

LOGISTICS OVER THE SHORE: A REVIEW OF OPERATION CHROMITE
OPERATION BLUEBAT AND ITS RELEVANCE TO TODAY

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Military History

by

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ABSTRACT

LOGISTICS OVER THE SHORE: A REVIEW OF OPERATION CHROMITE, OPERATION BLUEBAT AND ITS RELEVANCE TO TODAY, by MAJ Todd S. Zwolensky, 92 pages.

Throughout modern history the amphibious landing is considered the most difficult military operation to conduct. Amphibious operations are often conducted with little preparation time as the opportunity presents itself or as the sole axis of advance available to engage an enemy. Logistical support for amphibious landings is critical to the success of this operation due to its inherent offensive nature and operational scope. These requirements necessitate a logistics force ready to conduct offensive operations and able to sustain forces without impeding operations.

Operation CHROMITE was the largest amphibious operation conducted after the drawdown of WWII. It was opposed and had similar numbers of forces likely to be employed in a contemporary environment. Operation BLUEBAT was unopposed and serves as a template for operations less than total war. Using historic examples of the requirements of amphibious operations such as CHROMITE and BLUEBAT, we can determine if the present capabilities of the United States Military are sufficient to conduct these operations. Many of the challenges such as seastate and bathymetry, limited area and means of supply as well as the consumption rate of supplies in the offense are concerns for the contemporary operational environment.

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ACRONYMS

AMTRAC	Amphibious Tractor Landing (also LVT)
AVGAS	Aviation Gasoline
DUKW	Wheeled Amphibious Tractor Landing
FEAF	Far Eastern Air Forces
GP	General Purpose
LST	Tank Landing Ship
LSV	Logistic Supply Vessel
LVT	Amphibious Tractor Landing
MAG	Marine Aircraft Group
MOGAS	Military Only Gasoline
MTB	Motor Transport Battalion
NKPA	North Korean People's Army
STON	Short Tons
TAC	Tactical Airfield Control

CHAPTER 1

INTRODUCTION

In the spring of 1950, the United States Army was recovering from the post war redirection of resources, especially “draw down” and its effects on the force. The people of the United States had the desire to get to the creature comforts and a permanent peace they felt they had earned from their involvement in World War II (WWII). Desire was high for a “peace dividend”, to use a term from a later time, with no more conflict and a return to normalcy, that is, a permanent state of peace.

The army was focused on converting stocks of supplies from WWII to civilian use and cataloging the remaining stockpiles. New development was focused on airpower and it was even declared by some that the age of amphibious warfare and large battles fought by armies was over because of the deterrence provided by the atomic stockpiles. Development of new munitions and vehicles was difficult in this funding environment and additional risk was assumed because of the perceived climate.

The army was in a garrison posture in Germany and Japan although with increasing awareness of the threat posed by the Soviets, Chinese and their satellite states. This threat was not felt as strongly by the public as the perception of peace prevailed; and thus the funding for new equipment and adequate stocks of war materiel was difficult to get without a readily identified threat. Most of the Army consisted of conscripts as young as 16 years old. This term of service was simply a rite of passage prior to returning to the jobs they held before. The senior leadership in the NCO and Officer ranks had significant experience, although dated, from the recent conflict.

When war broke out on the Korea Peninsula on 24 June 1950 it was this underequipped yet experienced army that fought the North Korea People's Army (NKPA). Unfortunately without sufficient current equipment the forces that faced a determined NKPA recently infused with Soviet equipment were out matched and almost pushed off the peninsula. Fighting was brutal and casualties were high. The final stand along the Naktong River and its World War I style warfare was the impetus for planning a large amphibious landing to cut off the NKPA supply lines and enable the advance of US and UN forces. This landing, code named OPERATION CHROMITE, was in many ways a logistical problem not faced since the landing at Normandy during WWII. The logistical capability currently known as Joint Logistics Over The Shore (JLOTS) was instrumental in supporting the offensive, and many lessons still apply today and can be reasonably assumed to continue to apply in the future.

Logistics has been a deciding factor in almost every operational level and higher conflict throughout written history. Its employment in amphibious operations is the most difficult and has the least room for error in any operation. It is easy to interpolate that this type of operation should then be a higher priority for the units involved than all other priorities. Recent operations have changed the relative importance of amphibious operations to a "Maritime thing" rather than an Army operation. Indeed there is a movement to transfer responsibility for JLOTS to the Navy and Marine Corps. Historical examples would lead one to believe that this is not prudent and the Army should, indeed must, maintain a JLOTS capability. This paper will address the last major amphibious operation, OPERATION CHROMITE, as well as lessons learned from other US and national operations and their implication to today. In addition the relevance to

amphibious peace keeping operations and less than full conflict will be investigated through an examination of Operation BLUEBAT in Lebanon in 1958. A full examination across the spectrum of operations is the only way to determine if this mode of logistical operation is akin to the horse cavalry in World War II or a constant principle of war such as the element of surprise.

Logistics Doctrine

An understanding of the basics of logistical doctrine is needed to determine the validity of an argument for or against ability for the Army to move Logistics Over The Shore (LOTS). An understanding of the capability of the Army versus the Navy and Marine Corps as well as the interests of each is critical.

The Marine Corps is a much smaller organization to support than the Army and effectively does not have a logistics system above the Division (Marine Expeditionary Force [MEF]) level. Marine logistics is self-contained and does not have the ability to support Army units. This is currently displayed in operations in Iraq where Army units in Anbar Province have their own logistical support directly from the Army. Doctrinally the Marines are also unable to support a multinational force because their support is designed and only able to support specific units in their down trace. The MEF is only able to support Marine units. These constraints effectively force Army units entering an area to provide their own support. In effect, if an Army unit is conducting an operation Army logistical units must be involved.

The Navy, in contrast, is well equipped to support the Army. The Navy supply system is designed to throughput supplies to a set location at a port or beach. From there the Marine Corps moves the supplies inland, stores and distributes them. The Navy is not

equipped to store stocks, and distribute by ground conveyance. These constraints have in effect compounded the problem of storage of supplies at the beachhead and do little to effect the distribution inland to using units. Thus, knowledge of previous Army doctrine and interface with the other services is essential to maintain the ability to mount a full scale JLOTS operation, despite the lack of institutional memory in this area. One can hope by focusing on the issues in the past that are relevant today we can improve future JLOTS operations.

JLOTS Definition

JLOTS is defined as the movement and short term storage of supplies and equipment over an unimproved beachhead in a multi-service environment. Supplies are offloaded, combat configured, and ready for use. This combat configuration has rarely been effective in practice. Supplies rarely arrive from CONUS in this manner. The friction between shipping the supplies from the states, combat configuring the supplies and proper manifest prior to the supplies reaching the causeway is a major source of concern. On the beach, the definition does not include the important task of moving the supplies forward and storage for follow-on movement. For the purpose of this thesis the definition will include the staging at the CONUS port, and the loading and shipment of supplies to the Area of Responsibility (AOR). The traditional definition will then apply and include the movement inward from the beachhead to the storage and distribution point at least 10 km inland. This definition allows the examination of the traditional friction points that are causes of concern in the contemporary environment.

Current JLOTS Training Events

There are at least two JLOTS training events conducted every year. Several issues drive the conduct of these events. The current funding environment is similar to the environment that existed prior to 1950. Large amphibious landings have taken a back seat to operations associated to the current insurgency in Iraq. While understandable, this forces the units involved in JLOTS operations to scale down the participation of units due to their availability. This forces the training unit to use only the equipment, not the people, and in much smaller quantities than other types of training. In addition, the training tends to suffer from the same issues other training has such as calling off the exercise due to weather (in this case sea state) and limited enemy contact (such as disabling a certain percentage of equipment and personnel). Unfortunately, the practice of training within these limits and then stating we will conduct this type of operation in these conditions ensures an unreal sense of optimism. In addition, when these exercises are repeated without an increase in outside factors (difficulty) it results in a unit trained to the standard of small numbers of equipment unloaded in good weather without the confusion of mislabeled cargo and the influence of the enemy. One does not have to look deep into historical files to find that not only the enemy but simply issues of mislabeled cargo and missing manifests have severely hampered operations. It is the issue of unrealistic training in addition to historical issues that exist to this day that gives one pause when contemplating future operations. It thus becomes more important to look at past operations in order to gauge current posture.

Define the Problem

From an historical perspective the military problem of removing an enemy from an area has been to engage him at his flank where he is the weakest. During the Pacific Campaign of World War II, there were no other options in attacking an island but to conduct an amphibious operation. It was felt that despite the complex tactical and logistical challenges this was a necessary evil. To do so in sufficient mass often required the Army. Thus, the US Army contributed over half the forces used in the Pacific, despite operations in Europe. Integral to the execution of operations was the ability to sustain the force. The Army has the capability to sustain the Marine Corps above the division level. In addition, the US Army is the only service able to support multi-national operations as occurred during operations in Korea, Desert Storm and Iraqi Freedom. The US Army, given its relative size compared to the Marine Corps, is likely to have a significant role in future operations. Given this assumption, is the US Army capable of logistically executing the National Security Strategy of conducting large scale amphibious operations if called upon? This paper will examine historical precedent to answer the question of whether the US Military is currently capable of sustaining an amphibious operation using JLOTS in its current configuration.

What is the relevance of Operations CHROMITE and BLUEBAT?

Large scale amphibious operations have not been conducted in the contemporary era with the frequency they were during WWII. Operation CHROMITE and BLUEBAT are the only amphibious operations of significant size after WWII. The ability to isolate amphibious logistical operations from regular logistic operations is limited in the

contemporary era. In addition, unlike Operation DESERT STORM (DS) the ability to isolate JLOTS as the means to support the force during these operations is clear.

Both of these operations are similar to operations conducted recently, as opposed to operations in WWII, which have not been replicated in recent times. Operation DESERT STORM is similar in forces and means to CHROMITE, but without JLOTS. Many of the same issues are encountered during the build-up and follow-on movement and can be looked at in a narrow lens to illustrate current conditions. However, this thesis will not address Operation DESERT STORM in 1991 directly. The study of DESERT STORM is outside the scope of this paper for three reasons. First, the use of Logistics Over The Shore was minimal. Secondly, the six month build up for the conflict in permissive territory is unlikely to occur in the future and, finally, the war occurred only 14 years ago so many of the documents are still classified.

This study will address Operations CHROMITE and BLUEBAT in detail with several references to World War II and Vietnam operations where necessary. When establishing a historic trend, other operations such as the landing at Gallipoli, the British raid on Zeebrugge, and other operations will be included for clarity. Analysis of these operations, when compared and contrasted with current capabilities, will indicate our capability to perform JLOTS in the contemporary operational environment.

CHAPTER 2

INCHON (OPERATION CHROMITE)

The Korean War started on 25 June 1950. The North Korean People's Army (NKPA) swiftly moved south in what was intended to be a short quick victory over the weak and poorly resourced South Korea Army. "The Republic of Korea (ROK) Government fled to Taejon on 27 June and the capital city of Seoul fell the next day. On 30 June the President [of the United States] announced that the U.S. Army forces were to be committed to ground combat in Korea." ¹

The speed of the deployment and the condition of the troops and their equipment was sadly lacking. Units were hurried into theater to stem the advance of the North Korean Forces.

The 2nd Infantry Division was preparing for a field maneuver to make up some of its training deficiencies when, on 8 July, it received word that it was being alerted for early movement overseas. The division had to be brought up to strength, shortages of equipment filled, tonnage and space requirements figured, ships ordered, loading plans made, and eleven cargo ships and ten troop transports loaded in twenty-nine days. On 8 August the 9th Regimental Combat team (less the 3rd Battalion) attacked the North Koreans. Just a month had passed since the first word that these units would be moving overseas. The last tactical elements came into port in Korea on the 20th. ²

In addition, troops arriving from Japan, such as the infamous Task Force Smith, did not have adequate weapons and equipment. New equipment was available in limited quantities and thus kept in stateside depots for potential movement east or west. Several new equipment items were rushed to Korea at the start of the war. Among these were the new 3.5 inch bazooka and the 57 inch and 75 inch recoilless rifles. ³ For example, between 7 July to 10 July 1950 a directive was signed to airlift 100 tons of 3.5 inch

rockets and 4.2 inch mortar ammunition and 159 recoilless rifles.⁴ The tremendous amount of equipment and supplies which were sent to Pusan would prove a critical enabler to the landing at Inchon. This rush of supplies would also prove problematic as the sheer volume and lack of documentation caused acres of frustrated cargo.

The US not only had to support its own forces, but also the South Korean forces and the UN forces. “The Army was furnishing supply support for the Air Force, Navy and Marine Corps, for the Army of the Republic of Korea and for United Nations participants, for various civilian groups, and for Japanese reserve police forces activated to maintain local security when U.S. occupation troops moved out to Korea.”⁵ This was especially difficult given the amount of support the South Koreans required. The South Korean forces were also poorly equipped at the start of the war with few artillery, tanks or anti-tank weapons. As the North Koreans moved south the situation became worse. “...a large part of the ROK military equipment was lost in the first few days of the operations... It became necessary to re-equip the ROK forces and at the same time supply U.N. forces so that they could take their places in the battle lines.”⁶

Critical to the defense of the Korea peninsula was not the production of goods but the ability of the United States and Japan to provide goods and transport them throughout the peninsula.

In Korea itself the North Koreans held the advantage of controlling the greater part of local industrial facilities. Plants producing perhaps 75 percent of the industrial output of Korea, including nearly all of the heavy industry, lay north of the 38th parallel. Transportation facilities, on the other hand, probably were as good in the south as the north. The Japanese-built railways had been maintained in fairly good condition in both sections of the country. The main line was double-tracked, standard gauge, winding through rugged hills from Pusan to Seoul (a distance of about 250 miles then on to North Korea. By 1949 railway repair shops

were functioning efficiently in South Korea, and 7,000 of a total of 9,000 freight cars were in operation.⁷

The United States was ill prepared for Korea. In WWI and WWII the allies did not surrender early in the conflict, which allowed the US time to build up supplies. During Korea the critical logistical factor was WWII stocks left in Korea and Japan.

“Undoubtedly reserve stocks of WWII equipment had saved the supply situation in the beginning...”⁸ The US was able to gain a time advantage during July and August using these stocks. Seaborne supply from the United States to Korea was over 5,000 miles.

The Transit time for a ship from San Francisco to Yokohama was fifteen days and Pusan in sixteen days⁹ Supplies from Japan were able to be flown in 6 hours and shipped in 1 day.

Once the US began to ship large quantities of supplies from the US, not Japan, the situation developed to the point of an offensive supply surplus. This logistical build-up made the amphibious envelopment possible more than three months ahead of the schedule assumed in initial planning.¹⁰

Planning the Landing

Operation CHROMITE, the amphibious assault at Inchon, is regarded as the most impressive amphibious landing since WWII. At the same time, the North Korean People’s Army (NKPA) was surrounding Pusan and had encircled the city. Kim Il Sung had never expected to fight a protracted war and thought it would be over in 4 weeks. The NKPA’s logistical tail stretched back to Manchuria and the Soviet Union and was under regular UN air interdiction. The NKPA stalled on the Pusan perimeter and

MacArthur believed that the NKPA's rear areas were vulnerable. Therefore, MacArthur believed a decisive blow behind the front lines would be decisive.

The planning started in July 1950 and by the time it got to the logisticians, they had 3 weeks to come up with a plan. The plan was not released to the 2nd Logistical Command staff because of the secrecy and uncertainty of Inchon being the final landing point. The reticence to do it came from Washington and MacArthur's own staff. Two other choices were available: Wousan on the east side of Korea; and Kunsan farther south near the perimeter. These were deemed by most involved in the planning to be safer and more operationally feasible. This was the main reason MacArthur chose Inchon; it was not easy or likely and any logistical concerns would be outweighed by the advantage of operational surprise to the enemy. A major advantage of Inchon was the airfield of Kimpo. Kimpo had a 6,000 ft concrete runway, 150 foot wide with a load capacity of 120,000 pounds. It was the best airfield in Korea.¹¹ During WWII the planning figures for airfields using the C-47, the workhorse of the fleet, were computed at 500 tons per day.¹² This critical life line would allow supplies and personnel to be flown in and with its proximity to the port of Inchon the fuel and ammunition could be brought in my truck from the port 10 miles away.

There was also skepticism over Inchon even being feasible as a choice. Inchon would be expected to be well guarded. Inchon was located 18 miles from the Korean capital of Seoul. All north-south communications, including telephone, telegraph, railroad and major roads flowed through the capital. This center of gravity to the enemy's lines of support internal to the country would not be as much use to an invading force. Despite Inchon's status as the main port for Seoul, Korea as a nation was not well

developed that therefore this “best” port for Korea was not to par of US needs. Another reason they were skeptical was because it was a short time table and there were only 3 times to effect a landing at Inchon: 15 September, 18 September, and 10 October 1950.¹³ This is disputed in other sources that show only 15 September and 11 October would have been acceptable to the Navy due to the deep draft of supporting destroyers.

Landing at Inchon had numerous disadvantages. The Salee River, the approach route to Inchon, culminated in a dead end with no room for maneuver. There is a deep enough tidal range of 32 feet but only 3-4 days per month. Therefore, the only day when the tides would be acceptable and before winter weather set in would be 15 September, giving only 23 days of preparation and build-up time. If the landing was impossible on 15 September, then MacArthur would have to wait for an entire month for the right conditions to recur. The approaches were also difficult due to channel currents of at least 3 knots and up to 8 knots caused by the extreme tides. Wolmi Do and So Wolmi Do Islands stuck out into the approach channel limiting naval movement and providing overwatch to the enemy, and Wolmi Do Island was garrisoned. The tides are high enough for landing craft only twice a day: morning high tide 45 minutes after sunrise and evening high tide 37 minutes after sunset on 15 September. Also, the landing craft would have to maneuver in the daylight, so the landing would have to be made in two stages, on the morning and evening tides, with the first landing party exposed all day. Separate from the harbor limitations, tide considerations and land conditions (mud banks and islands) further hindered the planning. There were no beaches due to a high sea wall of 14 feet and mud flats 18,000 feet from shore.¹⁴

The Second Logistical Command was in charge of logistics in Korea. They had amassed enough supplies to support an offensive operation. The port of Pusan was filled with supplies, many unmarked and without manifest. Shipping had been rushed from the United States and Japan. There was no in-transit real time visibility. These supplies would have to be moved from the port to Inchon. Travel to Inchon would be in open water but around the coast of Korea. While a short distance from the port compared to the distance from Japan or the United States, the trip would be within reach of the Soviet naval port of Port Arthur. The 2nd Logistical Command supported a landing on the west of Korea at Wousan before an Inchon operation. This would also allow shipment from both Japan and Pusan as well as provide a shorter route from Pusan Harbor. Due to the destruction of the North Korean Navy early in the war this was not likely as serious a concern as it was portrayed. In addition, since the 2nd Logistical Command would be responsible for logistics command and control at Inchon after the majority of the ground troops arrived, it was essential to maintain a line of control to facilitate this function. The command structure later changed as it was not responsive to both disparate situations. Although not known at the time this change would negate any preference from the logistical community except for the harbor capacity itself.

On 8 Sept 1950, President Truman approved the proposed Inchon landing.¹⁵ By this time the first hurdle of securing enough supplies forward had been overcome. The second hurdle was the sea-lift challenge of how to get the troops and supplies to the landing. The Army and Navy had retired most of their landing ships and planned to do the same with the rest. “Earlier in October 1949, General Omar Bradley had informed the Armed Services Commission that large scale amphibious operations...would never

occur again.”¹⁶ Only MacArthur seemed to believe that amphibious landing skills would remain relevant. In April he requested the Marine Corps assistance in training his Army of the Occupation forces in amphibious skills. He planned to use the vessels already located in Japan. The Army and Navy had specialized amphibious vessels left over from WWII. Some were mothballed without crews and left to rust in Japan. Seven were still operational and had assigned crews. These were used to train the Japanese police in local coast guard operations. They were the only vessels in the US Forces Far East with actual US Military assigned crews. Unfortunately the NKPA attacked 25 June 1950, prior to the Marine Corps leaving the United States and the exercise was cancelled.

In the weeks prior to Operation CHROMITE, the Navy hired Japanese to crew the unmanned vessels for the landing. These vessels were tasked with picking up troops and supplies from Pusan and delivering to Inchon. 261 vessels were involved in the Inchon landing to a greater or lesser degree. Critical to the operation, the Navy had assembled 17 US tank landing ships (LSTs) and 30 Japanese manned LSTs from the civilian shipping control of Japan. Because of the LST's abilities to operate in shallow water, their presence to the operation was vital. The LSTs were in decrepit condition. Eight of the LSTs had been mothballed 5 years previously and one had to be towed to Inchon. Interesting to note of the 100 plus civilian manned tugs and big ships needed to haul supplies during the first phase of the operation, 28 turned around after they picked up their loads at Pusan due to apprehensions of being fired upon.¹⁷ They were sent back to Japan after offloading at Pusan harbor.

Two tropical storms (Typhoons Kezia and Jane) were coming through at the same time the ships left Japan. The swells were 12 feet high and tossed the flat bottom LSTs

loaded with portable steel piers strapped to their sides around on their beam ends according to Marine Private William Boldenweck on LST 611.¹⁸ These storms could have seriously affected the outcome of the operation if they had managed to arrive during the landing. Instead the storms were only slightly significant as they disabled several of the smaller vessels and made the occupants of the other vessels ready to land at whichever beach they stopped. The Inchon harbor was clear and sunny. The sea state for the entire off load and subsequent logistics activities was below 1 on today's schedule.

Over the Shore

Before the landing, twilight cover time was sacrificed waiting for the tide to properly rise to the level the tide chart indicated it should be at 0630 15 September 1950. The sun was up for almost an hour before the first wave was allowed to launch. The operation had three parts: 1) Green Beach – This was located on the northern side of Wolmi-do island. 2) Red Beach – This was located on the Korean peninsula at the town of Inchon. 3) Blue Beach – This was located to the south of Inchon on the Korean peninsula.¹⁹ The Inchon harbor was lightly guarded. The island of Wolmi-do had the largest concentration of NK troops and artillery. These troops were quickly eliminated by overwhelming firepower during the morning wave. Casualties and equipment lost were minimal although important to note, one LST was sunk during the landing on Blue beach. Surprisingly there were few enemy troops garrisoning the Island or the town of Inchon and it is debatable whether they would have withstood the withering bombardment given the lack of prepared positions. Even so, the actual movement to the shore was difficult at Blue Beach during the afternoon second wave. Many of the Marine Landing Vehicle Tactical (LVT), also known as amtracs, could not make it onto the

shore. The LVTs would become stuck in shoulder deep water on the mud shore. Marines were forced to wade in then “scramble up boarding ladders cobbled together using scrap wood from ammo crates over the 15 foot high seawall [Red Beach].”²⁰

Another left over piece of equipment from WWII was the floating truck. The DUKW was important in moving supplies from off shore as far inland as needed. The DUKW was developed for use in amphibious situations where the bathymetry did not allow landing craft to reach the shore. The 31 foot hull was powered by both a propeller and 6x6 wheel drive. The hull was built around the standard 2 ½ ton truck allowing commonality of parts with the rest of the fleet. The tires could be inflated and deflated from inside the vehicle allowing better traction on sand and drivability on the road. The DUKW could pick up supplies from ships off shore and maneuver onto the beach in areas that could not be reached by landing craft.²¹

After the NK resistance was sufficiently broken, the reinforcement and logistical process began. Seabees and Marines created a pontoon dock on Green Beach and cleared debris from the water. The causeway was set up by the evening of the 15 September. The Green beach dock was used to unload the LSTs carrying supplies and more equipment. This pontoon causeway was critical to the offloading operation because it could be reached by LST 24 hours out of each day. The other locations could be reached only 6 hours a day, 3 in the morning 3 at night. During these windows, the water level allowed sufficient draft for LSTs to beach at Red Beach and then be offloaded that night or day until the next tide. This meant a maximum port capacity of 6,000 tons a day at Red Beach. By the morning of the 16 September, Naval Beach Group 1 and the Marine Shore Party Battalion had unloaded 4,000 tons of supplies from eight beached LSTs at

Red Beach. Enemy snipers firing from the nearby town of Inchon were firing at the sailors and Marines silhouetted against the light from the light sets the Seabees set up to offload the LSTs.

The Army's 2nd Special Engineer Brigade took over operations on the 18 September from the Navy. The 7th Infantry Division landed on the morning of the 18 September and moved toward Seoul that evening. By the 19th all vessels in the first echelon had finish offloading.

There was one counterattack; an armored element of T-34s counterattacked US forces on 16 Sept 1950. Naval air and an attack by US tanks destroyed the armored element. Another counterattack took place on the 17th. Two Yak bombers attacked the cruisers USNS Rochester and the HMS Jamaica. The only bomb to hit the USNS Rochester failed to explode. On the HMS Jamaica one seaman was killed and two wounded. This was followed later in the day by an NKPA rifle battalion supported by a tank platoon attacking the northeastern side of the Inchon beachhead in the 5th Marines sector.²² This attack force was quickly destroyed mainly because the NKPA rushed into a trap without reconnaissance. Minor counterattacks and sniper fire continued throughout the establishment of the beachhead. The lack of effective counterattack should not be taken that the US forces were unprepared for a full on assault by the NKPA forces. The US forces landed fully prepared to encounter heavy resistance. Only the feint further to the south at Kunsan and the utter disbelief of the NKPA at such an audacious move prevented reinforcements being rushed to the area prior to 21 September 1951. The LSTs enabled M26 Pershings tanks from the 1st Tank Battalion to be offloaded at Green beach, second only to the Marine infantry, as part of the first wave.

Air Supply

Kimpo airfield, the largest airfield in Korea, was captured on the evening of the 17 September. On 18 September the first helicopters and planes landed on the undamaged field. The Marine Tactical Air Command (TAC) arrived to take over Tactical Flight Operations from the Navy as is common in amphibious operations once a beachhead is secure. The Marine Amphibious Group 33 (MAG-33) arrived on the 19th and was surprised to find that none of the ammunition and fuel was able to be trucked forward from Inchon. X Corps had failed to plan for sufficient trucks to arrive early enough to operate the port, clear the port and send supplies forward. This caused X Corps to reassign the 7th Motor Transport Battalion (MTB) to port duty. 7th MTB had been assigned the mission to move the fuel and ammunition forward. Even with the 7th MTB added to the port clearance fuel and ammunition was not arriving at Kimpo. The Chief of Staff for the TAC, Colonel K. H. Weir, worked out an arrangement where by the Far East Air Forces (FEAF) aircraft began flying in gasoline and ordnance for the aircraft (mainly Marine aircraft stationed there). The FEAF arrangement was to fly in over a thousand gallons of AVGAS and more than four hundred tons of ordnance. Even with this system in place it would take time to build up a stockage. Aircraft arriving from Japan would be required to fly missions with remaining fuel and then be refueled by hand before the equipment would arrive. By the end of the operation FEAF lifted 3,338 tons of supply into Kimpo from Japan versus 1,450 tons by ground via Inchon.²³ Whether there was a conscious effort to depriorize supply from Kimpo after the airlift began is still under historical revision and research.

The 1st Provisional Cargo Detachment from the Air Force arrived at Kimpo at 1426 19 September with the arrival of the first C-54. This was followed by 8 additional C-54s and 23 C-119s. These planes brought in 208 tons of supplies and equipment the first day, in support of the Air-lift Support Unit, which would handle the flood of aircraft and cargo in the days ahead.²⁴ Between the seizure of Kimpo and 24 September, 1,445 tons of supplies were brought into the airfield. In addition, the 187th Regimental Combat team, a total of approximately 4,000 soldiers, was brought on 440 sorties from Japan to Kimpo on 24, 26 and 30 September. The 187th was to drop behind the lines as part of Operation CHROMITE but did not arrive in theater in time. It would act as a reserve until the air assault on Sunchon several weeks later. By 1 October the daily tonnage arriving at Kimpo would rise to 800 tons per day. Despite the contributions of Kimpo the total cargo per day was less than 1/8 of the cargo arriving into Inchon a day.²⁵

The primary significance of the Kimpo airfield was to provide the infrastructure for aircraft to land, refuel and return to the fight. The logistical significance of the air supply line was minimal to the ground forces during CHROMITE and the follow-on movement to Seoul despite the numerous claims to the contrary. The ability to quickly fly troops into the engagement area is highlighted; however, the travel time by sea from Pusan was half a day and a full day from Japan. The impact was minimal due to the limits of the aircraft. Any units arriving by air were limited by the size and amount of equipment that could be carried. The carrying capacity of a C-119 was 42 personnel and 15 cargo bundles each weighing 300 pounds. The C-47 carried 18 personnel and two 300 pound bundles.²⁶ This 25,000 lbs carrying capacity for almost 1,500 miles meant aircraft could fly direct from Japan to Kimpo and back without refueling.²⁷ Unfortunately air

operations were weather dependant to a much greater degree than sea operations. The weather over the route was often cloudy and prevented consistent operations. This became more important as the operation progressed inland.

Air supply during the Korean War played critical roles in resupply to units in contact with small tonnage requests; however the limitations inherent to an amphibious operation limited the effectiveness. To be usable air resupply must utilize an airfield in good condition relatively free from enemy contact. Supplies for the stationing of the aircraft as well as the personnel and equipment to run the airfield are the first priority. If supplies can be brought in by land it is far more efficient, however the first priority remains the supply of troops landing. The Fifth Air Force was not involved in the planning and thus did not have any equipment, fuel or ammunition for opening the air field despite having the responsibility for operation of the field. The Marine Air Group had to provide this equipment out of hide as well as the personnel to guard the airfield. Due to the landing being an Army and Maritime operation with the newly created Air Force focusing to the south at Pusan the operation was not synched to include the Air Force operations at Kimpo. The isolation of the Air Force was a political decision both driven by service rivalries and from MacArthur's desire to court the Navy (and Marine Corps). Planning for a simultaneous operation where the Air Force would open the airfield, once taken, with personnel, equipment and a guard force while the Army and Navy provided the fuel and ammunition could have improved the supply flow into the AOR. Personnel and priority light weight supplies would have increased the efficiency of the airfield while decreasing the amount of lightweight supplies and personnel arriving by sea into an already crowded port.

On 19 September 1950, Army engineers repaired the local railroad to a distance of 8 miles inland toward Seoul.²⁸ Rail did not have a significant role in the operation however it did play a large role for both sides in the Korean War and the line required repair as soon as possible. Remarkably the Army bridging assets for wheeled vehicles to cross the Han were not at the port and the first bridge was constructed 28 September using Army and Marine pontoon bridges. During this time, US forces continued unloading supplies at the harbor of Inchon. By the 22nd, over 3000 Army engineers, support troops, Navy beach masters working with Japanese stevedores, hatch gang laborers, and Koreans made the harbor functional. “They had unloaded 6,629 vehicles, 53,882 troops, and 25,512 tons of supplies.”²⁹ This tonnage was critical to supplying the offensive into Seoul.

Inland Distribution

Inland distribution of supplies is critical to the success of the breakout from an amphibious lodgment. The primary means of moving supplies forward was the 6X6 WWII 2-1/2 ton truck. It was able to handle the CONNEX supplies as well as breakbulk.

The Truck, ¼ ton, 4x4, GP, affectionately known as the Jeep, was versatile, lightweight, air droppable and required little maintenance. Most repairs were quickly corrected onsite by the operator with little need for skilled mechanics. It was extremely reliable and relatively cheap at about \$900 a copy in mid - 1945. All were left over from WWII. In addition, gas mileage was about 14 miles to the gallon carrying 500 pounds. Jeeps were small and could maneuver in areas where most vehicles could not go. They were invaluable in numerous roles as trucks, machine gun trucks, medical evacuation vehicles, aircraft towing tractors and command posts.³⁰

Water production and distribution is critical to the amphibious assault. The Navy would plan for two gallons per man to be taken ashore for the first five days. Depending on the ability to move ashore the distillery equipment would then be moved ashore to provide an operating five gallons a day per man indefinitely.³¹ The larger ships would provide for troops still aboard with their ship board distillery equipment. The distillery equipment was critical to providing clean water as the harbor and the Han River were fouled with garbage, debris and more importantly human waste.

Fuel and Petroleum supplies came in many different types and quantities. This created a storage, issue and distribution challenge. Fuel was available in four types; aviation fuel, gasoline, diesel and kerosene. Aviation fuel was available in bulk and 55 gallon drums.

The roads in Korea were not roads, but rather dirt trails widened for vehicles in most areas. They were often extremely muddy when it rained and did not drain well so they became impassible for vehicular traffic. This often forced supplies to be transported by carrier teams. This slow ponderous process was performed by the units themselves and later by the Korean laborers. Later in the war these laborers would be organized into Korean Carrier Troops.³² This bleeding off of combat power was also increased by the units sending back expeditors later in the campaign to move forward critically needed supplies from the depot.

Many times ports do not have the throughput capacity to move forward all the supplies needed. Either the shortage of conveyance or the distance will lead to an operational pause. This was the case in Europe in August 1944 when, due to the advancing front line and inadequate transportation assets, supply shortages appeared.

There was no effective rail transportation, no pipelines and too few trucks and personnel to handle the ever increasing distance between the ports and the front line. There was sufficient fuel on the continent at the port, but could not be moved forward fast enough to sustain the offensive. One-way transportation methods had to be adopted, one of these methods was the famous “Red Ball Express.” What is little known was the impact this had on the operations at the port and the impact that lasted till the end of the war.³³ The Inchon landing was no exception. Insufficient transportation prevented further advance than would have been accepted or allowed. Fortunately for the logistics planners, due to political considerations, MacArthur chose to retake Seoul versus taking on the NK Army in the Pusan perimeter. This objective prevented an operational pause that would have occurred due to port and inland transportation deficiencies if the US had focused on cutting off the North Korea forces retreating from the Pusan perimeter.

Equally important to the transportation of supplies is the knowledge of what supplies have arrived and where they are at the port. At Inchon as well as Pusan, supplies arrived without markings and were offloaded without adequate space to drive through. The port space was estimated at 5 acres, approximately 4.5 football fields. This storage space problem was limited by the height supplies could be stacked on soft material as well as the need to maintain lanes for follow-on forces to move through to the ships. The missing and incorrect manifest information only added to the problem. This required additional space to sort out the supplies before they were stored due to the shortage of manpower the sorting was minimal until after the end of the operation.

Logistical requirements for modern forces (WWII and beyond) outstrip single lines of transportation. Multiple transportation routes must be developed to uninhibit

freedom of movement. For example, after the landing at Inchon it was realized that Inchon would not be able to support the throughput necessary to supply the entire operation. Inchon, as a port, did not have the proper capacity nor the means to accept tonnage directly from outside the theatre as well as support the attack further into Korea. Both the port and the rail and road network out of the port could not support more than 6,000 short tons (STON) a day. For comparison, the Berlin Airlift at its height brought in only 8,000 STONs a day.³⁴ Limitations at the port were piers (high speed offload), the tides (time), and the shore space (storage capacity). Limitations in clearing the port were the lack of trucks and the road capacity. The limitations at Inchon combined with the lengthening distance from the Port of Pusan to the front line in the east caused concern.

In addition to the already overloaded roads, X Corps was ordered out of Seoul and conducted an amphibious assault to open an additional line of support through Wonsan. Until Wonsan was opened, the primary sustainment base would have to be Pusan. Unfortunately this withdrawal of X Corps slowed the attack further north, congested the port resulting in considerable confusion, and was overcome by events as the I ROK took Wonsan prior to the amphibious invasion.

Supplies sitting at the ports were also vulnerable to theft and misappropriation. Supplies were essentially unguarded and the logistic units assigned were working long hours to move supplies forward. They were effectively useless as guards during their sleep time. The unit expeditors as well as locals would take supplies. The amounts of supplies taken in this way are not available except by anecdotal evidence. Attacks by North Koreans who had blended back into the population were commonplace as well as attacks from mainline units caught behind the lines. These attacks took the form of

sniping and grenades being dropped into trucks. The quantity of supplies destroyed was small but significant due to the limit on throughput into and out of the port and airfield.³⁵

Analysis

Korea was a sudden war the US was unprepared to fight, and thus was forced to go to war with what it had. Geographically out of the area we planned to defend and in difficult terrain, the Korean War was termed a police action and fought as such on a strategic level. The vast resources of the United States were not mobilized and the war was not even the number one priority for support until later in the war. The equipment left over from WWII plus a small amount of new technology, like 3.5 inch rockets, developed for the anticipated fight in Europe was all that was available.

Five years after WWII, there was still a large amount of surplus material. This situation was critical to the provisioning of equipment and the means to move that equipment to Korea. Planners were able to pull supplies from Japan as well as crews and equipment to put together the LSTs critical to the landing. The equipment refurbishment program was able to pull WWII equipment from all over the Pacific, refurbish it in Japan and send it to Korea faster than new equipment was able to be made and shipped from the United States if industry had been mobilized for war.

Due to the lack of mobilization of the United States for war and the failure at the strategic level to plan and fund for the war past the current budget, critical supplies were unavailable without the scouring of WWII surplus in the Far East Command, especially in light of the priority of Europe over the Pacific and Korea. The few supplies that were shipped from the United States benefited from the relatively short shipping times as well as the availability of airlift.

On the peninsula, the US had the advantage of shipping from Pusan or Japan for the initial landing and from the US for follow-on resupply. The US had almost total air and naval superiority. In addition, these assets were critical to the preparatory bombardment and supporting fire during the landing. The landing site and harbor despite having severe tidal restrictions, difficult bathymetry and high seawalls was relatively easy to secure because it was not magnetically mined like Wousan a month later and not reinforced. Despite the presence of mines on the flats minesweepers would not go in with the assault force. In addition, the news of an upcoming amphibious landing was so prevalent in the news rooms in Japan that the operation was dubbed Operation Common Knowledge.³⁶

The landing itself was lightly opposed and allowed the US Forces to sit unopposed on Wolmi do Island waiting for the flanks to be landed at the next high tide. More importantly eight LSTs with all the water, ammunition and fuel were beached in plain view of the enemy. The large mud flats caused men and vehicles to get stuck and the pontoon causeways were the only causeway design that could be used on the mud and in the rising water. Supplies were moved by hand until the cranes and stevedore equipment arrived. Fortunately all equipment arrived on time and in the order it was planned for the landing. The planning did not extend inland as evidenced by the issues at Kimpo airfield and the Army planning bridge operations into Seoul without any Army bridges in the beachhead.

The throughput capacity and limited storage area did not force an operational pause due to logistical concerns only due to the limited objective of the operation and subsequent withdraw of X Corps. These issues did however affect the follow on

operations. These limitations were well known to the logistic planners and were a conscious risk taken in the operation. The lack of transportation assets were a serious error in the planning and did add to decreased effectiveness especially for the Marine forces at Kimpo.

Operation CHROMITE is significant because it demonstrates JLOTS in an opposed landing after World War II. The relative size of the operation has not been equaled until recently and only in the area of tonnage, not complexity. CHROMITE succeeded, but only because of the special circumstances that might not always be present. Key to the success of the operation was air and naval superiority, the lack of mines in the harbor, and the recent end of WWII with the abundance of supply in the immediate vicinity and the particular knowledge of the participants. The planning was thorough and dependant upon the participation of the units involved in the operation. Where it failed, it was due to joint representatives not being included. Both the planning and execution of CHROMITE were conducted on a short timeline, executed without rehearsal and required a joint environment. Operations under these three conditions after CHROMITE have been successful only through detailed planning, sheer redundancy and/or lack of appreciable enemy threat. In operations when one of these measures is not available, the short timeline and lack of rehearsal have made success difficult.

Endnotes

¹ James A. Huston, *The Sinews of War: Army Logistics 1775-1953* (Washington D.C: Office of the Chief of Military History, Department of the Army, 1966, 615.

² Ibid. 619-620.

³ Ibid. 625.

- ⁴ Ibid. 618-619.
- ⁵ Ibid. 623.
- ⁶ Ibid. 618.
- ⁷ Ibid. 616.
- ⁸ Ibid. 622.
- ⁹ Ibid. 619.
- ¹⁰ Ibid. 620.
- ¹¹ Robert Debs Heinl, Jr., *Victory at High Tide: The Inchon-Seoul Campaign*. Annapolis, Md.: The Nautical & Aviation Publishing Co. of America, 1979, 28-29.
- ¹² Jerome G. Pepper, Jr., *History of United States Military Logistics: 1935 – 1985* (Huntsville: Logistics Education Foundation Publishing, 1988), 108.
- ¹³ James L. Stokesbury, *A Short History of the Korean War*, (New York: Morrow 1988), 67
- ¹⁴ Donald Knox, *The Korean War: An Oral History*. (San Diego: Harcourt Brace Jovanovich, 1985. 158.
- ¹⁵ Shelby L. Stanton, *America's Tenth Legion: X Corp in Korea*. (Novato, CA: Presidio Press, 1989), 127
- ¹⁶ Peter Young, ed., *Great Generals and Their Battles* (Greenwich, CT: Bison Books, 1984), 240.
- ¹⁷ Curtis A. Utz, *Assault from the Sea: the amphibious landing at Inchon*. (Washington, DC: Naval Historical Center, Dept of the Navy, 1994), 48.
- ¹⁸ John W. Chambers, II, et. al., *Major Problems in American Military History* (Houghton Mifflin, Boston MA 1999) 380.
- ¹⁹ Edwin H. Simmons, *Over the Seawall: US Marines at Inchon*. (Washington, DC: US Marine Corps History Center, 2000) 56.
- ²⁰ John W. Chambers, II, et. al., *Major Problems in American Military History* (Houghton Mifflin, Boston MA 1999) 380.
- ²¹ Jerome G. Pepper, Jr., *History of United States Military Logistics: 1935 – 1985* (Huntsville: Logistics Education Foundation Publishing, 1988), 101-102.

²² Shelby L. Stanton, *America's Tenth Legion: X Corp in Korea*. (Novato, CA: Presidio Press, 1989), 73

²³ Robert Debs Heinl, Jr., *Victory at High Tide: The Inchon-Seoul Campaign*. Annapolis, Md.: The Nautical & Aviation Publishing Co. of America, 1979, 143.

²⁴ William M. Leary, *Anything Anywhere Anytime: Combat Cargo in the Korea War* (Air Force History and Museums Program, Washington D.C: Department of the Air Force, 2000) 6.

²⁵ *Ibid.* 6.

²⁶ *Ibid.* 8.

²⁷ Jerome G. Pepper, Jr., *History of United States Military Logistics: 1935 – 1985* (Huntsville: Logistics Education Foundation Publishing, 1988), 109.

²⁸ John F. Brosnan, Jr. *An Amphibious Landing? With Civilian Ships?* Naval War College Review March–April 1986:35–42

²⁹ Navy historical series Vol II p41

³⁰ Jerome G. Pepper, Jr., *History of United States Military Logistics: 1935 – 1985* (Huntsville: Logistics Education Foundation Publishing, 1988), 99-100.

³¹ *Ibid.*, 128.

³² *Ibid.*, 176.

³³ *Ibid.*, 85, 116.

³⁴ William M. Leary, *Anything Anywhere Anytime: Combat Cargo in the Korea War* (Air Force History and Museums Program, Washington D.C: Department of the Air Force, 2000) 7.

³⁵ Jerome G. Pepper, Jr., *History of United States Military Logistics: 1935 – 1985* (Huntsville: Logistics Education Foundation Publishing, 1988), 176.

³⁶ Robert Debs Heinl, Jr., *Victory at High Tide: The Inchon-Seoul Campaign*. Annapolis, Md.: The Nautical & Aviation Publishing Co. of America, 1979, 52.

CHAPTER 3

LEBANON (OPERATION BLUEBAT)

Less than 10 years after the landing at Inchon, US Forces were to conduct another landing involving the Marines and Army working together in a much different situation. Operation BLUEBAT, the landing of forces in Lebanon, came as a result of the general upheaval in the Middle East following the development of Pan-Arabism and nationalism in the region. In February 1958 Syria and Egypt declared the formation of the United Arab Republic (UAR). This legitimized Pan Arab Nationalism and the Islamic community in Lebanon. President Chamoun requested assistance from the US and several other countries. The response was swift from the US and the troops deployed fully expected enemy contact as they arrived. The Marines were the first to go in and were followed by Army forces making this the first joint operation after Korea. Enemy contact was far less than expected and in fact only one US serviceman was killed during the operation. Lebanon is a good example of the shift away from total war to limited war and has applicability for the future.

The BLUEBAT landing was the second test of the Eisenhower doctrine of offering support to any country which requested support to deter upheaval and communist expansion. The first occurred 13 April 1957 in support of the Kingdom of Jordan. The timing of the political changes and the speed in which they came drove the adoption of an expeditionary mindset in the Army, and caused the Army to develop plans to deploy forces against these destabilizing influences outside Europe and thus prevent Soviet intervention. This change of focus from committing units solely to the NATO mission to a force capable of providing deterrence as well as intervention outside of

Western Europe was revolutionary. NATO partners were expected to be extraordinarily sensitive to the diversion of these forces. This caused the planning process for these dual-hatted units, and the plans they supported, to be classified Top Secret. This classification and the resulting lack of cooperation between operational and logistic elements affected the logistical operations well into the operation.

The logistical implications of the BLUEBAT operation were significant due to the quantities of supplies used. The forces deployed were supposed to deploy with 20 days of supplies and resupply would be automatic according to the doctrine at that time. Due to the absence of conflict, the usage levels were far below what planners had expected and tremendous amounts of supplies built up that would have to be subsequently backhauled. Counteracting this build up, the time required to move supplies from the manufacturer to depot and ship from the United States was far in excess of the time planners had planned for. Fortunately, the absence of conflict allowed these problems to remain a non-issue except for manpower requirements and loss due to pilferage. In addition, the adhoc nature of the logistical support, although well laid out in the plan, was difficult to execute in practice due to the nature and non-habitual relationships of the units involved. These issues, as well as the packing and off loading of equipment, although noted, were unimportant to the outcome of the operations due to the lack of combat and the short duration of the operation. The planning, although extensive in certain areas, serves as an excellent example that is valid today.

Planning the Landing

Planning for the operation that was to occur in Lebanon actually began as an Army plan for anywhere in the Middle East. Beginning in the mid-1950s, the Army staff

had been involved in and planning for contingency operations in the Middle East and in the spring of 1956 had a deployment plan designed to deter or halt hostilities between Israel and an Arab state.¹ This plan, SWAGGERSTICK, consisted of a two division force airlifted into position from the United States and subsequently supplied by sea. This plan remained within the Army and was never submitted to the Joint Chiefs of Staff for approval or the allocation of resources. Ultimately, the allocation of strategic lift caused the cancellation of the plan in favor of a theater plan. This plan, code named BLUEBAT, called for a combined operation of British and US forces. Marine forces could be substituted for the British forces. Another plan, Emergency Plan 201, was a declassified plan that was used for the combat forces to practice load out and deployment. The 24th Infantry Division created their subplan from EP201 and called it GRANDIOS. Several problems manifested themselves in the way the planning process was developed.

The BLUEBAT plan was itself Top Secret and thus was not distributed below the planning staff level. It was believed that EP201 would provide the structure for units to be able to support BLUEBAT without releasing the classified information. The plan was not released due to the concerns or perceived concerns of NATO allies as to the dual tasking of forces in direct support of NATO with another mission outside of NATO. In addition, the logistics elements, and indeed the logistics headquarters, were not included in the plan's distribution. Detailed logistics planning was included in BLUEBAT, however it was never disseminated below the theater planning level. The logistical headquarters was not even stood up until a month prior to deployment. Interestingly, the soldiers and units in support of the headquarters were assigned right before the deployment. Despite the lack of logistical coordination at the theater level due to the

secrecy and lack of a logistical headquarters, the loading of supplies in CONUS proceeded ahead of schedule.²

The push system of supplies via automatic requisition was used in this operation. Initial units were to deploy with minimal supplies and would be supported by USAREUR pushes after D plus 30 in the operation plan for BLUEBAT. A key discrepancy is that EP201 required USAREUR support at D plus 20. Automatic resupply was expected when supply levels dropped to 10 days. Either way, the logisticians required to execute the plan were not involved and indeed did not have any knowledge of either plan. It was determined by USAREUR that no supplies or equipment were to be stockpiled prior to the implementation. The units involved, once notified, would then be able to marshal the required supplies from within theater.

A key situational difficulty involved in the planning of the operations was the reorganization affecting the units in USAREUR. The 11th Airborne Division's two brigades, the 187th and the 503rd, were to be swapped for the 504th and the 505th at Fort Bragg. The 11th Airborne Division itself was to undergo a major change in force structure and become the 24th Infantry Division on 1 July 1958.³ This reorganization caused a massive personnel turnover and also involved a change in equipment from an airborne unit to a non-airborne infantry unit. There was no detailed planning for the non-divisional support units. In addition, the planning for EP201 was conducted simultaneously to the planning for the reorganization. It is not hard to see how details could be missed in both plans due to the complex nature of each operation.

Tensions in the Middle East caused an alert to be called on 17 May 1958. Both the 187th and 503rd were marshaled according to the plan and it was soon discovered that

there were not enough personnel and command and control to deploy the units on schedule. Soon after, a support force headed by Brigadier General George Speidel was formed to supervise the departure airfield, Furstenfeldbruck in Bavaria. From the alert in May to July, the combat units rehearsed and became more adept in deployment procedures. Because of the security classification of EP201, the 11th Airborne Division did not provide details of the plan to the support units. The logistical units integral to the execution of the operational plan were not involved and were not provided the opportunity to prepare for outload. Planning for these units began after a relaxation of security restrictions on EP201 a month and a half prior to the actual deployment. In addition, the Air Force, with the key task of deploying the units was brought in to the planning process at this time. The Air Force, up to 9 July 1958, was not able to provide an accurate forecast of its potential lift. In fairness, the Air Force unit involved, the 322nd Air Division, was responsible for worldwide airlift from India to Africa and the United States.⁴

Initial Landing

The deployment began with a warning order issued by phone to the 24th Division Headquarters on 14 July 1958 stating the task force would have to be prepared for either airdrop or landing in Lebanon within 24 hours. On the same day, the support command headquarters was established. The combat units were scattered around Europe in several places. The 503rd, designated the Alpha force, was preparing to depart for an exercise. The Bravo force, 187th, had just returned to garrison after two weeks training at Hohenfels. Charlie group, the support force, was scrambling to be created. Fortunately, support force Speidel was establishing the departure airfield control group. The priorities

of movement and the determination of lift requirements were significant challenges made possible only because the May exercise and the subsequent creation of this unit in response to the problems had focused in this area. Unfortunately, the commander did not have the necessary authority during outload to make changes to the plan. In addition, numerous high ranking visitors and both friendly and local media added to the confusion at the airfield. Additional challenges faced by the airfield control group included the procurement of diplomatic clearances and the packing of the loads not previously configured during practices. The Alpha force even brought additional equipment above what had been included in previous exercises. Planners had made some allowances for excess weight but did not plan for gaining flight clearances. It was assumed that the flights would just go through airspace without requesting clearance. This was not cleared with the State Department and thus necessitated flying a circuitous route through France and Italy because an Austria diplomatic clearance was not available.

The first Alpha force plane actually departed Germany on the morning of 16 July 1958 for Adana, Turkey. Alpha force used prepositioned Air Force supplies and remained on alert to deploy into the area of operations. Unfortunately, the Charlie force was to use the Alpha force aircraft once they turned around to deploy. Elements of the Charlie force using different aircraft were cleared on 18 July 1958 to deploy to Beirut. They landed before the Alpha force although they had been cleared at the same time. Despite the early arrival of some elements, it took up to 26 July 1958 to deploy the bulk of Charlie force. Coordination had been made at the Beirut Airport for priority landing as well as equipment storage and the use of Lebanese Army trucks. This host nation support fell through and was not rectified until later in the operation. The Beirut Airport had two

runways, but only one was operational due to construction and the force had to share the airfield with regular commercial traffic. The commercial use of the airfield was heavy and the Air Force provided an element of the 6th Aerial Support Squadron to assist in deconfliction. However, the numbers and ranks of the personnel were not adequate to handle all the airport and terminal operations. Due to the shortfall, the command had to divert combat troops into service as cargo handlers. Under combat conditions, it is doubtful whether the combat troops could have been diverted for this purpose.⁵

Because only a single airfield was available and combat was expected, the Army loaded two vessels with planned emergency resupply at two ports in Italy. On 19 and 20 July 1958, these ships sailed to Beirut. In addition, the Delta and Echo forces were loaded aboard ship in Germany and France and sailed on 24 July 1958. In total, 4,864 passengers and 72,011 tons of cargo were shipped to Beirut. The first roll on, roll off vessel, the USNS *Comet*, was one of the ships loaded. The *Comet* had been developed to be able to onload and offload vehicles rapidly and transport cargo more efficiently. The *Comet* was estimated to be able to carry the same amount of cargo as four or five WWII Victory ships.⁶ Unfortunately, due to the inexperience of the military supervisor in charge of loading the Delta and Echo forces and their dispersed location, the ships were loaded civilian style, not combat loaded. In addition, after the vehicles had been loaded, additional crane loaded cargo was placed in the passageways. This action negated the advantages of the new roll on, roll off design as cargo had to be craned off before the vehicles could be rolled off.

These problems stem from two reasons: First, the knowledge level of the operators and supervisors in the out load; and second, the lack of knowledge of the plan

due to security concerns. Compounding these problems was the unavailability of local stevedoring services at Beirut harbor. Additional problems with the host nation support were due to labor disputes, the language barrier and Lebanese government involvement. In addition, much of the cargo was not manifested or was mislabeled. The ships had to literally be off loaded completely to determine what their cargo contained. Where manifests were thought to be complete, cargo was forwarded to the respective units listed on the manifest only to be moved again once the manifest was found to be incorrect. Finally, loading of secondary loads and configuration issues caused additional problems. The civilian stevedores loading the ships attempted to maximize the amount of cargo and so loaded trucks and trailers with additional cargo. This resulted in prime movers arriving to the units with other units' cargo. In one case, the 299th Engineer battalion received hospital beds, tents, and a fluoroscope, among other items. This caused units to send labor details to the beach, the staging areas, and to other units to receive their equipment. As with all shipping operations, there were cases of pilferage. Sea loaded B bags were scavenged prior to their arrival and resupply of these items was required for the entire Bravo force.

Despite these issues, the Army troops in BLUEBAT were able to arrive and were prepared to conduct their mission. The Marine Corps did not experience the same problems. The Marine battalion landing teams arrived ashore with 30 days of combat supplies. Due to their habitual relationship with seaborne deployment, load out pilferage in route and off load were not a concern. It is also interesting to note that despite the availability of aircraft, the Army chose to use seaborne resupply to support their forces in the first 20 days.

Onward Movement

The command and control of the operation was essential to the success of the mission. Under the original plan, the commander of the service with the most forces would act as the senior overall commander. The start of the operation required Marine and Army forces to work out the situation between them. The noncombat situation allowed the luxury of formalizing the command relationship. On 23 July 1958, Major General Paul Adams was appointed as the senior land component commander. Despite having only a week to prepare, this action streamlined the command and control of the operation. One of his first actions was to establish the logistical command as a direct report to himself on an even plane as the Army and Marine combat forces it supported. General Adams also outlined the specific tasks required to accomplish the mission. Surprisingly, these tasks had not been previously articulated. The logistical command then reorganized itself along the lines given to it by the land component commander. This reorganization represented the flexibility of the mission rather than the doctrine of the time. In addition, the operation at Adana, Turkey was reorganized under the 201 Logistical Command due to its large piece in the operation and the fact that no permanent organization had been established there. This single point of contact and responsibility for all support operations in the area greatly enhanced the support of the operation despite the pick-up nature of the units involved. Approximately 50 separate military units were involved and had never served, worked or trained together as a team. All required logistical resources and services had been planned for and were, due to the lack of combat, excess. What had not been planned properly was the notification, involvement in planning, and training together as a team prior to the deployment.

Usage rates due to the lack of combat and the forces employed, as well as the doctrine detailing certain stockage rates contributed to an excess of supplies. Requisitions were not required to receive supplies early in the operation. This combined with the haphazard shipping of supplies simply overwhelmed the logistical command. Just as an entire ship had to be offloaded to determine the contents, the supply ships had to be treated the same. Supply from Europe totaled approximately 20 days of resupply. This despite the fact that class three and class five supplies had not been used in measurable quantities. On top of these supplies, a total of approximately 13,000 short tons arrived from CONUS. Supplies had to be diverted to Adana, Turkey due to storage limitations. Unfortunately, supplies had to be offloaded to determine what a ship carried or to reach the required supplies. This double handling caused significant difficulties as well as man power shortages.

Had combat occurred the double handling would have posed significantly more serious problems. The readiness exercise in Europe caused the supplies to be ready at the port when deployment came. Unfortunately the situation in CONUS with advanced notice of the plan, took much longer. It took until 8 August 1958 to load the ships despite the advance notice. Each ship took approximately 14 days to arrive in Beirut, 8 days behind the planning figure. Because the supplies were to be marshaled and stored for the June readiness exercise the delay would have been twenty seven days. With only the airfield at Beirut to supply the force the logistical plan would have required significant changes to maintain a level of support that would not impact operations. Due to the difficulty in maintaining an accurate stockage record, additional supplies above what is actually required would need to be pushed.

Supply difficulties were rife during BLUEBAT. For example, repair parts and other supplies arrived in bulk in CONEXs (8 foot x 6 foot x 7 foot). These were offloaded and had to be broken down and inventoried. Usually, these CONEXs had one class of supply, but many different types. For example, class 1 rations would consist of five-in-one, B ration and C ration. Due to poor packing and hurried transloading, large quantities were broken and unusable. In fact, the Marine Corps dumped 16 tons and the Army dumped 10 tons of ammunition at sea due to damage in transport and in adequate storage.⁷ In some cases, such as repair parts, stevedores lacked the technical knowledge and manuals to properly identify the parts. Units had to send additional personnel to the transload points to pick up parts. Some material was not even needed whereas planning for other items was incomplete. Class 3 package was readily available in Beirut. In addition, construction materials such as lumber, nails, hinges, and rock; quartermaster supplies, paper, pencils; transportation and local supplies for troop messes were also available. Refrigerated storage, shop facilities, and above all, warehousing were in critical shortage. There were no personnel trained in procurement. Unfortunately, supplies that were to be requisitioned on the local economy were not available and in the case of real estate, there was not a real estate office to conduct the transaction. These circumstances forced the contracting officer into verbal agreements and heavy use of the embassy much more than had been anticipated.

Critical to the operation was transportation and water procurement. For the first two weeks of the landing, the only transportation available was organic to the combat units. This did not pose a problem due to the situation and the distances traveled. Of greater importance was obtaining water. Each man deployed with a five gallon supply.

Planners had assumed that water would be available. Unfortunately, no lakes or streams were in the area of operation. Wells had a small yield and were difficult to access. Upon contact with the embassy, hastily arranged coordination was made and the minimum amount of water was procured. This situation was tenuous as water consumption reached about nine gallons per man per day and one well supplied 75 percent of the water for the command. It is interesting to note that the 201st had well digging teams assigned, but they were not used due to surveying and real estate procurement issues.

Perhaps the most interesting of all the procurement issues was the location of the main base itself. The base was to be established in an olive grove east of the airport. The olive grove produced annual revenue of approximately 100,000 dollars in 1958. The harvest was vital to the local economy and over 200 different people owned the trees. Concerns regarding the harvest and security involved in locals conducting their work, as well as the traditional harvesters, Lebanese women, who would not harvest in the presence of US troops. With no other locations readily accessible, after many hours of negotiation, the embassy, the Army and the Lebanese leadership adopted a solution whereby the locals would attempt to harvest their crops, the Army would provide security and the US government would pay for the losses incurred. The eventual bill totaled \$339,517.13 as well as diverted significant combat forces during the harvest. US forces had not prepared for occupying a country in which they could not simply take the resources they required. Many questions were raised in the areas of procurement, civil affairs and contracting by Operation BLUEBAT. None of these concerns rose to the level of a war-stopper, but only due to the non-combat situation.

Medical support experienced similar difficulties as well. The medical officer was not informed of the size of the supported population until after arriving in country. The medical equipment to support the operation had been loaded in the Delta force ships and had already left the port in Germany. The American University in Beirut treated overflow cases and local procurement, once that system was set up, covered the shortage of medical supplies. In the 50s, medical items were consolidated in the regular supply channels. This meant that medical supplies traveled with, and by the same mode, as other requisitions. It was not possible to prioritize medical supplies above other supplies with the same priority. Due to each service being responsible for its own medical support, excess support in one service could not be used to cover a shortfall in another service. Stocks of certain medical supplies were left over from WWII. The plaster paper used in casts was dated 9 March 1944.

Despite the noncombat nature of the operation, pilferage and outright theft was a concern. The plan for security envisioned the combat units spread along an entire circle around Beirut. This plan was better suited to an invasion than to a friendly engagement. Despite the large stockages of supplies, one company was assigned the mission of security for brigade troops. Logistics forces had to conduct their own security. This was difficult when due to the size and scope of the operation the logistics troops would work 16-18 hour days and be expected to pull a guard shift that night. Units were reduced in effectiveness as evidenced by the ordinance units claiming a loss of 60% effectiveness due to guard requirements.⁸ Numerous sites posed a greater problem. The port, the download point, the troop areas, warehouses, and open air storage all had to be guarded. Pilferage of supplies was extensive. Anecdotal evidence indicates large quantities and

several large items disappearing from the storage areas. Thus between larger than needed stocks of some supplies, pilferage, damage from shipping and storage, the amount of supplies consumed during the BLUEBAT operation was unusually high.

Analysis

From the Inchon landing (1950) to the 1958 landing in Lebanon, supplies increased by a factor of ten. On 16 July 1958, Over 3,000 Marines landed, unopposed, in Lebanon. On 19 July 1958, approximately 7,000 additional Army personnel arrived. The support requirements for both the Marine and Army personnel were 45,450 tons of supplies.⁹ The action in Lebanon did not involve combat which makes these numbers truly ponderous. In eight years, there was a marked increase in logistics needs for military personnel in foreign operations. These numbers in part can be explained in the amount of supplies not used and subsequently backhauled out of the AOR. The same situation happened during OPERATION DESERT STORM when 80% of supplies were not used and subsequently backhauled. The key in both operations is not the amount of supplies returned but the issue of supply visibility which necessitated additional resources being shipped because of the lack of information on the supplies received. With the advent of mechanized vehicles, petroleum and other supply requirements have exponentially increased. As new equipment and requirements are developed, these supply requirements continue to increase. Usage rates for combat are significantly different than non-combat.

Noncombat operations, although requiring less fuel for maneuver and ammunition for engagement, poses its own challenges and considerations in execution. As evidenced in BLUEBAT, supplies and material envisioned by the planners to be taken by force in

conventional combat could not be procured without additional difficulty. These supplies required negotiations and specialized sections to procure. In addition, noncombat operations tend to expand logistical requirements in such categories as class I and mail. Counterintuitively, a higher expectation exists for soldier support during a noncombat operation. The added advantage of a noncombat operation like BLUEBAT is that logistical shortfalls are more easily corrected. The automatic resupply that goes with worst-case planning creates an undue burden and excess waste in a noncombat operation. Operation BLUEBAT lacked both the specialized personnel to conduct local procurement, and the manpower needed to manage the excess supplies. Thus the importance of tailoring the supply package and improving visibility cannot be overstated.

Supply visibility was a key lesson learned during Operation BLUEBAT. The logistics operations in theater were significantly effected by the operations out of theater. The loading of supplies in other than combat fashion negated the value of the latest shipping technology, the roll on, roll off vessel, USNS *Comet*. In addition, the combining of dislike supplies in the same category negated the value of the CONEX. These two technologies were rendered ineffective by the most basic of logistics principles, a properly filled out manifest. Manifest issues also caused entire ships to be offloaded even when the directive to selectively accept supplies from the automatic resupply system was received. Combat power was directly affected by the need to assign combat soldiers to offloading transportation and storage functions. In addition, units took it upon themselves to send expeditors to the supply depots and the offload points to retrieve supplies. Supply discipline further suffered when unit representatives commandeered equipment for their units' use. Excess supplies had to be routed to

Adana, Turkey and an entire support system had to be set up due to the large excess. Better visibility would have given commanders the ability to tailor the supply level.

It is interesting to note the large increase in supply per soldier from 1950 to 1958. As interesting, if not worrisome, are the similar problems encountered. More disconcerting are the parallels between BLUEBAT and the Dominican Republic in 1965 and Operation DESERT STORM. The parallels of automatic resupply, lack of visibility, and the subsequent burden on logistics forces suggest a continuing problem. A lesson identified that remains current for today is the need for sufficient procurement and contracting officials as well as sufficient transportation, off load, and storage capability.

Thus Operation BLUEBAT is significant because it illustrates emergence of new demands since CHROMITE that make JLOTS more difficult. The importance of Operation BLUEBAT was that it was a non-combat environment with a limited objective. It is interesting to compare the increased quantities of supplies shipped despite these factors. BLUEBAT succeeded, but once again, because of special circumstances that can not assumed. The manpower shortages and delays encountered did not significantly affect the mission as it unfolded. Similar to the decision to take Seoul rather than cut off the retreating NKPA, the operational factors of noncombat and static positioning of Operation BLUEBAT did not stress the system beyond what it could support. Again, problems similar to those that plagued Operation CHROMITE were present eight years later in BLUEBAT. First, the coordination with logistic elements in the planning was incomplete until the start of the operation. Second, the command and control of the entire operation as well as the logistic elements had to be determined during the operation. Thirdly, security and service parochialism prevented involvement

of all services in the planning process. Finally, the logistical problems of supply and equipment visibility, loading, storage and distribution were remarkably similar to those seen during Operation CHROMITE.

Endnotes

¹ Gary H. Wade, *Rapid Deployment Logistics: Lebanon, 1958*. (Combat Studies Institute, US Army Command and General Staff College, Fort Leavenworth, KS.) 1984. p. 10.

² H. B. Yoshpe and J. Bykofsky, comps., “Lebanon, a Test of Army Contingency Planning.” *Brief Surveys of the Post-Korean Experience Series*. Washington, DC: Chief of Transportation, U.S. Army, 25 November 1958. p. 24.

³ Gary H. Wade, *Rapid Deployment Logistics: Lebanon, 1958*. (Combat Studies Institute, US Army Command and General Staff College, Fort Leavenworth, KS.) 1984. p. 19.

⁴ *Ibid.* p. 28.

⁵ *Ibid.* p. 37.

⁶ *Ibid.* p. 38.

⁷ *Ibid.* p. 61.

⁸ *Ibid.* p. 75.

⁹ *Ibid.* p. 93.

CHAPTER 4

RELEVANCE TO TODAY

Future conflicts are likely to be fought in geographically distant locations with limited infrastructure. Enemy forces are not likely to allow the US to build up forces for six months like in DS and more importantly will likely try to stop US forces deployment on the high seas. Our forces are of a higher value and in smaller numbers than in previous conflicts. The equipment is more specialized and requires contractor maintenance and support. Fuel usage is far greater today than it was at anytime in the past. Comfort items are in higher demand today, where in previous operations, they were delivered in different forms. Comfort items like bottled water which can be delivered far more efficiently as bulk water, simply did not exist prior to limited use in operations in the Balkans. Desert Shield institutionalized the use of bottled water and it is expected in current operations despite the massive infrastructure and transportation requirements it entails. A larger amount of equipment to haul with fewer resources, less redundancy and more specialized equipment potentially creates greater risks than in previous conflicts. With the recent shift in focus from high intensity focus of the AirLand Battle to the counterinsurgency fight it can be argued that the ability to fight a full scale war on a distant shoreline may be degraded.

Where We Fight

Distance is perhaps the largest factor in today's conflicts. The US is operating worldwide, but without many of the logistical hubs that were in US possession after WWII. Without the robust supplies, garrison and WWII surplus located in Japan

immediately after WWII, the Inchon landing would not have been possible. During the Falkland Islands War of 1981, the British faced a similar logistical hurdle. The British had to rely on US air transportation and prepositioned sea stock to conduct the Falkland Islands War. In contrast, Inchon was located 178 nautical miles northwest of Japan. The majority of CONUS resupply took 21 days and was unopposed. Land distances, like sea distances, are also critical. Seoul was located only 18 miles from Inchon. A major rail line as well as the largest airfield in Korea was located there as well that connected both north and south. Operations during BLUEBAT were conducted just outside the city they landed at. For both operations the ports were in better condition and capacity than most of today's facilities in the third world.

Smaller and austere SPODs are five times more numerous than Medium and Large SPODs throughout the world. Most of the C-5 capable airfields built during the Cold War require extensive rework to be used today. It has been the practice to plan for the nearest large port and move from there to contact. This has been dictated by the increase in the size and quantity of materiel required for the US to fight. Any potential adversary understands these facts and will try to deny the closest facilities. In addition, a facility located on the opposite side of a choke point can be effectively denied by threatening the chokepoint. The Persian Gulf is an illustrative example. The excellent facilities located in Bahrain, Kuwait and Qatar can be rendered useless by relatively cheap means in the Strait of Hormuz. Due to the dependence on commercial vessels the threat need only be perceived to become cost prohibitive or impossible, as in the case of the Japanese vessels that turned around on the way to Inchon. Hence without the use of

these facilities the use of JLOTS becomes imperative especially in an austere part of the world.

JLOTS operations are currently limited by the availability of equipment, location and the weather. JLOTS operations are effective to Sea State 2 with significant equipment loss occurring at SS-3 and higher. Operations are delayed by the weather or by the need to provide defense against the weather such as a breakwater or elevated causeway system (ELCAS). The difficulty arising with breakwaters are the time and amount of material needed to provide sufficient depth or width to reduce wave propagation. A temporary breakwater (does not reach the ocean floor) must be at least $\frac{1}{4}$ of the wave period to reduce the wave propagation by one seastate.

Mud flats and wetlands such as at Inchon are presently impossible to cross with existing Joint Over the Shore Logistics equipment, including the Improved Navy Lighterage System (INLS), Modular Causeway System (MCS), and the Improved Ribbon Bridge (IRB).¹ ELCAS (NL) is deployed from the sea onto the shore requiring the pieces to be dragged through the shore surface. ELCAS (M) is floated onto the shore then leapfrogged into the sea. Neither of these methods is as effective as the pontoon causeways used during CHROMITE. Although not used during BLUEBAT pontoon causeways would have been of use due to the bathymetry of the shoreline south of Beirut.

The US Army requires a significant logistical footprint on a beachhead. This is not a new phenomena. During the battle of Okinawa the southern landing site was not used despite the Japanese expecting it to be used due to its overwhelming advantages because the American planners knew they would not have enough space between the coast and the mountains for the logistical tail the US needs.² What is new is since the

WWII campaign in the Pacific the US has relied on robust SPOD and APOD facilities to be available when conducting operations. It can be reasonably assumed that in a future conflict with a rational foe these improved harbors and airports will be denied to our use. A determined enemy would be expected to invade a territory then degrade the facilities to prevent use by an American force. This was done with great success by the Germans in WWII at the major ports in Belgium and France. This is of critical concern when areas sufficient for use such as Pusan and Japan, as was the case during CHROMITE, are not readily available nearby. In addition, the institutional knowledge required to plan the Inchon landing was resident in the force because it was located in the same AOR as the war that had been fought 5 years earlier. In many cases mid level officers had been higher ranking during the Pacific campaign and were well versed in the intricacies of the most difficult type of operation to plan and conduct.

The US must have an intermediate staging base in order to combat load ships, transfer cargo and provide a rear logistics base for C2 and stockage control. Japan and Pusan served this purpose during CHROMITE, and Adana during BLUEBAT. With the current US assumption of air and naval superiority this does not pose a significant obstacle to employment of forces throughout the world. However if these suppositions are not made, certain parts of the world, particularly the southern and western Pacific and Southern Asia to include the Middle East, are very difficult to plan for logistical operations.

Our basing posture is critical to how we position ourselves for future conflicts. Bases are chosen according to the service that sponsors that base for its uses. Combatant Commands (COCOM) approve these lists based on these recommendations. Issues arise

when the COCOM review lacks scrutiny or the complete picture is not taken into account. Two concerns are a single point of failure and ignorance of logistical concerns. Choke points, including the Straits of Malacca, the Strait of Gibraltar, the Suez Canal, Bab al Meb and the Strait of Hormuz, are all critical life lines to the areas we may be called to fight in the future. To have the majority of one's bases on one side or the other of these chokepoints is not what one would consider prudent in the event that air and naval superiority is lost.

On the other hand selecting bases without a naval or ground LOC is also risky. The dependence on air transport to buildup the manning of a base without a relatively short GLOC or Port within 120 miles in a build up to war is ill advised when one considers the demand placed on the US Forces airlift requirements in a time of war.

Differences in Equipment

The equipment we use has less redundancy. What would have taken four or five WWII Liberty ships to move to Korea now takes one LMSR. Unfortunately if one ship is sunk it eliminates an entire brigade of equipment. Cross leveling the equipment is marginally better, but the amount of equipment as a percentage of the force is so large as to pose a significant threat. In addition, the equipment today is more difficult to replace both in production time and money. Production capability would have to start from a standstill in many of today's items. In addition, our equipment density is spread throughout the world. It is assumed that in the event of a contingency the available equipment will be able to be transported to the correct location and married up to the personnel. Moreover, it is assumed that the conditions would be permissive and little equipment would be lost as there are few spares. Unfortunately the risk associated with

the timing of these critical items is significant. Several equipment items such as the Mobile Kitchen Trailer, Tank Pump Units and water buffalos have not been used extensively in the current conflict. These items are traditionally low usage items and thus parts are not ordered and the contracts are not let to manufacture those parts. These items would have a heavy sudden demand in an Inchon-like scenario.

Firepower

There are fewer troops today and thus a need to use overwhelming firepower and intelligence. Overwhelming fire power was used in Korea both to great effect at Inchon and the defense of Seoul in 1952, however at a tremendous logistical cost, which greatly adds to the tonnage needed in a conflict. Our current firepower is based on aircraft and less on artillery than during Korea. Artillery remains an all weather weapon and less dependant on technology. This reliance on aircraft lessens the total amount of Class V required to be brought across the beach at first, but as soon as an airfield is made operational the benefit is nullified. Fortunately the advent of precision guided munitions has greatly lessened the Class V expenditure rates as the ammunition size and weight has increased. Accurate intelligence is needed for the precision munitions. Shore bombardment, while its effectiveness on a hardened enemy is questionable, is not as robust as it was during the Korean War. The battleships of yesterday have been replaced by precision guided systems requiring accurate intelligence to avoid being wasted on today's battlefield. Another interesting constant is the long lead times associated with ammunition production. These shortages are still seen today as they were in 1950. Although the ammunition shortage during the Korean War was not as great as was initially perceived. It was a point of concern. It is interesting to note that our current

ammunition situation is very similar to that in the Korean War. Stocks of 50 caliber ammunition from WWII are currently being used in Iraq under caution codes as production races to catch up to expenditure.

Technology

Another concern is the technological tie that allows all of our weapons and logistical tracking systems to work. This dependence on technology is a single point of failure in the absence of either the overwhelming firepower of American artillery or the manpower of the Chinese in 1951. Another consideration is the specialty of the equipment used in today's combat. Systems such as a Striker, Common Remotely Operated Weapons Station, and numerous other examples require contract support.

Another issue is the lack of duplication or redundancy as we become more technologically based. As the Marine Corps converted to the new landing craft the numbers were decreased. The Marines originally planned to be able to put ashore a MAGTAF simultaneously. When the Mike boat was developed this was dropped to a MEB. Currently the entire Marine Corps inventory if in the same location would be able to amphibiously land a MEU plus a headquarters element.

This scenario was the same after WWII when most of the ships were mothballed and ready to be scrapped. Fortunately during Inchon these vessels were able to be brought back into service quite quickly allowing the invasion to be conducted. Our current Naval reserve is not as robust as it was in 1950 and ships are scrapped much quicker than before. Our leaner military posture is more economical but at the risk of redlining the force.

Much of our equipment today requires ECU units to function in hot climates. Recently a JLOTS exercise in Guatemala had significant communication difficulties when it was determined that the equipment required for communications could not sustain during the hot temperature and had to be powered down. The complexity of equipment requires a stable rear area as well as advanced technicians and equipment.

Transportation

Another example is the ships themselves. The average draft of a WWII LCU is 1.8 meters. The average draft of a present day LCU (2000 class) is 2.6 meters.³ The LCUs in service today would not have been able to reach the hard pack shore and would have been stuck in the Inchon mud in their effort to drop off supplies during the initial phases of landing.

Given the movement of equipment around the world to a crisis point and the inevitability of using civilian vessels for the majority of the moves, it is a concern as to how fast the necessary equipment could be marshaled and the security involved in these preparatory actions. Equipment desparations are greater than during 1950 and thus of concern in the Contemporary era. At a low point prior to the start of Korea war, the Navy had 83 amphibious ships. By 1953, after the need for amphibious vessels was demonstrated during Inchon and other operations the Navy possessed 226 including flag vessels. By 1990 there were only 62 amphibious ships worldwide. Unfortunately, there are no longer scores of WWII vessels that can be quickly mobilized as they were during Operation CHROMITE.

Transport vessels for moving materiel are in short supply and are activated during the current conflict. In case of increased demand or capability additional vessels can be

contracted from outside vendors. A concern would develop if one or more chokepoints were effectively blocked and civilian demand increased. In addition the threat of attack would increase the difficulty of contracting, much like the Japanese crews during Inchon who refused to continue after they found out their destination.

Personnel

Capabilities that existed during the landing at Inchon do not exist today in either the numbers or variety. For instance, many of the engineers and Seabees working on the railroad from Inchon to Seoul had experience as civilian rail maintainers and operators. Due to the consolidation of the rail industry, and the advent of the all-volunteer Army, this skill is no longer prevalent. Several rail units were in the active Army in 1950. Today the military has a single reserve rail unit. Several other skill sets which were taken for granted in the Post WWII timeframe simply do not exist anymore, except in specialized reserve units. The ability of Seabees, UDT teams and US Marines to set up causeways after the Inchon landing was critical to expanding the throughput of the port. The port itself had a sea wall and had varying tides that would leave large expanses of mud. It would have been impossible during low tide to move ships close enough to shore to offload without causeways.

Units for many of the specialized parts for a future Army amphibious operation are located in the reserve forces. These units take up to 45 days to call up in a mobilization. These units are low density and if eliminated these functions would be severely degraded.

Material

The Army uses 16 times the fuel it used during the WWII era. The single fuel concept is effective however expensive. Approximately 1.6 million gallons a day is used in Iraq for 160,000 troops.⁴ During Korea 20,000 gallons a day was used for 215,000 troops. This increase in material fortunately has been met with a larger increase in hauling and storage capacity in the current era. Since WWII the transportation requirement has been met with a similar increase in capability.

Ammunition expenditures today are much lower in large caliber rounds (tank and artillery) and much higher in 50 and 7.62 calibers. Specialty ammunition such as aircraft flares and antitank rounds that were short in Korea remain critically short because of the time to ramp up production after the usage goes up.

Placement and Storage

Placement of logistical hubs remains an enduring problem. During WWII, Korea, Vietnam, Panama, Desert Storm, Operation Enduring Freedom and Operation Iraqi Freedom the placement of theater logistics occurs at the point of entry of US Forces. One can reasonably expect that without a significant process change this practice will continue. Where US Forces enter is where the supplies gather. Unfortunately this has been a concern in modern warfare for the US as it crowds out the main logistical LOC and creates a lucrative target for enemy opportunity. Whether the target is the Normandy beach or the trucks driving past Baghdad to reach Anaconda, the effect is the same— the US forces are at risk in greater numbers because of a logistical action that could be mitigated relatively easily. At the Pusan harbor supplies were offloaded then opened to figure out what was there. This action caused supplies to build up at the port and

decreased the efficiency of offload as well as running out of space. In a sense the action of offload and storage in one location provides the enemy the opportunity to gain two objectives for one action. It makes logical sense for the Army to consider the doctrinal change of mandating the movement of the main logistical headquarters and the warehousing functions away from the port of debarkation. The adoption of a JTF-PO type organization would in effect solve the problem with a doctrinal push. The first supplies that arrive would be automatically pushed up to 10 kilometers away from the POD.

Unfortunately the storage of material remains the same. Pilferage remains a concern in areas where the population is less advantaged and the troops to guard the equipment and supplies are still expected to come out of the quartermaster units that operate the warehouses. Similar to the experience in Lebanon, a troop that works all day in quartermaster functions is not likely to make a good guard that night. Units in the Army are still manned at MTOE strength designed for 12 hour workdays, not the 24 hour cycles expected in wartime.

Finally, assuming complete air superiority in the area is also a concern. Despite the extensive US Airpower from both the Navy and later the Air Force, enemy fighter aircraft made it through during Operation CHROMITE. Had the North Korea Air Force possessed bombers, one can reasonably expect some of those to have made it through as well. The concern is in a future conflict when faced with a foe possessing nearby airfields, the loss of logistical supplies traveling both on sea and the subsequent warehousing on land is likely to result in higher losses, similar to those seen during Operation OVERLORD.

Doctrine

Operational logistics has not matured from its apex during WWII. Logistics is focused on the RSOI model from REFORGER or DS. Long term support or pursuit logistics are not taught in the schoolhouse or practiced in exercises. Thus, just like the operational pause after Inchon, or the 3ID pause on the road to Baghdad, logistics doctrine and training is lacking. The pursuit or movement from a bridgehead by Army forces is still the operation entailing the most risk due to the resources required. Logistics doctrine and more importantly training covering this type of operation is not taught in the school house as its relative importance would dictate.

Training

Training exercises for JLOTS are a concern because they have not been conducted on a scale of forces. The largest exercises are conducted on a 1/10 scale of what would be required for a CHROMITE Operation. On average less than 150 soldiers participate in each JLOTS exercise. 1000 participated in CHROMITE and 950 worked BLUEBAT. The JLOTS planner's book enumerates 1000 personnel being needed for full operations. Training at this scale, at least occasionally, would enhance the operational effectiveness of the next operation.

Contracting is also a concern. Many systems on the battlefield require contractor maintenance. Naturally these contracts take time to be let, and areas must be seized to provide work space. Training to handle the quantities of contracting that exist in a smaller force only now is being trained after OIF/OEF. One can surmise that these skills will whither after the institutional knowledge and/or budgetary pressures have taken there

toll. Incorporation into doctrine is the only solution to ingrain the effective use of contracted forces.

Analysis

These factors are critical to understanding the ability to conduct JLOTS in the contemporary operating environment. Key to understanding future operations is the correlation of those operations to the past. Operation CHROMITE was the largest amphibious operation conducted after WWII at a time when amphibious operations were deemed obsolete. Given this constraint, the CHROMITE operation was conducted and had to be executed despite objections. The constraints of nature, as it pertains to the conduct of an amphibious operation, such as seastate and bathymetry have not been sufficiently mitigated to allow for successful operations without the element of chance. This concern is

Maneuver over the sea is also a concern as the Navy and Marine Corps move to expand this doctrine. Inherently the army is not designed to work within this constraint. The Army must secure a land based platform to build combat power. The Army's equipment is not designed to handle the sea corrosiveness as well the emissions from the warships.

Endnotes

¹ Jimmy E. Fowler, et. al., *Innovations For Future Gap Crossing Operations* Technical publication (Engineer Research and Development Center, Coastal and Hydraulics Laboratory, Vicksburg, MS 39180 2.2.

² Thomas M. Huber, *Japan's battle of Okinawa, April to June 1945*. . (Combat Studies Institute, US Army Command and General Staff College, Fort Leavenworth, KS.) 1990. p. 39-40

³ Military Transportation Manual FM55-15 1997 5-43.

⁴ Bryan Bender, "Pentagon Study Says Oil Reliance Strains Military." *Boston Globe* (1 May 2007): A1 continued on A13.

CHAPTER 5

The Way Ahead

Conclusion

Given historical evidence from Operation CHROMITE and BLUEBAT and the comparison to the contemporary operational environment, one can answer the question of whether JLOTS can be accomplished in the future with a qualified yes, but with allowances for the special circumstances and problems inherent in the original operations. The limitations that existed for these operations are the limitations of sea state, bathymetry restrictions like mudflats and long sloping beaches, minefields and enemy contact, existing equipment and facilities, and the short planning and execution timeline. Today these same conditions exist because mitigating factors have not been developed to significantly counteract their impact on operations. These problems were not as significant to Operations CHROMITE and BLUEBAT as they could have been due to the unique circumstances.

Operation CHROMITE benefited extensively from the ability to pick the time and place of the operation. This lessened the effect of the extreme tides and the accompanying bathymetry restrictions. The mining of the Inchon harbor was in its infancy and did not significantly affect the operation. Had the operation been conducted a few days later it would have been significantly more difficult, if not impossible. The mining of Wousan harbor delayed that landing by almost a month. The NKPA forces were driven out not by the landing force, but by the advancing Eighth Army forces moving up the peninsula. The risk of weather was diminished by the movement of the attack force between typhoons and the extremely calm seastate after the typhoons (Kenia

and Jane) moved through the landing area. Finally, the operation was able to be conducted during the highest tidal phase. This high tide would not reappear for a month. Had the operation been delayed for any reason it would have been impossible to conduct the landing, thus giving another month for the defenders to prepare. These factors were fortunately decreased by proper planning and execution, or luck, depending upon one's perspective.

Both operations benefited from the lack of enemy contact. The impact of enemy action was minimal on the logistics process and was confined solely to the frontline. This stands in stark contrast to later operations in Vietnam, the Falkland Islands and Operations OIF/OEF where enemy contact significantly affected the lines of communication. Enemy contact has a negative effect in two ways. It diverts combat forces to guard the supply lines as well as incurs a loss of supplies from contact. To counter the loss of supplies, additional supplies are pushed, necessitating a larger logistics footprint and more guards. More dangerous is the loss of low density items and facilities. Key to the operation of the port of Inchon was the causeway connecting the twenty four hour use pier on Wolmi Do Island. The impact that enemy denial of this causeway would have had on the operation, already constrained in capacity, would have been significant if not catastrophic. In comparison, the airfield and seaport of Beirut was as critical to Operation BLUEBAT. Both facilities were the only option for each type of equipment and personnel arriving in theater. Despite the lack of enemy contact experienced, it was not unlikely for conflict to break out. A simple civil disturbance at either port would have compounded the supply situation as it already existed.

Both operations had significant difficulty marshalling the forces necessary to conduct operations and moving those forces to the theater. In CHROMITE, the personnel and equipment were scattered throughout the world and had to be diverted to the engagement area. These forces arrived piecemeal, in some cases not in time for the operation. The equipment for the operation had to be shipped from depots in CONUS and in some cases scrounged from abandoned depots throughout the Pacific. It is easy to surmise that the military was not prepared to fight a war in 1950. The Marine Corps and the Navy, to a lesser extent, were fighting for their existence. This reasoning is not justified when it is compared to the relatively well funded Army and Air Force facing the Communist Forces in Europe in 1958. The Army was ready to fight and had conducted rehearsals and training prior to deploying. The Air Force was in existence for over 10 years and was well funded in its new role as a worldwide projection force. In BLUEBAT, personnel and organizations were pulled together. Equipment by air and sea arrived late, out of sequence and incurred significant delay in offload and sorting upon arrival. Although classification of the plan contributed greatly to the confusion, the greatest delay was supplies arriving from CONUS, which had knowledge of the plan for three months prior to the execution.

Key to problems in both operations was the relative state of surprise in which the situations developed. Operation BLUEBAT was expected to be conducted in support of Turkey and developed less than a year before the execution in Lebanon. Operation CHROMITE was conceived in July after the unexpected invasion in June. With the proliferation of threats divorced from the control that exists in a bipolar world, it is this factor that appears to multiply from what was present in a historical context.

Despite the relative success of both operations, the conditions that allowed the operations to succeed might not be present in a landing conducted in the future. In most cases, operations conducted in the future will be driven by a combination of conditions that existed in the past and efforts to change the situation. Mitigation efforts for seastate are only now being developed with technologies to decrease wave height. Seastate is critical in operations outside a harbor. Seastate is higher in most of the world on an average basis than JLOTS can be performed effectively. This prevents operations from being conducted at a time and place of our choosing.

Overcoming difficult bathymetry has the same historical problems as seastate except that today's causeways are less capable on mudflats than in Operations CHROMITE and BLUEBAT. Due to the increase in capability necessitated by larger and heavier pieces of equipment, causeways have become larger, heavier and most importantly are not pontoon equipped. Pontoons were dropped due to space considerations as causeways became larger, and probably, the focus on deployment to Western Europe and the Mideast, specifically with regard to the bathymetry of those coasts. Unfortunately, most of the coast in Africa and Asia does not consist of stable large grain beach sand. Operations conducted in these areas would require substantial improvement prior to large scale JLOTS. This increases the time between self-sustaining forces and the follow on forces. Tonnage over the shore is severely limited in an unstable beach environment.

Enemy contact during JLOTS is the most important determination of success in such an operation. Historical examples from Normandy and Anzio indicate a substantial loss was incurred by forces under contact in a JLOTS operation. The operation at

Wousan was halted for over a month by minefields, sparsely over-watched by enemy forces. Given time, enemy forces are likely to oppose forces with mines. The implication for U.S. Forces is a compressed timeline to conduct a landing before mining is completed. This runs counter to the ability of the U.S. to marshal the required equipment and personnel at a place and time of our choosing. Mining also increases the time required to put sizable forces ashore before reinforcement by the enemy. In addition, denial of better facilities may force the U.S. to rely more on JLOTS due to the speed in which we can deploy.

Denying harbors and preferred landing areas increases the chances that lines of communication will be lengthened and that the transportation requirements for inland distribution will be increased. This would exacerbate the existing shortfalls in transportation that already exist. Another concern is the increased likelihood that single PODs would be used if fewer are available. This single access and distribution point would add to historical issues, complicating distribution in the landing area.

Certain challenges are bound to be repeated despite the best efforts to mitigate their effect. In transit visibility, use of contractors, inland distribution and logistic planning have made significant strides. Despite significant resources being put toward asset visibility, problems have continued into the current operations OEF/OIF. The majority of these issues have resurfaced due to loss of in transit visibility during the inflow of supplies at the beginning of an operation. Key to mitigating these issues is the use of a JTF-PO organization that has the ability to maintain visibility of supplies for the initial landing. The additional value added by this setup is the ability to move supplies inland away from the port of entry. The value of a dual supply activity can not be

overstated. The congestion at the port combined with a separate sorting and distribution point would alleviate historical issues in this area.

Use of contractors and their ability to be counted on precisely when the battle is in balance, has been an issue since the mercenaries of the Middle Ages. Contractors are motivated by concerns other than those that can easily be influenced. Given the historical evidence the presence of contractors has proven problematic at the start of conflicts. With the dual threats of increased dependency on contracted forces for repair and maintenance, and the necessity of early entry of these forces, the ability of the US forces to secure an area and the willingness of contractors to enter the area is a growing concern. It is important to recall that 28 of the 100 plus civilian vessels turned around prior to the invasion at Inchon for the fear of hostile contact. Even if these ships had continued it is certain that sufficient inland transportation capability would have remained to move the supplies inland.

Throughout WWII and in operations since then, there has been a shortage of transportation assets in the pursuit. The ability of a force to cover the ever expanding ground of an advance is difficult due to the increasing distances covered. Inevitably the operation plan is limited by the ability of the supplies to keep up. Often this discrepancy is mitigated by the choice of target such as the retaking of Seoul in CHROMITE. Logistics planners are reticent to leave these choices to the decision of commanders and would like for the ability to support operations whatever the objective. Unfortunately, due to the priorities of equipment and the amount of transportation needed to supply a pursuit, such an operation remains outside of the realm of probability.

In addition to the historical constraints that have not been mitigated, some problems are more of an issue than before. Of concern are the planning restrictions due to personnel and equipment densities spread out throughout the world and the active and reserve forces. Many forces have been moved to the reserves given the expectation they will not be used unless a total war is fought. Unfortunately these forces are needed at the beginning of a conflict. Other forces are spread in densities through bases on both sides of the United States and worldwide. In the past, namely Operation CHROMITE, these limited forces were used in diversionary activities like the shore bombardment at Kousan by the USNS *Missouri*, which had been recalled from maneuvers off the Atlantic coast. Other forces key to enabling the landing existed in sufficient numbers to enable the invasion. Unfortunately this is not the case in the current operational environment. Units and equipment have been pared down to the minimum number required to conduct an operation if all were present and enemy contact minimal. This delay in marshalling forces to the theater of operation and assuming a minimal loss to the enemy is a concern to planners and limits flexibility in an uncertain environment prone to change.

What we can learn from historical evidence is the importance of redundancy, acquiring additional resources, and the ability to improvise in an unexpected environment. This perspective focuses our efforts on providing the means to improve the operational flexibility in the areas we can most easily fix. These areas are: 1. adding a means to reduce seastate such as the RIBS allowing ships to off load in more conditions and in a greater average part of the world. 2. Providing a means to cross the most prevalent beach terrain (mudflats) in Africa and Asia with a pontoon-like system used in Operation Chromite. 3. Ensuring enough redundancy in JLOTS equipment to minimize

the deployment time of key equipment and personnel in order to facilitate a reasonable planning timeline given the element of enemy contact and unforeseen events. These actions would give the U. S. Army the chance of replicating historical success without relying upon the element of chance.

GLOSSARY

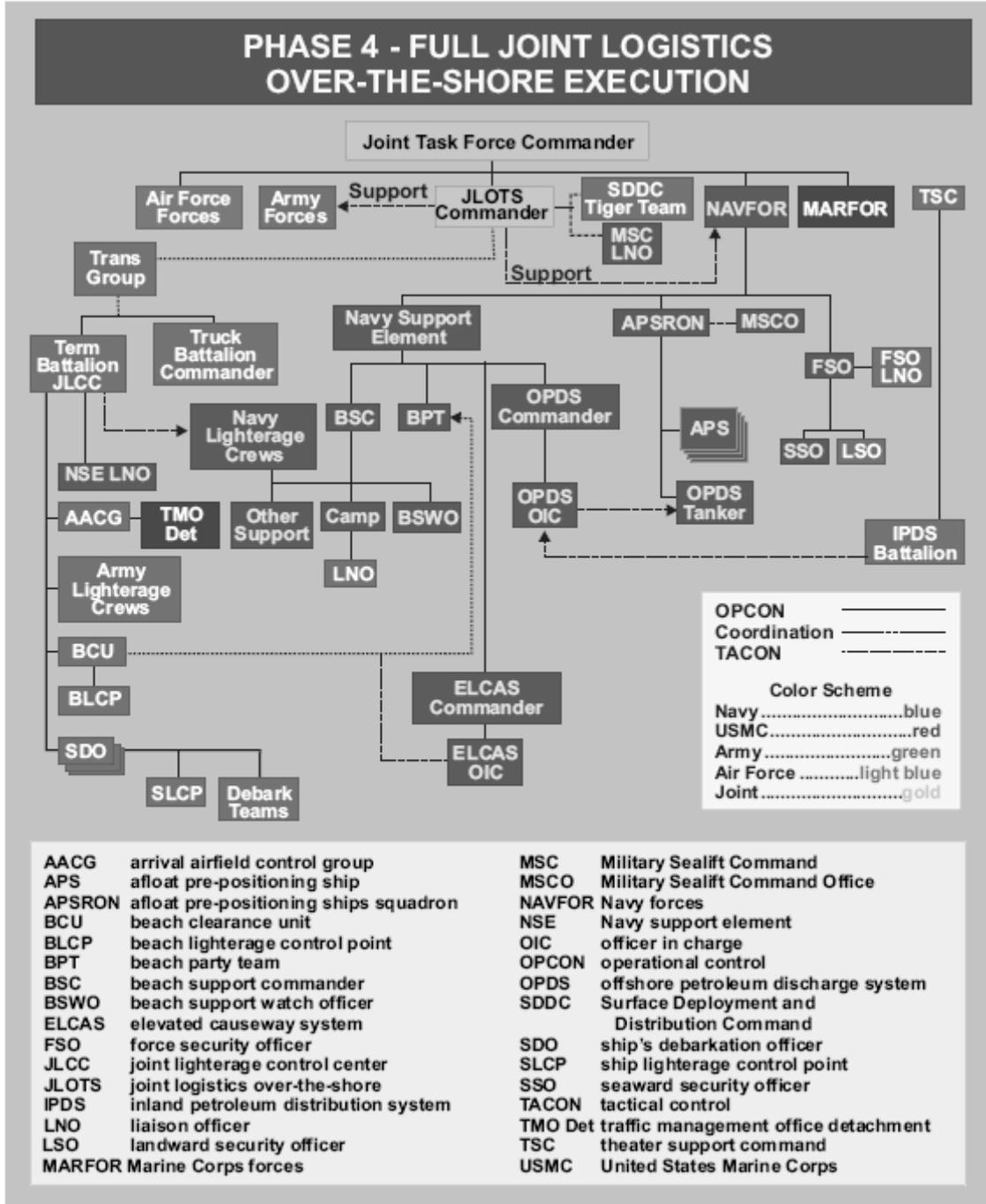
Bathymetry. Bathymetry is underwater topography. Key to the definition is those underwater topography elements that restrict movement under high tide and are exposed during low tide.

Foreshore. Specifically describes the area of the beach exposed below high tide and above low tide.

APPENDIX A

TABLES AND MAPS

Table 1. Diagram of JLOTS Organization



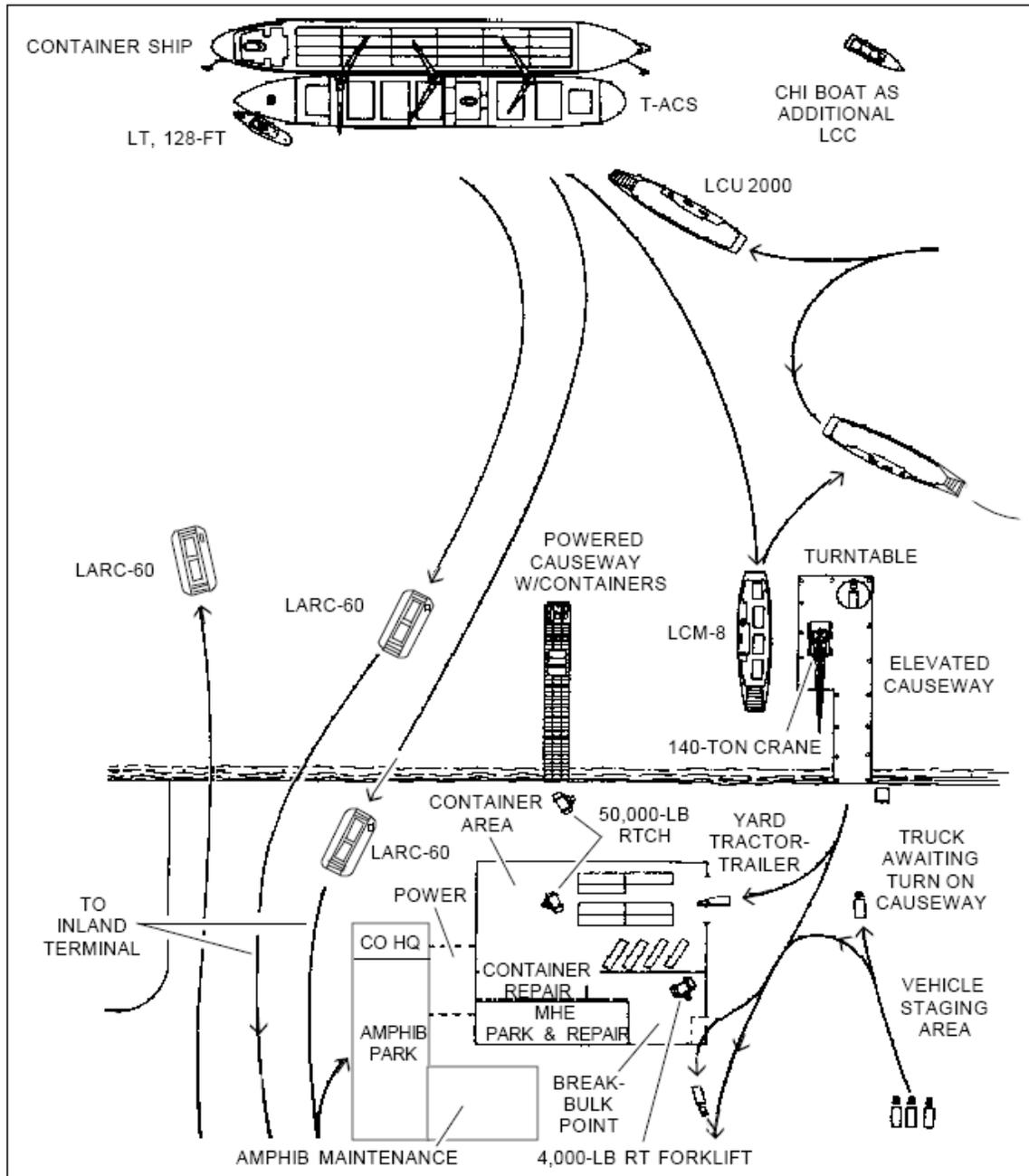
Source: U.S. Government, Adapted from JP 4-01.6, JLOTS 2005. II-18.

Table 2. U.S. Army JLOTS Responsibility

US ARMY PRIMARY RESPONSIBILITIES
<ul style="list-style-type: none">● Provide forces for and conduct joint logistics over-the-shore (JLOTS) operations● Provide lighterage, other discharge equipment, and trained operators for use in JLOTS operations and provide the common-Service assets required to supplement amphibious operations, as available● Provide transport to remove and distribute cargo moving from logistics over-the-shore (LOTS) and/or JLOTS sites to inland staging areas to include airfields or helicopter pick-up zones● In accordance with joint force commander directives, provide general water support purification operations, diving support, and assist US Navy JLOTS operating forces in deployment of barge-to-shore potable water pipeline to the high water mark where the pipeline connects with the potable water storage and distribution system of the land forces● Select, in conjunction with the Navy component commander, the LOTS operation area and LOTS landing sites, which will be approved by the joint force commander● Prepare unimproved beach surfaces and backwater surfaces to enhance trafficability of materiel and equipment to major rail and road networks● Prepare marshalling areas for the storage of containers, breakbulk cargo, and rolling stock● Emplace inland petroleum distribution systems to support bulk fuel discharge operations inland from the high water mark● Establish cargo discharge facilities -- such as floating causeway piers -- in support of dry cargo discharge● Provide force protection assets (personnel and equipment) as required by the joint force commander● Conduct movement control of forces and materiel moving between the joint operations area and other destinations within the area of operations

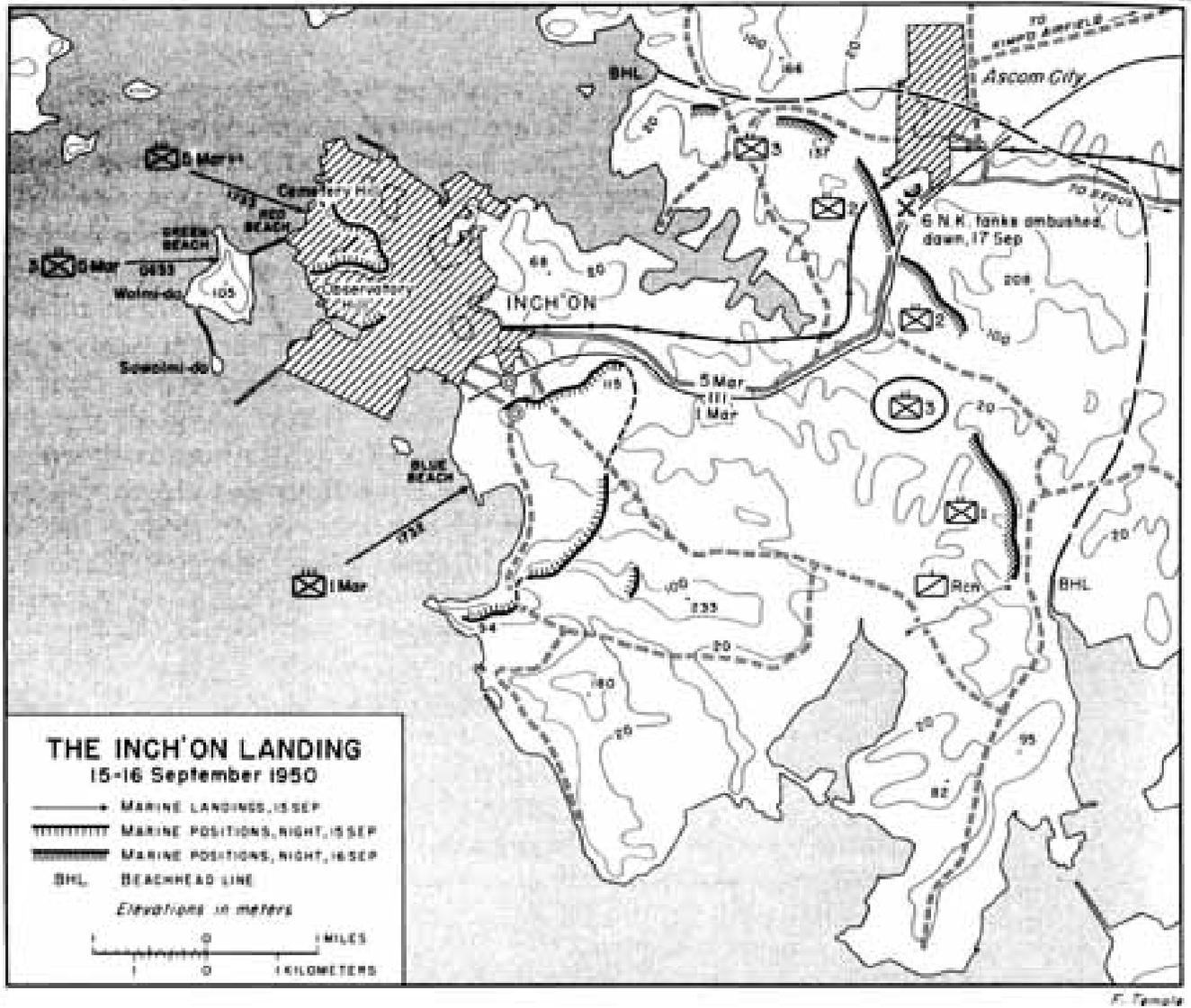
Source: U.S. Government, Adapted from JP 4-01.6, JLOTS 2005. II-13.

Table 3. Diagram of JLOTS Equipment



Source: U.S. Government, Adapted from FM 55-15, Transportation 1997. 5-13

Table 5. Map of OPERATION CHROMITE



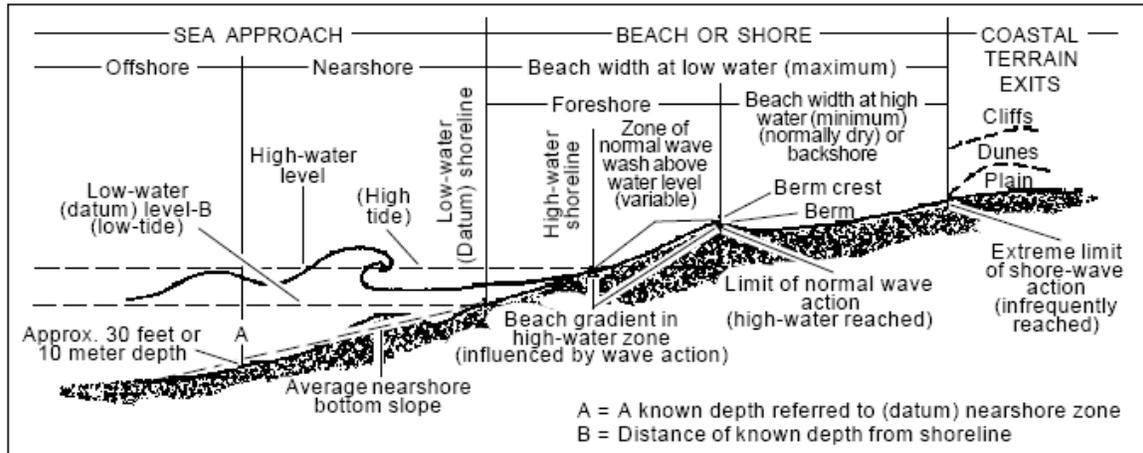
Source: Knox, Donald. *The Korean War: An Oral History*. San Diego: Harcourt Brace Jovanovich, 1985. p 196

Table 6. Throughput Capacity Checklist

<ul style="list-style-type: none"> — Channel depths — Obstructions — Enemy air activity — Enemy surface activity — Enemy submarine activity — Climate and seasons — Weather — Minefields or contaminated areas — Capabilities in combating obstacle 	}	Evaluate to determine water terminal reception capacity	} Water terminal throughput capacity
<ul style="list-style-type: none"> — Tactical dispersion requirements — Wharf facilities — Beach capabilities — Discharge rates ashore — Discharge rates in the stream — Anchorage area — Extent of destruction or contamination — Climate and seasons — Weather and tide characteristics — Cargo-handling equipment available — Floating craft and equipment available — Transit sheds and in-transit storage areas — Availability of local harbor — Space reserved for local economy — Enemy activity 	}	Evaluate to determine water terminal discharge (input) capacity	
<ul style="list-style-type: none"> — Capability of rail facilities — Capacity of highway facilities — Capacity of inland waterway facilities — Capacity of pipeline facilities — Capacity of air facilities — Enemy activity — Capability of data processing facilities 	}	Evaluate to determine water terminal clearance (output) capacity	

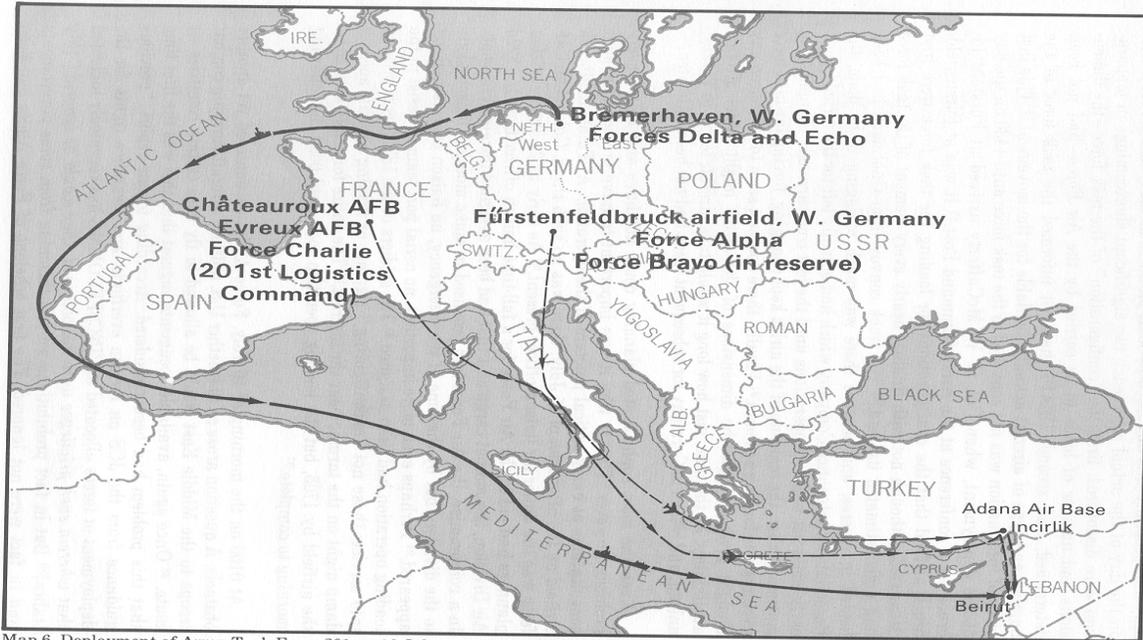
Source: U.S. Government, Adapted from FM 55-15 Transportation, 1997. 7-12.

Table 7. Beach Gradient



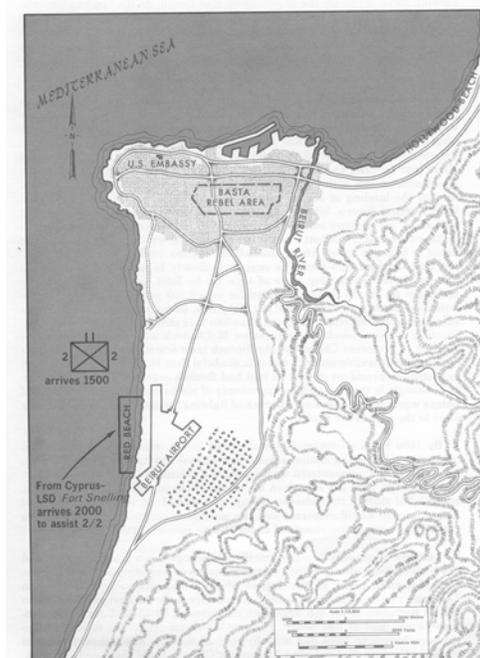
Source: U.S. Government, Adapted from FM 55-15 Transportation, 1997. 7-10.

Table 8-10. OPERATION BLUEBAT

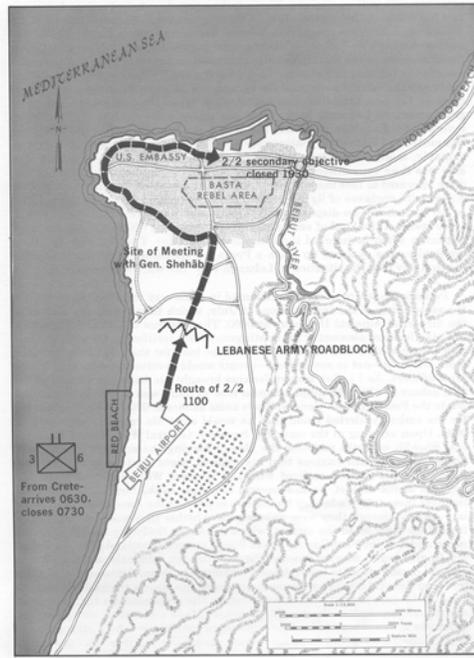


Map 6. Deployment of Army Task Force 201 on 16 July 1958 and after.

Source: Spiller, Roger J. "Not War But Like War": The American Intervention in Lebanon." *Combat Studies Institute Leavenworth Papers No 3*, January 1981.



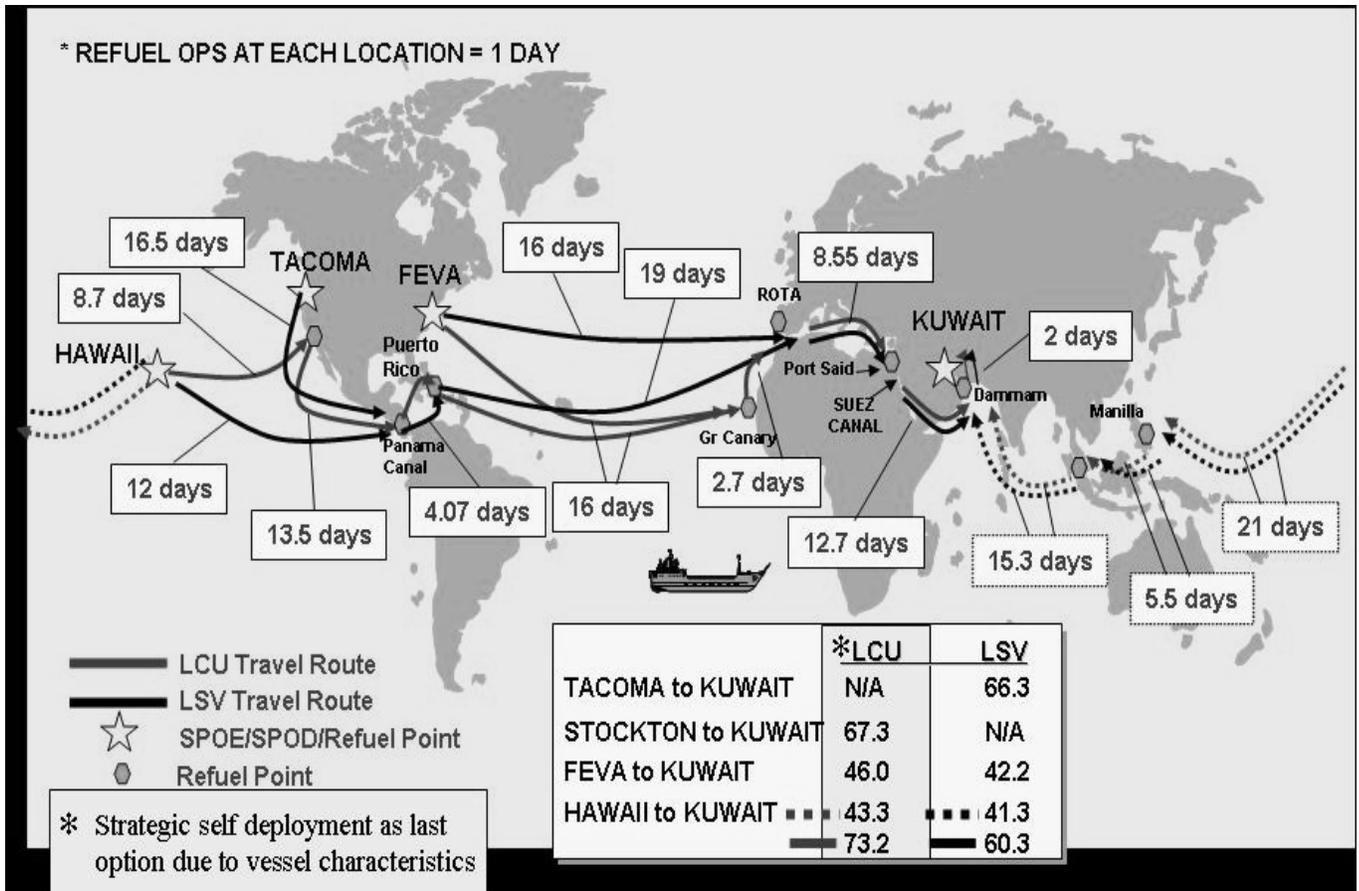
Map 4. Beirut and environs. The landing of 2/2. (First day.)



Map 5. Beirut. (Second day.)

Source: Spiller, Roger J. "Not War But Like War": The American Intervention in Lebanon." *Combat Studies Institute Leavenworth Papers No 3*, January 1981.

Table 11. World Wide Deployment Timelines



Source: U.S. Government, Adapted from JLOTS Planners Handbook 2002. 42.

Table 12. Generic JLOTS Force Structure

Force Module for Generic JLOTS Bare Beach Operations

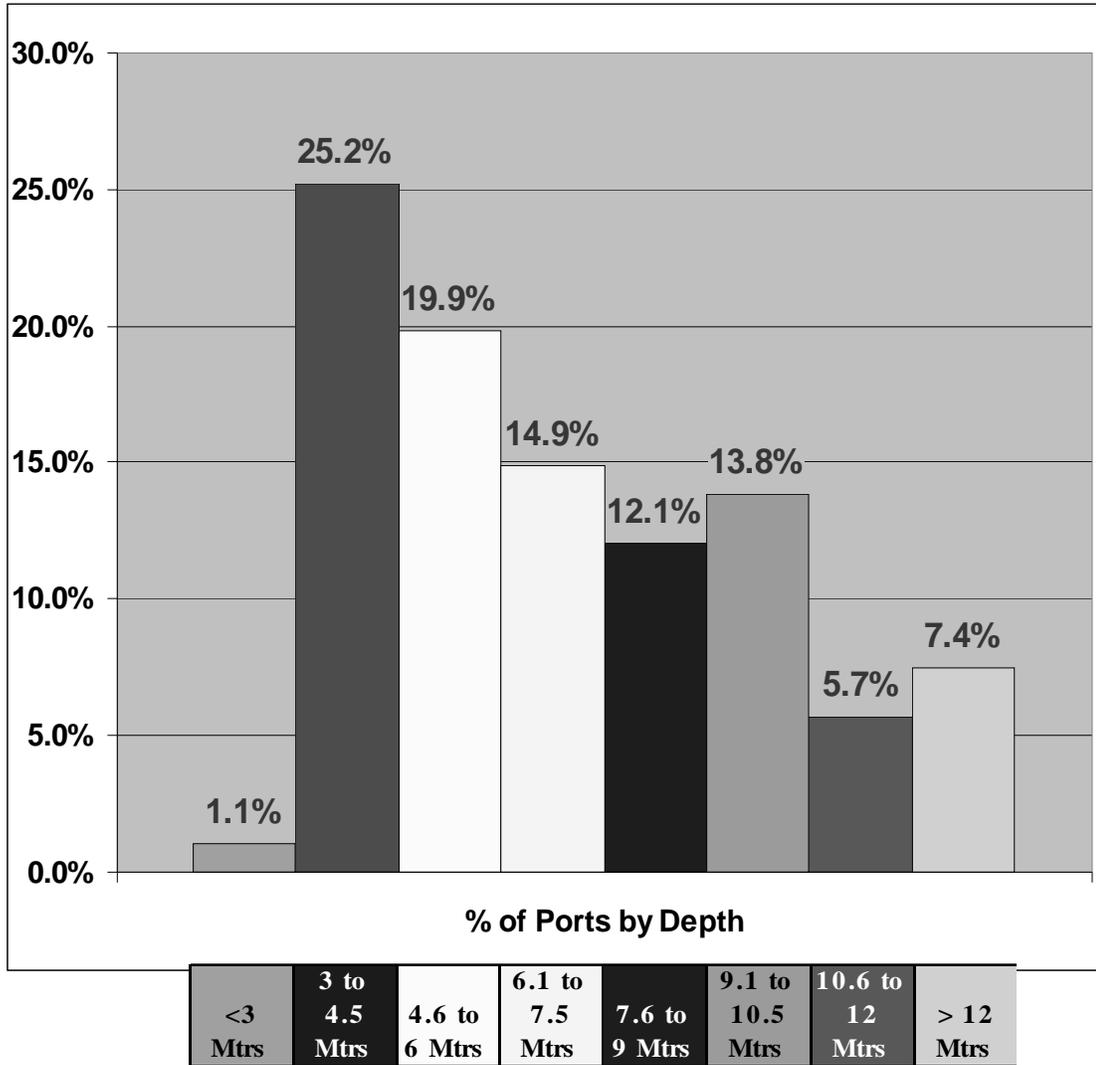
<u>UNIT</u>	<u>UTC</u>	<u>SVC</u>	<u>PAX</u>	<u>STONS</u>	<u>NOTES</u>
TA-56 ELCAS		Y56603	N	181	6078 1
TA-56 RRDF		Y5604	N	47	714
TA-56 LIGHTERAGE		Y5605	N	84	3394
TA-56 OPDS SLWT		Y5606	N	33	636
TA-56 CAMP		Y5607	N	29	3199
TA-56 ACU		Y5608	N	0	239
TA-56 BMU		Y5609	N	0	1069
HHC TRANS COMPOSITE GP		UFACB	A	110	65
HHC TRANS TERMINAL BN		UFACE	A	99	67
LT WT DIVING TEAM		4DQNN	A	17	45
CONTROL SUPPORT DET		4BQNN	A	13	36
AUTOMATED CARGO DOC		UVUUU	A	32	79
TRANS CARGO TRANSFER CO		UPXXX	A	247	1379
TML SVC CO CNTNR BB		UHBNN	A	357	1491
TML SVC CO CNTNR BB		UHBNN	A	357	1491
HEAVY CRANE PLATOON		XE666	A	37	475
TRANS MED WATERCRAFT CO		UKBNN	A	162	1365
TRANS HEAVY WATERCRAFT CO		UMBNN	A	145	3435
LOGISTICS SUPPORT VESSEL		UAQEE	A	28	335 2
LOGISTICS SUPPORT VESSEL		UAQEE	A	28	335 2
COMPANY HQ		UFACJ	A	7	12
BEACH GROUP DET		Y26CD	N	49	0
HHD TRANS MOTOR TRANS BN		U7H33A	A	48	53
TRANS LIGHT MDM TRUCK CO		U5BNN	A	108	965
TRANS FLTG CRAFT GS MAINT CO		UYPPP	A	222	2200
COMPANY HQ		U7F77	A	11	19
NAVY CARGO HANDLING BN		UCHA1	N	153	7
LCU-LANDING CRAFT UTILITY		55LUA	N	13	0

TOTAL PAX: 2,617 (See note 3)

1. ELCAS (Elevated Causeway System) requires significant strategic sealift (normally an Auxiliary Crane Ship) for deployment and requires 10-14 days for installation.
2. These vessels self-deploy to the exercise area
3. PAX figures for each unit reflect maximum numbers. Actual numbers deployed for exercises are normally lower for many of these units. Again, exact numbers will depend on numerous variables, including current unit strength, specific mission given the unit, duration of operation, etc

Source: U.S. Government, Adapted from JLOTS Planners Handbook 2002. 47.

Table 13. World Wide Seaport Depth



Source: U.S. Government, Adapted from JLOTS Planners Handbook 2002. 29.

BIBLIOGRAPHY

Books

- Beakey, Dan J. "Logistics Over The Shore: Do We Need It?" *National Security Affairs Monograph Series 82-6*, 1982.
- Brown, Kenneth N. *Strategic: The Logistics-Strategy Link*. Washington D.C.: National Defense University Press, 1987.
- Chambers, John W. II, et. al. *Major Problems in American Military History*. Boston MA.: Houghton Mifflin, 1999.
- Conrad, Scott W. "Moving the Force: Desert Storm and Beyond." *National Defense University McNair Paper 32*, December 1994.
- Dunnigan, James F. *How to Make War: A Comprehensive Guide to Modern Warfare*. New York: William Morrow and Company, 1982.
- Eccles, Henry E. *Logistics in the National Defense*. Westport, CT: Greenwood Press, 1959.
- Furse, George A. *Military Expeditions beyond the Seas*. London: William Clowes & Sons, 1897.
- Gatchel, Theodore L. *At the Water's Edge: Defending against the Modern Amphibious Assault*. Annapolis, MD., Naval Institute Press, 1996
- Heinl, Robert Debs, Jr. *Victory at High Tide: The Inchon-Seoul Campaign*. Annapolis, MD.: The Nautical & Aviation Publishing Co. of America, 1979.
- Huber, Thomas M. *Japan's Battle of Okinawa, April - June 1945*. Leavenworth Papers No 18. (Ft. Leavenworth, KS: Combat Studies Institute, 1990)
- Huston, James A. *The Sinews of War: Army Logistics 1775-1953*. Washington D.C.: Office of the Chief of Military History, Department of the Army, 1966.
- Knox, Donald. *The Korean War: An Oral History*. San Diego: Harcourt Brace Jovanovich, 1985.
- Kress, Moshe. *Operational Logistics: The Art and Science of Sustaining Military Operations*. Norwell, MA.: Kluwer Academic Publishers, 2002.
- Langley, Michael. *Inchon Landing*. New York: Times Books, 1979.

- Leary, William M. *Anything Anywhere Anytime: Combat Cargo in the Korea War*. Washington D.C: Air Force History and Museums Program, Department of the Air Force, 2000.
- Matthews, James K. *So Many, So Much, So Far, So Fast: United States Transportation Command and Strategic Deployment for Operation Desert Shield/Desert Storm*. Washington D.C.: U.S. Government Printing Office, 1996.
- Palka, Eugene J., & Galgano, Francis A. *Military Geography: From Peace to War*. Boston: McGraw-Hill, 2005.
- Paschall, Rod. *Witness to War: Korea*. New York: Berkley Publishing Group, 1995.
- Pepper, Jerome G. Jr. *History of United States Military Logistics: 1935 – 1985*. Huntsville: Logistics Education Foundation Publishing, 1988.
- Polmar, Norman. *The Naval Institute Guide to the Ships and Aircraft of the U.S. Fleet*. Annapolis, MD., Naval Institute Press, 1993.
- Rottman, Gordon L. *Inchon 1950: The last Great Amphibious Assault*. Oxford: Osprey Publishing, 2006.
- Speller, Ian & Tuck, Christopher. *Strategy and Tactics: Amphibious Warfare*. St. Paul, MN: MBI Publishing, 2001
- Spiller, Roger J. "Not War But Like War:" *The American Intervention in Lebanon*. Leavenworth Papers No 3, (Ft. Leavenworth, KS: Combat Studies Institute, 1981)
- Stanton, Shelby L. *America's Tenth Legion: X Corp in Korea*. Novato, CA: Presidio Press, 1989.
- Thompson, Julian. *The Lifeblood of War: Logistics in Armed Conflict*. London: Brassey's, 1991.
- Van Creveld, Martin. *Supplying War: Logistics from Wallenstein to Patton*. Cambridge: Cambridge University Press, 1977.
- Wade, Gary H. "Rapid Deployment Logistics: Lebanon, 1958." *Combat Studies Institute Research Survey No 3*, October 1984.

Periodicals

- Bender, Bryan. "Pentagon Study Says Oil Reliance Strains Military." *Boston Globe* (1 May 2007): A1 continued on A13.

Government Documents

- National Research Council. Naval Studies Board. *Naval Expeditionary Logistics: Enabling Operational Maneuver From the Sea*. Washington D.C.: National Academy Press, 1999.
- Royal Navy. *Amphibious Assault: Manoeuvre from the Sea: Amphibious Operations from the Last Century*. London: Crown Copyright, 2005.
- U.S. Air Force. Air Force Logistics Management Center. *The Logistics of Waging War: American Logistics 1774-1985*. Gunter Air Force Station, AL: USAF AFLMC, 1987.
- U.S. Army. Center of Military History. *U.S. Army Mobilization and Logistics in the Korean War: A Research Approach*. Washington D.C.: USA CMH, 1987.
- . Command and General Staff College. *Syllabus and book of readings: H100 Transformation in the shadow of Global Conflict*. Ft. Leavenworth, KS: USA CGSC, June 2006.
- U.S. Marine Corps. Historical Branch, G-3. *The Inchon Seoul Operation*. Washington D.C.: Headquarters USMC, 1955.
- Yoshpe, H.B., and J. Bykofsky, comps. "Lebanon, a Test of Army Contingency Planning." *Brief Surveys of the Post-Korean Experience Series*, 25 November 1958.

Other Sources

- Fowler, Jimmy E., et. al. "Innovations For Future Gap Crossing Operations." (Technical publication), Engineer Research and Development Center, Coastal and Hydraulics Laboratory, Vicksburg, MS, May 2004.

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