating Station, by Col. G. S. Speidel, Regulating Officer, undated, Paragraphs 5 and 19.

32. Operations of the 42d Regulating Station, by Col. Lawrence E. Sexton, Regulating Officer.

33. Report on Operations of 26th Regulating Station, 26 July 1945, by Col. William M. Goldston, Regulating Officer, Paragraph 4.

34. Interview with Col. Marshall Stubbs, AC of S, G-4, ADSEC, 5 November 1945.

35. Letter, Headquarters, Theater Service Forces (Maj. General Royal B. Lord), 6 November 1945, Subject: "Revision of FM 100-10".

36. Memo, Headquarters Theater Service Forces, Office of Chief Quartermaster (Maj. General Robert M. Littlejohn), 17 November 1945, Paragraph 17-18.

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APO 408

MECHANICS OF SUPPLY IN FAST MOVING SITUATIONS

PART FOUR

SUPPLY PROCEDURES

CHAPTER 1

REQUISITIONING AND BACK ORDERING PROCEDURES

SECTION 1

PLANS

135. General. It is stated in FM 100-10 that requisitions normally are filled by supply agencies closest in the chain of supply to the troops needing the supplies. If such an agency cannot fill a requisition completely, it furnishes what is on hand, extracts the unfilled items to the next higher supply office, and notifies the headquarters from which the requisition was received, when shipment may be expected.[1] Based on these principles, Headquarters, European Theater of Operations, United States Army (ETOUSA) prior to D-Day published a Standing Operating Procedure (SOP) covering the subject of "Supply Procedure on the Continent". This SOP outlined in detail the various requisitioning procedures which were to be followed by the armies and the supply agencies supporting the armies. There is no known indication that a back-ordering procedure for continental operations had been formulated prior to D-Day.[2]

136. Processing Requisitions. In the initial stages of the invasion following the establishment of the army rear boundary, Headquarters, Advance Section was to receive requests and requisitions and arrange for the supply of the army, the air forces, and the troops in the communications zone. As the situation developed, the Commanding General, Advance Section was to establish regulating stations to receive requests and requisitions and to arrange the flow of supplies. In general, issues were to be made from designated depots in the Advance Section. The designated Advance Section depot was to furnish the supplies on hand and extract any unfilled items to the Base Section depot designated by prearrangement to support the Advance Section depot. At the same time the designated issue depot was to forward a copy of the list of the extracted items to the appropriate higher headquarters; in the early phases Headquarters, Advance Section, and in the later phases Headquarters, Communications Zone. The Headquarters receiving the list of extracted items was to take the necessary action to insure the filling of the requisition or supply request.[2]

137. Replenishment of Stocks in Advance Section Depots. During the early period of operations, balanced stocks in depots in the Advance Section were to be maintained by prearranged shipments from the United Kingdom and the United States and by special requisitions on the United Kingdom. Subsequently balanced stocks in Advance Section depots were to be maintained by prearranged shipments from depots in the Base Section or by requisition by the Advance Section in accordance with established instructions of the Headquarters, Communications Zone. In the

absence of specific prearrangements for replenishment of Advance Section depots, the Advance Section was to submit replenishment stock requisitions to Headquarters, Communications Zone who would designate depots in the Base Section to supply the Advance Section depots.[2]

PLANNED REQUISITIONING PROCEDURES - ARMIES TO COMMUNICATIONS ZONE

138. Procedure for Class I. Class I supplies were to be issued automatically in bulk to the armies based on consolidated strength reports; strength reports to be submitted by telegram or messenger daily to the regulating station designated by the Commanding General, Advance Section, Communications Zone.[2]

139. Procedure for Class II. The normal procedure for issue of class II supplies and equipment within authorized allowances and for the maintenance of established levels of supply was to be by requisition to the regulating station as frequently as required. All requests and requisitions for class II supplies were to be broken down by service. In case of emergencies armies were to be able to telegraph or teletype requests for class II supplies and equipment. In the case of class II items in excess of authorized allowances requests and requisitions were to bear a statement of justification so that the Advance Section would be able to process the requisition for appropriate action without editing.[2]

140. Controlled Items. A list of items in critical supply, issue of which was to be controlled by the Chiefs of Supply Services, Communications Zone, would be published by the services concerned. In the early phases the Advance Section was to edit requisitions for the purpose of extracting controlled items. As the situation permitted, separate requisitions were to be prepared by the army for controlled items. Requisitions for controlled items were to be forwarded by the regulating station to the Headquarters, Advance Section for approval when within established authorized allowances and for designation of depot to make the delivery where prearranged procedure for delivery had not been made. When requisitions exceeded authorized allowances, the Advance Section was to process the requisition for action by appropriate higher headquarters.[2]

141. Procedure for Class III. Class III supplies were to be requested by consolidated daily telegrams to the regulating station, stating amounts desired at each army supply point. These consolidated telegraphic requests of the army were to include class III supplies required by the army to fill the needs of the air forces in the army areas.[2]

142. Procedure for Class IV. The normal procedure for requisitioning class IV items was from the armies to the regulating station servicing them. These requisitions were to be forwarded by the regulating station to the Headquarters, Advance Section (Headquarters, Communications Zone when established) for approval and designation of depot to make delivery when prearranged procedure for issue had not been made. The regulating station calling forward items in question would be notified of the depot to make shipment. Emergency requests for class IV were to be made by telegraph or teletype. The same procedure for the issuing of class IV supplies to the air forces was to be followed except that the requisitions were to be submitted by the Commanding General, Air Forces. Requests and requisitions for class IV supplies by both Ground Forces and Air Forces were to be broken down by service.[2]

143. Procedure for Class V. The basis for issue of class V supplies, including ammunition for Air Force ground weapons for which the

armies were responsible, was to be the maintainance in the army area of the initial allocation or other approved level of supply. Telegraphic or teletype requests by the army for class V items, including those to be supplied to the Air Forces by the armies, were to go through the same channels as those for class IV supplies mentioned above.[2]

SECTION 2

APPLICATION OF PROCEDURES

144. General. Requisitioning procedures during the early stages of the campaign up to the time of the St. Lo breakthrough and prior to the establishment of the army rear boundary, were carried out substantially as planned. Soon after operations began and continuing on through various phases of the campaign, supply lines became extended due to the quick advancement of the armies.[3] Several deviations from previously planned procedures for requisitioning became necessary in order to conform with the various tactical and logistical situations that developed. This fact and the establishment of the Red Ball Express (See Paragraph 146 below), an expedient adopted to meet the situation, required modifications in the standing operating procedure pertaining to methods of requisitioning and the processing of requisitions on the continent.[4] Back ordering procedures were not placed into effect on the continent until the latter part of September, 1944. Prior to this time items requisitioned by the armies and, if not received within a reasonable number of days, were considered by the armies to have been cancelled and were re-requisitioned.[5]

145. Requisitioning Procedures Following the St. Lo Breakthrough. Immediately following the St. Lo breakthrough the supply lines became so extended that it was impossible to move forward all of the supplies that were being requisitioned. The establishment of advance section supply points for other than class I and III supplies was impracticable. During this period, a system of tonnage allocations to the various commands was established by the 12th Army Group which continued on through the Red Ball operation (See Chapter 2 below). Initially during this period regulating stations continued to receive requisitions from the armies and forward them to Headquarters Advance Section as planned. The flow of class I and III items to the armies was accomplished by the Advance Section from their depots to the extent that availability permitted. Supplies other than class I and class III in most cases had to be called forward from rear areas. This was accomplished by extracting unfilled items to Headquarters, Communications Zone where, if stock control records indicated that the items were available in rear depots, the necessary shipping directives were issued on appropriate rear depots for filling the requisitions.[6]

REQUISITIONING AND BACK ORDERING PROCEDURES AFTER CROSSING THE SEINE.

146. Departure from Planned Procedures. From D-Day until the armies had crossed the Seine River supplies had been requisitioned and received generally in accordance with ETOUSA SOPs. By the end of August 1944 however, the lines of communications had been so extended that little more than daily maintenance requirements could be handled leaving the bulk of supplies back on the beaches. Some method of improving this situation became necessary and the designation of a system of through-highways, available only for military traffic, as a line of communications for the movement of supplies from the beaches and rear depots to within reach of army supply points, was tried as a solution to the problem. This was known as the "Red Ball Highway System".[6] Its

operation necessitated some modification in requisitioning procedure and adjustments as required. Under the changed procedure requisitions continued to be received by the regulating stations but in general bypassed the Advance Section maintenance area when required items were unavailable. Accordingly, the requisitions were processed directly to Headquarters Communications Zone which in turn, made the supplies available from base section depots. In these instances supplies were forwarded direct from the rear to the Advance Section regulating stations and thence to the armies.[6]

147. Necessity for Further Revision. It soon became evident that the Red Ball system itself was not the complete answer to the supply difficulties encountered during this period. A more closely coordinated procedure for processing requisitions was required. Army requisitions were being prepared by the several services of the army and consolidated in the office of the Assistant Chief of Staff, G-4, Army, for processing to the Communications Zone. The army G-4 did not always closely check the weight of the requisitioned items against the tonnage allocated. This resulted in many of the items requisitioned not being shipped because the total weight of the consolidated requisitions exceeded the tonnage allocation for that day. Late in September 1944 the procedure was modified. Under this change the army G-4 assembled the requisitions of the several services for the day and forwarded them to the regulating station with a cover letter showing a breakdown of the tonnage by service which coincided with the tonnage allocation for that day. Acceptible substitutions were indicated so that if requisitioned items were not available, the tonnage allocation could be utilized by Communications Zone to the best advantage and in accordance with army desires. The requisitions were then forwarded from the regulating station to Headquarters, Advance Section by officer courier. At Advance Section headquarters the Assistant Chief of Staff, G-4 in consultation with the services of that headquarters, examined the requisitions with a view to filling such items as were available. In most cases little action could be taken by Advance Section due to non-availability in that area of supplies other than class I and III. Items filled by Advance Section were redlined and since shipments made from the Advance Section area were not charged against the army tonnage allocation, substitutions as indicated by the army were recommended and the adjusted requisitions were then forwarded to Headquarters, Communications Zone for further supply action. At Headquarters, Communications Zone the Assistant Chief of Staff, G-4 referred the requisitions to the several services involved who in turn issued the necessary shipping directives to rear depots from which shipments were to be made direct to the regulating station and thence to the armies to the extent items were available and within the available lift capacity for that day. Items which were not available at the depots or which for other reasons could not be shipped, were placed on back order to be shipped as they became available. This system of back ordering was placed in effect at this time in order to reduce duplication in requisitioning of requirements by the armies.[7]

148. Processing and Reporting Back Ordered Items. Under the established procedure items on shipping directives issued by the Communications Zone and later found to be not available in the rear depots were to be back ordered at the depots for later shipment and reported to Headquarters, Communications Zone. For various reasons including ineffective signal communications, this was not always accomplished. Back orders accumulated in several different installations which complicated ultimate shipment. Items would become available in certain depots while the back orders would be on file elsewhere and some time would elapse before knowledge of availability and ultimate shipment of back orders could be effected. The ineffective operation of the central stock control system combined with a lack of knowledge of items

backlogged by the depots, prevented prompt shipment of back ordered items as they became available in other Communications Zone depots.[8]

149. Cancellation of Outstanding Requisitions. The continued piling up of back orders in the various supply installations created a backlog of such proportions that early shipments on back orders were impracticable even though the supplies became available. For this reason, during the latter part of 1944, armies were requested by the Communications Zone to cancel all outstanding requisitions, or notify the Communications Zone to do so, and to submit a consolidated requisition for that portion of the unfilled requisitions which were cancelled and which were still needed. This had the effect of clearing the backlog and giving the armies more of the supplies which they required when and where they were needed.[9] This action was repeated early in 1945.

150. Comments of the Armies on the Procedure. Accurate and timely reporting to armies of action taken on back ordered items is essential in order that the armies may utilize this information in the preparation of future requisitions. The following reports made by the various armies in September and October of 1944 pertaining to the subject of reporting backlog shipments fully indicates that the system as operated was far from satisfactory.[10]

a. First Army Report. First Army stated that in many instances, reports on back orders were incomplete and the availability estimates given were often inaccurate and served only to indicate that the items were available on the continent, in the United Kingdom, or in the United States. First Army further stated that there was no noticeable improvement in actual receipts of back ordered supplies.[10]

b. Third Army Report. Third Army reported that in some instances they received items which they did not order and which they neither wanted nor were able to use. It happened frequently that an item did not become available until long after it had been requisitioned.[10]

c. Ninth Army Report. Ninth Army reported that the handling of backlog shipments was not entirely satisfactory. Due to improper documentation, it continued to be extremely difficult to apply the items received against the appropriate back order. Notification of items placed on back order arrived many times approximately two weeks after supplies on the same requisition were shipped. This resulted in the daily trains being unloaded and often the supplies actually being issued before the army knew the requisitions had been filled and which items, if any, had been placed on back order. The time lag between filing a requisition and either the shipment or notification of back order action being received by the army was too great to permit the army to conduct efficient supply planning.[10]

151. Form of Requisitions--Army to Communications Zone. The form of requisitions used by armies in calling supplies forward from the Communications Zone as prescribed by ETO SOP Number 7, 7 June 1944, differed according to the class of supply. For class I supplies the principle of bulk issue based on a consolidated daily strength return to the supply agency was to be followed. For class III supplies a daily telegram to the supply agency supported by a certificate of expenditure was to be used. For class II and IV supplies the monthly materiel status report was to serve as a requisition for those items listed therein. It would show authorized allowances, inventory and deficiencies in army depot stocks. The Communications Zone would make shipments to fill these deficiencies to the extent

of supply availability. For other items of class II and IV formal requisitions were to be submitted as often as required, separate requisitions being prepared for controlled items. For class V supply, telegraphic or teletype requisitions were to be submitted by armies according to their needs to maintain depot stocks at authorized levels. These procedures were followed in general during the early days of operations. This was particularly true during the time First Army had control of all supplies on the continent. After the establishment of regulating stations it was found more practicable for the Army Assistant Chief of Staff G-4 to assemble written requisitions or memoranda of requirements from the several services and forward them by courier to the regulating stations as described in paragraph 147 above.[11]

152. Controlled Items. It had been anticipated in the planning period that some items of supply would be critical in the theater and, to insure equitable distribution of such items to the major commands, it was considered necessary that higher headquarters control their issue. These items were designated as controlled items and were called forward by armies on separate requisitions. These separate requisitions were processed to the Advance Section through regulating stations along with requisitions for other classes of supply. The Advance Section screened all requisitions for controlled items which may have inadvertently been included therein. When such items were found they were extracted by the Advance Section and all requisitions for controlled items forwarded to Headquarters, Communications Zone for approval of issue. The control and distribution of such items were in the hands of Chiefs of Supply Services, Communications Zone, and issue was made only upon their approval.[11] This procedure is further discussed in Chapter 2 below.

153. Credit Basis for Class V Supplies. During the early months of operations armies requisitioned class V supplies as needed to maintain army stocks at authorized levels and to replenish authorized expenditures. Early in October 1944 however, the ammunition situation became so acute it was found necessary to institute a credit system and thereafter armies requisitioned against credits issued by the Communications Zone at the request of the army groups. This credit system is described in detail in Chapter 2 below. The form of requisitions and channels of processing continued as before.[12]

154. Armies Padding Their Requisitions. The difficulties of the Communications Zone were somewhat increased because the armies requisitioned more than would ordinarily be desirable for army reserves. The armies did this because of the uncertainty of the supply support. While long reaction time on requisitions and uneven flow of shipments continued, any restriction by higher headquarters on the armies' requisitions was considered unjustified except for controlled items and ammunition.[13]

155. Ten-Day Requisitioning System. The requisitioning and back ordering procedures described above remained substantially the same from the time Red Ball operations were discontinued on 15 October 1944 until early December 1944. Up to this time it had been the practice for armies to file requisitions for class II and IV supplies daily or as frequently as seemed desirable. Experience had shown, however, that such frequent requisitioning was detrimental to effective army supply planning. This was particularly true because of the long reaction time which elapsed between the filing of a requisition and the receipt by armies of information as to the supply action taken thereon. In order to correct this situation the Assistant Chief of Staff, G-4, Communications Zone, directed that requisitions for normal requirements of class II and IV supplies be submitted at

ten-day intervals. Under this procedure armies would forward their requisitions five days in advance of the periods for which the supplies were required. Thus, supplies required during the first ten days of a month would be requisitioned on the 25th of the preceding month; those required during the second ten-day period would be requisitioned on the 5th; and for the third ten-day period would be requisitioned on the 15th. Provision was made for filing emergency requisitions as required. It was anticipated that the ten-day period which would elapse between the filing of requisitions would provide sufficient time for the armies to be informed by the Communications Zone as to the action taken on their requisitions and permit them to consider this information in their supply planning for the following ten-day period. When the plan was initiated effective 7 December 1944, the tonnage allocation system, as described in Chapter 2 below, was in effect, and in order to assist the Communications Zone in setting up trains and in filling requisitions to the limit of lift capabilities in the order of priority as indicated on army requisitions, the 12th Army Group agreed to make their entire tonnage allocation available to the Communications Zone. However, inasmuch as all tonnage allocations were discontinued on 9 December 1944 this had little effect on the operation of the ten-day requisitioning period system. Under this ten-day period procedure requisitions for class II and IV supplies were routed direct from armies to Headquarters, Communications Zone where they were processed by the Assistant Chief of Staff, G-4. This was a departure from previous practice. Requisitions for other classes of supply continued to be processed through the Advance Section. The change tended somewhat to cause confusion in ADSEC Headquarters as they had no way of completing their records of army requirements for follow-up purposes.[14]

REVISIONS IN REQUISITIONING AND BACK-ORDERING PROCEDURES.

156. Introduction. Early in December 1944, representatives of the Army Service Forces in the United States visited the theater and noted conditions as described in paragraph 86 above. In order to improve the supply system it was directed that certain changes be made. These changes resulted in a series of revisions of ETO SOP No. 7. On 12 February 1945 a revised edition of ETO SOP No. 7 was published which provided for the flow of requisitions and extract requisitions and for supply action as shown in flow chart, Appendix No. 1, pages 97 and 98. The action taken at this time was necessary in order to maintain supply flow under the changed depot structure but for many reasons proved unsatisfactory. Recommendations for a suitable procedure were obtained by the Communications Zone from the armies and army groups and ETO SOP No. 7 was again revised 19 March 1945. This revision remained in effect until after VE-Day.[15] Its provisions are discussed below, and the flow of requisitions and supply action to be taken are shown graphically on flow chart, Appendix No. 2, page 99.

157. Requisitions Filed by Armies. The improved depot structure when finally implemented, made possible an improvement in the flow of requisitions. Where army requisitions formerly had been processed to the Advance Section by the regulating station with little or no action on the part of the latter, the regulating stations now processed requisitions direct to the designated Communications Zone issue or key depots. The issue or key depots filled the requisitions to the extent that their stocks permitted and extracted unfilled items to the appropriate Chief of Service, Headquarters, Communications Zone. The Chief of Service receiving these extract requisitions made arrangements for supply from filler or base depots as necessary.[15]

158. Class I Supplies. Armies prepared and submitted requisitions for class I supplies to their respective regulating stations where they were processed to issue, filler, or key depots designated by the chiefs of services. Each army forwarded a daily telegram which enumerated ration strength and other pertinent data required, including the quantities required for reserves, components needed to effect balances, types, delivery points, quantities required at each point plus date and delivery time and other necessary shipping instructions.[15]

159. Class II, IV and V Supplies. Requisitions for class II, IV and V supplies were submitted to the regulating station in accordance with the ten-day cycle procedure and time schedules prepared by the regulating station after consultation with the army and depot concerned. Time schedules were drawn up to facilitate the even flow of requisitions and shipments. Emergency requisitions could be presented whenever justified by unforeseen circumstances although this practice was to be kept to a minimum. Requisitions for non-critical items, including class V items which were not allocated, were submitted by service and class or group and routed by the regulating station concerned to the depots designated by the chiefs of services.[15]

160. Controlled Items. Revision of SOP No. 7, dated 12 February 1945, provided for certain changes in the processing of requisitions for controlled items from that previously in effect as outlined in paragraph 152 above. Under the new procedure requisitions for these items would be processed as outlined in Flow Chart B, Appendix No. 1-(1), page 97, which in effect by-passes the Advance Section entirely. The revision of SOP No. 7, dated 19 March 1945, did not cover the processing of requisitions for controlled items but left this subject for a later revision, which was issued early in April 1945 and is briefly discussed in paragraph 176 below. It is worthy of note that this latest revision was not fully implemented prior to the conclusion of the period covered by this study and therefore no comment on its effectiveness is included herein.

161. Class III Supplies. Armies submitted a daily telegram covering class III requirements to the regulating station. The latter forwarded these daily telegrams to appropriate depots for shipment to supply points designated by the armies.[15]

162. Processing Army Requisitions. Items on requisitions from the armies were supplied from the stocks of issue and key depots when available. Issue or key depots returned action copies of army requisitions to the regulating station from which they were forwarded within 36 hours after receipt at depots with proper notation relative to action taken with respect to each item. Items not available were back ordered by the issue depots provided that copies of replenishment requisitions returned by filler depots revealed that such items were available and would be shipped. However, if items requisitioned were neither on hand nor due in through regular replenishment routine, issue or key depots extracted unavailable items to chiefs of services, Headquarters, Communications Zone by forwarding copies of such requisitions with a notation as to the unfilled items. Upon receipt of an extract, the chief of service dispatched a shipping order to a filler or base depot which had the items available and informed the regulating station concerned. In the event of non-availability within the theater, the item was cancelled and the regulating station informed together with the estimated date of future availability.[15]

163. Communications Zone Depot Replenishment Procedure. The ten-day cycle likewise applied to the preparation and submission of replenishment requisitions by issue depots. These were submitted on the 10th, 20th and last day of each month. Issue depots were not permitted to submit emergency requisitions for the replenishment of their stocks although they could extract to the rear emergency requisitions received from armies whenever necessary. The filler depot taking supply action, supplied all items requested if available and placed unfilled items on back order. One action copy of the requisition was returned to the issue depot within 48 hours with proper notation as to the items shipped and those back ordered together with

the estimated date of availability of the unfilled items. Back ordered items were so indicated on the filler depot stock status reports which were submitted to appropriate chief of service at periodic intervals. After the chief of service concerned had surveyed the possibilities of supply of all filler depot items back ordered, including stocks due in the theater, he took action to replenish stocks of filler depots either by means of a shipping order on base depots or a shipping directive to the Chief of Transportation. In the latter case, the Chief of Transportation issued cargo disposal instructions to the port or ports to move the supplies to filler depots whose items had been back ordered. If investigation disclosed that the back ordered items were not available in base depots nor due in the theater, there was a possibility that the request could be satisfied from stocks in other filler depots. This was possible when stock status reports disclosed that stocks in some filler depots were in excess of the authorized depot stock level. If this was the case, the chief of supply service concerned issued a shipping order which required redistribution of depot excesses among filler depots having back orders. However, if the items back ordered were not available in base depots nor due in the theater, chiefs of services could redistribute stocks from one filler depot to another regardless of authorized levels if this was essential to satisfy requirements. These items could also be back ordered during the interval that stocks in the theater awaited replenishment.[15]

SECTION 3

GENERAL DISCUSSION

164. Requisitioning Procedures. Prior to issuance of SOP No. 7 in March 1945, the requisitioning procedures followed by the armies and the methods of processing requisitions by the various supply agencies servicing the armies, were not entirely free of complicated processes. The plans originally set forth prior to D-Day for requisitioning procedures on the continent, although adequate during certain phases of operations, were not always suitable for others. The fast moving situation which developed at the time of the St. Lo breakthrough and continued for several months, necessitated rapid modifications in previous requisitioning procedures in order to expedite the flow of badly needed supplies to the armies. In an effort to cope with the situation, the armies and the supply agencies with little prior planning adopted certain modifications in requisitioning procedure with the result that a certain amount of confusion developed between the two. The requisitions submitted by the armies in many instances were not adequately filled and those that were filled frequently did not arrive in time to be of any value. The causes for many difficulties in filling requisitions were the non-availability of adequate stocks in forward supply points under advance section control, the ineffectual stock control system in the communications zone, the long lines of communications, inadequate signal communications and poor documentation of shipments. After the revision of SOP No. 7 in March 1945 many of the difficulties in requisitioning procedures were eliminated.

165. Back-Ordering Procedures. The back-order system as operated in the European Theater of Operations up to the time of the revision of SOP No. 7 in March 1945, was ineffective. It did not as a matter of general practice effect early deliveries of back-ordered items to the armies immediately upon their being available in the theater. It permitted items to be delivered to armies long after their need ceased to

exist; it allowed the accumulation of a large backlog and in general during the greater part of the campaign, it failed to accomplish the purpose for which it was established. However, the revision of SOP No. 7 in March 1945 improved the system as a whole and as a result many of the difficulties originally encountered by the armies were eliminated.

SECTION 4

CONCLUSIONS AND RECOMMENDATIONS

166. Conclusions. It is concluded that:

a. Requisitioning procedures suitable for use under normal conditions may be totally inadequate in fast moving situations.

b. Reaction time (from filing of the requisition to receipt of the supplies) in the filling of army requisitions by a Communications Zone is of extreme importance in the maintenance of adequate supply flow particularly in fast moving situations. Means for quickly informing the armies of supply action being taken must be provided in order that such knowledge will be available for use in forward army supply planning. Adequate signal communications, correct and thorough documentation, and the shortest practicable lines of communications are essential to the successful and rapid processing of army requisitions by the several agencies.

c. The daily requisitioning of class II and IV supplies does not allow sufficient time for supply agencies to properly post, backorder and investigate availability, and for the field forces to be informed of supply action being taken and to reflect it in their supply planning. Requisitioning periods of ten to 15 days are satisfactory and are suitable for future operations similar to those which existed in the European Theater.

d. All army requisitions, including those for class II and IV supplies, should be processed through the agency or section of the Communications Zone in direct support of the army. This is necessary in order that the supporting supply agency may be in a position to take appropriate action to expedite supply flow and have full information at all times on army requirements.

e. An effective backorder procedure is dependent upon thorough prior planning and the establishment and publication of a definite procedure in advance of the time when it will be required. This procedure must provide for the compilation of complete information as to action being taken on backordered items and the prospects for their early shipment. It should also include means for furnishing this information to the armies accurately and rapidly. The backorder procedure should contain provisions for the periodical clearance from backorder lists of items which are no longer required.

167. Recommendations. It is recommended that the lessons learned in the requisitioning and back ordering of supplies during the fast moving situation experienced in the European Theater and the principles considered to be sound as set forth in the preceding paragraph, be reflected in War Department publications, in army teaching and in the planning and conduct of future operations.

CHAPTER 1

BIBLIOGRAPHY

1. FM 100-10, paragraph 73, page 34

2. Headquarters, ETOUSA, Standing Operating Procedure No. 7, Subject: "Supply Procedures on the Continent", dated 12 May 1944

3. ADSEC Operational History 1943-1945, Section II, Chapter III, page 34

4. ADSEC Operational History 1943-1945, Section III, Chapter 1, pages 76 and 77.

5. Exhibit III, Section II, Annual Report, Supply Division Office of The Chief Surgeon, ETOUSA, 1944, Subject: "Difficulties in Moving Supplies and Equipment".

6. ADSEC Operational History 1943-1945, Section III, Chapter 1, pages 76 and 77.

7. Headquarters, 12th Army Group Survey (G-4 Sup) 400.312, Subject: "Requisitioning and Movement of Supplies", dated 28 October 1944.

8. AG Cable, Reference No. 52723, Headquarters Communications Zone (Main) ETO, From G-4 Communications Zone to: Base Sections, dated 15 October 1944.

9. Communications Zone G-4 History, Section IV.

10. Memorandum to AC of S, G-4, 12th Army Group, from Chief, Supply Branch, 12th Army Group, Subject: "Backlog Shipments", dated 14 November 1944.

11. ETO SOP No.7, Subject: "Supply Procedures on the Continent", dated 7 June 1944.

12. Communications Zone G-4 History, Section IV, page 92.

13. Memorandum for Supreme Commander, SHAEF, through Commanding General, Communications Zone, Subject: "The Supply Situation in Northern France", dated 25 December 1944, from Maj. General L. R. Lutes, Director of Plans and Operations, ASF, Washington, D.C.

14. TWX, Headquarters Communications Zone, Ref. No. E 66964, dated 24 November 1944.

    TWX, Headquarters 12th Army Group, Ref. No. QX 24396, dated 26 November 1944.

15. Communications Zone G-4 History, Section IV, page 148

    ETO SOP No. 7, dated 19 March 1945.

CHAPTER 2

ALLOCATION AND CREDIT SYSTEMS

SECTION 1

INTRODUCTION

168. Field Service Regulations. The dictionary of United States Army terms, FM 20-205 defines the word allocation as assigning a credit for supplies, ammunition, money, etc., and setting it apart for the individual or organization that is to use it. The word credit is defined as a grant or allowance of a definite quantity of supplies or equipment, placed at the disposal of a commander of a unit for a given period of time. Experiences in the European campaign showed that there was a great deal of confusion in the minds of nearly everyone as to the distinction between allocation and credit. Many times these terms were used interchangeably. This is not unnatural since the definition as outlined above uses the two terms almost synonymously. For the purpose of this study these terms are defined as follows:

a. Allocation. Action taken to make available to any organization a specific amount of supplies or services for that organization's own use. As a result of such action, supplies or services so allocated may be immediately turned over or delivered to the organization or a formal credit may be established therefor.

b. Credit. Action taken to formally record the allocation of supplies or services, which will be turned over or delivered to the benefiting organization only upon receipt of subsequent instructions from that organization by the agencies controlling such supplies or services. The life of a credit may be for a specified period or for an indefinite period of time.

169. Requirement for an Allocation System. Due to various reasons such as poor communications, the depot structure, insufficiency of certain critical supplies and inadequate transportation lift, it was necessary for Supreme Headquarters, Allied Expeditionary Force, European Theater of Operations and its subordinate commands to resort frequently to varying methods of allocation to assure that the available support was provided at the time and place calculated to do the most good and in accordance with tactical priorities.

170. Requirement for a Credit System. In order to insure availability of supplies and services over an extended period and to facilitate requisitioning, it frequently became desirable during the European campaign to set up credits therefor. These credits were established as a result of allocations. The benefiting organization would then make future demands against the credits. Class II, IV and V supplies were so controlled in the European Theater at varying times whenever the situation warranted such action.

SECTION 2

PROCEDURES

171. Planned Allocation System. Initial plans did not contemplate or provide for an allocation system other than for controlled items of supply and in the original build-up tables for operation NEPTUNE.

Throughout the campaign, it was a basic principle that armies would have equal priorities of supply.[1] However, because of overall shortages in supply and transport facilities, it frequently was necessary to favor one or more armies by varying the logistical support afforded them to conform with their assigned missions. This was sometimes accomplished by the allocation of tonnage capacity on a basis that was not proportionate to their respective strengths.

172. Allocation of Transportation. Late in August 1944, the available tonnage lift for movement of supplies from the rear to the armies was so inadequate that it became necessary to allocate the available lift among the armies in proportion to their assigned missions.

a. In accomplishing this procedure, the Communications Zone would indicate that during a specific ten-day period an anticipated amount of tonnage lift, varying from 7,000 tons daily in September 1944 to 15,000 tons daily in early December 1944, would be available for supplying field forces. This tonnage lift in turn was sub-allocated by 12th Army Group to the armies for a similar period. The armies in filing their daily or periodic requisitions limited their demands to the available lift.[2] This procedure continued until 5 November 1944 when the overall allocation for the theater was taken over by SHAEF, who made allocations to the major commands, army groups, air force and the communications zone. Army groups then made sub-allocations to the armies.

b. Under the SHAEF procedure, armies filed bids for tonnage lift for a two-week period with the army group. The two United States Army Groups, 21 Army Group (British), Communications Zone, Air Forces, and Navy filed consolidated bids with SHAEF who considered all bids submitted and made allocations accordingly within the available transportation facilities.[3]

c. By mid-November, movement facilities had so improved that with the establishment of the credit system on class V supplies, described in paragraph 175 below, and improved stockage of other supplies in forward Communications Zone supply points, tonnage allocation procedure could be curtailed. This was accomplished progressively by classes of supply and on 9 December 1944, all tonnage allocations to the field forces were discontinued.[4,5]

173. Allocation of Critical and Controlled Items. As critical and controlled items of supply became available in the theater, chiefs of services in Communications Zone in consultation with service representatives of the army groups and the armies would make allocations in a manner considered the most satisfactory to meet army requirements on a basis of tactical missions and in accordance with existing policies. The actual procedure in making these allocations varied from consideration of materiel status reports by the chiefs of services and telephone contact with the army group and army service representatives to formal conferences held at stated periods. This procedure was followed generally throughout the campaign.[6,7,8] Early in the campaign it was found desirable to control critical items of ammunition supply by a method of allocation. This is fully covered in paragraph 182 below.

174. Planned Credit System. Provisions were made for utilizing the credit system of issue by European Theater of Operations, United States Army (ETOUSA), Standing Operating Procedure (SOP) No. 7, 12 May 1944, as revised 7 June 1944, and in subsequent revisions. This SOP provided that commanders of armies and air forces could establish necessary credits for specific items or classes of supply with the approval of Commanding General, Communications Zone. This provision was in accord with current War Department doctrine as set forth in FM 100-10, paragraphs 72-74, except that in the cited manual the establishment

of credits is regarded as a function of the theater commander rather than the communications zone commander.

175. Ammunition. Certain items of ammunition were critical practically all through the campaign. The allocation method of control as devised by First Army during the period 12 June to 1 August 1944 was continued from 1 August to 21 October 1944 by the 12th Army Group.[9] This method of control consisted of a committee established under the name of "Ammunition Allocation Committee". This committee was composed of representatives from G-3, Artillery, Ordnance and G-4 Sections of 12th Army Group. Membership was later augmented to include representatives from Communications Zone and SHAEF as required. The purpose of the committee was to establish ammunition expenditure rates on a basis which would provide ammunition to the field forces for operational purposes and at the same time build up, over a thirty-day period, a desired reserve in both army areas and in communications zone depots. The procedure followed by the committee was the allocation of ammunition available on the continent in a manner to accomplish the above stated purpose. Having made this allocation, expenditure rates in terms of units of fire were established and the armies were instructed not to expend more than a specific number of rounds of each item during the ensuing eight-day period. They were then authorized to draw amounts required to build their reserves to the established level.[10] Early in October 1944, it was recognized that the situation on these critical items of ammunition had reached such a serious stage that the above procedure was no longer feasible. This was due to the fact that total stocks of these critical items were so low that continued expenditures thereof by the armies at anything like a normal rate of fire would not only consume supplies of such items being unloaded and brought forward but would eat into the reserves of those items presently established and ultimately deplete them entirely. After consultation with the Communications Zone and other interested agencies, the decision was made on approximately 10 October 1944 that until 7 November 1944, armies would have to carry on their operations with the ammunition then on hand or enroute to them.[10] The number of ammunition berths in the ports would be increased and all ammunition would be sent directly from ports to forward ammunition depots of the Communications Zone (Oise Section and Advance Section depots); by that date, the combination of guaranteed unloadings and shipments coupled with sufficient stocks in the forward depots would assure the resupply of critical items to the army group within theater availability.[11] The 12th Army Group made allocations to the individual armies according to quantities available at the moment in the forward depots only. The armies were advised of the amounts of ammunition that would be available to them for the succeeding ten-day period and at the same time, the Communications Zone was requested to issue the necessary depot credits.[12] Headquarters, Communications Zone broke these down into credits at each depot for each army. A forecast of anticipated allocations for the following two ten-day periods was simultaneously announced to the armies. For each succeeding ten-day period, ammunition stocks available in forward depots as described above were apportioned. Armies were notified of the allocation and the future forecast and the Communications Zone was requested to issue credits.[13] This procedure was employed by the Central Group of Armies till the end of 1944 when the United States Staff at SHAEF undertook the allocation of critical items of ammunition to the two army groups and adopted a similar procedure based on "SHAEF Maintenance Supply Rates" for each weapon. These rates were determined by the United States Staff at SHAEF after ascertaining from the War Department the quantities and rates of delivery by types that could be expected to arrive in the Theater by 1 May 1945. Desired reserves in terms of days of supply per gun for the armies, army groups, Communications Zone and later SHAEF were established. The reserves were deducted from the total availability and the balance was divided into monthly rates of

maintenance days of supply per gun for the number of days in the period. These rates varied each month as the estimated availability became actual. The army groups were allowed ammunition on a basis of these rates times the number of guns in the group times the number of days covered by the allocation period.[14] This procedure was continued throughout the remainder of the campaign and operated most satisfactorily.

176. Class II and IV. Early in April 1945 a proposal to establish a system of allocation and issue of credits to major commands on critical items of class II and IV supply in all services was initiated by ETOUSA. Briefly this proposal contemplated that following an examination of materiel status reports of major commands, the theater chiefs of services would prepare recommended lists of critical items. Such lists when approved by the Assistant Chief of Staff, G-4, ETOUSA, would be used by the chiefs of services as the basis for allocating the available supply of critical items and the establishment of credits to the major commands. This whole procedure required that more than 30 days would elapse between the time the major command indicated an item as being critical and the effective date of a credit which would make a supply of that item available to the major command.[15] The procedure was unwieldly and cumbersome and required too long a time for implementation to be of any practical benefit in furnishing field forces with needed equipment in the conduct of operations in a fast moving situation. It was strenuously objected to by 12th Army Group as well as by other major commands. Before a more suitable procedure could be evolved and placed into operation the campaign in Europe had been successfully concluded and the need for such a procedure had ceased to exist. Specific procedure to establish a credit system covering the issue of class II and IV supplies was not implemented prior to the conclusion of the period covered by this study.[16,17]

SECTION 3

APPLICATION OF PROCEDURES

177. Allocation of Transportation. During the period following the St. Lo breakthrough (1 August 1944 to 9 December 1944) a system of tonnage allocations to the individual armies was inaugurated. The allocation was made by 12th Army Group based on predicted movement capabilities as furnished by G-4, Communications Zone. Allocation of tonnage as between armies was, in effect, a rationing of transportation. The system of tonnage allocation became effective on 30 August 1944. Communications Zone estimated that by 2 September 1944 they would be able to deliver 6,000 tons per day by truck to the general area of Chartres (R 3802) and 5,400 tons by rail. After deduction of tonnage for the Air Forces, Communications Zone, and Civil Affairs, the net result to the armies would be about 7,000 tons. About 1,500 tons per day by rail, which were then set up for delivery of supplies to the VIII Corps in the Brittany area would be diverted to the east as soon as it could be spared from supply support in the west. Based on the above mentioned Communications Zone calculated capacity to deliver, and on predicted logistical requirements at that time, the Commanding General, 12th Army Group, allocated 2,000 tons per day to the Third Army; the available balance, up to 5,000 tons per day, to the First Army; tonnage above that total of 7,000 tons to be divided equally between the two armies until First Army total requirements were met; and any additional to the Third Army.[18,19]

178. Deficiencies. The Communications Zone estimated lift capacity was not definite and the method of processing requisitions and

loading in accordance with tonnage allocations required flexibility, because very little guarantee could be given that items received would be the items wanted.[20] Communications Zone estimated capacity to deliver was optimistic and deficiencies in delivery arose. Because of the deficiencies a system of checks, bookkeeping, and joint accounts was required. Further the dispatching of convoys to the beaches by armies to obtain supplies, felt to be immediately required, added to the accounting complexities and interferred with the ability of the beach dumps to outload daily requirements.[21] A meeting was held at Advance Section 5 September 1944 to study the supply situation of First and Third Armies and seek to improve it by extending the existing emergency measures. Representatives of First and Third Armies emphasized the need for a maximum effort in meeting their supply requirements, pointing out that responsiveness in support and accuracy would result in keeping tonnages required to a minimum and at the same time more nearly meeting their requirements with available tonnage lift. It was agreed that an examination of the estimated available movement capacity every ten days, revision of tonnage allocation to armies when indicated and a change in army requisitioning procedure (See Paragraph 172 above) would be helpful and decision was made to put these policies into effect at once. Communications Zone agreed to extend the Red Ball truck routes (See Paragraph 146 above) east of the Seine River and estimated a total available lift capacity daily of 11,4000 tons. This was allocated: 7,000 tons to 12th Army Group; (3,500 tons each to First and Third Armies); 3,100 tons to Air Forces; and 1,300 tons to Communications Zone. Special procedures for processing requisitions to Communications Zone and the furnishing of shipping information to armies by Communications Zone were also agreed upon.[22] All concerned were aware of the existence of many factors which made these lift capacity estimates precarious. These included excessive operation of vehicles with minimum or no maintenance and consequently many breakdowns which might be expected in the immediate future; difficulty in obtaining replacement vehicles; and hasty railroad rehabilitation resulting in possible future interruptions in rail service.[23] Many discrepancies were reported between total tonnages shipped by Communications Zone and those received by armies, as well as complaints that items delivered varied from those requisitioned.[24] On 14 September 1944 tonnage allocations were revised, based on estimates by Communications Zone that shipments in excess of the 11,400 tons per day possibly could be effected. Tactical considerations likewise were reflected with a view to favoring First Army. These changes contemplated that of the first 7,000 tons, 3,500 would go to each the First and Third Armies; the next 1,500 tons available to 12th Army Group to go to First Army, and any additional tonnage to Third Army. It was felt however that there would be little increase over the 7,000 tons per day for 12th Army Group.[25] This did not apply to supplies then enroute to the armies. By 16 September 1944 Communications Zone estimated total movement capacity had reached 13,000 tons plus 1,000 tons daily of bulk POL, by pipeline, and was being distributed; 3,500 tons to each of First and Third Armies; 2,580 to the Air Forces; and 4,420 to Communications Zone installations. It was apparent that agreements between Army Group and the Communications Zone were not being implemented and arrangements were made for Army Group representatives to look into this matter.[26] On 21 September 1944 new allocation of anticipated tonnages based on 9,200 tons per day for the field forces were made by the Army Group to become effective 25 September 1944. Ninth Army was being moved from Brittany to the German border at a point between First and Third Armies. Their troops included the VIII Corps with 3 divisions and it was contemplated that an additional corps of 3 divisions would be added to that army by 15 October 1944. These new allocations were: First Army 5,000 tons; Third Army 3,500 tons; and Ninth Army 700 tons, the latter to be increased when the assignment of additional divisions made an increase necessary.[27]

Further adjustments in allocations to major commands continued as the tactical situation warranted or Communications Zone lift capacity was increased.[28]

179. Effectiveness of the Tonnage Allocation System. About 1 October 1944 a review of supply deliveries to the armies by the Communications Zone during the preceding nine day period was made. It showed that the armies had called forward approximately 65,000 tons to meet a need of 120,000 tons. The amount called forward, of course, was limited by the daily tonnage allocation. According to army records they had received approximately 62,000 tons delivered by Communications Zone against their daily requisitions, plus 23,000 tons which they had brought forward in army transportation. The entire 85,000 tons had been transported all the way from Communications Zone rear areas. In addition Communications Zone had moved for the armies approximately 40,000 tons from areas immediately west of the Seine and which did not apply against their daily tonnage allocation. These were supplies which the armies had left behind in their advance and were considered by them as being part of their reserves. The armies' additional needs amounted to approximately 120,000 tons of selected items. Against this additional need the Communications Zone had delivered only some 85,000 tons and approximately one-fourth of this latter amount had been moved in army organic transportation and not by the Communications Zone.[29] From the foregoing it is apparent that in order for the armies to receive needed supplies in the quantities required to resume offensive operations, the overall capacity of the Communications to move supplies from its rear areas to the armies had to be substantially increased, and that no system of tonnage allocation would compensate for the large deficiency in capacity at this time. Also that until this overall capacity could be raised to the desired level the resumption of offensive operations must continue to be deferred, and that in order equitably to distribute the limited tonnage which was available, continuation of the tonnage allocation system was desirable. Throughout the month of October 1944 available tonnage capacity increased gradually but not sufficiently to meet the demands required by increases in combat forces and the overall increase of troops being moved on to the continent. Late in October 1944 the overall situation had become so acute that SHAEF undertook the allocation of all available tonnage to the several major commands, namely Northern, Central and Southern Groups of Armies, the Air Forces, the Communications Zone and the Navy.[30] Procedures remained substantially the same. During the next 30 days the overall transport situation was so improved by the continued increase in movement capacity coupled with the opening of northern ports, and by the results of the overall allocation procedure assumed by SHAEF, that the allocation of tonnages to the major commands could be discontinued effective 9 December 1944.[31] Although tonnage allocations were continued within the Communications Zone as a measure of movements control, they are not considered further in this study which is not concerned with the mechanics of transportation.

180. Discussion. From all of the foregoing it is apparent that when the needs for transportation lift exceed that which is available some method must be found for distributing available capacity among the several beneficiaries in a manner that will meet their minimum essential needs and at the same time furnish to the extent practicable the support required by the tactical situation. Allocation of tonnage is one solution of this problem, but it does not provide movement capacity which does not actually exist. It is only an expedient that can be adopted temporarily until the overall movement facilities can be expanded. During the time of its use in the European campaign each major command properly exercised every means available to it for effecting increases in the total supplies which it received. In doing

this, however, over-zealousness sometimes reacted to their disadvantage. Where the total lift is inadequate and resort must be made to allocation, it is incumbent upon all participants to follow as closely as possible the plan as laid down. If this is not done, confusion and congestion must inevitably follow with consequent disruption in the overall plans for meeting the tactical situation. An inherent result from the allocation of tonnages is that it tends to emphasize the movement of any supplies to meet a tonnage objective as against the delivery of specific items to fill definite needs.

181. Allocation of Critical and Controlled Items. Throughout the period of operations many items of class II and IV supply were critical at varying times and issue had to be controlled in order to effect equitable distribution among the major commands. Responsibility for such control was vested in the chiefs of supply services of the Communications Zone, but was exercised by them in coordination with the army groups and armies.[6,7,8] Many items of winter clothing and equipment were not available on the continent in sufficient quantity to equip all forces simultaneously. By means of the allocation procedures adopted, it was possible to supply these items to the forces whose needs were greatest at the time. During one period, weekly meetings were held under the auspices of the Chief Quartermaster, Communications Zone, which were attended by representatives of the armies, army groups, and Advance Section. At these meetings the total availability of the critical items would be indicated, the requirements of the various forces would be stated and equitable distribution to those having the most urgent needs mutually decided upon.[32] The several chiefs of services handled the allocation of critical and controlled items in varying ways. When major items of ordnance equipment such as tanks, combat vehicles, and guns became available, the Office of the Chief of Ordnance, Communications Zone, would contact the Ordnance Officer of the army groups, who was acquainted with the immediate needs of the armies from both the supply and tactical standpoint. The latter would make recommendations for distribution of these critical items under policies established by the group commander.[33] When assemblies, sub-assemblies, and spare parts such as tank-tracks, engines, and tires became critical they were placed on a control list by the Communications Zone Ordnance Officer, issue was controlled by his office and distribution was based upon equipment density, requirements and availability.[34] Similar action was taken by Chief Engineer and Chief Signal Officer, Communications Zone, for the distribution of critical items of Engineer and Signal equipment.[35] These methods were found to work most satisfactorily and to produce the most effective results. Unquestionably wherever the quantity of supply is insufficient to meet the needs of all users, the urgency of need in each case must be given consideration and ultimate distribution made within policies established by the commanders concerned. All of these actions result in allocation measures, and the more thoroughly these allocation measures can be planned in advance, the more productive will be the results.

182. Allocations and the Credit System-Ammunition. From July to December 1944, ammunition for various artillery weapons was rationed almost continuously. During the latter half of October, ammunition was in such short supply that one army (Third) reduced its expenditures to one or two rounds per gun per day.[36] The first restrictions imposed on ammunition were made by First Army on 12 June 1944. They required that units generally conform on a corps-wide basis to one unit of fire for attack, a half-unit of fire for each subsequent day of attack, and one-third unit of fire for one normal day of firing. Even this degree of control did not prove sufficient. Critical items of ammunition stocks were far below target levels due to a number of

factors including a three-day period of bad weather which practically stopped delivery of ammunition from ship to shore, unbalanced tonnage, and an excessive number of unreported unit dumps at many artillery positions. Consequently on 16 July 1944 a strict rationing program was initiated in order to rebuild First Army ammunition reserves. During the period 16 to 24 July 1944 expenditures were considerably less than the amount rationed and a gratifying rate of reserve build up was noted. Initially, rationing was a direct result of shortages on the continent. Once rationing started, the urge to ration was accentuated by distrust of future supply flow.37

183. Rationing of Expenditures by 12th Army Group. On 1 August 1944, First Army relinquished command control of ammunition to 12th Army Group and the control of rear installations to Communications Zone. The fast developing headlong pursuit operations with the attendent lengthening supply lines soon resulted in dwindling supplies to the guns and what proved to be almost as serious, a complete lack of information either as to the existing status of supply or as to probable status in the immediate future. Twelfth Army Group rationed artillery ammunition by prescribing limitations on expenditures. These limitations on expenditures had little meaning after the second week in August 1944. Although 12th Army Group continued to ration ammunition on continental availability as reported by the Communications Zone, the amount of ammunition available to the armies was governed almost entirely by transportation. During the latter part of August 1944, the rapidity of movement and the paucity of targets so reduced expenditures that the small amount of ammunition moved forward was sufficient for the immediate expenditure needs of the Armies. In September 1944 the stiffening opposition again resulted in increased expenditures which in turn created ammunition shortages.38

184. Ammunition Supply-6th Army Group. Although initially ammunition supply of 6th Army Group was not a responsibility of the European Theater of Operations, its troubles closely paralleled those of 12th Army Group. In reporting on the period of 15 August to 30 September 1944, 6th Army Group states that the amount of ammunition planned for the early phase of the operation was adequate. The rapid advance of the troops inland made a difficult transportation problem and the troops did not receive all the ammunition that they might have used. During the latter half of September 1944 resistance stiffened causing an increased demand for artillery ammunition so that the tonnage of ammunition reaching the front line units was barely sufficient to support the pressure it was desired to maintain against the enemy. No movement capacity was available to build up ammunition stocks in the forward areas other than small army supply points.39

185. Ammunition Crisis. By 9 October 1944, resupply of ammunition to 12th Army Group had reached a state of almost complete collapse. As a result of several conferences of interested staff sections of 12th Army Group and the Communications Zone, agreement was reached on 10 October 1944 that:

a. Communications Zone would immediately begin to unload a minimum of 12 ammunition ships daily, move the ammunition to forward depots; and maintain a continuous forward flow of ammunition thereafter.

b. All ammunition then on the continent would be redistributed among the armies, who would be advised that no resupply was in sight prior to 7 November 1944.

c. Twelfth Army Group would inititate no major offensive prior to 7 November 1944.

d. A credit system similar to that prescribed in paragraph 72, FM 100-10 would be instituted at the earliest practicable date.[40] The credit procedure as developed and as actually operated to implement this recommendation is fully described in Section 2 above.

CORRECTIVE ACTION.

186. Corrective action was prompt, drastic and effective. On 11 October 1944, 12th Army Group issued a new retroactive restriction on expenditures to extend from 0600 hours 5 October 1944 to 0600 hours 7 November 1944.[41] The ammunition considered available for this allocation was only that actually in field force depots, in the "pipe lines", and the unobligated balances in the forward Communications Zone depots. The purpose of this step was to prevent the immediate dissipation of the extremely meager ammunition stock then on the continent. The result was the most stringent rationing ever imposed on our troops.[42] Communications Zone in fulfillment of the commitment proceeded to unload on the continent a minimum of 6,000 tons of ammunition a day,[43] and arranged to move this ammunition to forward depots at an accelerated rate.[44] The credit system was instituted. Under it no ammunition was issued to armies without a previous credit allocation from 12th Army Group.[45] This, with its attendent bookkeeping gave the 12th Army Group at all times reliable up-to-date information as to the status of ammunition. Only the ammunition that was in forward depots (O-609, Soissons (S 8297), O-610, Liege (K 4628), O-611, Verdun (U 2965), or which was practically certain to arrive in forward depots during the allocation period would be allocated to the armies. This guaranteed that allocations were based on ammunition actually available and not on wishful thinking. Twelfth Army Group began to forecast effective 6 November 1944 to each army the probable supply of critical items of ammunition to that army in the following 30 days.[46] This forecast, revised each ten days, gave armies a reasonable basis for future planning. The system as instituted did not guarantee to any one army adequate ammunition; it provided armies with some information as to the future of their ammunition supply.

187. Effectiveness of the Ammunition Credit System. One of the many indications that the credit system as finally evolved by 12th Army Group was the most suitable solution to the ammunition problem is given in later Ordnance Reports. The Ordnance Report for 6 November 1944 indicated that during the preceding week the Communications Zone rear depot stocks had decreased by 3,405 tons, the forward depot stocks had increased by 22,798 tons. This indicated that ammunition was being moved forward and the results of unloading were being reflected in the forward areas.[47] Another indication of its suitability is that when SHAEF took over the allocation of ammunition they adopted a similar procedure, although their computations were based on different data and factors as described in paragraph 175 above, and their forecast was for a period of 90 days rather than 30 days.[48] Additional and more complete information on the credit system may be found in The General Board studies Number 58 entitled "Ammunition Supply for Field Artillery" and Number 100 entitled "Ammunition Supply and Operations, European Campaign".

SECTION 4

CONCLUSIONS AND RECOMMENDATIONS

188. Conclusions. It is concluded that:

a. Definitions of the words allocation and credit, more

descriptive in a military logistical sense than those stated in FM 20-205, are required.

b. A simplified Standing Operating Procedure applicable to the allocation of all classes of supplies or services should be developed in detail at the time operations are being planned. This procedure should involve all interested agencies and should be available for immediate implementation when supplies or services are considered inadequate. It should include details for the use of the credit system so that the latter may be implemented when circumstances warrant.

c. The allocation of tonnage is a suitable method of distributing limited transportation capacity among several beneficiaries in a manner that will meet their minimum essential needs and at the same time furnish in accordance with the tactical situation the maximum possible logistical support.

d. The use of tonnage allocations tends to emphasize the movement, by the supplying agency, of any and all supplies to meet a tonnage objective as against the delivery of specific items to fill definite needs of the field forces. For this reason, the above mentioned system should be continued no longer than required to control supply flow.

e. When several headquarters are involved, the overall allocation of transport capacity should be the responsibility of a theater headquarters or other comparable headquarters and be made to the major commands thereunder. Sub-allocations by each succeeding echelon may be made when desirable.

f. The allocation of tonnage when required is a continual process which entails constant revision as the tactical situation warrants or Communications Zone's capacity to deliver changes.

g. The allocation of critical and controlled items by Theater chiefs of the supply services after consultation with service representatives of the tactical headquarters being supported, is a satisfactory means of distributing such items and meeting army requirements on a basis of their tactical missions and in accordance with existing policies.

h. Rationing of ammunition by restriction of expenditures is not the most satisfactory means of conserving limited stocks. Rationing by allocation and the establishment of a credit system coupled with a forecast of future availability is effective. Any system of allocation or credit which does not assure lower echelons the benefit of savings penalizes prudent expenditures without compensating benefits.

189. Recommendations. It is recommended that the lessons learned in the allocation of supplies and the use of credit system during the fast moving situation experienced in the European Theater, and the principles considered to be sound as set forth in the preceding paragraph, be reflected in War Department publications, in army teaching, and in the planning and conduct of future operations.

CHAPTER 2

BIBLIOGRAPHY

1. Paragraph 1ba(6), Section IV, page 36a, 12th Army Group, ADSOP, dated 18 October 1944.

2. 12th Army Group TWX, reference number QX-21863, dated 22 September 1944.

3. Memorandum for Record of Conference conducted by General Bradley at Headquarters 12th Army Group TAC on 9 October 1944, Administrative Instructions #39, Headquarters 12th Army Group, dated 20 October 1944.

4. 12th Army Group TWX, reference number QX-24413.

5. Paragraph 1c, 1st Indorsement, Headquarters Seventh Army, Western Military District, file AG-401.-D, dated 29 November, to letter, Headquarters General Board, subject: "Mechanics of Supply in Fast Moving Situation", dated 25 October 1945.

6. IBID, Paragraph 1a(4).

7. Paragraph 1ba(6), Section IV, page 36a, 12th Army Group, ADSOP, dated 18 October 1944.

8. Chapter 3, Procedures in Army Supply, G-4 Com Z History, Section II.

9. Paragraph 63, Section II, ADSOS Operational History 1943-45.

10. Letter, Headquarters 12th Army Group, from AC of S, G-4 to AC of S, G-3, subject: "Ammunition Allocations and Credits", dated 26 October 1944.

11. Page 125, Chapter V, Section IV, ADSOS Operational History, 1943-1945.

12. Letter, Headquarters 12th Army Group, file 471(G-4 Sup), subject: "Supply of Ordnance Ammunition", dated 21 October 1944.

13. Field Force Logistics, 12th Army Group, G-4 Section, Phase VI, Page 14.

14. IBID. Phase VII, Page 19.

15. Draft of a proposed Part VIII, subject: "Allocation of Critical Items and Establishment of Credits" of ETO SOP No. 7, subject: "The Depot System and Requisitioning Procedures", dated 19 March 1945.

16. 12th Army Group letter, subject: "Allocation of Critical Items and Establishment of Credits", file 400 (G-4), dated 10 April 1945.

17. Paragraph 1b(3), 1st Indorsement, file AG 401.-D, Headquarters Seventh Army, Western Military District to letter, TGBDD, file 2401/4 TGBDD, subject: "Mechanics of Supply in Fast Moving Situations," dated 25 October 1945.

18. Memo for Record from Brig. General R. G. Moses, AC of S, G-4, 12th Army Group, dated 30 August 1944.

19. Memo for Record from Brig. General R. G. Moses, AC of S, G-4, 12th Army Group, subject: Conference Held by General Bradley, this date, dated 30 August 1944.

20. 12th Army Group Memorandum for Brig. General R. G. Moses, dated 6 September 1944.

21. Paragraph 4, Phase IV, Appendix B, ADSEC Operational History, 1943-1945.

22. Headquarters ADSEC, Notes on Meeting Held Advance Section Communications Zone, 5 September 1944, dated 5 September 1944.

Headquarters ADSEC-Extension of Notes on Conference Headquarters Advance Section, 5 September 1944.

Memorandum for Record, 12th Army Group, G-4 Section, dated 6 September 1944.

23. Paragraph 6, After Action Report No. 1, 12th Army Group, 6 September 1944.

24. Memo for the Record, AC of S, G-4, 12th Army Group, subject: Conference 12 September 1944 at 1400 hours.

25. Memo for Record, AC of S, G-4, 12th Army Group, dated 14 September 1944.

Memo to CG, 12th Army Group from AC of S, G-4, subject: Supply Situation, dated 16 September 1944.

Memo to AC of S, G-4, 12th Army Group from Chief, Org. Br, G-4, 12th Army Group, dated 16 September 1944.

26. Memo to AC of S, G-4, 12th Army Group, from Chief, Supply Branch, G-4, 12th Army Group, dated 19 September 1944.

History of 24th Regulating Station, page 48 and 54.

27. Memo for Record, AC of S, G-4, 12th Army Group, dated 21 September 1944.

TWX QX 21863 Headquarters 12th Army Group, 22 September 1944.

28. TWX QX 21910, Headquarters, 12th Army Group, dated 23 September 1944.

TWX QX 22149, Headquarters, 12th Army Group, dated 1 October 1944.

29. Memo to AC of S, G-4, SHAEF, from AC of S, G-4, 12th Army Group, dated 2 October 1944.

30. TWX S-61549, SHAEF, dated 9 October 1944.

31. TWX S-70142, SHAEF, dated 9 December 1944.

32. Memo for Record, dated 2 January 1945, QM Section, 12th Army Group.

33. Headquarters Communications Zone, Ordnance Operating Instructions Number 59.

34. History, Ordnance Section, Headquarters 12th Army Group.

35. Letter, Headquarters 12th Army Group, "Procedure for allocation of Signal Items in Short Supply", dated 9 January 1945.

Notes on Engineer Conferences, Headquarters 12th Army Group, "Engineer Participation in the Impending Crossing of the Rhine River", dated 16 October 1944.

36. 12th Army Group Ammunition Expenditure Records, file 471/1.

37. Annex 13, First Army Report of Operations, 20 October 1943 - August 1944.

38. Artillery Section After Action Report, Third Army, 1 August 1944-9 May 1945.

Report, Office of the Ordnance Officer, Headquarters First Army, dated 30 September 1944, subject: "Ammunition Supply Report, France 1-31 August 1944, file 471/1.

Report, Office of the Ordnance Officer, Headquarters First Army, dated 25 October 1944; subject: "Ammunition Supply Report, Western Europe, 1-30 September 1944." File 471/1.

39. Letter, Office of the Artillery Officer, Seventh Army, dated 17 September 1944, to Artillery Officer, 12th Army Group, file 471/1.

40. Memo to G-3, 12th Army Group from Artillery Officer, 12th Army Group, 10 October 1944.

41. Letter, SHAEF, G-4's Administrative Representative with 12th Army Group, dated 9 October 1944, subject: "Report on Ammunition Meeting", file 471/1.

42. Artillery Section After Action Report, Third Army, 1 August 1944-9 May 1945.

43. Carrier Sheet, Current Operations, G-4 Division, SHAEF, dated 15 November 1944; subject: "Recapitulation of Daily Ammunition Tonnage Unloaded on the Continent", file 471/1.

44. Memo, Ordnance Section, 12th Army Group, dated 5 November 1944, Subject: "G-4 Periodic Report", file 471/1.

45. Letter, Headquarters 12th Army Group, dated 21 October 1944, subject: "Supply of Ordnance Ammunition", file 471/1.

46. Daily Journal, Ordnance Section, 12th Army Group, dated 5 November 1944, file 471/1.

47. Daily Journal, Ordnance Section, 12th Army Group, dated 6 November 1944, file 471/1.

48. Letter, Headquarters European Theater of Operations, US Army, file AG 471 OPGD, subject: "Allocations of Ground Force Ammunition to Major Commands", dated 14 March 1945.

CHAPTER 3

DOCUMENTATION OF SUPPLY SHIPMENTS

SECTION 1

PLANS

190. General. There was no definite Standing Operating Procedure (SOP) formulated prior to D-Day concerning the documentation of supply shipments either by rail or truck, once the forces of the United States became operational on the continent. Procedures had been formulated before invasion day for the movement by rail or vehicle of supplies to the docks for shipment across the channel. Communications Zone Plan, dated 14 May 1944, provided that all shipments be documented and marked to show origin, destination and other necessary information to facilitate forwarding the shipment to the correct destination.[1] However, it was not until the latter part of July 1944 that SOPs were published prescribing the documentation of supplies on the continent. The documentation procedures prescribed therein were for the purpose of insuring completed supply action with reference to requisitions from the armies, the Tactical Air Forces, and Advance Section, Communications Zone, for all classes and services of supply, and to provide a flow of information concerning the supply of such items to the requisitioning agencies. Trucks and rail cars moving supplies forward from rear depots were to have at all times documents which would give the necessary information concerning the shipment to all interested personnel.

191. Waybills. Wagon and vehicle waybills which were to accompany rail cars and trucks were designed primarily as instruments of movement control. These documents, which served as records of supplies loaded, were to be legible and complete in every detail and were to contain the following information: Distribution directive number, consignee, consignor, requisition number, date shipment made, the railway car or vehicle number, contents of car or vehicle, and any additional information that would assist the consignee to identify shipments.[2] (In connection with the requirement for inclusion of the requisition number, it is noted that no provision for this was made on the printed waybill forms).

192. Traffic Dispatch Advice. The depot Rail Transportation Office (RTO) was responsible for advising consignees of all shipments by means of a Traffic Dispatch Advice which he was to transmit by telephone or teleprinter through destination RTO and Headquarters, Communications Zone. Traffic Dispatch Advice was to furnish destination RTOs, consignees, and other interested agencies with pertinent movement data concerning a shipment. These data consisted of the shipping index number, departure time and date, the depot of origin, number of car or vehicle, and the contents. This advance information was for the purpose of notifying various intermediate agencies so that when a shipment arrived they would be prepared to receive properly and distribute the supplies involved in the shortest possible time and would also give these intermediate agencies a basis for the formulation of their reports to the armies. With this information the armies would in turn be able to plan for future requisitions.[2]

193. Other Documents. In addition to the waybills, other documents were to be utilized in facilitating the rail and truck shipments. These documents were in the form of tally-outs and

labels. The tally-outs were to be made for all outgoing shipments and contain information similar to that provided in waybills. They were to be retained as vouchers by the depots in addition to being forwarded to the consignee as advance information concerning shipment of supplies. The two types of labels were the United States Army Car Label and the United States Army "Urgent-Expedite" Label. The United States Army Car Label was to be made for all outgoing rail shipments and would contain information as regards consignor, consignee, number of cars in consignment, car number, and weight of contents in long tons. It was to be placed on each car by the consignor when the car was prepared to leave.[2] United States Army "Urgent-Expedite" Label was to be in the form prescribed and furnished by the Chief of Transportation. It was designed for use in connection with high-priority traffic only and was to be used only on the authority of the RTO at point of origin, who was to supply proper labels when required. The RTO was to receive his instructions from the Chief of Transportation, acting upon requests for high-priority movement instituted by chiefs of services. When required, an urgent-expedite label was to be used in addition to plain car labels and waybills.[2]

194. Responsibilities of Key Personnel. It was to be the constant responsibility of depot commanders that the documentation of each train or convoy be checked for completeness prior to departure. By delegating various responsibilities to RTOs and consignors, the depot commanders were to be able to maintain this constant check. It was the duty of each consignor at the depot not only to supervise the loading of cars and trucks, but also properly to prepare and distribute documents pertaining to supplies loaded. Upon completion of these duties, the consignor was to notify the RTO at point of origin who in turn was to check the loading and further facilitate the distribution of documents. The consignee and destination RTO were charged with the responsibility of properly receiving and distributing the supplies upon arrival.[2]

SECTION 2

OPERATIONS

195. General. The same problems, which affected the orderly development of so many other supply arrangements in the European campaign, both influenced and emphasized the importance of effective execution of sound documentation procedure. The pace of ground operations from 1 August 1944 onward increased the urgency of delivery of required supplies to the armies over rapidly extended lines of communication. Transportation was inadequate to maintain forward depots, as a result of which the bulk of operational supply requirements had to be moved direct from the beaches and ports to the armies and Advance Section depots for several months. The quick expansion of rail facilities in a foreign country and the necessity of using some foreign personnel for operating those facilities did not permit adequate time for establishment of desired controls. The installation and rehabilitation of signal communications could not keep pace with the increasing requirements. Most of these factors confronted those responsible for movement of supplies with formidable difficulties over which they had little or no control. Communications were the greatest problem involved in carrying out the prescribed documentation procedure. Yet the very lack of these increased its importance, as did the necessity for delivering the desired supplies at the right time to the proper destination with limited means of transportation. Its effectiveness

had a large bearing on obtaining the maximum efficiency from the transportation system. The increased importance of proper documentation in a fast moving situation first became strikingly evident in the Red Ball operation. From that time to the end of the campaign there were deficiencies in the execution of prescribed procedures which were never completely eliminated.

196. Documentation of Truck Shipments on the Red Ball Express. During the early stages of the European campaign convoys were loaded at the beach, put on the Red Ball Highway and started eastward. Insufficient control was exercised over these convoys from the time they left the beach until they reached the diversion points, initially at Chartres (R 3802), later at Dreux (R 3236), and then Versailles (R 8838). At these diversion points a control group was set up by Advance Section consisting of representatives of the services under a representative of G-4 who was in control of the entire group. In the rapidly shifting situation of the period with the long lines of transportation and the difficulty of maintaining convoy discipline, numerous convoys arrived at the diversion points with either no destination instructions or incorrect documentation. It was frequently impossible to tell, in so far as the records were concerned, to which army the convoy should be dispatched. By maintaining check lists, the Advance Section G-4 Control Group endeavored to maintain the proper allocation of supplies between the two armies at these diversion points where the Red Ball Highway separated, one branch going to the Third Army and the other branch going north to the First Army. All convoys were stopped at these diversion points and destination instructions were reviewed. Communication at this particular time was established by radio with Advance Section Headquarters and the regulating stations.[3] When shipments arrived at their ultimate destination, poor documentation made it extremely difficult to connect shipments received with requisitions. It was a very common occurrence that wagon and vehicle waybills were improperly filled out. The absence of requisition numbers, proper nomenclature of items, and destination locations were among the errors found on the waybills.[4]

197. Documentation of Rail Shipments. Lack of documentation and control also existed in train movements. Inadequate signal communications, frequent breakdown of car and engines, diversions and other problems along the hurriedly rehabilitated rail lines made difficult the control of individual trains after they were loaded at the beaches and sent forward. These problems also complicated efforts to exercise central control and resulted frequently in the inability of any one person along the rail lines to determine what was moving in the block immediately behind his position. The practice of frequently breaking up and remaking trains caused confusion and resulted in mixed deliveries. With the opening of the rail lines to the Paris (S 0545) area on about 2 September 1944 the armies turned to their regulating stations for information on rail shipments; desiring to know what was outloaded at the depot, when it left, where it was periodically, when it was due to arrive at its railhead destination, and why service could not be speeded up. Because of limited data the station personnel were compelled to make many extra trips to the rear.[5]

198. Reports from Armies on Documentation Deficiencies. During the month of December 1944 all armies and the Advance Section, Communications Zone expressed dissatisfaction with methods of documenting shipments. It was felt that documentation had improved considerably but that standards were below what they should be. The principal complaint of requisitioning agencies was that documentation did not allow them to identify shipments as a credit

against a particular requisition, thereby making it extremely difficult to maintain correct records. In the absence of requisition identification on shipments it was customary to credit receipts to the oldest requisitions for the items involved. Information as to supplies enroute to depot or army had been limited to service and class of supplies, the tonnage involved, and applicable requisitions in some cases. Receiving agencies therefore frequently had no concept of the items enroute to them. The method of documenting less than carload shipments was unsatisfactory to such an extent that armies and supply sections preferred to use motor transportation for long hauls rather than chance the delay in delivery or possible loss of shipments.[6]

199. Effects of Improper Documentation. From the early stages of the European campaign until its conclusion lack of proper documentation caused a considerable wastage of supplies, transportation, and manpower. Shipments moving from rear depots to the combat zone which were improperly documented as to route and destination were delayed considerably, and in many instances lost. There was also the loss or delay of just that much transportation which was needed to haul future shipments. Many occasions arose during the campaign, due to improper documentation, for various receiving agencies to utilize their own personnel in locating shipments coming from the rear and in facilitating their movement forward. These problems affected the efficiency of the entire supply system.

ACTION TAKEN TO OVERCOME DOCUMENTATION DEFICIENCIES.

200. General. Virtually all supply agencies endeavored to remedy through the means of various expedients the deficiencies in documentation. The expedients used by the agencies mentioned below were common to other agencies faced with similar problems.

201. Regulating Stations. Regulating Stations resorted to the expedient of sending out detachments along the lines of communications for the purpose of locating and expediting urgently needed supplies. These detachments were also used to forward as much information as possible to the regulating station for dissemination to the army concerned. The supply sections of the regulating stations constantly attempted, with partial success, to obtain the outloading per day together with departure time from the Base Sections through technical channels, so as to be able to identify their requisitions with specific cars and thereby know what requests were filled.[4] The problems of the regulating stations due to improper documentation are discussed in detail in Part Three of this study.

202. Headquarters, Advance Section, Communications Zone. During the month of September 1944, Headquarters, Advance Section established RTOs at various points on the rail line from Paris (S 0545) to Charleroi (J 6606). While the Advance Section, Communications Zone RTOs' passing reports presented valuable information, the desired advance documentation from base section depots on army shipments was not forthcoming. Normandy Base Section forwarded reports on car loadings purporting to show what was outloaded and what was shipped each day from the depot by rail, but arriving trains could not be identified by this description as operational difficulties changed the makeup of many trains while enroute.[4]

203. Office of the Chief Surgeon, Communications Zone. Because of the difficulties experienced by the office of the Chief Surgeon, Communications Zone, in delayed and lost shipments due to improper documentation, a Supply Movement Control Section was established to

follow and control supply movements. Every shipment leaving a medical depot or port by rail or truck convoy was reported to the office of the Chief Surgeon by telephone, giving date and hour of departure, car or truck numbers, and destination. Each car was followed through the junction points, usually consisting of two Paris yards and, in the case of army shipments, the regulating station consignment points. Final reports of arrival at destination were also made by telephone. If any car failed to show up at the next junction point or at destination at the expected time immediate follow-up was instituted. In addition to this follow-up, advance information was forwarded to regulating stations and consignees to advise them when and where to expect individual cars.[7]

REVISED PROCEDURE.

204. Revision of Standing Operating Procedures. During the latter part of 1944 and the beginning of 1945 theater agencies recognized the necessity of amplifying existing documentation procedures to eliminate the deficiencies present in the system. Revised procedures, as published in early April 1945, are set out in the following paragraphs. Although the campaign ended before they could be placed into full effect and adequately tested in active operations against the enemy, the brief of the new procedure is included to show the requirements which were considered necessary by the Theater Headquarters as a result of experience in the campaign.

205. Changes in the Prescribed Documentation of Supply Shipments. Revised procedures prescribed that documents covering shipments of supplies were to contain in the future a specific itemized description of the contents of each car or vehicle to the maximum extent possible so as to give the receiving agencies some concept of the items enroute. In the case of items back-ordered against a previous requisition, that fact was to be indicated. This requirement would apply for all shipments made against requisitions. If the number of requisitions should be excessive and there be insufficient space on the waybill, the numbers of the requisitions covering the bulk of the cargo would be shown and a complete list of the requisition numbers recorded on the tally-outs. Documents sent to Communications Zone agencies would show the exact identity and location of the consignee. The consignment address of the consignor was to consist of the assigned depot or other supply installation number and the name of the town in which it was located, plus the designation of the serving railhead or truckhead within the town or area.[8]

206. Advance Information to be Furnished Consignees. The following information concerning supply movement was to be sent to every consignee so as to arrive ahead of the shipment: A copy of the shipping directive or shipping order issued by the Chief of Service, Communications Zone; traffic dispatch advice; and advance supply shipment advice. Shipping directives or shipping orders were directives issued by the Chiefs of Services, Communications Zone, to initiate shipments of supplies from depots, transit areas, transfer points, ports or other places. Each Chief of Service, Communications Zone would send appropriate consignees a copy of all such instructions at time of issue. Whenever requisitions submitted by an army or other actual user were involved, the requisition numbers would be prominently shown on such instructions. Traffic dispatch advice sent by the depot RTO to destination RTO was designed to furnish consignees with pertinent movement data concerning a shipment. Its form, the information therein, and its distribution would be prescribed from time to time by the Chief of Transportation, Communications Zone. Information contained in traffic dispatch advice

would include, but not be limited to, origin, date of loading, method of shipment, contents, and consignee. Advance supply shipment advice sent by depot consignors to destination consignees was to be received by the consignees in advance of the supplies and was to give them a complete description of the materials, as well as information concerning their origin and the basic requisition behind the shipment.[8]

207. Methods of Transmitting Advance Information. The transmission of all advance information to the intended parties was to be sent normally by teleprinter, Communications Zone messenger service or telephone. The selection of the proper method of transmission would depend upon the circumstances of each individual shipper in relation to the consignee. In the case of forwarding advance supply shipment advice it was the responsibility of each Communications Zone section commander to prescribe the procedure by which this information would be sent forward to consignees from each installation in his command. In forwarding any type of advance information, the most direct means available was to be used. A specific investigation of all factors of time, distance and length of messages involved would be made to determine the best method of transmission to be used by each shipper to each individual consignee. The method of furnishing the consignee by mail or courier a copy of the waybill and shipper's tally-out was to be utilized only when it was certain that the paper would reach the consignee ahead of the supplies.[8]

208. Responsibilities of Command. The supervision and enforcement of proper documentation was made a function of command. Commanding officers were charged with making frequent examinations of documents actually prepared by their respective commands to see that they were in proper order.[8]

COMMENTS AND RECOMMENDATIONS OF RESPONSIBLE OFFICERS AND HEADQUARTERS.

209. General Comments. Many comments and conclusions regarding documentation procedures were made by virtually all agencies concerned either during or at the conclusion of the campaign. All noted the severe deficiencies and the effects on the supply system. The comments on the various deficiencies set forth below are indicative of the usual remarks on the subject.

210. 12th Army Group. In October 1944, Headquarters, 12th Army Group conducted a field survey on supply procedures and problems as they existed at that time. This culminated in a report to Communications Zone which included comments on documentation deficiencies and procedures. The report cited the same general deficiencies as set forth in preceding paragraphs and noted that varied systems of documentation existing in the depots made it appear that no uniform procedure was being followed. It was recommended that a uniform system of documentation be adopted and enforced so that supplies leaving the depots could be identified with the army's request, items on the convoy be itemized, and consignee and consignor both be clearly indicated. Further, the system should be so established that the same information would be available with and on arrival of supplies at the armies.[9]

211. Regulating Officer, 25th Regulating Station. The Regulating Officer, 25th Regulating Station, states that the chief difficulty was the inability of intermediary agencies to grasp the importance of documentation reaching the consignees in the shortest possible time. It is his opinion that those persons in between the consignor and the consignee saw documentation as so

much extra paper work, and therefore filed it for future reference. He recommends, that where operations are undertaken against the enemy and the lines of supply and communications are widely extended, complete, accurate, advance information be given to all interested parties right up to and including the army since it is vital to their planning for operations in the immediate future. Due to the importance of advance information he recommends further that more and better trained RTOs be located at key points, with direct communication to prevent diversion.[4]

212. Transportation Officer, CONAD. The Transportation Officer, Continental Advance Section (CONAD), states that there was essentially no difference between the documentation procedure planned and that which evolved. The procedure itself as planned is considered sound. Failures in adequate documentation were due to lack of impressing its importance on all personnel involved, the lack of communication facilities, and the occasional non-availability of documentation forms.[10]

213. Office of Chief of Transportation, Headquarters, Communications Zone. The Office of the Chief of Transportation states the problem persisted in the late stages of the campaign and that, during the XYZ Transport Operation from 26 March 1945 to 8 May 1945, improper documentation often resulted in lack of proper control.[11]

214. G-4, Third United States Army. G-4, Third Army stated that the unnecessary delay experienced in getting supplies and equipment to combat units was caused by convoy personnel not knowing what amount was being transported or to which service depots it was consigned. He recommended that the system for the movement and marking of supplies requisitioned against daily tonnage allocation be improved by furnishing convoy commanders with manifests indicating specific amounts and types of supplies by requisition number.[12]

SECTION 3

CONCLUSIONS AND RECOMMENDATIONS

215. Conclusions. It is concluded that:

a. Documentation is of major importance in a fast moving situation.

b. Deficiencies existed in the execution of prescribed documentation procedures throughout the European campaign, resulting in inefficient use of transportation and the failure to deliver maximum needed supplies to the proper place in the minimum time.

c. Uniform procedures for operations on the continent were not prescribed until operations were well under way, with the result that personnel involved in their execution had no opportunity for prior training and familiarization with the detailed mechanics to be employed; and that sufficient emphasis was not placed on correct execution of prescribed procedures by all concerned.

d. Inadequate signal communications presented a large problem in carrying out certain vital parts of the documentation procedures, and resulted in the breakdown of the system for providing consignees with advance advice of their shipments.

e. Prescribed procedures provided for essential requirements except for recognition of means to be employed with inadequate communications which was corrected in April 1945 revised procedures; printed waybills and labels did not provide in the beginning for necessary multilingual wording or make provision for entry of related requisitions.

f. The essential requirements in documentation for supply shipments are the following:

(1) Provision for assured advance advice to consignee of the origin, date of loading, designation of conveyance, contents, estimated delivery date, and related requisition.

(2) A conveyance document showing the date, origin, consignee, consignment point, description of contents, and applicable requisition.

216. Recommendations: It is recommended that:

a. The importance of effective execution of sound documentation procedures in a fast moving situation be recognized and emphasized in future operations.

b. Documentation procedures be established well in advance of initial operations to permit sufficient training of all personnel involved in their execution; that these procedures be simple and capable of execution in the face of inadequate communications; that means be provided for quickly transmitting necessary data to consignees to arrive in advance of supplies; and that provision be made for fulfilling essential minimum documentation requirements as set forth in subparagraph 215f above.

c. Waybills, bills of lading, traffic dispatch advice, and similar documents provide for identification with related requisitions; and that any language difficulties which might be encountered be anticipated in the preparation of shipping documents.

d. Personnel be properly pre-trained in prescribed documentation procedures for future operations.

CHAPTER 3

BIBLIOGRAPHY

1. Communications Zone Plan, "Documentation and Marking", Page 37, dated 14 May 1944.

2. Headquarters, ETOUSA SOP Number 24, "Movement of Personnel and Supplies on the Continent", dated 25 July 1944.

3. Advance Section, Communications Zone "Operational History", 1943-45, Pages 75-76.

4. History of the 25th Regulating Station, pages 11-12-and 27.

5. History of the 42nd Regulating Station, Page 6.

6. Memorandum for Supreme Commander, by Major General L. R. Lutes, "Report on Supply Situation in Northern France", dated 25 December 1944.

7. Exhibit III, Section II, Annual Report, Supply Division, Office of the Chief Surgeon, ETOUSA, 1944, subject: "Difficultios in Moving Supplies and Equipment".

8. Headquarters, ETOUSA SOP Number 24, "Movement and Documentation of Supplies in the Communications Zone on the Continent", dated 3 April 1945.

9. 12th Army Group Survey, G-4 Report, subject: "Requisition and Movement of Supplies", dated 28 October 1944, File 400.312 (G-4 Sup).

10. Statements by Colonel L. A. Ayers, Chief of Motor Transport Service, Headquarters, Communications Zone and Transportation Officer, COMZ.

11. Brief Outline History of Motor Transport Service, Office of Chief of Transportation, Headquarters, Communications Zone.

12. G-4 Periodic Report No. 7, Third Army, dated 19 September 1944.

REQUISITION AND SHIPMENT FLOW TO COMBAT ZONE
(Class I and III Supplies)

Chart A

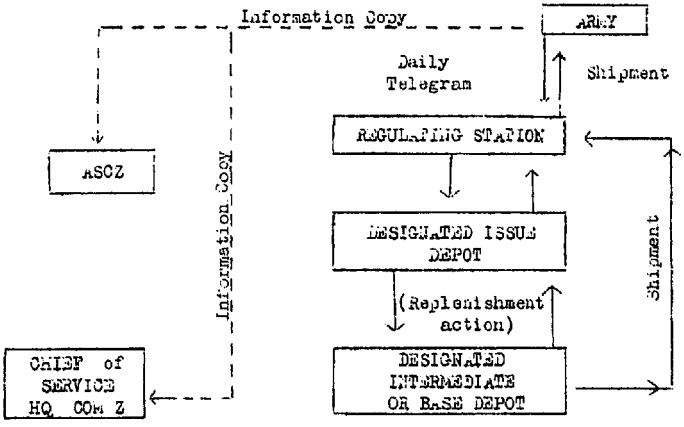
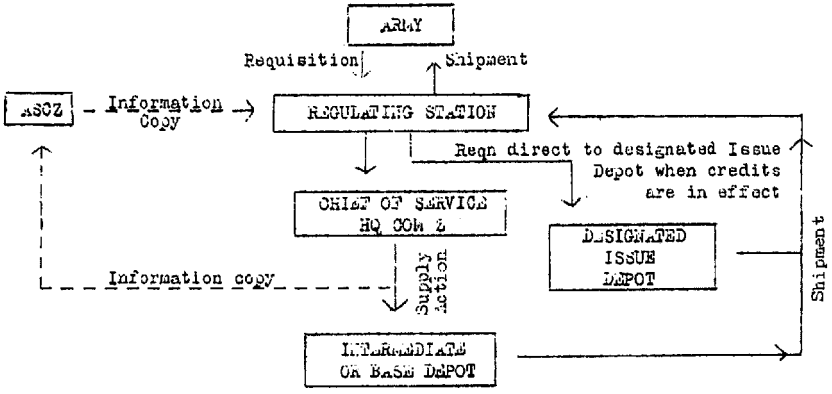


Chart B

CLASS II AND IV CONTROLLED ITEMS



Appendix No. 1 - (1)

CHART C

Class II and IV

Non-controlled Items

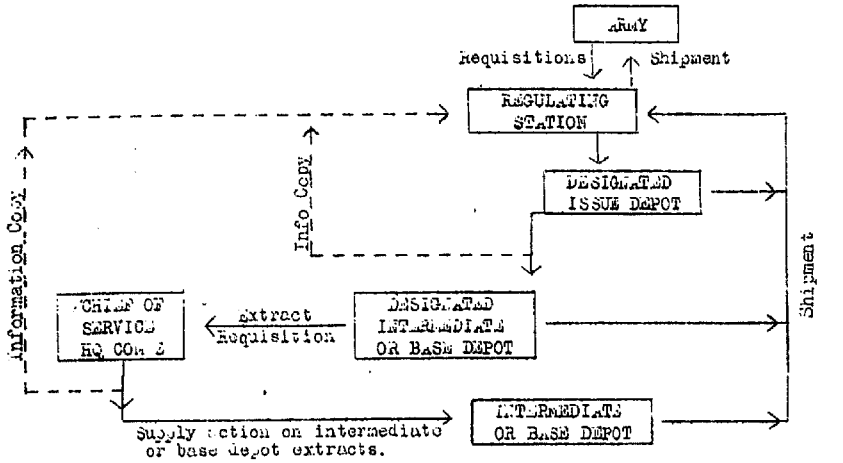
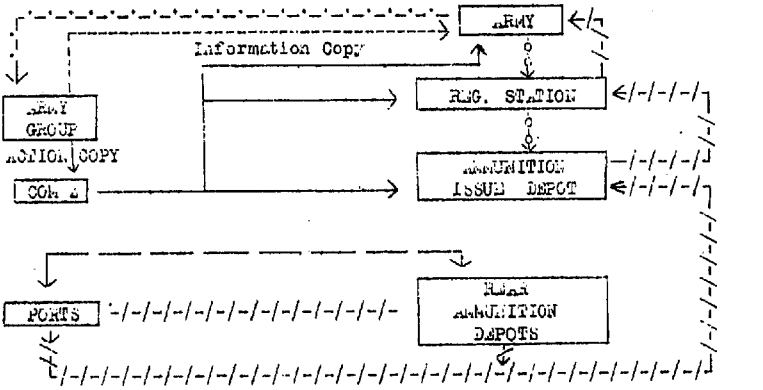


CHART D

Class V (Ordnance and CWS)

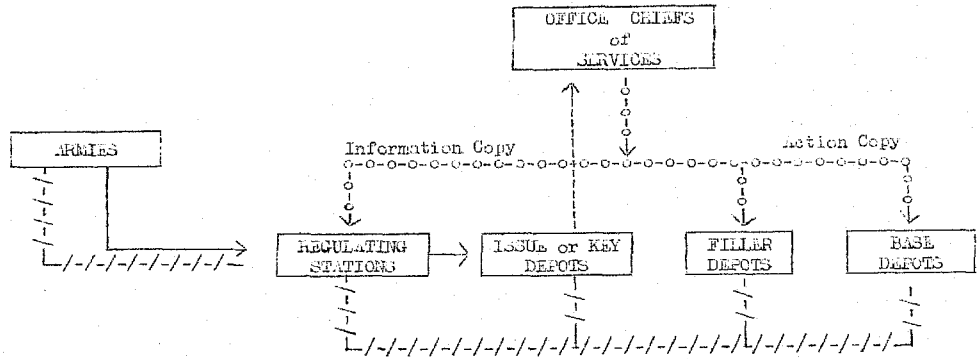


LEGEND:

Stock reports
Credit requests
Credit allocations
Requisitions or credit
Shipping orders
Shipments

Appendix No. 1 - (2)

REQUISITION AND SHIPMENT FLOW TO COMBAT ZONES
(Non-Critical Items)



Key:

————	Requisitions
-/-/-/-/-	Shipment of Filled Requisitions
---------	Extract Requisitions (Army Requisitions only)
-o-o-o-o-	Shipping Order

Requisitioning Cycle:
Class I, III, V - daily.
Class II, IV - Every 10 days.

Note:
Requirements of troops and other organizations not in the combat zone will be submitted directly to the designated depot.

Document Copies

A. Requisitions: Army prepares five (5) copies.

1. Army. One (1) for file - forwards four (4) copies.
2. Regulating Station. One (1) for file - forwards three (3) copies.
3. Issue or Key Depots. One (1) for file - returns one (1) annotated copy to the Regulating Station - forwards one (1) annotated copy to the Chief of Service as an extract requisition if required.

B. Shipping Order. Chief of Service prepared three (3) copies.

Chief of Service. One (1) for file, forwards one (1) action copy to designated depot - forwards one (1) information copy to Regulating Station.

THE GENERAL BOARD

UNITED STATES FORCES, EUROPEAN THEATER

MECHANICS OF SUPPLY OF AIR FORCES IN FAST MOVING SITUATIONS

File: R 401/4

Study Number 27

THE GENERAL BOARD
UNITED STATES FORCES, EUROPEAN THEATER
APO 408

The study on the subject of "Mechanics of Supply of Air Forces in Fast Moving Situations" which follows was prepared for the Air Forces Section of The General Board by the IX Air Force Service Command. It is included in The General Board Study, "Mechanics of Supply in Fast Moving Situations", as representing only the views of the Theater Air Forces on this subject as pertains to their own supply problems.

THE GENERAL BOARD
UNITED STATES FORCES, EUROPEAN THEATER
APO 408

MECHANICS OF SUPPLY OF AIR FORCES IN FAST MOVING SITUATIONS

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MECHANICS OF SUPPLY OF AIR FORCES IN FAST MOVING SITUATIONS

CHAPTER 1

DEVELOPMENT OF PROBLEMS OF SUPPLY

SECTION 1

INTRODUCTION

1. Introduction. The principal supply doctrine for the Air Forces in a theater of operations is Army Air Force Regulation 65-1. Considering the experience available at the time this document was written it is firmly believed that its authors did an excellent job in establishing a basis for supply of the Air Forces in a theater. All supply and maintenance units for the Air Forces were organized on the concepts and procedures enunciated in this regulation. Because of this, variations from these procedures were very difficult. Therefore in Europe every effort was made to abide by these proceduros. Despite these efforts, many major changes had to be made to cope with operating conditions in this theater. Departures from established doctrine were especially necessary in the Ninth Air Force because of the innumerable supply problems involved in supporting an Air Force in England and on the continent at the same time; in supporting an invasion of the Continent; and in supporting the rapidly moving Air Force on the Continent. Experiences in Africa and Italy were carefully analyzed and special units to perform the supply functions not provided in Army Air Force Regulation 65-1 were requested. Where special units were not provided by the War Department, regular T/O units were utilized for other than the purposes for which they were designed. The final results of such improvising were excellent in most cases.

SECTION 2

FLOW OF AIR FORCE SUPPLIES

2. Flow of Air Force Supplies. Requisitions for Air Force supplies moved in accordance with doctrine, that is, from Service Group to Depot Group to Base Depot. The flow of Air Force supplies likewise moved according to doctrine. In the last few months of the war a regulating station was established at the United States Strategic Air Force Base Depot to form complete car load lots for reshipment to various depots of the Ninth Air Force. This procedure was very successful and avoided double handling of many tons of supplies. Because of the small quantities involved on any one shipment it was not practicable to breakdown supplies for any Service Group into car load lots.

SECTION 3

BASE AIR SUPPLY FUNCTION

3. Base Air Supply Function. A Base Supply Depot for Air Force supplies has not been included in supply organization for a theater of operations. However, in Europe it proved essential. Advanced Air Depots on which depot groups were located did not have sufficient facilities for storing all Air Force supplies in the theater. When supplies were short, a common point for control of critical items was essential. Later when many excesses began to appear because of changes in types of aircraft and supplies or because of changes in consumption, the Base Depot was needed to store such excesses. The Base Depot was also used to receive all items improperly marked and to store organizational equipment or supplies arriving before an incoming unit. The original Air Base Depot at Burtonwood, England, proved essential for support of air operations in the United Kingdom.

4. Improvised Initial System. Due to lack of a base depot on the continent initially, the Ninth Air Force was forced partially to improvise a base depot utilizing two depot groups which were not trained for the function and which were badly needed for direct support of combat units. One agency had to control the air force stocks on the continent. Base Air Depot Area, United States Strategic Air Force in England could not ship by boat and rail direct to depots because by the time a shipment arrived the Advanced Depot had usually moved. Without a Base Depot the Ninth Air Force supply system suffered immeasureably. Distances and communication problems between Burtonwood and Air Depot Groups on the continent were so great that it normally took longer to receive supplies from Burtonwood than it did from the United States. Recognizing the problems of operating without a Base Depot on the continent, Air Service Command, United States Strategic Air Force began organizing a depot there in December 1944. However, because of the tremendous organizational problems encountered and time required to move supplies from the United Kingdom to the Continent, this Depot did not become efficient until after the war ended.

SECTION 4

AREA SUPPLY RESPONSIBILITIES

5. Area Supply Responsibilities. When the original plans were made for supply of all air force units on the continent a procedure was worked out whereby Air Depot Groups would be assigned the responsibility for supplying or arranging for the supply of specific units as designated by the Service Command Headquarters. However, on the continent so many small units operated independently and moved so frequently that this system failed to keep abreast of the fast moving situation. In order to correct this condition an area of responsibility was assigned to each depot group. Any air force unit moving into this area was directed to contact the depot where it would receive instructions as to where to draw all common as well as air force supplies. The unit was also given help in meeting any abnormal supply, maintenance or transportation requirements. Because of depot specialization in supply, the area support principle did not apply to service groups in direct support of combat groups. Service groups were normally assigned to depots for supply maintenance and command by the Service Command Headquarters. This procedure worked

very well and was particularly effective in solving supply problems of the many small air force units located all over the occupied area of the continent.

SECTION 5

SUPPLY MOBILITY IN AIR DEPOT GROUPS

6. Supply Mobility in Air Depot Groups. Original doctrine contemplated that Air Depot Groups would remain comparatively static during operations in a theater. However, it soon became apparent because of communication and transportation problems, and particularly the necessity for control of supplies and aircraft maintenance, that Air Depot Groups must move forward with or immediately after combat units in any mobile situation.

7. Conservation of Transportation. During early planning stages in an effort to conserve shipping, the Ground Forces and Allied Expeditionary Air Forces opposed the movement of Air Depot Groups to the continent prior to D plus 90. However permission was finally granted to the Ninth Air Force to move the first Depot Group to the continent on D plus 29. This move proved very sound. By D plus 30 the supply situation in the Service Groups on the continent was insecure. Initial levels brought by Service Groups had diminished and Depot control over supplies on the continent was essential. The backlog of aircraft awaiting overhaul had increased tremendously. The situation was relieved when the 10th Air Depot Group opened for business on D plus 35 in France.

8. Mobility of Depot Groups. The maintenance of mobility of Depot Groups presented many difficult problems. Heavy machinery was mounted on skids and supplies were stored in bins in such a manner that bins could be boxed quickly and moved by hand. Supply activities normally reopened at a new location within 72 hours after arrival. At first it was planned to offer continuous Depot support to combat groups by locating two Depot Groups together and having one continue supply service while the other moved. Because of the dispersion and rapid movement of combat groups this soon proved impracticable. As depots gained more experience in moving, a policy of overstocking Service Groups immediately prior to the move served to keep supply channels filled and also reduced the quantity of supplies carried by any depot during the move. The policy of moving depots with combat groups worked extremely well and resulted in an improved flow of supplies, adequate control of supplies in forward areas, and a considerable saving in transportation. The presence of a base depot on the continent would have simplified even more the movement of these Depot Groups. The long supply line back to the U.K. Base Depot forced Depot Groups to carry a much higher level of supplies than was originally contemplated.

SECTION 6

SPECIALIZATION OF DEPOT GROUPS

9. Specialization of Depot Groups. Experienced maintenance and supply personnel were not available to man the service units of the Ninth Air Force. Almost half of the personnel sent to the IX Air Force Service Command to form new units were basics. Basics could be trained, however, to work on one type of aircraft. Likewise,

supply personnel would in a short time learn to identify various parts of a single type of aircraft. In addition, the quantity of supplies on hand in any depot was reduced considerably if the depot supplied Air Force parts for only one type of aircraft. Overall supply requirements as well as ship tonnage was also saved by concentration of parts for one type of aircraft in one depot. Therefore, the Depot Groups of the Ninth Air Force normally specialized in handling one type of aircraft. The only exceptions to this policy existed in one Air Depot Group which supplied all parts for miscellaneous aircraft such as C-78s, C-64s, L-4s and L-5s, and one group which supplied parts for P-51s and P-38s. This plan worked better on the continent than in England because of the cluster principle of airfield locations which normally concentrated the same types of aircraft in one or two localities. However, there were certain important exceptions such as P-61 and P-51 aircraft which were located throughout the fighter area. This problem was fairly well solved by locating the depot carrying these spares near the center of all fighter clusters. Despite this weakness, it is believed that specialization of Air Force Depots afforded a more effective control of supply flow; much more efficient repair and modification of aircraft; and a greater mobility for all Depot Groups.

SECTION 7

AIR FORCES CONTROL OF SUPPLIES AT PORTS AND ON BEACHES

10. Air Force Control of Supplies at Ports and on Beaches. Shortly after the arrival of the Air Forces in England it became apparent that Air Force supplies were not reaching their intended destinations in this theater. Services of Supply personnel at docks had difficulty in identifying and shipping Air Force supplies. To meet this problem Air Forces personnel were stationed at all ports in England to direct and control the flow of Air Force supplies. There was an immediate improvement in the receipt of all items. Reports from the African Landings showed that an unsatisfactory supply situation had arisen because Air Force supplies were mixed with Ground Force items. To meet this problem, an Intransit depot unit was formed by the IX Air Force Service Command to control the flow of all Air Force supplies from boatside to Air Force dump on the beach. This, coupled with a distinctive Air Force marking, gave such excellent control that only a negligible portion of Air Force supplies was lost permanently. Without the effective operation of this Air Force Beach Dump, continued maintenance of a high operational effort during the early stages of the invasion would have been impossible. When continental ports opened and rail transportation improved the procedure as followed in England was adopted and Intransit Depot Units were used elsewhere.

SECTION 8

PRESTOCKING OF AIRDROMES

11. Prestocking of Airdromes. As front lines moved forward rapidly, fighter groups moved forward with equal speed. All fields had to be stocked with essential supplies prior to occupancy by a Combat Unit. When a new "cluster" was selected a detachment of the Intransit Depot Group was moved up to establish a centrally located bomb dump and a packaged aviation gasoline dump. Bombs and gasoline were rapidly moved into take care of the initial requirements of the

combat groups to be located in the cluster. An advanced party of the Service Team then moved on to the new airdrome and stocked the field with a 3 day level by drawing from the central dump in the cluster. The Combat Group moved in 3 or 4 days later followed by the Air Depot Group about three weeks later. Supply then settled back to normal.

12. The Problem of Overstocking. One serious difficulty encountered early in the campaign resulted from the Service Team overstocking airdromes because of the natural fear of running short of gasoline and bombs. Airdromes in Normandy were so overstocked that Service Groups had to leave behind large quantities of gasoline and bombs when they moved. This presented a terrific clean up problem for other hard-pressed units of the Service Command. A very strict control over supply levels on all strips soon solved this difficulty.

13. Establishment of Airdromes. Airdrome Squadrons were designed to provide first and second echelon supply and maintenance service at forward airdromes prior to the arrival of the combat unit. Airdrome Squadrons were used to establish the first airdromes in France. However, because of the inexperience of these units in supply procedures and uncertainty of personnel as to the requirements and desires of the incoming group, the arrangement did not work too satisfactorily. After initial stages, advanced detachments of Service Groups set up their own stations. This arrangement resulted in more effective operations.

SECTION 9

SUPPLY OF AVIATION GASOLINE

14. Supply of Aviation Gasoline. Because troops were available to them, an agreement was reached whereby Communications Zone would handle aviation petroleum, oil and lubricants (POL) for the Ninth Air Force on the continent. It was planned that Communications Zone would construct and operate pipelines, construct bulk storage where required and transport aviation gasoline to dumps operated by them, located within forty miles of using Air Force units. Air Force units would draw and transport aviation POL from these dumps. However, Supreme Headquarters Allied Expeditionary Force and the 12th Army Group decided that no packaged aviation POL would be shipped to the continent after D plus 20 because of the dire need for cargo shipping and the less critical situation as regards tankers for bulk gasoline. Communications Zone planned that pipeline facilities would be in operation by D plus 15, delivering daily maintenance requirements in bulk at Port En Bessin and Cherbourg, with the result that the Ninth Air Force made plans to use bulk gasoline for daily requirements after that date. The packaged aviation POL then on the continent was to serve as a reserve for temporary use only when moving to forward airdromes pending the establishment of bulk facilities. In order to operate on bulk gasoline in the early stages, provision had to be made for adequate storage facilities as the availability of captured storage was questionable. It was decided to use 15 merang cells of 1,000 gallon capacity each per Fighter Squadron and bolted steel tanks, to be constructed by IX Engineer Command, of 21,000 gallon capacity per strip for airdrome storage and that Communications Zone would construct steel tanks at ports to hold bulk reserves. Merang cells were ordered from United States in December 1943 but on D-Day only a limited number had arrived in the United Kingdom despite the assignment of high priorities. Merang cells began to arrive in quantity on D plus 30 but a shortage continued through D plus 90. In order to provide bulk storage, as many as 150 merang cells of 1,000

gallon capacity each, were mounted at a central point to aid distribution. At D plus 46 the stocks of bulk aviation gasoline were dangerously low and the grounding of United States aircraft for lack of fuel was averted by borrowing 2 days requirements of bulk aviation gasoline from the British. Following this experience, stocks of aviation gasoline in storage points on the continent became common property of both the Ninth Air Force and the Royal Air Force. The reasons for the critical aviation gasoline situation are listed as follows:

a. Communications Zone was unable to construct bulk aviation gasoline storage facilities at ports in the required time and of the planned capacity.

b. Because of the shortage of materials and personnel the IX Engineer Command was able to provide only a few strips with bolted steel tank storage by D plus 30. When completed, these tanks leaked badly causing serious complications.

c. Bulk aviation gasoline tank ships, did not arrive on schedule, the first being on D plus 23 at Port En Bessin. Bulk storage facilities in Cherbourg, the principal storage point, were made operational by D plus 30, prior to the arrival of tank ships at Cherbourg, but considerable additional time was required to make the harbor serviceable so that the first bulk shipments were not unloaded at Cherbourg until D plus 55.

d. Communications Zone was unable to construct the pipeline as planned.

e. There was a shortage of Communications Zone personnel for operation of aviation gasoline dumps.

15. Use of Expedients. On D plus 65 the stocks of packaged aviation gasoline were very low and 12,000 tons were ordered from the United Kingdom to provide aviation fuel at new forward airdromes pending the construction of bulk storage facilities. On captured airdromes existing facilities for the storage of bulk aviation gasoline were reconditioned by Service Groups since IX Engineer Command personnel, who were better qualified for this work, were fully occupied with other duties. While the aviation gasoline difficulties encountered were tremendous, actual consumption through D plus 45 was only one third of that planned. From D plus 45 to D plus 90 consumption was only two thirds of the planned rate. The air effort as planned could not have fully materialized due to aviation gasoline supply and distribution difficulties. As emergencies developed, packaged POL was flown from the United Kingdom, bulk gasoline was borrowed from the British, and IX Air Force Service Command personnel and vehicles were used to perform the aviation gasoline functions that Communications Zone could not do. The converted truck companies, equipped with P-2 and P-3 fuel servicing vehicles for the transport of bulk aviation gas, made it possible to keep aircraft in combat under these extreme difficulties.

16. Importance of Aviation Gasoline. The supply of aviation gasoline is the most important requirement for any Air Force. Without it an Air Force is a liability. The Ninth Air Force was nearly without adequate supply of gasoline at many times.

SECTION 10

TRANSPORTATION

17. Truck Transportation. For economy and flexibility a policy was followed whereby only sufficient truck companies would be assigned to service teams and depot groups to enable them to perform daily functions. The remaining truck companies were pooled and formed into battalions and regiments. Their function was to deliver all supplies from dumps or depots to using units in accordance with instructions of depot commanders. This method worked very satisfactorily in England and on the continent until the St. Lo breakthrough. Shortly after the St. Lo breakthrough a revision of transportation policies for delivery of supplies was necessary because Communications Zone could not establish dumps within forty miles of Air Force units as planned in original plans prior to invasion. All organic 6 X 6 trucks of service teams and tactical groups were then operationally pooled. They hauled all supplies possible, including bulk aviation gasoline, from dumps to tactical stations. The truck companies of the regiments hauled from beaches to dumps thereby taking over some of Communications Zone's functions. Many times the delivery of supplies necessitated a round trip of 500 to 600 miles by IX Air Force Service Command trucks. This situation continued to exist until V-E day. In the original plan, three of the pooled truck companies were equipped with refueling units. Communications Zone had planned to deliver all bulk aviation gasoline, by pipeline, tank car or truck to storage points located within 40 miles of tactical units. They were not able to accomplish this. Therefore, gasoline truck companies of the Service Command were used to move forward considerable quantities of gasoline over distances of 100 to 500 miles. In addition to truck transportation, air lift was used to move supplies and gasoline at critical times.

18. Water Transportation. In the movement from the United Kingdom to France, truck companies carried supplies and equipment of Service Teams and Depot Groups to the continent. These supplies were delivered direct to tactical or depot sites. This insured a sizable tonnage of supplies for immediate operating requirements. This procedure saved many planes from being grounded for lack of parts. Because Air Force supplies were loaded on the same ships as Army supplies, in many cases they arrived weeks late. As explained by operating beach personnel, the Army and the Communications Zone had authority to change priorities at will. This resulted in Air Force supplies scheduled for shipment from English ports on certain days, remaining in port. It also delayed, in many instances for days, their off loading because of priority placed by Army or Communications Zone. On several occasions IX Air Force Service Command furnished as many as 300 trucks to assist in off loading Army supplies in order to obtain critically needed Air Force supplies. It was also necessary on numerous occasions to detail personnel to check physically the cargo of the various ships anchored off the beaches in an endeavor to locate critically needed supplies. If successful, priorities then had to be arranged for off loading. Shipping manifests for months after D-Day could not be obtained for ships leaving English ports.[2] It was also necessary for personnel of Ninth Air Force to help identify Air Force supplies being off loaded from ships, check transfer points and Army dumps in an endeavor to keep track of Air Corps supplies. This situation was caused by mixing Air Corps and Army supplies in the same ship and personnel not familiar with or overlooking Air Corps markings. To overcome this situation one LCT was finally obtained for the exclusive movement of high priority items for the Air Force. This solution helped only partially to solve the problem.

19. Air Transportation. One Air Transport Group was originally planned for the invasion Air Force. Its primary function was to maintain daily couriers between base depot and all Air Depot Groups for delivery of airplane on ground parts or any other emergency supplies that had to be transported from the United Kingdom to the continent. The same theory was used in planning air transportation as that used in truck transportation, namely, only enough air transport time would be assigned to service teams and depot groups for normal daily requirements. Pooled air transport within the Service Command would take care of emergency requirements. Shortly after D-Day it became necessary to assign this transport group directly to United States Strategic Air Forces for operation of United States Strategic Air Forces transport service. This service could not satisfy the requirement described above. Without operational control it was not possible to obtain satisfactory air lift for emergency supplies in a fast moving situation. Aircraft was based either in the United Kingdom or so far in the rear that contact was very difficult. Communications were so bad that the only method available to communicate requirements was by Air Courier. Due to the time element this was most frequently because of hourly changing conditions. Requests for transportation forwarded one day could not be confirmed or disapproved until the following day, then it would be two to four days, before confirmation was received that work had been accomplished. Constant complaints were received from service teams and combat units that promised supplies had never been delivered. To overcome this difficulty a Provisional Transport Group was formed by the IX Air Force Service Command in the United Kingdom and moved to the continent in September 1944. Their services were of paramount importance in the delivery of airplane on ground parts, ammunition and packaged gasoline to the Air Forces during critical periods.

SECTION II

FLOW OF COMMON USER EQUIPMENT AND SUPPLIES

20. Flow of Common User Equipment and Supplies. The equipment requirements of the Air Forces in the European Theater were not effectively met for those items furnished by the Air Service Command, Zone of the Interior from their requirements for common user items supplied by the Army Service Forces. Experience in the European Theater early in the war indicated that changes in types of air force units and in numbers of units were necessary in order to meet the greatly increased air effort. In addition, experience had proven that certain increases in tables of equipment were essential in order to support effectively operations in the European Theater. Requisitions for increases in air force items were filled or empty by the Air Service Command in the United States after approval by the Theater Air Force Commander. On the other hand, requirements for increases or changes in common user equipment had to be cleared through every Ground Force headquarters up to the War Department, and because the action necessary to meet Air Force requirements was not being taken, an officer of the Theater Air Force Command was dispatched to the United States in January 1944 to follow personally each T/E change through Headquarters, Army Air Forces, the War Department, and Army Service Forces. Even after this action common user equipment arrived barely in time to equip the Ninth Air Force prior to the invasion. This policy of the Army Service Forces, which was apparently not cognizant of the urgency of air force requirements, reduced the effectiveness of air operations prior to the Spring of 1944, and constituted a serious threat to the successful preparation of Air Force organizations for the air invasion of the European continent. After the invasion had started certain

types of equipment, such as trucks, had to be transferred from later-phased Air Force units to units scheduled for early cross-channel movement. This seriously affected the efficiency of the former units since they had to continue to support an active fighting unit in England.

21. Shortage of Replacement Items. The replacement of Army Service Forces equipment likewise was not normally sufficient to meet requirements. This was particularly true of Ordnance equipment. Vehicles, spare parts for vehicles, and bombs usually were not available to meet Air Force requirements. Trucks were driven under dangerous conditions thousands of miles beyond their useful lives. Signal items such as spiral four cable and telephone carrier equipment were not available in sufficient quantities. Coveralls for Air Force mechanics were not available in sufficient quantity.

22. Liaison Problems. The Air Forces had considerable difficulty in drawing essential critical items from Communications Zone depots in the field. Contacts between the Air Forces units and the Communications Zone base sections were unproductive. In order to achieve any results contact had to be established between the Headquarters of the IX Air Force Service Command and the Headquarters of the Communications Zone. During critical periods, motor transport gasoline dumps refused to issue any gasoline to Air Force units in forward areas. This problem was taken up several times with Headquarters Communications Zone which recognized the justification for the complaint and issued instructions which temporarily solved the problem. The Base Sections did not consider Air Installations when locating ration dumps. Major Air units in "airfield clusters" frequently travelled as far as 100 miles to draw daily rations and motor transport fuel.

23. Cooperation. In general the Headquarters, IX Air Force Service Command and the Headquarters Communications Zone worked together very well in Europe. When approached at the higher levels, Communications Zone personnel showed a keen interest in assisting the Air Forces to meet their commitments. However, basically, conditions which developed out of the campaign and which are understandable to all prevented the Communications Zone from fully supporting the Air Forces in Europe.

24. Communications Zone Problems. It was the responsibility of the Communications Zone to furnish logistical support to both the Air Forces and the Ground Forces. The Communications Zone was not basically organized for most effective support of the Air Forces. Few, if any, Communications Zone personnel were acquainted with air force problems, and they tended to disregard air force matters in arriving at decisions. The principal efforts of the Communications Zone were made in the forward areas, whereas the majority of the fighting air force units were located in the rear areas. The rigid adherence to tables of equipment and tables of basic allowances indicates that the Communications Zone and more particularly the Army Service Forces were geared to policies and procedures which could not react quickly enough to changing conditions found in the air forces. These inherent disadvantages and the results achieved indicate that the Communications Zone was unable to support the air effort in Europe as effectively as it supported the Ground Forces.

SECTION 12

COMMAND ASSIGNMENT OF DEPOTS

25. Command Assignment of Depots. The assignment of the Base Depot and the advanced depots should be in the same chain of command. This is necessary in order to provide flexibility in the utilization of material and personnel assigned. In this way, these resources can be moved about in accordance with location of peak loads. Air Force commands on the continent operated with their own advanced depots which were in the tactical chain of command. Such installations were operated by the Eighth Air Force, the Ninth Air Force, IX Troop Carrier Command, First Tactical Air Command (Prov.), while Air Technical Service Command in Europe had in its chain of command only the Base Depot. Service efficiency suffered thereby through lack of flexibility. Flexibility is the keynote of air supply and maintenance effectiveness in fast moving situations. This Base Depot operating alone on the continent was seriously handicapped. It could not take care of peak loads and when it could not cope with such loads it could not produce effectively. By having all depots in the same chain of command much greater flexibility would be obtained. Separation of Base Depot from chain of command of advance depots hampered the flexibility of supply operations in occupied countries.

CHAPTER 1

BIBLIOGRAPHY

The statements made in Chapter 1 of the study on "Mechanics of Supply of Air Forces in Fast Moving Situations" are based on the following reports:

1. IX Air Force Service Command report, "The IX Air Force Service Command in Operation OVERLORD, D plus 15 to D plus 90", dated 20 January 1945.

2. Monthly Progress Reports of IX Air Force Service Command, January 1944 to June 1945.

CHAPTER 2

CONCLUSIONS AND RECOMMENDATIONS

SECTION 1

CONCLUSIONS

26. Conclusions. It is concluded that:

a. In future campaigns it is essential that provision be made for a self-sufficient supply system operated for the Air Forces and by the Air Forces. All items required by the Air Forces, except food and motor transportation fuel, should move under Air Force control from the Zone of the Interior to the Air Force user to the extent practicable. Food and motor transportation POL should move in service force channels to Air Force depots located by the Air Forces in the theater. Within a theater of operations transportation by water and rail should be allocated between Ground and Air Forces by a neutral agency such as an independent theater headquarters. This allocation should include complete ships and trains which would be operated by the transportation corps of the service forces.

b. Provision for a Base Air Supply Depot should be made whenever a large Air Force operates in an area geographically separated from a base of supply. Distances are not as important as barriers. In operations in Europe, the English Channel separated the United Kingdom from the continent and caused the major bottleneck.

c. Specialization of Air Depots wherever feasible or possible, increases the overall efficiency of supply in fast moving situations.

d. Definite assignment of area supply responsibilities to Air Depots decentralizes many supply details and overcomes many problems resulting from poor communication and transportation shortages.

e. Establishment of the highest possible degree of mobility is essential in all units including the Air Depot Groups of any Service Command supporting a Tactical Air Force. The time and effort devoted to training Service Units to remain mobile pays tremendous dividends during the campaigns.

f. Advanced detachments of Service Groups should stock and establish new airdromes for combat units.

g. Pooling of truck transportation increases flexibility of supply operations and provides a means for coping with varying lengths of lines of communications.

h. Formation and operation of POL truck companies by the Service Command gives greater flexibility in coping with varying conditions in the supply of aviation gasoline. Many times these units alone kept the Air Force in the air.

i. Sufficient air lift to provide for the daily miscellaneous requirements of an Air Force should be assigned to the Air Force Service Command, particularly in fast moving situations.

j. It is absolutely essential that the closest relationship

and the highest spirit of cooperation exist between the Air Service Command Headquarters and the Air Force Headquarters as well as the Tactical and Bomber Command Headquarters; between Air Depot Groups and Combat Wings or Tactical Air Commands; and between Service Groups and the Combat Groups they support. The maintenance of the supply organization in the chain of command with close lateral coordination with Combat Commands produces a most effective logistical support for an Air Force.

SECTION 2

RECOMMENDATIONS

27. Recommendations. It is recommended that:

a. Advance detachments of Service Groups always precede combat units to establish and prestock new airdromes.

b. A self sufficient supply system be available to and under the full control of the Air Forces.

c. The lessons learned from Air Force supply operations in the fast moving situation experienced in the European Theater and the principles considered to be sound as set forth in this study be reflected in Air Force publications and teachings and in the planning and conduct of future air operations.