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STUDY
PROJECT

KOREAN WAR LOGISTICS
THE FIRST ONE HUNDRED DAYS
25 JUNE 1950 TO 2 OCTOBER 1950

BY

COLONEL WILLIAM J. FLANAGAN, OMC
COLONEL HARRY L. MAYFIELD, JR., FA

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USAWC MILITARY STUDIES PROGRAM PAPER

KOREAN WAR LOGISTICS
THE FIRST ONE HUNDRED DAYS
25 JUNE 1950 to 2 OCTOBER 1950

A GROUP STUDY PROJECT

by

Colonel William J. Flanagan, QMC
Colonel Harry L. Mayfield, Jr., FA

Professor Edward J. Drea, DAC
Project Adviser

US Army War College
Carlisle Barracks, Pennsylvania 17013
16 May 1985

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ABSTRACT

AUTHOR(S): William J. Flanagan, COL QMC
Harry L. Mayfield, Jr., COL FA

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PREFACE

This study project was produced under the aegis of the US Army Military History Institute and the US Army War College. The scope and general methodology were outlined by the Institute. The authors are deeply indebted for the advice and assistance provided by Dr. Edward J. Drea, USAWC Faculty Advisor for this project.

Responsibility for the joint study effort is as indicated below:

a. Colonel Flanagan—Forward; Chapter II—Logistics Overview; Chapter III—Supply; Portions of Chapter VI, i.e., Procurement, Storage, Civilian Labor in Korea and Rear Area Protection; Portions of Chapter VII, i.e., introduction and lessons learned 1-17; Appendices II through V.

b. Colonel Mayfield—Chapter I—The Battleground; Chapter IV—Transportation; Chapter V—Ordnance; Portions of Chapter VI, i.e., Services, Logistical Support to Other than US and ROK Units; and Logistical Support to the ROK Army; Portions of Chapter VII, i.e., lessons learned 18 onward—Appendices I, VI through XI.

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FORWARD

The Army Chief of Staff, General John A. Wickham, has stated that "the Total Army challenge, in a condition of nuclear stalemate, is to create a balanced Total Army capable of responding across the entire spectrum of conflict . . . the actual nature of conflict since World War II has been of mid to low intensity . . . forces with great flexibility are required to respond to these kinds of crises."¹

Although overshadowed by the Viet Nam War, the Korean War (1950-1953) offers the best recent example of the US Army engaged in a mid-intensity conventional conflict. The outbreak of the Korean War in June 1950 caught the US Army by complete surprise. The Army was unprepared for a war in Korea and had no advance indications that major hostilities were imminent. Yet the United States Army demonstrated great flexibility, responsiveness and innovation to meet this crisis. Very little has been published concerning the logistical aspects of that conflict. This effort is aimed at providing unpublished historical information, lessons learned and possible implications for Army personnel charged with developing logistical plans to meet short notice conventional contingencies in undeveloped theaters of operations with assets on hand.

This study looks at the first one hundred hectic days of combat service support to UN forces fighting in Korea; the time before the United States industrial base could fully support the Army in the Far East. This initial period of the Korean conflict includes the challenges of supporting deploying forces to contain an ongoing enemy attack, supporting forces from the UN controlled Pusan Perimeter while concurrently planning and executing the entirely separate Inchon Landing, all against enemy opposition. The focus is on combat service support above the division level and includes logistical support at the corps/field army level with forward support areas in Korea and a support area in Japan.

The emphasis is on the Army functional logistical areas of supply, maintenance, and transportation performed by the present day Quartermaster, Ordnance and Transportation Corps. Some support functions are addressed in greater detail than others as the available historical literature does not evenly address each logistical function.

The US Army Military History Institute, Carlisle Barracks, Pennsylvania, was the source of the many firsthand historical documents consulted in the conduct of this study. A recently "rediscovered" four-volume study Logistics in the Korean Operations was a principal source and more than twenty-two other sources were utilized, including oral history reports from key logistical leaders involved in the Korean Conflict. Implications for the US Army today were developed with the help of logistically oriented faculty and students from the US Army War College and the US Army Military History Institute.

1. Total Army Readiness: 1984 Army Chief of Staff Paper.

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CHAPTER I

THE BATTLEGROUND

The early June morning North Korean invasion of the Republic of Korea (ROK) surprised all of the free world. The ROK Army manning the 38th Parallel had only elements of its five regiments all reduced in strength because long-suspended weekend passes has been granted.

The ROK defense plan was to delay along the 38th Parallel with subsequent defensive lines along the Han, Taejon and Andong Rivers. Once the North Koreans attacked, ROK Army officers soon realized that they had insufficient time to implement their defensive plan due to the swift, tank led, North Korean thrust.

The ROK Army was no match for the Koreans. The heaviest weapons the ROK Army possessed were twenty-seven armored cars and eighty-nine 105 mm howitzers, serviceable but with short range. Fifteen percent of the ROK Army's weapons were useless and thirty-five percent of their vehicles were unserviceable. Their ammunition was sufficient for a few days, including small arms stocks.

The North Korean forces took three and a half days to seize Seoul. This initial success convinced the enemy that he could overrun the entire peninsula in two weeks.

The United Nations Security Council recognized the crisis from the North Korean attack and asked the United States to appoint the commander for United Nations forces and form a unified command to repel aggression in Korea. President Truman appointed General of the Army Douglas MacArthur, Supreme Commander, US Forces Far East to the position. The President ordered MacArthur to defend the Republic of Korea with naval and air assets and to

thwart North Korean aggression. Immediately, two US divisions were ordered to Korea. These divisions were ill equipped, had little ammunition, a supply base that had critical shortages and composed of understrengthened units.

As Seoul was being captured, the ROK troops continued to withdraw in the face of North Korean pressure. Even as this retrograde movement was occurring, US Army ground forces were moving north in-country to link up with the ROK forces. The introduction of US troops boosted the confidence and morale of the ROK troops, but unfortunately North Korean armour still excelled when matched against the allies inferior antitank weapons and the enemy continued to push south.

General MacArthur estimated he could defeat the North Koreans and drive them back across the 38th Parallel with two US divisions, but as the UN forces suffered sharp reverses he began to reevaluate the capabilities of the North Korean forces. With revised information, he concluded four full strength divisions would be required to defeat the North Korean force, thus further taxing the critically short logistical base of his forces and that of the Zone of Interior (ZI).

Still the North Korean tide could not be stemmed and by 19 July the North Korean's had enveloped Taejon. Now the Communist's target was Pusan. Terrain, however, favored the defenders given the rugged mountainous country that channelized the North Koreans attacks.¹ All available UN forces were deployed to defend the perimeter, but still the enemy pressed his attack. The situation was critical and it appeared the North Koreans might drive UN forces from the peninsula.

The UN forces continued to withdraw and formed a defensive line, eventually known as the Pusan Perimeter. The UN forces were spread thin in defense of this perimeter. There were no reserves and there was no depth to

their defense. The normal frontage three divisions might defend, had only 6,000 men to defend it.

The North Koreans struck along the entire Pusan Perimeter employing all of their available forces. The enemy attack gained nearly ten kilometers of ground southward, but in doing so exhausted his offensive capabilities. The arrival of US reinforcements, coupled with North Korean losses, turned defeat into victory and turned the tide of battle.

The North Koreans attempted another desperate attack on the Pusan Perimeter, but without success. They then faced total destruction as they had to turn around their forces to meet the American assault waves that had landed far to the North Korean rear, at Inchon, in mid September 1950. The North Korean forces fell into chaos in the face of the counteroffensive of the UN forces. To avoid encountering the linkup of UN forces between Inchon and Pusan, the enemy rapidly retreated and by 5 October was situated north of the 38th Parallel.

CHAPTER I

ENDNOTES*

1. There is no spot in the country which a mountain does not form a part of the landscape. The mountain slopes drop sharply down to the sea on the east coast but are more gentle on the west coast. The roads, mostly unimproved and the railroads and communications networks follow the valleys and the mountain passes in the broken terrain. See p. 2.

*The first letter in the footnotes is coded to the bibliography entries on page 97-98. Each letter corresponds to a source listed in the bibliography.

CHAPTER II

LOGISTICS OVERVIEW

SECTION I--THE PRELUDE

The last elements of the United States occupation forces departed South Korea in June 1949 leaving behind approximately eighty military personnel as the United States Military Advisory Group to the Republic of Korea (KMAAG).¹ The 95,000 man South Korean army and 48,000 paramilitary police force were in a poor state logistically to fight even a defensive war. Fifteen percent of the weapons and thirty five percent of all vehicles were unserviceable and spare parts were non-existent. In addition, there was no sound logistical doctrine, regulations, or SOPs and "irresponsible handling of funds, supplies, and equipment was customary."²

The United States Far East Command (FEC), the major US force in the Pacific, was charged with the occupation of Japan. Although the command was relatively large, 109,000 personnel (Figure 2-1), and 46 percent of its strength combat personnel, to include four divisions (7th, 24th and 25th Infantry Divisions and the 1st Cavalry Division), it was unprepared for a "come-as-you-are war" in Korea. Division strengths ranged from 57 to 68 percent of full authorizations while logistical organizations were, overall, at 26 percent of US authorized strength although supplemented with Japanese civilians who could not legally be deployed to a combat zone.³ The equipment situation was equally dismal. Approximately 90 percent of the divisions' armament and 75 percent of the automotive equipment consisted of recovered World War II equipment that required repair before deployment.⁴

Personnel Distribution by Branch
June 1950

Branch	<u>Eighth Army</u>		<u>Total FEC</u>	
	<u>Strength</u>	<u>% of Tot.</u>	<u>Strength</u>	<u>% of Tot.</u>
Gen/Sp Stf(1)	916	1.10	1,897	1.75
Unclas(2)	<u>7,899</u>	<u>9.51</u>	<u>10,546</u>	<u>9.70</u>
Tot. Other	<u>8,815</u>	<u>10.61</u>	<u>12,443</u>	<u>11.45</u>
Armor	240	0.29	314	0.29
Arty	13,375	16.10	14,592	13.41
Inf	<u>28,305</u>	<u>34.10</u>	<u>34,955</u>	<u>32.15</u>
Tot Combat	<u>41,920</u>	<u>50.50</u>	<u>49,861</u>	<u>45.80</u>
Chem	89	0.11	151	0.14
Eng	7,048	8.48	10,977	10.10
MP	3,895	4.68	5,260	4.84
Med Svcs	6,473	7.78	7,739	7.12
Ord*	4,777	5.74*	6,229	5.73*
QM*	2,805	3.38*	4,369	3.98*
Signal	4,311	5.18	6,374	5.86
TC*	<u>2,966</u>	<u>3.57*</u>	<u>5,365</u>	<u>4.93 *</u>
Total Svc	<u>32,364</u>	<u>38.90</u>	<u>46,464</u>	<u>42.70</u>
Tot CSS*	<u>(10,548)</u>	<u>(12.69)*</u>	<u>(15,963)</u>	<u>(14.64)*</u>
Total Comd	<u>83,099</u>	<u>100</u>	<u>108,768</u>	<u>100</u>

1. Includes GO, GSC, AG(OFF&EM) IG, CHAP, FIN (OFF&EM). JA and Spc Svcs.

2. Includes WO; "No Branch" EM; WAC.

SOURCE: VOLUME I-LOGISTICS IN THE KOREAN OPERATIONS. Dec 1955.
Figure 14b.

*Items included in CSS total.

FIGURE 2-1

SECTION II—INITIAL LOGISTICS FOCUS—PREVENT DISASTER

It was evident to the FEC from the start that South Korea could not hold and the whole country would be occupied by North Korea without immediate US military assistance. As no plans existed to support US combat operations in Korea, FEC and Eighth Army developed the logistics support system piecemeal from emergency to emergency.⁵ Procurement of needed items to support the Korean Army started on 26 June 1950 and 5th Air Force airlifted critical ammunition supplies to Korea followed by dispatch of an ammunition ship on 27 June 1950.⁶ Earlier on the 27th, logistics officers, as part of a FEC element, were designated to go to Korea to assess logistics needs.⁷ Also on 27 June, Department of Defense gave FEC responsibility for all logistical support for ROK forces. On 30 June President Harry S. Truman authorized the employment of US ground forces in Korea and the same day General Douglas MacArthur, CINC FEC, ordered the 24th Infantry Division to Korea. The logisticians now faced three concurrent challenges—support US forces deploying to a war zone, develop a logistics structure in the Pusan port area and sustain the ROK Army already in combat.

Improvisation was the norm to meet early logistics requirements. FEC General and Special Staff sections functioned as operating agencies.⁸ Division logistics units were given top priority and brought up to strength by levies of officers and NCOs from depots and base support operations.⁹ Provisional nondivisional logistics units were also formed by levying personnel from the depots and base operations.¹⁰ The resultant shortages for these organizations were somewhat offset by increased employment of Japanese personnel.¹¹ Although the expedients helped, the logistics units sent to Korea were still "bare bones" and ill-trained.¹² Requisitioning and local procurement rules went by the wayside early in order to respond effectively to the crisis.¹³

Japanese shipping was commandeered to support the flow of supplies to Pusan. The FEC G-4 ignored established procedures and purchased supplies, such as POL, on his own authority.¹⁴ Japanese personnel also displayed a sense of urgency and gave extra effort to support the US and Korean forces in Korea with prewar work expectations shattered. The Yokohama command port operation, for example, moved 100,000 tons in three days although the operation was only designed to handle 250,000 tons a month.¹⁵

Two companies from the 24th Infantry Division were airlifted on 1 July 1950 and became the first US combat troops to arrive in Korea. They carried their basic load of ammunition and three days of Class I supply. The remainder of the division arrived by ship and was off-loaded at Pusan Port, initially operated by 80 KMAG personnel, a handful of US civilians and Korean laborers. By 7 July, port personnel with the help of 24th Infantry Division soldiers, off-loaded 10,500 personnel, 1,372 vehicles and 10,800 m/tons, to include 15 days of supply (DOS) for the division from 52 vessels.¹⁶ Follow-up supply was automatic, in 15 DOS increments.

Upon deployment, combat accountability went into effect. Units and organizations did not have to maintain property books, voucher files/registers or other property records. Fixed units, such as clothing sales stores and fixed laundries, however, were required to maintain normal accountability.¹⁷ In the early stages, requisition procedures were also "informal" e.g., supply personnel considered a telephone call a valid request and an indication that the item left the warehouse constituted issue.¹⁸

Port operations continued on an ad hoc basis until the first trained port operations units arrived from CONUS in early August 1950. Provisional Quartermaster depot, supply and service companies from FEC, Japan began arriving in the port on 11 July and personnel were also obtained for the port

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as they were discharged from hospital ships.^{19,20} The use of Korean labor, both contract and direct hire, was also expanded.

Despite extraordinary efforts a significant port backlog developed early. Although the inexperience of the personnel operating the port contributed to this situation, there were two other equally important factors.²¹ Improper or nonexistent identification of content on shipping containers slowed operations and subsequently items had to be shipped by Pusan Port personnel to sorting areas outside the dock area for identification.²² Shipment from the Pusan Port was a particular problem because only ten serviceable trains (a total of 200 cars) per day were available. They were capable of moving 5,000 tons of supply north per day but the port crew could offload tonnage faster than the items could leave the port area.^{23,24} This situation caused critical problems.

The Pusan Port had to also handle supplies to support the ROK Army. Simply stated—the task was to keep the South Koreans in the war. By 10 July, the ROK Army had lost seventy percent of its supplies north of the Han River and less than forty percent of the ROK Army remained effective. To rectify the situation, US advisors took complete control of ROK Army logistical operations and organized as well as trained Korean logistics units. The Americans "solved" the language problem by putting the burden of translation on the Koreans and establishing two separate lines of communication—from top to bottom—one in Korean and one in English.²⁵

The difficulties of supplying the Koreans were monumental. On the American side there were no US stockpiles in Korea at the start of the war. US units only brought a maximum of 30 DOS to Korea. US losses ran high in personnel and equipment in the first two months of fighting and depots in Japan soon ran short of combat supplies. On the Korean side, losses were not

only high but new units also had to be formed; few vehicles were available to haul the supplies to the operational units; the US units enjoyed priority for road and rail movement, and it was common for Korean units to sell any supplies excess to immediate needs in order to supplement the low Korean Army pay. The US attempted to control this latter practice by rationing items and providing only the minimum essential supplies.²⁶

Support for other UN forces also had to be dealt with. The United Nations Command was established on 24 July 1950 with headquarters in Tokyo. The CINC FEC recommended that ground units of UN forces be reinforced battalions of approximately 1,000 men each, primarily infantry with artillery and weapons capable, if possible, of using US standard ammunition. Service units were to be of readily usable size. Due to the preponderance of US forces, UN units were to be attached to US units of regiment or division size. Insofar as possible, UN units were to be absorbed into the US supply organization on a reimbursable basis. The CINC FEC plan for integration was adopted by the UN forces. If the combat had ended in just a few months, the battalion-sized unit would have been suitable, but as the campaign lengthened, it presented problems in command, fire support and logistics.²⁷

SECTION III--US ARMY LOGISTICAL COMMANDS

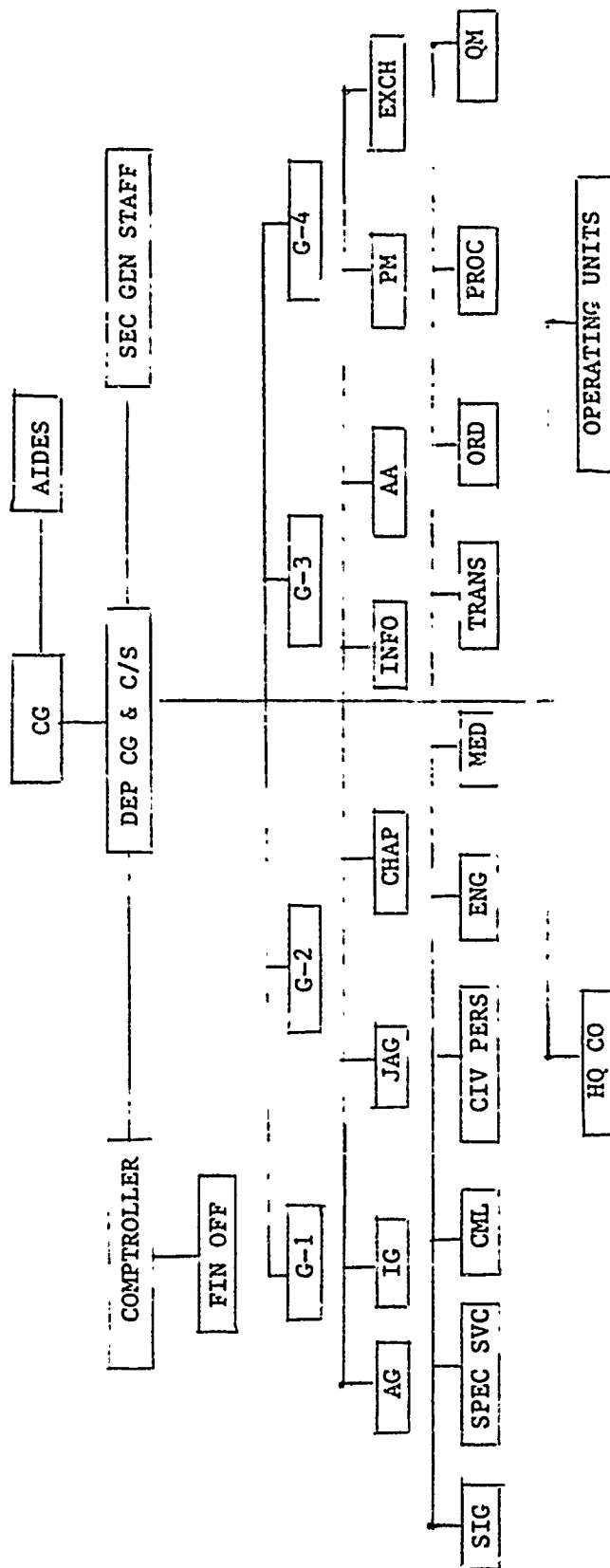
According to US Army doctrine in 1950, a logistical command was a permanent organization composed of a nucleus headquarters and headquarters company (HQ & HQ CO) and a balanced grouping of combat service support (CSS) organizations. The size of the HQ & HQ CO and the size and mixture of the CSS organizations depended on the mission of the command. The possible missions for a command ranged from functioning as a major command in a communications zone (COMZ) to operation of a small COMZ to performing the functions of a

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large logistical base/district. The strength and mixture of the force to be supported determined the doctrinal size and composition of the three types of logistical commands: Type A (11,000 to 18,000 personnel) supported up to 30,000 combat personnel (a reinforced division); Type B (35,000 to 60,000) supported up to 100,000 combat personnel (reinforced corps); Type C (75,000 to 150,000) supported up to 400,000 personnel (a field army).²⁸ There were three major logistical commands in operation during the first critical one hundred days of the Korea War--the Japan Logistical Command (JLOOM) (25 August), the 3rd Logistical Command (28 August) for support of the Inchon Landing and X Corps and the 2nd Logistical Command supporting the Pusan Perimeter (19 September). The latter command replaced the Pusan Logistical Command that was established in July 1950.

The Japan Logistical Command (JLOOM) (Figure 2-2), a major subordinate command of the FEC, was established to assume the missions and functions of the Eighth Army in Japan and related island groups. All combat service support troops in Japan were assigned to JLOOM. Its overall mission was not only to provide logistical support for the Korean operation but also encompassed Eighth Army's former responsibilities for the occupation and defense of Japan.²⁹ Specific missions included full logistical support of the US Army and Air Force units in Japan; limited support of the US Navy in Japan; support for all US and UN forces and ROK Army forces (as required) in Korea; support for civilian relief activities of the Economic Cooperation Administration in Korea; POL supply for all FEC requirements; procurement, receipt, storage and issue of supplies procured in Japan and operation of the American Graves Registration Service. As its mission included a spectrum of responsibilities from the Zone of the Interior (ZI) functions, occupational/defense missions and COMZ responsibilities, JLOOM used the type C organization only as a guide in developing its organizational structure.³⁰

HEADQUARTERS JAPAN LOGISTICAL COMMAND



SOURCE: HQ JLCOM COMMAND
REPORT DEC 50

Figure 2-2

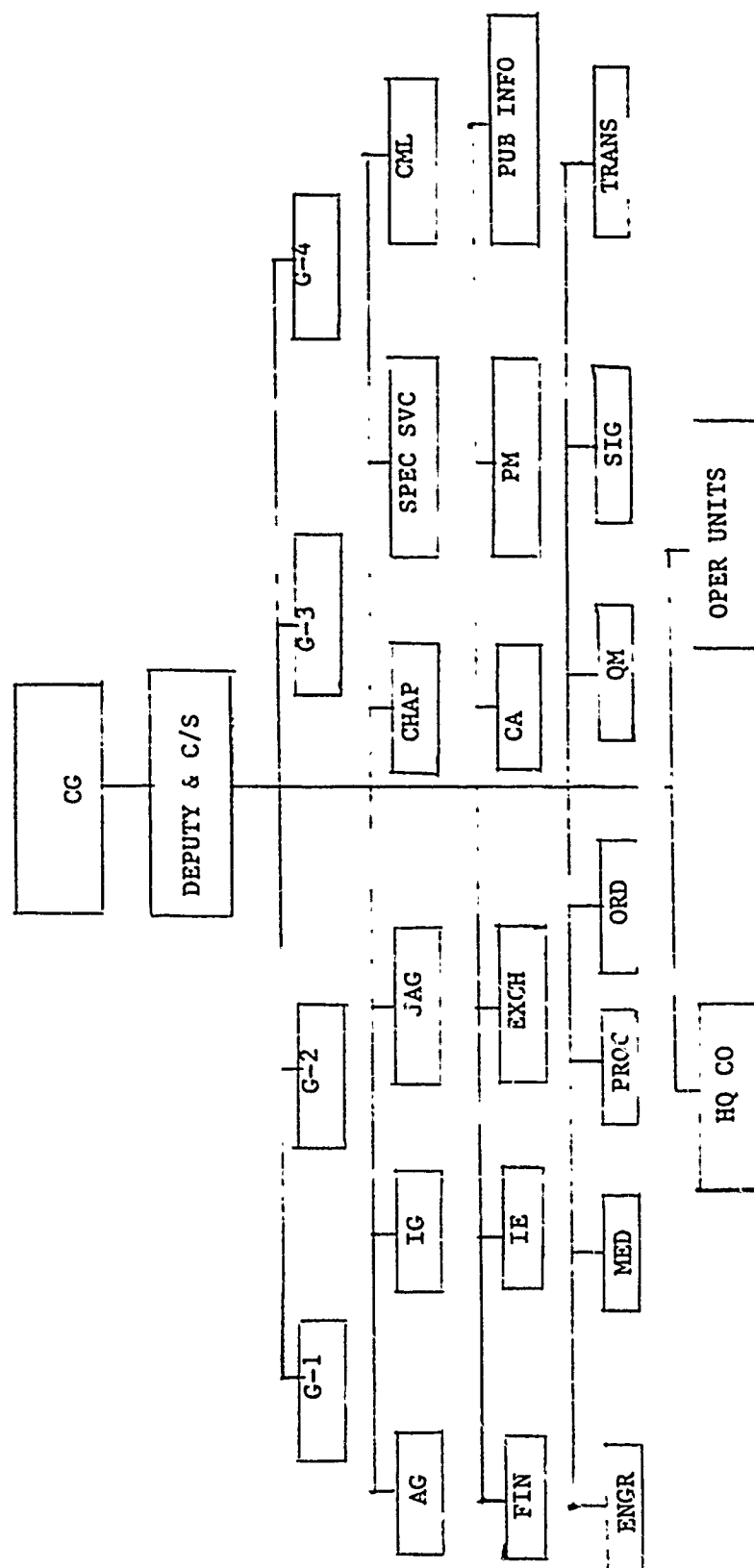
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The command faced its multi-missions with a shortage of US personnel. Approximately seventy-three percent of the units assigned to the command had the dual mission of occupying Japan and simultaneously supporting combat operations in Korea. Defense planning for Japan required time from support functions be used for organization and training of service support troops who would fill tactical roles. Peacetime authorizations continued to be the basis for personnel allowances and staffing while the command was still levied by FEC for trained technical personnel to support units in Korea. Consequently the JLOOM relied upon indigenous personnel to meet the shortfall in US personnel and Japanese employees of JLOOM reached a 166,000 peak in October 1950.³¹

The 3rd Logistical Command (Figure 2-3) organized with 9,000 service troops to support the 69,000 X Corps force after the Inchon Landing, was based on a Type B Logistical Command. The majority of its officers and men were assigned by FEC directly from the replacement stream although it had a nucleus of a few specially qualified and selected officers from GHQ, FEC with World War II experience in operations similar to the Inchon Landing.

Selection of the type of combat service support units to support the Inchon Landing was a challenge.³² The X Corps "while designated a Corps, had the head of a Corps and the tail of a theater of operations." The designation of service-type units was predicated on the necessity: (1) to provide logistical support to the tactical elements of the Corps; (2) establish and operate aerial and seaports; (3) and establish base depots and forward supply points. To meet the requirement to support forward areas and operate rear base facilities, the X Corps commander selected units capable of performing COMZ functions at the base level and to extend the area of their activity up to the division rear boundary.³³ To enable the X Corps to operate independently, the UN Command also authorized additional allowances of personnel, equipment and

HEADQUARTERS
3RD LOGISTICAL COMMAND (28 AUGUST 1950)



SOURCE: REPORT OF OBSERVERS, 306 LOG COMMAND, 1 JULY 1951.

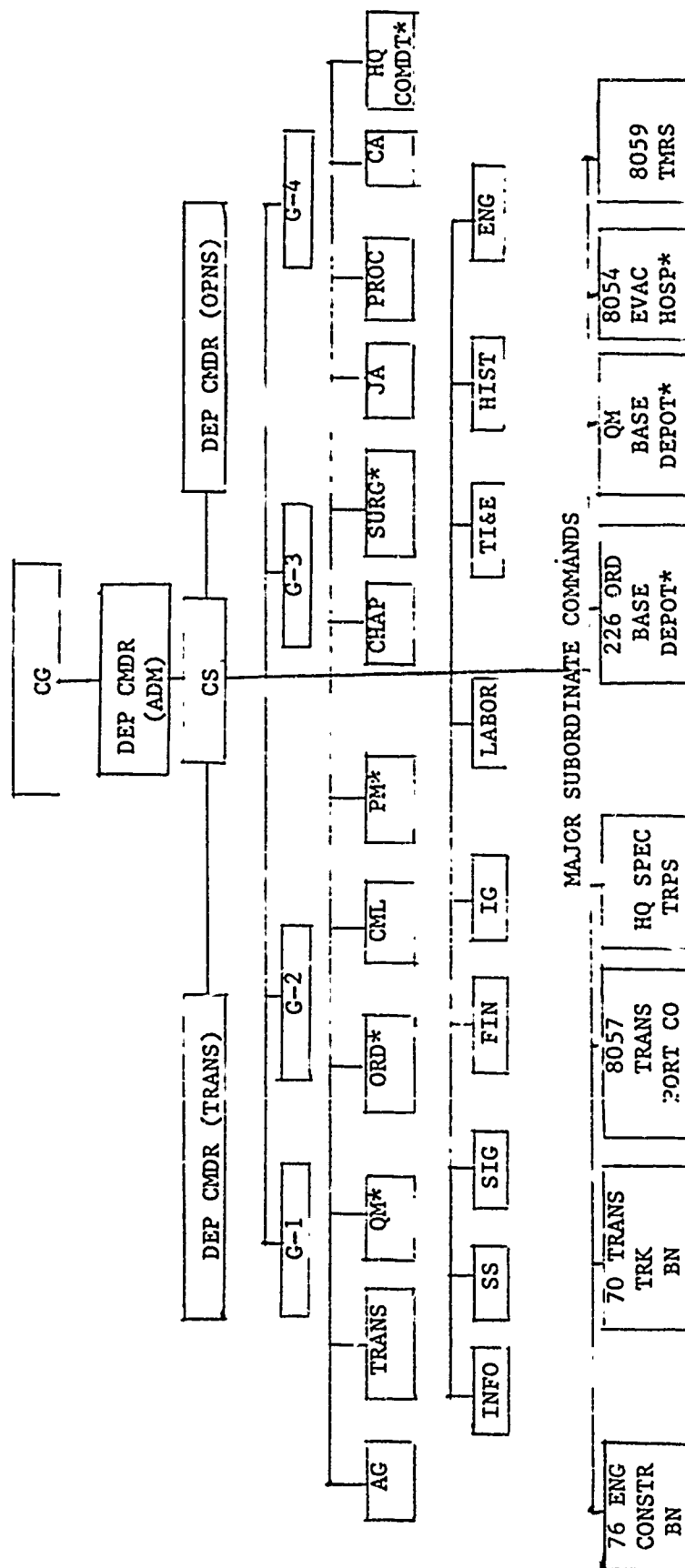
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combat service support units. The 3rd Logistical Command target was a minimum of 15 DOS, all classes, by D+10 and to build to a minimum of 30 DOS by D+45.³⁴ The advance party of the 3rd Logistical Command landed at Inchon three days after the initial landing wave with the balance of command assets on shore by 26 September 1950. Within a week after the initial landing, over 6,000 vehicles, 25 tons of equipment and supplies, and 53,000 personnel had been unloaded at Inchon. The landing was initially supplied over the beach but with the capture of Kimpo Airfield, 5th Air Force airlifted supplies of all types from Japan to Kimpo and X Corps experienced no critical logistical problems.³⁵

The 2nd Logistical Command (Figure 2-4), based on a Type C Logistical Command organization, was staffed with personnel and units from its predecessor, the Pusan Logistical Command. The organization of the headquarters differed from the standard TOE of a Type C command as three deputy commander positions were established by the commander, from within command assets, for administration, operations and transportation. The 2nd Logistical Command established the new positions to give more authority to the officers assigned to deal with parallel and higher headquarters. Due to the large number of indigenous personnel employed, the command also established a separate Labor Section.³⁶

The FEC considered making the 2nd Logistical Command a subelement of JLOOM or making it a separate organization under a logistical command that controlled both 2nd Logistical Command and JLOOM. The FEC's final solution was to make 2nd Logistical Command a subordinate Eighth Army Command because of the distance from Japan to Korea, the wide range of responsibilities already assigned JLOOM and the proximity of the 2nd Logistical Command to Eighth Army. This solution also avoided the establishment of an additional logistical headquarters or the conversion of the JLOOM into a major COMZ

HEADQUARTERS 2ND LOGISTICAL COMMAND
19 SEPTEMBER 1950



*STAFF SECTION CHIEF ALSO COMMANDS TROOPS AND INSTALLATIONS OF RESPECTIVE SERVICES.

SOURCE: GO 75, 1950 HQ EIGHTH ARMY

Figure 2-4

items and these were greatly understated as the troop requirements escalated. Subsequent resubmissions interjected into the system resulted in confusion and further delays.⁴⁸ Fortunately, occupied Japan served as a source of critical assistance during the period before the CONUS supply system could respond to the emergency. Japanese officials returned to the US Army surplus US war materiel given to Japan, to include sleeping bags, boots and shoes. The Japanese even delivered the badly needed supplies directly to ships for onward movement to Korea. The Japanese provided more than \$31 million dollars in supplies to meet critical requirements in the early months of combat.⁴⁹ In 1985 dollars this would equate to \$136 million dollars.⁵⁰

The shortage of winter clothing and boots was the single most critical challenge in the Class II and IV supply area. Soon after hostilities began, logisticians realized that winter clothing would be required to protect soldiers against the "cold wet" conditions in Korea.⁵¹ But until the supply system could respond to the need, interim actions had to be taken to solve the problem. Reclamation, redistribution and substitution provided the temporary solution. Quartermaster Service Centers, composed of laundry, bath, reclamation and maintenance sections were located close to major troop concentrations and saved many clothing items from being discarded. The Service Centers repaired the clothing items and either returned them to the soldier or put the items into stock. Eighth Army also took short supply clothing items from soldiers in the rear areas and provided them to combat soldiers in the front, and where possible, provided substituted items, e.g., field overcoats for parkas.^{52, 53}

The shortage of boots was one of numbers and sizes, particularly the smaller sizes required for Korean personnel. Supported from the US stock whose sizes ranged from 8 1/2 to 13, the Koreans needed sizes 5 to 8 1/2.

CHAPTER II

ENDNOTES

1. E, p. 191.
2. L, p. 4, 5.
3. E, p. 185.
4. M, Vol. II, p. 8.
5. M, Vol. I, Chap. II, p. 5.
6. M, Vol. II, p. 2-4.
7. E, p. 182.
8. M, Vol. I, Chap. II, p. 5.
9. H, p. 184/E, p. 193.
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14. Q, p. 50-59.
15. M, Vol. I, Chap. II, p. 6.
16. E, p. 191.
17. I, p. 10.
18. J, p. 5, 6.
19. I, p. 6.
20. M, Vol. I, Chap. II, p. 6, 7.
21. M, Vol. I, Chap. II, p. 7.
22. I, p. 12.
23. E, p. 184.

24. M, Vol. I, Chap. II, p. 7.
25. L, p. 9-10, 13, 21.
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28. M, Vol. I, Chap. II, p. 9.
29. M, Vol. I, Chap. II, p. 10-12.
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31. N, p. 1-3.
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33. W, G4 Summary, Para. III.
34. L, p. 33.
35. M, Vol. II, p. 14.
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38. J, p. 23-25.

CHAPTER III

SUPPLY

SECTION I--OVERVIEW

At the start of the Korean War, the Eighth Army aggregate military strength was 83,099 with 52,525 personnel assigned to its four combat divisions. To support this strength and to fulfill other logistics requirements in Japan, the Eighth Army maintained the following levels of supply on hand in June 1950 at various depots in Japan.¹

FIGURE 3-1

Days of Supply--Far East Command

<u>Supplies</u>	<u>In Depots</u>	<u>At Stations</u>	<u>With Units</u>
Class I			
Perishable	45	Operating level	None
Non-perishable	60	30	2
Classes II&IV	60	30	None
Class III			
Bulk	75	15	None
Packaged	180	15	15
Class V	45	None	1 Basic load & TNG ammo

The above represents the overall supply status at the start of the conflict but does not reflect shortages of specific items within each class of supply. To alleviate supply shortages prior to debarkation of units to Korea, the FEC redistributed equipment among departing units, locally procured items such as sandbags, lumber and pallets, and requested air shipment of items from the United States.^{2,3} Some shortages were even made up from the limited Pusan Base Command Stocks after the units arrived in Korea.⁴ Despite these

extraordinary efforts critical supply shortages still existed in the early days of the conflict. A priority distribution system was initiated to manage the most critical supply items. The system focused on placement of critical items of equipment in units and at locations where the maximum combat benefits could be obtained.⁵

Supply plans called for departing units:

(1) transported by air to carry a basic load of ammunition and three DOS of rations.

(2) moved by water to take two basic loads of ammunition and 15 DOS of Class I, II, III and IV, i.e., 5 DOS with the units and 10 DOS in division trains.

(3) to utilize combat accountability procedures.

(4) to be automatically resupplied, in 15 DOS increments, with all classes of supplies.⁶

The automatic resupply increments were based on Eighth Army estimates, developed earlier for requirements to sustain a full-strength Eighth Army and to replace combat losses if the Army was committed. Although not completely accurate, these estimates "proved invaluable in effecting quick resupply, and although it was expensive, it was considered a necessary expedient as there was no central requisition agency established to manage the resupply process.^{7,8} The World War II experience of one measurement ton per man, per 15 days, served as the basis for the 15 DOS increments. Although this system had many problems, it was responsive. The first resupply ship carrying the 15 DOS (all classes of supply from all technical services) for the 24th Infantry Division arrived in Pusan on 14 July 1950, fourteen days after the first units of the 24th Infantry Division arrived in Korea. Two additional ships with

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automatic resupply for the 24th and 25th Infantry Divisions were underway from Japan by 18 July 1950.⁹

In addition to this automatic 15 DOS support, other critical items were shipped by air and sea. More than 100 bundles of supply, sufficient to sustain infantry battalions and regiments for one day in battle, were air-lifted in the first two months of the war. This capability proved invaluable and provided the necessary capability for the unit to effectively engage the enemy. More than 100 airdrops were also made in the same period.¹⁰

Almost immediately after the North Korean invasion, FEC placed requisitions on the CONUS supply system to reestablish depot stock levels, meet consumption requirements and replace combat losses. As US forces planning strengths fluctuated and the piecemeal commitment of US forces continued, requisition followed requisition resulting in much duplication and confusion. In addition to meeting resupply requirements, the CONUS system also had to respond to support requirements for divisions leaving CONUS for the FEC. Units departing CONUS carried with them 60 DOS for all classes less bulk Class III.¹¹ Except for Class III and certain Eighth Army designated Class II and IV items, CONUS supply activities were required to provide automatic resupply for Classes I, II, IV, and V in monthly increments for the first two months after units departed CONUS. The Japan Logistical Command, however, was subsequently forced to provide significant quantities of individual clothing and equipment that the troops had abandoned in the replacement pipeline.¹²

In Korea, provisional Quartermaster supply units from Japan began arriving early in the Pusan Port and by the end of July 1950 subsistence, POL, general supply, depot operations and services companies were onshore to support Army operations.¹³ The units had to contend with a "situation (that) changed every hour and every need was an immediate one."¹⁴ Resupply of the

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combat units was the main challenge. Automatic resupply packages kept the troops fighting but in the early days of the war the North Koreans were overrunning US units with depressing regularity. Complete unit supply trains were lost to the invaders and whole companies, battalions and even regiments had to be completely resupplied.¹⁵ It was estimated that in the first two months of the war the 24th Infantry Division received more than twice its TO&E.¹⁶

Although the World War II usage factors provided a yardstick for the automatic resupply effort, the usage rates proved inaccurate due to the unusual conditions of the Korean terrain and weather, numerical superiority of the enemy and the accordion-like progress of the first few months of the war. Further complicating the situation in the early days of the conflict was the lack of records for materiel landed at Korean ports as many items were throughput from docks to forward areas.¹⁷ In the words of an Eighth Army officer, "It was like sending supplies into a void. We had no idea what to specifically send except that everything was needed. So we sent everything we could get hold of and hoped that the units at the front would get what they wanted."¹⁸ Problems of support for South Korean and other UN forces also presented unique challenges due to the lack of supply requirements experience for other armies' needs, frequent transfer of units from one command to another and the unusual number of small-size garment requirements.

The development of an accurate data base to establish proper stockage objectives was the most significant problem in the supply area but there were others. Pilferage by the indigenous labor force was a major challenge. The supervision of the indigenous labor force also necessitated special training for the US management personnel. There was also a high damage rate for supplies handled in the Korean ports. This was primarily a result of the

inexperience of the Korean labor force and the use of commercial pack shipments from Japan.¹⁹ A final problem was one common to all US units during the early months of the war. Troops arriving in Korea after performing administrative or caretaker duties in Japan were not physically prepared for the rugged task of combat support in Korea. Vigorous physical training programs had to be established at all levels to get the soldiers in shape.²⁰

Although the situation continued to improve with the arrival of better trained technical service soldiers, the supply situation did not stabilize until mid-1951 when the combat situation and the lines of engagement began to stabilize.²¹

SECTION II--CLASS I SUPPLY--(SUBSISTENCE)

Class I Supply for field rations was an improvised situation from the start of the Korean War until November 1950 when the CONUS production base could start shipping C rations. In July, the Quartermaster General reported that there were only enough C rations in stock to provide the authorized levels for units deploying from CONUS.²² Consequently, the FEC had to stretch its field ration stocks from a level designed to support an 83,000 personnel peacetime force to meet the requirements to support more than 150,000 US, 3,000 UN personnel, and 19,000 KATUSA besides providing field ration support to 170,000 South Korean troops (Appendix III). The Army established strict ration utilization policies, used all types of rations available, supplemented field rations with fresh items and commercial pack items, and developed a field ration for use by the South Korean forces.

A strict ration utilization policy, designed to extend the availability of the individual field ration (C ration) went into effect in July 1950. A 22 July 1950 Eighth Army report indicated the seriousness of the situation, "The

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last of our C rations were shipped to the 24th Division. We had no more on hand."²³ The criteria for ration issue was:²⁴

(1) Modified Type B (contained available fresh food items/Type A Ration supplements) were issued to all units when available.

(2) In the absence of the modified Type B Ration, Operational Ration Type B was issued to all units when available or requested.

(3) C rations were only issued to leading combat elements and then only at 75 percent of the strength of the command.

(4) 5 in 1 (small detachment) ration was issued to hospitals and evacuation ships upon request, for tank crews, and issued to units without troop kitchens for moves over 24 hours.

(5) K(WWII) rations were issued to units for moves less than 24 hours.

Even using as much fresh food as possible, when requisitions could be filled, and limiting use of the individual field rations was not enough. All C rations and other individual rations (Ks and 5 in 1) had to be turned in by rear area units. FEC reinspected outdated stocks of K and 5 in 1 rations, found them fit for human consumption and issued them in lieu of C rations.²⁵ FEC also authorized airlift of critical subsistence items from Japan and assembled 5 in 1 rations in Japan, using commercial canned goods, for shipment to Korea. This expediency created problems as the commercial type packs did not hold up in shipment resulting in approximately twenty-five percent breakage.

Due to the short supply of US field rations, virtually none could be made available to the South Koreans. The ROK Army did not have their own field rations and relied upon local procurement to meet their food requirements--a system that worked well in peacetime but collapsed when feeding soldiers in close contact with the enemy. The JLOOM developed an Oriental field ration in

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early August 1950 and had the ration into production by September 1950. The 3,200 calorie ration, weighing 2.3 pounds and packaged in a polyethylene bag, contained rice, biscuits, fish, peas, kelp, tea, chewing gum, and condiments. It proved very successful and was used for the remainder of the year to supply the ROK Army.²⁶

As the United States had the initial responsibility for providing subsistence support to the other UN forces, adjustments were made to US rations to insure foreign acceptability. Despite anticipation that the national taste differences would be significant, "the problems proved less difficult than anticipated."²⁷ To alleviate supply problems, deviation from the US ration were only allowed to insure an acceptable and adequate diet for the other UN forces. The British Commonwealth troops used the US rations virtually unmodified until the British brought in their own compositions. Other nationalities required minor modifications to the US ration, e.g., extra bread and potatoes supplemented the diet of Belgian, French and Netherlands soldiers while the Greeks required extra bread and special meat items for religious holidays. It appeared that the Turkish pork prohibition would be a problem but that was resolved when the Moslem religious leaders gave the troops special dispensation. The only required modification was the provision of condiments to spice up the food.²⁸ The Ethiopians received special religious dietary dispensation prior to their arrival in Korea.²⁹ The KATUSAs adapted to the US rations within the first two weeks of assignment with US forces.³⁰ The Korean laborers employed by the US forces supplied their own food and the feeding of North Korean prisoners of war was the responsibility of the South Koreans who provided them with meals similar to those provided ROK soldiers in nontactical situations.³¹

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Bread was a necessary component of all rations and enjoyed good acceptability.³² Field bakeries could not produce an adequate quantity of bread early in the war, so bread was flown in from Japan.³³ To support the bread requirement in Korea as troop strength increased, Eighth Army established a fixed bakery in Pusan. This bakery, designed and installed by a civilian bakery technician with the FEC, operated seven days a week around the clock to produce 38,000 pounds of bread daily. Augmented by field bakeries, production reached a peak of 55,000 pounds a day producing white and raisin bread. Initially there was a great deal of loss in the distribution of bread due to the inexperience of delivery personnel handling this type of item. Requirements subsequently leveled off to 40,000 pounds a day.³⁴

Different rations had varying levels of acceptability. The 5 in 1 (small detachment) ration was considered unacceptable as a combat ration because line soldiers could not assemble for meals to share an equitable distribution of the 5 in 1 ration in combat. Frequently the ration had to be prepared in the soldier's mess kit which resulted in health problems due to a lack of mess kit washing facilities. The ration, in larger can sizes, was also difficult to carry in combat and was not palatable when cold.³⁵

The C ration was highly acceptable while the B ration was acceptable when the situation prohibited use of the modified A (modified B) ration. The modified A ration, used where the combat situation permitted one fresh meal daily, was popular with the troops and boosted morale.^{36,37}

The fresh foods provided early in the conflict were necessities because of the lack of combat rations and for troop acceptability. Fresh food items such as eggs, fruit, vegetables and meat were shipped from Japan while the bulk of fresh foods were shipped from the United States arriving every 10 days.³⁸ All requisitions for fresh food could not be met, however, due to

insufficient refrigerated transportation and storage facilities. Refrigerated transport ships therefore had to be held in port until port personnel reduced cargo to a level that could be accommodated in available refrigerated storage.³⁹ Although insufficient in number, refrigerated vans worked well for static storage and transportation from supply points to division ration breakdown points.⁴⁰ Perishable products were also transported in dry cargo transport by insulating the perishable cargo with nonperishable cargo, i.e., perishable goods in center, nonperishables around items. Perishables could keep up to 3 days.⁴¹

Related to the principal Class I subsistence mission were requirements to support the hospitals and morale needs of the soldiers. The hospitals received extra issues of food, supplemental items, e.g., coffee and fruit juice, and had priority on fresh food items.⁴² Ration supplement packs with health and comfort items, e.g., toothpaste, gum, and candy (similar to the packs planned for current use) were provided through food distribution channels to soldiers who could not get to Post Exchanges.⁴³ Additional condiments to change the blandness of foods were also considered essential. Beer, purchased with Welfare Funds, was also distributed through Quartermaster supply channels and issued free to combat soldiers until pressure from Congress and some citizens' groups stopped the practice.⁴⁴

The first few weeks of fighting presented unique problems for the Class I planners. Although there were zero balances for some rations, there was no record of general hunger.⁴⁵ As the logistical structure established itself in Korea, the level of Class I support improved and became a positive morale factor for US as well as other UN forces.

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SECTION III—QUARTERMASTER CLASS-II AND IV SUPPLY
(INDIVIDUAL AND ORGANIZATIONAL CLOTHING AND EQUIPMENT)

During the initial stages of the war, many Class II and IV items (individual and organizational clothing and equipment) were in short supply. The items ranged from pumps, tool sets, kitchen stoves and equipment to cots, bedding and clothing. Although the shortages were critical, there were few controlled items with the noticeable exception of boots and winter clothing that required extraordinary management.⁴⁶

Many factors accounted for the shortages and exacerbated the problem area. Inventories of Class II and IV supplies at the start of hostilities indicated existing shortages. Most units landed in Korea without full TO&Es thereby overtaxing the supply units already struggling to support combat units engaged against the North Koreans. Once in Korea, many US units had to exceed doctrinal requirements, e.g., cover greater frontages than their TO&Es called for and replace combat losses of overrun units with complete reissues of equipment. Beyond the US/UN forces, the supply system had to provide individual clothing and equipment to 80,000 ROK Army and 40,000 KATUSA personnel (Appendix III). In September and October, the system had to respond to additional demands for clothing and bedding for the great numbers of North Korean prisoners captured as UN forces moved north. Salvage was used as much as possible to meet this latter demand, but some items programmed for US personnel had to be diverted to meet prisoner needs.⁴⁷

Besides the unexpected personnel support demands on the supply system and high combat losses, the logisticians faced internal problems. The order-ship time was great; the supply levels in CONUS were minimal and industry had to start up manufacturing lines to meet some wartime needs. The strength projections in July 1950 were the basis of the requisitions for Class II and IV

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items and these were greatly understated as the troop requirements escalated. Subsequent resubmissions interjected into the system resulted in confusion and further delays.⁴⁸ Fortunately, occupied Japan served as a source of critical assistance during the period before the CONUS supply system could respond to the emergency. Japanese officials returned to the US Army surplus US war materiel given to Japan, to include sleeping bags, boots and shoes. The Japanese even delivered the badly needed supplies directly to ships for onward movement to Korea. The Japanese provided more than \$31 million dollars in supplies to meet critical requirements in the early months of combat.⁴⁹ In 1985 dollars this would equate to \$136 million dollars.⁵⁰

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The shortage of boots was one of numbers and sizes, particularly the smaller sizes required for Korean personnel. Supported from the US stock whose sizes ranged from 8 1/2 to 13, the Koreans needed sizes 5 to 8 1/2.

Four programs solved this problem in the early critical days. US forces contracted shoe factories in Japan to cut down larger-sized boots and also to convert shoes to boots.⁵⁴ In Korea, repaired boots were provided to other than original owners, a practice not previously followed due to comfort and hygiene considerations. Boots were also withdrawn from rear area troops and Air Force personnel and provided to combat soldiers.⁵⁵ The support provided by Japan and the innovative use of existing supplies enabled supply personnel to meet the Class II and IV requirements until the required support from CONUS became available.

SECTION IV—CLASS III SUPPLY (POL-PETROLEUM, OILS, AND LUBRICANTS)

The US Eighth Army in Korea had overall responsibility for all POL within Korea to include requirements for the Korean economy, a secondary priority after the war effort.⁵⁶ To meet early US requirements, EUSAK took over operation of the Korean Oil Storage Company that operated storage and some distribution activities for all of South Korea. EUSAK retained Korean civilian employees of the Company to operate the facilities until they could be supplemented by qualified US personnel.⁵⁷ The major POL problems centered around computation of consumption data, storage and distribution. World War II tables again proved inadequate due to the heat, dust, mud and difficult terrain of Korea and the poor US management practices. Daily consumption rates ranged from three to five times the Army rate before hostilities varying from 1,000 to 7,000 barrels per day during July and August. Inadequate controls over receipts and issues, inadequate records, pilferage losses, shortage of trained POL technicians and the skeleton nature of the organizations responsible for furnishing POL hampered attempts to develop accurate consumption rates. The problem was complicated by the misuse of 80 octane aviation

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gasoline for 80 octane motor gasoline. Soldiers preferred the former, while illiterate Korean laborers improperly labeled the drum contents.⁵⁸ EUSAK was unable to maintain the authorized 30 days bulk POL supply in Korea because of a shortage of available POL storage, estimated to be 383,000 barrels at the start of the war.⁵⁹ POL distribution in Korea, however, was another significant problem.⁶⁰

Rail cars were the principal supply distribution means for bulk POL.⁶¹ There were 149-8,000 gallon tank cars available in Korea at the start of hostilities. By 24 July 1950, however, the UN forces had only 35 cars operational with another 24 undergoing repairs. Trucks supplemented the rail cars as did limited use of LSTs (Landing Ship Tanks) to support units close to the coast line.⁶² POL pipeline use was initially limited by a lack of materiel and the threat of sabotage.⁶³ The Pusan Logistical Command did install two 8-inch pipelines to increase offload capabilities of tankers and a line to facilitate port-to-rail movement.⁶⁴ After the Inchon landing engineers laid another pipeline connecting the port of Inchon with Kimpo airfield. Further expansion of pipeline use was restricted due to the limited size of tankers that could be accommodated at Korean ports, the inadequate tank storage facilities at point of receipt, and pilferage.⁶⁵ Existing commercial POL pipelines paralleled the railroad lines and leaks resulted in fires that severely disrupted rail traffic on several occasions.

EUSAK made extensive use of 55 gallon drums for distribution of POL even though it had 5 gallon cans available. Supply personnel found the larger containers easier to handle and inventory. They also reduced waste caused by spillage and were less susceptible to pilferage. The need for decanning and can cleaning in forward areas was also eliminated.⁶⁶ Although the Pusan Logistical Command was able to increase its 55 gallon drum filling capacity

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from 2,000 to 8,000 drums a day, this was still inadequate to satisfy the requirement.⁶⁷ To supplement the Korean facilities, bulk POL was also drummed in Japan and shipped to Korea. Subsequently drum shortages developed as the drums were put to other uses, e.g., for bridges, culverts and bunker reinforcement. This problem was reduced both by in country actions—drum return became a command responsibility, drum for drum exchange and offering Koreans money for drums and out of country actions—shipping POL in drums from CONUS and procurement of drums from Japan (40,000) and Hong Kong (150,000).

Packaged POL (oil and grease) was also an early problem because of the size of the containers and the need to service older Korean vehicles and new tanks shipped from CONUS. Grease and Oil were originally packaged in 55 gallon drums and unavailable in small containers. Small units had problems handling the large container and the waste potential was considerable.⁶⁸ Until CONUS shipments arrived, Japanese contractors did limited repackaging into smaller containers. This practice ended due to the poor can quality. Lubricants were in short supply due to the requirement to do initial servicing of tanks. Tanks shipped from CONUS were not serviced in CONUS in order to expedite deployment. Furthermore the ROK Army usage was abnormally high, as requests for lubricants ran 10-15 percent of their gasoline consumption while US requirements were 2-3 percent of gas consumption. Antiquated vehicles and unauthorized diversion of supplies drove the Korean high demand. Despite the many challenges and due to the innovative solutions noted above, POL supply, however, was adequate to meet the needs of the United Nations forces.

SECTION V—CLASS V SUPPLY (AMMUNITION)

In June 1950, EUSAK had available a 45 day ammunition reserve, approximately 30,000 short tons, for its aggregate strength of 83,099 personnel.

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This was quickly reduced as it shipped 7,000 short tons to the ROK Army between 28 June and 1 July. The two FEC divisions that moved to Korea in the first half of July carried two basic ammunition loads and received automatic resupply shipments of nearly 6,000 short tons, inadequate even for a month's operation. Daily airlifts from Japan supplemented this support. A typical daily airlift included 1,000,000 rounds 30 cal rifle, 500,000 rounds 30 cal machine gun and 200,000 rounds 45 cal pistol ammunition and 500-600 rounds of 3.5 rocket launcher ammunition. The latter was the most critical and half the 3.5 ammunition requirements for the first two deployed divisions were airlifted from CONUS. To meet other Class V shortages, the FEC also relied on local purchases for such items as trip flares and antipersonnel mines. FEC requested a Japanese fireworks company manufacture 50,000 trip flares while antipersonnel mines were produced by using Japanese wooden boxes assembled with Army firing devices. Dynamite used for demolition purposes was also purchased on the Japanese market.⁶⁹

During the early months of the war, FEC based ammunition supply estimates and procedures on theory and/or experience gained in operations in other theaters and under other conditions.⁷⁰ Although valuable as a guide, the estimates proved insufficient to meet the needs of the United Nations forces in Korea.

Planners estimated early consumption rates of artillery ammunition on the number of 155 and 105 artillery pieces in EUSA's four divisions and multiplied this figure by the number of days EUSA expected it would take to repel the North Koreans. Department of the Army (DA) rejected this estimate because it appeared arbitrary and high. B. G. Patrick Henry Tansey, Sr., Chief of Supply Division, G4, DA, told LTG Edward M. Almond, Chief of Staff, FEC, "Do you know that what you are requesting would take half the ammunition in the US Army

that we have in storage."⁷¹ DA recommendations for supply factors for ammunition were considered inadequate by the FEC. EUSAK determined that a more accurate figure would be 50 rounds, per gun, per day for the 105 mm howitzer, 155 mm gun and the 8 inch howitzer and 45 rounds, per gun, per day, for the 155 mm howitzer. This proved fairly accurate until the Chinese intervention when resupply rates five times higher were requested.⁷²

One difficulty involved in obtaining accurate ammunition supply factors was the determination of the quantities shipped to Korea, quantities on hand, and quantities required and expended in combat. A 13 July 1950 EUSAK G-4 report noted that it was impossible to determine how much ammunition was available in Korea because ammunition shipments to Korea were made without notification of the transaction or shipment to any headquarters. Ammunition ships started backlogging in Pusan harbor as early as 22 July, further clouding the already confused ammunition supply picture. Similar to other supply classes, Pusan Port personnel kept few records while frantically shipping the ammunition forward to meet immediate unit needs. They also stored some ammunition in fields, forgot about it and then "rediscovered" it in frantic searches for critically short items. Shortages affected the consumption figures for some items making the usage rates below expectations for combat conditions. Unknown units sometimes commandeered shipments of ammunition. A EUSAK report of 9 August acknowledged that 12 railroad cars of ammunition loaded at Pusan and dispatched to Yongchon were "lost en route." There were also problems at the units where personnel followed improper procedures or lost ammunition records in moves or when overrun by enemy forces.⁷³

Supply procedures were also changed. Resupply of stocks up to mid-September was accomplished by automatic issues from 2nd Logistical Command based on authorized levels indicated in Stock States Reports. In the latter part of September, UN ammunition expenditures increased to support the offensive.

To accommodate this increase, EUSAK based ammunition allocations on tactical plans rather than unit basic load requirements.⁷⁴

In October, more than 200,000 tons of ammunition in excess of UN requirements was en route or in Japan. Consequently, FEC cancelled all requisitions for ammunition from CONUS, except those covering a small number of items in short supply. Lack of specific policies or procedures for requisitioning, controlling and issuing ammunition resulted in an ammunition supply systems that was beyond control by October 1950.⁷⁵

SECTION VI--SUMMARY

In June 1950, the United States Far East Command (FEC) had insufficient supplies and logistical personnel to provide "text book" support for a conventional war in Korea. The Command, through innovation, local procurement and making do with available assets, was able, however, to adequately sustain US, UN and South Korean forces. These forces held the Pusan Perimeter and by the end of the first one hundred days of combat drove the North Koreans back above the 38th parallel.

The FEC established provisional supply units to run the receipt, storage, and issue operations established by the Pusan Logistical Command in early July. Committed divisions in Korea were initially resupplied in 15 DOS increments with all classes of supplies. The automatic supply increments were indispensable in meeting the urgent needs of committed units even though the World War II based estimates were not accurate. More than 100 airlifted bundles of supply (supply for one battalion for one day's combat) supplemented normal resupply and made the difference between victory and defeat for many units. Support for early operations was on a crisis basis with few records maintained of supplies delivered and used. Without adequate records, logisticians

were unable to develop a reliable data base to project future requirements, consequently supply operations did not stabilize until mid-1951.

Each class of supply presented a challenge. Operational rations were critically short. Class I managers used fresh foods, substituted less desirable and overage operational rations and limited the distribution of C rations to committed units in order to sustain the force until ration shipments arrived from CONUS in November. Clothing and boots were the most critical items in the Class II and IV areas. Usable items were generated through local contracts for repair, repairs by Quartermaster units, use of salvage items for support of prisoners and restricted issues for rear area soldiers and air men. In the Class III area, bulk petroleum supplies were available but storage and distribution facilities in Korea were inadequate. Inaccurate consumption data was also a problem area. Class V supplies were supplemented by local procurement and airlift was used to deliver antitank ammunition from CONUS. Firing rates based on theory and previous war's experience, proved insufficient to meet Korean War needs. Firing rates were adjusted but problems still persisted. Inaccurate data resulted in 200,000 tons of excess ammunition by October 1950.

Some of the supply problems, challenges and solutions were unique to the Korean War but similar situations were present in the Normandy Invasion follow-on support operation, early support of Viet Nam and even the Grenada Operation. For the logistician to better prepare for the future, the lessons learned in this last US midintensity war must be carefully reviewed in preparation for any future conventional war.

CHAPTER III

ENDNOTES

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CHAPTER IV

TRANSPORTATION

SECTION I—OVERVIEW

At the start of hostilities in Korea, the US Army was tasked to forward supplies to the ROKA. The transportation assets, at the outbreak of the war, all came from the Far East. The exceptions were special marine barges, some rail items and cargo handling equipment. Local procurement was used to the maximum extent from Japanese suppliers until supplies became available from the Zone of Interior (ZI).

Over one million personnel and enormously large tonnages of materiel was shipped to Korea from Japan and the United States. The lines of communications (LOC) from US forces to Korea extended to the Korean waterline, which was the terminus for logistical support that supported the American Military in Korea (AMIK) and the Korean Military Assistance Group (KMAG).

When the decision was made to use ground troops in Korea, water transportation became a major problem. The Eighth Army Transportation Officer was called upon to conduct a study of the availability and capacity of water transportation, of dock facilities and of railroad equipment in Korea. The summary of the study was:

- (1) the total water transportation available in Japan could lift 100,000 measured tons of cargo and 2,000 wheel vehicles per month;
- (2) estimated ten trains (twenty car each) might be run from Pusan to Suwon daily;
- (3) Korean railroad cars could carry a maximum of 25 tons each;

(4) among the 300 existed; each would require maintenance and protection.

The LOCs grew as the force grew. Air and surface LOCs were established or extended to include terminals and supporting facilities.

SECTION II—RAILROAD TRANSPORTATION

The Japanese were responsible for developing the railroad system in Korea. The Japanese built the system during their occupation of the country, and built to suit their strategic and economic needs, without consideration to the Koreans. The major rail lines ran from north-to-south (Pusan to Manchuria), the lateral lines ran from east-to-west and were of less importance but did connect coastal seaports to inland marshalling centers. The railroad was constructed of both standard and narrow gauge track with the narrow gauge track primarily serving the east-to-west branch lines.

Once supplies, personnel, equipment and material arrived in Korea, it was moved forward by extensive use of the railroad. Like other units of the US Army, in 1950, the Transportation Military Rail Service Units were critically short of personnel and subordinate units. In order to utilize the Korean railroad it was necessary to use the existing 32,000 Korean National Railroad (KNR) employees as the operators under US supervision. This ad hoc combination of US and host nation support controlled all the rail traffic, provided empty rail cars to the ports for loading, controlled the dispatching of loaded cars to their destination, provided security for the system and performed all of its own maintenance. In addition, this combined organization, operated more than three times the railroad miles than any Army table or organization and equipment (TO&E) was structured to do.

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The importance of the railroad transportation to the logistical support of military operations should not be underestimated, even though much of Korea and the areas of hostilities was supported directly by rail. Railroads were an advantage because of the rugged, mountainous, primitive terrain and because existing highways unsuitable for heavy vehicular traffic and loads. To take advantage of this large quantity of logistical support was by water to the seaports. The supplies were loaded onto rail cars and throughput to corps and division supply points. This was a speedy and economical way of through-putting logistics, but advantages were offset by the excessive time required to manually load and unload the rail cars.

By the time the conflict had stabilized to a degree, the United Nations Command (UNC) had access to approximately 1,500 miles of trackage. The hauling capacity over this trackage depended upon the reliability of old equipment, limited facilities and maintenance, personnel shortage, war damage to the system by hostile and friendly action, and the time needed to make repairs. In the early stages of the war the railroad was a major target of the guerrilla forces. These guerrillas plagued the rail lines with man-made landslides, tunnel cave-ins and demolished bridges and trestles.

The railheads at the seaports and interior marshalling yards, located at Taejon and Maseu, became congested with logistical supplies because of too many people giving too many directions to too few workers. These people were labeled "expediter colonels" who made decisions about priorities that affected only their "pet" projects. For them, critically needed ammunition was not a high priority item. This made for a very inefficient and ineffective operation. The solution was to develop a control system and determine, daily, how much and where the destination of the logistical tonnage was to go. Workers then loaded the freight trains and dispatched them based on this input. It

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was not a perfect solution, but it sent the critically needed supplies moving forward.

To overcome the deficiencies of the Korean railway system (lack of equipment, personnel, maintenance and facilities) the United States provided assistance in these areas. The US Government contracted for new railroad equipment, railcars and engines to be built, in Japan, with Japanese industry. The US Government detailed military railroad officers and civilian railroad personnel to Japan to supervise the Japanese contracts. In this way, from 25 June to 31 August 1950, approximately 1,200 pieces of railroad rolling stock were supplied to Korea.

SECTION III—AIR

Of necessity, an airlift of critically needed items began almost at once from the United States to the Far East. The Military Air Transport Service (MATs), expanded immediately upon the outbreak of the war. The Pacific Airlift was further expanded by charter of civil airline planes. The Canadian Government lent the United Nations a Royal Canadian Air Force Squadron of six transports, while the Belgium Government added several DC-4s.¹

Hawaii was a terminus through which flowed a steady stream of war material destined for Korea. Conversely, commercial airliners brought hundreds of civilian evacuees from the Far East to the safety of these islands.

The Pacific Airlift, every day it flies some one-hundred tons of men and vitally needed munitions, medicines, etc. arrive from Fairfield, Suisun, Tacoma and San Jose to Tokyo to support the Korean fighting. Every week it's fifty-three commercial liners and ninety-eight Military Air Transport Service planes fly a quarter of the way around the world and back, carrying more ton miles of cargo than all the US domestic airlines combined.

The Pacific Airlift is a miracle of improvisation. The man who did the most to make the miracle was MATs deputy operations commander, Major General William H. Tunner, who supervised the 1948 Berlin airlift and was a wartime director of the hazardous air shuttle over the Burma Hump. When the war began, on 25 June 1950, General Tunner found he had

only sixty planes in the Pacific area. He called an emergency meeting of the airlines in Washington, D. C., and asked them for all the four-engine planes they could spare. The lines offered seventy-one planes. General Tunner said he wanted one-hundred planes more. The airlines protested and stated that another one-hundred planes would cripple domestic air traffic. General Tunner withdrew his additional request and instead put more MATS planes, from other areas, on the Pacific Airlift run. He also ordered other planes out of the Air Force's moth-balled fleet.²

To help keep the Pacific Airlift alive, some US airlines slashed their domestic freight business. Eastern Airlines abandoned their cargo-liner service altogether, and any freight it did carry it carried on passenger planes and in pods attached to Constellations. "Capital Airlines" skeletonized "it's" cargo service. American Airlines dropped four cities off it's cargo routes.³ The remainder of the airlines made do with makeshift schedules, however, even these slap dash schedules would not hold up if MATS decided it needed more planes for the Pacific lift.

At first, the planes carried key military personnel and brought back evacuees. However, after emergency messages sent home to congressmen, parents and military officers, by the soldiers in Korea, for weapons to stop Russian T-34 tanks, the planes began hauling 3.5 inch super bazookas followed with tank-killing 90 mm shapecharged ammunition. The airlift also transported new fighter plane engines and returned to the US with engines to be overhauled.

The theater of military operations was four-hundred miles from its main supply base in Japan when war erupted and airlift of resupplies seemed a natural mission for the Air Force. Not everything could be airlifted into Korea. Those items of cargo and supplies too bulky or heavy for airlift went by ship. The Transportation section, Headquarters, Eighth Army was the agency with overall responsibility to coordinate intracommand airlifts and air shipments of cargo and personnel to Korea. Air space was reserved for high priority cargo or personnel with the G4 establishing the priority. High

priority cargo usually included critically needed supplies, mail and personnel, but not necessarily in that order. Once the KCOMZ became established, KCOMZ assumed all responsibility for movement control and air shipment of cargo and personnel for the Army to Korea to include administrative control of US Air Force airdrops.

Once in theater, the normal flying time between Japan to Korea averaged about four to four-and-one-half hours per round trip. C119, C54, and C46 aircraft served as the work horses that accomplished the majority of the airlift of supplies. These planes required at least a minimum of 4,000 foot runway with an extended glide angle space. Most of the existing airfields in Korea could not meet these requirements and C47 substituted for them in these situations.

The principle cargo air fields during the first one hundred days of the "come-as-you-are war" were located in Taegu, Pusan and Kimpo. Planners utilized airfields furthest from railheads to insert supplies and then used wheel vehicles to transport the supplies to the troops. This method was especially effective to provide units needing large volumes of ammunition to slow down or hold the North Korean's attack and freed the rail system to transport other supplies.

Weather was the biggest problem in the conduct of airlift operations with no solution except to wait until it improved. However, pilots flew many hours in marginal weather in aircraft not designed for bad weather. Also, to overcome the short comings of weather and to keep supplies flowing forward, the pilots landed their planes on airfields that under normal circumstances they would not have attempted.

Airdrop was a means of aerial supply that was used to supply or resupply forward units that were unable to receive supplies through normal channels

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because the unit had been cut off either by enemy action, terrain or adverse weather. These airdrops were both free fall and parachute drop. The normal cargo was food and ammunition although other supplies were also airdropped. To offset damage to airdropped supplies and to anticipate the needs of resupply, the FEC hired experienced Japanese cargo packers, to prepack supplies in Japan destined for air delivery in Korea. They methodically packed the cargo bundles to reduce damage on impact plus created a stockpile of ready-to-go assorted supplies that could be loaded and airborne within moments of request. The requesting units could expect to receive the supplies in about four hours after the planes departed Japan. The airdrops were not always successful. Incorrect panel markers or improper usage caused airdropped supplies to land far from the drop zone where they could not be retrieved or else the panel markers confused the pilots so much that they would not release their cargo. Occasionally, aircrew navigational error made it impossible to find the drop zone. Unfortunately, the majority of failures occurred when attempting to support ROKA troops.

SECTION IV--SHIPPING

Initially, the United States lacked shipping in the Far East to support the combat need in Korea. "US forces (General MacArthur) commandeered Japanese shipping initially, to support the US and ROK forces in the Pusan Perimeter"⁴ Later the US Government chartered these Japanese vessels and US vessels as they arrived in the Far East to haul supplies and troops to Korea. Heavy loads were chartered on British ships specifically built to haul these types of loads. British ships also had heavy duty cranes aboard capable of lifting 150 tons at one time.

To receive shipping, the command selected ports based on their discharge, clearance, and throughput capabilities. The most important measure was the throughput capability because it reduced or eliminated any unwanted build up of supplies at the ports.

Clearance capability suffered when there was insufficient storage and land transport facilities to support the activities of some ports. During the Korean conflict port clearance was a major, continuing problem which did affect throughput capabilities. The Port of Pusan was estimated to be functioning at only one-half of its capacity at the start of the conflict due to clearance problems. The capacity of the Port of Pusan at the outbreak of the war was rated at 20,000 M ton or 600,000 M tons per month. When the 7th Medium Port unit and supportive service units became operational, it expected that the port capacity would increase five fold to 100,000 M ton per day. Ammunition discharge alone would total 2,500 M tons per day and perhaps even double that figure. "An Army study concluded that the efficiency of the Port of Pusan could be elevated to near normal capacity by eliminating the labor shortages and by improving the port's clearance capability."⁵ By 8 August 1950, all ports were very congested. Quartermaster units, in order to remove the backlog of supplies from the piers and provide room for incoming supplies, trucked the built up supplies to a sorting area. They made no effort to sort the items for sorting could be done by others later and then properly accounted for or distributed forward. This quick reaction rapidly reduced the port congestion and by mid September all of the "sorting areas" were clear.

The port facility at Pusan was built to ship cargo from Korea and was not accustomed to receipt of such large continuous shipments of military supplies. Storage area was limited and the major outlet was the rail lines. The war

cargo was flowing opposite to the direction that the Japanese had planned and developed the system for. While the Port of Pusan could discharge up to 40,000 long tons in a 20-hour work day, the rail and highway system could only move a combined 16,000 long tons in the same period. (Appendix VII)

A Transportation Officer arrived in Pusan on 30 June 1950, with 80 KMAG officers and enlisted personnel plus two civilians to assist him in the operation of the port facilities. The first week after arrival this team, with the additional help of stevedores, a Korean Forwarding Company of 5,000 men, and assistance of 24th infantry division, unloaded fifty-two vessels and forwarded the cargo to the combat zone. The contents of these vessels contained 10,565 troops, 2,700 tons of general cargo, 1,372 vehicles, 500 tons of miscellaneous supplies and 7,600 M tons of ammunition.

Once the ports became operational, the policy was to ship supplies to Korea by the quickest means possible in huge amounts. The key contributor to backlog was the shipping of huge amounts and automatic supply. Although there were shortages in some supplies, other supplies were shipped to Korea in such vast quantities that the receiving end and depots were unable to handle the influx. Shipment of supplies was not always related to the ports or depots capabilities or ability to receive it. Eventually, the technical services and transportation sections reviewed and evaluated the types and quantities of cargo expected plus the current capacities and ability of the receivers, ports and depots. Quite often, this review resulted in the cancellation of some anticipated cargo. Also, "to expedite port clearance at Pusan, US contracts were let with Korean civilians for the use of horsedrawn carts. These were used for short hauls of cargo to the nearer depots, and to carry dunnage from dockside to a storage area."⁶

The wide deviation of arrival times of commercial vessels at the ports from their expected time of arrival created concern. This time variation

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contributed to the backlog and ineffective operation of the ports. Sometimes the ports would be idle awaiting ships and at other times be overwhelmed with ships waiting to unload cargo. Once Eighth Army took control of this situation commercial vessels met their berthing times and operations improved.

The port of Inchon, once secured by UN troops, proved very vital to logistic operations. It saved transportation costs, and reduced railroad shipment from southern ports. Hampered by extreme tides (35 feet), the Japanese, prior to the Korean War, had built a tidal basin to accommodate deep water shipping. (Reference Appendix IX) Entry and exit to the tidal basin was through locks, provided the tidal depth outside the tidal basin could accommodate the ship. The throughput capacity at Inchon was equal to its discharge capability due to the capacity of the railroad line within the docking areas of the tidal basin. Also, the roadway network was developed to discharge the cargo better than it was at southern ports. (Appendix X)

Some supplies, at Inchon, went ashore via the "over-the-beach" or "beach and stream" operation. Supplies were handled by amphibious truck companies, barges or LST's. (Appendix XI) The cargo was loaded onto these vessels at low tide and then towed or piloted to the beach during high tide, discharged of its cargo at low tide and floated away during the next high tide. Examples of cargo handled in this operation was ammunition, coal, grain and fertilizer.

Shipping Support of the Inchon Invasion

The invasion of Inchon was brilliant, mastermind by General MacArthur, and configured as a Joint Task Force (JTF) of naval vessels. The JTF was made up of small Task Forces (TF) specially designed to support the operation. TF-79, the logistical support force, was one of the TF, commanded by Captain B. L. Austin, US Navy. The initial logistical support, TF-79 provided to the

JTF, was refueling and resupply of ammunition facilities in the objective area.

Since there was limited space to beach the Landing Ship Transports (LST) carrying troops and supplies, all were beached simultaneously with the entire JTF taking advantage of the first high tide.⁷ The advantage being that the necessary logistical supplies of food, ammunition and fuel was available when needed. The beach was selected due to the berthing limitations, limited cargo handling capabilities and inadequate accommodations specifically, outside the tidal basin at Inchon. Inside the tidal basin port facilities were much better. Beaching the logistical supplies during the first assault assured supplies through the night and until the next high tide which allowed replenishment. Approximately 3,000 tons of supplies were beached on the first assault.

The two beaches designated primarily for logistics over the beach were "Green Beach" and "Yellow Beach" (Appendix XI). These beaches were used beginning D+1 (16 September 1950) while previous supplies were shuttled ashore on smaller boats. Green Beach was located on Wolmi-do Island and Yellow Beach was located in the inner harbor inside the tidal basin. The waterfront operation was slow to start with, but rapidly improved on D+1 and thereafter unloading progressed on schedule.

Despite all the geographic and hydrographic complications, the logistical support of the Inchon invasion was successful.

By evening, 16 September (D+1), 15,000 personnel, 1,500 vehicles, and 1,200 short tons of cargo was ashore. All first echelon shipping was emptied by D+4 and on 19 September, 53,882 persons, 6,629 vehicles and 25,512 tons of cargo was off loaded. These quantities more than doubled the Corps targeted amounts for that period.⁸

The UN forces were able to capture Kimpo Airport almost immediately. The seizure of this airfield was important because it provided the UN forces with

a 6,000 foot long, 150 foot wide, hard surface runway with a weight capacity of 120,000 lbs. Naturally, Kimpo Airport had been one of the UNC's major objectives. Within three days of the invasion of Inchon, US Air Force planes were flying in and out of the Kimpo Airport with troops and supplies. By 18 September, huge transport planes of the Far East Air Force (FEAF) Cargo Command began an airlift to Kimpo airfield with huge amounts of supplies. Cargo planes landed every few minutes, mainly consisting of gasoline and ammunition. Returning flights to Japan of C54s and C119s were converted into flying ambulances, transporting casualties back to Japan or the US for medical attention.

SECTION V--WHEELED TRANSPORT

During the Korean conflict trucks did mostly short distance hauls, because of the poor road conditions and rugged mountainous terrain. Korean roads were gravel surfaced and were inferior to the secondary roads in the US. During the rainy season, the use of roads was curtailed because the heavy rains would wash out portions of the main supply route (MSR), and make some of the bridges unsafe. However, as the road conditions improved, from construction and maintenance, the volume of supplies, transported by trucks, grew appreciably.

The Japanese also developed the road network in Korea, similar to their role in developing the railroad. The road network paralleled many of the railroad lines and other roads were built as feeders to the railheads, thereby emphasizing the railroad as the major transportation medium in Korea. Korea had about 11,000 miles of graveled surfaced road at the beginning of hostilities and it is not known if these distances increased or not during the war.

When a corps was located more than 50 miles from a railhead, supply transportation policy dictated that a transfer supply point for class I, II

and IV supplies be established no closer than 25 miles of the hostile front. These classes of supplies would be hauled to the transfer supply point in Army trucks and from there the unit would haul the supplies forward to their respective organizations. If, however, a unit was unable to truck their own supplies forward from the transfer point, Army trucks would throughput the supplies to the forward area.

It was estimated that a U.S. Korean, or Commonwealth division could support itself by truck about 25 miles forward of a railhead. A Marine division could support itself about 15 miles forward and corps artillery to about 50 miles.⁹

Prewar planning guidance contended that one truck company, with 40 operational trucks could haul 12,500 short tons of supply per day over reasonable distances. But, during the Korean campaign, fewer than 40 trucks per company operated per day. The Army lowered their planning estimates to 10,500 short tons per day and this proved to be a more realistic estimate. Korean truck companies were only capable of one half this tonnage. The average fuel consumption for US Army trucks was three miles per gallon of gasoline in the winter for those with heaters and four miles per gallon in the summer. The average convoy speed for two-and-one-half-ton trucks was 10 miles per hour and only 5 miles per hour for heavy equipment convoys. The average load a US two-and-one-half-ton truck could haul was 4 tons versus only 2 tons in a Japanese truck used by the ROKA. The average number of trucks available daily to a truck company was 34 out of 48 assigned.

Amphibian Truck Company

In Japan, amphibian truck companies were formed and organized during the Korean campaign in Japan. One particular Transportation Truck Company was inactivated on 7 July 1950, and reactivated the same day as a Transportation Amphibian Truck Company. The original truck company had three officers and

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ninety-four enlisted men and upon reorganization they became the nucleus of the newly formed amphibious unit. To bring the company to strength, an additional 100 personnel were levied from other commands in Japan. Only one individual in the newly formed company had any experience in amphibious operations and at the time of reorganization the company did not have trained mechanics or drivers experienced with amphibious equipment. Just before the amphibious assault at Pohangdong, on 18 July 1950, the company received a one hour orientation on the operation of amphibian trucks. Nevertheless, the unit carried ashore, in its first attempt, three infantry battalions and eight 105 mm howitzers. At the conclusion of the next twenty-four hour period, 30,000 rounds of 105 mm ammunition was ashore. What made this so amazing is that cranes were not available this early in the stage of the war and all of the dead load cargo was loaded and offloaded by hand.

SECTION VI—SUMMARY

A large portion of the troops involved in the hostilities in Korea were supplied by rail, the predominate means of ground transportation in Korea due to the lack of all-weather roads and the mountainous terrain. The rugged terrain and mountainous country restricted vehicle traffic to the valleys and the mountain passes. When hostilities broke out, the US Army lacked enough railroad service units to operate the Korean National Railway, therefore US Army Railroad Transportation units supervised and managed the KNR employees who actually operated the system. The Japanese had developed the railroad to support the homeland Japanese economy as a transportation system to expedite exporting products from Korea to Japan not vice versa. When the huge amounts of wartime supplies began to arrive in Korea, a backlog was created because there was insufficient storage space for the "imports." Temporary storage

spaces were built and supplies were crammed into them, but this led to a considerable amount of mixing of supplies and equipment that later created a sorting nightmare. The logisticians soon realized they would need both storage areas and presorting, to expedite the arrival of supplies, to reduce potential backlog and to move supply traffic better.

The United States was also short aircraft at the beginning of the conflict and two allied countries, Canada and Belgium, provided aircraft to assist the US. In addition, General William Tunner procured civil aircraft from the US civil air fleets. The FEC command relied heavily upon air assets to move men, equipment and supplies from Japan to Korea. In many cases air transport in Korea rapidly moved supplies to places or units, when other methods were hampered by distances, weather, terrain or the tactical situation. The value of the use of civil aircraft from the United States cannot be overlooked. Without the "Pacific Airlift", flown by pilots with WW II experience, support of the FEC from the United States would have been much more difficult. General William Tunner also ordered that US military planes in mothballed storage be activated and added to the air fleet.

The willingness of the Air Force pilots to fly their aircraft in marginal weather, onto numerous fields that were substandard in order to resupply the ground troops was a major contribution to the defeat of the North Koreans. Air transportation was fast and effective and was a major contributor to keeping the US and South Korean troops in the conflict, during the early stages. The planes doubled as flying ambulances when they returned from the war zone, carrying the wounded out for medical treatment.

Initially, most of the supplies were flown into Korea from Japan or from the United States. These early shipments were mainly much needed ammunition. Aerial supply was most effective in supporting troops far forward in the

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battle zone, thus enhancing throughput and resupplying isolated troops via airdrops. The success of the airlift operation may be attributed, in part, to the expertise of General William Tunner as his background in two previous major airlift operations, the Burma Hump and the Berlin airlift, was invaluable in organizing, supervising and operating the "Pacific Airlift".

Likewise, the US Army lacked ships and needed them immediately. General MacArthur solved the short-term problem by commandeering Japanese shipping vessels. However, the long-term solution was to charter Japanese ships and US ships as they arrived in the Far East as well as those of the British Government. These British ships hauled all the very heavy equipment, and contained cranes that were capable of hoisting loads to 150 ton.

The Port of Pusan was the southern foothold for the UN forces and without it the UN forces would have had extreme difficulty in resupply. This port, similar to other Japanese-constructed ports, was developed to export cargo and not to import it. Consequently, large volumes of imports clogged the port because of the limited storage space. With the help of host nation support, in labor and equipment, the UNC overcame this situation. The operation of the port at Pusan and other ports was an efficient, cooperative effort of the US Korean military, Japanese and Korean civilians. Host nation support especially proved vital to port operation time and time again.

Ground transportation remained a problem. At the start of the war not enough wheeled vehicles were available. The majority came from the rebuild plant in Japan and stood the test of combat, but the lack of adequate roads and the rugged terrain could not be overcome. Existing roads were poor, undeveloped and incapable of supporting heavy wheeled vehicles hauling heavy loads. The roads were more the "farm-to-market" type the Koreans used to haul their goods to the railroad for shipping. The Koreans transported most of

their good by horse and cart. In addition, heavy use and rain damaged the roads which were susceptible to washouts and other failures.

CHAPTER IV

ENDNOTES

1. D, Vol., IV, p. 104; F, Vol., LVI, No. 8, p. 76.
2. F, Vol., LVI, No. 8, p. 76.
3. F, Vol., LVI, No. 8, p. 78.
4. Q, p. 59.
5. M, Vol., III, p. 28.
6. M, Vol. III, p. 30.
7. A, p. 105.
8. A, p. 580.
9. M, Vol., III, p. 62-63.

CHAPTER V

ORDNANCE

SECTION I--OVERVIEW

The primary purpose of the Ordnance Corps in Korea was to maintain, modify and repair all ordnance equipment, materiel and repair of automotive equipment. The principle maintenance activity in Japan was the rebuild of damaged vehicles.

At the beginning of hostilities in Korea, a number of two-and-one-half-ton trucks, three-quarter ton trucks, one-half-ton jeeps, half tracked vehicles and artillery assets were available.¹ This readiness capability resulted from the rebuild program in Japan that had just started production shortly before the outbreak of hostilities. The operation's purpose was to rebuild, in assembly line fashion, World War II (WW II) vehicles recovered from various Pacific Islands. At the end of WW II, vast quantities of US war material remained at bases in Australia, New Guinea, Philippines and other islands. The estimated weight of this property was more than 1,250,000 long tons valued at one billion dollars. The US Government had made approximately sixty-eight percent of the surplus property in the Western Pacific available for Foreign Liquidation Commission (FLC) sale and by the end of 1946, 307,000 long tons had been sold for over \$190,000,000.

Departing WW II US forces left the greater part of all classes of military equipment, in open storage without proper safeguards and consequently the equipment was rapidly deteriorating. Truck bodies, in many cases, were

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rusting through or could be pressed through by thumb pressure. Ordnance equipment had deteriorated to the point of being unserviceable.

When the war broke out, some 55,000 vehicles, suitable for rebuild, had been collected in Japan and a few thousand had already undergone rebuilding. When General MacArthur ordered the 25th Division into Korea, eighty percent of Eighth Army's sixty-day reserve of armament equipment was unserviceable and mobilization of other units would only compound the situation. The other deployed divisions were not much better off as approximately ninety percent of their armament and seventy-five percent of their vehicles were of WW II vintage. Much equipment was in dire need of repair before going into battle. Since the problem could only become worse, as more troops entered combat, the obvious solution was to accelerate the reclamation of the WW II equipment. US forces sent to Korea were partially equipped with these rebuilds. During the first 100 days of the come-as-you-are-war, 2,000 two-and-one-half-ton trucks, 2,150 jeep one-quarter-ton trucks and 770 three-quarter-ton and one-and-one-half-ton trucks were rebuilt in Japan and sent to Korea. In addition, during the first 100 days, the US Army evacuated, 1650 trucks and 3200 truck engines from Korea to Japan for rebuild.

If the US Army had not initiated the rebuild operation, prior to the Korean conflict, it is doubtful that the UNC could have gotten a foothold in Korea, and may have had to conduct all operations from Japan, or worse on Japanese soil. The ultimate advantage of having the rollup and rebuild operation located in Japan provided Prepositioned Material Configuration to Unit Sets (POMCUS) which aided tremendously in allowing the US to enter the conflict, somewhat equipped with near new equipment and afforded the chance to equip the ROKA and other UN forces. Otherwise, without these stocks the Units of the UNC could never have gone to war. The nearness of this logistical

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asset allowed battle damages to be repaired locally and returned to battle in relatively short periods of time. The savings were many, less time out of battle, labor costs, shipping to Japan rather than the United States and time it would have taken to gear up the US production base.

SECTION II—OPERATION ROLLUP AND REBUILD

A comprehensive reclamation plan was approved by the US Government to recover from the Pacific Islands all the rollup stocks of supplies, transport it to Japan, reclaim and rebuild salvagable items and to return the rehabilitated material to military usage. Utilization of Japanese industry, rather than transporting the equipment back to the US for repair and then back again, was to be affected to the maximum extent.

There was difficulty in identifying and reclassifying all of the different vehicles, weapons, ammunition and other supplies because of the shortage of trained personnel to perform these functions. To alleviate this shortcoming, the US trained Japanese personnel to perform these tasks and the Japanese soon became very proficient at the details.

Contracts with Japanese companies supplemented reclamation of the equipment and because the Japanese economy was still suffering the effects of the war, contractors could hire skilled technicians for as little as 10 to 15 cents (US) per hour. Japanese contractors turned out considerable quantities of work at relatively lower costs than the United States. These savings were an important consideration in placing the rebuild program in Japan.

Prior to hostilities in Korea and during the early stages of operation rebuild, Japanese contractors favored cost plus and time and material contracts over unit item contracts.² However, at the outbreak of hostilities, eighty-five to ninety-five percent of the contracts had been converted to unit

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item, procurement-demand-type contracts. These contracts had to be converted to US appropriated funded contracts. Appropriated funded contracts were to be from monies set aside for specific use, and funds could be used with or without prior approval. Although, previous contracts were loosely written with few records, the renegotiation of contracts went well with minimal disruption to the rebuild activities.

As the rebuild program gained momentum, new problems surfaced and even though Japan was an industrialized nation, production methods and standards were well below those of the United States. Japanese manufacturers were not accustomed to working to close tolerances and allowances that precision-made ordnance parts and equipment required. Furthermore, quality inspections were not a normal part of Japanese manufacturing procedures. Consequently, the US Army made an effort to hire former Japanese workers, who had been trained in American methods to supervise the work requiring close observance of specifications.³

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The greatest problem for the rebuild program was the shortage of spare parts. When parts were not available from any source, they were manufactured by the Japanese in Japan or rebuilt by the Japanese out of the worn-out part. Some Japanese parts were acceptable to US specifications and purchase was authorized by the Quartermaster Corps procurement officer based on reasonable cost and otherwise unavailability of the part from the US or rollup inventory.

Early on the UN forces realized they lacked heavy combat vehicles. The US M24 light tank was no match for the heavier Russian T34 tank. In early July 1950, the rebuild program began rehabilitating all existing stocks of all repairable combat vehicles with priority to the M4A3 medium tank upgunning it to the 76 mm gun. In three weeks, 17 medium tanks were delivered with the 76 mm gun for deployment to Korea.⁴ Other pieces of equipment also required

modification. The 105 mm howitzer motor carriage was modified to allow an increase in tube elevation to enable the piece to "lob" (indirect fire) projectiles over the Korean mountains by high angle fire. Another modification was accomplished to the M15A1 half-track by converting it to a T19 by replacing its 37 mm gun with a 40 mm gun and used it in a dual role as an anti-aircraft and ground support weapon.

SECTION III—UNITED STATES INDUSTRIAL FABRYON

To help meet the critical shortage of spare parts and other equipment, the US Government authorized monies for contracts in the US to satisfy those needs. Badly needed electronic parts for radars meant cutbacks in US domestic production of televisions and radios to meet the military need. In order to meet the desperate need for heavier and better tanks to defeat T34 tanks, the US Army told General Motors Cadillac Division to gear up to build tanks. It took Cadillac nine months to produce their first tank, even though they revitalized their Fisher bomber plant from WW II to accommodate the project.

Until Cadillac could gain full production, the US Army relied upon its own Detroit tank arsenal, the only plant that was currently producing tanks, at the rate of 12 tanks a day. Fifty percent of these were the heavy M48, 48 ton General Patton medium tank, with a 90 mm gun. Unsatisfied with peacetime production rates, the US Army accelerated the work schedules to two ten-hour work shifts per day and boosted its orders for air cooled engines from Continental Motors and transmissions from General Motors Allison. The increase in the number of hours of each shift and double shifting nearly tripled their production rate for tanks.

Not only "Army equipment" needed rehabilitation, the Navy and the Air Force were experiencing similar shortages. A significant number of naval ships and aircraft were "mothballed" to preserve them for future use.⁵ Moth-

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balled aircraft carriers were reactivated and modernization of older carriers was stepped up to an around-the-clock operation.

As the United States geared up its industrial base to support the Korean War, material shortages began to materialize due to the government's increased demand on their stockpiles of strategic metals, minerals and materials.⁶

SECTION IV--SUMMARY

When WW II ended in the Pacific, demobilization of forces occurred rapidly and tons of material and equipment were left wherever it was last stockpiled at the time. Whereas the equipment either could have been sold to foreign military or stockpiled in depots around the world or phased back into the Army's inventory at bases around the world.

If latter had been done, the Army could have maintained a viable deterrent force at all times and signaled a recognizable readiness posture around the globe. As it was, the US was glad to end World War; the home front was glad to be rid of large military budget expenditures and attendant rationing and other inconveniences. Thus it seems the North Koreans perceived the US as weak, without a readiness posture and unable to mobilize itself or its industrial base in time to stop a North Korean attack against the south.

Prepositioning the equipment, left over from WW II in the Pacific, would have provided serviceable wartime reserve stock that would have taken only a short time to employ into Korea. To offset deterioration, the stockage should have been rotated by training on the older wartime reserve stock and replacing it with new.

To assist in the rebuild operation in Japan, the US should have immediately sent American supervisors to train the Japanese work force in close standard tolerances and to establish a spare parts assembly line to service

those items being rebuilt. Whenever the US rebuilds or modernizes equipment, it should ensure it is abreast of current technology or, better still, slightly ahead of it. Not upgunning post WW II tanks and antitank weapons cost equipment and lives that otherwise might have been saved.

While the industrial base demobilization was expected, at least the Air Force and the Navy had the foresight to mothball their unused fleets and could reactivate it when needed. It would also be beneficial to keep some of our war equipment plants operating if only to maintain currency with modern machinery and techniques. It would require federal subsidies, which the public might oppose, but it may prevent the US from falling seriously behind should another midintensity conflict occur. The new "come-as-you-are" war would see US forces as stronger when it entered hostilities.

In Korea the US was fortunate to have a number of individuals who had vast experience to draw upon. The reason these people had good backgrounds was because of their participation in WW II. Some had served with General MacArthur previously while others served in Europe and elsewhere in the Pacific. Today the Army may not have the same first-person expertise, therefore, the Army should study the results of operations such as those in Korea. Perhaps we depend too much on military personnel for logistical expertise, whereas we should learn to share the logistical burden with the Department of Army civilian which may provide the continuity of Army logistical support.

CHAPTER V

ENDNOTES

1. "If it had not been for the rebuild system the United States could not have met the requirement for two-and-one-half-ton trucks and other equipment. The transportation assets would not have existed." See Q, p. 58.
2. The cost, plus time and material type contract was better suited to situations existing at particular installations, but was avoided whenever possible because the greater requirement of supervision to administer the contract. See M, Vol., IV, p. 5.
3. Sabotage and theft in the rebuild program was controlled to the absolute maximum if not eliminated. The US employed Japanese supervisors to observe and detect possible happenings. It proved to be a good move as the Japanese supervisors were extremely effective and discouraging. See M, Vol., IV p. 6.
4. The 75 mm guns mounted on M4A3 tanks were replaced with 76 mm guns removed from M18 motor carriages. At the start of the Korean conflict 65 medium tanks had been upgunned. All were shipped to Korea with 34 of the 65 being shipped within the first six weeks of action. See M, Vol., IV, p. 6.
5. Hermetically sealed to preserve them for future use with low cost maintenance and reduced rebuild expense. Mostly a procedure used by the Navy and the Air Force. See F, Vol., LVI, No. 4, p. 13.
6. During Korea there were 71 such strategic metals, minerals or a material that became a shortage. See F, Vol., LVI, No. 5, p. 57.

CHAPTER VI

RELATED LOGISTICAL SUPPORT

The focus of chapters II through V is on the Army functional logistical areas of supply, maintenance and transportation as performed by the present day Quartermaster, Ordnance and Transportation Corps. Succeeding pages address areas related to the primary functional areas, i.e., services, procurement, storage, civilian support for logistics, rear area security and support to other UN forces.

SECTION I—SERVICES

Immediately following are paragraphs summarizing the major services pertaining to laundry, salvage, food services and grave registration provided to the United Nation forces in Korea between June 25 to 2 October 1950.

Laundry

The first general laundry service did not begin until 27 July 1950. The laundry service priorities were to forward deployed troops and the hospitals. Fresh laundry for the ground troops was available in several methods, one of which was direct exchange of new issue for soiled and worn clothing that could be cleaned and repaired later and then put back into the supply channels. This method was normally used at bath points, thereby giving the soldier coming off the line fresh clean clothes after his bath.

The area around Pusan did not enjoy US Army laundry support until much later in the conflict. Solving the immediate situation, enterprising Koreans set up many laundries, seemingly overnight, to provide the laundry service

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which the US Army could not at the time. Personal arrangements for laundry service at a nominal cost characterized this unofficial service.

Salvage

"Because of a world-wide shortage of supplies and equipment and the requirements for maximum cost consciousness, salvage activities were of maximum importance throughout the Korean conflict."¹ Salvage operations, in Korea, received more attention than in any previous US involved conflict. The salvage operation tied in nicely with the rollup and rebuild operation being conducted in Japan at the time. Commanders emphasized collection, segregation and evacuation of the unserviceable materiel and equipment concurrent to hostilities in progress. This procedure allowed the materiel to be sent to Japan, repaired and returned for use in battle in minimal time.

Food Services

The most difficult task of any military operation, in peacetime or in wartime, is getting adequate food to the troops. The conflict in Korea was no exception. The degree of difficulty in Korea was exacerbated by the inadequate transportation systems which made resupply a nightmare. In order to get hot rations to the troops on the line, either the precipitous terrain of the Main Line of Resistance (MLR) or the fluid tactical situation had to be overcome. Ideally, the troops received two hot meals a day, provided the meals could be brought to them. Extensive use of the WW II practice of marmiting food in marmite cans from the company mess kitchens to the forward troops was done. Occasionally, selected units on line would drop back to the company mess areas to receive their meals, but this method proved to be taxing on time and equipment. As the fighting stabilized, some units established their mess operations closer to their deployed troops.

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The Army used a number of tested rations to determine what the soldier would eat. One was the basic Type B ration which was augmented with fresh meat and vegetables when available. Another was a trail ration but proved unacceptable to the troops. The 5 in 1 ration was unpopular with the troops, but was still used. The Army converted them into Type B rations and issued them to the troops in that configuration.

Waste was common and food service troops had to inspect the rations on a constant basis to ensure they were useable prior to issue. Large amounts of rations were rejected due to deterioration from rough handling or spoilage from exposure because of improper storage.

Ultimately, sixteen nations made up the UN forces in Korea. Providing rations to these sixteen nations was a challenge to the food service agencies, due to their varied ethnic backgrounds, diet and diet preference, religious regulations and portion amounts. A complete account of the various rations and ration supplements is included in Chapter III--Supply.

Graves Registration

When hostilities broke out in Korea, there was only one Graves Registration platoon in theater and it was stationed in Yokohama, Japan. The Army had another company located at Fort Bragg, NC. These were the only immediate available units and a serious shortage of personnel and supplies for graves registration functions became apparent. During peacetime, there is no mission for this type of a specialized unit and therefore, during time of war, the Army relies upon the reserve units to fulfill this requirement.

The platoon in Yokohama went to Korea to support the troops of all services there. Graves Registration Officers (GRO) were placed at the Port of Pusan and at Eighth Army HQ in Japan to assist the platoon. Five men each from the Graves Registration platoon were assigned to each of the three US

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infantry divisions committed into combat. The assignment of these men to these infantry divisions reduced the Graves Registration platoon's operating strength to fifty percent and created serious concern for the rear area operation of graves registration. The concern pertained to the collection, evacuation and identification of the dead, operation of the cemeteries. Also a concern was the shortage of supplies.

The remaining members of the Graves Registration platoon was able to solve the supply shortage by local purchasing from the Japanese economy and also used the Japanese market to obtain secureable personal affects packets. Initially, all that was available were standard, unsecured, mail pouches.

To deal with the shortage of graves registration personnel, separate division cemeteries were authorized, even though this practice did not work satisfactorily during WW II. The preferred procedure is to operate and manage a large centrally located military cemetery. Nevertheless, the first division cemetery was opened on 8 July 1950, and closed prior to being overrun by the North Koreans. Another cemetery at Pusan was opened on 14 July. Altogether, eleven cemeteries were created during the first two full months (July, August) of the conflict.

The creation of a unified UN command brought with it complicated problems of how and what to do with the burials of allies, the enemy, and South Koreans. Regulations were amended to cope with these situations and stated that "allied dead were to be interned in separate national plots in UN cemeteries; South Korean and enemy dead were to be turned over to the nearest ROKA unit for disposition."²

The first Graves Registration company in theater arrived on 12 September 1950, minus one platoon. The missing platoon was detached as part of the force scheduled to invade Inchon three days later. The remaining platoons were attached to the forward deployed division. Still, the graves registration

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support was inadequate to manage properly rear-area cemetery operations. This situation existed through October 1950 when additional graves registration units were requested and subsequently received.

SECTION II--PROCUREMENT

The Far East Command initiated procurement actions in the Far East on the first day of the war in order to logistically support the South Korean Army and the subsequent commitment of UN forces.³ The Command conducted the primary procurement effort for UN forces in Japan with additional, substantive support obtained in Korea and limited support obtained in other Far East areas such as Hong Kong.

The G-4, General Headquarters (GHQ), FEC developed guidelines limiting large procurements to the type and quantity of supplies and equipment which the Japanese industry could readily produce without the risk of overexpansion of industry or the creation of facilities that would be useless to Japan after the war. This procurement arrangement met both the Japanese and American economic needs. Japanese industry needed markets and US industry was fully engaged to meet civilian requirements and did not need additional markets. The procurement program in Japan provided much needed assistance to Japanese industry and contributed greatly toward balanced support of operations in Korea, complementing and supplementing depot stocks and reducing the time lag between initial procurement action and delivery time to FEC. Japanese production time from placement of orders to actual delivery was generally fast and fulfilled short operational deadlines.⁴

The US Army purchased a wide range of items in Japan. Items such as barbed wire, manila rope, carbon tetrachloride, lumber, crushed rock, life preservers and pallets were purchased in the first weeks. Subsequently, even

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locomotives and rail cars were purchased in Japan and sent to Korea. There were also service contracts for boat modifications, trucks and drivers for hauling supplies to the Japanese ports and for stevedores to load the supplies for Korea. The FEC employed Japanese barges, tugs, tankers and repair ships, manned by Japanese crews, in Pusan to help operate the port. Perhaps one of the largest, multicontractual arrangements was drawn up in July and assigned in August for Japan to produce 68,000 vehicles, mainly cargo and dump trucks for reequipping the ROK Army. Initial deliveries commenced in September 1950. Included in the contract was the requirement to provide one second echelon tool kit and spare parts set for each 20 vehicles plus one third echelon tool kit and spare parts set with every 100 vehicles.⁵

Although the procurement effort was an overall success, there were many problems. In the case of the spare parts support for the trucks, significant shortages of items existed and many trucks quickly were deadlined. The Japanese also had to be trained to produce to American specifications but they proved good learners. If there was not time to prepare exact specifications, the Japanese were able to produce the desired equipment from samples alone. Businesses, however, had to be carefully watched to limit war profiteering. Japanese truck drivers also had to be closely supervised by US personnel to prevent accidents and possible sabotage by Communist sympathizers.⁶

Despite the problems, the early procurement effort provided indispensable support to the combat effort. In July the purchases in Japan totalled more than \$7 million dollars (\$31 million in 1985 dollars) and the costs were more than competitive. Fifty-five gallon drums for example, cost \$7.40 in Japan while a similar drum in the US cost \$7.61 to produce and \$5.85 to ship for a total cost of \$13.46.⁷ Trucks manufactured in Japan cost one-quarter as much as trucks purchased in the United States.

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Although purchases in Korea for US forces were not as large as those in Japan, they were important and helped fill critical needs. On 6 July 1950, an allotment of funds was made for the purchase of supplies and services essential to the mission in Korea. The funds were provided as an open allotment so certification of availability of funds by a fiscal officer was not required. Purchasing officers, designed as agent finance officers, made direct purchases from Korean firms.

Although divisions and units entering Korea brought neither personnel with procurement experience or procurement manuals along, a purchasing and contracting officer was designated to handle procurements in accordance with EUSAK instructions. There were no established procedures to guide the units and purchases for local services and supplies were conducted in an "empirical" fashion. Army officers contracted for purchase or manufacture of Class I, II and III supplies to provide support for civilian labor and to feed and clothe POWs. Hundreds of minor purchases, less than a thousand dollars, were made for such items as rubber stamps, desks, mirrors, paint, nails and tools.⁸

Procurement was, however, a much greater problem in Korea than in Japan. South Korea lacked raw materials and industrial plants and had low economic productivity. Procurement personnel inspected local stocks of materiel and compiled lists of available contractors. Their systematic exploration of the local market uncovered several small additional sources of raw materiel, finished products and services in August.⁹ The Procurement Office for the Pusan Logistical Command did most of the contracting, letting 50 contracts in July 1950 for a total of \$1 million dollars (\$4.4 million in 1985 dollars). Other local procurements amounted to \$426,000 dollars in August 1950.

SECTION III--STORAGE

During the early months of the Korean War, storage facilities, both open and closed, proved inadequate in the forward as well as the rear areas. In the forward areas, the lack of sufficient open and closed storage areas at the railheads caused excessive holding of freight on cars. In the port areas, insufficient transit storage plagued planners. Storage did not exist or it was used for depot storage. Buildings normally used for other purposes became "instant" storage warehouses often creating problems which would not have existed if adequate warehousing had been available. By September 1950, however, new construction had already helped the efforts to overcome the shortage of storage space.

During the early weeks of the fighting, the command concentrated depots in Pusan and the immediate vicinity, a tactically risky situation, a security hazard and an inflexible system of supply operations. This developed because of the nature of the conflict, the general uncertainties about the length of the war in the early weeks of hostilities, and the lack of indigenous facilities such as highways, railroads and covered storage. Division personnel felt that depots were too far back of the division areas and that a continuous effort to "bull" supplies forward was necessary. They also suspected that the distance between depots and the forward areas reduced the responsiveness of depot personnel. Units found it more expedient to locate representatives near the depots as "unofficial" expeditors to ensure the receipt of supplies for their respective units.

The establishment of Army supply points took into consideration the protection of supplies from possible enemy capture in the event of retrograde movements. The difficulty of filling and closing supply points contributed to Eighth Army's reluctance to locate them closer to the divisions in the forward

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areas. Other conditions contributing to this development were the few rail-heads in the division areas, limited highways and transport, and the lack of sufficient personnel to keep supply points as mobile and flexible as desired.

Throughout the Korean operations, the Pusan area presented an especially attractive target for enemy air attack by either conventional or atomic weapons. Its critical position as the key port for logistical operations and the high concentration of supply depots and storage facilities would have made enemy air attacks crippling, if not fatal to logistical operations. Petroleum storage tanks and the ammunition depots in the Pusan complex offered particularly attractive targets. Statistics for the first week in August provide an idea of the impact destruction of Pusan would have had on military operations. The Pusan depots contained 15 DOS of Class I, 10-25 DOS of Class III and 15 DOS of Class V. The loss of this tonnage would have been a crippling blow to the Eighth Army. As of 1 August, only enough supplies were located north of Pusan to sustain combat operations for approximately two weeks. All commanders recognized this dangerous condition, but it was permitted to continue as a calculated risk because suitable facilities were not available elsewhere.¹⁰

SECTION IV—CIVILIAN LABOR IN KOREA

The US Command used Korean indigenous personnel in practically every type of work performed by UN personnel due to the shortage of UN service troops and the availability of Korean labor. Koreans were used to unload ships in the first hectic days and contracts were let for hauling supplies from Pusan in July 1950. To manage Korean labor, EUSAK established separate administrative provisions and an Indigenous Labor Section was set up by the Pusan Logistics Command under the G-1.¹¹ KATUSA, Korean Augmentation to the US Army, recruitment began on 15 August and was in full swing by 19 September 1950. Personnel

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drives "gathered" recruits e.g., personnel were picked up on the way to work and school and put into the program. The Chief of Staff, Korean Army assigned Koreans directly to the US units according to US requests for personnel. The program provided personnel when US units, both combat and service, were badly depleted. There were significant problems, however, to include the language barrier and shortage of interpreters, lack of military training and poor sanitation habits that posed a possible source of contamination for US personnel. US units wanted the Koreans as long as they were short personnel but once US units were up to strength, indifference toward the Korean personnel became the norm.

The command also used direct hire labor to a greater extent than in any other US combat operation to that time. Within a month of the start of hostilities, the Pusan Logistical Command employed 8,000 Koreans. Unit Labor Officers determined job classifications and wages and classified Koreans into one of four categories--professional, skilled, semi-skilled or unskilled. Personnel were predominantly paid by appropriated funds but some were hired with nonappropriated funds. Japanese personnel were also used in Korea. At the inception of hostilities, they were hired to assist in the operation of the Pusan Port. At Inchon in September 1950, 3,936 Japanese personnel were hired under a 60-day contract to offload shipping. Initially the Korean government voiced no objection to the use of Japanese personnel. Whether Japanese or Korean, civilian augmentation, contract, direct hire or KATUSA, civilians were indispensable in sustaining logistics support to the combat forces.¹²

SECTION V—REAR AREA PROTECTION

When the Eighth US Army assumed command of ground forces in Korea, it found itself in the confusing situation of being in presumably friendly territory through which Communist guerrillas freely operated. Communist agents and sympathizers accompanied refugees streaming south into friendly rear areas.¹³ The terrain and wide frontage for UN units made the rear areas very vulnerable and necessitated that all service support units be trained in rear area defenses. Service units conducted frequent familiarization firing with individual and crew-served weapons and commanders stressed night training, in particular. EUSAK recommended that every US soldier be trained basically as infantrymen.¹⁴

The shortage of US military police and Counter-Intelligence Corps units, plus the deficiencies of the Korean National Police who had the responsibility of routing out guerrillas and subversive elements, made it necessary to establish an organization to coordinate all agencies concerned with rear area security. On 21 July 1950, the EUSAK commander created the Office of the Coordination and Protection of Lines of Communication, Rear Area, under the G-3, EUSAK. The coordinator was responsible for maximum protection for railroads, MSR's, bridges, signal communication lines, and relay stations against sabotage and enemy guerrilla activity.

Guerrillas concentrated their attacks on trucks and railroads particularly between Taegu and Pusan, and made the MSR unsafe for vehicles traveling alone. The guerrillas usually set ambushes on hairpin curves where a gully afforded cover for the guerrillas. Mortar shells were sometimes placed in the road. A guerrilla force, however, never succeeded in entering a large UN installation or in engaging in serious action with a United Nations force so guerrilla activity within the perimeter had only nuisance value.

SECTION VI—LOGISTICAL SUPPORT TO OTHER THAN US AND ROK UNITS

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The initial UN offer for help to Korea came in the form of food, aircraft and naval vessels, moral support and medical supplies, but no ground forces. The National Government of the Republic of China did offer to send three divisions, but these were not accepted. However, by mid-August, sixteen nations did provide military ground forces which meant an additional 25,000 to 35,000 non-American or non-Korean troops in Korea. These troops were equipped and employed as reinforced infantry battalions accompanied by their own supporting artillery and supplied with US ammunition.

These UN units were attached to US forces to make up the UNC forces mainly because the US provided the majority of the forces. Thus, attachment was at regimental and division level. This method of attachment included these foreign UN forces into the US supply systems on a reimburseable basis. The US furnished all of the rations to these UN forces and had anticipated diet preference and religious regulations. This proved to be less of a problem than originally thought and the initial solution was to modify the US rations to meet the unique need of the other national groups. (Chapter III—Class I—Subsistence).

The UN forces, with the exception of the British forces, lacked organic technical service support units to support their needs. Therefore, the US Army provided this support without troop or service unit increases. Almost all the UN units were substandard in their first and second echelon maintenance except the French, who without the proper mixture of tools would almost perform third echelon maintenance on their vehicles. The worst drivers were the Greeks, only because they were not use to large equipment. In addition, troops from other warm climates had to be schooled on techniques required in the performance of cold weather maintenance due to being unaccustomed to the

severe Korean winters. All of the nationalities were willing and capable, but the number of different languages created a barrier that oft times lead to misunderstanding rather than poor performance.

Because the US Army became the primary supplier to the UN forces, many of the forces arrived in Korea with only the clothing they were wearing. As a result, there was a wide variety of uniforms, but as the uniforms wore out they were replaced by US Army issue, and soon all UN forces had clothing similar. However, most UN troops were physically smaller than the US soldier and consequently needed smaller size clothing. Much of the smaller size clothing was unavailable and had to be manufactured causing some delay in providing uniforms.

A unique problem was that of fitting the Thais with combat boots. The traditional footgear of the Thais had been sandals, and their feet were shaped like paddles, wide at the ball and narrow at the heel. Most men measured EEEE width and 10 percent of them could not even get their feet into the measuring machine. For this 10 percent, special shoes were made.¹⁶

Consideration was overlooked to things which were apparent and automatic to US personnel, but often confusing and difficult to the UN soldier. The use of special cold weather clothing was one example. Special teams were employed to train troops unaccustomed to cold weather survival and once again language was a hinderance. Had there been training aids available in the UN troops various languages, the task would have been easier.

SECTION VII--LOGISTICAL SUPPORT TO THE ROK ARMY

The ROKA had been receiving logistical support from the US Army for some time before the Korean War started, so the US logistical system was a familiar function. When the hostilities broke out, the first logistical support the ROKA received was ammunition sent to them from US stockpiles in Japan.

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The ROKA had evolved from the ROK police force, sponsored by the US Army KMAG and because it was so newly formed was inexperienced in conventional military matters and especially in the effective use or abuse of critical supplies. The ROKA expended their ammunition without regard for conservation and their usage far exceeded any US Army established consumption rate. Much of what the ROKA received in logistical support kept them in the fight and gained time until the US and UNC forces could organize and come to the aid of the ROKA.

Furthermore, when the bridges across the Han River were demolished, the ROKA lost more than seventy percent of their logistical supply system, then located north of the Han River nearest the threat. Under attack by the North Koreans and having lost most of their supplies, the ROKA was suddenly very vulnerable to total defeat by the North Koreans. The US Army filled this breach with logistical support to the ROKA in order to keep them in the conflict, somewhat similar to the way the Russian Army was kept in WW II through the Lend Lease program. "The paramount supply problem was to resupply four ROKA divisions which had lost the bulk of their equipment in the initial communist on slaught."¹⁷ All available supplies were shipped from Japan to the ROKA and supplies that were not available were requisitioned from the United States.

The ROKA had difficulty maintaining the equipment they already had due to personnel shortages and yet they were receiving more equipment. Much of their equipment was unserviceable and many of their weapons were unoperable. An immediate solution to the problems was needed

on 28 July, CINCFE directed CG Eighth Army to arrange for the repair of 10,500 unserviceable M109 rifles by Japanese industry. A request for the work was forwarded to the Tokyo Ordnance Center on 31 July, and a contract was negotiated on 10 August.¹⁸

subsequent to the repair of the rifles, other equipment was repaired in Japan under similar contract arrangements.

CHAPTER VI

ENDNOTES

1. O, p. 115.
2. M, Vol. IV, p. 57.
3. J, p. 12.
4. M, Vol. II, p. 134.
5. J, p. 12, 14.
6. J, p. 15.
7. N, p. 55.
8. M, Vol. II, p. 136-138.
9. M. Vol. II, p. 138.
10. M. Vol. II, p. 141-146.
11. M, Vol. I, Chap. III, p. 11.
12. M, Vol. I, Chap. III, p. 26-28.
13. L. p. 96-100.
14. L, p. 57-58.
15. M, Vol., IV, p. 13.
16. M, Vol., IV, p. 16.
17. M. Vol., IV, p. 17.
18. M. Vol., IV, p. 17.

CHAPTER VII

LESSONS LEARNED AND IMPLICATIONS FOR THE ARMY TODAY

The Korean War was the most recent "come as you are" war fought by the United States Army. Succeeding paragraphs highlight lessons learned during the first critical one hundred days of war that have relevance to the challenges faced by logisticians today. The lessons learned, derived from the historical data in previous chapters, focus on early support requirements that must be fulfilled with forces and material available prior to full mobilization and major output flow from the United States industrial base. The lessons learned apply primarily to an undeveloped theater, such as South Korea in 1950, but some are also germane to logistical challenges faced in Europe and present-day Korea. Although most of the observations enumerated below offer no startling revelations, they do, for the most part, confirm and add credibility to emerging logistical support concepts. In some, however, the lessons learned in Korea should challenge logisticians to rethink proposed plans and actions.

1. Innovation is the key to successful logistical support in combat. Improvisation was an essential element of effective and responsive logistical support in the initial stages of the Korean War. Clearly the ability to innovate and to improvise will be key to successful logistical support in the future. The professional logistician must review the lessons of the past to build a reservoir of ideas that can be the catalysts for solving tomorrow's logistical challenges.
2. Forward deployed logistical bases are essential for the United States Army's success in undeveloped theaters. Without the logistical sustaining bases in

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Japan, 400 miles from the Korean combat zone, the United States Army would have been pushed into the sea and South Korea lost to the Communists before a supportable UN force could have been deployed. The lesson is clear. Successful employment of US forces to areas like Southwest Asia require a forward deployed, operational logistical base on the first day of hostilities in order to sustain a midintensity conflict.

3. Host nation support can provide critically needed support for US Forces engaged in combat. In Japan and Korea, indigenous direct hire and contract personnel provided essential services in port, depot and transportation operations. Japanese personnel manned assault LSTs and unloaded supplies needed to sustain the Inchon Landing. The magnitude and successful use of indigenous support in Korea adds credibility to the Army's on-going host nation support effort in Europe and should prompt consideration of indigenous assets that could be used to support early deployment of US forces in contingency operations. Lessons from the Korean conflict also demonstrate the need for special management of indigenous host nation support assets:

a. A designated staff section or agency must manage the indigenous host nation support assets.

b. A limited number of US personnel must be trained to manage/supervise indigenous host nation support personnel.

c. Sufficient, trained US logistical management personnel must be deployed at the onset of hostilities. The early ad hoc logistical management of the Pusan Port complex, to include extensive indigenous labor, maintained the combat force. The lack of knowledgeable logistical managers however, created problems such as mis-stored supplies and inadequate resupply demand data that took a year to rectify.

d. Procurement policies must address impact on local economy. Far East Command guidelines limited large procurements to the type and quantity of material Japanese industry could produce without risk of overexpansion and still have the need for the postwar capability. Japan's strong postwar economy attests to the effectiveness of this policy.

4. Expedient procurement procedures for emergency/contingency operations must be developed and approved before hostilities. Peacetime procurement procedures were suspended in Japan within days after the North Korean invasion. Procurement officers, untrained and without guidelines, were designated for units in Korea to obtain required indigenous support and material. Local procurement was essential for support of US Forces in Korea and will be essential in future conflicts. Procedures for "field procurement" and training criteria must be established now.

5. Automatic resupply for the committed force is required despite inefficiencies. Units deployed to Korea depended on automatic resupply in 15 DOS increments for the first 60 days after deployment. Automatic resupply quantities, based on World War II demand data, proved inaccurate, but the supply system lacked the capability to generate and fill actual requirements, i.e., a pull system, in the early months of the conflict. Automatic resupply is still necessary today but computers should add greater flexibility and increase responsiveness of an automatic resupply system. In related areas:

a. Automatic resupply must be tailored to the area of operations and adjusted for the seasons of the year.

b. Airlift of battalion combat resupply bundles ensures effective support in heavy combat situations. More than 160 airlifted supply bundles (one bundle provided essential combat supplies to sustain one battalion for one day in combat) were used to support heavily committed battalions and they

often made the difference between defeat and victory. Airlift support bundles can be used in future conflicts particularly for support of deep battle requirements that require ground troops, provided there is at least local air superiority.

c. Demand data must be compiled from the start of the conflict.

In the early days of the Korean war, the emphasis was to move whatever supplies were available forward from the Pusan Port to the combat units. Record keeping was forgotten and the situation was one of "sending supplies into a void." Precious cargo space and effort were devoted to shipping unneeded supplies while unanticipated high demand for other items went unsatisfied. LOGMARS will greatly assist in the completion of accurate demand data while maintaining responsiveness.

d. Cargo must be identifiable. Unmarked or improperly marked containers required extra handling and necessitated duplicate shipments to provide items that were already incountry but unidentifiable. This problem contributed to congestion and ship queueing in the Pusan Port. While this was a very obvious lesson, we failed to solve the problem and the situation prevailed in Viet Nam fifteen years later.

6. Ammunition supply rates and procedures based on theory and previous combat experience will require early adjustment to meet future combat requirements.

Korean War ammunition requirements and procedures were based on the last US Army conventional war experience gained just five years earlier in World War II. In that short interval however, the conditions of war had changed and the planning factors proved inaccurate. The best that can be expected in the future are planning factors and a system capable of rapid adjustment to meet the requirements of the next war. Two related lessons:

a. Ammunition requirements must not be based only on basic loads but also on the tactical situation. To meet increased ammunition requirements for the September 1950 UN Offensive EUSAK based ammunition allocations on tactical plans rather than basic load requirements. Present procedures that establish priority for supply are valid.

b. Specific ammunition policies for requisition, control, issue and accurate demand accumulation are a must. The ammunition system got out of control early in the Korean War. There were shortages at the start of the conflict and yet at the end of the first one hundred days, 200,000 tons of ammunition were excess to EUSAK's needs.

7. Logistical units must be evaluated under operational conditions to validate capabilities. In the Korean War, TO&E logistical units both greatly exceeded and failed to attain expected capabilities. World War II, only five years earlier, was used as the base line for requirement and capability determinations. Many unit capabilities are still based on World War II data, modified by our Korean and Viet Nam experiences. This planning data may be greatly outdated with the rapid changes in the pace of war.

8. Logistics organizations must be tailored to meet the specific mission requirements of the supported command. The FEC utilized three logistical commands, each tailored with units to meet specific requirements, to provide logistical support above the divisional level. To support the Inchon Landing, logistical unit requirements were reduced by utilizing COMZ type units to support forward to the tactical elements, thus eliminating Theater Army level logistical units. The successful Korean War experience validates current Army doctrine of tailoring logistical units to meet support requirements.

9. Capability to feed a ration is essential for redundancy and troop morale. Combat rations were critically short in Korea for the first four months of the

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conflict until the CONUS industrial base could produce rations in sufficient quantity to support the combat forces. The capability to prepare A rations provided the flexibility required to meet operational needs. Even without this critical requirement, A rations significantly enhanced soldier morale. Insufficient peacetime stocks of field rations dictate the need to retain an A ration capability in wartime while cost effectiveness and troop preference necessitate this capability in peacetime. Other subsistence related lessons:

a. Other nationalities readily adapt to US rations. With today's greater export of United States food products and use throughout the world, there will be less acceptability problems than encountered in the Korean War where US rations were the main food source for the UN force. US rations, with limited supplements, should sustain a combined allied force.

b. Religious dispensation for restricted foods can be granted. Turkish and Ethiopian soldiers were granted dispensation in the Korean War to consume normally forbidden foods. This eased support problems for the UN forces. This could be an important factor for future conflicts.

c. Bread is a necessary ration component. Even in the first chaotic weeks of the conflict, extraordinary steps were taken, e.g., air shipment of bread from Japan, to provide the soldiers with bread. Bread rations were increased for many UN force contingents. The need for this high troop acceptability basic nutrition and bulk source will not decrease in the future.

d. Condiments are essential for increasing the acceptability of foods.

10. Combat accountability criteria must be predefined and ready for implementation before the start of future hostilities. Combat accountability went into effect upon deployment to Korea. Streamlined supply procedures will be essential for efficient and effective combat support. Emphasis must be on records that ensure quantities on hand and required are known and not on requirements for maintaining an audit trail.

11. Major logistical organizations should work for the commands they support in combat. Logistical support is enhanced when logistical units are put under control of the tactical commands they support. This was one of the primary reasons why the 2nd Logistical Command was not subordinated to the Japan Logistical Command. The Korean War experience has been incorporated into present Army doctrine.

12. Corps rear area protection should be coordinated at a level that has control of combat elements. Commander, EUSAK, directed his G-3 to establish an organization to control all elements of rear area security. The Korean War experience adds credibility to the recent proposal in USAREUR to make corps rear area protection the responsibility of the Deputy Corps Commander.

13. Clothing and equipment repair capability can meet critical supply requirements pending production by the industrial base. Quartermaster and contract repair operations met the critical need for boots and clothing in the early months of the Korean war. When supply inventories of individual clothing and equipment items are inadequate, repair services can provide an alternative source during the early critical months of combat.

14. Peacetime logistical organizations can expand capabilities to meet war-time requirements. The Yokohama command port operation, for example, moved 100,000 tons in three days although it was only designed to handle 250,000 tons a month. Depots in Japan provided the trained military personnel for provisional field logistical units and continued to provide responsive support to the combat theater. Although the support portion of the Army lacks the total capability to provide this required expansion given today's level of civilianization, the Korean War experience indicates the capability for greater than anticipated support.

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15. High physical fitness standards are a must for all elements of a ready Army. Soldiers arriving in Korea direct from administrative duties were not physically prepared for the rugged task of combat service support in Korea. Physical fitness programs were required in the combat zone to get soldiers into shape. The physical demands of future combat will be great and combat service support soldiers must be fit to meet the requirements.

16. Use of a single deep water port to support UN forces in Korea was a calculated risk that should not be duplicated today. The tactical situation in July 1950, the lines of communication and port capacities dictated the use of Pusan as virtually the only port and logistical support area in Korea. Enemy air attacks on the port would have crippled the Korean War effort.

17. The United States Army's support of UN, South Korean and United States forces was an outstanding logistical achievement. Given the surprise of the war, understaffed logistical forces and a dormant industrial base, the responsive logistical support provided by the Army to all forces in Korea was a significant achievement. It provides a logistical legacy for today's logisticians to emulate.

18. The US Army must maintain a minimum capability to supervise host nation support rail operations and a nucleus of a US Army rail operational capability.

The US Army Railroad Transportation personnel retained all of the Korean National Railroad employees and had them perform the day to day operations while providing supervision. With the decline of the US railroad, the experienced railroader will become more scarce than in 1950. Remaining railroad units in the Army today are located in reserve units.

19. Established prioritization and throughput procedures are essential for effective logistical support operations. A firm policy on throughput of supplies is essential, especially during the first stages of the conflict.

Logistical commands must take control on the first day of war to avoid "expeditor colonels" selectively picking what they or their commanders had selected for early shipment. Only authorized individuals, with the responsibility to receipt supplies and prioritize their dispatch should be involved.

20. Contract foreign civil aircraft to augment the US CRAF to support future midintensity conflicts. There are not enough military aircraft and CRAF today to meet early strategic lift requirements. Agreements should be made with foreign nations, friendly to the US, to augment US CRAF in order to rapidly supply any future conflicts that the US may become involved.

21. Experienced personnel made the difference between success or failure in many Korean operations. The US was quite fortunate to have many individuals available during the Korean War who could reach back into their invaluable experience gained over two world wars. With this catalyst, the experience of many could be pulled together successfully. In areas that lacked experience, they did the best possible. Several operations were conducted successfully with just a few experienced people.

22. Forward airfields simplified the logistical support in Korea. Airfields far forward reduced the time it took to get supplies to the troops, saved on transportation, labor, and lessened the supply backlog at terminals and marshalling yards. The implications of the lesson learned can be applied to modern day doctrine of "Air Land Battle" and logistical support. If the principles used in Korea are applied, by landing supplies far forward whether near or beyond the FOUT, they can contribute to sustaining an "Air Land Battle" logistically.

23. Airdrop of supplies sustained some units that were cutoff from routine resupply methods. Airdropping of supplies in Korea helped units which were cutoff from their main supply channels. The resupply by airdrop was effective

and aided the troops in sustaining the battle, close to or deep in enemy territory. Airdrops today can be as effective. Airdrops would be in support of the "Air Land Battle" doctrine and would solve some concern of how to supply US troops deep into the enemy's position or rear echelon. However, this is contingent upon the US forces having air superiority or parity with some degree of effectiveness against antiaircraft missiles.

24. Chartered ships of other nations quickly aided the flow of supplies to Korea in support of the conflict. Quick reaction, to the point of almost seizing ships, helped solve the immediate problem until agreements could be negotiated between the US and the other countries that chartered vessels to the US. The US should review the options of utilizing other nations' ships, especially NATO and Far Eastern allies. With anticipated distances to possible future conflicts, easy load and unload plus fast ships ought to be sought. The absence of a US Merchant Marine force should be a concern of this country and reestablished in the national interest of security.

25. The US was fortunate to have access to excellent seaports in Korea, even though shore facilities were marginal. Once the war started, the ports, storage areas, and depots were overwhelmed with imported supplies. A lesson learned would be to evaluate the port clearance capacity prior to initiating automatic supply procedures. Automatic supply is essential, but can create situations of concern if not monitored and managed properly. Logisticians must know what they can force into the theater and what they can not.

26. Realistic estimates of what wheeled transportation assets are capable of transporting must be established. The automatic supply rate in Korea had been estimated on the truck companies supposed freight handling capability and anticipated ability to clear the port, storage and depot facilities of supplies. Realizing their error, the transportation planners dropped the

estimated daily tonnage and made adjustments to automatic supply shipments. This improved the port clearance and throughput of supplies. Future planners must closely analyze and realistically determine what available resources can handle.

27. The successful invasion of Inchon was due to the abundance of experienced and trustworthy individuals. The Inchon operation went well due to the abundance of US military personnel involved who had previous experience in amphibious landing operations from WW II. The lesson derived is that it worked with short planning time and without rehearsing. Difficult operations can be successful with experienced help, but it also requires mutual understanding and trust in the people to perform their assigned tasks.

28. POMCUS stockpile assisted in the initial sustainment of forces until the logistical base could be established. Without stockpiles, which the US could draw from, meant the difference between the North Korean's victory or defeat. It is equally important the US continue to preposition supplies strategically around the world. Victory in future conflicts may dictate prepositioning, due to the bulkiness of today's modern equipment and limited transportation assets. Strategically locating POMCUS sites will lessen the transport requirements to mainly personnel.

29. Host nation support is vital until a logistical base can be established in an immature theater plus it can be a continuous manpower source. Host nation support cannot be overemphasized. Without the help of the South Koreans and the Japanese, the UN forces would have needed many more men and units to accomplish all of the necessary tasks performed by host nation support.

30. Having the benefit of some Japanese who spoke fluent English contributed enormously to the support of the conflict. Japanese with a knowledge of

English, usually acquired in America, were extremely beneficial as supervisors, expeditors and instructors to manage and operate Japanese plants in Japan. With this expertise in Japan, the US did not have to send American help to Japan to perform these functions and was free to retain them in the US for the same purpose.

31. The industrial base must be kept modern and current with technology and not allowed to lag behind. Machinery grows old, methods of production change, materials change or become more scarce and some skilled craftsmen are lost as time goes by thus making it advisable to update the industrial base occasionally to maintain currency. Some argue that the industrial base in America is weak or nonexistent, perhaps it is just dormant and if needed will respond as in the past.

32. Strategic stockpiling provided the United States the vital raw materials needed to produce the war equipment it needed to sustain the Korean conflict. Prime importance of stockpiling is because the United States lacks most of the raw material resources it requires. Generally all of the raw materials the US requires must be imported. Currently, the US has strategic material stockpiles that will last about two years. During the Korean conflict the US had adequate quantities in their stockpiles and was able to supply to the industrial base the materials required. Had the US been without these stockpiles the outcome of the conflict may have been different.

33. Laundry service is vital to health, survival, sanitation and well-being of the serviceman and the services. Three lessons can be gained from this experience. First a need to create additional laundry service units as peacetime organizations; secondly, give hospitals first priority to receive laundry service; or third look to host nation support to provide all of the laundry service under contract to the US Government.

34. Food services required the troops to receive two hot meals daily and inspected rations to ensure their safe use for consumption, thus contributing to providing a healthy and effective soldier. Without regular hot meals, leaders can expect individual and unit morale to decline and physical strength to wane from the soldier which means he will not be as effective in combat. Doctrine should continue to provide the soldier in combat with a minimum of two hot meals daily.

35. Division cemeteries were an interim necessity until additional graves registration units arrived in theater to support the conflict correctly. Graves registration is a wartime function and therefore most of the graves registration units, during peacetime, are placed in the reserves. The Army should reevaluate the mobilization priority of these units and apportion them into future theaters based upon casualty projections from previous wars and conflicts.

36. Issuing clothing to UN forces from US supply stocks simplified the supply system and standardized the uniforms of the UN forces. The Army should anticipate who all of its allies might be in future wars, and evaluate if the US will again consider taking on the responsibility of supporting these allies with clothing and shoes. If the US decides to do this, then it must begin manufacturing clothing and shoes earlier than it did in the Korean conflict to avoid the delay of supplying the force.

37. Ammunition expenditure rates may always be excessive the first few days of the battle therefore, it should be expected and ammunition issue doubled during this period of time. As the US Army continues to assist and advise foreign armies, the ammunition expenditure and consumption rates should be reviewed to foresee if adjustments are needed in the initial basic loads going into combat. Also, weapon firing discipline should be taught.

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The sources used in this study provide a good starting point for gaining a historical perspective for the logistical challenges faced by the US Army in a midintensity conflict. Logisticians interested in particular areas addressed in this paper should consult the source documents, particularly Logistics in the Korean Operations (4 volumes), for a full development of the logistical issues over the various phases of the Korean conflict.

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*All references are available at the US Army Military History Institute, Carlisle Barracks, PA 17013.

**Letter designations are used to identify sources in endnotes.

APPENDIX I

ABBREVIATIONS AND GLOSSARY OF TERMS

ABBREVIATIONS

AMIK - American Military in Korea
CINC - Commander-in-Chief
COMZ - Communications Zone
CONUS - Continental United States
CSS - Combat Service Support
DOS - Days of Supply
EUSA - Eighth United States Army
EUSAK - Eighth United States Army Korea
FEAF - Far East Air Force
FEC - Far East Command
FLC - Foreign Liquidation Commission
GHQFEC - General Headquarters, Far East Command
GRO - Graves Registration Officers
GRREG - Graves Registration
HQ&HQCO - Headquarters and Headquarters Company
JLCOM - Japan Logistical Command
JTF - Joint Task Force
KATUSA - Korean Augmentation to US Army
KBS - Korean Base Station
KCOMZ - Korean Communications Zone
KNAG - Korean Military Advisory Group

KNR - Korean National Railroad
KOSCO - Korean Oil Storage Company
LOC - Lines of Communication
LOG COMD - Logistical Command
LST - Landing Ship Tank
MATS - Military Air Transport Service
MDAP - Military Defense Assistance Program
MLR - Main Line of Resistance
MSR - Main Supply Route
POL - Petroleum, Oil and Lubricants
POMCUS - Prepositioned Material Configured to Unit Sets
QM - Quartermaster
ROK - Republic of Korea
ROKA - Republic of Korea Army
TF - Task Force
3D LOG COM - 3d Logistical Command
3D TMRS - 3d Transportation Military Railway Service
TO&E - Table of Organization and Equipment
U. N. - United Nations
US - United States
UNC - United Nations Command
WW II - World War II
ZI - Zone of Interior (United States)

GLOSSARY OF TERMS

A Ration—A ration comprised mainly of perishable food items—frozen and fresh foods that require refrigeration such as fruits, vegetables, eggs and meat—and nonperishable dry and canned items. Ration is prepared by food service personnel and served to soldiers in groups.

Basic Load—The quantity of ammunition authorized for wartime that is designated for or carried into combat by a unit.

B Ration—A nonperishable ration comprised primarily of canned items but is normally supplemented with fresh bread. Ration is prepared by food service personnel and served to soldiers in groups.

C Ration—A nonperishable ration for the individual soldier comprised of canned or other nonperishable items.

Class I Supply—Subsistence (A, B or C ration) including gratuitous health and welfare items.

Class II and IV Supply—Clothing; individual equipment, tentage, tool sets and tool kits, hand tools, administrative and housekeeping supplies and equipment.

Class III Supply—POL: Petroleum fuels and packaged items such as lubricants, hydraulic and insulating oils, preservatives, chemical products, coolants, deicing and antifreeze compounds.

Class V Supply—Ammunition of all types including bombs, explosives, land mines, fuses, detonators, pyrotechnics, propellants and other associated items.

Combat Service Support—For the purpose of this study only the functions of supply, maintenance, transportation, field services and related areas of procurement and host nation support are included.

Measurement Ton—Unit of volume for cargo freight usually reckoned at 40 cubic feet.

Metric Ton—2204 lbs. (1.102 short tons)

Short Ton—2000 lbs. (.907 metric ton)

APPENDIX II

Calendar of Important Logistics/Related Events Korean War--25 June 50 thru 5 October 50

<u>Date</u>	<u>Event</u>
June 50	
25	North Koreans attack
27	CINC, Far East Command (FEC) assumes operational control of US military activities in Korea
27	FEC staff element goes to Korea to assess needs
30	President gives CINC, FEC authority to employ US ground forces in Korea
30	CINC, FEC orders 24 Inf Div to Pusan--sends small force from 24 Inf Div by air to act as a delaying force
July	
1	2 Cox, 1st Bn, 21st Inf, 24 Inf Div arrive in Korea by air
1	1st Cav Div alerted to prepare for movement to Korea
4	US Armed Forces in Korea (USAFIK) established, MG Dean--Commanding General
4	GEN MacArthur first proposes amphibious landing behind enemy front in Korea
4	Pusan Base Command established to provide logistics support to UN forces in Korea
5	25 Inf Div ordered to Korea
9-14	25 Inf Div enroute to Korea
13	CG, EUSAK--assumes command of US ground forces in Korea
13	Pusan Base Command--redesignated Pusan Logistical Command
17	CG, EUSAK assumes command of Republic of Korea Army
18-19	1st Cav Div arrives in Korea
20	Start of rebuilding the ROK Army

20 GEN MacArthur settles on Inchon as the landing site 7

23 First plans for a UN amphibious operation in enemy rear—
outline of "Operation Chromite Plan" completed

August

3-4 1st Prov Marine BDE and 5th RCT arrive in Korea

12 GEN MacArthur specifically requests JCS approval for Inchon
Landing

13 7th Inf Div arrives in Korea

15 GEN MacArthur establishes a special planning staff for Inchon
Landing

23 JCS approves Inchon as landing site

25 Japan Logistical Command (JLCOM) established

26 X Corps officially activated

28 3rd Log Comd (Inchon and X Corps support) established

30 UN operational order for Inchon Landing issued

September

6 GEN MacArthur announces 15 September 50 as Inchon Landing
date

15 Inchon Landing by X Corps

16 EUSAK attacks from Pusan Perimeter

19 Pusan Logistical Command redesignated 2nd Logistical Command

25 Seoul secured

26 EUSAK and X Corps link up

October

5 Attack order issued for US forces and ROK Army to go north
of 38th parallel

APPENDIX III

REPUBLIC OF KOREA AND UNITED NATIONS TROOP STRENGTHS JULY—OCTOBER 1950

<u>ROK and UN Ground Forces Strength in Korea</u>				
<u>1950</u>	<u>Total</u>	<u>Combat</u>	<u>Service</u>	<u>% Svc</u>
Jul	144,857	92,955	54,902	37.1
Aug	222,718	150,120	72,598	32.6
Sep	349,331	229,772	119,559	34.3
Oct	389,566	266,381	123,185	31.6

<u>US Ground Forces Strength in Korea</u> <u>US Army & US Marines</u>				
<u>1950</u>	<u>Total</u>	<u>Combat</u>	<u>Service</u>	<u>% Svc</u>
Jul	51,745	42,955	8,790	17.0
Aug	94,560	77,354	17,206	18.2
Sep	153,633	125,126	28,507	18.6
Oct	168,236	131,612	36,624	21.8

<u>US Army Forces in Korea</u>				
<u>1950</u>	<u>Total</u>	<u>Combat</u>	<u>Service</u>	<u>% Svc</u>
Jul	48,268	39,478	8,790	18.2
Aug	90,092	72,886	17,206	19.1
Sep	132,108	103,601	28,507	21.6
Oct	140,930	104,306	36,624	26.0

SOURCE: VOLUME 1-LOGISTICS IN THE KOREAN OPERATIONS, Dec. 1955—extracted from figures 2a + 2b.

Republic of Korea (ROK) Ground Forces Strength in Korea

	<u>ROK Army and Marines</u>			<u>KATUSA *</u>		
<u>1950</u>	<u>Total</u>	<u>Combat</u>	<u>Service</u>	<u>Total</u>	<u>Combat</u>	<u>Service</u>
Jul	96,112	50,000	46,112	NA	NA	NA
Aug	115,147	59,755	59,392	11,433	11,433 (E)	0
Sep	173,394	82,786	90,608	19,231	18,787	444
Oct	189,404	104,473	84,931	22,702	21,012	1,630

SOURCE: VOLUME 1-LOGISTICS IN THE KOREAN OPERATIONS, Dec. 1955, Figure 2d.

*-Korean Augmentation to US Army (KATUSA)
E-Estimated Strength

UN (except US) Ground Forces Strength in Korea

	<u>British Commonwealth</u>			<u>Other than Brit/US</u>		
<u>1950</u>	<u>Total</u>	<u>Combat</u>	<u>Service</u>	<u>Total</u>	<u>Combat</u>	<u>Service</u>
Jul	0	0	0	0	0	0
Aug	1,578	1,578	0	0	0	0
Sep	1,704	1,704	0	1,369	1,369	0
Oct	2,899	2,899	0	6,325	6,325	0

SOURCE: VOLUME 1-LOGISTICS IN THE KOREAN OPERATIONS, Dec. 1955, Figure 2e.

APPENDIX IV

Personnel Distribution by Branch Jan 1951

Branch	Strength	% of Tot	<u>Eighth Army</u>	<u>Total Fec</u>	
			<u>Sep 50</u> <u>est. (3)</u>	<u>Strength</u>	<u>% of Tot</u>
Gen/Sp Stf(1)	1,451	0.83		3,476	1.34
Unclas(2)	<u>16,304</u>	<u>9.46</u>		<u>45,906</u>	<u>17.68</u>
Tot Other	<u>17,755</u>	<u>10.29</u>		<u>49,382</u>	<u>19.02</u>
Armor	5,369	3.08		6,350	2.44
Arty	24,795	14.26		31,797	12.23
Inf	<u>59,818</u>	<u>34.35</u>		<u>63,972</u>	<u>24.60</u>
Tot Combat	<u>89,982</u>	<u>51.70</u>		<u>102,119</u>	<u>39.30</u>
Chem	997	0.57	.4	1,897	.73
Eng	17,948	10.30	9.5	28,246	10.87
MP	6,301	3.62		9,792	3.77
Med Svcs	10,432	5.99	6.9	19,112	7.36
ORD*	7,957	4.57*	5.2	11,433	4.40*
OM*	6,002	3.44*	3.6	10,148	3.91*
Signal	7,798	4.48	4.8	14,216	5.48
TC*	<u>8,900</u>	<u>5.11</u> *	4.5	<u>13,490</u>	<u>5.19</u> *
Total Svc	<u>66,335</u>	<u>38.10</u>		<u>108,334</u>	<u>41.70</u>
Tot CSS(*)	<u>(22,859)</u>	<u>(13.12)</u> *		<u>(35,071)</u>	<u>(13.5)</u> *
Total Comd	<u>174,072</u>	100		<u>259,835</u>	100

1. Includes GO, GSC, AG (Off&Em) IG, Chap, Fin (Off&Em) and JA.

2. Includes WO; "No Branch" EM; WAC.

3. Derived from figure 12 Volume 1.

* Items included in CSS total.

SOURCE: VOLUME 1--LOGISTICS IN THE KOREAN OPERATIONS, Dec. 1955, Figure 14b.

APPENDIX V

Percent of Strength by Branch of the US Army

<u>Branch</u>	<u>Jun 50</u>	<u>Sep 50</u>	<u>Jan 51</u>
Infantry	33.0	33.5	33.5
Artillery	18.0	17.0	16.0
Armor	9	1.0	3.0
Ordinance	5.8	5.2	4.5
Transportation	3.7	4.5	5.2
Chemical	.2	.4	.6
Medical Service	7.8	6.9	6.0
Engineer	8.5	9.5	10.2
Signal	5.1	4.8	4.4
Quartermaster	3.6	3.6	3.7

SOURCE: VOLUME 1--LOGISTICS IN THE KOREAN OPERATIONS, Dec. 1955, interporalated from figures 11, 12 and 13.

APPENDIX VI

REC LINES OF COMMUNICATIONS IN USE AS OF JULY 1950, JAPAN TO KOREA

<u>DATE</u>	<u>WATER</u>	<u>AIR</u>	<u>RAILROAD</u>
July	Tokyo to Pusan Moji to Pusan		Ashiya to vic Pusan
August	No Change		Tachikawa to Taegu Tachikawa to Ashiya to Taegu
September	Moji to Pusan Tykyo to Kobe to Pusan, Seoul and Inchon	Same as August plus Seoul and Wonsan	Pusan to Taegu to Seoul
October	Same as September plus Hungnam to Moji	Same as September plus Tachikawa to Pyongyang, Ashiyato to Hungnam and Wonsan, Ashiyaato to Sinanju	Extended all the way to Pyongyang

Rail capacities—Korea (No consideration is given to loading and unloading capability.)

Main Line Pusan to Seoul Daily Train Density

<u>Short Tons</u>	<u>Number of Trains</u>		<u>Estimated</u>
Per day	Troop	Supply	Haul Net Tons
12,000	5	25	400
	East Coast Line Pusan to Seoul		
2,000	2	8	200

SOURCE: LOGISTICS IN THE KOREAN OPERATIONS, Vol. 4, Dec. 1955

APPENDIX VII

RAILROAD CARS FORWARD FROM PORT AREAS TO THE COMBAT ZONE

July to September 1950

<u>Month</u>	<u>Total</u>
July	2,570
August	4,000
September	7,450

Tonages moved out of port areas by rail (short tons)

	<u>Pusan</u>
July	69,390
August	108,064
September	198,901

SOURCE: LOGISTICS IN THE KOREAN OPERATIONS, Vol. IV, Dec. 1955

APPENDIX VIII

SUMMARY OF KOREAN PORT CAPACITIES

(Bulk POL capacity not included)

Beginning of the conflict

Estimated military discharge capacity (tons per day)

Pusan	Pohang	Yosu	Masan	Chinhae	Tongyeong	Kunsan	Mokpo	Inchon
25,000								1,200
to								to
30,000	5,000	4,700	4,600	4,500	1,800	2,400	1,500	8,000

Shortly after the start of the conflict

Discharge capacity (long tons per 20 hour day)

40,000	4,380	7,750	5,500	96,000 metric ton per year	??	1,200	3,300	18,300 per day
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Clearance capacity (long tons per 20 hour day)

8,000	1,200	(rail)
8,000		(highway)

SOURCE: LOGISTICS IN THE KOREAN OPERATION, Vol. IV, Dec. 1955

APPENDIX IX

SUMMARY OF VESSEL FACILITIES AT PUSAN AND INCHON

PORT

<u>CHARACTERISTICS</u>	<u>PUSAN</u>	<u>INCHON</u>
Limiting draft in channel (ft)	32	25 at docks
Along side berthage ocean type vessel		
Large 500 ft	Up to 15	None
Medium 460 ft (Liberty/Victory)	Up to 19	None
Small 350 ft	5	5
Along side berthage coaster type vessel		
Large 250 ft	3	4 to 6
Small 200 ft	9	"
Along side berthage Lighters	160	No data
Along side berthage Barges	0	0
LST Slots	12	4 to 9
Anchorage	Outer harbor: unlimited; Within outer harbor: Inter harbor: 26 large 16 first class AK's; 35 DD's; 4 small 6 second class Aux; 10 mooring bouys 7 third class Elsewhere in Inchon Bay and channel un- limited	

SOURCE: LOGISTICS IN THE KOREAN OPERATIONS, Vol. IV, Dec. 1950

APPENDIX X

SUPPLIES DISCHARGED AT PUSAN AND INCHON 1950--IN THOUSANDS OF MEASUREMENT TONS PER DAY

Pusan--17.5

Inchon--6.9
(data includes bulk FOL)

Cargo offloaded at South Korean Ports (In measured tons)

<u>DATE</u>	<u>PUSAN</u>	<u>INCHON</u>
July	309,314	
August	594,974	
September	482,082	began 15 Sept. totals not available
October	479,490	361,944

Supplies backloaded at Pusan-1950 (In thousand of measurement tons per day)

PUSAN

2.5

Cargo backloaded at Korean Port-Pusan (In measurement tons)

<u>DATE</u>	<u>PUSAN</u>
July	N/A
August	28,750
September	43,503
October	159,641

SOURCE: LOGISTICS IN THE KOREAN OPERATION, Vol. IV, Dec. 1950

APPENDIX XI

CAPACITIES OF SUITABLE BEACHES

(Tons in long tons)

The beaches met the basic requirements for landing and also were near rail or highway facilities or both.

<u>Beach</u>	<u>Beaching Capacity</u>		<u>Clearance Capacity</u>	
	<u>Craft</u>	<u>Tons/Day</u>	<u>Rail</u> <u>Tons/Day</u>	<u>Highway</u> <u>Tons/Day</u>
Inchon				
"Red"	8LST's	3,600*	4,200	Adequate
"Green"	5LST's	2,250*		2,500
"Yellow"	23LST's	10,350*	Obstacles to clearance	

Air cargo receipts and shipments at South Korean airfields (In short tons)

DATE RECEIVED (all airfields except in combat zone)

1950	
July	1,650
August	2,540
September	3,420
October	13,980

*On the basis of 450 tons per day per LST

SOURCE: LOGISTICS IN THE KOREAN OPERATION, Vol. IV, Dec. 1955