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ABSTRACT

From November 1942 until May 1945, the Allied nations fought a series of campaigns across the Mediterranean. Ever since, historians have debated the role and impact of the Mediterranean theater upon the greater war in Europe. Through analysis of official archival documents, unit histories from the period, and personal memoirs, this dissertation investigates the impact of US Army service forces on each of the campaigns and operations conducted across the Mediterranean theater. Additionally, this study examines how the campaigns of the Mediterranean shaped and informed the 1944 landings in France and the subsequent drive into Germany. This dissertation argues that the Normandy invasion of 1944 and victory over Germany did not just happen. The success that the Allied forces enjoyed in France and Germany had its foundation set in the learning and experiences of the Mediterranean that began in November 1942. Additionally, the Allies (particularly the US) would not have achieved victory as quickly as they did if it were not for the development of the administrative and logistical systems, organizations, equipment, and doctrine that occurred within the Mediterranean. Simply put, the Mediterranean was an *essential* Petri dish that allowed US service units to test new concepts and develop the experience necessary to win the war against Germany. This was the laboratory in which the US military, particularly the support units, could learn and adapt with minimal risk. Considering the alternatives, the Allied strategy of conducting operations in the Mediterranean and then shifting the priority to the European theater proved the approach that produced the shortest end to the war. This indirect approach provided the time to train a conscript army and modernize the military. Most importantly, the US Army learned how to support ground and air forces deployed in an overseas theater.

**VICTORY'S FOUNDATION: US LOGISTICAL SUPPORT OF
THE ALLIED MEDITERRANEAN CAMPAIGN, 1942-1945**

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DISSERTATION

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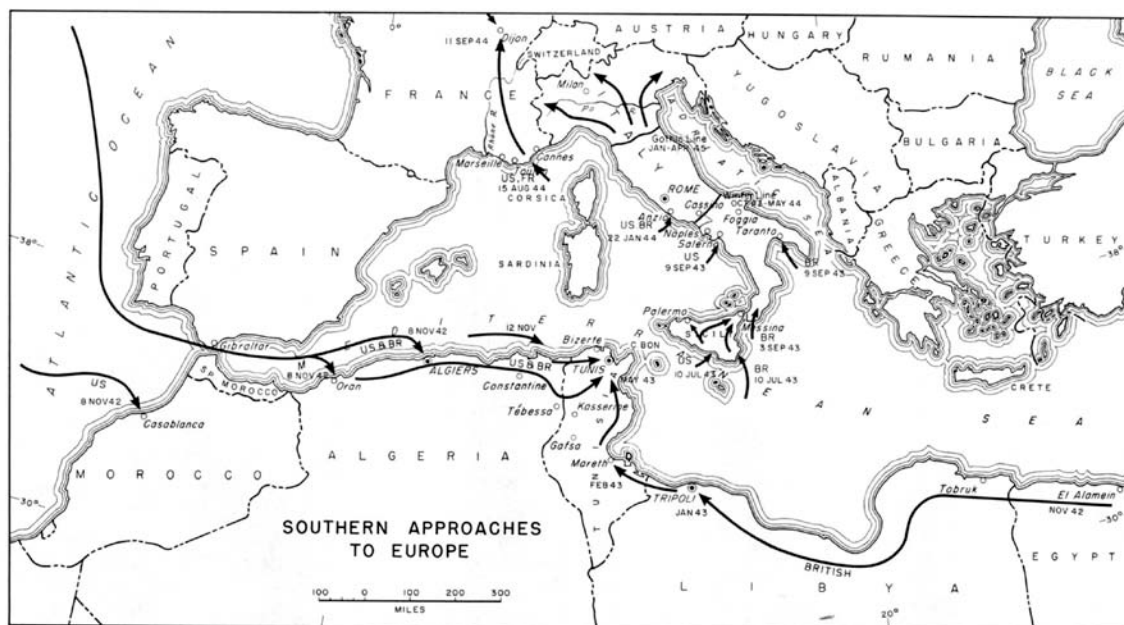
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Figure 1: The Major Approaches to Europe from in the Mediterranean¹



¹ Source: The University of Texas library, http://www.lib.utexas.edu/maps/historical/s_approaches_1942-1945.jpg (accessed December 22, 2010).

Chapter I: Introduction

The handling of the supply problem is of no less importance than operational and tactical command.

--Field Marshal Kesselring, Concluding Remarks on the Mediterranean Campaign, 1946

In November 1942, the United States initiated its first offensive actions against forces of the European Axis nations. For the next two and a half years, the US and its allies engaged in a series of battles across the Mediterranean that had a profound impact on the outcome of the Second World War. However, victory in the Mediterranean was the result of more than good generalship, an effective strategy, or unit engagements. Allied success also depended on the ability to support Allied military forces thousands of miles away from their home bases.

The Second World War was one of material. The armies, navies, and air forces of the mid-twentieth century were growing ever dependent on the machines and technology of modern war. Tanks, mobile artillery, aircraft, and large ships all needed vast amounts of fuel and ammunition. Most American divisions were motorized or mechanized, meaning that they moved by some type of vehicle and could cover hundreds of miles in a week. Fighter and bomber aircraft developed ranges and capabilities that were unheard of in the First World War. However, the forces of modern war also needed other types of supplies and support to perform on the battlefield. Men needed medical supplies, clothing, tents, water, uniforms, and individual equipment. Units needed trucks, jeeps, typewriters, binoculars, and a host of other gear. Along with this equipment came the need for supply and transportation units, as well as repair parts and mechanics.

War, in the 1940's, was more than just fighting. Indeed, war was also about producing all of the units, equipment, and supplies needed for combat and then shipping these halfway across the world to a predetermined remote beach or port. Once at the port or beach, an administrative organization had to offload, organize, and transport the material. Support units had to build installations and buildings, establish factories for the assembly of vehicles, and create an administrative bureaucracy to manage the entire administrative effort to support a war zone two-thirds the size of the United States. Added to this, the Allied militaries had to provide food and medical care for the civil populations as well as house and care for prisoners of war. The divisions on the front lines were important, but increasingly important were the support units operating in the rear areas, which handled all of the administrative functions. Service forces, such as Quartermaster, Transportation, Ordnance, Medical, Women's Army Corps, and Engineer units set the conditions that enabled the combat units to fight and win.

This paper explores the efforts and impact of the US Army service forces in the Mediterranean theater of war, from November 1942 until the end of the war in Europe, May 1945. Specifically, this work seeks to establish the role performed by these support units and assess their specific overall impact on the war in the Europe. The paper will argue that the Allied operations in the Mediterranean were indispensable because these campaigns provided the time and experience needed to develop the support capabilities and corresponding administrative doctrine. Additionally, operations in the Mediterranean provided the opportunity for US commanders to establish how best to balance forces for an amphibious assault with building a base of operations in southern Europe that could later serve as a separate line of communications into southern France. Finally, considering the alternatives, the Allied strategy of conducting

operations in the Mediterranean and then shifting the priority to the European theater proved the approach that produced the shortest end to the war. This indirect approach to warfare provided the time to train a conscript army and modernize the military. Most importantly, the Army learned how to support ground and air forces deployed in an overseas theater. The Allies, especially the US units, would not have achieved the same levels of success had they agreed to cross-channel assault in 1943.

Evidence will show that the US Army was not capable of supporting a direct invasion of France in 1942 or the first half of 1943. Instead, the US needed the experiences of North Africa, Sicily, and Italy to build its support organizations and train its senior officers. Indeed, rather than serving as a sideshow in the greater aspect of the war, the Mediterranean was a necessary step towards victory against Nazi Germany because the Mediterranean provided an opportunity to build a foundation of administrative support, which enabled the larger fight for Europe. In short, the battles of the Mediterranean allowed the US to refine its support concepts and build a base of support in the Mediterranean, which led to the shortest possible end to the war in Europe.

Even though the service forces played an important role in defeating Germany, researchers tend to focus primarily on the major combat operations that occurred across the theater throughout the war or on the histories of major combat units, such as the famed Seventh Army or the First Infantry Division. Other research has focused on senior military commanders, such as Generals Eisenhower, Patton, or Montgomery. An area that deserves additional attention, however, is the subject of the Allied military theater, the area that included the combat zone and a supporting communications zone for that particular part of the world. Despite the volumes of research on the Second World War, few works address the details of how the Allied

Mediterranean theater was organized and controlled or of the service units that were responsible for the theater's support.

At first glance, the story of the Mediterranean theater may not appear as glamorous or exciting as that of a combat unit engaged in major battle. Perhaps this explains the dearth of theater-related studies. Logistics and support-oriented works simply do not attract much attraction and will rarely top a best-seller list. However, the type of modern war experienced during the Second World War was not simply about two opposing forces facing off on the field of battle. Rather, it included the *totality* of a complex structure of industrial production, the allocation of national resources, operations across the globe, and a dependency on civilian infrastructure. As the Allies discovered in North Africa, contemporary warfare was as much about what occurred behind the combat zone as the battles that took place within it.

Figure 2: The Mediterranean²



Although the Mediterranean theater was a joint venture between American and British forces, each nation established independent organizations for support of their respective forces. Due to a variety of reasons, not the least of which was an incompatibility between supply systems, each nation supported its own forces with parallel administrative systems. Thus, two

² Source: *Campaign Atlas: Europe and the Mediterranean* (West Point Department of History, 1979). 33.

different national support systems operated simultaneously within the Mediterranean theater. This project focuses on US theater operations, although the research will address select aspects of the British and German theater systems as well, to serve as points of comparison.

Operation Torch was the first major US/British operation of the Second World War and represented the opening of the Allied Mediterranean military theater. Commencing on November 8, 1942, the first Allied troops landed in Algeria and Morocco at three major landing sites. Less than two years later, by the fall of 1944, there were over 918,000 US forces in the Mediterranean theater.³ Of this total, about one-third was combat forces (infantry, armor, and artilleryman), one-third was in the Army Air Force, and the final one-third was service forces. These service forces, specifically the forces assigned to theater support units, represented the bridge between the national (strategic) level of supply and the unit (tactical) level of supply. These theater service forces ran the ports, which allowed forces, equipment, and supplies to land within the theater. Theater support units then moved men and materiel to depots or centers, and then forwarded these resources to the combat units when, and where, needed. This is a story that deserves to consideration because it is one of heroic efforts, missed opportunities, tensions between organizational cultures, and strategic consequences that helped shape the modern geopolitical world. Ultimately, the theater support units set the essential conditions that allowed combat units to perform their mission. What made this so critical? Perhaps it is the fact that the theater support forces might not have won the war by themselves, but they could have single-handedly lost it. Whether the Allies understood the significance of the theater they were about to build in 1942 is a question open for debate.

³ *Logistical History of NATOUSA, MTOUSA* (Naples: Mediterranean Theater of Operations General Staff, 1945), 12.

Significance of the Military Theater

An area of agreement among many historians is that the resource and industrial capacity of the United States contributed significantly to the Allied victory in the Second World War. The argument one often hears is that the industrial might of the US during the first half of the twentieth century simply allowed the nation to overwhelm its enemies through a vast volume of war production. Authors, such as Michael Howard, argue that American strategy “consisted largely in the mobilization and concentrated application of their overwhelming industrial strength.”⁴ America did possess great industrial strength, however this hypothesis only accounts for part of the story of Allied success. America’s industrial capacity meant little if the necessary equipment and supplies were not already within the theater and positioned to support the plans and operations of military leaders. Service forces had to receive the material through an air or seaport, verify quantities, and record its receipt so they knew what was on hand and where specific items were located. These forces also had to develop systems and capabilities to identify support requirements and then meet these requirements by the distribution of material across the theater in a manner that supported the operational pace.

To support military operations the theater had to occupy, build, or improve facilities such as ports and warehouses to receive and store materiel. Transportation infrastructure was needed to move men, supplies, and equipment from ports to depots, and, ultimately, to the units that needed these resources. Any disruption in the support system had the potential for adversely affecting operations. All of the nation’s industrial might meant little if the forces in a theater could not receive and distribute sufficient men, supplies, and equipment to sustain the combat forces.

⁴ Michael Howard, *The Mediterranean Strategy in the Second World War* (London: Greenhill, 1968), viii.

The military theater was the organization that linked combat units to the national resource base. Combat units focused on defeating the enemy, however, the theater dealt with supplies, installations, and civilian infrastructure. The theater set the foundation upon which everything else rested. A shaky theater foundation resulted in limited support, which ultimately translated into limited resources for combat units, reduced operations, and missed opportunities. Analysis of both Allied and Axis operations shows that success of the different campaigns directly related to the flow of materiel from the mother nation, as well as the capabilities of each nation's theater structure. Each link in the supply system had a role to play and the system was only as strong as the weakest link.

This study seeks not only to tell a story that has been missing in public discourse, but also to inform future military operations. The following questions are central to understanding US operations in the Mediterranean theater: How was the theater and its support force organized? Did logistics shortfalls occur? If so, why? Were these shortfalls the product of systemic problems in theater-level planning, organization, individual decisions, or capabilities? Did tensions exist between the different forces (combat, air, and support); if so, what were the sources of these tensions? Did the theater learn from any support problems so they would not have similar problems in future operations? Were US logistics doctrine and systems sufficiently capable and flexible to deal with the battlefield of the mid-twentieth century? Finally, what role did the Mediterranean have in shaping the 1944 invasion of France? The answers to these questions will help determine the impact of the Mediterranean campaigns on the eventual invasion of northwest Europe and resolve whether the loss of life in the Mediterranean indeed served a purpose in the overall war effort.

The Mediterranean theater was unique because it represented a number of firsts for the United States. This was the first instance in which US military units deployed from two different continents and converged on a combat area located on a third continent. This was the first time that US forces had to establish a theater base structure capable of sustaining large-scale amphibious, air, and mechanized operations in an austere environment. Additionally, this was the first time in which the United States found itself in a major war as a primary arms and material provider for military forces other than its own.

In 1917, the American Army had to rely on Great Britain and France for the much of its equipments needs. President Wilson had not fully mobilized American industry for the war effort so items such as rifles, artillery, ammunition, and vehicles were in short supply. The Army enlisted, trained, and shipped men to France at a faster pace than that of their associated equipment. In order to get the additional manpower to the war zone faster, the other Allies agreed to subsidize America's war needs.

The Second World War saw a reversal of this arrangement. By the summer of 1941, America was fast becoming a major supplier of the Allied war effort, even though the nation was not yet at war. The Lend-Lease Act of 1941 allowed President Roosevelt to provide much-needed supplies and equipment to nations such as Great Britain, France, China, and the Soviet Union. This also served to mobilize American industry (unofficially), thus setting the foundation that allowed a quick increase in rates of production once America officially joined the conflict.

As the war progressed into 1942, the US found itself in a position of being a major contributor of supplies and equipment. Some Allies, such as the Free French forces largely depended on the US for the materials of war, essentially becoming just another customer of the

US support system within the Mediterranean theater. Other nations, such as Great Britain, would rely on the US for some supplies and equipment, but used their own service organizations and systems to distribute these items within the theater. Either way represented a new role for the US, one that was significantly different from that of the previous world war. History shows that the United States and its allies were ultimately successful in supporting the forces afield, but an untold story remains of the details it took to support almost a million Americans and their associated equipment in areas characterized by long distances, limited infrastructure, and few local resources.

A goal of this project is to identify enduring insights regarding how US forces adapted to support a series of expeditionary operations, how they adjusted to changing conditions to provide a viable base of support, and how they maintained effective control and oversight of theater logistics organizations. Perhaps these enduring lessons can serve to inform the national security community about examples of administrative support concepts that worked well, others that did not work as planned, while identifying lasting sustainment imperatives that might arise while supporting large-scale operations with long lines of communication. This project should help contextualize the challenges the Allied forces faced in building and maintaining multinational and multi-service forces in a foreign land at a time when doctrine, tactics, technology, and equipment rapidly evolved.

This topic is still relevant today as the U.S. military continues to develop and modify its doctrine of theater organization, command and control, and theater sustainment. Technology and equipment continue to adapt. Future conflicts most likely include multi-national operations, a requirement to support forces over long distances, and the potential for austere environments.

Potential adversaries are working on measures and means to negate America's ability to project military force and establish secure bases from which to operate. In short, all of the challenges facing the Allied powers in 1942 (establishing and maintaining a theater base of support) continue to exist today.

Review of Literature

The majority of research on the Second World War tends to focus on the European or Pacific theaters because these represent a direct thrust into the heart of German or Japanese aggression and ultimately led to capitulation of the main Axis partners. A few works focus on a single aspect of support, such as supply, engineering, or transportation, but tend to combine the Mediterranean and European theaters in overall assessments. A number of works focus on the combat aspects of a single campaign or operation within the Mediterranean, such as Operation Torch in North Africa, Operation Husky in Sicily, and Operation Avalanche in Italy, but do not go to any great depth into logistics or theater support.

On the larger question of the importance of the Mediterranean, the traditional view of many researchers is that the Mediterranean was essentially a secondary effort in the greater fight against Germany. Russell Weigley notes that the decision to invade North Africa severely slowed the buildup of US aviation in Great Britain and the campaign in Italy tied up thirty Allied divisions, compared to twenty-two German divisions, a "disproportionate investment for the Allies."⁵ Additionally, the fight in Italy failed to keep Hitler from reinforcing the coast along the French Channel and negated any Allied equipment advantages. John Keegan writes about the

⁵ Russell Weigley, *The American Way of War* (Bloomington: Indiana University Press, 1973), 327.

“marginality” of the Italian campaign, stating the Allies “were denied any sense of fighting a decisive campaign.”⁶ For many authors the Mediterranean was merely a sideshow taken on for political reasons - an opportunity to open up a second European front while building up the strength needed for a cross-channel invasion. According to these historians, the Allies fought here because of convenience, necessity, or a failure of strategic vision; they did *not* fight in the Mediterranean because it was necessary to achieve victory. If this is indeed true, then the hardships and loss of life experienced by all the belligerents, as well as the civilian casualties, have little meaning.

Some historians have a different outlook, believing that the Mediterranean was not necessarily decisive, but was important nonetheless. In *The Path to Victory*, Douglas Porch argues that the Mediterranean was the pivotal theater in Europe, one that had to occur before the landings in France because the Mediterranean was critical “to develop the fighting skills and leadership needed to invade France, as well as to develop the “technical, operational, tactical, and intelligence systems required for success in Europe.”⁷ For Porch, the Mediterranean was the rehearsal that enabled success in Operation Overlord.⁸ As such, the loss of life in the Mediterranean indeed served a purpose and was part of the price required for a later victory over the Axis nations.

Porch provides a compelling argument that deserves consideration. However, there is another aspect to the Mediterranean campaigns that support his overall argument. Besides the need for combat leaders learning their trade and for intelligence systems to develop, the US

⁶ John Keegan, *The Second World War* (New York: Penguin, 2005), 368.

⁷ Douglas Porch, *The Path to Victory: The Mediterranean Theater in World War II* (New York: Farrar, Straus, and Giroux, 2004), xii.

⁸ *Ibid.*

Army also needed to refine how it provided administrative support to a deployed force. Leaders needed to learn combat skills and knowledge, but theater leaders also needed to learn how to establish and build up a military theater that could support large, mobile forces. The Mediterranean was important not only because it honed the Allied fighting skills, but also because it forced the development and maturation of US sustainment systems, organizations, and equipment. The US Army not only needed to learn how to fight, it needed to learn how to *support* the fight. Both were equally critical and one could not succeed without the other. The modern military theater was only as strong as its weakest link. A capable combat force meant little if the rear area units failed to provide the vast quantities of fuel, ammunition, bombs, food, water, and repair parts needed for mechanized warfare. In 1942 and 1943, the US Army sustainment organizations simply lacked the experience or capacity needed to support a cross-channel assault against the German military on the European mainland. The Mediterranean therefore, was pivotal, but for more reasons than Porch mentions.

Martin Van Creveld provides a chapter on the support for the Allied drive across France in 1944 in his book *Supplying War: Logistics from Wallenstein to Patton*.⁹ Creveld notes all the problems encountered by the advancing Allied 12th and 21st Army Groups, but focuses his attention on the northern line of communication running from the ports in northwest Europe and does not address the Sixth Army Group coming up from the ports of Marseilles and Toulon. This fails to consider a full one-third of the Allied operating strength in France during 1944-1945 and does not address any impact that the Mediterranean had on support of operations in France.

⁹ Martin Van Creveld, *Supplying War: Logistics from Wallenstein to Patton* (New York: Cambridge University Press, 1977).

Several references do contribute to the topic of theater support within the Mediterranean, either directly or indirectly. Henry Eccles provides a good starting point to assess the change in US logistics during the Second World War. In *Logistics in the National Defense*, Eccles describes the setting in 1942 when the Army had shrunk the ratio of its service forces compared to 1919.¹⁰ At the end of the First World War, almost 34 percent of the American forces in France consisted of Army service troops.¹¹ This is a significant percentage of the force, especially considering that the battlefield was largely static, with few mechanized, motorized, or air forces compared to the battlefield of World War II. By 1942, however, only 11.8 percent of the force consisted of service troops.¹² The nature of warfare had changed during the interwar years, but America's ability to support its military forces failed to keep pace. Operations in North Africa proved that combat units needed commodities such as fuel, ammunition, and repair parts at rates unseen in the First World War. Supplies and equipment had to move quickly and effectively across growing distances to keep up with advancing units. Failure to do so resulted in an "operational pause" that forced commanders to curtail or limit combat operations until logistics forces could catch up to more mobile combat units. This led to a debate within the Army and the War Department on the proper mix of combat and service forces, not just in the overall force, but within the theater of operations as well. If a commander deployed insufficient combat forces to an operation, the mission might fail. However, if too few service forces were deployed the combat forces might not have the required replacement of supplies, or equipment, thus degrading the commander's combat power. Deploying truck units took up a lot of room on

¹⁰ Henry Eccles, *Logistics in the National Defense* (US Marine Corps Manual, NAVMC 2799, 1987)

¹¹ *Ibid.*, 134.

¹² *Ibid.*

limited merchant shipping, but these same units might provide the mobility needed to move a greater number of combat units more quickly, catching the enemy off-guard. Eccles shows how the mix of combat forces with adequate service forces was a balancing act at the theater and national levels and that any attempt to deploy excessive combat force without adequate service forces introduced risk to any operation.¹³ This question of the right balance of combat and support forces was not a new problem- US forces faced the same issues during the First World War. Due to the complexity of the issue, however, this question was never resolved. The argument on the balance of forces would continue throughout the Second World War.

Examples of Allied logistics support in the Mediterranean are in several works describing US military logistics throughout the Second World War. Richard Leighton and Robert Coakley provide a comprehensive view of US logistics in *Global Logistics and Strategy 1940-1943 and Global Logistics and Strategy 1943-1945*, part of the official US Army history series of the Second World War.¹⁴ Leighton and Coakley provide in-depth detail on logistic aspects of the war, primarily from a strategic, or national, point of view. The authors describe significant decisions and actions, concluding that many of the logistics problems encountered in the North African landings were products of indecision and late decisions made by commanders and their staffs prior to the invasion. Leighton and Coakley propose that the initial supply difficulties in North Africa were the result of poor decisions made in America and Great Britain. Lieutenant General Leroy Lutes, Director of Operations in the Services of Supply, attributed this situation to

¹³ Ibid., 135.

¹⁴ Richard Leighton and Robert Coakley, *Global Logistics and Strategy: 1940-1943 and 1943-1945*, two volumes (Washington: US Army Center of Military History, 1995).

a lack of logistics training in Army schools.¹⁵ Despite the challenges, in support, Allied operations in North Africa were successful, leading *Global Logistics and Strategy* to conclude that Operation Torch was a lesson in disorderly planning and “brilliant implementation.”¹⁶ The brilliant implementation was not something that occurred at the strategic level, but rather at the operational level of operations within the Mediterranean theater.

These two works also discuss logistics challenges in Sicily and Italy from a national perspective, providing a good reference from which to approach the issues faced by the military theater. However, the authors attribute logistic challenges to strategic issues, such as a worldwide constraint in shipping and competing demands for critical supplies, with little discussion of the operational or tactical logistics support to the force. Nonetheless, the two volumes of *Global Logistics and Strategy* set forth the strategic foundation, which provides a framework within which one can grasp how senior leaders made decisions in the operational theater.

James Huston’s *The Sinews of War: Army Logistics 1775 to 1953*, describes how logistics shaped the strategic options available to Allied leaders in the Second World War.¹⁷ Huston provides a historical reference regarding development of army theater organizations, noting that the essential elements of theater logistics organizations first came into existence in the First World War.¹⁸ The dynamics and nature of the force significantly changed how logistics organizations operated in the two wars, but the concept of a communications zone behind a combat zone and the commitment of service forces were not new concepts in 1940. The author

¹⁵ Leighton and Coakley, Vol I, 455.

¹⁶ Ibid., 455.

¹⁷ James Huston, *The Sinews of War: Army Logistics 1775-1953* (Washington: US Army Center of Military History, 1966).

¹⁸ Ibid., 492.

shows that there was a significant change between the invasions of North Africa and Sicily, noting that the loading for Operation Torch was one of chaos, while the combat loading for Operation Husky went much smoother.¹⁹ The author does not detail what caused the difference between these two operations.

The Sinews of War provides a useful overview of the different operations of the Mediterranean Theater. This work does include some information on theater-specific logistics issues, such as the fact that, in Sicily, the US Seventh Army had no supporting theater Base Section to support operations and the army had to organize its own rear area by forcing an engineer brigade to operate supply depots.²⁰ Other lessons are significant, i.e. the landings in Italy at Salerno demonstrated the feasibility of extended over-the-beach resupply of a major force and how the Allied could upgrade minor ports to support major operations.²¹ These proved to be important considerations in the planning of the 1944 amphibious landings in Southern and Northwest France.

The Big L, American Logistics in World War II, edited by Alan Gropman, provides seven perspectives on logistical aspects of the Second World War.²² One essay in particular, “Materialschlacht: The Materiel Battle in the European Theater” describes logistics within the European theater of war and notes that the objective of the cross-channel assault in 1944 was not on securing a combat objective, but on securing a lodgment base from which to build up combat strength.²³ Gropman describes the two competing theories of theater support within the

¹⁹ Ibid., 509.

²⁰ Ibid., 522.

²¹ Ibid.

²² Alan Gropman, ed. *The Big L: American Logistics in World War II* (Washington: National Defense University Press, 1997).

²³ Barry Dysart, “Materialschlacht: The Materiel Battle in the European Theater” in *The Big L: American Logistics in World War II*.

European Theater: First, the tactical commander has complete and absolute control over sustainment of the forces. The second theory was that a separate commander should be responsible for all sustainment actions and the battle commander should focus only on combat-related issues.²⁴ This raises the issue of whether this same question arose in the Mediterranean Theater, and if it did, how did the theater handle it? If the issue of logistics responsibility did not arise in the Mediterranean, then, why not?

Much of the literature addressing US theater logistics focuses on the cross-channel invasion into Normandy and the subsequent offense across northwest Europe. Steve Waddell wrote a dissertation, later published as *United States Army Logistics: The Normandy Campaign, 1944*, in which the author concludes that significant problems existed in the American supply system in 1944. Waddell notes that US operational logistics in the European Theater experienced one crisis after another caused, in part, by competing staffs and personalities, a complex and inflexible supply plan, and inefficient functioning of the Army Service Forces.²⁵

The book details the different interpretations regarding responsibility for logistics planning of the operation – First Army believed it had responsibility to plan the operation and that the European Theater Services of Supply (SOS) had responsibility for the actual execution of the plan. Lieutenant General C.H. Lee, the headstrong and ambitious commander of the European Services of Supply, believed that his organization had responsibility for both planning *and* executing the logistics plan.²⁶ The result was bickering and confusion, which required General

²⁴ Ibid. 342

²⁵ Steve Waddell, *United States Army Logistics: The Normandy Campaign, 1944* (Westport: Greenwood Press, 1994), 2. Published from the dissertation *The Communications Zone (COMZ): Army logistics in France, 1944* (Texas A&M University, December 1992).

²⁶ Ibid., 12.

Eisenhower's personal intervention during the first weeks of Operation Overlord, but even that did not resolve the misunderstandings.

Waddell does not specifically address logistics in the Mediterranean, but the book and its conclusions raise the question: Given the experiences of the Mediterranean, why did issues like confusion over planning responsibility arise in planning for Operation Overlord? Eisenhower had been the supreme commander in the Mediterranean and had been through the planning process for the invasion of North Africa, Sicily, and Italy. *The Normandy Campaign* concludes that had logisticians in the European theater developed a better supply system with adequate flexibility, along with a better consideration of the unique terrain found in Normandy, many of the Americans' operational logistics problems could have been avoided.²⁷ Did the US military not learn from its experiences in the Mediterranean, or was the situation in Europe somehow different and/or more complex?

Roland Ruppenthal provides a slightly different perspective in the logistical challenges of the European offensive in *The European Theater of Operations, Logistical Support of the Armies*.²⁸ Ruppenthal describes a "logistic depression" that slowed the Allied offensive between September 1944 and February 1945. The author concludes that there were several factors underlying the European theater's critical supply shortages: a complicated and inefficient command structure created within the European theater, a shortage of supplies and logistics manpower caused by War Department decisions (and inter-theater competition), and the lack of a

²⁷ Waddell, 164.

²⁸ Roland Ruppenthal, *The European Theater of Operations: Logistical Support of the Armies* in two volumes (Washington: US Army Center of Military History, 2000).

proper depot system within the theater.²⁹ There is little disagreement that logistics limitations constrained tactical operations by late 1944; however, the question remains regarding why the support structure to which Ruppenthal refers was incapable of meeting the operational demand? If Ruppenthal's conclusions are accurate, then do they imply that the Allies failed to learn the logistics lessons of the Mediterranean, or did the operations fail to support logistics by failing to seize and open key infrastructure, such as the Port of Antwerp, sooner?

On the question of learning, Carter Magruder argues in *Recurring Logistic Problems as I have Observed Them*, that innovation and learning were hallmarks of the American military in the Second World War.³⁰ Magruder served as the Director of Logistics, G4, for Fifth Army during the Allied drive up Italy and notes that no logistics doctrine from the First World War included any aspect of the need for special equipment or construction materials, such as amphibious assault craft, rail rolling stock, assault pipeline for petroleum pipelines, or steel planks for beaches and runways.³¹ If this is true, then the US military and its civilian industrial partners had a considerable task ahead of them in 1942 to develop the doctrine, units, equipment, and training that could enable logistics support of the force.

Recurring Logistic Problems as I have Observed Them offers that many logistics problems are recurring despite the best planning, but it was the innovation inherent in the American military which provided the means to overcome these challenges or mitigate the effects. A number of Allied innovations resulted from difficulties seen in the early amphibious landings of the war, such as North Africa and Guadalcanal. Theaters created specialized units, such as

²⁹ Ruppenthal, Vol II, 504-509.

³⁰ Carter Magruder, *Recurring Logistic Problems as I have Observed Them* (Washington: US Army Center of Military History, 1991).

³¹ *Ibid.*, 39

special engineer brigades, to provide landing craft and clear ports. The War Department developed new equipment, such as the Landing Ship-Tank (LST) and the DUKW, a six-wheeled amphibious truck, to improve the logistics capabilities of the landing force by getting men and material ashore faster than ever before.³² Innovation was prevalent at all levels and evident in all operations.

Recurring Logistic Problems as I have Observed Them offers the hypothesis that at least some operational logistics problems are a function of requirements determination inefficiencies and lack of sufficient planning time.³³

Rick Atkinson does include some logistics information in his two works: *Army at Dawn* and *Day of Battle*.³⁴ These books provide an excellent description of Allied combat operations throughout the Mediterranean, but do not specifically address the logistics systems, structures, and organizations that enabled administrative support to the theater. The logistical history included within the works helps illustrate the challenges and problems that arose during the different Mediterranean operations and shows how sustainment problems constrained combat operations.

Each of these different works provides a slightly different focus and conclusion on theater support of American forces during the Second World War. The central issues focus on questions of the right balance of combat and support forces, as well as on the command and control of theater logistics planning and execution. In most cases, theater sustainment was a prisoner of physics and time. A finite quantity of service units, ships, or trucks could move only a limited

³² Ibid. 104-105. See Appendix B for a listing of common landing craft used during the war.

³³ Ibid. 3.

³⁴ Rick Atkinson, *An Army at Dawn* (New York: Henry Holt, 2002) and *Day of Battle* (New York: Henry Holt, 2007).

amount of supplies over a certain distance within a specific time. Commanders that failed to consider this did so at their own risk. Sometimes the decisions were deliberate and informed, but at other times, they were not.

Authors such as Huston and Magruder show that concepts of theater sustainment in the Mediterranean were under constant development and modification. Despite these changes, each major operation, including the cross-channel offensive into Normandy, experienced some logistic challenges. Were the problems ones that the theater could not predict, or were they repetitions of earlier problems that should have been avoided? Additional research into this topic can answer this question and can help inform logistics planning for future large-scale military operations.

A number of organizations within the Mediterranean theater produced unit histories immediately after the cessation of hostilities to document their activities. One such work, *The Logistical History of NATOUSA/MTOUSA*,³⁵ has served as the main reference for logistics support in the Mediterranean theater. The book provides information on the military support operations within the Mediterranean theater, but does not provide much assessment on logistical command relationships, tensions between forces, or the transition of operational logistics from the assault phase to the sustainment phase of operations. Nor do these unit histories provide a critical analysis of how the theater solved operational logistics problems or whether units applied these lessons to future operations.

Considered in total, the existing literature provides a good understanding of strategy and of the national-level logistics initiatives from which to construct the theater story. These works also

³⁵ Logistical history of NATOUSA, MTOUSA.

highlight a number of questions to pose to the Mediterranean theater: how and why was the theater and its support force organized as it was? Could the theater have prevented logistics shortfalls from occurring, or were these inevitable? Were shortfalls the product of systemic problems in theater-level planning, organization, individual decisions, or capabilities? What was the impact on logistics of decisions made by senior combat commanders, such as Eisenhower or Patton? What was the relationship between the different forces: ground, air, and support? Did the theater learn from any support problems to prevent repetition in future operations? Finally, were US logistics doctrine and units sufficiently agile and flexible to deal with the battlefield of the mid-twentieth century? These questions are the focus of this study.

For context, Chapter II describes the American experience with theater support in the First World War and the development of sustainment doctrine during the interwar years. This serves to provide a reference for the thinking and decisions of senior commanders, such as Eisenhower, Bradley, and Patton. The subsequent chapters of this study center on the major assaults and expansions within the Mediterranean theater during the Second World War.

Chapters III, IV, and V deal with North Africa. Chapter III focuses on the planning and execution of Operation Torch, the Allied amphibious assault of North Africa. The invasion of North Africa illustrated just how unprepared the US was for conducting amphibious operations and for supporting mechanized forces once they were ashore.

Chapter IV lays out the establishment and subsequent build-up of the US military theater in the Mediterranean. Once in North Africa the US military needed a capable support organization that could sustain forces and enable combat operations across wide distances. Chapter V finishes fight for North Africa by detailing the effort needed to support the Tunisian campaign.

The experiences of North Africa clearly demonstrate the level of inexperience of the US combat and support forces, as well the inexperience of senior theater leaders, such as Generals Eisenhower and Clark. In essence, the landings and missed strategic opportunities of North Africa show just how unprepared the US was in late 1942 to conduct modern warfare against a capable foe.

Before facing the German military in France, the US military would need to refine its support concepts and learn how to work alongside its British partners. Senior officers working for the North African Theater headquarters would need to learn their roles and develop the techniques of establishing and running a military theater. The battles for Algeria, Morocco, and Tunisia provided a checklist of deficiencies that drove US efforts for logistical improvement over the next two and a half years.

Having secured North Africa by May 1943, the Allies then turned their attention to east. Chapter VI deals with the campaign for Sicily. Coming at the heels of Allied victory in Tunisia, the Sicilian campaign shows some improvement in how the US organized the theater, resulting in a more balanced invasion force. New amphibious equipment made its premiere in Sicily, greatly aiding the amphibious assault and later sustainment efforts. New beach units provided greater control over the landing sites. However, Sicily also showed that the US needed to improve its doctrine further concerning responsibilities for supply, transportation, and engineering. The experiences of Seventh Army demonstrated that there were still problems managing the support effort occurring behind the divisions. However, the loading and support of Seventh Army from the shores of Tunisia provided invaluable experience to the supporting base sections, experience that would pay off in future amphibious assaults.

The Allied invasion and subsequent combat operations in Italy, along with the maturing of the Mediterranean theater organization in North Africa, are in Chapter VII. By the time of the Italian invasion in the fall of 1943, the Mediterranean theater had come far. The difficult task of staging and conducting amphibious landings had become almost routine and the theater made a seamless transition in developing Italy into a combat area with a supporting communications zone. Engineers gained valuable experience in clearing destroyed ports - a skill that would be of great value in France, as well as in the drive north of Rome. The supporting Services of Supply matured as an organization as base sections across North Africa, Sicily, and Italy grew or shrank in response to the changing situation. Theater support units learned how to extend rail lines, roads, and pipelines on a scale not seen before in North Africa or Sicily. Italy represented the campaign in which administrative equipment, forces, and doctrine all came together to form a viable, efficient theater structure. The lessons of Italy directly informed the planning for the upcoming invasion of northern France, as well as helped enable the invasion of southern France.

Chapter VIII deals with the invasion of Southern France and the issues associated with transferring the Sixth Army Group and its line of communication to the European theater. Named Operation Dragoon, the invasion of southern France represented the high point of operations within the Mediterranean. During the fall of 1944, the US Mediterranean theater would support over 1.2 million US and coalition troops, divided between France and Italy. Operating as a secondary theater, the Mediterranean would make a significant contribution to the fight in France and Germany, allowing Eisenhower to flow in more forces and support than otherwise would have been possible, thus allowing a quicker end to the war in Europe.

Chapter IX concludes the study by looking at the end of the war in Italy, and explores the impacts and influence of the Mediterranean theater on the European theater. The chapter also compared the levels of administrative support achieved during the Second World War in Europe and compares them to the levels achieved during the First World War. The results show just how far US support organizations and doctrine had improved since 1918, largely because the US theater was a learning organization that took advantage of the opportunities afforded in the Mediterranean.

Considered in total, these nine chapters tell the story of a US military that was ill prepared to conduct large-scale amphibious assaults at the beginning of the war and just as unprepared to effectively and efficiently build and run an overseas military theater. Through circumstance and chance, however, the combined Allied strategy of making the first attacks into the Mediterranean provided an opportunity to shape and build US forces, something much needed in the newly conscripted force. Thus, the Mediterranean provided the chance to identify deficiencies, work out solutions, and rehearse procedures before engaging on the primary objective - a direct assault into France. A look at the US experience in the First World War shows how great an impact the theater has on an army and just how far the US had to go to fix a broken system.

Chapter II: Lessons not Learned- The First World War and Interwar Years

The First World War provided insights into the nature of modern warfare, offering opportunities for western militaries to learn and adapt. Technological developments, such as machine guns, large caliber artillery, trucks, and aircraft provided a glimpse into what future battlefields might entail. Large armies traveled across oceans and needed a supply chain back to their home nations because they could not live off the land. Militaries were increasingly reliant on ever-increasing quantities of fuel, ammunition, and repair parts. Trucks were beginning to replace horses for supply activities in the rear areas. Additionally, militaries provided administrative support to the forces of other coalition partners. There were many lessons to learn, but the US largely failed to take advantage of the opportunity. This situation directly led to the problems experienced in the support of US military forces at the start of the Second World War.

This chapter looks at the experiences of the First World War and the interwar years to assess what lessons were there and whether the US took advantage of these lessons. Exploring the First World War is important because this represented the beginning of modern warfare in terms of the size of the armies, and addition of aircraft, and the sizeable amounts of material needed to sustain the force. Additionally, the First World War included the requirement for a separate support force that could establish a base of support on foreign soil and then receive, organize, store and transport the supplies and equipment needed at the front lines. Importantly, a tension developed between the combat and support forces, which became one of *the* central problems in modern warfare- a problem militaries had to overcome in order to achieve their full potential.

The experiences of the First World War support the argument that the US had developed the initial organizations and structures necessary to operate a full theater of war, but leaders lacked any appreciation or experience in how to run such organizations. Indeed, the US military theater in France never developed the capabilities demanded of it and was on the verge of collapse in 1918. This was partly due to a lack of resourcing, combined with a lack of support from military and civilian leaders. Commanders had little regard for the work performed by the troops in the rear; soldiers could only find glory on the front lines. Finally, the US theater commander, General John Pershing, proved to be a talented leader and tactical commander, but was a less-than-effective theater commander. Command of a theater requires a focus on *both* the forward combat area as well as the supporting communication zone. Although he has a tremendous reputation, Pershing was a commander that tended to focus his attention solely on the combat area, but failed to fully appreciate the effort needed to build and resource a viable support structure in the rear areas. As such, the US communications zone and its associated forces never received the resources needed to enable them to do all that the nation asked of them. Officers serving under Pershing, that would later command theaters in the Second World War, would take away the wrong conclusions on how to build a force and resource a theater of war.

Finally, this chapter will also argue that the US could have done more during the interwar years to build on the lessons of the First World War. The War *did* confirm the doctrine for dividing a theater into two distinct zones (combat and communications), but shrinking budgets and a diminished Army prevented the military from actually exercising this doctrine. America developed a sense of isolationism between the wars and Congress was not interested in paying for an Army that could deploy and sustain itself overseas.

By 1942, the Army was steadily working to modernize its units. Trucks replaced horses. The new force included large tanks, fighter aircraft, and bombers. However, there was insufficient consideration on the ramifications of trying to support this new force, especially an Army deployed overseas. Unit exercises during the period were modest and focused on tactics, not support. Military and civilian leaders still viewed combat troops as being more important than service troops. The Navy was more interested in building battleships than convoy escorts or assault craft. As such, the US military of late 1942 had the necessary doctrine required to establish a theater, but no real understanding of how to put this *effectively* into practice. As chapter III will vividly demonstrate, the ominous consequences of this detriment of logistics personnel and capability would become clear during the invasion of North Africa and would ultimately result in thousands of additional Allied casualties and add (up to) six months onto the Allied Tunisian campaign.

Evolving Warfare

There was a constant balancing act throughout both World Wars as combatants worked to gain an edge over the opposing side through the modification of tactics and the equilibrium between combat forces and support forces. There was an underlying note of tension during both the wars as theater support commanders argued for more support personnel to sustain the growing armies, while battle commanders demanded more combat troops to throw against the enemy. The side that balanced its requirements best had a marked advantage over the adversary.

To complicate matters, the First World War showed how modern warfare demanded greater amounts of supplies and equipment, but developments in industry and technology continued to change the nature of the battlefield. Navies could now engage in battle over the horizon with air

power. Men, artillery, and animals had dominated the battlefields of the First World War; however, by 1939, motorized vehicles, armor, and air power ruled. The defensive battles of 1914-1918 had given way to a new, more mobile, offensive way of war. Armored warfare meant that breakouts through the front lines could happen with greater frequency and extend for greater distances at a pace previously unknown. The growth of air forces produced an increased demand for resources along with greater operational ranges. Perhaps most significantly, by late 1942 the Allied forces were engaged in a multi-theater war that spanned the globe. Considered in total, the increased number of military theaters, combined with new capabilities within the armed forces, produced an exponential demand on the respective support structures. Warfare had continued to evolve, but Army planners had not fully realized the extent of the transformation. As a result, the US did not have the necessary support units required to sustain planned mechanized and air combat operations at the beginning of the war.³⁶

However, not everything that characterized modern battle had changed by 1939. Artillery was still the king of battle and was a major part of almost every major engagement. Armies still lived on their stomachs, requiring food and water. Navies and merchant ships transported bulk supplies to the theaters and the army then further had to move these over land to the combat units. Combat forces fought on the front, while service units worked in the rear areas to sustain the fight. In short, the two wars had some elements of commonality, but fundamental differences in equipment and tactics increased theater support requirements exponentially.

³⁶ Eccles, 134.

Theater Support and the First World War

Army doctrine published immediately prior to the beginning of the First World War called for the creation of a “line of communications” to connect the combat forces at the front with the supplies and equipment sent from ports within the United States.³⁷ This line of communications consisted of the service units, ships, roads, railways, and other infrastructure needed to move men and materiel. Included in this were ports of debarkation (getting off the ship), military camps, and bases. Additionally, the doctrine of the time called for service units to form bases in the rear area, which served as the main support areas for the deployed army.

Prior to Pershing’s arrival, an advance party from the American Expeditionary Force (AEF) arrived in France in the summer of 1917 with the mission of identifying a line of communication that could support an American army of several million men. This area needed to have suitable ports, and be located in an area suitable for offensive operations and for training. Commanders selected the Lorraine region due to its available port facilities, sufficient rail network, and locations suitable for the establishment of supply and personnel depots.³⁸

Over the previous three years, the French had established a system whereby the theater divided into two distinct zones – the Zone of the Interior and the Zone of the Armies. The former was the source of supplies for the armies and the latter was the user of these supplies. When the AEF arrived in France, they overlaid an American system atop the French design, largely following the French system of support for the combat forces.³⁹ Thus, the US experience

³⁷ *Field Service Regulations*, United States Army, 1910. MHI. 13-14 and 129-130.

³⁸ *Organization of the Services of Supply* (Washington: American Expeditionary Forces, 1921), MHI, 10-12

³⁹ *Ibid.*, 13.

of theater support in the First World War was one of units operating out of static locations and using a system that had already been in place for several years.

Although the doctrine of 1917 called for a line of communications to support combat forces in a theater of war, there was no doctrine to specify a specific type of command or organization to operate and oversee such an operation. The AEF established a Line of Communications organization under a general officer on the AEF staff on July 5, 1917; however, as the size of the American contingent increased in France, the administrative responsibilities to care for the force soon overwhelmed the AEF Headquarters staff. Over 20 different agencies had direct access to Pershing and the AEF General Headquarters Staff.⁴⁰ The administrative system was complex and terribly inefficient. Pershing realized that in order to focus on the enemy, he needed to divest the general headquarters of at least some of its administrative duties.⁴¹

On September 6, 1917, the First Section, G1, prepared a study on the subject. Titled the “Service of Rear Project,” the study recommended the creation of a separate organization to consist of quartermaster, medical, ordnance, signal, aviation, engineers, and other support forces operating within the line of communications. Pershing approved the creation of the organization on September 18, 1917, although the AEF later changed the name to something less odious – the Services of Supply (SOS).⁴² Pershing’s intent was to relieve combat commanders from all possible problems that did not directly involve the enemy and to place matters of administrative support into a different command chain, albeit one that still fell under control of the AEF.

⁴⁰ James Harbord, “The Services of Supply from July 1918 to May 1919” (speech to Army War College, April 7, 1930), MHI, 6.

⁴¹ Organization of the Services of Supply, 15. Also see John Votaw, *The American Expeditionary Force in World War I* (New York: Osprey Publishing, 2005), MHI, 57

⁴² *Service of Rear Project* (General Headquarters American Expeditionary Forces, September 6, 1917), MHI 1.

Pershing's headquarters issued General Order number 31 on February 16, 1918. This order redesignated the rear area from a Line of Communications to the Services of Supply. More important than a name change, the order also charged the Services of Supply commanding general with the responsibility to coordinate all administrative duties in the rear areas, except for Adjutant General, Inspector General, and Judge Advocate. The newly formed organization established its headquarters in Tours and the AEF ordered all administrative and technical chiefs within the army to coordinate their activities through Services of Supply headquarters.⁴³

This was an important development in the doctrine of theater support—one that would remain contentious for the next 37 years. Technical chiefs, such as the Chief of Transportation, Ordnance, or Quartermaster, were traditionally senior officers with vast powers and direct access to the overall commander. Now, the theater headquarters was shedding itself of most administrative responsibilities and the technical chiefs found themselves still on the AEF staff, but with less power and less direct access. This change also represented a significant philosophical change in command responsibilities. With the creation of the Services of Supply, the combat commanders were to focus on the enemy and leave the details of administrative support to a new group of theater administrative commanders.

Pershing's creation of a theater administrative headquarters that was geographically and organizationally separate from the overall theater headquarters established a precedent that Eisenhower carried on 25 years later. As both Pershing and, later, Eisenhower discovered, the arrangement simplified the workload on the general headquarters, but raised other issues, such as identification of specific responsibilities and authorities for administrative planning, staffing of

⁴³ Organization of the Services of Supply. 15-16.

the rear and forward areas, and prioritization of support efforts. The move looked clear on paper, but in both wars, it raised unforeseen challenges for the theater commander, his staff, and the Services of Supply.

The creation of the line of communications and Services of Supply led to the distinction between two areas of the battlefield: one focused on combat operations and one on the administrative actions necessary to build and sustain combat forces.⁴⁴ This also led to the distinction between two different types of forces within the theater-- one routinely engaged with enemy forces and one that was not. Tensions developed as front-line soldiers and commanders noted the difference and treated the service forces in disdain compared to the combat forces. Even Pershing, who knew the importance of the sustainment effort, diminished morale among Services of Supply officers and men by viewing the efforts in rear areas as “not exactly doing the work of soldiers.”⁴⁵ Pershing’s reward for a Services of Supply soldier that exemplified himself was not a promotion or a medal, but, instead, a set of orders for a combat division.⁴⁶ This illustrates what Pershing and his top commanders felt about the Services of Supply – the organization had an important duty, but glory and rewards came by engaging with the enemy at the front.

The differentiation between combat and support forces had long existed on the modern battlefield, but for the American army the First World War amplified this distinction greater than ever before. It is not too difficult to explain why this happened. Certainly, the combat forces developed some level of resentment against the support forces. As combat units arrived at the

⁴⁴ Votaw, 57.

⁴⁵ Brian Neumann, “Pershing’s Right Hand: General James G. Harbord and the American Expeditionary Forces in the First World War” (doctoral dissertation, Texas A&M University, 2006), 368.

⁴⁶ *Ibid.*, 370.

French ports and moved forward to the combat areas, they passed support forces that operated in a relatively secure area with access to many of the comforts lacking at the front. These same visions of a soft and secure life in the rear areas contrasted sharply with the harsh realities of the trenches.

Perhaps the nature of the war affected attitudes as well. The battlefield of the First World War was far more lethal and raw than anything previously experienced. The American Civil War had ended 52 years earlier. For the first time in modern warfare, there was a significant possibility of large-scale death, dismemberment, or blindness due to machine-gun fire, outsized artillery, and chemical munitions. How could the troops in the infantry, cavalry, or artillery not help but feel some level of resentment toward their Services of Supply colleagues? The attitudes of Pershing and other senior commanders in the AEF show that leaders viewed the combat forces in a different light than that of the service forces. These attitudes ultimately had a negative impact of AEF operations and contributed to a situation where, by the middle of 1918, the Services of Supply was unable to meet its administrative tasks.

In the summer of 1918, three critical factors led to the near-collapse of the AEF supply system. First, the War Department and AEF Headquarters decided to delay the shipment of scheduled service forces to France in favor of additional combat divisions. The original plan called for the War Department to ship an entire corps as a package – support forces accompanied combat forces so the ratio of forces would remain constant as the American force grew in France. However, as the situation at the front grew more desperate, the other Allied powers pleaded for an increase of infantrymen and artillerymen. In response to this demand for additional combat power, the US War Department scheduled an additional 420,000 Americans to

arrive in France during May and June 1918, but the Services of Supply did not have sufficient personnel or equipment to support this increased force. Additionally, Services of Supply troop deployments were less than half of the planned amounts, even though the overall level of requirements was increasing. The Services of Supply found itself in a position where it did not have enough service forces in France to support the force already deployed; yet additional combat forces were surging onto the continent to meet the spring German offensives. Despite its best efforts the Services of Supply was in a position where it could only fall further and further behind as the demand for resources increased, but the level of service units did not increase at a corresponding rate.

As the surge of forces grew, the Chief of American Railroads, General Wallace Atterbury, argued that he needed 5,000 more locomotives and 30,000 additional rail cars just to handle the influx of combat forces scheduled to arrive that summer.⁴⁷ This additional equipment never fully arrived in France because it had to compete for shipping space from the US. No additional rail equipment was available on the Western Front or in England. Further complicating matters, the British planned to turn four divisions over to the AEF in June, without any theater support units, which only further added to the supply shortfalls.⁴⁸

The result was that the theater did not have the right makeup of forces to support itself and the quantity of materiel offloaded at the French ports fell substantially in relation to the number of US forces on the ground. The AEF had plenty of bayonets, but not enough howitzers. There were not enough signal units to string wire and establish communications and not enough engineers to build and maintain the roads. There were not enough medical personnel or

⁴⁷ James Harbord, *Leaves from a War Diary* (New York: Dodd, Mead, & Co., 1926), 302.

⁴⁸ *Ibid.*, 309.

stevedores. The AEF was short of ambulances, locomotives, wagons, and horses. The effort to speed up the arrival of combat forces by delaying the shipment of service personnel unbalanced the force and overworked existing service forces.⁴⁹ By replacing service forces with combat units the AEF had created a situation where it had enough combat forces to form divisions, but not the right mix of forces to form the higher-level organizations of corps and armies. They had plenty of tooth, but little tail, meaning that that the AEF lacked the necessary forces with specialized skills and equipment to execute all the tasks required of an independent force.⁵⁰

A second problem for the Services of Supply, one that plagued the AEF throughout the war, was an overall shortfall in ground transportation. The American service units simply had insufficient equipment and trained personnel to move the quantities of supplies from the ports of debarkation forward to the combat forces. The Services of Supply did not have the rail engines, wagons, rails, ties, or construction equipment to develop port terminals and rail lines. There were not enough lorries available to move men and supplies to locations beyond the reach of the railways. There were not enough trained stevedores, rail engineers, or mechanics to efficiently offload and transport materiel. Finally, the theater lacked an organization that could manage all of the transportation requirements and capabilities. Without the right transportation system, units or supplies might be physically located within the theater, but not be at the necessary place within the specified time.⁵¹

The AEF had little control over shipments of equipment from the US, other than prioritizing requisitions, but it did establish a new Transportation Department within the AEF to manage

⁴⁹ Neumann, 365.

⁵⁰ Ibid., 312-313.

⁵¹ Johnson Hagood, *The Services of Supply: A Memoir of the Great War* (Boston: Houghton Mifflin, 1927), 211.

available transportation assets. The Department started out as a semi-autonomous organization but, by July 12, 1918 it was fully amalgamated within the Services of Supply.⁵² The centralized management of transportation was a step in the right direction, but the physical limitations from the lack of equipment greatly constrained resupply efforts throughout the war.

The third factor that led to a near-collapse of the supply system within the AEF was the low morale of Services of Supply troops and officers. Pershing often spoke of the invaluable service rendered by service forces; however, AEF personnel policies did not reflect this attitude. Services of Supply units were often undermanned. Additionally, the AEF assigned personnel to these units with little regard for any civilian experience or expertise. By the time of the armistice, the Services of Supply had only 1,170 officers assigned out of 4,000 authorized.⁵³ The Services of Supply had little control over assignment or promotions. The AEF based promotions on seniority and not on performance or competence, thus limiting talented officers from advancement and preventing the Services of Supply from utilizing their full capabilities.⁵⁴ Ultimately, the lack of assigned manpower, plus limited opportunities for advancement, produced a support organization that was simply not motivated or capable to doing everything asked of it.

To further compound the problem, the Services of Supply found itself the dumping ground of officers that were too incompetent to remain at the front, but not so incompetent as to force their immediate return to the US. Many of the officers assigned to the Services of Supply were senior officers that had effectively failed in combat units and no longer had the confidence of

⁵² Ibid., 212.

⁵³ Johnson Hagood, *The Services of Supply: A Memoir of the Great War* (Boston: Houghton Mifflin, 1927), 195

⁵⁴ Johnson Hagood, *The Services of Supply: A Memoir of the Great War* (Boston: Houghton Mifflin, 1927), 186.

their commanders. Supply shortages and incompetent officers reassigned from the front tarnished the reputation of the Services of Supply.⁵⁵ As an example, in August 1918, the Services of Supply received seven American brigadier generals from the front. Pershing judged these men as being unfit for command in the front, but was unable to send them home because their faults were not sufficiently abhorrent. Unfortunately, many of these relieved officers had little experience in administrative operations and were unsuited for positions within the Services of Supply, doing little to improve morale of the soldiers. Major General Harbord, the Services of Supply commander, usually reduced these generals to the permanent rank of colonel and used them somewhere in the Services of Supply. Some worked out; some did not, while others went back to the front for another chance. The AEF even reduced a few of these relieved general officers to the rank of major. All of this contributed to a level of ineffectiveness and inefficiency within the Services of Supply and degraded unit morale and esprit de corps.⁵⁶ In the final assessment, an imbalance of combat and service forces, a lack of ground transportation, and the poor personnel policies of the AEF toward service forces all contributed to the poor performance of the theater administrative support structure.

The history of the Services of Supply in the First World War provides a baseline from which to judge Allied Force Headquarters (AFHQ) efforts to establish a theater of operations in 1942. The AEF recognized the need for a separate administrative headquarters to run the administrative functions of the theater and developed a theater support organization, but the utility and effectiveness of this new organization were questionable. There was a good chance that, given the imbalance of forces, shortage of transportation assets, lack of personnel, and other limiting

⁵⁵ James Harbord *Leaves from a War Diary* (New York: Dodd, Mead, & Co., 1926), 349.

⁵⁶ *Ibid.*, 344-345.

factors, the AEF support system would have imploded had the armistice not occurred when it did.⁵⁷ Despite this, the Allies won the war, the US demobilized its army, and the world moved into the interwar years.

Interwar developments: the US Army before Pearl Harbor

The First World War had shown that theater logistics organizations were an important aspect of modern warfare. The concepts and structures that Pershing tested in France, such as the Services of Supply, became widely adopted throughout the American military between 1940 and 1942. In a significant move that affected the entire force, the Army also eliminated most horse transportation and remount units in favor of motorized and mechanized units. The capability to achieve speed and operational maneuver replaced the all-terrain capability afforded by horses and mules. The demand for fuel and repair parts replaced the need for fodder.

Based on the experiences of the previous war, doctrine in the interwar years still dictated that theaters divide into two spheres, a combat zone, and a communications zone. Combat operations occurred in the forward areas, support activities took place in the rear. Administrative troops might be found anywhere in these two zones, but were mostly assigned to a special Army Service Command that operated from the communications zone.⁵⁸

The manual that dictated the organization of the theater was the Army's 1940 *Field Service Regulations: Administration*, otherwise known as FM 100-10.⁵⁹ This manual served as the basis

⁵⁷ Neumann, 384.

⁵⁸ Huston, 492.

⁵⁹ *Field Service Regulations: Administration* (Washington: Government Printing Office, 1940). Change 1 dated April 29, 1942.

for identifying organizations, responsibilities, and definitions. Some useful definitions that are essential to understand the story of theater support include:⁶⁰

Administration: All phases of military operations not involved in the terms “tactics” and “strategy”. It consists of supply, evacuation, sanitation, construction, maintenance, replacements, traffic control, salvage, graves registration, movements, quartering, military government, martial law, and other allied subjects.

Combat Zone: The forward area of the theater of operations, an area typically divided into army, corps, and division areas.

Communications Zone: The territory between the rear boundary of the theater and the rear boundary of the combat zone. The communications zone typically includes supply, transportation, maintenance, medical and other administrative units and functions.

Day of Supply: The estimated quantity of supplies used in one day of operations.

D-Day: The first day of an invasion or ground operation. In amphibious operations this is the day assault force come ashore. Subsequent days are numbered, i.e. D+1, D+2, etc. Days prior to

⁶⁰ Ibid., 1-4.

the operation may have a negative number, i.e. D-3 is three days prior to the start of the operation.⁶¹

Depot: A storage facility that receives, classifies, stores, and issues supplies or replacement personnel.

Dump: A temporary stock of supplies issued by a corps or division, typically organized by the type of supply, i.e. ration dump.

Line of communication: the network of roads, railways, and waterways that connects the zone of the interior to the communications zone and the communications zone to the combat zone. This can also be the formal designation of a British support unit with responsibilities for operating the communications zone.

Railhead or Truckhead: A supply point where loads are transferred from a type of transportation, i.e. Ammunition Railhead.

Requirements: The estimated needs for a military force to include supplies, maintenance, equipment, and personnel.

⁶¹ The term D-Day first appeared in US plans during the interwar years; examples included the 'colored' plans, such as Plan Orange. During the First World War the French used the term J-Day, probably referring to the French word for day - jour. D-Day represented the first actual day of ground operations, H-Hour represented the first hour. US planners probably carried this terminology back to the US following the war, where it became part of the military's lexicon.

Theater of operations: Land, sea, and air in an area that is desired to invade or defend. There may be several theaters of operations.

Unit of fire: The estimated quantity of ammunition that a particular unit might expend during one day of combat.

Zone of the interior: National territory exclusive of the theaters of operations, such as the continental United States.

The theater commander was the single individual responsible for all US Army combat and support activities within the theater of operations. His duties included making strategy, defending friendly territory, and providing for administrative support of all US forces.⁶² Depending on the situation, the theater commander could also have responsibilities for coalition forces as well, but the specifics were determined on a case-by-case basis and could vary as the situation changed even within a theater. Pershing, for example, was the theater commander for US forces in the First World War, but he had no responsibilities over the forces of other Allied nations unless those forces were attached to the AEF for a specific operation or period of time. General Eisenhower, on the other hand, served as not only the US Army and joint theater commander in the Mediterranean, but also as Supreme Allied Commander over all Allied forces. In short, the responsibilities of a theater commander remained relatively unchanged for US Army forces, but could vary greatly in regards to authorities over joint or Allied units.

⁶² Field Service Regulations Administration, 9.

A final note concerning the role of the theater commander is that he was also responsible for “such civil government as may be appropriate under the situation.”⁶³ Later chapters will show this responsibility to care for and govern local populations was not merely a minor task or afterthought, but instead, placed considerable demands on the Allied force and especially on the theater support system.

Within the Mediterranean, the US and Great Britain held similar views on the role of the theater commander. The US commander of the North African Theater of Operations, US Army (NATOUSA) and the British Commander in Chief Middle East essentially had the same administrative responsibilities for their respective forces. In addition to providing administrative support for combat forces, each of these commanders was also responsible for the ports, bases, cities, civilians, and political problems within the theater.⁶⁴ Authority over other Allied combat forces depended on whether the theater commander also served as a supreme allied commander, such in the case of General Eisenhower.

Not every theater of war subscribed to this arrangement of a single supreme commander, with individual theater commanders for each of the major Allied nations. The Pacific theater, for example, split itself between two sub-theater commanders: Nimitz and MacArthur. For the Mediterranean, however, the system of a single theater commander for each of the major Allies worked well and was eventually carried over to northwest Europe for the cross-channel assault later in 1944.

While the theater commander had overall responsibility for the administrative support of US forces, it was the theater general staff and Army service forces that actually did the planning and

⁶³ Ibid., 10

⁶⁴ Arthur Bryant, *The Turn of the Tide* (New York: Doubleday, 1957), 366.

carried out the actions necessary to sustain the force. On the theater staff, the G4 had responsibility for planning sustainment operations and establishing priorities among the units for movements and essential supplies.

The communications zone contained all of the administrative units and agencies necessary to sustain the theater. This included ports, civil facilities, railways, supply activities, hospitals, transportation centers, and maintenance facilities. The communications zone, or COMZ as was sometimes abbreviated, did not have a set organization, but instead, could be designed and modified to fit the situation. Typically, the forward area of the communications zone contained stocks of supplies to sustain units within the combat zone. The rear area of the communications zone was usually focused on receiving items from the US or Great Britain (also called the zone of the interior) and procuring items from local sources.⁶⁵

Army doctrine in 1940 intentionally provided for a flexible command structure within the communications zone. Recognizing that differing situations called for different structures, the Field Service Regulations simply specified that the communications zone was to have a commanding general, general staff, and special staff. Specifically, “the communications zone will therefore not be organized in the same manner in every theater of operations; each case will present a different problem.”⁶⁶ This meant that it was up to the theater commander and the commanding general of the communications zone to develop the theater support organization that made the most sense for a particular theater. This serves as a caution against attempting to make direct comparisons between different theaters. Personalities, geopolitical considerations,

⁶⁵ Ibid., 20.

⁶⁶ Ibid., 21.

coalition preferences, terrain, mission, and the enemy all played a role in how each theater was organized.

The US system called for supplies to move from the rear to the front. Each echelon, starting in the zone of the interior, pushed materiel forward to the next lower echelon, until these supplies eventually reached the front. However, the commander at each level had to predict the accurate needs for his unit and forwarding those needs to the next higher level as a requisition. Commanders were also responsible for drawing supplies and then distributing them within their own commands. This meant that the collective requisitions from all units formed the overall needs of the force within a theater. As such, the accuracy of the requisitions coming from the front had a direct tie to the workload placed in the theater support forces. Theater support units might order supplies up to six months in advance to allow for production and shipping timelines. Inaccurate forecasts or unanticipated demands could easily result in supply shortages of one item and overproduction of another.

The experiences from the First World War had shown that transportation was a major part of the modern battlefield. In 1940, the US Army viewed railways as the principal means of transportation to and from the combat zone due to the tremendous capability of rail cars compared to that of aircraft or cargo trucks.⁶⁷ However, rail was limited to existing lines or construction capability, as well as available equipment and trained personnel.

Motor transport served as the bridge between the end of rail lines and the front lines. Cargo trucks were in all major units within the US Army throughout the theater. The theater consolidated unassigned truck units and formed these into a Motor Transport Service to support

⁶⁷ Ibid., 42.

the communications zone and the priorities of the theater commander. The theater assigned some of these truck units to armies and assigned others to support the myriad ports, supply dumps, and hospitals.⁶⁸ Realizing that these assets were limited, doctrine allowed for the consolidation of all vehicles within the Motor Transport Service to meet a specific priority or need. Examples of this consolidation, such as the Red Ball Express in the European theater, occurred throughout the war in several different theaters and serve as examples of the flexibility of US support doctrine.

Ever since 1918 there was an on-going debate within the US Army on whether commanders at different levels should have responsibility over administrative matters, or should they instead focus on issues dealing solely with combat operations. To resolve this debate the Army decided that, under normal conditions, regiments would use their own transportation to draw supplies from army supply points. Divisions would carry a reserve stock of supplies sufficient only to meet unforeseen requirements. Corps, when attached to armies, had no administrative functions other than to support corps troops (those forces assigned to a corps, but not to a division or regiment).⁶⁹ Most of the administrative burden within the combat zone fell on armies. Armies were the largest administrative unit in the combat zone and it was the army commander's responsibility to organize and conduct sustainment operations. The army received its supplies from the communications zone as well as from local sources within the army area.⁷⁰ Thus, commanders below that of the army level normally had only a limited responsibility for administrative support.

⁶⁸ Ibid., 43.

⁶⁹ Ibid., 57-58.

⁷⁰ Ibid., 47.

This was the state of US sustainment doctrine in 1942 and it remained largely unchanged during the Second World War. These concepts were common knowledge throughout the force and served as the basis for subsequent administrative planning throughout all of the Mediterranean operations. Most importantly, the doctrine assigned specific responsibilities to different levels of command; responsibilities that determined how the sustainment system should work.

A critical component of the doctrine is that it provided for a flexible and practical motorized logistics capability at all echelons, from the communications zone to the front. This proved to be a contributing factor to Allied victory because it allowed the theater logistics organizations to maintain the flow of supplies to the forward areas. The support units of the communication zone were not always successful in maintaining pace with the lead divisions, especially in breakout and pursuit operations, but the supplies always eventually caught up. Had the Army not pursued as vigorous an effort in transitioning from horses to trucks the results would probably have been quite different, as the German Army discovered during the course of its operations.

The German Approach to Support

While the United States was pursuing a mechanized approach to modernization of its military forces during the interwar years, Germany took a slightly different tack. Although a considerable amount of historical attention has focused on Hitler's armored forces and their *Blitzkrieg* tactics, a significant percentage of the German army relied on horse-drawn vehicles throughout the Second World War, especially in German logistics units. Only a few German units were motorized, typically these were the first-line mechanized divisions. Only the German

armored divisions with their accompanying motorized infantry divisions were totally free of horse-drawn vehicles.⁷¹

Of the 103 German divisions that existed in 1939, only 16 were fully mechanized or motorized. Additionally, the Germans had just three motor transport regiments in the entire Army with a combined cargo capacity of 19,500 tons. In comparison, for the invasion of northwest Europe in 1944 the Allied forces landed a motor transport capability of 69,000 tons.⁷² German industry worked to field additional transport units during the war, but they were never able to divest the military of its dependence on horse transport.

The German dependence on horse-drawn vehicles meant more than a loss of cargo capability; it also meant an increased requirement for supplies and support. While horses did not require gas or oil to keep moving, they did need fodder and veterinary support. The requirement for fodder placed a sizeable demand on the German transportation system since it is relatively bulky compared to its weight. A first-line infantry division in 1939 had to feed an average of 4,800 horses a day. Second and third-line divisions maintained over 6,000 horses each.⁷³

Germany ultimately fielded almost twice the number of horses during the Second World War as it had in the First - 2,700,000 for the former and 1,400,000 for the latter.⁷⁴ The Allied forces, in comparison, had virtually no horse-drawn transport in their armies during the Second World War and relied on pack mules only for use in terrain that was unsuitable for wheeled vehicles.

The German reliance on horse transport makes some sense when considering the High Command's assumption that the war was going to be of short duration. During the early years of

⁷¹ Larry Balsamo, "Germany's Armed Forces in the Second World War: Manpower, Armaments, and Supply" in *The History Teacher* (vol 24 Number 3, May 1991), 267. <http://www.jstor.org/stable/494616> accessed June 26, 2009.

⁷² Julian Thompson, *The Lifeblood of War: Logistics in Armed Conflict* (New York: Brassey's, 1991), 53.

⁷³ Balsamo, 266.

⁷⁴ Ibid.

the war Germany was largely able to operate on internal lines of communication over good roads and, more importantly, with an established and sizeable rail network. German logisticians estimated that one 200-mile stretch of double track railway equaled the capacity of 1,600 trucks.⁷⁵ As such, Germany could afford to assume risk by not motorizing its field armies and support organizations. Railroads were capable of quickly moving men and materiel between the fronts. However, the war developed into a conflict of attrition involving great distances. Allied bombers systemically targeted the railways and factories that supplied rail equipment. Rail capabilities in German territory fell and the German Army lacked sufficient cargo trucks to make up for the difference. Given the reliance on horse-transport, German supply organizations were simply not equipped as well as they could have been to sustain large mobile armies in a war of attrition.

Conditions Leading to Torch

By the time of the 1918 armistice, nearly 34 percent of the two million members of the AEF in France were in the service forces and this number had proven insufficient for the task of supporting US forces along the Western Front. The need for service forces dropped during the interwar years and by 1942 service forces comprised less than 12 percent of the US Army.⁷⁶ The War Department had recognized that the nature of warfare had changed, but it failed to recognize the role that service forces played in supporting a type of warfare that involved mechanized and air forces capable of moving quickly across vast distances.⁷⁷

⁷⁵ Ibid., 266-267.

⁷⁶ Eccles, 134.

⁷⁷ Ibid.

Analysis of the 1941 Victory Plan shows just how far off the mark the War Department was in terms of predicting the types of forces the Army needed. The plan's main architect, Major Albert Weidemeyer, used the World War I ratio of 1:1 for a division – meaning that for every ground combat soldier the army needed an additional soldier for other support or administrative duties. Accordingly, Weidemeyer planned for a division-slice (the total combat and non-combat force needed for each division) of 30,000 men. This represented 15,000 men in the division and an additional 15,000 in support.⁷⁸ Operations would prove this number hugely inadequate.

Unbeknownst to Weidemeyer, equipment modernization and the proliferation of military technology on the battlefield had altered the ratio of combat-to-support forces. Mechanized warfare depended on motor vehicles, which, in turn, needed fuel and specialized maintenance. During the First World War, there was one vehicle per every 37 soldiers. By 1945, the ratio was one vehicle per 4.3 soldiers.⁷⁹ Additionally, other new equipment, such as tanks and self-propelled artillery, required specialized support as well, meaning that the combat unit end strength in the divisions remained relatively stable, while the number of required support forces steadily increased. In 1941, the Army had planned on a ratio of 1:1, but the actual ratio needed for modern combat was closer to 1:3. By 1945, only one-fourth of the Army consisted of ground combat soldiers.⁸⁰ The ratio between combat and support forces changed greatly during World War II, but it took the lessons of actual combat to force the needed changes.

The inability of the War Department to anticipate the correct ratios of combat to service forces produced a number of consequences. First, planners failed to account for the number of

⁷⁸ Charles Kirkpatrick, *An Unknown Future and a Doubtful Present: Writing the Victory Plan of 1941* (Washington: Center of Military History, 1992.) 103.

⁷⁹ *Ibid.*, 105.

⁸⁰ *Ibid.*, 104.

service units needed to deploy to support early operations, such as Operation Torch.

Additionally, the Army failed to form, train, or equip sufficient service units to support the number of fielded combat units. This produced a situation in which commanders sailed to overseas theaters without sufficient support forces and there were no reserves available in the US to meet the shortfall.

The European Theater of Operations first identified this shortage of service forces as the Army began to deploy forces to Great Britain in 1942. Supplies and materiel flowed to England simultaneously with combat units, meaning that there were insufficient theater logistics units at the ports to receive, sort, and record supply arrivals. The demand for service forces increased as more theaters became established. By the middle of 1942, the Army was sending units to the Pacific, European, and Persian Gulf Command.⁸¹ Theater commanders needed more service forces than the War Department could form or train. The European theater finally created a Services of Supply in May 1942, but, as in the First World War, there was disagreement over the division of responsibilities between the Services of Supply and theater headquarters.⁸² As US forces in the British Isles built up, the theater Services of Supply worked to simultaneously establish its internal organization, find a consensus on responsibilities, and receive the flood of men and material arriving from the US. However, the situation was not entirely bad. In Iceland, the Army's main complaint was displeasure over the stated beer ration.⁸³

The War Department worked to respond to the need for additional service forces. By the end of 1942 the Army Service Force (ASF) contained over 1,800,000 men; almost 35 percent of the

⁸¹ Leighton and Coakley, 347.

⁸² Dysart, 345.

⁸³ Leighton and Coakley, 335.

total Army strength.⁸⁴ Not all of these individuals had sufficient training or in occupied positions that capitalized on their civilian experiences, but it was a start.

However, not everyone was satisfied with the growing size of the service forces. In a reflection of the First World War debate about the balance of forces, General McNair, the Army Ground Force commander, noted that the additional service forces were a “dissipation of manpower to non-combat functions.”⁸⁵ Even Churchill took issue with the size of the required support force. The Prime Minister focused on the numbers of combat forces and expected the majority of the Army to be directly engaged in the fight at the front. Churchill did not understand, or at least agree with, the rationale behind the size of the support forces or the need to refit and rest combat forces during prolonged engagements. General Sir Alan Brooke, Chief of the British Imperial General Staff (CIGS), noted that Churchill tended to resist seeing limitations caused by such things as insufficient force and logistics shortfalls.⁸⁶

These perceptions are understandable considering the debate that occurred throughout the war – how best to balance the force when the demands outstripped limited resources. Indeed, one can characterize America’s main concern in the Second World War as the mobilization of industry, combined with allocation of resources - whether it was men, airplanes, or landing craft. Resources, both in terms of materiel and men, were constrained as multiple claimants demanded more equipment, units, shipping, or supplies. Russia needed trucks, the British needed aircraft and tanks, and the US military faced the task of rebuilding its entire force. Given this situation, it is not surprising that not everyone agreed on the right mix of combat and service forces.

⁸⁴ Ibid., 349.

⁸⁵ Ibid., 348.

⁸⁶ Bryant, 300.

The Army was not the only service experiencing growing pains within its service forces during the interwar years; the Navy experienced challenges as well. Despite recognition of the need for doctrine and shipping that could support a large ground force on a distant shore, the Navy elected to put its limited funds towards the building of combat shipping and decided to improvise logistics as the situation required. Because of this decision, the Navy had also developed an unbalanced force. There was only a limited amount of support shipping available in 1942. No one had any real idea of what was required to support a large fleet and ground force deployed halfway across the globe in several theaters. Like the German military, the US Navy based their logistic plans on a short war and quick victory.⁸⁷

Besides neglecting to make any large-scale investments in logistics shipping prior to 1942, the US Navy also failed to build an assault shipping capacity that could meet the demands of a large-scale invasion of the European continent. Despite the American desire to invade France in 1943 there simply was an insufficient quantity of assault craft and merchant shipping to land and sustain the landing force.⁸⁸ This meant that the Allies had to look for opportunities and develop strategy that could attack the Axis forces on the peripherals without risking a direct assault on the European continent.

During the interwar years, the services had developed a number of war plans, which were color-coded, based on the potential adversary. Planners envisioned Japan as the most likely threat to the US after the First World War, so the “Orange” series of plans – war with Japan – received the most attention. These plans anticipated that the US would use an extensive fleet of

⁸⁷ Eccles, 137.

⁸⁸ Bryant, 288.

battleships to retake islands in the western Pacific, with a major Jutland-style naval engagement determining the ultimate victor.⁸⁹

Accordingly, the focus of the Navy during the interwar years was largely on the development and building of battleships. Aircraft carriers did come into the fleet, but many commanders did not view these as offensive platforms. In 1937, the fleet commander refused to allow three carriers to act in an offensive manner during Fleet Problem XVIII, instead relegating these to defensive missions.⁹⁰ Other shipbuilding efforts, such as escort ships and landing craft, were an even lower priority and received scant funding for development. As late as the spring of 1941, US landing craft still did not have the capability to lower their front ramps, forcing Marines to crawl over the bows of what were essentially conventional boats.⁹¹ The Navy set the priorities and its priorities were on surface combatants.

The Japanese attack on Pearl Harbor showed the world the utility of aircraft carriers, but in early 1942, the US had only seven carriers shared between the Pacific and Atlantic fleets. The Navy realized that it not only had to rebuild the Pacific fleet, but it also needed more carriers. All of this required time, resources, and shipyard space.

At the same time, Army planners faced the challenge of moving a large ground force over water to a distant shore and then making a landing in the face of a potential enemy. This called for a fleet that could escort multiple convoys, as well as land several Army divisions. This mission used different sorts of ships and an entire fleet of landing craft, all of which competed

⁸⁹ Weigley, 246.

⁹⁰ Ibid., 253.

⁹¹ Ibid., 263.

for the same time, resources, and shipyard space. Unfortunately, there was not enough materiel to support all the demands, which led to tensions and rivalries between, and within, the services.

Despite these tensions, the nature of the war and of technology forced the Army and Navy to depend on one another to an unprecedented degree. The ground forces secured foreign bases and fought the land battle, while the naval force maintained the sea lines of communication, protected convoys, provided supporting naval gunfire, and worked to destroy enemy fleets. No one service could win the war independently, nor could any single service operate solely in its respective commons. However, this does not mean that the air and ground services shared mutual visions, priorities, or strategies. Each service devised its own plans while the War Department and the President worked to set overall priorities and adjudicate disputes.

Landing craft proved to be one of these areas that required national-level management and allocation. Landing craft were the key to the Allied war strategy because every major campaign in the war, both in the Atlantic as well as in the Pacific, began with an amphibious landing.⁹² The challenge confronting Allied planners was that an amphibious landing required landing craft not just for the initial landings, but for subsequent sustainment operations as well. Assault divisions had to have supplies, replacement personnel, and additional equipment transported by landing craft until engineers and port units could seize, clear, and repair a capable port. Only then could heavy merchant shipping replace the assault landing craft. The timeline for such an operation could range from days to months, depending on the situation, availability, and conditions of ports, availability of landing craft, and the level of enemy activity.

⁹² Dysart, 348.

This was not simply a question of deciding to build more landing craft. Building more landing craft meant building fewer ships. The problem became one of balance – an attempt to build the right mix of carriers, destroyers, cruisers, merchant shipping, and assault craft. A focus on any one caused shortages somewhere else. This led to tensions throughout the war as commanders in every service fought to get the items they deemed necessary for their units.

Considered in total, the administrative situation leading into the summer of 1942 was not promising. Both the US Army and Navy had neglected to build or train a sizeable logistics capability during the interwar years. Industrial mobilization had started in the US in 1939 so by 1942 ports were shipping materiel faster than Army service forces could receive it.⁹³ Great Britain had been fighting Germany for two years and was expending all of its effort in supporting her own forces. The Allies had elected to modernize their forces, but equipment was in short supply and industry was working to meet the increased demand. The US was building up its military presence within the British Isles, but at the same time, the European Services of Supply was working to develop an organization while also defining its responsibilities. There was a lot of activity underway, but it was not as effective or as efficient as it could have otherwise been.

To compound the Allied problem of building up military forces, the Battle of the Atlantic was ongoing throughout 1942. In that year alone, the US lost 1,902,418 tons of merchant shipping while the British lost 3,171,942 tons. Put in perspective, US merchant shipping losses in 1942 alone equaled *ten times* the amount of American shipping lost in the entire First World War.⁹⁴

⁹³ Ibid., 350

⁹⁴ Transportation Comparative Data: World War I – World War II (Washington: War Department, December 1942). MHI.

Russia also added to the demand for Allied shipping and materiel. To keep Russia in the war, the US shipped tremendous amounts of equipment to Russia through the Persian Gulf. President Roosevelt promised to ship over a million and a half tons of supplies to Russia by June 1942 - just part of the 4,159,117 tons of Allied Russia-aid cargo that the US shipped between November 1941 and May 1945.⁹⁵ These shipments helped keep Russia in the war, but they also meant that there was less equipment (such as cargo trucks which had proven themselves as vital in the First World War), less available merchant shipping, and fewer service units available for use in British and US combat operations. Unexpected requirements such as these made strategic sense, but also ultimately resulted in an increased demand for service units. As the war developed in late 1942, commanders around the globe discovered theaters needed a sizeable number of service forces to function and that there just were not enough of these type units in the inventory to satisfy demand.⁹⁶

Assessment

The First World War had shown how modern warfare was evolving and how dependent a foreign theater was on its service forces. To help organize efforts the US divided battle space into two different areas of operations: one for combat and one for support. In the rear areas, service units became increasingly specialized as supply, transportation, medical, engineer, and maintenance technologies and equipment evolved.

Technology continued to transform the military during the interwar years and by 1942, the battlefield was becoming increasingly complex as technology evolved. In the forward areas, the

⁹⁵ T.H. Vail Motter, *The Middle East Theater: The Persian Corridor and Aid to Russia* (Washington: Center of Military History, 1985), 3 and 25.

⁹⁶ Leighton and Coakley, 347.

combat commander focused on his forces and on the enemy. In the communications zone the rear area commander took care of the ports, depots, transportation networks, and civil governance. Each of the different services and nations had separate logistics chains to support their forces, but these chains often competed for limited resources, such as real estate, roads, railways, and other infrastructure within the theater.⁹⁷

Western France in the First World War had shown the utility of having a single national organization in the communications zone responsible for the administrative needs of the army. Base Sections, Advance Sections, and Intermediate Sections provided the actual support, while the Services of Supply headquarters planned operations and provided command and control of the subordinate units. The AEF G4 dictated policy. The doctrine of 1940 carried these tenets forward; however, the Mediterranean theater in 1942 was significantly different from that of France two decades earlier.

In 1917, the French had already established a theater of operations by the time American forces began arriving. Falling in on French support systems, the AEF benefitted from operating in a secure rear area without the need to make a forced landing against opposition. Even more importantly, the battlefield of the Western front in the First World War was largely static. Large breakthroughs with long and fast advances were uncommon. This meant that the theater Services of Supply could operate from semi-permanent facilities and with a predictable demand for supplies. Established rail lines provided the backbone of theater transportation. Enemy air power was a nuisance, but not much of a real threat. Additionally, the AEF did not have to concern itself with care of the local population or of civil governance.

⁹⁷ Eccles, 235.

As the Allies would later find in 1942, the Mediterranean theater had quite a different set of conditions. The terrain, infrastructure, enemy situation, politics, and civil demands all combined to create a unique set of challenges for the US theater commander that had been previously unseen. Doctrine outlined the organization of the theater, but the devil was in the details. No logistics experience or doctrine from the First World War existed to address problems such as a lack of landing craft, how to land large formations across soft beaches, or the need to build large airfields in a desert. Techniques to build petroleum pipelines in combat areas or splice steel planks together to form runways and assault beaches did not yet exist.⁹⁸

In the Mediterranean theater, the Allies would face a myriad of problems, unforeseen requirements, and competing demands that they had to meet before advancing to the next objective. Many of these issues fell directly upon the theater support units to solve. How well the theater responded to these challenges depended on innovation, flexibility, and learning.

On November 8, 1942, however, the Mediterranean theater was far from being established. This was the first day of Allied operations in North Africa - operations that continued in the region for the next two and a half years. Great Britain had been operating in the eastern part of the continent since 1941, but the combined Allied invasion of Algeria and Morocco represented a new chapter of the war because this was the first combined *Allied* step on the path to victory. For the US forces under Eisenhower, the time had come to put doctrine and will to the test.

⁹⁸ Magruder, 39.

Chapter III: The Invasion of North Africa

I don't know anything about logistics. You keep me out of trouble.

--Patton's guidance to his G4, Colonel Mueller, 1943

The landings for Operation Torch, the Allied invasion of Algeria and Morocco, started in the early hours of D-Day⁹⁹, November 8, 1942. Strategically, the operation was a compromise between the desire to confront Nazi Germany head-on, and the realization that to take on such a task required additional resources and, more importantly, more time. The Allies did not realize it at the time, but the invasion of North Africa was only the first of what would become a series of campaigns across the Mediterranean - campaigns that would eventually stretch from Africa, to Sicily, to Italy, and to southern France. This was the first step toward an eventual victory against Germany; a victory that the Allies could not have achieved as quickly as they did without the experiences gained in the Mediterranean.

From the start of the war, the US military, led by General Marshal, had advocated an early assault across the British channel in an effort to directly strike into the heart of Germany. The plan, named "Operation Bolero" and later changed to "Roundup," called for an attack on the European continent in the spring of 1943. An alternate plan, named Sledgehammer, called for a more limited assault in the fall of 1942 should the Eastern Front begin to collapse on the Soviet Union or should Germany begin to fall. Neither plan received much support from the British after staff estimates showed that there were insufficient shipping and assault craft necessary to land and support the armies. British and US production of landing craft lagged behind estimates

⁹⁹ D- Day refers to the first day of the actual invasion, the day that ground forces land ashore. Subsequent days are designated as D+1, D+2, etc.

and were incapable of meeting the necessary timelines. As an alternative, President Roosevelt approved a landing into North Africa as a means to relieve pressure on the Soviet military and to meet the political objectives of taking action against the Germans, somewhere in the world, before the end of 1942.¹⁰⁰ Roosevelt agreed with the British Prime Minister to make an assault into North Africa in order to eject Axis forces from the region and begin to secure the shipping lanes of the Mediterranean. The Allies would decide subsequent strategic maneuvers following the landings.

Although the Mediterranean was a tangential approach to confronting the German military, the US theater would amass a significant number of forces. By the fall of 1944, the North African Theater of the US Army was supporting 918,000 American forces, 270,000 French forces, 21,000 men in the Brazilian Expeditionary Brigade, plus 63,000 prisoners of war.¹⁰¹ This does not include the myriad requests for food and other supplies that were part of the civil relief effort across the Mediterranean. To support a force of this magnitude required agile planning, flexible doctrine, innovation, and perhaps even a little luck.

This chapter covers the time from the initial landings in North Africa until the end of the initial Allied drive into Tunisia, a period lasting from November through December 1942. These few months represented the *start* of a transformation within the US military, a transformation from a peacetime military to a force that could successfully conduct an amphibious assault against a determined foe and then continue to support itself. Such a transformation was

¹⁰⁰ Leo J. Meyer, "The Decision to Invade North Africa," *Command Decisions* (Washington: Center of Military History, 2000), ed. Kent Roberts Greenfield, 183.

¹⁰¹ Logistical History of NATOUSA/MTOUSA. 12.

necessary if the US had any hopes of making a cross-channel assault into France later in the war and then holding onto the beachhead.

The account that follows will show that the US Military of 1942 was ill prepared for such a task. Only the combination of luck and a feeble defense by the French forces allowed the US invasion forces to fare as well as they did. However, North Africa was the perfect crucible for learning. The battlefields of North Africa would allow units of all types to modify themselves to better deal with the characteristics of modern warfare and the environment. Leaders would learn that service forces were just as an important consideration as ground or air forces. Just as importantly, these campaigns gave the Allies time in which to develop and produce tools of war, such as aircraft, better tanks, more trucks, and additional amphibious assault craft. Indeed, assault craft would be the biggest materiel challenge facing Allied leaders throughout the war.

To illustrate how such a transformation occurred, this chapter will first lay out the planning and assumptions that framed Operation Torch. This will show how many of the attitudes and beliefs of the First World War regarding service forces remained deeply engrained in US civilian and military leaders at the beginning of the Second World War. As a part of this, Generals Eisenhower, Clark, and Patton all make critical decisions that will ultimately cause the Allies to miss a strategic opportunity and add an approximate six months to the fight for Tunisia, causing thousands of additional casualties.

Next, the chapter explores the landings in North Africa in an effort to highlight systemic problems in US amphibious operations. Conducted along three widely spaced beaches, the landings of Torch will show that the US military would almost have almost certainly failed if they had attempted such an operation for the first time in a cross-channel assault into northern

France. The landings in North Africa demonstrate how difficult these operations are and show just how much the US military has to learn, especially regarding the ability to support a force once it reaches the shore. The only consolation was that the French were in even worse shape than the US forces. A comparison in later chapters of subsequent landings in Sicily, Italy, and France to those of Torch will demonstrate just how far the US military progresses in its ability to forcibly land on hostile shores.

Finally, the chapter concludes by examining a lost strategic opportunity. With the unexpected landings, the Allies achieved an element of surprise - one that might have allowed them to seize Tunisia before the Germans could bring in reinforcements. Unfortunately, three senior US generals collectively made a series of fateful decisions that reduced the amount of truck transport and service forces on the invasion convoy in order to maximize the number of combat forces. There were reasons to do this, but the outcome will provide a bitter lesson for the US military, especially for its top commander, General Eisenhower. The lack of sufficient service forces, combined with a lack of transportation, kept the Allied force from reaching Tunis before German reinforcements. This would add an additional five to six months to the North African campaign, cause unnecessary casualties, and delay the Allied advance across the Mediterranean.

Like any military operation, the invasion of North Africa began with a plan. Commanders and their planners approached the task based on the doctrine of the time and on their own experiences. Many had experience from the First World War, which shaped their assumptions and expectations. Unfortunately, there was little time for detailed planning.

Planning the Invasion

The US military would quickly discover that war in Northern Africa was totally unlike anything it had ever experienced. Unlike continental Europe, North Africa lacked significant civilian infrastructure. Roads were unimproved and limited, tending to follow the coastline. Rail lines were extremely limited and tended to consist of a single line, which also followed the coastline. The desert environment was harsh on both men and machines.

Perhaps most significant was the great distance between the ports and the armies. The distance between Casablanca and Tunis was 1,028 miles.¹⁰² In comparison, Rommel's drive from Tobruk to El Alamein was about 300 miles and the eventual German retreat from El Alamein to Tunis would cover 1,400 miles. To operate across such distances the US military needed to make a mental adjustment to the scale of the battlefield and to the sheer volume of supplies, equipment, and service forces needed to sustain combat operations across extended lines of communication – circumstances not experienced in the First World War. In conditions such as this, the theater logistics effort determined which strategies were viable and could easily determine the outcome of a battle before the first shot fired.

On July 25, 1942, Franklin Roosevelt decided to go with the North African invasion—*only three months* before the anticipated landing date.¹⁰³ Logistics planning for Operation Torch began shortly thereafter, progressing steadily through August. The War Department's Services of Supply (SOS) called in the Chiefs of Services and work began on plans to support a total force of 100,000 to 125,000 men.¹⁰⁴ The planning for

¹⁰² This was the distance between the westernmost Allied landing site and Eisenhower's ultimate objective.

¹⁰³ Dwight D. Eisenhower. *Crusade in Europe* (New York: Doubleday, 1948). 71.

¹⁰⁴ William Frierson, "Preparations for Torch," volume 1 (US Army General Staff, Military Intelligence Division, G2, Historical Branch, 1943?), CMH, 7.

Torch was hurried. One report that described the planning effort was especially candid, offering that “Neither the British nor the American General Staffs would care to offer Torch as a model of planning.”¹⁰⁵

Operation Torch had two major phases: simultaneous landings in French Morocco and Algeria conducted by three task forces, followed by an overland advance across Algeria, east and into Tunisia. Commanders hoped to land in North Africa, convince the local French forces to join the Allied cause, and then join the fight against Italian and German forces operating in Tunisia.

The Western Task Force was a US force, comprised of the US 3rd and 7th infantry divisions, an armored combat command, and an armored combat team. The force totaled approximately 35,000 men and was under the command of Major General George S. Patton. The Western Task Force had the mission of making amphibious landings in western French Morocco, occupy ports and airfields, and then build up sufficient strength to occupy Spanish Morocco, if needed.¹⁰⁶

The Center Task Force was also a US force, consisting of three regimental combat teams, one combat command from the 1st Armored Division, and the 1st Ranger Battalion. The task force held approximately 18,000 men, commanded by Major General Lloyd Fredendall. The Center Task Force was to land on several beaches around Oran, Algeria in order to seize the port and airfields and, like the Western Task Force, be ready to occupy Spanish Morocco.¹⁰⁷

The Eastern Task Force was a mix of US and British units, including the 168th Combat Team of the US 34th Infantry Division; the 39th Combat Team of the US 9th Infantry Division; and the

¹⁰⁵ Ibid., 2.

¹⁰⁶ “Report by General Dwight D. Eisenhower on Operations in the Mediterranean Area 1942-1944,” CMH. 7.

¹⁰⁷ Ibid.

elements of the British 78th Division. In total, the Eastern Task Force contained some 45,000 British and 10,000 US soldiers.¹⁰⁸ Due to a history of political animosity between the French and British, a US officer, Major General Charles Ryder, the 34th Infantry Division commander, initially commanded the Eastern Task Force during the landings and then command was to pass at a “suitable time” to the British First Army commander, Lieutenant General Kenneth Anderson (B),¹⁰⁹ for the assault on Tunisia.¹¹⁰ The Eastern Task Force contained two US regimental combat teams, two British brigade groups, as well as I and VI Commando (composite US and British units.) Upon landing, the Eastern Task Force was to seize Algiers and the airfields at Blida and Maison Blanche. The British First Army would then move east and seize Tunisia as soon as reasonably possible, a distance of up to 400 miles.¹¹¹

Each task force was responsible for organizing its support plan and support forces. Brigadier General Arthur Wilson commanded the Western Task Force support forces while Brigadier General Thomas Larkin commanded the Center Task Force Services of Supply. Planners expected that Wilson and Larkin would operate independently under control of their respective task forces and that there *could* be a future possibility that the two task force support elements would merge and the resulting theater Services of Supply would fall directly under AFHQ.¹¹² Since the Eastern Task Force had no US supply organization, support for US forces in the east would continue to come from British supply units. In the months leading to the sailing of the

¹⁰⁸ George F. Howe, *Northwest Africa: Seizing the Initiative in the West* (Washington: Center of Military History, 2002), 53.

¹⁰⁹ For clarity, British officers will be annotated by (B) following their name.

¹¹⁰ Frierson, volume 1, 71.

¹¹¹ Report by General Dwight D. Eisenhower on Operations in the Mediterranean Area 1942-1944.” CMH. 7. Also see Frierson, volume 1, 116; and “Report, Lessons of the Tunisian Campaign 1942-43,” British Forces, British Military Training Directorate. CMH Geog J Africa 353 Tunisia, 4

¹¹² Summary of CAO conference, dated August 22, 1942, subject: The Functions of this Headquarters with Particular Reference to the Size and Number of the Staff. NARA, RG 492, box 55.

convoys, AFHQ logisticians focused on the immediate tasks required to embark the force and support of the landings, leaving details of a subsequent theater support organization to be determined as the operation progressed.

US and British officers conducted much of the planning for Torch in London, which made coordination with the US War Department Services of Supply challenging. There was not a lot of information on North Africa available to planners so much of the data concerning ports, roads, and other infrastructure came from past issues of *National Geographic* magazine.¹¹³ Although Casablanca was far from Tunisia, it was an important objective because the city was beyond the reach of German fighters and it was at the end of a single rail line that ran east through the Atlas mountains to Oran, Algiers, and terminating in Tunisia. This single railway provided a direct route to the Tunisian objectives that would secure North Africa. The railroad had only a limited capacity, but it did provide a capability that replaced some truck transport requirements.¹¹⁴

The lack of a ground tactical plan initially hampered logistics planning efforts because there was no definitive sailing date for the convoys and no information on composition of the assault echelons. Some of this information did not arrive for a month or more after planners had requested.¹¹⁵ By August 20, 1942, however, planners finally had a troop list and work was progressing to equip deploying units and to assemble the vast quantity of supplies and replacement equipment needed to sustain the force once it landed in North Africa.

Even though work had begun to outfit the deploying units, as late as the middle of September there still was no central plan of operations approved by both the US and Great Britain-less than

¹¹³ Oral History of LTG Robert Colglazier, interviewed by William Kearney, 1984, MHI, Robert W. Colglazier Papers, 81.

¹¹⁴ Eisenhower, *Crusade in Europe*, 78.

¹¹⁵ Frierson, volume 1, 15.

48 days prior to the sail date of the first convoy.¹¹⁶ Logistics planners made educated guesses on the types and quantities of needed materiel. In all cases, requisitions for supplies and equipment had to take production and shipment times into account. This meant that units sometimes ordered supplies with only a general idea of the overall requirements in order for the material to be on hand and loaded prior to the projected sail dates. The physics of sustainment could not wait for the detailed combat plans to be fully developed.

The limited planning time resulted in confusion and hurried plans, which led to late revisions and changes in forces. This was essentially an exercise in trial and error for planning and executing a large-scale amphibious attack involving the combined forces of several nations, a logistician's nightmare.¹¹⁷ Physics and time regulated the logistics system, but combat commanders and their planners were working in another realm with little regard for the logistical implications of their late decisions and changes in units.

By September, the Allies had agreed to have most of the service units for the Center and Eastern Task forces deploy from the United States. Service units already in Great Britain needed to prepare for an eventual direct assault on the European Continent. A large percentage of equipment for the Center Task Force also had to come from the US even though the War Department had already shipped a great deal of materiel to Great Britain. The British had enacted a policy of splitting convoys up to take advantage of available port capacity and, as a result, accountability of much of the equipment and supplies sent to the UK in 1942 was initially

¹¹⁶ *Ibid.*, 27.

¹¹⁷ *Administrative Planning* (London, The British War Office, 1952), 16.

lost.¹¹⁸ Supply officers generally knew what had arrived in the United Kingdom, but had little visibility as to the specific whereabouts of needed items.

As the sail date for the convoys approached, the impact of preparing logistics plans prior to tactical plans became more evident. There seemed to be little coordination between the two groups of planners as the logisticians worked to get supplies to the port, while task force planners prepared ground concepts that produced an entirely different set of requirements. Support planners complained that Patton's staff seemed to be creating plans with little regard for the physical restraints of port capacity and convoy limitations.¹¹⁹ On the other hand, Patton's staff worked in several different locations and developed its plans in parallel with other planning efforts. Patton provided little guidance, telling his G4, Colonel Walter Muller, "I don't know anything about logistics. You keep me out of trouble."¹²⁰ Given the short time allowed for planning, the different groups conducting planning, and the lack of involvement by some senior commanders, it is not surprising that the combat and support plans for Operation Torch were neither well synchronized nor entirely supportable.

Similarly, loading operations for Torch proved to be chaotic and inefficient. During August and September, each of the task forces planned heavily for supplies, anticipating the need of a level of stocks that could support operations for between 60 and 90 days. Accordingly, supply officers provided requisitions to the depots, which then worked to fill as many of the demands as possible. The ports quickly became overwhelmed by the arriving shipments and quartermasters worked to link up the arriving supplies with the right ships. In a sweeping about-face, AFHQ

¹¹⁸Frierson, volume 1, 23.

¹¹⁹ Ibid.

¹²⁰ Carter Magruder Papers, MHI, Box 1, scrapbook, inscription dated October 4, 1943.

issued a directive on October 16, 1942, which reduced the ration load to only 45 days to open space for additional vehicles and equipment. This required an almost complete unloading of all rations from the ships to achieve a balance of different food items for the 45 day level of supply, which then had to all be reloaded.¹²¹

As the Allied forces, along with the associated supplies and equipment, assembled at ports along the US east coast and in Great Britain in the fall of 1942, Generals Eisenhower and Clark made a decision that would later have a profound impact on the North African landings and on the greater campaign. Since merchant shipping space was limited and Eisenhower believed that the threat of a German advance into Spain was possible, the Generals made the decision to leave half of the cargo trucks behind and to load additional combat units in place of the vehicles. They did not believe that the assault forces, especially those landing in the west, would have to move quickly and that the vehicles could arrive on subsequent convoys.¹²² This assumption would prove to have serious consequences in terms of both the sustainment and mobility of the Allied force—consequences that would become apparent as soon as the assault force came ashore on the North African coast.

Using hindsight, one can easily deride Eisenhower's decision to reduce the number of cargo vehicles, but there were compelling reasons behind the decision. The Allies simply did not know how strongly the Axis powers would react to the invasion. Some analysts believed that Germany might move into Spain and take over airfields, thus placing Axis aircraft within range of the landing beaches. There was also a possibility of attacks from Spanish Morocco, a Spanish colony located immediately to the north of French Morocco, straddling the landing sites of the

¹²¹ "Armor in the Invasion of North Africa.," Fort Knox: US Armored School, 1950. MHI. 35.

¹²² Carter Magruder Papers. MHI. 36. Also see "Armor in the Invasion of North Africa," 35.

Western and Center Task Forces. In short, the Allies had little faith in Spanish neutrality and Eisenhower had to be prepared to defend his western flank. This led to the decision to load more combat units onto the assault convoy at the expense of the service forces.

Eisenhower approved the final plan for supply for Torch on October 27, 1942; four days *after* the initial convoys had departed. The plan called for the task forces to send all requisitions through AFHQ for approval. Following that, AFHQ would send the requisitions back to the European Theater of Operations (ETO) in the United Kingdom for fill from existing stocks. Any requisitions that Europe could not fill made their way to the US War Department Services of Supply. Eisenhower's goal was to assemble a 90-day level of supplies within the Torch area of operations and a 60-day level of reserves in Great Britain.¹²³ Logisticians hoped to take advantage of a shorter distance between the UK and North Africa; however, the time from the initiation of a requisition, until the receipt of supplies, still took weeks if not months.

Ultimately, the US War Department deemed the proposed stockade levels unsupportable so AFHQ revised the plan on December 4, 1942, in the "Supply Plan for United States Forces in Torch." This order directed a 45-day level of stock within North Africa for all supplies except ammunition; 10 units of fire of ammunition; and a 30-day level of reserve stock for the United Kingdom.¹²⁴ Supplies for the Western Task Force were to come direct from the US. Most supplies for the Center Task Force would likewise come direct from the US, except for those supplies that could fit onto allocated convoys coming from the UK. Support for the US-contingent of the Eastern Task Force (one division) was to come from the UK with British forces

¹²³ Frierson, volume 1, 38.

¹²⁴ A unit of fire equaled one day of typical expenditure of ammunition for a specific unit or force

providing common items, such as food and fuel, to the US forces within the task force.¹²⁵ This division of sustainment effort meant that although the majority of supplies would be coming from the US, the theater would still have to manage several pipelines of materiel that were feeding into the Mediterranean theater, thus creating additional challenges for theater logisticians.

Allied planners envisioned resupply for the force occurring in three phases: in the initial “assault” phase, support units automatically sent supplies to North Africa from parts in England and the United States. Following initial combat operations, the theater would transition into a “normal” phase, whereby supply was semi-automatic, meaning that common items, such as food and fuel, would be shipped from the zone of the interior (the US) based on unit situation reports while items requiring more control, such as ammunition, required specific requisitions. The final phase was to begin when the theater was fully established and communications were functioning. In this phase, the War Department only shipped supplies in response to specific requisitions.¹²⁶ Each task force was responsible for its own administrative sustainment up until about D+40. After that time, AFHQ would establish itself in the theater and designate a combat and communications zone.

By the third week of October, the planning was complete, the ships were loaded, and the convoys began leaving the ports-headed for North Africa. Eisenhower was worried about many things: whether German submarines would find the convoys, to what level the French would defend the beaches, and whether the Allies would have to defend against an incursion from

¹²⁵ Memorandum, AFHQ, “Supply Plan for United States Forces in Torch,” 4 December 1942, located in Frierson, volume 2. No page number.

¹²⁶ Huston, 497.

Spanish Morocco. None of these proved to be serious obstacles. What the Commander-in-Chief should have been worried about was the sustainability of the force once it was ashore and whether the task forces had the capability needed to take advantage of any opportunity to seize Tunisia before the Germans had a chance to move in reinforcements. Given the information available to the Allies at the time, Eisenhower's concerns were understandable, although the landings would show that the Allies had not put the right focus on the strategic objective: the early capture of Tunisia.

Inexperience and Consequences of a Fateful Decision

The Allied landings started in the early morning hours of D-Day, November 8, 1942 across western French Morocco (Safi, Casablanca, Fedala, Mehdiya, and Port Lyautey), as well as at Oran, Arzew and Algiers, Algeria. Each of the three task forces had a number of assigned beaches and sea/air ports within their respective areas. As much as Operation Torch was not the model of US or British planning, the landings and subsequent offloading of ships was similarly *not* the model of an amphibious assault. The problems experienced during the landings affected not just the build-up of combat forces ashore, but also negatively affected the sustainment of those forces and AFHQ's ability to move into Tunisia.

There were many reasons behind the problems experienced during the landings. Some are attributable to incomplete planning, poor assumptions, and the geography of the beaches, while other problems arose due to the lack of a capable beach organization. Perhaps the main reason behind the majority of the problems was the lack of training and experience across the forces and at all levels of command. Of all the different types of military operations conducted during the

course of the war, those involving amphibious or airborne operations were the most complex and difficult to control.

Problems started when the convoys arrived off the North African Coastline at the transport areas. Ships were no longer in the same order they had been in for the voyage across the Atlantic. Plans called for landing craft from one ship to move the cargo of another ship, but in the darkness of the night, disoriented Navy coxswains reported to the wrong ship or landed on the wrong beach.¹²⁷

At the Yellow Beach near Safi, the Western Task Force had to abandon the landing of supplies and equipment after poor beach conditions and a lack of training by Navy coxswains caused the loss of seven landing craft.¹²⁸ The Army and Navy had formed beach parties to control landing operations on the assault beaches, but on at least three beaches, there was no evidence of functional beach parties. At Fedala, the Task Group Commander confirmed that he did not land beach parties with the assault battalions because commanders wanted to use all available boat space for combat troops. Beach parties landed at Safi early in the fight, but were slow in executing their duties because they took cover from sniper fire, rather than flushing the snipers out and getting back to work on the beaches.¹²⁹ In all regards, the beach parties failed to deliver due to a general lack of leadership, planning, and training.

The lack of experience in amphibious landings played itself out at Fedala's Red Beach, when enemy fire caused the Army assault force to request a halt in the landings. Landing craft milled

¹²⁷ Memorandum, Second Infantry Division to Commanding General, Western Task Force, dated December 26, 1942, subject: Lessons from Operation Torch. NARA, RG 338 E 50215, box 1. 10. Also see Report of Operations, Western Task Force SOS. Undated, but received at Headquarters Army SOS by December 12, 1942. CMH, Geog J Africa 353 Tunisia, 7.

¹²⁸ "Western Task Force: Attack on Safi and Its Defenses," War Department Historical Division, undated. CMH. 26.

¹²⁹ Enclosure G to Report: "First Conclusions Operation Torch." Army Section, Amphibious Force Atlantic Fleet, November 25, 1942. The Esher C. Burkart Papers, MHI. 2.

about the transport area for hours with no clear direction of what to do or where to go. Even though enemy fire affected just one small area there was no effort by the Navy to continue landings of troops or supplies on beaches that were not under fire.¹³⁰ All of this occurred despite the fact that sea conditions during the November 8th assault off of Casablanca were as flat as a pond—a rare condition for the western coast of Morocco.

The lack of a shore clearance capability resulted in supplies and equipment landing at wrong locations and much of the material on the beach was in disarray. The transports had been loaded with a cross section of supplies so that any one item might not be lost if a transport was lost, but the result on the beaches and at the ports was a mixing of supplies with little idea of what items were where. The shore party had neither the work force nor the vehicles to remove materiel from the beaches and ports to inshore dumps. The fundamental issue was that no one had realized just how big a task the clearing of the beaches would be and as a result did not plan for the right force to take care of it. Many of the items that did make it to the beaches were unidentifiable, without breaking into the outer containers. Some crates had no markings while others had inadequate labels, such as “cannon ammunition.”¹³¹ Search parties from the combat units scouring the beaches in search for specific items, such as high explosive ammunition for a 105mm Howitzer, had a difficult time finding the needed supplies and then quickly transporting those supplies to the front.

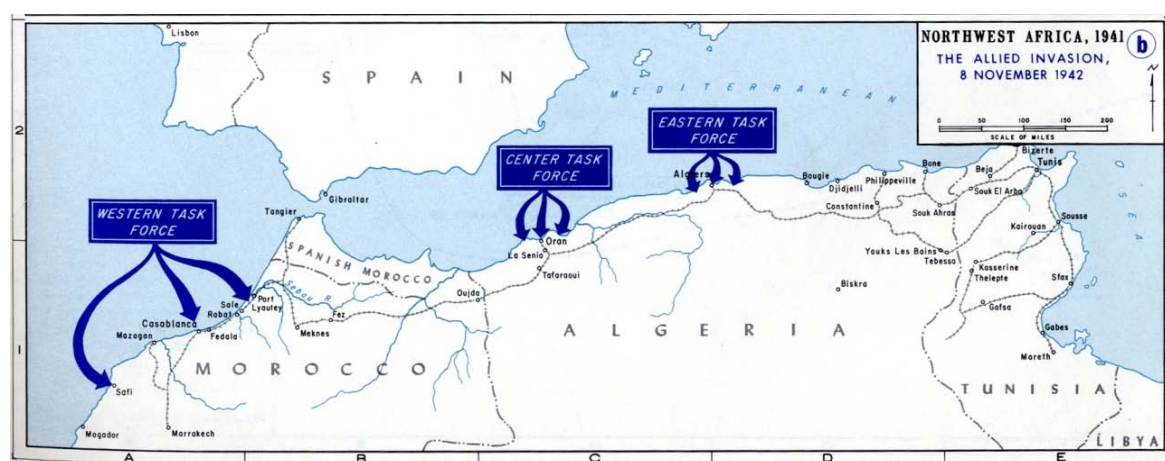
A number of ships were out of position during the landings, which caused assault craft to land on the wrong beaches or become stranded on reefs. Inexperienced operators damaged many

¹³⁰ “Western Task Force: Attack on Fedala and Its Defenses,” War Department Historical Division, undated. CMH. 50.

¹³¹ Report of Lessons to be Learned from Operation Torch, Third Infantry Division, dated December 26, 1942. NARA, RG 338 E 50215, Box 1. 6.

of the landing boats at Fedala, even those that landed on perfectly good beaches. Other boats found themselves stranded on the beaches and remained there because no tugs accompanied the force. Soon, the landing force stranded at least 225 landing craft beached on just two of the Western Task Force's beaches.¹³² Of all the landing craft destroyed or damaged at Fedala, not a single one was hit by enemy fire.¹³³ Many boat crews abandoned their boats, wrecking vessels that they otherwise could have saved.¹³⁴

Figure 3: Operation Torch, November 8, 1942.¹³⁵



French opposition at Fedala and Casablanca was light and generally representative of the experiences of the three Allied task forces. At Fedala, the initial landings received harassment fire from the French 100mm guns positioned at the Batterie du Port, drawing heavy counter-battery fire from US Navy destroyers traveling just off the Moroccan coastline. The US fire was effective, temporarily silencing the French battery.

¹³² Report of Operations, Western Task Force SOS. Undated, but received at Headquarters Army SOS by December 12, 1942. CMH Geog J Africa 353 Tunisia. 8.

¹³³ "Western Task Force: Attack on Fedala and Its Defenses," 9.

¹³⁴ Report to Commander in Chief, US Atlantic Fleet, CAPT A.G. Shepard, "Report on Operation Torch." January 9, 1943. MHI. The Escher C. Burkart Papers. 79-80.

¹³⁵ Source: *Campaign Atlas to the Second World War: Europe and the Mediterranean* (West Point: US Military Academy Department of History, 1979), 38.

The French Navy did attempt to interdict the landings, but had little effect. French destroyers made two sorties out of the port of Fedala on the morning of November 8, but US cruisers, destroyers, and aircraft beat back both attacks. By the evening of D-Day, the Task Force had eliminated all French naval opposition.

The French Air Force did manage to make seven sorties over the Fedala beaches, which damaged an anti-aircraft gun, caused casualties, and slowed the unloading of supplies and equipment.¹³⁶ The French had not expected a landing along this area because of the usually high levels of surf along the Atlantic beaches. The few French infantrymen the Task Force encountered had an average of 15 rounds of ammunition apiece - hardly enough to stop an invading army.¹³⁷ There was no centrally organized defense by the French along the beach. Despite challenges in unloading the assault force, by the end of D-Day, Fedala was in US hands.

On November 9, D+1, the Task Force set out to capture Casablanca. The 3rd Infantry Division, Force Brushwood, started the attack toward Casablanca at 7am with a four-battalion front and initially encountered no opposition. Small French mounted patrols did offer slight resistance as the force approached the city, but this was of little consequence. At 2pm, however, General Anderson had to delay the attack until additional food, ammunition, and transport were in the hands of the front-line units. Even though there was little opposition, Anderson's units had run out of the food, water, and fuel needed to proceed toward their objective. The jeeps and small cargo trucks that accompanied the force were proving inadequate for the task - this was the first consequence of the decision to reduce the accompanying truck fleet. Supplies were slowly

¹³⁶ "Western Task Force: Attack on Fedala and Its Defenses," 24 and 26.

¹³⁷ *Ibid.*, 52.

making it to the shore, however at rates less than planned and there was insufficient transportation to move supplies and troops further inland.¹³⁸

Some French artillery did engage the Task Force, but patrols quickly silenced the offending batteries. The French Air Force continued to harass the invasion force, strafing the assault columns and bombing the offloading beaches. Collectively, the air attacks, shortage of trucks, and slow offloading of supplies, as well as five to six foot waves all slowed down the rate of the Task Force advance until it eventually stalled late in the afternoon.

Anderson ordered the attack resumed at midnight, the morning of November 10. By this time, the force had established an ammunition dump at Fedala and scrounged enough trucks to resupply the combat units. The US forces encountered enemy patrols on the outskirts of Casablanca, but experienced only a few casualties. French field gun fire increased the closer Force Brushwood came to the city.

The French finally offered a determined defense for Casablanca on the morning of November 10, with 3,600 infantry and 90 guns. Two French corvettes supported the defensive fire, until the US ship *Augusta* and four destroyers pushed the French back into the harbor. By 1700, US ground forces were within 400 yards of the city and the French were ordering their units to pull back.¹³⁹ By the late afternoon of November 10, Admiral Darlin issued orders to stop all resistance. Anderson called off the US attack planned for D+3 and the city surrendered.

Conditions near Mehdia were little better. By the night of November 8, the rising surf had stranded about half of the landing craft. In addition, the steep topography of the beach meant that only tracked vehicles could make it inland. The beach at Mehdia had a high escarpment that

¹³⁸ Report of Operations, Western Task Force SOS, 9 and 30.

¹³⁹ Howe, 145.

made the landing of vehicles very difficult. Added to this, there was no exit from the beach so engineers had to build a road - a task that carried on into the night of D-Day. Had the 60th Infantry Regiment needed its heavy weapons to support an attack on Kasba that day, they would have been stuck on the beach, unable to reach the advancing infantrymen.¹⁴⁰

As at Fedala, the units attacking Mehdiya landed on the wrong beaches and supplies were piling up so fast the work parties had a hard time keeping the piles above the high-water mark. Beaches lacked organization while stranded sailors wandered about aimlessly.¹⁴¹ The landing on the north beach occurred five miles north of where it should have been, delaying operations by two and a half hours. One report noted, "Conditions on the beaches during the night presented a scene of indescribable confusion. Surf was rising so fast that about half the craft landing were unable to retract"¹⁴² The delay at the beaches allowed the French to reinforce the stonewalled fort at Kasba, tripling the number of defenders.

High surf on November 9 caused the Navy to suspend beach operations. General Truscott, the 3rd Division Commander, made repeated appeals to the Navy to resume offloading operations. Landing operations finally resumed at 6:30 am the following morning. On November 11, the Task Force opened a secondary landing area at the airport, which provided relief on the beaches but required an additional 10-mile trip for the landing craft.¹⁴³

Despite having the calmest sea conditions in the past 68 years and limited enemy activity, the part of the fleet supporting the Western Task Force damaged or destroyed 242 of the 378 landing

¹⁴⁰ Western Task Force: Attack on Mehdiya and the Port Lyautey Airdrome," War Department Historical Division, undated, 48.

¹⁴¹ "Western Task Force: Attack on Mehdiya and the Port Lyautey Airdrome," 58-59.

¹⁴² Ibid., 58.

¹⁴³ Ibid., 151.

craft used in the operation; leaving 162 of these scattered across the beaches.¹⁴⁴ A review of after action reports from the landing blames these losses largely on the lack of training and experience of the coxswains piloting the craft and the Navy seemed to agree.¹⁴⁵ The coxswains lacked the training to operate the craft in heavy surf conditions so they often beached themselves too high on the beaches or hit underwater obstacles. Additionally, the landing craft available for Torch lacked sturdy construction so they could not handle 24-hour operations or contact with underwater rock formations.¹⁴⁶ The lack of recovery craft prevented the Navy from dragging beached craft back into the water. High surf and breaking waves breached these stranded craft, destroying them in the pounding surf.¹⁴⁷

Losses such as these had both immediate and long-term consequences. The short-term cost was degradation in the ability to quickly land supplies across the beaches and build initial depots to support the assault forces. By November 9, the surf had increased to 4 to 6 feet, which slowed down the landings of supplies. With the loss of over half the landing craft ship's captains had to increasingly rely on available piers at the seaports, which were a limited quantity and often distant from the fighting forces. This increased the demand for already-limited ground transportation to distribute materiel and slowed down the resupply of forces.

The landings of the Center Task Force had similar problems. Units were split up, landed on the wrong beaches, and became separated from their equipment. The story of the 48th Surgical Hospital is illustrative of what happened to many support units. Before the hospital had even sailed, six officers, eight nurses, and 20 enlisted personnel were detached from the unit. The

¹⁴⁴ Report of Operations, Western Task Force SOS, 28. Also see "Western Task Force: Attack on Fedala and Its Defenses," 52.

¹⁴⁵ As an example see the report from the Western Task Force, dated December 30, 1942, subject: Lessons from Operation Torch. NARA, RG 338 E:50215, box 1. 7.

¹⁴⁶ *Ibid.*, 18.

¹⁴⁷ *Ibid.*, 19.

remaining hospital's personnel sailed on one ship, while their equipment was in another ship, elsewhere in the convoy. The surgeons and other personnel made it ashore near Arzew during D-Day, but they landed apart, across three miles of coastline. None of the unit's medical equipment made it to the beaches.

Doctors and nurses spent the first night on the beach in foxholes, slit trenches, and helping out at a nearby medical clearing station. The unit eventually collected itself together by noon the following day. The equipment was still missing so hospital personnel went to work collecting and borrowing surgical instruments, equipment, and supplies. Dressings, narcotics, and sterilization equipment were in short supply until D+4, when the unit's equipment finally arrived.¹⁴⁸

Medical support was just as limited in the 2nd Armored Division's area. Casualty collection, clearing, and dental care were "non-existent." The lack of capable medical units, combined with the lack of available transportation made the evacuation of the wounded almost impossible and very few if the wounded received adequate treatment.¹⁴⁹

By D+6, the most challenging problem facing the Center Task Force was burial of the dead. The II Corps Quartermaster had initially requested a graves registration platoon of one officer and 24 enlisted for the invasion force, but the Corps G3 on "the grounds that only combat forces were important" denied this request. Despite the lack of these specialized service forces, an

¹⁴⁸ Memorandum, 48th Surgical Hospital, dated December 23, 1942, subject: Lessons from Operation Torch. CMH. Geog J Africa 353 Tunisia.

¹⁴⁹ Memorandum, Second Infantry Division to commanding General, Western Task Force, dated December 26, 1942, subject: Lessons from Operation Torch. NARA, RG 338 E 50215, box 1. 8.

assistant Corps QM and some engineer troops eventually established a temporary cemetery for the over 400 American soldiers awaiting burial.¹⁵⁰

The lack of trained laborers and an ineffective command organization on the beaches and at the piers proved to be the largest problems of the assault phase of the operation. However, the need for an organizational element to take control of the beaches was not a surprise. The War Department had identified this requirement before Torch in discussions with the British. A new type unit was formed - the Engineer Amphibian Brigade. This was a multifaceted unit, comprised of a boat regiment, shore regiment, signal, medical, and supply units. These brigades were supposed to land equipment and supplies as well as receive these items on the beaches and move them to inland dumps.¹⁵¹ Unfortunately, this proved to be a valid concept, but poorly executed.

The assault force lacked both the detailed planning and trained units necessary to carry out an effective landing and unloading of equipment and supplies. Captain Whitfield of the *Calvert* summed up the problems by noting that there was no cooperation, no organization, insufficient personnel, and the officers in charge were both incompetent and of too little rank.¹⁵²

Landing with the Center Task Force, the Amphibian Brigade concept proved to be harder to carry out than initially planned. There were no US landing craft available so the Task Force told all of the Brigade's units to work onshore, even though many were untrained for this duty. The landings operated using British command and control systems and British crews operated most of the landing craft. A lack of training, unfamiliarity of the waters, and darkness produced a

¹⁵⁰ Andrew McNamara. "Quartermaster Activities of II Corps thru Algeria, Tunisia and Sicily and First Army thru Europe," as compiled by Raymond McNally (Fort Lee, Army Publication, Apr 55) 29.

¹⁵¹ "History of the 1st Engineer Amphibian Brigade HQ and HQ Company and the 531st Engineer Shore Regiment and Succeeding Units." Unit History compiled by Howard G. DeVoe, 531st Engineer Association, 1983. MHI. 1-3.

¹⁵² Frierson, volume 2, appendix H, 2.

scene of chaos and confusion as boats returned to the wrong ships and landed on the wrong beaches.¹⁵³

The Brigade was to use its trucks to transport supplies to the dumps, off load them, and then have the supplies sorted, catalogued, and stacked. In reality, the Engineers moved supplies to the closest dump, regardless of type of item they were carrying, and dumped cargo at the water's edge. There was no coordinated control over the landing area and little security for stocks. There was no discipline in the supply area near the beach and few supplies ended up at the right location. Only gasoline storage went well because the gasoline supply company had its own trucks and hauled gas from the landing areas direct to the fuel dumps.¹⁵⁴

Despite the chaos, ship captains did what they could to offload essential supplies. One such captain resorted to towing life rafts behind the landing boats in order to get supplies of gasoline ashore. Each life raft held 136 cans of fuel, "otherwise the cans might float off."¹⁵⁵ Similarly, Brigadier General William Campbell of the 3rd Infantry Division directed that landing craft should tow life rafts loaded with ammunition.¹⁵⁶ Shore parties of engineers succeeded in establishing dumps and aid stations along many of the beaches. Ammunition, rations, water, and fuel all began to accumulate in small quantities; however, movement of supplies forward of the beach dumps to the fighting units was almost non-existent. Supplies, such as water, fuel, and ammunition weighed a lot, distances were too far to carry supplies by hand, and there was a lack of ground transportation. Supplies made it ashore before the trucks.¹⁵⁷ Planners had counted on

¹⁵³ Ibid., 5-6.

¹⁵⁴ McNamara, 19.

¹⁵⁵ Frierson, volume 2, appendix H, 2.

¹⁵⁶ Report of Operations, Western Task Force SOS, 9. Also see "Western Task Force: Attack on Fedala and Its Defenses," 62.

¹⁵⁷ Memorandum, Second Infantry Division to commanding General, Western Task Force, dated December 26, 1942, subject: Lessons from Operation Torch. NARA, RG 338 E 50215, box 1. 5.

jeeps and ½-ton trucks to haul supplies, but these small vehicles proved inadequate for the task. Supplies continued to be unloaded at all beaches with no real direction.¹⁵⁸ By the end of the first day, 39 percent of the troops had made it ashore, along with 16 percent of the vehicles and just over one percent of the supplies.¹⁵⁹

The lack of an able support organization limited operations at the ports as well. Initially, there were too few trained stevedores to unload the number of ships waiting at anchorage. Additionally, there were no corresponding supply and transportation units available to move the offloaded supplies from the piers inland to a supply dump. Ammunition, food, and other items soon clogged the piers because no one was there to take responsibility for it. The *Calvert* took five days to unload - twice as long as it otherwise should have taken. To illustrate the lack of organization and control, soon after the clearing of the port at Fedala a French merchant ship, the *Lumerla*, docked and began to unload its civilian cargo, even though two American ships containing cargo trucks and other essential supplies were kept waiting in the harbor. On November 11 and 12, no American ships were brought into either Fedala or Casablanca harbors, even though this was a critical period in which the task force commander was trying to establish support capabilities ashore to resupply combat units. It was not until after November 15, one week after the assault, that the first signs of order began to appear at Western Task Force ports.¹⁶⁰

However, not all of the problems experienced during convoy unloading were the result of poor planning or a lack of service personnel. Equipment problems and poor luck played a role as

¹⁵⁸ “Western Task Force: Attack on Fedala and Its Defenses,” 53

¹⁵⁹ *Ibid.*, 55.

¹⁶⁰ Frierson, volume 2, appendix H, 1. Also see “Western Task Force: Attack on Mehdiya and the Port Lyautey Airdrome,” 152; and Report of Operations, Western Task Force Services of Supply, 12.

well. At Safi, the 2nd Armored Division was unloading a medium tank from the *Lakehurst* on the afternoon of D-Day. As the crane hoisted the tank out of the hold, a mechanical problem caused the crane cable to freeze, preventing the cable from going either up or down. The problem took five hours to rectify. At the same time, the *Titania* raised a light tank out of its hold and the cable snapped. The crew spent seven hours trying to find a replacement cable before unloading could resume. These problems occurred as Brigadier General Hugh Gaffey was urgently requesting tanks for the front to help stop approaching French forces. ¹⁶¹

Through all of this, General Patton was not amused. On D+1, November 9, the Western Task Force commander wrote that “The beach was a mess and the officers were doing nothing.”¹⁶² Three days later Patton was at the Casablanca docks and found that “nothing was going right. Some soldiers gave me coffee. Six French trucks ready to help were standing idle because no one took hold. Found a LT [lieutenant] and put him to work with the trucks.”¹⁶³ Despite this lack of organization, order eventually came to the harbors and ports.

Patton spent hours at the docks and, despite the disorder, made a point of telling the men how well they had done. As of November 30, there were still piles of gasoline and bombs on the docks, but these gradually dwindled away. On December 23, Patton noted that the docks were, finally, “in really fine shape.”¹⁶⁴ The tragedy is that it took the Task Force forty-five days to straighten out a situation that was avoidable, had a small port unit with some adequate transportation been included in the initial convoy. This represented a failure of command by task force leaders. From Eisenhower on down, US officers had failed to plan for the landing of a

¹⁶¹ Papers of Ernest N. Harmon. MHI. Box 3, Draft Memoirs. 56.

¹⁶² George S. Patton, Diary, September 24, 1942 to March 5, 1943. LoC. George S. Patton Papers, Manuscript Division.

¹⁶³ Ibid., November 12, 1942.

¹⁶⁴ Ibid., December 16 and 23, 1942.

balanced assault force - one that could not only perform its combat mission, but could also *sustain* itself from the moment the force landed on the beaches. This was a critical lesson to learn. Had this same situation occurred facing a determined enemy, the entire invasion force might well have been pushed back into the sea.

In the Eastern Task Force sector, the British also experienced problems clearing their beaches. As with the beaches of the Western and Center Task Forces, the Eastern Task Force quickly found its beaches chaotic with little semblance of order. Supplies were dumped with little thought or plan. Keys were missing for vehicles. British beaches had only a limited throughput capability for supplies and equipment, which slowed the buildup of the British First Army.¹⁶⁵

In general, the overall lack of service units in the task forces precipitated the problems on the beaches and at the ports. As an example, the Center Task Force included only 260 supply personnel on the first two convoys, out a total force of more than 60,000. The Corps Quartermaster asked to include additional supply units, but the Task Force denied his request on the assumption that local civilian labor would be available in North Africa to offset the needed units. Upon landing, the task force discovered the local labor to be limited, unskilled, and requiring constant supervision. Poor assumptions and a lack of understanding concerning the challenges of supporting a deployed force led to problems that were more than anecdotal.

The long-term impact of the landing craft loss was a reduction in the overall numbers of assault craft available to support national strategies. Numbers of assault craft in 1942, and throughout the war, never met the global demand for this unique capability. The US was

¹⁶⁵ Thompson, 56.

balancing the allocation of both funds and materials, such as steel, among many competing programs. The loss of any landing craft meant that the Allied global capability to support amphibious assaults was, in some way, hindered. Indeed, the loss of landing craft affected not just the Mediterranean and European theaters, but the Pacific theater as well. Amphibious operations were one of the essential characteristics of Second World War and all the theaters were demanding increasing numbers of assault craft. The issue was so serious that the loss of landing craft became a topic of discussion at the Anfa/Casablanca strategy conference of January 1943; a topic that Roosevelt and Churchill would deal with throughout the remainder of the war.¹⁶⁶

Ultimately, the surprise achieved by the landings prevented any coordinated response by the French military in Morocco or Algeria. French resistance was spirited in select areas, but had little real impact on the landings. The Allies got lucky, because a coordinated French sea and air attack on the beaches might well have prevented the forces of Torch from achieving their desired objectives.

On November 10, Admiral Darlan, the senior French officer in North Africa, broadcast the order for all French forces in North Africa to cease hostilities. By 7 a.m. the following day, the front was quiet and the Allies then shifted their focus onto the capture of Tunisia, as well as began working out the details of how to integrate the French military into the Allied coalition. As of November 12, it appeared that the Axis nations were not willing to occupy Spain and there was little threat from Spanish Morocco. Eisenhower was now free to reorient the forces of Torch to the east and begin a race with the Germans to see who could seize and hold Tunis first.

¹⁶⁶ Memorandum, Atlantic Base Section to Commanding General I Armored Corps, dated 22 January 1943, subject: Report on Loss of Landing Boats in November 8 Attack. NARA, RG 338 E 50215, box 1.

The Allies had a lot to learn before attempting the next amphibious landing. Fortunately, the weather and enemy generally cooperated—otherwise the landings could have been much worse. As it was, the three task forces made it ashore and began building up combat power in preparation for the next phase of the operation. Now they needed to build a viable sustainment capacity that could quickly support the drive into Tunisia, the true goal of the operation.

More Consequences

Eisenhower noted that the “chief hope of anticipating the Axis in Tunisia lay in our acting with utmost speed.”¹⁶⁷ The task forces were ashore, but before any large-scale offensive operation could begin, they needed to build up a support capability that had the ability to sustain long-term operations in a harsh and undeveloped environment, over hundreds of miles. The initial combat force secured the initial objectives near the beaches, but it required reconstitution before the divisions could move beyond the initial lodgment areas. To accomplish this required a capable sustainment force with the right equipment and supplies.

Even though the Western Task Force had an assigned logistics element, called Services of Supply Task Force A, Patton and his planners did not integrate the Services of Supply into the D-Day landings. The Atlantic Base Section Commander, Major General Wilson, noted, “There was no consideration given to the problem of supply in the Western Task Force beyond the landing of troops on the beaches.”¹⁶⁸ The problem was not just with the Services of Supply; the Task Force G4, Colonel Walter Muller, was on the D+5 convoy, which actually arrived in

¹⁶⁷ Report by Dwight D. Eisenhower on Operations in the Mediterranean Area, 1942-1944 (London, His Majesty’s Stationary Office, 1950), CMH. 19.

¹⁶⁸ Frierson, volume 1, 127.

Morocco on D+11.¹⁶⁹ Because of this seemingly intentional effort to relegate the Task Force logisticians and support elements to later convoys, the Western Task Force's ports were chaotic, confused, and unsupervised. Port facilities in the area of Casablanca were available soon after the landings; however, the lack of trained port personnel prevented the Task Force from taking full advantage of these facilities. As a result, ship offloading at the ports was slow and largely unsupervised. Stacks of supplies clogged docks because there were no Services of Supply forces and equipment available to make sense of the items that had been unloaded and to move these supplies from the ports and beaches into depots and dumps further inshore. The ports and beaches had become chokepoints.

By the evening of November 16, there was a continuous pile of miscellaneous supplies on the piers of Casablanca, averaging ten feet high, 20 feet at the base, and extending approximately 700 yards. One pile included a lethal mix of steel mat, ten-gallon containers of aviation fuel, Vienna sausages, .45 caliber ammunition, lubricating oil, and a cloverleaf of 105mm incendiary ammunition. Few people were working to clear the mess and the follow-on convoy was only going add to the piles.¹⁷⁰

The first convoy to follow the D-Day invasion force was the D+5 convoy. This collection of nine troop ships and 11 fast cargo ships arrived in Casablanca on 18 November 1942 only to find confusion and disorder at the city's docks. Members of the 6th Port, a unit on the D+5 convoy, which specialized in port operations, found conditions at the Phosphate pier to look

“as though some gigantic overhead scoop full of supplies had suddenly emptied its contents. Apparently, nothing had been hauled away and nothing had been

¹⁶⁹ Ibid.

¹⁷⁰ CAPT A.G. Shepard. Report to Commander in Chief, US Atlantic Fleet, , “Report on Operation Torch.” January 9, 1943. MHI. The Escher C. Burkart Papers. 68.

stacked. One box was simply on top of another. On the other dock we could see boxes, crates, ammunition, and gasoline drums piled up and scattered from one end to another.”¹⁷¹

Port operations were new to the Army; units such as 6th Port were less than five months old. Commanded by COL Hunter Clarkson, the 6th Port landed on 19 Nov 42 and immediately went to work. The unit was new, but the men in it had a wealth of experience as civilian stevedores, dockworkers, rail operators, and truck drivers. When they came ashore, the docks held piles of supplies and equipment while the combat forces were moving inland and calling for more fuel and supplies. There were not enough trucks, rail cars, or service units to clear the ports. Adding to the difficulty of the task was the tremendous amount of rain that fell, turning hillsides into cascades and valley floors into lakes. Everyone in the command was working to clear the docks to include cooks and clerks. A typical shift was 16 to 18 hours long and meals consisted of cold C-rations. The rains had knocked down most of the pup tents so many men chose to sleep in the holds of ships – anywhere that was dry. The port was a scene of trained stevedores that knew what they needed to do, but had to contend with a larger group of untrained beginners and local Arab labor. The battle with the French Navy had wrecked all of the port’s cranes. However, by February 1, conditions had improved and the Allies were employing 8,000 local Frenchmen and Arabs to work as stevedores.¹⁷²

Units such as the 6th Port began work to make sense out of the docks and establish a storage capability away from the piers; however, the shortage of cargo trucks hampered operations. Few military trucks were available so US forces used any local means of conveyance that was readily

¹⁷¹ Frierson, volume 1, 134.

¹⁷² “History of 6th Port.” Regimental History [1945?] MHI . 4-6.

available, such as horse-drawn wagons and charcoal-burning trucks.¹⁷³ One of the ships, the *Lorraine*, carried 40 trucks and was the third ship offloaded at Fedala. Unfortunately, due to waterproofing issues, none of the vehicles were serviceable.¹⁷⁴

The shortage of trucks was a hindrance felt across the force. Planners had allocated 200 trucks for the unloading of supplies at the ports, however less than half of these were in French Morocco when the D+5 convoy arrived. Additional trucks arrived with the D+5 convoy, but could not unload until workers cleared the ports. Patton's combat units in the Western Task Force had priority use of the trucks that did make it to theater, meaning that the service units had to make do with whatever was available.

Besides deciding to keep many of the cargo trucks in New York due to limited shipping, Patton decided to substitute smaller ¼ ton trucks (jeeps) for the 2 ½ ton cargo trucks that were authorized and available for the force. On one hand the decision makes sense given the shipping restrictions that the Task Force was wrestling with, however, the decision to deploy with smaller trucks had operational and logistical implications. Without the 2 ½ ton trucks, affectionately known as "deuce and a halves," Patton's force lacked the ground transportation necessary to resupply or transport itself. The problem was simply a matter of physics. In terms of carrying capacity, one deuce and a half was equal to nine jeeps¹⁷⁵ Patton focused on weight and space, not capability or need, when he made his decision about equipment priorities.

The combined air force element of Torch, the Moroccan Composite Wing, found itself stranded on the beaches following the landings. As with other units in the Task Force, Patton

¹⁷³ Frierson, volume 1, 134.

¹⁷⁴ Shepard, 33.

¹⁷⁵ Frierson, volume 1, 139.

had decided to leave most of the Wing's automotive equipment back on the piers at the US ports of embarkation, expecting the Wing to rely on the ground forces for the movement of its personnel and supplies. However, since the ground force was *also* short of transportation, there was little movement of bombs, ammunition, and fuel for the Air Corps once it reached Morocco.¹⁷⁶

The Wing found itself in a precarious position largely because Wing planners consciously focused their efforts on ammunition requirements and decided to leave all planning for spare parts and automotive equipment to the Western Task Force. As such, there was no liaison between the Wing and the Task Force on the specific transportation needs of the Wing once it arrived in North Africa. Patton treated the Wing's truck assets the same as any other units, apparently not considering the impact this would have on his air support. Either no one argued for the reinstatement of the vehicles or Patton failed to grasp that in some situations, trucks could be more important than infantry and armor.

The decision to eliminate a large number of cargo trucks from the initial assault convoys was not limited to the US military. British planners, likewise, decided to keep a large number of trucks back in Great Britain due to the shortage of motor transport vessels. This lack of trucks, in all the task forces, meant that it would take longer to clear supplies off of beaches or ports, longer to establish a significant distribution capacity, and that large infantry formations were limited to movement by foot or rail. To illustrate just how much of an impact this decision had on the force, the Deputy Director of Supplies and Transport for the British First Army estimated that he could only support forces up to 100 miles east of Bone until additional trucks arrived on

¹⁷⁶ Report, Moroccan Composite Wing, dated 25 December 1942, subject: Report of Lessons from Operation Torch. NARA, RG 338 E50215, box 1. 11.

the D+32 convoy. This not only proved to be an accurate estimate, but it also played a key role in the British failure to secure Tunis before the German military had an opportunity to reinforce the region.

Had additional truck assets been available, the campaign in Tunisia could possibly have ended five to six months earlier. Eisenhower and his planners knew that the landings would start a race with Germany to see which side could land reinforcements the fastest. Eisenhower wrote, “Our chief hope of anticipating the Axis in Tunisia lay in our acting with utmost speed. Indeed, we were involved in a race, not only against the build-up of enemy forces, but against the weather as well.”¹⁷⁷

The problem for the Allies in late 1942 was not so much a lack of combat force in North Africa, but the lack of a means to move that force quickly around the theater. However, limited rail lines, poor roads, and the lack of ground transport vehicles all contributed to a situation in which AFHQ (Allied Force Headquarters) could not respond to tactical opportunities. In December 1942, the Germans lacked the combat and logistical strength to repel a strong Allied push into Tunis, however the British lacked the means to rapidly deploy and sustain a large force across the 220 miles from Bone to Tunis. Likewise, Patton’s Western Task Force was largely unengaged in French Morocco, but the Americans lacked the means to move divisional size formations to the east. The Allies had an opportunity before them, but they lacked the means to take advantage of it. Had sufficient transport been available in December, the Allies most probably could have seized Tunis that month and the Germans would have had their supply chain interdicted, all of which would have prevented the February 1943 battle at Kasserine Pass.

¹⁷⁷ “Report by General Dwight D. Eisenhower on Operations in the Mediterranean Area 1942-1944,” 18.

All of this is hypothetical, but it does serve to illustrate how decisions on issues as mundane as trucks contributed to the outcome of the war's battles and campaigns.

Eisenhower comments that the drive for Tunisia failed for three reasons. First, limitations in shipping prevented the force from having sufficient strength to deal with the distance and force it faced. Second, shortages of trucks and the limitation of a single-line railway slowed down the rate of advance. Third, unseasonable rains stalled air operations.¹⁷⁸ Together, these created a situation that forced Eisenhower to pause for the winter, but the situation did allow an opportunity for the service units to build up the theater into an effective base of operations.

¹⁷⁸ Eisenhower, *Crusade in Europe*, 118.

Chapter IV: Establishing the US Theater in the Mediterranean

As mentioned in chapter II, the US theater in the First World War had some serious problems, which it never overcame. Only the end of the war saved the communications zone of the American Expeditionary Force from implosion. A quarter-century later, North Africa provided the opportunity for the US military to learn from its earlier mistakes and this time erect a theater that included *both* a viable combat and communications zone. The initial landings showed that there were still problems to overcome, but the winter pause of 1942-1943 provided an opportunity to build the structures and systems needed to sustain long-term combat.

The chapter covers the consolidation of the North African landings until the kickoff of the final drive for Tunisia, roughly December 1942 until April 1943. This is the period in which US service forces fought to organize themselves and bring order to an already jumbled supply situation. This is an important subject because this is the first time that US forces built such an organization on foreign soil - one capable of supporting a force of over a million men engaged in modern combat over hundreds of miles. This is the true foundation of Allied victory in North Africa, as well as in the Mediterranean and Europe. Leadership, cooperation, and agility become common themes for the developing theater. A failure to build a capable communications zone in North Africa would have ramifications not just for the capture of Tunisia, but for all subsequent operations in Europe.

The story begins with the US effort to divide the battle space into a combat and communications zone, which then leads to the development of an intermediate headquarters to manage the support effort. The chapter also offers insights on the German supply situation, which helps put the Allied effort into context. The Axis forces failed to protect their lines of

communication and put less forethought and effort into developing the theater support structures, creating a situation that ultimately limited their ability to hold terrain and contributed to their loss of North Africa. Next, the chapter describes the buildup of the US communications zone during the winter of 1942-43, which helped prepare the Allies for the final push into Tunisia. Finally, the chapter explores the rearming of the Free French forces - an effort that required a sizeable amount of equipment and supplies, but provided the Allies with additional divisions and squadrons that otherwise would not have been available.

Cleaning up the Rear

Following the landings, each task force handled support responsibilities in its own respective area of operations. Allied Force Headquarters provided overall guidance, but there was no formal communications zone or single support agency. The base sections took care of their own task force and anyone passing through the area.

Although weak at first, the base sections steadily increased in strength with the arrival of additional convoys. Across all three task forces, what they found was confusion and the lack of any organization. Ports and supply dumps were in disarray. Pilferage by the population had become a major problem, leading to the requirement for a US soldier to accompany every wagon or vehicle. Infantry units formed bucket brigades in order to move supplies off the docks. Vacant fields and broken-down warehouses served as impromptu supply dumps and storage locations for the thousands of barracks bags separated from their owners on the invasion force. Military clerks and mechanics served as guides in an effort to direct the endless stream of

vehicles from the docks to the supply dumps, but even with that effort, many drivers became lost.¹⁷⁹

To complicate the supply situation further, the Western Task Force had planned to allow partially unloaded vessels to return to the US if there was insufficient time to empty these vessels before the convoy had to return and make room for the next convoy. The convoy schedule was extremely tight and any delay would affect numerous other convoys. Unfortunately, nobody had thought of inventorying these partially filled ships prior to their return from the Mediterranean.¹⁸⁰ As a result, no one was entirely sure of the exact quantity of materiel, which had made its way onto the shores of North Africa. This issue was a problem that the base sections would have to resolve as the theater began to consolidate and AFHQ formed a communications zone.

Innovation and adaptability proved to be essential elements in the ability of the theater to support its forces and operations. Engineers removed the ends from oil drums to serve as makeshift forms for concrete footings. Due to a shortage of paint, medics placed red iron ore put against a bed of limestone to create a red cross at hospitals to protect them from enemy attack. The shortage of lumber resulted in walls for buildings made out of paper, tar, and chicken wire.

¹⁸¹ Units throughout the rear area combined imagination with available resources to compensate for any shortages in supplies and equipment. This innovation became an integral part of the force and helped the US forces overcome adversity, not just in North Africa, but also throughout the Mediterranean theater.

¹⁷⁹ Frierson, volume 1, 135.

¹⁸⁰ Ibid., 130.

¹⁸¹ Roy Harris, "The Communications Zone Engineer," *Military Review*, volume XXIV, number 9 (December 1944): 37-38.

The underlying problem was the lack of shipping space to the theater, and once supplies were in the theater, there was a shortage of transportation and infrastructure to move these items to where units needed them. The war in the Mediterranean was ultimately a war of movement and throughput: the side that could effectively transport resources into the theater and then quickly move men, equipment, and supplies to the decisive point had a strategic and operational advantage.

Resources, such as merchant shipping, were scarce throughout the world so the War Department and AFHQ needed to find efficiency wherever possible. Issues with limited shipping space reached the highest levels and even before the convoys had sailed for North Africa, the Combined Chiefs of Staff directed that "...it is highly desirable to save shipping space and many steps have to be taken to accomplish this."¹⁸² The Twin Unit Pack was one such innovation that addressed the worldwide shipping shortage.

The Twin Unit Pack (TUP) was simply two complete vehicles, disassembled, and packed together with all the necessary parts for assembly. The TUPS required less space on a ship than fully assembled vehicles, but they did require an equipped assembly line with trained workers at the ship's destination.

The Army's Ordnance Department had originally planned to ship all trucks to the theater in a fully assembled configuration, however the Army and General Motors developed a plan to ship these same trucks disassembled and then assemble them later after arrival in the Mediterranean theater. Assembled trucks tended to fill up a ship before reaching the ship's weight limit due to the large size of the vehicles. As such, ships filled with assembled trucks sailed at less than full

¹⁸² Memorandum, Combined Chiefs of Staff to the Combined Shipping Board, subject: Shipment of New Vehicles, October 22, 1942. NARA, RG 492, box 127.

weight capacity. By loading trucks in a TUP configuration, the loadmasters at the New York Port of Embarkation (PEMBARK) could better utilize the full cargo capacity of each ship up to the overall weight limit. In short, the Army could load more vehicles in the same amount of space, which resulted in a greater transportation capacity within the theater. The only problem was that the trucks required reassembly and the deserts of North Africa lacked both the manufacturing capabilities and trained workforce of industrialized nations.

The solution to the assembly problem was the use of specialized units, such as the 302d Ordnance Regiment. This regiment contained skilled volunteers, which had attended specialized training at large US industries prior to sailing for the theater. The Army and Munitions Board granted a triple-A priority rating for the project and the first convoys containing TUP vehicles arrived in Casablanca and Oran by the end of 1942.¹⁸³

Each TUP consisted of four boxes: one contained two truck frames with the motors attached. The second box contained the cabs and wheels. The third held axle assemblies and the fourth contained the truck bodies. Overall, shipping one deuce and a half TUP, compared to shipping two fully assembled vehicles, saved 59 percent cargo space.¹⁸⁴ Manufacturers provided assembly plant layouts and any specialized equipment necessary for vehicle assembly. Planners anticipated an assembly rate of 100 vehicles per day for each assembly line.¹⁸⁵

The assembly line at Oran was established where 120 TUPs had been dropped in two muddy fields since there was no heavy lift equipment available to move the heavy boxes, which weighed up to 10,000 pounds. Ordnance units used open fields and four-ton wreckers to assemble the

¹⁸³ "History of the Atlantic Base Section to June 1, 1943," volume 2, "Ordnance" section. CMH. 32.

¹⁸⁴ "History of the Atlantic Base Section to June 1, 1943," volume 2, "TUP-SUP" section. 31.

¹⁸⁵ E.A. Suttles, "The Assembly of Motor Vehicles in North Africa or How to Improvise". *Ordnance Sergeant*, Volume 6, Number 6 (December 1943): Ordnance Center Museum. 328.

vehicles, in lieu of the concrete floors and heavy cranes envisioned by the manufacturers.¹⁸⁶ The demand for the trucks was so great in the Center Task Force area that many units received vehicles lacking even a road test.¹⁸⁷

The complete assembly line gradually improved over seven weeks. Engineers erected buildings with overhead hoists, drainage, lighting, water, and compressed air. In one single day, the line at Oran assembled and delivered 143 of the 2 ½ ton trucks.¹⁸⁸ Installation included mounting of cabs, lubrication, wheels, wiring, and fabrication of vehicle bodies. This was an impressive effort, which, although it occurred largely in the background, provided the theater with a critical item of equipment. Eventually, each assembly line occupied over a million square feet of space.¹⁸⁹

One of the greatest contributions to the theater was the improvement of the North African rail network. When the Allis landed in November 1942 the rail system in North Africa presented a daunting list of challenges. Tracks were typically limited to a single line, limiting two-way movement. There was no one standard of track-the *Chemin de Fer de Maroc*, the Railway of Morocco, was standard gage in the west, but the line changed to narrow-gage in eastern Algeria, east of Ouled Rahmoun and Tebessa.¹⁹⁰ Additionally, there were few locomotives and rail cars—those that did exist typically had relatively little capacity compared to the demands the military needed to place on them. The rail system needed a lot of work to maximize its potential.

¹⁸⁶ Suttles, 329.

¹⁸⁷ Lida Mayo, *The Ordnance Department: On Beachhead and Battlefield* (Washington: Center of Military History, 1991), 119.

¹⁸⁸ Suttles, 330.

¹⁸⁹ "History of the Atlantic Base Section to June 1, 1943," volume 2, "TUP-SUP" section, 35.

¹⁹⁰ "American Rails in Eight Countries: The Story of the Military Railway Service, Army Transportation Corps," Unit history, 1945. MHI. 7.

Accompanying the invasion force on D-Day was an advance element of the 703rd Railway Grand Division. Formed along a traditional railroad organization, the Railway Grand Division replicated a civilian general superintendent's office and operated three to four railway battalions along with a shop battalion for heavy maintenance and a base depot company for supply. Each rail battalion included a headquarters company, which dealt with dispatching, supply, and signals. Company A handled maintenance of rail lines and facilities along the lines, while Company B operated the roundhouse and repaired rolling stock and locomotives. Company C consisted of 50 train crews and a train master.¹⁹¹ Commander of the Military Railway Service was Brigadier General Carl R Gray Jr., pre-war vice president of the Chicago, St. Paul, Minneapolis & Omaha Railroad.

By November 18, 1942, the first personnel of the Rail Division arrived and began making contact with the French railroad operators to arrange rail movement of all supplies and equipment arriving on the D+5 convoy. Since the rail lines technically belonged to the French, the Allies had to negotiate for use of the lines and rail equipment. As luck would have it, George Falson, a US veteran of the First World War, had been living in Casablanca before the invasion. George grabbed his discharge papers and met the assault units on the beaches of Fedala when the assault boats came ashore. George was very familiar with how the French rail system operated in North Africa so he attached himself to the US Rail Division as "interpreter extraordinaire." This local assistance helped US forces acquire engines and other rail support from the French and eventually helped the US forces assume all switching service.¹⁹²

¹⁹¹ Ibid., 5.

¹⁹² History of the Atlantic Base Section to June 1, 1943," volume 2, "Planning" section. CMH. 13.

One of the first tasks of the Rail Division was to coordinate the movement of 54 32-ton tanks. A few 30-ton and 40-ton railcars, designed to carry steel rail, were located after a wide search of the area and deemed suitable for movement of the tanks. Each car needed reinforcement, however lumber and nails were scarce commodities in the North African desert. The Allies ransacked hardware stores and got merchants out of their beds until they had enough nails for the task. Ingenuity and resourcefulness helped even more as soldiers cut the beams out of smaller rail cars and sliced the ends of brake houses off of the cars as well, creating a perfect opening for the tanks.¹⁹³

The War Department shipped rail engines from the states in a partially dismantled configuration. These arrived in Morocco, where soldiers then transported the disassembled engines 630 miles east to Sidi Mabrouk, Algeria for reassembly by the 753rd Shop Battalion. The Shop Battalion finished reassembly of the first two engines in 76 hours and then loaded the engines on a train for movement to Ouled Rahmoun where the engines went to work on the narrow-gage tracks.¹⁹⁴

German forces quickly realized the importance of the single rail line running along the coast and worked to interrupt rail service. German special operation elements landed by parachute behind the front lines to sabotage the rail lines, while German pilots targeted rail facilities and supporting infrastructure. The rail battalions had an on-going challenge to keep bridges, fixing rails and switches, and damaged machinery repaired. Despite the challenges, the rail units

¹⁹³ “American Rails in Eight Countries,” 6-7. Also see “History of the Atlantic Base Section to June 1, 1943,” volume 2, planning section. CMH. 14.

¹⁹⁴ “American Rails in Eight Countries,” 7.

maintained pace with advancing combat elements and provided the supplies and equipment needed to win the battle of Tunisia and North Africa.

The arrival of logistics units on the later convoys provided the Allies with an increasing capability to initiate and sustain prolonged operations. The ports were operating at increased capacities, depots and dumps were established, and the transportation situation, while still a concern, was less of a constraint. The Allied forces were steadily building up the capacity to wage war and the theater was ready to be formally established.

Establishing the Communications Zone

The period of November 1942 to March 1943 represented the change of North Africa operations into a coherent theater of war. Initially, each task force was responsible for coordinating its own support, but by spring the time was right to transfer over to a more effective and efficient system of centralized oversight. Many resources were restricted due to competing worldwide demands from the different theaters or from shipping limitations. The theater needed a means to make the most of its available resources.¹⁹⁵ Command of combat units shifted as well, in order to provide more centralized control over the ground, air, and sea forces. The establishment of the theater represented an effort to bring order to the combat and communications zones, a task necessary to support a long series of operations and campaigns. Without a functioning theater, the US would not be able to support its forces deployed overseas.

This section of the chapter deals with the evolution of the theater and its organic support structure. The divisions had secured their objectives, now came the task of turning North Africa

¹⁹⁵ "History, Communications Zone, NATOUSA, Part 1." CMH. 3.

into a base of operations from which to launch the assault on Tunisia, as well other subsequent campaigns. To accomplish this, the theater needed an organization to coordinate the support efforts in the rear areas and the base sections needed to establish the installations, prisoner of war camps, warehouses, and repair facilities to support the force. Throughout all of this, cooperation of the senior officers and innovation of the individual soldiers played key roles as the US military began to build a theater in a very austere environment.

The failure to capture Tunis in December 1943 provided a setback for Allied strategy, but it provided an opportunity for logisticians to build up the rear areas in preparation for a spring offensive. Eisenhower had paused operations, but the winter of 1942-43 was a time of great energy devoted to the development of the task force support capabilities. The armies received new equipment and supply dumps built up reserves. Support forces took advantage of the lull to refine the systems needed to effectively move and support the force.

The requirements of the theater depended, in part, on the North African geography, climate, and infrastructure. Roads were much sparser than in either Europe or the US, with primary roads covered by tar and the secondary roads “often more than earthen tracks.”¹⁹⁶ The hundreds of primitive bridges, which crossed the wadis, were largely inadequate for heavy military vehicles or cargos. The railways were few, of differing gage, and capable of handling only a few trains per day.¹⁹⁷ The railroad was largely unguarded and usually followed the road so that one bomb could destroy both. Railroads operated on poor-quality Moroccan coal. The tracks were generally in good shape, but the rolling stocks was in poor condition and limited in capacity. On

¹⁹⁶ “Lessons of the Tunisian Campaign 1942-43,” British Forces. British Military Training Directorate. CMH, Geog J Africa 353 Tunisia. 2.

¹⁹⁷ Ibid.

the route from Taza to Oujda, one train ran a day, consisting of two locomotives, two water tenders, and 20 small rail cars incapable of hauling large equipment. Highway bridges were typically 1 ½ lanes wide, which limited two-way traffic.¹⁹⁸ In general, the North African terrain and infrastructure lacked the capacity to support large offensive operations. Nonetheless, these were the surroundings that *all* the belligerents had to work with.

In order to relieve the task forces of defense requirements and supply duties in the rear areas, AFHQ activated two specialized commands, similar to the concept of support exercised during the First World War.¹⁹⁹ First, the Mediterranean Base Section (MBS) arose on November 10, 1942, with its headquarters at Oran, Algeria. Seven weeks later the Atlantic Base Section (ABS), with its headquarters located at Casablanca, Morocco, activated on December 30.²⁰⁰ By the beginning of 1943 the two base sections were no longer under task force control, but, rather, directly under the control of AFHQ.

The Atlantic Base Section handled support for forces in the area occupied by the I Armored Corps (the former Western Task Force). To the east, the Mediterranean Base Section assumed responsibility for support of all forces in II Corps (the Center Task Force), as well as support of US forces operating in the area of the British First Army (the Eastern Task Force.) The one exception was that British forces were responsible for the support of all US forces operating as part of the British Eastern Assault Force in Tunisia.²⁰¹

¹⁹⁸ Trip Report: Tour of Spanish Moroccan Border, HQ Western Task Force, November 26, 1942. . Papers of John P. Ratay, box 3, MHI.

¹⁹⁹ History of Allied Force Headquarters (AFHQ), Part 2, Section 1, December 1942-December 1943". CMH. 168.

²⁰⁰ AFHQ General Order Number 13, dated 2 November 2, 1942. NARA, RG 492, Box 1533 and AFHQ General Order Number 38, dated December 30, 1942. NARA, RG 492, Box 1533. Also see "History of Allied force Headquarters, Part 2, Section 1, December 1942 to December 1943," 169; and "History, Communications Zone, NATOUSA, Part 1," 3.

²⁰¹ AFHQ General Order Number 38, dated December 30, 1942. NARA, RG 492, Box 1533.

Besides having the responsibility for administrative support of combat forces, AFHQ also assigned the two base sections responsibility for all civil affairs matters. Additionally, requests from US forces for supplies and equipment went direct to the base sections.²⁰² The base sections found themselves with a growing list of customers— they now had to support military forces, civilians, French forces, and prisoners of war.

There was an interesting difference of views between President Roosevelt and General Eisenhower on the role and perception of Allied forces. Roosevelt viewed Allied forces in North Africa as conquerors; ones that could issue orders and expect compulsive compliance.²⁰³ Eisenhower, however, knew that the force was not an occupying one, but instead, was one of an accepted ally or visitor. Accordingly, “far from governing a conquered country, we were attempting only to force a gradual widening of the base of government, with the final objective of turning all internal affairs over to popular control.”²⁰⁴ In this situation, the Allies had to work with the local government and populations to establish good will and an atmosphere of cooperation. This meant that Eisenhower had to consider the welfare of the people to a greater level than otherwise might have been the case. Support from the people and from their local government was essential if the Allies were to avoid a situation in which the rear areas might be threatened, which would require the stationing of significant amounts of combat forces to provide security.²⁰⁵ Thus, civil affairs quickly became a critical element of the theater support strategy.

²⁰² Ibid. Also see “History of Allied Force Headquarters, Part 2, Section 1, December 1942 to December 1943.” CMH. 170.

²⁰³ Eisenhower, *Crusade in Europe*, 137.

²⁰⁴ Ibid.

²⁰⁵ Ibid.

The centers of activity for the base sections were the ports, such as the ones at Casablanca, Oran, and Algiers. The port had to have sufficient berthing spaces to handle the number of ships arriving with the convoys, as well as enough lifting equipment and transportation networks to clear materiel off the piers. Ports and depots needed to be close enough to the front to support Allied strategies, but far enough removed from southern France and Tunisia to avoid large air raids.

The two base sections had other wide-sweeping responsibilities, to include oversight of all depots, fund estimates for the task forces, control of transportation not within the task force, all construction, signal facilities, and civilian labor.²⁰⁶ Additionally, the base sections had to work closely with the US Navy for all matters involving the clearing of ports and harbors, operations of all ports and moles, the loading and unloading of ships, control of all lines of communications, fueling of ships, and security of all ports and military installations.

Figure 4: Casablanca Harbor²⁰⁷



At the time of the initial landings there appears to have been few differences, other than the name, between “SOS Task Force A” and the “Mediterranean Base Section.” Both organizations provided administrative support to their respective task forces in a similar manner and both had

²⁰⁶ “History of Allied Force Headquarters, Part 2, Section 1, December 1942 to December 1943,” 173.

²⁰⁷ Source: History of Communications Zone, volume IV, CMH.

the task of establishing initial support bases. The different names are probably only a representation of the preference of terms favored by each task force and serve to illustrate the decentralized nature of planning that occurred between the different task forces.

As the Operation Torch moved from the initial assault phase to the Tunisian offensive phase, the base sections worked to make some sense out of the piles of supplies, which had accumulated in the task force areas. As just one example, the Atlantic Base Section faced with a pile of ammunition at Fedala, which measured 150 feet deep for a mile and a half on either side of the railroad. Ammunition was “strewn, scattered, jumbled, mixed up - it seemed every type, size, lot number, and caliber ever produced was piled there in the most amazingly involved condition that any Ordnance man or officer had ever seen.”²⁰⁸ This is just one example of the state of the intermediate supply depots in early 1943; depots that needed to be cleaned, organized, and inventoried to take full advantage of the materiel that had been received within the Mediterranean theater.

Without this organizational effort, the base sections would not know what supplies were on hand, where the needed supplies were at, or how to issue supplies in an effective and efficient manner. Dumps were often unnumbered. Units had to scour the piers and surrounding areas for supplies believed to be on-hand.²⁰⁹ This situation, left unresolved, could have serious consequences because if a unit needed critical supplies and the base section had no visibility of what was actually available, the base section then had to send the requisition back to the US for fulfillment. This meant that a requisition might require months to fill and take up valuable shipping space, even though the needed items might already be located within the theater and

²⁰⁸ “History of the Atlantic Base Section to June 1, 1943,” volume 2, “Ammunition” section, 18-19.

²⁰⁹ “History of the Atlantic Base Section to June 1, 1943, volume 2, “The Plan” section,” 11.

available for use. Finally, the net explosive capability of all that ammunition piled up in one place represented a major safety problem, especially since the chance of air raids was ever present. Fortunately, it does not appear that the German Luftwaffe ever took advantage of these lucrative targets, but the risk was there nonetheless.

Situations like this were common. Support units found supplies and equipment haphazardly strewn about impromptu supply depots, vacant lots, or alongside a rail line. These were an unintentional and normal result of the growth of the theater; however, better planning could have limited the extent of the disorganization. Units on the assault wave simply worked to unload ships as quickly as possible. Workers established the initial supply dumps as a means to expeditiously clear materiel from the ports, but with little organization or record keeping. Plans changed - the ammunition dump at Fedala was supposed to receive 35 to 50 percent of all incoming munitions for the Western Task Force; instead, the dump received nearly 100 percent. Conditions deteriorated when subsequent convoys arrived and added their supplies to those that were already on the ground.²¹⁰ The shortage of trucks prevented units from quickly moving supplies off ports and rail spurs. The base sections found themselves with a problem that grew in magnitude with every additional convoy.

In an effort to rectify the situation, one of the first tasks was the effort to install route markers along highways and to number all of the dumps. Transportation sections worked to gain control over the military and civilian transportation resources, although much of the available

²¹⁰ "History of the Atlantic Base Section to June 1, 1943, volume 2, "Ammunition" section, 19.

transportation remained in the hands of the combat units. On average, only half of the transportation within the theater was initially available for use in the rear areas.²¹¹

The designation of North Africa as a separate US theater occurred on February 4, 1943. Up until that time, General Eisenhower had been operating as the commander of essentially two theaters: Europe and North Africa. This arrangement made sense while the forces for Torch were still in England, but by January 1943, it became clear that the two theaters needed to formally separate.²¹² This would allow Eisenhower to focus on Tunisia as well as allow his replacement in Europe to focus on a future cross-channel assault. Effective at 0001 hours on February 4, the North Africa Theater of Operations, US Army (NATOUSA) activated with responsibility for North Africa from the Sudan, east to the Libyan border. As a part of the theater responsibilities Eisenhower was formally charged with “the strategically, tactical, territorial, *and administrative duties* (authors italics) of a theater commander.”²¹³

Since Eisenhower had responsibilities of being both the senior US commander in the theater as well as the Allied Commander-in-Chief, the AFHQ staff had similar split responsibilities. While the AFHQ staff was a combination of both US and British personnel, the US staff in each AFHQ section also typically served as the US theater staff. In effect, the US personnel at AFHQ had two roles—one as the US theater staff and the other as part of the combined Allied staff for all Mediterranean operations. While this division of responsibilities made sense conceptually, it sometimes resulted in problems, as officers had to remember which headquarters they

²¹¹ “History of the Atlantic Base Section to June 1, 1943, volume 2, The Planning” section, 22.

²¹² “History of Allied Force Headquarters (AFHQ), Part 2, Section 1, December 1942-December 1943,” 188.

²¹³ NATOUSA General Order Number 1, dated February 4, 1943. NARA, RG 492, Box 1531. Also, see “History of Allied Force Headquarters (AFHQ), Part 2, Section 1, December 1942-December 1943,” 191.

represented for specific meetings or issues, and under which authority they issued plans, policy, and directives.

Although Eisenhower had the responsibility to provide administrative support to all US forces as the theater commander, he did not have the time or inclination to do this job himself. As the Allied Commander-in-Chief, Eisenhower had more pressing duties, such as working to keep the English-French-American coalition together and dealing with various political officials. Eisenhower needed another general officer that could focus on the administration of the theater so on February 6, he chose Brigadier General Everett S. Hughes to be the Deputy Theater Commander. Army doctrine did not include such a position; however, this same doctrine did not envision the myriad competing demands required of an allied commander-in-chief.

Everett Hughes became a field artillery officer after graduating from West Point in 1908. Three years later, he transferred to the Ordnance Corps and, later, deployed to Mexico in 1916 as part of the Punitive Expedition. Hughes served in the AEF during the First World War and taught at the General Staff School at Fort Leavenworth, Kansas from 1923 to 1928.

Figure 5: MG Everett Hughes²¹⁴



Hughes was a close confidant of George Patton—the two of them were a year apart at West Point, and both served in Mexico and in France. The diaries of both Hughes and Patton reveal that the two generals often got together whenever Patton was visiting AFHQ, with Patton frequently using the opportunity to remark over several drinks on how he thought Eisenhower or other senior leaders, such as Montgomery, were doing.²¹⁵ This was an

²¹⁴ Source: History of AFHQ, volume 2, section 1. CMH.

intriguing relationship between a senior combat commander and a support officer. One benefit of such a relationship was that Patton had an inside ear and confidant within AFHQ, while Hughes could learn first-hand of any administrative concerns coming from the front.

Hughes described the duties of the Deputy Theater Commander simply as being “charged with the responsibility of relieving the Theater Commander of all possible [administrative] details.”²¹⁶ In effect, Hughes became responsible for the support of all US forces, while the Chief Administrative Officer, Major General Gale (B), had responsibility for all British forces.

Since US doctrine did not include the provision for a Deputy Theater Commander, Hughes asked that he also become the Commanding General of the communications zone - a familiar doctrinal concept. This additional designation did not come with any additional responsibilities or staff, but it did provide an authority needed to deal with the War Department Services of Supply and it helped to define Hughes’ duties in terms that were more traditional. Eisenhower agreed and on February 9 signed a memorandum, directing Hughes to

...establish, operate, and command a U.S. Communications Zone for NATO USA. You will assume all possible U.S. administrative and supply duties now being performed by AFHQ, in order to relieve AFHQ to the maximum of supply and administrative matters applying to U.S. forces. You will also be responsible for the detailed development of supply plans for American forces in future operations to conform to the broad plans of AFHQ....In addition to the duties indicated above you are designated as Deputy U.S. Army Theater Commander.²¹⁷

²¹⁵ The diaries of both Patton and Hughes are at the Library of Congress.

²¹⁶ “History of Allied Force Headquarters (AFHQ), Part 2, Section 1, December 1942-December 1943,” 193.

²¹⁷ Memorandum, Eisenhower to Hughes, dated February 9, 1943, subject: Instructions. NARA, RG 492, box 124.

This became official three days later when AFHQ published a general order on February 12, 1943 directing the establishment of the NATOUSA communications zone.²¹⁸ With this order, Fifth Army became responsible for the general defense of the communications zone and the duty of the CG Communications Zone/Deputy Theater Commander was to coordinate and synchronize the activities of the AFHQ staff, Fifth Army, and the base sections. Thus, just one man- Everett S. Hughes- represented the entire communications zone.²¹⁹

Unfortunately, Eisenhower's order did not specify the specific delineation of responsibilities among the different logistics staffs and organizations within the theater. Eisenhower achieved his goal of shifting the administrative burden off of AFHQ, but there arose a difference of opinion between the Allied Headquarters, the US theater, and the base sections on the roles that each was to perform and who reported to who. This controversy continued for at least six months and served as a point of tension among the organizations that depended on efficiency, not disagreement, to succeed.

February also saw the creation of a third US base section. The British were still supporting the US forces attached to the Eastern Task Force out of the Port of Algiers. This increasingly placed a strain on the British sustainment system as more US forces moved into Tunisia so NATOUSA added the Eastern Base Section (EBS) to the communications zone on February 13, 1943. Transportation difficulties forced leaders to recognize that the 250 miles from Oran to Algiers was too great a distance to provide logistics support to US units operating in the British

²¹⁸ NATOUSA General Order Number 4, dated 12 Feb 43 in "History of Allied Force Headquarters (AFHQ), Part 2, Section 1, December 1942-December 1943," 196.

²¹⁹ Memorandum from Hughes to Larkin, dated March 27, 1943, subject: Civil Goods. NARA, RG 492, box 2730. Also, see "History of Allied Force Headquarters (AFHQ), Part 2, Section 1, December 1942-December 1943," 196.

First Army area.²²⁰ The Allies had insufficient trucks, the rail line was limited, and the road network consisted of dirt roads that frequently washed out. However, the North African coastline provided an opportunity to reduce distance from the ports to the combat forces by offloading ships further to the east for those supplies destined for use by the Eastern Task Force. The threat of attack by enemy fighters increased the further east the coasters went, but the benefit of cutting hundreds of miles off the ground route made this a risk worth taking. The main ports used by the Eastern Base Section included Bougie, Philippeville, and Bone.

The theater staffed the new base section by reducing the size of the other two base sections, which created some animosity, especially with Brigadier General Wilson of the Atlantic Base Section. On the other hand, Brigadier General Larkin and the Mediterranean Base Section fully supported the levy of personnel and provided service personnel to the Eastern Base Section as required, while Wilson held out for as long as he could and only gave people up when forced.²²¹ Command of the Eastern Base Section went to Colonel Arthur W. Pence, the Engineer Officer for the Mediterranean Base Section.

Each of the base section commanders had a vast area of responsibility and a myriad of different responsibilities, including port operations, care of roads and rail lines, facility construction and management, lend-lease transactions, and civil affairs, to name but a few. Each commander was capable, but each also had his own education and experiences to draw from.

Arthur R. Wilson started his Army career as an artilleryman in 1920. After completing the Command and General Staff course and War College he became an army liaison officer with the

²²⁰ General Order Number 5, subject: Eastern Base Section, dated 13 February 1943. NARA, RG 492, box 1531. Also, see "History of the Eastern Base Section 22 February to 1 June 1943, volume 1." CMH. 6.

²²¹ "Oral History of LTG Robert Colglazier," 88 and 90.

Works Progress Administration from 1937-1939, followed by an assignment as Chief of the Support Division of the Federal Works Agency from 1940 to 1942.²²² These positions provided valuable experience in areas, which most military officers had limited knowledge, such as in jobs, civilian infrastructure, and function of a civilian bureaucracy. All of this greatly aided Wilson's performance of duties throughout the war as one of the Mediterranean theater's senior support commanders. The Deputy Theater Commander, Everett Hughes, described Wilson as being "an able officer...imaginative, but a free-wheeler who [prefers to jump over intermediaries and deal directly with senior commanders]."²²³

Figure 6: BG Arthur Wilson²²⁴



Patton had a less generous opinion of the base section commander, writing that "Wilson is nuts. [He] is a back-biting fool with an inferiority complex who will not last long."²²⁵ Considering that Wilson was commander of the base section supporting Patton's forces in French Morocco, this seems to indicate a less-than-healthy relationship between the two men. Patton was ultimately wrong - Wilson did survive, but he did not achieve the same level of recognition as Thomas Larkin.

Thomas Larkin received a commission in 1915 from West Point and entered the Army Corps of Engineers. Larkin had a wealth of experience prior to the Second World War. He was part of the Army's 1916 Punitive Expedition in Mexico and he served with the AEF in the First World War, where he received a silver star for the building of a bridge across the Marne River under

²²² R. Manning Ancell with Christine M. Miller, *The Biographical Dictionary of World War II Generals and Flag Officers* (Westport: Greenwood Press, 1996), 348.

²²³ AFHQ memorandum, Hughes to Commander-in Chief, dated February 6, 1943, subject: Implications of attached recommendations. NARA, RG 492, Box 127.

²²⁴ Source: History of the Atlantic Base Section, volume 2. CMH.

²²⁵ Patton diary, September 24, 1942 to March 5, 1943.

heavy enemy fire.²²⁶ Larkin had a great deal of civil engineering experience as well. From 1929 to 1933 he was the district engineer for flood control at Vicksburg, Mississippi; from 1933 to 1936 he headed construction of the Fort Peck Dam at Fort Peck, Montana; and he was the officer in charge of the third locks project at the Panama Canal from 1939-1942.²²⁷

Figure 7: MG Thomas Larkin²²⁸



Similar to Wilson's experience in civilian institutions, Larkin's civil engineering background had a direct connection with the demands of operating a theater support organization. The ability to leverage and improve civilian infrastructure was a large part of a base section's mission. However, unlike Wilson, Larkin was as a personable officer who easily worked with others. This combination of civil engineering experience and personality led to Larkin's increasing levels of command and promotions that occurred throughout, and after, the war.

Figure 8: BG Arthur Pence²²⁹



Arthur Pence graduated from West Point in 1918 and, like Larkin, served as an officer in the Corps of Engineers. Pence did not have as much experience as Wilson or Larkin, but he did have a tour in the Philippines from 1926-1928, and was an instructor at the Engineer School at the start of the war. Pence was a proponent of getting the mission done in any way possible. By the use of both general policy and verbal guidance, Pence

²²⁶ R. Manning Ancell with Christine M. Miller, *The Biographical Dictionary of World War II Generals and Flag Officers* (Westport: Greenwood Press, 1996), 182. Also see "History, Communications Zone NATOUSA, part 1," 1.

²²⁷ "History, Communications Zone NATOUSA, part 1," 1.

²²⁸ Source: History of Communications Zone, volume 1. CMH.

²²⁹ Source: "Tools of War," APG.

gave his men orders to “Get the job done. Use all possible means. Improvise if the standard means and channels are inadequate. Keep all wheels rolling...It is the results that count...We must do everything possible ourselves without counting on help from the rear.”²³⁰

This type of guidance capitalized on the innovation and Protestant work ethic inherent in many of the US forces. It told the men of the Eastern Base Section that the mission was more important than the bureaucracy typically associated with supply and it also helped to build a reputation that the EBS would get the materiel needed for operations without question or delay.²³¹ What Pence was working toward was an organization that had the means to use independent thought and to anticipate requirements. In a war of limited resources, these qualities could determine the success of an operation weeks, or months, before it actually started.

The direct control of the base sections by AFHQ ended on February 15, 1943 with the establishment of a new headquarters. The Supply of Service for North African Theater of Operations, United States Army (SOS NATOUSA) was an intermediate level of command designed to fall between the theater and the base sections. The Services of Supply had the responsibility to direct and over-watch all sustainment activities for the entire North African theater. Larkin received a promotion to major general and left the Mediterranean Base Section to command the new organization.²³²

The theater intended for the activation of the Services of Supply to simplify the management of theater administrative support; however, there was still disagreement of the exact functions and responsibilities of the Services of Supply. Major General Hughes, the Deputy Theater

²³⁰ “History of the Eastern Base Section, 22 February-1 June 1943.” CMH. 9.

²³¹ “History of the Eastern Base Section, 22 February-1 June 1943.” CMH. 9.

²³² “History of Allied Force Headquarters, Part 2, Section 1, December 1942 to December 1943,” 175.

Commander and Commander of the Communications Zone, felt that the three base sections operated under the oversight of the Services of Supply for supply operations, but that the base sections actually belonged to, and reported to, the theater.²³³ In this view, Services of Supply served not in a command role, but rather, in a position of management. Hughes felt that the AFHQ G4 should make policy and then pass it through either himself or MG Larkin for execution.

Major General Larkin held a slightly different interpretation. In his view, AFHQ intended that the Services of Supply should “command of all US Army supply and maintenance activities in the theater.”²³⁴ As such, the base sections should report direct to the Services of Supply and not to AFHQ. Larkin felt that he had command and control of “the operation of installations and the employment of personnel and troops in the Communications Zone.”²³⁵ Despite these two conflicting viewpoints, however, relations between Larkin and Hughes remained cordial throughout the war and the two officers worked together to resolve issues regarding command and control. Eventually the Services of Supply stationed a liaison officer at AFHQ in an attempt to ease coordination; however, tensions between the two headquarters lasted well into 1944.²³⁶ Eventually the theater G4 fell into a role of developing logistics policy, setting priorities, providing logistical advice Eisenhower, and conducting long-range planning. The G4 also coordinated common supply support for the air forces and adjusted levels of support between the ground and air forces for items with limited supply.²³⁷

²³³ “History of Allied Force Headquarters (AFHQ), Part 2, Section 1, December 1942-December 1943,” 200.

²³⁴ *Ibid.*, 201.

²³⁵ “History, Communications Zone, NATOUSA November 1942-November 1944”, volume 3, 5.

²³⁶ History of Allied Force Headquarters (AFHQ), Part 2, Section 1, December 1942-December 1943,” 202.

²³⁷ Wendell Little. “Functions and Operations of G4 Division, NATOUSA.” *Military Review*. Volume XXIV, number 11 (February 1945): 55.

While the G4 dealt with policy, the Services of Supply was responsible for the detailed planning of immediate support operations, the management of supplies, and for the execution of all sustainment actions. In essence, the G4 focused on how sustainment actions should generally occur and the Services of Supply dealt with getting these accomplished.

Overall, Services of Supply was responsible for providing all of the administrative support for US forces in the Mediterranean theater. This included providing supplies, transportation, medical care, signal support, civil engineering, and maintenance support. However, to do this they had to operate ports, build and run installations, build prisoner of war camps, provide supplies to prisoners of war, build telegraph and telephone systems, operate the rail system across North Africa, and maintain the road, bridges, and rail lines.

As an example, each of the base sections established general, field, and evacuation hospitals to support all Allied forces and prisoners of war within their respective regions. Quartermaster salvage units established salvage depots to collect and classify damaged or abandoned equipment. The unit then sent reparable equipment to a suitable repair shop, while serviceable equipment went to a supply dump or depot. The Mediterranean Base Section processed over 357 tons of salvaged equipment in the month of March 1943 alone.²³⁸

The base sections established a myriad of capabilities to take care of the deployed force and avoid returning equipment back to the US for repair. Civilian shoe repair shops augmented military repair units, repairing some 400 pairs of shoes per day for one base section. Each base section contained dumps, warehouses, bakeries, sales stores, offices, ports, civilian and military hospitals, fuel storage facilities, maintenance shops, lumber yards, map depots, wineries,

²³⁸ G4 Periodic Report, Mediterranean Base Section, dated 6 April 1943, NARA, RG 492, box 2752, 4.

equipment assembly plants, motor pools, graveyards, rifle ranges, personnel replacement depots, and rest camps.

Figure 9: Ration Dump at Oran



By May 1943, the US theater would store over 25 million pounds of meat, almost two million pounds of fish, and twenty million pounds of dehydrated milk.²³⁹ In the Mediterranean Base Section, these facilities occupied 47 different locations spread across an area the size of Georgia.²⁴⁰ Coordinating everything was the Services of Supply - a headquarters initially authorized only 97 officers and 200 men, a minuscule number of personnel to be responsible for sustaining a theater that was already approximately 154,200 square miles and contained hundreds of thousands of men.²⁴¹ This was an immense operation to set up and operate in such an extreme environment.

Labor was a serious problem across the theater and the base sections had to use a combination of US military labor, casual native labor, more formal native labor companies and Italian POW service units to meet the required workload. Native labor units consisted of Arabs over the age of 35 inducted by the local French authorities. In the Eastern Base Section, for

²³⁹ Services of Supply Statistical Summary, May 1943. NARA, RG 492, box 2759, 2.

²⁴⁰ Ibid., Installation List.

²⁴¹ Square mileage for NATOUSA computes as follows: Distance between Casablanca and Tunis is 1028 miles. Allied forces typically operated within 150 miles of the North African coastline. Also see "History, Communications Zone, NATOUSA, part 1," 16.

example, there were only enough US service forces to do about 33 percent of the total labor requirement.

Figure 10: Local Labor²⁴²



Due to a general lack of personnel, the base sections hired a large quantity of local French labor to augment US headquarters units. Support units needed typists, translators, laborers, and real estate appraisers. Arabs largely provided the bulk of the common, unskilled labor. By June, the Atlantic Base Section had employed 14,815 local workers and the Mediterranean Base Section had 12,498.²⁴³ No figures are available for the Eastern Base Section. As an incentive, local labor received US ration cards for goods that were hard to find on the local economy, such as tea, coffee, sugar, and cloth. Many of the Arab laborers even preferred rationed supplies to the three-franc daily wage because they could later sell the rationed goods on the black market at a substantial profit.²⁴⁴

The single rail line along the North African coast presented challenges of coordination between the Allies and the local French authorities. Compounding the problem was the initial lack of a central NATOUSA transportation section. On one occasion, the Eastern Base Section required a resupply of French francs to conduct purchases from local suppliers and vendors. The Services of Supply arranged a shipment of one million francs with the Atlantic and Mediterranean Base Sections, under the plan to disguise the money in a piece of laundry equipment and to provide only a small guard. At some point in the journey, both the lone guard and the laundry machine were lost. An Army laundry and bath unit later contacted the Atlantic

²⁴² Source: *Quartermaster Review*, July-August 1944, Fort Lee.

²⁴³ SOS Statistical Summary Number 3, dated June 16, 1943. NARA, RG 492, box 2758.

²⁴⁴ "History of Atlantic Base Section to 1 June 43." Chapter XIV, 9-11.

Base Section and stated that, upon opening a replacement laundry machine, they found a box full of French currency and asked for guidance on what to do with the newfound wealth. Eventually the base section recovered all of the money, except for a thousand francs. However, a better means of coordinating movements among the different support organizations could have easily prevented this entire incident from occurring.²⁴⁵ Situations such as this helped to point out deficiencies in the theater support organization and NATOUSA took notice. By the end of 1943, the Services of Supply had a central movement's office and this became the standard for all follow-on operations within the Mediterranean theater.

Building up the Theater

Having an authorization document was just the first step toward the functional establishment of a Services of Supply. Although the new headquarters was authorized personnel, it still took time to assemble and train the staff. By the end of February 1943, only 47 officers were available for duty, although the Services of Supply had been required to begin immediate oversight of the theater's sustainment operations upon its activation.²⁴⁶ By the end of March 1943, the situation was dire enough to force Larkin to travel to AFHQ and argue for more personnel. Services of Supply NATOUSA was at only a skeletal fill for personnel and few of those that had been assigned were trained or experienced in supply matters. The ports were still inadequate, roads were poor, and rail and signal lines were limited. Larkin knew AFHQ was considering the employment of five divisions in Tunisia, but Services of Supply NATOUSA did not have the capability to provide all that was required of it.

²⁴⁵ "Oral History of LTG Robert Colglazier," 94 and 90.

²⁴⁶ "History, Communications Zone NATOUSA, part 1," 29.

The message Larkin left at AFHQ was that the Services of Supply needed adequate resourcing or the future operations and the lives of thousands of soldiers would be at risk. This put both AFHQ and the US War Department on notice: key positions within the Services of Supply needed filling by qualified personnel or there could be theater-wide and even strategic, repercussions.²⁴⁷ AFHQ understood the need and by April 23, 1943, a cable was at the War Department requesting approval for a Services of Supply headquarters of 594 personnel - double the size of the original authorization.²⁴⁸ The fill of personnel still lagged behind authorizations, however, and by June 5, 1943, the Services of Supply was still at only at half-fill of its authorized personnel.²⁴⁹

Larkin did what he could to make the personnel situation known to his higher headquarters and there was support for the requested increases, but the realities of having too few trained service personnel in the Army forced the Services of Supply to be innovative, flexible, and to make due as best it could. The Services of Supply had tried to stand up a casual detachment of 200 officers and 600 enlisted men, but Hughes canceled the move because AFHQ had not approved the proposal.²⁵⁰ Larkin and his Services of Supply were simply another demand against a growing worldwide demand for service forces as the different theaters continued to expand their level of operations. Until the fill of service units, improved North African base section commanders were simply unable to do everything they needed to do.²⁵¹

One area of contention between Generals Gray and Larkin was the command chain for the rail forces. While the Rail Division supported Services of Supply NATOUSA in carrying out

²⁴⁷ Ibid., 30.

²⁴⁸ Ibid., 35.

²⁴⁹ Ibid., 41. By then the SOS had 687 authorized, but only 348 on-hands.

²⁵⁰ Letter, Hughes to Larkin, dated 31 May 1943. NARA, RG 492, box 2730.

²⁵¹ Memorandum from General Larkin to General Pence dated May 30, 1943. No subject. NARA, RG 492, box 2730

sustainment operations for the North African theater, the Division did not report directly to the Services of Supply. Instead, the commanding general of the rail division was “responsible to the Deputy Theater Commander for the well being, discipline, and training of the United States’ railway troops.”²⁵² Larkin could ask Gray for support, but Gray ultimately worked for Hughes. Although this arrangement ultimately worked, the command arrangement was not as clean and efficient as it might have otherwise been. However, considering the personalities of the generals, it probably was the optimal arrangement.

US ground units were not the only forces reliant on the Services of Supply for support; the North African air and naval components required support as well. To bring efficiency to the theater, Services of Supply was responsible for providing all common support to US forces regardless of service. Base sections provided items such as petroleum, food, construction supplies, and vehicles. Special items, such as aircraft repair parts, special ammunition, or naval equipment, were the responsibility of the respective component. This was a two-way street: the Services of Supply had to provide the needed supplies, but the services were required to provide timely and accurate requisitions and forecasts.²⁵³

Supply forecasting by all the services was part art, part science, and part luck. Allied Force Headquarters identified major operations six to twelve months in advance, allowing planners an opportunity to develop broad resupply plans and requirements. However, planners and commanders often modified operations plans up to the date of execution, resulting in changes in logistical requirements. The War Department required the receipt of requisitions at least 45 days

²⁵² AFHQ General Orders Number 19, dated February 14, 1943, and Number 38, dated June 7, 1943. NARA, RG 492, Box 1533.

²⁵³ NATOUSA Circular Number 89, dated May 18, 1943 on Joint Navy and US Army Supply. NARA, RG 492, box 2775. Also, see NATOUSA Administrative Memorandum Number 28, Supply of Air Forces. NARA, RG 492, box 46.

prior to a convoy's sail date. This meant that the theater needed to have requisitions from its components at least 60 days prior to the convoy sail date.²⁵⁴ If one added in the transit time of a convoy (two to four weeks, depending on the route and type of ships), then requisitions needed to be at NATOUSA three months before the supplies were actually needed.

Requirements for these other services could be heavy. For example, the III Air Service Area Command, on a daily basis, required 250 tons of fuel and 50 tons of bombs and ammunition at Tunis-Bizerte, with an additional 450 tons of fuel and 250 tons of bombs and ammunition at Cap Bon. Additionally, the Enfideville-Kairouan area needed 350 tons of fuel and 250 tons of bombs and ammunition.²⁵⁵ This totaled 1,050 tons of fuel and 550 tons of munitions *every day* for this one air service area alone.

Sustainment for the Air Corps and the airfields quickly became a major endeavor for the Services of Supply. The rains, which began in December 1942, quickly turned airfields into mud fields. Broken stone laid on top of dirt had initially served as a serviceable runway during November, but after the rains arrived, the stone simply sunk into the mud. Steel matting was the only appropriate material that could resurrect the runways and taxiways; however, a single runway required 2,000 tons of matting. This equaled two day's worth of the entire rail capacity for the forward area.²⁵⁶ This need for matting occurred at the same time AFHQ was working to resupply the front line forces, which was an even higher priority. The inability to move materiel forward to improve the airfields played a large role in Eisenhower's decision to abandon his hopes of an early seizure of Tunisia.

²⁵⁴ Notes on 1st ETO Coordination Conference. November 29, 1942. NARA, RG 492, box 55.

²⁵⁵ Memorandum from Colonel Harold Bartron to Commanding General, EBS, dated June 13, 1943, subject: III Air Service Area Command Areas and Dumps. NARA, RG 492, box 3020.

²⁵⁶ "Report by General Dwight D. Eisenhower on Operations in the Mediterranean Area 1942-1944," 25.

As the theater grew, the war became a war of attrition, which meant that it became a war of resources. The Allies realized this and spent great effort in developing North Africa into a base of operations. A look at the German situation shows that the enemy chose to approach the issue of theater support from a different angle - one that profoundly limited the Axis forces' ability to fight.

Logistics on the Other Side of the Hill

The German supply situation was dire even before the Torch landings. The *Afrika Korps* commander, Field Marshal Erwin Rommel, complained to his superiors that in the first eight months of 1942, German desert forces had only received 40 percent of the 120,000 tons of requested supplies.²⁵⁷ Continuous operations over the open desert ruined German vehicles and there were not enough engineer units or resources to build more roads.

In the fall of 1942, the Axis army in North Africa was in the middle of a long retreat, heading west, back from El Alamein, with the British Eighth Army in pursuit. Less than a third of German tanks were serviceable and British Aircraft were effectively targeting the fuel tankers destined for Rommel's North African ports.²⁵⁸ The situation only became direr as the operation went on.

Rommel and the Axis force of North Africa faced four problems. First, Hitler considered North Africa a secondary front so it received fewer resources from the German high command. Second, Malta served as an effective base of operations for the British air and sea services in the Mediterranean, allowing them to target the supply convoys steaming out of Italy or southern

²⁵⁷ Erwin Rommel, *The Rommel Papers* (New York: Da Capo, 1988), B.H. Liddel Hart, ed. 287.

²⁵⁸ *Ibid.*, 306.

Europe. Third, the Germans did not have a single organization within North Africa to handle the organization of the supply effort or centrally manage limited resources. The services each took care of their own needs. This meant that the army might divert a shipment of fuel to the front lines, when it could achieve a greater good with the Luftwaffe. Conversely, the Luftwaffe might divert fuel to its airfields, when the Army really needed it at the front. Lastly, the Germans did not have the truck capacity needed to sustain an Army over extended distances for a long period.

By January 1944, Rommel notes that the shortage of supply trucks and long distances meant that he could only receive 50 tons of supplies per day, compared to the 400 tons that he needed. “The result was to be seen in deficiencies of every possible kind.”²⁵⁹ Perhaps part of the problem was also the lack of importance the Germans seem to have given to logistics staff officers. In the US theater, Eisenhower had a major general in charge of the communication zone, a major general heading the Services of Supply, and a brigadier general serving as the US theater G4. In contrast, Rommel’s supply officer was Major Otto.²⁶⁰

Field Marshal Kesselring, the Axis commander-in-chief and Rommel’s immediate superior, believed that the protection and organization of the overseas line of communication was of decisive importance and that the Italian Navy with its weak air forces had failed to secure line of communications. In fact, Kesselring labeled the failure to protect the sea-lanes between Italy and its colonies, along with the deterioration of the German Supply Service in Tunisia, as two Axis crucial mistakes of the North African campaign.²⁶¹

²⁵⁹ Ibid., 364.

²⁶⁰ Ibid., 345.

²⁶¹ Alfred Kesselring, “Concluding Remarks on the Mediterranean Campaign,” Foreign Military Studies [1946?] Box 62, MHI, 27 and 35.

The concerted Allied attack on the Axis lines of communication achieved the desired effect. Kesselring notes that the interdiction of the sea lines by Allied air, marine, and submarine forces kept supplies from arriving in North Africa. A similar attack on German ground traffic within North Africa made the supply situation “intolerable.”²⁶² The Germans had enough problems supplying Rommel when he was only facing the British Eighth Army; the addition of another Allied force to the west made North Africa unwinnable for the Axis.

In December of 1942, however, both sides had limited supplies and transportation. In the race for Tunisia, the side that could more effectively and efficiently produce and distribute the means to fight had the clear advantage. The Services of Supply might not win the war by itself, but if it failed in its mission, the Services of Supply could easily cause the failure of the entire Allied Mediterranean campaign. However, besides supporting US and some British forces, the Services of Supply also had the task of reequipping and supplying the large number of Free French forces within North Africa. Totaling over 300,000 men, the Free French represented a large pool of combat forces that could not support themselves.

Rearming the French

One development that provided a strategic boon to Eisenhower, but with a logistic implication, was the agreement to rearm and outfit the Free French forces of North Africa. Under the terms of the agreements coordinated between the different commanders on the ground,

²⁶² Albert Kesselring, “Questions Regarding the General Strategy During the Italian Campaign.” Foreign Military Studies [1946?] Box 27, MHI,32.

French commanders retained command of their forces, but agreed, “to operate in a spirit of consultation and cooperation with Allied forces.”²⁶³

The US used the proposal of rearming French forces as a means to help convince French officers to join up with the Allied cause. By 1941, the Free French had established a national committee in London under the presidency of General de Gaulle. The British provided the initial equipment to some 30,000 Free French forces outside of Vichy control, using items supplies from the US through the Lend-Lease Act.²⁶⁴

The capitulation of the French in North Africa dramatically added to the numbers of Free French forces. Through the agreement signed by Admiral Darlan and General Clark on November 22, the French agreed to join the Allied cause. By the end of November 1942, the Free French Africa Army numbered over 300,000 men. The French needed large amounts of training, equipment, and supplies.²⁶⁵ Despite these problems, they represented a large pool of manpower - one that Eisenhower could not ignore.

The worst aspect of the French forces was the overall lack of equipment. The French had insufficient equipment to deal with the armor on German tanks, which affected unit efficiency and morale.²⁶⁶ Agreements reached at the Casablanca Conference of January 1943, stipulated that Eisenhower was the “final approving authority for French requisitions and that any rearmed French forces were to be given missions under the Allied Commander-in Chief’s direction.”²⁶⁷ This provided Eisenhower with a tremendous advantage. The Allies based the French-Allied relationship on cooperation, but if the French wished to enact a different strategy than the one the

²⁶³ “History of Allied Force Headquarters, volume 2, part 1. December 1942-December 1943,” 105.

²⁶⁴ Marcel Vigneras, *Rearming the French* (Washington: Center of Military History, 1989), 9.

²⁶⁵ *Ibid.*, 17-18.

²⁶⁶ “Report by General Dwight D. Eisenhower on Operations in the Mediterranean Area 1942-1944,” 31

²⁶⁷ “History of Allied Force Headquarters, volume 2, part 1. December 1942-December 1943,” 107-108.

Allies proposed, all Eisenhower had to do was to threaten to cut off supplies for French forces. This situation played itself out in December 1943, when the French Committee of National Defense declined to send a rearmed unit, the 9th Colonial Infantry, to the Italian front. After Eisenhower issued a telegram threatening to cut off the rearmament program, the Committee of National Defense reconsidered its position and agreed to send the 9th Colonial to Italy as AFHQ had requested.²⁶⁸

The rearming of the French was not just limited to ground forces. Speaking before Roosevelt and Churchill at the Anfa Conference in January 1943, the senior French commander, General Giraud, asked to rearm the French Air Force as well - including 50 fighter squadrons, 30 light bomber squadrons, and other transport squadrons. This totaled over 1,000 aircraft.²⁶⁹

The impact of supporting French rearmament was that the Allies gained a sizeable fighting force, one that was knowledgeable with local customs and terrain. However, the rearmed French forces also had an impact on the mission of the theater sustainment units. The base sections received the mission to reequip the French forces using US equipment. The amount of equipment required for this effort was impressive. During April to May 1943, the Atlantic Base Section equipped a French Armored Regiment, one tank destroyer battalion, an armored reconnaissance battalion, and eight anti-aircraft battalions with all the necessary equipment to function as a fighting force, to include 1067 vehicles, 586 trailers, 237 half-tracks, 214 tanks, 39 tank destroyers, and 111 anti-aircraft guns.²⁷⁰ Additionally, the base sections had to provide instructors to train French forces on the new equipment.

²⁶⁸ Ibid., 108.

²⁶⁹ Vigneras, 35.

²⁷⁰ "History of the Atlantic Base Section to June 1, 1943," volume 2, 43.

The French provided a sizeable addition to the Allied military strength in North Africa, stating that they could contribute up to eight infantry and two armored divisions within a month after the Allied landings.²⁷¹ As French North Africa came under Allied control, the number of French forces increased the Allied militaries by 197,000 and by November 22, 1942, the French had over 300,000 men under arms. This included an infantry division in Tunisia; three infantry divisions plus a light mechanized brigade in Algeria; and two infantry divisions, a light mechanized brigade, and 5,000 goumer forces in French Morocco.²⁷² In early 1943, the French forces represented available labor, but needed an infusion of supplies and equipment to make them effective in combat. The French had lost half of their aircraft, tanks, and other heavy equipment.²⁷³ Many units had outdated equipment. Men needed everything from underwear to uniforms to rifles. After the force was reequipped, it also had to be sustained with ammunition, fuel, food, repair parts, and other like items. Additionally, the French forces needed an overhaul of their entire sustainment system.

The Free French forces represented both an added capability for the Allies, as well as an added demand for scarce resources. The French would prove to play an important role in the Mediterranean theater through their force contributions, but the benefit was not without cost. To use the Free French, the US had to provide most of the equipment and supplies needed to sustain these forces in combat. By the war's end, the US had provided 10,731 machine guns, 1,406 tanks, 27,176 trucks, and 1,417 aircraft for French use.²⁷⁴ This was a tremendous amount of equipment, especially considering the worldwide demand for such items. The Pacific theater and

²⁷¹ Memorandum by the Chief of Staff, U.S. Army for Combined Chiefs of Staff, dated November 11, 1942, subject: Equipment for Eight French Divisions in North Africa. NARA, RG 492, box 127.

²⁷² Vigneras, 17.

²⁷³ *Ibid.*, 18.

²⁷⁴ *Ibid.*, 402.

Soviet Union were likewise clamoring for items and any item provided to the French was one less available for some other requirement. In addition, once equipped, the base sections kept the French units supplied with everything from food, to fuel, to ammunition, and repair parts. Regardless of the cost, equipping the French provided at least an additional eight divisions to the Allies - divisions they otherwise would not have had. To Eisenhower, the decision to rearm the French was a simple one.

American ordnance units assumed responsibility for the rearmament of the French. Plans called for French forces to assemble the lend-lease vehicles arriving from the states, but the French lacked the equipment, personnel, and experience necessary to accomplish the task.²⁷⁵ Schools had to be set up to train the French on the unfamiliar equipment. The French had good attitudes regarding fighting, but failed to take care of equipment. The increased wear and tear of US equipment issued to the French placed an additional burden on American maintenance units. Manuals and stock records all required translation into French, and then requisitions translated back into English.²⁷⁶

Reequipping and then supporting a force like this presented a unique challenge for the base sections and the Services of Supply. Not only did the French represent an additional demand on the supply system, but they also introduced a new culture and different set of expectations. This represented the essence of operating as part of a coalition; capitalizing on each nation's strengths and capabilities while working to overcome any shortfalls. Eisenhower and his subordinates realized that this was not easy, but it was important.

²⁷⁵ Letter to General Arthur Wilson from General Everett Hughes, dated April 16, 1943. NARA, RG 492, box 2730.

²⁷⁶ "Ordnance in the North African and Mediterranean Theater of Operations as recalled by Colonel Connerat." MHI. Sidney Matthews papers, box 3. 4.

By April 1943, the North African theater was essentially set. AFHQ was the Allied theater headquarters, while NATOUSA served as the US theater headquarters. The Services of Supply managed work in the communications zone. The three base sections were maturing with a growing capacity, while the service units within the base sections found themselves bringing order out of chaos via available military and civilian resources and infrastructure. Eisenhower was now ready to finish the fight in North Africa and the communications zone was set to support the operation.

Chapter V: The Fight for Tunisia, 1943

The first essential condition for an army to be able to stand the strain of battle is an adequate stock of weapons, petrol, and ammunition. In fact, the battle is fought and decided by the Quartermasters before the shooting begins. The bravest men can do nothing without guns, the guns nothing without plenty of ammunition, and neither guns nor ammunition are of much use in mobile warfare unless there are vehicles with sufficient petrol to haul them around.

--Field Marshal Erwin Rommel, *The Rommel Papers*²⁷⁷

With the missed opportunity to grab Tunisia in December 1942, Eisenhower faced the need to prepare for a war of attrition. Earlier chapters show how the US theater developed during the pause that occurred during the winter of 1942-43, a pause that allowed AFHQ to create a formal communications zone. The base sections began organizing the rear while engineers worked feverishly to build installations and airfields. As a result, the North African communications zone of 1943 was much more capable and agile than its European predecessor from 1918. North Africa now possessed improved transportation infrastructure, better management of transportation resources, more mission-ready trucks, and numerous supply dumps. Allied aircraft routinely attacked Axis shipping in the western Mediterranean. The Allies were ready to finish the fight in Tunisia and begin the next step across the Atlantic.

In early 1943, however, the Axis forces of North Africa were not yet ready to hand the Allies an easy victory. Eisenhower put his forces on the defensive, but Rommel still had a chance to strike deep into Allied territory and cause real harm to the forces of Torch before turning his attention to the east and dealing with Montgomery's Eighth Army. The battle for Tunisia was not a *fait accompli*.

²⁷⁷ Rommel wrote this looking back at the second battle of El Alamein in 1942. Quoted from *The Rommel Papers* (New York: Da Capo, 1988), B.H. Liddell Hart ed., 328.

This chapter analyzes the buildup of support of the final struggle for Tunisia, a period lasting from January to May 1943. During this time, the Allies established a theater capable of supporting a long-term war of attrition - a theater that would enable the first collective victory against a major Axis force. This victory is important because it was the first step towards clearing Germany out the Mediterranean and opening the way into southern Europe. Victory in Tunisia represented a maturing of the US theater support structure and helped pave the way for the invasion of Sicily, which occurred less than two months after Tunisia fell.

Considered in total, the invasion of North Africa, the establishment of the theater and the victory in Tunisia all provide exactly what the US forces of 1942 needed - a chance to practice and rehearse amphibious landings, as well as to provide for the continuous support of forces once they are ashore. One must learn to walk before trying to run and North Africa provided such an opportunity. To have done otherwise would have invited disaster and a caused a probable lengthening of the war effort.

Strategic Setting

The failure to capture Tunisia in 1942 forced a reexamination of Allied strategy. At the Anfa conference of January 1943, Allied leaders had agreed to an invasion of Sicily in the summer of 1943. This meant that the Allies had to finish the fight in Tunisia during the spring of 1943 in order to meet the deadlines associated with preparing for this follow-on invasion. Unfortunately, winter rains needed to end before AFHQ could launch a full-scale offensive and the rainy season traditionally lasted until the end of March.²⁷⁸

²⁷⁸ Howe, 347.

The rains, terrain, and enemy situation outlined the parameters of the Allied plan. Rommel's force had retreated up into Tunisia. The British Eighth Army extended west, out of Tripoli. Eisenhower's forces would have to hold the western flank until conditions improved to support an attack in the spring of 1943.

By January, Rommel commanded approximately 100,000 Axis forces, comprised of 74,000 Germans and 26,000 Italians. The Italians were all dismounted infantry and needed German transport to keep up with the rate German mechanized units. German units were only at levels of about half of their authorized strength and only one-third of their equipment was operational.²⁷⁹

Hitler had originally intended for North Africa to be a secondary theater where Rommel would head a small force intended to hold back British advances. By the summer of 1942, however, successful advances across North Africa convinced Hitler to place a new priority on North Africa operations. The German High Command allocated additional resources for Rommel's forces, but the Italians remains responsible for shipping resources to Axis units operating in Africa. Ultimately, a combination of decisive Allied air attacks on Axis shipping in the Mediterranean and the lack of a capable supply and transportation network within North Africa led to a situation in which Rommel's forces routinely received only a fraction of the total supplies required.

Fighting in January occurred generally along the eastern dorsal passes of Tunisia. Allied units possessed better logistics, but were relatively inexperienced. German units had the experience, but lacked the units, cooperation, supplies, and equipment needed to achieve a breakthrough.

²⁷⁹ Ibid., 371.

In January, Eisenhower had repositioned II Corps to the east in an attempt to push through the German lines and reach the port town of Sfax, splitting Rommel's force in half. The Eastern Base Section pushed its supply depots forward by using the rail line from Constantine to Bone and then to Souk Ahras, at a rate of 250 tons per day. Supply points extended as far east as Kasserine. However, a German attack against Faid Pass on January 30 convinced Eisenhower to call off the Allied attack and to put II Corps on a defensive setting instead.²⁸⁰

In February, Rommel tried once again to break through the western Allied lines. Fearing that the Americans might again try to split the Axis forces, Rommel gained approval to attack the US formation in the west and then swing his forces to the east to deal with Montgomery. The plan called for General von Armin's Panzer Army to strike west from northern Tunisia, while Rommel's *Afrika Korps* converged from the south, forming a pincer attack in the direction of Kasserine.

The attack commenced on February 14. Three days later, the 21st and 10th Panzer Divisions had seized their initial objectives. The Fifth Panzer Army characterized its supply situation as acceptable. Rommel was ready to push on through Kasserine Pass in an attempt to sieve the port of Bone, a move that would outflank Eisenhower's forces. The attack began on February 19.

The Axis attack made rapid advances against inexperienced and ill positioned US and British units. Service units destroyed ammunition, gasoline, and other supplies near Sbeitla in fear of the German advance. The US garrison evacuated the town of Gafsa. The drive in Tebessa convinced II Corps to evacuate its large supply dumps. Units set fire to everything they could

²⁸⁰ Leo Meyer, "The Strategic and Logistical History of MTO." Undated manuscript. CMH. IX-7. Also see Howe, 390.

not move.²⁸¹ The II Corps railhead at Ferianna held approximately 55,000 gallons of fuel - fuel that the service units could not evacuate, but would be a prize for the German Panzers. Allied units in the area filled their vehicles and then the Quartermasters fired tracer rounds into the remaining drums and fuel cans, igniting the dump. Tebessa became the fall back position for II Corps support units and the main support base for the battle.²⁸²

Whether Rommel realized it or not, Tebessa represented the one objective that could provide his divisions with the resources needed to sustain their drive to Bone. With the US pullback from forward positions on February 16, Tebessa now held over a half million gallon of gasoline and a million rations.²⁸³ Rommel's forces lacked these same supplies. If Rommel overran Tebessa, he could seize the supplies needed to keep his armies on the offense.

Rommel asked to pursue the advance, but little support from von Arnim and poor road conditions slowed the attack. The Germans controlled Kasserine Pass by the night of February 19, but delays allowed II Corps and the British to reinforce its positions. By February 22, Allied units had reinforced themselves to the point where Rommel felt there was little chance of further success. The Germans only had a few days worth of food and ammunition remaining and there was little reserve fuel.²⁸⁴ On February 23, Rommel pulled his units back to the east, giving back Kasserine.²⁸⁵

The battle was costly for Eisenhower. Besides the casualties, II Corps also lost 183 tanks, 194 half-tracks, 208 pieces of artillery, and 512 trucks. Units needed replacement equipment

²⁸¹ Meyer, "Strategic and Logistical History," IX-20.

²⁸² McNamara, 54.

²⁸³ Ibid., 55.

²⁸⁴ Ibid., IX-25.

²⁸⁵ Rommel, 407.

before the Allies could consider a large attack. In addition, some items, such as the Sherman tank, needed immediate updating to deal with superior German equipment.²⁸⁶

Following the battle, Hitler tried to fix the German command and control problems by placing all German ground units under Rommel's command, with the title Army Group Afrika. However, Rommel's time in Africa was limited. Following Kasserine, the German commander had increasing difficulty with his heart, nerves, and rheumatism. On February 26, Rommel wrote his wife complaining of his health problems and mentioned that the conditions did not exist in North Africa for victory. "Everything depends on supplies," Rommel wrote.²⁸⁷ Ultimately, neither the German supply situation nor Rommel's health would improve. On March 10, Hitler recalled Rommel to Germany for health reasons, passing command of Army Group Afrika to General von Arnim.

Both sides used the following month to consolidate their positions, rest the troops, and prepare for the next fight. The Allies needed to reequip themselves and re-establish the supply dumps evacuated during the German advance. Salvage crews from the Eastern Base Section gathered up debris from the battlefields and trucked it off to depots for sorting and repair. Engineers worked to reestablish damaged rail lines and roads. By March 6, 1943, the Base Section had restocked the theater and Patton was now in command of II Corps. The Allies were preparing for the final drive through Tunisia.

²⁸⁶ Meyer, "Strategic and Logistical History," IX-24.

²⁸⁷ Rommel, 410.

Positioning the Force

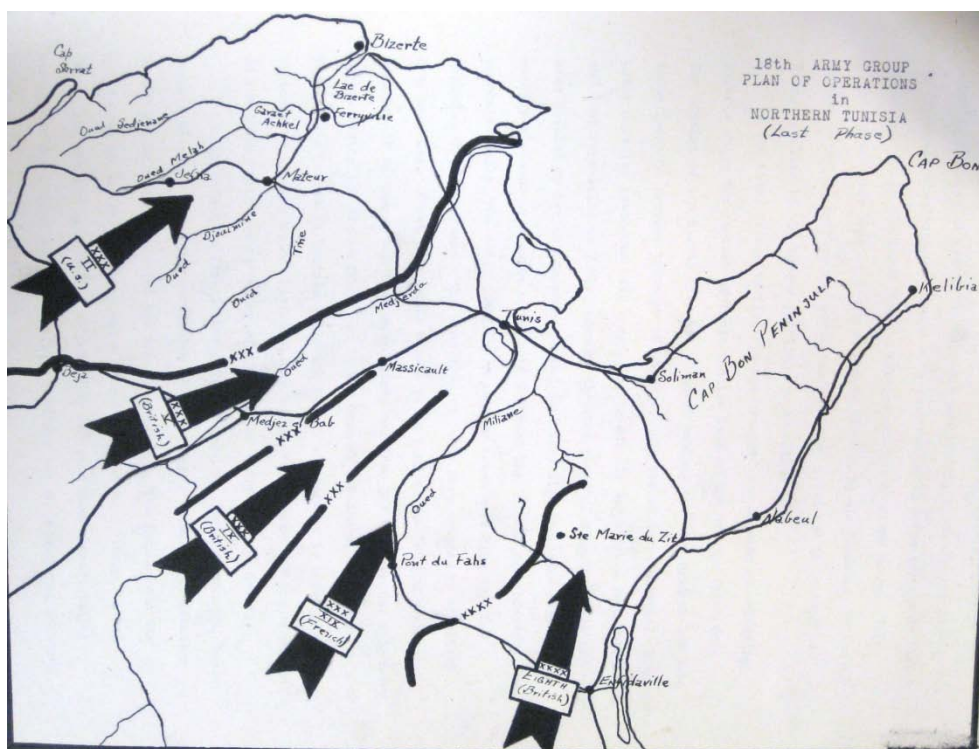
As II Corps moved back east, the boundary of the Eastern Base Section moved east as well. This followed established doctrine—as the combat zone shifted forward, the leading boundary of the communications zone also moved up. This ensured that the combat forces could maintain a focus on the enemy without having to dedicate additional resources to maintain a lengthening supply line. However, someone had to deal with the lengthening lines of communication so this fell upon the service units in the communication zone. By April 8, 1943, the Eastern Base Section had moved its boundary as far east as Tebessa.²⁸⁸ Advanced depots became general depots. Engineers worked to improve road and rail lines to support the increasing usage of the limited infrastructure. The base sections used all available seaports along the northern coastline to support the flow of materiel into the theater.

The final phase of the North African campaign started in April 1943. The combined pressure from the British Eighth Army on the east and from the British First Army and US II Corps in the west forced von Arnim to collapse the German defense in southern Tunisia and concentrate his forces into an arc in northeast Tunisia. This allowed Axis forces an opportunity to concentrate their units and shorten their lines of communication.

²⁸⁸ “History of the Eastern Base Section, 22 February-1 June 1943,” 13 and 20.

General Alexander, Eisenhower's commander for ground operations, devised a plan to stage II Corps along the northern part of the front. Montgomery's Eighth Army was to attack from the south. The main effort would come from the British First Army, positioned south of II Corps.

Figure 11: The Final Push for Tunisia²⁸⁹



In response to the developing situation, the Allies reorganized their lines in Tunisia during the middle of April 1943. The British shifted forces from the Eighth Army on the coastal plain to the zone of British IX Corps east of Le Kef. The US II Corps moved 140 miles to the north to occupy an area in northern Tunisia east of Bédja.²⁹⁰ This move, which occurred in only four days, from 14-18 April, forced a complete shifting of the eastern US supply line. There were

²⁸⁹ Source: "History of Ordnance Supply in the Mediterranean," CMH.

²⁹⁰ Howe, 604.

competing demands on the limited road and rail networks in the region as the British were hesitant to allocate more than 250 tons per day out of the available rail capacity. A deal between the Services of Supply and the British allocated an additional 250 tons per day between Souk Ahras and Bédja, in exchange for British use of an equal tonnage on the American narrow-gage track between Ouled Rahmoun and Tebessa.²⁹¹ Arrangements like this supported the needs of both armies and allowed the Eastern Base Section to shift its line of communication to the front while also building a stock of supplies for the upcoming fight.

To support operations in Tunisia, the Atlantic and Mediterranean base sections acted as intermediate-level bases, providing bulk supplies to the Eastern Base Section, which directly supplied the combat zone. The Mediterranean Base Section established an advance ordnance depot at Constantine, capable of supplying all US forces east of Algiers with 15 days of supply. This push of supplies allowed the Eastern Base Section to focus its efforts forward toward II Corps, with the main supply route running from Constantine to Tebessa.

To meet the increased demand, the Eastern Base Section established supply depots at Tebessa, Ouled Rahmoun, Bone, Mateur, Tabarka, and Philippeville - with the one at Philippeville supporting over 40,000 troops. Due to labor shortages, all depots operated with reduced staffs.²⁹²

For the attack across Tunisia, the Eastern Base Section established a stockage goal of 21 days of supplies and enough ammunition for six units of fire.²⁹³ Trucks from the Eastern Base Section delivered supplies to II Corps supply dumps, which were typically 15-30 miles behind

²⁹¹ "History of the Eastern Base Section 22 February – 1 June 1943," 48.

²⁹² Message from Pence to Larkin, dated May 18, 1943. NARA, RG 492, box 3020.

²⁹³ Memorandum, minutes of supply meeting, NATOUSA, dated February 27, 1943. NARA, RG 492, box 108.

the forward areas of the combat zone. German air attacks had subsided by this time so food, fuel, and ammunition distribution generally occurred during daylight and the dumps required no camouflage, only dispersion for security.²⁹⁴ Once supplies were at the dumps, II Corps truck units pushed supplies forward to the front-line units.

The British First Army had operated in Tunisia since the landings of Torch so they were never far from their ports and a developed support system. The British Eighth Army, however, faced an ever-growing line of communication. Pursuing Rommel since the battle of El Alamein in November 1942, the Eighth Army had to deal with a line of communications that extended itself day after day. The capture of ports along the African coastline, such as Tobruk, helped shorten the overall distance supplies traveled by road, but extended British sea shipping distances. Additionally, as the Army moved forward the British support bases moved as well. The British First Army enjoyed a fixed and robust support base unavailable to the Eighth Army. The arrival of Montgomery's forces into central Tunisia in March 1943 allowed the Allies to reorganize their lines of communication and begin supporting Montgomery from the west.

In April 1943, the Eastern Base Section opened a supply line between Ouled Rahmoun and Tebessa, providing a new line of communications to the Montgomery's Eighth Army, which up until then had been receiving its supplies from as far away in the east as Tobruk and Egypt. The rapid movement into Tunisia and the contraction of the front had caused major supply challenges for the 18th Army Group so the diversion of US supplies provided needed relief.²⁹⁵ The new line of supply was just 100 miles long. As the British pressed north along the Tunisian coastline the

²⁹⁴ "Report of Colonel James Edmunds on Supply in NATO." Located in "Report of Observers, Mediterranean Theater of Operations, US Army Ground Forces Observer Board, vol II." US Army Ground Forces Observer Board, 1942-1945. June 26, 1943. MHI. 1-2.

²⁹⁵ "Report by General Dwight D. Eisenhower on Operations in the Mediterranean Area 1942-1944," 41.

supply line reversed itself as the Allies liberated the Tunisian ports of Gabes and Sfax from the Germans. The Allies were able to offload ships at these ports and truck supplies overland back to the base section depots, thus providing shorter routes from the ports to the forces and adding more port capacity to the Services of Supply.²⁹⁶

Upon recapturing of the airfield at Gafsa, II Corps turned the facility into a forward supply dump for Montgomery's use as well. This allowed the Allies to stockpile resources in anticipation of Eighth Army's northward advance.²⁹⁷ The plan worked and by April 15, the British Eighth Army had moved north, through the Mareth position, and stood before the Axis defensive Enfidaville Line.²⁹⁸

The Eastern Base Section worked to position supplies as far forward on the battlefield as possible so that combat units would not have to come far into the rear for resupply, especially for fuel, ammunition, and rations. The movement of petroleum presented unique challenges. Gasoline and other bulk fuels traveled to North Africa in large tankers, but these fuels required special trucks or containers for further distribution.

The distribution of fuel within North Africa occurred through a combination of pipelines, rail, and trucks. Pipeline and rail provided the most efficient means of movement, but at some point, quartermaster units had to transfer the fuel into smaller containers, put them onto trucks, and then transport these containers to the front lines.

The 2004th Engineer Pipeline constructed a pipeline from Philippeville to Ouled Rahmoun, along with a bulk storage tank farm, on April 6, 1943. This pipeline had the capacity of moving

²⁹⁶ "History of the Eastern Base Section 22 February – 1 June 1943," 46.

²⁹⁷ Meyer, "The Strategic and Logistical History of MTO." IX-29.

²⁹⁸ *Ibid.*, X-1.

500 tons of fuel per day, the equivalent of 200 2 ½ ton cargo trucks. The pipeline proved to be so successful that a second pipeline was started a week later from Bone' to Souk el Arba.

Together, these two pipelines moved 1,200 tons of fuel per day, relieving 480 cargo trucks for other materiel.²⁹⁹ During the month of April alone, the Eastern Base Section alone provided over 7,800,000 gallons of fuel to the US II Corps and Air Corps.³⁰⁰

Sabotage was a constant problem because these pipelines were exposed and largely unprotected. Mounted Arabs with incendiary bullets often hit the pipeline, causing a spout of flaming fuel to leap upward. Roving guards failed to stop the sabotage. One day, a reserve officer, who had worked in civilian construction and knew the cultures of the French and Arabs, suggested that the Eastern Base Section should contract out security of the pipeline to the French and levy fines if the pipeline were damaged. The French, in turn, would contract the Arab Caliphs, with the same provision of a fine for any damage. Pence supported the idea so the base section made the proposal to the French. The French government agreed to the contract as long as they could execute it as they saw fit. Almost overnight the shooting and vandalism stopped, US guards were able to return to their normal jobs, and the fuel moved forward.³⁰¹

The lack of ground transportation resources caused a missed opportunity for the Allies at the beginning of Operation Torch and, by March 1943, despite the efforts to increase the number of trucks in North Africa, transportation shortages remained. Base section planners had estimated that the rail line from Philippeville to Ouled Rahmoun could handle 1,500 tons per day, but this soon fell quickly behind due to the limited network. Following the German breakthrough at

²⁹⁹ "History of the Eastern Base Section 22 February- 1 June 1943." CMH. 25.

³⁰⁰ *Ibid.*, 26.

³⁰¹ "Oral History of LTG Robert Colglazier," 103-104.

Kasserine Pass, the Allies had to work quickly to move ammunition and other essential supplies forward to support a counter-offensive against Axis forces. To meet the increased demand the Services of Supply formed new truck companies and leveraged resources from across the communications zone. A single truck regiment, the 46th Quartermaster, handled the control and administration of over 6,000 troops. The Services of Supply formed a Movement Control Group to provide for operational control of all trucks. Engineer, Armored, Infantry, and Artillery units provided the drivers.³⁰²

Challenges accompanied the formation of these new truck units. Soldiers were untrained on convoy operations and their officers were untrained on leading truck units. There was an overall shortage of tools needed for vehicle maintenance, and even if the tools were available, there was a shortage of repair parts. One unit arrived in the area with no tools other than the few small kits that accompanied each vehicle.³⁰³ Despite these setbacks, however, the transportation capacity steadily increased. A spirit of cooperation and desire to accomplish the mission overcame many obstacles.

German commanders, including Rommel, had argued that North Africa was a losing proposition and that the High Command should evacuate Axis forces while there was time. Hitler refused to listen to these proposals, taking the same no-compromise position that he held for the Eastern Front against the Soviets. Hitler wanted to hold Tunisia at all costs.

The Allied attack began in the British Eighth Army sector the night of 19-20 April 1943. The British initially broke through the Italian defensive line, but General Bayerlein quickly repositioned forces to plug the hole, stalling the British attack for four days. The following

³⁰² "History of the Eastern Base Section 22 February – 1 June 1943," 42.

³⁰³ *Ibid.*, 43.

night, 20-21 April, the Germans made their own attack against the British First Army and penetrated about five miles before stalling against the main defensive positions.³⁰⁴

The British First Army launched its attack on April 22, which quickly developed into a major battle, breaking through the German *Afrika Korps's* northwest flank. Divisions fought each other, incurring heavy losses and consuming large amounts of fuel and ammunition. By April 26, German supplies were running low. Limited amounts of fuel constrained the movement of German tanks and trucks. Axis units were short of the munitions needed to repel a strong Allied attack. By April 30, the lack of fuel immobilized the Axis force, but it kept on fighting and somehow held off Allied attacks in the critical sector of Djebel Bou Aoukaz.³⁰⁵

II Corps started its attack to the east on April 23, in an attempt to move through the mountainous Djebel region and head towards Mateur and Bizerte. The terrain in the 9th Infantry Division's area was especially rough, with few roads and limited mobility. The Services of Supply and Eastern Base Section had built a sizeable line of communication forward from the ports, but the end of the chain for many combat battalions involved moving supplies by mule for several miles.³⁰⁶

The Corps made steady advances. A daily train from Beja carried essential supplies forward from the supply dumps. At times II Corps resorted to the use of combat vehicles, such as tanks, to move artillery ammunition forward.³⁰⁷

There were still occasional problems in the US supply effort. On one occasion, the daily supply train for II Corps carried rations for 50,000 men. These consisted of 16 rail cars of peanut

³⁰⁴ Howe, 609-610.

³⁰⁵ *Ibid.*, 613.

³⁰⁶ *Ibid.*, 619.

³⁰⁷ Meyer, "The Strategic and Logistical History of MTO." X-20.

butter, plus a rail car of crackers, grapefruit juice, and flour. The II Corps G4 sent trucks back to the Eastern Base Section to draw rations better suited for combat and to explain that 17 cars of food did not necessarily mean a full issue of everything needed to feed a Corps.³⁰⁸

The base sections all established hospitals within the communication zone to treat the wounded, sick, and injured. A critical link in the medical care structure was the system of evacuation from the front. Medics at the front provided initial care to stabilize the wounded, but the quicker a wounded soldier arrived at a hospital, the better the chances of recovery. The Tunisian campaign used three methods of transportation for casualty evacuation: ambulance, train, and aircraft. Ground ambulances evacuated the bulk of casualties. A daily hospital train also carried the wounded from Tebessa to Ouled Rahmoun. Aircraft moved only about 95 patients per day.³⁰⁹

This use of aircraft for casualty evacuation represented an important step in the care of wounded soldiers. Doctors quickly realized that the more seriously injured could be quickly moved to more capable treatment facilities in the rear, while avoiding the time and physical jarring associated with movement by ambulance. Compared to the other evacuation means, aircraft moved relatively few casualties, but they did serve to validate the concept. This trend of using aircraft for casualty evacuation would increase exponentially as the campaign in the Mediterranean expanded and it would be an important part of the later Normandy operations.

The Allied advance continued into early May, pushing the front north and east. Kesselring begged for supplies, but the German High Command and Italians ignored the requests. On May 3, the city of Mateur fell to II Corps. Von Arnim tried to reinforce Bizerte, but the 10th Panzer

³⁰⁸ McNamara, 68-69.

³⁰⁹ "History of the Eastern Base Section 22 February- 1 June 1943," 35.

and 21st Panzer Divisions could not move because they were out of fuel. Axis planes and ferries landed 1,130 tons of ammunition and 180 tons of fuel on May 4, but it was too little and too late.³¹⁰ II Corps captured Bizerte on May 8 and the British First Army rolled into Tunis on May 9, splitting the Axis force. Von Arnim's southern flank collapsed on May 12, which led to the final surrender on May 13. The Allies had finally gained victory in Tunisia and North Africa.

The experiences of the combined US and British force in the Eastern Task Force convinced commanders that the support of Torch's units worked best when each nation took care of its own forces whenever possible. This made eminent sense because the two forces used different types of equipment, which had different standards and used different repair parts or fired different calibers of munitions. Uniforms were different, as were dietary expectations. Neither army was particularly fond of the other's rations. Despite the loss of efficiency in such a parallel system, it was effective. The British 1st Line of Communication handled administrative efforts for British forces located in eastern Algeria and Tunisia. The US Services of Supply took care of US forces.

Tunisia's limited infrastructure forced some cooperation between the two support systems, especially regarding coastal transport. The British volunteered use of their heavy landing craft to help move supplies and equipment to the Port of La Calle, a small fishing port in northern Algeria close to the Tunisian border. The port had a relatively shallow draft and no equipment to offload ships. The British heavy landing craft represented the perfect means to utilize the port—

³¹⁰ Howe, 648.

these vessels had only an 11-foot draft. These landing craft, along with two portable cranes, enabled the transformation of a fishing village into a military logistics base.³¹¹

The buildup of reserves in preparation for the final push into Tunisia also saw the use of *balancelles*, small Cornish fishing craft. The British Navy used the vessels to haul US materiel all along the North African coastline. The British provided 14 of these vessels, which sailed daily in groups of four to six from the Port of Bone. Like landing craft, the *balancelles* had a shallow draft and were capable of hauling between 25 to 50 tons of cargo apiece. These ships proved to be perfect for moving cargo into the shallow-water ports of La Calle, Algeria, and Tabarka, Tunisia.³¹²

An increase in the number of available ports helped solve one problem; however, there was still the challenge of moving supplies inland to the fighting forces. Due to the wide dispersal of US forces in Tunisia, supply problems plagued II Corps from the start. German and US forces had destroyed the railway bridges between Fedala to Gafsa and Kasserine to Sbeitla as the battle line moved back and forth. Everything in the front area, from infantry to supplies, had to move by truck.³¹³

As the rate of operations increased in the spring of 1943, so did the workload of the graves registration units. These units had the unenviable task of establishing temporary or permanent military cemeteries, identifying the dead, preparing reports of death, and collecting and shipping the deceased's personal belongings. The North African climate, the nature of the fighting, and the tendency of the local populace to despoil graves made the work of the graves registration

³¹¹ "History of the Eastern Base Section 22 February- 1 June 1943," 45.

³¹² *Ibid.*, 46.

³¹³ II Corps Report on Operations conducted in Tunisia, 15 March to 10 April 1943, NARA, RG 338 E P42890, Box 12. 14.

units even harder. Across the battlefield graves were scattered, bodies disinterred, and personal effects (that would help in identification) were missing.³¹⁴

As the Tunisian campaign ended in May 1943, these units worked to consolidate the remains of killed US servicemen into nine large cemeteries with a personal effects depot located in Constantine. To help coordinate the effort, each base section identified a Graves Registration Service Officer and identified potential cemeteries. The Atlantic Base Section had responsibility for one cemetery, the Mediterranean Base Section had two, and the remainder fell under the Eastern Base Section due to its proximity to the Tunisian battlefields. Prisoners of war took care of beautification efforts and civilian caretakers cared for the grounds.³¹⁵

Along with the Tunisian offensive in May 1943, the Allies became responsible for housing and care of a large number of German and Italian prisoners of war (POWs). The base sections had to transport, guard, feed, and care for these prisoners. By the time Tunisia fell, 275,000 Germans and Italians crowded the prisoner of war camps.³¹⁶ To support the burgeoning prisoner population, base section units used captured German rations and field kitchens helped offset demands on Allied rations. Empty wine vats became storage for potable water.³¹⁷ Fortunately, morale among the prisoners was good and they needed guides more than they needed guards.³¹⁸

The POWs represented another demand on the supply system for resources, but they were also a possible source of labor. The US Army had an on-going shortage of service forces within the force and local Arab labor in North Africa was largely untrained, undependable, and required

³¹⁴ "History of the Eastern Base Section, 22 February-1 June 1943," 19.

³¹⁵ Memorandum, Headquarters SOS NATOUSA to The Commanding General, Eastern Base Section, dated May 26, 1943, subject: Program for Graves Registration Service Operations. NARA, RG 492, box 2704.

³¹⁶ Howe, 666. There is not detail specifying what percentage were German versus Italian.

³¹⁷ McNamara, 71.

³¹⁸ Howe, 666.

close supervision. To take advantage of the situation, Services of Supply NATOUSA instituted a program aimed at Italian POWs, which offered compensation in exchange for their labor and support of the Allied war effort. Of the eventual 65,720 Italian POWs that remained within the Mediterranean theater throughout the war, 62,089 served in organized POW service units.³¹⁹ This was the beginning of a program, which, by the summer of 1944, allowed Services of Supply NATOUSA to augment or replace approximately 175,000 military support positions with Italian POWs and civilians.³²⁰

By May 13, the Tunisian campaign had ended. The campaign seemingly took a long time to complete, but, in actuality, it was only seven months between the initial landings and the Axis surrender in Africa. In this short period, the Allied had landed a sizeable force on the African continent, established a theater of war, expanded their capabilities, and learned to adapt to the difficult environment. US forces alone had grown from 128,567 in November 1942 to 395,461 by April 1943—a threefold increase.³²¹

What allowed all of this to occur was the establishment of a functioning communications zone; this was the foundation upon which of the Allied victory rested. The base section commanders had a personal interest in caring for the forces they supported. Services of Supply NATOUSA had oversight of the entire support structure and could move resources quickly as the circumstances demanded. Situations, such as the need to increase ground transportation, proved that the Services of Supply/base section doctrine was indeed flexible and could adapt as needed to meet the demand of the front line units. However, a lot also depended on the quality and

³¹⁹ “History of Communications Zone, NATOUSA part 1,” 26.

³²⁰ *Ibid.*, 11.

³²¹ Howe, 680.

timing of the decisions made by key leaders, such as Eisenhower, Hughes, Larkin and Pence. Commanders in both the combat and communications zones had to understand the needs and limitations of the other in order for the theater to function. Eisenhower's decision to delay offensive operations in the winter of 1942 to allow the support structure to build was just one example of a decision that was unpopular, necessary, and operationally correct. Ultimately, victory was assured- not just because of the maneuvering of the Allied force, but also because of the capabilities provided by the sustainment system.

The surrender of the Axis forces in Tunisia signaled an opportunity to reset the Allied forces, plan for the next operation, and discuss the lessons of the past six months. There were many lessons; whether or not the Allied would learn from their mistakes was an entirely different issue.

Lessons Learned from North Africa

Perhaps the most important aspect of Operation Torch and the entire North African campaign was the experience gained by *all* the participants, from private up to Commander-in Chief. The troops learned how to fight, the services learned how to support the front lines, and senior commanders learned how to run a theater. Just as importantly, the Allies learned how to work with one another, although there were still officers on all sides that thought ill of the other partners.

Eisenhower and other senior commanders learned that they needed to rethink the composition of the initial assault force for future amphibious operations. The force for Torch had too many combat forces without enough mobility. The force was of the right mix to seize and hold a harbor, but what the Allies actually needed was a mobile striking force that could have quickly moved in to seize the campaign's ultimate objective—Tunisia. Eisenhower later

wrote, “Additional vehicles would have permitted us to strengthen materially our initial attack into Tunisia.”³²² As such, the failure to gain Tunis by December was not a mistake; it was “an impossibility.”³²³

Had Tunisia fallen when the Allies had hoped, the Allied attack on mainland Italy could have occurred in the summer of 1943, instead of the fall. This might have allowed the Allies to push up far into northern Italy before the onset of winter of 1944, which could have been very advantageous for the Allies. More difficult is the analysis of what an earlier end to the Tunisian campaign would have meant politically for the Axis powers. Particularly, would Mussolini still have been in power during an earlier Allied invasion of Italy? If so, what would this mean in terms of Italian resistance to the invasion and German reinforcement? Any assessment would be pure speculation because there are simply too many human variables to consider.

Patton took a slightly different approach to the lessons of Torch, believing that the majority of the early problems were due to the lack of time and the need for security in the planning process. The Western Task Force commander noted that successful amphibious operations depended on surprise, speed, and simplicity. Additionally, Patton felt that although almost every technical branch felt that it needed more vehicles on the assault, “fighting men must take precedence over everything else.”³²⁴

At first glance, this seems to ignore the argument for a more balanced assault force; a force, which could perform a multitude of missions upon landing with the flexibility needed to respond to strategic opportunities, such as the case that Tunisia presented in December 1942. Indeed,

³²² “Report by General Dwight D. Eisenhower on Operations in the Mediterranean Area 1942-1944,” 53.

³²³ Ibid.

³²⁴ Memorandum, Western Task Force to Commanding General AFHQ, dated December 30, 1942, subject: Lessons from Operation Torch. CMH, Geog J 353 Tunisia. This is also found at NARA, RG 338 E 50215, box 1.

even many of the subordinate units within the Western Task Force argued that, in hindsight, they should have had more service forces and more vehicles in the initial convoy.³²⁵ However, at the time of the landings Patton focused on the threats posed by the French and the Spanish forces stationed in the region. The level of French resistance to the Allied assault was unknown at the time on the landings and the Allies did not know whether the Spanish would choose to intervene in the conflict. Arguably, Patton planned for the worst-case scenario. Such thoughts may keep a commander from losing a campaign, but they also may make it harder to win one.

However, upon landing, the worst-case scenario did not happen. The French capitulated quickly and the Spanish elected to remain behind their borders. Patton's decision to load as many combat forces as possible in the initial convoy meant that the force was ashore, but it had to wait for follow-on convoys before it could build any real capacity to maneuver or sustain itself. The Allies had played it safe and focused on the beach. A larger gamble of trading off combat forces in exchange for a more mobile and supportable force probably would have paid off, but the lack of time between the decision to go and the convoy sail time limited any real discussion, possibly even consideration, of this option.

The 3rd Infantry Division summed up the impact of deploying with insufficient transportation. The Division was simply unable to support operations more than 20 miles beyond the landing beaches. This distance would have been even shorter if a Quartermaster

³²⁵ See the after action reports of First Provisional Brigade, Second Armored Division, Moroccan Composite Wing, and Mediterranean Base Section for the Torch landings. CMH, Georg J 353 Tunisia.

battalion had not established a supply dump at Fedala, 10 miles from the beach, with commandeered civilian trucks and wagons.³²⁶

Despite Patton's insistence that the fighting forces must take precedence over all else, the AFHQ staff clearly gained an appreciation for the benefits of having force that could make a landing on organized beaches, deal with any initial opposition, and then make its way inland to pursue other missions or opportunities. Torch was the last amphibious assault of the war to ignore the role of service forces; from this point onward all subsequent landings in the European and Mediterranean theaters included a better beach organization, transport for forces and sustainment, and the inclusion of G4/ Services of Supply personnel in the initial assault.

Regarding sustainment operations, one of the main insights of Operation Torch and the entire North African Campaign was that it was impracticable for the supplies of the British and US Armies to be entirely standardized. Although the goal was desirable, there were simply too many differences in equipment, standards, and systems for this to effectively work.³²⁷ At times, US units tried to use British fuel cans, however the British cans did not have integrated funnels. Not only did this waste an average of 15 percent of the fuel in the can, but also it took a lot longer to conduct refueling.³²⁸

³²⁶ Report of Lessons to be Learned from Operation Torch, Third Infantry Division, dated December 26, 1942. NARA, RG 338 E 50215, Box 1. 7.

³²⁷ "Report by General Dwight D. Eisenhower on Operations in the Mediterranean Area 1942-1944," 55. Also see "History of the Eastern Base Section 22 February to 1 June 1943, volume 1," 6.

³²⁸ "Report of Colonel Richard Werner," March 29, 1943 located in "Report of Observers, Mediterranean Theater of Operations, US Army Ground Forces Observer Board, vol II." US Army Ground Forces Observer Board, 1942-1945. MHI. 10.

Even in things as simple as food and clothing, the two Allies found that there were different expectations. One US unit, operating under British control, went seven weeks before receiving a much-needed resupply of uniforms.³²⁹

However, while the Allies mostly separated the ground forces on a national basis to make everything as simplistic as possible, they discovered that the two air forces operated best as an integrated force. This allowed commanders to take advantage of the different characteristics of the various aircraft.³³⁰ Centralized control of the air forces would later be a contributor to the success of air operations in the theater's subsequent campaigns.

Other lessons showed the inexperience of the force. The 1st Infantry Division noted that to sustain amphibious landings the landing craft and port facilities must operate on a 24-hour basis. During the landings, landing craft were often idle due to crews taking breaks, landing crews reporting to the wrong location, and to the under utilization of port facilities.³³¹ In short, the navel and ground task forces needed organizations that could make the most of limited resources.

There was widespread realization that amphibious landings required a single officer with sufficient rank to direct the landing craft. Additionally, the craft operators needed to training on the operation of the craft, as well as in the mechanics of landing operations.

There were many lessons on the beach operations themselves. Beach parties needed recovery boats to rescue craft stranded on beaches and reefs, drivers needed training in driving through the surf and deep sand, and shore parties needed sufficient personnel to operate 24 hours

³²⁹ "Report of Observers, Mediterranean Theater of Operations, US Army Ground Forces Observer Board, vol I." December 22, 1942 to March 23, 1943. MHI. Appendix 4. 1.

³³⁰ "Report by General Dwight D. Eisenhower on Operations in the Mediterranean Area 1942-1944," 55.

³³¹ Memorandum, 1st Infantry Division to Commander-in-Chief AFHQ, dated December 25, 1942, subject: Lessons from Operation Torch. CMH, Geog J Africa 353.

a day. Above all, there needed to be unified control of the landings throughout all phases of the assault.³³²

Despite this, the doctrine of beach and shore parties was sound. Problems developed when units decided to deviate from the doctrine. Amphibious assaults needed a three- battalion shore party for operations over beaches and the right equipment to repair and clear ports. In all cases, congestion resulted when commanders reduced the number of trucks specified for an operation.³³³

Regarding training, the Allies learned that it was not enough to train the coxswains on how to land troops on the right beach and to train the combat forces on how to load/unload the landing craft, but, perhaps even more importantly, a task force needed to train and rehearse the resupply plan from the battalion level down to platoon.³³⁴ The Torch landings showed just how hard it could be to offload bulky supplies into landing craft and then get these onto the shore in some kind of order. Lowering ropes were too short, vehicles did not fit, and offloading operations took an exponentially long time to accomplish if the seas were high. US forces had talked through the offloading plan during rehearsals along the eastern US coast before departing for Africa, but they never actually rehearsed these operations because of the trouble of unloading, and then re-loading the ships. Torch showed that these types of rehearsals were difficult, but needed. It was one thing for an Infantryman to climb down a cargo net into a landing craft, it was quite another to get a spare tank engine or crate of ammunition into the same boat.

³³² Memorandum, 1st Engineer Amphibian Brigade to the Commanding General AFHQ, dated December 30, 1942, subject: Lesson from Operation Torch. CMH, Geog J Africa 353.

³³³ Enclosure R to Report: "First Conclusions Operation Torch Army Section Amphibious Force Atlantic Fleet," November 25, 1942. MHI. The Esher C. Burkart Papers. 3.

³³⁴ Report of Operations, Western Task Force SOS, 24.

Many of the insights from Torch would not seem to be especially earth shattering, but they did make a real difference in later operations. A number of US rations were shipped to North Africa were packed in plain cardboard boxes. These boxes proved unsuitable for transport across sea or for storage in outdoor supply dumps or depots.³³⁵ As a result, future shipments were in waterproof containers suitable for the elements.

Divisions noted that rather than shipping repair parts to the beaches separately, where they could easily get lost, motor vehicles should carry their own supply of parts. Additionally, rather than have maintenance personnel segregated in Ordnance units within the Services of Supply, some maintenance units should be an integrated part of an amphibious division.³³⁶

The commanders from Torch realized that to fight a campaign far away from the US, in an unimproved theater, meant that the forces sent ashore needed to be able to deal with the enemy, but they also needed to be able to deal with the environment and to provide for their own sustainment. The theater took time to establish and ports took time to open and begin operating. In the meantime, the task force needed to ensure it was mobile, that equipment stayed in good condition, and that supplies were not only on hand, but could be distributed to those that needed them. This represented the point at which the US military began to transition into a world power capable of projecting, and sustaining, forces, to almost any point in the world.

To accomplish the transition, the War Department and theater leaders had to rethink basic assumptions about the makeup of an amphibious force and of how to establish a theater sustainment capability in future operations. Torch proved that the success in offloading assault

³³⁵ "Lessons Learned from Operation Torch." CMH. Geog J Africa 353. 14. Also see "Lessons Derived from Operations at Casablanca and Oran," (U.S Army Ground Forces, 25 Feb 1943). MHI. 23.

³³⁶ Report of Lessons to be Learned from Operation Torch, Third Infantry Division, dated December 26, 1942. NARA, RG 338 E 50215, Box 1. 5.

convoys within the theater is heavily dependent on the quality of planning and loading done while uploading unit equipment and supplies. Services of Supply and staff logisticians need to accompany the assault force and someone needed to be in charge of the beaches with a capability to direct assault craft, organize offloading, and direct beach clearance.³³⁷ A significant development was a recognition that the theater sustainment forces needed to arrive as soon as possible, not in bulk, but rather, as part of a gradual increase in capacity. This would provide an element of flexibility to the theater commander and to the assault force, without shifting the balance of force too much away from the combat element.

As much as supply shortfalls hindered the initial invasion force for Torch, commanders also learned that it was possible to have too many supplies accompany the lead echelon. Logisticians had packed as many supplies as possible aboard the assault convoy, attempting to fill all available space. Planners had not fully considered the challenges the first convoy would have, to include the need to conduct resupply over beaches, having to contend with damaged or destroyed port facilities, and the number of service forces and associated equipment needed to establish supply dumps away from the unloading areas. In short, the supply plan needed to match the supply requirements for the landing, plus any overland movement.³³⁸ Anything beyond that, for the initial convoy, was merely surplus. Anything less was a shortage.

Along with the lessons came innovation. Recognizing that there was a limited amount of landing craft, one division recommended the development of a floating supply container that one could simply tow to the beach and did not require special handling or landing craft. Men could

³³⁷ Frierson, volume 1, 130.

³³⁸ Memorandum, Second Armored division to Commanding General, Western Task Force, dated December 26, 1942, subject: Lessons from Operation Torch. NARA, RG 338 E 50215, box 1. 4.

toss these containers over the side of the ship, string them together, and then tow them to shore; similar to how several ships had used their life rafts.³³⁹ Innovative as this recommendation was, however, the idea never appears to have caught on at the War Department.

Perhaps the one recommendation to arise from Operation Torch that had the most personal impact on the individual soldier, one that affected troops across all the theaters and still is in evidence today, is item number 29 out of the 50 recommendations submitted by Brigadier General Wilson. This recommendation was simply that toilet paper should have a flat configuration that could fit into the pocket of a uniform for easy carrying and convenience. Such a configuration was efficient to ship, uncomplicated to issue, and handy when needed. As Wilson noted, “the hole in the center of a roll...serves no useful purpose.”³⁴⁰ As amusing as this sounds, it was recommendations such as this, and thousands others, that kept the War Department and all the Services working toward a force that was more efficient, effective, and deadly.

The logisticians of the Mediterranean theater were often pessimistic in their estimates, but who could blame them? The lines of communication from the US and Great Britain were long and subject to interdiction by German U-boats. Once materiel landed on the African continent, it required transportation across restricted roads and railways. Forecasts required six-month lead times for those items that needed to come from the States. The weather and the enemy were always a concern.

However, at times this pessimism could also limit the boundaries of what the Services of Supply judged to be possible. Logisticians in North Africa believed the rail line heading east

³³⁹ Report of Lessons to be Learned from Operation Torch, Third Infantry Division, 7.

³⁴⁰ Report of Operations, Western Task Force SOS, 34.

from Casablanca could not support more than one US division, plus, perhaps, an additional regiment, into Tunisia. Eisenhower considered their advice and then decided to position not one, but rather, *four* divisions in the forward area and directed his logistics officers to sort out the means of supporting the force.³⁴¹ One can debate whether this was a disregard of professional advice or a calculated risk, but in any case it worked. Had Eisenhower headed the advice of his logisticians he would not have reinforced Tunisia as he did, possibly preventing the Allies from having the forces needed to deal with the Axis forces.

Commanders on all sides learned that desert warfare often involved rapid advances or retreats over long distances; meaning that success or failure in these types of operations is closely linked to an army's mobility sustainability. Both the US and British found that forces had to be balanced between combat strength and service forces, and that equipment, especially vehicles, had to be capable of operating in the desert environment. In the campaigns before Alamein, fully 30 percent of British transport was non-desert worthy.³⁴²

Regarding the management of supplies, the War Department learned how to properly package supplies, the ports in the US learned how to best load the ships, and the base sections learned how to manage the receipt and storage of supplies. By the time of the tenth convoy, less than two percent of the total cargo was lost to pilferage, loss, or damage.³⁴³ This was a significant achievement compared to the initial landings in November 1942, and greatly aided all future operations throughout the rest of the war.

³⁴¹. Eisenhower, *Crusade in Europe*, 125.

³⁴² Administrative Planning, 22.

³⁴³ "History of Atlantic Base Section to 1 June 43." Chapter XI, 35-36.

AFHQ made a concerted effort to learn as much as possible from its experiences in North Africa. Many knew that this had been, for all intensive purposes, a relatively easy fight. The challenges would only increase, as the battles grew closer to the European continent.

Conclusion

Operation Torch and the battle for Tunisia represented a transformation for the Allied War effort. The US was now fully committed in the war and from this point forward it was a team fight against the Axis forces, characterized by an ever-increasing presence and capability.

Whenever challenges arose that might have affected the mission at hand, the US service forces displayed a level of innovation and resourcefulness that led to unique solutions. Trains departing Safi averaged 16 ½ cars on December 1, 1942; within a month these same trains averaged up to 40 cars and were pulled by large engines brought over from the US.³⁴⁴ Ports were operating at rates beyond those seen during peacetime. Throughout the theater, Engineers worked to expand and improve the local infrastructure.

The Allied drive into Tunisia was the first campaign to test the ability of a Services of Supply and its base sections to support a major, mobile, offensive. Unlike the First World War, the campaign involved considerable distances between the ports and the front line troops, an inadequate road and rail network, few available local resources, and a threat of enemy air attack.³⁴⁵ The ability of the Allies to support such an operation was the result of several factors:

³⁴⁴ History of the Atlantic Base Section to June 1, 1943, volume 2, "White Safi on the Hill." 4.

³⁴⁵ "History, Communications Zone NATOUSA, part 1," 5.

a flexible doctrine, agile and innovative forces that quickly adapted to changing conditions, sufficient materiel provided by the US, and good decisions by senior officers.

The Tunisian campaign was one of movement in which the Allies learned valuable lessons - lessons that paid dividends later during the drive into northern and southern France. Sustaining the attack relied on the overall throughput of resources, from the port to the point of delivery at the using unit. This seems to be an intuitive point, but it is a lesson that Rommel never managed to grasp- one that eventually led to his failures across North Africa.

The base section doctrine worked, but only if support units could establish supply points forward and keep pace with advancing units. The theater had to maximize use of both rail and truck resources and be able to adjust these to meet changing priorities. Tunisia proved that the theater needed a viable and capable communications zone to support operations against a determined defense.

To some degree, the success of the base sections and of the Services of Supply in supporting the theater depended on the attitudes and decisions of the senior combat commanders. Eisenhower had an appreciation for the administrative demands of the theater, but had to relegate these to Major General Hughes because of the other demands on the Commander-in Chief's time. Eisenhower, however, did make himself available to get involved with administrative issues when they affected multiple nations or were so significant that they impacted theater strategy.

Patton preferred to leave the details of administration to his G4, Colonel Mueller. Patton assumed that the administration would work itself out and became involved with sustainment problems only when they threatened to undermine the tactical plan or when there was nothing

else to do (i.e. Patton's frequent visits to the Moroccan ports during December 1942.) Bradley, in contrast, contacted the Eastern Base Section prior to initiating any campaign in Tunisia to determine what problems might fall out of the tactical plan, and to discuss the means to avoid these problems. Patton felt that the combat forces made up the team and others were in support. Bradley felt differently, treating the supporting service units as an integral part of the team.³⁴⁶ These contrasting viewpoints made a difference in determining the morale and level of effort received from the supporting service forces.

Not everyone was fully satisfied with the theater organization that had developed in the deserts of North Africa. Some officers in the technical services saw Services of Supply NATOUSA and the base sections as jealous empire builders that disregarded shortages and overages of supplies, refusing to provide support troops without a specific order from higher headquarters.³⁴⁷ To these officers the base section concept meant that the communications zone was a divided effort and without the efficiencies that could otherwise be provided. Perhaps these were valid arguments, but ultimately the base sections proved themselves sufficiently agile and capable in supporting the needs of the theater. This ultimately was to be a greater benefit to the combat commanders—they knew the one person responsible for all administrative support and it was easier working problems out with one organization versus going to all of the different technical services.

Fortunately, the Allies learned the lessons of amphibious operations and establishing a theater against a second-rate adversary and with sufficient time to build the foundation necessary to take on the more capable Axis force on the European mainland. There was a new appreciation

³⁴⁶ "Oral History of LTG Robert Colglazier," 99.

³⁴⁷ "Ordnance in the North African and Mediterranean Theater of Operations as recalled by Colonel Connerat," 3.

and understanding of the need for a balanced force. There was no easy solution for determining what such a force comprised, but at least commanders and planners better understood the problem. For each subsequent operation in the war, commanders and staffs still had to determine the proper balance of forces. Too many combat forces limited sustainment on the far end; too little combat risked mission failure. In all decisions, it was a matter of calculated risk.³⁴⁸

For Torch, the best military outcome (French capitulation) would have required a highly mobile force, one that could capture additional ports and move towards Tunisia. On the other hand, a strong French resistance would have required a less mobile force—one with more combat forces and fewer support units. In the case of Torch, Eisenhower planned for a compromise, which resulted in insufficient transportation when the time came to move east quickly to seize the Tunisian ports. Eisenhower had made a gamble, one that barely missed.³⁴⁹

In assessing the fight for North Africa, Field Marshal Kesselring believed that the main failures of Axis forces were the failure to protect the sea lines of communication; an inadequate supply system in Tunisia; and the lack of support from the German Luftwaffe - a telling admission from a Luftwaffe field marshal. The main Allied problem, Kesselring mentioned, was the “hesitant advance toward Tunisia.”³⁵⁰ The field marshal’s assessment confirms that the Allies missed a key opportunity, largely due to a lack of available ground transportation.

Whether the Allies would make the same mistakes again, or not, would occur in less than two months. North Africa was just the beginning of a series of campaigns that would eventually stretch across the Mediterranean. Units were preparing for Operation Husky, the invasion of

³⁴⁸ Administrative Planning, 17.

³⁴⁹ Ibid. 19.

³⁵⁰ Kesselring, “Concluding Remarks,” box 62. MHI. 36.

Sicily, and before that, the Allies had to deal with the garrison on the island of Pantelleria.

Fortunately, the communications zone was postured to support operations against each.

Chapter VI: Pantelleria and Sicily, Supporting the Island Campaigns

North Africa began the transformation of the US military. No longer new to modern mechanized war, the US Army and Navy learned valuable lessons from all aspects of the campaign, from invasion planning to consolidation of a theater once an enemy capitulates. The American Army learned what was required to support an amphibious invasion force, establish a theater, and support mechanized and airborne operations. The battles of North Africa allowed, perhaps even forced, the American military to transition its systems, processes, training, and equipment to fit the demands of twentieth-century modern warfare. AFHQ had won the campaign in Tunisia; now it was time to prepare for the next fight.

The Allies had agreed on Sicily as the next target during the January 1943 Anfa conferences held in Casablanca. This was a logical objective because it allowed Allied leaders to use forces and airfields that were mostly already in theater. General Marshall had argued for a 1943 cross-channel assault in France, but the Atlantic still contained German U-boats and England did not have the requisite numbers of divisions and supplies stockpiled for such an endeavor. Grudgingly, the US agreed to continue the campaign in the Mediterranean.

Patton had found some glory on the deserts of Tunisia with II Corps, but Eisenhower removed him from corps command on April 15, 1943, to take over Seventh Army and the planning for Operation Husky. Here was a chance for an even greater victory - command of an army and the opportunity to command all US forces participating in the invasion. Events will show the Seventh Army commander to be a talented tactical commander, but with little regard for the administrative effort needed to support his army.

This chapter addresses the capture of the Mediterranean islands of Pantelleria and Sicily, a period lasting from May 18 until August 17, 1943. Within these three short months, the Allies would launch a major amphibious assault, secure the islands, and learn vital lessons about supporting combat forces from the beach. This was the opportunity to try out new organizations and equipment, designed in response to problems identified during the landings in North Africa. Sicily was another opportunity to rehearse amphibious warfare and prepare the force for the invasions of the European mainland. Just as important, the capture of Pantelleria and Sicily continued the process of pushing the Axis forces out of the Mediterranean and would topple Hitler's main political ally, Benito Mussolini, from power.

The fall of Sicily begins with the capture of Pantelleria, a German outpost off the coast of Tunisia. From there, the chapter addresses the planning of the operations, as well as the preparation and loading of the invasion forces. The invasion of Sicily shows how new equipment and more robust beach organizations make for better landings, but some problems remained. The movement of US forces across the island illustrates that an army commander cannot simply focus his staff on tactical concerns; the army also has a role in managing the logistical support of the force, a role Seventh Army largely disregards. Additionally, Sicily also demonstrates the importance and need for planning to provide essential support for the civilian population decimated by the ravages of war. The chapter concludes with an assessment of the Sicilian campaign and a look to the future: the fight in the mountainous terrain of Sicily is a precursor to what would come in the battle for Italy.

Sicily, then, is a good news-bad news story. The Allies will show that they are learning the hard lessons first discovered on the beaches of Morocco and Algeria. However, there are still

important shortfalls that arise as the operation progresses. In either case, Sicily provided additional experience in amphibious warfare, which served to improve the entire Allied force.

Strategic Setting

The year 1943 proved to be a critical period of the war as momentum shifted to the efforts of the Allied nations. In February, Field Marshal von Paulus and the German Sixth Army surrendered at Stalingrad, providing Hitler with a massive loss of men and a corresponding public affairs disaster. After Stalingrad, Russian forces would continue to conduct a series of counterattacks to the west, with Stalin all the while looking, no – demanding, for help from his allies.

February also saw US victory at the battle of Guadalcanal, a major Allied win in the Pacific. Admiral Ernest King, the commander of the overall US fleet and the Chief of Naval Operations, made strong arguments for an increase in the allocation of units and resources for the Pacific. Among the items needed were ground and air service units, as well as landing craft – the same resources needed across the Mediterranean and in England.

The battle for the Pacific was frustrating for commanders such as Admiral King and General MacArthur. Not only were they trying to win the war against Japan, they had to win the war for resources back in Washington as well. Money was not the issue as the commands could get all the funding they needed. The real issue was the allocation of units, equipment, and supplies. These took time to build and produce and there was a finite amount available at any one time. With a Europe-first policy, the Pacific theater had to fight for everything it needed.³⁵¹

³⁵¹ Ronald Spector, *Eagle Against the Sun: The American War with Japan* (New York: The Free Press, 1985), 187.

Contributing to that fight were the efforts of General Douglas MacArthur. MacArthur chafed at seeing opportunities to attack the Japanese, but lacked the strength necessary to execute his plans. “Until victory was won in Europe, operations in the Pacific would be directed toward containing the Japanese with the limited resources available.”³⁵² Unhappily, MacArthur noted that Washington had left him out of the conferences that decided on a Europe-first policy.³⁵³

General MacArthur held the belief that the Pacific theater should be the priority effort because Japan, not Germany, represented the most direct threat to American interests and MacArthur could attack Japanese vulnerabilities. However, MacArthur’s views held little weight against the need to keep the Soviet Union and Great Britain in the war. MacArthur was not even in charge of the Pacific; this fell to Admiral Nimitz and the Navy. The Army was a supporting effort, responsible for commanding only a portion of the Pacific theater. Throughout 1943 and 1944, officers junior to MacArthur, such as Eisenhower, Clark, and Patton received the priority for resourcing. Speaking with General Marshall in late 1943, MacArthur called attention to “the paucity of men and materiel I [MacArthur] was receiving compared with all other theaters of war.”³⁵⁴ Marshall agreed there was an imbalance, but could do little to rectify it. The Pacific would have to work with the resources Washington allocated.

Naval progress, though, was not just limited to the Pacific. In March, improved Allied anti-submarine tactics forced Admiral Karl Dönitz to withdraw a majority of German U-Boats from the Atlantic because of heavy losses. This helped to ease the pressure on the shipping lanes,

³⁵² Douglas MacArthur, *Reminiscences* (New York: McGraw-Hill, 1964), 121.

³⁵³ *Ibid.*

³⁵⁴ MacArthur, 183.

increasing the delivery of supplies and material to Great Britain and the Mediterranean.

However, the battle against the U-boats was far from over.

The agreements that came from the Casablanca Conference of January 1943, envisioned the war unfolding along several major efforts.³⁵⁵ First, Eisenhower's forces would occupy Sicily in order to open the western Mediterranean to Allied shipping. Second, England would be the base for a large Allied strategic bombing offensive against Germany, as well as serve as a staging base for a ground force capable of re-entering the European continent. Third, the Allies would continue operations in the Pacific, with an eye toward increasing the tempo against Japan once Germany was defeated. Churchill and Roosevelt approved of this plan, while also maintaining that air reinforcements needed to go to China and supply convoys needed to continue for Stalin.³⁵⁶

Roosevelt remained committed to a cross-channel invasion of France; although by the time of the Casablanca Conference, it was clear that this could not occur in 1943. The US had pulled too many units and supplies out of Great Britain for use in Torch. The President reassured the Prime Minister that the US *would* rebuild its base of operations in Great Britain for use either as a striking force for Sledgehammer or as the nucleus of a larger invasion force for Roundup.³⁵⁷ However, with the diversion of units and supplies to the Mediterranean, Operation Sledgehammer/Roundup - the invasion of France - could not occur before the spring of 1944.³⁵⁸ Instead, the Allies continued the march east, across the Mediterranean, setting up bases of operations as they went.

³⁵⁵ Also called the Anfa Conference because the meeting occurred in the town of Anfa, near Casablanca.

³⁵⁶ Winston Churchill, *The Hinge of Fate* (Boston: Houghton Mifflin, 1950), 692-693.

³⁵⁷ Robert Dallek, *Franklin D. Roosevelt and American Foreign Policy* (New York: Oxford University Press, 1995), 367.

³⁵⁸ Porch, 415.

By the end of the Anfa Conference, the Americans agreed with the British proposal to continue operations in the Mediterranean. The next target was Sicily; an objective that would use the large Allied formations already in North Africa and would produce greater economies in Allied shipping across the Mediterranean once the island was in Allied hands. Finally, an attack on Sicily provided an opportunity to knock Italy out of the war.³⁵⁹ At the same time, the US would build a large military force in Great Britain, capable of either attacking the Brest Peninsula in 1944, or augmenting the fight in the Mediterranean.³⁶⁰ A combination of the build-up of forces in England and increased operations in theaters around the world guaranteed that resource constraints for the Allies would continue into the near future.

Although the fighting in Tunisia continued in January, Allied leaders understood the need to determine the follow-on strategy so planners and logisticians could begin the work of preparing for the next operation. On the final day of the conference, Roosevelt and Churchill agreed that, to make continued use of the force in North Africa, the best option was to pursue the capture of Sicily in order to clear Mediterranean-shipping routes and open a path directly toward the Italian peninsula.

However, between Africa and Sicily were the islands of Pantelleria and Lampedusa. Pantelleria presented the greatest threat, serving as a garrisoned strong point that the Allies needed to address before moving on to Sicily. Thus was born the basis for Operation Corkscrew - the attack on Pantelleria. This operation, although relatively modest, had to succeed before AFHQ could move on to the primary objective: Sicily.

³⁵⁹ Garland and Smyth, *Sicily and the Surrender of Italy* (Washington: Center of Military History, 2002) 10.

³⁵⁹ *Ibid.*, 81.

³⁶⁰ Dallek, 371.

Pantelleria: Operation Corkscrew

Pantelleria is a small island, located east of Tunis, almost halfway between the Tunisian shore and Sicily. The island is approximately eight miles long and five miles wide and made from a relatively soft volcanic rock. Perhaps of most significance is the fact that the island sits 140 miles north of Malta, allowing for control over the shipping lanes to and from Malta. Control of Pantelleria would provide greater security not only for the Husky operation and sustainment convoys, but also for British shipping across the entire western Mediterranean. The coastline of Pantelleria was extremely rough, largely consisting of cliffs and jagged stone. Despite the fact that this was an island, there were no beaches suitable for landing operations. As a result, the Allied landing force was limited to one small port as a means to assail the island.

Planners estimated that the Italians had stationed approximately 10,000 defenders on the island, deeply entrenched in caves, tunnels, and cellars. No one was quite certain whether the Italians would fight or simply surrender after a token resistance. To deal with such a threat, Eisenhower approved a strategy of using the North African Allied Air Force to pummel the island by air as a means to degrade the enemy's capacity and will to fight. Supporting the effort was the British 1st Division, commanded by Major General W.E. Clutterbuck.³⁶¹

The air offensive began on May 18 with 100 sorties per day, evenly split between medium bombers and fighters. This continued for the next 20 days. By June 6, the combined Allied air forces had flown over 1,700 sorties and dropped 1,300 tons of bombs. This was only a prelude of what was to come. The period of heaviest bombing occurred from 6-10 June. On just June

³⁶¹ James Bonta. "The Invasion of Pantelleria, 11 June 1943." Paper written for the Advanced Infantry Officers Course by a participant in the invasion. 1949-1950. 8-9. <https://www.benning.army.mil/.../Bonta,%20James%20C.%20CPT.pdf> (accessed April 6, 2010).

10, alone, Allied planes dropped 1,571 tons of bombs.³⁶² While the planes dropped bombs, the combined Allied navies also maintained a complete blockade of the island and added to the general destruction through a series of naval bombardments.

Figure 12: Bombs for the Air Force³⁶³



The ground force assaulted the island at noon on June 11, just as the defenders were raising a flag of surrender. However, what drove the Italians to surrender was not the threat of a ground invasion; rather, it was the lack of water. The intense aerial and naval bombardment had thoroughly destroyed all of the island's roads and other infrastructure. The success of the bombing campaign was not the production of enemy casualties or destroyed morale; instead, the bombing interdicted the enemy's ability to resupply its forces. Italian forces were unable to supply themselves and the defenders could not venture outside. The Allied air offensive achieved its desired goal: air power had cut the enemy lines of communications, starving out the defenders. The island fell with relatively few casualties.

Operation Corkscrew is regarded largely as a footnote in the overall Husky campaign because the island fell with relatively little force or Allied casualties. However, there are two

³⁶² Ibid., 11.

³⁶³ Source: "Tools of War," APG.

items which should be mentioned: First, the reason the North African Allied Air Force was able to sortie so many flights to Pantelleria was due to the number and capacity of airfields spread across Tunisia and Northern Africa. The extensive work of the theater Services of Supply (SOS) and Twelfth Air Force service units in building and supplying the airfields provided a capability to extend air power across the western Mediterranean; work that is largely unnoticed because these efforts to expand Tunisian airfields occurred in the strategic background with little fanfare.

North African airfields were essential to Eisenhower's strategy. Not only did air power provide an effective bombing campaign, but on the day of the ground invasion of Pantelleria (June 11), American P-40 fighters from the 57th Fighter Group drove off a formation of 55 German Messerschmitt Bf-109 fighters and Focke-Wulf Fw-190 bombers.³⁶⁴ There was no damage to Allied shipping and the invasion occurred as planned.

The second item worth considering is the sheer magnitude of the support effort needed to maintain such a bombing campaign. Besides bombs and other munitions, planes also needed vast quantities of fuel and repair parts. Between May 8 and June 11, the North African Air Force flew 5,258 sorties against Pantelleria,³⁶⁵ each sortie representing a number of demands on the supply system for items such as fuel, munitions, and repair parts. Maintenance operations were a critical element in the effort to keep aircraft flying in the harsh North African environment. The pilots received the accolades, but the air campaign was a success largely because of the combined team effort of planners, air crews, and ground support personnel.

The airfields supporting Corkscrew and Husky were mostly in the Tunis/Sousse/Mateur area of Tunisia. This placed a great demand on regional truck and rail transportation since the daily

³⁶⁴ There is no information regarding the exact number of US aircraft in this engagement.

³⁶⁵ Draft report by General Dwight D Eisenhower on Operations in the Mediterranean Area, 1942-1944. CMH. 61.

requirement for transportation was increasing, but there was no corresponding increase in the number of available trucks, locomotives, or rail cars. To assist, the British made available the total capacity of the Bizerte-Tunis standard gage railway as well as the Tunis-Kairouan narrow gage railway. This gave the theater an added 1,100 tons per day capacity for the movement of fuel and bombs - the highest priorities for rail movements.³⁶⁶

Pantelleria did provide additional experience and some valuable lessons for Allied planners and leaders. The Germans had demolished all ports and buildings in the main town. Roads throughout the island were impassable. However, despite the bombardment, few coastal guns were out of action. This meant that if a ground invasion had been required, the Allies would have needed a large engineering capacity to repair roads and bridges before any mechanized or motorized forces could move about the island. Additionally, the destruction of the island's telephone system meant that the existing lines were useless until the Allies could make extensive repairs.³⁶⁷

One lesson from Corkscrew was that any invasion force, following a sizeable bombardment campaign, needed to consider the effects of friendly bombing on local infrastructure and plan to compensate for the damage. Damaged ports, roads, and telephone lines all needed the right support forces, materiel and, perhaps even more importantly, time, for repairs. Destroyed bridges required construction materials and engineers. The lack of a local telephone system meant an increased demand for military communications units. As the Allies experienced in

³⁶⁶ History of the Eastern Base Section, 1 June -1 September 1943, CMH. 128.

³⁶⁷ Memorandum, Allied Force Headquarters, dated July 12, 1943, subject: Lessons from Operations against Pantelleria. NARA, RG 492, box 2775. Also see Memorandum, Force 343, Twelfth Army, dated June 18, 1943, subject: Report on Operation Corkscrew. NARA., RG 338, E:50215, box 1.

North Africa, a commander that focused on loading primarily combat forces on the assault convoys, in lieu of a more balanced force, could easily put the mission at risk.

Following the fall of Pantelleria, a second obstacle stood in the way of the assault on Sicily - Lampedusa, a small island also in the Sicilian Strait. Not as reinforced as Pantelleria, the Allies likewise secured this island through an intense bombing campaign, followed by naval bombardment and a small landing. As in Corkscrew, the Lampedusa air bombardment, combined with a growing Italian disillusionment of the war, persuaded the defenders to surrender on June 12, 1943.

The straits between Sicily and North Africa were now clear. AFHQ had less than 30 days before the next operation - Operation Husky, the conquest of Sicily. Time was short and the Allies still had much to do before Husky's convoys could sail.

The Planning of Husky

On February 2, Eisenhower issued a preliminary directive for his senior commanders to begin planning for the seizure of Sicily. Outline plans were due to the Commander-in-Chief by March 15³⁶⁸, meaning that planners had less than six weeks to develop the basis for a campaign plan involving several divisions and the largest amphibious operation yet attempted. The commander-in-chief believed that there were two main tasks: The first task was to get sufficient troops and supplies ashore as quickly as possible. The second was to secure ports for the further build-up of these forces.³⁶⁹

³⁶⁸ Bernard Stambler, "Campaign in Sicily, Part I." Undated manuscript from US Army Historical Division, [1945-1946?], CMH. 40.

³⁶⁹ Draft report by General Dwight D Eisenhower on Operations in the Mediterranean Area, 1942-1944. 71.

Sicily is a large island of some 15,000 square miles. Much of the island's topography consisted of rocky ridgelines, hills, and a limited supply of fresh water. Movement was generally limited to existing road and rail networks, making cross-terrain movements and resupply efforts difficult, if not impossible. Existing highways were in generally good shape, especially compared to the roads of North Africa. Standard-gage rail lines circumvented the island and auxiliary narrow-gage lines connected interior towns. Rapid, large-scale military movements were possible, but they required sufficient rail and/or motorized vehicles.

Sicily had four large ports: Messina, Catania, Syracuse, and Palermo. Messina was on the northeastern corner of the island and was the main Axis port. This port also had extensive air defenses and fell under the umbrella of Axis air coverage from mainland Italy. Catania was in the center of the island's east coast, but also contained sizeable defenses. Any attempt to seize these locations would be extremely tough, if not suicidal.

This left planners with the options of Syracuse and Palermo. Syracuse, located on the southeastern corner of Sicily, did not contain as many Axis units and was within range of Allied fighters and medium bombers originating out of Tunisia. Palermo was on the northwestern coastline, but was out of Allied fighter range. The Allies found the ports of Syracuse and Palermo the most attractive and both met the needs of the respective armies in terms of ship berthing and other infrastructure.

Planning for Husky began on February 10 by a nucleus of planners, mostly from Allied force Headquarters (AFHQ). The staff assumed the designation Task Force 141 (named after the number of the room used in the Hotel St. George.) The planning group was a sub-section of AFHQ G3, but later would evolve to be the nucleus of the 15th Army Group staff.

The two principal Allied formations were Force 343 (Western Task Force/ US Seventh Army) and Force 545 (Eastern Task Force/ British Eighth Army) Planning for the operation was complicated - forces for the assault would launch from both ends of the Mediterranean as well as from the United States. Commanders and their planners found themselves spread across the theater and there was still an on-going battle in Tunisia, which tied up a number of units destined for Sicily.

Despite the efforts to learn from past mistakes, the planning for Husky had just as many problems as the planning for Torch. This was most likely due to the continuing fight in Tunisia, combined with the inability to consolidate all of the different planning staffs into one general location. Hundreds of miles separated the staffs of the different organizations. For example, Force 141 (the future 15th Army Group) and the Navy positioned their headquarters at Algiers. Force 343, originally I Armored Corps and later Seventh Army, was at Rabat, French Morocco. 3rd Infantry Division was at Bizerte.³⁷⁰ Distances were great and travel was difficult - two factors which limited coordination and cooperation. Additionally, the North African air forces found it difficult to dedicate much effort to the planning process because of on-going combat operations against German and Italian forces.

Senior commanders finally collectively focused on the plans for Husky at a commander's conference on March 18. The draft plan, dated March 3, called for split landings, with the British seizing the port of Syracuse and the Americans seizing the port of Palermo five days later. This plan would have split Allied forces, but would have also provided each task force

³⁷⁰ Action Report, "Western Naval Task Force The Sicilian Campaign." U.S. Navy Historical Center. Hewett Collection, box 4. 17.

with a sizeable port facility, which could speed the buildup of the beachheads and facilitate the drive inland, toward Messina - the campaign's objective.

This course of action assumed that the poor and limited beaches of Sicily could not support a large invasion force and that the two armies each needed a major port. As such, the driving factor for this initial plan was logistically oriented.³⁷¹

Force 141 conducted the overall level of planning, but left the details of the ground assault plan up to the respective task force commanders. On April 7, the two army commanders, Patton and Montgomery, had received a memorandum asking for their outline plans no later than the first of May.³⁷² Patton and his staff, at that time in French Morocco assigned to I Armored Corps, were ready to begin planning; however, Montgomery and the Eighth Army staff were still engaged in Tunisia and did not have the time or inclination to dedicate the necessary time needed to shape the early planning of Husky.³⁷³

British officers, including the head of the naval element of the Eastern Task Force, Admiral Ramsey, and Eighth Army commander, General Montgomery, objected to the draft plan, believing that the two task forces needed land in closer proximity to each other or risk isolation and destruction by Axis coastal units and divisions already on the island. General Alexander, the deputy commander-in-chief and commander of 15 Army Group called for conferences on April 27 and 29 to work through the differences.³⁷⁴

The conferences produced a revised plan on May 19, with a final outline plan dated May 21. The new plan dropped the seizure of Palermo and moved the American landings down to the

³⁷¹ Eisenhower, *Crusade in Europe*, 163-164. Also see Interview with Field Marshal Alexander, by George Howe, undated, compiled by Dr Sidney Matthews. Sidney Matthews Papers, MHI. Box 2. 10.

³⁷² Directives, HQ Force 141, dated April 7, 1943. NARA, RG 492, box 124.

³⁷³ Patton was relieved from command of II Corps on April 15th to allow him to focus on Operation Husky

³⁷⁴ Stambler, 57. Also see Albert Garland and Howard Smyth, 60-63

shores of southern Sicily, immediately west of the British landing sites. The new plan sacrificed logistical supportability for the sake of a stronger beachhead.³⁷⁵ There was an element of risk in each option so Eisenhower and his commanders had to make the final decision. For each task force the initial mission was essentially the same: they were to seize and secure beaches, ports, and airfields within their sectors to enable the required build-up. Following that, each task force would drive north to secure the island.

Torch had shown that conducting sustainment operations over the shore was much more difficult than projected and that established port facilities were essential to conducting a rapid build-up of forces ashore. The decision to move the American invasion site from Palermo to beaches west of the Eastern Task Force meant that the port of Palermo was no longer available and that sustainment planners had to look for other means to build up materiel to support the drive inland. This required a major modification for the Seventh Army's sustainment plans - all within seven weeks of the landings.

The loss of Palermo was significant since many experts estimated that the port could support up to ten divisions.³⁷⁶ Now, Seventh Army had to sustain itself from across the beaches. Licata and Gela were both in the American sector and each had a small port, but the capabilities were limited and came nowhere near that of Palermo. Licata had an estimated daily capability of 600 tons per day, compared to Syracuse, estimated at 1,000 tons per day and Palermo with an estimated 2,500 tons.³⁷⁷ Scoglitti had only a small fishing port. Gela could handle a mere 200

³⁷⁵ Ibid., 81.

³⁷⁶ Ibid., 54.

³⁷⁷ Draft report by General Dwight D Eisenhower on Operations in the Mediterranean Area, 1942-1944, 79

tons per day. The loss of a large port put the ability of the theater to resupply US forces into question.

The creation of a single logistical headquarters for both the British and US forces was never a serious consideration. Due to the differences in systems noted during the Tunisian campaign, the distances between headquarters elements on North Africa and the embarked forces, and the separation of bases within Sicily, General Alexander decided to maintain the existing administrative support relationships.³⁷⁸ The US theater organization would support US forces, the British would take care of their own.

AFHQ G4 and the Services of Supply began working on revised maintenance plans for the operation on May 23. The new support plans called for the three divisions within Seventh Army to land with seven days of supplies combat loaded into assault craft. An additional 14 days worth of materiel would arrive in two follow-on convoys. The Cent Force (45th Infantry Division) was to land on the beaches near Scoglitti. The Dime Force (1st Infantry Division) would land on the beaches surrounding Gela. Lastly, the Joss Force (3rd Infantry Division with a combat command from 2nd Armored Division) was to land on the beaches around Licata. Kool Force (the remainder of 2nd Armored Division) was a floating reserve, with 21 days worth of supplies for its own use.³⁷⁹

This supply plan significantly increased the quantity of supplies needed to accompany the assault forces. Original plans had called for four to five of days of supplies for the assault forces; now each carried seven. This meant that units had to modify requisitions, as well as the

³⁷⁸ Ibid., 80.

³⁷⁹ Seventh Army Memorandum, Muller to Stanley, dated May 23, 1943, no subject. NARA, RG 492, box 2737. Also see Action Report, "Western Naval Task Force The Sicilian Campaign." U.S. Navy Historical Center. Hewett Collection, box 4. 67.

respective load plans and landing plans. In a scene reminiscent to Torch, logisticians found themselves modifying support plans at the last minute to accommodate the changing tactical plans of the combat forces.

Due to the lack of a tactical plan prior to debarkation, logisticians based their support plans on generic type units in generic missions, on generic beaches. This required some reloading prior to combat and many vehicles were not combat loaded. Only after the assault ships had sailed did Force 343 discover that its assault beaches had 1,000 yards of sand dunes behind the beaches, a terrain factor that complicated mobility and required engineer support to improve the beach exits. Had the task force known this before embarkation, the Seventh Army G4 would have planned for additional road and beach construction materials.³⁸⁰ The late identification of specific beaches limited pre-assault reconnaissance because commanders did not want to flag their intentions.

As in Torch, planning was neither fully coordinated between the combat and support commanders, nor between the services. Ultimately, the absence of tactical plans by the Seventh Army commander meant that logisticians had to develop a support plan that could support any tactical plan and that joint planning was next to impossible.

The lack of a tactical plan affected more than just the theater. As one senior British administrative planner noted:

I was under great pressure to furnish certain essential information regarding administrative requirements to the War Office without delay, and this meant that I had on more than one occasion, to produce the administrative plan for various phase before the operational plan had been prepared... When our plans were eventually seen by the Commanders-in-Chief concerned they were, as was

³⁸⁰ Report on Operation Husky by Army Section of Commander, Amphibious Force, U.S. Atlantic Fleet and Army Observers, Amphibious Force, U.S. Atlantic Fleet, dated June 6, 1943. MHI. 3.

course natural, modified radically. This meant that a great deal of work had to be done over again; *but much more serious it upset forecasts that had already been sent to London and Washington in regard to the weapons and equipment that we had to have to make the operation a success.*³⁸¹ [author's italics]

Any changes to the administrative support for Husky could easily impact support to the other theaters of war as well, all of which were competing for limited resources.

Despite the changes, units finally solidified their plans. The Eastern Base Section was to serve as the reinforcing base section, with the main supply depots being at Ferryville and Mateur, Tunisia. The base section headquarters operated out of Mateur. The theater Services of Supply would load seven days of follow-on supplies into coaster vessels, planned to arrive in Sicily on D+14. For long-term support of the operation, follow-on convoys carried supplies from the US at 15-day intervals. The Services of Supply also maintained an additional 15 days of supplies in Tunisia as a reserve that could be moved on short notice.³⁸² Any items needed by Seventh Army that were not on the US convoys, or needed before the next convoy, were sourced and shipped from North Africa by the theater.³⁸³ Service forces would accompany the assault force to land on the beaches and small ports in the US sector, but if these sites proved inadequate, US planners had made provisions with the British force to share use of the port of Syracuse, beginning approximately D+14.

If needed, an element known as the American Liaison Group, 2,500 service troops and two of the largest assault craft, Landing Ship-Tank (LST), would land at Syracuse on approximately

³⁸¹ Administrative Planning , 26.

³⁸² Supplement to Administrative Instructions Number 10, SOS NATOUSA, dated June 25, 1943. NARA, RG 492, box 2737.

³⁸³ "History of Ordnance Service in the Mediterranean Theater of Operations, November 1942 to November 1945". Volume 1. CMH. 49.

D+14 to begin establishing a US support element at the port.³⁸⁴ If the Allies executed this contingency, the US port party would combine with the British logistics element, known as Fortbase. Luckily, the beaches proved more capable than first thought and the shift of US beaches to the port of Syracuse was not required.³⁸⁵

During the assault phase of the operation, any requests for US resupply outside of the preplanned convoys were to flow from the units up to Seventh Army. The Seventh Army Rear Headquarters, located at Bizerte, reviewed the requisitions and filled them from army stocks if possible. The army passed any unfilled requisitions to the Eastern Base Section. From here, the base section worked to fill all possible requirements from stocks already in the theater. If the combined Fortbase was established, US requisitions were to flow from Seventh Army to Fortbase and, from there, to the Eastern Base Section.³⁸⁶ Critical items, such as repair parts for mechanized equipment, would fly to Sicily by plane, while other, less critical items, were to move by sea.

By May 1943, planning was in full progress, but there was an additional challenge facing the planners: units had never seen many of the different assault craft projected for use in Husky so they did not have an appreciation of the capabilities and requirements of these new items. As an example, there was no data available for craft, such as the LCT(R) (Landing Craft Tank (Rocket) or the LCG (Landing Craft-Gun). No one had ever seen how many personnel could fit within a

³⁸⁴ Report of Operations of the United States Seventh Army in the Sicilian Campaign 10 July to 17 Aug 43; HQ Seventh Army, 1 Oct 43. MHI and CMH. A-10.

³⁸⁵ Draft report by General Dwight D Eisenhower on Operations in the Mediterranean Area, 1942-1944, 80.

³⁸⁶ Supplement to Administrative Instructions Number 10, SOS NATOUSA, dated June 25, 1943. NARA, RG 492, box 2737. 2. Also see Force 141 Administrative Instruction Number 18, dated June 23, 1943. NARA, RG 492, box 2737; as well as History of the Eastern Base Section, 1 June -1 September 1943, 2.

LST.³⁸⁷ These pieces of information mattered a great deal because they had a direct impact on the planning of the loading and landing of the task forces. The exact size of assault craft ramps dictated which types of equipment could fit onto a particular vessel. Personnel capacities dictated whether units could be transported in whole, or piece-meal. Beaching depths determined whether infantrymen could wade ashore, or needed inflatable boats.

Unfortunately, in the rush to deliver new equipment from the shipyards and factories, there was insufficient time to prepare the manuals and instruction sheets that normally accompanied a piece of equipment. Units had to figure out the details as they went. Details on new equipment slowly became available as the Navy worked to disseminate technical information, but situations such as this showed that the introduction of new equipment into an operation, without an opportunity for training, introduced new problems as well.

Back in North Africa, each base section commander was responsible for the support of Force 343 units staging in their respective areas, but once the units arrived in Sicily the responsibility for support beyond Seventh Army's capability transitioned to the commander of the Eastern Base Section.³⁸⁸ To help facilitate coordination, Patton agreed to have a Force 343 liaison officer stationed with the Eastern Base Section - one that could speak with Patton's authority for many questions dealing with personnel, equipment, or supplies for the US forces in Husky. General Larkin also stationed a Services of Supply liaison officer with the Eastern Base Section as well to help coordinate any requirements that may be beyond the capability of the base section.

³⁸⁷ Report, "Notes on the Planning and Assault Phase of the Sicilian Campaign." COHQ Bulletin Number Y/1. Written by an anonymous British officer, October 1943. NARA, RG 492, box 3021. 4.

³⁸⁸ Supplement to Administrative Instructions Number 10, SOS NATOUSA, dated June 25, 1943. NARA, RG 492, box 2737. 3.

Whereas the Services of Supply and AFHQ G4 had a fair idea of the types and quantities of supplies needed by the ground forces for Husky, the Air Force never provided a specific list of needs. In general, there was widespread dissatisfaction with the lack of Air Force participation in the overall planning effort. There was no coordinated planning effort between the services and the support plan provided by the Air Force was “the most masterful piece of uninformative prevarication, totally unrelated to the Naval and Military Joint Plan, which would possibly have been published.”³⁸⁹ The air plan called for daily landings of massive quantities of supplies and equipment - none of which included the weight, size, or projected use. The Air Force apparently expected this level of support, even though its resupply plan called for convoys of every four days, despite the fact that the theater was planning convoys for one every 14 days. AFHQ and the Services of Supply conducted support planning in the cork forests and olive groves surrounding the Force 343 headquarters, but the Air Force declined to provide a representative.³⁹⁰

In 1943, US aviation units were still part of the US Army, but operated under a separate chain of command within the Mediterranean theater. Formed on December 5, 1942, under Major General Carl Spaatz, the Northwest African Air Command served as the joint headquarters for all US and British air forces.³⁹¹ This meant that the air forces largely determined their own missions and the Army had less influence on Air force operations outside of the continental US. Eisenhower served as the overall theater commander and could have ordered US Air Force to

³⁸⁹ Report, “Notes on the Planning and Assault Phase of the Sicilian Campaign.” COHQ Bulletin Number Y/1. Written by an anonymous British officer, October 1943. NARA, RG 492, box 3021. 6.

³⁹⁰ Ibid.

³⁹¹ Draft Report by General Dwight D. Eisenhower on Operations in the Mediterranean Area 1942-1944, 39. Also see “History of Allied Force Headquarters (AFHQ), Part 2, Section 1, December 1942-December 1943,” 118.

participate more fully in the planning of Husky, but there is no indication that the issue ever arose to his level for resolution.

Ultimately, the lack of a ground tactical plan from Seventh Army provided the biggest planning challenge for logistics planners. The absence of these plans meant that any logistics plans needed to be flexible enough to accommodate *any* combat plan. This same lack of a ground tactical plan also inhibited planning coordination among the joint services.³⁹²

Despite the lessons of Torch, Husky hardly served as a role model for joint service planning. Perhaps this was understandable, given that operations were still going on in Tunisia, but it was not inevitable. The planning effort *did* improve in terms of anticipating the need for a more balanced ground force, one that included the necessary combat and combat support elements. However, work remained on integrating the Air Force into the planning effort. Regardless, as summer drew near, the time for planning ended and it was time to load the invasion force.

Mounting the Force

Brigadier General Pence received word in late April that the Eastern Base Section would have a large role in equipping and supplying Force 343 units for the invasion and for loading them on the assault craft, a process known as “mounting.”³⁹³ At the same time, the base section was deeply involved in supporting the Allied drive across Tunisia. Short on personnel, the

³⁹² Report on Operation Husky by Army Section of Commander, Amphibious Force, U.S. Atlantic Fleet and Army Observers, Amphibious Force, U.S. Atlantic Fleet, Report of June 6, 1943, USS Ancon. 2. MHI.

³⁹³ Memorandum: Eastern Base Section to SOS NATOUSA, dated September 20, 1943, subject: Administrative Lessons from Operations in Sicily. NARA, RG 492, box 2775. Mounting refers to the staging and loading of personnel, equipment, and supplies at a port of embarkation.

Eastern Base Section pulled two officers and one enlisted man from the staff to form a special planning group for the mounting of Husky.³⁹⁴

To complicate matters, the Allies did not capture the area of Tunisia needed for the mounting operation until May 10, 1943 - less than two months before the convoy's departure date. Planners were unable to conduct reconnaissance trips or survey potential support sites so much of the work so maps served as the main sources of information. The Eastern Base Section was responsible for the US mounting effort. The base section was to equip all troops participating in Husky from North Africa, provide 30 days of supplies for these forces, transport units to the ports of embarkation, and then load them on assault vessels.³⁹⁵

The forces for Husky found themselves spread across French Morocco, Algeria, and Tunisia. The Services of Supply had to gather these units at specified ports and transport them to the ports of embarkation following any training. Service units identified, and packaged supplies for the assault and any follow-on support. Some cargo was preloaded on vessels, while other was stored in Tunisia, awaiting later shipment. This was a massive undertaking in terms of both complexity and magnitude and had to occur simultaneously with the normal administrative support still required in North Africa, to include support of US ground and air troops, civilian populations French forces, and prisoners of war.

To support the force in Sicily the Eastern Base Section developed a basic plan that was extremely flexible in order to respond to changes and unforeseen requirements. The general depot was at Mateur, Tunisia due to its close proximity to air and ground bases, seaports, and the rail and road network. Truck units and rail moved supplies and equipment to either Bizerte

³⁹⁴ Undated report, "EBS Planning for Operation Husky." NARA., RG 492, box 3021.

³⁹⁵ Ibid.

or Tunis for sea transport. Although the British controlled Tunisia, AFHQ arranged for the Eastern Base Section to move its advance headquarters and a series of supply depots to Mateur.

The Husky mounting operation was a new challenge for AFHQ and the North African theater. The War Department or European Theater had prepared and mounted forces for the earlier Torch invasion. This was the first time the North African theater would mount a sizeable assault using its own forces and there was virtually no information available on exactly how to conduct such an operation.³⁹⁶ Considering this, it is surprising that the mounting operation occurred as well as it did.

Two divisions that were already in North Africa - 1st and 3rd Infantry Divisions - had little time for in-depth load planning based on the final version of the Husky plan. Logistics officers representing the various units and staffs gathered on the afternoon of May 20 to discuss the upcoming movement. Units had only 48 hours to develop their supply requirements. To meet the necessary timelines, supply requisitions for the assault force were due on the afternoon of Saturday, May 22, 1943. Requirements for the follow-on convoys were due two days later.³⁹⁷ There was not much time for detailed planning so supply planners used the experiences of the North African campaign to make their best judgments.

Personnel from the 1st Infantry Division were to load transports at Algiers. The personnel for 3rd Infantry Division loaded craft at Bizerte. Tunis served as the main embarkation port for all Force 343 equipment.³⁹⁸

³⁹⁶ Ibid. 2

³⁹⁷ Record of Meeting, subject: Planning for the Mounting of Operation Husky, dated May 20, 1943. NARA, RG 492, box 2704. 3.

³⁹⁸ Action Report, "Western Naval Task Force The Sicilian Campaign." 17.

Major General Terry Allen, commander of the 1st Infantry Division, was worried that his units would not have sufficient time to fix their equipment before loading up for Sicily. Five months of hard fighting in North Africa had left the Division's vehicles and weapons systems in a general state of disrepair. Allen had grave doubts whether the ordnance units in Tunisia had the capacity to refurbish the division's equipment before the required load dates.³⁹⁹

The Mediterranean Base Section responded, putting together a plan to overhaul the equipment of the 1st Infantry Division within 10 days of receipt. The only deficiencies not repaired were those problems requiring repair parts that were not physically in North Africa. The plan worked and the Division was able to meet its load dates with equipment that was in much better shape than had been expected.⁴⁰⁰ By the first week of June, the two divisions were now ready to move to the assembly areas and begin loading the assault craft.

To conduct the actual mounting operation, the Eastern Base Section formed the 1st Embarkation Group (Provisional.) No such group had existed previously so this was very much a trial-and-error type of operation. The lack of experience in conducting this type of operation, combined with the changing plans, produced a difficult situation for the new unit. To provide additional labor for the mounting, personnel from the 34th (Red Bull) Infantry Division helped to establish and run the camps and vehicle parks.⁴⁰¹

The advanced party from the embarkation group arrived in the area on May 31. The assembly areas opened shortly thereafter, from June 10-13. Services of Supply and 34th Infantry Division personnel worked quickly to post signs, establish communications, stockpile food,

³⁹⁹ Record of Meeting, subject: Planning for the Mounting of Operation Husky, dated May 20, 1943. NARA, RG 492, box 2704. 6.

⁴⁰⁰ Ibid.

⁴⁰¹ Minutes of Conference Held at HQ Tunisia District, dated June 15, 1943, subject: Mounting of Husky in Tunisia. NARA, RG 492, box 3020. 3.

arrange for water and sanitation facilities, establish medical facilities, provide security, and coordinate movement plans. The maximum troop capacity of the assembly areas totaled 25,000.⁴⁰²

The major landing craft included Landing Craft-Infantry (LCI), Landing Ship-Tank (LST), and Landing Craft-Tank (LCT). The LCIs were sea-going craft that could carry between 180-200 soldiers at a time and land them directly onto a beach. The LSTs were the workhorse of the armada - seagoing vessels designed to carry large amounts of men, equipment, and supplies. Each LST could carry approximately 20 medium tanks and about 200 men. These vessels did not need a pier or port to discharge their cargo. The LST's smaller cousin was the LCT. Each of the flat-bottomed LCTs carried nine Sherman tanks, or 300 tons of cargo. These vessels had only half the speed of the larger LSTs and did not do well in lengthy open-sea crossings.

Figure 13: Landing Ship- Tank (LST)⁴⁰³



Small landing craft that could carry soldiers, but avoid obstacles, formed much of the first wave of an amphibious assault. Landing Craft-Vehicles Personnel (LCVP), also known as

⁴⁰² Ibid., 1.

⁴⁰³ Source: Signal Corps Photo, Fort Lee Museum.

“Higgins Boats,” were plywood craft that had flat bottoms and could carry up to 36 troops or a small vehicle such as a jeep, but were not made for long open water voyages. Similar to the LCVP, the Landing Craft-Assault (LCA) was a small plywood craft designed to carry 31 soldiers from the larger troop transport ships to the assault beaches. Together, these small craft landed many of the infantry units onto enemy beaches.

The embarkation group could simultaneously stage and load 52 LCIs, 30 LSTs, 32 LCTs (vehicles and equipment), and 12 personnel-only LCTs. Each task force moved into a staging area the day prior to moving into its assembly area. From there, vessel-sized groupings of equipment, known as serials, moved into the loading areas on the scheduled loading day. The first vehicle serials loaded on June 18, personnel serials started loading on June 23. The Cent Force, 45th Infantry Division, had earlier loaded its transports in the United States and sailed for North Africa, where it was to meet with the other divisions.

The final assault force to complete loading was the Joss Force - 3rd Infantry Division. Loading for this force encountered problems in late June when the Division’s supplies arrived out of order at the assembly areas. The problem originated at the theater depots when service units failed to follow instructions and loaded the wrong supplies in trucks heading for the docks. To deal with the problem, the 1st Embarkation Group established dockside dumps, which allowed units to offload, sort, and then load supplies on the correct vessels. This slowed loading, but not enough to hamper the timeline. The group completed the loading of supplies on July

5.⁴⁰⁴ Joss Force personnel were the last units to load, with units filling LCIs on July 5 and the LSTs on July 6.⁴⁰⁵

The mounting operation showed that the theater needed to allow at least 60 days between the completion of planning and the earliest sail date. This included nine days to complete load plans, 30 days to waterproof supplies and equipment, seven days to shift cargo to match the ship-specific transport quartermaster plans, and 14 days to load a division.⁴⁰⁶

Waterproofing was still a developing skill. Each vehicle, radio, or other sensitive item of equipment landing with the assault force needed the right protection to keep seawater from getting into vital components, such as engines and batteries, during the voyage to the assault area, as well as during the transition from the assault craft to the beach itself. Improper waterproofing often produced unserviceable equipment at the far shore. The US forces experienced problems with this during Torch; now the Embarkation Group worked to provide a better level of protection for the forces of Husky.

With the 3rd Infantry Division loaded, the Allied assault force was on its way to the shores of southern Sicily and the 1st Embarkation Group prepared to deal with the returning assault craft. Returning craft began arriving in Tunisia in earnest on July 12, carrying casualties and prisoners of war. From here, the Embarkation Group either reloaded the assault craft for the voyage back to Sicily or released the craft.

By August 5, the mounting of Husky was complete. With little experience or time for preparation, the Eastern Base Section had loaded 77,520 personnel, 17,165 vehicles, and over

⁴⁰⁴ Report of Operations, 1st Embarkation Group, May-August 1943. NARA, RG 492, Box 3012. 6.

⁴⁰⁵ Ibid.

⁴⁰⁶ Report of Force Headquarters Section (Army), Amphibious Force, Forward Echelon, 9 Aug 43 in Report on Operation Husky by Army Section of Commander, Amphibious Force, U.S. Atlantic Fleet and Army Observers, Amphibious Force, U.S. Atlantic Fleet. 17.

12,000 tons of supplies onto the Force 343 assault craft.⁴⁰⁷ The subsequent landings on the beaches of Licata, Gela, and Scoglitti would determine whether this was sufficient.

The loading of the ground forces was not the only preparation required for Husky; the North African Air Force was also busy with the expansion of bomber bases in Tunisia. Some airfields required expansion, while other new fields had to be constructed. These bases were essential to the buildup of additional bomber forces in eastern Tunisia and for the Husky bombing plan.⁴⁰⁸

AFHQ also had a challenge in providing all of the petroleum products required for the operation. Seven fleet tankers were on hand to provide an estimated 212,000 tons of fuel oil and 60,000 tons of diesel fuel to the invasion force, the estimated needs for D to D+21. The main reserve of fuel was at Casablanca.⁴⁰⁹

North Africa had shown that modern war was reliant on the control of transportation resources. Merchant shipping was limited, there were competing demands for assault craft, and, once on shore, the mobility of a combat force largely depended on truck transportation.

To better coordinate and synchronize these limited assets, the Services of Supply and Seventh Army modified their organizations. Seventh Army added a large transportation section to the G4 in order to plan and direct supply activities of all army service forces. AFHQ formed the 1st Embarkation Brigade (Provisional) to plan and execute the mounting of Seventh Army from North Africa. Additionally, Seventh Army formed a “near shore control group,” a rear echelon of Seventh Army, to ensure that the follow-on convoys from North Africa met the changing demands of the army. Finally, the 1st Engineer Special Brigade would organize the

⁴⁰⁷ Report of Operations, 1st Embarkation Group, May-August 1943. NARA, RG 492, box 3012. 9.

⁴⁰⁸ Draft report by General Dwight D Eisenhower on Operations in the Mediterranean Area, 1942-1944, 83

⁴⁰⁹ *Ibid.*, 84.

beaches and serve essentially as an advance base section on the far shore of Sicily. These new organizations and their missions were the direct outcome of hard lessons learned during the Torch landings. The upcoming landings would determine whether these measures were sufficient to overcome the problems experienced seven months earlier.

Invasion and Initial Support

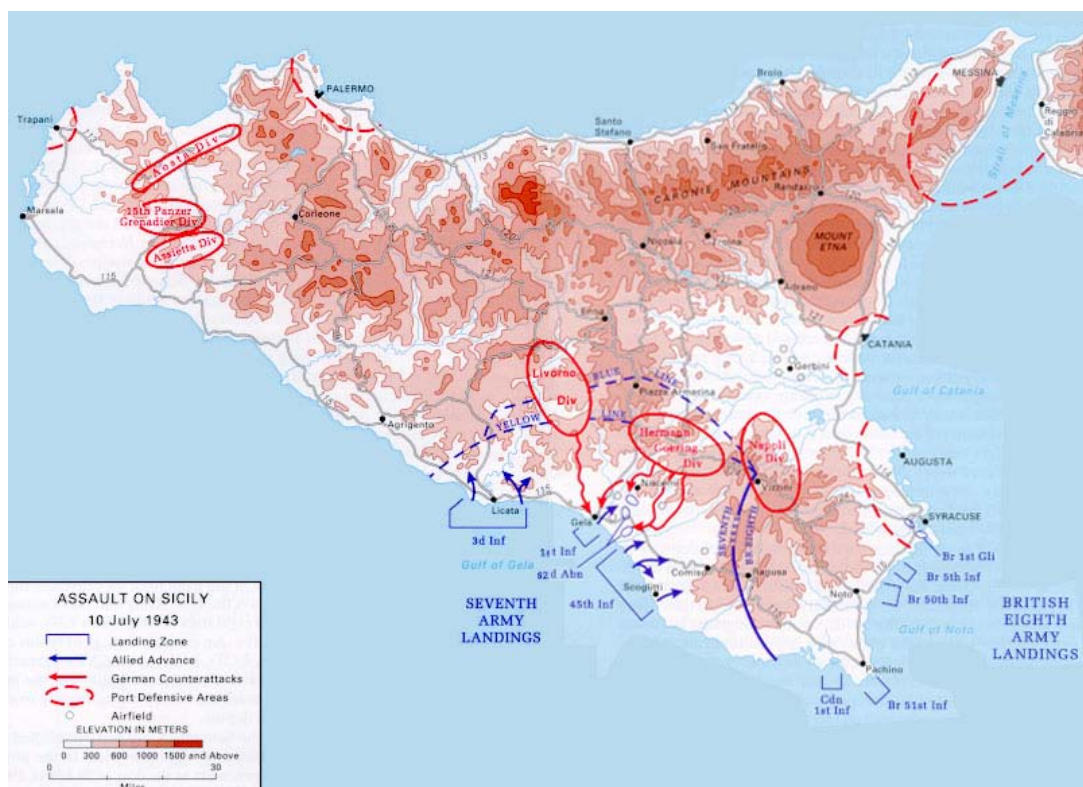
The assault of Sicily was the largest amphibious assault conducted up to that time. The entire force consisted of six US and five British divisions. The naval armada contained over 3,200 vessels, of which 1,700 conducted the movement of the US force and its cargo.⁴¹⁰ The aim of Operation Husky was to seize the island of Sicily in order to help secure the western Mediterranean. AFHQ envisioned three phases: The first phase was the seizing of the beachheads, to include airfields near the beaches, to serve as a base for following operations. The second phase was the seizure and opening of the ports. Seventh Army would secure the western part of the island, while the British Eighth Army drove north to seize Syracuse, Augusta, and Catania. In the third phase, the Allies would complete the occupation of the island by using the British force to drive north along the eastern coast, while the Seventh Army moved east, along the northern coast road. The campaign was to be complete once Messina fell. With the loss of Sicily, the Allies hoped to knock Italy out of the war.

The invasion started during the night on July 9, 1943 with US and British airborne drops planned for objectives behind the beaches. In the British sector, the Pointe Grande Bridge was the key to seizing Syracuse. Montgomery decided to use glider elements of the British 1st

⁴¹⁰ H.H. Dunham. "US Army and the Conquest of Sicily," (Monograph prepared by the Army Transportation Corps, 1945). CMH. 1.

Airborne Division for this objective. Unfortunately, the landing zone contained stonewalls and large cliffs - obstacles that made the area wholly unsuited for the landing of the large, fragile craft.⁴¹¹

Figure 14: The Invasion of Sicily, July 10, 1943.⁴¹²



The 2,075 glider men set out from six airfields in Tunisia in 137 Waco and ten Horsa gliders and headed east for Malta. Passing over the navigation aid of Malta, they assumed the final course for Sicily. However, a combination of poor night navigation by the tow pilots, improper distance estimation by the glider pilots, enemy flak, and 30-35 mile an hour winds off Sicily's coastline all served to break up the formations. Sixty-nine of Operation Ladbrooke's 147 gliders crashed into the Mediterranean. Fifty-nine landed over a 25-mile area. The rest returned to

⁴¹¹ Carlo D' Este, *Bitter Victory* (New York: E.P. Dutton, 1988), 229.

⁴¹² Source: The University of Texas Library. http://www.lib.utexas.edu/maps/historical/sicily_assault_1943.jpg. (accessed December 24, 1020).

Tunisia or crashed due to friendly fire. Only twelve made it to the assigned landing zones. As a result, only eight officers and 65 men of the British Airborne “Red Devils” captured the Pointe Grande Bridge, holding it less than 12 hours before being overrun.⁴¹³

The American’s airborne operation experienced less loss of life, but similarly failed to land many forces on their objectives. High winds and low moonlight meant that pilots had a hard time seeing out their windshields. Pilots lost their sense of direction and missed checkpoints because of haze, fires, and dust. Aircraft flew all over the southeastern part of the island discharging their human cargoes. The 3,400 US paratroopers landed all over the southeast corner of Sicily, ranging from the Eighth Division’s sector, west across Gela, and inland from the 45th Division’s beaches. Only one battalion, the 2nd Battalion of the 505th Parachute Infantry Regiment, landed relatively intact, but it landed 25 miles from the expected drop zone.⁴¹⁴

Despite the missed landings, US paratroopers made the most of the situation by disrupting the enemy’s areas. They cut communications lines, destroyed supplies, ambushed patrols, and caused confusion among the Axis commanders as to the locations of the main landings.⁴¹⁵

Living off the supplies they carried or found, the paratroopers operated in small bands, doing whatever they could until they joined up with the divisions arriving over the sea.

The beach assault began during the early morning hours of the following day, July 10.

Compared to Torch, the Husky beach landings were a considerable improvement, although coordination between the Navy and Army was still a problem. Even though the Allies had to contend with a force spread across over 100 miles of beaches as well as strong winds and high

⁴¹³ Ibid., 231. Also See Albert Garland and Howard Smyth, 121.

⁴¹⁴ Garland and Smyth, 117.

⁴¹⁵ Ibid., 119.

seas, the assault occurred largely according to plan. Still, ships and landing craft sometimes landed at the wrong ports and beaches or without warning. Critical to the operation of the American beaches was a new type of unit: the Engineer Special Brigade.

The 1st Engineer Special Brigade was to remedy many of the problems experienced in the beaches of North Africa. Redesignated from the original 1st Engineer Amphibian Brigade, the new brigade consisted of four shore groups (one for each US division) plus one smaller shore group designated for the floating reserve.

The brigade had the mission of supporting all four divisions plus supplying all Seventh Army units for a period of up to 30 days following the assault. Not only was the brigade to perform the engineer functions of opening up the beaches, but it was also to act as the *de facto* base section in Sicily until the Services of Supply could flow sufficient troops in to assume the logistics mission.

Each shore group consisted of an engineer regiment plus other support units, such as a medical battalion, quartermaster battalion, naval beach battalion, as well as ordnance and signal companies. The Services of Supply added other capabilities, depending on the infrastructure in the assigned area, such as rail lines. The 36th Engineer Shore Group was the largest group in the brigade, totaling 4,744 officers and men.⁴¹⁶

The impetus behind the creation of beach organizations was similar to that of the theater base sections and Services of Supply - to take the burden of administrative issues off the ground tactical commander. This would leave the commander and his staff free to focus on the fight before them and to plan the next move. The Seventh Army G4 would still be responsible for

⁴¹⁶ Report of Operations: "Shore Engineers in Sicily," dated August 11, 1943. NARA, RG 338, E:30215, box 1. 2. Also see Alfred Beck, Abe Bortz, Charles Lynch, Lida Mayo, and Ralph Weld. *The Corps of Engineers: The War against Germany* (Washington: Center of Military History, 1998). 122.

logistic planning and policy, but until the Services of Supply could establish a local base section, the 1st Engineer Shore Brigade had the responsibility to conduct the required sustainment operations.⁴¹⁷

Each beach group had the responsibility to organize its respective beaches. This included the tasks of unloading ships, marking aids and obstacles to navigation, constructing beach exits, providing security, setting up beach dumps to receive supplies from the landing craft, unloading boats, and moving supplies inland. The groups also had to operate vehicle maintenance areas to clear the beaches, run de-waterproofing areas to prepare vehicles and equipment for combat, and operate a casualty aid and evacuation station. Each shore group could operate up to six beaches and one divisional supply dump. A typical division required between four and six beaches, depending on the number of attached units.⁴¹⁸

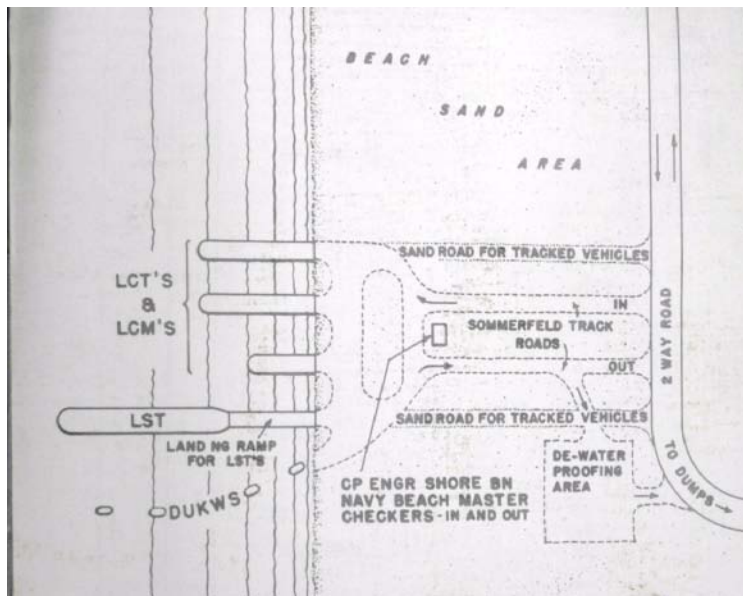
Generally, the Navy had responsibility of the beach to the high water mark. From there, the Army and Navy shared responsibility for the near beach (the strip of land close to the high water mark that formed an area for beaching of vessels, ship to shore communications, anchorage, and initial unloading.) The Army had sole responsibility for the far beach (the area inland of the shore that could take advantage of cover, clearance, and concentration of units.)⁴¹⁹

⁴¹⁷ AFHQ Administrative Lessons, Operations in Sicily, dated October 1943. NARA, RG 492, box 2775. 26.

⁴¹⁸ Report of Force Headquarters Section(Army), Amphibious Force, Forward Echelon, 9 Aug 43, contained in Report on Operation Husky by Army Section of Commander, Amphibious Force, U.S. Atlantic Fleet and Army Observers, Amphibious Force, U.S. Atlantic Fleet. MHI 4.

⁴¹⁹ AFHQ Administrative Lessons, Operations in Sicily, dated October 1943. NARA, RG 492, box 2775. 30.

Figure 15: Typical Landing Beach for One Combat Team⁴²⁰



Although the landings were very different from those of Torch, there were still surprises and challenges to overcome. Beaches south of Gela contained obstacles, which threatened to impede sustainment of the force. Many of the beaches in the American sector included cliffs that limited, or prevented, vehicles from exiting the beach. The beaches themselves were about 30 yards in width, with sand dunes running in the back for 700 to 1,000 yards. The sand dunes were often made of soft sand or rocks, which were large enough to stop vehicles. At several beaches, such as Red Beach in the 3rd Infantry Division sector, a sand bar ran offshore, parallel to the

⁴²⁰ Source: Report of SOS Observers of Operation Avalanche. NARA, RG 492, box 2775. 17.

entire beach, limiting the approach of the larger assault ships.⁴²¹ Beach exits to the island's interior were often limited or non-existent.⁴²²

Tanks and the new amphibious vehicles known as DUKWs⁴²³ (“ducks”) were the only vehicles that had no difficulties in transitioning from the water to the beach. Although the new landing craft, such as LCTs and LSTs, had a flat bottom and could beach themselves in relatively shallow water, the combination of high ramps and soft sand caused many wheeled vehicles, especially those carrying heavy loads or trailers, to stall in the water or become stuck on the soft sand of the beaches. In several cases, beaches became cluttered and prevented the landing of larger vessels, as LCVPs (Landing Craft, Vehicle, Personnel, also known as Higgins boats) breached and became stranded.

Figure 16: DUKWs at Scoglitti



As in Torch, there was still an absence of strong leadership on some of the beaches. The Navy shore parties and the engineer shore groups were not well connected and their actions were often uncoordinated. Traffic jams occurred in both the 3rd and 45th division sectors due to the

⁴²¹ First Partial Report, Observations- Husky-Joss Task Force, July 8 to July 12, 1943. NARA, RG 492, box 2775. 1. Also see “Notes on Husky Landings,” July 23, 1943. NARA, RG 492, box 3021. 2.

⁴²² Action Report, “Western Naval Task Force The Sicilian Campaign.” 54.

⁴²³ DUKW was part of the naming nomenclature, which indicated the model, year, type of drive, and equipment. Each vehicle could carry 2 ½ tons and travel at speeds of up to 50 mph on roads or 5.5 knots over calm water. E.S. Van Duesen. “Trucks that go Down to the Sea,” *Army Ordnance Magazine*, volume XXV, Number 141 (November/December, 1943): 558. Aberdeen Proving Ground Museum. Also see Barry W Fowler, Ed. *Builders and Fighters: U.S. Army Engineers in World War II* (Washington: U.S. Army Corps of Engineers, 1992) 407.

limited number of beach exits and limited road networks. Vehicle recovery in the surf and on the beach was slow and diverted other support vehicles, such as the DUKWs, from their assigned tasks.⁴²⁴

Beach units offloaded much of the equipment and supplies by using an LST as a causeway onto the beach. Arriving LSTs anchored from ½ to one mile off the beach. They would then transfer their cargo into the smaller LCTs, which could tie up at the offshore end of the beached LST. Roller conveyers on the beached causeway LST then enabled a quick loading of the LCTs.

The low beach gradients prevented the large LSTs from actually landing on many of Sicily's beaches. Knowing that this would be a problem, the Navy devised a means to transfer vehicles from the LSTs onto the smaller LCTs, which could land on the beaches. While in North Africa, the Navy cut access holes in the sides of the LSTs of the same size as an LCT ramp. Once off Sicily, the LSTs anchored about 1,000 yards from the beach. Two LCTs then came alongside the LST. Workers lashed one LCT to the side opening of the LST, at a right angle, to serve as a loading platform. The second LCT then tied off to the first LCT. Drivers quickly drove vehicles off the LST, across the first LCT, finally ending up on the second LCT. As soon as this second craft was full, it untied and headed for the beach, with the empty space filled by a waiting empty LCT. Working in this fashion, it took two and a half to three hours to offload a full LST.⁴²⁵

Ingenuity and cutting torches compensated for the lack of ports and fixed facilities.

Another method of unloading the large LSTs, which worked particularly well, was to anchor the LSTs in deep water and then transfer supplies and equipment into DUKWs, which then drove

⁴²⁴ First Partial Report, Observations- Husky-Joss Task Force, July 8 to July 12, 1943. NARA, RG 492, box 2775. 8.

⁴²⁵ Report, "Notes on the Planning and Assault Phase of the Sicilian Campaign." COHQ Bulletin Number Y/1. Written by an anonymous British officer, October 1943. NARA. RG 492, box 3021. 22.

directly to the dumps. This limited the handling of supplies and did not expose the assault craft to enemy fire from the beaches.

The experiences of the 45th Infantry Division illustrate the task and challenges of the shore groups. The 45th arrived off Sicily on July 9 carrying 12,500 tons of supplies in its transports. All this required offloading and subsequent transportation inshore. Of the total, 15 percent was palletized which required little labor to move.

For the remainder of the supplies (10,625 tons), the division needed an estimated 1,870 laborers and 110 of the 2 ½ ton cargo trucks to empty the convoy in its allotted timeframe. The shore group contained 1,500 men and 40 DUKWs, resulting in a shortage of 350 men and 90 trucks on the beaches.⁴²⁶ Fortunately, good weather and a lack of enemy activity compensated for these resource shortfalls.

Supplies were generally deposited on the beaches and then moved to inshore dumps, but in some cases essential supplies were taken off of LSTs, placed into DUKWs, and driven right to the front lines (during darkness), bypassing the dumps entirely.⁴²⁷ This represented a vast improvement in support of the combat forces compared to the beaches of French Morocco and Algeria.

Since Sicily was a relatively arid island, engineers worked to develop a means of transporting potable water to the island to support the forces landing ashore. Using a planning figure of one gallon per day per man, 20 LSTs were fitted with large tanks, with each ship capable of hauling

⁴²⁶ Report of Force Headquarters Section(Army), Amphibious Force, Forward Echelon, 9 Aug 43 in Report on Operation Husky by Army Section of Commander, Amphibious Force, U.S. Atlantic Fleet and Army Observers, Amphibious Force, U.S. Atlantic Fleet. 7. MHI.

⁴²⁷ First Partial Report, Observations- Husky-Joss Task Force, July 8 to July 12, 1943. NARA. RG 492, box 2775. 12.

10,000 gallons of water. After arriving at the landing beaches, these LSTs would then transfer their cargo into canvas tanks, established ashore by the 1st Engineer Special Brigade.⁴²⁸

Water was a critical commodity in the war and of the operation. A shortage of ammunition could stall an offensive, but a shortage of drinking water could bring Allied military operations to a rapid and total halt. Fuel kept vehicles moving, but in the infantry units, water that kept the combat forces moving while ammunition kept them fighting. Water sources in Sicily were limited and the daily temperatures in July averaged over 90 degrees with little rain. Tanker LSTs, with the accompanying storage points ashore, would help ensure the Seventh Army could keep on the move.

One situation that could have easily impeded operations was the storage of food on the initial convoy. The assault wave carried 24 hours of rations in the easily unloadable LCTs, deciding to store the remainder of the food on the rear of the LSTs. Poor weather conditions on July 8 threatened to impact vessel offloading, but calmed just prior to the landings. If the weather had not calmed when it did, sea conditions could easily have slowed the offloading of the LSTs, which had the potential quickly led to a food shortage across the task force. Fortunately, the weather cooperated and planners learned that in future landings, the LCTs needed to carry more of a balance of supplies to allow for poor weather and critical supplies, such as food, belonged in the *front* of the LSTs to allow for easier access.⁴²⁹ Lessons, such as this, contributed to the success of later assaults in the Mediterranean, as well as in the Normandy campaign. Some of these lessons seem intuitive, but many only showed themselves in actual combat. Having the

⁴²⁸ US Army Corps of Engineers, Barry W Fowler, Ed. *Builders and Fighters: U.S. Army Engineers in World War II* (Washington: U.S. Army Corps of Engineers, 1992) 408.

⁴²⁹ First Partial Report, Observations- Husky-Joss Task Force, July 8 to July 12, 1943. NARA, RG 492, box 2775. 12 and 20.

opportunity to practice these landings throughout 1943 and 1944 provided the knowledge necessary to succeed later on the beaches of France in the face of a determined German defense.

The DUKWs were the recognized heroes of the Sicily landings, for both US and British units. Used for the first time in actual combat, these vehicles proved themselves more capable than anyone had imagined. Due to the soft sand of the beaches, DUKWs ended up hauling the vast majority of supplies and equipment from the beaches to the inland dumps, 2 ½ tons at a time. They were hard to maneuver and slow, but they were unequalled in recovery operations and cross-beach mobility. Drivers could regulate the air pressure of the tires from inside the cab, allowing the vehicle to transition quickly between the beaches and the roads.⁴³⁰

Figure 17: Transferring Supplies to a DUKW⁴³¹



Although the DUKWs excelled at transporting soldiers or cargo over short distances (up to a mile), numbers of broken trucks quickly accumulated. Units, unfamiliar with the limitations of the equipment, diverted DUKWs from their assigned amphibious missions or used them to haul cargo over extended distances on-shore. Manufacturers had not designed the trucks to cover

⁴³⁰ Ibid., 13.

⁴³¹ Source: Signal Corps Photo, Fort Lee.

long distances over roads or to travel across rough terrain. The diversion of these vehicles in the division areas quickly disrupted landing craft offload plans and congested narrow roads along the beaches.⁴³²

Because of the tremendous usefulness of these vehicles, maintenance issues began to appear. The beaches were tough on tires and tubes. Propeller gear easily broke. Since these vehicles were relatively new to the Army inventory, spare parts were still in short supply. Keeping these vehicles in full operation was an on-going challenge for the beach groups.

The original concept behind the amphibious vehicle was to use it as a reconnaissance vehicle for traversing rivers and lakes. At a demonstration on June 24, 1942, the commanding general of the Army Service Forces saw that these would be on invaluable service to logistics units and ordered the production of several hundred vehicles.⁴³³ A year later, the DUKWS became a central feature of the Husky support organization and enabled sustainment of Seventh Army from over the beaches.

Despite the inclusion of a greater number of vehicles with the invasion force, there were still not enough trucks to move all supplies and equipment forward. Fortunately, neither Allied air attack, nor intentional destruction by Axis forces, had damaged the Sicilian rail system to any great extent. By D+1, Shore Engineers and rail personnel had begun putting the rail system into use, pushing supplies forward.⁴³⁴

By the end of D+3, Seventh Army had successfully landed 66,235 men, 17,766 tons of bulk cargo, and 7,416 vehicles on Sicilian beaches and the small ports of Licata and Empedale. The

⁴³² Report of Operations: "Shore Engineers in Sicily," dated August 11, 1943. NARA, RG 338, E:30215, box 1. 5.

⁴³³ Van Duesen, 558.

⁴³⁴ Report of Operations: "Shore Engineers in Sicily," dated August 11, 1943. NARA, RG 338, E:30215, box 1. 1.

main beach supply dumps were located at Gela and Licata. In the 45th Division sector, beach units moved the original Green, Red, and Yellow beaches approximately three miles to the southeast, near Scoglitti, to take advantage of better beach conditions and improved road network.⁴³⁵

Within ten days, the invasion was well under way. Most of the assault convoy had off-loaded and the docks at Licata were in use. Engineers were working to improve the road networks. Food and water were on-going concern at the front lines due to limited transportation, but there was plenty of ammunition.

The situation continued to improve as time progressed. Beaches that were not conducive to offloading, such as Joss Force's Red Beach, closed in favor of new sites. In a show of flexibility, the force adjusted to meet the conditions on the ground. By the end of July, Seventh Army had landed 111,824 men, 104,734 tons of cargo, and 21,512 vehicles.⁴³⁶

In retrospect, Husky's beach operations were not perfect, but they had greatly improved compared to the North African landings eight months prior. New equipment had solved many problems experienced during the earlier invasion and commanders and their planners had done a better job in balancing the assault force. However, both the Army and Navy still had a lot to learn. Both services needed firm leadership early on during the assault on *all* the beaches, not just on some of them.

Despite the problems on the beaches, the landings were generally a success and met the demands of the combat forces. True, not everything had gone as planned, but the unexpected is a

⁴³⁵ AFHQ Memorandum, dated July 23, 1943, subject: Notes on Husky Landings. NARA, RG 492, box 2775.1.

⁴³⁶ Action Report, "Western Naval Task Force, The Sicilian Campaign." 68. Also see Beck, Bortz, Lynch, Mayo, and Weld, 134. Note: The later numbers also include use of the port of Palermo.

part of any operation of this magnitude. Problems arose, but new organizations, such as the engineer special brigade and its groups, worked to resolve any problems. Many problem areas seen in the first hours of Torch, such as care of the dead or an inability to resupply combat forces, failed to reappear.

Figure 18: The Beach at Scoglitti⁴³⁷



In the grand scheme, the Allies were flooding ashore with all of the material needed to pursue a mobile, offensive campaign. This tremendous stream of supplies and equipment landing on Sicilian shores was not lost on the enemy. On July 11, an Italian homing pigeon landed on a US minesweeper. The message read, in part, “Cargo ships by the hundreds are discharging uninterrupted war materiel. No friendly air...Send more pigeons.”⁴³⁸ Seventh Army had successfully arrived on the beaches of Sicily and was ready to drive inland, heading toward the north.

⁴³⁷ Source: Quartermaster Review, January-February 1953, Fort Lee.

⁴³⁸ Report of Operations, II Corps in Sicily, 10 July to 17 August. NARA, RG 338, E:P42890, box 9. 7.

To the east, Montgomery and the British Eighth Army had fared a bit better on the landings. While some the US beaches experienced bottlenecks, mostly from a lack of beach personnel, the British were in a better position. Weather did not influence the beaches in the British sector as much as in the US sector and Syracuse proved to be a very capable port.⁴³⁹ The British did have some difficulties in offloading trucks as quickly as Montgomery wished, but overall, the British support forces kept a steady stream of materiel moving forward.

The presence of Syracuse in the British Eighth Army area aided Montgomery's sustainment operations. With a daily discharge capacity of 1,000 tons per day, the Eighth Army could send most of its materiel into Syracuse, and use outlying beaches for any needed residual capacity. Additionally, the port of Augusta, 15 miles north of Syracuse, would quickly add to British port capacities. This study did not look into specific problems with British beach operations, but none of the major unit combat reports indicates any major problems with the landing of the Eastern Task Force's 66,000 personnel, 10,000 vehicles, or 60,000 tons of supplies sent in on the initial assault. Eisenhower reported that by July 17, "Eighth Army's supply lines through the ports of Augusta and Syracuse were already in good working order."⁴⁴⁰

British beaches operated generally with the same type of support units as those found on US beaches. Shore parties handled the reception and organization of the beaches, although the British did have some issues with standardizing the make-up of the different beach groups, which included United Kingdom, North African, Middle East, and Indian variants.⁴⁴¹

⁴³⁹ Draft report by General Dwight D Eisenhower on Operations in the Mediterranean Area, 1942-1944, 92

⁴⁴⁰ *Ibid.*, 83.

⁴⁴¹ Report: Combined Operations Lessons Learned in the Mediterranean, 1943. NARA, RG 492, box 56. 20.

The supporting British logistics headquarters Tripbase, originally stationed out of Tripoli, but later renamed Fortbase (a part of the 15th Army Group) upon the transfer to Syracuse. The British Number 1 District provided logistics support for British forces on Sicily, while the North Africa District Headquarters maintained responsibility for support of the AFHQ British theater rear area in North Africa.⁴⁴² The plan for two distinct systems of support was working.

The Other Side of the Hill

After Tunisia fell in May 1943, Hitler had focused his effort on the Eastern Front. Stalingrad and the German Sixth Army had fallen in February 1943 and the Germans needed to stop the Soviet advance or risk losing the entire Eastern Front. The bulge of the lines at Kursk provided such an opportunity. Named “Operation Citadel,” the German High Command planned on the destruction of the Soviet offensive capability; after that, they could return their attention to the west.

However, Allied movements in the Mediterranean, along with wavering support from within Italy for Mussolini, bothered Hitler. For two months, from the end of April until the end of June, Hitler repeatedly postponed Citadel. Finally, on June 29, Hitler returned to the Eastern Front and ordered Operation Citadel to begin on July 5. Four days later the Allied attacked Sicily, forcing Hitler to divide his attention between the two theaters.⁴⁴³

Compared to North Africa, the Axis forces found the island of Sicily much easier to support. Sicily lay within range of Axis fighters staged both on Sicily, as well as on the Italian mainland. Ferries carried supplies over the Strait of Messina, a narrow expanse of water separating the

⁴⁴² “History of AFHQ, volume 1, part 1. 179.

⁴⁴³ Keegan, 465.

eastern edge of Sicily from the Italian peninsula that was a mere 1.9 miles wide. The main enemy port was Messina, which was not only very capable, but also heavily defended. Anti-aircraft batteries lined both sides of the Strait of Messina and fighter aircraft were on the island and the Italian mainland. German supplies moved by train from Germany, down the Italian peninsula, and then by barge to Sicily. The communications lines were vulnerable to Allied strategic bombers, but were out of range of fighter aircraft based in North Africa.

The proximity of Sicily to Italy meant that the Italian High Command, Commando Supremo, had no problem shipping supplies to Axis forces operating on the island. Indeed, German commanders complained more about the lack of Axis air support than they did about their supplies. Field Marshal Kesselring wrote that the fall of Sicily was due to the utter failure of the Italian coastal defensive units and reserve divisions. Additionally, the German divisions arrived too late and without sufficient strength to effectively deal with the Allied invasion.⁴⁴⁴

The center of gravity for sustainment of the Axis force on Sicily was the ferry service shuttling across the Strait of Messina. Organized by Admiral Meendsen-Bohlken, the service used civilian ferryboats, naval assault craft, and Siebel ferryboats to move units, equipment, and supplies. Captain (Baron) Gustav von Liebenstein served as the Sea Transport Leader for the Strait.⁴⁴⁵

Recognizing the importance of the Strait, the Germans began work in 1943 to improve its capacity. The number of principal routes increased from three to 12. Similar to what the Allies would later use at Anzio, pools of loaded German trucks rolled onto the ferries near Reggio,

⁴⁴⁴ Kesselring, "Concluding Remarks," MS C-014, box 62. 30. Also See Alfred Kesselring, *The Memoirs of Field-Marshal Kesselring* (Novato, CA: Presidio Press, 1989), 163.

⁴⁴⁵ D' Este, 497.

cross the strait, and then rolled direct to a Sicilian supply depot. By July 1944, the system could move 610 vehicles, 750 tons of supplies, and 3,600 men in a single day.⁴⁴⁶ This line of communication not only served to supply the divisions on Sicily, it was also the escape route back to Italy.

Faced with the Allied divisions landing ashore, the commander of the Italian Sixth Army on Sicily, General Alfredo Guzzoni, complained to Hitler's personal representative, Konstantin von Neurath, that Italian troops were not fully equipped and lacked the mobility needed to move about the island. Allied aircraft attacked the Sicilian railways on a daily basis, but the Italian government was not repairing the damaged equipment quickly enough. The German High Command's assessment was that the Italians did not have the will to fight.⁴⁴⁷

On the other hand, German units on Sicily *did* have the necessary will, mobility, and equipment to meet the invading armies. Whether they were strong enough was the question. The Hermann Göring Panzer Division and 15th Panzergrenadier Division responded to the initial invasion. Hitler quickly realized that Sicily needed reinforcements, so by the end of July, the 1st Parachute and 29th Panzergrenadier Divisions were on Sicily as well. General Hans-Valentin Hube, a veteran of the Eastern Front and one of Hitler's most capable corps commanders, commanded all German forces on the island.

As expected, the Italians put up little resistance to the Allied invasion, so the brunt of the fighting rested with the German divisions. The loss of airfields and aircraft represented the greatest problem for the defenders. As of July 18, there were only 25 German aircraft on Sicily capable of flying - advancing Seventh and Eighth armies had destroyed over 1,100 Axis

⁴⁴⁶ Ibid., 500.

⁴⁴⁷ Churchill, *The Hinge of Fate*, 30.

planes.⁴⁴⁸ Air sorties for the Germans increasingly had to be flown from the Italian mainland, reducing loiter time over the island. The one advantage of this was that the Germans could ship less fuel and fewer bombs to Sicily, thus easing the demand on transportation. This simplified resupply efforts and allowed German service units to focus on the needs of the ground force.

Logistically, support of the Axis forces eased as the front lines moved back to the north and east. This shortened the enemy line of communications and the size of the front lines, thus reducing the demand for fuel and vehicles. Requirements dropped as Axis units evacuated from the island. Ammunition and high explosives remained critical items throughout the operation.

Although the Allied strategic bombers were targeting rail infrastructure on Italy and Sicily, sufficient supplies were getting through to sustain Hube's XIV Panzer Corps. Despite this, Hube simply lacked sufficient forces to stop the progress that Patton and Montgomery were making.

As of the middle of July, the entire Axis garrison on Sicily numbered from 250,000-365,000; the exact numbers are unclear. The heart of this force was four German Divisions, which totaled approximately 62,000 men.⁴⁴⁹ Facing the defenders were two Allied armies. The US Seventh Army held approximately 217,000 men and Montgomery's British Eighth Army had 250,000 men, for a total Allied force of 467,000.⁴⁵⁰

Both sides suffered. The Germans had approximately 12,000 killed or captured. A similar number sustained wounds, but made their way back to Italy. The Allies killed 2,000 Italians, wounded 5,000, and captured another 137,000. Of those taken prisoner, the Allies sent 75,000 to North Africa as prisoners of war and paroled the rest in Sicily. On the Allied side, the

⁴⁴⁸ Ibid., 34.

⁴⁴⁹ D' Este, 606. Also see Eisenhower, *Crusade in Europe*, 327.

⁴⁵⁰ Samuel Mitcham Jr., *The Battle of Sicily: How the Allies Lost their Chance for Total Victory* (Mechanicsburg, PA: Stackpole, 2007), 307.

Americans had 8,791 men killed, wounded, or captured, while the British had 11,843 killed, wounded, or captured.⁴⁵¹

Faced with two Allied armies and their considerable resources, the German effort turned from an effort to push the Allies off the island, to an evacuation operation - with the goal being to safely transport as much men and equipment as possible back to Italy. By August 10, the Axis fight in Sicily would turn into a delaying action to allow time to evacuate as many German and Italian forces as possible across the two-mile Strait of Messina.

The Axis evacuation of Sicily was one of the great logistical feats of the war. Facing a determined Allied attack from both Eighth and Seventh Armies, the commander of all German forces on Sicily, General der Panzertruppen Hans Valentin Hube, ordered the evacuation of Sicily on August 4, 1943. The priorities were men first, equipment and supplies second. Despite a half-hearted Allied attempt to interdict the Strait, the evacuations occurred as the Germans had planned. By August 16, the Italians had evacuated between 70,000 and 75,000 men, 500 vehicles, and 12 mules. The Germans evacuated 39,951 soldiers, 14,772 casualties, 9,789 vehicles, 51 tanks, 163 guns, and 18,665 tons of supplies and equipment. Only one German soldier died in the process.⁴⁵² The evacuation was a masterwork of coordination, skill, and transportation management.

Support of Seventh Army and the Drive towards Palermo

On July 12, the Italian Sixth Army realized that counterattacks against the Allied beachheads were ineffective and the time had come to switch to the counteroffensive. General Guzzoni

⁴⁵¹D' Este, 552 and 609.

⁴⁵²D' Este, 514. Also see Garland and Smyth, 410.

adopted a strategy to delay the Allied advance and begin withdrawing forces to the northeast corner of the island. Patton, who was looking for an opportunity, became aware of the change in enemy intentions and quickly directed an aggressive move inland.

The II Corps commander, Major General Bradley, moved two divisions towards the towns of Agrigento and Porto Empedocle on July 13.⁴⁵³ These towns were important strategically and Porto Empedocle contained a port that could contribute to the support of Seventh Army. Meanwhile, General Alexander was adjusting the US/British border to the west in an attempt to give Montgomery's Eighth Army an avenue of approach that could skirt past strong German defenses. This shift forced Patton and Bradley to adjust the US advance from the north to the west since there were only a few roads leading north and Montgomery now controlled all of them.

Despite the change in directions, Patton still saw Palermo as the next big objective. Meeting with Alexander on July 17, the Seventh Army commander successfully argued that the best means to protect Eighth Army was by aggressive action along the western portion of the island, thereby splitting the island in two.⁴⁵⁴ Alexander agreed to the plan and Seventh Army was free to resume an unrelenting drive to the northwest.

The southern towns of Agrigento and Porto Empedocle fell to Seventh Army on July 16. Control of these towns gave Seventh Army access to Highway 118, which led toward Palermo, and a rail line that ran from Porto Empedocle north to Termini Imerse. These routes would become critical to sustaining the divisions as they moved north, away from the assault beaches.

⁴⁵³ Garland and Smyth, 206.

⁴⁵⁴ Ibid., 236

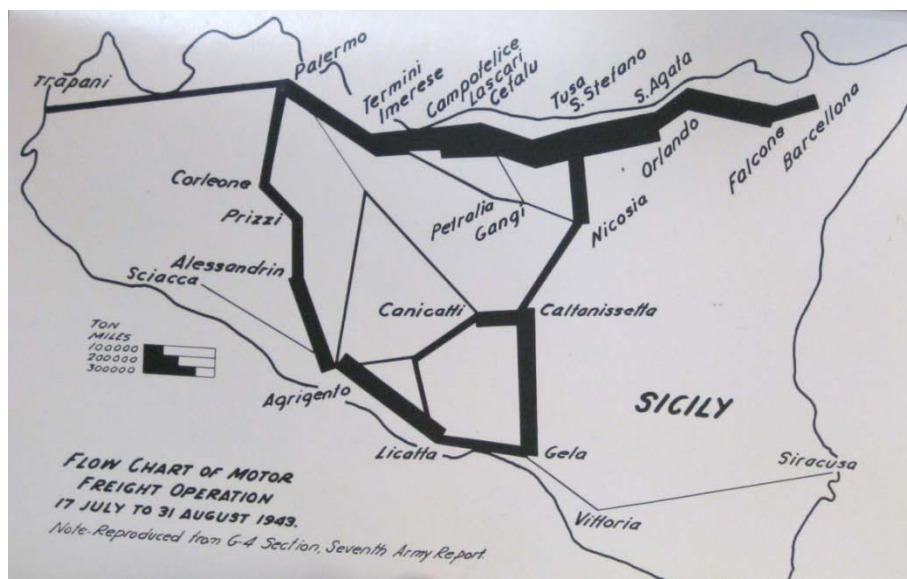
Seventh Army's Provisional Corps, under command of Major General Geoffrey Keyes, controlled the western part of the island, while Bradley's II Corps controlled the center.

The Provisional Corps had the mission of seizing Palermo, while II Corps moved north to cut the island in half. On July 19, the 82d Airborne Division moved into western Sicily and began mopping up any enemy units that had not already moved east. East of the 82nd, the 3rd Infantry Division moved north, along Highway 118, towards Palermo. The 2nd Armored Division followed as the Army reserve. Resistance was light and both divisions covered 20-25 miles. The combination of Allied air support and direct fire from the ground units was usually enough to convince Italian defenders to surrender without a fight. Patton's orders were to continue advancing toward Palermo unless ordered to stop. Hilly terrain did little to slow the advance. The US advance on July 19 was 25 miles. The day after, 20 miles. By the night of July 22, the 3rd Infantry and 2nd Armored Divisions were on the outskirts of Palermo, but the Italian defenders gave up without a fight.⁴⁵⁵

The fast capture of Palermo was partly due to enemy decision to shift focus to the northeast corner of the Sicily. Other factors included the bombing of Rome being by Allied aircraft (thus redirecting the attention of the Italian High Command,) as well as the sizeable stocks of fuel that were built up on Seventh Army beaches. The drive was only about 100 miles in length, but three divisions on the move required large amounts of trucks and gasoline. The pursuit did not require much ammunition, but everything depended on mobility. The figure below shows the main routes used during the operation.

⁴⁵⁵ Garland and Smyth, 251.

Figure 19: Motor Freight Support for Husky⁴⁵⁶



While II Corps was advancing northwest, the support situation was maturing as well. By July 17, the divisions began relinquishing control of their respective beaches and turning them over to the 1st Engineer Special Brigade, whose responsibility it was to gather all sustainment activities under its command.⁴⁵⁷ Within a week of landing, the brigade was now responsible for running the reception operations, as well as serving as the intermediate support element for the entire Seventh Army. The brigade assumed command over all shore groups and any service forces not assigned to the divisions or II Corps and began acting in the capacity of a base section for all US forces on the island.⁴⁵⁸

By July 23, Palermo was secure and engineers began to repair the damage that retreating Germans had inflicted on the port. The damage at Palermo was extensive, but not prohibitive.

⁴⁵⁶ Source: "US Army Transportation and the Conquest of Sicily," CMH.

⁴⁵⁷ Beck, Bortz, Lynch, Mayo, and Weld, 135.

⁴⁵⁸ "Report of Operations of the United States Seventh Army in the Sicilian Campaign 10 July to 17 Aug 43" HQ Seventh Army, 1 Oct 43. MHI . A-8.

The Germans had sunk 44 vessels and barges into the main shipping channels and along the docks. Working parties had to clear these obstructions before the port could be usable.

The port of Palermo was large enough to hold 36 LSTs and 14 Liberty ships- a substantial improvement to the limited capability of the southern Sicilian beaches.⁴⁵⁹ Thanks to the focused efforts of the engineers, the port was at 30 percent capacity within a week of its fall. The first coasters arrived on July 28 carrying food, fuel, and ammunition.⁴⁶⁰ From Palermo, transportation units trucked supplies eastward to the advancing army. The capacity at Palermo continued to improve as the campaign progressed, providing a valuable means of supplying Seventh Army's drive east, towards Messina, across the northern coast road. Patton had captured Palermo and now had access to a port along the northern Sicilian coastline, but this was only an intermediate objective. The real prize was Messina.

The Race for Messina

On July 25, the Allied ground force commander for Sicily, General Alexander, formally assigned Seventh Army the mission of helping Eighth Army seize the city of Messina. Up to this point, this had been an Eighth Army objective, but one that Montgomery's forces had difficulty achieving because of a strong German defense and the problems associated with going around the imposing Mount Etna. The capture of Palermo allowed Alexander to split Sicily into two sections along the east-west Highway 120. Seventh Army had the top portion, Eighth Army, the south. Both armies were to work their way toward Messina. For Patton this was a race - not just to get there, but also to do so before Montgomery.

⁴⁵⁹ Fowler, 413.

⁴⁶⁰ Action Report, "Western Naval Task Force The Sicilian Campaign." 69.

The opportunity to grab Messina before the British provided a powerful motivation for the Seventh Army commander. Patton placed a renewed urgency in moving east along the northern coastline as quickly as possible. This stressed not only the battalions, regiments and divisions, but the supporting service elements as well. German engineers were adept at demolishing bridges and roads as they slowly retreated east; delaying the advance until Seventh Army engineers were able to repair the damage or constructed new routes. Whether Patton's push for Massena represented personal ambition or merely the work of a demanding tactical commander is a topic open for debate. Despite the increased casualties and risk, however, Seventh Army constantly advanced.

Bradley ordered II Corps to advance toward Massena along two axes of advance. Highway 113 skirted the northern coastline and provided a direct link with Palermo. Highway 120 ran about 20 miles to the south, linking Nicosia, Troina, and Randazzo. Between the two highways was a system of mountains and streams, which effectively separated the American forces and prevented one unit from reinforcing or resupplying the other. The terrain favored the enemy and amplified any supply problems.⁴⁶¹ This effectively slowed down the Seventh army movement eastward.

The mountainous terrain of Sicily took its toll on both men and machines. An infantryman could wear out a new pair of shoes in as little as a few days. Vehicle maintenance became a concern as the US divisions rapidly moved across the island. II Corps found itself with a growing maintenance problem as the terrain took its toll on vehicles while a single Ordnance maintenance company struggled to keep up with the growing number of disabled vehicles.

⁴⁶¹ Garland and Smyth, 311.

Despite the need, an additional Ordnance company did not arrive in the Corps area until near the end of the campaign.⁴⁶²

For the supporting service units, the terrain not only tended to limit movement to the roads and rail nets, it could also add to the time required to complete a convoy. Hills, defiles, valleys, and ridges all served to slow down the rate of march. On one occasion, a II Corps convoy needed 26 hours to cover a 60-mile distance - an average of less than two and a half miles per hour.⁴⁶³

As divisions moved further to the east, away from the beaches and Palermo, the line of communications lengthened as well. Supplies from Palermo moved east via rail, trucks, and watercraft to Termini, San Stefano, Brolo, and Barcellona-Calderà (see map of Sicily at Appendix A). Seventh Army had difficulty in pushing sufficient supplies forward to meet all the demand so, in some cases, divisions had to send trucks back to the Army supply dumps to draw supplies, a distance of up to 120 miles.⁴⁶⁴ Following doctrine of the period, the army and divisions had assigned support forces, while the corps did not. This saved the corps from expending energy and time on administrative matters, but it also meant that divisions had to skip an echelon if they needed to go back for support.

The work of the engineers along the northern coast road was invaluable. Retreating Germans routinely mined and blew demolitions along the road, halting all travel. Quick repair or improvisation by the engineers allowed the supplies to continue to flow east. For those situations where repairs were not yet complete, the army opened new beaches along the coast and shipped

⁴⁶² Report of Operations, II Corps in Sicily, 10 July – 17 August. NARA, RG 338 E:P42890, box 9. 1.

⁴⁶³ McNamara, 83.

⁴⁶⁴ Report of Operations, II Corps in Sicily, 10 July – 17 August. 1.

essential supplies direct to the advancing forces via landing craft.⁴⁶⁵ This allowed Seventh Army to keep constant pressure on the enemy.

The steady resupply of ammunition to the forward US battalions and regiments proved to be a deciding factor in many engagements. The advance slowed when US units faced barrages from German artillery and supporting mortar fire. Working to seize Pizzo Spina, the 180th Infantry stopped the German artillery attack with a 100-round, 30-minute counter attack of high explosive and white phosphorous rounds. In total, the 171st Field Artillery Battalion fired 1,100 rounds in support of the 180th Infantry on July 25th, while a sister artillery battalion, the 189th, fired an additional 500.⁴⁶⁶ Such intensive attacks consumed large amounts of munitions, but they held the enemy at bay and ultimately decreased the number of friendly casualties. Logistics weighted the odds of a positive outcome in any level battle.

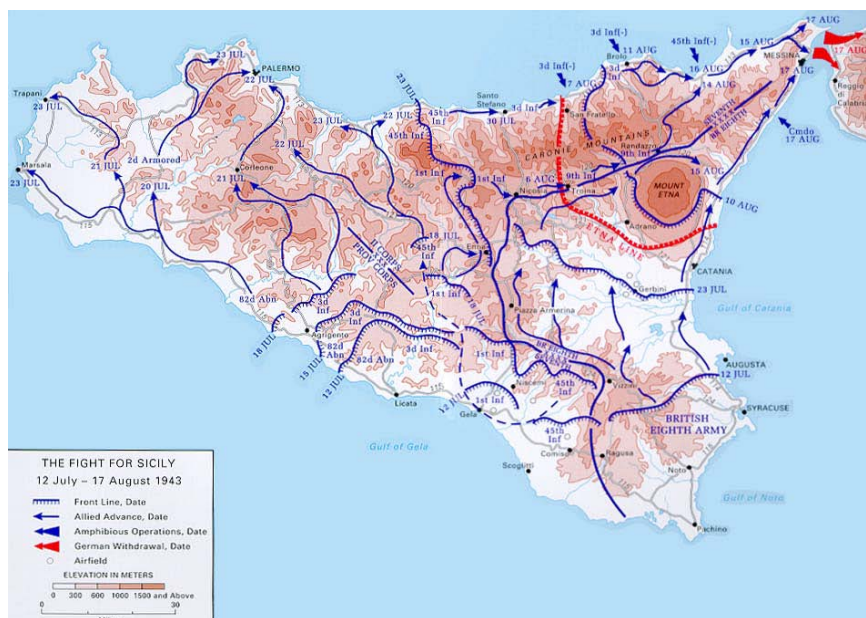
Because of the limited road and rail networks stretching across the island, the engineer special brigade initially supplied the entire II Corps from just one army-level supply dump at Licata until the capture of Palermo. After that, as II Corps turned east toward Messina, service units established other supply points along the north coast road. These locations included Caltanissetta, Petralia, Nicosia, and on the Coast Road itself.⁴⁶⁷

⁴⁶⁵ Draft report by General Dwight D Eisenhower on Operations in the Mediterranean Area, 1942-1944, 97.

⁴⁶⁶ Garland and Smyth, 317.

⁴⁶⁷ Report of Operations, II Corps in Sicily, 10 July – 17 August. 2.

Figure 20: The Allied Advance Across Sicily⁴⁶⁸



By D+20, sufficient army-level service forces were ashore to begin relieving the 1st Engineer Special Brigade from its base support mission. The brigade had performed admirably in executing its traditional engineering mission, as well as that of coordinating support. Seventh Army began taking responsibility for the advance supply points and dumps, with the service personnel transferring from engineer control to army control.⁴⁶⁹

The Seventh Army attack towards Messina encountered increasing resistance from the shortening Axis defensive lines. On July 30, the German 29th Panzer Grenadier Division initiated an attack on US lines from just north of the town of Motta. The Germans had the initial surprise, but the US 45th Infantry Division quickly dug in and began calling for support from the Division's artillery units. Following a 15 minute concentrated attack from the Division's three artillery battalions, the German attack slowed and then stopped by 1 p.m. that same day. Motta

⁴⁶⁸ Source: The University of Texas Library, http://www.lib.utexas.edu/maps/historical/sicily_fight_1943.jpg. (accessed December 24, 2010).

⁴⁶⁹ Report of Operations: "Shore Engineers in Sicily," dated August 11, 1943. NARA, RG 338, E:30215, box 1. 1.

fell without a fight the following day.⁴⁷⁰ Once again, strong divisions with sufficient resources to overwhelm the enemy proved essential to victory.

On July 30, the 1st Infantry Division had reached the town of Troina, along Highway 120. Terrain here was difficult: hills surrounding the town held defensive positions. Mines littered the streams.⁴⁷¹ Troina was important to the Germans because this was the northern anchor of the German Etna defensive line.

Major General Terry Allen and his 1st Infantry Division expected to take Troina without much of a fight. Starting the attack on July 31, the 39th Infantry Regiment made some initial gains, but the 15th Panzer Grenadier Division, amidst heavy enemy artillery fire, repulsed the Regiment. Allen ordered the 39th and 26th Regiments to attack once again on August 1, but the US advance gained less than a half mile. The supporting US artillery did not arrive in time to support the attack because of poor roads and heavy traffic.⁴⁷²

Colonel George Taylor's 16th Infantry Regiment made another attack on the following day, August 3, but with only limited success. A counter attack in the mid-afternoon threatened the advance, but US artillery support prevented the Germans from overrunning the lead US battalions. The main US attack occurred on August 4. Determined to take the town, Allen pounded Troina with eight artillery battalions. The Air Force contributed as well, using 72 A-36 fighters to bomb the German defensive lines. The 60th Regiment from the 9th Infantry Division arrived as well – providing fresh troops to augment the now-tired regiments of the 1st Infantry Division. By the end of the day, Allied air attacks had destroyed most of the German supply

⁴⁷⁰ Garland and Smyth, 322-333.

⁴⁷¹ *Ibid.*, 329.

⁴⁷² *Ibid.*, 333.

dumps. The US force was threatening to cut off the only escape route leading to Massena. On August 5, General Hube approved the withdrawal of German units out of Troina.⁴⁷³

The fight for Troina represented a situation in which it did not matter that the US forces had a preponderance of logistics capacity. The combination of terrain, skill, and determination had kept Allen's men at bay for nearly a week - much longer than the Americans had expected. Perhaps the outcome might have changed had Allen chosen to employ his forces differently, but the sheer amount of available equipment and supplies alone could not overcome the German advantage. Logistics enabled the fight, but they did not predetermine the outcome.

To augment the limited number of US service forces, the theater organized a number of non-US service units within North Africa for service in Sicily. These included native labor units (North African civilians working as part of an organized unit within the Services of Supply) and French military guard companies, which helped provide such services as transportation, bakery, laundry, refrigeration, and shoe and typewriter repair to Seventh Army. Generally, a French civilian managed each native company with a US military officer overseeing two or more companies.⁴⁷⁴

Unsurprisingly, differences in languages and culture presented challenges in the employment of these native service units. On one occasion, US officers asked a French supervisor to have his unit sort out different types of rations and to stack similar items together. The supervisor, who could not read English, did the best he could. Afterward, US officers found that there had indeed been a sorting and stacking, although not as they had expected. Everything in one pile contained

⁴⁷³ D' Este, 464-466.

⁴⁷⁴ Herman Feldman, "Precision Support in Sicily." *The Quartermaster Review*. Volume XXIII, number 2. (September-October, 1943): 21. Quartermaster Center and School Museum.

labels that read “California Fruit Packers.” Everything came from the same producer, but the contents were all different.⁴⁷⁵ Such was the nature of working with native service units.

North Africa had taught the Allies the importance of maintaining a friendly civilian population within the areas of operations. On one hand, a friendly population presented less of a threat to the vulnerable supply lines, thus requiring less security and avoiding a drain of labor from the forward areas. However, on the other hand, achieving a population friendly to the Allied cause did not come without some level of effort. Infrastructure needed rebuilding, food and clean water were in demand, and essential local and regional government functions often needed to be reestablished.

Years of occupation by Italian and German defenders had depleted Sicily of food, fuel, and other basic commodities. Criminal elements sought to take advantage of the situation. All of this drove the effort for a military government plan.

From the beginning of the planning effort, Force 141 recognized the need for an Allied Military Government of the Occupied Territory (AMGOT) of Sicily. General Alexander, commander of Force 141/15th Army Group, was to be the military governor of Sicily. Provincial administrations provided most of the interaction with the local populace and there was an overarching military government headquarters, which included finance, law, civilian supply, trade, health, police, and custody of enemy property divisions. The British and American task forces each deployed with a subordinate military government headquarters as well to provide civilian affairs support as soon as the forces landed ashore.⁴⁷⁶

⁴⁷⁵ Ibid.

⁴⁷⁶ Stambler, 105.

Sicily is technically part of Europe; however, in terms of culture, climate, and society the island is really a mix of Southern Italian and North African influences. Italian military officers tended to view their island cousins more as animals, than human beings.⁴⁷⁷ Given such conditions, the Sicilian populace welcomed the invading armies, but also saw the occupation as a means to improve their existence. The military government system proved to be an effective means of dealing with the various needs of the population, without diverting attention away from the front lines.

Patton was not impressed with life in Sicily. “Of all the countries I have ever been in, this is the most utterly damned. Dust, filth, bugs, and natives,” adding, “The people of this country are the most destitute and God-forgotten people I have ever seen.”⁴⁷⁸ Life in Sicily was hard; it became even harsher under the oppression of the Axis defenders. The Sicilians needed food, fuel, and the necessities of life. If the Allies could help provide these, then the population would fully support the occupiers. The rear areas would not only be secure, but the local populace could also serve as a willing source of labor. Civil affairs and the Allied military government were a secondary effort to the overall operation, but they served a crucial role - one that let commanders look forward and not be worried about their rear support areas.

Native labor came in many shapes and it was not always in human form. The theater headquarters had discovered the benefits of pack animals in the mountainous areas of North Africa and they carried this lesson over to Sicily. As Seventh Army moved across the difficult terrain of the northern coast, the need for such a capability became even more evident. Damaged

⁴⁷⁷ Martin Blumenson, *The Patton Papers* (New York, Da Capo Press, 1996), 297.

⁴⁷⁸ *Ibid.*, 291.

or non-existent roads meant that service units had to transport supplies either by hand, or by mule.

Teams of acquisition officers purchased mules at various locations and by various means. Some came from Sicily; others from North African markets and forwarded to Sicily by sea.

To help the infantry units resupply themselves, Seventh Army submitted an emergency requisition for packsaddles. The Eastern Base Section worked to scrounge up sufficient saddles to meet the demand, eventually collecting 122 captured Italian saddles and 288 US Phillips saddles. These were gathered and shipped to Sicily on August 10, on 12 C-37 cargo aircraft.⁴⁷⁹ Eventually, over 4,000 horses, mules, and donkeys were in use across Sicily.⁴⁸⁰ The 3rd Infantry Division alone used 650.⁴⁸¹ These animals helped haul supplies, such as food, ammunition, and water to the dismounted combat units fighting in the rough terrain and returned to the rear lines carrying the dead and injured.

The use of pack animals presented special challenges to the service forces. The animals needed veterinary support and fodder. Special training was required to load and manage the pack trains. Fortunately, the experienced gained in Tunisia helped prepare Seventh Army for these unique challenges and the largest problem was simply acquiring enough animals and equipment to support the demand.

Besides trucks and pack animals, the use of existing rail lines also provided a valuable means of moving men and materiel across the island. Rail support began early after the landings. In sharp contrast to the Torch landings, rail personnel from the 727th Railway Operating Battalion

⁴⁷⁹ History of the Eastern Base Section, 1 June-1 September 1943, 4.

⁴⁸⁰ Huston, 523.

⁴⁸¹ Memorandum, Lucas to Eisenhower, dated August 26, 1943, subject: Sicilian Campaign. NARA, RG 492, box 2775. 3.

landed with the assault force and immediately went to work locating the rail yards, and organizing local Sicilian workers. Within four hours of landing, the battalion was conducting a test run of the rail system around Licata. By D+1, supplies were being carried by rail to the 3rd Infantry Division, carrying 40 tons on the first day. Within three days, the daily tonnage had increased to 800 tons.⁴⁸²

The mining and sabotage of the rail system that had been a problem in North Africa repeated itself in Sicily. Using techniques carried over from Tunisia, the 727th pushed an empty flat rail car ahead of the locomotive to find any hidden explosives on the rail lines. Rail workers had to clear spurs by hand. As the combat forces drove north and then east, the rail battalion followed in close pursuit.⁴⁸³

Initial rail service started out of Licata with 30 rail cars per day. Within a week, US rail service included 16 locomotives and over 100 rail cars, now operating from Caltanissetta.⁴⁸⁴ Eventually, Sicily was able to provide over 300 locomotives and 3,500 rail cars.⁴⁸⁵ The rail battalion established service up the center of the island and then spread it across the northern coast as the army turned east.

By September, the fighting had ceased and US forces had withdrawn to the eastern and center parts of the island. As soon as soon as rail lines and other infrastructure were no longer needed for military use, the Island Base Section turned these facilities over to the military

⁴⁸² *American Rails in Eight Countries: The Story of the Military Railway Service*. (Local publication issued by the Southern Line of Communication, Army Transportation Corps, 1945), 11.

⁴⁸³ *Ibid.*

⁴⁸⁴ "Report of Operations of the United States Seventh Army in the Sicilian Campaign 10 July to 17 Aug 43"; HQ Seventh Army, 1 Oct 43. B-10/11.

⁴⁸⁵ *American Rails in Eight Countries*, 12.

government for continued maintenance, in conjunction with local Sicilian authorities. The 727th continued to coordinate all US rail support until it departed Sicily on October 27.⁴⁸⁶

Certain individuals made such a difference that they were singled out for award or promotion. Such was the case of Master Sergeant Kenneth Phillips of the 727th Railway Operating Battalion. Master Sergeant Phillips had been serving as the Yardmaster of the rail yard at Licata, which was also one of the central supply bases. As the line of communications lengthened, Phillips showed a remarkable agility in organizing the civilian rail workers to establish rail service well-forward into the combat areas. This was essential to maintain pace with the fast-moving combat forces. The agility and skills demonstrated by Master Sergeant Phillips proved vital to success of operations and earned Phillips a Legion of Merit from the theater commander, General Eisenhower. Not only did an enlisted soldier win this award, but an enlisted *service force* enlisted soldier. The actions of a single soldier, no matter where in the theater, could indeed influence the lives of thousands of men.

The Fall from Grace

No discussion of Operation Husky or of George S Patton III is complete without at least some acknowledgment of the two incidents in which Patton physically and verbally abused soldiers during visits to military hospitals. The incidents revealed a character flaw in the Seventh Army commander. This flaw threatened to overshadow everything Patton had accomplished in Sicily and affected Patton's relationship with Eisenhower for the remainder of war.

⁴⁸⁶ "History of the Island Base Section". Undated, probably 1945. CMH. Transportation Section, 2.

The first incident occurred on August 3 in the receiving tent of the 15th Evacuation Hospital, situated near Nicosia. After speaking with soldiers wounded in battle, Patton came upon a 27-year-old soldier named Private Charles Kuhl. When asked why he was crying, Kuhl replied words to the effect that his nerves could not take it any longer.⁴⁸⁷ Patton lost his temper, slapped the soldier across the face with his gloves, and “broke out in a torrent of abuse against the soldier.”⁴⁸⁸ Two days later the hospital diagnosed Private Kuhl with chronic dysentery and malaria - two physical illnesses that surely contributed to the man’s loss of nerve.⁴⁸⁹

The second incident occurred a week later, August 10, at the 93rd Evacuation Hospital. Patton started making his rounds, speaking to wounded soldiers. Patton came upon Private Paul Bennett, an artilleryman, shivering on a cot. Patton asked Bennett what his problem was and Bennett likewise answered that he had a problem with his nerves. “Hell, you are just a goddamned coward, you yellow son of a bitch,” Patton yelled, pulling his pistol from the holster and waved it at the soldier. Patton slapped Bennett twice, the second time knocking the private’s helmet to the ground.⁴⁹⁰ A later investigation showed that Private Bennett had wanted to stay with his unit, but the battery surgeon ordered him to the Evacuation Hospital for evaluation.⁴⁹¹

Word of Patton’s misdeeds spread throughout the medical community and eventually reached Eisenhower. A group of newspaper reporters collaborated the reports. Eisenhower noted that in Patton’s defense, had these events occurred on the battlefield no one would have cared. However, the rear areas were no place for such outbursts. The same qualities that made Patton a successful battlefield commander also made Patton a liability off the battlefield.

⁴⁸⁷ Eisenhower, *Crusade in Europe*, 179. Also see Garland and Smyth, 427.

⁴⁸⁸ Eisenhower, *Crusade in Europe*, 180.

⁴⁸⁹ Garland and Smyth, 427

⁴⁹⁰ D’ Este, 484-485.

⁴⁹¹ *Ibid.*, 485.

Determined to keep his best combat commander, Eisenhower first wrote a stinging letter of reprimand, notifying the Seventh Army commander that any further such incident were grounds for Patton's immediate relief. Additionally, Eisenhower ordered Patton to personally apologize to the two soldiers, as well as issue a public apology to representative groups of officers and enlistment from all of the Seventh Army's divisions.⁴⁹² Eisenhower discussed the response with reporters and asked that they refrain from writing about the entire situation.

Patton was wrong for abusing the two soldiers, but in his defense, the Army still did not understand a great deal about battlefield stress. The massive artillery bombardments of the First World War produced a condition known as "shell shock," but the medical corps of 1943 still did not have a full understanding of battlefield stress, or its treatment. Whether such stress was an illness, wound, or simple cowardness depended on the circumstances. Patton, himself, was probably under some level of stress that contributed to his outburst. Regardless, commanders of the time did not have a good understanding of the condition or of its treatment.

Treatment of battlefield stress did continue to improve as the war went on. During the fight up the Italian Peninsula, the Services of Supply would create rest camps in Naples that could help in the treatment of such illnesses. These lessons would also carry over to Normandy, where the European Services of Supply would construct an effective treatment regimen for soldiers experiencing battlefield stress. Patton's situation was tragic, but it did help raise awareness of the problem.

The final point worth mentioning is that Patton's relationship with Eisenhower was forever changed. Now on notice, Patton could not afford to make any more mistakes. Before the

⁴⁹² Eisenhower, *Crusade in Europe*, 181.

slapping incidents, Patton had the ability to argue with Eisenhower about anything he did not agree with. Afterward, however, Patton no longer enjoyed this same level of freedom.

Patton was an effective tactical commander. However, his Anglophobic tendencies, distaste for logistical details, and hot temper made Patton ill suited for higher levels of command. Eisenhower notified General Marshall that “In no event will I ever advance Patton beyond Army Command.”⁴⁹³ This set Patton’s future for the rest of the war.

Evolution of the Island Base Section

Recognizing that Sicily would likely become a base of operations in the western Mediterranean, AFHQ decided to form a base section on the island to provide intermediate support. Accordingly, the theater activated the 6625th Base Area Group (Provisional) on July 17, 1943. As part of the initial assault, the 6625th attached 39 officers and 98 enlisted personnel to the 1st Engineer Special Brigade to serve as part of the Brigade during the landings and to act as the base section advance element.⁴⁹⁴ This advance element landed in Sicily between D+2 and D+9 and began work as part of the Engineer Special Brigade’s staff.

As soon as Patton’s army had secured Palermo, the remainder of the 6625th left Tunisia and headed for Sicily, completing the move to Palermo by August 6. The base group established its headquarters in Palermo, commanded by Colonel Robert Sears. Although Seventh Army had established the 6625th at Palermo, there was no order or written instruction detailing the group’s exact responsibilities. In fact, the 6625th had two separate headquarters in Sicily - one at Palermo and one with the advance element at Licata. Each headquarters argued that it was more

⁴⁹³ Garland and Smyth, 431.

⁴⁹⁴ Memorandum, dated October 2, 1943, subject: Administrative Lessons from Operations in Sicily. NARA, RG 492, box 2775. Also see “History of the Island Base Section,” 4.

important than the other and issued separate orders, producing confusion that lasted for several weeks.⁴⁹⁵ To rectify the situation, Seventh Army issued a general order that directed the 6625th to assume the administrative support duties performed by the engineer brigade and to abolish the headquarters at Licata.⁴⁹⁶ Palermo was to become the new logistics hub for the army.

The 6625th was operating as a coherent support unit by August 18, although consolidation with the element at Licata would take longer. With the formal arrival of the base unit in Sicily, Seventh Army turned over all supply functions to the 6625th and the Services of Supply, a responsibility Patton was glad to relinquish. Seventh Army could now focus on combat operations, while the 6625th handled the administrative matters. Equally glad was the 1st Engineer Special Brigade. The establishment of the 6625th relieved the engineers from the supply and transportation mission effective August 25, allowing the engineer brigade to focus on engineer-specific tasks and missions.⁴⁹⁷

The confusion over the two headquarters stemmed from the original plans that called for two base section groups in Sicily - one at Palermo and one at Licata. However, the situation had changed since those plans were developed. With Seventh Army operating along the northern Sicilian coastline, it no longer made sense to have a base of supply located on the southern coast.⁴⁹⁸ In a display of organizational agility, Seventh Army modified the plan to create one central port at Palermo, although the change itself created internal confusion within the 6625th.

⁴⁹⁵ Ibid., 1-2 and Medical Support Chapter, 25.

⁴⁹⁶ Ibid., Medical Support chapter, 26.

⁴⁹⁷ Ibid., Transportation Division chapter, 1.

⁴⁹⁸ Ibid., 1.

On September 1, the 6625th provisional Base Area Group became a formal base section, named the Island Base Section, under the theater Services of Supply.⁴⁹⁹ As Husky progressed, Seventh Army began to turn areas over to the base section. Initially, the Island Base Section had responsibility for the western part of the island, while Seventh Army maintained control of the east.

Eventually, Seventh Army transferred responsibility for the entire US sector of the island over to the Island Base Section. By November 1943, the Island Base Section controlled a swath along the northern Sicilian coast extending east from Palermo to Termini, as well as the depots at Agrigento, Porto Empedocle, and Licata. The British Number 1 District controlled the rest of the island.⁵⁰⁰

Although the Island Base Section was created relatively late in the operation, the creation of such an organization made tactical sense and followed established doctrine. Seventh Army was ready to shed itself of administrative oversight for the force and, by the middle of August, there were adequate service troops on the island to accept the mission. Perhaps even more important, with the activation of the Island Base Section, Seventh Army was now free to focus on any follow-on missions. The combat phase of Husky had ended on August 17; Patton and his staff were looking ahead. The Services of Supply and its Island Base Section took on the un-glorified task of reequipping the divisions, mounting forces for the upcoming Italian invasion, standing up Italian service units, and closing out support facilities on Sicily. The 3rd and 45th Infantry Divisions had to prepare for the assault on Italy. The 1st and 9th Infantry Divisions, plus the 2nd

⁴⁹⁹ General Orders Number 82, North African Theater of Operations, dated August 31, 1943. NARA, RG 492, box 1531. Also see Report of Operations of the United States Seventh Army in the Sicilian Campaign 10 July to 17 Aug 43; HQ Seventh Army, 1 Oct 43.E-2. MHI.

⁵⁰⁰ General Orders Number 62, AFHQ, dated November 5, 1943. NARA. RG 492, box 1533.

Armored Divisions were destined for the United Kingdom to prepare for the upcoming cross-channel assault. Sicily had become part of the communications zone.

Assessment of the Engineer Special Brigade Concept

Although the concept behind the Engineer Special Brigade and its beach groups seemed sound, Husky illustrated the challenges of implementing this new idea. The engineers and their attached units represented a unique capability, one that several divisions found difficult to leave on the beaches and shore areas. Reports intentionally leave out the specific identities of the culprits, apparently to protect the guilty (and because division commanders were general officers.) However, of the three divisions that landed at Sicily on D-Day, two used the Engineer shore groups inappropriately.

One division chose to strip the service forces out of its beach group and establish a separate division supply service further inland. This ad hoc organization was not effective - it did not fit into the overall logistics plan and its removal severely hampered the operations of the beach group and its shore regiment. A second division indiscriminately used the shore group troops and vehicles to move supplies as far forward as the front lines, thus impeding beach operations. Personnel of every rank were on the beaches commandeering vehicles and drivers. Divisional staff officers diverted and kidnapped entire convoys. Officers and men scrounged the beaches looking for specific supplies and equipment.⁵⁰¹ The 1st Engineer Special Brigade had helped fix the assault beaches, but until the divisions learned to leave the shore groups alone to do their jobs, the beaches would continue to have problems.

⁵⁰¹ Report: "Shore Engineers in Sicily," August 11, 1943. NARA, RG 338, E: 30215, box 1, 5.

The Navy had its complaints about the shore groups as well, claiming that from the time of the initial landing until D+3 that beach conditions were chaotic. The beach parties were overwhelmed by the number of boats arriving so quickly and many vehicles ended up disabled on unmarked mine fields. Beach parties failed to organize supply dumps while supplies piled up on shores. At night, the Navy could not find shore party personnel. Overall, the Navy characterized the landings to be as disorganized as during the Torch operation the previous November, especially on the Cent and Dime beaches.⁵⁰² Clearly, work remained in organizing future landings.

Patton, following the conclusion of Husky, shows little change in his attitudes concerning logistics and administrative support. In October, Patton noted in his report that:

“In any landing operation confusion is bound to occur...landing craft do not land where they are supposed to and stores get ashore regardless of progress. The main thing is to get the man and stores ashore. If they are there, they can be used. If we waste valuable time trying to get them ashore in some preconceived order they will not be available.”⁵⁰³

At least part of the problem, in Patton's view, was the type of officers commanding the various beach parties. Patton recognized that these parties could be of immense value in bringing order to the landing beaches, however, the beach parties “very seldom produce the results they should. This is due to the lack of force of character in the men of the Army and Navy commanding them.”⁵⁰⁴ Either through strong will, sufficient rank, or a combination of both, the services needed to get leaders on the beach that could provide direction and make things happen.

⁵⁰² Action Report, “Western Naval Task Force The Sicilian Campaign.” 56-57.

⁵⁰³ Extract from Report on the Sicilian Campaign by the Commanding General, Seventh Army. NARA, RG 492, box 3021. 3.

⁵⁰⁴ Report, Notes of the Commanding General, Seventh Army, on the Sicilian Campaign, dated October 13, 1943. NARA, RG 492, box 2775. 6.

Patton had his faults, but he was a good judge of character, particularly in issues involving questions of leadership. The Seventh Army commander was exactly right - the services were not staffing the beach parties with the best and brightest officers available, so the beaches were not as organized and beneficial as they otherwise might be. The beaches needed strong and forceful officers to bring order out of the chaos that was inevitable when trying to land hundreds of thousands of men and their associated equipment onto foreign soil in the face of the enemy. The beach commanders needed to control what was coming onto the beaches, direct where it landed, and then ensure it made its way to the right location past the beach. At Sicily, Seventh Army expected the Engineer Special Brigades to control the beaches *and* support of the divisions. This massive task demanded exceptional leadership and management skills. Unfortunately, most of the officers with those traits found themselves assigned to units other than the beach parties. Glory was still at the front, not running a beach in the rear.

The Seventh Army commander was worried about only one thing - getting everything ashore as quickly as possible and then working it out from there. This concept works well for smaller amphibious landings, but for large landings involving a myriad of different units and types of equipment it is also a recipe for confusion and inefficiency. Fortunately, Patton seemed content to leave his logisticians alone unless there was a problem that influenced the operations of the army. The fact is not that Patton did not care about logistics, but rather, that he preferred to focus on tactics and left the administrative details for others to deal with.

Patton did lack an understanding and/or appreciation of the importance and benefits that a coordinated and well-planned supply system could provide to a military commander. This was more than just having supplies delivered to a beach, an effective and efficient supply plan meant

that ultimately fewer service forces would be required and that support to the combat forces would occur faster and with a greater degree of fidelity. If a homeowner were to look for a particular item in a crowded basement with items divided into organized boxes, it is much easier and faster to find what you are looking for. If everything is lying there in a jumbled pile, it either takes longer, or requires more people, to find that same item. To illustrate - Patton would worry only whether sufficient gunpowder was available for the artillery. Artillerymen, on the other hand, knew that mixing different lots of powder together could result in variances in the point of impact by as much as 50 yards.⁵⁰⁵ For Sicily, the 1st Engineer Special Brigade had the mission of organizing the US supply system on Sicily. Unfortunately, the brigade did not have the training, experience, or personnel to perform this role. In addition, the diversion of personnel and resources from the brigade and its shore groups, by the divisions, only served to exasperate the situation.

General Alexander, commander of the 15th Army Group and overall in charge of the Sicilian ground operation, confirmed this assessment of Patton, noting that Patton was one of the few commanders in the Mediterranean who had a complete disregard for the limitations of logistics. Patton was a “commander who would make a tactical plan irrespective of administrative possibilities and then had a tendency to say supply would follow tactics rather than tactics would follow supply.”⁵⁰⁶ This raises a question of how well Patton appreciated the physical limitations of his supporting service forces, compared to the desired capabilities that Patton envisioned. Perhaps this also explains why Seventh Army was in no apparent hurry to assume control over

⁵⁰⁵ Memorandum, Lucas to Eisenhower, dated August 26, 1943, subject: Sicilian Campaign. NARA, RG 492, box 2775. 3.

⁵⁰⁶ Interview with Field Marshal Alexander, 10.

the beaches and support structures, preferring instead to let the engineers and II Corps work through any sustainment problems.

Throughout July and early August, Seventh Army found itself in a state of continual logistical evolution. The reception of material was transitioning from the beaches of southern Sicily to the port of Palermo. Responsibilities had shifted from the divisions to the 1st Engineer Special Brigade and the army. However, Sicily was not the only area undergoing change - the service forces in North Africa were transforming as well to meet the demands of the current fight and to prepare for the next one.

Changes in North Africa

While AFHQ focused on the progress of operations for Husky, the theater Services of Supply found itself with a complex situation. The base sections had to support Sicily for any item not loaded on the pre-planned convoys from the states. The base sections also had to continue normal support for the hundreds of thousands of men still in North Africa, as well as prepare for the mounting of Operation Avalanche, the invasion of Italy. Given the lead times required to submit requisitions to the US, planners had to work months in advance of anticipated needs.

The mounting of the Husky force had put the North African base sections out of balance. The Mediterranean Base Section and Eastern Base Sections had issued large quantities of supplies and equipment to the divisions heading off to Sicily. By the end of June, these two base sections had to deal with shortages, while the Atlantic Base Section had excess stocks. Additionally, the overall reduction in the number of troops in North Africa required the Services of Supply and AFHQ to reassess the quantities of supplies needed within North Africa and to

determine what might be available for support of Husky.⁵⁰⁷ The communications zone needed to adjust to the new environment.

To accommodate the changing situation, the Services of Supply contemplated consolidating the majority of the theater's intermediate supply activities within the Mediterranean Base Section. Transportation officers diverted cargo that was originally destined for the other base sections to the Mediterranean Base Section. The Atlantic and Eastern Base Sections would slowly draw down their stocks while theater shipping distributed the remainder to other locations. Logisticians estimated that it would take five months to redistribute all excess stocks from the Atlantic Base Section.⁵⁰⁸

The theater support structure in North Africa, especially in Tunisia, continued to develop throughout the summer of 1943. The Eastern Base Section worked to establish 26 hospitals to accommodate any casualties flowing from Sicily or the upcoming operation in Italy. Engineers worked on the highways, ports, and other infrastructure to support the needs of the expanding communications zone. Pipeline construction and the building of petroleum tank farms in the Bizerte-Ferryville area improved the ability to move and store fuel. This fuel was an essential element in supporting the air campaign over Sicily.

On August 20, 1943, command of the Eastern Base Section transferred from Brigadier General Pence to Colonel A. B. Conard. Conard was no stranger to the base section; he had been with the Eastern Base Section since its inception, specifically as Chief of Staff, G4, and Depot Commander.

⁵⁰⁷ SOS Statistical Summary, Number 4, dated July 1, 1943. NARA, RG 492, box 2758. 1.

⁵⁰⁸ Ibid.

In addition to supporting the ongoing operation in Sicily, Conard charged the officers of the base section to look outside their own area of responsibilities, to report potential problems, and, most of all, to look ahead for requirements.⁵⁰⁹ In Conard's view - the duty of the base section was not to just respond to requisitions - it was to *anticipate* needs. This was a more nuanced view of the role of a support organization - one that had developed over time. Had the Allies opted for a cross-channel invasion in 1942, this level of thinking would not have been prevalent across the service forces. This more mature view of the combat unit/support unit relationship was one of the differences between the Services of Supply of 1918 and the Services of Supply of 1943.

The complexity of supporting a military theater increased as the number of different items of equipment used by units increased. By 1943, there were over 350,000 different items in use across the theater, with over 2,100 new items received in the month of June alone.⁵¹⁰ These items all needed close management to insure that the right items ended up in the right units. Additionally, new equipment required new repair parts and repair skills, thus increasing the complexity of tasks for quartermaster and ordnance units. The War Department was working to ship new items to the theater as fast as possible, but the theater had to understand how to distribute, use, and maintain all this new equipment.

Despite the effort to ship trucks to the Mediterranean, there continued to be a shortage of transportation in the communications zone throughout 1943. To deal with the constraints, the Services of Supply became proficient at temporarily consolidating truck units under the G4 transportation section for centralized management of the fleet. In one such operation, the Eastern

⁵⁰⁹ History of the Eastern Base Section, 1 June -1 September 1943, 7.

⁵¹⁰ Ibid., 29.

Base Section used 11 officers and 440 enlisted men to move ammunition over a 13-day period, operating 24 hours a day.⁵¹¹ Experiences in this type occurred frequently in the lead up to Husky and helped shape later surges of transportation across the Mediterranean and European theaters. Later vehicle surges, such as the Red Ball Express, were rooted in the lessons and experiences of North Africa and Sicily. What made these types of actions possible was the existence of a centralized administrative headquarters that could assemble and manage the limited resources available to the theater commander. The North African theater was showing that it could, in fact, learn and adapt. However, not all of the Allied victories were on the battlefields. The fight for Sicily also produced one notable political casualty- Hitler's principal ally, Benito Mussolini.

The Fall of *il Duce*

The fall of North Africa and the Allied invasion of Sicily did nothing to enhance Mussolini's reputation for the people of Italy, King Emmanuel, or the politicians in Rome. To make matters worse, on July 19, 1943, more than 500 Allied bombers struck Rome on the same day Mussolini met Hitler at Feltre. The attack heavily damaged a working-class neighborhood and inflicted heavy damage on San Lorenzo, one of Rome's seven basilicas. Following this attack, 150,000 Romans reportedly left the city. The people of Italy now placed their fate more in the hands of the church, than with the government.⁵¹²

Additional attacks the next week on the Italian mainland at Bologna and Foggia further demined Italian support for the war and for Fascism. Two days after the fall of Palermo, the

⁵¹¹ Ibid., 33.

⁵¹² Richard Bosworth, *Mussolini* (New York: Oxford University Press, 2002), 400.

Fascist Grand Council of Italy called Mussolini to stand before it. This was the first time the Council had met in three and a half years - a bad omen for the Mussolini.⁵¹³

After twelve hours of debate, the Council held a vote, which produced a vote of 19 to seven in favor of no confidence for *il Duce*. General Vittorio, the head of Commando Supremo, Field Marshal Badoglio, a Mussolini opponent, and King Victor Emmanuel III all combined forces to rid Italy of its Fascist government.⁵¹⁴ Mussolini protested the vote, but the King ordered him to submit a resignation in accordance with the Council's wishes.

The removal of Mussolini from power spelled the end of Fascist rule in Italy. However, what did this really mean? Mussolini was gone, but Italy remained in the war, at least for the moment. For operations in Sicily, there was little change. Fearing that the Italians might try to negotiate a separate peace, Hitler initially considered an order pull all German forces out of Sicily. Advisers argued against the move and instead, the orders for Sicily stood, while the Germans began to institute a series of contingency plans developed in case of an Italian collapse.

The Axis forces in Sicily remained on the defensive, hoping to stall the Allied advance. Seventh and Eighth Armies remained fixated on Messina. The fight for Sicily went on, seemingly oblivious to the political changes that were underway.

Mussolini's removal from power, however, *did* generate a great deal of discussion and speculation among Allied leaders. The Americans argued that a stronger strategic bombing campaign of the Italian mainland might be sufficient to push Italy out of the war without an actual invasion. On the other hand, the British felt that only an actual invasion would convince the Italians to surrender. The Combined Chiefs held a meeting on July 26, during which they

⁵¹³ D Este, 430.

⁵¹⁴ Ibid.

agreed to authorize Eisenhower to launch an invasion of Italy, Operation Avalanche, at the soonest possible date.⁵¹⁵ If the threat of an invasion did not convince Italy to surrender, then perhaps the actual landings would.

Back in Germany, the sudden removal of Mussolini surprised Hitler. At the Feltre Conference, the Italians had agreed to commit four additional divisions in the south of Italy. The first reports, arriving in Berlin the night of July 25, seemingly indicated that the Fascists were merely conducting some internal adjustments to the internal Italian political system. By the following day, however the situation was clear - Italy had revolted and Mussolini was gone.⁵¹⁶

The Germans expected field Marshal Badoglio to either remove Italy from the war, or at the very least, to allow Allied forces to land in northern Italy. Hitler quickly recalled Rommel and gave him command of Army Group B, with the mission to defend northern Italy. Meanwhile, the 305th and 44th Infantry Divisions moved toward the Italian border and secured the Brenner and Mount Cenis passes.⁵¹⁷ Germany prepared to take over their reluctant partner. Throughout the rest of July, the Germans worked to stage divisions in anticipation of an Italian double-cross, while the Allied leaders tried to find a diplomatic means of convincing Italy to surrender. Italy found itself caught in the middle. If the Italians surrendered, German occupation was inevitable. If Italy did not surrender, the Allied would invade and cause considerable damage to the population and countryside. At the end of July 1943, two German divisions were already in northern Germany and there were 200,000 more Germans assembled near Innsbruck. The Italian government felt itself to be a prisoner of the Germans and suggested that the Allies land in the

⁵¹⁵ Garland and Smyth, 269.

⁵¹⁶ Ibid., 283.

⁵¹⁷ Manfred Rommel, *The Rommel Papers*, 440.

Balkans and the northern Italy as soon as possible.⁵¹⁸ The fight for Sicily ended two weeks later, but the fight for Italy was just beginning. The Allies would have more opportunities to put the lessons of recent campaigns to the test.

Lessons Learned

In summary, the preparation and mounting of Husky was much more proficient than that of Torch. Instead of mixing supplies and priorities on vessels and trucks, vehicles generally were loaded with supplies for one service, with one priority, for one craft.

However, control of the landing beaches still needed attention. Both Husky and Torch showed that the senior operational headquarters needed to land and establish itself as soon as possible and to take responsibility for the beaches.⁵¹⁹ Seventh Army did not do this on Sicily, and the result was confusion across many of the beaches and a mismanagement of resources.

Along a similar vein, planners learned that a single brigade could not effectively handle both long-term responsibilities to operate landing beaches, while simultaneously executing the logistical support of an army. The 1st Engineer Special Brigade performed admirably, however the magnitude and complexity of the task simply overwhelmed the organization. The colonel in command did not have sufficient rank to ward off diversions of the brigade's attached units by the divisions. The scope of the task was beyond that of the brigade staff. The terrain of Sicily, compounded by the size of the supported force (over 150,000 men) overwhelmed the brigade's capacity.⁵²⁰

⁵¹⁸ Garland and Smyth, 298-299.

⁵¹⁹ Administrative Planning, 26.

⁵²⁰ McNamara, 83-84.

Husky also showed an engineer headquarters was not suitable to execute a technical logistics function over a prolonged period. The brigade simply lacked the detailed technical knowledge inherent in supply, ordnance, transportation, and medical operations. As an example, for ammunition resupply the brigade tended to ship forward those stocks that were configured the easiest to ship, despite actual unit needs. Control over chemical gas shells was also less than adequate, with some chemical artillery rounds being accidentally shipped as far forward as Nicosia. Eventually, ordnance specialists collected up all chemical munitions on the island and returned them to North Africa or the Licata ammunition dump under the control of chemical warfare troops for safekeeping.⁵²¹

The 1st Engineer Special Brigade was sufficient to perform the initial tasks, but Seventh Army should have assumed control of the logistics mission at an earlier date or worked with the Services of Supply to stand up a base section sooner. By the time, Seventh Army assumed control over sustainment operations, on D+20, only two weeks of fighting remained. The 1st Engineer Special Brigade had borne most of the task of supporting the fight across Sicily.

Perhaps the lack of a professional logistics headquarters explained why supply dumps tended to remain near the beaches and ports and not follow the army's progress up the island. This lengthened the distance between the divisions and the support base, which was one of the major complaints of the campaign. Service units could not merely establish dumps at the beaches, these facilities needed to stay near the rear boundary of the combat zone in order to meet the needs and expectations of the fighting forces. This was a lesson that would be hard to implement, especially if an army was involved in a fast-paced pursuit. Sicily was the perfect

⁵²¹ "History of Ordnance Service in the Mediterranean Theater of Operations, November 1942 to November 1945". Volume 1, 54.

place to learn this because the consequences were marginal. The same would not be true in later on the battlefields of France and Germany.

The level of cooperation and coordination among the different services still needed improvement as well. Control of the beaches was still an issue between the Army and Navy and coordination was limited at times. Additionally, the Air Force needed to do a better job of working with the other services for the material it needed delivered to Sicily, material that competed for space on the landing craft. By the time of Husky, the US theater could build an airfield within two weeks time. This required large amounts of steel matting, wood, and tin - all of which had to move by sea and ground shipping.⁵²² Additionally, the Navy and Air Force provided requisitions late in the planning process, preventing the Services of Supply from completely filling them. All three services needed to work together and identify their needs as early as possible in order to set priorities and accommodate everyone's needs.

This is not to say that there were not examples of good inter-service coordination. At the Joss beaches, a British observer commented that it was "exhilarating beyond measure to find the two services [Army and Navy] fused into a single force with a complete singleness of purpose."⁵²³ This was not true across all the beaches, but at least it was a good beginning.

Certainly, many areas had improved over Torch. Waterproofing of vehicles was much better, although there were still some shortages of waterproofing materials. The new landing craft and specialized amphibious equipment meant faster and safer landings for both combat and service forces. Improved beach organizations were a step in the right direction.

⁵²² Eisenhower. *Crusade in Europe*, 171.

⁵²³ Report, "Notes on the Planning and Assault Phase of the Sicilian Campaign." COHQ Bulletin Number Y/1. October 1943. NARA. RG 492, box 3021. Paragraph 123.

The most dangerous part of an amphibious operation is the period from noon on D-Day, until night on D+1. This is when the supply requirements of the combat forces place a great demand on the shore parties and there has only been limited time to build up any level of reserve stocks.⁵²⁴ Adjustments in organizations and in the creation of a more balanced assault force provided the means to overcome this period of vulnerability.

One factor that influenced the success of Husky was the lack of a tide within the Mediterranean. The absence of a rising or falling tide provided much greater flexibility for amphibious operations and the subsequent support efforts over the beaches. This would not be the case in the English Channel, where tides varied by 20 feet or more and storms were a constant threat.⁵²⁵

Perhaps the most significant lesson of Husky for the senior Allied leadership and AFHQ was that the theater could supply a major assault force, for a lengthy period, over the shore, without a major port. This went against the lessons of Torch, which implied that any corps or army-level landing required a sizeable port. Sicily showed that this was not necessarily the case. The Cent beaches of the 45th Infantry Division handled up to 1,900 tons of goods per day. The beaches at Gela handled about 2,500 tons per day. On July 16, the US moved the largest single-day totals over the Sicilian southern shores - a total of 6,638 tons.⁵²⁶ With the right equipment, weather, and enemy situation a force did not need a major port. After Husky, leaders, at all levels, viewed ports as desirable, but not necessarily required.⁵²⁷ Whether this would hold true

⁵²⁴ Draft report by General Dwight D Eisenhower on Operations in the Mediterranean Area, 1942-1944, 92.

⁵²⁵ Administrative Planning, 34.

⁵²⁶ Action Report, "Western Naval Task Force The Sicilian Campaign." 69.

⁵²⁷ Administrative Planning, 26.

in all future landings was a question still unanswered. Undoubtedly, however, this experience did shape leader's decisions about future operations in Normandy.

An additional lesson of Husky was that the lack of a detailed ground maneuver plan did not necessarily bode problems for logistical support planning. The limited amount of theater sustainment planning allowed by the time and circumstances proved remarkably adequate for the support of the Allied forces. Neither the British nor US forces faced any serious shortage of material. Due in part to knowledgeable planning, in conjunction with inspired guesswork, supplies shipped from Great Britain or the US, weeks in advance of the operation, proved to be very close to the actual type of goods and in the approximate quantities needed.⁵²⁸ In the end assessment, the sustainment plan worked. Whether this would become a justification to drive support planning, without an underlying tactical plan, was something that theater planners would have to wait to see.

One surprise was the quantity of communications wire needed to keep pace with advancing units and the speed with which signal units needed to install it. This proved to be more complex than just laying the wire behind advancing units as enemy (and sometimes friendly) fire, as well as vehicle traffic, cut wires already laid, requiring repair or replacement. The expanding support areas also needed wire for connectivity. As the beachhead grew, so grew the demand for communications supplies and materials.⁵²⁹

The theater still needed to do a better job in training for, and exercising, amphibious operations. There had been just one dress rehearsal for Husky: the only supplies accompanying the assault force on this rehearsal were one K ration and two canteens of water on each soldier.

⁵²⁸ *Ibid.*, 25.

⁵²⁹ "History of Signal Supply in NATOUSA/MTOUSA," Signal Supply Section, AFHQ, 1945. MHI. 6.

The units did not attempt to handle or land any ammunition, fuel, or construction materials.⁵³⁰

This not only failed to stress logistics systems, it missed an opportunity to show where supply problems might occur during the actual landing. As in Torch, commanders felt that the exercise of the support plan was too hard so service units were not trained and any deficiencies had to wait until the landings to be discovered.

The drive up through the center of Sicily showed that vehicle maintenance was a necessary requirement, but one that was exceedingly difficult to accomplish while on the offensive. The Seventh Army demanded speed and audacity in its advances; whether this was within the physical capabilities of the supporting vehicles was an entirely different matter. The 2nd Armored Division arrived in Palermo with approximately 75 percent of its trucks ruined from the poor roads and rocky terrain.⁵³¹

For future armored operations, Husky also showed that there needed to be an army-level rail or truck head within 30 miles of the rear of an armored division if the division expected to sustain itself from organic vehicles. The drive to Palermo had put 2nd Armored Division to the test, driving vehicles 24 hours a day. The distance from the division, to the beach dumps, lengthened by the day, eventually reaching over 140 miles. Luckily, enemy resistance was light and ammunition needs were minimal. The lesson was that in mechanized offensive operations, the supporting service units needed to establish supply dumps near the division rear boundaries and to keep moving these with the division, or else the drive forward became impaired.⁵³²

Perhaps just as important, the Allies had to prioritize the movement over the roads between

⁵³⁰ Report of US Atlantic Fleet Forward Echelon, June 26, 1943. Located in Report on Operation Husky by Army Section of Commander, Amphibious Force, U.S. Atlantic Fleet and Army Observers, Amphibious Force, U.S. Atlantic Fleet. MHI. 5.

⁵³¹ AFHQ Training Memorandum Number 50, dated November 20, 1943, subject: Lessons from the Sicilian Campaign. NARA, RG 492. Box 2775. 51.

⁵³² *Ibid.*, 52.

combat and service units. This did not always occur during Husky and, as a result, the delay of administrative vehicles slowed the advance forward. Tanks required fuel and service unit trucks delivered the fuel. Thus, the need for a balanced force extended far beyond the beach.

Sicily reinforced the lesson that the best means to sustain a combined force was through two separate logistics channels. Indeed, examples of cross-nation support during the Husky operation are scarce, possibly due to the short duration of the campaign, but also due, in part, to the physical separation between the two armies. AFHQ controlled the allocation of shipping and other limited resources between the two nation's forces, but once the allocations and priorities were set, each nation handled its own sustainment. This worked so well that it became standard procedure for upcoming major operations.

Although Services of Supply personnel accompanied the 1st Engineer Special Brigade, it appears that there were no base section representatives on the Seventh Army staff itself until July 30, 20 days after the landing. In hindsight, Seventh Army recognized that this was a problem and recommended that future operations include Services of Supply representatives within the G4 in order to facilitate the transition of ports and support responsibilities from the army to the base section.⁵³³ Transitions were much easier if a core cadre of base section personnel accompanied the landing force headquarters' G4 section from as early a date as possible.

The rehabilitation of the port of Palermo was the first time that the US had to undertake the challenge of repairing a damaged port while simultaneously supporting combat operations. Palermo also showed the great lengths that retreating German forces would take in order to deny seaports to the Allies. This was a trend that continued into Italy and Southern France, but the

⁵³³ "Report of Operations of the United States Seventh Army in the Sicilian Campaign 10 July to 17 Aug 43"; HQ Seventh Army, 1 Oct 43. MHI. C-5.

lessons gained in Palermo provided the practical experience necessary to deal with this intentional sabotage of infrastructure.

At the strategic level, Sicily demonstrated that the Allies could conduct a major operation, even while balancing the demands of other theaters for scarce resources, such as merchant shipping and assault craft. While AFHQ was launching the invasion of Sicily, Russia was continuing to demand more convoys of supplies and equipment for the Eastern Front. China needed air reinforcements. Great Britain and the US were stockpiling men and materiel in Britain as part of a possible cross-channel invasion.

The Pacific theater demanded resources as well. During the summer of 1943, General MacArthur, Admiral Nimitz, and Admiral King were working to build up the Pacific forces for the move against Japan, as well as conducting Operation Cartwheel, the campaign aimed at neutralizing the Japanese base at Rabaul. Throughout the summer, MacArthur's forces advanced along the northeast coast of New Guinea, while Nimitz maneuvered through the Solomon Islands towards Bougainville. While Operation Cartwheel continued, planners in the Pacific looked ahead at future assaults in the Gilbert, Marshall, Mariana, Palau Islands. The Pacific was a supporting theater, but its commanders demanded increasing amounts of divisions, supplies, and assault craft to deal with the situation before them.

Competing with the Pacific were the operations in the Mediterranean, Europe, and Southeast Asian theaters of war. At one point, the Allies were working to plan and resource operations in Sicily, Italy, France, and Burma - all which occurred within a year. Husky proved that the Allies could not only plan more than one operation at a time, they could also support multiple

operations. This provided a level of confidence and experience that would be invaluable as the war progressed.

Interestingly, the Report of Operations from Seventh Army on Operation Husky provides a detailed analysis of the campaign, but fails to highlight many of the deficiencies that remained in doctrine or in practice. The official report describes many minor issues and recommendations for future operations. However, Patton's staff states that, in relation to Husky, the "Lessons of the "Torch" operation were well learned; its mistakes were rectified, and the result was an operation as well planned and *as smoothly executed as the unfortunate fortunes of war permit*. [author's italics]."⁵³⁴ Perhaps the Seventh Army staff and its commander believed this, but many others across the theater had a different opinion. The assault on Sicily had shown that the Allies had learned a lot, but work remained.

Conclusion

Husky ended sooner than planners had predicted. The Italians largely failed to fight and the Germans did not have the air power or reserve divisions necessary to stop the Allied invasion. With the cessation of hostilities on August 17, there was a lot of Allied war material on the island and even more projected to arrive. Some critics complained that this was a misuse of resources, such as the fact that the theater shipped too much small arms ammunition to the island and that units threw away many of the spare parts that accompanied the assault force.⁵³⁵

However, perhaps a more candid assessment is that it is surprising that the sustainment of Husky occurred as well as it did. The planning for Husky occurred with many of the same

⁵³⁴ Ibid., A-2.

⁵³⁵ "Ordinance in the North African and Mediterranean Theater of Operation as Recalled by Colonel Connerat," Sidney Matthews Papers. MHI. 6.

constraints and challenges as the planning for Torch: limited time, changing plans, lack of a tactical plan, and long lead times for requisitions. Despite all these issues, the landings were a success and the ensuing ground campaign achieved the operational goal - the capture of Sicily. There were some supply shortages, but these occurred at the lower levels and did not affect the general course of the fight. Overall, the US forces had the equipment and supplies needed for the mission.

This was not simply a question of which side had the preponderance of supplies. Supplies might well be within a theater, but the pivotal issue was the ability to recognize where they were needed and then to have the means, systems, and organizations to distribute these resources.

Logistically, the force that landed on the shores of Sicily was very different from that of Torch. The assault force included a sizeable percentage of service troops. New equipment addressed the challenges of supporting a large army over the shore. AFHQ and the War Department made organizational changes, such as the activation of the 1st Engineer Special Brigade, in direct response to the disorganization of North African beaches and the overall lack of support for the invasion force. The sustainment structure supporting Husky was much more mature, capable, and skilled than that of eight months prior. Yes, there were problems remaining. As an example, supplies made it to the beaches of Sicily in ample quantity within seven hours of landings, but these initial dumps and piles were far from organized⁵³⁶ However, the US military did make progress in terms of how the theater planned and organized its sustainment and this would carry on as the war continued.

⁵³⁶ AFHQ Memorandum, dated July 23, 1943, subject: Notes on Husky Landings. NARA, RG 492, box 2775. 4.

One of the ideas coming out of Husky was that the initial LSTs should carry DUKWs preloaded with critical supplies (water, ammunition, and fuel) in order to speed up the delivery of initial support.⁵³⁷ Planners would expand on this simple idea as a primary means of supporting US forces later on the beaches of Anzio.

Equally important was the equipment issued for support of the force. DUKWs were invaluable on the beaches and, inshore, the 2 ½-ton cargo truck was equally indispensable. Major General Lucas wrote to Eisenhower following the Sicily campaign and stated that “The 2 ½ ton truck is the outstanding cargo vehicle in the Army and without it this rapid campaign would have bogged down long before its completion because of lack of supplies. I have seen nothing belonging to our enemies or our Allies that can compare to it.”⁵³⁸ The Deuce and a Half was a critical enabler of the army’s ability to support offensive operations.

Planners and commanders at all levels made better decisions concerning support of the force, proof that there had been much learning from the lessons of Torch. Indeed, many of the commanders and staffs were the same. Patton’s Seventh Army staff was essentially the I Armored Corps staff that had come ashore in French Morocco less than a year earlier. The AFHQ staff was largely the same. Experience bred more informed decision-making.

Comparing the makeup of the Torch and Husky assault forces shows just how much learning had occurred. Instead of loading as many combat forces into the transports as possible, the force that landed in Sicily included a large number of service units. This provided the capability to Patton and his commanders to build up strength once on shore and to take advantage of any operational opportunities, such as the quick seizure of Palermo. Whether the seizure of Palermo

⁵³⁷ Ibid., 5.

⁵³⁸ Memorandum, Lucas to Eisenhower, dated August 26, 1943, subject: Sicilian Campaign. NARA, RG 492, box 2775. 2.

was the best tactical move is debatable, however no one should question the flexibility that a sizeable support structure provided in terms of mobility and capabilities. Patton may still have had little appreciation for the detail needed to produce a comprehensive support plan, but he did understand the benefits of having sufficient materiel on the beach to support the army's maneuver plan.

The time to prepare for the next operation and to further refine doctrine and organizations was short. In less than a month, AFHQ was to have forces landing on the Italian mainland. Indeed, while the Eastern Base Section had been working to support operations in Sicily, its 1st Embarkation Group was simultaneously working to mount the troops of VI Corps, British 46th Division, and Fifth Army for Operation Avalanche.⁵³⁹ The Services of Supply was proving that it could support one major operation, while preparing to launch the next.

The successful mounting of Husky from North Africa also proved that major operations did not necessarily need to be embarked from the US or Great Britain. This placed a greater demand on the local theater, but the savings in term of transportation were significant. The British estimated that by mounting their forces out of the Middle East they required 65 fewer assault vessels.⁵⁴⁰ The mounting went so well that several commanders commented to Major General Larkin that the mounting from within theater had placed their combat units in "far better shape for the coming operation than had they been from either US or UK for Operation Torch."⁵⁴¹ This would set the stage for the theater to mount and launch all subsequent operations in the Mediterranean for the next two years.

⁵³⁹ History of the Eastern Base Section, 1 June -1 September 1943, 120.

⁵⁴⁰ Dunham, 9.

⁵⁴¹ Minutes of Staff Conference, SOS NATOUSA, dated July 8, 1943. NARA, RG 492, box 2704. 1.

By the end of August, combat had ended in Sicily and the island was becoming part of the communications zone. The Eastern Base Section was transferring its headquarters in Tunisia from Mateur to Bizerte to better support the upcoming invasion of Italy. Additionally, the theater was conducting long-range planning for an internal redistribution of service forces within the theater to better support the upcoming operations. The fall of Sicily gave Allies control over the western Mediterranean and conditions were set for a drive further east, into Italy itself. AFHQ and the Allied theater organizations were finally ready to make the move onto the European mainland and face a sizeable number of German divisions head-on.

Chapter VII: Operation Avalanche and the Invasion of Italy, September 1943 to June 1944

How is it that the plans of two great empires like Britain and the United States should be so much hamstrung and limited by a hundred or two of these particular vessels will never be understood by history.

-- Winston Churchill referring to the shortage of LSTs in a letter to General Marshall, April 16, 1944

In the late summer of 1943, Allied leaders in the Mediterranean were confident. They now had control over North Africa and Sicily and Italy was on the verge of surrender. However, Eisenhower and his commanders knew that a difficult fight possibly laid ahead - the fight for Italy. Even though the Italians might join the Allied cause, there were enough German divisions in the region to contest an Allied advance. What the Allies did not know was that Hitler was determined to hold Italy as long as possible since the possibility of Allied air bases in northern Italy would have the range to hit targets inside Germany.

In September, each of the belligerents in the region would make a decision that dictated the course of the war in the Mediterranean and in Europe. The Allies decided to proceed with amphibious landings in southern Italy. Italy announced its decision to surrender. Finally, Germany decided to conduct a wholesale invasion of Italy and defend the peninsula from an Allied advance.

This chapter addresses the fight for southern Italy, a period lasting from the Allied landings in September 1943, until the fall of Rome on June 5, 1944. This was the first time that the Allied would meet a concerted German defense on the European mainland. The consequences could be significant for either side - an Allied victory in Italy meant a

base of operations in southern Europe. A German victory meant defeat of the Allied Mediterranean strategy.

The invasion of Italy contributed to the Allied cause in several ways. First, it forced the Italian government to acknowledge its surrender publically. Second, the campaign provided invaluable experience in rebuilding a nation's infrastructure, such as ports, transportation lines, and public utilities. Third, the Allies also gained experience in conducting and supporting operations in mountainous conditions, as well as in the winter. Additionally, operations in Italy uncovered the need for the Allies to plan for, and conduct, extensive civil affairs support of the local population, especially in urban areas. Last, and most importantly, Italy provided the Allies an opportunity to establish a base of operations on the European mainland; a base that would eventually enable the invasion into southern France and help end the war. Sicily provided a glimpse of what the fight for Europe might entail with the fight in Italy providing even more lessons that would help shape and harden the force. Ultimately, the 1944 invasion of France and drive east across Germany would have been more difficult and time consuming had the Allies not first attacked into Italy.

This chapter starts with the landings at Salerno - landings that show just how much the Allies had learned regarding mounting, landing, and supporting a capable invasion force. From there, the work explores the development of Naples and its port, which enables the campaign for Italy. The establishment of the Island Base Section provided the means to support the infantry's battles in the mountains and shows how there is an inherent link between logistics and combat. Additionally, the invasion of Anzio shows that a

commander may miss a tactical opportunity if he spends too long developing a base of operations. The long-term sustainment of the invasion force at Anzio illustrates the agility of the service forces, which helped to erase the tensions between combat and service units. Finally, the development of Italy as an Allied base allowed the US theater in the Mediterranean to draw down its bases in North Africa and shift operations to Italy, positioning the theater to enable the next and decisive phase of the war: an attack into France and Germany.

Strategic Setting

The Allied planning effort for the invasion of Italy had been in progress since the end of July 1943. Eisenhower focused on an attack around the Naples area; however, in late August and early September, the exact position of the Italian government was still unclear. King Emmanuel wanted to remove Italy from the war, but feared German reprisal. The staging of Rommel's Army Group B, almost 200,000 German forces, on the northern border did nothing to calm the King's concerns and the Allies were still in Sicily and North Africa.

General Bedell Smith and British Brigadier Kenneth Strong had been working undercover to negotiate the surrender of the Italian government. The Italians, fearful of a German invasion, wanted the Allies to land in force north of Rome. The arguments of Smith and Strong eventually worked and on September 3, 1943, General Castellano flew to Sicily to sign the terms of unconditional surrender. That same day, British forces landed near Taranto, on Italy's heel, to little opposition.

The tactical situation prevented a direct Allied movement on Rome. German forces had possession of Rome's airfields, preventing an Allied airborne operation. The Mediterranean coastline near Rome was beyond the range of Allied bombers, but within range of Axis aircraft. The Italian government had held off a public announcement of the armistice terms, fearing a German invasion.⁵⁴² Given these factors, Eisenhower decided to go ahead with the Salerno landings since they had the best chance of success.

By September 6, Vice Admiral Kent Hewett's Western Naval Task Force, containing the Salerno invasion force, was steaming east, toward Italy's western shore, uncertain of what they might find. The Italian government had privately surrendered three days earlier, but publically remained at war. Allied commanders hoped for a peaceful landing; they wanted Italian support, not resistance at the landing sites. The convoy came around the west coast of Sicily and picked up the British 46th Division, already loaded into landing craft. The force continued its way east, toward the Gulf of Salerno, in calm seas.

At 6:30 pm on September 8, the ships tuned their radios to an Algiers's radio station and turned on the ship's loudspeaker systems as General Eisenhower announced Italy's surrender to the world. This forced Marshal Badoglio to confirm publically the armistice terms an hour later in Rome. The world now knew of Italy's capitulation and the Germans were quick to react, sending Rommel's Army Group B across the Alps to reinforce the north of Italy. The Allies were landing in Italy's south, the Germans were reinforcing the north. This set the stage for the battle of Italy.

⁵⁴² Winston Churchill, *Closing the Ring* (Boston: Houghton Mifflin, 1951), 112.

Over the past ten months, the Allies had successfully conducted two major amphibious assaults, established a viable theater of war, and built up sufficient men and materiel to make an assault on the mainland of Europe and confront Hitler's armies head-on. There had been setbacks along the way and they had not won every battle, but the trend line was clear: the combined Allied forces could land along a coastline at a point of their choosing and then provide the staying power necessary to expand the beachhead. Once that occurred, the struggle became a race to see which side could surge the greatest amounts of men and resources. The Allied support base in North Africa provided the stockpiles, bases, and capabilities necessary to conduct such a reinforcing action.

The main strategic goal, particularly for the Americans, was to conduct a cross-channel attack into France as soon as possible. This would help provide relief to the Russians along the Eastern Front and bring about the quickest end to the war. At the May 1943 Trident conference in Washington D.C., the Allies re-affirmed the plan to launch the invasion of France from the United Kingdom sometime in the early summer of 1944.⁵⁴³ However, for the operation to succeed, the Allies needed to knock Italy out of the war and to draw as many German divisions away from France as possible. As Churchill argued, an attack into Italy could provide such a diversion.

With the fall of Sicily and the clearing of the Sicilian Strait, the Allies now had a clear line of communication leading into Italy. The mountainous terrain and limited roads and rail networks of Italy would serve to limit Allied advances north, but they would also hinder any quick movements of large Axis formations as well. The ability to conduct

⁵⁴³ Allied Commander-In-Chief's Report, Italian Campaign, 3 September 1943-8 January 1944, CMH. 100.

amphibious attacks along the Italian coastline, bypassing enemy strongholds, represented a sizeable advantage in the war of movements. What made the campaign possible was the combination of sufficient assault craft, combat forces, merchant shipping, resource stockpiles, and a support organization that could get materials to the right locations at the right time.

Planning Avalanche and the Mounting of Fifth Army

Planning for Avalanche originated as a plan to attack Sardinia. As Patton and Seventh Army were preparing for an attack on Sicily, Eisenhower ordered Lieutenant General Mark Clark, commander of the US Fifth Army, to start planning for an assault on Sardinia, with the possibility of shifting the attacks focus on Italy.⁵⁴⁴

This was the first operational mission for Fifth Army. Formed in Morocco on January 5, 1943, the command represented an important growth in the US theater. Eisenhower now had two army level commands, both headed by trusted subordinates. Some might view the assignment of the invasion of Italy to Fifth Army as a slight against Patton, especially since Patton had slapped and verbally abused the two soldiers previously described at hospitals in Sicily. However, the assignment of Fifth Army to Italy was not a slight against Patton. In the summer of 1943, Seventh Army was busy with planning and conducting Operation Husky, while Fifth Army focused on Operation Avalanche. These were sequential campaigns, but the planning and preparation for each overlapped each

⁵⁴⁴ Martin Blumenson, *Salerno to Cassino* (Washington: Center of Military History, 2002), 11-12.

other. One headquarters could not do both. Fifth Army was planning for the invasion of Italy before Patton's slapping incidents even took place.

Fifth Army planned for a variety of possible operations. Options included Operations Brimstone- the attack on Sardinia; Musket- the attack on Taranto; Gangway- an attack on Naples; Barracuda- an attack south of Naples; and Avalanche- the attack on Salerno. The planning efforts acquainted the planning staffs with the different areas of southern Italy, but the diverse plans also diluted the planning effort from the one final option - Avalanche. Eisenhower did not settle on the final landing location until July 27.

After much discussion between the Allied partners, the Salerno-Naples-Foggia area was chosen as the initial objective as part of Operation Avalanche. Salerno was just inside the range of friendly fighter aircraft (staging out of Sicily) and the port of Naples had sufficient capability to support a large army. Foggia was perfect for the basing of aircraft.

Eisenhower's plan was to establish a foothold on the Italian peninsula and then work north towards Rome and, from there, continue north into the Po River valley.⁵⁴⁵ This would draw German divisions away from the Western Front and help convince the Italian government to surrender.

The plan called for three different attacks. The British Eighth Army would mount from Sicily, cross the Strait of Messina, and seize Reggio di Calabria on the toe of Italy. Additionally, a British airborne division would seize the port of Taranto on Italy's heel. Finally, Fifth Army, under the command of Lieutenant General Clark, would sail from North African ports and land in the Gulf of Salerno along Italy's western coast.

⁵⁴⁵ Eisenhower, *Crusade in Europe*, 199.

Commanders judged a landing directly at Naples as being overly risky due to the level of German defenses.

Figure 21: The Invasion of Italy⁵⁴⁶



The terrain surrounding the Gulf of Salerno presented challenges for the invading forces: there was only a small coastal plain, bordered by the sea on the west and by moderately high mountains from a distance of two to ten miles inland. Two narrow gorges would serve as chokepoints on the way to Naples. The mountains and rivers along the coast favored the defense and limited avenues of advance. Only two major roads led north towards Rome. However, the beaches around Salerno were excellent for an amphibious assault, permitting landing craft to come close to the shore for discharge of men and material.⁵⁴⁷

⁵⁴⁶ Source: The University of Texas Library, http://www.lib.utexas.edu/maps/historical/italy_invasion_1943.jpg. (accessed December 24, 2010).

⁵⁴⁷ Allied Commander-in-Chief's Report, Italian Campaign, 3 September 1943-8 January 1944, 111.

The terrain leading north along the Italian coastline was similar in nature. Hilly and mountainous terrain in front of the northern Apennines provided excellent positions for German defenders. Ridge formations paralleled the coastal plain. Steep slopes and outcroppings limited mobility. This land favored infantry, rather than large tank formations.

On July 27, 1943, AFHQ issued Fifth Army a directive to begin the planning for the attack on Naples. The draft plan was due to AFHQ by August 7, with an expected invasion date of September 7.⁵⁴⁸ Clark's plan called for the landing of two army corps', totaling 125,000 men. After landing at Salerno, the force would move north to capture the port and airfields surrounding Naples. Clark expected VI Corps to capture the port by D+12, but made allowances to operate the beaches for up to 30 days if necessary. Within 25 days, Fifth Army would grow to 225,085 men and would land 45,262 vehicles and 153,930 tons of cargo.⁵⁴⁹

The corresponding support plan described three distinct phases for supporting Operation Avalanche: the first was equipping and preparing units for the assault. The second phase was support of the forces once they were ashore at Salerno. The final phase was support of the force through the base ports, such as Naples.⁵⁵⁰

Fifth Army was to contain two corps. VI Corps initially held the 34th Infantry Division, with elements of the 3rd, 45th, and 34th Infantry Divisions, as well as the 82nd

⁵⁴⁸ H.H. Dunham, "U.S. Army Transportation and the Italian Campaign". Monograph prepared by the Office of Chief of Transportation, 1945. CMH. 11.

⁵⁴⁹ Meyer, The Logistical and Strategic Planning of MTO. XVIII-23.

⁵⁵⁰ G4 Annex to Outline Plan-Avalanche. Headquarters, Fifth Army, dated August 8, 1943. Fort Lee. Littlejohn Collection, Middleswart Box. 1.

Airborne as follow-up forces. The addition of British X Corps, with its 46th and 56th Divisions, made Fifth Army a combined Allied force.

For Operation Baytown, the invasion across the Strait of Messina, the British Eighth Army had the British 13th Corps, with two divisions: the 1st Canadian and the 5th British Infantry. The 1st British Parachute Division formed the assault force for Operation Slapstick, the assault on Taranto. Facing the Allies were approximately 130,000 Germans spread across the Italian Peninsula in eight divisions.⁵⁵¹

Earlier operations had shown that logisticians tended to requisition more spare parts than were necessary, that individual soldiers tended to carry too much with them (much of which was later discarded on the beaches), and that there was too much in the accompanying barracks bags. The transportation requirement for barracks bags alone for a single combat team equaled 25 rail cars - an entire train. Additionally, there had been insufficient service forces in the early stages of the operations.⁵⁵² Avalanche presented an opportunity to put these lessons to use by initially bringing less material ashore.

Plans called for a D-Day assault force, plus convoys on D+2 and D+7 to land the initial force and its supplies. A convoy on D+19 would bring an additional seven days of supplies and a D+24 convoy would bring 14 days worth of supplies.⁵⁵³

Only 23 days separated the cessation of combat on Sicily and the start of Avalanche. Because many assault craft had been engaged in the continued support of forces in Sicily, repair and refitting of these landing craft became the top priority. The limited time

⁵⁵¹ Blumenson, *Salerno to Cassino*, 67.

⁵⁵² "Quartermaster Supply in the Fifth Army in World War II." Manuscript, Quartermaster Section, Fifth Army. [1945?] CMH. 18.

⁵⁵³ *Ibid.*, 22.

between operations prevented any full-size dress rehearsal between the army and the naval task force. However, the divisions that participated in Avalanche had been able to conduct division-sized landing exercises. Many of the units within Fifth Army lacked any experience in amphibious landings so Fifth Army established an invasion-training center near Arzew, Algeria in the spring of 1943. This center trained regimental combat teams and combat commands on the intricacies of amphibious operations, to include beach operations. The capstone event was a practice landing operation of the 36th Infantry Division from August 26-27.⁵⁵⁴ The landings provided confidence to the participants; however, just as in the preparations of Husky, there was no practice of any large-scale supply offloading.

Mounting the Force

Busy and crowded. These terms best described the ports of North Africa and Sicily throughout the month of August. The Eastern Base Section was working to support on-going combat operations in Sicily, while also preparing to mount Fifth Army for the attack on Italy. The mounting of the army in North Africa occurred mainly at the ports of Oran, Bizerte, and Tripoli. In Sicily, Fifth Army forces sailed out of the ports of Palermo, Termini, and Castellamare along the northern coast. The majority of VI Corps mounted from Oran, while most of the British X Corps mounted from Bizerte.

Many of the units involved in the mounting of Husky, particularly the US base sections, were also involved in the mounting of Avalanche. The 8th Embarkation Group of

⁵⁵⁴ Dunham. "U.S. Army Transportation and the Italian Campaign," 20.

the Eastern Base Section, particularly, brought a wealth of experience. The recent practice from Husky helped make this second effort smoother as there was general agreement on the division of roles and responsibilities.⁵⁵⁵

Despite the fact that this was the third such type of assault, there were still major disconnects between the Army and Navy. The Services of Supply issued a loading plan that had not been coordinated with the Navy. The Mediterranean Base Section assumed control of directing the loading of ships at Oran, but not all of the base section's personnel had the expertise or knowledge necessary to load such vessels. Loading priorities changed, necessitating the loading, unloading, and reloading of some ships. Apparently, not all the lessons of the past made their way to those responsible for the mounting operation.⁵⁵⁶

Some of the boxes loaded on the assault craft sported incorrect labels, through either negligence or intent. A box marked "special equipment" broke open, spilling out piles of shoes. Others, marked "medical supplies," actually contained coffee, sugar, and milk. In another incident, a box of incendiary bombs was stowed in an officer's stateroom, requiring later removal.⁵⁵⁷

Vessels were intentionally loaded beyond capacity - an accepted risk in view of the short voyage length. Transport vessels carried from 90-128 vehicles and ships carried 300-800 tons of cargo.⁵⁵⁸ However, AFHQ did not publish the final allocation of shipping

⁵⁵⁵ Ibid., 24.

⁵⁵⁶ "Action report of the Salerno Landings, The Italian Campaign Western Naval Task Force, September-October 1943." 94. Also see Dunham, "U.S. Army Transportation and the Italian Campaign," 25.

⁵⁵⁷ Ibid., 95.

⁵⁵⁸ Dunham, "U.S. Army Transportation and the Italian Campaign," 25.

until just before D-Day, resulting in a continuous revision loading plans. By September 5, despite the challenges, the convoy was loaded and ready to sail.

Support of the Landings at Salerno

The armada for Operation Avalanche included 642 ships and vessels, as well as 925 ship-borne landing craft.⁵⁵⁹ Convoys from Tripoli, Bizerte, Oran, Termini, and Castellamare joined each other 12 miles off Salerno the evening of September 8. Conditions were favorable for the next day's landings.

News of Italy's surrender had reached the invasion force earlier that day, but no one was quite sure of what it meant. The troops largely expected that the surrender would make for a much easier landing. Combat commanders worried about German intentions. Logisticians wondered whether this meant that they would have to support a high-speed advance up the Italian coast. They all would have wait until landing to see how events would play out.

The favorable beach gradients in the northern landing areas allowed the assault craft, including LSTs, to beach themselves directly on shore, eliminating the need for pontoons or causeways. This greatly decreased offloading times. Ships approached the beaches with their ballast tanks dry, and once they were aground, pumped in 350 tons of seawater to hold them on the beach.⁵⁶⁰ The vessels on the southern beaches were not as fortunate, requiring pontoons to facilitate unloading.

⁵⁵⁹ *Ibid.*, 18.

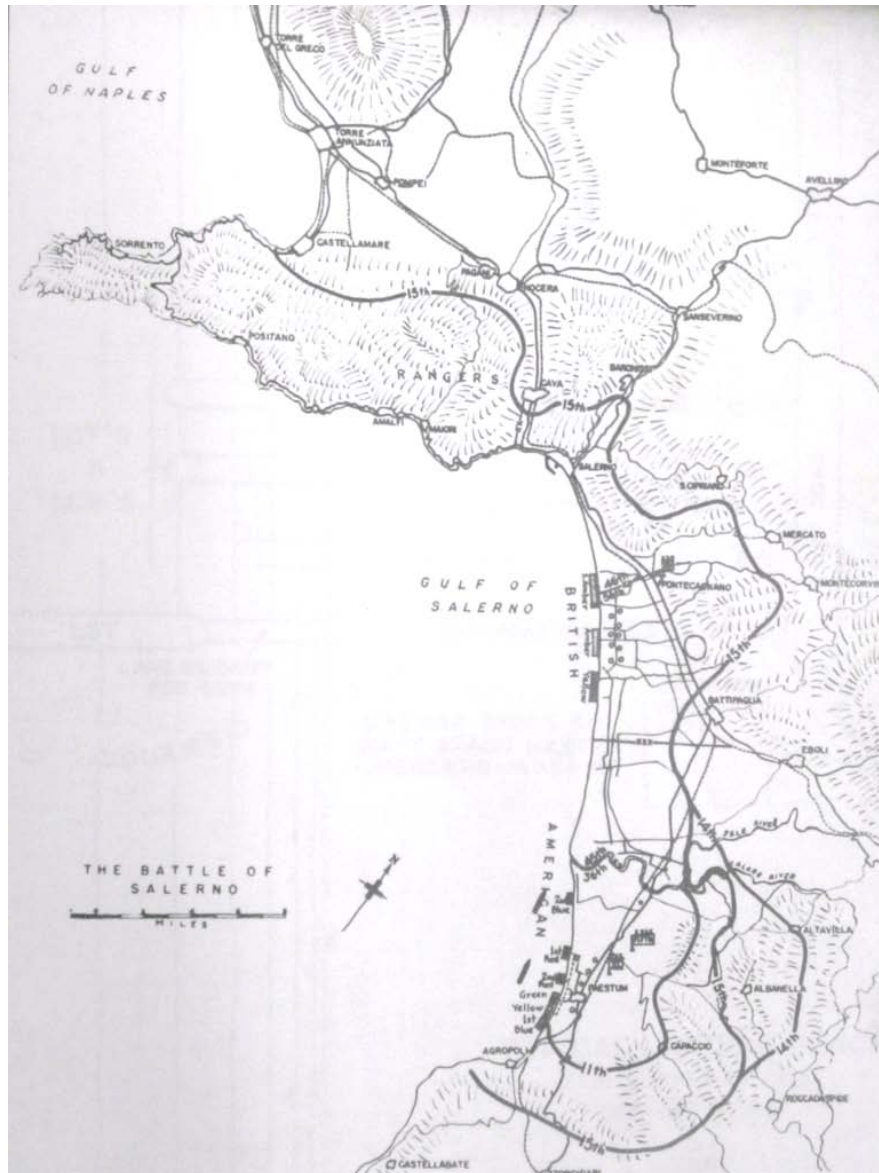
⁵⁶⁰ "Action report of the Salerno Landings, The Italian Campaign Western Naval Task Force, September-October 1943." 104.

Despite the positive experience of Husky in moving palletized supplies, the Army did not have the time or resources to expand the effort for Avalanche, so as a result, most supplies were not palletized, thus requiring additional handling to unload and stack on the beaches. The Navy's combat-loader vessels were slow to unload due to number of reasons, to include poor loading in North Africa, congestion on the Salerno beaches, enemy fire, and an absence of the two and a half ton DUKW amphibious vehicles on the beaches.⁵⁶¹

DUKW's had been included in the assault force but, unlike Sicily, Fifth Army chose to use these vehicles mainly inland, serving as trucks inshore of the beach dumps. Additionally, the Army dedicated 123 DUKW's to the hauling of 105mm howitzers and ammunition for VI Corps. The Navy viewed this as a disastrous diversion of resources: use of these amphibious vehicles in other capacities slowed vessel offloading and exposed the DUKW's to loss through damage, attack, or maintenance problems. The absence of the DUKW's from the beaches was so great that the naval task force commander, Vice Admiral Kent Hewitt, went so far as to recommend that for future assaults the DUKW's and their drivers should be under direct *naval* control until the unloading phase of the assault is complete.⁵⁶² This was the only way to ensure that the ground forces could divert the amphibious vehicles for other uses.

⁵⁶¹ Ibid., 99.

⁵⁶² Ibid., 110.

Figure 22: Salerno⁵⁶³

Why did Fifth Army not duplicate the successes of Husky and focus the DUKWs on unloading assault craft? Possibly, General Clark and his staff had been focusing on the task before them and there was neither sufficient time nor effort to share the lessons of

⁵⁶³ Report of SOS Observers of Operation Avalanche, NARA, RG 492, box 2775. 16.

Seventh Army with its sister unit before the launching of the invasion. This seems unlikely, given the fact that the same shore regiment that had supported the beaches of Husky was operating in Salerno. The shore regiment knew how successful the DUKWs had been in helping to offload vessels and clear beaches.

Another explanation, one that is more probable, is that VI Corps felt that the DUKWs would be more valuable in the role of inland transportation and artillery support, rather than in offloading vessels. These were still relatively new vehicles to the Army inventory and commanders were still working out how best to utilize the unique capabilities of the DUKW.

Another possibility for the different approach is that General Clark and the Fifth Army staff wanted to keep an arm's distance from Patton and the Seventh Army staff. The final planning for Avalanche occurred simultaneously with Patton's slapping incident so Clark may have been reluctant to spend too much time at Seventh Army. Patton was becoming an outcast and Clark surely did not want his reputation tarnished by association.

Regardless, the DUKWs proved that they could perform either mission well. The tensions between the services stemmed from the fact that, like assault craft, there simply were not enough within the theater to meet the demand.

Avalanche used a combination of US and British shore parties to operate the beaches. The British 56th and 46th Divisions used British Beach Groups, while the 36th Infantry Division was supported by the 531st Engineer Shore Regiment along with a beach party from the 4th U.S. Navy Beach Battalion.

Fifth Army tried a new approach in the battle to organize the beaches. Instead of establishing an engineer special brigade directly under the task force commander, as Seventh Army had done in Sicily, Fifth Army chose to use a sub-element of the Engineer Special Brigade, the 531st Shore Regiment, for the beaches. This was a prudent move since Avalanche contained only a third of the overall length of beach compared to that of Husky. In addition, the 6th Port, which had been responsible for the ports of Casablanca and Bizerte, had an early arrival date in Italy to establish control of the ports. Responsibilities for the support initially rested with VI Corps, later to transition to the Fifth Army.

Unlike some of the combat units, the 531st Shore Regiment contained a number of veterans from the landings of Africa and Sicily. The 90 officers and 1,980 enlisted men came under the command of Colonel Roland Brown. Brown and his men had been part of the regiment responsible for organizing the beaches around Gela for the 1st Infantry Division during Operation Husky. Here they were, less than two months later, performing the same task for VI Corps, south of Salerno.

Two battalions of the 531st landed in the Gulf of Salerno, with one battalion held in reserve. Allied smoke screens proved to be so effective that landing craft could not see the beaches, causing men and materiel to land on the wrong beaches and the beach timetable soon became unattainable. Shore units made the best of the situation before them. One road platoon landed a mile and a half from their assigned beach, but used the

opportunity to build a beach exit road to get to the main highway.⁵⁶⁴ The landings were not going perfectly according to plan, but the plan merely served as a general guideline anyway once the elements of weather, time, and the enemy factored into the equation.

By noon on D-Day, the 531st had finished beach exits from the landing beaches to facilitate the arrival of forces and supplies. They could not establish shore dumps that day due to a lack of cargo trucks, but these vehicles arrived on D+1 and quartermaster units established supply dumps in the vicinity of Paestum, approximately 1.3 miles inland.⁵⁶⁵ By D+3, dumps had been established west of Highway 18, an important road which transversed the entire US line from north to south. A day later, the clearance of all supplies from the beach to the dumps was complete.⁵⁶⁶

Only one German Division, the 16th Panzer Division, faced Fifth Army at Salerno on September 9, but the German Tenth Army Commander, General Vietinghoff, quickly ordered the 26th Panzer and 29th Panzer Grenadier Divisions to reinforce the Salerno area from the south. Additionally, he ordered the 15th Panzer Grenadier and 16th Panzer Divisions to move to Salerno from the north. These two divisions totaled about 27,000 men, but only had about 37 tanks between them because they were in the process of refitting after evacuation from Sicily.⁵⁶⁷

The five German divisions immediately started toward Salerno, but supply problems hampered their movement. Tenth Army did not have an organic quartermaster section for

⁵⁶⁴ Howard G. DeVoe. "History of the 1st Engineer Amphibian Brigade HQ and HQ Company and the 531st Engineer Shore Regiment and Succeeding Units' Unit History." (Historical booklet, 531st Engineer Association, 1983) 11.

⁵⁶⁵ Ibid.

⁵⁶⁶ Report of SOS Observers of Operation Avalanche, September 9th to 21st, 1943. [1943?] NARA, RG 492, box 2775. 6.

⁵⁶⁷ Blumenson, *Salerno to Casino*, 97.

Kesselring's headquarters; Oberbefehlshaber Süd (OB- Süd) had to handle all resupply of the Army. The results were less than satisfactory for the German divisions. There was no coordinated logistics plan and the supply dumps did not necessarily match unit locations.

There was little fuel available from local Italian stocks. One panicked German officer demolished the petroleum storage facilities and a coastal tanker at Sapri, on the Gulf of Policastro, when he incorrectly perceived that he was under attack. This loss of fuel, combined with the lack of a well-coordinated logistics plan, slowed down the movement of the 29th Panzer Grenadier Division, delaying its arrival at Salerno. Instead of arriving *en mass*, the division's arrival strung out over three days, preventing German commanders from fully committing the division while Fifth Army was still weak.⁵⁶⁸ Had sufficient fuel been available, the 29th certainly would have arrived by the evening of September 9th and quite possibly could have made the difference in pushing the British X Corps off the beaches and dividing Fifth Army.

Back in the VI Corps area, the 531st proved that they were capable of doing more than running a beach or establishing a supply dump. As German snipers harassed the beaches at Paestum, Company D of the 531st and a company of infantry maneuvered to eliminate the snipers, destroy machine gun nests, and to drive-off German tanks that had hidden themselves in the city.⁵⁶⁹

This raised a question that had no definitive answer: if a beach was coming under fire, should the shore parties continue to work and risk being hit, or should they focus on

⁵⁶⁸ Ibid., 98.

⁵⁶⁹ Dunham, 36.

eliminating the threat before going back to work on the beach?⁵⁷⁰ No matter which option the commander chose, someone was going to be dissatisfied. Each shore party commander had to weigh the options and make his best judgment.

However, despite the threat of German snipers, not everyone appreciated the danger and the need to limit their exposure. A captain in charge of one of the VI Corps supply dumps observed his men working out in the open, in white tee shirts, during daylight, oblivious to the signal this could send to German pilots. The captain produced a novel solution by sending the offenders to a front line unit where they could gain a better appreciation of the risks of exposing oneself unnecessarily to enemy fire.⁵⁷¹ Under such conditions soldiers learned quickly about the importance of camouflage.

Despite the seeming progress, the Navy became increasingly concerned over the congestion of the beaches. Congested beaches slowed the unloading of the convoy, which could delay the scheduled return of the vessels. On D+ 1, Admiral Hewitt had seen enough and asked the Army to dedicate 1,000 men to help clear the beaches. The Shore Regiment found as many men as possible, but the Navy still estimated that by the end of the assault phase the Navy had unloaded 90 percent of the supplies onto the beaches.⁵⁷² This was acceptable to the Army, but the Navy was clearly dissatisfied.

Due to heavy enemy activity, VI Corps closed its Yellow and Blue beaches south of Salerno on D-Day and diverted all vessels to the Red and Green beaches. This produced congestion on the beaches as supplies and equipment built up - providing a rich target for

⁵⁷⁰ Ibid.

⁵⁷¹ Diary of Joseph Sullivan dated September 15, 1943. Fort Lee, Sullivan Collection.

⁵⁷² Action report of the Salerno Landings, The Italian Campaign Western Naval Task Force, September-October 1943." 152,

German fighter aircraft. Supplies continued arrive up to the point that crates of gasoline, ammunition, food, and water were sitting in several feet of water along the shore. The Corps then closed the Red and Green beaches closed on D+1 until beach units could sort the mess out, which forced landing craft to wait offshore. To alleviate the backlog, VI opened a new beach, Red 2 (to the left of Red Beach), thus allowing landing operations to continue.⁵⁷³

The same problems seen at Sicily's beaches soon appeared at Salerno. From the perspective of the Navy, the Army had no apparent plan for beach operations. Supplies piled up on the beaches. Barracks bags and personal gear - hardly viewed as essential - landed "in huge quantities" as early as D+7. There was a shortage of personnel and trucks necessary to establish inshore dumps and clear beaches. Beach operations virtually ceased at night and did not resume until the following morning.⁵⁷⁴ The proximity of Avalanche to Husky meant that there simply had been insufficient time to fix all the problems seen in the previous campaign.

The arrival of tanks on the Avalanche beaches occurred much quicker and smoothly compared to that of Torch. The first 30 tanks were ashore on the southern beaches by 4:45 am on the day of the assault. Supplies also arrived according to the landing plan, with over 2,000 tons deposited on the beaches of Salerno by the end of D-Day. There were still problems concerning the sorting of items and clearing of the beaches, but at least the supplies were there.

⁵⁷³ Ibid., 151.

⁵⁷⁴ Ibid., 153.

By D+1, the 36th Infantry Division was occupying the high ridgelines to the north and south of their objective. German resistance was weakening so, by D+2, VI Corps had moved inland 5-6 miles from the beaches in all directions. The assault was progressing well.

The Fifth Army Quartermaster, Colonel Joseph Sullivan, arrived on the VI Corps Red Beach on D+2. Sullivan gives a slightly different account of the beaches than that of the Navy, describing them as “a marvelous sight. The dumps had been laid out, a wire road had been built and everything was proceeding in an orderly fashion.”⁵⁷⁵ What explains the difference between the accounts of the Navy and Army? Possibly the difference is one of perspective: the Navy wanted to see the beaches cleared as soon as possible so the ships could return to safer waters and adhere to schedules. The Army merely wanted to see organization and progress. How one saw the situation depended on where they were standing and what they were hoping to achieve. Each service had a slightly different goal, which colored their assessments.

The situation was similar on British X Corps beaches. Better beach gradients made offloading of vessels easier, but there was a shortage of shore party personnel and vehicles. Operations slowed as vehicles jammed the beach exits and traffic jams developed along the limited road networks.⁵⁷⁶ Despite this, the British X Corps occupied Salerno by the morning of D+2, although the traffic congestion remained. Colonel

⁵⁷⁵ Diary of Joseph Sullivan, dated September 11, 1943.

⁵⁷⁶ Action report of the Salerno Landings, The Italian Campaign Western Naval Task Force, September-October 1943.” 153.

Sullivan summarized the situation by stating, “Apparently, traffic control is not understood by British personnel as we know it.”⁵⁷⁷

Fifth Army was ashore, but the landing had shown that the Allies still needed work on development of a strong beach organization that could deal with an influx of hundreds of thousands of men and thousands of tons of supplies into a relatively small area in a short amount of time. Physics dictated the realm of the possible, but organization and planning went a long way toward maximizing what was possible.

Although the enemy defense was initially disorganized, German artillery presented the greatest early challenge to the beaches. Shore parties had to contend with artillery attacks that closed several beaches and hampered operations on many others. The British X Corps, landing along the northern beaches, faced the luxury of better beach gradients, but with heavier enemy artillery fire.⁵⁷⁸ Enemy air attacks were also a constant threat.

The most serious threat to the Allied beachhead came during September 12-14, as a strong German counterattack sought to split the US and British forces along the corps' boundary on the Sele River. This was a vastly different situation from that of Torch or Husky; Fifth Army was facing a strong and capable opponent - one that was determined and could quickly reinforce itself. Even though the Germans were having trouble in responding to the landings, they were able to amass enough combat power to split Fifth Army in two. By September 12, the Germans were reinforcing at a rate equal to, or greater than, that of the Allies.

⁵⁷⁷ Diary of Joseph Sullivan, dated September 17, 1943.

⁵⁷⁸ Dunham. “U.S. Army Transportation and the Italian Campaign,” 32.

The main attack came midday on September 13. General der Panzertruppen Traugott Herr, commander of the LXXVI Panzer Corps, launched the 29th Panzer Grenadier and 16th Panzer Divisions along the Sele and Calore Rivers, hoping to take advantage of the boundary between the two Allied Corps. Meanwhile, Vietinghoff ordered the German XIV Panzer Corps to attack south of Eboli, in an attempt to hasten the Allied withdrawal from the beaches.⁵⁷⁹ The German division made good gains, rolling over American defensive positions. Clark was unsure whether VI Corps could hold the beachhead and asked the Fifth Army staff to make plans for a possible re-embarkment from the US beach - a scenario that would have been disastrous, both for the operation and for the forces involved.

AFHQ and Fifth Army responded by focusing all available resources against the German attack. Fighters and strategic bombers all converged on the German attackers. Naval gunfire was especially effective the nearer the enemy approached to the coastline. The third, and equally important leg of the defense, was the decisive response by Fifth Army units in dealing with the threat.

All available men joined the defensive line. The engineer shore regiment abandoned its beach operations and took a position on the VI Corps right flank. Mechanics and truck drivers became infantrymen, which strengthened the defensive line, but limited the ability of the army to distribute forces since this contributed to a lack of transportation.⁵⁸⁰ The small advance element of the base section, which had landed on D+2, even found itself on

⁵⁷⁹ Blumenson, *Salerno to Cassino*, 114.

⁵⁸⁰ H.H. Dunham. "U.S. Army Transportation and the Italian Campaign," 44.

the line under the command of a non-commissioned officer. This was one disadvantage of landing early in an operation – the area was not yet secure.

The crisis prompted AFHQ and the Services of Supply to reinforce Salerno as fast as possible. The Combined Chiefs gave Eisenhower approval to use 18 LSTs that were transiting through the Mediterranean on their way to India. General Alexander directed that the rest of the 3rd Infantry Division replace service troops scheduled for landing Salerno. General Clark considered sending the 82nd Airborne Division into Salerno, but there were insufficient landing craft and aircraft to move the entire division in the time required.

September 14 brought a new resolve to the Fifth Army beachhead. Allied air cover provided 187 B-25s, 166 B-26's, and 170 B-17's over the beaches of Salerno.⁵⁸¹ Elements of the British 7th Division began arriving in the British X Corps sector. The last of the US 45th Infantry Division arrived, providing Fifth Army with an operational reserve. Admiral Cunningham had ordered two cruisers and battleships from Malta and offered up another two battleships if needed. That evening, the 82d's 505th Parachute Infantry Regiment landed just south of Paestum and landed on their assigned drop zones. The Allies succeeded in making a massive reinforcement on, above, and off Salerno's beaches. Meanwhile, the assault force already on the beaches fought to hold its ground.

No single service could have pushed the German counterattack back, but the combined Allied air, ground, and sea force proved to be the decisive factor. The theater strategy of building bases in Tunisia combined with the decision to launch a balanced ground force

⁵⁸¹ Blumenson, *Salerno to Cassino*, 130.

which could sustain itself shortly after landing on the beach, proved to be deciding factors in the early stages of the campaign. The fight for Salerno showed the importance of having a base of operations near the landing areas - this was the only quick means to reinforce an assault force in trouble.

On September 15, General Vietinghoff and the German Tenth Army began to realize that they had lost the opportunity to push Fifth Army off Salerno's beaches. Allied air power made the daytime movement of forces and supplies dangerous. An attack by the Hermann Goering, 3d, and 15th Panzer Grenadier Divisions made little headway against the reinforced British 46th Division. Late that day, the German Tenth Army commander wired Kesselring for permission to break off the attack.⁵⁸² The German Tenth Army would now assume a defensive strategy up along the Italian peninsula.

General Clark was finally able to begin expanding the beachhead. The port of Salerno opened on D+4. The condition of the port was fair and there was sufficient space to berth three coaster vessels and three LSTs within the port and beach another 12 LSTs alongside the harbor. However, the port still fell under range of German artillery so large-scale port operations could not begin until after D+15. From this point, the port of Salerno became the central point of offloading for ships supporting the advancing army.⁵⁸³

The complaints of the Navy concerning the beaches point to a general shortage of service forces and support equipment on the assault force. However, it is remarkable that as many service units landed as they did. Commanders for Avalanche faced the same

⁵⁸² Ibid., 134.

⁵⁸³ Action report of the Salerno Landings, The Italian Campaign Western Naval Task Force, September-October 1943." 155.

shortage of shipping and assault craft that had faced the previous amphibious assaults. The Combined Chiefs of Staff still centrally managed vessels, such as Liberty Ships, LSTs, and LCTs. Limited amounts of these craft were available to Eisenhower so commanders had to determine the best ratio of combat and support forces for the assault convoy.

In Sicily, the Allies faced a demoralized Italian force, which contained a few German Divisions. For the attack of Italy itself, there were still questions about whether Italian forces would fight to defend the mainland, and there was an entire German army defending the area with the ability to receive reinforcements directly from central Europe. Allied commanders needed to be able to deal with the threat - this meant that that there had to be sufficient combat forces in the initial assault or the Germans could push Fifth Army off the beaches. The invasion was a zero-sum game: more combat forces on the landing craft meant less service forces. The fact that many service troops landed on the beaches in the first convoys serves as a testament to the appreciation that combat commanders had developed regarding the role and contributions of service units. There were still shortages of support personnel and equipment, but this was necessary to land the combat strength required to deal with the opposing force.

The total amount of men and materiel landed over Salerno was quite impressive. Despite the challenges of the heaviest enemy resistance seen in the Mediterranean to date, inefficient beach parties, and occasional severe weather, Fifth Army landed 202,066 men, 45,262 vehicles, and 153,930 tons of supplies from September 9 to October 8. Similar to Sicily, Salerno proved that a major port was not a prerequisite for landing and maintaining

an army.⁵⁸⁴ However, the advantages of a large deep-water port were clear and the army moved north to secure its main objective - Naples.

Naples and the Establishment of the Support Base

An advance echelon of base section personnel had landed at Salerno on D+2 and worked with the Fifth Army staff in an adversary capacity. VI Corps had been responsible for support of the invasion force since D-Day, but the army headquarters had steadily grown in size and by September 15, D+12, VI Corps was ready to relinquish the responsibility of sustainment to its higher headquarters. The line of communications was lengthening and General Clark agreed that the time had come for Fifth Army to take responsibility for the rear area. On September 15, the Fifth Army G4 Transportation Section became responsible for all beach operations and supply distribution.⁵⁸⁵

One lesson that Fifth Army did note from Operation Husky was that Services of Supply personnel needed to arrive early in the landing and establish a formal base section as quickly as possible. Once Fifth Army assumed control of the beaches it had overall responsibility for the planning and oversight of administrative requirements, but the army needed a capable headquarters that could conduct the daily management and execution of logistics.

Brigadier General Arthur Pence, former commander of the Eastern Base Section, arrived in Italy on November 11 as the commander of the 6665th Base Group (Provisional), later to become the Fifth Army/Peninsula Base Section. Pence arrived in

⁵⁸⁴ Dunham. "U.S. Army Transportation and the Italian Campaign," 3.

⁵⁸⁵ Ibid., 44.

Naples on October 2, along with the 6th Port headquarters, to begin the establishment of the main support base for US forces in Italy - the first base section established on the European mainland.⁵⁸⁶

The citizens of Naples welcomed the arrival of the service forces. These units represented not only relief from German oppression, but also a chance to rebuild lives, families, and the city itself. As in Sicily, life under occupation had been harsh. Conditions within the city of Naples were deplorable. The Germans had destroyed the city's communications and transportation systems. Retreating German units hid large time bombs throughout the city, burned the city's stockpiles of coal, and tore up the port railways. Food was scarce and there was a lack of clean water. Retreating Germans had drained the city's main water supply, there was only enough to last for eight days, and German forces still controlled the main reservoir.⁵⁸⁷ The people of Naples had been without bread for nearly ten days. Much of the city's transportation system was in shambles. When Pence and the service forces entered Naples, German artillery, positioned on the hills just north of the city, was still shelling the city.⁵⁸⁸

By October 5, base section personnel began occupying the Finanza Building in the center of Naples. Officers of the headquarters billeted in the Parco Hotel, while the enlisted men stayed in the west wing of the Naples Post office. The men heard rumors from the local civilians that the Germans had hid explosives in the city, but did not

⁵⁸⁶ *Ibid.*, 52.

⁵⁸⁷ Allied Commander-In-Chief's Report, Italian Campaign, 3 September 1943-8 January 1944, 138.

⁵⁸⁸ "History of the Peninsular Base Section, North African Theater of Operations," Volume II [1945?] CMH. i.

immediately act on the rumors due to the amount of work associated with occupying the new city.⁵⁸⁹

An explosion at 2:10 p.m. on October 7 interrupted the peaceful occupation of the city. A large German mine with a time-delay fuse destroyed the southwest corner of the post office. Parts of the building flew as far as 100 yards as the first two floors of the building crumbled. The base section and 2nd Base Post Office had 12 men killed and another 19 injured or missing.⁵⁹⁰ Civilians, including children, were also among the dead and injured. The base section relocated its troops to a former apartment building and the Allies began a search of the city to find any remaining bombs. Meanwhile, the priority was to get the port into operation as quickly as possible.

The story of the rehabilitation and exploitation of the port of Naples is worthy of a volume of its own. This was a scene of notable dedication, skill, and ingenuity on the part of the Allied service forces to turn a destroyed port into one of the most important support facilities of the theater in a matter of days and weeks.

Both the Germans and the Allies recognized that a major factor constraining the buildup and sustainment of any amphibious force was port capacity. The Allies worked to increase capacity as quickly as possible, while the Germans did everything in their power to damage and destroy port facilities and supporting infrastructure. Every major port seized in the Mediterranean, from Bizerte to Marseille, saw some degree of devastation. This was a means to slow the Allied advance and allow time for the enemy to move in reinforcements.

⁵⁸⁹ Ibid., 10.

⁵⁹⁰ Ibid., 12.

The Allies expected that only a moderate amount of repair work would be required at Naples, but they entered the port on October 1 to a scene of utter destruction.⁵⁹¹ The strategic bombing campaign of the Mediterranean had included industrial transportation facilities within Italy, especially ports and rail yards. The ports of Naples and Genoa were “thoroughly worked over,” by the bombers, which hurt the Germans, but also would later hinder Allied use of these same facilities.⁵⁹²

In addition to the damage caused by the Allied bombing campaign, the Germans had taken the techniques used at Palermo and expanded them to bring a new level of damage to the port of Naples. For three weeks, German sappers had been hard at work destroying all usable equipment and sinking every available vessel in an attempt to render the port useless to the Allied force. Of 72 berths at Naples, only three were initially operable.⁵⁹³

Not only did the Germans sink vessels of all types alongside the piers and quays, but they sunk them in such a way as to make later clearance as difficult as possible. Bulkheads were blown apart to preclude rising by compressed air. Vessels lay on top of each other and then German engineers added other debris such as mines and compressed gas bottles to the sunken mass.⁵⁹⁴ Explosives placed under gentry cranes damaged not only the cranes, but quay walls as well.⁵⁹⁵ However, as inventive as the retreating German forces were, the naval port party, under the command of British Rear Admiral J. A. V. Morse, was equally as proficient at devising innovative measures of working

⁵⁹¹ G4 Annex to Outline Plan-Avalanche. Headquarters, Fifth Army, dated August 8, 1943. Fort Lee. Littlejohn Collection, Middleswart Box. 2.

⁵⁹² Dunham, “U.S. Army Transportation and the Italian Campaign,” 20.

⁵⁹³ 6th Port,” Unit History Booklet, Southern Line of Communication, 1945. MHI. 10.

⁵⁹⁴ Action report of the Salerno Landings, The Italian Campaign Western Naval Task Force, September-October 1943.” 156.

⁵⁹⁵ “History of the Peninsular Base Section, North African Theater of Operations.” Volume II. 118.

through the clutter. Salvage teams quickly entered the port and began clearing the channel. Engineers left larger sunken vessels in place and built piers over them. Within two days, there were enough open berths to hold five Liberty ships and eight coasters; 17 days later British and US engineers opened an additional 10 berths.⁵⁹⁶ Naples was on its way to being the hub of logistic activity for the Italian campaign.

Unlike Torch, which had relegated service units to later convoys, the units needed to operate ports in Italy landed much earlier in Avalanche. An advance echelon of 6th Port arrived on D+2 in Salerno, along with the 389th Port Battalion. The remainder of the port headquarters arrived October 1.⁵⁹⁷

Once in Naples, 6th Port went to work organizing the port. Constant rain hampered the discharge operations at Naples just as it had at Casablanca. Men camped out in damaged buildings near the docks. Naples, however, was three times larger than the port of Casablanca and greater in capacity than the port of New York. The first day of operations saw 5,380 long tons unloaded at Naples; within six months, the total exceeded 2,375,000 tons - twice the peacetime discharge rate of the port of Naples and four times what the War Department had estimated.⁵⁹⁸

Port engineers quickly refurbished docks, quays, and gantry cranes. Within 30 days of its seizure, the port of Naples had a sufficient throughput capability to support both Fifth and Eighth armies, a remarkable achievement.⁵⁹⁹ Even though the port of Naples was

⁵⁹⁶ "6th Port," 10. Also see History of the Peninsular Base Section, North African Theater of Operations." Volume II. Unit History, 42.

⁵⁹⁷ 6th Port," 13.

⁵⁹⁸ Ibid., 14.

⁵⁹⁹ Action report of the Salerno Landings, The Italian Campaign Western Naval Task Force, September-October 1943." 157.

proving to be even more capable than originally expected, Fifth Army worked to add additional ports to the growing support area. By the end of October there were three smaller ports working in support of the effort at Naples: Bagnoli, Pozzuoli, and Nisida. The Allies needed these additional ports to receive and stage the vast numbers of replacements and units that were landing on the Italian mainland, thus allowing Naples to focus on the reception of supplies and materiel.⁶⁰⁰

Figure 23: Pier Extended Over Sunken Ship at Naples⁶⁰¹



The original plan envisioned that all ports along western Italy were to be jointly shared between the US and British forces, but the British would have overall jurisdiction and command. This worked well immediately after the capture of Naples, but the relationship had to change as more and more US port forces began arriving in the area and the volume of supplies arriving at the port were overwhelmingly for US troops. The British

⁶⁰⁰ 6th Port,” 14.

⁶⁰¹ Source: Dumham, “US Army Transportation and the Italian Campaign,”

commanded the port of Naples until November 1, after which 6th Port had sole command.⁶⁰²

The actions of a single individual could create repercussions up and down the logistic chain. One such individual was Staff Sergeant Nick Orobello of Brooklyn, New York. Sergeant Orobello was determined to improve crane operations at Naples. An Italian speaker, Orobello headed into Naples and hired hundreds of local laborers, promising to feed them as well. The group loaded 8,396 long tons of coal into rail cars in 70 hours and cut the average time required to unload a coal ship from two to three weeks to three to four *days*.⁶⁰³ The faster off-load times meant that more supplies were flowing out of the port and shipping was becoming more efficient. Word quickly spread throughout the city on the benefits of working at the port.

The port soon proved to be a major employer for the local civilian populace as the civilian labor pool grew from 700 to over 12,000 personnel. Besides providing these civilians with a reliable source of income, 6th Port also provided workers with something that money could not always buy in Naples - meals. The laborers spread word about the available food and port units soon found themselves feeding up to 20,000 civilian refugees a day, in addition to the normal workforce.⁶⁰⁴ The supply dumps, likewise, had to face the reality that they needed to feed the civilian workforce because that was the only way to

⁶⁰² Dunham, "U.S. Army Transportation and the Italian Campaign." 52.

⁶⁰³ 6th Port," 17.

⁶⁰⁴ Ibid., 14.

keep the men at work and healthy.⁶⁰⁵ The ports and dumps soon found themselves centers of activity and a key means of providing civil relief to the ravaged city.

By the end of October, food had become an issue for Fifth Army. The Services of Supply was confused, because the theater had shipped sufficient rations to feed the military force, but shortages were developing. In fact, the theater had shipped over eight million rations, but these were not in the supply dumps. Investigation revealed that the problem was an uncontrolled growth in the myriad of demands for food. Not only was the base section providing rations to the Allied units in Fifth Army, but they were also feeding Italian units performing guard and labor duties for Fifth army, elements of the French Expeditionary Corps, as well as meeting Allied Military Government (civil affairs) requirements. This represented a dramatic increase over the projected level of support and did not even include the tonnage required for animal fodder.⁶⁰⁶ By December 1943, the Peninsular Base Section was providing food for 200,000 Americans, 8,634 French non-Moslems, 10,100 Moslems, and 9,176 prisoners of war. There was a seemingly insatiable appetite for American rations, which the Services of Supply had to address.⁶⁰⁷

Figure 24: Italian Civilians Seeking Assistance⁶⁰⁸



To deal with the situation the base section worked to identify *all* of the various demands for rations. Additionally, supply units enacted measures to procure as much as possible from local Italian

⁶⁰⁵ Sullivan Diary, dated September 23, 1943.

⁶⁰⁶ "History of the Peninsular Base Section, North African Theater of Operations." Volume II. 25.

⁶⁰⁷ Joseph Sullivan." History of the Fifth Army Quartermaster Activities." Manuscript. Fort Lee. 45.

⁶⁰⁸ Source: "History of the Peninsular Base Section, volume 1," CMH.

sources and to reduce loss by pilferage. A healthy black market was springing up in Italy, especially Naples, and the theater needed to put an end to such activities. Civil relief supplies quickly became a major part of the support effort. By the end of the war over 4.8 million tons food, coal, and medical supplies were shipped to Italy solely for use by the Italian people.⁶⁰⁹ The situation was partly the Allies' fault anyway – bombing attacks on the railways had slowed the distribution of food throughout Italy.⁶¹⁰

As if this were not enough, base section engineers were also busy rehabilitating the rest of the city's infrastructure. Within 15 days, roads were sufficiently clear to allow traffic on all main roadways within Naples. Engineers worked to repair the sewers and sanitation system by the middle of December, at a cost of 27,444 man-hours by US forces and 136,298 man-hours by local Italian employees. Base Section engineers also repaired or rebuilt high-tension towers, enabling the resumption of electrical distribution.

Ingenuity was once again in evidence as both the Allied service forces and local Italians worked to bring Naples back to life. While workers strove to bring two pump stations back on-line, the Italian Navy anchored three submarines in the harbor. Lieutenant Colonel Gilbert Cooley of the Peninsular Base Section's electrical division devised a plan whereby the submarines could indirectly tie their generators into the city's electrical grid. This was accomplished by running the direct current electricity from the submarines backwards through the Naples tramway sub-station, using the tramway's alternating current motor as a secondary generator. This produced an alternating current

⁶⁰⁹ "Summary of Supply Activities in the Mediterranean Theater of Operations." G3, MTOUSA. September 30, 1945. MHI. 34.

⁶¹⁰ Churchill, *Closing the Ring*, 44.

that traveled to the pump stations for further distribution across the city. Actions like these not only brought the city back to life, they also forged relationships with the Italian military and generated goodwill among the Italian people

Ingenuity allowed the service forces to overcome many unforeseen challenges, but GI creativity also caused an occasional problem for the growing base section. In one case, the Provost Marshal received a complaint that soldiers had been taking pistols away from the local Carabinieri. The Carabinieri, naturally, asked for replacements. One soldier had taken 18 pistols and issued a receipt for each one, signed "Joe Bloke, S/Sgt, 1093rd Mess Kit Repair Battalion."⁶¹¹ As expected, there was no Joe Bloke and the Army had no such unit as a mess kit repair battalion. The Provost Marshal worked to find the culprit, while the base section replaced the pistols.

Electricity slowly came back to parts of the city; although citizens first had to evacuate the areas for fear that the return of electrical current might set off additional German mines. The threat posed by electrically detonated charges and mines left behind by the Germans presented a danger that the base section ignore. Despite the challenges, the Services of Supply forces repaired, tested, and brought the city's electrical system back on-line by November 1.

Fuel proved to be essential to restarting the industry in Naples, which put people back to work, improved the local economy, and served as a source of materials for the Allied forces. Immediately after the invasion, all fuel came from Allied stocks. By December

⁶¹¹ Sullivan diary, October 23, 1943.

1943, the Allies were providing an average of 500,000 gallons of gasoline and 200,000 gallons of diesel fuel per month to support Italian industry.⁶¹²

The widening area of Allied responsibility also increased demand on the limited amounts of coal. By October, the Allies were working hard to support the needs of their rail and naval fleets for coal, as well as to meet the civilian demands from North Africa, Sicily, Sardinia, Corsica, and southern Italy. The British War Office offered to meet the civilian demand if Eisenhower could accept a reduction in the military account for half of the total quantity and a lower-grade of coal.⁶¹³ AFHQ had to balance the various needs and decide which of the dependent groups had the most pressing needs. As with other resources, coal required prioritization and allocation. Winter was quickly approaching and the demand would only continue to grow.

The base section steadily grew in numbers, so on October 25, the section was renamed the Peninsular Base Section, becoming officially activated on November 1.⁶¹⁴ Fifth Army had been responsible for administration of the army for a month, but with the activation of the Peninsular Base Section this responsibility was now in the hands of the Services of Supply. General Clark and the Fifth Army staff still had to provide policy and priorities, but the daily execution of the logistics missions now fell to the theater service headquarters along with its base sections.

⁶¹² "Quartermaster Supply in the Fifth Army in World War II". 99.

⁶¹³ *Ibid.*, 101,

⁶¹⁴ "History of the Peninsular Base Section, North African Theater of Operations." Volume II. 13.

German Logistics

September of 1943 found the German High Command in a quandary. Sicily had fallen, although this was not a complete loss since the vast majority of German and Italian units managed to escape with their equipment to the Italian mainland. The war along the Eastern Front was not going well – the Germans had just been soundly defeated at the Battle of Kursk, the largest tank battle in history, and the Russian formations were driving west, toward the Dnieper River. Finally, Italy had deposed Mussolini on July 25 and Hitler had lost his closest ally. Hitler needed victories or he would quickly lose public support for the war.

After the fall of Sicily, the German High Command knew the Allies would invade the European mainland, but they did not know *exactly* where. Sardinia, Corsica, Naples, Rome, Salerno, and Greece were all viable possibilities. As such, German commanders could not focus their units, or their logistics, in any one place. Rather, they had to make educated guesses and remain flexible. This meant that when the Allies landed at Salerno, they found an enemy only partly prepared. In fact, Hitler did not think that British forces would land in southern Italy due to the danger of malaria.⁶¹⁵ Instead, Hitler expected that the Allies would try to land in Sardinia and the Balkans.

As much as the Allies were experiencing a worldwide demand for limited resources, so too, were German units. The Germans were in an even more precarious state due to the lack of natural resources within Germany, combined with the long-term strategic bombing campaign that had been continuing throughout the war.

⁶¹⁵ Manfred Rommel, "Italy, 1943" in *The Rommel Papers*, B.H. Liddell Hart, ed. (New York: Da Capo, 1954), 438.

The Allied bombing campaign was limiting the overall amount of equipment produced by the German state, as well as slowing down the rate of resupply down the Italian peninsula. However, the type of fighting inherent in mountain operations was not as demanding in terms of resources compared to other terrain. In North Africa, Rommel had to worry about having sufficient fuel to feed his panzer divisions and trucks to move the Italian infantry across long lines of communication in a very austere environment. The fight in Italy was quite different, involving large artillery bombardments, little movement, shorter lines of communication, and an enhanced infrastructure. The Allies believed the bombing runs were taking a toll on the German support structure, but German units at the front seemed unaffected and fought tenaciously. Allied commanders were going to have to rely on maneuver and overwhelming force to break through the German lines.

Both sides had to get used to the peculiarities of working in the mountainous terrain. Field Marshal Kesselring noted that the German divisions only gradually adapted to this new type of warfare. A general shortage of high-altitude clothing and specialized mountain equipment led to many tactical failures.⁶¹⁶ The larger problem for the Germans was the lack of air power. During the Italian campaign, the Germans had approximately 300 aircraft available throughout the peninsula, compared to four to five thousand for the Allies.⁶¹⁷ With this great disparity, the Allies could overfly German units and communications lines at-will. Conversely, the Germans could do little to interrupt the Allied lines of communications.

⁶¹⁶ Kesselring, *The Memoirs of Field Marshal Kesselring*, 192.

⁶¹⁷ *Ibid.*, 197.

As in Sicily, heavy amounts of Allied artillery fire proved very effective for repelling German attacks. In fact, this became the expected outcome for any German counter attack, even when Fifth Army was complaining that it was running short of munitions. However, Kesselring, the German Commander-in-Chief for the Southwest region still rated his supply service in Italy as “not too bad.”⁶¹⁸ When assessing the battles in Italy the Field Marshal wrote that the major shortcoming of the Germans at Salerno was a poor disposition of German forces and inadequate air support. However, supply challenges began appearing by the time the front moved up to central Italy, particularly in terms of fuel, ammunition, and combat vehicles.⁶¹⁹

Allied interdiction of the German lines of communication presented the biggest challenge for the enemy. Allied air raids were so effective that the Germans had to ration gasoline throughout the campaign. German supply units had to use all available means of transportation to move supplies - trucks, trains, planes, and ships. The loss of a road or rail line meant adjusting to other modes of transportation. This produced a very agile support system that could react to Allied actions.⁶²⁰ Italy was a secondary theater for the Germans, but it did receive a priority for supplies whenever a large battle occurred. In short, the Germans received the supplies needed to slow down the Allied advance, but they did not have sufficient strength to break through the Allied lines. Allied air attacks did succeed in constricting the flow of German supplies, but they could not completely block all of the different communications lines leading into the country.

⁶¹⁸ Ibid., 200.

⁶¹⁹ Kesselring, Foreign Military Studies, C001-C017, box 62. MHI 37-38.

⁶²⁰ Kesselring, Foreign Military Studies, B260-B270, box 2. MHI 8.

The Allies could not starve out the enemy; rather, they had to fight the Germans in the mountains of Italy.

The Mountain Campaign

German defenders strove to slow the Allied advance by any means possible.

Retreating units used every opportunity to remove or destroy critical components to communications and transportation facilities, which succeeded in slowing movement as well as diverting manpower and materials away from the front. Additionally, German defenders took every advantage of the precipitous terrain to impede Allied progress.

Whether one could characterize German troops as being the best in the world is debatable. Certainly, some US commanders felt that way when their attacks broke down and Fifth Army measured progress in terms of yards gained, rather than miles. Perhaps the underlying explanation behind German effectiveness was the enemy's use of the mountainous terrain in Italy that naturally suited the defender. The mountains of southern and central Italy were simply unsuited for mechanized warfare and high-speed pursuits.

Rather than focus on the quality of the individual soldier, Field Marshal Kesselring envied the logistic capabilities of the Allied force, especially the Americans. Not only did US forces enjoy an abundance of supply that allowed them to conduct large amphibious operations at any place of their choosing, but also the American equipment enjoyed a level of standardization that was missing in the German Army. Additionally, the Allied forces were motorized and able to rotate combat forces out of the front lines on a routine basis, something else the German Army could not do because of a lack of units and a failure to

modernize the entire German Army. These factors, the Field Marshal argued, were the main discriminators between the two sides.⁶²¹

As Fifth Army moved away from the beachhead, units increasingly had to operate in the mountains that paralleled the coastline. Motor vehicles could only go so far on the difficult slopes where roads dwindled into paths. The typical chain of supply for a unit operating under such conditions was to transport cargo by truck to a truckhead. From there, supply specialists transferred materials to jeeps and drove them forward to company areas. In the company areas, the support platoons configured the supplies to fit on pack animals and moved them forward on mule trails. In extremely difficult terrain, units transferred supplies to a man-carried pack board for the final movement to the front lines.⁶²² This was an effective, although not terribly efficient, means of supplying the front line units, requiring time, labor, and multiple handling of supplies.

The 3rd Infantry Division, having arrived from Sicily, was the only unit with its own pack train. Lieutenant General Clark became increasingly impressed with the capability provided by the mules and asked for recommendations on how to expand the capability to other units. The subsequent study from the staff recommended that the army procure an additional 1,300 mules.⁶²³

To meet the demand for service animals, the Peninsular Base Section established a US remount station in October at Persano, the site of the former Italian Remount Squadron. There were still about 200 head of usable stocks at the site and the Fifth Army

⁶²¹ Memorandum, US Forces in Austria, dated November 6, 1945, subject: Questions on Italian Campaign with Answers by Field Marshal Kesselring. MHI. 3, 8, 9,

⁶²² Report of Observers in the MTO, 1942-1945, Vol III US Army Ground Forces Observer Board. MHI. 13.

⁶²³ "Quartermaster Supply in the Fifth Army in World War II." 67.

Quartermaster quickly established the 1st Remount Station Headquarters to meet the demand for pack animals.⁶²⁴ Local mules were preferred because mules shipped from the US tended to eat a different type of fodder. Just as US troops hated to subsist off their British cousins, the American mules detested Italian feed.⁶²⁵

Figure 25: US Army Pack Train in Italy⁶²⁶



The Services of Supply bought animals according to a fixed range of prices in order to provide some level of standardization. The first rates in 1943 ranged from \$80 to \$150. By April 1944, prices had risen to a top limit of \$250 for mules and \$300 for horses.⁶²⁷ Each mule of Italian origin could carry about 100 pounds and traveled 20-150 miles per trip.

⁶²⁴ "History of the Peninsular Base Section, North African Theater of Operations." Volume II. 15.

⁶²⁵ Interview with Brigadier General Ralph Tate, January 19, 1949. Sidney Matthews Papers. MHI. 18.

⁶²⁶ Source: *Quartermaster Review*, March-April 1944, Fort Lee.

⁶²⁷ "History of the Quartermaster, Peninsular Base Section, October 1943-1954." Undated. Fort Lee, Sullivan Papers. 237.

US service forces initially operated the remount station, but the base section worked to transition as many jobs as possible to Italian military units. This freed US forces for other more pressing duties and employed an Italian unit that had experience in working with animals. An Italian-speaking US officer was found and assigned to the base section operations section to serve as a liaison between the command and the Italian workers at the remount station.

Transitioning from a US operated facility to an Italian operation was not a matter of simply handing over the keys to the front stable door. The Italians were generally ill clothed, poorly fed, and had low morale. The unit had to be refit with new uniforms, boots, tents, and trucks. Support units had to arrange to feed and otherwise care for the men and the mounts.⁶²⁸

To help manage the animals, Fifth Army created a quartermaster pack troop within each division beginning on November 1, 1943. Each troop contained 2 officers, 80 enlisted men, and 303 animals.⁶²⁹ As in Sicily, these pack units proved essential to resupplying remote posts and small units, especially during winter and periods of rain.

The use of animals in the US Army was not a new concept, but Italy required pack animals on a scale not encountered in the First World War. A typical 1917 US Infantry division contained 1,854 draft horses, 2,082 riding horses, 2,565 draft mules, 82 riding mules, but only 53 pack mules.⁶³⁰ Most of the division's animals were for pulling wagons or riding, not for packing supplies to forward locations. As such, the older members of

⁶²⁸ "History of the Peninsular Base Section, North African Theater of Operations." Volume II. 16.

⁶²⁹ "Quartermaster Supply in the Fifth Army in World War II." 67.

⁶³⁰ Extracted from a 1918 Infantry Division Table of Authorization and Equipment, located in *U.S. Army in the World War, 1917-1919* (Center of Military History, 1988), volume 1, 341.

divisions in the Second World War did have some familiarity of working with animals, but there was little expertise on supporting battalions and companies by pack train. Only trial and error could produce this skill.

Supply of the pack units became a major task in and of itself. Just as trucks needed fuel and spare parts to run, the mules needed fodder, horseshoes, and saddles. The daily forage requirement could be as high as 14 pounds of grain, 16 pounds of hay, and 1/8th pound of salt per day for a large horse. The total forage requirement for the 15th Army Group equaled 1,125 tons of barley or oats and 1,500 tons of hay per month. The Italian army required an additional 300 tons of barley or oats and 600 tons of hay. The French Army took care of its own needs.⁶³¹

As the campaign continued, so grew the requirements for additional pack animals. In November 1943, Fifth Army estimated that it needed 9,981 animals.⁶³² By May 1944, the total Allied pack animal requirement for Italy had grown to 18,236 mules and 3,023 horses - 21,259 animals. This included 23 British, 15 French, and six Italian remount units.⁶³³ Additionally, the 10th Mountain Division, scheduled to arrive in November 1944, would bring another 6,000 animals. Forage would be a continuing issue for 15th Army Group for the rest of the war.

The battle for San Pietro Infine represented the challenge of fighting in the mountains of Italy during the winter and of the close tie between operations and logistics. Positioned along the southern side of Monte Sammucro, San Pietro was a medium sized village of

⁶³¹ "Quartermaster Supply in the Fifth Army in World War II." 70.

⁶³² Memorandum, Peninsular Base Section, dated November 14, 1943. Subject: Plans for Mountain Operations. NARA. RG 492, box 2775.

⁶³³ "Quartermaster Supply in the Fifth Army in World War II." 154.

about 1,400 that found itself unwillingly part of the German defensive Bernhardt Line, part of the greater Winter Line that Fifth Army needed to break through to get to Rome. By November 1943, Kesselring had succeeded in positioning 23 German divisions in Italy: 11 in the south and 12 in the north, totaling about 185,000 soldiers.⁶³⁴ The Allied had 14 divisions in Italy, although the numbers are deceiving. By this stage of the war, many German units were less than half strength, while the Allies were proportionally higher. The Allies had close to 500,000 men in Italy, although half of these represented corps and army level troops, as well as the Services of Supply.

San Pietro was the key to the Migano Gap, which, in turn, opened the way to the Liri Valley - the path to Rome. Highway 6, one of the two routes leading to Rome, went directly past San Pietro. Fifth Army had to take the town to move forward. Troops of the 29th Panzer Grenadier Divisions defended the area in well-prepared positions.

The terrain was so rough that Allied planes were unable to airdrop supplies to the attacking forces, the supplies just rolled down the sides of the mountains. Likewise, there were no suitable roads to move supplies to the front lines, forcing units to evacuate the wounded by hand - a trip that took up to six hours. The troops at the front carried little in terms of rations or ammunition; they needed both hands to pull themselves up the hillside.⁶³⁵

The British 56th Infantry Division tried to take the town in early November, but the weather and terrain quickly exhausted the troops. The US 3rd Ranger Battalion had a

⁶³⁴ Rick Atkinson, *Day of Battle* (New York: Holt, 2007), 281.

⁶³⁵ Blumenson, *Salerno to Cassino*, 229.

similar experience in late November, failing to secure the town. The VI Corps commander, Major General Keys, ordered the US 36th Infantry Division to take the town.

The attack began on the night of December 7, 1943. Artillery shells landed throughout the town, shattering the quiet as two battalions from the 143rd Infantry Regiment tried to make progress against heavy enemy fire. Despite the effort, there was no change in the lines by nightfall. The problem was the German gunners located on Monte Lungo, a highpoint that overlooked Highway 6 and San Pietro. The 1st Italian Motorized Group tried to capture the hill the following day, but found themselves quickly driven off and US artillery had to fend off a German counterattack.⁶³⁶ The Italians lost over half of their 1,600-man force in the attack.

For the next four days, the 143rd Infantry had a hard time just remaining where they were. German counter attacks threatened to push the Americans back. Each night pack trains struggled to carry supplies forward and bring out the dead and wounded.

To reach the extreme remote locations, such as the front lines at San Pietro, both mules and men had to carry supplies. Mules carried loads up to the end of a trail. From there, supply platoons transferred the supplies to men outfitted with backboards. These porters then carried the supplies up steep inclines, using ropes tied to trees as a means of leverage, on what could be a seven-hour round trip.⁶³⁷

Figure 26: Packboards⁶³⁸

⁶³⁶ Atkinson, *Day of Battle*, 287.

⁶³⁷ "Quartermaster Supply in the Fifth Army in World War II." 71.

⁶³⁸ Source: Signal Corps photo, Fort Lee Museum.



The demand for pack boards quickly exceeded available supplies. Fifth Army had ordered 300 pack boards on November 17 and added another requisition for 1,500 additional boards a week later. By the middle of January, Fifth Army had ordered 7,000 pack boards to help resupply remote outposts and small units.⁶³⁹

With a pack board, each man could carry 50-100 pounds of supplies. One company typically needed 20 men to carry a day's worth of supplies – ten carried rations, five carried water, and five carried ammunition. Support platoons packaged supplies into 25-pound containers so they could easily be transferred between mules and men.⁶⁴⁰

The threat from snipers or artillery discouraged fires along the front line so it could be hard to make a cup of coffee – a staple in combat. To deal with this, cooks strapped three 155mm brass shell casings to a pack board and filled these with boiling water. After the four-hour trek to the front lines, the water arrived still hot enough to make coffee or soup – a welcome relief, especially during the winter months.⁶⁴¹

The columnist Ernie Pyle arrived in the area during the start of the battle for San Pietro and observed the pack mules in action. He watched as soldiers unloaded the dead from the mules near a cowshed and then placed them on the ground.

Dead men had been coming down the mountain all evening, lashed onto the backs of mules. They came lying belly-down across the wooden

⁶³⁹ “History of the Peninsular Base Section, North African Theater of Operations.” Volume II. 101.

⁶⁴⁰ E.R. Ellis. “Supply and Evacuation in Mountainous Operations,” *Military Review*, Vol XXIV, Number 3 (June 1944): 74-76

⁶⁴¹ *Ibid.*, 77.

pack saddles, their heads hanging down on the left side of the mule, their stiffened legs sticking awkwardly from the other side bobbing up and down as the mule walked.⁶⁴²

Pyle had little to say as he observed the offloading of the dead, but the scene did inspire him to write one of his most famous columns of the war, “The Death of Captain Waskow.”⁶⁴³

The fight for San Pietro continued until December 16, when the 142nd and 143rd Infantry Regiments succeeded finally in pushing the 29th Panzer Grenadier Division off Monte Lungo and out of San Pietro. The battle had caused 1,200 casualties for the 36th Infantry Division, but produced no clear breakthrough. The Germans had merely retired to another defensive line further to the north. Both sides replaced their tired divisions in late December, as the 34th Infantry Division replaced the 36th and the German 44th Division replaced the battered 29th Panzer Grenadier Division.⁶⁴⁴ The fight in the mountains continued.

By December 12, Fifth Army contained 2,257 mules and the number was steadily increasing. Much of the forage was available from local Italian sources, but 8,000 tons still needed to be imported. To help manage the collection effort, AFHQ formed a centralized board, the Joint Purchasing Forage Board, to collect and buy all available

⁶⁴² Ernie Pyle, “The Death of Captain Waskow,” column published January 10, 1944. <http://journalism.indiana.edu/resources/erniepyle/wartime-columns/the-death-of-captain-waskow/> (accessed November 4, 2010).

⁶⁴³ Ibid.

⁶⁴⁴ Blumenson, *Salerno to Cassino*, 288.

Mediterranean forage.⁶⁴⁵ Hay and grain had become as important to the fight as fuel or ammunition.

The Army created additional remount sites as the campaign progressed. One remount depot formed at Bagnoli on December 12, and another at Santa Maria, to receive 141 mules shipped from Sardinia. The weekly average for procurement of animals was 20 in December; by January 1943, this average had increased to 200. To deal with the problems of caring for the animals the Army established a hospital for wounded pack animals at Persano on January 24.⁶⁴⁶

Training of men assigned to the remount units was a continuing problem. Only half of the men assigned to these units had ever worked with animals. Italian pack mule units were often short animals and/or men.

Dark colored animals were preferred because they were harder for the enemy to spot at night. However, as mules became scarce, light colored animals increasingly found their ways into the ranks of the remount units. Troops sprayed the coats of these lighter animals with a five percent solution of potassium permanganate, an oxidizing agent, which darkened the coats for up to two months at a time.⁶⁴⁷

Those units that did not require pack boards and mules for resupply still had their own challenges to overcome. Southern Italy only had a limited road and rail network prior to the war, and the German Tenth Army had taken advantage of the opportunity to steal or destroy as much as possible.

⁶⁴⁵ "Quartermaster Supply in the Fifth Army in World War II." 69.

⁶⁴⁶ "History of the Peninsular Base Section, North African Theater of Operations." Volume II. 101.

⁶⁴⁷ "Quartermaster Supply in the Fifth Army in World War II." 206. Also see "A Military Encyclopedia Based on Operations in the Italian Campaigns 1943-1945." G3 Section, 15th Army Group [1945?] CMH. 449.

The lack of a usable rail network meant that the service units had to rely more on truck transport to send the materials of war to the front. As the distance between Naples and the front increased, so too did the demand for cargo trucks. Demolition of the railways had been more successful than expected and, as in North Africa, the flow of supplies in the early stages of the campaign depended on time and trucks.

By October 21, the harbor of Naples was crowded with 52 ships, which had backed up awaiting discharge. The problem was not getting material off the ships, but in clearing it through the port and into the dumps. The crowding of ships represented not just a delay in offloading needed supplies, but also presented an inviting target for German aircraft.

On one occasion, German pilots managed to bomb a large pile of coal at one end of the port, igniting the mass into a large fire. At the opposite end of the port lay Mount Vesuvius, an active volcano. German pilots took advantage of the two highly visible landmarks by lining their aircraft up between the volcano and the burning coal to target ships anchored in the port. The only means to eliminate this target reference was for the base section to either move or cover the burning coal with a layer of dirt. After three days of work, the section managed to move part of the pile into the water and to pump a foot-thick layer of mud over the remainder. This removed one reference point and after that the port experienced significantly fewer losses.⁶⁴⁸ The volcano was left untouched.

General destruction of the rail lines, tunnels, and bridges slowed the establishment of rail service in Italy. German ingenuity had produced a giant steel hook, which engineers

⁶⁴⁸ Interview with Robert Colglazier by William Kearney, 1984. Robert Colglazier Papers.MHI. 115.

pulled behind a locomotive to plow up the wooden crossties. Demolitions cut the rails.⁶⁴⁹

The Germans destroyed everything they could not take with them. An advance element of the 713th Railway Operating Battalion landed in Salerno shortly after the assault, but it took until the end of October to establish a rail link between Salerno and Naples with nine operational locomotives.⁶⁵⁰

Rail service gradually increased as engineers and rail personnel repaired or rebuilt tracks, bridges, and switches. The first task was to restore service around Naples. The rail lines surrounding Naples suffered total destruction. Twenty-five major bridges were blown and the Germans had damaged every rail, switch, and frog. Mines littered the rail lines and facilities.

The first locomotives put into service were cargo trucks outfitted with boxcar wheels. Arriving in the area on D+2, rail troops located a serviceable rail line and several Italian boxcars, but no locomotive. Taking two 2 ½ ton trucks, they removed the traditional wheels and installed flanged railway wheels to provide the power to pull the railcars, providing another example of American ingenuity. These truck/rail engines served as a temporary measure until the rail units could deploy heavy machinery from Sicily or North Africa onto the Italian mainland.⁶⁵¹

⁶⁴⁹ "American Rails in Eight Countries: The Story of the Military Railway Service," 19.

⁶⁵⁰ Dunham. "U.S. Army Transportation and the Italian Campaign," 69.

⁶⁵¹ Colonel Charles D'Orsa. "The Trials and Tribulations of an Army G4." *Military Review*, volume XXV, number 4, (July 1945):25.

Figure 27: Truck Reconfigured as Rail Engine⁶⁵²



Figure 28: Damaged Ties⁶⁵³



Much of the problem stemmed from the fact that there were no stocks of general rail items available in Italy to repair the damaged rail lines. Workers had to use sidings to glean usable rails and switches. Rail workers had to clear demolished overhead bridges before repair of the tracks could begin. The Germans were not solely responsible for the damage – Allied air raids had damaged the rail yards as much the demolition work of the enemy.⁶⁵⁴

Engine operators, such as Sergeant Fred A. Tomer, were without a job until the rail lines were back in operation so these men lent a hand wherever possible. Tomer decided to help out in the clearing of the rails by forming a track gang. The sergeant grabbed a private who had some track gang experience, PVT Alexander Parker. Together, they formed a 21-man team that, in a single day, managed to reclaim eight rail cars and a section of track to place the cars on. The following day Tomer and his crew put an additional 12 cars into operation. Then, on the next day, the track gang repaired a German crane and built 75 yards of track. Sergeant Tomer was just trying to help and keep himself

⁶⁵² Source: "Engineer History of the Mediterranean Theater," CMH.

⁶⁵³ Source: Dunham, "US Army Transportation and the Italian Campaign," CMH.

⁶⁵⁴ "American Rails in Eight Countries: The Story of the Military Railway Service," 12-13.

busy; however, these were exactly the kinds of endeavors that allowed the service units to bring the rear areas into operation as quickly as possible. Efforts, like these, steadily increased the capacity of the Italian rail service. Allied rail troops eventually rehabilitated 6,233 miles of rail lines and 612 bridges across the country.⁶⁵⁵ In this war of attrition - conducted with aircraft and mechanized forces - the rail lines were the backbone of the ground transportation network and allowed the support units to use the limited numbers of cargo trucks in the forward areas where the railways could not venture.⁶⁵⁶

By January 1944, the Railway Grand Division had reestablished service from Naples north to Vairano and east to Foggia. Their British counterparts had connected Taranto to Vasto.⁶⁵⁷ A rail line now connected the major elements of the 15th Army Group.

In an effort to bring efficiency to the rail system, AFHQ placed all US and British rail units under the control of Brigadier General Gray and the Military Railway Service. Working together with General di Raimondo of the Italian military railway, General Gray set the priorities and policies that governed rail reconstruction and organization throughout Italy.⁶⁵⁸ Cooperation was widespread and rail service expanded throughout the war.

To manage the limited Italian roads, rail lines, ports, and other infrastructure, the Allies formed the Italian Resources Commission. The senior British member of the commission was Major General Sir Brian Robertson and the senior US member was

⁶⁵⁵ "Summary of Supply Activities in the Mediterranean Theater of Operations." G3, MTOUSA. September 30, 1945. MHI. 40.

⁶⁵⁶ "American Rails in Eight Countries: The Story of the Military Railway Service," 13-14.

⁶⁵⁷ Jefferson Myers, "Military Railway Service in World War II." *Military Review*, volume XXIV, number 11 (February 1945): 36.

⁶⁵⁸ AFHQ General Order Number 60, dated October 22, 1943, subject: Development and Operation of all Italian Railways. NARA, RG 492, box 1533.

Brigadier General Pence. The commission met regularly to set priorities and make allocations between the forces.

Items adjudicated by the board included not only the expected matters of rail allocation, but also such matters as shipping allocations for the British to bring in seed potatoes, the opening of Italian breweries, and the purchase of pack mules in Sardinia and Spain. Shipments of goods typically originated in North Africa before heading to Italy. Unfortunately, the result of one decision could have unforeseen consequences on another.

On one such occasion, the action to open the breweries required a large purchase of hops. The Services of Supply purchased the hops and, coincidentally, shipped them to Italy aboard the same vessel containing a large number of mules. When the ship docked in Italy, the hundred-dollar-a-ton hops were gone and the mules were bloated from the bounty of forage.⁶⁵⁹ Future shipments carried mules and hops in separate ships. Despite these entertaining incidents, the Italian Resources Commission process worked well and continued meeting throughout the war.

Life in the base section was not just about supply and transportation; it also included other critical functions, such as engineering and medical support. Engineers in Italy encountered a scope of demands they had not previously seen. Local civilians wanted the infrastructure repaired and basic services restored. Combat units wanted mines cleared, as well as roads and bridges fixed. The base section needed bases built. There was no shortage of tasks.

⁶⁵⁹ Interview with Robert Colglazier, 113.

Supporting the effort were a number of lumber mills and rock quarries. By the end of the war, Peninsular Base Section engineers were using 60 civilian mills to provide the lumber needed for all these projects, capable of producing 500,000 board feet of lumber per month. This was required for the construction of camps and bridges, but also for the holds of Liberty ships. Each Liberty ship needed one million board feet of lumber to separate and store cargo in its holds.⁶⁶⁰

Unlike North Africa, Italy held a number of local resources that the Allies were able to purchase. Various items such as food, lumber, road construction materials, iron, and electrical wire were all available, which resulted in a savings of over 400,000 tons of shipping space over the course of a year. This supported the Italian economy and meant that units did not have to wait as long to have requisitions filled.⁶⁶¹

The Island Base Section established one of the largest medical centers of the war near Naples. This included a state-of-the-art laboratory at Bagnoli, which conducted advanced studies on hepatitis and native diseases. Italy also represented the first wide-spread use of whole blood transfusions, penicillin, sulfa drugs, and evacuation of the wounded on aircraft.⁶⁶² The Mostra fairgrounds contained three general hospitals, two station hospitals, and a medical supply depot. A large swimming pool facilitated physical therapy while a 200-seat theater showed movies and live entertainment for the development of patient morale.⁶⁶³ By January 1, 1944, there were 14,992 hospital beds within Italy spread among

⁶⁶⁰ "Tools of War," Pamphlet issued by the Peninsular Base Section (Aberdeen Proving Grounds, 1946), 3.

⁶⁶¹ *Ibid.*, 5

⁶⁶² *Ibid.*, 6.

⁶⁶³ *Ibid.*

30 hospitals.⁶⁶⁴ The Allies had learned that patient survival rates increased the closer that medical treatment facilities were to the front lines. Having a medical complex on the Italian peninsula saved lives and lessened evacuation requirements.

To stay abreast of the situation in Italy and to manage the administrative needs of the combined force, AFHQ established an advance administrative headquarters in Naples on November 1, known as FLAMBO. This was not an acronym, but rather, simply a code word for the forward headquarters. The main purpose of this headquarters was to coordinate administration and support between the Fifth and British Eighth Armies in order to facilitate future operations against Germany.⁶⁶⁵

FLAMBO had the role to serve as a combined administrative staff, as well as provide general administration of British forces. For the actual execution of administrative missions, the Peninsular Base Section handled support for all US units, while the British Number 2 District, stationed at Bari, provided for the local administration of British forces.

Fifth Army was not alone in working to meet the needs of civilians; the British experienced similar demands on their administrative systems as well. Local Italians within the British sector of Italy needed comparable support to what the US service units were providing in the west, but, by December 1943, an additional requirement had appeared. Over 71,000 civilians on the Dalmatian Islands (offshore of Croatia) were without food and starvation was imminent.⁶⁶⁶

⁶⁶⁴ Ibid., 62.

⁶⁶⁵ "History of Allied Force Headquarters, Part 2, Section 1- December 1942- December 1943. 204.

⁶⁶⁶ Message from FLAMBO to Freedom, dated December 9, 1943. NARA, RG 492, box 674.

The advanced headquarters worked to address the immediate need, but correctly argued that long-term support for these people should not justify large transfers of supplies from the on-going effort in Italy. There was already a serious lack of civilian food and housing and the British could not accommodate the transfer of these additional refugees onto Italian soil. Rather, FLAMBO asked British Middle East Command to coordinate a long-term plan to ship food direct to the islands from the eastern Mediterranean.

Up to November, the British Eighth Army had been receiving supplies from the port in Taranto. However, as the army advanced, the line of communications lengthened, thus increasing the transportation requirement on the service forces. Since trucks were an issue for the British as well, FLAMBO sought to reduce the line of communication by changing the port of supply from Taranto to Naples once the railway to Foggia was completed.⁶⁶⁷ Support of the armies was transitioning to Italy's west coast, while support for the air forces remained in the east. FLAMBO continued to coordinate general administration for British forces until February 1944, when it was absorbed into General Alexander's headquarters of the Allied Armies of Italy (AAI.)

Other Claimants

In November 1943, the French Expeditionary Corps arrived in Italy, representing another demand on the US sustainment system. The 13,000 French forces included the 2nd Moroccan Division, 4th Group of Moroccan Tabors, two mule companies, French service

⁶⁶⁷ "History of the Peninsular Base Section, North African Theater of Operations." Volume II. 26.

units, and 5,000 live sheep.⁶⁶⁸ The divisions of the French corps had been reequipped with US equipment in North Africa and the French would fight under Fifth Army, adding to the complexity of supporting the army. Planners had envisioned that the French would operate their own support base and staff it with French service forces. La Base 901 formed under the command of Colonel Le Masle, to serve as the main French support base.⁶⁶⁹ The Peninsular Base Section would provide supplies to Base 901, which in turn, supplied the French corps. This was a relatively simple system on paper, but differences in culture, expectations, and a shortage of French service forces, provided challenges that would carry over to the invasion of southern France.

Providing support to the French was more complicated than it would first seem. North African units were mostly Muslim, so they could not have any pork products in their rations. A request for rations from a Muslim unit really meant rations with no pork, thus requiring additional handling and packaging at the ration dumps. French soldiers also tended to eat more than US troops so ration issues did not last as long as intended. Units would be issued three days of rations and then eat them all in one day.⁶⁷⁰ Eventually, a system worked out where the French received 50 percent of their food needs from the US base section and the rest (wine, brandy, fish, and flour) came from French sources.⁶⁷¹

Compounding the situation was a difference in language that, at times, clouded communications between Base 901 and the Peninsular Base Section. The French did not

⁶⁶⁸ "History of the Peninsular Base Section," Volume III. 12.

⁶⁶⁹ History of the Peninsular Base Section, North African Theater of Operations," Volume II. 31. Also see *Quartermaster Supply in the Fifth Army in World War II* (Fort Lee, The Quartermaster School, undated). 16.

⁶⁷⁰ Sullivan Diary, January 8, 1944.

⁶⁷¹ "A Military Encyclopedia Based on Operations in the Italian Campaigns 1943-1945." G3 Section, 15th Army Group. 359.

always understand the US systems and the Services of Supply did not always understand the French requirements. US procedures required the French to account fully for all equipment, which seemed a waste of time to the French. Thus, there was a difference in cultures both allies had to consider.

The War Department had tried to institute a list of limitations on what Fifth Army could, and could not provide to the French. Fifth Army largely disregarded these restraints and responded to any legitimate need. French units were typically underequipped and needed help outfitting their soldiers.⁶⁷² As an example, the War Department had not included overshoes on the list of approved equipment for issue, but French units were operating in the mountains in up to a foot of snow. General Clark approved an issue of overshoes to the French units, which then went on and accomplished their objectives.⁶⁷³ The War Department was worried about Lend-Lease accounting and the worldwide allocation of resources; the theater was worried about units accomplishing their assigned missions.

By December, the theater had adopted a policy whereby the local base section could provide all necessary support to French forces, with the exception of major items of equipment. Major items, such as vehicles and weapons, required approval of the theater commander for issue.⁶⁷⁴ The US Services of Supply became responsible for providing

⁶⁷² Sullivan Diary, January 7, 1944.

⁶⁷³ Interview with Brigadier General Ralph Tate, January 19, 1949. Sidney Matthews Papers. MHI. Box 3. 20.

⁶⁷⁴ Message, Larkin to EBS, dated December 16, 1943. NARA, RG 492, box 667.

any supplies that the French could not provide for themselves.⁶⁷⁵ Operational necessity had trumped War Department directives.

Since the Free French forces had no industrial base to turn to, the burden of rearming French units represented a steady drain on stocks of Allied war materiel. In May 1944, alone, the French requested an additional 82,000 individual arms, 360 tanks, 6,000 machine guns, and 5,500 vehicles – in addition to those items already issued earlier in North Africa.⁶⁷⁶ This was the cost of incorporating a force that could not provide for itself into a coalition. The burden would only continue to grow as fall gave way to winter and the Allies had to maintain their operations in a cold, harsh, landscape.

Winter

The Allies had hoped that the Germans would withdraw to the Pisa-Rimini line north of Rome. By the fall of 1943, however, signs of German intention showed that Hitler planned, instead, to delay the Allied advance up the peninsula as much as possible. The Germans hoped to slow the rate of advance in order to allow time for their engineers to construct a formal network of successive prepared defensive lines.⁶⁷⁷ Winter was going to be a slow and grueling fight up the Italian peninsula. Predictions came true as the fight bogged down due to poor weather, mountainous terrain, and a lack of landing craft needed

⁶⁷⁵ Memorandum, Joint Rearmament Committee, dated January 15, 1944. Subject: Requisitions for Maintenance of French Forces. NARA, RG 492, box 667.

⁶⁷⁶ Memorandum, NATUOSA, dated May 11, 1944. Subject, Revision of French Rearmament Program. NARA, RG 492, box 132.

⁶⁷⁷ Blumenson. *Salerno to Cassino*, 179.

to outflank the German defenses.⁶⁷⁸ As in Tunisia, circumstances, not the plan, dictated the pace of the campaign.

As soon as it became evident that the drive to Rome would take longer than expected, Fifth Army began looking ahead to identify requirements for winter clothing. Winter in North Africa had been cold and wet; winter in the mountains of Italy would be freezing, cold, and wet. Given the time needed to procure specialized equipment and clothing and ship it from the states, Fifth Army and the Services of Supply did not have much time to spare.

The initial requisition for winter clothing encountered the typical challenges of the military's supply system. The War Department cancelled a requisition for 100,000 sets of winter uniforms because factories no longer manufactured that particular type of clothing. Instead of substituting a different uniform of similar qualities, the War Department directed Fifth Army to submit another requisition.⁶⁷⁹ The exchange of cotton uniforms for wool, and vice versa, occurred every six months, a process that required early planning and presented a large task for the supporting quartermaster units.

Eventually, Fifth Army submitted the right requisitions and items such as winter uniforms, insulated tents, and heaters all flowed into Italy. The tent heaters were especially valued and required close management to ensure no unit received more than its share.

Winter also brought another challenge - illness. Two entirely different types of diseases affected two different populations during the first few months of 1944: typhus hit

⁶⁷⁸ "History of Allied Force Headquarters," AFHQ, April 1945. MHI. 633.

⁶⁷⁹ Sullivan Diary, October 8, 1943.

the civilian population in Naples and venereal disease ran widespread throughout Fifth Army. Both were a drain on the medical system and each held the potential to influence the war effort.

As the local inhabitants returned to Naples, enterprising Italians saw opportunity with the large numbers of Allied soldiers that were working or recovering in the Naples area. Licensed and unlicensed bordellos sprung up along an amusement belt of sorts, spreading gonorrhea and syphilis to unsuspecting troops. By the first week of January, venereal disease patients, mostly from Fifth Army, filled 13-15 percent of the hospital beds in the Peninsular Base Section area. By the end of the month, 2,800 beds had been set aside solely for the treatment of venereal disease.⁶⁸⁰ This was becoming a problem Fifth Army could not ignore.

To deal with the situation the military police formed a vice patrol, commanders were held accountable for the numbers of cases in their units, and prophylactic stations which contained condoms and washing materials were positioned in neighborhoods prone to prostitution. Services of Supply medical units tested jailed prostitutes for venereal disease. If a woman tested positive, she received treatment before her release.⁶⁸¹ Such measures collectively worked and the incidence rate of these diseases gradually diminished to tolerable rates, at least among white soldiers.

The incidence rate between white soldiers and other soldiers of color displayed a striking difference. In the spring of 1944, colored soldiers had an incidence rate for

⁶⁸⁰ History of the Peninsular Base Section, North African Theater of Operations," volume II. 59.

⁶⁸¹ A Military Encyclopedia Based on Operations in the Italian Campaigns 1943-1945." G3 Section, 15th Army Group. Undated, probably 1945. 519.

venereal disease that was four times the level of white soldiers. In March, the rate was 98.51 per 1,000 per annum for white troops, but 351.25 for colored troops.⁶⁸² One can most probably attribute this difference in rates to a combination of factors, including differences in culture, education, and different operating zones. A majority of colored units tended to serve in the rear areas, where populations of civilians were greater.

Typhus presented a great challenge, both in terms of the possible affected population and in prevention. If Naples experienced a major typhus outbreak it could quickly overrun the military's ability to treat everyone affected, as well as limit the Allies' use of the port and could even possibly spread to the troop units as well. The Allies had seen the effects of typhus in past wars and no one wanted to see it return.

A report by the Fifth Army Surgeon provides some idea of the conditions, which allowed diseases, such as typhus, to spread. Sanitation of the Italian populace was generally poor and there were inadequate supplies of food or dairy products. Italians fertilized vegetable gardens with human excrement and dairy cows frequently had tuberculosis or undulant fever. Drinking water frequently came direct from local streams.

Typhus spread through body lice, which were common in the winter months when many people stopped washing their clothes.⁶⁸³ The only good news was that the winter tended to kill off the mosquitoes, which spread malaria during the summer months.

In early 1944, Naples was in a pre-epidemic state.⁶⁸⁴ Sanitation was still a concern, clean water was limited, and typhus fever was beginning to spread among the population.

⁶⁸² History of the Communications Zone, volume 4, Medical chapter, 34.

⁶⁸³ Report, Fifth Army Surgeon, undated. Subject: Medical and Sanitary Data on Rome South Area of Italy. NARA, RG 492, box 2737.

New cases developed at a rate of 20-25 a day through the month of February.⁶⁸⁵ In a quick response, the War Department deployed the US Typhus Commission under the leadership of Brigadier General Leon Fox, an Army doctor and health officer, to Naples to deal with the threat.

The commission worked with Italian authorities to treat the conditions causing the disease and to limit its spread. Within a month, the threat had passed and no US soldier ever caught the disease. Commanders had a personal interest in keeping down the rate of disease – at any one time, soldiers with diseases or injuries occupied two-thirds of all hospital beds in the communications zone. The remaining one-third were battle casualties.⁶⁸⁶

There was more to taking care of soldiers than limiting the spread of disease; troop morale and cleanliness were also important considerations. Included in the base sections were specialized quartermaster units which provided laundry and shower support. These services were traditionally part of the communications zone, but that was proving to be unsatisfactory. Divisions had to wait until they rotated out of the front lines to delouse, shower, and get clean clothes. Showers and clean uniforms affected more than just morale; they also contributed to the health and welfare of a unit. Experiments in pushing this type of support forward provided a large boost to morale and proved to be one of the most popular initiatives.⁶⁸⁷

⁶⁸⁴ History of the Peninsular Base Section, North African Theater of Operations.” Volume II. 60.

⁶⁸⁵ “History of the Peninsular Base Section,” Volume III, 72.

⁶⁸⁶ For example - In April 1944, soldiers occupied 13,941 beds due to disease, 3325 from injury, and 5739 from battle. History of the communications Zone, volume 4, Medical chapter, 32.

⁶⁸⁷ A Military Encyclopedia Based on Operations in the Italian Campaigns 1943-1945.” G3 Section, 15th Army Group. Undated, probably 1945. 447.

In November 1943, Major General Truscott, commander of the 3rd Infantry Division, provided a list of complaints to Fifth Army. Included in these was the fact that after a year's service in North Africa, Sicily, and Italy, the division had never had an opportunity to have a bath or shower aside from those out of "tin cans, helmets, and other makeshift installations." In less than two weeks, the 61st Quartermaster Laundry Company was moving to set up laundry and shower facilities within the 3rd Infantry Division sector. Mud was everywhere, slowing down the setup of the equipment, but the company commander promised that his unit would be operational by November 20.⁶⁸⁸ Additionally, the Services of Supply ordered the 302nd Sterilization Company, located at Piedimonte, to set up a bath facility and laundry exchange for the 34th Infantry Division.⁶⁸⁹

The possibility that the 3rd Infantry Division had been in theater for a year before receiving a proper shower is somewhat surprising. The Division landed with the Western Task Force in Morocco and had fought in Tunisia, as well as Sicily, but there were periods of rest in between the campaigns. When the Division was not on the front lines, the communications zone should have provided shower and laundry services as part of the rest and refit period, however from Truscott's note this appears not to have happened. Part of the answer possibly lies in the time needed to train, equip, and deploy the shower and laundry units; these were among the lowest priority units in the Army's inventory. Additionally, these types of support units traditionally operated in the rear areas, far from the front. The Italian campaign was the first instance in which Quartermasters experimented with positioning clothing exchange and bath units well forward in the

⁶⁸⁸ Sullivan diary, November 7, 1943.

⁶⁸⁹ Quartermaster Supply in the Fifth Army in World War II, 109.

combat area.⁶⁹⁰ Regardless, Fifth Army responded to Truscott's note and made care of the infantry divisions a priority for this type of support.

Upon arriving at one of these shower units, soldiers entered a large warming tent and removed their uniforms. Dirty clothing went into one bag, personal items into another. After showering, troops received clean clothing, while their old uniforms went to a laundry facility for cleaning, sorting, and later re-issue. They retrieved their personal items and emerged looking, and feeling quite better; the effects of a warm shower and clean clothing improved the mind as much the body. This experiment of exchanging old uniforms for new while a soldier showered proved wildly popular among the troops and was much faster than waiting for the laundering of individual uniforms. The service forces were adjusting to the needs of the combat commanders, although a complaint from a general officer tended to speed up the process.

The rain that slowed the 61st Quartermaster affected other units as well. Throughout November, rivers flooded, roads became impassable, and supplies rotted if they were not suitably packaged. Replacements were untrained in how to keep themselves dry and young sergeants and lieutenants were untrained in the prevention of trench foot, the scourge of the First World War.

Medical reports from Fifth Army first began reporting cases of trench foot in mid-November 1943. Before November ended, medics hospitalized 305 soldiers with the condition, and reported another 1,323 cases reported in December. In the first 90 days of

⁶⁹⁰ A Military Encyclopedia Based on Operations in the Italian Campaigns 1943-1945." G3 Section, 15th Army Group. Undated, probably 1945. 446.

1944, Fifth Army had 4,000 additional trench foot cases, divided equally between the Cassino front and the Anzio beachhead.⁶⁹¹

The British Army had an effective means of preventing trench foot. Every unit conducted a daily foot drill in which a sergeant oversaw the men remove their shoes and socks, massage their feet, and then put on a dry pair of socks. This stimulated circulation and kept feet dry.⁶⁹² Additionally, the British boots and socks were heavier than that of the Americans so British soldiers were less susceptible to the disorder.

Fifth Army adopted the strategy and ordered an additional issue of socks for everyone in Italy. This was a medical problem, but one that the quartermaster had to solve. Socks became a priority item for issue and, as with venereal disease, Fifth Army held commanders accountable for the rate of trench foot within their units. The measures worked and the incidence rate of trench foot in Fifth Army during 1944-45 was only one-third that of the previous season.⁶⁹³

Up to this point in the war, the Allies had mainly used cargo aircraft or delivering men and supplies from one airfield to another. There had been some minor attempts to conduct airdrop of supplies in North Africa and Sicily, but these were rare and involved small units. The mountains of Italy provided the need and opportunity to develop the use of parachutes for airdrop of supplies as a means to sustain a fighting force on a larger scale than had been previously experienced.

⁶⁹¹ Charles Wiltse, *The Medical Department: Medical Service in The Mediterranean and Minor Theaters* (Washington: Center of Military History, 1965), 261.

⁶⁹² Sullivan diary, January 21, 1944.

⁶⁹³ *A Military Encyclopedia Based on Operations in the Italian Campaigns 1943-1945.* G3 Section, 15th Army Group. Undated, probably 1945. 519.

Realizing that this was a specialized task, the Peninsular Base Section established an Air Resupply Depot at the Capodichino Airfield outside of Naples.⁶⁹⁴ This depot held the supplies, specialized equipment, and trained personnel needed to prepare items for aerial delivery. Delivering supplies by air meant more than tossing the material out of an aircraft; each load needed the right parachute, sling assemblies, and padding to protect it from damage. This was a developing science.

Supplies were wrapped using wire and salvaged blankets. These bundles were then either loaded into C-47 cargo planes or placed into the belly tanks from A-36 bombers.⁶⁹⁵ Typical airdrop missions involved the delivery of rations, water, medical supplies, petroleum products, and ammunition to US and British forces separated from their supply lines.

For the first time, the use of airdrops influenced major battles. US forces involved in the fight for Casino during the third week of January 1943, received supplies by air for a five-day period during the fall of 1943. Supplies dropped in view of the enemy using 160 air sorties. In a testament of the skill of the air crews and the lessons that had been learned in packaging supplies for airdrop, 80 percent of the supplies dropped were received and in usable condition.⁶⁹⁶ Due to the difficult terrain, Cassino would continue to hold out until May 18, but the concept of airdrop for large units proved itself a viable option.

A major complaint about using aircraft for supply drops had been that it took too long between the time a unit submitted a request and the actual delivery of supplies. Units did

⁶⁹⁴ History of the Peninsular Base Section, North African Theater of Operations.” Volume II. 30.

⁶⁹⁵ Ibid.

⁶⁹⁶ Report of Observers in the MTO, 1942-1945, Volume III, US Army Ground Forces Observer Board. MHI. G4 Annex, 2.

not have the luxury to wait for a few days while the request worked its way through the system. Italy proved that the support troops could shorten this timeline. On May 16, 1944, a combat force found itself 30 kilometers from its support base in a mountainous area with no roads and few trails. The unit radioed in a request for aerial resupply at 10:45 p.m. and the mission flew next day between 2-4:30 p.m. – just 16 hours after the initial request. By means of comparison, delivery of this same material would have required 500 mules and two days.⁶⁹⁷ Missions, such as these, proved to be of immense value to the ground forces and the Air Corps gained another competency, which carried forward into the fight for northwest Europe. Throughout the rest of the war, the use of aircraft for support missions continued to increase as commanders and logisticians discovered the range of potential capabilities.

One area that received little fanfare was the care of the dead. By the summer of 1943, units had become more accustomed to dealing with the fallen and the Quartermaster Corps had refined the systems for establishing temporary cemeteries and dealing with personal effects. Unlike Torch, where the dead were piled together on the beach awaiting a decision on what to do with them, graves registration specialists accompanied the Avalanche landing force and quickly established a corps cemetery on a spot of about four acres at Paestum, near the Gulf of Salerno. By D+4, two rows of graves were already complete.

A personal effects depot, ran by a staff sergeant, removed the personal effects of each of the dead. Graves Registration specialists filled out duplicate forms; one copy

⁶⁹⁷ Ibid., 3.

accompanied the effects and one copy remained at the depot.⁶⁹⁸ The depot cleaned all Army equipment returned it to a supply depot for later reissue.

German prisoners of war had the task of digging the graves and the 36th Infantry Division chaplain, Chaplain McCullough, was interring the dead. They buried the remains without caskets. Blankets or mattress covers draped some of the bodies; some simply lay in their uniforms. Graves Registration soldiers used burlap straps to lower the dead into the graves.

The workload for graves registration units varied, depending on the activities of the front. The record in Italy was set on May 30, 1944, when the US cemetery at Nettuno interred 245 bodies in a single day.⁶⁹⁹

Within the first three months of the campaign, Fifth Army had established 20 cemeteries on the Italian mainland.⁷⁰⁰ Most were small, remaining open for only a few days and holding as few as 20 bodies. The trail of cemeteries was a witness to the flow of battle and the intensity of the fight.

Proper care of the dead had little direct impact on the battle, but it did have a large impact on both the morale of the soldiers within the theater and for public support of the war. Troops knew that if they fell in battle, the Army would find their bodies and handle them with respect. Families of the fallen quickly received word of what had happened and later received the personal effects. After the war these families would also have the choice

⁶⁹⁸ Sullivan Dairy, September 13, 1943.

⁶⁹⁹ Quartermaster Supply in the Fifth Army in World War II. 186

⁷⁰⁰ Quartermaster Supply in the Fifth Army in World War II . 113 and 186.

of leaving their relatives in an overseas cemetery, or having them disinterred and returned to the US for subsequent burial.

Graves Registration units in Italy had a steady stream of business from the time of the Salerno landings. Business would increase even more at the end of January as the Allies tried to bypass German lines with an amphibious assault at Anzio.

Anzio

By the middle of October, Allied hopes for a quick advance to Rome were fading. German forces provided a spirited defense along the Gustav line, running from north-northeast Cassino to Ortona. Fifth Army hoped to use an amphibious assault along the western Italian coast as a means to bypass German defenses and force an enemy withdrawal. Code-named "Operation Shingle," the attack on Anzio hoped to land a force in the German rear that could drive east, toward the Alban Hills. Commanders felt this would put enough pressure on the German defenders to allow Fifth Army to break free of the line of defenses, link up with VI Corps at the Anzio beachhead, and then march on to Rome.

Vital to the operation was the use of 68 of the 90 operational LSTs that remained in the Mediterranean. The Combined Chiefs of Staff had directed that AFHQ transfer these vessels to Europe in preparation for a cross-channel assault, but the possibility of securing Rome provided a powerful argument to allow the vessels to remain in the Mediterranean in support of the operation. The Commanders in Chief granted Eisenhower temporary loan of the LSTs for use in the Mediterranean, but only for a limited period.

The competition for LSTs was fierce and everyone had a good reason to demand more. The Services of Supply was using these craft to ferry supplies from North Africa to Italy. Fifth Army wanted more LSTs in order to conduct amphibious assaults around German defenses. The War Department had promised the European theater headquarters in England two-thirds of all available LSTs by the middle of December 1943 to conduct landing training. Additionally, the Pacific theater continued to demand additional assault craft as they prepared to begin the campaign to clear the Marshall Islands, scheduled for late January.⁷⁰¹ Landing craft were the key to make, and sustain, amphibious landings - landings that were the hallmark of the war.

The final decision for Anzio languished for several weeks as senior leaders tried to determine the best strategy for a stalled Italian campaign. Compounding the indecision was the movement of key personnel. On January 8, 1944, Eisenhower relinquished command of AFHQ to General Sir Henry "Jumbo" Wilson, commander of the British Middle-East Theater. Along with the change, Lieutenant General Devers arrived to serve as the Deputy AFHQ commander and commanding general of the North African Theater of the US Army (NATOUSA.) General Montgomery was also to leave the Mediterranean for Europe to take command of the 21st Army Group. Generals Alexander and Clark remained in their current positions.

The combined change of supreme command in the Mediterranean, along with the extra attention from Churchill (who was recovering in North Africa from a case of pneumonia,) led to renewed interest in the Anzio operation. On December 23, the Prime Minister

⁷⁰¹ Martin Blumenson. "General Lucas at Anzio," in *Command Decisions*. Kent Roberts Greenfield ed. (Washington: Center of Military History, 2000), 326.

became determined to seize Rome as quickly as possible, before anyone could strip units and resources away from Italy for a possible south France operation. Logisticians questioned the feasibility of the Anzio plan because LSTs were only on loan for a short period and could not provide long-term support of the landing force.⁷⁰² The 15th Army Group and AFHQ noted these concerns, but then commenced operations because of a belief that the two forces could link up within 8-15 days.

The assault force of 47,000 men and 5,200 vehicles sailed from Naples and surrounding ports on January 20 for the short voyage north along the coast. The total number of ships and craft totaled 376.⁷⁰³ Maneuvering around enemy minefields, the armada arrived off Anzio at 0005 hours the following morning.

The ground forces consisted of VI Corps, under the command of Major General Lucas, the 3rd Infantry Division; a Ranger force; and the British 1st Infantry Division. The initial landing force scheduled to land on D-Day held 27,000 US forces, 9,000 British, and 3,000 vehicles.⁷⁰⁴ Their objective was to cut the German line of communications and threaten the forces opposing Fifth Army.

The landing area was just 30 miles south of Rome. The Anzio harbor was restricted – it contained one jetty and was limited to vessels with less than a ten-foot draft. Only landing craft could navigate the shallow waters; Liberty ships had to anchor off the coast. The beaches and limited port facilities were not ideal for prolonged support of a landing

⁷⁰² Blumenson, *Salerno to Cassino*, 300.

⁷⁰³ Dunham, "U.S. Army Transportation and the Italian Campaign," 86.

⁷⁰⁴ Atkinson, *Day of Battle*, 363.

operation, but commanders expected that there would be a quick link-up with Fifth Army forces soon after the landings.

The Allied nations divided support responsibilities for the force. The Peninsular Base Section handled support for all US units, while the British Number 2 District provided support for the British units. Once supplies reached the beach, they were the responsibility of the 540th Engineer Shore Regiment, which had a total beach party strength of approximately 4,200 men.⁷⁰⁵

The attack began at 1:50 am on January 22 as two British landing craft launched a barrage of 1,500 5-inch rockets on the beaches. There was no response; the landings were a complete surprise to the Germans. Allied aircraft flew over 1,200 sorties that day as well, but there were few targets. The 3rd Infantry Division landed south of Anzio while three battalions of Rangers occupied the town of Nettuno. The British landed on the beaches to the north.

The landings occurred more or less as planned, although the British 1st Infantry Division had to make some adjustments. The presence of an offshore sandbar and poor beach gradients on the western beaches made landings difficult. Due to the poor beach conditions, the British closed their beaches and all further to the Anzio harbor. Despite these changes, 90 percent of the men and equipment of the assault convoy arrived ashore by the end of D-Day and most of the landing craft were returning to Naples.⁷⁰⁶ Casualties were light; VI Corps sustained only 13 killed, 97 wounded, and 44 missing.⁷⁰⁷

⁷⁰⁵ Dunham. "U.S. Army Transportation and the Italian Campaign," 87.

⁷⁰⁶ *Ibid.*, 92.

⁷⁰⁷ Blumenson, *Salerno to Cassino*, 359.

At the end of the D-Day, VI Corps had a favorable position. The Allied force made it ashore with minimal casualties, the 3rd Infantry and British 1st Divisions reached their assigned objectives, and the Germans were completely surprised. Eisenhower had given Lucas a deliberately vague order, to attack in the vicinity of Anzio, secure a beachhead, and “advance on Colli Laziali [Alban Hills].”⁷⁰⁸

The Corps Commander, Major General John Lucas, faced two options: push his forces as far forward as possible and hope that the bold move convinced the German Tenth Army to withdraw north, or consolidate the beachhead and buildup supplies to meet a possible German counterattack. Lucas chose the latter. He stopped the two divisions short of the Alban Hills and began to build Anzio into a base of operations, awaiting the arrival of the 45th Infantry Division.

By January 29, VI Corps was ready to resume the offensive. However, the Germans had used the time to move the German Fourteenth Army Headquarters down from northern Italy to assume command of the beachhead. Both forces hurried to reinforce the area to gain an advantage over the other. The VI Corps attack on January 29 accomplished little. By then, there were an almost equal number of combat forces facing one another; VI Corps had 100,000 men on the beach, of which 25,000 were service forces. The Germans had 90,000 men, of which approximately 30,000 were involved in the support effort.⁷⁰⁹

Lucas’ decision to stop the VI Corps advance on D-Day short of the Alban Hills, along with waiting to build up a base of operations before attacking, would become one of the

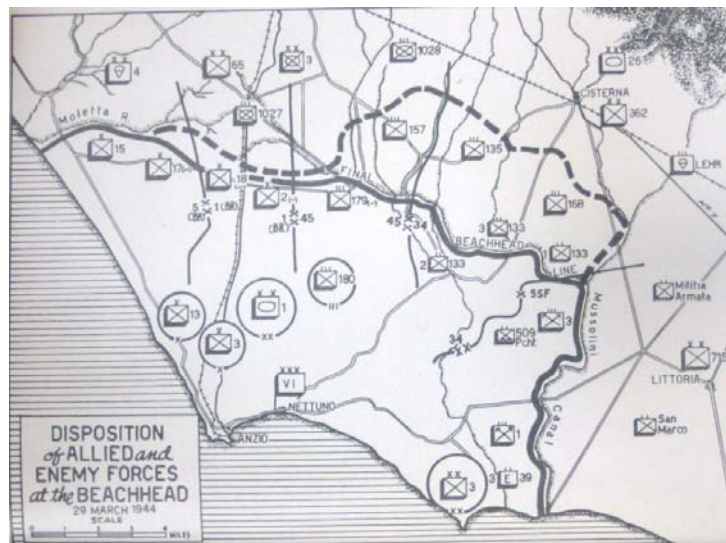
⁷⁰⁸ Blumenson, “General Lucas at Anzio,” 331.

⁷⁰⁹ *Ibid.*, 344.

most controversial topics of the war. Risk went along with either option: to advance or to not advance. Lucas later stood by his decision, explaining that going too far from the beach would have put his divisions in a position that was not sustainable in a German counterattack. Critics would claim that Lucas acted tentatively and missed an opportunity to move on Rome.

Lucas faced a particularly tough decision. On one hand, the VI Corps experience at Salerno had shown how tenuous a beachhead could be when an invading force stuck its neck out. General Clark and Fifth Army had come close to abandoning part of the beach because they could adequately man the beachhead perimeter. On the other hand, venturing out to the Alban Hills extended the perimeter and possibly put divisions on the road to Rome without sufficient logistics support to sustain the drive. Lucas took the cautious approach, which possibly lengthened the Italian campaign.

Figure 29: Anzio⁷¹⁰



⁷¹⁰ Source: "Engineer History of the Mediterranean Theater," CMH.

Anzio degenerated into a four-month fight for land. Counter attack followed attack. VI Corps struggled to flow enough supplies into the beachhead to sustain the force. The Germans complained that they lacked the air cover needed to get close to the beach as naval gunfire stopped German assaults as soon as the enemy came into range.

While VI Corps focused its attention on dealing with elements of the 13 German divisions that were responding to the invasion, supply operations progressed relatively smoothly at the harbor. Supply unloading moved faster than planned and there were few, if any, supply or maintenance problems. Liberty ships were anchoring outside the harbor and transloading their cargo into landing craft, which could enter the harbor. Within a week, port units had fully offloaded seven Liberty ships and 201 LSTs. The amount of men and material moving over the beach was sufficient to support a large offensive, should the VI Corps commander decide to do so.⁷¹¹

Logisticians were not convinced that the two forces could link up in the advertised 8 to 15 days, so, as a safety measure, they allocated 35 days for shipment of supplies by sea. One convoy was to sail every three days to compensate for periods of poor weather that might affect off-loading operations at the beachhead.

An idea that had surfaced during the planning of the operation was to preload trucks at Naples and then drive these trucks onto assault craft for the trip to Anzio. Once at Anzio, the trucks could quickly drive off the vessels, which would shorten offloading times and limit risk to the assault craft. Generals Clark and Lucas liked the idea, however Churchill

⁷¹¹ Dunham, "U.S. Army Transportation and the Italian Campaign," 94.

was opposed to the idea, thinking it was an inefficient use of trucks.⁷¹² Despite the Prime Minister's objections, the Services of Supply made provisions to institute this ground-sea ferry service for sustainment of the Anzio beachhead.

The combination of LSTs and 2 ½-ton cargo trucks rapidly became the centerpiece of sustainment for Anzio. Following the amphibious assault, follow-on convoys consisted of 14 LSTs and 500 combat-loaded cargo trucks, meaning that the trucks were all preloaded with a pre-determined breakout of essential supplies.⁷¹³ Each truck contained 60 percent ammunition, 20 percent fuel, and 20 percent rations. The Peninsular Base Section loaded the vehicles at Bagnoli and staged them in serials at the port of Naples. The loaded vehicles then drove onto the LSTs, facing outward for quick offloading, for the trip to Anzio. Drivers remained with their vehicles.

Once at Anzio, the vehicles simply drove off the landing craft at the beach and proceeded directly to the respective supply dumps. Each truck carried an average of 5 tons of supplies - twice its stated cargo capacity. Trucks that had arrived the day before had been loaded with salvage material, men on pass, or prisoners of war and placed in a waiting line near the Anzio harbor. As soon as the loaded trucks exited the LST, the returning trucks pulled into the port and on to the vessel. To support this effort, theater logisticians made 2,000 trucks available in Italy to serve as a ground/sea ferry service to deliver supplies to the Anzio beachhead.⁷¹⁴ For the Allies, this was a new means of resupplying a combat unit - a means that maximized the capabilities of the equipment,

⁷¹² Interview with Major General John Lucas by Matthews and Wilson, conducted May 24, 1948. Sidney Matthews Papers. MHI. 4.

⁷¹³ Supreme Allied Commanders Dispatch, Italian Campaign 8 Jan-10 May 44. MHI. 20.

⁷¹⁴ Ibid.

while minimizing the risk of enemy fire. Due to the immense truck requirement, this procedure could not support an army, but it could support a corps. This support of VI Corps continued until the Allied breakout occurred at the end of May 1944.

One of the challenges facing the service forces at Anzio was the daily barrage of German artillery. The hills to the north and east provided German gunners with the visibility and range to target almost every dump or storage location. Ammunition dumps were particularly susceptible, with a single hit often setting off secondary explosions. Approximately 40,000 tons of munitions had to be stored under such conditions.⁷¹⁵

The executive officer for the Fifth Army G4, Lieutenant Colonel Charles D'Orsa, deployed to Anzio as part of the Fifth Army advance element. D'Orsa provided a daily cable back to Naples, which helped convey the conditions of the beachhead. The conditions D'Orsa described often resembled life at the front lines, rather than in a support area. On February 29, more than a month after landing at Anzio, German artillery still ranged the beach and harbor:

The harbor and beaches were pretty hot today. It almost appeared as if they [German artillery] had observed fire. Shells were landing all over the Anzio docks and Yellow Beach area with air bursts over the area. They also registered on X-ray Beach with shells landing and also air bursts. Shells hit two LSTs today; one landed this morning about 10 o'clock on the loaded upper deck of one at the hard; destroyed two trucks, started a fire, caused about a dozen casualties...Captain Haverly, of the Medical Section, who was supervising the loading, was killed."⁷¹⁶

⁷¹⁵ "Ammo Joe at Anzio, January 22, 1944-May 31, 1944." Fifth Army publication, undated. APG. 3.

⁷¹⁶ Memorandum, Fifth Army Advanced Command Post to Colonel Tate, dated February 29, 1944. Papers of Ernest N. Harmon. MHI.

Unlike North Africa, Sicily, or Italy, there was no rear area for Anzio. Every inch of ground was within range of the enemy. This forced the service units to adapt how they performed their duties to protect themselves as well as their supplies.

The constrained beachhead meant that Ordnance units could not disperse the munitions as a means to limit risk. There was only so much available terrain. Logisticians had planned to expand the rear support area once a breakout occurred, but as time went by that breakout became less of a probability. The beachhead was not expanding, but supplies and equipment kept arriving on the beaches.

To deal with the situation, service forces, such as ordnance companies and detachments, became proficient at fire fighting and using techniques - such as trench storage - to limit the exposure of supplies to enemy fire. Units formed trenches by using a bulldozer to push sand in the direction of the enemy. This provided a berm in front of the trench and restricted any loss to a single stack of crates. Unfortunately, the water table at Anzio was near the surface and flooding of the trenches was an on-going problem. Another solution was the use of L-shaped bunkers. Eight bulldozers could build sufficient bunkers in a day to hold 3,000 tons of munitions.⁷¹⁷ This proved a very good design and no fire ever spread from one bunker to another.

If a bunker did catch fire, crews raced to deal with the problem before it could spread. Bulldozers piled dirt on top of trenches in an effort to smother the fire. If a fire had just started, hand equipment was often sufficient to quench the fire with water before any explosions occurred. In worst-case situations, commanders pulled their personnel back

⁷¹⁷ Ammo Joe at Anzio, January 22, 1944-May 31, 1944." Fifth Army publication, undated. APG. 5.

from the trenches and allowed them to return only after the fire had extinguished itself.

On any given day, the beaches of Anzio lost an average over 31 tons of munitions to fires.⁷¹⁸ This was an on-going problem, but the innovation, skill, and bravery by the beach units prevented this from spreading into a larger problem, which could ultimately influence the battle.

For the first time in the war, there was no animosity between the front line troops and the supporting service units. The shallow beachhead meant that everyone was sharing the same dangers, hardships, and frustrations. Soldiers called the evacuation hospital at Anzio, “Hell’s half-acre.”⁷¹⁹ The running joke was that German gunners were using the red cross on the tents as a target. The hospital was so dangerous that some of the injured would have preferred to stay in the forward areas, rather than move to the beaches.⁷²⁰ However, evacuation to Naples meant that the wounded had to spend at least some amount of time on the beach awaiting transport. Danger and hardship were succeeding in forging bonds of respect between the combat and service forces.

Figure 30: 105mm Shell Casings at Anzio⁷²¹

Artillery was the king of battle at Anzio. 105mm howitzers, in particular, were crucial tools in keeping German divisions from overrunning the beachhead. Lieutenant Colonel John McFetters commanded the 91st Artillery Battalion. This unit



⁷¹⁸ Ibid., 15.

⁷¹⁹ Papers of Ernest N. Harmon. MHI. 104.

⁷²⁰ Ibid., 105.

⁷²¹ Source: “History of the Peninsular Base Section, Photographs,” CMH.

fired 8,700 rounds in one day at Anzio, a record for the time. Colonel McFeters died a short time later at Anzio and the battalion fired the traditional 21-gun salute volley during the funeral on the beachhead - using howitzers aimed at the enemy- a fitting and lethal tribute.

Allied air and naval attacks on the German lines proved especially effective. Any German attack that neared the beach met concentrated gunfire from the Allied combat ships constantly cruising offshore. An attack by the German 715th Division came close to breaking through the British lines, but failed due to the intense artillery fire and the naval guns of three Allied cruisers.⁷²² On February 29, during one of the last German attacks at Anzio, 247 Allied fighter-bombers and 24 light bombers stalled the German advance. Field Marshal Kesselring later wrote that the Germans could have succeeded in pushing VI Corps off Anzio's beaches if not for Allied air and naval fire support. Without these, Kesselring argued, the Germans could have shut off the Allied supply line.⁷²³ Allied firepower not only stopped German attacks, it also protected the lines of communication, which allowed VI Corps to survive.

Support operations continued until adverse weather conditions shut down vessel unloading off the beach – high waves and winds simply made it impossible to transfer cargo from ships to the landing craft. The Navy estimated that, due to weather and high seas, only two days out of seven would support unloading operations. In reality, good weather allowed vessel unloading an average of four days out of seven. Despite this,

⁷²² Blumenson, *Salerno to Cassino*, 396.

⁷²³ Memorandum, US Forces in Austria, dated August 25, 1946, subject: Answers by Field Marshal Kesselring to Questions submitted by Headquarters ASFA. G-2 Section. MHI. 7.

some shortages did occur. In one instance, the munitions dumps at Anzio were down to six rounds of 105mm ammunition. However, they did contain over 100,000 rounds of tank ammunition (planned for a breakout that had not yet occurred.) The tank rounds had about the same range as the howitzer rounds so soldiers placed logs under the front of tanks along the entire perimeter, which increased the elevation of the tank main guns and increased their overall range to 14,000 yards. By doing so, 250 Sherman tanks performed the role of an entire division's worth of artillery and held the line until the weather subsided and ship offloading resumed.⁷²⁴ Yankee ingenuity had come through once again.

By May 1944, VI Corps was ready to break out of the beachhead and Fifth Army was ready for the final push through the German Winter Line. Strategic bombing raids had taken their toll on German supply lines and supporting infrastructure from Rome up to the Brenner Pass. German combat strength was ebbing along the front lines, while the Allies had managed to maintain a steady rate of resupply and replacements. In preparation for the breakout, over 1,000 artillery rounds were stacked near each gun emplacement. An overwhelming barrage of fire would crack the line that had held the Allies for over four months.

A variety of factors led to the prolonged stalemate. As noted earlier, the VI Corps commander, Major General Lucas, failed to take full advantage of the surprise gained by the assault and intentionally did not push his divisions as far forward at Anzio as some felt that he should. This is debatable since Lucas questioned whether he could sustain or reinforce those forces if they advanced too far from the beach.

⁷²⁴ Papers of Ernest N. Harmon, 110.

Additionally, other factors ought to enter into any discussion of this topic. First, part of the problem was also the reduced manpower of the British divisions – both at Anzio and along the Fifth Army front. Due to the length of the war, the number of British casualties, and a relatively small population, British formations were at less than full strength and there were not sufficient replacements available to meet all the demand. These units may have lacked the power to punch a hole through the stiff German opposition.⁷²⁵ Had replacements been available from Great Britain, this might have been different, but the British Empire was simply running out of young men by this point in the war.

Figure 31: Recovering the Dead at Anzio

The second factor to consider is that, in January 1944, the 36th Infantry Division had a shortage of equipment and limitations on its expenditure of artillery ammunition. This limited the division's ability to cross the Rapido River as planned.⁷²⁶ Fifth Army needed this crossing to help open up the Liri valley, which, in turn, would open the way for Fifth Army to join forces with VI Corps at Anzio.



The third factor was the weather. Torrential rains and a heavy snowmelt during January had flooded rivers. German engineers had diverted the Rapido River, creating a

⁷²⁵ Interview with General Marshall, conducted by majors Lemson, Hamilton, and Howard Smyth, conducted July 25, 1949. Sidney Matthews papers, box 3. MHI. 2.

⁷²⁶ Memorandum for Record, MG Fred Walker, October 2, 1957. Sidney Matthews Papers in the folder Rapido River Crossing. MHI.

marsh, which bogged down tanks and other vehicles. Movement was slow in both the forward and rear areas.

In the end assessment, a lack of aggressiveness from the beachhead combined with poor mobility and a lack of combat power in several divisions, all contributed to the winter standoff. The lack of resources was not the sole factor, but it did play a role.

Changes within Services of Supply and the Peninsular Base Section

While the divisions stalled at the front, there was a considerable amount of change occurring in the theater support structure. The rear areas in Italy were growing and developing additional capacity every day. New units formed to meet the increased demands. Some changes occurred due to new commanders; others were due to developments in the tactical situation. The only constant in the communications zone was change, which was a testament to the resiliency and adaptability of the US theater in the Mediterranean.

One of the biggest changes within the Peninsular Base Section itself was the change of its commander. On March 27, 1944, Brigadier General Pence had to relinquish command due to poor health. Pence had firmly established the base section in Italy, but the job had taken its toll on him. The War Department transferred Pence back to the US to serve as an instructor at the Army's Command and General Staff College. Replacing Pence was another familiar name within the Services of Supply, Major General Art Wilson, formerly of the Atlantic Base Section. Colonel Francis Oxx, the Chief of Staff, remained on within the base section to provide continuity between the two commanders.

While the Peninsular Base Section's primary customer was Fifth Army, there were other support organizations, which received their supplies and equipment from the base section or direct from North Africa. Several of these organizations were responsible for providing common items, such as food and fuel, to the Allied air forces.

In November 1943, AFHQ reassessed its plans and assumptions based on the stiff German resistance encountered in Italy. Since Hitler was determined to oppose Allied occupation in Italy, Allied planners adjusted the basing of aircraft. To cover the offensive toward Rome, Eisenhower approved the buildup of six heavy bombardment groups in Italy. These air groups belonged to the Strategic Air Force, but would be a critical component in attacking German reinforcements, logistics, and the enemy's rear area. Establishment of these bases in Italy would also support future operations in central Europe.⁷²⁷

The Air Corps maintained two air commands in Italy. The Twelfth Air Force, which provided close air support to Fifth Army, flew out of Foggia, Italy, supported by the III Air Service Area Command. The Fifteenth Air Force, a strategic bomber force, stationed itself at Bari along with the supporting II Air Service Area Command (Provisional.) The XII Air Force Engineer Command at Bari provided construction and other engineer support.

By the spring of 1944, the number of US aircraft stationed in Italy, Corsica, and Sardinia totaled over 6,500. The Fifteenth Air Force was operating from 31 different

⁷²⁷ Memorandum, AFHQ, dated November 8, 1943, subject: Operations on the Italian Mainland. NARA, RG 492, box 124.

airfields, while the Twelfth Air Force had 28.⁷²⁸ This represented a tremendous requirement for supplies, medical, transportation, ordnance, and engineer support - necessities that competed with the needs of the ground forces and were just as important.

The basing of these groups would have a significant impact on the operations of the Peninsular Base Section. Engineers and other service units had to refurbish or improve supporting infrastructure, such as roads, rail, and phone lines. The airfields needed large quantities of fuel, shipped by pipeline if possible, or truck if not. The transport of munitions would require truck and rail support. Fortunately, Naples provided sufficient port capacity to receive with the increased level of supplies, although the additional demands stressed the base station's ability to clear supplies from the port inland to dumps and airfields.

One of the strategic reasons behind the Italian campaign was the need to establish air bases on the peninsula that could provide the necessary range to hit targets in southern Europe. The area that provided the most suitable terrain for such a purpose lay on the eastern side of Italy, within the British area of responsibility.

North Africa had shown that British service units could not adequately support US forces. Each nation's systems, expectations, and equipment specifications were too different. In a novel approach, the Services of Supply decided to form a service depot from base section units and attach it to the Air Corps. This depot would operate within the British sector to provide support to the Fifteenth Air Force, based in the Bari/Foggia area. This was an experiment with little guidance to work from.

⁷²⁸ "Summary of Supply Activities in the Mediterranean Theater of Operations." G3, MTOUSA. September 30, 1945. MHI. 1.

Allied Force Headquarters attached the Adriatic Base Depot Group to the Army Air Force Service Command effective October 17, 1943. The mission was simple – provide the Air Force everything for which they could not provide themselves. Although the Air Force was the main customer, the depot quickly became responsible for the sustainment of all US units operating in east Italy, to include General “Wild Bill” Donovan’s Office of Strategic Services (OSS) operations with Yugoslavian partisans.⁷²⁹

The Adriatic Depot’s main port was Bari, a facility shared with British forces on the eastern coastline of Italy, located at the intersection of the heel and boot of the peninsula. Supply depots were located at Foggia, Manduria, Spinazzola, Goia, Cerignola, and San Severo. Bari became a scene of widespread destruction on the cool evening of December 2 when approximately 30 German aircraft bombed the harbor. Antiaircraft batteries were largely ineffective and the German attack damaged or sunk 25 Allied ships, including the US Liberty ship *John Harvey*. Ammunition ships erupted, spewing gouts of yellow and red flames into the air. Unknown to the units working the harbor, one of the bombed ships, the *John Henry*, contained mustard gas artillery shells in its holds.

The bombing of the *John Henry* produced an unintentional chemical attack on Allied troops that were either onboard ships or working to contain the damage. The lethal gas seeped into the air and water, contaminating the harbor and many of the men. The bombing at Bari produced over 1,000 casualties, besides destroying the Adriatic Depot’s headquarters.⁷³⁰

⁷²⁹ “Adriatic Depot History October 21, 1943 to January 1, 1944.” [1944-1945?] CMH. 2-3 and 15.

⁷³⁰ *Ibid.*, 10.

Tragically, the Adriatic Depot had recently established five hospitals, but the equipment and supplies for those hospitals had been loaded onto one ship – the *Samuel Tilden* – now sunk in the harbor. The Services of Supply had to replace the lost equipment and supplies from stocks on North Africa.⁷³¹

The Services of Supply closed the port at Bari until February 1944 while they repaired the damage, with Allied service units relying on other lesser ports in the area to conduct sustainment operations. However, despite the loss of Bari, no Allied soldier went hungry and no plane became grounded because of a lack of fuel.⁷³² The support system had proven its flexibility and resilience.

By the spring of 1944, the experiment of attaching the Adriatic Depot to Air Force had become intolerable. Experience showed that service units needed a formal assignment to the Adriatic Depot, not just an attachment for duty only. Additionally, the Depot needed a formal, direct, relationship with the theater Services of Supply headquarters in order to conduct business. The Air Force routinely downgraded Services of Supply requisitions in priority and the decree to flow all communications through Fifteenth Air Force slowed down communications. The Depot needed the same type of relationship that the Peninsular Base Section enjoyed with the Services of Supply. Allied Force Headquarters rectified this situation on March 15 when they assigned all Services of Supply service units in the area to the Adriatic Depot and the Adriatic Depot began reporting direct to the theater Services of Supply headquarters. This proved to be a more practicable

⁷³¹ Ibid., Medical Section, 5.

⁷³² Ibid., 9-10.

arrangement and the Fifteenth Air Force, which was steadily growing to over 120,000 personnel, still received its support.⁷³³

The Adriatic was not the only region seeing growth in support organizations during the beginning of 1944; Services of Supply units were expanding west of Italy as well.

On October 28, 1943, AFHQ established the Allied Garrison Command with the Tyrrhenian Base Depot Group on the island of Sardinia. This group had the mission to provide base operations support for the US 42nd Bomb Wing. Italian troops staffed the supply and maintenance depots, as well as operated the ports of the island. The Italians were also responsible for ground defense of the island. The US garrison handled all administration and supply of Allied forces in Sardinia, as well as the delivery of civil affairs supplies destined for support the Italian military and civilian populace on Sardinia.⁷³⁴

The island of Sardinia required relatively little support, but Corsica required much more materiel due to the major air base that was located on the island. Corsica had a strategic location in the Mediterranean. Positioned just seven miles north of Sardinia, planes departing from Corsica could range northern Italy, as well as southern France. The island held few defenders after Sicily had fallen so the Allies chose to stage the 63rd Fighter Wing on the island.⁷³⁵ As in the Adriatic, the Air Force could provide for its own unique item support, but needed assistance from the Services of Supply for common-item support.

⁷³³ Ibid., 12.

⁷³⁴ G. Montanino, *Logistical History of NATOUSA/MTOUSA* (Naples: G4 Staff Section, 1945), 28.

⁷³⁵ Memorandum: Command and Administration of Corsica, dated December 10, 1943. NARA, RG 492, box 2768.

The Services of Supply established the Northern Base Section on Corsica on January 1, 1944, to provide administrative support to the US and French air forces on Corsica, as well as to assist in the mounting operation for Operation Dragoon, the upcoming invasion of southern France.⁷³⁶ Unlike the other base sections, there was no advance planning for establishment of the Northern Base Section. A quartermaster depot headquarters operated on the island since December 15, but the depot quickly became overwhelmed with the job before it. The creation of a new base station was the only viable alternative.

Colonel John Ratay headed the new command. Although trained as an artilleryman, Ratay had served with Patton's Western Task Force in French Morocco and later with the Atlantic Base Section. Arriving in Algiers on December 28, General Larkin informed Ratay of his new assignment.

Ratay had to first work through the challenges of forming a new unit that did not have the benefit of advance planning. For example, although the Northern Base Section became active on January 1, the first enlisted man did not report until January 14. The new headquarters had to scrounge for office supplies and borrow vehicles. The unit existed on paper, but it was far from being capable.⁷³⁷

Figure 32: COL John Ratay⁷³⁸

Time was short – the base section had to assume the mission of supporting all French, British and US ground forces, as well as US and French air forces, on Corsica by February 15. The base section



⁷³⁶ "History of Signal Supply in NATOUSA/MTOUSA," 9.

⁷³⁷ History of the Northern Base Section," 3.

⁷³⁸ Source: "History of the Atlantic Base Section," volume 2, CMH.

was to support Allied forces, while building up a 45-day reserve of supplies on the island.

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Corsica had little agriculture and French pensioners provided the primary source of income. Food rationing was rigid and the economy was in shambles. Retreating German forces had adopted a scorched earth policy as they departed, so there was little usable material on the island. Corsica's pre-war economy rested on tourism and the available work force had an abysmal attitude towards manual labor.⁷⁴⁰ This meant that the base section had to import any civilian labor designated for work in the ports and supply dumps. Soon, some 5,000 workers arrived from the island of Sardinia, transported by the Navy.⁷⁴¹ The Base Section formed these men into companies of roughly 200 men apiece to serve as general labor for the different commands and technical services.

The priorities of the Northern Base Section on Corsica mirrored those of the Peninsular Base Section in Naples: open the ports, get the railways operating, and establish support facilities. By the end of March, engineers added a special rail spur to relieve the pressure on the trucks from traveling the mountainous roads and an enhanced pier stretched 750 feet out into the harbor of Vecchio.⁷⁴² Despite the improvements, rail capacity remained small due to the steep inclines of the island. Locomotives could haul 15-20 rail cars on level terrain, but were limited to five cars in the mountains.⁷⁴³

By May, the Northern Base Section had fully established itself and was working as the main service headquarters on the island. Slavic laborers, trained as drivers, augmented

⁷³⁹ Staff Memorandum Number 3, dated February 15, 1944. Included in History of the Northern Base Section, 1 January to 30 April 1944. June 1944. CMH

⁷⁴⁰ History of the Northern Base Section," 5.

⁷⁴¹ Ibid., Chapter 3. 2.

⁷⁴² Ibid., Chapter X, 8.

⁷⁴³ Ibid., Chapter X, 9.

Italian service units in transporting supplies over the treacherous terrain. Vehicle accidents were common due to the combination of steep drop-offs and limited driver experience.

Colonel Ratay established the base section just in time. Within a month, the Allies would break through the German Gustav Line of defenses and quickly head for Rome. Shortly thereafter, the Northern Base Section would be responsible for mounting forces for the invasion of southern France. Corsica was about to become a very busy island, but organizational changes were not limited to just the base sections.

Flattening the Communications Zone

Improvement of the theater did not always mean adding more organizations. The overlapping command and control structures of the US Communications Zone, North African Theater (NATOUSA), and the Services of Supply had become burdensome by the beginning of 1944. The division of responsibilities had never been quite resolved and the overlapping headquarters represented more overhead than was required. The War Department simply could not fill all of the positions in all of the commands, as confirmed in an inspector general's special report.⁷⁴⁴ Two days after the report's submission, AFHQ was considering changes to the structure of support headquarters.

All the theaters of war felt the shortage of service personnel. The War Department Manpower Board called for an accounting of all Services of Supply personnel, while the

⁷⁴⁴ "History of Allied Force Headquarters, volume 3, part 1. 710.

US theater in the Mediterranean created a policy that froze theater overhead. Any growth of the theater Services of Supply headquarters would come from the base sections.⁷⁴⁵

The shortage of service force personnel was not just limited to senior ranks. Eight officers from the War Department visited the Mediterranean in January 1944 to gain insights on how the 2nd Cavalry Division and other combat arms units, some 20,000 men, could best transition into service forces.⁷⁴⁶ The nation's priority had changed from filling combat units, to filling the units that sustained combat. The lessons of the Mediterranean were clear – an invasion force needed a capable support element and the War Department did not have enough service forces for a cross-channel invasion.

The issue of labor and the consolidation of responsibilities was a contentious topic within AFHQ. Major General Hughes, the Deputy Theater Commander and commander of the Communications Zone, felt that there should be no reason why the communication zone commands could not be consolidated under one officer. Others, such as the AFHQ G3, argued that commanding the theater meant more than logistics and that AFHQ needed several different commands to handle all the responsibilities.⁷⁴⁷

On February 24, 1944, Lieutenant General Devers settled the issue by abolishing the office of Deputy Theater Commander. Additionally, he combined the Communications Zone, Theater Headquarters, and Services of Supply under a single commander, Major General Larkin.⁷⁴⁸ There were still two different staffs: a US theater staff operating as

⁷⁴⁵ History, Communications Zone, volume I, 19.

⁷⁴⁶ Report on ASF Installations in NATOSA, 25 Mar 44 by Arthur Trudeau, COL Director of Training for Army Service Forces. MHI. 3.

⁷⁴⁷ Memorandum, AFHQ G3 for Chief of Staff, dated January 3, 1944, subject: Organization of NATOUSA. NARA, RG 492, box 127.

⁷⁴⁸ NATOUSA General Orders Number 4, dated February 24, 1944. NARA, RG 492, box 2901.

part of AFHQ, which set policy and priorities, while a Services of Supply staff coordinated the execution of support. However, for the first time, a single general officer oversaw the activities of each, ensuring that their efforts were coordinated and each was working from the same guidance.

Larkin worked directly for Devers, the theater commander. The theater and Services of Supply staffs, along with the base sections, worked for Larkin. Thomas Larkin found himself one of the most powerful men in the Mediterranean. The new organization still used the nomenclature SOS NATOUSA (Services of Supply, North African Theater of the US Army) until October 1944 to eliminate confusion. The name was later changed to COMZONE NATOUSA (Communications Zone, North African Theater of the US Army), effective October 1, 1944, and a month later to COMZONE MTOUSA (Communications Zone, Mediterranean Theater of the US Army) to match the naming changes of the greater Allied theater. Having a single commander responsible for the US rear areas eliminated redundancy, confusion, and represented a major improvement in the functioning and coordination of support.

Limitations

Looking holistically, Italy had the unfortunate distinction of being a campaign, which started as a priority effort for the Allies, but by late 1943, had become secondary to the upcoming cross-channel invasion into France. On December 25, Eisenhower received word that the President had nominated him to serve as commanding general, Supreme Headquarters Allied Expeditionary Force (SHAEP). This was the new Allied force

headquarters, which would plan and run the cross-channel invasion of France later in 1944. Eisenhower planned to take two senior officers with him: Bradley and Patton. Bradley had performed brilliantly in the Mediterranean and was destined for command of the US 12th Army Group. The War Department had held Patton in limbo in Sicily since August, still in command of Seventh Army, but without any troops. Eisenhower recognized that Patton might still be an effective tactical commander and offered him command of an army, which Patton gracefully accepted.⁷⁴⁹ On January 1, 1944, Eisenhower departed the Mediterranean for his new command.

The establishment of SHAEF also meant that the Mediterranean would soon lose those units and ships designated to participate in the operations. The 82nd Airborne and 1st Infantry Divisions, British XXX Corps, and convoys of LSTs all departed the Mediterranean in early 1944 for refit and training in England. With their departure went the Mediterranean theater's ability to conduct large airborne or amphibious operations.

Shortages of ammunition occurred as the European theater was given priority for the building of stocks. The War Department instituted a system whereby theaters had to send requisitions for supplies and equipment 90 days in advance. Upon receipt, depots in the states would fill what they could and then cancel any remaining balance. The reason for this was due to a scarcity of supplies⁷⁵⁰ – a product of all the competing demands from the various theaters of war combined with a lack of sufficient production.

Lieutenant General Somervell, the commanding general of the War Department Services of Supply visited Italy in November to see the supply situation firsthand.

⁷⁴⁹ Eisenhower, *Crusade in Europe*, 215.

⁷⁵⁰ Sullivan Diary, November 2, 1943. Also see Interview with Robert Colglazier, 117.

Somervell told supply officers “the honeymoon for securing supplies is over for this theater [the Mediterranean].” The 5th Army Quartermaster, Colonel Sullivan, noted: “some other theater is to get most of the stuff.”⁷⁵¹ Planners, logisticians, and commanders throughout the Mediterranean would have to adjust their thinking and expectations to this new world order.

The area most affected by the change in priorities was the availability of large caliber ammunition. The combination of high expenditure rates and low supply meant that the theater had to impose restrictions on how many rounds each unit could shoot per day.

The shortage was not limited to just US formations, British units felt the restrictions as well. By April of 1944, the situation had become so restrictive that General Alexander visited London to make a direct appeal for an increase in ammunition resupply.⁷⁵² Eighth Army had requested ten million rounds for the upcoming offensive to break the German defenses, but they only received three and a half million rounds. Alexander was successful in convincing the British Chiefs of Staff that the 15th Army Group could only seize Rome if the forces in Italy received sufficient resources.⁷⁵³ An increase in munitions allotment had a direct impact on the Allied breakout a month later. Alexander noted that, even with the shortages in ammunition, Churchill had still expected 15th Army Group to break through the German lines and secure Rome as quickly as possible. The Prime Minister never really understood, or at least never acknowledged to his generals, that logistical considerations might delay offensive operations. While it is possible that

⁷⁵¹ Ibid.

⁷⁵² Interview with Field Marshal Alexander by George Howe, Part II, 1949. Sidney Matthews papers, box 2. 14.

⁷⁵³ Ibid., 5.

Churchill did not understand the impact of logistics on strategy, it is more probable that this was just an act used to break through barriers and to get things moving along.⁷⁵⁴

Ammunition was not the only concern in 1944; there were other problems as well which affected operations. Of all the Allied shortages from 1942 until the end of the war, the most vexing was the shortage of landing craft, particularly the LST's. Italy proved that these craft were the true enablers of any sizeable amphibious operations. The vessels were in demand throughout the Pacific, Mediterranean, and European theaters because they supported both amphibious landings, as well as continuing sustainment operations.⁷⁵⁵ The difference between supply and demand for LSTs was so great that this was not a question of solving the shortages, but rather, of *managing* the shortages. Throughout the war, the availability of these mundane craft dictated strategy options, and the President and Prime Minister retained approval for their allocation.

One might ask why the Allies simply did not build more of these craft if they were so important to the war effort. The answer is that LSTs were among a number of high-priority projects, which all competed for the same funding, materials, and labor. More LSTs might mean fewer combat vessels, tanks, or aircraft. Additionally, stocks of metals, such as aluminum and steel, were all tightly controlled and prioritized. In addition, it took time to build these vessels. Production lines were working as fast as possible and there was not enough time to build additional industrial capacity. Delaying an invasion by a few weeks or a month could provide additional LSTs, but others were constantly lost

⁷⁵⁴ Ibid., 24 and 38.

⁷⁵⁵ Administrative Planning , 46.

through enemy action, weather, breakage, and accidents. The Allies would have to invade France short of the assault craft they desired.

Lessons Learned

As in other operations, Avalanche provided a wealth of experience and lessons learned. This was a different type of operation: the enemy and terrain provided a different situation than any operation previously encountered. Italy differed from North Africa or Sicily in four main areas: first, Fifth Army encountered much stronger resistance along the landing beaches. Second, Sicily and Tunisia were more or less pursuit operations involving significant gains in terrain. Southern Italy, by contrast, contained a determined enemy who fought to keep his ground and defended from a series of well-prepared positions, which limited Allied advances. Third, the mountains of Italy were more rugged, higher, and involved much more fighting.⁷⁵⁶ Fourth, the advance to Rome required ten months and covered four seasons, with heavy rains, flooding, snow, and heat. All of these factors combined meant that Italy was a much different fight and officers had to keep any lessons for the future in the right context.

The Salerno landings showed that the Allies had made much progress on running the landing beaches, but, as in Sicily, the shore parties still needed better organization and stronger leadership. The lack of a centralized transportation control agency contributed to the congestion on the Salerno beaches, but part was also attributable to the shortage of

⁷⁵⁶ NATOUSA Training Memorandum Number 3, dated March 10, 1944. NARA, RG 492, box 2478. 3.

field grade officers within the beach groups.⁷⁵⁷ Sometimes there was nothing that could solve a problem like an angry senior officer.

Contributing to the confusion was the fact that there were no transportation officers on the beaches who had a detailed understanding of which supplies and equipment were on specific ships and once units and equipment were ashore, there was no agency ready to take control of the road, rail, sea, and water modes of transportation. Fifth Army eventually assigned this to the Fifth Army G4; however, the need for such a capability existed starting at the early phases of the operation. Had Fifth Army established its transportation section earlier, they might well have avoided, or at least reduced, the problems of poor traffic control and haphazard unloading.

Avalanche and its subsequent operations did prove that the Army's doctrine dealing with support of armies, corps, and divisions was about right. The army G4 and Peninsular Base Section worked well together and the system of turning over army facilities to the Services of Supply as the front lines moved forward proved to work as well. The Italian campaign also compelled the Allied service forces to be adaptive and to rely on innovation when situations changed into something unplanned or unexpected. Equipment wore out faster than supply officers expected in the mountainous terrain, meaning that items such as shoes, boots, and tires all needed replacement at rates greater than expected. The tactical situation drove the requirements and the Services of Supply had to be able to react. An inflexible or unresponsive supply system simply could not keep up with all the changes thrown at it by the weather, enemy, and fate.

⁷⁵⁷ Dunham, "U.S. Army Transportation and the Italian Campaign," 50.

Italy demonstrated that not all operations needed the same resources. Perhaps this seems obvious, but to a large bureaucracy this can be a challenging principle to adapt to. The quantities of munitions and fuel required for the Italian campaign were significantly different from those needed in North Africa and Sicily. Planners expected one type of war; reality provided another. The slow advance of the Allied armies meant that the divisions needed less fuel, but more ammunition (especially howitzer and mortar ammunition) to fight in mountainous terrain. The tonnage of bombs for this campaign placed a significant demand on the theater's transportation and ammunition storage systems.

The Allies also had to make a major commitment to restoring services and providing essential supplies to the populations of liberated areas in Italy, especially around Naples. Coal, food, and water were all in demand – the same commodities needed for the military forces. Base sections found that the limiting factor for logistics in Italy was not the port capabilities, but rather, the limited ability to clear supplies from the ports and move them to dumps and depots further inland. Restricted road networks and limited numbers of trucks all served to hinder the movement of supplies.⁷⁵⁸ Everything depended on throughput - a lesson Eisenhower would later recall when deciding the landing locations of divisions later during Operation Overlord.

Italy reinforced the lesson that commanders had to fully integrate civil affairs operations into theater plans because a safe and happy civilian population presented fewer problems and provided greater support of the Allied effort. AFHQ deployed civil affairs

⁷⁵⁸ Administrative Planning , 49.

officers throughout the rear area of the Italian area of operations to coordinate public health, food distribution, sanitation, and other areas vital to the security and health of the local population. Without this peace, order, feel of security, and sanitation, the 15th Army Group would have needed additional forces to protect communications, maintain order, and protect support activities. As AFHQ found in Naples, unsanitary conditions could quickly lead to the spread of dysentery and other diseases, which not only affected the populace, but drained military resources away from the front lines and distracted the focus of senior commanders. The lessons learned in conducting civil affairs helped inform staffs for the more difficult jobs that would face the Allies in northern Italy, France, and Germany.⁷⁵⁹

The four months at Anzio showed, like Sicily, that the Allies could support a large force over the beaches without use of a major port. Even more importantly, Anzio also showed that a theater could support two different fronts for months at a time. This would prove to be an important consideration as planners worked on the details of Overload and the decision whether to incorporate an additional front coming up from southern France. Anzio proved that the Mediterranean could probably support an on-going fight in Italy and support a secondary offensive that would help take the pressure off any forces operating in Normandy. This was the proof that Operation Anvil (later renamed Dragoon), the invasion of southern France, was indeed supportable.

Anzio also demonstrated how an operation in one theater could influence the plans of other theaters. European commanders had initially planned to transfer 68 LSTs out of the

⁷⁵⁹ Eisenhower, *Crusade in Europe*, 192.

Mediterranean during January 1944, but the changes in plans and unforeseen delay in breaking out of the bridgehead delayed the arrival of these craft by several months, delaying planned training and precluded the other possible amphibious operations.⁷⁶⁰

Transportation officers maintained close records of all supplies shipped to, and within, Italy. The Italian campaign of 1943/44 showed that a typical infantry division needed 500 tons of supplies per day for all classes of supplies; 400 tons for a British Division.⁷⁶¹ Differences in size and equipment accounted for the differences. This would be an important statistic for the planning of subsequent operations as logisticians struggled over requirements, port capacities, and the need for service units.

The truck shortage in Italy forced a greater reliance on railways and fuel pipelines. However, the Fifth Army G4 provided an extremely perceptive cautionary note that any reliance on a fuel pipeline by a rapidly moving army invites trouble.⁷⁶² Rail lines and pipelines took time, resources, and labor to build. In a pursuit, these are usually limited and physics determines the rate of their development. This cautionary note would come to fruition later in the fall of 1944 when the Allies would outrun their logistics on both the northern and southern lines of communication in France as engineers struggled to keep up with the advancing front.

Conclusion

⁷⁶⁰ Administrative Planning , 48-49.

⁷⁶¹ Interview with Brigadier General Ralph Tate, January 19, 1949. Sidney Matthews Papers. MHI. 8.

⁷⁶² Fifth Army Training Memorandum Number 12, dated July 15, 1944. NARA, RG 492, box 2478. 30.

Testimony from the divisions showed just how far logistics support had come, even compared to Operation Husky. The 3rd Infantry Division Quartermaster mentioned to a Services of Supply officer that the Fifth Army system was “immeasurably superior” to that of Seventh Army. Fifth Army had taken a firmer control of the rear areas and was present from D-Day, operating in at least an advisory capacity.

Italy demonstrated that the service forces and combat commands *had* been paying attention to the lessons of previous operations. In Sicily, the supply dumps tended to remain near the beaches, which worked fine – for a time. However, as the lines of communication lengthened, it took longer and longer to resupply the forces. In Italy, however, the base section frequently pushed dumps forward to make supplies more readily available to the divisions.⁷⁶³ As such, the divisions did not require augmentation and there was more confidence in the supply system.

The opening and improvement of the beaches and ports were not perfect, but they were effective. This single fact allowed Fifth Army to flow in the necessary troops and supplies to counter the stiff German counterattacks seen at both Salerno and Anzio. Had these reinforcements not flowed in as quickly as they did, the battles could easily have turned out quite different, which would have been a disaster.⁷⁶⁴ Both sides were reinforcing and it was a close race, but the lessons learned from Torch and Husky made the difference.

The army headquarters had a fully integrated supporting base section for Avalanche; the first time such a relationship had existed in the Mediterranean. Instead of acting as

⁷⁶³ Quartermaster Supply in the Fifth Army in World War II, 15.

⁷⁶⁴ Churchill, *Closing the Ring*, 97.

two separate headquarters from two different commands, General Pence and the Peninsular Base Section started out as a sub-element of Fifth Army, leading to improved relationships and trust, which carried forward once the base section reverted to Services of Supply control. This was so effective that the Services of Supply would use same technique later in August for the invasion of southern France.

Perhaps just as important, the campaign into Italy allowed the theater Services of Supply to continue to improve systems and organizations associated with supporting large formations conducting offensive operations. Not only were essential supply needs, such as ammunition, met, but other tasks, such as supplying morale-building meals, became standard practice. As an example: in November 1943, during the buildup of the theater and the initial offensive towards Rome, the Services of Supply received and issued 340,000 tons of turkey for Thanksgiving meals. All US troops and US citizens serving in Italy received an authorization of 18 ounces of turkey. The Island Base Section repeated this for Christmas, and again for New Years day. Not only did the turkey make it as promised, but an additional 90 tons of apples, as well as nuts and candy, accompanied the turkey as well.⁷⁶⁵ This was a sign of a mature support system, which was both capable and functional – quite a change from the US experiences of the First World War.

By January 1944, the theater was very effective at providing support, but deficiencies remained. Base sections had plenty of workers at the docks, but not enough leaders. There was no program to train wounded combat troops in non-combat professions. On any one day, there were almost 10,000 men available to the Services of Supply for

⁷⁶⁵ “History of the Peninsular Base Section, North African Theater of Operations.” Volume II. 102.

“limited duty” assignments.⁷⁶⁶ Riflemen could serve as cooks, truck drivers, or mechanics, but along with this came the need for a formal training program. In January 1944, the replacement depot at Canastel contained over 5,000 men classified as “limited service” due to battle wounds, but the theater lacked a system to train these men and put them to useful service. The men became bored and the theater missed an opportunity to put them to useful work.

In some cases, the Services of Supply had allowed skills to atrophy. For example, the Services of Supply assigned eight port companies to the port of Oran; however, throughout most of 1943 and 1944 French civilians and Italian prisoners of war did the actual offloading and movement of supplies. To serve as part of the invasion of southern France, these units needed retraining since many of their skills deteriorated while the units were in Oran.⁷⁶⁷

Despite the inefficiencies, the responsiveness of the Services of Supply did provide a level of flexibility to US combat commanders that their German counterparts lacked. The Services of Supply maintained large supply stocks in North Africa, which allowed them to fill many Fifth Army requisitions within a week of submission. Air superiority and a reduced German naval threat meant that the Allied enjoyed secure lines of communication. Compare this to the German situation, which had to endure resource restrictions, limited transportation networks, and interdictions by long and medium range Allied bombers.

⁷⁶⁶ Report on ASF Installations in NATOSA, 25 Mar 44 by Arthur Trudeau, COL Director of Training for Army Service Forces. MHI. 15.

⁷⁶⁷ *Ibid.*, 53.

On May 11, 1944, the 15th Army Group began a concerted offensive to break the German lines. Fifth Army had stockpiled supplies and positioned units to make a push all along the Italian front. The strategy worked. By May 23, elements of the 36th Infantry Division at Anzio had linked up with the 91st Reconnaissance Squadron outside Terracina – reuniting Fifth Army with the Anzio beachhead. The drive continued to the north and on June 4, the first units of Fifth Army were on the outskirts of Rome. That same day, the first Allied train pulled in to the city with the commanding general of the Military Railway Service, Brigadier General Carl Gray, at the controls carrying a load of coal.⁷⁶⁸ The Germans had declared Rome an open city and then retreated north to the Pisa-Rimini defensive line to prepare for the next fight. The battle for Rome was over, but the campaign in Italy had 11 more months to go.

In retrospect, the capabilities and capacity of the US logistics system had undergone nothing less than a transformation over the past nineteen months. Troops and their leaders had experience in supporting a war in the mountains, as well in deserts. The services fielded new equipment throughout the force, much of it based on the lessons of the Mediterranean. Organizations had changed to reflect best practices.

This is not to say that there were not the occasional supply shortages. Food and artillery munitions were perhaps the most pressing, but other shortages did pop up from time to time. In February 1944, naval coal became short after the Services of Supply diverted a large shipment for use in the Sardinian railways.⁷⁶⁹ Perhaps the larger issue is not whether there were shortages, but, instead, how the theater *reacted* to these shortages.

⁷⁶⁸ “American Rails in Eight Countries,” 18.

⁷⁶⁹ Notes on AFHQ Chief, Administrative Officer’s Conference, February 21, 1944. NARA, RG 492, box 55.

Close and effective management of limited resources is a telling feature of a functioning sustainment system and it appears that, by the spring of 1944, the Services of Supply had indeed achieved a high level of proficiency. Throughout the Mediterranean, service units quickly cleared cargo from ports and trucked to depots or, in some cases, direct to units. Quartermaster, Ordnance, Supply, Engineer, and Medical units segregated, counted, and recorded supplies. The Services of Supply instituted a semi-annual inventory program, with critical items inventoried daily. The base sections had stored 30 days worth of supplies for most items, with 45 days worth allotted for those items essential to the fight.⁷⁷⁰ The Mediterranean theater was as capable and prepared as it would ever be.

The first elements of Fifth Army, just a few jeeps, entered Rome shortly after 8 am on the morning of June 5. Unlike Naples, Rome was largely intact. There were shortages of water, fuel, and electricity, but these were relatively easy to restore because the Germans had not destroyed the supporting infrastructure. Rather than an end, however, the capture of Rome merely marked a waypoint in the Italian campaign. The Allies had captured the capital, but politically little had changed. Germany remained the threat and Hitler was still determined to yield as little Italian soil as possible.

The communications zone with its massive support capabilities was slowly shifting to Italy. In North Africa, the Atlantic Base Section decreased from 33,620 in July 1943, to only 2,200 a year later. The Mediterranean Base Section had deactivated. The Eastern Base Section was down to an operating strength of 2,150. The Island Base Section on

⁷⁷⁰ Summary of Supply Activities in the Mediterranean Theater of Operations. G3, MTOUSA. September 30, 1945. MHI. 22.

Sicily would close on July 15. The Peninsular Base Section and other support activities around Italy had become the centers of US administrative support for the Mediterranean.

This was exactly what the Mediterranean theater needed to do. As the operational theater morphed, so too did the support base. Service units transferred to meet developing demands and discarded old installations. Just as the base stations worked to keep depots and dumps near the combat units, so too did the theater move up the communications zone. This would prove to be an important element in the final stages of the war.

Within three months, the Allies in Europe would be advancing toward Germany on three different axes with the main effort a cross-channel assault into northern France. Supporting efforts would include an attack coming north from the southern beaches of France - Operation Dragoon - and a continuation of the drive north in Italy. All were important, but resources would dictate the realm of the possible in terms of strategy and movements. Prioritization and allocation of units and material would become issues for the most senior leaders as the war of attrition wore on.

For the Americans, the preceding 20+ months provided a level of experience and knowledge that had professionalized the military. Equipment, systems, and processes had all been refined to deal with the nuances of modern, mechanized warfare. However, the definitive test was about to start as focus shifted to the heart of Europe and to the bulk of the German defenses. The Allies were entering the phase of the conflict where the war could not just be lost, but won as well.

Chapter VIII: Operation Dragoon, The Invasion of Southern France

The difficulties of supply eventually forced a halt upon us when we reached Germany, but the very rapidity of our advance across France had made that inevitable.

-- General Eisenhower quoted in
Administrative Planning,
The British War Office, 1952

On August 15, 1944, Allied forces from the Mediterranean landed in southern France, along the French Riviera. These landings-initially titled Operation Anvil (and later changed to Operation Dragoon) would prove for the European theater to be secondary in importance only to Operation Overlord, the landings in Normandy. Initially discounted as a waste of resources by the British, Dragoon proved to be a critical component to the end of the war in Europe.

Although Allied operations in the Mediterranean were steadily progressing throughout 1943, planners continued to look for other strategic options as it became increasingly clear that the Allies needed to open up a second front in France to knock Germany out of the war. American planners had always looked forward to making a landing operation in northern France and now they believed that the Allies could meet all the requirements for such an invasion and still have sufficient resources available to conduct a secondary attack elsewhere in France, as well to as continue operations in Italy.⁷⁷¹ This became the concept for the ending of the war in Europe.

⁷⁷¹ Jeffrey Clarke and Robert Smith. *Riviera to the Rhine* (Washington: Center of Military History, 1991), 8.

Allied leaders began discussing the options for the second front at the Quebec Conference in August 1943, and continued these discussions at the Sextant and Teheran Conferences later that same year.⁷⁷² Although the proposed amphibious landings in northern France was a primary topic of the meetings, Roosevelt, Churchill, and Stalin agreed to include an additional set of landings into southern France—landings that would give support to Operation Overlord, the amphibious assault in Normandy, and help seal the fate of the German Army. Initially named Operation Anvil and later changed to Operation Dragoon, the Allied leaders agreed, in principle, to stage a multi-division landing along the French southern coast in coordination with Overlord.⁷⁷³ This would prove to be one of the more contentious decisions of the Second World War.

Indeed, the question of whether to invade France from the south, as well as from the north, was a matter of debate among the Allies from the time of inception until the actual landings and involved all of the senior leadership. Advocates, such as Marshall and Eisenhower, argued that a secondary invasion route into France would take pressure off the Allied armies landing in Normandy. Opponents, such as Churchill and General Sir Alan Brooke, argued that due to restrictions in available landing craft, the landings would come too late to help the Normandy effort and would serve only to divert troops away from the main effort in the Mediterranean, the fight in Italy. Thus, carrying on with Anvil meant limiting 15th Army Group's ability to achieve a breakthrough north of Rome. Both sides made convincing arguments that produced a dilemma with no clear solution. The

⁷⁷² Final Report: G-3 Section, Headquarters, 6th Army Group. 1945. CMH. 1.

⁷⁷³ Report by the Supreme Allied Commander Mediterranean to the Combined Chiefs of Staff on the Operations in Southern France (London: His Majesty's Stationary Office, 1946.) CMH. 1.

Americans favored a second set of landings in France, while the British maintained that the fight in Italy should be the priority of the effort in the Mediterranean. Stalin, favoring the more direct approach, put his support behind the American proposal.

While the debate over Anvil raged on, planning for Overlord steadily continued. By the spring of 1944, planning for Operation Overlord had been making progress for almost two years and the Allies were now ready to initiate the plan. In preparation, Eisenhower departed the Mediterranean in January to assume command of the cross-channel operation, with British General Sir Henry Maitland “Jumbo” Wilson taking over from Eisenhower as Supreme Allied Commander of the Mediterranean. The pieces were set for the final chapters of the European campaign.

This chapter addresses the decisions leading up to the invasion of Southern France and the strategic impact of Operation Anvil. Planning for the operation started in late 1944 and the Mediterranean portion of the operation effectively ended in February 1945 when the two Allied lines of communication—one leading east from Normandy and one coming north from Marseilles—joined together into a single communications zone supporting the European theater. Up until the linkup in February, the Mediterranean handled all planning and loading for the assault, as well as conducting the amphibious assaults and supporting the initial drive north through France and into Germany.

To contribute to the debate on the importance of invasion of southern France, this chapter argues, firstly, that Eisenhower needed a secondary line of communications in order to land the required numbers of divisions and their associated supplies into France. Without this increased capability, the Allies simply would not have had the ports, roads,

vehicles, and infrastructure necessary to land the numbers of fighting units required to deal with a weakened, but still viable, German Army.

Secondly, the Mediterranean's experiences of the previous 21 months, which included four major amphibious assaults, had matured the theater's support units and systems into a capability unmatched in northwest Europe. These units and their commanders, such as Major General Larkin, possessed the skills and abilities needed to make the most of what was, essentially, a secondary effort, with Normandy being the main priority. This level of experience allowed both the combat and support units to make the most of the limited supplies available for the campaign. They knew they were a secondary effort so there were fewer tendencies to waste resources. Soldiers did not waste ammunition as readily when they were not sure about the next resupply. Supply officers used lessons gained from other operations to manage the resources on-hand more effectively. This level of experience partly explains the levels of success achieved by the Sixth Army Group, success that would not otherwise have been as easily or quickly obtained.

Thirdly, the addition of a second line of communications served to reduce risk for the Allied forces working east from Normandy and it provided Eisenhower and his planners with *options*. With the capture of Marseilles, the Allies had a second major port, one that would eventually support an entire Army Group. This port and other associated infrastructure allowed the Supreme Headquarters Allied Powers Europe (SHAPE) commander to flex combat power between the north and south, which not only allowed the Allies to react against German movements, but also, perhaps just as importantly, forced the German Army to defend across a wider front. This prevented German

commanders from consolidating all their available divisions in any one area, thus dissipating the overall level of defense.

The US and British armies were not the only forces making gains in the summer of 1944. On June 22, the Soviet Red Army launched Operation Bagration, a multi-army attack designed to retake Soviet territory and advance the front towards Berlin. Within two months, the Soviet armies would decimate the German Army Group Center and clear eastern Poland of German occupation. Operation Bagration, conducted in coordination with the Allied attacks into France, forced Hitler's generals to react to Allied strategy.

On paper, the Allies held a sizeable advantage in terms of readiness and material, but physics determined the realm of the possible for Eisenhower's strategy. In the late summer of 1944, the beaches and ports of the Normandy could not support the amounts of men and material programmed to flow into France. German resistance delayed the capture of Cherbourg, one of the most capable ports in Normandy. Eisenhower simply could not land all of the divisions and supplies as quickly as he needed them. The ports along the English Channel did not possess the capabilities needed to supply the three army groups that would eventually operate in France and the neighboring Low Countries.⁷⁷⁴

The need for additional ports continued throughout the rest of the war. By the spring of 1945, the Allies were ready to cross over the Rhine River with 68 available divisions, but the most that the ports north of the Ruhr could support was 35. However, the ports in southern France could support an additional 35 divisions.⁷⁷⁵ Thus, the Allies needed the ports of northern France *as well as* the southern French ports to carry the offensive into

⁷⁷⁴ Porch, 664.

⁷⁷⁵ Eisenhower, *Crusade in Europe*. 227

Germany. Without this combination, the Allies would have been able to support only half of the combat force they otherwise would have had. The port at Marseilles ultimately handled more American supplies than any other port during the war, testimony to the vast capacity of the port and its strategic value.⁷⁷⁶

A fourth consequence of invading France from the south is that this allowed General Eisenhower to use the First French Army in France. This allowed French forces to have a direct hand in liberating France and added to the size of the overall Allied offensive effort. This was only possible with the use of a third army group in France-the French would not have served under the command of either of the army groups operating in the north. The northern army group commanders, Field Marshal Montgomery and General Bradley, were both Francophobes.

Finally, the addition of a line of communications coming up from the south reduced the potential for Allied failure. A single line of communications stretching from northern France presented a ripe target for the retreating, but still viable German military. This would become alarmingly clear in December 1944 when Hitler launched an attack towards Antwerp, with the goal of cutting off Allied supplies.

Consequently, the southern line of communication not only enabled the drive into Germany, it directly contributed to the shorting of the war. Without this additional route and its ports, the war would certainly have been longer, perhaps by as much as two to six months, and the Allied would have incurred much more risk while conducting the drive across France. The invasion of southern France allowed the Allies to land a third more

⁷⁷⁶ Huston, 533.

combat divisions and support them than they otherwise could have. Before the operations could commence, however, Allied planners had the unenviable task of developing a feasible scheme of maneuver for two major operations (Overlord and Anvil) while still supporting operations in Italy.

Debating the Options

Although Allied political leaders had agreed in 1943 to conduct two sets of landings in France, conditions in Italy during 1944 caused many involved in planning the operation to reconsider the wisdom of the decision. When Italy removed itself from the war in September 1943, many expected a quick capture of Rome. Instead, General Clark and the Fifth Army were in a slow and hotly contested fight up the length of the Italian peninsula through the spring of 1944. British generals, such as Sir Alan Brooke and Sir Henry “Jumbo” Wilson, suggested that the strategic situation had changed and that the Allies should cancel Anvil in order to dedicate more resources to the fight in Italy. Anvil, they argued, required postponement until Italy had fallen. The British Chiefs of Staff in London concurred with this line of reasoning; however, the American Chiefs in Washington did not. For military leaders in the Mediterranean, Anvil represented a rival operation to the fight for Italy, one that would only serve to deplete units and resources while providing little strategic advantage.

The resources that Wilson and Clark needed were more than supplies. To keep Italy a priority within the Mediterranean, AFHQ needed to retain all of the divisions earmarked for Anvil, along with the associated support units, assault craft, merchant shipping, ammunition, fuel, and general supplies that enabled the divisions to fight. Accepting the

British recommendation to keep Italy as a priority theater would effectively preclude Operation Anvil. A major Allied victory in Italy might put the Allies in a better political position after the war due to the proximity of the Balkans, but this option would also introduce more risk into Allied military operations in France. Due to constraints in men and material, Allied leaders had to choose between two mutually exclusive options: conduct a second landing on southern France, or continue to keep the Italian theater as a priority.

The stalemate at Anzio in January and February 1944 strengthened the British argument and led to a reassessment of the Allied strategy. The slowing of the Italian campaign and the vigorous defense offered by reinforcing German units forced planners to commit units and resources to the fight in Italy, resources that had been earmarked for the invasion of southern France. Churchill recommended that the Allies continue with plans for Overlord, but abandon the secondary sets of landings in France and instead concentrate their effort in Italy as a means to help the Overlord landings. The problem was that the Allies did not have the resources to conduct simultaneous operations in Northern France, southern France, and Italy. Something had to give.⁷⁷⁷

The debate over Anvil raged throughout the spring. The British favored focusing efforts in Italy and cancelling Anvil. The US Joint Chiefs of Staff, led by General Marshall, wanted to cease wasting resources in Italy, which they viewed as a secondary

⁷⁷⁷ Clark and Smith, 14-15.

effort. In Washington, many planners recommended that the US pull its forces out of Italy all together and leave the theater to the British.⁷⁷⁸

The Joint Chiefs effectively cancelled Operation Anvil in April 1944 when the US failed to provide sufficient resources to prepare for the operation. The shortage of assault craft, especially LSTs, combined with the on-going resupply efforts required at Anzio, prevented the reallocation of shipping resources for Anvil. General Wilson started planning a spring offensive in Italy but he, too, had to do without all the amphibious shipping he desired. Meanwhile, Fifth Army moved ahead with its summer assault toward Rome.

However, the summer offensive of Fifth Army produced an unexpected breakout and the capture of Rome on June 5, 1944 provided a new set of options for Allied leaders.⁷⁷⁹ The US and British alliance could revive Operation Anvil, which would turn Italy into a secondary effort, or they could focus their efforts on northern Italy. If they made it through Italy, the Allies could choose to move west into France or east into Hungary, but there would be no landings in France. Arguing that France had a more direct impact on the war, the Americans won the argument and the British agreed to pursue the landings in southern France, although Churchill had not yet given up on his quest for the Balkans.

Underlying the decision was Eisenhower's arguments for making a secondary set of landings in France. Initially, in 1943 and into the first half of 1944, Eisenhower and many of the American planners saw the landings as a way to take pressure off the forces landing at Normandy. By landing at two different locations, the Germans would have to focus on

⁷⁷⁸ Meyer, "The Strategic and Logistical History of MTO," XXIV-7.

⁷⁷⁹ Clark and Smith, 18.

two distinct threats and would not be able to reposition reinforcing units already stationed in southern France. While this was still true in June, Eisenhower modified his reasoning for the landings, now arguing that, perhaps even more importantly, he needed the additional port capacity that Marseilles and Toulon offered.

By June 17, 1944, Eisenhower realized that he needed additional French ports in order to allow for the rapid deployment of additional American divisions into the European continent. The advance in Normandy had bogged down and the failure to capture any major port meant that the Allies needed to breathe new life into the operation in southern France in order to flow in the 40-50 divisions awaiting deployment in the states and to provide sufficient port capabilities for sustainment of the additional forces. A massive storm that hit Normandy ten days after the Allies landed had wrecked the artificial piers, known as Mulberries, which were vital to bringing supplies ashore over the assault beaches. In a message to General Wilson and the Combined Chiefs, Eisenhower argued, “Our most important consideration is an additional port to be used in assisting the deployment of Divisions from the US. I consider vital the possession of another gateway into France.”⁷⁸⁰ Now, more than ever, the Allies needed to land in southern France. By the middle of June, AFHQ was issuing orders for the transfer of units from Italy to Anvil, an important action since any unit coming out of combat needed ten weeks to rest, refit, and rearm.⁷⁸¹

⁷⁸⁰ Message from Eisenhower to Wilson and the Combined Chiefs of Staff, dated 23 June 1944. Located within Memorandum for Record, HQ North African Theater of Operations, US Army, G3 Section, dated 12 Sep 44, subject: History of Planning for Operation Against Southern France. MHI.

⁷⁸¹ “Report by the Supreme Allied Commander Mediterranean to the Combined Chiefs of Staff on the Operations in Southern France,” 12 and 21.

On July 2, the Combined Chiefs sent a message to General Wilson directing him to be prepared to execute the landing in southern France on 15 August.⁷⁸² The purpose of the operation was to establish a Mediterranean bridgehead at Toulon and Marseilles and then achieve exploitation towards Lyon and Vichy. The initial force list consisted of a three-division assault, followed by a rapid build-up of up to seven additional divisions. Allied Force Headquarters tasked the Services of Supply to prepare and load all of Anvil's combat units already positioned within the Mediterranean.⁷⁸³

An eyes-only message from General Marshall to General Devers and General Eisenhower summarized the War Department's attitude toward Operation Anvil:

Your Theater is now functioning so that you will not be burdened with a great amount of administrative routine...If the Forces in Italy get bogged down on the Pisa-Rimini line, we should not long delay putting Fifth Army Divisions into the fight in Southern France...The important thing is that we push Anvil to the utmost as the main effort in the Mediterranean.⁷⁸⁴

Marshall was clearly stating that, as least as the US was concerned, the upcoming invasion of southern France had become the top priority for the Mediterranean. Perhaps even more interesting is the stated belief that even though the Mediterranean would have to support two major operations simultaneously, Lieutenant General Devers and his Sixth Army Group would not have to burden themselves with the details of coordinating supply, maintenance, and other administration. Marshall's message implied that the Mediterranean had indeed achieved a level of experience and capability among its support

⁷⁸² "Report by the Supreme Allied Commander Mediterranean to the Combined Chiefs of Staff on the Operations in Southern France," 23-24.

⁷⁸³ Memorandum, Allied Force Headquarters, dated 7 July 1944, subject: Operation Anvil. NARA, RG 492, box 124. Also see *The United States Army Seventh Army Report of Operations: France and Germany 1944-1945* (Nashville: The Battery Press, 1988.) 2.

⁷⁸⁴ Message from Marshall to Devers and Eisenhower, dated 16 July 1944, Reference Number WX66124. NARA, RG 492, box 135.

forces that would allow the army group commander to focus on the fight before him.

Devers could not disregard the physical limitations of constrained resources, but he could leave the details of administration to other trusted officers, such as Tom Larkin.

Churchill was not happy with the decision to revive Anvil and even went as far as to recommend that the plan be modified to bypass the ports of Toulon and Marseilles and land at ports in Brittany instead, believing that these would contribute more directly to the fight in Normandy. Alternatively, the Prime Minister argued further, the forces of Anvil could go to Italy to prosecute the campaign up the Italian peninsula and eventually invade the Balkans via the Adriatic.⁷⁸⁵ The fight between Eisenhower and Churchill regarding Anvil's future went on for ten days.

This showed a lack of appreciation by the Prime Minister for the challenges associated with such a proposal. First, the Brittany ports were 1,600 miles from the loading ports in the Mediterranean and the many of the assault craft carrying troops could not handle such a voyage. Additionally, the seas in this area were prone to storms and high tides. Third, the assault area was beyond the range of effective air cover. Additionally, landing at Brittany did not support any follow-on operations beyond western France.⁷⁸⁶ Finally, abandoning Anvil in favor of Italy and the Balkans meant exposing the forces in Normandy to an unprotected southern flank and limiting the amount of Allied divisions and supplies along the western front. Roosevelt and Eisenhower dismissed the proposal out-of-hand.

⁷⁸⁵ Eisenhower, *Crusade in Europe*, 281.

⁷⁸⁶ Meyer, "The Strategic and Logistical History of MTO," XXIV-43.

The argument for Anvil had transformed into one of additional supply and transportation capacity. Eisenhower fulfilled his role as theater commander- working to ensure that he could supply as many divisions and supplies as possible for the army group commanders to employ. The reasons for the landings in southern France had changed, focusing on logistics rather than the enemy.⁷⁸⁷ However, with the on-again, off-again nature of the decision, planners had little continuity of effort. By July 2, with the final decision at hand, staffs at all levels went into high gear working to develop the plans needed to load, move, land, and support a major amphibious force with the landing date being less than six weeks away.

Planning the Invasion

The initial deliberate planning effort for Anvil had begun in January 1944 at the Ecole Normale in Bouzareah, a suburb just north of Algiers. As with previous operations, AFHQ formed a planning group from the army headquarters that would make the initial assault. In the case of Anvil, Seventh Army provided the nucleus of the planning staff under the title of Force 163.

Seventh Army had changed dramatically following its victory in Sicily. All of its divisions had transferred to other armies, either in Italy or in England. Patton was still nominally in command, but was due to rotate to England. Additionally, seven of the eight primary members of Patton's staff planned to depart for England as well. To confuse the enemy, most of the army headquarters staff remained at Palermo while a small planning

⁷⁸⁷ Michael Howard writes that considerations "were now logistics rather than strategy." However, one can argue that strategy is a calculated relationship between the desired ends and the available means. As such, strategy inherently is connected with logistics. See *The Mediterranean Strategy in the Second World War* (London: Greenhill, 1968). 60.

detachment under the lead of Brigadier General Garrison Davidson departed the island for Algeria.⁷⁸⁸

Included in the Anvil planning staff were eight officers from Seventh Army G4, four from the Services of Supply, and six from AFHQ. Over the course of a few weeks, this segment of the planning group established a second headquarters, named Rear Force 163, and stationed itself near the headquarters of the Services of Supply NATOUSA in Oran. This planning element produced the logistics plan for the invasion of southern France, eventually growing to over 300 pages.⁷⁸⁹

Expecting that the fighting in Italy would soon be over, the War Department selected Lieutenant General Clark to be the Seventh Army commander after Patton departed. In the spring of 1944, however, Clark was still fighting in Italy and had little time to devote to the planning effort. As such, the Force 163 planning team had to work with little oversight or guidance

Force 163 planned for a two or three division assault, followed by a sizeable buildup of up to ten divisions. The French were willing to put the French First Army under US command as long as the US provided all supplies, transportation, and other administrative needs. The plan assumed that no ports would be available until at least D+25. Until then, all supplies would come over the beaches.⁷⁹⁰

Command of French forces had been a touchy subject ever since Operation Torch. Britain and France had a history of stormy relations and this influenced the perceptions of

⁷⁸⁸ Meyer, "The Strategic and Logistical History of MTO," XXV-2.

⁷⁸⁹ Milton Lehman memoir, "Supplying Seventh Army." Undated. James S. Sweet Papers, MHI. 1. Also see Meyer, "The Strategic and Logistical History of MTO," XXV-7.

⁷⁹⁰ The United States Seventh Army Report of Operations: France and Germany 1944-1945. 20.

many senior officers. The campaign in North Africa had shown both Montgomery and Bradley to be less than cordial toward the French. The French most probably would not have approved working for either of these commanders and the two army group commanders would not have wanted the French anyway. However, the creation of an army group under General Devers (a commander not known to have any prejudices against the French) avoided this predicament. Devers appreciated the additional forces and the French longed for a chance to be a part of the attack that would free their homeland. Additionally, the separate line of communication provided Allied leaders the opportunity to not only employ French forces on their own soil, but to do so in such a way as to not tie up the already bottlenecked ports of northwest Europe.

Working jointly, planners from both the Army and Navy selected the Cavalaire-St. Tropez-St. Raphael area as the best target to enable the capture of Marseilles and Toulon. These beaches provided good gradients for the landing craft and deep-water access for the larger ships. The beach defenses were not overly problematic and there were suitable road networks leading inland. Once ashore, the Argens River valley provided the means to rapidly move west and cut off the two port areas from German reinforcements.⁷⁹¹

By July, Eisenhower had identified four major objectives for the upcoming operation. First, Anvil was to contain and destroy any German forces that could potentially oppose Allied forces operating in northern France. Second, it would secure a major port to facilitate the landing of Allied reinforcing divisions. Third, forces would advance north to threaten the German southern flank and the German line of communications. Finally,

⁷⁹¹ Admiral H. Kent Hewitt "The Landings of the Seventh Army in Southern France," Undated. Navy Archives, Hewitt Collection. Box 4. 9.

Anvil would develop an Allied line of communications for support of advancing forces and support of the reinforcing divisions.⁷⁹² Of the four objectives, three of them focused on issues of support.

The plan for the landings was straightforward. The VI Corps, under command of Major General Truscott, would head the invasion. The 3rd Infantry Division would land on the left-most beaches near Cavalaire-sur Mer. The 45th Infantry Division would land in the center near St.-Tropez. The 36th Infantry Division would land on the right, near St.-Raphael. The provisional First Airborne Task Force, which consisted of one British brigade and two US regiments, would drop into the areas beyond the beaches, near Le Muy to augment VI Corps and the French 5th Division. The US VI Corps had a mission similar that of previous landings: get ashore, establish the bridgehead, clear the ports, and drive inland. The Allies were determined to drive north as fast and far as circumstances would allow. Seventh Army would follow VI Corps ashore, later followed by Sixth Army Group as additional units flowed into France.⁷⁹³

Although senior leaders had been arguing about whether to proceed with the landings on southern France or not, the Mediterranean theater had in fact prepared itself to support such an operation. The Services of Supply established the Northern Base Section in Corsica on January 1, 1944, under Colonel John Ratay to support all air operations originating from the island, but the Services of Supply also tagged the Northern Base Section with conducting much of the loading of troops and supplies for the upcoming

⁷⁹² "Report by the Supreme Allied Commander Mediterranean to the Combined Chiefs of Staff on the Operations in Southern France," 25.

⁷⁹³ Final Report: G-3 Section, Headquarters, 6th Army Group. 1945. CMH. 5.

invasion of southern France. Additionally, when it became evident that the focus of the war in the Mediterranean was shifting to the north, the Allied Force Headquarters, NATOUSA, and the Services of Supply of NATOUSA all moved from North Africa to Caserta, Italy.

On July 6, NATOUSA activated the Coastal Base Section under the command of Major General Arthur Wilson, the old Western Base Section commander. Using insights gained from previous operations where the support forces had arrived too late on the beaches and took too long to set up operations, Wilson insisted that all personnel assigned to the Base Section familiarize themselves with the details of the assault plan so they could assume responsibilities for supporting the army as soon as possible after landing. This time around, the Base Section would arrive early and take charge of the beaches as quickly as possible.

Plans called for a phased buildup of supplies. Once the beaches in France were secure, five days of supplies would land every three days. This would allow support units to replace any consumed supplies, as well as slowly build up a theater reserve.⁷⁹⁴ Physics required the Services of Supply to preload 100 ships with supplies in order to make the necessary timelines in France.

Compounding the planning effort was the requirement to support not only all US forces attached to the Sixth Army Group, but the French First Army as well. The First French Army in Italy numbered some 75,000, but planners expected this number to double once the French divisions landed along the Riviera and had access to metropolitan French

⁷⁹⁴ "CONAD History, Continental Advance Section, Communications Zone, European Theater of Operations," (Heidelberg: Aloys Graff, 1945) 5.

manpower.⁷⁹⁵ Under the command of General De Lattre de Tassigny, much of the French First Army came from North Africa. The French had an organic support unit, known as French Base 901, but there were relatively few trained supply technicians or mechanics within the French Base. From the beginning of the rearmament program, the French had focused efforts on producing combat units with support units receiving the lowest priority.⁷⁹⁶ Using US planning ratios, the French should have had 112,000 service forces to support their eight divisions. Instead, they never fielded more than 29,000. Just prior to the invasion, the French First Army included only 12,500 service forces-ten percent of the total requirement.⁷⁹⁷ This forced French Base 901 to form a close working relationship with the Coastal Base Section along with the stationing of several French support liaison officers, although AFHQ prevented any formal liaison before July.⁷⁹⁸ Once in operation, however, the two service headquarters formed a close working relationship so beneficial to all involved that it lasted throughout the remainder of the war.

The magnitude of the task of re-equipping French units is hard to overstate. As of July 21, 1944, only 30 of 133 French units had at least a third of their authorized equipment.⁷⁹⁹ The Joint Rearmament Committee and the Services of Supply worked to make up all possible shortages from supplies within the Mediterranean and from the French Lend-Lease account. Additionally, the high percentage of Muslims in the French First Army meant that the Services of Supply had to accommodate special dietary requirements in its

⁷⁹⁵ Clarke and Smith, 355.

⁷⁹⁶ Meyer, "The Strategic and Logistical History of MTO," XXV-11.

⁷⁹⁷ *Ibid.*, XXV-49

⁷⁹⁸ *Ibid.* 15. Also see The United States Seventh Army Report of Operations: France and Germany 1944-1945. 67.

⁷⁹⁹ The United States Seventh Army Report of Operations: France and Germany 1944-1945. 67.

combat provisions. AFHQ G4 worked to coordinate unfilled requirements between assault units and the Base Sections.

The theater ordered all supplies for the upcoming operation early in 1944, but problems arose when the War Department cancelled many of the requisitions in April when the future of Anvil appeared in doubt. The resurrection of the operation in July forced supply officers to resubmit the orders once again, creating some shortages for any items that were not readily available. Luckily, Services of Supply NATOUSA had frozen the issuing of supplies identified for Anvil that were already in the Mediterranean on the belief that the Joint Chiefs might resurrect the operation. This foresight prevented the raiding of supplies by Fifth Army and meant that the War Department had to ship only a limited number of priority items, such as ammunition, vehicles, and weapons systems from the US. These items left New York in early July on ships instructed to arrive in Naples “with hatches open and booms slung so that the Sixth Port could discharge the cargo without delay.”⁸⁰⁰

To prepare the invasion force, the Services of Supply had to re-equip the 175,000 US troops pulled out of Fifth Army, as well as outfit 150,000 French troops. In addition, the support units needed to build up enough supplies within the Mediterranean to support 450,000 troops for a 30-day period. Any items not already available in the Mediterranean had to come from the US.⁸⁰¹

⁸⁰⁰ Meyer, “The Strategic and Logistical History of MTO,” XXV-36.

⁸⁰¹James L Whelchel. “Activities of the Quartermaster in the Continental Advance Section, European Theater of Operation” Published by US Army QM Center, Passing in Review, chapter 43, 1945-1955?, 3-4.

The support relationship between the European and Mediterranean theaters was largely one of separation and independent operations. For US forces, some supplies for Mediterranean units did come from the United Kingdom, but these were the exception rather than the rule. There was no formal relationship or authorities between the two different support headquarters.⁸⁰²

By August 1, planners had changed the operation's name from Anvil to Dragoon for security concerns and units finalized their plans. The Force 163 staff moved to Naples and was absorbed into the Seventh Army headquarters. The plan called for a three-division assault initially under the command of VI Corps, with command later transitioning to Seventh Army and then Sixth Army Group. A force of 366,833 men and 56,051 vehicles were to be ashore on the beaches of southern France by D+30. To sustain this, planners expected to move 277,696 tons of supplies over the beaches in the first month of operations.⁸⁰³

Once the landings began, each task force commander became responsible for the resupply of his own troops. This responsibility transitioned to a Beach Group Control Headquarters as soon as it was ashore and established. Planners assumed that the Continental Base Section would be ashore and operational within five days of the capture of a port.

If all this sounded familiar, it was because by this point of the war amphibious assault planning had become, more or less, a matter of routine. Planning was still difficult and involved a lot of coordination, but experienced staffs knew what questions to ask and what

⁸⁰² Oral History of Robert Colglazier, 124.

⁸⁰³ The United States Seventh Army Report of Operations: France and Germany 1944-1945. 65.

to expect. Systems and procedures that worked well in previous operations, such as including support units and their equipment in early assault waves, carried forward to the next operation, unsuccessful concepts did not. This is the main reason that Dragoon was able to occur as quickly and effectively as it did. Planning staffs, especially in the Services of Supply, could now anticipate problems and develop the means to deal with the potential problems.

Planners never have all the facts they desire so they rely on assumptions to fill in the holes of a plan and Dragoon was no exception. Key assumptions for the support of Dragoon's forces included the projection that the first port, Toulon, would not be open until D-20 and could then handle 10,000 tons per day. Planners did not expect the port of Marseilles to open until D+40. Based on experiences in Sicily and Italy, the Allies fully expected both ports to have considerable damage from German sappers. Most importantly, the plan stipulated that the assault force would not be able to support itself more than 20 miles inland of the beaches until a port was operational.⁸⁰⁴ The key to Dragoon was the ports.

Toulon had been a large French naval base, but the French had scuttled much of the fleet so the port had a limited capability. Marseilles, on the other hand, offered a large discharge capacity that could support an entire army group. The location and capacity made this port a primary objective.

Marseilles was a major port with ten primary basins and 13 miles of quays. Its peacetime daily cargo discharge capacity was 20,000 tons per day, an important figure

⁸⁰⁴ "Report by The Supreme Allied Commander Mediterranean to the Combined Chiefs of Staff on The Operations in Southern France." 6.

since the Allied planners expected that the Sixth Army Group would need 15,000 tons of supplies each day. Connecting the port to the Ruhr Valley was a series of roads, rail linkages, and canals.⁸⁰⁵

To open the ports, planners increased the size of the divisions. The Army had learned the lessons of previous amphibious assaults and now worked to add support units to the assault formations in numbers that previously would have been unimaginable. For Dragoon, planners increased the division slice (the part of each division not found within the headquarters or brigades and regiments) from 25,000 to 45,000 men. Additionally, each division's truck allotment increased from 4,000 to 8,000 vehicles.⁸⁰⁶ Planners and commanders alike were determined not to make the mistakes of the past, such as what happened in North Africa where the lack of service units and vehicles meant missed opportunities.

Supporting the Assault

The Services of Supply handled the loading of men, supplies, and equipment from bases in North Africa as well as Italy. Naval ships and assault craft were generally loaded at Naples and Salerno, while merchant ships were loaded at Naples, Taranto, and Oran.

The Peninsular Base Section had the largest mission, needing to load the forces destined for Dragoon, while also supporting Fifth Army in its fight up the Italian peninsula. Consequently, the heavy out-loading of ships in Naples caused a temporary backlog of ships awaiting discharge in Italy. The theater had to put a priority on the

⁸⁰⁵ Meyer, "The Strategic and Logistical History of MTO," XXVII-2.

⁸⁰⁶ "Report by the Supreme Allied Commander Mediterranean to the Combined Chiefs of Staff on the Operations in Southern France." 6.

landing of perishable food and ammunition into Italy; other supplies were on hold until the backlog cleared.⁸⁰⁷

Naples, with its sizeable capacity, was the primary mounting port. As with the loading of forces for the assault into Italy, the base section formed an embarkation group to plan and conduct the loading of the ships. AFHQ established a Joint Loading Control officer to coordinate among the different services and units. Oran served as the secondary mounting port and handled most of the French follow-on forces. By leveraging all the experience gained from past operations, all ships were loaded and ready to sail by August 8, right on schedule.⁸⁰⁸

To avoid excessive congestion in Naples, Admiral Hewett decided to embark French troops already in Italy on the first follow-up convoys sailing from ports on the heel of Italy. Fifth Army removed these units from the front lines, moved them to Taranto, and then the Services of Supply re-equipped them for Dragoon.

Due to the experience gained from previous amphibious operations, every convoy sailed on time with no reported major problems. In fact, experience was the hallmark of the Dragoon force. Seventh Army had seen action in North Africa and Sicily. The 3rd Infantry Division, now under the command of Major General John W. O'Daniel, had landed in Morocco, Sicily, and Salerno. The 45th Infantry Division, commanded by Maj. Gen. William W. Eagles, had made landings at Sicily, Salerno, and Anzio. The 36th Infantry Division, commanded by Major General John E. Dahlquist, had made the initial

⁸⁰⁷ Report: "S.O.S. Statistical Summary," dated 1 August 1944. NARA, RG 492, box 2704. Forward.

⁸⁰⁸ Report: Invasion of Southern France. Report of Naval Commander, Western Task Force, dated August 15, 1944. Navy Archives, Hewett Collection. Box 4. 169.

assault at Salerno. All three divisions were part of the VI Corps, commanded by the old 3rd Infantry Division commander, Major General Lucian K. Truscott.

The naval task force, under Vice Admiral Kent Hewett, consisted of 902 ships and assault craft, along with 1,200 other craft carried aboard ship.⁸⁰⁹ The landings started in the morning hours of August 15 and went largely as planned. Thirteen hundred aircraft and 53 gunfire ships neutralized German defenses, allowing the assault to start at 8 am.

The landing beaches spanned almost 60 miles across, making communications between the beaches difficult. For the first time, the Navy provided a liaison officer to help coordinate the activities of the three naval beach battalions. Fortunately, the naval force encountered few underwater obstacles so the landing craft generally had few problems delivering their loads.

Learning from past mistakes in planning support of amphibious operations, the Seventh Army G4 assigned port battalion crews against specific ships. These crews loaded the ships and then rode the same vessel to the assault area to conduct offloading. Since the crews knew the contents of their ship and the location of specific items, off-loading occurred at new levels of efficiency and essential items could be quickly located.⁸¹⁰

To help control the beaches, AFHQ and the Navy established a central Beach Control Headquarters designed to work through the Seventh Army G4. The Army G4 controlled the offload schedule, which prevented division commanders and their staffs from changing supply offload priorities at the beaches—a problem experienced in past

⁸⁰⁹ Ibid. 324.

⁸¹⁰ Milton Lehman memoir, "Supplying Seventh Army." Undated. James S. Sweet Papers, MHI. 1.

operations. The Army G4 and Beach Control Headquarters called ships forward for unloading in accordance with the needs of the entire assault force; not just one particular unit.⁸¹¹

An additional improvement was the marking of supply ships. Unlike earlier assaults, each supply vessel was clearly marked with the number corresponding to a master list of supplies and equipment. The Army G4 called in ships based on demand, providing the ability to meet immediate needs. This proved to be a critical factor in adjusting to changing needs at the front lines as units achieved a breakout from the beaches sooner than expected. The advance produced a critical shortage of fuel, with just 3,000 gallons of gasoline staged on the beach. The Army G4 noted the change in requirements, adjusted priorities from ammunition to fuel, and off-loaded over 400,000 gallons of gasoline overnight.⁸¹² This level of flexibility enabled the breakout to occur as quickly as it did, but would not have been possible earlier in the war. Experience had honed the skills and systems of the service units to a new level- one that not only could anticipate needs, but could also react to unexpected circumstances.

Despite the improvements, there were still some problems in establishing the initial supply sites. Planners had tentatively identified supply dumpsites by aerial reconnaissance. However, upon landing in France, the Allies found that many of these locations were heavily mined so alternative locations had to be quickly located or the primary sites cleared of mines. Cargo nets proved to be critically short during the landings due to a lack of labor at the supply dumps. Supply units needed this labor to

⁸¹¹ Ibid.

⁸¹² Ibid.

unload supplies at the dumps and quickly return nets to the ships. Additionally, there were insufficient cargo trucks to receive supplies direct from the ships, and too many ships discharged cargo simultaneously, overwhelming beach capacities. The Base Section used Italian Service units, some 23,355 individuals, along with volunteers from over 50,000 German prisoners of war to compensate for a civilian labor supply that was limited and largely ineffective.⁸¹³

As in Sicily and Italy, engineer shore regiments landed with the assault elements to control the beaches and establish the initial supply dumps. For this operation, however, the shore regiments did not retain this responsibility for long. On September 9, the Continental Base Section assumed control of the beaches and dumps, allowing the engineers to revert to army control for use on more traditional engineering projects.⁸¹⁴

Initially, planners had expected to fight up to 14 German divisions in southern France, but three of the enemy divisions moved north to defend against the Normandy invasion. Instead of Dragoon pulling divisions away from the north, as originally planned in 1943, the timing resulted in Overlord pulling divisions away from Dragoon. To further help matters, only three enemy divisions actively opposed the Dragoon landings because of the expansive coastlines the Germans were trying to defend.⁸¹⁵ The result was a general lack of strong resistance, which allowed the forces of Dragoon to move inland much farther and faster than planned. This equated to a tactical coup, but one that placed greater and

⁸¹³ "CONAD History, Continental Advance Section, Communications Zone, European Theater of Operations." 31. Also see Status of Service Units (Italian) in Base Sections, NARA, RG 492, box 3020, dated 20 October 1944.

⁸¹⁴ *Ibid.*, 34.

⁸¹⁵ "Report by the Supreme Allied Commander Mediterranean to the Combined Chiefs of Staff on the Operations in Southern France," 33.

greater demands on a support structure that was struggling to support on-going combat while also establishing itself ashore.

The offloading of supplies and equipment in the first few days of Dragoon went so well that the Navy found it could deliver material to the beaches faster than the Army could clear it. Although more support units and trucks had been included in the assault convoys, the increasing depth of the battlefield stressed the ability of the service forces to keep pace with the overall rate of advance. Quartermaster, signal, and ordnance units established supply dumps further inland, to better supply the combat units. However, this placed a greater demand on the limited numbers of trucks ferrying supplies from the beaches to the dumps.⁸¹⁶

Planners had expected to use French civilian and prisoners of war to help clear the beaches, but this never quite worked out. From August 15-20, the Allies could only find approximately 1,000 Frenchmen and these consisted mainly of young boys and old men—hardly suited for the back-breaking work of moving crates of supplies off the beach and into trucks. Prisoners of war were available, but did not speak English and needed constant guarding. The prisoners were generally quite willing to work, but few military police or combat units were available for guard duty.⁸¹⁷

As planned, the 3rd Infantry Division landed on the left, to the southwest of St. Tropez along the beaches in the Bay de Cavalaire and the Bay de Pampelonne. The division quickly secured the left flank of the invasion then raced inland to capture St. Tropez and

⁸¹⁶ Report: Invasion of Southern France. Report of Naval Commander, Western Task Force, dated August 15, 1944. Navy Archives, Hewett Collection. Box 4. 338.

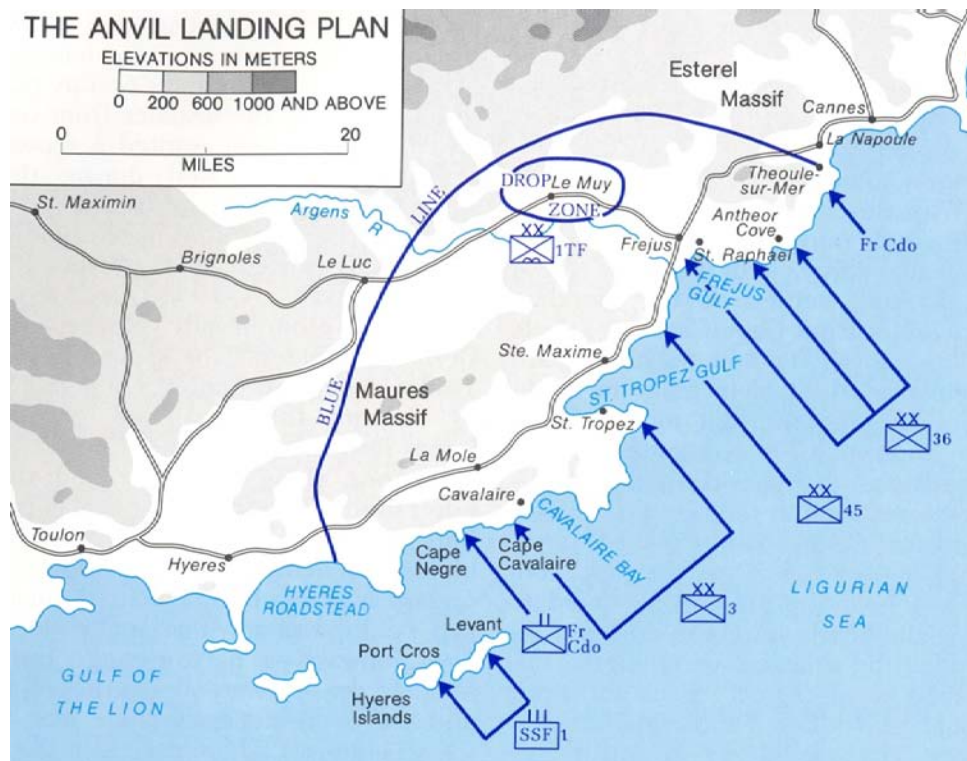
⁸¹⁷ Meyer, "The Strategic and Logistical History of MTO," XXVI-15.

link up with the 45th Infantry Division, thus securing the St. Tropez peninsula by dark on the first day of the landings.⁸¹⁸

The 45th Infantry occupied the center of the assault formation, landing on the beaches running from Cape Sardineau to Point Alexandre, along the Gulf of St. Tropez. Steep cliffs arose from the back of the beaches and only single road served as an exit.

Resistance was light because air and naval bombardment had already destroyed much of the German defenses.

Figure 33: The Landing Plan⁸¹⁹



⁸¹⁸ Hewitt, "The Landings of the Seventh Army in Southern France." 16.

⁸¹⁹ Source: Clarke and Smith, 76.

The 36th Infantry Division landed along a stretch of beach ranging from the mouth of the Argens River north to Antheor Cove. This area held the majority of the German defensive units. The landings started on time and initially met with light resistance. By late morning, however, parts of the division encountered firm opposition, delaying the advance inshore. Strong defensive lines protected St. Raphael, including mines, booby traps, anti-tank ditches, and artillery. A determined German defense along the Division's "Camel Red" beach, forced the 142nd Infantry Regiment to land at a different beach, delaying the regiment's arrival by six or seven hours.⁸²⁰ Regardless, the 36th Infantry Division achieved its objectives and by the afternoon of August 16, D+1, VI Corps had advanced further inland than planners had ever thought possible.⁸²¹

Figure 34: LSTs Arriving in France⁸²²

The French First Army began landing on the beaches on August 16, D+1. Four divisions quickly made it ashore and then began working their way to the west reaching Toulon on August 22. The ports of Marseilles and Toulon surrendered to French forces on August 28.



The drive inland produced an almost immediate shortage of fuel. Supply planners had expected a hard fight on the beaches so almost three-quarters of the supplies

⁸²⁰ Clark and Smith, 123.

⁸²¹ Ibid., 122.

⁸²² Source: HQ, 6th Army Group Report of Operations, CMH.

accompanying the assault force was ammunition and very little fuel was loaded onto the first waves of assault craft. The shortage of fuel on D+1 forced a revision in unloading priority within VI Corps. Logisticians diverted DUKWs and LCTs to a merchant vessel carrying 50,000 gallons of fuel. Beach capacity was not an issue, but operations had deviated from the plan. [The offloading of thousands of tons of ammunition on the congested beaches and slowed the movement of fuel.] By D+4, units were more than 100 miles from the beach invalidating the assumption that operations would be limited to 20 miles from the beach until a the base section opened a port. The three US divisions were using more than 100,000 gallons of fuel per day, but as of August 21, only 11,000 gallons remained in beach depots. This forces Seventh Army to prioritize the offloading of fuel while also restricting fuel consumption.⁸²³

The battle for Montelimar showed just how dependent Seventh Army was on fuel and ammunition. In an effort to exploit the withdrawal of German forces and to try to prevent the escape of the German Nineteenth Army, Generals Patch and Truscott created Task Force Butler—a motorized infantry battalion reinforced with thirty medium tanks, twelve tank destroyers, twelve self-propelled howitzers, and an assortment of armored cars and trucks under command of Truscott's deputy commanding general, Brigadier General Fred Butler. The Task Force's mission was to conduct reconnaissance activities ahead of the 36th Infantry Division and cut off the German retreat.⁸²⁴

Departing north on August 19, the Task Force moved into Sisteron. On the evening of August 20, the Division ordered the Task Force to move toward Montelimar. The 36th

⁸²³ The United States Army Seventh Army Report of Operations: France and Germany 1944-1945, 316.

⁸²⁴ *Clark and Smith*, 145. Also see Final Report: G-3 Section, Headquarters, 6th Army Group. 1945. CMH. 6-7.

would follow the Task Force as soon as it could. By the evening of the following day, August 21, Task Force Butler was on a hill near the town.

Although the Task Force was on high ground overlooking the route of the German advance, it lacked sufficient artillery and tank destroyer ammunition to halt the German retreat. On August 22, two battalions of 155 mm howitzers from VI Corps joined the Task Force, but no units from the 36th had yet arrived. Ammunition stocks for Task Force Butler were down to 25 rounds per gun and the Task Force needed supplies and additional reinforcements from the 36th Infantry Division or they would not be able to stop the retreating German columns.⁸²⁵

The lack of reinforcements from the 36th was partly due to a lack of firm commitment from the division commander, Major General Dahlquist, along with a shortage of trucks and fuel. Recognizing the severity of the situation, Seventh Army put together a special fuel convoy for the 36th and this, along with captured German fuel, allowed the Division's 141st and 142nd Infantry Regiments to resume the march towards Montelimar on August 23.⁸²⁶

Reacting to the threat posed by Task Force Butler, German commanders ordered the 11th Panzer Division to the front. However, the Germans had their own logistical difficulties. Even though the German lines of communication were shrinking, there was still a lack of resources in southern France because of the priority given to German units operating in Normandy. Fuel shortages and crowded roads delayed the Panzer Division's

⁸²⁵ Ibid. 150.

⁸²⁶ Ibid. 152.

movement by at least a day. This allowed some ammunition to make its way to the American Task Force; however, supply for Task Force Butler was still limited.⁸²⁷

By August 25, the 36th Infantry and 11th Panzer Divisions had both arrived around Montelimar and each sought to destroy the other. Fighting continued for 48 hours, but each side found itself hamstrung by shortages in fuel, ammunition, and available roads. Neither was able to destroy the other. Both sides penetrated the lines of the other, but neither was able to exploit the situation because they each had become too weak. The 3rd Infantry Division had moved forward by this time and sought to pursue the retreating Germans, but also found itself slowed by persistent fuel shortages.⁸²⁸ The lack of supplies had cost each side an opportunity: the Americans lost an opportunity to destroy a German army and the Germans lost the opportunity to eliminate one, if not two, of the US divisions.

To remedy the fuel shortage, Seventh Army used the trucks of newly arriving units to move fuel to the forward areas. Additionally, the Army opened a rail link between Frejus and St. Maximin, leading to establishment of a forward supply dump for fuel, rations, and ammunition.⁸²⁹ An additional shipment of six million gallons of fuel arrived off the French coast from Italy on August 28, which was good news, but it created a challenge in moving the fuel from the beaches to the forward units. VI Corps created three provisional truck companies to cover the 213 miles from the division areas to the fuel dump. Seventh Army opened additional dumps on September 2 at Bourgoin, LaTour dePin, and

⁸²⁷ Ibid. 155.

⁸²⁸ Ibid. 162.

⁸²⁹ The United States Army Seventh Army Report of Operations: France and Germany 1944-194, 318.

Montelimar, which reduced travel distance to between 24 and 83 miles. This provided only limited relief as units kept moving further into the interior, forcing quartermasters to push dumps forward.⁸³⁰ The pressure to deliver fuel forward was so great that VI Corps had to restrict drivers to driving no more than 17 hours a day in order to prevent their exhaustion.⁸³¹ Fuel and ammunition would remain in short supply until the Allies could put the ports into operation and repair the roads and rail lines.

Within a week of the initial landing, the Navy realized that it needed an additional means of delivering supplies to Seventh Army, one that bypassed the beaches. On D+10, Admiral Hewett issued orders to open Port de Bouc as a means of providing this additional capacity. Port de Bouc was located west of Marseille and close to the mouth of the Rhone River. Besides containing the usual port facilities, Port de Bouc also held a sizeable capacity for receiving and storing fuel. Engineers started clearing the port at the end of August and within ten days the port was in operation. The nearby Arles Canal allowed supplies to be ferried 30 miles inland. Port de Bouc served as the initial discharge port for all of Dragoon's forces and later developed into the primary discharge point for Air Force fuel and other supplies.

Toulon and Marseilles both fell to the Allies on D+13, allowing Army and Navy engineers to begin clearing the ports and to repair facilities. As expected, both ports had been badly damaged by friendly bombing and enemy demolition. The Navy focused its efforts on Toulon, while the Army handled Marseilles. German engineers had destroyed most of the buildings and roads. Scuttled ships blocked berthing spaces and the harbors.

⁸³⁰ *Ibid.*, 323.

⁸³¹ Meyer, "The Strategic and Logistical History of MTO," XXVI-22.

Using the lessons gained from previous efforts, such as at Palermo and Naples, the Allies quickly rehabilitated the two ports. The use of prisoner labor and French arsenal workers greatly aided the effort.

The destruction at Marseilles was thorough and efficient. Only one of the port's 23 piers was serviceable. There were no operational cranes and other discharge equipment. Mines were located throughout the port and in the harbor, including a marine mine that was set to detonate after 63 days. The retreating Germans damaged or blocked all of the 121 piers. The damage at Marseilles was worse than the damage seen at Naples. The enemy had noticed how rapidly the Allies had rehabilitated Naples, so at Marseilles, the Germans not only scuttled vessels, but they did so in such a manner as to make clearing the vessels as difficult as possible. Explosives broke ship's backs before sinking. Vessels lay up to three layers deep in the channels and at the piers. Thousands of mines rested among the wreckage.⁸³² The Germans had sunk seven ships at the western entrance of the harbor and scuttled another 65. In total, the Germans had sunk over 200,000 tons of shipping, including four large ships lying across the main channel.⁸³³ The ships sunk alongside the quays lay in such a way that engineers could not lay piers over them as had been done in Naples. By September 1, however, the first three Liberty ships entered the port and were discharged using DUKWs.

Although planners had not expected to clear the ports until D+20 and D+40 respectively, by the second week of the operation both ports were in some stage of

⁸³² Meyer, "The Strategic and Logistical History of MTO," XXVII-6.

⁸³³ "From the Sahara to the Rhine, a History of Army Supply Service," Southern Line of Communication Publication, Communications Zone ETOUSA, 1945, MHI. 14.

operation. The Germans had become adept at damaging ports, but the Allied engineers and port units had become equally proficient at rehabilitating ports and port facilities. The first discharges of cargo at a pier in Marseilles occurred on September 8, totaling a mere 1,219 tons. However, within a month after the landings, the ports could handle any demands the Allies made upon them. By September 15, the ports were sending up to 10,000 tons of supplies up the Ruhr each day.⁸³⁴ By Mid-October, the port of Marseilles employed 11,000 men and discharged over 19,000 tons of supplies and equipment per day.⁸³⁵ In comparison, the port of Cherbourg-Eisenhower's main port for supplying the armies in the north during the summer and fall of 1944-could only handle 7,600 tons per day two months after its capture.⁸³⁶

The planners for Overlord had expected to use the ports of Cherbourg, Brest, and Antwerp to supply the drive across France; however, this did not go according to plan. First Army did not capture Cherbourg until June 26, 1944, 20 days after the initial Normandy landings. Patton failed to put a priority against the capture of Brest and by the time the port fell on September 19, the Army had advanced too far to the east and the Germans had damaged the port to such an extent that it was of little use. Antwerp proved to be the biggest challenge- Montgomery's forces captured the port on September 4, 1944, but did not clear the approaches of defending Germans until November 26, 1944. This meant that at the time of the break out of Normandy the only operating ports were Cherbourg and the British beaches, with Cherbourg not reaching full capacity until the

⁸³⁴ "Report by the Supreme Allied Commander Mediterranean to the Combined Chiefs of Staff on the Operations in Southern France." 39.

⁸³⁵ "History of 6th Port," 25.

⁸³⁶ "The Administrative and Logistical History of the European Theater of Operations, Part VII: Opening and Operating Continental Ports." CMH. Figure 1, page 12.

middle of August.⁸³⁷ Consequently, the European theater lacked the necessary port capacities in northwest Europe to support a multi-army pursuit across France during the last half of 1944.

The tremendous port capacity in southern France proved to be the center of gravity for the Sixth Army Group—the single source of power that gave the Seventh and French First armies the freedom of action needed to carry the fight into Germany. Even more importantly, the additional ports reduced the levels of risk to Eisenhower's northern armies. With the vast capabilities of the southern ports, the Allied advance had less of a chance of being stopped should something happen to the northern ports.

Due to the competing demands for shipping from around the world, the Mediterranean had to use all available transportation resources as efficiently as possible. The Services of Supply had to offload convoys as quickly as possible so ships could conduct faster turnarounds. At Marseilles, one 17-vessel convoy was unloaded in only seven days and 17 hours, providing 82,017 tons of supplies and equipment for the fight. A second convoy of 16 ships discharged 89,575 tons on six days and 18 hours.⁸³⁸ From the opening of Marseilles on September 8, 1944, until January 25, 1945, the port discharged over two million tons. This represented a transformational difference from the port units that had worked so ineffectively to clear the ports of North Africa two years earlier, compared to skills and abilities of the units operating the southern French ports for Dragoon. Had the Allies chosen to land in France in 1943, they would not have had these same skills and abilities.

⁸³⁷ Eisenhower, *Crusade in Europe*. 260, 280, and 290.

⁸³⁸ History of 6th Port," 25.

The three ports, combined with a distribution network, proved to provide the capacity that Eisenhower had sought. By the end of September, Marseilles could handle 16 Liberty ships and 45 LCT landing craft. Toulon could unload nine Liberty ships and 31 LCTs, while Port de Bouc had room for three Liberty ships and one tanker.⁸³⁹ Added together, the port discharge capacity exceeded the resupply rate for the advancing armies. However, port discharge rates meant little if there was not a corresponding road and rail network, combined with sufficient engines, rail cars, trucks, and operators to move the forces and material forward. Along with the equipment came an increasing maintenance requirement to keep vehicles running. The battle for the ports was about to transition into a battle for the inland distribution of supplies.

The Drive Inland

The successful landings and the lack of a coordinated German defense presented an opportunity for Seventh Army. Unlike southern Italy, retreating German units did not possess the strength to delay the Allied advance for any protracted period. German engineers were, however, able to destroy or sabotage critical infrastructure leading north, such as roads, aqueducts, bridges, and rail lines. Nonetheless, Allied experience in dealing with this type of obstacle allowed Army and Navy engineers to repair damaged transportation networks as quickly as possible, although that effort did not always keep pace with the advancing units.

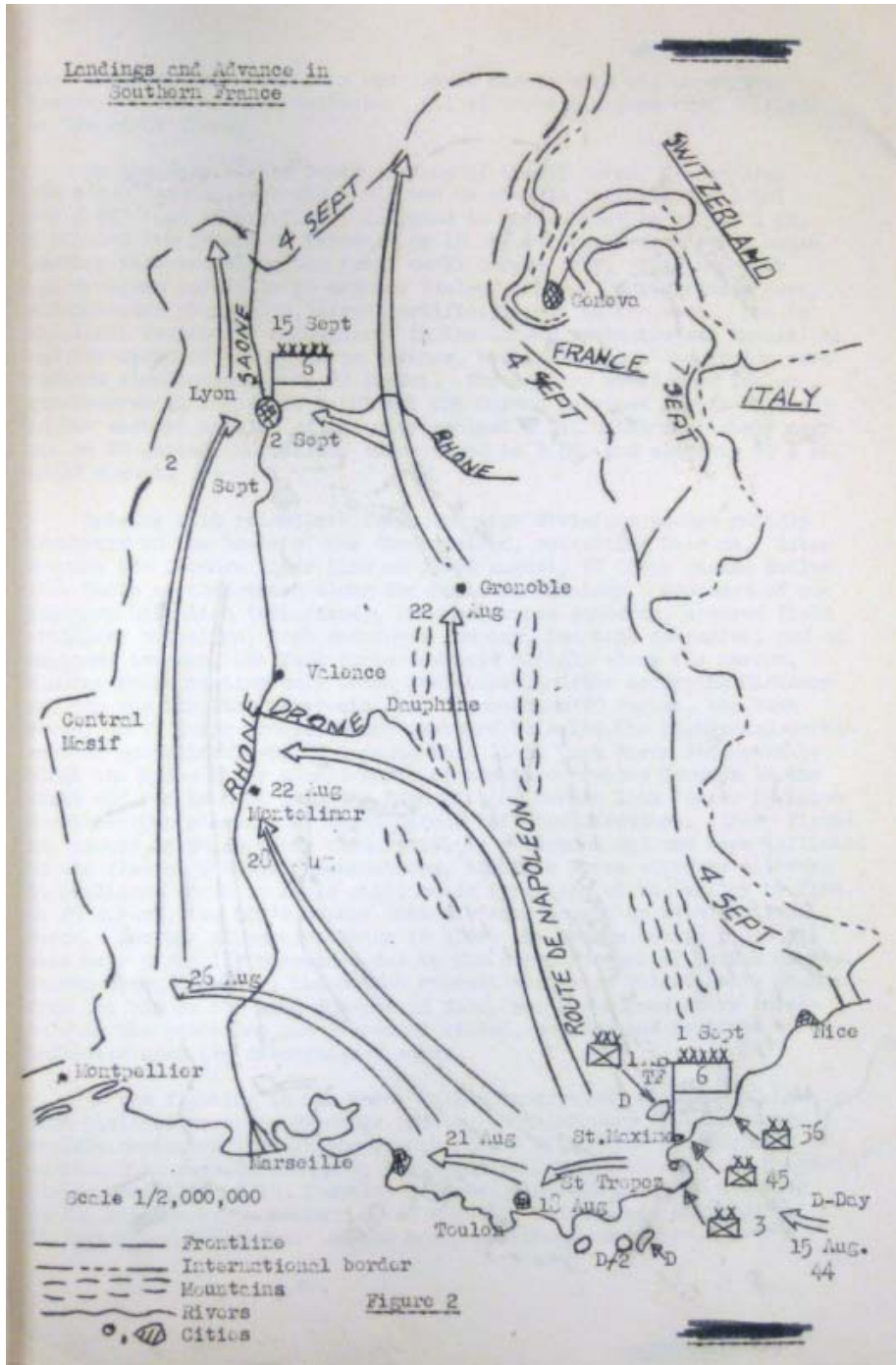
⁸³⁹ Report: Invasion of Southern France. Report of Naval Commander, Western Task Force, dated August 15, 1944. Navy Archives, Hewett Collection. Box 4. 230.

The first six weeks of the operation consisted of a relatively uncontested assault, followed by a 400-mile pursuit up the Rhine valley.⁸⁴⁰ Taking advantage of the situation, Lieutenant General Patch urged his division commanders to move as quickly inland as possible denying retreating German forces the opportunity to establish a prepared defense. The demand for supplies, especially fuel, increased exponentially the farther inland Seventh Army raced. While the Allies were moving up into southern France, Patton's Third Army was pursuing its own breakout from Normandy and was soon approaching Paris. These two forces each needed uninterrupted supplies of fuel to keep moving, which put significant pressure on the service units supporting each army as they worked to keep pace with the combat forces.⁸⁴¹

⁸⁴⁰ Royce Thompson, "Rations-POL in Southern France Operations, 1944-1945," 1953. CMH. 1.

⁸⁴¹ "From the Sahara to the Rhine, a History of Army Supply Service," 15.

Figure 35: Lines of Advance up the Rhone Valley⁸⁴²



⁸⁴² Source: Final Report of the G3, 6th Army Group, CMH.

At the end of August, D+15, combat formations in southern France were on a line of advance that had not been programmed for capture until D+60, but there were only sufficient service forces in southern France to support an area a quarter that size.⁸⁴³ On September 15, D+30, the Sixth Army Group established itself in France and Seventh Army had advanced to the Moselle River, a point that planners had not expected to reach until the middle of December, D+120.⁸⁴⁴ This was good news for commanders, but presented challenges to the supporting units. Service units were still flowing into southern France and engineers could only repair or lay so many miles of rail or pipeline per day or week. The French and American divisions were outracing their supply lines.

Fortunately, the Coastal Base Section had begun arriving on the initial assault and worked steadily to increase its capacity to manage support operations. Operating under the control of Seventh Army, the Base Section provided administrative oversight of the beaches for all supply operations from the time of the landings, greatly improving beach operations compared to the landings of North Africa or Sicily. On September 4, the Services of Supply changed the name of the base section to the Continental Base Section to reflect its mission, and Sixth Army Group established a communications zone that stretched north to Moulins-Macon-Bourg-Geneva: the rear of Seventh Army.⁸⁴⁵ Southern France now held two zones—one for combat and one for support.

In an effort to maintain continuity of support to the advancing force, the Continental Base Section decided to move its headquarters and service units forward in the area of

⁸⁴³ “CONAD History, Continental Advance Section, Communications Zone, European Theater of Operations.” 47.

⁸⁴⁴ Clarke and Smith, 200.

⁸⁴⁵ “Report by the Supreme Allied Commander Mediterranean to the Combined Chiefs of Staff on the Operations in Southern France.” 44.

operations. On September 18, D+18, Colonel Walter Tenny led a reconnaissance force for Grenoble, a town centered on the Allied axis of advance. However, the armies were already 120 miles past that point and it was apparent that the Continental Base Section needed to extend its supply chain further north into the Rhone Valley. Dijon had fallen on September 11 and was well suited for the Base Section's needs. On September 18, the Base Section established an advance element in the town. Within two weeks, the Continental Base Section transferred responsibility of operating the ports and coastal areas to the newly formed Delta Base Section and then, on October 1, 1944, moved its operations to Dijon.⁸⁴⁶

While the Continental Base Section was working to form a viable communications zone, Allied armies were advancing further up the Rhone Valley. Weak German resistance encouraged commanders to push combat units as far and fast as possible in order to keep the Germans from establishing a planned defensive line. This was critical because as German units pulled north and east they would find themselves with shortened lines of communications. In other words, the closer the front came to Germany, the German Army would have less distance to cover for shipment of supplies, while Allied units would have a harder time supplying themselves because of the increased distance between the front lines and the ports. To make progress, the Allies could not allow the Germans to rest.

From the start, however, shortages of fuel and trucks became issues at all levels for the Allied units. The War Department had formed Quartermaster truck companies with only

⁸⁴⁶ CONAD History, Continental Advance Section, Communications Zone, European Theater of Operations," 69.

one driver, but units needed assistant drivers in order to operate vehicles on a 24-hour basis. Additionally, there was competition within the divisions for trucks to move combat forces, as well as supplies. American infantry units were incapable of moving their entire formations solely with organic truck units so additional transportation units were needed. However, along with moving the men, truck and rail units also needed to move the material of war: rations, ammunition, fuel, construction supplies, medical supplies, and replacement equipment.⁸⁴⁷ The demand for transportation exceeded the available supply of trucks and rail throughout the campaign.

The experiences of the 36th Infantry Division illustrate the challenges in supporting pursuit warfare. By the end of August, the Division had moved 270 miles inland, but the rail lines were not yet in operation and Seventh Army's truck units had not yet landed. The division took all of its 20 trucks in its organic artillery units, along with 15 from the divisional supply officer, to form a provisional truck company to move rations and other critical supplies.⁸⁴⁸ Maintenance also quickly became an issue for the advancing army. Units resorted to cannibalism-taking parts off one vehicle to fix another vehicle-to continue the advance. Tank and truck parts were in especially high demand. Additionally, a shortage of SAE-50 grade motor oil forced mechanics to substitute SAE-30, a lighter grade of oil. This produced fouled spark plugs and additional maintenance problems, further compounding the transportation problem.⁸⁴⁹

⁸⁴⁷ Report of Observers in the MTO, 1942-1945, volume VI, dated 21 Mar to 22 Oct 1944. US Army Ground Forces Observers Board. MHI. 22.

⁸⁴⁸ Ibid., Memorandum: Headquarters, 36th Division, dated 10 Oct 44. 2 .

⁸⁴⁹ Report of Observers in the MTO, 1942-1945, volume VI, dated 21 Mar to 22 Oct 1944. US Army Ground Forces Observers Board. MHI. 1.

Although the forces of Dragoon were among the most experienced in the Mediterranean and European theaters, large-scale pursuit operations were a relatively new experience for the American forces. Past battles in Tunisia, Sicily, and the mountains of Italy offered glimpses of how difficult it was to support pursuit operations, but these battles involved nothing on the scale faced now in France. In southern France, the enemy was in retreat. This meant that as long as the Germans retreated, the Allies needed less ammunition, but more fuel. However, planners had expected a more spirited defense and therefore scheduled the landing of large quantities of munitions. Now, the theater had to quickly adjust its priorities or risk losing the initiative.

Figure 36: Movements up to September 15, 1944



This is not to say that that Seventh Army did not need ammunition. During the breakout of the landing areas, the 36th Infantry Division expended most of its initial munitions, causing a temporary shortage within the division. The base sections had replacement supplies in France, but the sections had to locate and then transport these to the front, a process that took time and transportation resources. A 200-mile pursuit to the north followed the breakout, causing a situation where units needed fuel more than ammunition. Then, facing a determined German defense, the division changed its priority for supplies from fuel back to ammunition. After breaking through the resistance, the 36th then advanced another 300 miles, once again relying on timely shipments of fuel to move the division forward.⁸⁵⁰ Although planners fought to anticipate future demands, the enemy had a vote, which often disrupted plans. Fortunately, the lack of a German air and artillery threat aided resupply efforts. This meant that 90 percent of resupply operations occurred during daylight hours, allowing units to move supplies faster and with less risk.⁸⁵¹

Scattered opposition and spectacular advances characterized the month of September. By September 3, the French had captured Dijon, while VI Corps seized Besancon, just to the east. The Allied armies continued advancing up both sides of the Rhone River.⁸⁵² To illustrate the amount of fuel required for the drive north, consider the needs of a single artillery battalion. One 8-inch artillery battalion needed 5,500 gallons of fuel to move 50 miles. A single long-base GMC cargo truck could haul 1,100 gallons of fuel in five-gallon

⁸⁵⁰ Report of Observers in the MTO, 1942-1945, volume VI, dated 21 Mar to 22 Oct 1944. US Army Ground Forces Observers Board. Memorandum: Headquarters, 36th Division, dated 10 Oct 44. MHI. 1.

⁸⁵¹ Army Ground Forces Report Number 232, dated 4 December 1944. Located in Report of Observers in the MTO, 1942-1945, volume VI, dated 21 Mar to 22 Oct 1944. US Army Ground Forces Observers Board. MHI. 5.

⁸⁵² Final Report: G-3 Section, Headquarters, 6th Army Group. 1945. CMH. 7.

containers, but there was a shortage of these containers in the theater.⁸⁵³ Troops had to find the containers, take them back to a central fill point, and then fill the containers by hand if they were unable to swap the empty containers out for full ones. Then, drivers reloaded the containers onto the trucks and drove forward to the battalion supply trains. Multiplied across the front, this added up to a vast quantity of fuel, time, and troop labor.

The speed of the Army's advance resulted in a doubling of the fuel requirement compared to the planned forecast. The rapid shifting of priorities by Allied supply officers, combined with use of captured German fuel stocks and use of a local French refinery, helped meet the growing demand. Similar to what the Allies faced in Normandy, the biggest challenge in fuel operations was transporting the gasoline from the port to the forward units. Initially, trucks were the only means of fuel distribution because of German destruction to rail lines and bridges. However, as base section engineers repaired rail lines, the gasoline distribution system developed into an arrangement of short stretches of rail line between destroyed bridges, then, cross loading the fuel into trucks for movement where rail movement was no longer possible. The expanding distance between the port of Marseilles and the combat units meant that it was almost as difficult in planning how to refuel the convoy trucks hauling the fuel as it was in refueling the actual combat forces.⁸⁵⁴

To meet the increased demand for truck units, Seventh Army used the vehicles from air defense units to form additional truck transport units. The Luftwaffe was not a real

⁸⁵³ Report of Observers in the MTO, 1942-1945, volume VI, dated 21 Mar to 22 Oct 1944. US Army Ground Forces Observers Board. MHI. 6.

⁸⁵⁴ Milton Lehman memoir, "Supplying Seventh Army." 2.

threat anymore so higher headquarters could use the resources of the air defense units were available for tasks. Clerks, cooks, ammunition loaders, gun sergeants, and section sergeants all abandoned their traditional duties and became truck drivers; drivers drove alone and often drove with little sleep. One such driver, Technician Fifth Grade Charlie Jones drove for four days and nights, averaging three hours of sleep a night in the cab of his truck. Jones' experience reflected the dedication of the service forces working to keep the army moving.⁸⁵⁵

On another occasion, Private First Class Mack Luke was in the process of delivering two refrigerators and a mahogany desk for a general officer when his company headquarters received a demand for more fuel from the front lines. Gaining approval from his company commander, Luke left the desk and refrigerators on the ground, filled his truck with gas containers, and drove north, up the Rhone Valley. Witnesses reported that the general understood the change of priorities, but it is unclear whether these stranded items ever made it to their intended owner.⁸⁵⁶

The Allied supply lines did not begin to catch up with the forward combat units until the end of September, six weeks after the landings. A stronger German resistance at the Moselle River slowed the Allied advance, providing an opportunity for base section engineers to improve the road and rail systems leading to the north.⁸⁵⁷

While trucks provided the initial means of sustaining the advancing armies, rail represented the most efficient means of moving men and material to the north. As in

⁸⁵⁵ Ibid.

⁸⁵⁶ Ibid.

⁸⁵⁷ Ibid.

previous operations, the Military Railway Service provided the means to leverage the most out of the available rail networks.

Lieutenant Colonel Benjamin Decker, executive officer for General Gray (commander of the Military Rail Service), landed in southern France on August 16, D+1, and began assessing the French rail infrastructure. Military rail cars landed on the beaches on D+2, and on August 17, D+3, the first train ran from St. Tropez to Cogolin with eight rail cars.⁸⁵⁸ The distance was only nine kilometers, but this represented the first step toward a rail system that would eventually move more than 14,000 tons per day out of Marseilles.⁸⁵⁹

The advance team under Lieutenant Colonel Decker soon found 12 locomotives and 80 rail cars northeast of Toulon and immediately placed these into service. Only ten percent of the locomotives that were in southern France before the war were still there, but the Allies did manage to find 200,000 of the original 400,000 freight cars. To increase capability, the railway service shipped diesel-electric switch engines and oil-burning locomotives to France from North Africa, along with 1,000 special purpose rail cars, such as tankers and flat cars for moving mechanized equipment.⁸⁶⁰ There was an initial shortage of coal and fuel oil needed to operate the locomotives, but the Germans had not been able to destroy the local power point before retreating. This allowed the use of

⁸⁵⁸ "American Rails in Eight Countries: The Story of the Military Railway Service," 22.

⁸⁵⁹ Ibid.

⁸⁶⁰ Ibid. 23.

electric locomotives along a line stretching from Chambéry to Culoz, but engineers had to shore up a number of bridges before the line could come into full operation.⁸⁶¹

The drive north demanded that rail lines extend as far north as quickly as possible to keep pace with the advancing Allied armies and to relieve pressure on the limited numbers of trucks available in the southern line of communications. As in Italy, engineers and rail workers not only had to lay new track, but also had to repair bridges and other critical infrastructure destroyed by retreating German units or past friendly bombing efforts:

A great number of bridges had been destroyed. In the valley of the Rhone, from Marseille to Lyon, there were no connections between the right and left banks of the river. In one viaduct, commanding almost all the traffic of Western France, 22 out of 32 arches had been blown. To the north of Lyon, the situation was no better. Bridges, tunnels, stations, engine sheds, block cabins and freight sheds had been turned into rubble either by Allied bombing or German demolition.⁸⁶²

A double-track rail, the Rhone Valley Railroad, served as the main means of transporting men and materiel up the Rhone valley and a single-track line ran through Grenoble and Dole. However, having the rail lines operational was no guarantee of resupply. Supply levels during the first two weeks of October 1944 ran low again in US combat units, partly caused by the shortfall in ground transportation, and partly due to the actions of French Base 901, which was holding all empty rail cars around Marseilles for the exclusive resupply of the First French Army.⁸⁶³ Unsurprisingly, as soon as the Services of Supply became aware of the situation, officers intervened to convince the French to release their hold on the rail cars. There was little doubt of the outcome. The

⁸⁶¹ Meyer, "The Strategic and Logistical History of MTO," XXVII-20.

⁸⁶² American Rails in Eight Countries: The Story of the Military Railway Service," 23.

⁸⁶³ Whelchel, 13.

French held the cars, but the Base Sections controlled the supplies. The French agreed to release the rail cars back to general service and the supply shortfalls for all units gradually eased.

Ultimately, French rail workers and US troops rebuilt the lines that provided an important means of transporting the materials of war up the Rhone Valley. The effort included the rebuilding of 42 bridges and over 800 miles of track within a system of over 4,000 miles of rail.⁸⁶⁴ The table below depicts the total port discharge and clearance tonnage for September through December 1944, and illustrates how quickly the rail capacity developed.⁸⁶⁵

	<i>Total tons discharged</i>	<i>% cleared by road</i>	<i>% cleared by rail</i>	<i>% cleared by water</i>
September	129,240	76	23	1
October	407,263	57	42	1
November	553,966	58	40	2
December	418,548	66	31	3

The Sixth Army Group headquarters established itself in France on September 15 and immediately went to work organizing and directing the operations of the two combat forces, as well as overseeing the communications zone. During the initial stages of Dragoon, Seventh Army handled all logistic and administrative requirements of the force. With the establishment of Sixth Army under Lieutenant General Devers, Lieutenant

⁸⁶⁴ "American Rails in Eight Countries: The Story of the Military Railway Service," 24.

⁸⁶⁵ Meyer, "The Strategic and Logistical History of MTO," XXVII-25.

General Patch and Seventh Army could now focus on fighting the Germans in an ever-deepening zone. The beaches, ports, and responsibilities for the French First Army were now in Sixth Army Group's hands.

Although Operation Dragoon was not flawless and units encountered challenges supporting the unexpected drive to the north, Dragoon proved to be the smoothest major amphibious assault of the European theater. Part of this is attributable to the lack of a strong German resistance to the landings, but a greater reason lies in the experience of the Allied units, gained from earlier operations. Unlike earlier landings, Dragoon contained a more balanced mix of combat and service forces, although the preponderance of the force was still combat-heavy. The loading of forces and supplies was complex, but went efficiently. Units landed with the right equipment needed to perform their tasks. By September 25, six weeks after the initial invasion, Seventh Army closed the beaches, having handled the landing of 400,614 men and 68,480 vehicles. Three ports were operating along the southern French coastline and the Services of Supply was building up the communications zone. Eisenhower now had his second line of communications in France, one that would allow for the introduction of additional combat divisions onto the continent and eventually sustain a major part of the campaign effort.

While trucks and rail provided the initial means of moving supplies, efforts quickly got underway as well to establish a viable pipeline network to move fuel north up the Rhone. Every mile of pipeline freed up a truck unit that to haul something else.

The 697th Engineer Petroleum Distribution Company landed in southern France close to San Rafael and immediately began installing pipelines, first to fighter bases in the local

area, and then to the armies moving north. Fortunately, they found three French refineries that had been unused in four years, but were largely undamaged and required only routine maintenance to bring back into operation for storage of fuel. Historical documents do not explain why the Germans never utilized these facilities, but infrastructure such as this proved a critical resource for the Allied armies. This storage capacity of over two million barrels near the port provided the ability to offload tankers quickly, but the base section still needed the means to transport the fuel forward to the units.⁸⁶⁶

By September, engineers were constructing a four-inch and six-inch pipeline north from the petroleum storage areas of Port de Bouc. For planning purposes one engineer petroleum distribution company had the capability of constructing 100 miles of pipeline in 30 days. Construction of the pipelines continued on a 24-hour basis, seven days a week, and was a top priority. The maximum rate of advance was 10 miles per day, three times the stated capability. Within three months, the pipeline extended all the way into the Alsace region, at which point engineers temporarily halted construction because they had come within range of enemy fire. Engineers in the Continental Base Section eventually laid a total of 1,507 miles of pipeline in southern France, compared to North Africa where three base sections laid only 731 miles.⁸⁶⁷

Enemy sabotage, weather, and black market thieves all had an impact on the pipeline; although in the larger picture, the impact was relatively modest. Cold weather and rains during the winter slowed pipeline construction and in at least one instance, German saboteurs were able to uncouple the pipeline near Avignon, causing the loss of 2,000

⁸⁶⁶ "CONAD History, Continental Advance Section, Communications Zone, European Theater of Operations," 234.

⁸⁶⁷ *Ibid.*, 236-238.

barrels of fuel. Most common was the routine tapping of the pipeline by a pickax or other sharp object by black marketers. Overall, the Continental Advance Section estimated that only two percent of the fuel carried by the pipeline was lost to evaporation, thieves, and sabotage. This was a small quantity in terms of percentage, but large when one looks at the vast quantities of fuel transported on a daily average.⁸⁶⁸

Although pipelines required extensive engineer resources to emplace, they proved to be an important part of the transportation triad for Dragoon's forces. Eventually, pipelines laid by army engineers carried one-third of the total supply tonnage of the force, tonnage that otherwise would have required trucks or rail tanker cars for movement.⁸⁶⁹

The support of French forces posed special challenges for the Continental Base Section. Although part of the Sixth Army Group, French troops required unique items not routinely found in the US inventory. Unlike US units, the French First Army contained a number of Muslim units, requiring the Services of Supply to establish two different types of rations- the Muslim ration contained no pork products. French authorities augmented the US rations with provided brandy, wine, and olive oil.

Clothing the French units also presented a challenge for the Services of Supply because many French soldiers were smaller than their American counterparts were. Quartermaster units issued uniforms, shoes, and individual equipment in unit sets based on US sizing averages. A company issue of uniforms contained some a set number of each uniform size. When applied to French units, this created shortages of smaller size items

⁸⁶⁸ Ibid. 237.

⁸⁶⁹ Report: The 6th Army Group, France and Germany, 1944-1945 with Special Attention to Logistical Problems. G4 Section 6th Army Group. Undated. Frank Osmanski Papers, MHI. Box 1. 10.

and excess of the larger sized items, requiring Quartermasters to arrange for an exchange of the unusable items.⁸⁷⁰

Additionally, there were different types of French forces requiring various levels of support. French rearmament program units, such as in the First French Army, were authorized US logistical support. Others, such as French Forces of the Interior and Resistance forces, were not authorized support from the Continental Base Section, but needed help to continue fighting the Germans. These non-regulation forces generally received food in sufficient quantities, but clothing and equipment were more problematic.

As the Allies freed up more and more French territory, large numbers of French reservists, Resistance forces, volunteers, and liberated prisoners of war came forward requesting to join in the fight. French authorities estimated that as many as 400,000 men and boys roamed the liberated territories of France, with half this number possessing firearms.⁸⁷¹

The issue regarding development of an Allied policy towards clothing and outfitting these forces raged throughout September and October. General Devers lacked the resources needed to supply the 112,000 men that had already augmented the First French Army or were operating along the Atlantic coastline. French officers were submitting requisitions for clothing and supplies for these new forces to the Services of Supply. The debate concerning the policy for this available manpower continued until the end of December when the French, British, and US commands finally agreed to create 120 security battalions and eight additional French divisions by June 1945, with six of these to

⁸⁷⁰ Vigneras, 259.

⁸⁷¹ Vigneras, 320.

be equipped from French industry.⁸⁷² The decision to create additional French units provided a means to provide for future French security, created additional divisions for the war effort, and gave commanders a predictable requirement for resources.

As in Italy and Sicily, the civil populace presented another sizeable demand for resources. Civil affairs planners recognized that much of the local food, fuel, and other supplies would have been forcibly requisitioned by the German Army so three Liberty ships in every convoy from D+10 to D+40 carried food and medical supplies earmarked for French civilians. This number increased to four ships per convoy between D+41 and D+80. Once these supplies arrived in France they were stored separately from other supplies and then provided to French authorities for distribution to the populace.⁸⁷³ This means of relying on local French governments and workers for food distribution provided several benefits. First, it allowed the base section to focus its efforts and limited transportation on supporting the combat forces. Second, it provided jobs to local Frenchmen. Third, the distribution of essential supplies helped reestablish the legitimacy of the local French governments. Lastly, the supplies produced good will among the French people and prevented any disruption in the rear areas. The benefits well outweighed the costs and proved to be an essential element of the overall support effort.

Although foraging off the land and using captured enemy supplies could serve as a means to lighten the supply load needed to move over the rail lines and roads, the Allies were careful not to place too great a burden on the local French populace. A memorandum from Eisenhower's headquarters to General Wilson highlighted this aspect

⁸⁷² *Ibid.*, 337.

⁸⁷³ The United States Army Seventh Army Report of Operations: France and Germany 1944-1945, 70.

of the civil affairs effort, noting that the Germans typically removed all available supplies from an area prior to evacuation. As such, the Sixth Army Group was not to requisition local food, building supplies, and transportation unless it was to meet a military necessity.⁸⁷⁴

Approaching the Rhine: Slowdown, Missed Opportunity, and a Determined Defense

The period from October to mid-November represented the next phase of Dragoon: a period of slow fighting leading up to the Vosges Mountains. Compared to the earlier fast-paced pursuit, the fighting in the Vosges seemed more like fighting in Italy once again. Supplies were still tight. Engineers had been working to expand the rail networks into the Ruhr, but demand still outpaced capacity. As an example, for the period October 1-7, Seventh Army requested rail delivery of 4,485 tons of supplies. In contrast, the Sixth Army Group G4 could only allocate half of that amount—some 2,270 tons.⁸⁷⁵ Rail capacity was increasing, but so was demand.

By the first week of October, Seventh Army was critically short of items such as repair parts, batteries, communication wire, ammunition and some types of weapons. The problem was not solely one of ports or distribution, but instead, traced itself back to a lack of industrial production in the US. The worldwide demand for critical items such as trucks, ammunition, and weapons systems surpassed what the War Department had projected and it would take time to make up the difference. For many items, relief would

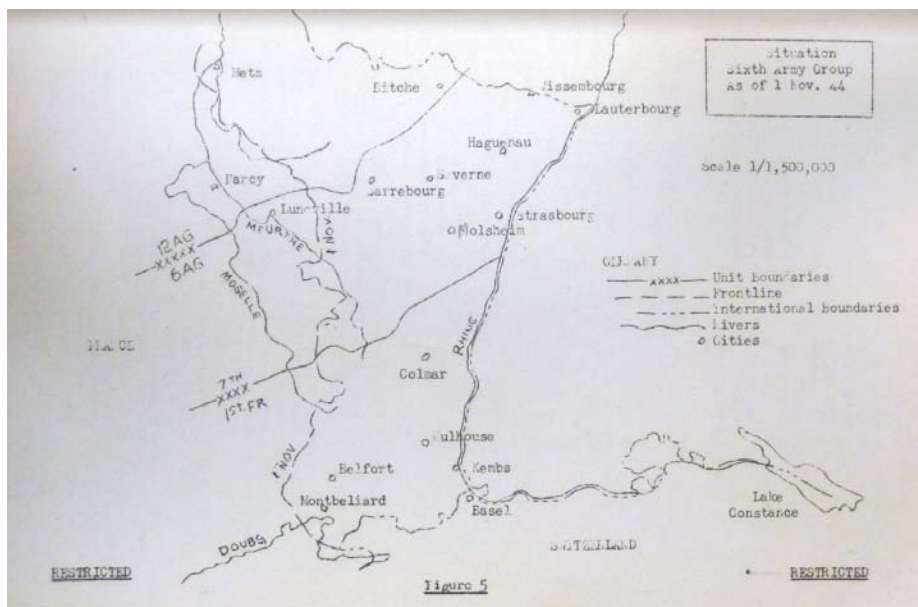
⁸⁷⁴ Memorandum, Supreme Headquarters, Allied Expeditionary Force to Supreme Allied Commander- Mediterranean, dated 25 August 1944, subject: Civil Affairs, Southern France. NARA, RG 492, box 124.

⁸⁷⁵ Clark and Smith, 292.

take three to six months.⁸⁷⁶ During the fall of 1944, the War Department allocated all ammunition between the theaters and rationed the issuing of arms and major weapons.

The advance of the Sixth Army Group slowed in October and November due to a number of factors. First, the supply lines were still struggling to keep pace with forward units. Second, the hills, forests, and limited roads of the Vosges slowed movement. Lastly, even though German units were still retreating, they still put up a fight before moving back. In the final analysis, however, the Sixth Army Group noted that, “logistics...continued to be our most formidable opponent.”⁸⁷⁷

Figure 37: 6th Army Group Positions as of November 1, 1944⁸⁷⁸



This operational slowdown did serve as an opportunity to build up transportation networks and begin to stockpile supplies in the forward locations. For the first time,

⁸⁷⁶ United States Army Seventh Army Report of Operations: France and Germany 1944-1945, 531

⁸⁷⁷ Final Report: G-3 Section, Headquarters, 6th Army Group. 1945. CMH. 15.

⁸⁷⁸ Source: Source: Final Report of the G3, 6th Army Group, CMH.

supply reserves began to appear near the front and the Sixth Army Group was able to begin planning for a November offensive to push its way through the mountains and then head towards the Rhine. Rather than hindering the operation, the slowdown allowed logisticians to set the conditions for the next stage of battle. As such, this was unavoidable for the prolonged health of the overall Allied campaign.

By the first week of November, the supply situation for both the French First Army and Seventh Army had improved to a point whereby offensive actions were once again possible. Devers, noting that the German defenses along the Rhine were relatively weak in the Sixth Army Group sector, decided to take a chance and directed Seventh Army to plan for a crossing of the Rhine before the end of December. To the north, both Bradley and Montgomery were facing stiff resistance in their sectors. Patton's Third Army, just north of Seventh Army, was stalled and unable to make any headway. Devers devised a promising, but risky plan to cross the Rhine near Strasburg and then swing Seventh Army north, hoping to destroy the German Nineteenth Army and cut off the German First Army positioned in front of Bradley's Twelfth Army Group. Sixth Army had the right enemy situation, forces, and supplies to make such an operation possible.

Enabling the strategy were the Services of Supply units that had caught up with the advancing front lines. The October slow down allowed the rail lines to move forward and supply units to build up supply dumps near the forward areas. Engineers stockpiled the equipment and construction material needed to bridge the Rhine. By the third week of November Seventh Army was ready to cross the river and make the first large incursion into Germany from the west. Fate and a lack of awareness from the German High

Command had provided Lieutenant General Devers with an opportunity seldom found in war.

However, this was an opportunity Eisenhower chose not to pursue. While visiting the XV Corps Headquarters on November 24, the SHAEF commander learned about the planned river crossing and quickly ordered all planning for the Rhine crossing to cease. Instead, XV Corps was to focus its efforts on advancing to the north to relieve the pressure on Patton's Third Army. In Eisenhower's mind, the priority of the European Theater was Patton's advance into the Saar basin.⁸⁷⁹ Devers, hearing of the change, challenged Eisenhower on the wisdom of the decision following dinner at the Sixth Army Group Headquarters later that night. Bradley, Eisenhower, and Devers argued over the theater strategy and priorities until after midnight. The debate failed to change Eisenhower's mind and the orders to abandon a November crossing of the Rhine stood fast.

This episode showed that Sixth Army Group was, and remained, merely a supporting effort in Europe, despite all the success it had garnered since landing in Southern France. Seventh Army was the only Allied army along the western front to be in a position to cross the Rhine, but Eisenhower was unwilling to alter the strategy for entering Germany. Instead, Seventh Army was to reorient its effort to the north and focus on the Vosges Mountains in an effort to help the 12th Army Group. Eisenhower wanted *all* his armies moving into Germany, not just those in the south.

The historian David Colley writes in *Decision at Strasbourg* that failing to take advantage of the opportunity afforded the Sixth Army Group in November 1944 was a

⁸⁷⁹ Clarke and Smith, 439.

mistake with significant consequences.⁸⁸⁰ Colley argues that Eisenhower's decision immobilized the Sixth Army Group, delayed the crossing of the Rhine by five months, and cost 200,000 additional casualties.⁸⁸¹ The Seventh Army Engineer, Brigadier General Garrison Davidson, wrote that a crossing of the Rhine by Seventh Army could have occurred along a two-division front with movement afterward north to envelop the Ardennes from the rear. This could possibly have eliminated the Battle of the Bulge, saved some 40,000 Allied casualties, and shortened the war by "a number of months." Additionally, had the Allies crossed the Rhine in November, the terms of the Yalta Conference might have been different because US and British forces would have potentially been deep into Germany, thus influencing the makeup of the various sectors.⁸⁸²

Historians and military experts can debate exactly what might have happened had Eisenhower allowed Devers to cross the Rhine in late November 1944, but all should agree that such an advance would have forced the Germans to react. Such a reaction would most probably have had some impact on Hitler's plans for the Ardennes offensive, although the exact impact is difficult to determine. In any case, this opportunity did incur some risk, but was in fact logistically supportable.

Why did Eisenhower fail take advantage of the opportunity presented before him? One possibility lies in the relationship between the Eisenhower and the Army Group/Army commanders. Bradley was clearly the favorite. Devers and Eisenhower had never worked together before Dragoon and were not friends. Another possible

⁸⁸⁰ David Colley, *Decision at Strasbourg* (Annapolis: Naval Institute Press, 2008).

⁸⁸¹ *Ibid.*, 142.

⁸⁸² Clarke and Smith, 444. Also see Colley, 170.

explanation lies in how Eisenhower saw the European theater. With the two northern army groups stalled, a deep advance in the south risked being cut off by a German reserve that was still strong. Additionally, Colley argues that Eisenhower was not adaptable in his thinking and, as such, found it difficult to react quickly to change.⁸⁸³ Perhaps the actual reason is a mixture of all the reasons listed above. In any case, the opportunity passed, Seventh Army focused its operations to the north, and the Rhine would wait. The terrain of the Low Vosges slowed down movement and favored the defending Germans. Germany, meanwhile, chose to go back on the offensive.

The German counter offensive against the Allied armies in northwest Europe (the Battle of the Bulge or Ardennes Offensive) forced Sixth Army Group to assume the defensive in December 1944. German forces attacked through the Ardennes Forest on December 16, 1944, and quickly penetrated fifty miles past the front lines. The goal of the Germans was not merely to cut the US first Army in half and capture Allied supplies, but to sever the northern line of communications and recapture the port of Antwerp.⁸⁸⁴ This was strategy devised by Hitler himself and, if successful, could have seriously delayed the Allied advance into Germany. Hitler knew that the port of Antwerp was vital to the Allied advance. By December, Antwerp was supplying 25,000 tons per day to the two Allied army groups.⁸⁸⁵

⁸⁸³ Colley, 212.

⁸⁸⁴ Report of Operations, 12th Army Group, 31 July 1945. Volume I. MHI. 25.

⁸⁸⁵ *Ibid.*, 47.

Figure 38: Western Front, December 16 1944 to 30 January 1945⁸⁸⁶



Eisenhower suspended any further offensive operations in southern France in order to husband resources and meet the threat to the northern line of communications. Third Army reoriented to the north. The Sixth Army Group also had to reposition units to occupy the sectors left open as Third Army moved north to deal with the German incursion, while the Allied forces in the Ardennes received the priority for all supplies and equipment.⁸⁸⁷

Supply officers used the pause to their advantage, as this was another opportunity to resupply the army and move depots forward. The supply of K rations within the Seventh Army had dropped from 12 days of supply on November 25 to 2.2 days worth of supply

⁸⁸⁶ For more details on the German order of battle please see the Western Front map in Appendix A.

⁸⁸⁷ Clarke and Smith, 490.

by December 21.⁸⁸⁸ Fuel levels had decreased from over two million gallons to only 237,710 gallons. However, while the Seventh Army supply stocks had dropped, those in the communications zone had built up.⁸⁸⁹ Units had simply moved beyond the reach of the supply bases. The temporary defensive period allowed the base section to shift stocks as needed to resupply units and prepare for the next phase of the operation, although fuel reserves continued to be a problem due to increased demands resulting from the cold weather.⁸⁹⁰

Sixth Army Group maintained what was essentially a static front from December 1944 until February 1945 as the German Army established a surprisingly strong effort in front of the Rhine River. Hitler personally appointed Heinrich Himmler, the Nazi SS chief, to oversee the defense of the Colmar region.⁸⁹¹ However, the Battle of the Bulge was not the only German offensive in the winter of 1944-45, just the most famous. Hitler and his generals, realizing that Eisenhower had weakened Seventh Army in order to defeat the attack in the Ardennes, devised Operation Northwind- an attack down the Sarre valley and through the Low Vosges Mountains set to start on January 1. Northwind's objective was straightforward: break through the lines of Seventh and French First armies and then drive south to destroy the rest of the Sixth Army Group. Hitler knew that this line of communication was a source of strength for the Allies and he sought to eliminate it.

The German First Army launched its attacks at midnight, New Years Eve, but the Sixth Army Group was well prepared. Although the US commanders had been unable to

⁸⁸⁸ A K ration is an individual combat ration. See Thompson, 5

⁸⁸⁹ Thompson, 12.

⁸⁹⁰ Fuel levels increased every winter due to the use of heaters and soldiers keeping themselves warm in running vehicles.

⁸⁹¹ Clarke and Smith, 485.

determine specific German intentions, they had known that an attack was imminent. Reports indicated a buildup of German units in the Black Forest and intelligence officers could not locate 22 German Western-Front divisions. Reconnaissance photos revealed new artillery emplacements.⁸⁹² All indicators pointed to an imminent attack.

Accordingly, service units had been working over the past week to position supplies near the front lines.⁸⁹³ Additional attacks soon followed, with five German offensives occurring from January 1-25. The Allied armies suffered from a loss of experienced units and lack of supplies, but they managed to repel all attacks. Both sides experienced a shortage of resources and poor command decisions. The German offensive effort finally ceased on January 26 when German commanders realized that their reserves were exhausted and they were engaged in a battle of attrition—a battle they could not win.⁸⁹⁴ This was the last major German offensive effort of the war. From this point forward, the Allies would take the initiative, clear the Colmar pocket by the end of the first week in February, and then slowly work their way east, across the Rhine, and into Germany.

Command and Control: Continuous Reorganization

Command arrangements for both the operational headquarters in southern France, as well as for the supporting service forces, transitioned smoothly as Dragoon progressed. Unlike earlier operations, Dragoon saw a logical and timely transition of headquarters responsibilities, which allowed lower level units to focus on more immediate tasks before them, while higher levels of command dealt with the challenges of developing the theater.

⁸⁹² Colley, 185.

⁸⁹³ Clarke and Smith, 502.

⁸⁹⁴ *Ibid.*, 526.

To illustrate, the VI Corps, headed by Major General Truscott, was initially in charge of the operation and handled the initial landings. VI Corps, however, retained overall command for the shortest period of any of the amphibious assaults, handing responsibilities for the beaches over to Seventh Army on August 17, D+2. This allowed Truscott to take advantage of the tactical situation and drive inland in pursuit of the German forces, a task that would have been difficult had VI Corps not been relieved of any responsibility for managing the developing beaches.

Seventh Army accepted the responsibility for the rear areas almost seamlessly and provided the right level of command to direct the reinforcing combat elements ashore, as well as to develop the beaches and establish additional inland supply bases. This was also the period in which the management and control of transportation assets was critical, a mission for which VI Corps was not suited, but Seventh Army was.

The arrival of 6th Army Group in the middle of September came at an opportune time as the Seventh and First French armies advanced further up the Rhone Valley. The appearance of Lieutenant General Devers in southern France relived Lieutenant General Patch of any communications zone responsibilities or issues of supporting the French. Seventh Army now only had to worry the immediate mission - getting to the Rhine.

September 15 also represented a change in command relationships for the forces of Dragoon. Up until this time, Seventh Army had reported to General Wilson, the Supreme Allied Commander of the Mediterranean. As of the middle of September, however, the forces in southern France, now led by Sixth Army Group, reported to General Eisenhower, the European Supreme Headquarters Allied Expeditionary Force (SHAEF) commander.

The Mediterranean theater was still responsible for providing all administrative support, but the European theater made the operational decisions. This allowed Eisenhower to direct the movements of the force in southern France, without adding to the administrative burden that was overwhelming the northern communications zone. Additionally, Dragoon's ports were in the Mediterranean and much of the supplies and equipment came out of Italy. This split command relationship lasted until November 20, 1944, when the northern and southern communications zones merged.

Prioritization proved to be a primary contribution of the Army Group headquarters. The Sixth Army Group supply officer established priorities for critical supplies, such as fuel, munitions, engineer equipment, and cold weather clothing. The Transportation Division managed allocations for rail tonnage, rehabilitation of transportation routes, and truck transfer operations. This allowed General Devers to maintain visibility on the status of critical commodities and make informed allocation decisions that benefitted the overall effort, not just one unit.⁸⁹⁵ Although the work of prioritizing effort and allocating supplies and transportation resources was not very glamorous, it was hugely important. The two armies could handle the tactical fight, but Sixth Army Group was the only headquarters that could manage the allocation of resources across southern France and provide direction on prioritization.

The transition of headquarters responsibilities occurred within the support units as well. As noted earlier, the Continental Base Section had begun coming ashore with the initial assault elements and worked as a part of Seventh Army. On midnight of September

⁸⁹⁵ Report: The 6th Army Group, France and Germany, 1944-1945 with Special Attention to Logistical Problems. 10.

8, the Continental Base Section assumed responsibility for the management of all beach operations from the Engineer Shore Regiment and all supplies originating from the Mediterranean came through the Peninsular Base Section. Its mission complete, the Northern Base Section no longer supported Southern France.

In September, as the Allied armies were steadily advancing up through the Rhone Valley, the logistic base remained at Marseilles. This proved to be increasingly problematic due to the increasing distance from the ports to the front lines so Major General Wilson proposed modifying the support structure in southern France. The single base section could not simultaneously manage the operations of the ports, the transportation of supplies leading to the north, and the resupply of the two armies. To remedy the situation, Wilson proposed dividing his organization into two parts—a base section at Marseilles and an advance element of the Continental Base Section further forward, nearer the armies.⁸⁹⁶

Larkin reviewed Wilson's proposal and decided to implement it, although not quite as Wilson had proposed. Rather than being the sole support unit in southern France, the Continental Base Section would be one of three. Larkin directed the following changes to the support organization effective September 26, 1944: first, the Continental Base Section became the Continental Advance Section—an organization that would stay close to the armies and provide all administrative support. Second, a new headquarters would manage units operating out of the ports—the Delta Base Section. This new base section would handle the reception of forces, equipment, and supplies into southern France and then

⁸⁹⁶ CONAD History, Continental Advance Section, Communications Zone, European Theater of Operations," 70.

transport them forward. Lastly, the effort in southern France had grown so large that the Services of Supply of NATOUSA could not manage it from Italy. To provide a more responsive system Larkin established a new headquarters element named “SOS NATOUSA Advance” to oversee the Delta Base Section and Continental Advance Section. This was a forward element of Services of Supply NATOUSA positioned itself at Lyons France under the command of Brigadier General Morris Gilland, the Services of Supply Chief of Staff.⁸⁹⁷ The Services of Supply advance headquarters consisted of approximately 1,500 men and served as the forward echelon of Services of Supply NATOUSA, which was still in Caserta, Italy under the command of Major General Larkin.⁸⁹⁸ Services of Supply NATOUSA Advance worked with the sixth Army Group to plan and manage support for the armies, but did not conduct the actual support operations; they left these responsibilities to the Delta Base Section and Continental Advance Section.⁸⁹⁹

The Delta Base Section consisted of select elements of the old Continental Base Section and Northern Base Sections, under the command of Brigadier General John Ratay, the former Northern Base Section commander. The Continental Advance Section formed on October 1 from the remaining parts of the Continental Base Section and stayed under the command of Major General Wilson.

The mission of the Delta Base Section was to operate base depots near the southern French ports, maintain the required levels of theater supplies, forward supplies to the

⁸⁹⁷ General Orders Number 38, North African Theater of Operations, dated 11 September 1944. NARA, RG 492, box 2901.

⁸⁹⁸ “CONAD History, Continental Advance Section, Communications Zone, European Theater of Operations,” 70.

⁸⁹⁹ Ibid.

Advance Section, and establish hospitals in the rear areas.⁹⁰⁰ Units moved north while the base section sent individual soldiers to replacement centers. Supplies and equipment were stored in communications zone dumps and transported forward as needed. The Delta Base Section also took care of the communications' zone facilities, handled patient evacuation, prisoners of war, and civilian relief efforts. The Base Section was a bulky organization that had great capability, but little mobility in terms of relocating the unit and its facilities.

In contrast, the Continental Advance Section focused on the needs of the supported armies, requesting replenishment from the Delta Base Section and positioning supplies in dumps immediately behind the army area or delivering items directly to units as the situation required. The Advance Section retained relatively few stocks on hand so it could maintain mobility and move forward as needed. To maintain mobility and speed, the armies maintained no more than five days worth of rations, fuel, and ammunition. The Continental Advance Section maintained up to a 15-day level of supplies. The Delta Base Section stored everything else. In order to limit the size of its stockpiles, the Advance Section stored only those items that were commonly in demand and had a high turnover rate. Other items with a slower turnover rate were stored by the base Section and available upon request.⁹⁰¹

The reorganization of the support structure in southern France was a blow to Wilson's pride. Instead of being the senior support headquarters in the theater with a large headquarters and correspondingly large area of responsibility, Wilson had a smaller staff,

⁹⁰⁰ COMZONE Statistical Study Number 19, dated 1 October 1944. NARA, RG 492, box 2704.

⁹⁰¹ "CONAD History, Continental Advance Section, Communications Zone, European Theater of Operations. 72. Also see General Orders Number 42, North African Theater of Operations, dated 26 September, 1944. NARA, RG 492, box 2901.

less responsibility, and now he had to report to a higher-level support headquarters within France.⁹⁰² Instead of being a prime decision maker, Wilson was now an intermediary between the Delta Base Section and the combat units. This was still an important mission, but hardly one to guarantee promotion and advancement.

However, all the support organizations were vitally important and each had a role to play. To determine the impact of the Delta Base Section and Continental Advance Section one needs to look not at the size of the headquarters elements, but rather at the number of units assigned or attached to each of the respective headquarters. As of October 6, the Continental Advance Section had 86 separate companies and detachments; the Delta Base Section had 133.⁹⁰³ Together, these two entities supported Allied units across approximately 64,000 square miles—a territory larger than the state of Georgia or Illinois.

To support the First French Army, French Base 901 also split its operations between several locations. An Advance Section of Base 901 was located at Dijon on October 5, which eventually developed into the main base, while a rear element remained at Marseilles to supply French units operating in the rear and to coordinate with the Delta Base Section. The separation of the two base sections (US and French) continued into mid-October, but the situation grew increasingly cumbersome due to the growing distances between the port and the forward element, in addition to the limited French logistic capabilities.

⁹⁰² Meyer, "The Strategic and Logistical History of MTO," XXVIII-10.

⁹⁰³ Memorandum, North African Theater of Operations, dated 6 October 1944. Subject: Assignment of Units. NARA, RG 492, box 3020.

Base 901 suffered from a serious lack of equipment and workers. At the end of September 1944, Base 901 contained only 1,200 men and 200 vehicles. The Base “was snowed under with tasks entirely out of proportion to its still meager means.”⁹⁰⁴ The French were unable to support their own units, a fact that grew more evident as the distance between the ports and combat units grew day by day. On October 22, General de Lattre de Tassigny requested that the Continental Advance Section assume the majority of Base 901’s responsibilities and provide all direct supply support to the First French Army. Services of Supply NATOUSA agreed and subsumed part of French Base 901 into the Continental Advance Section on October 24, with General Granier of the French Army becoming the Continental Advance Section deputy commander. Select elements of Base 901 that dealt with purely French matters, such as the personnel, remained under French control, outside of Continental Advance Section jurisdiction.⁹⁰⁵

This was a blow to French pride and illustrated just how ineffective the French logistics system had become. By asking the Advance Section to provide all supplies and support, the French were admitting that they could not take care of themselves. Ironically, this was a reversal of situation encountered 24 years earlier when the American Expeditionary Force needed help from the French to resupply US forces along the Western Front. This time around, the US military had the capacity and resources needed to support the alliance. The French had needed material assistance ever since operations in Tunisia, but they retained some semblance of a support capability. Such a capability

⁹⁰⁴ Vigneras, 187.

⁹⁰⁵ “CONAD History, Continental Advance Section, Communications Zone, European Theater of Operations, 82-83.

was limited, however, and the demands of maintaining a mobile force up the Rhone valley simply overwhelmed the limited French logistics system.

Support for the French forces remained a contentious topic throughout the war. Although US commanders were glad to have the additional forces, the French held a different attitude toward supplies, compared to US units. In France, most US units understood the importance of conserving supplies, but the French tended to view the US supply system as an inexhaustible source of material. French units tended to order more supplies than needed, failed to maintain visibility of supplies under their control, and did not enforce limits on expenditures.⁹⁰⁶ Having dealt with the French in North Africa and Italy, this was not surprising to the Services of Supply, but it did make the jobs of the base sections more difficult.

More change occurred in October. On the 22nd, Lieutenant General Devers was relieved of his role as Deputy Supreme Allied Commander for the Mediterranean. Up to this point of the operation, Devers had been serving in two capacities: first, as commander of the Sixth Army Group and second, as the deputy commander for General Wilson. Lieutenant General Joseph T. McNarney assumed the role of deputy commander for the Mediterranean, which then allowed Devers to focus on the fighting in southern France and to report solely to Eisenhower while AFHQ could now focus solely on Italy.⁹⁰⁷

As mentioned earlier, Devers did not enjoy the same relationship with Eisenhower as the other three-star generals within the European theater. Eisenhower had not asked for Devers as a commander. Marshall had originally proposed Devers as one of the

⁹⁰⁶ Meyer, "The Strategic and Logistical History of MTO," XXVIII-12.

⁹⁰⁷ General Orders Number 24, Allied Force Headquarters, dated 22 October 1944. NARA, RG 492, box 1533.

Normandy Army Group commanders, but Eisenhower deferred and offered the position to Bradley instead. Afterward, Marshall and the War Department assigned Devers to the post US theater command post in the Mediterranean. Accordingly, Devers was not part of the Normandy planning effort and ended up under Eisenhower's command due to circumstance, more than by design. Surprisingly, other than serving as a means to open a new line of communication and to protect Bradley's southern flank, SHAEF had no detailed plans for the role of Sixth Army in defeating Germany.⁹⁰⁸ Whether this was due to a lack of planning, an absence of vision, or the role of personalities is unclear.

Other changes occurred within the Sixth Army Group itself. On October 25, 1944, Major General Truscott turned command of VI Corps over to Major General Edward H. Brooks. Truscott performed admirably in southern France and left France to take command of the Fifth Army in Italy due to the reassignment of Lieutenant General Clark to Fifteenth Army Group.

The Services of Supply experienced perhaps the most change of all the major organizations. On November 1, SOS NATOUSA Advance changed its title to "Communications Zone Mediterranean Theater of Operations Advance" (COMZONE MTOUSA Advance) to reflect the name change of its higher headquarters. Back in Italy, AFHQ had consolidated the rear area headquarters into a single communications zone, changing the name from the North African Theater of the US Army to the Mediterranean Theater of the US Army. For the forces of Dragoon, there was no change in leadership or

⁹⁰⁸ Colley, 15.

mission; this was simply a change in title. The Mediterranean was still responsible for all administrative support.

This changed on November 20, when Communications Zone Mediterranean Theater of Operations Advance became the Southern Line of Communications (SLOC). General Larkin split the Mediterranean communications zone staff into two parts. One part remained in Italy to coordinate support for the Fifth Army, while Larkin and the rest of the staff moved to France and fell in on the Services of Supply advance headquarters at Lyon. Larkin was now free to focus on the priority effort- supporting the forces of Dragoon, while reporting solely to the European Services of Supply.⁹⁰⁹

The Southern Line of Communication continued working on France until the middle of February, when the two Allied lines of communication, one leading from the south and one from the north, linked up to form a single communications zone behind the Allied armies driving east into Germany. Major General Larkin took the Southern Line of Communication staff and moved to Paris, where Larkin became the deputy commander of the European Communication Zone. The Southern Line of Communication Headquarters deactivated and members of the staff integrated into the European Communications Zone staff. The Continental Advance Section moved forward to Nancy on February 20, 1945, where they remained until the end of the war.⁹¹⁰

⁹⁰⁹ "CONAD History, Continental Advance Section, Communications Zone, European Theater of Operations 112.

⁹¹⁰ Whelchel, 25.

Conclusion

To assess the true impact of Operation Dragoon, one needs only look at the cumulative accomplishments of the Allied drive across France and Germany- from both the north *and* south. A single advance from either of these directions could not have achieved the same results; clearing France in six months and winning the war in Europe five months after that. Dragoon was originally supposed to have diverted enemy forces away from Normandy but, instead, the operation provided a larger benefit to the effort: giving the European theater a secondary line of communication from which to pour additional divisions and supplies into France.

The assumptions included in the invasion plan for Operation Dragoon show that the Allied planners expected a firmer resistance, but the logistical plans also reflect the restraints imposed by limited amounts of shipping, assault craft, and service units. Yes, the Seventh and French first armies did experience problems with supplies, especially fuel, almost from the initial landings, but this was caused by the pace of the operation and the distances covered. Retreating German units were able to fall back on shortened supply lines, while every mile advanced extended the Allied lines of communication.

Some critics might fault the Services of Supply for not providing more fuel and transportation units earlier in the landings. Certainly, one can argue, these would have enabled a more robust pursuit of retreating German divisions from the beaches and up through the Vosges. Such a criticism, however, fails to consider the full context of the situation facing planners in the summer of 1944.

Intelligence reports indicated that there were up to 14 German divisions operating in southern France. Any assault force had to be able to withstand an attack from such a force, or risked losing the beaches. Additionally, the experiences of Sicily, Italy, and Normandy all showed that Hitler had a habit of ordering his armies to resist any invasion. Planners and commanders all agreed that the invasion force had to be ready to expect a stern defense; as such, the force needed supplies, such as large quantities of ammunition, to break through any resistance. Prudence required that the Services of Supply load the vessels as they did.

What Dragoon *does* show is the remarkable level of capability, flexibility, and agility that had developed in the Mediterranean forces after two years of fighting. For the first time, the Services of Supply had to support *two* field armies, one of which did not use English as a native language. Additionally, the operation was a primary effort for the Mediterranean, but secondary in the overall war effort. This placed an even greater importance on the management and prioritization of men, supplies, and equipment.

Concerning the larger effort in France, Dragoon proved to provide everything Eisenhower had hoped. First, the southern communications zone eased the burden on the northern ports by providing alternative beaches and ports to land divisions and supplies that were unable to land in northern France due to the port congestion and the enemy situation. As an example, in late September, Eisenhower was able to transfer the XV Corps from Patton's Third Army to Patch's Seventh Army after Devers signaled Eisenhower on September 22 that southern France could immediately handle three additional divisions. Loaded cargo ships lying off Normandy awaiting discharge in the

late summer of 1944 were redirected to Marseilles, where they were quickly offloaded.⁹¹¹ During 1944, over 80 percent of the supplies for the Sixth Army Group came through Marseilles.⁹¹² The ports of northern France proved to fall to the Allies later and have less capability than planned, while the ports of southern France came under Allied control sooner and had greater capacities than planned. This heightened the importance of southern France in terms of both operations and support.

Four years after the war's end, General Marshall noted that the potential contributions and importance of Dragoon were not readily apparent in the summer of 1944. Many officers supported the notion of landing in southern France as a means to protect Eisenhower's right flank. However, the Overlord plans failed to anticipate just how effectively the Germans could block the Normandy ports and do so for an extended period. Officers had not fully appreciated the need for the additional ports in Overlord's planning, but the need became quickly evident as the operation went on.⁹¹³

Ever since the lost opportunities of Tunisia in December 1942, Eisenhower realized that his role was not to fight the battles, but to flow as many forces and their associated support onto the European continent as possible. This played out in the drive across Europe. Churchill was optimistic of eventual success in the war, but had only limited expectations of the size of the Allied force that could land on the continent. The Prime Minister hoped to have 36 divisions standing on the Rhine by the winter of 1944, stating,

⁹¹¹ Meyer, "The Strategic and Logistical History of MTO," XXVIII-38.

⁹¹² "From the Sahara to the Rhine, a History of Army Supply Service," 14.

⁹¹³ Interview with General Marshall by Sidney Matthews and Howard Smyth, 25 Jul 49. Sidney Matthews Papers, box 3. MHI. 10.

“Liberate Paris by Christmas and none of us can ask for more.”⁹¹⁴ With the execution of Dragoon, however, Eisenhower not only planned on using the 36 divisions Churchill had mentioned, but added an additional 50 that could flow in from the south of France: 10 from the Mediterranean and 40 coming from the US. The critical element to Eisenhower’s strategy during the European campaign was the theater’s ability to accept forces, move them forward to the front lines, and then get them the necessary supplies and maintenance needed to fight the battles.⁹¹⁵

Another commander that made a difference was the Seventh Army commander, Lieutenant General Patch. Patch was the logisticians’ vision of a field commander. Unlike Patton, Patch fully understood the limitations of resources, such as supplies, equipment and shipping, and then modified strategies and plans to accommodate these limitations. He did not have unrealistic expectations and he lived within the theater’s limitations. This produced a force that took advantage of whatever resources were available, was efficient in its supply operations, and did not over extend itself.⁹¹⁶ This became evident throughout Dragoon. Seventh Army pushed forward as much as possible, stressing, but not breaking the service forces. Arguably, Seventh Army made the drive up to the Rhine as fast as possible given the limited available resources.

One officer that does not get as much recognition as he probably deserves is Lieutenant General Devers. Devers took on the role of an Army Group Commander—a role for which there was little specific doctrine—and properly established and operated a theater

⁹¹⁴ Eisenhower, *Crusade in Europe*, 243.

⁹¹⁵ *Ibid.*

⁹¹⁶ Colglazier Oral History. 134.

of war in southern France. Devers proved to be adept at pushing, but not overextending, the limits of both his combat and support units. He forged two armies with different nationalities and differing expectations into a cohesive fighting force. As such, Sixth Army Group covered as much ground as it could, considering the available resources, terrain, and level of German resistance.

Of course, the operation was not perfect, few military endeavors are. Some challenges seen in previous operations repeated themselves in Dragoon. Seventh Army did not send its ship loading information to the Navy until a very late date, but this was due to the late final decision to conduct the landings. Priorities changed at the assault location, so ships had to divert to different beaches and there was a shortage of labor on the beaches.⁹¹⁷ Much of this is attributable to the friction that the part of any major military operation. The important aspect is that the levels of this type of disruption were less than they ever had been on any of the previous major assault operations and that the service organizations were able to react to the changes.

One of the criticisms levied against the Services of Supply during Operation Dragoon was that the service forces stocked too much ammunition and not enough gasoline. On average, 3,000 tons of munitions landed at Marseilles every day and stocks in base section depots eventually grew to over 100,000 tons.⁹¹⁸ These arguments fail to consider the larger picture and seemingly discount the fact that once the Germans decided to make a stand, priorities for munitions quickly changed. The rapid advance in August and

⁹¹⁷ Report: Invasion of Southern France. Report of Naval Commander, Western Task Force, dated August 15, 1944. Navy Archives, Hewett Collection. Box 4. 337.

⁹¹⁸ 6th Army Group History, volume III. 1945. MHI. 370.

September placed more demand on speed, distance, and fuel than on destruction of enemy units. However, when enemy resistance stiffened, as it did during October, demand for munitions greatly increased, forcing the system to shift its priorities back to ammunition. The result was that there were few large stockpiles in any of the forward locations, but stocks were available in the rear.

The management of supplies and transportation was the only means to switch between alternating priorities effectively. These are difficult tasks and something not taught or experienced in peacetime. The simple facts were, firstly, southern France was a secondary effort to that of operations in the north. Secondly, there were not sufficient truck units to meet everyone's needs-either in northern or southern France. Third, ammunition expenditures increased whenever the retreating German units decided to make a stand and this was something no planner could accurately predict. As such, supply managers had to balance the needs of available munitions against the demand for fuel and work to find the right balance for the situation as hand. That the base sections and Southern Line of Communication did so, as effectively as they did, is largely attributable to the experience gained from earlier operations.

Eventually, Sixth Army Group moved 900 miles inland in less than nine months. Through the combined efforts of the Army Group Headquarters, the two armies, and the Services of Supply units operating the communications zone, they collectively overcame a myriad of logistic problems. The armies provided their requirements; the Army Group furnished guidance on establishment of main supply routes and installations; and the

Services of Supply developed detailed logistic plans off this general guidance.⁹¹⁹ Without this team approach, a high level of experience, and spirit of cooperation, the operation could not have progressed as well as it otherwise did.

The Southern Line of Communication faced several challenges. First, sustainment for Sixth Army Group had to come initially from supplies and personnel in the Mediterranean, a secondary theater that was also working to resource a major campaign in Italy. Next, the service forces of Dragoon were under-resourced; however, the greater experience levels of officers and men helped make up for these shortages. Finally, on September 30, D+45, the southern line of communication was twice as long as logistic planners had originally estimated.⁹²⁰

While Sixth Army Group was facing the challenges of continuing the pursuit in southern France, Fifteenth Army Group, now under General Mark Clark, worked to maintain some semblance of offensive operations in Italy, but with fewer forces. The large number of service units transferred out of Italy and sent to France meant that the Allies in Italy could no longer maintain the same pace of operations or provide the same level of support to the combat units that remained. Fewer service units meant that road and rail lines deteriorated. Fewer items arrived in Italy, while many supplies were destined for theaters with higher priorities. The port opening units and truck companies, so vital to the success of Dragoon, came at the expense of the effort in Italy. As such, the

⁹¹⁹ Report: The 6th Army Group, France and Germany, 1944-1945 with Special Attention to Logistical Problems. G4 Section 6th Army Group. Undated. Box 1. 12.

⁹²⁰ "From the Sahara to the Rhine, a History of Army Supply Service," 16.

buildup for the Allied assault on the German defensive line stretching from Pisa to Rimini line noticeably slowed.⁹²¹

By the end of November, just three months since the initial landings for Operations Dragoon, southern France had experienced a complete transformation. Planners had expected a tough, slow fight up into the French mainland, but the circumstances proved different from expected. The lack of resistance presented an opportunity to advance further into France and Germany much faster than anticipated. To make such an adjustment required a degree of mental and organization flexibility that did not exist in the Allied force in late 1942, but did develop over time. Accordingly, the Sixth Army group was able to take advantage of strategic opportunities, such as the rapid movement up to the Moselle River in the early fall of 1944.

Although the base sections had to support both the US and Free French forces, the fact that the headquarters did not have to operate with a multinational staff simplified the overall effort. The French received US rations, equipment, and food. With the division of French Base 901, the US support system simply treated the French First Army as another customer—one that used the same items and received support under the same system.⁹²² This proved to be much easier than working to supply a similar size British force with its differing supplies, standards of equipment, and processes.

Operation Dragoon did serve to illustrate the different attitudes toward support units between the US and French forces. Indeed, the two nations almost seemed to be at

⁹²¹ “Report by the Supreme Allied Commander Mediterranean to the Combined Chiefs of Staff on the Operations in Southern France,” 25.

⁹²² Oral History of Robert Colglazier. 128.

extreme opposing viewpoints on the priority given to service forces. The French treated support units as an afterthought, something to staff after the combat forces were fully equipped and trained. The US, on the other hand, quickly developed a more balanced approach to the fielding and deployment of service forces. The support units were never on the same level as the combat forces, but US commanders generally recognized the benefits of having a trained and capable rear echelon.

An indirect, but important, contribution to the effort in France came because of the integration of select members of the Southern Line of Communication staff into the European Communication Zone staff in November 1944. Lieutenant General Lee and the European Services of Supply/Communication Zone staff had been under severe criticism ever since the Normandy landings for a perceived mishandling of the sustainment effort. With the integration of the two staffs, the Communication Zone now had a wealth of experience to draw from. A study conducted by Major General Lutes of the Army Services of Supply found that the European system of support relied on larger organizations and headquarters staffs compared to those of the Mediterranean. The service units of the Mediterranean had simply learned to conduct support operations more efficiently over the years.⁹²³ Lee now had a capable deputy-Tom Larkin-and the staff sections gained the experience needed to coordinate the support effort for the remainder of the war.

An illustration shows how experience made a difference between the two staffs. At the northern ports, the European Communications Zone instituted a system of selective

⁹²³ Ibid., 129.

unloading. They brought in a ship, unloaded only priority items, and then sent the ship back out only partially unloaded. This speeded the unloading of some essential supplies, but limited the overall amount of supplies unloaded during a day and was extremely inefficient. This meant that the northern communications zone held ships longer than necessary and that a ship might make several trips in and out of a port before being completely emptied.

In contrast, if a ship docked in southern France, the base section offloaded the entire ship at one time and then another came in. This simple procedure was the product of two years of experience. Yes, it required time to unload items that were not necessarily a priority, but the system freed up merchant ships and increased daily port tonnages, thus taking full advantage of the limited infrastructure. As such, the first act of the combined north/south staff was to cancel the system of selective unloading unless Eisenhower personally ordered it for a specific situation. This one change increased daily tonnage volumes at the northern ports, which translated into more efficient and effective operations.⁹²⁴

The difference between the north and south support staffs was notable. The Mediterranean Services of Supply had been *conducting* support operations for the past 24 months, while the European Services of Supply had been *planning* support of the cross-channel invasion for that long. While some officers moved back and forth between the two headquarters, there does not appear to have been any extensive sharing of systems or procedures. Each theater operated semi-independently and according to their

⁹²⁴ Ibid., 134.

commander's priorities. This is probably largely due to the personalities of the support commanders in the European theater, especially Lieutenant General John C. H. Lee, Eisenhower's communications zone commander.

Another difference between the two headquarters concerned the role of technical service chiefs. Each technical service (transportation, quartermaster, and ordinance) had a senior officer assigned to each of the theaters to provide advice to the theater commander and to oversee the technical aspects of their respective operations. In the northern communication zone, the chiefs were senior officers, typically major generals, with established fiefdoms. The chiefs typically worked away from the main staff and established essentially a separate chain of command within the service forces.

Within the Southern Line of Communication, the relationship was quite different. Since the Mediterranean was a secondary theater, the chiefs of the technical services were not as senior. Additionally, having had to support the force from the first day of landing in North Africa, the chiefs had become more of an integral part of the AFHQ and Services of Supply staffs.⁹²⁵ This produced a situation in which the technical chiefs worked with, instead of against, one another and the AFHQ staff, which ultimately allowed for better support of the force.

The result, then, of the integration of the communications zones staffs is that the nature of the European Communication Zone staff changed when it wrapped up Southern Line of Communication into the organization. New eyes and new experience joined Lee's headquarters, which served to improve the systems that supported the Allied pursuit over

⁹²⁵ Ibid., 143-144.

the Rhine and into Germany. The integration produced a more mature and capable headquarters to support the remainder of the war.

The integration of the two communications zone staffs, however, experienced a number of tensions and challenges during the transition period from November 1944 to February 1945. The War Department directed that Larkin and the Southern Line of Communication staff would continue to handle support for the forces of the Sixth Army Group, but senior officers in Lee's headquarters insisted on bypassing Larkin and dealing directly with the Continental Advance Section and Delta Base Section. Additionally, there was no good system to segregate supplies as they left New York or as they landed at Marseilles, so items earmarked for a particular unit may, or may not, have made it to the right unit. Despite the challenges, the supply systems adjusted to the new arrangements by the spring, enabling the final drive into Germany.

Perhaps the main advantage of the Sixth Army Group was that it had a trained and efficiently organized communications zone—something that Europe did not enjoy. The decisions and actions of the service units under Larkin's command reflected maturity and professionalism, allowing the support forces them to make the most of a challenging situation. The scarcity of resources, combined with the long distances involved in the pursuit up the Rhine Valley, would have challenged any support unit. The Sixth Army Group communication zone managed to establish a base of support and extend it north at a pace that would have been impossible even a year previously.

The integration of the two communications zones in France was a challenging effort, but one that could easily be underappreciated. For all the complexity and problems

involved with such a task, the two support staffs worked to blend the different organizations and structures together in a manner that still supported the on-going fight at the front, while limiting disruptions. Looking at the various war reports and personal accounts of division and army commanders across France, most of the complaints about supply problems occur *before* the two support organizations merge.

Planners had anticipated that the two communications zones would eventually unite in Europe, but no one had predicted that the merger would occur so soon after the landings. The two different communications zones operated with similar organizations, but there were still differences that they had to sort out, such as how to prioritize shipping, allocate transportation resources, and track supplies.⁹²⁶ The establishment of the Southern Line of Communication and the move of Larkin and his staff to France was an important development to support the merge of the different organizations.

Lastly, the establishment of the southern line of communication and the landing of additional combat divisions provided the additional combat power Eisenhower needed to limit the risk to the forces operating out of northwestern Europe and win the war. As the Battle of the Bulge proved-the German Army still possessed the strength needed to conduct major operations through the end of 1944.

The additional line of communication allowed Patton's Third Army to receive supplies from sources other than the northern ports and provided forces that could fill in the Third Army sector as Patton reoriented his army to the north. Had Seventh Army not taken southern France, Eisenhower would have lacked this flexibility and additional capacity.

⁹²⁶ Meyer, "The Strategic and Logistical History of MTO," XXVIII-2.

Churchill had it wrong: the decisive strategic move was invading southern France, not in keeping Fifteenth Army Group intact in Italy as the Prime Minister had so strongly argued. What the Prime Minister missed in all of the debate over Anvil/Dragoon was the decisive contribution the additional forces and support units would make in the battles of eastern France and western Germany.⁹²⁷ Churchill was right that Anvil/Dragoon would have little immediate and direct effects on the efforts to break out of Normandy, but the greater benefit occurred after the breakout--as the two theaters worked together in France. Dragoon was the effort that led to a quicker ending of the war. Following Churchill's proposal to focus efforts in Italy would have required the Allies to clear Italy and then move through the Ljubljana Gap into Slovenia and Hungary--a difficult proposal that would have meant opening yet another theater and possibly delaying the end of the war.⁹²⁸

From the time of the Teheran Conference in November 1943 and throughout 1944, Churchill advocated a three-pronged strategy: First, support of the Overlord cross-channel invasion. Second, consideration a secondary landing in southern France as long as it aided the greater Overlord landings. Thirdly, strong support for the fight in Italy followed by a right-handed turn out of the north of Italy along the Istrian peninsula and then head towards Vienna. This would position sixty percent of the Allied strength in northern Europe, thirty percent in Italy, and ten percent in the eastern Mediterranean.⁹²⁹ Such a move, the Prime Minister argued, could convince Turkey to enter the war, provide for Allied dominance on the Black Sea, and provide a more direct supply link to the Soviet

⁹²⁷ Ibid., XXIV-32.

⁹²⁸ Ibid., XXIV-34-35.

⁹²⁹ Churchill, *Closing the Ring*, 345.

Union.⁹³⁰ This also would have positioned Allied forces in the Balkans before the arrival of the Red Army, providing a political as well as military benefit. Despite the Prime Minister's arguments, military considerations won out over political. Roosevelt and the American military rejected any move into the Balkans, made the Western Front the priority campaign, and continued the fight in Italy as a secondary effort.

Despite British predictions, Operation Anvil/Dragoon did not entirely stop the Allied advance in Italy. Throughout the last half of 1944 and into the spring of 1945, Clark and the Fifteenth Army Group continued to make advances up the Italian peninsula, tying down or destroying divisions that otherwise could have reinforced the German defense in France and Germany. One could argue that the weakening of the Fifteenth Army Group in Italy meant the loss of a strategic opportunity; however, this argument does not fully appreciate the difficulties the Allies would have had in exploiting any breakthrough north of the Gothic line. Supplying the armies over the Alps would have been far more challenging than anything yet experienced. The route into Germany from southern France was far easier to support than its alternative from Italy and this, at the end of the day, produced an earlier end to the war in Europe.

⁹³⁰ Ibid., 346.

Chapter IX: Unfinished Business in Italy, Assessment, and Conclusion

The last five months of fighting in Europe were merely a prolongation of the inevitable. Operation Nordwind, Hitler's offensive against the Sixth Army Group in January 1945, was the last large scale attack by the German Army along the Western Front; after this German forces retreated into the heart of Germany, while Allied forces were advancing from both the Eastern and Western fronts. The war, although still ugly and uncertain at the tactical level, became almost a routine at the theater level. The combat divisions were pursuing the fight, while the service forces had established a capable base of support and now only had to extend the lines of communications behind the advancing armies. This was still a great effort, but by January 1945, there were sufficient ports, roads, rail lines, pipelines, and service units to prevent any further general shortage of supplies for the three Allied army groups. In short, by January 1945, Eisenhower had a fully functional theater.

The US Army, in particular, had come far since the first landings in North Africa. Commanders now had experience, equipment had improved, and tactics had evolved. Perhaps the most significant change was one that has received little recognition from historians- the US Army had learned how to establish an overseas theater of operations to support large mechanized formations in modern combat. That is, the Army had learned how to support a new type of warfare involving long distances, large numbers of aircraft, mechanized divisions, and mobile artillery. The remarkable aspect of this is that the Army in the Mediterranean not only learned to support its own forces, but was able to support two separate theaters, local populations and other allied forces as well. The combat units

did the fighting, but the theater and its service units made it all possible. The US Army had established a new level of support never before seen, one that set the standard for all future warfare.

The previous chapter addressed the campaign across France, but Italy was still an ongoing effort despite the world's focus on the European theater. This chapter will cover the end of the fight in Italy and determine what, if any, impact Dragoon had on the Fifteenth Army Group in Italy. Additionally, this chapter will evaluate what role the Mediterranean had in shaping the administrative support systems used on Operation Overlord. Thirdly, the chapter assesses why the US Army's experiences in theater support in the Second World War were so different from those of the First World War. In 1918, the US theater system in Europe was on the verge of collapse. By contrast, in 1945, the US European and Mediterranean theaters were supporting two US army groups and performing at levels that would have been unimaginable 27 years earlier. What was behind the change?

The reasons for this level of change were many, but foremost among them was the development of an appreciation for the role of the communications zone in a theater of war. A dependence on aircraft, tanks, and mobile artillery meant that the armies needed a corresponding support element that could keep pace with the combat units, while also supplying the quantities of fuel and ammunition so critical to modern warfare. However, gas and bullets were just the start. Modern armies also needed food, water, repair parts, construction supplies, medical supplies, and communications supplies, in quantities never before encountered. The factories had to produce the materials of war, but there also had

to be a means to get it to the right place and time in order to make a difference on the battlefield. The communications zone and its associated support forces provided the means to do just this. Never before had warfare been so dependent on supplies, transportation, and maintenance. This was not widely appreciated at the beginning of the war but successful commanders, such as Eisenhower, learned from their mistakes and quickly gained an appreciation for the need to balance the force between combat and support units. A look at the Allied drive north of Rome shows just how important the communications zone was and illustrates just how proficient US service units had become in sustaining the front lines. This is important because the levels of proficiency attained by the Services of Supply in the Mediterranean communications zone had a direct impact on the quality of support provided to Allied forces within the Mediterranean, while also informing and helping to shape the support organizations and systems used in the June 1944 invasion of northwest France. Without this high level of performance by the service units, the Mediterranean would have been unable to support offensive operations simultaneously in both Italy and France and the European communications zone would not have been as effective as it otherwise was. This would have had a direct impact on the ability of the US forces to finish the war in Europe as quickly as it did.

Driving Towards the Po: The End of the Fight in Italy

While Seventh Army was busy building its forces in July 1944, preparing for the invasion of southern France, Lieutenant General Clark and the Fifth Army were preparing for the next stage in the battle for Italy: getting ready for the drive into the north of the country, through the Gothic Line. To support such an operation required an adjustment to

the US communications zone in Italy. The Peninsular Base Section was still operating out of Naples, but as the army moved further north, the lines of communication lengthened, stressing transportation networks. The base section needed to move forward as the army moved further north.

The terrain north of Rome changed into a rolling plane that supported fast-paced pursuit operations. The challenge in a pursuit is not the speed of the combat forces, but the pace at which the line of communications zone can keep up with the advancing formations. The pursuit depended on the establishment of bridges, roads, pipelines, and bridges- all of which required tremendous effort and resources. The dependence on truck transport increased as Fifth Army left railheads behind.⁹³¹ Every mile north increased the distance from the port of Naples.

On June 8, 1944, Fifth Army captured the small port town of Civitavecchia, about 50 miles north of Rome and 150 miles north of Naples. Army and Navy engineers, along with a force of some 500 civilian Italians, quickly went to work rehabilitating the port facilities so that within a week the first Allied ships were discharging their cargo. The port was of moderate size, offering a maximum discharge rate of 27,000 tons per week, but it offered an alternative to Naples- a port already congested with the mounting of forces for Dragoon.⁹³²

By the end of June, Fifth Army was averaging an advance of eight miles per day and the Peninsular Base Section needed to keep pace with the front lines.⁹³³ Eight miles per

⁹³¹ Administrative Planning, 71.

⁹³² Bykofsky and Larson, 212.

⁹³³ Report from Clark to Wilson, dated 27 June 1944. NARA, RG 492, box 135.

day at first seems like a modest distance, but over a week, this meant an additional 56 miles between the combat units and the base section. Within a month, the front lines would effectively outrun their supply base. To deal with this, on June 25, the Army captured another small port located at Piombino- about 100 miles north of Civitavecchia. Despite heavy damage and booby-traps, engineers quickly cleared the port allowing discharge operations to begin on June 30. Piombino was larger than Civitavecchia, offering a weekly discharge rate of 44,009 tons per week.⁹³⁴ Both of these ports relieved the pressure on Naples and shortened resupply lines to the combat units. However, Fifth Army needed even more port capacity north of Rome to support a planned breakthrough of the Gothic Line; the port of Leghorn offered such a facility.

Leghorn (Livorno) was a major port along the Tyrrhenian coast approximately 300 miles north of Naples. This was an attractive alternative to Naples; Leghorn was capable of simultaneously handling eleven Liberty ships, six lighters, and one tanker. Under guidance from Fifth Army, the 36th Infantry Division captured the port on July 19, 1944, to the familiar scene of damage and destruction left behind by retreating German forces. Engineers had to remove 25,000 mines from the harbor and its facilities as well as repair all of the port's cranes and other equipment. German engineers had blocked the northern port entrance with eight sunken vessels; twelve more lay across the southern entrance. US engineers worked in two shifts to blast damaged quays, fill craters, and construct berths.⁹³⁵ Fortunately, most of the city's 125,000 residents had fled the fighting so there was less

⁹³⁴ Bykofsky and Larson, 212.

⁹³⁵ "Tools of War: An Illustrated History of the Peninsular Base Section." Unit History, 1946. APG. 16.

demand for civil relief supplies and the support units could focus on opening the port.

Best of all, the port was only 35 miles from the front lines.

Figure 39: Italy



The first resupply convoy arrived at the port on September 3 and port capacities steadily increased to a rate of 45,328 tons per week by the end of September. By the end of November, all supplies for Fifth Army came into Leghorn and this became the new base of operations for the Peninsular Base Section.⁹³⁶ The communications zone had successfully moved north and was ready to support the Gothic Line offensive.

The summer of 1944 proved to be one of transition for the Services of Supply in Italy and the Peninsular Base Section. The theater was busy equipping US and French forces for the upcoming invasion of southern France, while combat on the Italian peninsula was transitioning from a war of attrition into a war of rapid movement. For the past six

⁹³⁶ Bykofsky and Larson, 212 and 214.

months, the tactical situation in Italy included slow movements and heavy demands for ammunition. This had made supply planning and support a matter of routine. By November, however, the nature of the fight had changed so radically that planners could not accurately predict what the combat units might need. Brigadier General Joseph Sullivan, the Quartermaster for Fifth Army, noted that during pursuit operations, “the supply picture changed from day to day, hour to hour.”⁹³⁷ This meant that the supporting service units had to be ready for almost any eventuality.

In Italy, the demand for fuel grew exponentially as the pace of the pursuit increased. In April, Fifth Army consumed 6,818,077 gallons of V-80 gasoline. By June, consumption had increased to 11,947,986 gallons.⁹³⁸ Italy was the first theater to learn how difficult the support of pursuit operations could be; however, the Services of Supply would soon find similar demands in northwest Europe and southern France. There was not enough time to field additional units or new equipment- the base sections had to work with the existing resources on hand.

The summer offensive took its toll on both men and equipment. A report from the 1st Armored Division stated that the division had been in constant combat since May 1944 and was having problems with vehicle availability. Despite an intensive maintenance program, only 15 of 172 medium tanks and 11 of 115 light tanks were serviceable, largely for lack of repair parts. All of the Division’s 54 ammunition-carrier half-tracks needed

⁹³⁷ Sullivan, “History of Fifth Army Quartermaster Activities,” 125.

⁹³⁸ *Ibid.*, 132.

replacement, along with 250 cargo trucks and 350 jeeps.⁹³⁹ Fifth Army was tired and needed refitting before advancing further north. Around July 20, General Clark approved a pause in operations along the Arno River. This pause gave units the time needed to refit, reequip, and prepare for the next major push across the Gothic Line and up to the Alps.

On August 31, Fifth Army resumed the offensive. The operation pause had accomplished its objective- Fifth Army was refreshed and able to apply tremendous firepower against the defending Germans. Allied bombers cut all of the German supply lines leading into Italy. Although not certain, the battle's outcome was favorable for the Allies.

Attacking in concert with Fifth Army, the Eighth Army made good progress in the east and quickly penetrated the Gothic Line by September 2, but failed to achieve a complete breakthrough. Fifth Army also made good progress, but found stiffened German resistance in the mountainous terrain surrounding Il Giogo Pass. Cleverly concealed German defensive positions made of reinforced concrete slowed Fifth Army's advance and forced the 34th Infantry Division to resort to heavy artillery bombardments. Ammunition ran low for several front line infantry companies, forcing commanders to dig in at night, while porters carried supplies forward. A six-day battle for the pass required all of the power Fifth Army could muster, but the plan worked. By September 18, the Il Giogo Pass was in American hands and the Germans were abandoning the Gothic Line defenses.⁹⁴⁰

⁹³⁹ Memorandum from G4, 1st Armored Division to Commanding General, 1st Armored Division, dated July 4, 1944, subject: Status of Vehicles. Papers of Ernest Harmon. MHI.

⁹⁴⁰ Ernest Fisher, *Cassino to the Alps* (Washington: Center of Military History, 2002), 337.

Although Fifth and Eighth Armies had broken through the Gothic Line, neither had been able to accomplish the primary objective of destroying the German Tenth Army and advancing north of the Po River. The Allied Combined Chiefs realized that, due to siphoning off units for Dragoon, the Fifteenth Army Group did not have sufficient units or resources to achieve the necessary combat ratio of a three-to-one superiority needed for an attack, so the likelihood of success in Italy was slim.

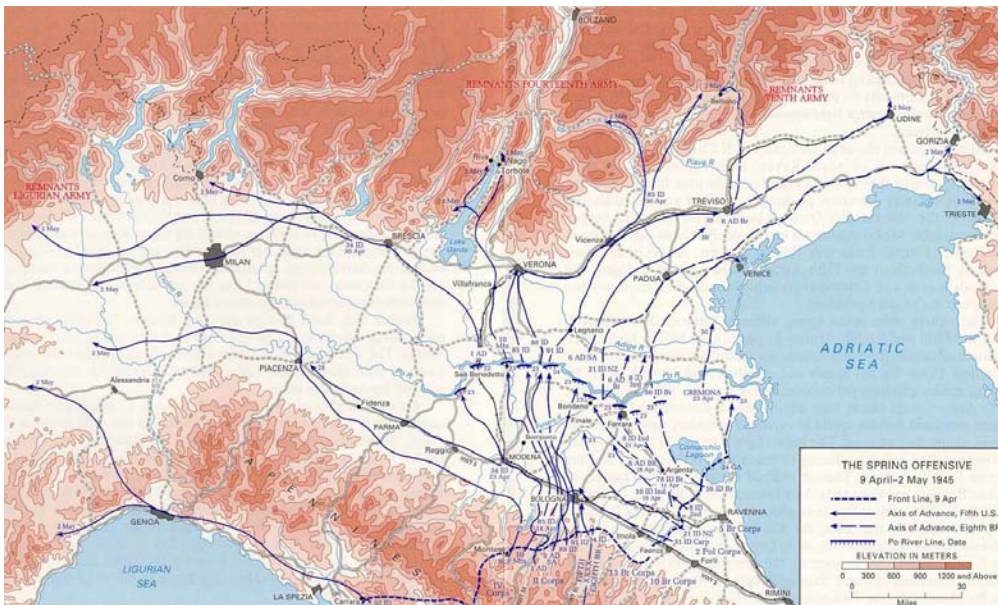
The loss of forces to Dragoon had three direct implications in Italy. First, there were insufficient forces remaining in Italy to rotate fresh troops constantly on the front lines. Second, the loss of so many service units slowed down the entire Allied advance. Third, the loss of assault craft precluded options to conduct amphibious landings past German defensive lines.⁹⁴¹ The two operations in France were the priority and the Allies would not, and could not, divert resources away from the main effort. Italy was destined to remain a secondary effort, able to tie up German divisions, but not necessarily defeat them.

Modest advances with little strategic gain, other than continuing to engage the German Tenth Army, characterized the remainder of the war in Italy. The fall campaign in the Apennines Mountains led to a winter impasse. The fast pursuit of the summer regenerated back to a slow fight in the mountains and the use of pack mules. Snow, ice, and fog prevented any large-scale advance. All sides used the winter to rest and regroup, hoping to return to the offensive in the spring. General Clark moved up to take command of the 15th Army Group in December, while General Truscott assumed command of Fifth Army.

⁹⁴¹ Administrative Planning, 71-72.

The rail line that ran from Leghorn to the Po Valley and up to the Apennines mountains operated off electricity. As with Naples, the retreating Germans destroyed all electrical generation equipment, cut transmission lines, blew a foot long piece out of every rail, and destroyed culverts, bridges, and tunnels. In addition, the Germans took all locomotives and railcars with them. US Army engineers decided to rebuild the rail line north of the Arno River and used a South African Mines Brigade from the British to open tunnels. Construction materials came from local Italian mills such as the Tierne Steel Works. Reconstruction of the line started on February 12, 1945 and finished on March 27, three days ahead of schedule. The operation involved over 2,500 men to repair 44 miles of damaged track, but provided a valuable link in the resupply network for the soon-to-be advancing army.⁹⁴²

Figure 40: The fight for Northern Italy, April-May 1945⁹⁴³



⁹⁴² Carter Magruder Papers. MHI. 45-46.

⁹⁴³ Source: The University of Texas Library, http://www.lib.utexas.edu/maps/historical/po_valley_spring_1945.jpg. (accessed December 24, 1020).

The final spring Allied offensive called for the capture of Bologna, an advance to the Po River, and an advance on Verona and Lake Garda.⁹⁴⁴ The attack began on April 9, with Eighth Army; Fifth Army started their attack on April 14. British and US support forces had resupplied both armies over the winter and now the 15th Army Group possessed sufficient strength to break through the German defenses. By April 20, both armies had breached German defenses south of the Po and were racing north into the Po River Valley. Fighter-bombers engaged in an aerial pursuit of retreating German units. To support the fight, the Peninsular Base Section extended a fuel pipeline to within two miles of the front and within sight of the German force at Bologna. The force of the attack, combined with German shortages of supplies, produced a campaign that lasted only two and a half weeks.⁹⁴⁵

Some units did experience sporadic supply shortages, but these were isolated and quickly resolved. The 34th Division was attacking the Genghis Khan defensive line south of the Po River in mid-April and found itself stalled because of a shortage of ammunition, particularly for mortars. After the division sent word up the chain of command that conservation was not going to achieve a breakthrough, Field Marshal Alexander lifted the ammunition restrictions and within a few hours, the 34th had its munitions and achieved the desired breakthrough.⁹⁴⁶

⁹⁴⁴ Fisher, 447.

⁹⁴⁵ "The Work of the Peninsular Base Section." Unit history pamphlet, 1945. MHI. 20-22.

⁹⁴⁶ Papers of Charles Bolte. Section III, MHI. 6.

Strategically, the Allies were driving the Germans into the Alps. The Fifteenth Army Group was pushing north from Italy, while the Sixth Army Group was now moving southeast through Bavaria and towards Austria. Patton's Third Army was moving south down the Danube Valley. On April 22, the 10th Mountain Division made the initial crossing of the Po River and began closing the escape routes in the northern part of the valley. A week later, on May 2, the German surrender in Italy was complete.

In a series of questions put to German commanders following the war, Field Marshal Kesselring noted that like the Allies, the key to German resupply was transportation. In Italy, the German military used all means available to move material: roads, rail, ships, and planes. Allied interdiction of one form meant a shift to other modes. For instance, if the Allies interdicted the rail lines, the Germans shifted to roads and air transport to make up the difference.⁹⁴⁷

Allied air attacks on the German lines of communication were effective, but only for a limited period. Attacks succeeded in halting resupply efforts, but German engineers became quite proficient at quickly repairing damaged roads, rail, bridges, and tunnels.

In 1944, Hitler, like the Allies, considered the Mediterranean a secondary theater of war. However, during large battles the German High Command viewed Italy as a major theater and provided a corresponding allotment of supplies and other resources for that specific engagement.⁹⁴⁸ Partisan warfare represented a constant threat to the lines of communications, especially during the period of withdrawal for Italy.⁹⁴⁹ Most difficult

⁹⁴⁷ Albert Kesselring. "Questions Regarding the General Strategy during the Italian Campaign." Box 27. MHI. 8.

⁹⁴⁸ *Ibid.*, 30.

⁹⁴⁹ *Ibid.*, 36.

was the resourcing of additional of German combat units, which were critically short across all the fronts.

Surprisingly, the intense Allied bombing effort in Italy proved to have a negligible impact on German logistics. Despite the level of air superiority that the Allies enjoyed, they were never able to cut all of the different German lines of communications. The redundant nature of the German system allowed Kesselring's supply and transportation units to shift between transportation modes, thus ensuring a constant supply flow - one that could sustain defensive operations. However, the secondary nature of the theater and the other demands for German units and supplies meant that the Germans could not give Kesselring the resources needed to break through the Allied lines.

It would be unfair to characterize the Allied campaign in Italy as a secondary effort and imply that it held little strategic value. Indeed, like the rest of the operations in the Mediterranean, Italy did not win the war, but it contributed in important ways to the overall war effort. Specifically, the fight for Italy forced Hitler to provide units, men, and resources that the Germans otherwise could have diverted to the Eastern or Western Fronts. Additionally, occupying Italy helped clear the eastern Mediterranean of any German air or sea threat, thus allowing for secure shipments of Allied war material between North Africa, Italy, and southern France. Finally, the efforts to seize, clear, and develop seaports provided valuable experience that had a direct and significant impact on later similar operations in northwest Europe and southern France. Italy provided the training ground for establishing communications zones, a skill lacking during Operation Torch and not necessary during Operation Husky. Italy did become a secondary effort in

the Mediterranean after June 1944, but this is exactly what should have happened and does not negate the important benefits that enabled the Allied effort across the European theater. The fight in Italy, as in previous Allied operations, matured the force and allowed the service forces to refine the systems, i.e. transportation and supply management, needed to support a theater.

Learning Organizations

Statistics provide a means of illustrating just how capable the Peninsular Base Section had become by the end of 1944. The Ordnance section of the Base Section established a storage depot plant at Leghorn starting from scratch. This quickly developed into a fully functional facility that could handle over 76,000 Ordnance items and consisted of 662,000 square feet of covered storage and over 6 million square feet of open storage. One heavy maintenance company built a vehicle assembly plant (similar to the Twin Unit Pack (TUP) operations of North Africa) out of a burned out hulk of a building that had no roof. Engineers installed support trusses and a roof; mechanics installed lifts and cranes. This one plant alone assembled 5,000 light and medium cargo trucks per month. To provide construction materials, base section engineers operated 60 civilian mills with a monthly output of five and a half million board feet of lumber. Outside Leghorn, Quartermasters opened one of the largest depots of the war. The depot was two miles long and a half-mile wide with nine miles of internal roadways. This facility was in full operation only a month after the Fifth Army had seized the town. The Base Section contained 109 hospitals, which cared for 82,570 patients from October 1943 until April 1945 and surgical units were located closer to the front lines than ever before. A laboratory at

Bagnoli, one of two of its kind in the entire war, conducted advanced research on infectious diseases and pioneered new treatments, such as whole-blood transfusions and secondary wound closures, and studies on acute hepatitis.⁹⁵⁰

The base sections of the Mediterranean had refined their organizations to such a level that one organization under the command of a brigadier general could provide the supply, maintenance, signal, transportation, and engineer needs of entire army-group of over 250,000 men. Base sections existed in the First World War, but were insignificant in comparison to those that developed in the Mediterranean and European theaters a quarter of a century later. Men such as Tom Larkin, Arthur Wilson, Arthur Pence, John Ratay, and Francis Oxx (all base section commanders) provided the leadership and vision necessary to meld these organizations into a holistic support system that could provide supplies to the front, evacuate and care for the wounded, and repair everything from a tank to a typewriter. These capabilities did not just occur - they developed over time. The campaign in the Mediterranean provided the time needed to train and develop the force.

Conscript armies need time to hone skills and transform a group of individuals into a viable team. America's tradition of building large armies only in time of war meant that in late 1942 and 1943 *everyone* in the Army had to learn a new job and operate with new levels of forces. Inductees had to learn how to be a soldier. Existing soldiers had to learn how to operate with increased rank and larger formations. Generals had to learn how to work with other Allied nations. Everyone had to learn how to use and repair new types of

⁹⁵⁰ "Tools of War: An Illustrated History of the Peninsular Base Section." 2-8.

technology and equipment. The early years of the war were a time of continual growth, learning, and adjustment.

Unlike the experiences of the First World War, this time the US learned how to resource, outfit, and use service forces. Combat units still tended to view communications zone forces as second-class citizens, especially for colored units, but senior leaders now had a better appreciation for the importance of maintaining a capable support force. Whereas in 1918 the US could always fall back on its European partners for assistance, this time there was no one to fall back on. France, Britain, Russia, and Brazil were all relying on some level of US supply assistance. The communications zone and its associated base sections provided the means to accomplish this support.

Other service units not assigned to the base sections likewise took pride in developing the best support systems possible. The Quartermaster of the Fifth Army, Brigadier General Sullivan, lamented that Fifth Army had developed an exceptional supply system in Italy and that the Services of Supply was trying to infringe on Fifth Army's territory. Moreover, besides supporting US soldiers, the Fifth Army service units were working to support up to 30,000 partisans as well by December 1944.⁹⁵¹ Rather than being a traditional dumping ground for poor performing officers (as had been the case in the First World War), the service units in the Mediterranean were generally led by competent officers and with a sense of professionalism. Some ineffective combat officers still did find their way into the Services of Supply, but not to the degree seen in the First World War. Official orders from the theater often cited the award of a Meritorious Service

⁹⁵¹ Sullivan diary, dated 8 December 1944.

Medal to a service unit soldier- something that would have been unheard of in Pershing's day.

However, successful support operations depended on more than just competent leadership. The base sections and other administrative units needed to learn from their mistakes and develop innovative methods of confronting the challenges faced in supporting hundreds of thousands of men. Adaptation and flexibility were two key hallmarks of the Mediterranean service units. These qualities allowed support units to become learning organizations, building on success, and eliminating any system or process that did not work as planned. As an example, the War Department developed Special Engineer Brigades in response to poor beach control operations during Operation Torch. These groups ran the beaches in Sicily, but Seventh Army failed to manage them effectively. By the time of the Italian invasion, doctrine had changed, allowing Fifth Army to avoid the pitfalls uncovered in Sicily. First and Seventh Armies then carried this doctrine forward for both the landings in Normandy and southern France, resulting in the highest level of beach operations achieved to date.

The beaches of France still had some level of problems in the summer of 1944, but nothing compared to what they would have looked like if the base sections had not gone through this series of trials throughout the different operations. The Mediterranean provided a safe means to develop the units and systems needed to support the invasion of the European mainland. However, innovation and leadership alone did not make for successful units.

Relations among the various US units within the Mediterranean were generally agreeable, having matured since 1942. There was a certain amount of tension and occasional disagreement between the services, as well as combat and support forces, but not to a level that impaired operations. Indeed, the relationships between combat and support units in the Mediterranean were very different from those experienced during the First World War. This was partly due to the shared hardships experienced during the various campaigns, plus an enhanced appreciation for the role that each played on the modern battlefield.

General Eisenhower set a common tone for the theater by approaching everything from a sense of teamwork and cooperation. This applied to coalition relationships with British and French partners, as well as to the different Army components of the theater: combat, support, and Air Force. The fight for Tunisia convinced Eisenhower that each element of the Allied force had a role, and his job as the overall commander was to make each part work in concert with the others. This is a seemingly simple concept, but was exceedingly important because it established the overall atmosphere of respect and cooperation.

Major General Thomas Larkin was another important personality, but one that has received little attention from history. Larkin proved to be the best support officer of the theater, partly due to his level of professional competence, but also because of his amiable personality. He received respect from combat, air, and service commanders across the Mediterranean theater. Eisenhower had a high level of respect for Larkin and hoped to take the Services of Supply commander to Europe with him for the European invasion.

Responding to a formal request from Eisenhower, the new US theater commander in the Mediterranean, Lieutenant General Devers, simply responded, “Cannot see my way clear to releasing Larkin.”⁹⁵² Thomas Larkin had something that John C.H. Lee, the European Services of Supply commander, did not: a personality that could work well with others.⁹⁵³

The dissimilarity in commanders represents one of the most important differences between the two communications zones. In Europe, Lee worked to consolidate power and control all aspects of administrative support, often enraging other commanders. Larkin, on the other hand, acted as part of a larger team and did not try to overextend the authority of the Mediterranean Services of Supply. This is one of the main reasons that the European support structure did not take full advantage of everything that US logisticians had learned in the Mediterranean- Lee intentionally did not want to emulate the Mediterranean support structure. To do so would have required a lessening of Lee’s authority and reach.

Larkin was a laudable commander, but he certainly did not work alone. Assisting him was a proficient staff and experienced base section commanders. The theater staff worked closely with the Services of Supply staff and, by 1944, everyone had worked out their specific responsibilities. The technical service chiefs integrated themselves into the organization and worked in concert with one another, as well as with theater and Services of Supply staffs. In essence, the different operations of the Mediterranean allowed a sense of respect and trust to develop across the entire support community-this took time to

⁹⁵² Message from Devers to Eisenhower, dated 16 January 1944. Reference number 29681. NARA, RG 492, box 138.

⁹⁵³ General Lee was known for remarking that his initials (J.C.H.) stood for “Jesus Christ Himself.”

create and was not readily exportable to the European theater. The European Services of Supply had to go through their own growing pains.

Assessment of Support Across the Mediterranean

Although the Allied leaders did not approach the Mediterranean with a long-term strategy in 1942, or even 1943, several positive factors developed because of the operations across Africa, Sicily, and Italy. First, operations in the Mediterranean provided the means to store a vast quantity of supplies that could not only support the Mediterranean campaigns, but later operations in France and Germany as well. Algeria, Morocco, and Tunisia all became hosts of large supply depots to support the ground, air, and sea forces. The stocks held in Africa helped support the move to Sicily. Africa and Sicily supported the drive into Italy. Italy and Africa served as bases of operations for southern France. Having these supplies stored within the theater meant that transportation officers needed less ships to move the supplies, because the length of the trip was reduced, compared to bringing in supplies from the US or Great Britain. Having locally available supplies also meant that service units could react faster to the changing requirements of combat units, as was seen in Italy and France. In short, maintaining a local source of supplies provided more options and reduced the levels of risk for the theater commander. To illustrate just how much material was available, in December 1944, there were still 100,000 tons of supplies in North Africa alone.⁹⁵⁴ This allowed the War Department to

⁹⁵⁴ Dunham. "United States Army Transportation and the Italian Campaign," 139.

focus most of its efforts on resupplying the European theater. The Mediterranean still needed some level of supply from the US, but at a significantly lower rate.

Secondly, the Mediterranean offered senior US leaders the chance to discover the implications associated with supporting large quantities of modern military machines. Those commanders that had theater responsibilities learned to grasp the challenges and subtleties of supporting modern warfare, such as the need for a commander to adequately resource both the rear areas, as well as the combat areas, and to set priorities for resources between units. Eisenhower never forgot the lost opportunity for a quick seizure of Tunisia- the lesson stayed with him for the rest of the war and shaped all of his future decisions regarding force composition. The concepts of landing a balanced force, maintaining supply accountability, and providing accurate projections for resources were not necessarily new ideas in warfare, but they all assumed a much greater importance in the effort to resource a modern, mobile force. These elements gave US commanders an edge over the enemy by allowing their forces to react more quickly and with greater force, to opportunities on the battlefield.

Some commanders never spent much time worrying about the details of where their support was coming from, only that it was there at the needed time. Patton provided possibly the best example of this. When asked about Third Army's gasoline situation during the drive across France in the fall of 1944, Patton replied, "I got a guy that looks after that."⁹⁵⁵ This is a surprising answer for a commander that clearly recognized that fuel was the single commodity that enabled his movements and often determined tactical

⁹⁵⁵ Administrative Planning, 91.

success. However, this is also evidence of how the US system worked. Tactical commanders (army-level and below) focused on moving their forces and defeating the enemy. Higher-level commanders (those at army-group and theater) dealt with the factors that made the tactical commanders successful, such as providing supplies, replacements, and additional units. During the drive through Europe, both Bradley and Devers were personally making tonnage allocations among their assigned armies. The fact that tactical commanders could leave the support details to others is testimony to the overall effectiveness of the administrative system.

Although most of the senior logistics officers tended to remain within a single theater during the duration of the war, there was some sharing of ideas and systems across the Mediterranean theater and with the European theater. As an example, three months prior to the invasion of southern France, supply officers from Seventh Army visited Fifth Army in Italy to observe its supply methods as the army moved north, toward the Apennines. Later, several members of the Fifth Army G4 joined the Seventh Army staff to assist in the invasion of southern France. For Operation Overlord, supply planners began conducting technical studies in October 1943, focusing their concerns on fuel and other petroleum products. The Chief Quartermaster of the European theater, Major General Robert Littlejohn, gathered usage data from North Africa, Sicily, Italy, and the South Pacific to help inform the study.⁹⁵⁶ Additionally, planners patterned the transportation system for Overlord on the Fifth Army system used in Italy.⁹⁵⁷ To control the local

⁹⁵⁶ Report of Operations, 12th Army Group, dated 31 July 1945. Volume XII. MHI. 178.

⁹⁵⁷ Press Release, "How Fifth army Won the War of Logistics." Dated 2 December 1944. Located in the Joseph Sullivan Diary, 2 August 1944 to 31 December 1944. Fort Lee.

population, civil affairs officers jumped into Normandy with the 82d and 101st Airborne Divisions, as well as landed on the beaches. These efforts took advantage of the lessons learned in the Mediterranean and occurred because many of the mid-level staff officers assigned to First Army had experience in the North African, Sicilian, and Italian campaigns and they took this experience with them to develop the logistical support plans for the invasion of northwest Europe.⁹⁵⁸ The II Corps Quartermaster, Colonel Andrew McNamara, accompanied General Bradley to England. Unfortunately, on-going operations in Italy and the upcoming assault into southern France meant that many experienced officers needed to remain in the Mediterranean. As such, the European theater did not receive as many experienced officers, as it needed.

The principal problem affecting operations during Operation Overlord was that of ports and transportation.⁹⁵⁹ This was a surprise to no one- these were the same problems experienced in North Africa and Italy. One aspect that *was* new to the Allies was the effort required in conducting fast-paced pursuit operations. American planners had experienced small-scale pursuits in Tunisia and Sicily, but nothing prepared them for the scales encountered north of Rome or in France. Commanders and planners alike expected German defenders to contest every inch of ground so they planned for slow, constant advances across France and into Germany. These assumptions proved false when the Allies broke through German defensive lines and began pursuing the retreating enemy.

The speed of the advance in Europe quickly degenerated into a simple equation of how much food and fuel the base sections could push forward to the armies. In the summer of

⁹⁵⁸ Report of Operations, 12th Army Group, dated 31 July 1945. Volume XII. MHI. 180.

⁹⁵⁹ Report of Operations, 12th Army Group, dated 31 July 1945. MHI. 21.

1944, advancing US armies outran the lines of communication in Italy, as well as northern and southern France. Supply and transportation units were overtaxed and there was little time or men available to build up reserve supplies. Commanders, such as Eisenhower, Clark, Bradley, Patton, and Devers faced the difficult choice of keeping pressure on the retreating Germans and outrunning the supporting lines of communication, or slowing the rate of advance and allowing supplies to catch up. In every case, commanders elected to push forward as far and fast as possible, knowing they would outrun their service forces, and then pause operations only when supplies ran out, or when the enemy decided to make a defensive stand.⁹⁶⁰ Critics may make the claim that US support units failed to keep pace with operations.⁹⁶¹ The truth is that commanders, such as Eisenhower and Bradley, consciously *elected* to outrun their logistics and then paused to allow the base sections to catch up. Supply planners knew even before the D-Day landings that the Allies needed a one-month operational pause west of Paris to allow engineers time to build the rail lines.⁹⁶² Bradley's decision to disregard this pause placed an enormous demand on the support forces, but offered the greatest rewards. Yes, the theater logistics structure in Europe did cause some initial confusion, but the larger issue was that commanders knowingly deciding to move faster than the base sections could support.

The resiliency of the US support system became evident during the Battle of the Bulge. The European Services of Supply handled support for all the US armies, meaning that the three army commanders within Bradley's 12th Army Group (George Patton,

⁹⁶⁰ Administrative Planning. 88.

⁹⁶¹ Ruppenthal argues in *Logistical Support of the Armies* that the supply problems seen in Europe between September 1943 and February 1945 were largely due to improper supply procedures and an inadequate theater logistics structure. Volume II, 348-349.

⁹⁶² "Logistical Planning for Operation Overlord." Frank Osmanski Papers, Box 1. MHI. 33.

Courtney Hodges, and William Simpson) did not have organic support forces. Rather, the Services of Supply resupplied the force. This allowed Bradley to maneuver the armies quicker than otherwise would have been possible because the movements made little difference logistically. The Services of Supply could support a US army just as easily in the 21st Army Group sector as in the 12th Army Group sector.

On December 20, Eisenhower agreed to shift the army-group boundaries.

Montgomery's 21st Army Group gained responsibility for the US First and Ninth Armies, leaving the 12th Army Group with Patton's Third Army. The change in organization allowed Montgomery to focus on the defense of the Ardennes salient, while Bradley dealt with the area south of the salient. This made logical sense and required little change for the Services of Supply.

The Allied air forces underwent a similar reorganization. The US IX and XXIX Tactical Air Commands transferred to the British Second Tactical Air Force. Fighter-bombers from the US IX Tactical Air Command transferred to the XIX Tactical Air Command to support Patton's upcoming counter attack against the bulge.⁹⁶³ Commands changed across the front, but the Services of Supply was able to adapt quickly to the changes because of centralized oversight and management.

The Battle for the Bulge presented challenges that rivaled the Normandy landings. During the initial phases of the campaign, First Army used 37 truck companies in 196 convoys to withdraw 250,000 men from the forward areas. Shortly thereafter, the Services of Supply began planning for the destruction or evacuation of any supplies that

⁹⁶³ Hugh Cole, *The Ardennes: Battle of the Bulge* (Washington: Center of Military History, 1965), 424.

fell in the German direction of advance. Near Malmedy, quartermaster units evacuated over 3,217,000 gallons of fuel from 17-22 December 1944.⁹⁶⁴ Simultaneously, the Services of Supply had to adjust its supply lines to meet the new boundaries and changing command structures.

The European Services of Supply performed a tremendous task in supporting First and Third Armies, while also working to relocate supplies out of the danger areas. The fluid situation forced a widespread transfer of service units among the armies as the Third Army wheeled north to counter the German attack. As the Third Army swung north, the Sixth Army Group adjusted its orientation and supply bases to occupy the vacant Third Division sectors. The 12th Army Group's Report of Operations noted, "Close coordination between the European communications zone and the two armies was essential to uninterrupted support."⁹⁶⁵ The relatively good supply situation allowed US commanders to quickly defeat the German threat and then advance through the Siegfried Line.⁹⁶⁶ Whether the US military could have achieved this same level of agility and responsiveness a year earlier is arguable.

The main difference between the European and Mediterranean theaters appears to have been the different approaches to support planning. The Mediterranean tended to have two separate staffs: AFHQ with its US theater responsibilities managed the overall planning effort, determined priorities, and made allocations for resources. The Services of Supply in NATOUSA handled the execution of the support effort and only *assisted* with long

⁹⁶⁴ Ruppenthal, 183.

⁹⁶⁵ Report of Operations, 12th Army Group, dated 31 July 1945, volume I MHI. 25.

⁹⁶⁶ Ibid., volume IV, 54.

range planning. This proved to be a viable and efficient system, which refined itself over time and generally worked as designed. For operations, the Services of Supply planned the mounting of forces, while AFHQ and NATOUSA worked out the support plan for the assault and any follow-on movements.

In Europe, however, Lieutenant General Lee and the European Services of Supply argued that they should have total responsibility for the logistics plan *and* execution. This was an important distinction from the Mediterranean and it created a situation whereby the European Services of Supply perhaps spent too much time planning for the landing phase of the operations and not enough time working out the details of follow-on operations. Confusion arose in Normandy when the European Services of Supply sent in a headquarters Advance Section without clear responsibilities and authorities, forcing the theater to enact a complete revision of the supply system between September and December 1944.⁹⁶⁷

Immediately following the war, the investigative General Board of the European Theater found that the Services of Supply and the US European Theater Headquarters had failed to define the relationships between the various levels of command within the theater and had failed to clarify the relationships and responsibilities of the technical and administrative services.⁹⁶⁸ The Mediterranean theater avoided this problem because they were engaged in supporting the war from the first landings in North Africa and had the benefit of several campaigns to work out any problems. In Europe, however, combination

⁹⁶⁷ Ibid., volume XII. MHI. 201.

⁹⁶⁸ Organization and Functions of the Communications Zone; General Board, US Forces, European Theater, Study 127, 1945. MHI. Preface.

of a lack of interaction between the different staffs, combined with a certain level of hubris from General Lee and the technical chiefs, produced an atmosphere of confusion and distrust. Tactical commanders initially had high praise for the Services of Supply, but by September 1944 were cursing the widespread shortages and calling Lee and the communications zone a failure; a criticism only partly deserved.⁹⁶⁹

Besides seeing changes to the support system, the experiences of the Mediterranean had a direct impact on how the theaters equipped individual soldiers for amphibious assaults. Troops landing in North Africa carried two barracks bags that included such extraneous items as wool blouses, extra leggings, and neckties; items hardly essential for combat.⁹⁷⁰ Soldiers tossed many of these items on the beaches, seeking to lighten their loads as much as possible. In Normandy, combat troops carried a blanket roll with only small items of personal clothing. Changes, such as these, lessened the load on soldiers, reduced supply requirements, and made the transportation system more efficient.

Perhaps no greater change occurred than in the feeding and care of soldiers. Quartermaster units in North Africa initially had difficulties incorporating fresh fruits or meat into the daily rations. However, research, new technologies, and additional service units all combined to provide improved rations to the force, as well as fresh supplements for the daily menu. By the summer of 1944, US soldiers were receiving a standard of support never previously experienced in warfare. Fresh bread, meat, and eggs became routine. Soldiers received new razor blades, cigars, and cigarettes in both the forward and

⁹⁶⁹ Blumenson. *The Patton Papers*, 537.

⁹⁷⁰ McNamara, "Quartermaster Activities of II Corps thru Algeria, Tunisia, and Sicily and First Army thru Europe." 119.

rear areas, all contributing to morale. The base sections provided laundry services while troops took a hot bath. Graves Registration units implemented a burial system that resulted in a recovery rate and identification of 98 percent of the US war dead.⁹⁷¹ All of this had a direct influence on soldier morale and was a product of the experiences obtained in the Mediterranean.

One aspect of theater support that historians have largely ignored is the magnitude of the depot-level maintenance capability that grew within the base sections. Base shops built conveyor assembly lines to rebuild tank and truck engines. Ordnance units repaired or rebuilt broken power trains and hydromatic transmissions. The salvage effort became a major part of the theater's responsibilities- every item salvaged and repaired represented one less item that had to come from the US. Entire units focused on the repair of typewriters, which were essential to the communications and administrative effort. Specialized medical repair units took care of surgical instruments. Keeping up with the flow of damaged and destroyed equipment meant tracking mechanics as well as repair parts.

Supporting the fight meant not only taking care of the combat forces, but providing essential supplies to local populations as well. The campaigns of North Africa showed the importance of civil affairs forces and AFHQ had these lessons reinforced throughout Sicily as well as Italy. By the time Rome fell, Services of Supply planners had learned to conduct civil affairs planning in concert with the development of an operation's overall concept of support. Sicily, especially, had helped shape civil affairs planning due to the

⁹⁷¹ Ibid., 169.

impoverished state of the local population and the lack of supplies to address the problem. The experience of Sicily prompted Brigadier General F. J. McSherry, the European Civil Affairs chief, to ask for 705,000 tons of food for civil affairs efforts in Europe; he got it.⁹⁷² Sicily showed the importance of providing food, Naples demonstrated the need for medical support and fuel. Together, the Mediterranean campaigns each presented different civil affairs problems, each of which informed the planning for Overlord. At the theater level, the staff officer for civil government, the G5, prepared the estimates for civil needs, while the logistics officer, the G4, insured these requirements did not adversely affect military needs.

Some of the more memorable challenges for the base section commanders came not from supporting armies of hundreds of thousands of men or entire civilian populations, but rather from responding to special requests. General Arthur Wilson and the Atlantic Base Section took care of all administrative requirements for Churchill's recuperation from pneumonia in Morocco, from December 26, 1943 until January 14, 1944. The shopping list for the Prime Minister was extensive and hard to fill. With less than a week's notice, the base section had to find two dozen half-bottles of champagne, one dozen bottles of Spanish brandy, four dozen bottles of light sherry, two dozen bottles of dark sherry, and soda water. The Taylor Villa also required a French chef and "an able quantity of chicken, partridge, and duck."⁹⁷³ Named "Operation Adult," the Atlantic Base Section supplied

⁹⁷² Interview with BG F.J. McSherry, dated 16 Feb 1948. Sidney Matthews Papers. Box 2. MHI. 5.

⁹⁷³ Message from FREEDOM to MARRAKECH, dated 20 December 1943. Also see message dated 211530 Dec 43. NARA, RG 492, box 140.

the Prime Minister and his party with food and drink until Churchill's departure from North Africa.

As trivial as Operation Adult may seem at first, support missions like these played an important role in the conduct of theater business. Just as soldiers on the front lines needed ammunition, water, and fuel to do their job, the different levels of headquarters needed everything from paper, to typewriters, to high-end food and drink to accommodate the needs and demands of senior leaders. Warfare has a political dimension and items such as scotch and French wines were just a part of the environment. Care for a national Allied leader had the highest priority, even if it meant flying in special shipments of gourmet items from across Europe. A happy Prime Minister was more likely to accede to a theater commander's desires and support proposed plans.

However, aside from learning to care for men such as Churchill and Roosevelt, the Mediterranean Services of Supply learned a number of important lessons in providing support to a deployed joint force- lessons that directly shaped future operations through the end of the Korean War. In prepared remarks for the Air War College in 1951, General Larkin provided the following observations regarding the major lessons learned from his experience in the Mediterranean. First, quantities of supplies have little meaning if you do not know what you have, as well as the locations of specific items. Second, every theater needs a single organization in charge of the communications zone and this cannot be the theater headquarters. Along the same lines, do not have a separate Services of Supply headquarters and communications zone headquarters. Third, every man in the theater needs to have a sense of supply discipline, meaning that everyone needs to take care of his

or her own equipment and only order what the unit needs-no more. This is the only way to deal with constrained resources and limited amounts of service forces.⁹⁷⁴ The underlying factor in all of this was the need to develop a sense of trust between the combat and service units.

Larkin's lecture notes that it took three months from the initial North African landings until the formation of the Mediterranean Services of Supply. Interwar support doctrine was simply inadequate for the situation and the theater needed to develop new organizations and systems. The formation of the Services of Supply was just the start; the Mediterranean theater would adjust its support systems and administrative headquarters up until the end of the war. The Mediterranean Services of Supply of early 1943 was in its infancy and needed time to grow. Had the Allies landed in France in 1943, there would not have been sufficient time to develop, test, and mature a similar type of organization. The operations of the Mediterranean served as an essential Petri dish for support doctrine, which the European theater would need to defeat the German military.

Changes in the theater support structures provided a number of benefits to the force, namely better management of supplies, improved utilization of service units, and more responsiveness to changing conditions. For Operation Torch, the supplies loaded into the first convoys were predetermined and the base sections were unable to make any changes, even if the convoy had not yet sailed from New York.⁹⁷⁵ By the time of Operation

⁹⁷⁴ "Logistical Planning for the North African Theater Campaign. Lecture for the Air War College, 10 February 1951. Prepared by General Larkin and presented by Colonel Anson Maraton. CMH. 5-42

⁹⁷⁵ "The Administrative and Logistical History of the European Theater of Operations." Part IV: Operations Torch and the ETO. CMH. 71.

Dragoon, the base sections could change the unloading schedule of specific vessels and make short-notice changes to any convoy that had yet to sail.

Allied operations in North Africa showed the many support problems that required resolution before engaging in a fight for the European continent. As noted earlier, packaging materials for many items were ill suited for a cross-ocean voyage or open storage in a demanding environment. Systems seemingly as mundane as the marking of crates needed complete revision by the War Department.⁹⁷⁶ In short, in 1943 the US was not logistically ready to fight the German military in a direct confrontation on the European mainland.

An important outcome of the Mediterranean campaigns was a better understanding and appreciation among planners and commanders of the other types of units (i.e. supply, communications, port, etc.) needed to support the combat divisions. Simply put, a division could not fight by itself; a division needed other units to help support operations. Each subsequent operation helped inform the planners as to how many support and administrative personnel needed to accompany the divisions, or follow in close support. Adhering to such factors helped shape the balanced force that was important for long-term operations. By 1944, planners and commanders, from the War Department down to the divisions, had grasped the notion that the soldiers assigned to a division were just the start of a more comprehensive package of forces for any operation. The name given to the total of the division and its accompanying support forces was “divisional slice.”

⁹⁷⁶ The War Department initiated steps to revise the marking system in the spring of 1943. See *The Administrative and Logistical History of the European Theater of Operations.* Part IV: Operations Torch and the ETO. CMH. 78.

The divisional slice represented the most generic of planning factors, but proved very accurate for planning any large-scale operation. The divisional slice had three main components: the combat division, additional corps and army level combat forces, and support forces that are not within the division. The divisional slice represented the total of forces needed to employ each division. The following table shows the breakdown for a divisional slice in 1944 and illustrates the broad differences each nation took regarding army service forces.

Table 1: Analysis of a Divisional Slice⁹⁷⁷

	<i>United States</i>	<i>Great Britain</i>	<i>Germany</i>	<i>Russia</i>
Average Division	13,400	16,000	12,100	6,000
Average non-division combat forces	11,300	14,000	5,000	5,840
Average non-division service forces	18,700	10,000	-	-
Total	43,400	40,000	17,100	11,840

This table highlights several important differences among the various belligerents. First, the US and Great Britain had to include service forces in their formations to support modern, mobile warfare in overseas lands. Operation Torch proved that a division could not fight long by itself and the service forces provided the means to move and sustain the force in combat. However, despite the benefit, the overhead that accompanied each division was a constant source of debate among Allied leaders. Men, such as Churchill, General Marshall, and the commander of US Ground Forces, Lieutenant General Lesley

⁹⁷⁷ Information for US, German, and Russian forces provided by Dr. John Bonin, US Army War College, from research conducted on average divisional slice compositions as of June, 1944. The data on British forces is based on planning factors listed in *Administrative Planning*, 182, and reflects a planning figure, rather than an average strength for any specific period.

McNair, complained throughout the war about having so many men tied up in service units. Leaders in the states worked to reduce the number of service units, while commanders in the theaters clamored for more. There was a constant tug and pull as the War department struggled to balance of the demands for manpower. Over time, leaders grew to recognize the need for service units, although they continued to fight to keep numbers at the absolute minimum. Regardless, these support units were clearly essential to supporting modern warfare and they were a large reason behind the Allied victory.

Germany and Russia chose a different approach to logistical support of their armies. Instead of conscripting large numbers of service forces, these nations used interior lines of communication, contractors, and civil authorities to move supplies forward from the factories. Using interior lines of communication, Germany and Russia could use their own civilian rail lines to deliver supplies essentially from the factory to the front. This methodology worked while the battles occurred on the European mainland, but campaigns, such as in North Africa, proved the ineffectiveness of this type system. Rommel's problems in Tunisia were a direct reflection of the lack of a capable German support organization. The table is also a warning for those who compare sides based on the total number of divisions alone, without considering how large or capable the divisions were.

The table also shows that for every combat soldier, the Allied theater needed an additional two to three soldiers to serve as administrative overhead. As a result, any leader that focused solely on the combat forces missed the majority of the force needed to operate a theater.

The different approaches for support of the armies across the various combatants is striking. The British seem to have had a relatively effective support system in place as of late 1942. Their effectiveness is probably the result of lessons learned from the First World War and the additional experience gained fighting in the deserts of North Africa. The German approach placed much more emphasis on combat formations and less on the supporting administrative elements. German generals often viewed logistics as the responsibility of higher headquarters. As such, German combat theaters contained only modest support formations, compared to those of the British and Americans. Likewise, the Russians also appear to have placed more military structure into their combat elements rather than in logistics units. Research is limited regarding German and Russian logistics efforts, but available data does not indicate that their divisions held anywhere near the number of corps and theater support units as those of the US and British divisions. For the Americans and British, the campaigns of the Mediterranean showed that the divisions simply could not effectively fight without a substantial number of corps, army, and theater forces.

Conclusion

June of 1944 did not just happen. The success the Allied forces enjoyed in Normandy and in the subsequent drive across France and into Germany had its foundation in the experiences and learning that occurred in the Mediterranean since November 1942. Indeed, the campaigns of the Mediterranean were essential to preparing the US military for the cross-channel invasion. As such, the operations in the Mediterranean, specifically the building and maturation of the military's support capacities, played an indispensable

role in winning the war in Europe. The Allies would not have found victory in Europe as soon as they did had it not been for the development of the logistics and administrative systems, organizations, equipment, and doctrine that occurred throughout the Mediterranean campaigns. The Allies would build victory upon this foundation.

The work of the service units enabled the Allied divisions to be victorious in North Africa, Sicily, and Italy. The southern line of communication in southern France proved to be the sole practical means to land the French Army back on their home soil, as well as bring in additional US divisions to the European theater and support a full one third of the force operating in Europe. The Mediterranean allowed the US military to develop and exercise new support concepts, organizations, and equipment. Perhaps most importantly, senior commanders, such as Eisenhower, learned to appreciate the role that the communications zone of the theater played in regards to long-term operations. The Mediterranean was the laboratory in which the US military could learn, experiment, and adapt, all with minimal risk.

A comparison of some statistics between the First and Second World Wars shows just how far logistics doctrine and unit capabilities had developed. In December 1944, the ratio of Services of Supply forces to combat troops in Europe and the Mediterranean approximated that of the American Expeditionary Force in 1918: a ratio 1 to 2. However, in the Second World War, US forces used nearly six times more supplies per man. These supplies were also bulkier. The average ton in 1918 occupied 63 cubic feet of space. By

1944, the average ton required 99 cubic of space. Modern warfare needed more supplies, and many of these supplies required more space to ship.⁹⁷⁸

There was a greater usage of artillery in the Second World War. In 1918, one round of ammunition for every gun in the American Expeditionary Force equaled 102 tons. In 1944, one round per gun equaled 436 tons, a four-fold increase. Perhaps even more telling is the number of vehicles used within the theater. In 1944, the European theater *lost* three times as much motor tonnage as the American Expeditionary Force had in 1918. Perhaps the best news was that medical care also drastically improved between the two conflicts. In 1918, eight men out of every hundred died of wounds. In 1944, the rate was only four soldiers per one hundred.⁹⁷⁹ The service units of the second world war were handling more supplies, transporting them further, and caring for the wounded better than ever before in the nation's history. This was not happenstance and took time and effort to develop.

Allied strength in the Mediterranean theater peaked in October 1944. By then, the theater had to support 918,000 US forces, 270,000 men of the Free French Army, and 21,000 men of the Brazilian Expeditionary Force- totaling over 1.2 million men. Added to this was the need to provide supplies for the support of prisoners of war and civilian relief efforts.⁹⁸⁰ The theater was conducting operations in Italy, France, and planning for a possible campaign in Yugoslavia. Not only was the theater supporting a large force in several locations as once, but also the overall quality of support was unequalled in history.

⁹⁷⁸ "American Enterprise in Europe: The Role of the Services of Supply in the defeat of Germany." Unit historical pamphlet, undated. Fort Lee Museum. 16-17.

⁹⁷⁹ Ibid. 116-121.

⁹⁸⁰ "Summary of Supply Activities in the Mediterranean Theater of Operations." MHI. 2.

Never before had so many men and their equipment received such good care. The Mediterranean Services of Supply and its base sections had set a new standard for administrative support of a major land combat force.

The First World War proved that the US communication zone could fail. Indeed, if not for the assistance received from France and Great Britain, the American Expeditionary Force would have soon found itself unable to sustain combat. Likewise, many of the challenges faced by Axis forces during the Second World War related directly to the lack of an effective theater logistics system. The fact of the matter is that the US and Great Britain invested in creating large service organizations while Germany did not. These service forces consumed valuable manpower, but were *vital* to conducting attrition warfare overseas. This difference gave the Allied powers the edge needed to win.

By January 1945, the European communications zone had matured to the point where supply challenges were no longer the major problem they had been earlier that fall. The European theater had assimilated the Sixth Army Group and the Southern Line of Communication and the Allies were driving east into Germany. There would still be occasional spot shortages of supplies until the war's end, but these were isolated and did not reflect any widespread shortage or any systemic breakdown. One can debate whether this improved level of support is attributable to the growth of the lines of communication in northwest Europe and southern France, the infusion of Larkin's more experienced staff into Lee's headquarters, or simply the experience Lee's organization gained from supporting operations up to that point. Most probably, the result is a product of all these

factors. Regardless, administrative support of the armies continued to improve and complaints from commanders died away.

A conclusion that is not debatable is that the US military that invaded France in 1944 was very different from the force that landed in North Africa. Logistically, had the Allies used the same planning factors and load plans for a cross-channel assault, as they did in Morocco and Algeria, there is a good chance the landings in France would have failed. The force simply would not have had the staying power to hold the beaches, faced with a determined German defense. Units would have run out of supplies and there would have been insufficient port and beach units to land the additional forces and material needed to exploit any gains. Fortunately, the British recognized this risk and successfully kept the Americans from pursuing such a landing early in the war.

Considering the alternatives, the Allied strategy of conducting operations in the Mediterranean and then shifting the priority to the European theater proved the approach that produced the shortest end to the war. This indirect approach to warfare provided the time to train a conscript army and modernize the military. Most importantly, the Army learned how to support ground and air forces deployed in an overseas theater. Organizations learned from their mistakes and commanders gained an appreciation of how to assemble a balanced force - one that could take a beach, hold it, and then make a sustained drive inland. The lack of an effective communication zone in the First World War was the weak link of the American Expeditionary Force. A quarter-century later, the US communications zone was the enabler of victory.

Perhaps the best argument to support this thesis is the fact that the US never lost a battle in the Mediterranean or Europe due to logistics shortfalls. Rather, the standardization of equipment and level of resourcing provided to troops on the front made possible the unbroken series of victories across the campaigns. The enemy did enjoy some occasional tactical success, but this was sporadic and ultimately accomplished little other than to point out Allied deficiencies for correction. The combat forces had the task of dealing direct with the enemy, but the service units made it all possible. The relationship was mutually exclusive; one could not exist without the other. The men and women of the Mediterranean and European base sections and Services of Supply deserve recognition for the sacrifices they made and the role they played in the victory against Germany.

Other Subjects Deserving Further Research

As with any work of this scope, a number of topics surfaced which deserve additional research, but did not receive extensive study in this project due to time and length restrictions. In an effort to cover all of the major campaigns of the Mediterranean within a single volume, some subjects received only limited attention. Specifically, US support for the Brazilian Expeditionary Force in Italy deserves additional research, as does US logistical support for the Office of Strategic Services (OSS), support of the Air Force, as well as support of French, Yugoslav, and Italian partisans. These diverse elements played an important role in helping the Allies defeat Germany and, like any other unit; they required administrative support to conduct their operations.

There is also little written history regarding the role that minority units and the Women's Army Corps played in the US service forces. Additionally, the development of the medical system in the Mediterranean is another field in which there is an abundance of possible research. During the campaigns of Italy, battle fatigue, now known as post-traumatic stress disorder, had become a common problem in many combat units and the Peninsular Base Section was a leading center of research into this illness. From the lessons gained in the Mediterranean, the US medical system devised a system of patient care that allowed soldiers to recover from the effects of battlefield stress within the theater, allowing most patients to return to their units for continued service.

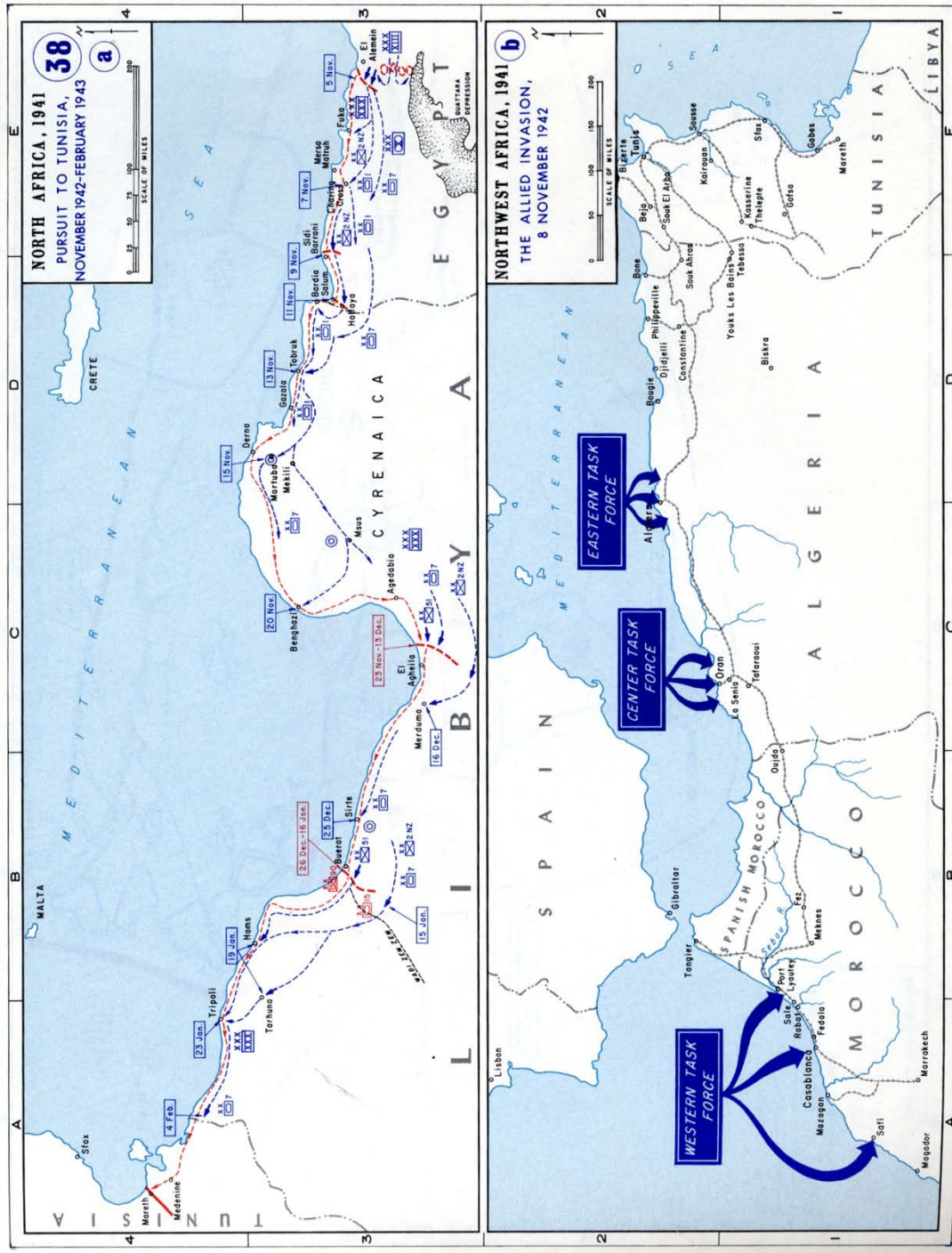
The topic of the civil affairs effort deserves additional research as well. Care of local civilian populations was an essential part of the support effort and consumed large amounts of resources. This effort pacified the rear areas, took care of those who had suffered under German rule, and generated a level of good will that remains today.

Finally, the subject of military logistics in Germany and Russia warrants more attention. There is little written analysis available on how these nations supported their forces in the field. Memoirs by such men as Rommel and Kesselring offer glimpses as to the German attitude toward logistics, but there is too much that remains unknown.

All of these potential topics are relevant because they each have important implications for society, as well as the military. The service forces built the foundation of victory, which enabled the combat divisions to do their mission. Specific elements of the service forces were the individual bricks that made up that foundation, each contributing its part, and adding to the strength of the whole. Each deserves to have its story told.

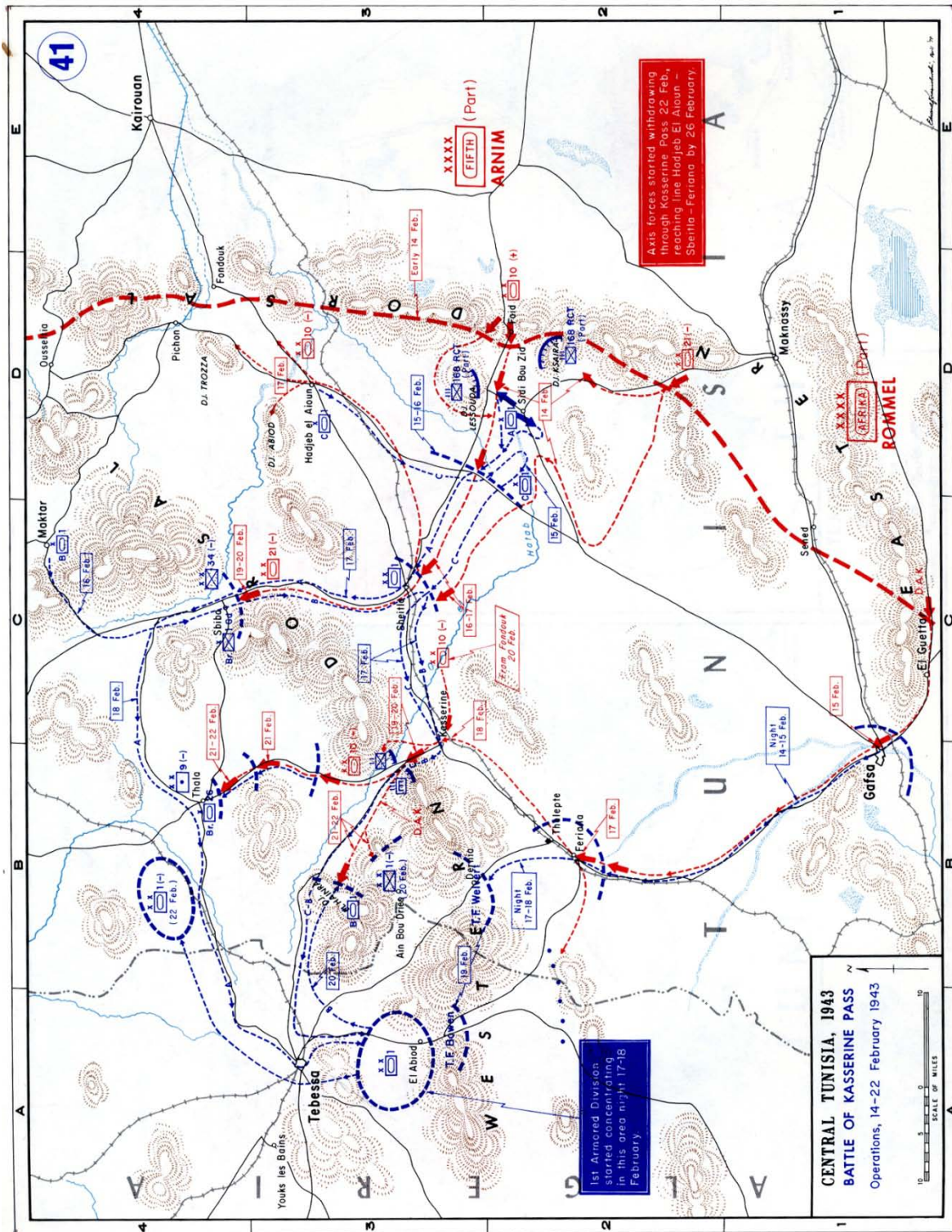
Appendix A: Maps

Figure 41: The Race for North Africa, November 1942-February, 1943⁹⁸¹



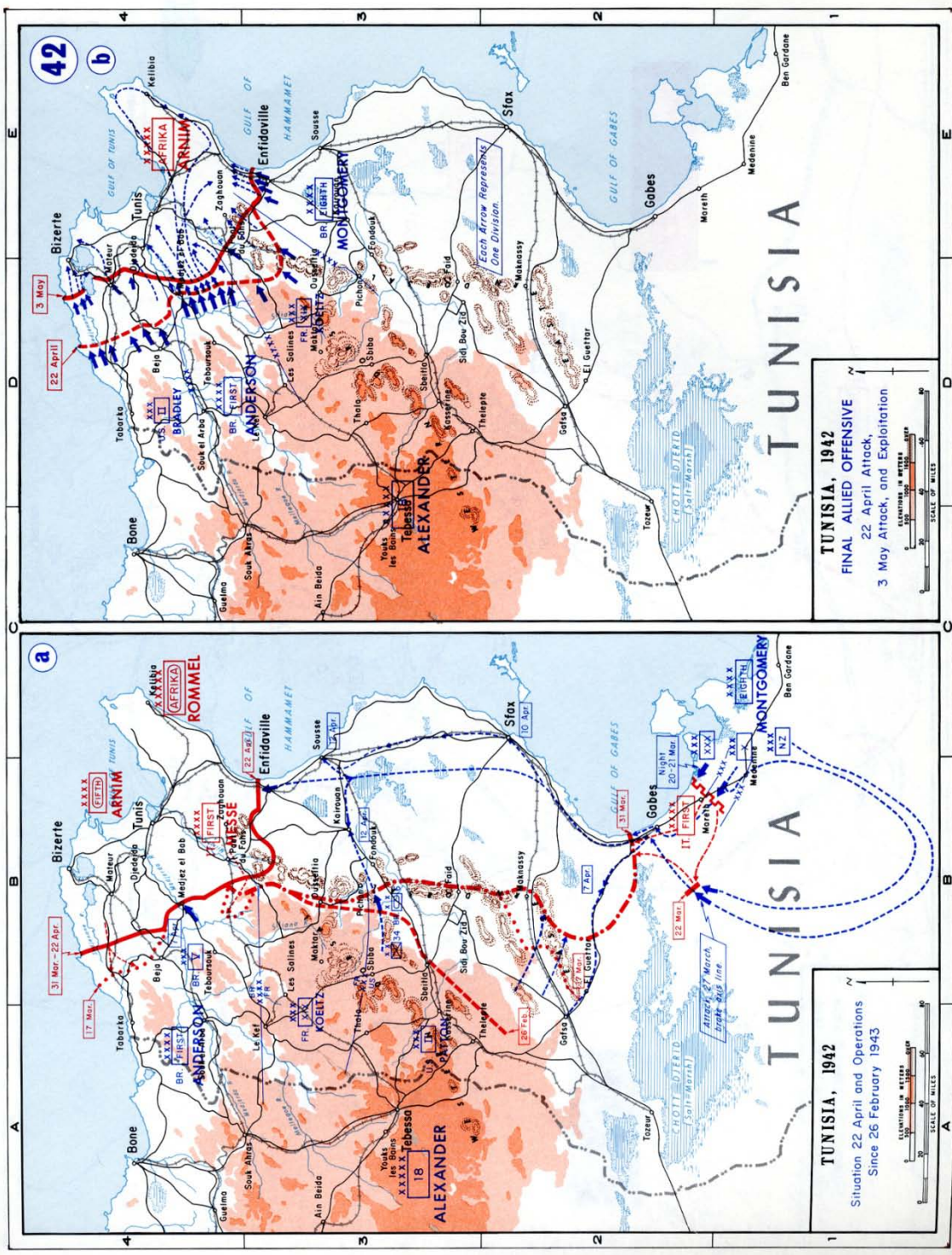
⁹⁸¹ Source: *Campaign Atlas to the Second World War: Europe and the Mediterranean* (West Point: US Military Academy Department of History, 1979), 38. :

Figure 42: Battle of Kasserine February 14-22, 1943⁹⁸²



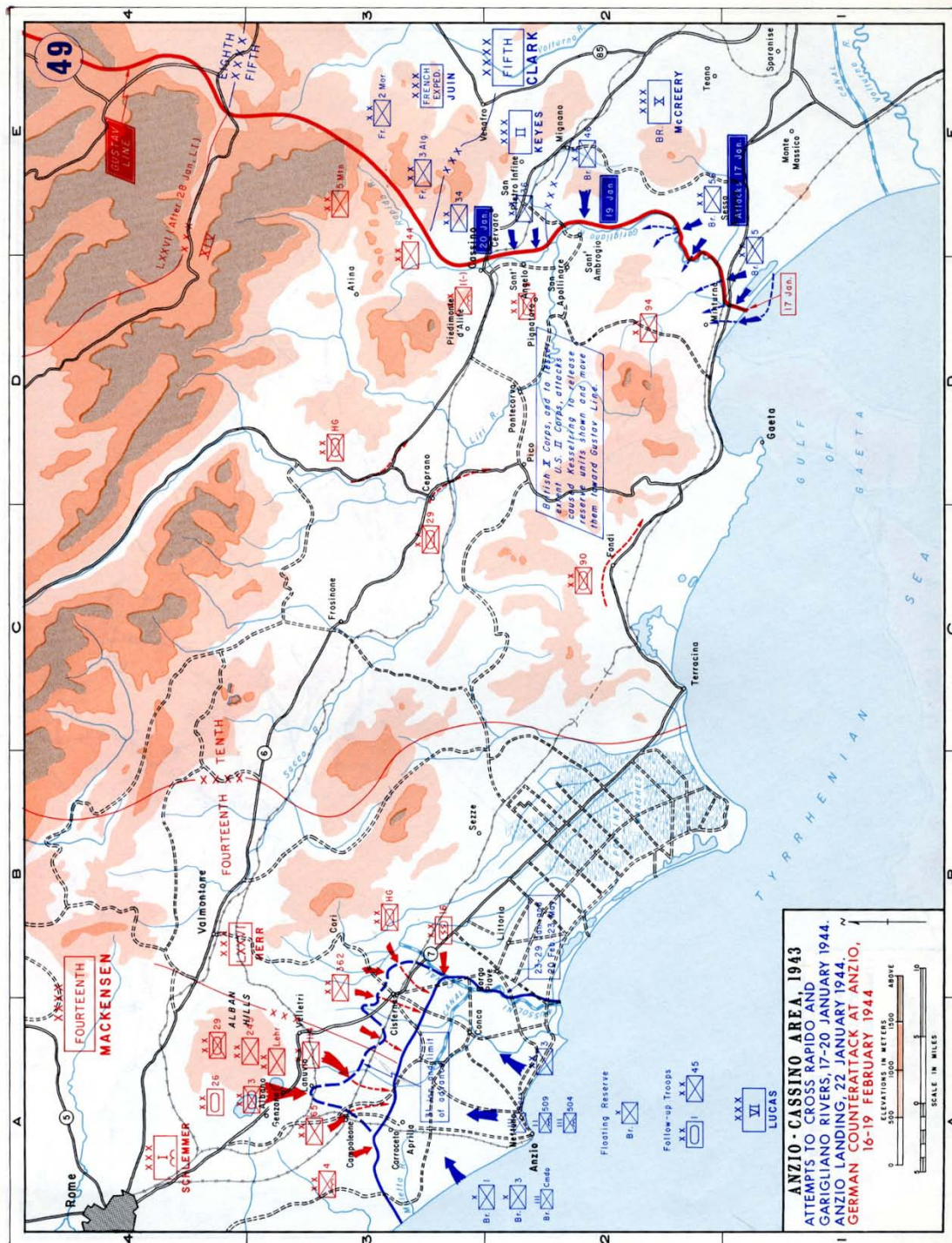
Department of History, 1717, 41.

Figure 43: The Fight for Tunisia, April-May 1943⁹⁸³



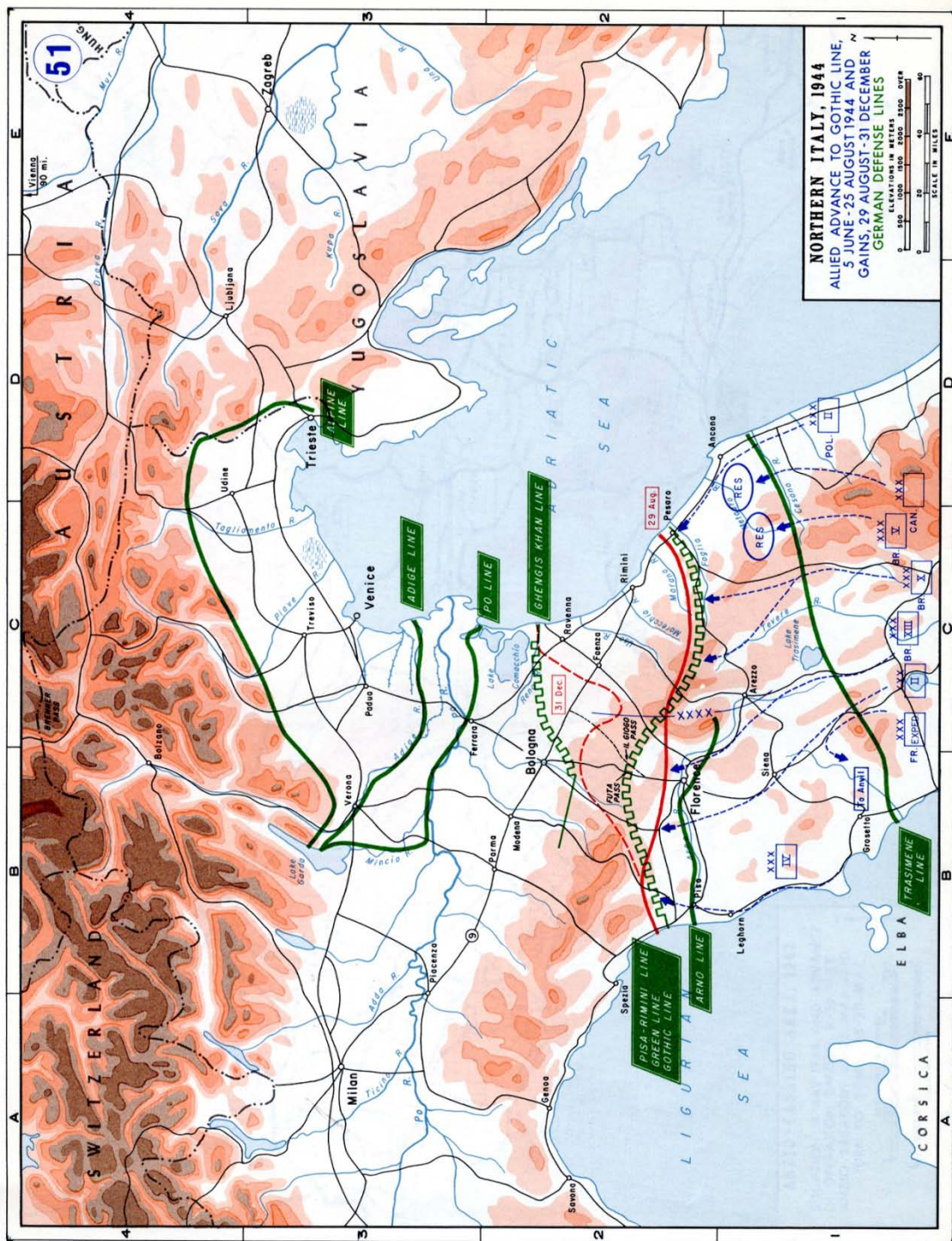
⁹⁸³ Source: *Campaign Atlas to the Second World War: Europe and the Mediterranean* (West Point: US Military Academy Department of History, 1979), 42.

Figure 46: Anzio-Cassino, January 1944⁹⁸⁶



⁹⁸⁶ Source: *Campaign Atlas to the Second World War: Europe and the Mediterranean* (West Point: US Military Academy Department of History, 1979), 49.

Figure 47: The Fight for Northern Italy⁹⁸⁷

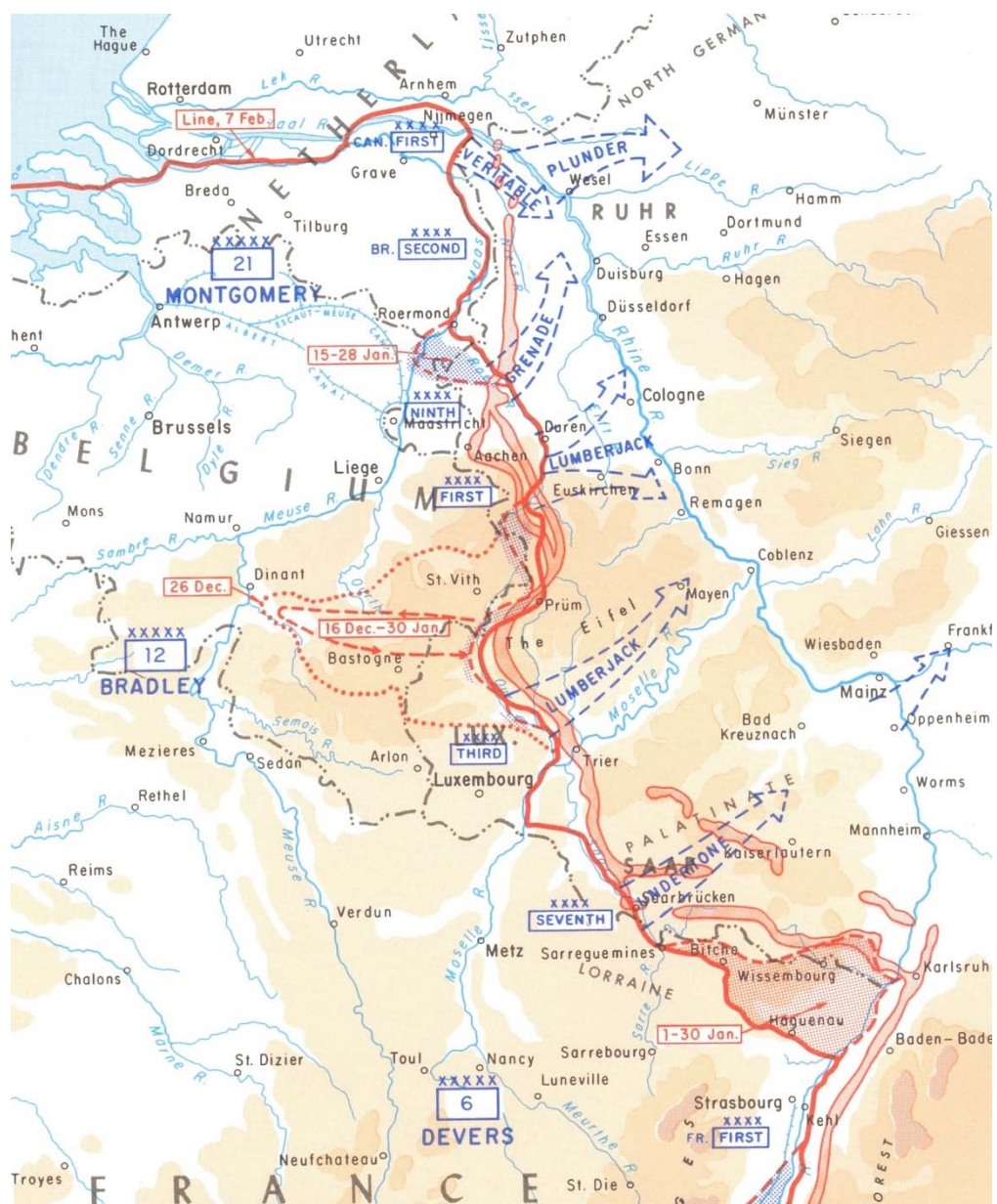


⁹⁸⁷ Source: *Campaign Atlas to the Second World War: Europe and the Mediterranean* (West Point: US Military Academy Department of History, 1979), 51.

Figure 48: France⁹⁸⁸

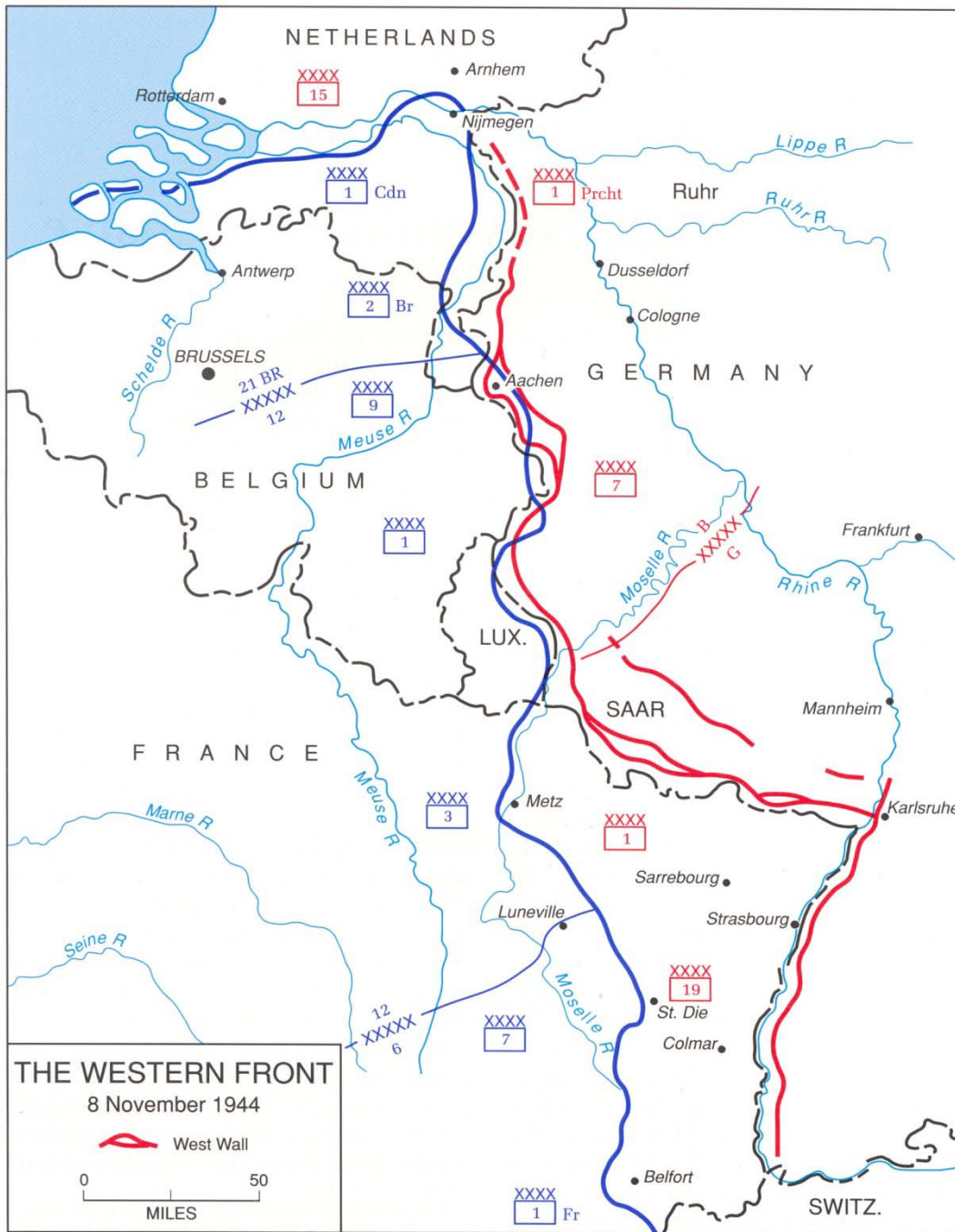
⁹⁸⁸ Source: Jeffrey Clarke and Robert Smith, *Riviera to the Rhine* (Washington: Center of Military History, 1993), 72.

Figure 50: Western Front, November 1944 to January 1945.⁹⁹⁰



⁹⁹⁰ Source: Thomas Griess ed. *Atlas for the Second World War, Europe and the Mediterranean* (Wayne NJ: Avert Publishing, 1985), 75.

Figure 51: The Western Front, November 1944⁹⁹¹



⁹⁹¹ Source: Jeffrey Clarke and Robert Smith, *Riviera to the Rhine* (Washington: Center of Military History, 1993), 350.

Appendix B: Common Landing Craft⁹⁹²



Figure 52: Landing Craft- Infantry (LCI).

The LCI was 155 feet long and could carry approximately 200 infantrymen over long distances.



Figure 53: Landing Craft- Personnel (LCP).

The LCP ferried a platoon of 36 soldiers from larger transports to the beaches.

⁹⁹² All photos in this appendix come from *Army Ordnance*, volume XXVI, number 143 (March-April, 1944). APG. 309-315.

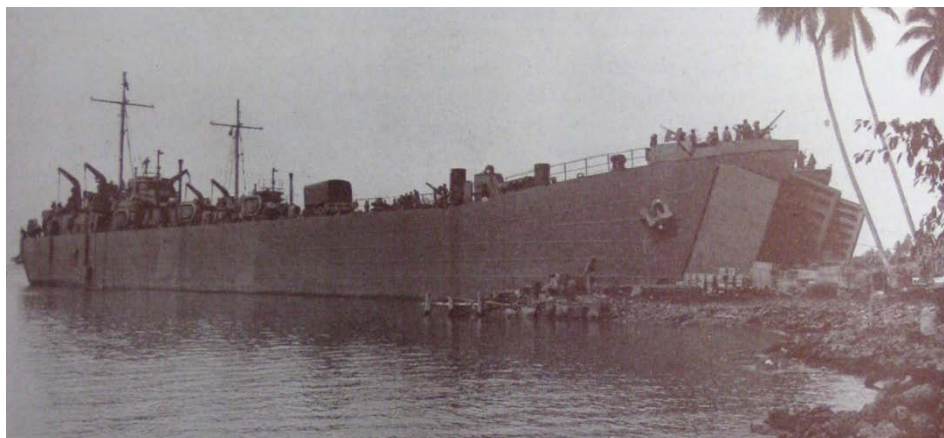


Figure 54: Landing Ship- Tank (LST)

The LST was the largest assault craft, capable of carrying 22 tanks and over 200 men across long distances.



Figure 55L Landing Craft- Tank (LCT)

The LCTs carried one tank, several trucks, cargo, or personnel across short distances.

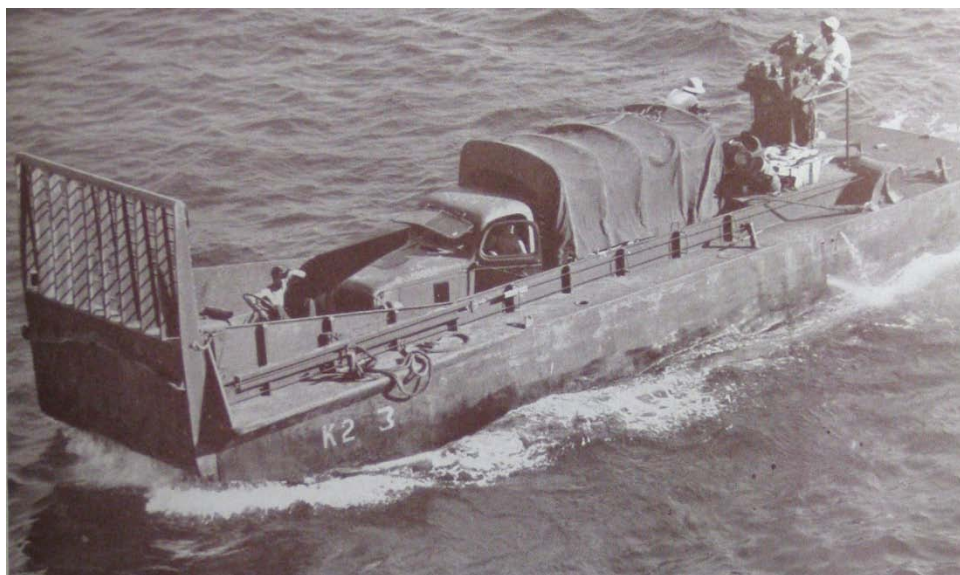


Figure 56: Landing Craft- Vehicle (LCV)

The Allies used LCVs to deliver medium and light vehicles, cargo, and troops to the beaches.



Figure 57: Landing Craft- Mechanized (LCM)

The LCM could handle medium tanks and other heavy equipment.

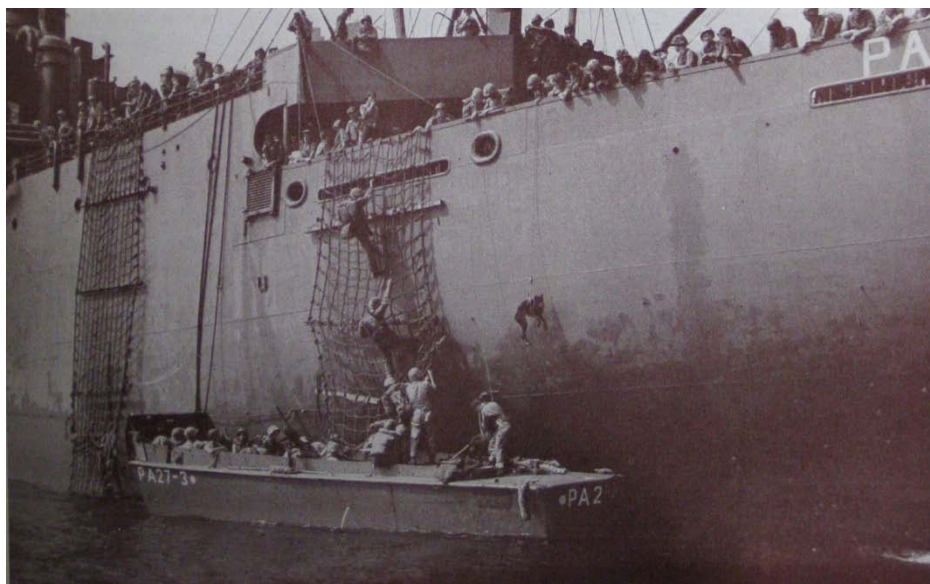


Figure 58: Landing Craft- Vehicle and Personnel (LCVP)

The LVCP (shown alongside a larger LST) carried light tanks, trucks, cargo, and personnel across short distances.

Notes on Sources

The research material for this project came from a number of archives that, when combined, provides a detailed story of how the logistics support effort in the Mediterranean occurred. These sources also provide a glimpse into the reasoning that lay behind the decisions that shaped the war. My profound thanks goes out to all of the archivists and historians that assisted me with this project.

The United States Army Military History Institute, Carlisle, Pennsylvania (MHI). Repository of individual papers, unit reports, and interviews.

The National Archives at College Park, Maryland (NARA). Official archives for unit and War Department records and files from the Second World War.

The Library of Congress, Washington, D.C. (LOC). Holds the papers of George S. Patton Jr. and Everett S. Hughes.

The U.S. Army Center of Military History, Fort McNair, D.C. (CMH). Army archive for official unit histories, and manuscripts.

U.S. Army Quartermaster Museum and office of the Quartermaster Historian, Fort Lee, Virginia. Repository for Quartermaster technical publications and papers of select Quartermaster general officers.

U.S. Army Ordnance Museum, Aberdeen Proving Ground, Maryland. (APG) Contains technical Ordnance publications.

U.S. Naval History and Heritage Command, Washington Navy Yard, D.C. Holds the papers of the senior US naval officer in the Mediterranean during the war, Vice Admiral Kent Hewett.

Bibliography

Primary Sources: Unit Histories, Historical Booklets, Manuals, Manuscripts, Official Publications, and Projects

The National Archives at College Park, Maryland (NARA)

Record Group 338: Records of U.S. Army Operational, Tactical, and Support Organizations (World War II and Thereafter), 1917 – 1993.

Record Group 492: Records of Mediterranean Theater of Operations, United States Army, 1942 – 1947.

II Corps Report on Operations conducted in Tunisia, 15 March to 10 April 1943. RG 338 E P42890, Box 12.

“Report of Lessons to be Learned from Operation Torch,” Third Infantry Division, dated December 26, 1942. RG 338 E 50215, Box 1.

Report, Moroccan Composite Wing, dated 25 December 1942, subject: Report of Lessons from Operation Torch. RG 338 E50215, box 1.

The U.S. Army Center of Military History, Fort McNair, D.C. (CMH)

“The Administrative and Logistical History of the European Theater of Operations, Part VII: Opening and Operating Continental Ports.”

Administrative Planning. London, The British War Office, 1952

“Adriatic Depot History,” in two volumes. [1944-1945?] Unit History.

Dunham, H.H.. “US Army and the Conquest of Sicily.” Monograph prepared by the Office of Chief of Transportation, 1945.

---“U.S. Army Transportation and the Italian Campaign.” Monograph prepared by the Office of Chief of Transportation, 1945.

Frierson, William. “Preparations for Torch,” volumes 1 and 2. US Army General Staff, Military Intelligence Division, G2, Historical Branch, [1943?].

- “History of Allied Force Headquarters (AFHQ),” in four volumes. [1942-1946?] Unit history.
- “History of the Atlantic Base Section to June 1, 1943,” in two volumes. [1942-1944?] Unit History.
- “History, Communications Zone, North African Theater of Operations” in six volumes [1942-1946?] Unit History.
- “History of the Eastern Base Section,” in seven volumes. [1942-1946?] Unit History.
- “History of the Island Base Section.” [1944-1945?]. Unit history.
- “History of the Mediterranean Base Section, September 1942-May 1944.” [1944-1945?] Unit History
- “History of the Northern Base Section, 1 January-30 April 1944.” [1944-1945?] Unit History.
- “History of Ordnance Service in the Mediterranean Theater of Operations, November 1942 to November 1945”. [1945?] Volume 1. Unit History.
- “History of the Peninsular Base Section, North African Theater of Operations.” In three volumes [1945?] Unit History.
- Larkin, Thomas. “Logistical Planning for the North African Theater Campaign.” Lecture for the Air War College, 10 February 1951. Prepared by General Larkin and presented by Colonel Anson Maraton.
- “Lessons of the Tunisian Campaign 1942-43,” British Forces. British Military Training Directorate. [1944-1945?] Geog J Africa 353 Tunisia.
- Meyer, Leo. “The Strategic and Logistical History of MTO.” Undated. Manuscript draft.
- “Quartermaster Supply in the Fifth Army in World War II.” Manuscript, Quartermaster Section, Fifth Army. [1945?]
- “Report by Dwight D. Eisenhower on Operations in the Mediterranean Area, 1942-1944.” London: His Majesty’s Stationary Office, 1950.
- “Report by General Dwight D. Eisenhower on Operations in the Mediterranean Area 1942-1944.” Draft.

“Report of Operations, Western Task Force SOS.” Undated, but received at Headquarters Army SOS by December 12, 1942. Geog J Africa 353 Tunisia.

“Report by the Supreme Allied Commander Mediterranean to the Combined Chiefs of Staff on the Operations in Southern France.” London: His Majesty’s Stationary Office, 1946.

Stambler, Bernard. “Campaign in Sicily, Part I.” Undated manuscript from US Army Historical Division, [1945-1946?].

Thompson, Royce. “Rations-POL in Southern France Operations, 1944-1945.” 1953.

“Western Task Force: Attack on Fedala and Its Defenses,” War Department Historical Division. [1943-46?].

“Western Task Force: Attack on Mehdiya and the Port Lyautey Airdrome,” War Department Historical Division. [1943-46?].

“Western Task Force: Attack on Safi and Its Defenses,” War Department Historical Division. [1943-46?].

The United States Army Military History Institute (MHI)

Bolte, Charles Papers.

Harmon, Ernest N. Papers.

Magruder, Carter Papers.

Matthews, Sidney Papers.

Osmanski, Frank Papers.

Sweet, James S. Papers.

“6th Port” Unit History Booklet, Southern Line of Communication, 1945.

“American Rails in Eight Countries: The Story of the Military Railway Service, Army Transportation Corps.” Unit history, 1945.

“Armor in the Invasion of North Africa.” Fort Knox: US Armored School, 1950.

Colglazier, Robert LTG Oral History. Interviewed by William Kearney, 1984. Robert W. Colglazier Papers.

“CONAD History, Continental Advance Section, Communications Zone, European Theater of Operations.” Heidelberg: Aloys Graff, 1945.

DeVoe, Howard G. “History of the 1st Engineer Amphibian Brigade HQ and HQ Company and the 531st Engineer Shore Regiment and Succeeding Units’ Unit History.” Historical booklet, 531st Engineer Association, 1983.

Field Service Regulations. United States Army, 1910.

Field Service Regulations: Administration FM 100-10 (Washington: Government Printing Office, 1940). Change 1 dated April 29, 1942.

“First Conclusions Operation Torch.” Army Section, Amphibious Force Atlantic Fleet, November 25, 1942. The Esher C. Burkart Papers.

“First Conclusions Operation Torch Army Section Amphibious Force Atlantic Fleet,” November 25, 1942. The Esher C. Burkart Papers.

“From the Sahara to the Rhine, a History of Army Supply Service.” Southern Line of Communication Publication, Communications Zone ETOUSA, 1945.

Harbord, James. “The Services of Supply from July 1918 to May 1919.” Speech given to the Army War College, April 7, 1930.

“History of the 1st Engineer Amphibian Brigade HQ and HQ Company and the 531st Engineer Shore Regiment and Succeeding Units.” Compiled by Howard G. DeVoe, 531st Engineer Association, 1983.

“History of Signal Supply in NATOUSA/MTOUSA,” Signal Supply Section, AFHQ, 1945.

Kesselring, Alfred. “Concluding Remarks on the Mediterranean Campaign.” Foreign Military Studies [1946?].

--- “Questions Regarding the General Strategy During the Italian Campaign.” Foreign Military Studies [1946?]

Logistical History of NATOUSA, MTOUSA: Naples: Mediterranean Theater of Operations General Staff, 1945. MHI.

“Ordnance in the North African and Mediterranean Theater of Operations as recalled by Colonel Connerat.” Sidney Matthews papers, box 3.

“Organization of the Services of Supply.” American Expeditionary Forces, 1921.

“Report of Observers, Mediterranean Theater of Operations, US Army Ground Forces Observer Board,” volumes 1 and 2. US Army Ground Forces Observer Board, 1942-1945.

“Service of Rear Project.” General Headquarters American Expeditionary Forces, September 6, 1917.

Shepard, CAPT A.G., “Report on Operation Torch.” January 9, 1943. The Escher C. Burkart Papers.

“Transportation Comparative Data: World War I – World War II.” Washington: War Department, December 1942.

Trip Report: Tour of Spanish Moroccan Border, HQ Western Task Force, November 26, 1942. . Papers of John P. Ratay, box 3.

“The Work of the Peninsular Base Section.” Unit history pamphlet, 1945.

The Library of Congress, Washington, D.C. (LOC)

Hughes, Everett S. Papers

Patton, George S. Jr.. Diary. George S. Patton Papers, Manuscript Division.

U.S. Army Quartermaster Museum and Office of the Quartermaster Historian, Fort Lee

“American Enterprise in Europe: The Role of the Services of Supply in the defeat of Germany.” Unit historical pamphlet, undated. Quartermaster Museum.

“History of the Quartermaster, Peninsular Base Section, October 1943-1954.” Undated. Sullivan Papers, Office of the Quartermaster Historian.

Littlejohn Collection, Office of the Quartermaster Historian.

McNamara, Andrew. “Quartermaster Activities of II Corps thru Algeria, Tunisia, and Sicily and First Army thru Europe.” As compiled by Raymond McNally. Fort Lee: Army Publication, 1955. Office of the Quartermaster Historian.

Sullivan, Joseph. Diaries. Sullivan Collection, Office of the Quartermaster Historian.
 --- "History of the Fifth Army Quartermaster Activities." Manuscript, Undated. Office of
 the Quartermaster Historian

Whelchel, James L. "Activities of the Quartermaster in the Continental Advance Section,
 European Theater of Operation" Published by US Army QM Center, Passing in Review,
 chapter 43, 1945-1955?], 3-4. Office of the Quartermaster Historian

U.S. Army Ordnance Museum, Aberdeen Proving Ground, Maryland (APG)

"Ammo Joe at Anzio, January 22, 1944-May 31, 1944." Fifth Army publication, undated.

"Tools of War." Pamphlet issued by the Peninsular Base Section. 1946.

U.S. Naval History and Heritage Command, Washington Navy Yard, D.C

After Action Reports, U.S. Navy Historical Center. Hewett Collection, box 4

Hewitt, Admiral H. Kent. "The Landings of the Seventh Army in Southern France,"
 Undated manuscript. Hewett Collection.

Internet

Bonta, James. "The Invasion of Pantelleria, 11 June 1943." Paper written for the Advanced
 Infantry Officers Course by a participant in the invasion. 1949-1950.
<https://www.benning.army.mil/.../Bonta,%20James%20C.%20CPT.pdf> (accessed April 6,
 2010).

Secondary Sources Books, Articles, Maps

Books

Ancell, R. Manning with Christine M. Miller. *The Biographical Dictionary of World War II Generals and Flag Officers*. Westport: Greenwood Press, 1996.

Atkinson, Rick. *An Army at Dawn*. New York: Henry Holt, 2002.

--- *Day of Battle*. New York: Henry Holt, 2007.

Beck, Alfred, Abe Bortz, Charles Lynch, Lida Mayo, and Ralph Weld. *The Corps of Engineers: The War against Germany*. Washington: Center of Military History, 1998.

Blumenson, Martin. *The Patton Papers*. New York, Da Capo Press, 1996.

--- *Salerno to Cassino*. Washington: Center of Military History, 2002.

--- "General Lucas at Anzio," in *Command Decisions*. Kent Roberts Greenfield ed. Washington: Center of Military History, 2000.

Bosworth, Richard. *Mussolini*. New York: Oxford University Press, 2002.

Bryant, Arthur. *The Turn of the Tide*. New York: Doubleday, 1957.

Bykofsky, Joseph, and Harold Larson. *The Transportation Corps: Operations Overseas*. Washington: Center of Military History, 2003.

Churchill, Winston. *The Hinge of Fate*. Boston: Houghton Mifflin, 1950.

--- *Closing the Ring*. Boston: Houghton Mifflin, 1951.

--- *Triumph and Tragedy*. Boston: Houghton Mifflin, 1953.

Clarke, Jeffrey, and Robert Smith. *Riviera to the Rhine*. Washington: Center of Military History, 1991.

Cole, Hugh. *The Ardennes: Battle of the Bulge*. Washington: Center of Military History, 1965.

Colley, David. *Decision at Strasbourg*. Annapolis: Naval Institute Press, 2008.

Dallek, Robert. *Franklin D. Roosevelt and American Foreign Policy*. New York: Oxford University Press, 1995.

D' Este, Carlo. *Bitter Victory*. New York: E.P. Dutton, 1988.

- Dysart, Barry. "Materialschlacht: The Materiel Battle in the European Theater" in *The Big L: American Logistics in World War II*: Washington: National Defense University Press, 1997.
- Eccles, Henry. *Logistics in the National Defense*. US Marine Corps Manual, NAVMC 2799, 1987.
- Eisenhower, Dwight D. *Crusade in Europe*. New York: Doubleday, 1948
- Fisher, Ernest. *Cassino to the Alps*. Washington: Center of Military History, 2002.
- Fowler, Barry Ed.. *Builders and Fighters: U.S. Army Engineers in World War II*. Washington: U.S. Army Corps of Engineers, 1992.
- Garland, Albert, and Howard Smyth. *Sicily and the Surrender of Italy*. Washington: Center of Military History, 2002.
- Gropman, Alan, ed. *The Big L: American Logistics in World War II*. Washington: National Defense University Press, 1997.
- Hagood, Johnson. *The Services of Supply: A Memoir of the Great War*. Boston: Houghton Mifflin, 1927.
- Harbord, James. *Leaves from a War Diary*. New York: Dodd, Mead, & Co., 1926.
- Howard, Michael. *The Mediterranean Strategy in the Second World War*. London: Greenhill, 1968.
- Howe, George F. *Northwest Africa: Seizing the Initiative in the West*. Washington: Center of Military History, 2002.
- Huston, James. *The Sinews of War: Army Logistics 1775-1953*. Washington: US Army Center of Military History, 1966.
- Keegan, John. *The Second World War*. New York: Penguin, 2005.
- Kesselring, Alfred. *The Memoirs of Field-Marshal Kesselring*. Novato, CA: Presidio Press, 1989.
- Kirkpatrick, Charles. *An Unknown Future and a Doubtful Present: Writing the Victory Plan of 1941*. Washington: Center of Military History, 1992.
- Leighton, Richard, and Robert Coakley. *Global Logistics and Strategy: 1940-1943 and 1943-1945*, two volumes. Washington: US Army Center of Military History, 1995.
- MacArthur, Douglas. *Reminiscences*. New York: McGraw-Hill, 1964.

- Magruder Carter. *Recurring Logistic Problems as I have Observed Them*. Washington: US Army Center of Military History, 1991.
- Mayo, Lida. *The Ordnance Department: On Beachhead and Battlefield*. Washington: Center of Military History, 1991.
- Meyer, Leo J. "The Decision to Invade North Africa," *Command Decisions*. Edited by Kent Roberts Greenfield. Washington: Center of Military History, 2000.
- Mitcham, Samuel Jr., *The Battle of Sicily: How the Allies Lost their Chance for Total Victory*. Mechanicsburg, PA: Stackpole, 2007.
- Montanino, G. *Logistical History of NATOUSA/MTOUSA*. Naples: G4 Staff Section, 1945.
- Motter, T.H. Vail. *The Middle East Theater: The Persian Corridor and Aid to Russia*. Washington: Center of Military History, 1985.
- Porch, Douglas. *The Path to Victory: The Mediterranean Theater in World War II* New York: Farrar, Straus, and Giroux, 2004.
- Rommel, Erwin. *The Rommel Papers*. B.H. Liddell Hart editor. New York: Da Capo, 1988.
- Ruppenthal, Roland. *The European Theater of Operations: Logistical Support of the Armies in two volumes*. Washington: US Army Center of Military History, 2000.
- Spector, Ronald. *Eagle Against the Sun: The American War with Japan*. New York: The Free Press, 1985.
- Thompson, Julian. *The Lifeblood of War: Logistics in Armed Conflict*. New York: Brassey's, 1991.
- The United States Army Seventh Army Report of Operations: France and Germany 1944-1945*. Nashville: The Battery Press, 1988.
- U.S. Army in the World War, 1917-1919, volume 1*. Center of Military History, 1988.
- Van Creveld, Martin. *Supplying War: Logistics from Wallenstein to Patton*. New York: Cambridge University Press, 1977.
- Vigneras, Marcel. *Rearming the French*. Washington: Center of Military History, 1989.
- Votaw, John. *The American Expeditionary Force in World War I*. New York: Osprey Publishing, 2005.
- Waddell, Steve. *United States Army Logistics: The Normandy Campaign, 1944*. Westport: Greenwood Press, 1994.

Weigley, Russell. *The American Way of War*. Bloomington: Indiana University Press, 1973.

Wiltse, Charles. *The Medical Department: Medical Service in The Mediterranean and Minor Theaters*. Washington: Center of Military History, 1965.

Articles

Balsamo, Larry. "Germany's Armed Forces in the Second World War: Manpower, Armaments, and Supply" in *The History Teacher*, vol 24 Number 3, May 1991. <http://www.jstor.org/stable/494616> accessed June 26, 2009.

D'Orsa, Colonel Charles. "The Trials and Tribulations of an Army G4." *Military Review*, volume XXV, number 4 (July 1945): 25.

Ellis, E.R.. "Supply and Evacuation in Mountainous Operations," *Military Review*, volume XXIV, number 3, (June 1944): 74-76.

Feldman, Herman. "Precision Support in Sicily." *The Quartermaster Review*. Volume XXIII, number 2 (September-October, 1943): 21. Quartermaster Center and School Museum.

Harris, Roy. "The Communications Zone Engineer." *Military Review*, volume XXIV, number 9 (December 1944): 37-38.

Little, Wendell. "Functions and Operations of G4 Division, NATOUSA." *Military Review*. Volume XXIV, number 11 (February 1945): 55.

Myers, Jefferson. "Military Railway Service in World War II." *Military Review*, volume XXIV, number 11 (February 1945): 36.

Pyle, Ernie. "The Death of Captain Waskow," column published January 10, 1944. <http://journalism.indiana.edu/resources/erniepyle/wartime-columns/the-death-of-captain-waskow/> (accessed November 4, 2010).

Suttles, E.A.. "The Assembly of Motor Vehicles in North Africa or How to Improvise," *Ordnance Sergeant*, Volume 6, Number 6 (December 1943): Ordnance Center Museum. 328.

Van Duesen, E.S.. "Trucks that go Down to the Sea," *Army Ordnance Magazine*, volume XXV, number 141 (November/December, 1943): 558. Aberdeen Proving Ground Museum.

Dissertations

Hart, Russell A. "Learning Lessons: Military Adaptation and Innovation in the American, British, Canadian, and German Armies During the 1944 Normandy Campaign." PhD diss., Ohio State University, 1997.

Neumann, Brian. "Pershing's Right Hand: General James G. Harbord and the American Expeditionary Forces in the First World War." PhD diss., Texas A&M University, 2006.

Waddell, Steve R. "The Communications Zone (Communication Zone): American Logistics in France, 1944." PhD diss., Texas A&M University, 1992.

Weller, Grant T. "Come Hell, High Water, or Nazis: The Army Quartermaster Corps Develops and Implements the First Motorized Logistics System, 1919-1945." PhD diss., Temple University, 2008.

Maps*

Campaign Atlas to the Second World War: Europe and the Mediterranean. West Point: Department of History, 1979. Also available at <http://www.dean.usma.edu/history/web03/atlasses/AtlasesTableOfContents.html>

The University of Texas Perry-Castañeda Library Map Collection, World War II Maps

*Note: All maps included in this work are confirmed public domain

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