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LOGISTICAL BUILD-UP IN THE BRITISH ISLES

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THE GENERAL BOARD
UNITED STATES FORCES, EUROPEAN THEATER
APO 408

LOGISTICAL BUILD-UP IN THE BRITISH ISLES

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LOGISTICAL BUILD-UP IN THE BRITISH ISLES

CHAPTER 1

SCOPE

This paper has as its purpose the evaluation of the logistical build-up in the British Isles during 1942 - 1944 in preparation for the invasion of France.

It attempts briefly to describe and evaluate the more important logistical problems and procedures, both good and bad, which were important in the development of the British Isles as an invasion base by the SOS.

Details and historical data are included only to the extent necessary to provide a background for the conclusions reached. Such data have been obtained largely from information accumulated and studies being prepared by the Historical Section of Headquarters, Theater Service Forces, European Theater. These studies should be referred to for a more complete understanding of logistical activities in the British Isles.

CHAPTER 2

PROBLEM AND BACKGROUND

SECTION 1

DEVELOPMENT OF OVERALL TACTICAL PLANS

1. Plans for Invading France. For almost a year before the United States entered the war, preliminary discussions were taking place between British and United States authorities concerning possible tactical plans and the possible development of an invasion base in the British Isles.

By June 1942 when United States troops began to arrive in the British Isles in more than token numbers, operations against the enemy in France were contemplated either in 1942 or 1943[1]. An invasion in 1942 was visualized in the event of the sudden collapse of Russia and the active participation of Vichy France, Spain, Portugal, and Turkey as allies of Germany. This 1942 operation was not to include any U.S. Forces and was to be limited in scope and depth to little more than a beachhead operation. The 1943 operation (Plan ROUND-UP), on the other hand, was to be a full-scale operation utilizing the approximately 1,000,000 United States troops scheduled to be in the British Isles by that time and having as its initial objective deep penetration and the development of ports.

Events in Europe made the 1943 invasion attempt unnecessary. The draining of troops and supplies from the British Isles to take part in the North African operations beginning in November 1942, and the resulting low priority of the European Theater for obtaining troops and supplies following that date, ruled out the feasibility of an invasion during the spring of 1943. This situation was clearly expressed in a letter from the Commanding General, SOS, WD, Washington, which in part said: "Sufficient equipment and shipping simply are not available both for the support of the North African campaign and for stockpiling supplies on a large scale in the British Isles. Although planning for ROUND-UP may continue, no equipment or supplies can be forwarded to the United Kingdom in excess of those required to support the approved garrison of 427,000 American troops". The same letter prohibited the obtaining of supplies through Lend-Lease arrangements with the British for purposes other than the support of the authorized troop basis[2].

There followed a number of months during which it was not yet decided whether the main effort against Europe would be mounted from the British Isles at all. The success of operations against North Africa and later against Sicily and Italy opened up the possibility of a major invasion of Europe from the South. At that time there was also the possibility of a German collapse, which would, of course, eliminate entirely the necessity of a major European invasion.

Another factor limiting overall logistical preparations in the British Isles prior to the fall of 1943 was the high priority of shipping and supply given to the development and continuation of the air offensive against Europe by United States Forces in the British Isles.

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1. Round-Up Administrative Planning Staff Conveners' Document #1, British War Office, RAP (42) 7 (O), 17 June 1942.

2. Ltr. from Gen. Somervell, CG, SOS, WD, Washington to Gen. Lee, CG, SOS, ETO, 17 November 1942.

It was not until the Quadrant Conference in August of 1943 that the original plan of mounting a major operation against France from the west was reinstated and the European Theater was again given a high priority for the build-up of personnel and supplies.

The plan approved by the Quadrant Conference and later confirmed in the Sextant Conference of December 1943 called for a major invasion in the spring of 1944. This plan was known as OVERLORD.

COSSAC had issued its "OVERLORD Appreciation" on 15 July 1943. There followed the COSSAC "OVERLORD Plan" on 7 January 1944. The detail plan for the first fourteen days of OVERLORD (that part of the operation known as NEPTUNE) was issued jointly on 1 February 1944 by the Allied Naval Commander, Expeditionary Force, the Commander-in-Chief, Twenty-First Army Group, and the Air Commander-in-Chief, Allied Expeditionary Air Force.

2. Plans for Occupying Europe. While plans were being made to invade Europe, it was necessary to prepare for the occupation of the Continent under conditions of little or no resistance, if they arose.

These preparations, calling for substantially less personnel and equipment, were not influenced greatly by diversionary factors such as the invasion of Africa and were not the subject of constant concern and changes on a governmental level.

On 30 October 1943, a plan called "RANKIN 'Case C'" was issued by COSSAC. Its objectives were to enforce the terms of an unconditional surrender and to assist in the rehabilitation of liberated countries. Other plans in the RANKIN series, referred to as 'Case A' and 'Case B', were designed to overcome varying degrees of resistance, considerably less than that visualized under OVERLORD, in preparation for the execution of 'Case C'.

Conditions during 1943 and 1944 necessitated detailed planning and, to some extent, actual preparations to enable the RANKIN plans to be carried out on short notice. However, insofar as these operations could, generally speaking, be carried out with troops and equipment being accumulated in the British Isles for operation OVERLORD, they did not create any special major problems nor have any significant effect on logistical preparations for the major invasion effort scheduled for spring 1944.

SECTION 2

DEVELOPMENT OF UNITED STATES ORGANIZATION IN THE BRITISH ISLES

3. Establishment and Development of Theater Headquarters. Headquarters, United States Armed Forces in the British Isles (USAFBI) was organized in London on 8 January 1942. It replaced the Special Observer Group (SPOBS), which had been organized in May 1941 as part of the United States Embassy staff, and which, upon the entry of the United States into the war had divorced itself from the Embassy and become the United States military Headquarters in the British Isles.

The European Theater of Operations, with a specific geographical sphere of responsibility, was established 8 June 1942.

4. Establishment and Development of the SOS in Europe. On 24 May 1942, Headquarters, Services of Supply, USAFBI, was activated. In June, following the establishment of the European Theater, it was redesignated as Headquarters, Services of Supply, ETO. Finally, on 7 June 1944 it became Headquarters, Communications Zone, ETOUSA[1]. For simplification it is referred to as SOS throughout this document.

The SOS, ETO, had both General and Special Staff Sections. Also, significantly, Headquarters ETO had Special Staff Sections for a while. The Special Staff Sections of Headquarters ETO were comparatively small, the largest having not more than six to ten officers. Since practically all supply functions and responsibility were delegated to SOS, the Special Staff Sections of Headquarters ETO came to have as their only important functions liaison with British Headquarters in London (SOS was moved from London to Cheltenham in the summer of 1942) and future operational planning.

The Headquarters ETO, Special Staff Sections were eliminated in March 1943, when Headquarters SOS established an echelon in London consisting of the planning staffs of G-1, G-4, and each of the Special Staff Sections[2]. This SOS planning echelon was to carry out overall planning in conjunction with Headquarters ETO and British and inter-Allied organizations located in London. The SOS staff remaining in Cheltenham was to be responsible for current operations and detailed planning. Chiefs of Special and General Staff Sections were directed to divide their time between London and Cheltenham.

This split in SOS Headquarters was brought about by the desirability of having SOS planning staffs near the various other planning agencies in London, and by the inability of facilities in London to accommodate the entire SOS staff.

However, it is generally considered that the disadvantages in splitting the Headquarters more than offset the advantages. Among the more serious disadvantages were the following:-

a. As a whole the SOS did not have enough capable, experienced officers to operate its Headquarters efficiently in two echelons and, at the same time, provide key officers for Base Section Headquarters and other important SOS installations and activities.

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1. GO #60, ETOUSA, 7 June 1943.

2. GO #25, Hq SOS, ETOUSA, 12 April 1943.

b. While it was desirable that each General and Special Staff Section have a separate, long-range planning and policy group, such officers as could be spared for such a section needed the constant advice and guidance of all key and specialized officers in their entire staff section much more than they needed contact with planning staffs outside the SOS. This was particularly true of the Special Staff Sections.

c. Travel facilities between London and Cheltenham were inadequate and, for the most part, time-consuming. Wire communications were also inadequate. Constant personal liaison between the two offices was impractical.

d. Substantially more personnel was required to operate the Headquarters in two echelons.

e. Action matters were often delayed because of the frequent necessity of concurrence from both echelons of a staff section and the frequent absence of the Chief of Section from the echelon required to take the action.

The internal organization of SOS (including the Base Sections), the extent to which it duplicated, or was duplicated by, the staff of Headquarters ETO, and appropriate conclusions and recommendations as to organization are the subject of a separate study and are not within the scope of this document[3]. It is desirable to point out here, however, that the elimination of separate Special Staff Sections on the Theater and SOS levels as described in previous paragraphs, and the appointment of the Commanding General, SOS as G-4, European Theater of Operations in addition to his other duties, were definite improvements in overall efficiency[4].

5. Conclusion. Splitting an SOS type Headquarters into two or more echelons decreases its efficiency to such an extent as almost invariably to offset any advantages.

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3. Document currently being prepared by the General Board, United States Forces, European Theater, entitled "The Organization and Functions of the Communications Zone".

4. GO #33, Hq ETOUSA, 27 May 1943.

SECTION 3

DEVELOPMENT OF THE BRITISH ISLES AS AN INVASION BASE - BOLERO

6. General. Logistical build-up in the British Isles, as shown in preceding paragraphs, was directly affected by the successful invasions of North Africa and Italy, the world-wide shortage of shipping and supplies, the priority given the air offensive carried on by the United States from England, and , for a number of months in 1943, the indecision as to whether the major effort against Europe should come from the south or the west.

The following paragraphs describe the overall development of the British Isles as an invasion base and trace its progress through the various changes in priority and planning.

7. The BOLERO Program and the BOLERO Committees. The build-up of United States forces and supplies in the British Isles took place under a joint American-British logistical program called BOLERO, established by the Joint Chiefs of Staff in Washington.

During the spring of 1942, a BOLERO Combined Committee was set up in London, comprising representatives of the British Ministries and Armed Forces, and the American Army, Air Force, and Navy. Major matters of policy requiring decision or arbitration were referred to the Committee. Less important matters were settled by numerous sub-Committee organized to deal with problems in specific categories. Matters which could be settled directly between the American and British agencies concerned were not referred to the BOLERO Committee or its sub-Committees unless they were of considerable importance.

A second BOLERO Combined Committee was set up in Washington in connection with the Joint Chiefs of Staff to settle matters requiring consideration on a governmental level.

8. United States Basic Planning Directives and British BOLERO Key Plans. The decisions of the BOLERO Combined Committee in London, as well as complete aspects of the overall plan for accommodating United States personnel and supplies in the British Isles, were issued in a series of four BOLERO Key Plans. These Key Plans, published by the British War Office with the concurrence of appropriate United States authorities, constituted directives to the various British agencies concerned with United States requirements, but were distributed to United States agencies merely as a matter of record and for information and guidance.

For the United States the nearest equivalents to the BOLERO Key Plans were the Basic Planning Directives published by Headquarters SOS, covering only such decisions and plans as were of concern to the SOS and its various subordinate commands and staff sections.

9. Details of the BOLERO Key Plans. The basis of the various Key Plans and a few of their important provisions are outlined below, principally to indicate the fluctuating factors forming the foundation for logistical build-up in the British Isles.

The First BOLERO Key Plan, 31 May 1942, was based on an overall United States build-up of 1,049,000 men and an invasion date of spring 1943. Among its more significant provisions was the decision to clear British troops out of the southern part of England (British Southern Command) except for those engaged in air defense and certain other types of specialized work,

and to use the area for the accommodation of the majority of the United States Forces. These forces, in turn, were responsible for protecting the area against invasion and raids.

The Second BOLERO Key Plan, 25 July 1942, was based on an overall United States build-up for 1,147,000, with the invasion date remaining unchanged. It gave further details in line with the basic decisions of the first Plan. Included in it were provisions for receiving 120 shiploads per month of supplies for United States Forces, one-fourth of which was estimated to be vehicles and two-thirds of which were estimated to require covered storage. To handle this load at the ports, the United States was to supplement British dock labor with sixteen port battalions and eight service battalions. It was anticipated that the British rail system would have to provide 300 passenger and baggage trains per month and sixty freight trains per day.

The Third BOLERO Key Plan, 11 November 1942, was an interim plan based on the unexpected diversion of United States personnel and supplies to Africa and the indecision on governmental levels as to the future role of the British Isles as an invasion base. While emphasizing that the Second BOLERO Key Plan was only temporarily set aside, it directed planning for only 427,000 United States troops through May of 1943, provided for no major supply build-up, and indicated an uncertain future.

The Fourth Key Plan, 12 July 1943, changed the invasion date from the spring of 1943 to the spring of 1944 and called for a build-up of 1,340,000 men. It required handling a maximum of 150 shiploads of U.S. cargo per month rather than the previous figure of 120. An amendment to the plan published on 30 October 1943 changed the troop basis to 1,460,000.

SECTION 4

POOLING OF BRITISH - AMERICAN LOGISTICAL RESOURCES

10. Problem. Basically, the spirit and agreements underlying joint operations with the British called for the pooling of all resources and their use either by the British or United States forces on an equal basis as required.

This principle was carried out with respect to most of the important logistical aspects of the operation. Lend-Lease, under which enormous quantities of supplies were turned over to the British, and reverse Lend-Lease arrangements, under which almost ten million ship-tons of supplies were transferred from British resources to United States Forces in the British Isles up to D-Day, resulted in British and U.S. troops' being equipped and supplied equally well.

There were, however, important factors making it unwise, from the United States' point of view, completely to apply this principle of common supply in the British Isles to all logistical resources. These factors are summarized as follows:-

a. The absorption of United States personnel into British operations directly serving both the United States and Britain, while in many instances desirable for short-term efficiency, deprived United States personnel of experience in doing the job independently and according to the procedures of their own army. Such experience was essential in preparation for independent operation on the Continent.

b. Problems of maintenance, especially on the Continent, made impractical the free exchange of equipment and supplies.

c. With regard to certain consumer-type items, especially foodstuffs, the United States and British scales and standards varied widely.

The following three paragraphs discuss examples of specific problems arising in the pooling of logistical resources.

11. Rations. United States troops arrived in the British Isles well in advance of their rations and their facilities to receive, store, and issue them. They were subsisted on British rations. By March 1942 sufficient United States rations had arrived to permit the issue of a modified British ration substantially changed to conform to the taste of the troops.

This British American ration was not satisfactory to United States troops. Of necessity it contained various commodities in much different proportions than they were accustomed to or liked. It was clear that the average soldier would always consider it, or any modified British ration, greatly inferior to the ration he had been consuming in the United States or to the ration he expected overseas. Therefore, while it was conceded that a modified British ration, nutritionally equal to United States' standards, could be made available, it was clear that it would never be acceptable to the American soldier. It would be necessary to have a completely separate United States ration and a separate ration distribution system.

The British, on the other hand, strongly recommended that American-British subsistence resources be pooled and that United States Army units continue to draw food from British depots. This would have permitted the continued handling of all food in the British Isles by the Ministry of Food. Distribution to all military personnel would have been accomplished by the Royal Army Service Forces. This system would undoubtedly have resulted in many economies. However, there were numerous reasons, such as the effect on morale of U.S. troops, why this plan could not be accepted by the United States. In a letter of 17 April 1942, Lord Woolton of the British Ministry of Food expressed his regret that the U.S. Army had definitely decided to set up its own depots and to import its own, separate food supply.

Besides matters of United States morale and economy in distribution, another factor was involved: the psychological effect on the British of the United States Forces' having a definitely superior ration. While this point was kept in mind, the only real compromise made was the use of the British National Wheat Flour for United States troops. Even this compromise was influenced to no small extent by the dependence of the United States on British baking facilities that were producing for British military and civilian consumption as well. United States' soldiers, who for the most part considered the bread untasty and definitely inferior (although its nutritional content was excellent), looked upon this compromise as a substantial sacrifice.

12. Post Exchange Items presented a problem similar to rations, in that the quality and scale of issue for United States troops was definitely superior to that for the British. As a result the U.S. agreed to limit its candy and soap ration to substantially that of the British troops and to use large quantities of inferior British candies.

13. Transportation System. An example of proposals to absorb United States resources into a British organization is afforded by the British suggestion to use U.S. Army Transportation Corps personnel and equipment throughout the British railway system, as needed. The proposal could not be concurred in by United States authorities as it would deprive their personnel of the experience to be gained in operating independently.

In a compromise, the Transportation Corps controlled all movements in those areas of the British Isles where United States forces were the dominant users. British personnel were assigned as subordinates in such areas, with United States personnel being assigned as subordinates in areas where the British were the principal users.

14. Conclusions.

a. The following factors definitely limit the extent to which inter-Allied pooling of logistical resources is feasible:

(1) Differences in quality and quantity of consumer-type goods such as rations. Pooling arrangements resulting in the substantial lowering of supply standards of one group will invariably result in serious repercussions such as low morale.

(2) Pooling which involves free exchange of supplies results in serious maintenance and spare-parts difficulties.

(3) Pooling of personnel to the extent that troops of one nationality are integrated into organizations of the other tends to cause dissatisfaction among the minority and the lessening of their ability to operate independently.

LOGISTICAL PLANNING FOR THE INVASION

SECTION 5

EXPERIENCE IN PLANNING THE NORTH AFRICAN INVASION

15. It was generally agredd that logistical preparations and planning in connection with that part of the North African invasion force originating in the British Isles had been so inferior that, had the Allies mounted an operation against France with no greater efficiency, it would almost certainly have failed.

This was principally ceused by three factors:

a. There had been no comparable previous experience to be used as a guide.

b. The decision to invade North Africa and the basic plans therefore were not made available sufficiently in advance to permit careful detailed planning and preparation.

c. Planning was done by a combined staff of British American planners established as a separate organization, and practically isolated, in Norfolk House, London. The SOS, ETO had no opportunity to take part in the actual development of the plans and, in fact, was not fully advised as to what the plans were.

The lack of advance notice concerning the operation was, to a large extent, unavoidable because of the late date on which the basic decisions were made.

However, the procedure and method of planning - its restriction to the small planning group in London - was a decision made in the European Theater. This decision, based primarily on security considerations, was generally believed at the time to be the wisest. The deficiencies of the African invasion and the success of decentralized planning for the invasion of France proved that it was unwise.

Many examples of mistakes that were largely the result of the excess centralization of planning can be cited. Among them were the following:-

a. The Administrative Instructions required each soldier during the first few convoys to carry clothing and equipment weighing 132 pounds. This was not realized until too late to effect a change. Had there been any substantial opposition, landings under such a load would have been exceedingly difficult and costly.

b. Troops were carrying summer clothing in November in spite of the fact that such clothing was not a necessity in North Africa until March.

In an effort to avoid the mistakes of the African Operation in planning and executing the invasion of Ffance, a joint British-United States logistical school (Joint Q Planning School) was established in London in February 1943, under the joint supervision of the Quartermaster General (British) and the Commanding General, SOS, ETO. Most of the key logistical planning officers, both United States and British, attended. This school was a major contribution to the efficiency of future logis-

tical planning.

16. Conclusions.

a. Logistical planning for an operation must be decentralized to the extent that full use can be made of officers possessing detailed technical knowledge. This can be accomplished without divulging the complete tactical plan.

b. Chiefs of Theater Special Staff Sections must have timely knowledge of tactical plans to permit detailed logistical planning and the accumulation of proper supplies. Good planning, if it does not include timely advice to Special Staff Sections, is not adequate.

SECTION 6

PLANNING PROCEDURE - RESPONSIBILITIES OF VARIOUS ECHELONS

17. Inter-Allied Planning. By the second quarter of 1942 when United States staffs in the British Isles had grown to the point where they were capable of actively engaging in detailed planning for an operation on the Continent, the British had already given considerable thought to the problem and had developed many logistical details for the 1943 invasion plan approved by the Joint Chiefs of Staff. Because of this, and especially as a result of their recent experiences in combat operations under current conditions, the British continually furnished invaluable guidance and assistance to the United States Staffs in their planning.

The first formal organization established to accomplish joint logistical planning was the "ROUND-UP Administrative Planning Staff" (RAP). To a large extent it was sponsored and guided by the British. Its numerous sub-Committees, designed to cover most major logistical problems, contained both United States and British representatives. With the exception of a secretariat, it had no permanently assigned staff; the various committees met as the need arose. Plans and procedures were published in what came to be a voluminous series of committee reports.

During the period when the ROUND-UP Administrative Planning Staff was responsible for planning, Headquarters ETOUSA and the British each maintained a Combined Operations Staff who worked informally together. Their formal agreements and conclusions were expressed through the ROUND-UP Administrative Planning Staff.

The first joint British-American organization with a permanent British-United States staff was the "Chiefs of Staff Supreme Allied Command" (COSSAC) which was organized in April 1943. It superseded the ROUND-UP Administrative Planning Staff. Initially COSSAC was merely an advisory and planning group; later, because a Supreme Commander had not been appointed and preliminary action along certain lines was necessary, COSSAC was given limited powers to facilitate and even implement its planning.

In January 1944, Supreme Headquarters Allied Expeditionary Force (SHAEF) was established, superseding and absorbing COSSAC. Thereupon there came into existence a strong inter-Allied planning organization with complete authority to issue and implement its decisions.

Beneath the top echelon of joint planning and control the 21 Army Group (British) Headquarters had been organized early in 1943 as

the senior British ground force headquarters. When it was decided later to place all allied ground forces under a single command for the actual invasion and early operations on the continent until it should be feasible to establishe a separate zone of operations for United States forces under United States command, a United States administrative staff, from First U.S. Army Group Headquarters, was attached to 21 Army Group Headquarters for the purpose of integrating United States requirements into 21 Army Group plans and procedures and to serve as the connecting link between 21 Army Group and United States ground forces until the United States zone should be established. Therefore, 21 Army Group was responsible for all major logistical arrangements for the initial period on the continent.

Organizations similar in status to the 21 Army Group were organized for joint control of air and sea forces.

18. United States Planning on a Theater Level. Until April 1943, planning was the responsibility of G-3. At that time a separate general staff section was organized, designated G-5, and charged with the control and coordination of all United States planning, both operational and administrative.[1] It was also responsible for the direction of United States planning representatives assigned to COSSAC. In fact G-5 was, for all practical purposes, the United States element of COSSAC.

In October 1943, G-5 was inactivated[2]. For the most part its staff stayed with and was integrated into COSSAC. Its function of controlling and coordinating planning on the United States Theater level was returned to G-3.

19. Planning within SOS Headquarters. For the most part, the General and Special Staff Sections of Headquarters SOS placed too little emphasis on planning for the invasion.

Initially, this was due to the fact that higher headquarters did not assign such responsibilities to it. Until March 1943, practically all logistical planning for the invasion was attempted by the Special Staff Sections of Theater Headquarters in London.

This situation was then somewhat remedied as SOS established a planning echelon in London which absorbed the Special Staff Sections of Theater Headquarters. However, this echelon, charged with action on policy and planning matters concerning operation in the British Isles as well as on the Continent, came to be so burdened with current problems of operations that it did not earmark sufficient key personnel to concentrate on the major objective of invading France. The split of the SOS Headquarters between London and Cheltenham and the resulting loss of efficiency (as discussed in Section 2, Chapter 2) was an additional difficulty.

Throughout the planning period there was a lack of a strong agency on the General Staff level of Headquarters SOS to establish the basis for and to guide overall planning. Originally this responsibility was charged to G-3, later it became the responsibility of G-4; actually no-one really assumed it. Among the unfortunate consequences was the persistent lack of official troop forecast, essential to proper planning. The confusion caused by this deficiency is expressed in the following quotation from a planning history prepared by one of the SOS Services[3]:

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1. GO #21, ETOUSA, 16 April 1943.

2. GO #71, ETOUSA, 6 October 1943.

"....Expressions such as 'Which troop strength did you use?' while entailing a degree of humor, were highly symbolic and most unfortunate in planning..... It was not difficult for planning officers to obtain several Theater troop forecasts prepared by various (General Staff) agencies. Under such conditions plans were often submitted by various Services, with one of the basic assumptions, troops to be supported, varying with the plans themselves."

Largely as a result of these deficiencies in planning emphasis, it was not until the second quarter of 1944 that an overall Communications Zone plan for the entire OVERLORD Operation existed. Prior to that time, however, separate studies had been made by staff sections on various subjects.

Thus, as a whole, planning within the SOS Headquarters was characterized by a lack of emphasis at as early a date as would have been desirable, and by the lack of a strong central planning control and coordinating agency on the General Staff level. These factors, fortunately, did not prevent Headquarters SOS from developing adequate plans. There were certain errors and certain omissions. These were inherent in an operation of such unprecedented characteristics and magnitude. But generally speaking, plans were evolved and implemented in sufficient time and with sufficient foresight, effectively to mount and support the operations.

20. Planning Responsibilities of Subordinate SOS Commands. Various SOS (Communications Zone) subordinate commands were organized in the British Isles in preparation for their mission on the Continent. Each of these was given specific planning responsibilities.

Senior among them was the Forward Echelon, Communications Zone (FECZ), activated in February 1944. FECZ was responsible for detailed planning of all Communications Zone activities from D plus 41 to D plus 90 and for supervising the detailed planning of ADSEC (see below) for the period D plus 20 (when the first liberated area was to be released from Army control) to D plus 41. FECZ was to establish headquarters on the Continent when the second Base Section was established, about D plus 41. Actually FECZ was dissolved before going to the Continent. Most of the planning accomplished by it was actually done by the Staff Sections of SOS (Communications Zone). Therefore FECZ accomplished little by its existence. It was detrimental to the overall planning effort to the extent that it placed an additional planning echelon between the Continental Base Sections and Headquarters SOS (Communications Zone) and drew its staff from the key personnel of the planning staffs in Headquarters SOS.

In addition to FECZ, an Advance Section and three Base Sections were organized in the British Isles for operation on the Continent.

Advance Section, Communications Zone (ADSEC) was provisionally organized in February 1944 and finally constituted in April 1944. It was charged with the responsibility of detailed planning for all Communications Zone activities on the Continent during the period D plus 14 to D plus 41. This planning included the calculation of specific items and quantities required on the Continent during that period. This was accomplished by combining the requirements submitted by all major commands with those for the proposed ADSEC area and submitting detailed requisitions to Headquarters Communications Zone.

3. Informal study entitled "Critique of Quartermaster Planning for Continental Operations", Office of the Theater Chief Quartermaster, December 1945.

Of the three Base Sections, #1 was activated in April 1944, #2 in May and #3 in August. They were assigned detailed planning responsibility for the development of specific areas on the Continent.

Thus Headquarters Communications Zone published no detailed specific plans for operations on the Continent during the OVERLORD period (from D-Day to D plus 90). Such plans were published by FECZ; more detailed plans concerning specific periods and areas were published by ADSEC and the various Base Sections. This decentralization of planning responsibility within the SOS resulted, except in the case of FECZ, in having the same staffs that made the plans execute them. This enabled them to undertake their operations with a much clearer understanding of the problems and the logistical arrangements that had been made.

21. Conclusions.

a. Planning responsibilities between General Staff Sections must be clearly defined. Definitions as contained in War Department publications are sufficient only as an overall guide. The Commanding General must publish them in much greater detail in consideration of the circumstances involved.

b. A strong agency on a General Staff level to coordinate and control all planning activities is essential. This can be accomplished by specifically assigning the responsibility to one of the General Staff Sections or by establishing a separate section.

c. Special Staff Sections must be fully utilized in the development of logistical plans.

d. Key personnel on the Theater and Headquarters SOS levels must be freed for operational planning as soon as the decision to undertake a major operation is made. They should be freed from all other duties and organized as a planning section in each General and Special Staff Section. It has not proven satisfactory, because of the pressure of current problems, to integrate long-range planning functions into sub-sections responsible for executing current operations.

e. Major headquarters should be activated as planning groups as far as possible in advance of their becoming operational. In planning their own future activities they gain valuable background.

CHAPTER 4

SUPPLIES FOR THE INVASION

SECTION 7

BRITISH PROCUREMENT

22. Procurement Objectives. Initial plans did not visualize extensive procurement of supplies in the British Isles. This principle was specifically stated in November 1941 by the joint Army and Navy basic war plans as follows: "The United States forces will, as far as practicable, draw their logistical support (supply and maintenance) from sources outside the British Isles. Subject to this principle, however, the military basis, repair facilities and supplies of either nation will be at the disposal of the military forces of the other as required for the successful prosecution of the war"[1]. Thus, in setting up the General Purchasing Board in the British Isles it was felt that its functions would consist principally of training and preparations for procurement on the Continent.[2]

This initial plan of limited procurement in the British Isles was changed in the summer of 1942 for two basic reasons:

a. It was found that certain commodities existed in the British Isles beyond British needs. Also, in certain categories there existed surplus manufacturing and processing capacity that was short in the United States. These conditions had not been foreseen.

b. The most important reason, however, was the shortage of ocean shipping.

In the summer of 1942 the Theater Commander laid down the basic principle that the overall conservation of shipping space would be the basic consideration in determining the desirability of procuring items in the British Isles; he specified, however, that this would not include the procurement of items that would necessitate the ultimate replacement of like tonnage to the British for their own use.

23. The General Purchasing Board and the General Purchasing Agent. Following the experience in World War I, there was established in May 1942 a General Purchasing Agent and the General Purchasing Board. The General Purchasing Agent established a permanent staff; the General Purchasing Board consisted of representatives of the various Special Staff Sections of SOS. In most instances these representatives acted also as the Procurement Officers of the various Special Staff Sections.

The General Purchasing Agent and the General Purchasing Board acted as the supervising agency for the procurement of labor and services as well as supplies. With the British, they formulated the more important procedures and policies. Within these procedures and policies the Special Staff Sections were given considerable leeway in carrying out their own procurement programs.

This centralized control proved to be extremely valuable in negotiating overall agreements with the British, achieving standardization of procedure, and preventing any overlapping between the the independent negotiations of the various Special Staff Sections. Also, it provided an agency with enough prestige to deal with the British on the highest level.

24. Accountability. Initially regulations required an exact evaluation of goods received from the British under Reverse Lend-Lease. This proved exceeding difficult as the volume of procurement increased. The British could not always provide accurate cost figures on delivery, supplies were received by a large number of United States depots and organizations directly from many manufacturers, and there were not adequate numbers of United States officers qualified to make price evaluations, especially under British war-time conditions.

This situation was alleviated in October 1942, when the War Department, empowered by a new law, authorized quantitative records only, on all goods received. There followed a period during which United States reports were based on weight or quantity, and British reports (quarterly) were based on approximate monetary values. This procedure not only simplified evaluation, it eliminated it for all practical purposes. It was apparent that an ultimate monetary settlement would be impossible except based entirely on the British figures.

In June 1943 instructions were received from the War Department to re-establish a procedure for the monetary valuation of goods and services received. By this time, procurement from the British had reached such proportions that an independent evaluation by United States authorities was impossible. It was therefore agreed that the British would furnish the United States with unit prices, but it was found that even this could not be accomplished because no system was in existence for establishing unit prices, British industry for the most part being on an overall cost-plus basis. Finally all concerned concluded that the best possible solution was to accept the estimated monetary values already being furnished quarterly by the British.

That such a pricing procedure was acceptable to the United States authorities indicates their high regard for British integrity. That serious disagreements did not arise on all levels was due, also, to the feeling that the supplies received from the British would fall far short of the supplies furnished to them from the United States, and the belief that the difference would never be settled in any event. It was clearly indicated that, under most other circumstances, the valuation procedure followed in the British Isles could not have been acceptable to the United States.

25. Extent of Procurement. Because of the unavoidable absence of proper accounting, an evaluation of the supplies received from the British cannot be accurately made. The following information is included here to give a general concept of the magnitude of the procurement program:

a. From January 1942 to February 1945, a total of 13,000,000 ship-tons were obtained.

b. At times there were in excess of 4,00 different items being procured.

c. Almost 20,000 British civilians were employed in United States Army installations in the summer of 1944. In addition, 57,000 British civilians were directly employed on United States construction projects in December 1943. These examples do not include the thousands working indirectly for the U.S forces in various British government and civilian organizations such as the railroads and factories.

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1. Joint Army and Navy War Plan, Rainbow #5 (Revision No. 1), Section IV, "Concept of the War", 25 November 1941, Par 13 (j).
2. Final Report from General Purchasing Agent to CG, Com Z, 2 Jan 1943.

d. During the period from 1 June 1942 to 30 June 1944, 31% of all United States supplies in the European Theater came from British sources. Of the total United States Army tonnage assembled in the British Isles by D-Day, 39% had been procured from the British.

Considerable difficulty was experienced in handling, storing, and effectively utilizing certain British-procured supplies because of their dissimilar markings and inferior packaging standards. Many of the containers had to be reinforced by United States depots before shipment could be made to Africa in 1942 and 1943. By the time the invasion into France was mounted in 1944, considerable improvement had been made; however, the waste of British supplies because of different and inferior packaging and marking was still quite substantial.

26. Conclusions.

a. Complexities of foreign procurement on a large scale are such that control should be vested in a strong, central procurement agency functioning on the General or Special Staff level of either SOS or Theater Headquarters, as appropriate. The desirability of such an agency has been proven in both World Wars I and II.

b. Foreign procurement of supplies and equipment for use under operational conditions tends to be unsatisfactory for a large percentage of items because of inferior and dissimilar quality, packaging, markings, uncertainties of scheduled deliveries, and difficulties of repairing and maintaining the end items.

c. When large foreign procurement programs are desirable in connection with active operations, careful consideration should be given to the advisability of providing suitable packing and marking supplies and equipment from United States sources, or of including such items in the procurement program as a special project.

d. Predetermination of a method of evaluation and pricing is essential before a foreign procurement program is initiated. If this is not done, differences will arise which, aside from monetary considerations, will result in unfortunate disagreements and ill-feeling even on the highest levels. That such results did not occur to any serious extent in the British Isles was a tribute to British integrity and close British-American cooperation.

SECTION 8

SPECIAL SUPPLIES AND EQUIPMENT REQUIRED

FOR THE OPERATION (PROGO)

27. Background. During 1942 and early 1943, all items required to meet major operational needs were specified first by COSSAC and later by G-4 of Headquarters, ETO. Their experience in attempting to compile a complete list of items, and the deficiencies brought to light by the mounting of a portion of the African operation from the British Isles led to the conclusion that only the Special Staff Sections of SOS possessed adequate technical and detailed knowledge to calculate complete requirements.

28. Basis of Calculations. Therefore in June 1943, when the War Department directed the European Theater to submit requirements for major Class IV items and for Class II items above T/BA and T/E for the remainder of 1943 and 1944[1], it was decided to make available to the SOS Supply Services adequate tactical and logistical information to permit them to calculate their own requirements. Separate requirements for uncommon items were to be submitted by the Air Force.

The tactical and logistical basis for calculating these requirements, based partly on assumptions and partly on information available from European Theater Headquarters, and COSSAC, was published on 24 June 1943 by Headquarters SOS, in a concise seven-page document which came to be one of the more important factors in placing logistical planning and preparations on a firm basis[2]. Fundamental facts contained in the document were submitted to and approved by the War Department, thus providing a common basis for submitting and editing requirements[3].

It is worthy to note that this document included what proved to be, with one or two exceptions, the minimum acceptable information upon which intelligenot, long-range planning could be based. It included:

a. Troop basis by major types of units, e.g., divisions, classified as Infantry, Armored and Airborne.

b. Rate of troop build-up on the Continent and rate of troop inflow to the United Kingdom.

c. Number and characteristics of Lines of Communications, including an estimate of the motor transport requirements.

d. Number of major and minor ports to be rehabilitated.

e. Estimate of airfield construction required and number of planes to be supported on the Continent for the first three months.

f. Authorized levels of supply on the Continent.

g. Estimate of enemy demolition of ports, bridges, rail equipment, and signal communications, expressed in percentages.

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1. AGWAR Cable R-9139, 4 June 1943.
2. Ltr, Hq SOS, ETO, 24 June 1943, subject: Projects for a Continental Operation.
3. SOS, ETO, cable W-1201, 28 June 1943 to AGWAR. AGWAR cable R-514, 25 July 1943.

It was found possible to furnish the above information in general terms without divulging the specific geographical location or the specific date of the operation.

The document omitted information and assumptions on two factors which later proved to be of considerable importance:

a. An evaluation of necessary supply responsibilities for the civilian population. This omission may have been inevitable, as determination of such responsibility was not forthcoming from higher levels until a much later date.

b. An evaluation of the supply implications of mounting the operation from the British Isles.

During July and August 1943, the computation of special requirements was completed by Supply Services in the form of projects, each limited to a specific item or group of items and each containing a complete justification. Requirements for like items were consolidated by the Service having procurement responsibility in the United States. These projects, as supplemented and amended from time to time, formed the basis for all special supply requirements for the entire operation. They were referred to as "PROCO Projects", both in the European Theater and in the United States.

29. Scope of Special Projects. There developed a significant difference in opinion between the War Department and the European Theater as to the proper scope of these long-range estimates.

The SOS, European Theater had prepared projects on the assumption that they should include all items of supply for which the estimated need would be substantially greater than the normal combat usage factors. The European Theater realized that combat factors, the basis on which the War Department was estimating procurement, did not take into consideration certain peculiarities of the contemplated operation in Europe such as ship-sinkings between the British Isles and France. Therefore, the initial projects submitted by the SOS, European Theater in July and August 1943 had included many common items (e.g., rations) as well as special items and major equipment.

The War Department, on the other hand, had intended their directive to call for special requirements of major items only, and in September 1943 it proposed that all projects covering excess issue of normal items be withdrawn by the European Theater and submitted by normal requisitioning procedure.[4]

There followed an exchange of cables in which the War Department agreed that projects already submitted would be processed, but specified that additional projects would not include excess requirements of common items.[5]

However, in October 1943, the War Department reconsidered its previous decisions and approved the use of PROCO projects for all requirements, including common items, in excess of normal supply as had been initially recommended by SOS, ETO.[6] This decision permitted the immediate editing and processing of the projects by the Zone of Interior

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4. AGWAR cable R-3290, 19 September 1943.
5. SOS, ETO cable W-4982, 27 September 1943 to AGWAR. AGWAR cable R-3748, 1 October 1943.
6. AGWAR cable R-4209, 10 October 1943, to USSOS.

and established the simple and logical basis that all operational requirements in excess of normal, initial issue and combat factors would be submitted in the form of special projects. It also formed the basis which, combined with distinctive markings, facilitated the easy segregation and proper issue of special supplies, especially packaged supplies, in the European Theater.

30. Requirements Following Initial Projects. Subsequently, directives were issued by SOS, ETO calling for the submission of projects for 1945. Flexibility and rapid processing was aided by the War Department's delegating of authority to the New York Port to approve decreases and reasonable increases to projects having War Department approval in principle. The entire procedure for editing, processing and so forth of PROCO projects was summarized in a directive published by the New York Port in November 1943[7].

31. Consideration of British Procurement. No deductions were made from PROCO projects for supplies to be procured from British resources. Estimated quantities thought to be procurable were indicated in the project and later cancelled when deliveries from the British were definitely assured. This proved to be a desirable precaution as British ability to produce was, in certain instances, affected by bombings and other unforeseeable circumstances.

32. Deficiencies of PROCO Projects. Perhaps the most serious deficiency in requirements as submitted through PROCO projects was that they did not reflect during 1943 the specific desires of major field commands scheduled to take part in the invasion, especially during its early stages. This was inevitable because those commands were not available in the European Theater until the end of 1943.

Theoretically, requirements submitted by the Supply Services covered requirements of those commands. Actually shortages did occur, principally for two reasons: first, Supply Services could not in all instances anticipate the details of the tactical plans to the extent that the Army Headquarters involved could; and secondly, Army commanders, given considerable leeway in implementing tactical plans, had individual methods of operating which resulted in special requirements.

33. Allocation of PROCO Supplies. As late as April 1944, a substantial percentage of the items requested and approved in PROCO projects had not arrived in the European Theater, partly because of the late submission of certain requirements and partly because of production difficulties in the United States. Thus there arose the problem of allocating available operational supplies as well as of timing issues. Three methods were considered:

a. Withholding supplies until using units were in operation on the Continent.

b. Issuing supplies in the British Isles to the specific organizations that had initiated projects, only as supplies shipped under their project number arrived.

c. Placing all PROCO supplies in a common pool to be issued on established priorities to organizations having approved projects, regardless of whether their specific supplies had arrived.

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7. ASF Section, New York Port of Embarkation, "Standing Operating Procedure Memorandum No. 7", 15 November 1943.

The last method was decided upon and the various major commands and organizations were given a credit and a priority on the central pool to the extent of projects submitted by them or project supplies allocated to them. This procedure also proved desirable because equipment that was issued in the British Isles could be checked for completeness and workability by using units before they departed for the Continent.

34. Conclusions.

a. Division of responsibilities between a Theater of Operations and the War Department for making basic estimates for long range procurement or production should be clearly defined. This responsibility should normally be placed on the Theater as soon as its staff is sufficiently organized, the War Department retaining the responsibility for evaluating the requirements to insure against both omissions and excessive requirements.

b. Supply and equipment requirements should always be calculated on the Special Staff level. Efforts to calculate long-range requirements on a General Staff level result in important omissions because of the large number of items involved and the detailed technical knowledge required.

c. In long-range supply forecasts it is necessary to include small "common items" as well as major units of equipment. Difficulties of increasing production of "common items" (e.g. canned vegetables, properly packaged) often cause those items to require as much time for production as do major items of equipment.

d. To insure adequate supply, tactical plans as well as an evaluation of the situation to be encountered must be made available to both General and Special Staff Sections on the Theater and SOS levels, as rapidly as they are developed in tentative form.

e. The submission of supply requirements in excess of normal rates, T/E's and T/BA's should be in the form of special numbered projects. Requirements for common items should be consolidated by the procuring service. This procedure has proven highly successful in maintaining a clear picture of the supply status, and when combined with special markings, in providing a simple means of controlling storage segregation and issue.

f. Supply planning must include the realization that army commanders under combat conditions must be given supplies and equipment in whatever quantities they desire within the resources of the Communications Zone. Methods of operation peculiar to individual army commanders require the use of different items of supply and equipment to varying extents. Therefore, whenever army commanders and their staffs are available, they should be carefully consulted on long-range supply and equipment planning.

SECTION 9

SHIPPING UNIT EQUIPMENT TO THE BRITISH ISLES

35. The Problem was to get T/E equipment into the hands of units as soon after their arrival in the British Isles as possible in order to enable them to become administratively self-supporting and to resume their training, or, in the case of service units, their functions. Until May 1943, an attempt was made to accomplish this by having units crate their own equipment and "force mark" it before they left the United

States. The plan assumed that shipping the equipment at or before the departure of the unit would get it to the British Isles substantially at the same time as the unit. This shipping procedure proved very unsatisfactory. Units usually did not get their equipment until at least 30 days after their arrival in the British Isles; frequently not for 60 to 120 days, and often not at all. This resulted principally from four factors:

a. Equipment was not shipped sufficiently in advance of the units.

b. A large percentage of troops were transported in fast liners, capable of carrying practically no cargo, while their equipment was carried in slow convoys.

c. Locating the equipment when it did arrive (frequently at a different port) and getting it to the unit proved a difficult and time-consuming under-taking, impeded by difficulties of transportation and other circumstances existing in the British Isles.

d. Equipment packed by units was often insecurely crated and badly marked.

36. The Solution, as far as the European Theater was concerned, lay in one of two alternatives. First, having the units ship their equipment sufficiently in advance to insure its timely arrival overseas. The War Department was unable to concur in this solution because it meant depriving units of equipment required for training, and because of frequent changes of T/E's and troops shipping lists. The general status of supplies was a further complication, especially during 1942 and a part of 1943, as it did not permit the issuance of full equipment to units in the United States until immediately prior to their departure for overseas.

The second, and more desirable solution, was to have units turn in their equipment in the United States and draw new equipment upon arrival overseas. This solution had several definite advantages:

a. Units would be assured of complete equipment immediately upon arrival.

b. Units would leave old equipment in the United States to be used for training other units and would get new equipment overseas, an exchange that would reduce overseas maintenance.

d. Equipment would come factory-packed and marked, thereby substantially reducing shipping damage and losses. Also, there would be a considerable saving in packing and crating materiel by eliminating the necessity for re-packing used equipment that was going overseas.

The second solution was placed in operation during May 1943. It could not be concurred in earlier by the War Department, despite the recommendation of the European Theater, because in a period of short supply, it required extra equipment to fill the supply pipeline and to provide minimum initial issue stocks overseas. When it was placed in operation, however, it solved to a most satisfactory extent the problem of promptly and properly equipping units arriving in the British Isles.

37. Conclusions.

a. Units should be shipped overseas with their minimum administrative and housekeeping equipment (e.g., cooking facilities) accompanying them on the same ship.

b. It is essential that a unit's full equipment be actually available to it within a week or two of its arrival overseas. This can be accomplished in one of three ways:

(1) Load it in the same ship with the unit; or in a ship in the same convoy, accompanied by representatives of the unit who will stay with the equipment until it is actually delivered.

(2) Ship it with representatives of the unit, to arrive a week or two before the unit itself.

(3) Have the unit turn in its equipment in the Zone of Interior and draw new equipment at its overseas destination. This procedure has proven by far the most satisfactory and, in the long run, the most economical.

SECTION 10

SUPPLY OF PETROLEUM PRODUCTS

38. Inter-Allied Petroleum Agencies. To understand the responsibilities and activities of SOS in the field of Petroleum, Oil, and Lubricants (POL), it is necessary to review briefly the Inter-Allied petroleum agencies involved.

The Petroleum Administration for War was a joint American and British agency concerned with the exploitation, production, and refining of petroleum products on a globular basis for American and British requirements, both military and civilian. It was a civilian agency on a governmental level.

The Army-Navy Petroleum Board, located in Washington, was a military organization converned with the procurement, allocation, and distribution of all POL products for all Allied armed forces. It was in the nature of an operating agency for the Joint Chiefs of Staff and reported directly to them.

Special committees located in Washington and London were responsible for allocating aviation petroleum products within their specific geographical spheres. The Washington committee was known as the Aviation Petroleum Products Allocation Committee (APPAC) and the London Committee as the Aviation Petroleum Products London Assignment Committee (APPLAC).

SHAEF had joint British- American POL sections in both G-4 and G-5. The G-4 section was concerned with combined American and British military requirements; the G-5 section with combined civilan requirements. SHAEF assumed the responsibility of "Determining policy on POL matters, approving POL plans from the long-term viewpoint, and allocating products as necessary" in the ETO[1].

39. U.S. Agencies Concerned with the Handling of Petroleum Products. The Area Petroleum Office was responsible for representing the United States in the European Theater on all POL matters, and for coordinating all action involving more than one United States agency. Organized on a Theater level, it was the normal channel between the European Theater of Operations and the Army-Navy Petroleum Board in Washington. After many intervening changes of policy, the Commanding General, SOS, was appointed Area Petroleum Officer on 27 May 1943, and an Area Petroleum

1. ETO SOP #1, 16 June 1944.

Service was established within the SOS[2], absorbing the Area Petroleum Office.

The activities of the Area Petroleum Service were overlapped to a significant extent by the POL section later established in G-4, SHAEF. Better coordination was finally effected under the Area Petroleum Officer.

The Chief Quartermaster, SOS, was responsible for the inland receipt, storage, and issue of all POL items except those fed directly to installations by POL pipelines, and uncommon aviation products. The Quartermaster Service was also responsible for recommending the phasing into the Theater of all POL supplies. Since the British were handling all bulk gasoline, the POL activities of the Quartermaster Service in the British Isles were, for the most part, limited to preparing and consolidating POL requirements (including those for the Continental operation), stockpiling packaged POL products for the invasion, and technically supervising retail distribution.

Also because of the British handling of bulk POL in the United Kingdom, the Engineer and Transportation Services were not particularly active in their POL responsibilities of construction and transport.

Involved with the Lend-Lease aspects of the petroleum question were other United States agencies including the Navy (concerned with tanker movements and control), the United States Embassy Petroleum Attache (representing the State Department, the Petroleum Administration for War, and the Board of Economic Warfare), the Harriman Mission, and the General Purchasing Agent.

40. The Operation of the Petroleum Supply System was somewhat complicated by the number of United States agencies involved. This complexity was to a large extent the result of their being at times a G-4 staff both on the SOS and the Theater level. Had there been only one G-4, and that on a Theater level, it would have been feasible for it, together with the Quartermaster Service, to have absorbed the work of the Area Petroleum Office.

The actual efficiency of petroleum supply in the British Isles was dependent, of course, largely on the British, who were responsible for the entire bulk handling. The British did a good job; therefore the supply of petroleum was very satisfactory.

From a planning point of view there was considerable duplication between the Quartermaster Service, the SOS G-4, and the Area Petroleum Office. A concrete division of responsibility was never decided upon. This duplication was somewhat justifiable, however, as it provided detailed double-checks on planning for one of the most vital war commodities. To some extent it was necessary because of the many services that were to be involved in accomplishing petroleum supply on the Continent.

A significant British action, during the summer of 1943, which made the joint supply of petroleum products feasible in the British Isles, was the standardization of all British petroleum products, except those of the RAF, and the reduction of their number from 342 to 118.

It is necessary to point out that the experiences in the British Isles did not, because of the large part played by the British, furnish a basis for evaluating the proper division of responsibility and control of POL supply and flow between the SOS G-4, the Quartermaster Service, and the Engineer and Transportation Services. Later, on the

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2. GO #33, ETO, 27 May 1943.

Continent, this division of responsibility came to be a major problem and one that was to be changed several times before an efficient procedure was devised.

41. Conclusions.

a. Where allied forces operate in a common area using common ports or lines of communication, it is desirable to plan standardization and common use of petroleum products. This is particularly important for products requiring bulk storage.

b. There is no justification for having more Theater of SOS staff agencies involved in the supply and distribution of petroleum products, than of other types of supplies.

SECTION 11

DOCUMENTATION AND MARKING OF SUPPLIES FROM THE UNITED STATES

42. Difficulties of the Original System. When the ETO began receiving supplies from the United States in 1942, the system of documentation was inadequate to permit the determination of supply destination before ships were unloaded. The system of documentation varied between Supply Services in the Zone of the Interior. Manifests and other detailed loading data were frequently not received in the British Isles until after the ship had arrived. Even when they did arrive on time, cargo descriptions were often in such general terms as to make planning for distribution to proper depts impossible. Entries on the manifest such as "1000 boxes of Quartermaster Class I supplies" were not uncommon.

The situation was further complicated by an inadequate description of contents on supply containers. A large proportion of them bore no markings at all.

The difficulties that resulted at ports and depots as well as the extra burden placed on the transportation system of the British Isles is described in detail under the heading of Sorting Sheds (Section 19, Chapter 6).

These difficulties, plus the fact that the British transportation system was unable to handle supplies from the anticipated maximum of 150 United States cargo ships per month, and at the same time continue to move the large tonnages of inter-depot shipments resulting largely from improper documentation and marking, made an improved procedure a most pressing objective.

43. Evolution of a New System of Documentation. The SOS in the United States took prompt action to develop more detailed manifests and to effect standardization of documentation among its various supply services. Action was also taken to improve and standardize the marking of containers. By the middle of 1943 the quality of documentation and marking had substantially improved.

As late as the first quarter of 1943, only 46% of the manifests and Bills of Lading were being received five or more days before the arrival of the ships and 24% were not received at all[1]. However, during

1. Study entitled "Time and Receipt of Manifests and/or Bills of Lading" prepared by Progress Division, SOS, ETO, 6 April 1943, based on 99 ships arriving in U.K. between 1 January and 31 March 1943.

the months of April 1943, 80% were received five or more days ahead of ships[2], and in May 90%. Thereafter, delays in receiving documentation ceased to be a serious problem.

Out of the efforts to develop a better system of marking and documentation, the ASF, War Department, developed a complex procedure known as the "Ugly System". It was composed of two principal parts. The first part, put into effect in March 1943, provided a uniform code for marking requisitions and shipping orders to correspond with markings on cargo. The procedure identified Consignor, Service, Class of Supply, and requisition or shipping order number (e.g. SOXO-ORD-I-D381).[3] It was of considerable value to the SOS, ETO when copies of the requisitions or shipping orders came to be dispatched promptly from the United States and could be matched with the ship manifests.

The second principal part of the "Ugly System" called for a procedure to tie in the marking with the cargo to the extent that the partial shipment of a requisition could be identified by the addition of an appropriate suffix to the markings provided for the first part of this system. Although for a time the European Theater continued to press the War Department for its adoption, this procedure was never developed in more than one or two test depots in the United States, because of its complexity.

By the end of 1943 the system of documenting and marking in the United States had improved so much that supplies could be handled with reasonable efficiency in the British Isles. However, the problem was so complex that it defied a complete solution.

44. Conclusions.

a. Documentation and marking of supplies for overseas shipment from the Zone of the Interior should be standardized for all Services.

b. Each container should be marked with at least the following information: Consignor, Service, Class of Supply and requisition and/or shipping order number. It is also desirable to include a marking showing the number of shipments being made against each requisition or shipping order and identifying each separate shipment.

c. Adequate, detailed information on ship loadings, at least five days before ship arrivals, is required to permit determination of inland destination of supplies. This must include details as to Service, Class of Supply, commodity by item, and Theater requisition number.

SECTION 12

ZONING OF THE BRITISH ISLES TO FACILITATE SUPPLY DELIVERY

45. Problem. The arrival of 150 United States Army cargo ships per month in the British Isles was anticipated for late 1943 and 1944. British railways were considered unable to handle this increased cargo without a plan for its receipt and distribution which would diminish

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2. Study entitled "Time and Receipt of Manifests and/or Bills of Lading" prepared by Chief of Transportation, SOS, ETO, 7 May 1943.

3. Ltr, Hq SOS, 14 June 1943, Subject: Ugly System of Marking and Forwarding Supplies.

materially the long hauls and the cross-hauls that had previously characterized the handling of United States Army cargo.

46. Solution. The partial solutions afforded by better documentation (discussed in Section 11, above) and by the establishing of sorting shed (discussed in Section 19, Chapter 6) were not sufficient.

In a letter of April 1943, SOS, ETO, proposed to Washington that the United Kingdom be divided into two zones, the parts in each to be rated on their capacity to receive supplies, and that ships be loaded in the United States for a specific zone.[1] A third zone, Northern Ireland, was subsequently added to the system. This plan was immediately approved by ASF, Washington, with the reservation that it could not be followed in the United States in those instances where it would prevent the most economical use of ships or delay the shipment of T/RA equipment.

The zoning system succeeded in materially reducing the amount of internal transportation required in the British Isles per shipload of United States supplies.

47. Conclusion. Plans for shipping supplies from the Zone of Interior should provide for the loading of each ship for a specific zone of discharge or, if conditions permit, for a specific port.

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1. Ltr, 5 April 1943 from SOS, ETO, to CG, ASF, Washington, subject: "Zoning of U.K. for receipt of U.S. Army Cargo."

CHAPTER 5

PERSONNEL FOR THE INVASION

SECTION 13

PLANNING OF SOS TROOP BASIS *

48. Overall Planning Basis. The development of the SOS troop basis followed closely the development of the overall troop basis as discussed in some detail in Section 1 and 3, Chapter 2, above. In that discussion were reviewed the changing plans for operations to be mounted from the British Isles and the resulting changes in troop basis. Each change in overall troop basis necessitated a complete recalculation of service troop requirements.

During the early part of 1942, requests for SOS personnel for the Theater were based entirely on the administrative support of the number of ground and air force personnel to be phased in for protection of the British Isles and the opening of the air offensive.

During the summer of 1942, the first reasonably complete troop basis was established, based on plans for invading the Continent in the spring of 1943, with an initial force of 1,147,000 United States troops. This plan was cancelled by the invasion of North Africa in November 1942.

In the autumn of 1943, the SOS troop requirements were recalculated as a result of the decision of the Quebec Conference to launch the invasion in 1944 with 1,460,000 U.S. troops. But the recalculation was soon invalidated when the pre-invasion troop basis was changed again in January 1944, a second time in February, and a third time in March[1].

49. Difficulties in Evaluating the Problem. There were numerous difficulties which tended to hinder the intelligent planning of an accurate SOS troop basis. These difficulties were generally the result of inexperience on the part of the staff involved in the calculations, and of a lack of specific information as to future operations.

Unitl the middle of 1943, the information furnished for calculating the SOS troop basis was incomplete, giving little more than the total of troops to be supported and making scant mention of the type of operation. There was also some initial lack of understanding between the War Department and the Theater with regard to Theater personnel needs and the types of troops that would be available from the United States.

Until the latter part of 1943, when the First U.S. Army established headquarters in England, no precedent had been set for calculating the number of service troops required for assignment to the armies, and army requirements were nothing more than guesses. No recognized War Department publications offered even a theoretical solution to the problem; they merely stated that such requirements would vary under different circumstances. Realistically speaking, this meant that each army staff had the prerogative of asking for what it wanted. After the First U.S. Army made its requirements known in late 1943, a precedent was established which served as a guide for estimating and editing the requirements of other armies. The matter was never completely settled however, and the division of service troops between the Field Forces and the SOS continued to be a point of difference throughout the operation.

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* See also Study No 30, "Service Troop Basis".

Most of the planning and personnel officers engaged in the troop calculations had never seen the service units in operation, even under maneuver conditions in the United States. In fact, many types of SOS units had not been in existance long enough to have been thoroughly tested.

One difficulty peculiar to the situation was the fact that the SOS would have to support a split operation - part in the United Kingdom and part on the Continent. Because of this, the service troop requirement was larger than it would otherwise have been, but there was no precedent to aid in determining the extent of that difference.

Another difficulty was the problem of troop requirements for mounting the invasion. Since this was a type of mounting never before undertaken, little in the way of crystallized detailed plans were evolved until too late to change substantially the SOS troop basis. Therefore, the troop basis did not include special requirements for mounting the operation[2].

A further planning problem was the sizeable responsibility for guarding SOS installations on the Continent. The principle was established that Field Forces would guard the lines of communication and provide area security where SOS installations were established. Eight infantry regiments were included in the SOS troop basis to provide guards for the installations themselves, but these troops were never made available[3]. Therefore, this responsibility and the designation of personnel to meet it was a problem which was never solved during the operations on the Continent.

A similar difficulty in planning was the lack of information concerning the amount of civilian and POW labor that would be available and could be effectively utilized on the Continent, plus the attendant personnel problem of providing guards for the POW's. Consequently, as was later learned by experience, too many labor units were requested at the expense of depriving the operation of additional skilled personnel.

50. Calculating the SOS Troop Basis. The SOS troop basis, for the most part, was calculated by the Chiefs of Services on a straight mathematical basis and was edited in the same manner by the SOS General Staff Section. This method of calculating the SOS troop basis involved little more than dividing the rated capacity of a given unit into the manpower, number of vehicles, and so on, to be supported. The only information published by the War Department on unit capacities (contained in the T/O's) was incomplete, and later proved to be inaccurate in many instances.

Overall approval of the troop basis was charged to ETO G-3 except for a short period when it was charged to ETO G-5 (Plans). Within the SOS, troop requirements were consoldiated and edited by G-4, until November 1942, when they became the responsibility of G-1 SOS. In June 1943, G-4 resumed most of its former responsibilities, leaving with G-1 the authority over troop estimated covering headquarters installations and the Administrative Services, such as Claims, Finance, Provost Marshal, and Special Services.

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1. Historical Section, TSFET, "Supply and Troop Build-up in the United Kingdom".
2. IRS, Service Troops Branch to Exec Officer, G-4, ETOUSA, Subject; "ETO Service Troop Build-up For Operation OVERLORD", dated 3 Jul 45.
3. Hq, Com Z, "Communications Zone Activities in Support of the European Campaign".

51. Conclusions.

a. Service troop requirements cannot becalculated or edited solely on a mathematical basis. Requirements are largely dependent upon factors such as the type of operation, number of POW and other foreign personnel expected to be supported, local facilities available (such as housing, roads, indigenous labor), and the number and characteristics of lines of communication and installations.

b. Directives calling for troop requirement estimates must contain a complete planning basis in addition to overall manpower figures.

SECTION 14

PHASING OF SOS PERSONNEL INTO THE BRITISH ISLES

52. General. The desirability of phasing SOS units into an overseas theater in advance of, and at a greater rate than, the Field Forces and Air Forces to be supported was a principle long recognized by the War Department. General Pershing had urged it in World War I, and the Commanding General, SOS, ETOUSA in World War II repeatedly recommended that the movement of serfice troops into the theater not be delayed[1].

53. Factors Determining Phasing. The lack of service units in the United States, the shortage of shipping, and other more urgent objectives in the British Isles made it impossible to phase SOS troops into the theater on a high priority basis. Beginning with the arrival of United States Forces in January 1942, there was the necessity of assisting in the protection of the British Isles, especially Ireland, against the threat of German invasion or raids. Almost immediately, in addition, it was desirable to concentrate on the launching of a United States air offensive.

British authorities were anxious for the United States to send to the British Isles units and equipment to further those objectives. Consequently they made available to the United States Forces the maximum possible number of civilian personnel, and even British military personnel, to perform service function for the Air Forces and Field Forces. British agencies turned over or constructed most of the installations, both housing and supply, required by the United States Forces. Considerable British civilian facilities, such as bakeries, laundries and certain types of repair and maintenance work, were made available for service functions. Commodities - for instance, fresh meats and gasoline - were distributed on a wholesale basis by the British for the United States Forces.

As a result of this assistance, it was possible to retard greatly the phasing of SOS troops into the Theater. Thus, in June 1942, SOS strength was less than 4% of total Theater strength. Just prior to the invasion of North Africa, in October, this percentage had increased to 15%. As the North African not only drained off much of the manpower accumulated in the United Kingdom, but also took priority on shipments throughout the winter months, the SOS troop strength showed no appreciable increase until June 1943, at which time its total increased sufficiently to make it 22% of the Theater strength. A year later, on D-Day, this percentage had increased to 29%.[2]

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1. Letter from Major General J.C.H. Lee to the Secretary of War, Subject: "BOLERO/SICKLE Build-Up", dated 22 July 1943.

54. Results of Slow Phasing. This retarded phasing of service units into the Theater made it necessary for the SOS to use all of them for the performance of its primary mission. The substantial numbers that were ultimately to be assigned to the armies could not be released by SOS until the last possible date before they were to embark for France. As late as April 1944, an effort to release substantial numbers to the Armies for training purposes was found to be impractical. Even at a later date when large numbers were assigned to the armies, most of them continued to be employed by the SOS.

One of the most significant results of slow phasing of SOS units was the lack of troops for mounting the operation. This developed into an actual requirement of approximately 61,000 troops. SOS could not entirely meet this requirement. As many SOS troops as possible were assigned to the job. Where the need did not correspond to the type of unit available, the unit was used regardless. The maximum number of civilian personnel were obtained. The resulting deficiency of almost 10,000 troops had to be met by the use of Field Forces.[3] To have handled this particular peak load by the temporary use of Field Force personnel scheduled for phasing to the Continent in later stages may have been the best and most economical solution in any event. Nevertheless, it did not have the concurrence of the Field Forces.

55. Conclusions.

a. Considerable emphasis should be placed on the necessity for phasing service units into a theater of operations and into advance bases within the theater on a higher priority than combat units. This permits proper preparation of facilities to support the combat units and a more efficient build-up of supply reserves. Combat units meanwhile can be trained as effectively in the Zone of the Interior.

b. When service troops cannot be phased into advance bases on a higher priority than combat units, consideration must be given to the necessity of those service units, normally integral parts of the Field Forces, being assigned to the SOS for the preparation of facilities and the stockpiling of reserves. This procedure, followed by necessity in the British Isles, had the disadvantage of depriving many service units of adequate training with Field Forces.

SECTION 15

TRAINING OF SOS PERSONNEL

56. Status of Training Upon Arrival in the ETO. Although most SOS units arrived in the British Isles reasonably well trained to perform their primary mission, their period of training in the United States had varied from three to thirteen weeks, and frequently had been of the minimum length of time. They lacked many qualifications of being able to perform effectively under active operational conditions. These training deficiencies, realized in advance both in the United States and in the ETO, had been accepted as inevitable because of the necessity of using the personnel in the British Isles at the earliest possible date.

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2. ETOUSA, "Statistical Summary No. LIII", 26 June 1943, and "Progress Report No. CV", 24 July 1945.
3. IRS, Service Troops Branch to Executive Officer, G-4, ETOUSA, Subject: "ETO Service Troop Build-Up for Operation OVERLORD", dated 3 July 1945.

The greatest deficiency found among SOS troops upon their arrival in the European Theater was the lack of proficiency in individual defense measures. This deficiency, for the most part, had resulted from the minimum training period available in the United States and the decision there to place emphasis on technical proficiency during the time available. Consequently marksmanship, hasty field fortifications, defense against chemical attack, land mines and booby traps, and other aspects of military training of the individual soldier had been largely neglected.

57. Training in the United Kingdom. Because there were so few SOS troops for the job to be done, it proved exceedingly difficult to find time to give them adequate training in the British Isles. For the most part, these troops were putting in a long hard work-day at depots and other supply installations. In many instances it was consistently necessary for them to work more than the normal number of hours. Headquarters, SOS and its Chiefs of Services and Base Section Commanders specified and attempted to execute training programs which recognized this situation and placed heavy emphasis upon on-the-job training.

But on-the-job training, excellent for increasing technical efficiency, accomplished little towards overcoming the lack of proficiency in individual defense measures. Headquarters SOS recognized and directed emphasis on this problem as early as 1942 by specifying that all service personnel be trained for combat as infantrymen[1]. But by D-Day, this training deficiency had not been corrected to a satisfactory extent.

Technical proficiency, emphasized during the training period in the United States, developed further through on-the-job training in the British Isles. Service schools were also available to train key individuals. Technical proficiency of service troops, as a whole, came to be satisfactory. Most of the exceptions were due to the necessity of consistently using certain units in the British Isles for other than their primary mission.

Maneuvers provided opportunities for overall training to such small numbers of service units as could be spared from their normal functions. Participation of SOS units was further limited by the high priority given to Field Force units in the few maneuvers permitted by conditions in the British Isles.

Responsibility for directing overall training of service units was charged to G-3 SOS. Within the basic directives published by G-3 the Base Section Commanders were responsible for developing and carrying out both technical and tactical training. The Chiefs of Special Staff Sections of Headquarters SOS worked with G-3 in developing the overall program. They also found it necessary to render substantial assistance to the Base Section Staffs in preparing and carrying out detailed technical training programs.

58. Conclusions.

a. The use of service troops for other than their normal functions invariably results in rapid deterioration of skill and proficiency in the unit's ability to perform its primary functions and often has a bad effect on morale.

b. On-the-job training, supplemented by a small amount of formal instruction, is the best practical solution to the problem of training most types of service units in an active theater of operations, but

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1. Hq SOS, ETO Training Memorandum No. 9, 9 November 1942.

individual training of the soldier suffers and cannot be properly accomplished by this method.

SECTION 16

USE OF NON-T/O PERSONNEL

59. Non T/O personnel in large numbers were required in the British Isles for headquarters and for many other activities, such as depot staffs and inspection teams. Even after the War Department began publishing a large variety of new T/O's and cellular T/O's in 1943, there were many activities that could be staffed more efficiently by non-T/O personnel.

Because of difficulties in control and administration of non-T/O personnel, Headquarters SOS attempted to keep their number to a minimum. While this was logical, it tended to develop a situation in which it was easier for installations and other army agencies to obtain an entire unit than the smaller number of non-T/O personnel properly balanced between officers and enlisted men that would have met the requirement equally as well, or even better. While this did not develop into a serious problem in the British Isles, it did afford a note of warning against the excessive limitation of non-T/O personnel.

In December 1942, SOS non-T/O personnel requirements were estimated at 1775 officers, 146 warrant officers, and 6030 enlisted men for the operation of Headquarters, SOS and other organizations and installations in the ETO not provided for by approved tables of organization. On 1 March 1943, the non-T/O personnel allotment on the ETO was approved by the War Department for 2286 officers, 185 warrant officers, and 6775 enlisted men. Sub-allotments to the SOS totalled 1905 officers, 149 warrant officers, and 5942 enlisted men, and since this was not a tentative allotment, promotions of non-T/O personnel were resumed for the first time in nearly nine months[1].

60. Conclusions.

a. The use of non-T/O personnel is, under many circumstances, far more efficient than the use of T/O units or T/O cellular units.

b. To limit unduly the number of non-T/O personnel available to a theater results in the inefficient substitution of T/O units.

SECTION 17

USE OF CIVILIAN AND ITALIAN SERVICE LABOR

61. British Civilians. Throughout most of 1943, there was an average of nearly 80,000 British civilians and troops working for the United States Forces in the United Kingdom. This total gradually diminished from 72,487 in January 1944 to 47,686 in June 1944. The latter total included civilian guards (1,126), administrative and clerical assistants (10,242), laborers, skilled and unskilled (29,746) and British troops (6,572 - 90% of which were labor troops)[1]. In addition, there were thousands of others who were, in effect, working for the United States Forces

1. G-1 Section, Hq ETOUSA, "History of Allotments Branch, ETOUSA and SOS".
1. Hq ETOUSA, Progress Report, No. CIV, 17 July 1944.

although they worked as an integral part of British industries and utilities! Also, many British civilians were employed by American agencies other than the Army, such as the American Red Cross, which used 20,438 persons, of whom 9,221 were volunteers.

Of those British laborers working directly for the United States Forces, many were of an inefficient category, having been, of necessity, obtained from among groups ineligible for the draft or employment in essential industry. Their efficiency was not much more than half of a British or American military unit doing the same work. This fact was realized by both the British War Office and the United States Army authorities. Yet, without the help of these civilians the SOS job in the United Kingdom would have been impossible.

62. Italian Service Labor. Some considerable relief of the labor shortage was provided by the introduction of Italian Service units into the United Kingdom in June 1944. There were 7829 such personnel in the British Isles by September 1944[2]. These units had been organized by the Mediterranean Theater. Many types of SOS units in addition to labor companies were organized, each with its small cadre of United States Army personnel to command and supervise. The War Department declared that Italian Service units could be substituted for the same type Army service unit on a one-for-one basis with very little loss in efficiency, and furthermore, it gave authority to inactive Army units at the same rate they were thus relieved.[3]

However, because of language difficulties and because it was considered undesirable to have these Italian units performing a type of work that was higher than, or on the same level with, that of basic United States Army units, most Italian personnel were utilized purely as labor. As laborers they proved to be more efficient than United States soldiers and considerably more efficient than a comparable number of the type of British civilian laborers available. In every other respect, however, their organizations were rated at half the capacity of comparable United States Army units, and were generally less satisfactory.

63. Conclusions.

a. In the absence of sufficient military personnel, civilian personnel can be substituted with little loss in efficiency for most types of work.

b. For common labor, United States Service troops are generally less efficient than enemy prisoners of war and the average civilian laborers of most countries.

2. Historical Section, U.K. Base, "A History of the United Kingdom Base to VE-Day."
3. TWX WAR-48874, 10 June 1944.

CHAPTER 6

INSTALLATIONS TO SUPPORT THE INVASION

SECTION 18

DEPOT SYSTEM

64. The Depot Program in the British Isles called for 17,300,000 square feet of covered, and 26,000,000 square feet of open storage space[1] with a completion target of 1 March 1944.

This depot system, exclusive of POL and Air Force installations, had a handling capacity in and out of approximately 50,000 long tons per eight-hour day; approximately 100,000 long tons per 24 hour day. This gave a very safe margin over expectancies. Approximately half of the installations constituting the depot program were in existence when the United States forces entered the United Kingdom. Of the additional requirements most were especially constructed by the British. There remained a number to be constructed by the U.S. Army Engineers, which, although a comparatively small part of the overall program, represented a substantial undertaking for the limited number of United States personnel available.

65. Depot structure, in the British Isles is well described by an SOS publication of 1943 which says in part[2]:

"Present plans call for the processing of supplies in the U.K. through three classes of installations: Base Depots, Advance Depots, and Distributing Points. Chiefs of Services will be responsible for locating Base Depots and Advance Depots. Distribution Points will be set up on the basis, in general, of one per Division, one per Corps Troops and one or more per Army Troops. The location of the Distributing Points will be the responsibility of the respective Base Section Commanders in cooperationswith the Senior Ground Force Commander concerned. No attempt will be made to maintain balanced stocks at individual Base Depots."

It was further planned to divide Base Depots into two groups: one group to hold reserves for the invasion and to be located in the vicinity of out-loading ports; the other group to hold the reserves for, and to supply through Advance Depots, the troops in the United Kingdom.

In actual practice, depot locations were determined to a large extent by the existence of facilities. While there was a certain amount of segregation of operational supplies, in general each depot served the troops nearest it and acted in most respects as both Base and Advance Depot. Also, because of incomplete documentation of shipments from the United States, almost every depot received unsegregated supplies directly from ship-side which forced it to act as a port sorting shed.

The depot system, in June 1944 was made up of 18 General and 44 Service Depots[3], most of which were of an uneconomically small size, and were difficult to control and staff with the amount of personnel available to the SOS. This deficiency in the depot structure was, however, inevitable as it was necessary to develop the depot system around available storage facilities and available rail capacities at specific points.

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1. Ltr. from Hq SOS to CG ETOUSA, 6 June 1943.
2. Hq SOS Basic Planning Directive #1, Annex 5 to Section IX, 17 Mar 43.

That General Depots were more efficient than Service Depots was not necessarily proven by the experience in the British Isles. A General Depot was necessary when the size of a compact installation was such that it could not be efficiently utilized by only one service. The General Depot structure had the advantage of performing housekeeping as well as certain administrative functions more economically than separate Service Depots located together. On the other hand, Service Sections of General Depots found it desirable to maintain staffs that to a substantial extent duplicated the staffs of the General Depot Overhead. The Service Sections could have operated as separate depots with only nominal increases in their staffs plus an equitable division of personnel being used in General Depot Overhead. But the principle objection to General Depots was that the SOS Chiefs of Services, responsible for their own supplies in the final analysis, had an echelon of control or command between them and their supplies which in a fast-moving situation frequently slowed and complicated supply action.

With reference further to the desirability of General Depots, it is worthy to not that, had the existence of facilities permitted the establishement of a few large General Depots in the British Isles, the resulting concentration of mail traffic could not in all probability have been handled by the British railway system.

66. Control of Depot Operations was a controversial matter never quite crystallized to the satisfaction of either the Base Section Commanders, the SOS Chiefs of Services, or the Depot Commanders.

Problems of control brought about by the existence of General Depots were discussed in the previous paragraph.

They were relatively insignificant as compared to the problems inherent in the joint control of depots by the Base Section Commanders and the SOS Chiefs of Supply Services. Even after the experience of depot operations in the British Isles there remains a wide difference of opinion as to the extent that Base Section Commanders should control depots.

Base Section Commanders usually feel that being responsible for the supply of troops in their area, they must control the means of supplying these troops. They further point out that, being near and in constant contact with the depots, they are in a more favorable position to exercise practical control. Also, by centralizing control of all labor, utilities, and other resources in their area Base Section Commanders are able to fulfill all requirements more economically and in the proper priority.

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3. Status of Depots on 1 June 1944 in the British Isles:

Guard Depots		18
Service Depots		44
Chemical Warfare	4	
Engineer	1	
Signal	3	
Transportation	2	
Medical	4	
Ordnance	17	
Quartermaster	13	
Other similar Installations		27
Vehicle Parks	11	
Ammunition Dumps	9	
POL Dumps	7	

SOS Chiefs of Supply Services, on the other hand, point out that the great majority of depots contain portions of the Theater Reserves which cannot be evenly divided among Base Sections; in many other ways, almost every depot is an integral part of the overall supply system. They consider it important to be able to exercise complete operational control without resorting to the time-consuming process of using command channels or obtaining concurrences of Base Section staffs. This is especially necessary in a new and rapidly changing situation where semi-permanent uniform procedures and policies are difficult to establish.

Therefore, although the Commanding General, SOS, was in accord[4] with Army Regulations giving SOS Chiefs of Supply Services complete control over depots[5] and had originally organized the SOS with depots as exempted stations, it was not feasible for him to continue such a system of centralized control after depots became more numerous and the overall situation complex and fast-moving.

In May 1943, Base Section Commanders were made responsible for the "internal management" of depots, leaving technical operations still under direct control of the Chiefs of Services concerned. This division of responsibility was extremely difficult to interpret or apply.

Therefore, in August 1943, Base Section Commanders were made "responsible for the operation of all General and Branch Depots" and the "receipt, storage, maintenance, salvage and issue as directed of supplies and equipment"[6]. The directives setting forth this division of authority between the Base Section Commanders and the SOS Chiefs of Services were somewhat ambiguous, perhaps intentionally, and the actual division of authority was evolved in dealings between the key individuals concerned. The solutions reached were dependent to an important degree on the personalities concerned. In the final analysis the SOS Chiefs of Supply Services, especially the Chief Quartermaster, who was charged with staff supervision of General Depots, actually exercised almost complete control over all important aspects of depot operations. This control was exercised more or less informally through technical channels which, although in many instances theoretically incorrect, was a workable solution to the problem.

Consequently the depot system worked smoothly with perhaps two deficiencies worthy of special note:

a. Depots were hindered in their operation by too many inspections, by too many people from too many different echelons of command. They were inspected by representatives of General and Special Staff Sections of Headquarters SOS and the appropriate Base Section, and even by representatives of Headquarters ETO and District Headquarters within the Base Section.

b. Depots were required to submit too many reports to Base Section Headquarters and to Headquarters SOS. Many of these reports were unnecessary, were to some extent duplicates, or had outlived their usefulness.

67. The POL Depot Program was designed to accommodate packaged fuel requirements, including oils and lubricants, only for support of

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4. Ltr, Brig Gen. R. M. Littlejohn, 11 Feb 43, Subj: "Relationships Between Base Section Commanders and Supply Installations." TO: Maj.Gen.John C.H. Lee with Gen. Lee's note of approval written thereon 26 Feb 1943.
5. AR 700-10, 24 October 1942.
6. Hq SOS Circular #49, 24 August 1943.

operations on the Continent. The requirements, including oils and lubricants, only for support of operations on the Continent. The requirements for vehicles operating in the United Kingdom were supplied from common storage operated by the British.

The original program visualized twenty depots, of which ten were authorized for construction early in 1943. The construction of the remaining ten were to be authorized as tactical plans developed. By the end of 1943, 14 depots had been completed with a capacity of 20,000 tons of fuel plus 13,000 square feet of covered storage for oils and lubricants. Ninety-five percent of the construction was done by the United States.

This storage program was based on the assumption that two-thirds of the combat force would be engaged during the first 30 days and the entire force during the following 15 days, after which bulk deliveries could be depended upon. Fuel consumption was based on 1.75 gallons per man per day for combat operations. Lubricating oils as a percentage of fuel tonnage for combat operations were calculated at 4% with all other allied products amounting to less than 2%.

68. Ammunition Depot Program was designed to store four months of Ground Force requirements and eight months of Air Force requirements for full combat operations.

The program called for space adequate to store 388,000 tons of Ordnance items; 134 tons of Chemical Warfare Items plus 8,000,000 square feet of hard standings mainly for spray tanks.

69. Conclusions.

a. The depot structure of Advance, Intermediate, and Base Depots as specified in War Department publications is not the most desirable under all circumstances. Frequently the establishment of such a depot system is extemely uneconomical in the use of transportation and personnel. A depot structure should be worked out for each situation from a common sense point of view, based on the most efficient use of transportation and personnel.

b. Under overseas conditions where available rail and storage facilities wre limited, General Depots are usually less desirable than Service Depots in supporting large operations involving substantial tonnage.

c. The degree to which depots should be exempted from Base Section control is a matter of evolution in a specific situation, but in general there should be complete decentralization of operation responsibilities to the Base Section Commanders, with the Headquarters SOS staff concentrating on plans, policies and coordination.

d. Staff Sections should not be permitted to issued directives to installations calling for recurring reports except as approved by a control section organized on a General Staff level. Abuse of such a control, especially under rapidly changing conditions, will almost inevitably result in installations being burdened with the submission of unnecessarily large numbers of reports, many of which will contain identical information.

e. The authority to inspect depot installations should be specifically and strictly limited. All inspections and visits to installations should require the concurrence of some central agency.

SECTION 19

SORTING SHEDS

70. Basis of Requirement. As soon as substantial quantities of United States supplies began arriving in the British Isles, the plan for getting this materiel from ship-side to the proper depots was found to be unworkable.

The original plan had been for SOS Supply Services to designate the destinations of all supplies on each ship prior to the arrival of the ship. The basis of this action was to be advance copies of the ship's manifest, preceded by loading cables. However, ships' manifests and other advices were found to be not in sufficient detail to permit the pre-designation of cargo to the extent necessary to make the plan workable.

A contributing factor in the failure of the plan was the inability, especially in 1942 and early 1943, of British dock workers, unfamiliar with United States supplies and markings, to follow accurately such detailed shipping instructions as could be given.

Another factor contributing to the confusion was the relatively large percentage of containers that were inadequately marked as to contents, or were not marked at all. An indication of the extent of this failing is the fact that in 1942 the New York Port was receiving for shipment approximately 24,000 pieces of unmarked cargo daily.

The result was the shipping of unsorted supplies from docks to such depots as at the time had capacity to receive them. These depots, after sorting the supplies and placing them in their inventory, were frequently directed to ship large quantities of them to other depots to balance stocks or to meet immediate requirements. This inter-depot shipment of supplies grew to be a serious burden on the depot and transportation systems which were already working to capacity.

There were three possible solutions to this problem, all of which were exploited: first, better documentation by the Zone of the Interior; second, increasing the efficiency of cargo identification by dock workers; third, the use of sorting sheds within the port area. (The use of sorting sheds had not previously been contemplated).

71. Function of Sorting Sheds. This was described by SOS as follows: "Sorting sheds at or near ports are used to classify, identify and sort incoming supplies, particularly sized items of clothing and packages which cannot be clearly identified from the manifests. The purpose is to assure proper distribution of supplies to inland depots and to eliminate transhipment between depots, thereby reducing the number of rail wagons in use."[1]

As indicated by the above statement sorting sheds were used only for such items as could not be identified and segregated at ship-side. Never more than 3% of U.S. tonnage handled monthly by British railways was from sorting sheds[2].

The routing of supplies through sorting sheds involved a complete additional handling as compared with supplies that could be direc-

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1. Summary entitled "Appreciation of Installations Program", June 1943, by Chief of Service, SOS. Summary published in SOS ETO "Overall Plan", dated 20 June 1943.
2. Various (monthly) Progress Reports and Statistical Summaries published by SOS, ETO.

ted from ship-side to the proper depots. Considerations of efficiency dictated that sorting sheds be used only when rehandling in the port area would eliminate the necessity of rehandling and rerouting by the depot to which the supplies would otherwise be sent.

Therefore, sorting sheds came to be used principally by those Supply Services having a substantial number of depots and receiving a large number of different items of relatively small bulk, such as spare parts and sized items. The principal users of sorting sheds, in order of importance, were Quartermaster, Air Force, Service Commands, Ordnance and Medical.

In many respects sorting sheds performed the functions that would have been performed by Base Depots had it been feasible to establish and operate them as such.

72. The Procurement of Sorting Sheds from the British was accomplished to the extent of approximately 450,000 square feet by early 1943. These sorting sheds, existing in the immediate vicinity of every major port, had been used by the British only in exceptional circumstances when necessary to clear the ports. They had been held empty for use in emergencies, such as a breakdown in the transportation system or disruption of the supply system by bombing. The British were anxious to continue maintaining the sorting sheds for either American or British use on this basis. They were inclined to consider as unwise the use of the sheds as an integral and normal part of any supply distribution system. The compromise reached included the provision that the U.S. Army should so operate most of the sheds turned over to them that they could be evacuated within a very few days if necessary. This necessity fortunately never arose.

73. Conclusions.

a. Sorting sheds should be provided to facilitate sorting of supplies in the immediate vicinity of ports and to clear docks when inland transportation is not available.

b. Sorting sheds should be used only to the minimum extent necessary to prevent excess inter-depot shipments resulting from improper sorting at ports, and to keep docks clear. Their use for other purposes is uneconomical in transportation and manpower.