

# CONDITION GREENLIGHT: HOW WORLD WAR II AIRBORNE OPERATIONS INFLUENCE JOINT FORCIBLE ENTRY OPERATIONS TODAY

A Monograph

by

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## ABSTRACT

CONDITION GREENLIGHT: HOW WORLD WAR II AIRBORNE OPERATIONS INFLUENCE JOINT FORCIBLE ENTRY OPERATIONS TODAY, by Maj Samuel M. Todd, 49 pages.

In World War II, the Allies integrated a new form of warfare, airborne operations, into its force projection capacity. The Allies advanced their understanding and effectiveness of airborne operations from 1943 through 1945. The Allies captured lessons based on their experience and communicated essential principles for airborne operations to improve future employment. After executing an airborne assault, the commanders and operational planners asked how airborne operations can improve. The Allies highlighted operational factors necessary to gain the advantage over the enemy, leading to successful mission achievement. Are these operational factors applicable to the conduct of airborne operations today? How are airborne assault operations during World War II relevant to modern airborne assault Joint Forcible Entry operations?

In answering these questions, this monograph first studies the background of airborne operations and pertinent terminology. Then, the study analyzes select case-studies of World War II airborne operations to determine what the responsible commanders deemed as important. Next, this monograph links the important lessons discovered by the Allies to current guidance governing airborne joint forcible entry operations. In the end, the monograph demonstrates four core principles for commanders and planners to apply to future airborne employment.

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## ACRONYMS

ABD	Airborne Division
AFHQ	Allied Force Headquarters
JFC	Joint Force Commander
JFE	Joint Forcible Entry
RAF	Royal Air Force
RCT	Regimental Combat Team
SHAEF	Supreme Headquarter Allied Expeditionary Force
TCW	Troop Carrier Wing

## INTRODUCTION

In January 2012, President Barack Obama and Secretary Leon Panetta published strategic guidance that reviewed the requirements and priorities for the Department of Defense. One of the first specified tasks in this roadmap was for the military to maintain freedom of action.<sup>1</sup> This responsibility stems from the US national interest to assert its influence anywhere in the world. However, some regional players within the global security environment challenge this capacity with threatening anti-access and area-denial capabilities. Confronted with this potential threat, the US military needs the ability to effectively respond and set conditions for the United States to maintain its freedom of action in the environment today and into the future.

Following this strategic direction from the National Command Authority, General Dempsey, Chairman of the Joint Chiefs of Staff, published the Joint Operational Access Concept (JOAC). The JOAC partners the military with the other instruments of national power in support of promoting US national interests across the globe, specifically focusing on assuring freedom of action.<sup>2</sup> A core competency of the JOAC is joint forcible entry (JFE) operations. These operations represent a distinct capability of force projection utilizing airborne assault, air assault, or amphibious assault. This paper specifically explores airborne assault operations.

### Research Question

For the US military, airborne assault operations are not new. The US airborne operations concept was born toward the end of World War I, developed during the interwar years, and first executed in 1943. One of the most complex and notable airborne assault operations conducted in

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<sup>1</sup>Barack Obama, *Sustaining U.S. Global Leadership: Priorities for 21<sup>st</sup> Century Defense*, (Washington, DC: Government Printing Office, January 2012), 2.

<sup>2</sup>Joint Chiefs of Staff, *Joint Operational Access Concept (JOAC)* (Washington, DC: Government Printing Office, January 2012), i.

Europe during World War II was Operation Overlord. Over the course of the war, the Allies conducted many other airborne operations critical to bringing victory in Europe. Airborne assault operations made vital contributions for the Allies in WWII. The JOAC proposes they are strategically valuable today in support of US interests. Thus, this monograph poses the question: How are airborne assault operations during World War II relevant to airborne assault Joint Forcible Entry operations today? This study proposes the hypothesis that the lessons learned from WWII airborne assault operations are still applicable to the US military today. These operations confirm the relevant core principles of surprise, integration, initiative, and air superiority required to effectively employ airborne operations today.

### Methodology and Case Study Selection

This monograph qualitatively examines case studies from WWII airborne operations in the European theater. The assessment of selected airborne operations investigates the purpose of the mission, planning considerations, key execution elements, and post-operation analysis. The study includes references to books, articles, papers, WWII documents, and places key emphasis on the personal accounts and reviews of those who took part in the planning or execution of the operations. The prevailing focus of the study is to find what the WWII commanders and leaders associated with the airborne operations in Europe had to say regarding the importance of lessons learned from this new form of warfare.

Then, the study compares the significant lessons, as determined by the WWII airborne operators, with the elements that contribute to successful airborne operations today. This study focuses on select operations conducted in Europe during WWII to consider the progression of large-scale airborne operations within a similar environment. This comparison uses the stated lessons and historically documented concepts of WWII airborne operations and correlates them to operational principles and terminology found in joint doctrine today. The developed connections identify validated precepts from WWII airborne operations that help shape current doctrine, joint



capstone concepts, and strategic assessments governing current airborne operations. As the fundamental principles of airborne operations today connect to important operational factors of airborne employment during WWII, the joint force needs to understand the relevant WWII lessons. This study identifies and affirms the enduring principles of airborne operations supported by the linkage of the important operational factors common between the past and the present.

### Organization of Monograph

This monograph builds connections from WWII operations to current operational guidance within the realm of airborne operations. To do this, the study examines the influence of operational art on the joint planning team. Subsequently, the study reviews the background of the JOAC program and specific doctrine of airborne JFE operations. Next, the paper highlights the value and role of history for the military professional to promote the importance of studying WWII operations. Then, the monograph examines European theater airborne operations case-studies. Namely, this study looks at Operation Husky in Sicily, Operation Overlord in France, and Operation Market Garden in Holland. Following the case-studies is a comparison of key lessons of airborne operations to current doctrine of airborne employment. Specifically, the monograph analyzes JOAC precepts to validate relevant principles of airborne operations. Finally, the conclusion expands on the relevance and utility of enduring lessons for airborne operations.

### FOUNDATIONS FOR THE OPERATIONAL ARTIST

Theory, doctrine, and history are tools that equip the operational artist to think creatively and critically. The operational artist synthesizes and prioritizes information to build an understanding of the operational environment. This understanding enables a plan that is more effective and more adaptable in accomplishing the given mission. Theory assists in explaining and communicating the general understanding of a situation. Nineteenth century military strategist, Carl von Clausewitz, wrote that theory allows planners to better understand “the

components of war and their interrelationships, stressing those few principles or rules that can be demonstrated.”<sup>3</sup> Additionally, doctrine codifies who the joint force is, what capabilities are employed, and the best practices that comprise the foundations of joint operations. Doctrine provides a standard method to communicate and process requirements for the joint force, and ultimately offers the joint force effective structures of how to think about operations.<sup>4</sup> History provides examples of operations, environments, and perspectives that resemble situations facing the joint force, and shapes future actions. These essential tools applied to airborne operations provide operational artists the ability to formulate a comprehensive approach to determine airborne JFE employment.

#### Background of the Theory Joint Operational Access Concept

The overarching theme of the JOAC is to synergistically leverage the strengths of the US military to gain and maintain operational access, in spite of adversary efforts to deny US freedom of action. Operational access, as defined in the JOAC, is “the ability to project military force into an operational area with sufficient freedom of action to accomplish the mission.”<sup>5</sup> This operational access sets the conditions, which enable the broader design of US interests. The challenge for the joint force is to employ and sustain force projection capabilities into a hostile operational environment. The JOAC outlines the solutions for this joint capacity.

JFE operations represent a distinct capability of force projection that integrates under the umbrella of the JOAC. Specifically, JFE operations provide an approach to seize a lodgment in denied territory and provide for subsequent operations. Moreover, these lodgments allow the

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<sup>3</sup>Carl von Clausewitz, *On War*, ed. Michael Howard and Peter Paret (Princeton: Princeton University Press, 1976), 177.

<sup>4</sup>Joint Chiefs of Staff, Joint Publication (JP) 1, *Doctrine for the Armed Forces of the United States* (Washington, DC: Government Printing Office, May 2007), A-1.

<sup>5</sup>Joint Chiefs of Staff, *Joint Operational Access Concept (JOAC)*, 1.

United States to destroy adversary capabilities, introduce friendly forces into the objective area, or evacuate personnel and equipment.<sup>6</sup> Each of the three main types of JFE operations distinctly support the JOAC and can be utilized individually or in combination. Airborne JFE operations contribute to the required military capabilities that ensure the United States enjoys freedom of action.

### Doctrine of Airborne Joint Forcible Entry Operations

Airborne operations fundamentally support the military principle to seize and maintain the initiative. Phase III of military operations is named, Seize the Initiative, where the commander's goal is to quickly exploit opportunities to gain an advantage over the enemy.<sup>7</sup> A key capability during this phase is force projection. At the highest levels, the US National Command Authority employs force projection as it maneuvers and postures operational military forces in an indirect manner to influence the adversaries' decisions and actions. Initially, this form of credible force projection serves as a deterrent and provides options to resolve the situation without using force. If this deterrence is not effective, or if the joint force faces opposition to the desired access, then the combatant commander directs force employment in the region. As the engagement progresses, the joint force commander (JFC) may employ follow-on strikes or deploy forces to gain an early advantage.<sup>8</sup> Specifically, force projection can directly impact the situation and convince the adversary to discontinue opposition to US intervention. Moreover, JFE operations are a core capability to achieve this type of force projection, even in an opposed environment. Airborne operations are a key option that commanders may employ to

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<sup>6</sup>Joint Chiefs of Staff, JP 3-18, *Joint Forcible Entry Operations* (Washington, DC: Government Printing Office, November 2012), 17.

<sup>7</sup>Joint Chiefs of Staff, JP 3-0, *Joint Operations* (Washington, DC: Government Printing Office, August 2011), V-43.

<sup>8</sup>*Ibid.*

rapidly project military forces to a critical region. Airborne JFE operations represent a foundational component of force projection capacities that enable the JFC to seize the initiative.

Three distinct capabilities comprise JFE operations for the commander. Airborne assault, air assault, and amphibious assault operations each offer unique advantages for the joint force to employ independently or in combination. According to joint doctrine, JFE operations seize and hold a critical lodgment in an opposed environment to facilitate the on-going mission or campaign.<sup>9</sup> The lodgment represents an access area to continuously build-up combat forces, generate combat power, and expand freedom of maneuver to enable subsequent operations. As this foothold develops, the joint forces engage in efforts to maintain operational access, defeat area-denial threats, secure additional basing infrastructure, introduce follow-on forces, or destroy adversary capabilities.<sup>10</sup> The ability to expand operations around a lodgment is a valuable capacity gained by JFE operations.

Airborne assault operations are integrated joint endeavors that are highly complicated and require consideration of several key principles. Typically, the US Air Force conducts the airlift requirements, the US Army conducts the parachute assault and subsequent ground operations, and any service may conduct the required preparation and fire-support operations. This inherently joint mission requires all supporting units to clearly understand the commander's intent and coordination requirements for the mission to succeed. Airborne operations involve many unique service capabilities and the joint force must closely coordinate all of these elements for the airborne force to achieve the desired results.

Additionally, there are a number of important principles to understand in the planning and execution of airborne JFE operations. A few prioritized principles warrant an overview to

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<sup>9</sup>Joint Chiefs of Staff, JP 3-18, GL-5.

<sup>10</sup>Ibid., I-1.

better appreciate airborne operations. First, control of the air through local air superiority around the objective area and lines of communication, is essential to support the assault forces. Air superiority provides freedom from attack by enemy air and missile threats against friendly air, ground, and naval forces. Air superiority is essential to the joint forces and is a precondition to permit operations for nearly every military campaign.<sup>11</sup> The US military relies on air superiority as an asymmetric advantage so the joint force can proceed unhindered.

Next, integrating support activities provide synergistic effects to increase the joint force capabilities throughout the operations.<sup>12</sup> The best airborne plan for the JFC will include a variety of integrated efforts from all services and supporting contributions from the US government as a whole. Airborne operations depend on the synchronized efforts of many participants, and coordinating these actions is vital for mission success.

Finally, achieving surprise over the adversary, in relation to the time and place of the assault, contributes to gaining initiative and mitigating risks to friendly forces. Surprise is a traditional principle of war that allows the commander to “shift the balance of combat power to a degree above and beyond the level of effort that is expended.”<sup>13</sup> The element of surprise increases the likelihood of friendly forces controlling the battlefield and preventing the enemy from responding in a cohesive manner.<sup>14</sup> Airborne joint forcible entry operations are complex. However, these central principles provide a valuable guide for joint force planning and execution.

The commander must realize that airborne JFE operations are risky and the airborne

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<sup>11</sup>Chief of Staff of the Air Force, Air Force Doctrine Document (AFDD) -1, *Air Force Basic Doctrine, Organization, and Command* (Washington, DC: Government Printing Office, October 2011), 18.

<sup>12</sup>Joint Chiefs of Staff, JP 3-18, I-4 – I-5.

<sup>13</sup>Joint Chiefs of Staff, JP 3-0, A-3.

<sup>14</sup>*Ibid.* According to doctrine, the factors contributing to surprise include speed in decision-making, communication, and force movement. In addition, effective intelligence, deception, application of unexpected combat power, operations security, and variations in tactical methods of operation increase the likelihood to achieve surprise.

forces have some distinct vulnerabilities. The joint forces are at risk from the moment they infiltrate the adversary's airspace, during the parachute and assembly segment, and through the lodgment expansion phase. Once committed, the forces may be operating in an area that is a great distance from friendly support and have very limited escape options. Given the inherent limitations of parachute operations, airborne forces are inserted into the objective area with limited equipment and firepower. Airborne forces often rely on subsequent aircraft to support them. The airborne forces are vulnerable to isolation, if enemy aircraft interdict the resupply airlift. However, joint integration and clear understanding of the commander's intent can overcome the risks and lead to a position of advantage. A critical risk mitigation measure in this environment is to apply a collaborative planning effort by the joint force focused on the doctrinal principles of airborne JFE options.

#### Value of History

Why does the execution of airborne assault operations nearly seventy years ago matter? Why do operational planners need to understand elements of WWII campaigns? Military history is a tool for understanding important concepts and lessons learned in the past to increase one's own knowledge. It represents a collection of studies that increase the situational understanding of the past. Clausewitz noted that critical analysis serves history as it investigates and evaluates the means employed to deduce lessons.<sup>15</sup> History can shed light on present situations and its discerned application can improve future decisions in a new environment.

Clausewitz wrote that the application of history can be effective to generate an idea, support a concept, or formulate doctrine.<sup>16</sup> History does not give an exact formula that will script an operation. Nor does history alone make current decisions for a commander. Rather a

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<sup>15</sup>Clausewitz, 156.

<sup>16</sup>Ibid., 171.

commander's decisions stem from a unique process with several different considerations.

Reconciling past experiences, both personal and from a broad base of historical examples, is part of the decision making process. Therefore, historical references are valuable as commanders make decisions and their staffs coordinate the required actions to execute those decisions.

Many military professionals view history as an essential building block for increased understanding and judgment for military decision makers. The military should take advantage of learning from past operations that are still relevant to existing US military requirements. The necessity to provide operational access and force projection capabilities through airborne JFE operations provides motivation to appreciate airborne assault lessons from previous campaigns. This paper uses case-studies of airborne operations executed in the European theater during WWII. This qualitative historical analysis studies operations Husky, Overlord, and Market Garden to distill significant factors governing Allied planning and execution of airborne operations. These factors relate to principles of airborne operations that endure today. Taken together, these considerations affirm the relevancy of airborne JFE operations and help the joint force comprehend the requirements to conduct them.

#### CASE STUDIES: WORLD WAR II AIRBORNE OPERATIONS IN EUROPE

The Germans first conducted airborne operations in WWII during their blitzkrieg through Belgium and Holland in 1940.<sup>17</sup> Subsequently, they executed large-scale paratroop airdrops in the Battle of Crete in 1941. The Germans were successful in capturing Crete but suffered unacceptable casualties and Hitler decided against using mass airborne operations the rest of the war.<sup>18</sup> Similar to other tactics, the Germans proved innovative during WWII but they did not

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<sup>17</sup>Edwin Palmer Hoyt, *Airborne: The History of American Parachute Forces* (New York: Stein and Day, 1983), 12.

<sup>18</sup>*Ibid.*, 13.

translate their innovations into ultimate success at the strategic level.

For the Allies, airborne operations were a developing capability as well. In August 1942, the US Army activated the 82d Airborne Division and the 101st Airborne Division (ABD). Subsequently, in July 1943, the 82d ABD conducted airdrop operations in Operation Husky to support of the invasion of Sicily. This airborne operation provided many lessons learned and influenced later plans. Allied Airborne operations represented an emerging capability and offered great potential.<sup>19</sup>

### Operation Husky, Sicily

During the Casablanca Conference in January 1943, President Roosevelt and Prime Minister Churchill agreed to attack the Italians with the aim of removing them from the Axis war effort. The invasion of southern Europe would cause Hitler to adjust his German forces and relieve some pressure that Stalin's forces were facing on the Eastern Front. The Allies launched their Mediterranean campaign to eliminate Italy with the invasion of Sicily. Under the command of General Eisenhower, Allied forces developed Operation Husky. The Anglo-American operation was a combined amphibious and airborne assault. General Patton's Seventh Army struck along the southern shore of Sicily. The British Eighth Army, under command of Field Marshal Bernard Montgomery, attacked from the east. Notably, airborne assault operations spearheaded the attacks for both invasion points.<sup>20</sup>

The design of the airborne operations was to surprise, disorient, and disrupt the Axis forces in Sicily while amphibious landing forces gained their footing and advanced inland. The 82d ABD and the British 1st Parachute Brigade fielded three separate parachute combat teams to seize key terrain, capture airfields, and control vital roadways to protect the landing of follow-on

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<sup>19</sup>Hoyt, 34-35.

<sup>20</sup>Gerard M Devlin, *Paratrooper!* (New York: St. Martin's Press, 1978), 212.



forces. The Allies maximized the element of surprise with the timing of the paratroop operations and subsequently planned the rest of the invasion operations around the airborne drops.<sup>21</sup>

To commence operations on the night of July 9, 1943, the 505th Parachute Infantry Regiment (PIR) and the 52d Troop Carrier Wing (TCW) executed airborne operations by attacking key positions in the vicinity of Gela, Sicily. The airborne assault launched from Tunisia onboard 226 C-47s to drop 3,405 paratroopers to secure their objectives.<sup>22</sup> The plan was to attack key positions and block all roads leading to the beaches of Gela to protect General Bradley's II Corps during their beach landing. After the troop carriers took off, the formation assembly went well. Soon, however, challenging combat conditions and weather started to threaten the airborne mission.

For the 52d TCW, three key factors led to poor execution of the airdrop operations. First, aircrews lacked training in low-level formation flying at night. The Northwest African Air Force Troop Carrier Command positioned the wing by the end of May 1943, leaving only three weeks for airborne training between the 52d TCW and the 82d ABD.<sup>23</sup> The training coordination suffered, and ultimately the 52d flew only two night-training missions, one with each respective combat team.<sup>24</sup> Secondly, just prior to the departure from the airfields, aircrews received a weather update reporting thirty-five mile per hour surface winds.<sup>25</sup> The troop carriers missed several navigation checkpoints and many became dangerously disoriented. Aircrews could not overcome these circumstances and accurate navigation to the intended dropzones on Sicily failed.

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<sup>21</sup>Devlin, 212.

<sup>22</sup>US Air Force Air University, *USAF Airborne Operations, World War II and Korean War* (Washington DC: USAF Historical Division, Liaison Office, 1962), 10.

<sup>23</sup>John C. Warren, *Airborne Missions in the Mediterranean, 1942-1945* (Manhattan, KS: Military Affairs/Aerospace Historian, 1970), 28.

<sup>24</sup>Ibid.

<sup>25</sup>James M. Gavin, *On to Berlin: Battles of an Airborne Commander, 1943-1946* (New York: Viking Press, 1978), 19.

The breakdown of flight integrity degraded the troop carriers' ability to conduct the airborne operation and many crews were fortunate to even locate Sicily. Lastly, enemy anti-aircraft fire damaged and further dispersed the formations as they approached Sicily. Consequently, just fifteen percent of the paratroopers landed near their respective dropzone. The resulting airdrop scattered the 505th along sixty miles of southern Sicily, hampering their ability to support the amphibious operations according to the original plan.<sup>26</sup> The 52d troop carriers persevered through the challenges and airdropped virtually every soldier to give the 505th paratroopers the opportunity to shock and disrupt Axis forces.

As the invasion continued over the next two days, the 504th PIR conducted an airborne assault on Sicily to reinforce Allied efforts in the vicinity of Gela. The 504th was to secure high ground and key intersections along the roads to repulse a sharp German counterattack. The 52d TCW aimed at redeeming their navigation and dropzone accuracy to prove themselves as viable members of the airborne team. The aircrews of 144 C-47s carrying nineteen hundred 504<sup>th</sup> paratroopers improved their night formation flying skills through increased determination.<sup>27</sup> Initial indications spelled likely success for the airborne operations but as the troop carriers approached Allied naval forces, events took a drastic turn for the worse.

Throughout the day and night of July 11, the Germans and Italians launched four separate air raids to strike the naval and ground forces along the Sicilian beaches.<sup>28</sup> These bombing runs sank a US ammunition ship and a British hospital ship supporting landing operations. Consequently, naval gunships and ground coastal defense units were highly alert to any aircraft flying overhead. The first serial of the 504th flew right to their desired dropzone and jumped onto Sicily uneventfully. Soon however, the anti-aircraft units mistakenly perceived the next serials of

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<sup>26</sup>US Air Force Air University, *USAF Airborne Operations, World War II and Korean War*, 11.

<sup>27</sup>*Ibid.*, 12.

<sup>28</sup>Devlin, 239.

aircraft to be yet another German attack. As soon as the first machine gun opened fire, all others joined in the defense to protect the Allies. Of the 144 C-47s, twenty-three aircraft were shot-down and thirty-seven sustained extensive damage from friendly-fire. Tragically, 318 paratroopers were killed or wounded during the confusion. In addition, the pilots of the 52d TCW executed aggressive evasive maneuvers resulting in widely scattered airdrops.<sup>29</sup> This second night of airborne operation started with noticeable improvements for the Allies, but ended in disaster.

Unsurprisingly, the overall mission performance of the Operation Husky airborne assaults received mixed reviews. The plan to deliver concentrated paratroopers to secure critical locations was not successfully executed. Over eighty-five percent of the 82d ABD found itself in unexpected territory and with little unit integrity. However, this did not deter the paratroopers from launching effective attacks against the adversary. They secured opportune locations, conducted ambushes, severed communication lines, and even destroyed enemy tanks.<sup>30</sup> Ultimately, the 82d ABD demonstrated adaptability to achieve the purpose of their mission and prevented enemy forces from repelling the amphibious landing of the Seventh Army. Speaking on the mission impact of the 82d ABD, General Patton credited the airborne operations for critical protection during the amphibious landing and for speeding up his advance inland by forty-eight hours.<sup>31</sup>

Operation Husky was the first large Allied airborne operation conducted in the war, and the first one executed at night. Following the Sicily invasion, there were several reviews of airborne operations focusing specifically on the lessons of Husky. The most significant factors noted after the airborne operations on Sicily were the requirements for integration between services and units, and the effects of surprise.

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<sup>29</sup>Devlin, 239.

<sup>30</sup>Ibid., 231.

<sup>31</sup>Ibid., 245.

Integration efforts proved to be lacking during Husky as seen by planning challenges, limited joint training programs, and unsuccessful coordination measures. During planning for Husky, planners noted a lack of urgency and participation from the air component at the Allied Force Headquarters (AFHQ) in Algiers. Often, the Ninth Air Force was late in offering specific plans for a mission and would change the plan altogether without stating specific reasons.<sup>32</sup> Additionally, Major General Browning, Eisenhower's airborne advisor, was two hundred miles away from the headquarters, which challenged updates and general communication.<sup>33</sup> Integration among services diminished because of the strained planning efforts for the airborne operations.

The infrequent and remedial joint training opportunities between key units of the airborne assaults in Husky prevented the Allies from gaining valuable abilities through integration. The troop carriers and the airborne forces began training operations on June 1. With only three weeks allotted for training, the preparations for the first-ever large nighttime airborne operation needed an established and experienced command. However, the provisional Northwest African Air Force Troop Carrier Command was new and training was not a priority. The troop carrier command and the 5th Army airborne training center jointly established a training program but training progressed slowly through ad hoc arrangements. Neither command possessed full authority over their respective units, resulting in insufficient resources and problematic scheduling.<sup>34</sup> The Allies examined the control authority between air and ground forces executing an airborne operation and found it wanting. The tension between the two components resulted in command and control split into two entities, creating a needless seam. A main lesson learned from Sicily, published as

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<sup>32</sup>Warren, *Airborne Missions in the Mediterranean*, 21-26.

<sup>33</sup>*Ibid.*, 23.

<sup>34</sup>Fifth Army Airborne Training Center, *Report of Airborne Operations, "Husky" and "Bigot"* (World War II Operational Documents in the Combined Arms Research Library Digital Library), 8, <http://cgsc.contentdm.oclc.org/cdm/singleitem/collection/p4013coll8/id/4021/rec/44> (accessed November 19, 2013).

an Army and Royal Air Force memorandum, stated that airborne operations should be under the authority of a single commander from the start of preparations until the airborne forces land on the ground.<sup>35</sup> Ultimately, the joint forces executed Husky without the benefit of training under combat-simulated conditions or an actual rehearsal.<sup>36</sup> After action reports assessed that casualty rates during Husky likely would decrease by fifty percent had the Allies accomplished a progressive training plan between the Army, Air Force, and Navy units.<sup>37</sup> Although the Allies were successful in Sicily, integrated training for airborne forces needed greater attention.

Limited means to communicate and verify operations during preparation or execution degraded Allied integration in dynamic combat conditions. The precautions to prevent Allied anti-aircraft units from firing on friendly forces depended upon the unit's ability to visually differentiate between friend and foe. The troop carriers, naval units, and ground units planned on course navigation and avoidance to keep friendly fire from engaging the C-47 formations. The invasion forces placed confidence in tactical surprise and darkness to keep the troop carriers safe from enemy engagements and friendly fire. Upon review of the plan to protect the troop carriers, Ridgeway remarked that the flight-route and control measures were not feasible.<sup>38</sup> After General Patton gave the execution order, Ridgeway met with him to address the friendly fire concern. Subsequently, Patton sent a top-priority message to his units to remind them of the upcoming airborne operations, and he emphasized the notification to the anti-aircraft units as paramount. The AFHQ also sent the deconfliction message to the Naval Western Task Force. However, the ships were already using radio silence procedures as they were at sea and the ships were uninformed of the airborne notification message. Ultimately, the joint forces did not have

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<sup>35</sup>Maurice Tugwell, *Airborne to Battle* (London: William Kimber and Co. Limited, 1971), 167.

<sup>36</sup>Warren, *Airborne Missions in the Mediterranean*, 28.

<sup>37</sup>Fifth Army Airborne Training Center, 12.

<sup>38</sup>Warren, *Airborne Missions in the Mediterranean*, 24-25.

effective measures to adequately communicate updated plans or coordination requirements.

During the nighttime airborne assaults on Sicily, the Allied units did not possess the required mechanisms to keep aware of other friendly operations, and consequently integration suffered.

The importance of surprise was critical during Husky for the protection of the invasion force and increased disruption against the enemy. The enemy threat was significant as the German and Italian forces on Sicily outnumbered the Allies. Furthermore, the adversaries had the advantage of firepower over the unarmed airlift aircraft and the lightly armed airborne forces. Surprise was a priority for the operation and planning efforts focused on the timing and conditions required to use surprise to mitigate the risk to airborne forces. The scheduled time of the airdrops leveraged darkness during the airborne assault. The Allies attacked the adversary early warning systems to increase the chance of gaining the advantage of surprise. General Spaatz, then commander of the North African Air Force, highlighted the value of these efforts and praised the complete surprise gained during the airborne operations.<sup>39</sup> Additionally, the adversary review of Husky stressed the effectiveness of the surprise achieved by the Allies. The German commander of airborne forces, General Student, assessed the surprise gained by Allied airborne forces as the decisive factor in preventing the Axis from repelling the amphibious landing force.<sup>40</sup> Ultimately, surprise was key in the execution of Operation Husky.

The Allies enjoyed the success of the Sicilian operations and damaged the German military in the Mediterranean. The invasion continued inland throughout Sicily and ultimately led to the fall of Mussolini. These victories fostered optimism among the Allies to continue their thrust into Italy to increase pressure on Hitler's retreating forces. The invasion of Sicily, critically supported by airborne operations, allowed the Allies to gain ground into Nazi occupied Europe.

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<sup>39</sup>Warren, *Airborne Missions in the Mediterranean*, 33.

<sup>40</sup>Devlin, 246.

### Operation Overlord, Normandy France

By the time the United States, the United Kingdom, and the Soviet Union agreed in principle on the requirement to open a second front against Germany, WWII was already four years old. Although the Allies planned contingency operations to invade France if the Soviet Army collapsed, it was the 1943 Trident Conference in Washington that set in motion the concerted efforts to plan a cross-channel invasion. Operation Overlord, the code name for the Allied invasion of Normandy, France, proposed to “enter the continent of Europe and, in conjunction with the other United Nations, undertake operations aimed at the heart of Germany and the destruction of her armed forces.”<sup>41</sup> The mission was for the Allies to gain a lodgment to facilitate the buildup of forces, expand the lodgment to gain freedom to maneuver, and secure the port of Cherbourg. From this enclave the Allies could generate an attack to penetrate German defenses, destroy the German armed forces, and defeat the Nazi Reich. The campaign to regain Western Europe and attack toward Nazi Germany was daunting but necessary for the Allies.

Planning began in earnest when General Eisenhower, commander of Supreme Headquarters Allied Expeditionary Forces (SHAEF), and Allied ground force commander, Field Marshal Bernard Montgomery, arrived at SHAEF headquarters in January 1944. Intelligence reports identified substantial German defenses along the Atlantic Wall. Intelligence expected that the Allies would slightly outnumber the German defenders at a ratio of three to two during the initial beach assaults.<sup>42</sup> However, the terrain of the beaches gave a significant advantage to the

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<sup>41</sup>Dwight Eisenhower, *Report by the Supreme Commander to the Combined Chiefs of Staff On the Operations in Europe of the Allied Expeditionary Force* (June 6, 1944 – May 8, 1945), vi, <http://babel.hathitrust.org/cgi/pt?id=mdp.39015030681822;view=1up;seq=1> (accessed January 21, 2014).

<sup>42</sup>Victor Brooks, *The Normandy Campaign: From D-Day to the Liberation of Paris* (Cambridge, MA: Da Capo Press, 2002), 35.

defenders, and Hitler boasted the Atlantic Wall as being impenetrable.<sup>43</sup> This approximate parity was disconcerting to the Allies and required a plan to find areas of Allied advantage.

The Allies knew they needed to exploit a daring plan to gain and preserve a foothold in western France so they could continually build up combat power. The plan for Overlord met these aims and Montgomery articulated that the Allied mission was “to assault simultaneously immediately north of the Carentan estuary and between the Carentan estuary and the River Orne with the object of securing as a base for further operations a lodgment area which will include airfield sites and the port of Cherbourg.”<sup>44</sup> The Allied invasion planned to employ eight divisions. Three separate airborne divisions conducted airborne assaults behind enemy lines the night prior to D-Day. Subsequently, the United States, Britain, and Canada simultaneously launched five divisions in amphibious landings against five separate beaches. Overlord became the biggest combined airborne and amphibious assault operation executed to date in WWII.

The Allied invasion plans leveraged airborne operations as an asymmetric advantage against the defensive line of German forces. As one paratrooper remarked, “Hitler made only one big mistake when he built his Fortress Europe-he forgot to put a roof on it.”<sup>45</sup> Airborne operations were a work in progress and previous operations in Sicily suggested that surprise, deception, training, and integration were key factors to enable success. Looking ahead to Normandy, commanders knew they also needed to concentrate on air superiority and effective command and control to support the invasion.

The Allied plan for the three combat-ready airborne divisions was to secure the flanks of the Normandy beachheads, seize key terrain, and disrupt the German forces behind enemy lines. General Bradley enjoyed the service of both the 82d ABD and the 101st ABD to employ in

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<sup>43</sup>Devlin, 368.

<sup>44</sup>Brooks, 57.

<sup>45</sup>Devlin, 368.



conjunction with the US 1st Army. The airborne forces led the way to secure vital towns, road networks, and bridges to seal off the Cotentin Peninsula. Through controlling these arteries, the airborne forces prevented German reinforcements from attacking Utah Beach and thwarted the Germans escape. On the eastern end of the Normandy invasion, the British 6th ABD spearheaded the invasion efforts for British and Canadian forces. The 6th ABD was responsible for securing the bridges over the Orne River and the Caen Canal, in addition to disrupting and blocking German counterattacks attempting to repel the Allied amphibious landings.<sup>46</sup> The Allied invasion forces planned to attack the German defenses, and key to the plan was leading the attack with unprecedented division-sized nighttime airborne operations.

The airborne assaults called for the 101st ABD to support the Utah Beach landing by seizing several key routes and intersections to gain freedom of movement. Specifically, the tasks were to secure bridges over the Merderet River, attack coastal defense batteries, and seize vital causeways leading off the beach to facilitate the inland movement of the 4th Infantry Division. Additionally, the 101st needed to disrupt German command and control centers, resupply facilities, and counterattack forces.<sup>47</sup> Airborne operations positioned the 101st to outmaneuver the enemy and gain control of key terrain to facilitate follow-on Allied missions.

Likewise, SHAEF's plan tasked the 82d to accomplish similar assignments to disrupt enemy operations and prevent the Germans from counterattacking the Allied beach landings. The mission directed the All-American Division to capture the town of St. Mere-Eglise, establish key bridgeheads to allow attacks to the west, and then advance upon the port of Cherbourg.<sup>48</sup> The

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<sup>46</sup>Devlin, 356.

<sup>47</sup>Ibid., 357.

<sup>48</sup>John C. Warren, *Airborne Operations in World War II, European Theater* (Maxwell AFB, AL: Air University USAF Historical Division, 1956), 11.

unique method of rapid deployment behind enemy lines offered by airborne operations enhanced the effectiveness of the airborne infantrymen and gained an advantage for the Allied invasion.

The actual results contributed by airborne forces had a significant impact on the Normandy invasion. The Ninth Troop Carrier Command, 38 Group RAF, and 46 Group RAF dispatched 821 troop carriers to drop some 13,348 paratroopers. The 101st ABD seized the causeway and destroyed coastal defense batteries, ushering in the inland movement of the seaborne forces from Utah Beach. The 82d ABD captured the town of St. Mere-Eglise and prevented German counterattacks. Notably, the British 6th ABD had more success than their American counterparts. They seized the Orne bridges and continued to reinforce a bridgehead on the east side. Then they stubbornly repelled German attempts to counterattack the amphibious landing forces.<sup>49</sup> All three airborne divisions suffered some dispersed and inaccurate drops, but were still able to assemble and successfully achieve their main objectives.

The results of the airborne operations were also evaluated by the achievement of their primary purpose: to enable the seaborne landing forces to secure the Normandy beachheads and move inland. Many factors determined how well the Allied beach landings went, however comparing the results of different beach assaults offer an assessment. The two US airborne divisions on the western flank supported the Utah Beach landing. By the end of D-Day, General Bradley landed over twenty thousand troops and only sustained fifty-eight casualties. However, there were no airborne divisions aiding the Omaha Beach landing, which the Germans strongly contested. Unfortunately, 5th Corps suffered 2,347 casualties and barely moved off the beach as June 6 drew to a close. The Allies demonstrated that airborne assaults employed in conjunction with offensive operations offered advantages for defeating and disrupting the enemy.

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<sup>49</sup>US Air Force Air University, *USAF Airborne Operations, World War II and Korean War*, 48-50.

The primary purpose of the air, ground, and naval attacks on D-Day was to prevent the Germans from conducting an effective counterattack while the vulnerable Allies assembled. The disruption and interdiction efforts of the airborne units and the tactical air forces rendered the Germans ineffective. On June 7, Hitler and his generals began moving the 2 SS Panzer Division from southern France to reinforce Normandy. The Allied disruption and interdiction efforts delayed the Panzers by two weeks, and the tanks did not arrive until June 24.<sup>50</sup>

From the outset of planning, the Allies understood the gravity of the Normandy invasions and they noted key lessons throughout the operations. Before and after the execution of Overlord, the Allies knew the invasion had to gain the initiative. Through tremendous effort, the Allies accomplished this by improved integration among different countries and services, leveraging surprise, and exploiting air superiority.

Integration was a critical ingredient through the planning, training, and execution of Overlord. As Eisenhower arrived in England in January 1944, SHAEF designed further integration between the United States and Britain by strengthening relationships. Eisenhower built a Joint Planning Staff comprised of the Commanders-in-Chiefs of the Navy, Army, and Air Forces. He then moved his headquarters to be co-located with them. Eisenhower credited the Joint Staff for their unification in solving the numerous problems related to such an immense undertaking.<sup>51</sup> In addition, the Allies created a combined Airborne Troops Headquarters based on the requirements leading up to Overlord. The new organization aimed to lead the joint planning and preparation of airborne forces and troop carriers. The headquarters provided cohesion for training, integrations of ground, naval, and tactical air forces, procured technical equipment, and

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<sup>50</sup>Stephen Badsey, *Normandy 1944: Allied Landings and Breakout* (London: Osprey, 1990), 43.

<sup>51</sup>Eisenhower, *Report by the Supreme Commander*, 3.

provided logistical support.<sup>52</sup> This integration facilitated many opportunities to share standard operating procedures and equipment requirements for airborne operations.<sup>53</sup>

Starting in February 1944, improved training for the joint airborne forces was a priority focus area for SHAEF. The Allies implemented a rigorous training program that culminated in Exercise Eagle in May. All three troop carrier wings and both US airborne divisions conducted a full mission rehearsal under simulated combat conditions. At the conclusion of this rehearsal, the Allies were confident in troop carrier and paratrooper abilities to operate in the challenging conditions of the nighttime assault that lay ahead. As the training program concluded, both General Williams, commander of Ninth Troop Carrier Command, and Air Marshal Leigh-Mallory stated the joint forces were highly impressive.<sup>54</sup>

During execution, the Allied Expeditionary Air Force (AEAF) demonstrated valuable integration as they supported the scheme of maneuver of the ground forces. Specifically, the AEAF continued their air to ground fire support of the light airborne troops after the 505th PIR seized St. Mere-Eglise.<sup>55</sup> On the eastern end of Normandy, the 6th ABD received welcome naval and artillery support early in battle as they maneuvered against the German forces. The British paratroopers required detailed fire support as they successfully secured the Orne River bridges and secured the communications link to the Sword beachhead. Major General Richard Gale credited their success to the detailed planning, briefing, and rehearsal conducted between the naval, ground, and air forces leading up to D-Day.<sup>56</sup> The charge given to Eisenhower and the rest of the Allies was immense, and Overlord required over two million Allied members from all

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<sup>52</sup>Tugwell, 225.

<sup>53</sup>Ibid., 210.

<sup>54</sup>Warren, *Airborne Operations in World War II, European Theater*, 24-26.

<sup>55</sup>Devlin, 382.

<sup>56</sup>Tugwell, 220.

services. The Allies relied on collaborative planning, training, and execution to achieve the essential integration among the services to bring about the success of the Normandy invasion.

Operation Overlord achieved surprise against the German defenders through a robust deception plan, denying enemy early warning, and the good fortune of threatening weather. The Allies conducted Operation Fortitude to convince the Germans that the cross-channel attack would occur at Calais. General Patton and the make-believe First US Army Group personified this bluff and the Allies contributed significant air and naval activity to sell the façade. The deception plan was successful as it held Hitler's most capable force, the Fifteenth Panzer Army, in Calais for weeks after the invasion commenced.<sup>57</sup>

The AEF orchestrated deliberate strikes against German early warning facilities to disrupt and degrade the German understanding of Allied intentions. Combat air patrols denied virtually all German reconnaissance efforts within one-hundred miles of the Normandy coast, and effective air strikes against radars and communication nodes paralyzed the German commands.<sup>58</sup>

The weather patterns through the English Channel and over the coast of France turned extreme by June 4, prompting Eisenhower to delay the initial D-Day. Then, on the morning of June 5, the weather report suggested a slim opportunity for acceptable weather on June 6. The Germans considered the conditions unsuitable for an invasion and let their guard down. Eisenhower made the bold decision to launch the invasion during a respite from the storm on June 6. The Allies desired to gain every advantage possible and the weather factor contributed to those efforts.

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<sup>57</sup>Brooks, 48. Eisenhower, *Report by the Supreme Commander*, 13. Even after D-Day at Normandy, Hitler continued to believe that Normandy was the diversionary attack and the actual Allied invasion would still occur at Calais. Thus, Hitler did not allow the Fifteenth Army to attempt to reinforce Normandy until July 25.

<sup>58</sup>Brooks, 53.

Despite the general expectation of an Anglo-American invasion of France sometime in the summer of 1944, the Allies dealt the Germans a surprise with the specifics of Overlord. The Allies enjoyed surprise from the advantages gained from the misinformation of Operation Fortitude, degradation of the German early warning capabilities, and overcoming the challenging weather. The airborne forces capitalized on this surprise to protect their inherent vulnerabilities and enhance their disruption capabilities.

The Allied ability to gain air superiority over the coast of France was the bedrock of Overlord. From the initial stages of planning, the invasion forces clearly understood the requirement for air superiority. Senior Allied commanders desired complete air dominance over the invasion and believed the contributions of Allied airpower had a decisive effect on the battle. Eisenhower said it was the capability of the air arm to keep the Luftwaffe far from the beaches and prevent Hitler's forces from reinforcing and counterattacking the invasion area that paved the way for success at Normandy.<sup>59</sup> However, SHAEF worked tirelessly with senior officials and military decision makers to get the appropriate command relationships to bring the ultimate advantage of air superiority to bear.

The Allied commanders had to reconcile the requirements and responsibilities of the AEF in Europe to provide the desired airpower. The Combined Bomber Offensive was in full-swing with Operation Pointblank targeting German industries and aircraft factories. The AEF leaders, Air Marshal Arthur Harris and General Carl Spaatz, believed the strategic bombing activities were more important than the Normandy invasion. Contrary to this belief, Eisenhower demanded these powerful air assets be utilized under his direction to support Overlord. The tension rose until Eisenhower offered his resignation as Supreme Commander Allied

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<sup>59</sup>Brooks, 49.

Expeditionary Force, to President Roosevelt and Prime Minister Churchill as an ultimatum.<sup>60</sup>

Eisenhower quickly received the authority he desired over the air forces, and with it, the asymmetric advantage of air manifested over Normandy. The focused air superiority for Overlord degraded the German ability to defend the airborne operations, and subsequently partnered with the paratroopers to isolate the Cotentin Peninsula.

The Allies achieved air superiority through concentration and targeting. The Allies approached the use of airpower in Europe deliberately using a two-phased plan. The preparatory phase consisted of the British Second Tactical Air Force, the US Ninth Air Force, and the Strategic Air Forces. The AEF frequently assessed the goals, targets, and effects of air power to cripple the German military.<sup>61</sup> An Oxford University scholar, Solly Zuckerman, studied the Sicilian operations and recommended the “Transportation Plan,” where the AEF targeted the German rail systems in France to prepare for Normandy.<sup>62</sup> General Spaatz argued that the petroleum industry was the real German vulnerability and advocated air attacks via the “Oil Plan.” Both parties articulated the common expectation that the Luftwaffe needed to fight to protect these rail and oil assets. Therefore, the P-51 Mustang and other AEF long-range fighters could then defeat the German fighters and prevent them from interfering with Operation Overlord. Eisenhower decided to combine the target sets and directed bombing efforts toward both objectives, and in doing so the Allies advanced their aims toward air dominance.<sup>63</sup>

Air attacks degraded the coastal defenses, shattered the German ability to maneuver or resupply, and attrited valuable war-making resources. The British and American planes flew an average of three thousand sorties per day and severely damaged Wermacht capabilities in

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<sup>60</sup>Brooks, 50.

<sup>61</sup>Eisenhower, *Report by the Supreme Commander*, 10.

<sup>62</sup>Brooks, 52.

<sup>63</sup>Eisenhower, *Report by the Supreme Commander*, 10.

northern France and in the German homeland. Consequently, the Luftwaffe pulled its best fighter squadrons back to Germany and only a very few remained in France to face the oncoming Allied invasion. The preparatory phase isolated the battle area from the rest of France and severely limited the maneuverability of the Luftwaffe. The satisfaction of air superiority translated to confidence as Eisenhower visited airborne forces in England. He encouraged paratroopers by telling them they would only see Allied aircraft overhead when they looked at the sky on D-Day.<sup>64</sup>

As D-Day approached, the assault phase of the air campaign began to pave the way for the invasion forces. Air strikes focused on protecting the assault forces moving across the Channel and seizing their landing objectives.<sup>65</sup> Air operations supported the shipping lanes, beaches, and dropzones, while keeping thirty-three squadrons in reserve as a responsive strike force. The AEF saturated Northern France with 171 squadrons of fighter aircraft to patrol the skies and enable Allied freedom of maneuver. AEF bombers interdicted and disrupted German efforts to attack the Allies by flying 5,309 sorties and dropping 10,395 tons of bombs in twenty-four hours on June 6.<sup>66</sup> In the face of overwhelming air superiority, the German Air Force managed merely fifty sorties within the vicinity of Normandy and did not interfere with D-Day operations. Summarizing the contribution of air dominance Eisenhower said, “Without the overwhelming mastery of the air which we attained by the time our assault against the Continent would have been a most hazardous, if not impossible, undertaking.”<sup>67</sup>

The importance of the airborne operations leading the Normandy invasion was paramount because of the follow on mission they enabled. However, Air Marshal Leigh-Mallory,

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<sup>64</sup>Brooks, 82.

<sup>65</sup>Eisenhower, *Report by the Supreme Commander*, 10.

<sup>66</sup>Ibid., 20.

<sup>67</sup>Ibid., 15.



commander of the AEAFF air component, predicted casualties in excess of fifty percent for the airborne forces. Both Eisenhower and Bradley knew the missions given to the airborne divisions were essential. They met to discuss the plan and Bradley argued that the high risk to the airborne forces was acceptable only because the airborne operations made the invasion feasible.<sup>68</sup> For Bradley, the airborne divisions underpinned the success at Utah Beach, which itself was the gateway to the port of Cherbourg. Eisenhower concluded that airborne operations were vital. In hindsight, Eisenhower gave the airborne forces immeasurable credit for enabling the success of the whole operation.<sup>69</sup> To regain Europe from Nazi Germany, the Allies started by possessing the ports, airfields, and lines of communication of the Cotentin Peninsula. The invasion of Normandy, led by airborne operations, enabled the establishment of the Allied foothold in France, and ultimately led to victory over Nazi Germany.

#### Operation Market Garden, Arnhem Holland

Throughout France in late summer of 1944, the Allies had success against German forces retreating to Germany. Eisenhower managed the Allied advance through France with Montgomery's 21st Army Group in the north and Bradley's 12th Army Group in the south. The combined efforts of the Allied divisions and air squadrons inflicted shattering damage on the German Army in France. The Allied pursuit often carried great speed. For instance, over a four day period in early September, the British and American forces covered 195 miles to keep pressure on the enemy.<sup>70</sup> This advance was a great achievement, but the Allies had outrun their supplies as they set their sights on the German border.

In September 1944, the campaign required a refined operational plan to generate

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<sup>68</sup>Devlin, 359.

<sup>69</sup>Eisenhower, *Report by the Supreme Commander*, 4.

<sup>70</sup>Dwight D. Eisenhower, *Crusade in Europe* (New York: Da Capo Press, 1979), 303.

sufficient combat power, posture Allied forces for continued operations into Germany, and maintain initiative against the enemy. Logistics support was a key issue for the Allies. As the entire front moved east, insufficient lines of communication restricted the joint force. Despite the efforts of the Services of Supply, who won highest praise from many Allied leaders, the supply system remained the Allies' most acute problem. Within these strained developments, the Allies were still confident they would not only prevail, but according to Eisenhower, would wage a battle in Germany of a scale and intensity that the enemy could not hope to match.<sup>71</sup>

The Allies wanted to march to Berlin and the most suitable avenue was beyond the Rhine in the north. Eisenhower desired to exploit the rapid advances to maintain pressure on Germany. Montgomery proposed that SHAEF direct priority of Allied logistics and air support to the Second Army to launch a northern advance to Zuider Zee.<sup>72</sup> The possibility to maintain the initiative and turn the German northern flank attracted the Allies to the strike. Eisenhower agreed to support Montgomery's thrust as the main effort to exploit the German flank and position the Allies for a continued advance to Berlin. Furthermore, Eisenhower believed Montgomery's advance would bring victory before the end of the year and save thousands of Allied lives.<sup>73</sup>

Montgomery's northern strike consisted of three phases. The first two phases concentrated on maximizing the logistical capabilities of the port of Antwerp by securing the roads and rails extending to the front and clearing the German remnants in the area. The third prong of the operation launched strikes as far as possible, including a bridgehead over the Rhine River to set conditions for subsequent offensive operations.<sup>74</sup> Montgomery's strike was renowned for this third phase, which was designated as Operation Market Garden.

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<sup>71</sup>Eisenhower, *Crusade in Europe*, 304.

<sup>72</sup>Tugwell, 230.

<sup>73</sup>Eisenhower, *Crusade in Europe*, 323.

<sup>74</sup>*Ibid.*, 304.

The Allies approached Market Garden with the goal of maintaining initiative and destroying as much as the Wermacht as possible without giving Germany an opportunity to reorganize. The success of Montgomery's plan depended on the Allies' ability to quickly launch the assault before Germany established a cohesive line of defense. Airborne troops dropping in advance of the ground units were to seize key objectives and remove obstacles to increase the speed of the operation.

The airborne portion of Market Garden required all available airborne troops of the recently created First Allied Airborne Army. Lieutenant General Browning's corps received command authority for the operation and had the 1st ABD, 82d ABD, 101st ABD, 17th ABD, and the Polish airborne brigade at his disposal.<sup>75</sup> Three airborne divisions conducted deep assaults in the vicinity of Eindhoven, Nijmegen, and Arnhem to seize bridges and key terrain in front of the Second Army to allow rapid movement through Holland. According to Montgomery's vision, the airborne corps laid "sixty miles of airborne carpet" to hold open canal and river crossings along the Eindhoven-Arnhem road, upon which the Second Army rolled.<sup>76</sup>

The airborne corps tasked the divisions with similar missions to support the ground maneuver elements. The 101st ABD was responsible to seize the bridges over the river and canals around Eindhoven and four nearby towns to provide mobility for Thirty Corps. The mission given to 82d ABD focused on capturing the dominant high-ground in the region as well as key bridges of three towns close to Nijmegen to enable Allied movement.<sup>77</sup> The missions required the US divisions to defend the perimeter of vast areas. As the division commanders understood the mission intent, they prioritized the areas under their responsibility to manage their unit dispersion. The "airborne carpet" plan was not as seamless as the Allies hoped. The 1st ABD planned to

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<sup>75</sup>Tugwell, 231.

<sup>76</sup>Ibid., 232.

<sup>77</sup>Ibid., 237.

seize key terrain around Arnhem and capture the vital road bridge across the Rhine. The depth of the airborne operations focused on promoting rapid movement for the Allies to disrupt and defeat the Germans, but General Browning feared the Allies might be “going a bridge too far.”<sup>78</sup>

The planning iterations for Market Garden took advantage of previously developed, but unused, operational plans and lessons-learned from earlier airborne operations. The First Allied Airborne Army planned to support a variety of Allied missions with airborne assaults over a dozen times during the summer of 1944. Therefore, the planning staff of the Allied Airborne Army incorporated several previous plans into Market Garden to save time.<sup>79</sup> The Allies established a command post at Eastcote to integrate both AEAF and ground force requirements through the planning and execution of Market Garden. However, the British struggled with integrated planning between the 1st ABD and RAF 38 Group. The two parties disagreed on dropzone location and many other issues, and in the limited planning time available did not satisfactorily resolve their arguments.<sup>80</sup>

General Brereton, commander of the First Allied Airborne Army, directed the planners to build speed and concentration into the airborne operations. Notably, he determined that Market Garden would be the first Allied airborne operation flown in daylight. The Allied planners used advanced enroute procedures with multiple lanes and serial time compression to achieve accurate massing of forces. The speed and accuracy afforded by daylight operations were critical to achieve the depth and surprise envisioned for Market Garden. Brereton recognized this plan necessitated the Allies maintain air superiority over the front.<sup>81</sup> Brereton weighed the advantages of speed gained by daylight operations with the disadvantages of greater exposure to anti-aircraft

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<sup>78</sup>Tugwell, 238.

<sup>79</sup>Ibid., 232.

<sup>80</sup>Ibid., 238.

<sup>81</sup>Warren, *Airborne Operations in World War II, European Theater*, 89-90.

flak weapons and other threats. Brereton had tremendous experience in tactical air operations and judged this plan offered the Allies the best advantage to gain initiative by massing forces quickly.

The confidence the Allies had in the AEF to provide air superiority, protection, and support allowed them to plan the daylight operations. Brereton trusted the combination of the Strategic and Tactical Air Force efforts to allow the airborne forces the freedom of maneuver leading to successful airborne assaults. The Allies' main concern for daytime airborne operations was the increased danger posed by German flak batteries. The AEF attacked the German anti-aircraft capabilities systematically by pre-assault strikes beginning on September 16, and continuing air support throughout execution on D-Day, September 17. Nearly three hundred RAF bombers struck German air defenses at night and the US Eighth Air Force followed up with 852 B-17s and 147 P-51s on D-Day.<sup>82</sup> Leading up to and during the airborne operations, the AEF sanitized the ingress corridors and areas surrounding the dropzone with escort sweeps and perimeter patrols. Notable in this air support was a new anti-flak effort. Starting in the summer of 1944, the Eighth Air Force implemented a flak mitigation plan built on intense intelligence collection, avoidance, and bombing measures.<sup>83</sup> The AEF employed the anti-flak measures remarkably well as they destroyed nearly half of the German flak batteries prior to the troop carriers turning inbound for their respective dropzones. At day's end on September 17, the British and American air forces dominated the skies over Holland and only seventy-five out of 4,676 Allied airplanes failed to execute their mission.<sup>84</sup>

The Allies closely analyzed the proximity of the dropzones to their respective objectives

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<sup>82</sup>US Air Force Air University, *USAF Airborne Operations, World War II and Korean War*, 58.

<sup>83</sup>US Air Force, 65th Fighter Wing, *Light, Intense and Accurate: Strategic Fighters Vs. Flak in the ETO* (World War II Operational Documents in the Combined Arms Research Library Digital Library), 58, <http://cgsc.contentdm.oclc.org/cdm/singleitem/collection/p4013coll8/id/2806/rec/1> (accessed November 19, 2013).

<sup>84</sup>US Air Force Air University, *USAF Airborne Operations, World War II and Korean War*, 59-60.

during planning. On the British side, tensions between the ground commander and the RAF commander confused the priorities of a number of different factors that determined the correct dropzone selection. The actual location of the main bridge, enemy disposition, anti-aircraft threats, and terrain surrounding the bridge at Arnhem required joint consideration. Husky taught that the air component should retain responsibility for airborne operations from planning until the paratroopers landed.<sup>85</sup> Therefore, Browning refused the close-in dropzones requested by 1st ABD commander, General Urquhart, on account of the expected flak threat. As a result, the British airborne assault used dropzones six miles south of the key bridge they needed to seize.<sup>86</sup>

The 101st ABD needed to negotiate the dropzone plan with General Browning as well. The negotiation focused on similar factors as the 1st ABD in addition to General Taylor's main concern over concentration. Initially, Browning directed the 101st to support the ground maneuver of Thirty Corps by spreading across seven dropzones covering thirty miles of the roads. Taylor argued the dispersion was too risky. Instead, he suggested they establish a consolidated airhead around Zon that he could dispatch elements to secure the route to the north and south as Thirty Corps advanced. Montgomery's headquarters approved Taylor's recommendation for the 101st ABD dropzone adjustment.<sup>87</sup>

Operation Market Garden was unique in the depth at which the airborne forces assaulted their objectives. The plan to mitigate the danger of potentially isolating the forces was to employ a robust air-resupply mission of men and material to reinforce the airborne divisions. The Allies exploited their air superiority in support of maintaining this air line of communication. However, a week of bad weather following D-Day severely degraded the AEF support to the troops on the ground. The Allies planned around the risk of isolated forces not receiving resupply because of

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<sup>85</sup>Tugwell, 167.

<sup>86</sup>Ibid., 239-242.

<sup>87</sup>Ibid., 243.

enemy interference, but failed to forecast the havoc that bad weather inflicted on the operation.

The airborne assault of Market Garden was the largest airborne operation ever conducted. On the first day, 1,053 troop carrier planes delivered over twenty thousand paratroopers in one hour and twenty minutes with near-perfect accuracy to assault their respective objectives. 424 aircraft from the 53d TCW dropped nearly seven thousand paratroopers of the 101st ABD in their consolidated dropzones within the vicinity of Eindhoven. The journals of the parachute regiments noted the drop execution and landing as “absolutely ideal, better than any combat or practice jump.”<sup>88</sup> As a whole, the division quickly seized the bridges and other connectors to secure the roadway. General Taylor capitalized on surprise, speed, and dropzone location to capture intact, six out of the seven assigned bridges. The Germans blew one section of a bridge, but the Allied engineers rapidly repaired it prior to the arrival of tanks from the Second Army. For the 101st, the airborne operation succeeded in all necessary objectives and they quickly seized control of the respective lines of communication from the Germans.

The combined efforts of the 50th and 52d TCWs launched 480 aircraft to drop 7,250 paratroopers of the 82d ABD. Similar to the 101st, the accuracy of the troop carriers and effective dropzone selection allowed the 82d to rapidly assemble and attack. They secured the Groesbeek heights and several railroad bridges within two hours of landing on the dropzone. General Gavin and the 82d exploited their initial success and launched an attack to secure the essential Nijmegen Bridge under the cover of darkness. They did not seize the entire bridge from the Germans but they secured the demolition control house and prevented the Germans from blowing the bridge.<sup>89</sup> At the conclusion of D-Day, the 82d dominated their main objectives and prepared to further enable the ground attack towards Arnhem.

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<sup>88</sup>Warren, *Airborne Operations in World War II, European Theater*, 105.

<sup>89</sup>*Ibid.*, 111.

Securing the bridge at Arnhem was the most important objective allowing the Allies to flank the Germans. The mission began well as the British 1st ABD received a near-perfect drop from the 314th and 61st Troop Carrier Groups around 1400 hours in the afternoon. However, the Germans, effectively commanded by Generals Student and Model, immediately responded by reinforcing their occupation of Arnhem with the 10th SS Panzer Division. Essentially, there was a race to the Arnhem Bridge between the British airborne forces and the German reinforcements. The German SS troops arrived in Arnhem and controlled the south end of the bridge just after 1930 hours. However, the airborne troops had to cover the six miles from their dropzone to their objective and they did not arrive until 2000 hours.<sup>90</sup> The British tried to attack south across the bridge but the Germans beat them back. The British courageously defended the northern end of the bridge for the next four days but ran out of men and supplies. Poor weather conditions and poor communications hampered resupply missions forcing the 1st ABD to change their mission to survival. The airborne troops' defensive perimeter shrank as the Germans continued to attack. Finally, on September 25, Browning ordered the division, now consisting of less than twenty-five hundred men, to retreat. The Allied airborne assault at Arnhem ended in tragedy, and without the essential bridge over the Rhine, Operation Market Garden did not provide the avenue to continue to Berlin.

The Allies enjoyed the asymmetric advantage of air superiority during Market Garden, and they learned the importance of actively maintaining it. Market Garden showed that the control of the air required continuous Allied focus and energy to exploit the advantage. Initially, the AEAFF protected the airborne missions on a massive scale. During the first two days of Market Garden, the AEAFF executed integrated air support operations in the respective sectors for all three airborne assaults. The AEAFF sustained escort air patrols along the routes and perimeter, and

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<sup>90</sup>Warren, *Airborne Operations in World War II, European Theater*, 114.



flak suppression from the coast to the dropzones. As General Brereton later remarked, the AEAFF effort dominated the air and ground-based German anti-air threats and reduced them to a negligible level.<sup>91</sup>

Starting on September 19, the Allies focused on supporting the airborne troops with reinforcements and additional equipment through aerial resupply. The AEAFF planned robust air support, through anti-flak strikes and protection, in conjunction with the resupply mission. However, widespread bad weather denied the planned air support. The weather degraded the mission effectiveness of all the air sorties and consequently the airborne troops on the ground received limited supplies. The worst day for Allied air operations occurred on September 21, as the AEAFF attempted to execute resupply sorties to support the 1st ABD. The departure airfields in England had thick fog and multiple layers of clouds. The protection and escort package supporting the resupply serials, consisting of six British Spitfire squadrons and one US Mustang group, arrived late to the patrol area.<sup>92</sup> The Luftwaffe aggressively attacked the airlift aircraft from RAF 38 and 46 Groups as they tried to reach the threatened airborne forces at Arnhem. Despite Allied efforts, they lost twenty-three out of 117 aircraft and received damage on over half of the resupply aircraft. The hostile environment disrupted the air efforts and consequently the 1st ABD received only four percent of the material from the resupply mission.<sup>93</sup> The lack of air superiority due to the hazardous weather conditions damaged the Allies. A stark comparison of mission effectiveness existed between the days the Allies commanded the skies and when they did not. When conditions prevented the Allies from assertively maintaining air superiority, the effectiveness of the German counterattacks increased and jeopardized the entire operation.

The AEAFF needed the procedural capability to simultaneously support the airborne

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<sup>91</sup>Tugwell, 244.

<sup>92</sup>Warren, *Airborne Operations in World War II, European Theater*, 137.

<sup>93</sup>*Ibid.*, 137-138.

forces on the ground with both direct fire support and resupply for combat power. There was a noted tradeoff inherent in airborne warfare; the Allies capitalized on speed and surprise but the airborne troops on the ground lacked significant firepower. Additionally, the paratroopers needed near-continuous resupply sorties to reinforce and equip the ground force as they attacked their objectives and built up further combat power. However, the procedures for scheduling and integrating tactical air support and aerial delivery resupply proved inadequate.

The Allies scheduled aerial resupply missions during the majority of the daylight hours to logistically support the paratroopers fighting on the ground. However, Allied policy prohibited tactical air force operations over the battle area during these periods of anticipated aerial delivery. Consequently, the 83 Group and Eighth Air Force fighters and bombers often stayed on the periphery and were unable to directly support the paratroopers in battle.<sup>94</sup> As the German forces squeezed the Allies back into a corner at Arnhem, the 1st ABD stated that close support would have been invaluable and may have turned defeat into victory. To remedy the dilemma of combined air support operations, the Allies recommended improving real-time communications and designate specific air-corridors for continued missions by fighters, bombers, and transport aircraft.<sup>95</sup> Air support proved to be a vital capability that helped determine success of airborne forces in Market Garden, but experience still highlighted areas for improvement.

The proximity of the dropzones to division objectives played a critical role. Specifically, the dropzone selection needed to optimally posture the airborne force to execute the ground scheme of maneuver. For example, the 504th PIR of the 82d received the task to control the bridges over the Maas-Waal Canal, and the dropzone selected was within fifteen minutes of the bridges. This advantageous location allowed for rapid assembly and assault on the objective and

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<sup>94</sup>Tugwell, 255.

<sup>95</sup>Warren, *Airborne Operations in World War II, European Theater*, 151-152.

prevented the enemy from effectively defending or blowing the bridges. In general, both the 82d and 101st ABDs executed airborne operations to concentrated landing areas, which positioned them well for mission success. These decisions were largely affirmed as the US divisions absorbed nearly zero casualties upon landing, and the troops quickly assembled and moved to seize their objectives.

Alternatively, the 1st ABD learned the importance of dropzone location at a high cost. General Hollinghurst of 38 Group overruled General Urquhart's suggestion for close-in dropzones, and consequently the 1st ABD began its fateful mission to seize the Arnhem Bridge from a six-mile deficit.<sup>96</sup> As control of this bridge ended up as a race between the 1st ABD and the German reinforcements, the Allies lost the initiative owing to dropzone proximity and never regained it. Planning the right landing areas was critical for the Allies to achieve initial success.<sup>97</sup>

Allied intelligence struggled to identify and communicate the actual German threat along the Eindhoven-Arnhem road and Market Garden suffered significantly as a result. The Allies made significant progress across France in August and September 1944. In front of this progress, the Germans tried to consolidate and rebuild its defensive line as they recovered into Holland. Allied intelligence did not see the German recovery nor the reinforcements that Model's Army Group B received. Specifically, Model had the II Panzer Corps undergo reconstitution efforts just to the northeast of Arnhem.<sup>98</sup> The Allied intelligence network did not gain fidelity on the retrograding German troops and lacked urgency to further refine their understanding of the enemy. The increase of German forces concerned the Dutch Resistance and they reported significant quantities of German armor to the Allies.<sup>99</sup> Montgomery's strike force felt they were

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<sup>96</sup>Tugwell, 239.

<sup>97</sup>Ibid., 245.

<sup>98</sup>Ibid., 236.

<sup>99</sup>Ibid., 237.

superior to the Germans and they would maintain the initiative regardless of the German response. This belief led the Allies to dangerous expectations for the operation. General Horrock, commander of the British Thirty Corps, stated that Market Garden failed because, “we had made the cardinal mistake of under-estimating our enemy.”<sup>100</sup> The Allies failed to achieve a clear understanding of the enemy and the Arnhem operation ended in defeat.

The airborne assaults of Operation Market Garden exceeded all expectations, but in the end, the Allies failed to carry Arnhem, which effectively ended the Allied prospect of winning the war in 1944. Eisenhower admitted the risk of Montgomery’s northern strike delaying the opening of the port of Antwerp.<sup>101</sup> Although, Market Garden came up short of its ultimate mission, there were still advantages gained. Thirty Corps cleared the region north of Antwerp of German remnants, which was necessary to enable full utilization of the logistics hub. Market Garden taught the Allies valuable lessons and applied persistent pressure on the Germans. Ultimately, the Allies continued to improve their position of advantage over the Germans throughout Western Europe and made strides to enable subsequent operations to bring final defeat to the Nazi regime.

### Comparison

The execution of Operations Husky, Overlord, and Market Garden revealed several operational-level factors that warranted fundamental consideration for effective employment. Although the environment changed for each operation, some common principles governing airborne operations clearly surfaced. Some of the lessons captured were not universal to all three case-studies, but resulting assessments suggested that some principles were common to the operational concept. The operational factors that the Allies garnered as lessons-learned were integration, surprise, initiative, and airpower dominance. The extent to which the Allies

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<sup>100</sup>Tugwell, 264.

<sup>101</sup>Eisenhower, *Report by the Supreme Commander*, 68.

capitalized on these overarching factors determined the degree of success of the airborne operation.

One of the most important operational concepts revealed during WWII airborne operations was integration. According to JP 1-02, integration is the arrangement of military forces and their actions to create a force that operates by engaging as a whole. Additionally, the antonyms of integrated—divided, separated, isolated—help appreciate the meaning in its application to airborne operations. The concept of airborne employment in an integrated fashion consists of several different focus areas. The case-studies highlighted planning, joint training, coordination measures, and command relationships as required areas for integration.

Obviously, teamwork was essential as air, ground, and naval forces all had a critical role to set conditions, execute the actual airborne assault, and directly support the mission to achieve its given objective. WWII airborne operations gave both positive and negative examples of integration efforts. Operation Husky demonstrated a lack of integration that resulted in the tragic fratricide of the troop carriers. These losses could have been prevented by “close joint staff coordination and planning, better joint briefing, and better general dissemination of information” according to subsequent evaluations.<sup>102</sup> Following Sicily, airborne operations in France, Holland, and Germany benefited from “joint and unified aspects of command structure” during planning, preparation, assault, and exploitation phases.<sup>103</sup>

Airborne operations in Sicily also highlighted a deficiency in training. The joint forces did not conduct combat-simulated training to prepare for the mission, and consequently the troop carriers barely accomplished their mission while greatly hampering the paratroopers’ follow-on

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<sup>102</sup>US Army, *Historical Study of Some World War II Airborne Operations: WEG Staff Study No. 3* (World War II Operational Documents in the Combined Arms Research Library Digital Library), 133, <http://cgsc.contentdm.oclc.org/cdm/singleitem/collection/p4013coll8/id/106/rec/9> (accessed November 19, 2013).

<sup>103</sup>*Ibid.*, 134.

objectives. The Normandy invasion corrected the failed joint training program and executed a full mission-rehearsal in the weeks leading up to D-Day. The improvement of the airborne operations in Overlord proved that “joint training with the airborne units as an integral airborne force developed the techniques required for good accuracy and concentration in large scale airborne operations.”<sup>104</sup> As the Allies improved airborne operations, joint training permitted all services to combine energies and capabilities together, prior to the threat of actual combat. Airborne operations in WWII repeatedly demonstrated the value of investing in joint force integration.

The next important operational factor considered is how the Allies designed their airborne operations on the fundamental principle of surprise. The value of surprise in airborne operations was logical as lightly equipped paratroopers infiltrated behind enemy lines to disrupt and defeat the adversary. The surprise was twofold: it enabled the Allies to inflict greater damage and disruption on an unsuspecting enemy, and provided protection for the vulnerable airborne forces at the spearhead of an operation. During WWII, airborne operations surprised the enemy through speed, timing, synchronization, and deception.

The Allies calculated the ability to gain speed and concentration to project a localized advantage over the enemy in the vicinity of the given objective. During preparation for Overlord, Eisenhower solicited more airlift aircraft from Marshall to increase the concentration and surprise on the Normandy dropzones.<sup>105</sup> Effective surprise required specific timing and synchronization between the services to profit from multiple assault forces attacking at different points.

The Allies also spent immense energy on the deception efforts of Operation Fortitude to foster surprise over the German forces. The deception operations convinced the majority of German forces, and Hitler himself, that the Allied invasion would strike at Calais. Through these

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<sup>104</sup>US Army, *Historical Study of Some World War II Airborne Operations*, 143.

<sup>105</sup>Warren, *Airborne Operations in World War II, European Theater*, 8.

efforts, the Allies breached the Atlantic Wall and disrupted the enemy lines. The airborne divisions “took advantage of a surprised and temporarily disorganized enemy to seize many of the vital objectives quickly.”<sup>106</sup> The Allies focused on surprise as an essential ingredient in the planning and execution of airborne operations.

The surprise achieved by the airborne forces set the stage for the next operational lesson, the importance of seizing the initiative. The airborne assaults provided initial shock to the enemy, enabling the Allies to exploit the conditions and seize the initiative. Airborne forces adapted to the environment, conducted simultaneous and synchronized operations, and assessed their priorities to retain the initiative. SHAEF based plans for the Normandy invasion on gaining the initiative by enabling combat power generation, while preventing a counterattack. SHAEF’s plan depended on air superiority, penetration of the initial assault landings, and isolation of the enemy to deny his counterattack.<sup>107</sup> Initiative favored the Allies as the localized superiority achieved in Overlord allowed them to gain the advantage and successfully secure a lodgment.

The challenges in the execution of Market Garden demonstrated the critical role of simultaneous and synchronized operations, or timing, to maintain initiative. The airborne operations provided depth and enabled speed for Montgomery’s Second Army to conduct the planned ground thrust. The planning efforts emphasized the connected timeline of the airborne assault and ground maneuver. The airborne divisions gained the initiative, achieved their initial objectives, and secured them for the prescribed duration. The “Narrative of Market Operation” by General Brereton, termed the airborne operations as a “brilliant success” in that perspective.<sup>108</sup>

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<sup>106</sup>US Army, *Historical Study of Some World War II Airborne Operations*, 112.

<sup>107</sup>Brooks, 45.

<sup>108</sup>First Allied Airborne Army, *Narrative of Market Operation* (World War II Operational Documents in the Combined Arms Research Library Digital Library), 25, <http://cgsc.contentdm.oclc.org/cdm/singleitem/collection/p4013coll8/id/3381/rec/1> (accessed November 19, 2013).

However, slower than expected execution of the ground advance desynchronized the operation from the airborne component. “It was the breakdown of the 2nd Army’s timetable on the first day – their failure to reach Eindhoven in 6 to 8 hours as planned – that caused the delay in taking of the Nijmegen Bridge and the failure at Arnhem.” Unfortunately, the Allies lost the initiative at the point where they failed to keep timing and synchronization between the two elements of the northern strike. As a whole, airborne operations in WWII taught commanders the importance of establishing the tempo and momentum to capitalize on initiative.

Another key operational component repeatedly recognized during airborne operations was Allied domination of the air. At the end of WWII, army, corps, and division commanders conducted an effectiveness survey to consider airpower performance. All echelons highlighted the vital contributions of air superiority and air support provided by the AEF in any operation. The asymmetric advantage of airpower exceeded expectations and presented freedom of movement well beyond the Allied requirement.

Allied efforts to gain air superiority began with Operation Pointblank in October 1943. The AEF set the required conditions just prior to Overlord, and then actively maintained air superiority for the duration of the war. Upon reporting to SHAEF headquarters, Eisenhower stressed to his staff that the achievement of air superiority was “absolutely vital to any prospect of success in the invasion.”<sup>109</sup> The prerequisite Eisenhower directed proved extremely important and many commanders confirmed its value. Commenting on the initial assault at Normandy and beyond, General Taylor believed, “Because of the air superiority throughout our operations the losses due to enemy air action were negligible. The degree of air superiority attained provided freedom of maneuver and the mounting of airborne operations... This would not have been

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<sup>109</sup>Brooks, 28.



possible without complete air superiority.”<sup>110</sup> The Seventh Corps commander added, “the fact that we had almost complete air superiority at all times was a tremendous boost to the morale of our own troops.”<sup>111</sup> Air superiority enabled the success of Allied forces in the entirety of the European advance, from the beaches of Normandy through VE-Day in Berlin.

The second component of airpower showed itself equally important. Air support by strategic and tactical fighters and bombers made invaluable contributions to airborne operations in the European theater. Through this airpower, the Allies continually enjoyed an asymmetric advantage because of the damage inflicted on the enemy and the protection offered to friendly forces. After securing the lodgment on the French coast, General Ridgway praised the AEAFF strikers and bombers. They “provided the most beneficial results to the successful beach landing on Normandy by: the semi-isolation of the battle area due to the destruction of roads, railroads and bridges; the neutralizing of enemy airdromes within effective range of the beaches; and by the destruction of fortified hostile installations.”<sup>112</sup> The 82d appreciated the air to ground efforts as the AEAFF isolated the beachhead and interdicted the German front indefinitely. Similarly, the 101st praised the air support as it “prevented the movement of strategic reserves and allowed the establishment of a firm bridgehead before the enemy could reach in strength.”<sup>113</sup> The AEAFF efforts mutually supported airborne forces as they collectively prevented German counterattacks. The Allied commanders wisely anticipated, planned for, and executed a robust air war in which they turned air superiority and air support into strategic success in Europe.

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<sup>110</sup>Army Air Force Historical Office, *Effect of Strategic and Tactical Airpower on Military Operations, ETO* (World War II Operational Documents in the Combined Arms Research Library Digital Library), 68, <http://cgsc.contentdm.oclc.org/cdm/singleitem/collection/p4013coll8/id/4041/rec/64> (accessed November 19, 2013).

<sup>111</sup>*Ibid.*, 67.

<sup>112</sup>*Ibid.*, 18.

<sup>113</sup>*Ibid.*, 25.

## CONCLUSION

Many lessons learned from airborne operations in Europe during WWII are comparable to the guiding principles of airborne operations for the US military today. The US JFCs and operational planners should understand as much as practical on airborne JFE operations as they represent options that support national interests. The linkage from WWII airborne lessons to the capabilities maintained today helps increase understanding and shed light on this subject.

Current joint doctrine discusses operational concepts that are essential in JFE operations, and WWII airborne operations confirmed many of them. JP 3-0 promotes the concept of initiative just like the lessons from WWII airborne operations suggest. Seizing the initiative is of utmost importance to the US military and is commonly held as a critical operational concept across all services. The Army publication on operations, ADRP 3-0, defines initiative as “setting or dictating the terms of action during an operation to gain a position of advantage that degrades and defeats the enemy throughout the depth of an organization.”<sup>114</sup> The historical airborne operations served this definition of initiative well. The surprise, disruption, and exploitation the Allies inflicted on the Germans through airborne operations gained initiative in the European campaign.

The JOAC publication addresses how the United States postures itself to maintain operational access and freedom of action through integrated military operations. The JOAC envisions cross-domain synergy among the military to establish an integrated, localized superiority to provide freedom of action, enabling an overarching mission. These conditions are important for JFE operations as they provide advantages to conduct the force projection option of the JOAC.<sup>115</sup> The joint forces apply operational access precepts that guide the understanding of JFE operations to attain the desired conditions. There are eleven operational access precepts that

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<sup>114</sup>Department of the Army, Army Doctrine Reference Publication (ADRP) 3-0, *Unified Land Operations* (Washington, DC: Government Printing Office, May 2012), 2-1.

<sup>115</sup>Joint Chiefs of Staff, *Joint Operational Access Concept (JOAC)*, 7.

shape the decisions and planning process of the commander of JFE operations.<sup>116</sup> Evaluating these eleven precepts against the airborne lessons of WWII provides opportunity for further learning.

The lessons learned in WWII airborne operations are similar to the essential conditions and specific precepts described in the JOAC concerning JFE operations. The case-studies of the WWII airborne operations characterized several key components also proposed in the JOAC. These historical studies clearly highlighted the factors of integration and air superiority as valuable for airborne operations. These factors directly link to the JOAC in the overall requirements of integration and localized superiority to set the conditions of a JFE operation.<sup>117</sup>

Additionally, the lessons learned from WWII airborne operations correlate with seven specific operational access precepts of JOAC. The lessons from the case-studies connect with the following precepts: base operations to support the broader mission, prepare the operational area in advance, exploit advantages in one or more domains, disrupt enemy reconnaissance and surveillance efforts, create pockets or corridors of local domain superiority, attack the enemy in depth, and maximize surprise through deception. Identifying linkages can codify several associations between WWII airborne operations and current JFE principles.

Each airborne operation conducted in WWII contributed to a greater effort of an invasion or continued advance against the enemy. These airborne operations clearly adhered to the current precept of *enabling the broader mission*. In terms of *preparing the operational environment* in

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<sup>116</sup>Joint Chiefs of Staff, *Joint Operational Access Concept (JOAC)*, 26. The precepts of operational access include--operations are based on the broader mission, prepare the operational area in advance, consider a variety of basing options, seize the initiative by deploying and operating on multiple, independent lines of operations, exploit advantages in one or more domains to disrupt enemy anti-access/area-denial capabilities, disrupt enemy reconnaissance and surveillance efforts while protecting friendly efforts, create pockets or corridors of local domain superiority, maneuver directly against key operational objectives from strategic distance, attack enemy anti-access/area-denial defenses in depth, maximize surprise through deception, stealth, and ambiguity, and protect space and cyber assets while attacking the enemy's space and cyber capabilities.

<sup>117</sup>*Ibid.*, ii.

advance, WWII airborne operations conducted preliminary attacks to isolate the objective area, and at times used deception efforts to prepare the operational area. The Allies *exploited the advantage gained in the air domain* throughout the airborne operations, just as the JOAC recommends. The Allied air superiority focus and Operation Fortitude support of the Normandy invasion demonstrated an intent to *disrupt and confuse enemy reconnaissance efforts*, which is aligned with the same precept in current guidance. In addition, the localized air superiority efforts along the French coast during Overlord and covering ingress corridors during Market Garden showed examples of the *pocket or corridor superiority* precept. The AEF attacked the enemy in *depth* through the “Transportation Plan” and other actions to support Normandy, and by the airborne carpet and interdiction strikes for Market Garden, which complied with the same concept found in the JOAC precept. Lastly, the case-studies of WWII airborne operations each touted the desire to take advantage of *surprise and deception* to inflict greater damage on the enemy, just as the JOAC precept states. The evaluation of WWII airborne lessons against current JOAC precepts clearly associates the important operational factors of airborne operations then and now.

The demonstrated linkages between history and the current guidance regarding airborne operations support the relevancy of the WWII lessons learned to the current body of thought on airborne JFE operations. Understanding of applicable past experiences helps commanders and planners develop a vision for future airborne planning and execution efforts. Concepts from WWII employment still ring true and the operational artist needs to apply them in the appropriate environment and in an adaptive way. With an increased understanding of airborne JFE operation, the commander can determine how to uniquely plan and execute airborne operations to gain the greatest advantage over the adversary.

## BIBLIOGRAPHY

- Army Air Force Evaluation Board. *Effectiveness of Third Phase Tactical Air Operations in the European Theater*. World War II Operational Documents in the Combined Arms Research Library Digital Library, August 8, 1945. <http://cgsc.contentdm.oclc.org/cdm/compoundobject/collection/p4013coll8/id/1488/rec/7> (accessed November 19, 2013).
- Army Air Force Historical Office. *Effect of Strategic and Tactical Airpower on Military Operations, ETO*. World War II Operational Documents in the Combined Arms Research Library Digital Library, December, 1945. <http://cgsc.contentdm.oclc.org/cdm/singleitem/collection/p4013coll8/id/4041/rec/64> (accessed November 19, 2013).
- . *Ninth Air Force, April to November 1944*. World War II Operational Documents in the Combined Arms Research Library Digital Library, August 15, 1943. <http://cgsc.contentdm.oclc.org/cdm/singleitem/collection/p4013coll8/id/3302/rec/49> (accessed November 19, 2013).
- Badsey, Stephen. *Normandy 1944: Allied Landings and Breakout*. London: Osprey, 1990.
- Brooks, Victor. *The Normandy Campaign: From D-Day to the Liberation of Paris*. Cambridge, MA: Da Capo Press, 2002.
- Clausewitz, Carl von. *On War*. Edited and translated by Michael Howard and Peter Paret. Princeton, NJ: Princeton University Press, 1976.
- Devlin, Gerard M. *Paratrooper!* New York: St. Martin's Press, 1978.
- Eisenhower, Dwight D. *Crusade in Europe*. 1st Da Capo paperback ed. New York: Da Capo Press, 1979.
- . *Report by the Supreme Commander to the Combined Chiefs of Staff On the Operations in Europe of the Allied Expeditionary Force*, June 6, 1944 – May 8, 1945. <http://babel.hathitrust.org/cgi/pt?id=mdp.39015030681822;view=1up;seq=1> (accessed January 21, 2014).
- Fifth Army Airborne Training Center. *Report of Airborne Operations, "Husky" and "Bigot"*. World War II Operational Documents in the Combined Arms Research Library Digital Library, 1945. <http://cgsc.contentdm.oclc.org/cdm/singleitem/collection/p4013coll8/id/4021/rec/44> (accessed November 19, 2013).
- First Allied Airborne Army. *Narrative of Market Operation*. World War II Operational Documents in the Combined Arms Research Library Digital Library, October 9, 1944. <http://cgsc.contentdm.oclc.org/cdm/singleitem/collection/p4013coll8/id/3381/rec/1> (accessed November 19, 2013).

- Gavin, James. *82d Airborne Division: Operation Market: Historical Data*. World War II Operational Documents in the Combined Arms Research Library Digital Library, (1944), <http://cgsc.contentdm.oclc.org/cdm/singleitem/collection/p4013coll8/id/387/rec/57> (accessed November 19, 2013).
- . *On to Berlin: Battles of an Airborne Commander, 1943-1946*. New York: Viking Press, 1978.
- Hoyt, Edwin Palmer. *Airborne: The History of American Parachute Forces*. New York: Stein and Day, 1983.
- Obama, Barack. "Sustaining U.S. Global Leadership: Priorities for 21<sup>st</sup> Century Defense." Washington, DC: Government Printing Office, January 2012.
- Tugwell, Maurice. *Airborne to Battle*. London: William Kimber and Co, 1971.
- Turabian, Kate L. *A Manual for Writers of Term Papers, Theses, and Dissertations*. 7th ed. Chicago: University of Chicago Press, 2007.
- US Air Force. Air Force Doctrine Directive-1, *Air Force Basic Doctrine, Organization, and Command*. Washington, DC: Government Printing Office, October 2011.
- US Air Force, 65<sup>th</sup> Fighter Wing. *Light, Intense and Accurate: Strategic Fighters Vs. Flak in the ETO*. World War II Operational Documents in the Combined Arms Research Library Digital Library, 1945. <http://cgsc.contentdm.oclc.org/cdm/singleitem/collection/p4013coll8/id/2806/rec/1> (accessed November 19, 2013).
- US Air Force Air University. *USAF Airborne Operations, World War II and Korean War*. Washington DC: USAF Historical Division, Liaison Office, 1962.
- US Army. *82d Airborne Division in Sicily and Italy*. World War II Operational Documents in the Combined Arms Research Library Digital Library, November, 1945. <http://cgsc.contentdm.oclc.org/cdm/singleitem/collection/p4013coll8/id/103/rec/1> (accessed November 19, 2013).
- . *AGF Report No. 440 – Combat Lessons of 82d Airborne Division*. World War II Operational Documents in the Combined Arms Research Library Digital Library, December 9, 1944. <http://cgsc.contentdm.oclc.org/cdm/singleitem/collection/p4013coll8/id/3376/rec/41> (accessed November 19, 2013).
- . *After Action Report [82d Airborne Division]*. World War II Operational Documents in the Combined Arms Research Library Digital Library, May 5, 1945. <http://cgsc.contentdm.oclc.org/cdm/compoundobject/collection/p4013coll8/id/83/rec/6> (accessed November 19, 2013).
- . *Historical Study of Some World War II Airborne Operations: WEG Staff Study No. 3*. World War II Operational Documents in the Combined Arms Research Library Digital Library, February 20, 1951. <http://cgsc.contentdm.oclc.org/cdm/singleitem/collection/p4013coll8/id/106/rec/9> (accessed November 19, 2013).

- US Department of the Army. Army Doctrine Publication 3-0, *Unified Land Operations*. Washington, DC: Headquarters, Department of the Army, 2011.
- . Army Doctrine Reference Publication 3-0, *Unified Land Operations*. Washington, DC: Government Printing Office, May 2012.
- US Joint Chiefs of Staff. Joint Publication 1, *Doctrine for the Armed forces of the United States*. Washington, DC: Government Printing Office, May 2007.
- . Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms*. Washington, DC: Government Printing Office, November 2010.
- . Joint Publication 3-0, *Joint Operations*. Washington, DC: Government Printing Office, August 2011.
- . Joint Publication 3-01, *Countering Air and Missile Threats*. Washington, DC: Government Printing Office, March 2012.
- . Joint Publication 3-18, *Joint Forcible Entry Operations*. Washington, DC: Government Printing Office, November 2012.
- . “Deterrence Operations Joint Operating Concept Version 2.0, December 2006.” Washington, DC: Government Printing Office, December 2006.
- . “Joint Operational Access Concept Version 1.0, 17 January 2012.” [http://www.defense.gov/pubs/pdfs/JOAC\\_Jan%202012\\_Signed.pdf](http://www.defense.gov/pubs/pdfs/JOAC_Jan%202012_Signed.pdf) (accessed July 3, 2013).
- Wawro, Geoffrey. *The Franco-Prussian War: The German Conquest of France in 1870-1871*. Cambridge, New York: Cambridge University Press, 2005.
- Warren, John C. Dr. *Airborne Operations in World War II, European Theater*. Maxwell AFB, AL: Air University USAF Historical Division, 1956.
- . *Airborne Missions in the Mediterranean, 1942-1945*. Manhattan, KS: Military Affairs/Aerospace Historian, 1970.