

BRIDGE BUSTERS: THE 397TH BOMBARDMENT GROUP (MEDIUM) AND THE
B-26 MARAUDER IN WORLD WAR II

BY

LIEUTENANT COLONEL DAVID OCH

A THESIS PROVIDED TO THE FACULTY OF
THE SCHOOL OF ADVANCED AIR AND SPACE STUDIES
FOR COMPLETION OF GRADUATION REQUIREMENTS

SCHOOL OF ADVANCED AIR AND SPACE STUDIES
AIR UNIVERSITY
MAXWELL AIR FORCE BASE, ALABAMA

JUNE 2015

APPROVAL

The undersigned certify that this thesis meets master's-level standards of research, argumentation, and expression.

Dr. Richard R. Muller

15 May 2015

Dr. Thomas A. Hughes

15 May 2015



DISCLAIMER

The conclusions and opinions expressed in this document are those of the author. They do not reflect the official position of the US Government, Department of Defense, the United States Air Force, or Air University.



ABOUT THE AUTHOR

Lt Col David Och earned his commission in the United States Air Force through the United States Air Force Academy in 2000. He graduated from Specialized Undergraduate Pilot Training in 2002. He went on to various flying assignments in the F-15E Strike Eagle. He is a Senior Pilot with over 1,700 flying hours in the F-15E, including over 300 hours in support of Operation IRAQI FREEDOM. He also deployed in support of Operation NEW DAWN. He holds a Bachelor of Science in Management from the United States Air Force Academy and a Master of Business Administration from the University of Pittsburgh, Katz Graduate School of Business. He is currently working towards a Master of Philosophy in Military Strategy from the School of Advanced Air and Space Studies. He is married with children.



ACKNOWLEDGMENTS

I would like to acknowledge several people whose guidance and support made this project possible. First, I must express my sincere gratitude to my thesis advisor, Dr. Richard Muller, for his steadfast support, dedication and mentorship in both the historical research and writing process. His guidance and feedback made this project possible. I am also indebted to Dr. Thomas Hughes for his expertise along the way. The opportunity to learn from these two noted airpower historians was truly a blessing. I would also like to express gratitude to the staff at the Air Force Historical Research Agency, specifically Maranda Lambert and Tammy Horton. Their help in locating and digitizing historical resources enabled me to tell the story of the 397th Bombardment Group. I am also grateful to the SAASS faculty and staff for their professionalism and dedication to all of the students of Class XXIV. Most importantly, I must thank my wonderful wife and beautiful children for their love, support, and patience throughout this academic year. They truly made this year possible.



ABSTRACT

This study examines the concept of medium bombardment and the role of the Martin B-26 Marauder in World War II (WWII) through the previously under-documented history of the 397th Bombardment Group (BG). It seeks to fulfill two objectives: to tell the story of the 397 BG and to aid understanding of the contributions of a capability that did not fit neatly into previously existing conceptions of airpower. The B-26 occupied a middle ground between the formalized doctrines of attack aviation and strategic bombardment. It offered capabilities traditionally associated with both strategic and tactical airpower, yet had limitations in both.

The author presents the experiences and contributions of the 397 BG as representative of the mature concept of medium bombardment in WWII. As the last American B-26 group sent to the European Theater of Operations, the 397th entered the war during the preparatory phase for the invasion of France and supported the Allied advance across the Low Countries and into Germany. By the time the 397th entered combat, B-26 units were making valuable contributions to the Allied war effort. However, the aircraft had a troubled and controversial past. Due to high accident rates in training and early operational difficulties, the Army Air Forces (AAF) nearly eliminated the B-26 from its inventory on multiple occasions. Through a complicated process of adaptation, largely through trial and error, B-26 units forged a role for the aircraft and developed effective tactics.

This study traces the history of medium bombardment and the B-26 from inception through victory in Europe. It describes the environmental and organizational factors that resulted in development of an aircraft type that fell between the idealized expectations of both Army and AAF leaders. It details early B-26 operations in the Pacific, Mediterranean and European Theaters to illuminate the path from troubled aircraft to successful airpower capability. The study focuses primarily on the experiences of the 397 BG to further the understanding of medium bombardment and airpower in WWII. The complex history of the B-26 and 397 BG offers lessons regarding capability development and wartime improvements.

CONTENTS

CHAPTER	PAGE
DISCLAIMER.....	ii
ABOUT THE AUTHOR.....	iii
ACKNOWLEDGMENTS.....	iv
ABSTRACT.....	v
INTRODUCTION.....	1
1 CHAPTER 1: PROCURING MEDIUM BOMBERS.....	5
2 CHAPTER 2: B-26 DEVELOPMENT AND EARLY OPERATIONS.....	18
3 CHAPTER 3: 397 BG ACTIVATION TO INVASION.....	50
4 CHAPTER 4: FROM THE BEACHHEAD TO VICTORY.....	82
CONCLUSION.....	130
APPENDIX A: 397 BG COMBAT MISSIONS.....	149
APPENDIX B: 397 BG UNIT HISTORY RESOURCES.....	156
APPENDIX C: 397 BG OPERATIONS RECORDS RESOURCES.....	157
BIBLIOGRAPHY.....	167

Illustrations

Figures and Tables

1. 397 BG B-26 Marauder, Tail # 296 150 -“Hot Rock”.....	50
2. 397 BG Operating Locations in England.....	56
3. 397 BG Operating Locations in France.....	101

Introduction

Cool rain fell over Rivenhall, England as the men of the 397th Bombardment Group (BG) readied their Martin B-26 Marauders in the early morning hours of 6 June 1944. Takeoff time for these high-speed two-engine bombers was set for just after 0400 hours. Freshly painted black and white stripes on each wing and fuselage served as “invasion markings,” indicating these were Allied aircraft and part of the largest air armada ever put together.¹ These men would soon help spearhead the Allied invasion of France. Operation OVERLORD called for the 397th and other B-26 groups to lead the air attack on the French coast. Their mission was to strike artillery emplacements, fortifications, and infantry positions along Utah Beach to support the amphibious assault that would make landfall less than ten minutes after their bomb runs.

Due to rain and cloud cover, this mission would likely require low altitude attacks. Although their Marauder brethren had tragically learned the perils of low altitude operations a year before, the importance of this mission overrode caution. Successful preparation for the assault required both accurate and timely attacks from below cloud level. The men prepared to attack from as low as 500 feet above the heavily defended coast if necessary. The crews in each of 54 aircraft from the 397th knew this would be their most important sortie to date. They had trained and deployed to England for this very purpose. This D-Day mission, and the ensuing advance to Germany, would provide the opportunity to prove the capabilities of the 397th and their Marauder medium bombers.²

D-Day came less than two months after the 397 BG entered combat. They were the last American B-26 group deployed to Europe. They joined the Ninth Air Force (AF), the American tactical AF formed to support the Allied advance into Occupied Europe. By that time, the B-26 was becoming a valuable

¹ Stephen E. Ambrose, *D-Day, June 6, 1944: The Climactic Battle of World War II* (New York: Simon & Schuster, 1994), 239.

² History, 397th Bombardment Group, June 1944.

and capable contributor to the Allied war effort. Yet the still widely maligned aircraft had a complicated and sometimes tragic history.

As a medium bomber, the Marauder's capabilities in many ways fell in between the often-opposing expectations of the Army and the Army Air Forces (AAF). Disagreements over the value of medium bombers emerged before the aircraft's inception and continued throughout its service life and beyond. After entering service, high accident rates in training saddled the Marauder with a reputation as an unsafe aircraft that proved difficult to shed. During its early combat employment, its shortcomings and operational losses overshadowed other tactical achievements. On multiple occasions, the AAF nearly removed the aircraft from its operational inventory. Yet the aircraft remained in service and its crews ultimately honed a capability that successfully contributed to the defeat of Germany.

The 397th earned the nickname "Bridge Busters" for their prowess in accomplishing the difficult task of attacking bridges to deny their use by German forces. Their contributions, however, went beyond attacking these difficult targets. In exactly one year of combat, the 397th attacked targets including German Vengeance Weapon sites, airfields, railroad marshalling yards, lines of communication, and fuel and weapons areas. They also provided direct support to Allied troop movements. The Bridge Busters earned a Distinguished Unit Citation for a harrowing yet effective bridge bombing mission during the famed Battle of the Bulge. As the Allies moved across Europe, the 397th deployed forward, flying missions from France to support advancing forces.

At war's end, the AAF retired the B-26 Marauder from service and ordered all of the Bridge Busters' aircraft, and nearly all other B-26s in Europe, destroyed for scrap metal. After removing valuable items including engines and radios, salvage workers used TNT to destroy the airframes.³ This conclusion of the B-26's service was both abrupt and unceremonious. Despite this ending, it

³ J. K. Havener, *The Martin B-26 Marauder*, 1st ed (Blue Ridge Summit, PA: AERO, 1988), 243.; Charles A. Mendenhall, *Deadly Duo: The B-25 and B-26 in WWII* (Osceola, WI: Specialty Press Publishers, 1981), 100.

would be exaggeration to claim history had forgotten the B-26 and the men who flew them. Yet stories of heavy bombers such as the B-17 and B-24 dominate the record. More importantly, scholarship on World War Two (WWII) bombardment focuses primarily on the effects of long-range strategic attacks by heavy bombers. Despite the relative lack of attention, the story of medium bombers and the wartime record of the B-26 offer valuable lessons regarding capability development and operational improvements during wartime.

This study analyzes medium bombardment and the contributions of the B-26 Marauder through the previously unexamined story of the 397 BG. The 397th's experience in many ways represents the mature concept of medium bombardment in WWII. Their year at war reflected the outcomes of contentious airpower debates and benefited from the combat experience of those who preceded them. Chapter one begins by exploring the events, factors, and conflicts that led to the procurement of the B-26, specifically focusing on its planned role in the Allied war effort. Chapter two describes early lessons from B-26 operations and combat employment in the Pacific, Mediterranean, and European Theaters. The remainder of the study describes the experiences of the Bridge Busters and assesses their impact on the Allied war effort. Chapter three follows the 397 BG from their inception through the initial invasion of France, while Chapter four describes their impact on the advance to Germany. The thesis concludes with analysis and implications.

Ultimately, this study seeks to fulfill two objectives: to tell the story of the 397 BG and to understand the contributions of a capability that did not fit neatly into previously existing conceptions of airpower. The B-26 and its crews offered capabilities for strategic and tactical airpower, yet had limitations in both arenas. They occupied a middle ground between the more formalized concepts of attack aviation and strategic bombardment. Amidst competing conceptions of airpower, the role of the B-26 and its crews changed throughout the war and differed from what many expected. In the end, they played a significant, though under-documented, role in WWII. The story of the 397 BG "Bridge Busters" told here aims at furthering the understanding of that role, and of airpower's contributions writ large.

This history of the 397 BG relies largely on official records of two different types: the group's official unit history files and its operational mission records. The story told here contains few personal accounts or descriptions of individual group members. Beyond a narrative of individual mission details, this history attempts to assess the objectives of the group's missions and campaigns within the context of the wider Allied war effort. Both the unit history files and operational mission records are located at the Air Force Historical Research Agency (AFHRA) at Maxwell Air Force Base, Alabama. Throughout this thesis, footnotes identify information derived from the 397 BG unit histories. Additionally, Appendix A lists each of the group's combat missions. Appendix B explains how to locate the unit history files at the AFHRA. Mission details not footnoted draw from operations records of individual missions. For reader ease, Appendix C contains detailed information on the available operations records and instructions on locating them at the AFHRA.



Chapter 1

Procuring Medium Bombers

The desirability of special type bombardment aircraft has been largely eliminated.

- Air Corps Tactical School
Bombardment Aviation
1 January 1938

To analyze the record of the B-26 and the 397 BG, one must first understand the environment surrounding development of the aircraft and its expected utility. Both the decision to procure a medium bomber and the specifications for the aircraft type represented a confluence of environmental factors and unsettled organizational debates at a pivotal time in the buildup to WWII. These interrelated dynamics drove the requirements, procurement process, and expectations for the Marauder and set the stage for a complex record of initial difficulties followed by wartime improvements.

In March 1939, the Army Air Corps issued Circular Proposal 39-640 seeking a twin-engine medium bomber. The proposal's specific requirements included a maximum speed greater than 300 miles per hour (mph) with 350 mph desired, a bomb load of 3,000 pounds, range over 2000 miles, a service ceiling of at least 20,000 feet, and defensive armament of at least four .30 caliber machine guns.¹ With particular emphasis on speed, the proposal envisioned a bomber that could fly nearly as fast as contemporary fighter aircraft, but with a bomb capacity that rivaled existing heavy bombers. The aircraft's range, however, would be significantly less than that of long-range heavy bombers.

¹ William Wolf, *Martin B-26 Marauder* (Atglen, PA: Schiffer Pub. Ltd, 2014), 61.; Charles A. Mendenhall, *Deadly Duo: The B-25 and B-26 in WWII* (Osceola, WI: Specialty Press Publishers, 1981), 5.

The Glenn L. Martin Company's proposal, later named the B-26 Marauder, earned first place in the resulting competition.² The Air Corps ordered both the B-26 and the second place competitor, which became the North American B-25 Mitchell, into production that September.³ Although the initial contract purchased only 201 Marauders and 184 Mitchells, medium bombers later accounted for a significant portion of the American air inventory. In total, the United States accepted 5,157 Marauders and 9,816 Mitchells with peak inventories of 1,931 and 2,656 of each aircraft respectively.⁴ The B-26 and B-25 became the primary American medium bombers of WWII. The underlying need for these aircraft, in fact, stemmed from the growing security challenge across the Atlantic Ocean.

The call for a new medium bomber was an early part of the American rearmament program in direct response to German aggression in Europe. Germany's annexation of much of Czechoslovakia in 1938, along with troubling reports from America's ambassador to Berlin, convinced President Franklin Roosevelt that war in Europe was inevitable. He concluded America needed to rearm quickly and airpower would play a leading role in defense against Germany. In a White House meeting on 14 November 1938, Roosevelt directed a massive expansion of airpower in which the "Air Corps alone required a strength of 20,000 aircraft backed by an annual productive capacity of 24,000 units."⁵ The 20,000 aircraft target represented a nearly nine-fold increase in the Air Corps' authorized strength set just two years prior at 2,320 aircraft.⁶ While Roosevelt placed specific emphasis on the need for long-range aircraft for defense of the entire western hemisphere, the pursuit of medium bombers reflected other environmental and organizational factors.

² Mendenhall, *Deadly Duo: The B-25 and B-26 in WWII*, 36.

³ Steve Pace, *B-25 Mitchell* (Osceola, WI: Motorbooks International, 1994), 19.

⁴ Wesley Frank Craven and James Lea Cate, eds., *The Army Air Forces in World War II*, vol. 6, *Men and Planes* (1955; new imprint, Washington, DC: Office of Air Force History, 1983), 199.

⁵ Irving Brinton Holley Jr, *Buying Aircraft: Materiel Procurement for the Army Air Forces*, U.S. Army in World War II (Washington, DC: Center of Military History, United States Army, 1964), 169.

⁶ Holley Jr, *Buying Aircraft: Materiel Procurement for the Army Air Forces*, 61.

Reports of German aircraft capabilities, largely obtained by Charles Lindbergh, appear to have supported the call for high-speed medium bombers. During his travels in Germany in the fall of 1938, Lindbergh was likely the first American to view Germany's newest medium bomber, the Junkers 88 (Ju 88). Hermann Goering, the Commander of the Luftwaffe, explained to him that the Ju 88 was capable of speeds up to 500 kilometers per hour (310 mph).⁷ Lindbergh clearly took note. In a November 1938 letter to Chief of the Air Corps Major General Hap Arnold, Lindbergh explained, "the trend over here seems to be toward very high speed, both for bombers and fighters" with some bombers reportedly capable of 300 mph. He implored Arnold to develop high-speed aircraft for America.⁸ Lindbergh met with Arnold on multiple occasions after returning to America to consult on aircraft capabilities and requirements.

The Luftwaffe Lindbergh had seen first-hand possessed 3,350 bombers and was producing 12 bombers per day by June 1938.⁹ Germany was updating its older bombers, such as the Heinkel 111 (He 111), with larger power plants to improve performance. The He 111E-3, for example, now offered a top speed over 260 mph.¹⁰ The Ju 88 seemed more threatening. In March 1939, a Ju 88 V5 set a record by carrying a payload of 4,400-pounds over 600 miles at an average speed of 321 mph. Seeking prestige, Germany publicized the results.¹¹ To counter and ultimately defeat this potential enemy, America desired aircraft equally or more capable. If America built a medium bomber, speed would be a key characteristic. Yet, while Germany had invested in medium bombardment, the necessity of this aircraft type was very much up for debate in the United States.

⁷ Charles A. Lindbergh, *The Wartime Journals of Charles A. Lindbergh*, 1st ed. (New York: Harcourt, Brace, Jovanovich, 1970), 103.

⁸ Charles A. Lindbergh to General Henry Arnold, Chief of the United States Army Air Corps, letter, 29 November 1938, Personal Collection of Henry H. Arnold, 168-65-40. Air Force Historical Research Agency, Maxwell AFB.

⁹ Thomas H. Greer, *The Development of Air Doctrine in the Army Air Arm, 1917-1941*, (1955, new imprint, Washington, DC: Office of Air Force History, 1985), 103.

¹⁰ William Green, *The Warplanes of the Third Reich* (Garden City, NY: Doubleday and Co, 1970), 292.

¹¹ Green, *The Warplanes of the Third Reich*, 449.

Even as the United States began procurement of its new medium bomber, the concept of medium bombardment remained ill-defined and lacked widespread support. During the inter-war years, bomber classifications changed significantly due to technological advances and changes in doctrine. In the 1920s, the Air Corps classified bombardment aircraft as either light or heavy. Light bombers were primarily single engine models designed to carry fragmentation bombs and small demolition charges while multi-engine heavy bombers would carry much larger bomb loads for greater distances.¹² In 1927, many in the Air Corps sought to develop specialized bombers for day and night operations with day bombers optimized for short-range missions and night bombers flying longer distances into the enemy homeland. The War Department, however, resisted this specialization and insisted on development of all-purpose models.¹³ In 1930, the Air Corps Tactical School (ACTS) reiterated the need for two types of bombers, yet rather than night or day classification, argued again for light and heavy bomber types based on bomb load capacity. Light and heavy bombers would carry 1,200 or 2,000-pound bomb loads respectively.¹⁴ The term “medium bomber” had yet to make an appearance. The first successful four-engine bomber, however, redefined what the Air Corps saw as a true heavy bomber, essentially creating a middle ground for a medium bomber.

The arrival of the B-17 in 1935 brought vast new capabilities and embodied many Air Corps leaders’ vision of heavy bombardment. Hap Arnold referred to the aircraft as “the first real American air power.”¹⁵ The prototype offered a combat radius of 2,260 miles carrying a 2,500-pound bomb load and 1,700 miles carrying 5,000 pounds. The aircraft set in motion an Air Corps emphasis on four-engine long-range heavy bombers and a desire for even bigger, longer-range aircraft. To many in the Air Corps, the four-engine bomber

¹² “Training Regulation No 440-15: Fundamental Principles for the Employment of the Air Service,” January 26, 1926, 4–5, www.au.af.mil/au/awc/awcgate/documents/tr440-15.htm (accessed 11 February 2015).

¹³ Greer, *The Development of Air Doctrine in the Army Air Arm 1917-1941*, 38-45.

¹⁴ James P. Tate, *The Army and Its Air Corps: Army Policy toward Aviation, 1919-1941*, (Maxwell AFB, AL: Air University Press, 1998), 159.

¹⁵ Greer, *The Development of Air Doctrine in the Army Air Arm 1917-1941*, 47.

eliminated the need for other bombardment classes. The 1 Jan 1938 text for the ACTS course on bombardment aviation argued, “The desirability of special type bombardment aircraft has been largely eliminated.”¹⁶ The 146-page document, produced just over a year prior to the circular proposal for a new medium bomber, fails to even mention the concept of medium bombardment. It defines bombardment aviation as “characterized by its ability to carry the heaviest loads of destructive agents to the greatest distances” and mentions short-range bombardment aircraft only once.¹⁷ As the Air Corps’ primary center for doctrine development, the ACTS saw no need for medium bombers.

The Air Board of 1939 offered a limited explanation for the concept of medium bombers. Appointed by the Chief of the Air Corps in March of 1939, the same month of Circular Proposal 39-640, the Air Board classified bombardment aircraft as heavy, medium or light. It defined the medium bomber as “a somewhat lighter, more readily procurable and cheaper airplane designed to meet many of our requirements for bombardment not necessitating the extreme range of our heavy bomber.”¹⁸ By its specifications, medium bombers required the same 2,000-pound minimum bomb load as the heavy bomber but with only half the heavy’s 2,000 miles radius of action. The Air Board appeared to envision the medium bomber as an in between capability. Within its General Headquarters Aviation, the board categorized aircraft as striking forces, defense forces, support forces or special service forces.¹⁹ Striking forces were the “strong offensive air units” and were capable of air operations “at great distances.” Support forces were “especially trained in the direct support of ground troops.” The board identified the Light Bomber as the basic unit of support forces. Although not specified, the medium bomber

¹⁶ Air Corps Tactical School, *Bombardment Aviation*, (Maxwell Field, AL, 1 January 1938), 34. 248.101-9. Air Force Historical Research Agency, Maxwell AFB.

¹⁷ Air Corps Tactical School, *Bombardment Aviation*, 2.

¹⁸ War Department Office of the Adjutant General, “Air Board Report,” 15 September 1939, Table 1. 167.6-9, Air Force Historical Research Agency, Maxwell AFB.

¹⁹ The other general categories beyond General Headquarters Aviation were Training and Special Purpose Aviation, Reconnaissance, Observation and Liaison Aviation, and Overseas Garrison Aviation. The formation of the General Headquarters Air Force is discussed subsequently in this chapter.

appeared to be part of the striking forces but lacked ability to strike at the distances the Air Corps truly desired.²⁰

Unlike for the medium bomber, the Air Corps had a clear doctrinal mission for the light bomber. The Air Board identified the light bomber as “designed primarily to meet the needs of ground troops for offensive combat aviation in their immediate support.”²¹ Based on its belief that the bomb was the most effective weapon for ground support, it eliminated the “attack” and “attack-bomber” aircraft types.²² The light bomber would assume the traditional role of attack aviation. The attack mission included destruction of aircraft on the ground, attack of light sea vessels and personnel in coastal defense, neutralization of antiaircraft defenses and disruption of hostile forces and their systems of supply.²³ Though the Air Board cautioned against the dangers of low altitude operations, the mission traditionally included low altitude attacks to ensure surprise and accuracy against relatively small targets. The Air Corps developed and produced light bombers with the direct support mission in mind. The “Attack” section of the ACTS, in fact, became the “Light Bombardment” section and taught a course of the same name.²⁴ No such section appeared for medium bombardment.

Two prominent Air Corps leaders, Major General Hap Arnold and Colonel Ira Eaker, offered a slightly different yet equally vague explanation of medium bombardment in their 1941 book entitled *Winged Warfare*. Arnold and Eaker reiterated the need for three classifications-- “the heavy, or long range bomber, the medium bomber and the light bomber”--but explained they are differentiated “largely according to the size and weight of the deadly cargo carried.”²⁵ The authors proceeded to spend over two pages explaining the heavy bomber type and mission yet provided no explanation for medium

²⁰ War Department Office of the Adjutant General, “Air Board Report,” Tabs A-C.

²¹ War Department Office of the Adjutant General, “Air Board Report,” Table 1.

²² Greer, *The Development of Air Doctrine in the Army Air Arm 1917-1941*, 122.

²³ Air Corps Tactical School, *Attack Aviation*, (Maxwell Field, AL, 1938), 1. 248.101-10, Air Force Historical Research Agency, Maxwell AFB.

²⁴ Robert Finney, *History of the Air Corps Tactical School 1920-1940*, (1955, repr., Washington DC, Center for Air Force History, 1992), 80. Reference is in footnote.

²⁵ Major General H. H. Arnold and Colonel Ira C. Eaker, *Winged Warfare* (New York, NY: Harper and Brothers, 1941), 9.

bombardment. Nearly two years after procurement began for America's WWII medium bombers, the utility of this aircraft type was still largely undefined.

Without a clearly defined role, why would the Air Corps pursue medium bombers? Being cheaper and more readily procurable than heavy bombers certainly played a role. Before analyzing these production factors, however, it is imperative to highlight a long-running debate between Army and Air Corps leaders. The struggle centered on the need for heavy, long-range bombers or smaller, shorter-range bombers.

The debate between two and four engine bombers reflected opposing stances on both the control and the role of airpower. The predominant views among Air Corps leaders reflected a desire for independence, the necessity of centralized control of airpower by an Airman, and the war-winning potential of long-range strategic bombing. These views were not new. Airpower theorists, including Army Air Service Brigadier General William "Billy" Mitchell had made similar arguments since the early years of aviation. The increasing size and capabilities of the American air arm in the late 1930s raised such debates to a fever pitch.

As the call went out for a medium bomber, Army and Air Corps leaders remained engaged in a long running struggle over air arm autonomy. To date, the Air Corps had achieved incremental progress rather than wholesale change. The Air Corps Act of 1926 provided for an Assistant Secretary of War for Air, Air Corps representation on the General Staff, and a five-year growth plan. Yet the Air Corps remained part of the War Department.²⁶ By 1935, the Air Corps successfully lobbied for creation of the General Headquarters (GHQ) Air Force. The GHQ Air Force consolidated air combat units previously dispersed among nine corps areas into three wings under an Air Corps commanding general. While the GHQ Air Force concept lent stronger support to the Air Corps as a striking force and not simply an auxiliary arm, debates over the size, command and employment continued. As airpower historian Thomas Greer explains, air leaders "vowed to persevere until the ultimate goal of equality or independence

²⁶ Tate, *The Army and Its Air Corps: Army Policy toward Aviation, 1919-1941*, 47.

was won.”²⁷ In March of 1939, the month that saw the release of Circular Proposal 39-640, the GHQ Air Force became under control of the Chief of the Air Corps rather than the Army Chief of Staff.²⁸ The Air Corps had achieved greater levels of autonomy yet sought complete independence.

Perhaps part cause and part effect of the struggle for autonomy, most Air Corps leaders believed airpower’s greatest utility was its ability to bypass surface forces and conduct strategic bombing of the enemy homeland. In their view, strategic bombing alone could bring victory by destroying the enemy’s will and capability to wage war. This belief rested largely on the theorists such as Mitchell and Italian General Giulio Douhet, but also drew upon selective lessons from World War One (WWI). Although the Air Service’s greatest contributions to WWI were in observation and artillery spotting, post-war assessments stressed the effects of strategic bombing on enemy morale. Furthermore, they recommended future study of enemy industrial capabilities in search of key vulnerabilities of interconnected industries. This recommendation helped shape the “industrial fabric” mentality of the ACTS leading up to WWII in which strategic bombing of “key nodes” of an enemy’s industry could independently produce war-winning results.²⁹

Army leadership in the War Department resisted both Air Corps autonomy and the idea that strategic bombing alone could be decisive. They regarded airpower primarily as an auxiliary to ground forces. Ground power won wars and airpower should primarily provide support to ground objectives. In 1934, the War Plans Division of the War Department asserted, “The effectiveness of aviation to break the will of a well-organized nation is claimed by some; but this has never been demonstrated and is not accepted by members of the armed services of our nation.”³⁰ Just as the Air Corps achieved creation of the GHQ Air Force, the Army successfully codified its position in the

²⁷ Greer, *The Development of Air Doctrine in the Army Air Arm 1917-1941*, 29.

²⁸ Tate, *The Army and Its Air Corps: Army Policy toward Aviation, 1919-1941*, 150.

²⁹ Tami Davis Biddle, *Rhetoric and Reality in Air Warfare: The Evolution of British and American Ideas About Strategic Bombing, 1914-1945* (Princeton, N.J.: Princeton University Press, 2002), 206,64-66

³⁰ Quoted in Biddle, *Rhetoric and Reality in Air Warfare*, 128.

document that governed the use of air forces. The 1935 re-write of Training Regulation 440-15 *Employment of the Air Forces of the Army* stated that the air arm “conducts the operations required for carrying out the Army mission.”³¹ Although TR 440-15 did recognize the growing potential of airpower, the War Department’s stance was clear. The Air Corps should organize, train, and equip its forces to support the surface forces that ultimately achieved victory in war. The Army could resist the Air Corps’ autonomy and emphasis on strategic bombing by limiting its supply of aircraft capable of independent action.

Against the backdrop of these ongoing disputes over the role and control of airpower, the debate between two and four engine bomber advocates persisted throughout the 1930s. Leadership in the War Department favored two-engine bombers and fought the Air Corps’ emphasis on the larger four engine aircraft. To the Air Corps, the B-17 set the standard for bombardment aircraft and came to represent the minimum desired size and range for future bombers. Beginning in 1935, Major General Frank Andrews, Commander of the GHQ Air Force, argued for exclusive procurement of four-engine bombers. The Air Corps argued that this single bomber type ensured efficiency and allowed flexibility to accomplish any bombardment mission. As Greer explains, the War Department General Staff “saw in such a suggestion the danger that the Air Corps would concentrate entirely on strategic operations to the neglect of ground support.”³²

Taking a more moderate tone in 1936, Chief of the Air Corps General Oscar Westover argued for the development of two groups of super-range aircraft while the remainder of the bomber force would be of medium size. The War Department General Staff resisted even this proposal and by 1937 successfully obtained a directive from the Secretary of War limiting procurement to two-engine aircraft.³³ This directive remained in effect until Roosevelt’s November 1938 call for air arm expansion, which specifically called for long-range aircraft for defense of the western hemisphere. Although

³¹ Quoted in Finney, *History of the Air Corps Tactical School 1920-1940*, 69.

³² Greer, *The Development of Air Doctrine in the Army Air Arm 1917-1941*, 91.

³³ Greer, *The Development of Air Doctrine in the Army Air Arm 1917-1941*, 95-96.

Roosevelt had removed the restriction on four-engine bombers, the subsequent call for two-engine medium bombers certainly reflected the preferences of War Department leadership for an aircraft more dedicated to supporting ground objectives. As official Army Air Forces (AAF) historians Craven and Cate explain, both light and medium bombers procured in the buildup to WWII were “designed basically for a supporting mission.”³⁴ The medium bomber was, therefore, either a compromise by the Air Corps or an outright victory for War Department leaders. In addition to the aircraft’s desired capabilities, however, production demands also played a significant role.

The 1939 Air Board’s description of the medium bomber as a “cheaper and more readily procurable airplane” than its heavy counterpart offers insight into additional reasoning behind the development of medium bombers. As noted previously, Roosevelt’s demand for an Air Corps comprised of 20,000 aircraft called for unprecedented growth from 2,320 aircraft. Yet throughout the 1930s, the Air Corps had difficulty even achieving its relatively meager previous strength due to complex budget, regulatory, and industrial production limitations.³⁵ Since 1926, the American aviation industry produced only 400 to 500 military planes per year.³⁶ Although Roosevelt’s emphasis on aircraft production later brought congressional support and massive budget growth, reaching 20,000 aircraft would be costly for the American government and difficult for the aviation industry. Larger aircraft with four engines would necessarily be more expensive and require greater productive capability than smaller two-engine variants. Medium bombers, offering many of the capabilities of heavy aircraft, provided a quicker route to the Air Corps’ expansion goals.

The desire for rapid expansion and the need to increase industrial production capacity also played a significant role in the competition to build the next medium bomber. These factors influenced the Air Corps’ procurement method, the selection of the B-26 and the decision to build two medium bomber

³⁴ Craven and Cate, *The Army Air Forces in World War II*, vol. 6, *Men and Planes*, 197.

³⁵ Holley Jr, *Buying Aircraft: Materiel Procurement for the Army Air Forces*, 66–150.

³⁶ Arnold and Eaker, *Winged Warfare*, 189.

variants. The competition from Circular Proposal 39-640, in fact, introduced a new “abbreviated” procurement method later known as “off the shelf procurement.” Under this method, the Air Corps evaluated aircraft proposals and then initiated full production contracts “off the drawing board.” Under previous methods, manufacturers provided prototypes for in-depth testing before issuance of production contracts.³⁷ While this method became commonplace to shorten procurement timelines, the B-26 and B-25 were the first aircraft procured without a prototype.³⁸ The lack of extensive testing later caused significant problems for the B-26. Yet in the buildup to WWII, production times were critical and even influenced the evaluation of aircraft proposals.

The Martin Model 179, which later became the B-26, earned first place in the medium bomber competition by a wide margin. Its score of 813.6 points topped North American’s second place NA-62 by 140 points.³⁹ The promised performance of the aircraft, specifically its top speed of 322 mph and cruising speed of 266 mph, certainly played a major role. However, the selection board also cited Martin’s guarantee to build the first aircraft in less than nine months and provide over 200 within 23 months as a significant factor.⁴⁰ In the race to develop American airpower, Martin quickly went to into production of the B-26. However, in a twist that would have a major impact on WWII, the B-26 was not the only medium bomber ordered into production.

As the second place design, the North American NA-62, later named the B-25 Mitchell, also earned a production contract. Although the exact reasoning behind this decision remains speculative, several factors appear to have played a role. First, after winning the design competition, Martin indicated it was unable to build all 385 aircraft desired by the Air Corps. It could provide only 201 aircraft. Like several other American aircraft manufacturers, Martin had previously committed to building aircraft for the British and French and was

³⁷ Wolf, *Martin B-26 Marauder*, 60.

³⁸ Roger A. Freeman, *B-26 Marauder at War* (New York, NY: Charles Scribner’s Sons, 1977), 10.

³⁹ Mendenhall, *Deadly Duo: The B-25 and B-26 in WWII*, 34–36.

⁴⁰ Wolf, *Martin B-26 Marauder*, 65–66.

unable to fulfill all orders at its current production capacity. Second, production costs were likely a factor. Martin's per unit cost of \$79,602 came in around \$16,000 more than the cost of a B-25.⁴¹ Lastly, but perhaps most significantly, multiple suppliers would aid the buildup and maintenance of American airpower. Brigadier General George Brett, Chief of the Air Corps Materials Division, explained to General Hap Arnold that splitting the contract was "deemed to be in the best interest of the Government, since it ensures maintenance of wartime production capacity of the two manufacturers" and "provides two competitive sources for future peacetime procurement."⁴² The Air Corps would therefore enter WWII with two new medium bombers.

Based on its design specifications alone, the B-26 offered the Air Corps significant capabilities. Its promised maximum speed of 322 mph topped its predecessors by a wide margin. The Douglas B-18, a twin-engine bomber delivered in 1937, topped out at 217 mph.⁴³ With a bomb load rivaling most configurations of early B-17 variants and nearly twice that of light bombers, the Marauder offered significant offensive power. The Marauder's multiple gun locations enabled it to strafe ground targets and defend itself from attacking fighters. The aircraft's gun configuration changed multiple times, even during initial production, but all models at least included nose, dorsal, and tail firing positions. The Marauder's dorsal turret, modified in early production to house twin .50 caliber guns, proved extremely successful and was later used in the B-24.⁴⁴ Martin had truly designed a powerful bomber that could fly like a fighter. The company raced to build the aircraft in the face of a growing threat from Germany.

During initial production, developments in Germany drove further requirements for the B-26. As part of Roosevelt's 50,000-airplane plan, the Air Corps ordered 990 additional Marauders in the fall of 1940.⁴⁵ The aircraft had yet to fly. The Marauder made its maiden voyage on 25 November 1940 with

⁴¹ Mendenhall, *Deadly Duo: The B-25 and B-26 in WWII*, 32.

⁴² Quoted in Wolf, *Martin B-26 Marauder*, 66.

⁴³ Lloyd Jones, *U.S. Bombers: B1-B70* (Los Angeles, CA: Aero Publishers, Inc, 1962), 51.

⁴⁴ Wolf, *Martin B-26 Marauder*, 400-432.

⁴⁵ Wolf, *Martin B-26 Marauder*, 104.

the first four aircraft delivered to the AAF on 22 February 1941.⁴⁶ France had already fallen to German aggression. With over 1100 aircraft on order, the B-26 appeared poised to play a major role if America became directly involved. What remained unknown was how well the aircraft would meet expectations upon delivery to combat units. Without significant testing on a prototype, the potential for problems certainly existed.

Despite the increased production of Marauders, the aircraft's proposed utility remained unclear. Responding to Roosevelt's request for overall production requirements for the impending war, the AAF submitted not only its aircraft needs but also an annex explaining its air strategy. The annex, titled Air War Plans Division One (AWPD-1), explained the AAF's proposed offensive against German and Italian targets.⁴⁷ Submitted on 12 August 1941, the plan included 10 B-26 Groups, totaling 1062 aircraft, in its initial requirements. Under the "Ultimate Requirements" heading, however, the B-26 line contained an asterisk. The footnote read, "These airplanes to be replaced by longer range airplanes at the earliest possible date."⁴⁸ Less than six months after receiving its first Marauder, the AAF clearly indicated the B-26 was not part of its long-term bombardment strategy. With light bombers expected to provide direct support to ground forces, the question remained what requirements the medium bomber would meet. The initial answer came in early 1942 as the B-26 saw its first combat action in the Southwest Pacific.

⁴⁶ The Army Air Corps became the Army Air Forces on 20 June 1941.

⁴⁷ R. J. Overy, *The Air War, 1939-1945*, 1st ed, Cornerstones of Military History (Washington, DC: Potomac Books, Inc, 2005), 62.

⁴⁸ Haywood S. Hansell Jr, "The Development of the US Concept of Bombardment Operations" (lecture Presented at the Air War College, 19 September 1951) 34. 248.101-9, Air Force Historical Research Agency, Maxwell AFB.

Chapter 2

B-26 Development and Early Operations

The B-26 is a dangerous aircraft in a number of ways...The takeoff is long and the landing fast. A motor failure on takeoff would be extremely serious. But once in the air, the B-26 is the best handling multiengined [sic] plane I have ever flown.

- Charles A. Lindbergh
The Wartime Journals of
Charles A. Lindbergh
October 1942

Nearly two and a half years after accepting its first B-26 Marauders, the AAF activated the 397 BG on 20 April 1943. Exactly one year later, the 397th made their combat debut as the last American B-26 group to enter the war in Europe. By that time, most of the Marauder's initial problems were behind it. The early years for the B-26 and its crews, however, had been difficult and sometimes tragic. Despite these difficulties, B-26 crews in Pacific, Mediterranean and early European Theater operations achieved successes and accumulated hard-won lessons for later Marauder units. These trials and achievements, which began soon after the first Marauder units started training for war, ultimately shaped the experiences of the 397 BG.

Early Problems

Many of the Marauder's early problems were at least partially attributable to the aircraft's rapid development process. Without extensive prototype testing, operational pilots rather than test pilots experienced most of the "teething" of this new and technically radical design. From April to June 1941, the Air Corps grounded the entire B-26 fleet due to repeated nose-wheel strut failures.¹ Although the cause proved to be improper heat treatment of a component during production, this issue was only one of many early problems. A more serious problem arose as pilots began unexpectedly losing control of

¹ Don L. Evans, ed., *Revenge of the Red Raiders: The Illustrated History of the 22nd Bombardment Group During World War II*, Eagles over the Pacific, v. 2 (Boulder, CO: International Research and Pub. Corp, 2006), 15.

propeller pitch, causing multiple accidents. The failures resulted from the depletion of internal batteries during ground maintenance causing the battery-powered propeller control mechanism to fail during flight. Changes to the aircraft's electrical system and maintenance procedures rectified the situation. Subsequent engine failures due to ruptured diaphragms in the fuel system again grounded the Marauder fleet until engineers devised a solution.² The Marauder experienced more growing pains than many other aircraft of its era. Most notably, the B-25 encountered much less difficulty. The fact that the B-26 was difficult to fly magnified these problems.

The B-26's takeoff, landing, and single-engine flight characteristics proved challenging to its pilots and contributed to many early mishaps. To maximize the aircraft's speed, engineers designed the Marauder with unusually small wings, resulting in high wing loading, long takeoff runs, and high landing speeds. The aircraft required exceptional piloting skill and was unforgiving in all flight regimes. The Marauder proved challenging even to experienced pilots, many of whom transitioned from the Douglas B-18. With a reputation of being easy to fly, the sedate B-18 required approach to landing speeds of around 90 mph. The Marauder's normal approach speed of 130 mph, in fact, nearly matched the B-18's cruising speed of between 135 and 167 mph.³ Engine failures, though not uncommon in any aircraft of the era, proved especially dangerous in the B-26. Engine loss during the long takeoff roll or shortly after breaking ground made continued flight difficult or impossible depending on conditions and aircraft configuration. With its high wing loading, the B-26 was notoriously easy to stall even during two-engine operation. Loss of an engine magnified the likelihood of dangerous stalls. Incremental design changes, which added over 3,000 pounds to the aircraft's empty weight by May 1942, served to compound the pilot's challenges.⁴ In July 1941, after studying the implications of the Marauder's small wings, the AAF authorized Martin to

² Charles A. Mendenhall, *Deadly Duo: The B-25 and B-26 in WWII* (Osceola, WI: Specialty Press Publishers, 1981), 88-93.

³ Evans, *Revenge of the Red Raiders*, 10.; Lloyd Jones, *U.S. Bomber: B1-B70* (Los Angeles, CA: Aero Publishers, Inc, 1962), 51.

⁴ J. K. Havener, *The Martin B-26 Marauder*, 1st ed (Blue Ridge Summit, PA: AERO, 1988), 20.

implement a larger wing design. Criticism from Senator Harry Truman, during early meetings of the “Truman Committee” in its watchdog role over national defense programs, catalyzed the move to larger wings. Martin engineers claimed to have sought the change since 1939. Bigger wings mitigated but did not eliminate the difficulties of flying the B-26. More importantly, the AAF did not receive its first “long wing” B-26 until August 1942.⁵ Early operations and training continued with the original short wing design.

Although the Marauder earned a reputation as an unsafe aircraft from the beginning, its most significant problems did not materialize until after its first year in service. Before December 1941, the aircraft’s accident record was hardly extraordinary for the era and included three deaths, six injuries and eight aircraft written off. During this time, however, experienced pilots primarily flew the B-26. Due to development and production problems, only three groups had received B-26s by December 1941. Rather than being made up largely of new pilots from the training pipeline, these established groups transitioned from flying other aircraft. Unfortunately, four fatal accidents in December 1941, three attributed to engine problems or loss of power, proved the start of a dangerous trend.⁶

With three additional fatal accidents in January 1942, the B-26’s reputation as an unforgiving and dangerous aircraft grew. Over the course of 1942, the Marauder would have 53 fatal training accidents. The aircraft soon earned a multitude of derogatory nicknames including the “widow maker” and the “flying prostitute,” a reference to its small wings providing no visible means of support. Problems in the B-26 appeared to stem from some combination of mechanical failures and training deficiencies. Crew morale decreased dramatically. The sayings, “One a day in Tampa Bay” and “Two a day the Barksdale way” reflected the perceptions of aircrews and the public alike at two primary B-26 bases. Although hyperbolic, the sayings described definite problems. One Marauder group, the 320 BG, lost 15 aircraft over a span of just

⁵ William Wolf, *Martin B-26 Marauder* (Atglen, PA: Schiffer Pub. Ltd, 2014), 112-120, 492. Martin incorporated the “Long Wing” design on later B-26B variants beginning with the B-26B-10. All B-26C and later variants included the long wing configuration.

⁶ Wolf, *Martin B-26 Marauder*, 114.

35 training days.⁷ The AAF sought to investigate the cause of the Marauder's problems to determine if a correction was possible or if it should abandon the aircraft.

In early 1942, General Hap Arnold sent then-Lieutenant Colonel Jimmy Doolittle to assess what Arnold referred to as "the B-26 problem." It was Doolittle's first task as a member of Arnold's staff. Arnold apparently believed the problem was primarily in the minds of the B-26 crews and wanted Doolittle to "go down to the B-26 outfit, take command, and then show those boys that flying this ship was no different from flying any other."⁸ After testing the aircraft, Doolittle determined "There wasn't anything about its flying characteristics that good piloting skill couldn't overcome."⁹ He spoke with crews about their concerns with the aircraft, most of which included a belief the aircraft could not fly, turn, or land on a single engine. "To prove them wrong," Doolittle recalled, "I lined up on the runway, feathered the left engine during the takeoff roll, and made a steep turn into the dead engine, flew around the pattern, and landed with the engine still inoperative."¹⁰ Doolittle's demonstrations apparently had a beneficial impact on crew morale. He flew demonstrations at several Marauder bases. His Technical Advisor, Captain Vincent Burnett continued the demonstrations through the summer of 1943.¹¹ Often credited with saving the B-26, Doolittle recommended the troubled aircraft remain in production, but he insisted that transition training needed improvement and lengthening because many crews were arriving with little or no multiengine training. His report on the B-26, delivered in September 1942 after he returned from his famous B-25 raid on Tokyo, included other factors reflected in a subsequent AAF investigation.

Due to the Marauder's continually high accident rate, the AAF also charged General Carl Spaatz in March 1942 with leading a board to investigate

⁷ Wolf, *Martin B-26 Marauder*, 491.

⁸ Carroll V. Glines, *Jimmy Doolittle: Daredevil Aviator and Scientist*, Air Force Academy Series (New York, NY: The Macmillan Company, 1972), 126.

⁹ James Harold Doolittle, *I Could Never Be So Lucky Again: An Autobiography* (New York, N.Y: Bantam Books, 1991), 228.

¹⁰ Doolittle, *I Could Never Be so Lucky Again*, 228.

¹¹ Havener, *The Martin B-26 Marauder*, 41.

“the B-26 problem.” Spaatz’s charter was similar to Doolittle’s; he sought to determine whether the B-26 was suitable for operations, what technical and training changes would correct current problems, and if the aircraft should remain in production. Spaatz’s board ultimately recommended the AAF continue production of, and operations with, the B-26. However, it went somewhat farther than Doolittle when it determined the aircraft was not operationally suitable in its current condition and called for technical changes and maintenance improvements. Among several recommended changes, it called for the development of a flight manual and maintenance technical orders, engine improvements, and more efficient inspection procedures. Because most of the recommendations were already included in B-26B and later models, the board recommended only these late models for overseas use. The AAF ordered all future Marauders and all currently in the United States to incorporate these changes.¹² However, early B-26 and B-26A models were already beginning operations in the Pacific and would remain in service there.

Although the Marauder survived the Spaatz board, the aircraft was the subject of additional inquiries and challenges in the fall of 1942. In September, the Assistant Air Adjutant General appointed a board to investigate the causes behind the B-26’s high accident rate. In October, Brigadier General Muir Fairchild, the AAF Director of Military Requirements, recommended that Materiel Command plan for “pinching out” Marauder production if the aircraft encountered further problems. Fairchild had previously questioned whether even the “long wing” Marauders would be operationally suitable and noted that Assistant Secretary of War for Air Robert Lovett had doubts about continued use of the aircraft.¹³ Despite these challenges, the B-26 remained in production and operational use. Many attribute the Marauder’s survival to reports of its successes in the Pacific Theater. Specifically, Major General George Kenney, Commander of the Fifth Air AF in the Pacific, recommended continued use and

¹² Wolf, *Martin B-26 Marauder*, 117.

¹³ Wolf, *Martin B-26 Marauder*, 128.

further B-26 production.¹⁴ Within the AAF, the Marauder was safe for the time being.

An additional threat to the Marauder's future came from outside the AAF. The Joint Congressional Committee to Investigate the National Defense Program, commonly referred to as the "Truman Committee" ultimately became highly critical of both the Glenn L. Martin Company and its B-26. This "watchdog over the war effort" initially suspected Martin of working below capacity but later criticized the Marauder's short wings and accused Martin of continuing to produce aircraft with known problems.¹⁵ As noted previously, the committee contributed to the AAF's decision to increase the size of the aircraft's wings.¹⁶ Even after the design change, the committee remained critical of the aircraft and questioned its continued production. During an early 1943 visit to Avon Park Bombing Range, committee members witnessed the burning remains of two B-26s that had just crashed at the end of two different runways. As Major General John Moench explained, "The vivid display was more than enough to convince them the aircraft was unsafe."¹⁷ When the committee released its report on the aircraft industry in July 1943, it praised the B-25 but was highly critical of the B-26. While noting the Marauder's "high performance" and reports of it being an "exceptionally fine plane in the air," the committee stated, "the plane is unsafe when operated by any pilots except those specifically trained for its operation, because of unusual difficulties in landing and takeoff."¹⁸ The report further cited the B-26's high production and maintenance costs and its higher accident rate than the B-25. While the report highlighted the AAF's plans to "taper off" Marauder production, the timing of its

¹⁴ William Green, *Famous Bombers of the Second World War* (London: Macdonald & Co., 1959), 113.

¹⁵ Wolf, *Martin B-26 Marauder*, 110–133.

¹⁶ Jerry. Scutts, *US Medium Bomber Units of World War 2: Northwest Europe* (Hersham: Ian Allen Pub., 2001), 11.

¹⁷ John O. Moench, *Marauder Men: An Account of the Martin B-26 Marauder: A Story of the Martin B-26 Marauder and the Men Who Flew and Supported It, a Special Account of the 323rd Bombardment Group (M) of the Eighth and Ninth Air Forces in Europe*, 1st ed (Longwood, Fla: Malia Enterprises, 1989), 68.

¹⁸ Special Committee Investigating the National Defense Program, "Investigation of the National Defense Program - Aircraft" (United States Government Printing Office, July 7, 1943), 7, http://www.aviation-history.com/engines/Truman_Committee_SRes71.pdf (accessed 3 February 2015).

release, concurrent with B-26 problems in Europe (discussed subsequently) added further reason for the AAF to consider cancelling the program altogether.

Marauders in the Pacific

While all of this turmoil was occurring stateside, the new aircraft and its crews went to war. The B-26 saw early combat action in the Pacific Theater. The 22 BG, the first combat-ready B-26 group, was the first bombardment group to depart the US for a war theater after Pearl Harbor. Their first aircraft arrived in Australia on 25 March 1942; they had 48 aircraft on hand within a month.¹⁹ The 22 BG's operations in the Southwest Pacific focused primarily on halting the Japanese advance by attacking supply depots, airfields and shipping convoys.

The Marauder's medium range proved problematic in the Pacific. Because basing out of the airfield at Port Moresby, New Guinea was too dangerous due to repeated Japanese air raids, the B-26s were based further away at Townsville, Australia.²⁰ With their initial missions to attack the Japanese supply depot at Rabaul, Marauders could not make the 2,600 mile round trip from Townsville without refueling. Loaded with bombs and extra internal fuel, B-26 crews flew 600 miles to Port Moresby where they refueled for the bombing mission, usually flown the next day. After bombing Rabaul, they returned to Moresby with minimal fuel reserves. The 22d flew 16 missions and 80 sorties against Rabaul. They claimed hits against three transport ships, two merchant vessels and one aircraft carrier along with the destruction of 16 Japanese aircraft on the ground and ten in the air. Although the Marauders struck vital targets at Rabaul, the missions clearly called for the longer-range capabilities of heavy bombers. The 22d flew their last mission against Rabaul

¹⁹ Wesley Frank Craven and James Lea Cate, eds., *The Army Air Forces in World War II*, vol. 1, *Plans and Early Operations* (Chicago: The University of Chicago Press, 1948), 414.

²⁰ Eric M Bergerud, *Fire in the Sky: The Air War in the South Pacific* (Boulder, Colo.: Westview, 2001), 283.

on 24 May 1942. With more heavy bombers available in theater, the Marauders lent greater support to on-going efforts against closer Japanese airfields.²¹

Throughout the spring and early summer of 1942, the 22 BG focused much of its effort bombing airfields at Lae and Salamaua in New Guinea. Although still requiring stopovers in Port Moresby, the nearer targets were not so close to the limits of the Marauder's endurance.²² Working in conjunction with B-25s, B-17s and Australian bombers, the 22d repeatedly helped to damage runways, buildings, and aircraft on the fields. The mission was largely successful. As Craven and Cate explain, "...the Japanese never at any time based their bombers in any appreciable numbers at either Lae or Salamaua, and that was what counted."²³ Although they continued bombing Lae through the end of 1942, the 22d spent much of the summer and fall targeting Japanese shipping and naval assets.

The Japanese plan to assault Port Moresby shifted the 22d's focus to new and different missions. The B-26s teamed with B-25s, B-17s and A-20s in attempting to disrupt convoys bringing troops and supplies to north shore of New Guinea. Marauders were the first aircraft to locate the initial convoy headed for Buna on 21 July. Five B-26s reported one direct hit on a transport but were unable to stop the Japanese landing.²⁴ The 22d continued to target arriving convoys through the summer and fall with limited success, as mobile convoys proved difficult to locate and hit for all bomber types.

With enemy forces established on the island, the 22d repeatedly attacked the runway, facilities, and troops at the Japanese garrison at Buna. As Japan attempted an overland advance towards Port Moresby, B-26s and other bombers provided direct support to Allied ground forces. Although Fifth AF

²¹ Craven and Cate, *The Army Air Forces in World War II*, vol. 1, *Plans and Early Operations*, 479–480.

²² Roger A. Freeman, *B-26 Marauder at War* (New York, NY: Charles Scribner's Sons, 1977) 21.

²³ Craven and Cate, *The Army Air Forces in World War II*, vol. 1, *Plans and Early Operations*, 479.

²⁴ Wesley Frank Craven and James Lea Cate, eds., *The Army Air Forces in World War II*, vol. 4, *The Pacific- Guadalcanal to Saipan August 1942 - Jul 1944* (Chicago: The University of Chicago Press, 1950), 22.

Commander General George Kenney initially opposed using his bombers for a direct support mission, the 22d and other bombardment groups attempted the difficult task of halting Japanese forces moving through the Owen Stanley Mountains. On at least one occasion, the 22d accidentally killed ten friendly soldiers during an attempted attack on enemy forces. The difficulty providing direct support to troops in close proximity to enemy forces was not unique to the B-26. Other aircraft, including the B-25, had similar problems. Poor maps of rough, foliage-covered terrain made locating targets difficult. Most significantly, pilots had poor communication with ground forces.²⁵ Medium and heavy bombers experienced continued problems with close support to ground troops throughout WWII. The friendly fire incidents in New Guinea earned Fifth AF bombers low marks from ground commanders.²⁶ However, the 22d and other bomber units continued supporting ground forces and attacking Japan's buildup at Buna until its final expulsion from the site in January 1943.

In June of 1942, B-26 crews assumed a much less familiar role as torpedo bombers at both the Battle of Midway and in the Aleutian Islands of the Alaskan Theater. At Midway, two crews each from the 22d and the 38th BGs attacked Japanese ships in the massive naval battle.²⁷ Heavy defenses by Japanese fighters and surface to air flak downed two of the four Marauders prior to their attacks. The remaining two aircraft released their torpedoes but did not sink any Japanese ships. Both received significant battle damage during the low attitude torpedo runs but successfully returned to land.²⁸ Marauders from the 28th Composite Group in Alaska attempted torpedo attacks against Japanese forces that had attacked Dutch Harbor as part of the wider Midway campaign. Three B-26s attacked with torpedoes but once again failed to sink any Japanese ships. Although units in Australia and North Africa

²⁵ Evans, *Revenge of the Red Raiders*, 158-159.

²⁶ Evans, *Revenge of the Red Raiders*, 163.

²⁷ The 38 BG included two B-26 squadrons and two B-25 squadrons. B-26 operations in the 38 BG consisted primarily of sea patrol and anti-submarine searches from New Guinea, Guadalcanal and the Fiji Islands.

²⁸ Havener, *The Martin B-26 Marauder*, 69-70. "Flak" was a term used to describe anti-aircraft guns and cannons.

completed operational trials with the weapon, the B-26 made no further combat torpedo attacks and later abandoned the mission.²⁹

As the first to employ the Marauder in combat, crews in the Pacific developed and altered their tactics in a process of trial and error throughout the campaign. They flew in relatively small formations, largely due to limited aircraft availability based on maintenance and logistical challenges. Formations normally included six Marauders but could be as small as two aircraft. They never incorporated more than twelve. Marauder crews accomplished most bombing attacks from below ten thousand feet and often around one thousand feet. Their early B-26 models, equipped with the D-8 bombsight, lacked the accuracy required for bombing from higher altitudes.³⁰ Lacking “blind bombing” techniques and technologies, medium bombers in the Pacific often operated below low cloud ceilings for visual target acquisition. Although nearly always operating below ten thousand feet, crews varied their attack altitudes widely. They hoped to remain unpredictable, thereby fooling Japanese flak gunners and making their firing solutions more difficult.³¹ Flak, however, was not the only Japanese defense.

Marauder crews in the Pacific often contended with high concentrations of Japanese fighters, normally comprised of the famous Mitsubishi A6M Zeroes. The B-26 proved relatively capable in self-defense and often bombed without fighter escort. As historian Eric Bergerud explains, “the Marauder was very strong and...very well armed and dangerous for Zeroes to attack.”³² After bomb release, however, the 22 BG’s basic operational procedure was to “dive down to wave or treetop level and take advantage of the Marauder’s speed to try to out run the Zeros.”³³ Low altitude tactics, therefore, enabled B-26s of the Pacific to negate, to some extent, their most significant threat. Despite flying in small, normally unescorted formations facing both flak and heavy fighter

²⁹ Freeman, *B-26 Marauder at War*, 28.

³⁰ Wolf, *Martin B-26 Marauder*, 457.

³¹ Evans, *Revenge of the Red Raiders*, 122.

³² Bergerud, *Fire in the Sky*, 283.

³³ Evans, *Revenge of the Red Raiders*, 92.

concentrations, B-26 losses were “light indeed.”³⁴ Nevertheless, large-scale B-26 operations in the Pacific tapered down to a small but capable remnant force.

By early 1943, the AF decided to stop sending additional B-26s to both the Pacific and Alaskan theaters with the intention of converting all medium bombardment groups to B-25 Mitchells. By this point, combat and operational losses left only enough Marauders to make up one squadron in the Southwest Pacific. After maintenance overhauls including removal of camouflage paint, the 19th Bombardment Squadron of the 22 BG, now called the “Silver Fleet”, employed the Marauder until January 1944. However, the Army had decided to reduce to one medium bomber type in each of these theatres primarily to simplify logistics.³⁵ While the B-26 had made significant contributions, the B-25 offered multiple advantages in the Pacific. First, the Mitchell had proved easier to maintain and had sustained a higher sortie rate than the Marauder. Although the Fifth AF had grown from 404 combat aircraft in September 1942 to 537 in January 1943, only approximately 350 were operational at any given time.³⁶ Having faced continual shortages of both planes and parts, they opted for simpler logistics and a more reliable aircraft. Additionally, the B-25 was better suited for operations from the austere airfields of the Pacific. The Mitchell had a shorter take-off roll and greater propeller to ground clearance making it a better fit for compacted soil and steel mat runways.³⁷ Because the Mitchell’s initial development proved much less problematic than that of the Marauder, the AAF had sufficient B-25s to allow standardization. The AAF planned to send all future B-26s to the European and Mediterranean theatres.

B-26 crews in the Pacific faced a significantly different operational and threat environment than crews in the Mediterranean Theater of Operations (MTO) and European Theater of Operations (ETO). Thus, only some of the lessons learned fighting the Japanese would prove applicable elsewhere. The Marauder demonstrated effective though imperfect bombing capability,

³⁴ Bergerud, *Fire in the Sky*, 283.

³⁵ Freeman, *B-26 Marauder at War*, 23.

³⁶ Kenn Rust, *Fifth Air Force Story in World War II* (Temple City, Ca: Historical Aviation Album, 1973), 5–8.

³⁷ Mendenhall, *Deadly Duo: The B-25 and B-26 in WWII*, 84.

primarily from low altitude. Unlike in other theaters, crews in the Pacific were limited to the primitive D-8 bombsight. As the more accurate Norden bombsight became available later in the war, crews in the MTO and ETO had the potential to bomb with greater accuracy from higher altitudes. Crews encountered difficult weather in all theaters of WWII. Yet the advent of technologies and techniques that allowed bombing through clouds provided later B-26 crew with options other than flying beneath cloud layers. Additionally, improved logistics and aircraft maintenance allowed larger aircraft formations in the ETO and MTO. In short, advances in technology and logistics enabled greater capabilities and tactical advances above what was possible in the Pacific.

The Japanese also offered a different mix of threats than their German allies. Staff Sergeant George Teague, one of only a few Airmen to fly combat in the B-26 in both the Pacific and European theaters, commented on the significant differences between Japanese defenses in 1942 and German defenses in 1944. Referring to air combat, Teague explained that in the Pacific, “we were heavily outnumbered and formations were small by European standards...by the time I got to Europe, we weren’t attacked by fighters very often again, for a number of reasons.”³⁸ However, Teague also pointed out, “One thing the Germans had that the Japanese didn’t was their anti-aircraft guns. The 88 [88 millimeter German flak] was much better than anything the Japanese had...German antiaircraft fire was more accurate and more effective...”³⁹ In its short time in the Pacific, the B-26 made valuable though limited contributions to the war effort and provided the first lessons for Marauder combat employment. Only some of these lessons, however, were useful in other theaters. Attempts to universalize tactics from the Pacific against different threats offered minimal benefit but significant dangers.

³⁸ Quoted in Havener, *The Martin B-26 Marauder*, 81.

³⁹ Quoted in Havener, *The Martin B-26 Marauder*, 82.

Mediterranean Theater of Operations through Spring 1944

While B-26 operations in the Pacific and problems at home continued, the AAF directed three Marauder groups to the MTO. Originally planned for Europe as part of the Eighth AF, all three groups were redirected prior to leaving the United States to support the anticipated Allied invasion of North Africa.⁴⁰ The 17th, 319th and 320th Bombardment Groups were to become part of the newly formed Twelfth AF, commanded by Brigadier General Jimmy Doolittle. However, production and training limitations hindered all three from arriving in theater prior to the 8 November 1942 start of Operation TORCH. These readiness problems, which also plagued the light bombardment units planned for TORCH, additionally negated plans to stop in England for “training and initiation into combat.”⁴¹ Operational necessity required the Marauders quickly, but their path to combat was anything but smooth.

Each of the Marauder groups experienced significant difficulty arriving in theater or achieving operational status. After waiting for aircraft modifications, the 319 BG was the first to depart the United States in November 1942. Its problems along the northern ferry route, largely due to weather, forced closure of the route for later twin-engine units.⁴² The group lost three aircraft and crews and left several planes along the way. Although understrength, they were ready for combat in early December. Taking the southern route, the 17 BG also lost three aircraft and crews but were operational by the end of December.⁴³ The 320 BG was the last to depart. After attempting to achieve combat ready status in just three months, they were given an “unsatisfactory” preparedness rating. Nevertheless, they received orders to deploy and left the United States in early December. Losing one aircraft and crew in transit, the 320 BG had 59 aircraft in Algeria by early January. Due to training deficiencies at home and

⁴⁰ Rene Francillon, *USAAF Medium Bomber Units: ETO and MTO, 1942-45*, vol. 7, Aircam/Airwar Series (New York, N.Y: Sky Books Press Ltd., 1977), 13.

⁴¹ Wesley Frank Craven and James Lea Cate, eds., *The Army Air Forces in WWII*, vol. 2, *Europe: Torch to Pointblank* (Chicago: The University of Chicago Press, 1949), 59–60.

⁴² Craven and Cate, *The Army Air Forces in WWII*, vol. 2, *Europe: Torch to Pointblank*, 60.

⁴³ W. D. Baird, ed., *17th Bomb Group*, Limited ed (Paducah, Ky: Turner, 1995), 13–14.

difficulties with early B-26 operations in theater, the 320 BG would not fly a combat bombing mission until April 1943.⁴⁴

Early Marauder operations in North Africa proved to be valuable but costly experiences. Following the Allied landing and initial advance eastward, enemy forces built up both their air and ground presence in Tunisia during November.⁴⁵ The inexperienced Marauder crews began operations employing low altitude bombing techniques. This decision reflected both their training and the fact the 319 BG's aircraft were equipped with the primitive D-8 bombsight. On 28 November, B-26s began their combat operations by bombing Sfax harbor on the Tunisian coast. The Marauders attacked from 1,000 feet and then strafed the harbor following bomb release. Although they lost no aircraft on this first mission, the group had one shot down by light flak during an attack on Gabes airfield two days later. The 319th did achieve some early success with their low altitude attacks. Along with British DB-7s, the B-26s damaged fifteen to twenty aircraft at El Aouina airfield on 2 December.⁴⁶ They also successfully attacked Souse harbor on 14 December, hitting docks and three vessels. However, their low altitude tactics soon proved costly. The 319 BG lost three aircraft in low altitude operations to flak barrages between 15 and 18 December. When added to two aircraft lost in winter weather earlier in the month, the 319th had suffered a difficult first three weeks in combat. Medium bombers, both B-26s and B-25s, had yet to achieve the successes of the heavy bombers.⁴⁷

Recognizing the obvious perils of low altitude flying when faced with intense German flak, the Marauders sought to transition to medium altitude tactics. Although B-26s suffered the most significant losses, this transition was not unique to the Marauder. B-25s and A-20 light bombers also adjusted their

⁴⁴ Victor C. Tannehill, *Saga of the 320th, a B-26 Marauder Group in WWII* (Arvada, CO: Boomerang Publishers, 1984), 6–8.

⁴⁵ Edward T. Russell and Robert M. Johnson, *Africa to the Alps: The Army Air Forces in the Mediterranean Theater*, The U.S. Army Air Forces in World War II (Air Force History and Museums Program, 1999), 5–6.

⁴⁶ Craven and Cate, *The Army Air Forces in WWII*, vol. 2, *Europe: Torch to Pointblank*, 88–90.

⁴⁷ Craven and Cate, *The Army Air Forces in WWII*, vol. 2, *Europe: Torch to Pointblank*, 124.

tactics to altitudes between 7,000 and 14,000 feet.⁴⁸ As Craven and Cate explain, “the outstanding lesson taught by these operations was that the B-25s and B-26s could not be used profitably in low-level attacks on localities where the Germans had time to get in any considerable amount of their light AA...low-level bombing against land targets was virtually abandoned except where little or no AA was expected.”⁴⁹ Having trained primarily for low altitude operations, medium bomber crews began practicing bombing from higher altitudes.

As the 17 BG and 320 BG arrived in theater, they also shifted to primarily medium altitude operations. Some of the arriving Marauders were equipped with Norden bombsights allowing greater accuracy from higher altitude.⁵⁰ Because medium bombardment tactics did not require every aircraft be equipped with bombsights, partial allotments of these advanced sights sufficed. Medium bombardment tactics evolved to use formation bombing, with one bombardier locating the target using the bombsight and other bombardiers in the formation releasing simultaneously. While the formation configurations varied based upon the target and developed over time, crews applied this general tactic in the MTO and later in the ETO. Because its crews had not received adequate medium altitude training before deploying, Twelfth AF ordered the 320 BG to complete ground and flight training in medium altitude operations before it flew its first combat mission. Already in theater, they spent the month of January 1943 in school.⁵¹

With two groups in operation starting 30 December, Marauders opened 1943 focused primarily on bombing airfields, railroads and marshalling yards in Tunisia. Heavy bombers operated at higher altitudes and were primarily responsible for attacking the heavily defended coastal ports. Medium bombers occasionally aided the attacks on ports. British aircraft provided primary

⁴⁸ Francillon, *USAAF Medium Bomber Units: ETO and MTO, 1942-45*, 7:8.

⁴⁹ Craven and Cate, *The Army Air Forces in WWII*, vol. 2, *Europe: Torch to Pointblank*, 124.

⁵⁰ Victor Tannehill C, *Boomerang! Story of the 320th Bombardment Group in WWII* (Racine, WI: Victor Tannehill, 1978), 19.

⁵¹ Tannehill, *Saga of the 320th, a B-26 Marauder Group in WWII*, 6–8.

support to ground forces.⁵² Often less defended than the ports, airfields and marshalling yards still proved dangerous even from medium altitude. During the 17 BG's first mission, all six of its aircraft received damage from German flak and fighters. They lost two aircraft and crews over the next two days. In its first month in operations, the 17 BG lost 12 aircraft and seven crews to operational and combat losses.⁵³

While early lessons drove overland operations to higher altitudes, Marauders spent portions of early 1943 accomplishing low altitude antishipping attacks. With 90% of enemy supplies arriving by sea, the Allies sought to interdict ships heading to Tunisia. B-26 crews had used down time due to poor weather in December to train for these missions. On 20 January, the 319 BG sank a freighter and damaged another using minimum altitude tactics. A B-25 similarly sank a freighter the day before. With air cover normally provided by P-38s, mediums bombed ships from minimum altitude, often as low as 200 feet. Throughout January, Mitchells and Marauders "had borne heavily on the convoys but had not achieved the hoped for result of forcing them to resume the passage by night."⁵⁴ Additionally, strengthened convoy defenses, both aircraft and naval protection, soon made purely minimum altitude tactics untenable. With medium altitude attacks too inaccurate against small mobile ships, medium bombers developed innovative tactics including coordinated medium and low altitude approaches to saturate and confuse defenses.⁵⁵ In addition to their overland targets, Marauders continued attacking sea convoys throughout the spring. By May, they were attempting to sink German ships retreating towards Italy, rather than attempting to stop arriving forces.

Through the early months of Mediterranean operations, shortages of men and aircraft caused by high losses and inadequate resupply plagued B-26

⁵² Eduard Maximilian Mark, *Aerial Interdiction: Air Power and the Land Battle in Three American Wars*, Special Studies (Washington, DC: Center for Air Force History, 1994), 31.

⁵³ Baird, *17th Bomb Group*, 14.

⁵⁴ Craven and Cate, *The Army Air Forces in WWII*, vol. 2, *Europe: Torch to Pointblank*, 148.

⁵⁵ Craven and Cate, *The Army Air Forces in WWII*, vol. 2, *Europe: Torch to Pointblank*, 186.

operations. By March, General Carl Spaatz, Commander of Northwest African Air Forces (NAAF), complained that the situation in his medium and light bombardment units was “critical.” By the middle of February, the AAF ordered the 319 BG to stand down for rest, refit and additional training. Less than three months after beginning operations, the unit had suffered significantly. They had lost 17 aircraft in the 165 sorties immediately prior to their stand-down.⁵⁶ One effect of these shortages was the inability to mass the large formations of Marauders that characterized later operations in the MTO and ETO. The largest medium bomber formation in 1942 included only 13 aircraft, comprised of both B-25s and B-26s.⁵⁷ Formation sizes increased through early 1943 as more aircraft arrived, allowing crews to develop and refine tactics.⁵⁸ Ultimately, groups primarily employed formations in excess of 30 bombers, often as part of larger packages of multiple groups for particularly important missions.

Through the remainder of the North African campaign, Marauders performed a wide variety of missions. They struck airfields in Tunisia and on the Italian island of Sardinia in an effort to gain air superiority and prevent enemy antishipping efforts.⁵⁹ B-26s contributed to the ultimately successful effort by the NAAF to force German aircraft out of North Africa.⁶⁰ Foreshadowing much of their later focus, B-26s also accomplished interdiction missions against enemy supply lines and bridges. In early March, the 17 BG dropped a significant bridge linking the German-held cities of Gabes and Sfax. Due to the importance of the mission and the accuracy required, they attacked from low altitude despite the presence of fighters and heavy flak. They lost two aircraft and suffered damage to seven others.⁶¹ As German forces retreated from Africa in late April and early May, Marauders continued targeting shipping

⁵⁶ Baird, *17th Bomb Group*, 14.

⁵⁷ Craven and Cate, *The Army Air Forces in WWII*, vol. 2, *Europe: Torch to Pointblank*, 124.

⁵⁸ Tannehill, *Boomerang! Story of the 320th Bombardment Group in WWII*, 38.

⁵⁹ Kenn Rust, *Twelfth Air Force Story in World War II* (Temple City, Ca: Historical Aviation Album, 1975), 15.

⁶⁰ Craven and Cate, *The Army Air Forces in WWII*, vol. 2, *Europe: Torch to Pointblank*, 175.

⁶¹ Rust, *Twelfth Air Force Story in World War II*, 16.; Baird, *17th Bomb Group*, 14.

along with retreating forces in harbor at Sardinia.⁶² NAAF also utilized B-26s for long-range convoy reconnaissance in support of the Northwest Africa Coastal Air Force. It later transferred one B-26 squadron from its Strategic Air Forces to its Coastal Air Forces.⁶³

By late spring, more Marauders were available for combat. The 320 BG entered action on 22 April, having accomplished training and submarine patrol prior to that point. Units also began receiving their first “long wing” B-26B-10s and B-26Cs to augment their operations. With the 319 BG back in action, the three Marauders groups were now poised to play a significant role in the Allied advance to the Italian mainland.

B-26 units made major contributions to Operation CORSKREW, the Allied conquest of the island of Pantelleria. Marauders, Mitchells, and fighter-bombers began the major offensive against the island’s forces on 18 May. That day, the 17 BG claimed damage on 17 large transport planes and several smaller aircraft.⁶⁴ B-26s primarily targeted the airfield on Pantelleria as well as gun emplacements on the coast in preparation for the planned amphibious landing. This effort was not limited to Marauders or medium bombers. Heavy bombers began participating on 1 June. By the time the Allies took the island on 11 June, the NAAF had flown 5,285 sorties and dropped 6,200 tons of bombs on the island.⁶⁵ Attacks against the island’s aerodrome ensured minimal air opposition. Reconnaissance missions indicated no serviceable aircraft on the field. When ground forces arrived, they met virtually no opposition and enemy forces quickly capitulated. Germany abandoned eighty-four aircraft on the airfield. As Craven and Cate explain, “At Pantelleria, the conquest had been accomplished almost exclusively through air bombardment...”⁶⁶ Conquests of Sicily and the Italian mainland encountered much greater resistance.

⁶² Tannehill, *Saga of the 320th, a B-26 Marauder Group in WWII*, 10.

⁶³ Craven and Cate, *The Army Air Forces in WWII*, vol. 2, *Europe: Torch to Pointblank*, 186–187, 441.

⁶⁴ Baird, *17th Bomb Group*, 15.

⁶⁵ Craven and Cate, *The Army Air Forces in WWII*, vol. 2, *Europe: Torch to Pointblank*, 431.

⁶⁶ Craven and Cate, *The Army Air Forces in WWII*, vol. 2, *Europe: Torch to Pointblank*, 431.

While supporting CORKSCREW, B-26s also began preparations for the invasion of Sicily. Among its many tasks for Operation HUSKY, NAAF was responsible for destroying or neutralizing enemy air forces in range of the invasion. From the end of May through the beginning of July, B-26s focused heavily on Sicilian airfields. By D-Day, only two Sicilian airfields were operational. The success did not come without cost. In one particular attack on airfields at Trapani and Milo, the 17 BG had 15 of its 34 attacking aircraft damaged by flak. Eight received serious damage, two beyond repair, while three crewmen perished and 14 were wounded.⁶⁷ Marauders were only part of a combined effort of multiple aircraft types that successfully minimized resistance in the air. Allied ground forces made their landing on 10 July with little air opposition. B-26s also accomplished interdiction attacks, both on the island and on the Italian mainland, to restrict movement of supplies and forces. They achieved uneven results. From 10-12 July, for example, the 320 BG conducted three unsuccessful interdiction missions.⁶⁸ Other Marauder interdiction efforts on Sicily proved more successful. On 14 July, B-26s worked with other medium and heavy bombers to drop 800 tons of bombs on the northwest Sicilian port of Messina. The mission was a particularly significant blow to the important enemy port.⁶⁹ Allied air efforts ensured air superiority over Sicily and offered continued support to ground forces. With Allied forces moving across the island, Marauders and the rest of the Strategic Air Force shifted focus to the Italian mainland.

In preparation for Allied landings on the mainland, B-26s continued to attack various target types in Italy. On 15 July, B-25 and B-26 attacks on the fighter base at Vibo Valencia destroyed an estimated 50 out of 70 aircraft on the field. On 17 and 19 July, Marauders took part in massive raids against targets in Naples and Rome respectively. A force of 179 B-26s successfully attacked Naples' central rail yard, but lost five aircraft during the mission. While B-17s and B-24s attacked rail yards in Rome, the B-26s and B-25s successfully

⁶⁷ Rust, *Twelfth Air Force Story in World War II*, 23.

⁶⁸ Tannehill, *Boomerang! Story of the 320th Bombardment Group in WWII*, 55.

⁶⁹ Craven and Cate, *The Army Air Forces in WWII*, vol. 2, *Europe: Torch to Pointblank*, 459.

bombed the three nearby aerodromes with good effect, but lost one aircraft of each type. The coordinated attacks resulted in a “gap of 200 miles in the Italian railway system” and “prevented for at least days the movement of Axis troops from central to southern Italy.”⁷⁰ The combined effort demonstrated the effects of successful air interdiction.

While rail lines and marshalling yards remained primary targets, early August brought an increasing emphasis on attacking Italy’s many bridges. Heavies, mediums, and fighter-bombers alike attacked bridges in an attempt to interrupt movement and resupply of German and Italian forces. Bridges were difficult but important targets. Marauders, like other platforms, often required multiple attacks to achieve sufficient damage. By the middle of August, the coordinated attacks of NAAF had limited movement of enemy forces to southern Italy. In one instance in early September, 106 B-26s dropped 158 tons of bombs on a rail bridge at Sapri, Italy.⁷¹ Despite the huge effort, the bridge required another attack the next day.⁷² Ultimately, the campaign did create a transportation bottleneck. After the Allied landings on the mainland, Marauders continued bridge attacks with the intent of both stopping resupply and halting retreating forces. Bridges remained a primary target for B-26 crews through the spring of 1944 as Marauders continued to isolate battlefields and interrupt enemy supply lines.

As Allied troops encountered stiff opposition in Italy, B-26 crews also provided direct support to ground forces. On 12 September, “B-26s pounded Torre del Greco, Torre Annunziata and Pompei [sic]-all roads from Naples to Salerno” in an attempt to halt a German advance towards the Allied beachhead.⁷³ For the next few days, Marauders continued cutting roads and attacking troop concentrations around Salerno, including operations from low

⁷⁰ Craven and Cate, *The Army Air Forces in WWII*, vol. 2, *Europe: Torch to Pointblank*, 459–464.

⁷¹ Craven and Cate, *The Army Air Forces in WWII*, vol. 2, *Europe: Torch to Pointblank*, 503–514.

⁷² Tannehill, *Boomerang! Story of the 320th Bombardment Group in WWII*, 78.

⁷³ Craven and Cate, *The Army Air Forces in WWII*, vol. 2: *Europe: Torch to Pointblank*, 531.

altitude.⁷⁴ Once again, this effort involved bombers of all types; heavies, mediums and fighter-bombers. All operated in a tactical role. Ultimately, the effort helped secure the Allied beachhead. As Mediterranean Air Command concluded, "Never before have bombs been employed on a battlefield in such quantities or with such a telling effect."⁷⁵ Yet the missions also demonstrated a need for greater training in air and ground identification of friendly forces and the use of visual signals. Marauder crews had an opportunity to demonstrate improvement in providing close support to troops at Anzio, Italy.

On 19 February, B-26s attempted to halt a pressing German counter attack at Anzio. Ordered to employ at low altitude, the Marauder crews attacked enemy forces within 1,200 feet of friendly troops. Using a road between friendly and enemy lines as an aiming reference, they attacked parallel to the line of friendly forces.⁷⁶ This tactic, which Marauder crews later successfully employed at Utah Beach in France, enabled successful targeting of the enemy without damage to friendlies. Once again, the close support was a combined effort of all bomber types and effectively pinned down German forces, allowing Allied troops to regroup.

Through the spring of 1944, Marauders continued to undertake varied missions including bombing airfields, road and rail lines, marshalling yards and bridges. With increased experience, B-26 crews improved their bombing accuracy considerably. In November 1943, B-26s on average required 59 sorties and 106 tons of bombs to hit a bridge. By the end of March 1944, those numbers were nearly cut in half to 31 sorties and 68 tons respectively.⁷⁷ They earned particular distinction on 15 March during the colossal air raid on the town and abbey at Cassino, Italy. The last to bomb among 275 heavy and 200 medium bombers, the B-26s put close to 90% of their bombs on the target. Heavy bombers were far less accurate and, unfortunately, had several bombs

⁷⁴ Baird, *17th Bomb Group*, 19.

⁷⁵ Craven and Cate, *The Army Air Forces in WWII*, vol. 2, *Europe: Torch to Pointblank*, 535.

⁷⁶ Tannehill, *Boomerang! Story of the 320th Bombardment Group in WWII*, 119.

⁷⁷ Wesley Frank Craven and James Lea Cate, eds., *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day* (Chicago: The University of Chicago Press, 1951), 379.

fall among friendly troops. The official AAF history notes the Marauders “stole the air show at Cassino.”⁷⁸ While the air raid did not lead to the anticipated Allied capture of the town, it demonstrated the accuracy and capability of the B-26 and its crews.

As the 397th prepared to enter combat, Marauders in the MTO supported Operation STRANGLE. The interdiction campaign, which officially began on 19 March, sought to force a German retreat from central Italy by stopping the movement of essential supplies.⁷⁹ The campaign called for the destruction of entire sections of rail line and not a particular type of target. Although the plan initially called for medium bombers to focus on marshalling yards, most Marauder missions sought to destroy railway bridges.⁸⁰ Marauders continued demonstrating accurate bombing. By 24 March, B-26s and B-25s had severed every major rail line used by German forces. They continued to attack bridges as enemy forces attempted their repair.⁸¹

Without doubt, Operation STRANGLE, and continued interdiction efforts during the subsequent ground assault known as Operation DIADEM, aided the Allied capture of Rome. Assessments of the campaign’s overall efficacy, however, varied and analyses differed as to which targets and methods produced the most significant results. STRANGLE had not completely starved German troops of supplies and forced a retreat as envisioned by optimists. The campaign had reduced supplies reaching the front and hindered movement within the battle area.⁸² Interdiction lessons from Italy largely shaped subsequent Allied efforts in France and Germany, though the varied

⁷⁸ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 367.

⁷⁹ F.M. Sallagar, *Operation ‘STRANGLE’ (Italy, Spring 1944): A Case Study of Tactical Air Interdiction* (USAF Project RAND, February 1972), V, <http://www.rand.org/content/dam/rand/pubs/reports/2006/R851.pdf>. (accessed 23 February 2015)

⁸⁰ Tannehill, *Boomerang! Story of the 320th Bombardment Group in WWII*, 137–150.

⁸¹ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 376–377.

⁸² For differing assessments of STRANGLE see: F.M. Sallagar, *Operation ‘STRANGLE’ (Italy, Spring 1944): A Case Study of Tactical Air Interdiction*, <http://www.rand.org/content/dam/rand/pubs/reports/2006/R851.pdf>. (accessed 23 February 2015) and Mark, *Aerial Interdiction*, 143–178.

assessments ensured contentious debates. As was true of STRANGLE, Marauder crews would play a major role in the interdiction campaigns in Northwest Europe.

The experiences of B-26 operations in the MTO offered several lessons to groups in the ETO. While some improvements occurred concurrent with early B-26 operations from England, other lessons were available before the first Marauder group entered combat in Northwest Europe. Perhaps most significantly, the shift to medium altitude had proven beneficial. Although German flak still posed a significant threat, medium altitude operations reduced its lethality. Operations in the MTO also demonstrated the effectiveness of fighter escort. Despite its self-defense capabilities, Marauders normally required escort when opposed by high concentrations of German fighters. B-26 crews had also improved their accuracy and capability against a wide range of targets. Larger formations employing the Norden bombsight enabled vast improvements even against difficult bridge targets. Marauders attacked targets traditionally considered both “strategic” and “tactical” and operated in conjunction with both heavy bombers and fighter-bombers. Their primary limitation, therefore, was not target type but rather range.

To deal with their range limitation, Marauder units in the MTO demonstrated the critical capability of unit mobility. As operations shifted eastward across North Africa and then north to Italy, groups constantly moved bases to remain within range of required targets. Each of the three groups occupied multiple bases in Algeria before moving east to Tunisia, allowing greater access to targets on Italy’s islands and mainland. They later moved to Sardinia to support operations further north in Italy.⁸³ They were often able to begin flying combat missions within a few days of arriving at a new station. The MTO proved mobility was a necessary skill for medium bomber units. Marauder groups in the ETO certainly understood this lesson. Unfortunately, however, not all of the hard-fought lessons from the MTO were initially accepted.

⁸³ Wolf, *Martin B-26 Marauder*, 550–553.

Early Marauder Operations in Western Europe

With the Marauder units originally scheduled for Europe diverted to the MTO in 1942, the B-26 did not enter combat in Northwest Europe until the spring of 1943. The 322 BG became the first of four initial B-26 groups to join the Eighth AF's Third Bombardment Wing. With its first aircraft arriving in England in March, the 322 BG and five new B-17 groups represented the beginning stages of a drastic expansion of Eighth AF's bomber strength.⁸⁴

The Eighth AF planned to unleash this new bomber force in a massive coordinated attack on 14 May. The 322 BG's first mission was to be part of this bomber onslaught. Although operations in the MTO had specifically proven the dangers of low-level tactics, the 322 BG planned the initial B-26 mission in the ETO at treetop level. The group removed their D-8 bombsights in favor of an N-6 gun sight by which the co-pilot would release bombs from what pilots referred to as "zero-feet."⁸⁵

For its first mission, the 322 BG launched 12 Marauders to attack the Velsen electric generating plant at Imjuiden, Holland. They did not encounter fighter defenses, likely attributable to the largest concentration of heavy bombers yet in the ETO attacking targets elsewhere.⁸⁶ As the formation approached the target, one aircraft aborted the mission due to damage from surface fire. The remaining eleven continued to the target and released their delay-fuzed bombs. All aircraft returned to England but most had taken damage from flak. Although the crews initially reported accurate attacks, reconnaissance photographs of the target showed virtually no damage. While some commentators believe the delay action fuzes allowed German forces to remove the bombs before they exploded, others contend most bombs missed the

⁸⁴ Craven and Cate, *The Army Air Forces in WWII*, vol. 2: *Europe: Torch to Pointblank*, 338.

⁸⁵ Jerry. Scutts, *B-26 Marauder Units of the Eighth and Ninth Air Forces* (London: Osprey Aerospace, 1997), 10.

⁸⁶ Craven and Cate, *The Army Air Forces in WWII*, vol. 2: *Europe: Torch to Pointblank*, 340.

target. In either case, the first B-26 mission failed to meet its objective and required a subsequent attack.⁸⁷

The Marauder's re-attack at Imjuiden proved tragic. For this 17 May mission, the 322 BG received orders to send six of its aircraft to attack the original Velsen plant while the remaining six would attack a different plant at Haarlem. One aircraft failed to take off. The remaining 11 Marauders flew unescorted at "zero feet." One crew aborted the mission en route due to a mechanical failure. They may have inadvertently alerted German radar operators while climbing from low altitude to recover the aircraft. Those that continued the mission met stiff fighter defenses and heavy concentrations of flak. In the chaos, three of the aircraft collided. Others fell prey to flak and fighters. None of the ten returned. Thirty-four of the sixty men on the mission perished. Two survivors were rescued at sea but German forces captured the remainder. While devastating for the group, the mission also called into question the role and capability of medium bombers and the B-26.⁸⁸

Many continue to question why the Imjuiden missions employed low-level tactics when such attacks had previously proven dangerous in the MTO. Some attribute the decision to the group's training and choices by group and wing leaders. The 322 BG had trained for eight weeks in low altitude tactics before entering combat. Their senior intelligence officer, however, repeatedly protested the use of low altitude tactics beginning in December 1942 and continuing until the morning of the 17 May mission.⁸⁹ Craven and Cate offer a different rationale. They explain, "AAF Headquarters had been advocating for some time the fullest possible use of the mediums in minimum altitude raids

⁸⁷ Scutts, *US Medium Bomber Units of World War 2*, 13.; AAF Historical Office, *Ninth Air Force in the ETO: 16 Oct 1943 to 16 April 1944*, Army Air Forces Historical Studies: No 32 (AAF Historical Division, 1945), 122, <http://www.afhra.af.mil/studies/numberedusafhistoricalstudies.asp>. (accessed 11 February 2015).

⁸⁸ AAF Historical Office, *Ninth Air Force in the ETO: 16 Oct 1943 to 16 April 1944*, 123-124.; Scutts, *B-26 Marauder Units of the Eighth and Ninth Air Forces*, 11-12. Several accounts state that 11 Marauders went down over Imjuiden. This thesis accepts the Ninth AF and official AAF history, which describe 10 aircraft lost.

⁸⁹ AAF Historical Office, *Ninth Air Force in the ETO: 16 Oct 1943 to 16 April 1944*, 120-124.

against suitable coastal objectives. In the Pacific, they had been employed, often with brilliant effect, in deck level attacks against naval targets...”⁹⁰ Planners specifically selected the coastal targets at Imjuiden for low-level attack. Furthermore, they deemed fighter escort impracticable for low altitude missions. Without fighter support and against intense German flak, the experiment at “zero feet” clearly failed. The mission proved conditions in Europe were far different from those of the Pacific. While certainly unique, the environment more closely resembled the MTO.

After a failed mission and a tragic loss, the Marauder’s future was again in question. Eighth AF grounded all B-26s. While the AAF continued sending previously scheduled Marauder groups to Europe, debates continued behind the scenes. Assistant Secretary of War Lovett expressed to General Hap Arnold his continued concern over the utility of the B-26. In a subsequent letter to Air Staff Director of Requirements General Barney Giles, Arnold stated, “we should seriously consider the removal of the B-26...” citing its “very limited usefulness” and cost being only marginally less than that of a B-17. A collection of AAF leaders replied stating, “The B-26 is the least desirable of the medium bombers. It was, therefore decided to eliminate it at such a time as it can be practically accomplished and its production facilities most efficiently used for more desirable types...”⁹¹ Arnold concurred with the recommendation. The B-26’s future was in jeopardy, perhaps more than ever before.

In the meantime, General Ira Eaker, Commander of Eighth AF, decided to move the B-26s from his Bomber Command to Air Support Command. Even if the aircraft returned to service, AAF leaders questioned its overall utility in the strategic bombing campaign. They could not attack highly defended coastal targets from low altitude as originally intended. In Air Support Command, Eaker sought to train Marauder crews to support ground forces in the invasion

⁹⁰ Craven and Cate, *The Army Air Forces in WWII*, vol. 2: *Europe: Torch to Pointblank*, 340.

⁹¹ Quoted in Moench, *Marauder Men*, 43.

of the continent.⁹² If they returned to operations, B-26s would fly at medium altitude with fighter escort.⁹³

As new Marauder groups continued arriving in England, crews undertook medium altitude training and tactics development. The 323 BG had arrived just prior to the Imjuiden missions. The 386 BG and 387 BG reached England during June. In addition to raising their planned employment altitudes, Marauder crews decided to use close formations with larger numbers of aircraft. Originally increasing to about 18 aircraft, Marauder groups later determined 36 aircraft, two “boxes” of 18, as the optimal number. Each “box” typically included three flights of six; a lead flight, a high flight and a low flight.⁹⁴ Boxes would alter course roughly every 20 seconds in a “zig-zag” pattern to complicate firing for flak gunners. While on a bombing run, crews were not to take evasive action as bombing accuracy took priority over self-defense. With or without fighter escort, Marauders remained in formation and utilized their multiple guns positions for defense against aircraft. To enable medium altitude tactics, B-26s transitioned from D-8 bombsights to Norden bombsights. Additionally, all B-26 groups were now to operate from Essex, England to put them closer to more mainland targets. However, B-26s would be unable to put any of these improvements to test until returned to combat status.

The 323 BG flew the Marauder’s return to combat on 16 July. Apparently, removing the B-26 from combat could not yet be “practically accomplished.” This mission was in many ways a test to determine the aircraft’s future. With heavy fighter escort, 18 Marauders planned to attack the marshalling yards at Abbeville, France from an altitude of ten thousand feet. They did not encounter fighter opposition. Although 10 aircraft received flak damage, 15 dropped their bombs and all returned home. Colonel Sam Anderson, the Third Bombardment Wing Commander, an experienced B-26 pilot and a proponent of the Marauder’s return to combat at medium altitude,

⁹² Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 341.

⁹³ AAF Historical Office, *Ninth Air Force in the ETO: 16 Oct 1943 to 16 April 1944*, 125.

⁹⁴ Havener, *The Martin B-26 Marauder*, 150.

flew on the mission. While he was not pleased with the bombing accuracy, the mission was clearly a success and set the stage for future Marauder operations.⁹⁵

B-26 operations continued, with the 386 BG flying its first bombing mission on 30 July, the 322 BG returning to action 31 July, and the 387 BG entering combat on 15 August. During the summer of 1943, Marauder targets occasionally included coke plants and power stations but consisted primarily of airfields and marshalling yards. The emphasis on airfield attacks, in accordance with the early phases of the Combined Bomber Offensive, sought to destroy Luftwaffe capabilities to gain air superiority. The missions might also minimize fighter opposition to heavy bombers, which focused primarily on attacking industrial facilities that supported the Luftwaffe. Attacks against airfields and marshalling yards certainly produced material damage. However, Germany's flexible system of alternate airfields and railways coupled with its ability for quick repair minimized long-term effect. Many targets required consistent revisiting.⁹⁶ Marauders also flew some "diversionary" attacks, designed to attract Luftwaffe attention, enabling heavy bombers to proceed deep into enemy territory unopposed.⁹⁷ While the Marauder attacks against enemy aerodromes often achieved significant damage, the diversionary tactics did not effectively draw enemy fighters from the heavies.⁹⁸ However, by the end of the summer, B-26 units were making valuable contributions to the war effort.

Remarkably, B-26s quickly showed a high survival rate. At the end of August 1943, the AAF calculated a B-26 crew survival rate of 37.35 missions compared to 17.74 for a B-17 crew.⁹⁹ German flak provided the B-26's most significant threat. Royal Air Force (RAF) Spitfires normally provided fighter

⁹⁵ Moench, *Marauder Men*, 47–49.

⁹⁶ Scutts, *US Medium Bomber Units of World War 2*, 27.

⁹⁷ Craven and Cate, *The Army Air Forces in WWII*, vol. 2: *Europe: Torch to Pointblank*, 667.

⁹⁸ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 122.

⁹⁹ Scutts, *B-26 Marauder Units of the Eighth and Ninth Air Forces*, 21.

escort with a high fighter to bomber ratio of 4 to 1.¹⁰⁰ The strong escort presence coupled with the Marauder's defensive firepower minimized but did not eliminate losses to enemy fighters. The heavy bombers' high loss rate was partly attributable to the fact they attracted the majority of attention from German fighter defenses. In July, AAF Headquarters actually proposed using the B-26 as escort "destroyer" for heavies, but the Eighth AF refused the suggestion. Marauders continued in the medium bombing role.¹⁰¹

In October 1943, the AAF transferred all four B-26 groups in England to the Ninth AF. The Ninth AF relocated from the MTO with the mission to, "serve as the American Tactical Air Force which would cooperate with the ground forces in the Allied invasion of Europe."¹⁰² Rather than continue expansion of the Eighth AF, the AAF determined to establish the Ninth for "tactical" operations while the Eighth continued its "strategic" focus.¹⁰³ Over the next six months, the Ninth AF's rapid growth included four new B-26 groups. Ultimately, Ninth AF grew to include 11 bombardment groups, 18 fighter groups, 14 troop carrier groups, and two reconnaissance groups.¹⁰⁴ Because the AAF had decided to leave its B-25 forces operating under Twelfth AF in the MTO, the B-26 remained the AAF's only medium bomber in Northwest Europe.

Despite the organizational move, Marauders continued with a focus on bombing airfields. However, poor weather significantly inhibited operations in both October and November.¹⁰⁵ The European weather, though challenging throughout the year, proved particularly difficult in the fall and winter months. B-26 groups encountered significant resistance from German fighters in October but performed well in self-defense. On 18 October, Marauders from the 322 BG resisted an attack by 36 Messerschmitt 109s (Me 109) and claimed

¹⁰⁰ Moench, *Marauder Men*, 49., reference is in footnote. The RAF insisted on the 4:1 fighter to bomber ratio, which served to limit the number of bombers employed on a mission.

¹⁰¹ Green, *Famous Bombers of the Second World War*, 143.

¹⁰² AAF Historical Office, *Ninth Air Force in the ETO: 16 Oct 1943 to 16 April 1944*, 1.

¹⁰³ Thomas Alexander Hughes, *Overlord: General Pete Quesada and the Triumph of Tactical Air Power in World War II* (New York: Free Press, 1995), 112-113.

¹⁰⁴ Kenn Rust, *The 9th Air Force in World War II* (Fallbrook, CA: Aero Publishers, Inc, 1967), 46.

¹⁰⁵ Rust, *The 9th Air Force in World War II*, 49.

three fighter kills with no bombers lost. The 322 BG also claimed three fighters destroyed and six damaged on the 24th without losing a bomber. While specific numerical claims were notoriously inaccurate and difficult to verify, B-26s were clearly holding their own against fighter attacks. This capability contributed to an astoundingly low B-26 loss rate of 0.3% over 6,700 sorties flown between July and December.¹⁰⁶

During November 1943, Marauders missions increasingly attacked targets associated with Germany's "Vengeance", or "V," Weapons programs. As far back as August, B-26 groups attacked "secret targets" they would only later learn were V-Weapons sites.¹⁰⁷ During the late fall and winter, these missions became more frequent. On 5 November, approximately 100 B-26s attacked a "construction works" in Mimoyecques, France. Each aircraft carried two 2,000-pound bombs to attack the mysterious target near the French coast. The "construction works" turned out to be heavily defended by flak, which damaged nearly half of the attacking aircraft and brought down two. Marauders attacked multiple "construction works" in November and December but also continued their pressure on German held aerodromes. By December, crews learned the true nature of their mysterious targets. Most were sites being built to launch pilotless aircraft, known as "V-1's" or "buzz bombs." The sites, later codenamed NOBALL targets, were the subject of Operation CROSSBOW. By December, these missions were second in priority only behind direct support to Operation POINTBLANK, the Combined Bomber Offensive.¹⁰⁸ Because the 397 BG spent a significant portion of its first months in combat supporting Operation CROSSBOW, the following chapter describes the operation and its effect on the war effort in detail.

The winter months of late 1943 and early 1944 brought a new command structure but no significant mission changes for Marauder crews. On 15 December, the Ninth AF moved under the operational control of the Allied Expeditionary Air Force (AEAF). The move placed the Ninth AF and the British

¹⁰⁶ Scutts, *US Medium Bomber Units of World War 2*, 32.

¹⁰⁷ Moench, *Marauder Men*, 59.

¹⁰⁸ Rust, *The 9th Air Force in World War II*, 49–50.

Second Tactical AF under a unified commander in preparation for the upcoming invasion of the continent. B-26 crews continued attacking NOBALL targets and enemy airfields. However, poor weather significantly limited operations in December and January, often causing crews to either attack secondary targets or return without dropping their bombs.

The creation of the 1st Pathfinder Squadron (Provisional) in February represented a major step in dealing with continuing weather challenges. This squadron of specially trained aircrews employed equipment and techniques to enable “blind bombing” through clouds. The AAF considered both the A-20 and the B-26 for this mission but chose the Marauder, as the Havoc was unable to carry the required equipment. The B-26 Pathfinders used the highly secret British OBOE system.¹⁰⁹ The system “consisted of two ground stations which transmitted pulses which were rebroadcast back from the aircraft.” One station guided the aircraft on an arc to the target and the other determined the point for bomb release. The aircraft’s OBOE receiver transmitted Morse code tones to the aircrew guiding them to the release point. When properly employed, the system was accurate to within hundreds of yards.¹¹⁰ The Pathfinders led bomber formations and located targets enabling the rest of the formation to release bombs on the Pathfinder’s cue. This capability brought greater effectiveness despite weather obstacles through the end of the war.

In the final months before the 397 BG entered combat, the B-26 force in England added three new groups and conducted wide-ranging operations. Foreshadowing missions that would soon occupy much of their attention, Marauders returned to attacking railroad marshalling yards on 9 February. The successful mission cut all rail lines at the important junction in Tergnier, France, stalling the movement of a Panzer division for six days.¹¹¹ The Marauder force continued to grow with the debut of the 391 BG on 15 February. As the official Ninth AF history relates, “By this time, the B-26 in

¹⁰⁹ Wolf, *Martin B-26 Marauder*, 596–597.; Rust, *The 9th Air Force in World War II*, 57.

¹¹⁰ Randall T. Wakelam, *The Science of Bombing: Operational Research in RAF Bomber Command* (Toronto ; Buffalo: University of Toronto Press, 2009), 245.

¹¹¹ Rust, *The 9th Air Force in World War II*, 55–56.

this theater had completely dispelled the bad reputation which had so undeservedly clung to this plane.”¹¹²

The enlarged B-26 force played a supporting role in the famous late February “Big Week.” While heavy bombers executed massive coordinated strikes against German aircraft industry facilities, Marauders repeatedly attacked airfields in Holland. They also continued heavy attacks on NOBALL targets. This split of B-26 missions reflected deep disagreements between the AEF and US Strategic Air Forces in Europe (USSTAF) on the use of medium bombers. USSTAF favored continued support to Operation POINTBLANK while AEF favored support to the CROSSBOW offensive. Marauders continued supporting both, but even their CROSSBOW missions were timed to coincide with heavy bomber strikes. While B-26s flew 2,328 effective sorties and dropped 3,300 tons of bombs in February, they lost 20 aircraft. This was more than they had lost in the preceding three months.¹¹³

During March and April, the Ninth AF and its B-26 units shifted towards the upcoming invasion of the continent. Tactical targets, primarily railway centers, took top priority. Although they continued prosecuting NOBALL and airfield targets, the pending invasion required disruption of Germany’s transportation network. During this time, Ninth AF’s fighter groups, now known as “fighter-bomber” units, also emphasized bombing operations in preparation for the invasion.

In addition to combat operations, the Ninth AF and its B-26 groups accomplished intensive training in bombing, coordination with ground forces, and rapid mobile deployment. With two new B-26 groups, the 344 BG and 394 BG, becoming operational in March, the seven Marauder groups continued both combat and training in preparation for Operation OVERLORD. Only the 397 BG remained to join the Ninth AF in its mission to provide airpower in support of the quickly approaching Allied invasion of the continent.

¹¹² AAF Historical Office, *Ninth Air Force in the ETO: 16 Oct 1943 to 16 April 1944*, 140.

¹¹³ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 123-124.

Chapter 3

397 BG Activation through Invasion



Figure 1: 397 BG B-26 Marauder, Tail # 296 150 -“Hot Rock”

Source: 1st Lt Robert P. Jones, Pilot, 397 BG

The AAF activated the 397 BG on 20 April 1943 at MacDill Field, Florida. With the activation of the group came four new Marauder squadrons: the 596 Bombardment Squadron (BS), 597 BS, 598 BS and 599 BS. The group began as a small initial cadre under the interim command of Captain Bertram Solomon. Activation orders required the 397 BG reach full strength by 17 July. Squadrons began receiving personnel in the middle of May, with the majority being transferred from the 21 BG, a B-26 Operational Training Unit at MacDill, and the 1st Minimum Altitude Bomber-Torpedo Unit at Eglin Field, Florida.¹

Training and Deploying the 397th for War

Training began for early group members on a fateful day in the history of the Marauder. On 17 May 1943, the day of the 322 BG's tragic second mission

¹ History, 397th Bombardment Group, 20 April 1943- March 1944.

to Imjuiden, members of the 397 BG began training at the Army Air Forces School of Applied Tactics (AAFSAT). The AAFSAT, formed in November 1942, inherited the mission of tactics instruction earlier held by the famed Air Corps Tactical School (ACTS). The AAF suspended ACTS operations in the spring of 1940 to allocate its experienced personnel to training and staff positions to support AAF expansion. The AAFSAT reestablished a tactical school and consolidated tactics development and training for units preparing for war under one organization.² Selected officers and enlisted personnel from the 397 BG staff and each of the four squadrons attended the 30-day school in Orlando, Florida for instruction in medium bombardment. The course included two weeks of orientation classes followed by two weeks of simulated bombing missions at Montbrook Army Air Base in Williston, Florida. As the group grew, additional personnel later attended the AAFSAT course.³

While at MacDill, the 397 BG accomplished a phased training plan of pre-war preparation. The first phase, in June and early July, focused primarily on ground school but also included transition flying and low altitude missions. Transition training focused on basic B-26 flight operations.⁴ Although Marauders in the MTO had already transitioned to primarily medium altitude and low-level tactics in Europe had failed, training courses had not yet adapted.

The second and third phases of training at MacDill showed a shift in focus as the program caught up with operational realities. While still accomplishing ground school, the second phase, beginning on 12 July, emphasized formation flying and gunnery. Most importantly, “During the latter part of the phase, medium bombing missions – 8,000 to 10,000 f[t]—were emphasized instead of low level bombing.” As crews in England sought to

² Air Historical Office, *The Development of Tactical Doctrines at AAFSAT and AAFTAC*, Army Air Forces Historical Studies: No 13, Headquarters, Army Air Force, 1944, 8–25, <http://www.afhra.af.mil/studies/numberedusafhistoricalstudies.asp>. (accessed 11 February 2015)

³ History, 397th Bombardment Group, 20 April 1943- March 1944.

⁴ History, 397th Bombardment Group, 20 April 1943- March 1944. Although only the 596 BS's historical records include a detailed breakdown of the training phases, they are presented here as a likely standard for group preparation.

develop medium altitude tactics appropriate for the theater, one thing was apparently clear. If the 397 BG were to enter combat, they would do so as medium altitude bombers. This was certainly a significant change for the crews, especially for the many recently arriving from the 1st Minimum Altitude Bomber-Torpedo Unit. The group's third phase of training at MacDill continued to focus on medium altitude bombing, night and day formation, navigation and gunnery. The group continued adding airplanes and men, including the new commander who would lead them to war.

Colonel Richard T. Coiner Jr. took command of the 397 BG on 5 October 1943. He replaced Lieutenant Colonel John R. Batjer, who had commanded the group since 18 July. A 1932 graduate of the United States Military Academy at West Point, Coiner was an experienced bomber pilot who had also commanded a Transportation Squadron and served as the Executive to the Assistant Secretary of War for Air. Prior to taking command of the 397 BG, Colonel Coiner served as the Third AF Flying Safety Officer and Commander of the 21 BG.⁵ Coiner was "a tough disciplinarian, but outgoing and well-liked by his men."⁶ Later in his career, Coiner attained the rank of Major General and commanded the Ninth AF. His challenge beginning in late 1943 was to ready a group that would soon join the Ninth in combat in Europe.

Foreshadowing later operations in Europe, the 397 BG demonstrated unit mobility with two changes of station in October and November. The group moved from MacDill to nearby Avon Park, Florida on 12 October. Avon Park simulated living conditions the men might encounter in theater. They lived in tents and only occasionally received hot meals. While remaining at Avon Park for just over two weeks, they continued formation training and medium altitude bombing, including missions with live bombs.⁷ Their next stop was the Combat Crew Staging Field at Hunter Field, Georgia. Arriving on 1 November, the group

⁵ "Biography of Coiner, R.T. Jr.," n.d., Department of the Air Force, Microfilm Reel 23235 frames 300-303 (on Microfilm only), Air Force Historical Research Agency, Maxwell AFB.

⁶ Jack D Stovall, *Wings of Courage* (Memphis, TN: Global Press, 1991), 61.

⁷ History, 397th Bombardment Group, 20 April 1943- March 1944.

increased their training tempo in what was to be their “polishing off” for a potential call to combat.

The group prepared constantly at Hunter Field. Beginning in early November, they executed several large-scale bombing training missions. In attempting to simulate conditions in the ETO, the group superimposed some of their training missions on European map layouts to replicate the average flight times, routings, and altitudes they expected to fly in combat. For further realism, the medium altitude bombing scenarios included defensive fighter aircraft and simulated flak. They often attacked simulated marshalling yards and airfields from altitudes between four thousand feet and ten thousand feet. The men also completed other pre-combat requirements such as chemical spray and smoke-screen training missions. They would not execute either mission in combat.

While at Hunter Field, the 397th sent squadrons and detachments for training opportunities throughout the United States. In late November, part of the group deployed to Tallahassee, Florida for training with amphibious landing craft and in sea search missions. This training likely proved beneficial less than seven months later as the 397 BG provided support to the amphibious assault on Utah Beach. The group also capitalized in the opportunity to learn from returning combat veterans. During December, group and squadron leaders attended “Theater of Action Operational Procedures Training” at MacDill, where B-26 crews recently returned from the ETO passed on lessons from combat. In early January, the 596 BS and 597 BS flew in the “Tennessee Maneuvers.” Flying from Columbus, Indiana, the men flew as part of the “blue,” or friendly, forces in support of the XI Army Corps. Poor weather during the maneuvers highlighted the importance of improved flight assembly and navigation procedures, two skills that certainly paid dividends in combat. The 598 BS and 599 BS similarly accomplished flight maneuvers at Fort Benning, Georgia as well as bombing demonstrations at Sheppard Field, Texas and Goodman Field, Kentucky. With the group back together at Hunter by early

February, the 397 BG continued training and final preparations for a still undetermined move overseas.⁸

The 397th did experience training difficulties and tragic losses. A 21 July collision between two aircraft of the 596 BS killed ten men as both aircraft crashed. In total, 26 group members died in airplane accidents during training at MacDill and Avon Park. The group experienced only one fatal crash after moving to Hunter Field. On 20 January, eight men perished in a single aircraft crash near Camden, Arkansas. One member of the group earned a Distinguished Flying Cross (DFC) while giving his life during training. During an 18 July flight, a P-51 Mustang struck Second Lieutenant John Hazle's B-26, tearing away part of the Marauder's cockpit and nose. Hazle ordered the crew to parachute from the aircraft, though for an unknown reason, the tail gunner was unable to do so. Hazle and the gunner perished during an attempted crash landing. On 4 November 1943, Hazle was posthumously awarded the DFC. He was the first of many 397 BG members to earn the award.⁹

Before departing for overseas, the 397 BG received special commendation from the Third Air Force Staging Wing at Hunter. Colonel L. L. Koontz, Commander of the Third Wing, presented Colonel Coiner with a "silver cup" trophy in recognition of the group's outstanding performance. The accompanying citation noted the group had, "...maintained rigid training schedules under many adverse circumstances and have performed their duties in a manner to bring credit to themselves and the favorable attention of this command." Furthermore, it explained, "...the cooperation extended by every member of the 397th Bomb Group toward the military personnel of this command while the Bomb Group was being processed and staged for overseas movement was accomplished in a superior manner never before equaled by any unit being processed or staged at Hunter Field, Georgia." The trophy was a clear acknowledgement of excellence and a reflection of the group's confidence. Its own historical report from November 1943 stated, "But the personnel of this

⁸ History, 397th Bombardment Group, Nov 1943, Dec 1943, Jan 1943.

⁹ History, 397th Bombardment Group, Nov 1943.; History, 397th Bombardment Group, 1944 Medical Report. The DFC Citation does not describe Hazle's accident as fatal, but the squadron medical report states both personnel on board perished.

group feel that its future combat record will be to such an extent that in the months to follow numerous references will be made to the historical reports of this organization.”¹⁰

The 397th passed a final inspection in February to prove their readiness for combat. They received their final complement of aircraft for the flight overseas. Their new B-26B-55 variants included the “long wing” design and larger tail surfaces than the earliest Marauder models. Now ready for combat, the 397 BG’s first aircraft departed Hunter on 24 February to begin the transit to Europe. The rest of the flight echelon departed the next day. The ground echelon embarked via ship from Brooklyn, NY on 23 March. The 397th was on its way to war.

The 397 BG’s flight echelon arrived at Gosfield in Southeastern England in waves, with aircraft arriving on the 7th, 9th, and 11th of March. They arrived via the “southern route” with stops in Puerto Rico, South America, and Africa before heading north to England. Although they lost one aircraft in an accident in South America, the group experienced no casualties throughout their long journey. While at Gosfield, also known as Station 154, the fliers began indoctrination training and preparation for combat. Aircrew members from various units across Ninth AF provided instruction on combat procedures, tactics, navigation, communication, and gunnery. The group flew local training missions, known as “doughnut missions,” to learn local procedures and maintain flying skills. They remained at Gosfield as the ground echelon crossed the Atlantic by sea.

The arrival of the ground echelon in early April enabled the 397th to move to its final destination. After anchoring in Scotland on 3 April, the ground echelon moved via rail and truck to Gosfield. They joined the flying personnel on 5 April. The reconstituted group then departed Gosfield on 15 April for their new home of Rivenhall, in the southeastern English county of Essex. Rivenhall would be their home for the next four months and 85 combat missions.¹¹

¹⁰ History, 397th Bombardment Group, Nov 1943.

¹¹ History, 397th Bombardment Group, 20 April 1943-March 1944, April 1944.

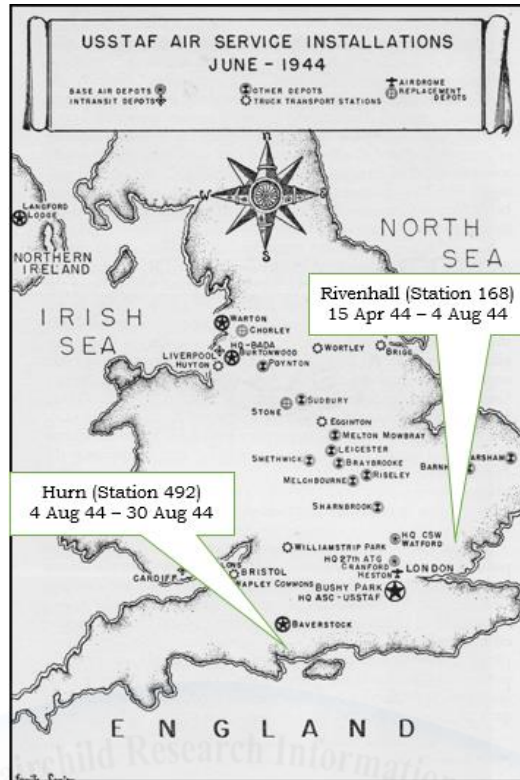


Figure 2: 397 BG Operating Locations in England

Source: Craven and Cate, *The Army Air Forces in World War II, vol 3, Europe: Argument to V-3 Day*, Page 650;

Online at <http://www.ibiblio.org/hyperwar/AAF/II/maps/AAF-II-p650.jpg>

Rivenhall, also known as Station 168, was one of many new airfields built to support American units in England. Since its opening in late 1943, the field had been home to the P-51s of the 363rd Fighter Group. The 363rd moved further south to Staplehurst, making room for the 397th.¹² Living conditions at Rivenhall were “adequate and comfortable.” All group members lived in half-cylindrical corrugated steel and brick buildings known as Nissen Huts. Officers and enlisted men ate at separate mess halls and officers enjoyed a “large comfortable” officer’s club. The base also provided standard British plumbing for latrines and indoor showers, luxuries they would later go without in some

¹² Michael J. F. Bowyer, *Action Stations: 1. Military Airfields of East Anglia* (Wellingborough: Stephens., 1990), 175.

locations after moving to the continent.¹³ Upon arrival, the group continued preparations for its imminent entry to WWII.

Before the 397th arrived in theater, Ninth AF had recently undertaken several policy changes. Perhaps the most significant was cancellation of the policy that allowed crews who had completed 50 combat missions to return home.¹⁴ Facing aircrew shortages and in consideration of declining casualty rates, the limit was ultimately increased to 65 missions. The command did allow aircrew two days' leave per month and additional leave or time at the Ninth AF rest home to help minimize combat fatigue. A decision to increase the size of groups from 57 to 84 crews exacerbated the manpower shortage. The newly arriving 397th, therefore, needed to gain new crews almost immediately.

A series of operational policy changes also affected the men's training and combat employment. Ninth Bomber Command's Brig Gen Samuel Anderson, upon returning from a visit to the MTO, instituted changes such as careful selection of lead bomber crews and "ruthless elimination" of incompetent aircrew members.¹⁵ Due to concerns with the accuracy of both his B-26s and A-20s, Lt Gen Lewis Brereton, Commander of the Ninth AF, also mandated a change in tactics in March. Rather than have large formations drop weapons on the signal of one lead airplane, Brereton insisted groups employ weapons in flights of six. They would continue flying in boxes of approximately 18 aircraft, but bomb in the smaller groups. Although the change might initially result in greater bomb dispersion, he felt it would ultimately increase bombing quality.¹⁶ The command also increased its emphasis on flight training as well as group mobility training. The latter was in keeping with the Ninth AF's "Keep Mobile" slogan in anticipation of its move to

¹³ History, 397th Bombardment Group, 1944 Medical Report.

¹⁴ AAF Historical Office, *Ninth Air Force in the ETO: 16 Oct 1943 to 16 April 1944*, Army Air Forces Historical Studies: No 32 (AAF Historical Division, 1945), 51, <http://www.afhra.af.mil/studies/numberedusafhistoricalstudies.asp>. (accessed 11 February 2015).

¹⁵ AAF Historical Office, *Ninth Air Force in the ETO: 16 Oct 1943 to 16 April 1944*, 111.

¹⁶ Lewis H. Brereton, Lieutenant General USA, *The Brereton Diaries: The War in the Air in the Pacific, Middle East and Europe* (New York, NY: William Morrow and Company, 1946), 250.

the continent.¹⁷ About to enter combat, the men of the 397th adapted to these changes in their preparations for war.

The Ninth Air Force published its Tactical Air Plan for Operation-NEPTUNE on 26 April 1944. The plan established priorities for the American tactical AF in its preparation for and execution of the invasion phase of Operation OVERLORD. It stated, "During the preparatory phase the objectives of Allied Air Forces will be the reduction of German Air Forces, the destruction of strategic rail centers, selected enemy coastal defense, CROSSBOW and Naval installations and airfields in the Neptune area."¹⁸ Although published six days after the 397th entered combat, the plan's objectives shaped each of the group's 40 missions prior to the invasion. In fact, they received orders to prosecute each of these objectives during their seven weeks of operations prior to D-Day. On 20 April 1944, exactly one year after its original activation, the 397 BG entered combat against Germany.

The 397 BG in Operation CROSSBOW

The 397 BG's initial combat mission was the first of ten they flew in support of Operation CROSSBOW. The offensive operation attacked Germany's "Vengeance," or "V," weapons sites to prevent their use against Britain. The initially secret campaign used the term NOBALL to describe targets associated with the long-range weapons. Of the 397th's 40 missions prior to D-Day, seven were NOBALL missions. Germany had yet to attack with its mysterious weapons, but the Allies perceived a significant threat. However, CROSSBOW was only one of several priorities as the 397th entered combat in the final lead up to OVERLORD. Despite contentious debates over the priority and conduct of the operation, the 397th joined a long-running campaign to disrupt an impending German attack.

¹⁷ Brereton, *The Brereton Diaries: The War in the Air in the Pacific, Middle East and Europe*, 222.

¹⁸ AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, Army Air Forces Historical Studies: No 36 (Headquarters AAF, 1945), 30, <http://www.afhra.af.mil/studies/numberedusafhistoricalstudies.asp>.

Early attacks against Germany's V-Weapons program focused on development facilities in Germany and "large sites" in France. The Allied offensive began with heavy bomber attacks in August 1943. On the night of 17/18 August, 597 RAF bombers attacked research and development facilities at Peenemünde on the German Baltic Coast. Although the Allies did not yet understand the details of the German V-Weapons program, intelligence indicated the complex housed facilities for development and experimentation for secret long-range weapons. American B-17s of the Eighth AF first attacked and badly damaged the large site at Watten, France ten days later. The site was one of seven large sites in the Pas de Calais area, which General Brereton described as, "more extensive than any concrete constructions we have in the United States with the possible exception of the Boulder Dam."¹⁹ By the end of August, Marauder units were attacking "secret targets" they only later learned were V-Weapons sites.²⁰ On 5 December, B-26s attacked one of these large sites at Mimoyecques, France. Although unknown at the time, Germany planned to employ a long-range gun, referred to as the V-3, from Mimoyecques. The V-3's 492-foot gun barrels were intended to fire 300-pound projectiles capable of reaching London at a rate of ten per minute.²¹ Allied bombers repeatedly attacked these large sites through the summer of 1944. Germany never fired a weapon from the large sites.²²

In addition to the "large sites," much of the Allied attention focused on "ski sites" in the Pas de Calais region and the Cotentin Peninsula. British photo-intelligence first located the ski sites in the fall of 1943. Although the utility of the sites was initially unknown, intelligence analysts later determined they were launch sites for V-1 pilotless aircraft. The Allies ultimately discovered

¹⁹ Wesley Frank Craven and James Lea Cate, eds., *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day* (Chicago: The University of Chicago Press, 1951), 90.

²⁰ John O. Moench, *Marauder Men: An Account of the Martin B-26 Marauder: A Story of the Martin B-26 Marauder and the Men Who Flew and Supported It, a Special Account of the 323rd Bombardment Group (M) of the Eighth and Ninth Air Forces in Europe*, 1st ed (Longwood, Fla: Malia Enterprises, 1989), 59.

²¹ Roy M. Stanley, *V - Weapons Hunt: Defeating German Secret Weapons* (Barnsley: Pen & Sword Military, 2010), 134–137.

²² Colonel Theodore Aylesworth, "A Review of the Protection of England Against V-Weapons in World War II" (Air War College, Air University, 1953), 23.

96 ski sites located near the French coast. The sites earned their name due to distinctive buildings shaped like skis lying on their sides. The buildings were 10 feet wide and 260 feet long with a shallow curve at one end. Sites typically included three of these ski buildings. American and British intelligence postulated the buildings were for storage of the flying bombs, with the curve serving to minimize the blast effects of bomb attacks. In addition to the ski buildings, the sites included a 150-foot long launching ramp on a 10-degree incline and a square shaped building oriented precisely with the launching ramp. The orientation of these square buildings allowed alignment of the weapon's magnetic heading with that of the launch ramp.²³ Allied intelligence determined that the launch ramps of the northern ski sites in the Pas del Calais area pointed directly at London, while sites further south in the Cotentin Peninsula pointed to the city of Bristol. The threat to British cities was clear.²⁴

Operation CROSSBOW officially began in early December 1943. In accordance with Combined Chiefs of Staff guidance, Ninth AF issued a directive on 4 December providing a list of CROSSBOW targets for immediate attack. CROSSBOW received second priority behind support of Operation POINTBLANK. Ninth Bomber Command flew its first missions against ski sites on 5 December.²⁵ With the combined efforts of the American and British tactical air forces, Allied leaders expected to neutralize 25 of the ski sites by the end of December.²⁶

Early operations by Allied tactical air forces proved the ski sites were difficult to destroy. Despite the presence of large buildings, crews often had problems finding their targets, which were normally located in small woods. Additionally, solid construction and the dispersion of buildings within the sites made neutralization difficult.²⁷ Weather also created challenges both locating

²³ Stanley, *V- Weapons Hunt*, 164-169.

²⁴ Basil Collier, *The Battle of the V-Weapons: 1944-1945* (New York, NY: William Morrow and Company, 1965), 20, 42-44.; Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 90-91.

²⁵ AAF Historical Office, *Ninth Air Force in the ETO: 16 Oct 1943 to 16 April 1944*, 131-133.

²⁶ Aylesworth, "A Review of the Protection of England Against V-Weapons in World War II," 25.

²⁷ AAF Historical Office, *Ninth Air Force in the ETO: 16 Oct 1943 to 16 April 1944*, 143.

the sites and assessing post-strike damage. By 15 December, the British Chiefs of Staff requested the Eighth AF's heavy bombers turn their attention to ski sites and other CROSSBOW targets. On 24 December, the Eighth AF sent 722 of its heavy bombers to attack 23 NOBALL sites. At a minimum, the Germans V-weapons program had begun diverting attention from Allied attacks on Germany.

In an effort to determine the best method to destroy NOBALL targets, General Hap Arnold directed a series of test missions at the AAF Proving Ground at Eglin Field, Florida. The tests employed all available weapons types and methods of employment against replica ski sites. The AAF issued its final report on 1 March 1944. The report indicated that, "minimum altitude attacks by fighters, if properly delivered, were the most effective and economical aerial countermeasures against ski sites; medium and high-altitude bombing attacks, which threatened a serious diversion from POINTBLANK operations, were the least effective and most wasteful bombing countermeasures."²⁸ The tests further indicated that P-38 aircraft employing 2,000-pound bombs from minimum altitude provided the optimum solution for NOBALL targets. The AAF, therefore, sought to free its heavy and medium bombers from much of their responsibilities in support of CROSSBOW. However, the test results brought controversy rather than agreement.

British leaders largely rejected the results of the Eglin tests. Citing increased German flak defenses and a belief that the Eglin structures were stronger than the German facilities, they continued to favor high altitude attacks by heavy bombers employing 250 or 500 pound bombs. Air Chief Marshal Sir Trafford Leigh-Mallory, Commander of the AEAFF, was among the most forceful opponents of minimum altitude bombing by fighter-bombers. American commanders at all levels believed CROSSBOW efforts, while important, were unnecessarily diverting resources from other priorities. The impasse continued through the spring. While continuing POINTBLANK operations, heavy bombers also conducted both massive raids and smaller scale

²⁸ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 99.

attacks in support of CROSSBOW. Medium bombers continued attacking NOBALL targets.²⁹

Although Germany had yet to launch any V-Weapons, British concerns increased throughout the spring. The discovery of new “modified sites” and continued construction of ski sites indicated an attack might be imminent. The modified sites lacked the ski shaped buildings and were therefore more difficult to locate and attack.³⁰ At the request of the British War Cabinet, General Dwight Eisenhower, the Supreme Allied Commander, increased the Allied emphasis on CROSSBOW. On 19 April, he temporarily raised CROSSBOW in priority over all other air operations.³¹ He issued this decree the day before the 397 BG entered combat. In accordance with the directive, the 397 BG’s first three missions attacked NOBALL facilities.

On 20 April 1944, the 397 BG sent 36 Marauders to attack a ski site at Le Plouy Ferme, France. Colonel Coiner led the inaugural mission.³² All 36 aircraft successfully reached the target just south of Pas de Calais and returned with no battle damage. Each aircraft carried eight 500-pound bombs and planned to attack from an altitude of 12,000 feet. Both became standard procedure for attacks against ski sites. The men encountered neither flak nor fighter opposition. By this point in the war, the Luftwaffe had shifted much of its fighter strength back to Germany.³³ Despite the lack of defenses, the group failed to achieve significant damage to the site. Only 18 of the 36 aircraft employed their weapons. The first box of 18 aircraft reported fair to good bombing results. The second box was unable to attack due to intermittent clouds obscuring the target area. Despite the initial aircrew report, analysts later downgraded to results to poor. Unfortunately, the majority of bomber command experienced a similar lack of success that day. Of the nine groups

²⁹ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 100-103.

³⁰ Aylesworth, “A Review of the Protection of England Against V-Weapons in World War II,” 28.

³¹ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 102-103.

³² The 397th flew a diversionary mission on 19 April 1944. The mission was not considered a combat mission and therefore did not mark the group’s entry to combat.

³³ Rust, *The 9th Air Force in World War II*, 64.

attacking NOBALL targets, only one achieved excellent results with the rest scoring fair, poor, or failing to bomb due to weather. The 397th celebrated completion of their first combat mission but looked forward to their next opportunity to inflict damage on the German war machine.

The 397 BG again attacked NOBALL targets for their second and third missions. Their second mission proved more successful than the first. The 21 April attack against the ski site at Fruges-Bois de Coupelle resulted in good results and appeared to have inflicted Category A damage to the site. Category A damage indicated the attacks resulted in “a concentrated burst on the target with one or more direct hits on some of the main buildings.”³⁴ The classification of target damage attempted to eliminate repetitive targeting of neutralized sites. If a site was determined to have suffered damage to its vital elements, the British Air Ministry suspended attacks against the site until repairs returned it to operational status. The group’s third mission against the NOBALL target at Vacqueriette again yielded poor results. On that mission, they encountered their first German flak, which damaged 16 aircraft. Flak shattered one aircraft’s windshield, hit the co-pilot and broke his arm. Despite the flak damage and the group’s first combat casualty, all aircraft successfully returned from the mission.

Although the group’s fourth mission introduced targets beyond Operation CROSSBOW, they returned to attack NOBALL sites on four more occasions prior to D-Day. On 25 April, the group was unable to bomb the site at Bois Coquerel due to cloud cover over the target. However, they encountered moderate, accurate heavy flak resulting in 17 damaged aircraft. The mission was also their first encounter with German fighter defenses. They spotted two Messerschmitt 109s (Me 109), four Focke-Wulf 190s (FW 190), and one unidentified fighter. The Marauder’s RAF Spitfire escort engaged the German fighters, preventing an attack on the bombers. The 397th attacked the “large site” at Lottinghem in the Pas de Calais area on 30 April. The Germans envisioned the site as bomb proof and “usable even under the worst

³⁴ AAF Historical Office, *Ninth Air Force in the ETO: 16 Oct 1943 to 16 April 1944*, 134.

conditions.”³⁵ In contrast to their previous attacks against ski sites, the group employed 1000-pound bombs. The first box reported good results but the second achieved poor results. Once again, they encountered significant flak, with 18 aircraft damaged, including four which received more than 10 flak holes. Nonetheless, the entire group returned to base, demonstrating the Marauder’s ability to withstand significant damage.

While focusing on other target types, the 397th attacked NOBALL sites only twice during the month of May. Their attack at Le Grismont on 9 May achieved poor results as the lead box misidentified the target and the trail box failed to bomb. The group’s final CROSSBOW attack prior to D-Day was a combined effort with the 323 BG. On 29 May, both groups sent two boxes of 18 aircraft against the V-weapons site at Beauvoir. Despite the large effort, only a portion of the 397 BG’s first box achieved good results. The remainder of the group and all of the 323 BG achieved either poor or gross results. The successful portion of the 397 BG’s effort achieved probable damage to buildings in the target area.

Over the course of seven CROSSBOW missions prior to D-Day, the 397 BG’s effect on the German V-Weapons program appears to have been relatively insignificant. They made a late entry into the ongoing campaign and soon shifted emphasis to other target types in preparation for OVERLORD. The group’s limited effect on the German V-Weapons program is less an indictment of their performance than a reflection of the difficulty associated with NOBALL attacks. Over the course of seven missions, the group apparently achieved Category A damage on one site. In total, CROSSBOW attacks by all Allied forces through early May achieved such damage 107 times, with Ninth AF and Eighth AF accounting for 39 and 35 respectively. B-26s accomplished 26 of Ninth AF’s 35 Category A attacks. These successes, however, came at significant expense. On average, B-17s dropped 195.1 tons to accomplish Category A damage while B-26s required 223.5 tons. The most efficient aircraft was the British Mosquito, which required only 39.8 tons while the B-24 proved least efficient at 401.4 tons. CROSSBOW also proved costly in terms of aircraft

³⁵ Collier, *The Battle of the V-Weapons: 1944-1945*, 20.

and lives. Through 12 June, Eighth AF lost 492 men and 42 heavy bombers while Ninth AF lost 148 men and 30 mediums. The 397 BG accounted for one man lost and none of its B-26s.³⁶

Through early June, Germany had yet to launch any of its V-Weapons against England. The effect of the pre-invasion bombing operations remains largely undetermined. Historian Basil Collier argues, “The evidence would seem to justify the assumption that the offensive *might* have started before D-Day if the ski sites had not been bombed, but not the assumption that it necessarily *would* have done so.”³⁷ Craven and Cate claim the Allied bombing “achieved one impressive and undeniable accomplishment in the first phase of their sustained, if wasteful, CROSSBOW operations.”³⁸ That accomplishment was denying Germany use of its original large and ski sites. However, Germany had largely shifted its emphasis to construction of modified sites. Despite having located the first modified site in late April and discovering more than 60 by early June, the Allied bombing effort largely ignored these targets. Post-war explanations included that the sites were less threatening and more difficult for aircrews to locate, making them less suitable targets.³⁹ It was from these sites, however, that Germany launched volleys of its V-1 pilotless aircraft following the Allied invasion of France. The German offensive required the 397th and other bomb groups continue to support CROSSBOW after the invasion.

Attacking the “Atlantic Wall”

The 397 BG flew 13 missions against coastal defenses and gun emplacements in the lead up to the Normandy invasion. Their first mission against these sites of the so-called German Atlantic Wall took place on 23 April, three days prior to release of the Ninth AF Tactical Air Plan. Ninth AF, along with the British Second Tactical AF, had begun the campaign on 13 April. British and American heavy bombers joined in the attacks in mid and late May

³⁶ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 105.

³⁷ Collier, *The Battle of the V-Weapons: 1944-1945*, 146.

³⁸ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 106.

³⁹ Collier, *The Battle of the V-Weapons: 1944-1945*, 48–60.

respectively. Before April, Allied planners considered attacking the sites impractical due to their heavy defenses and sturdy steel and concrete construction. When they discovered some of the sites were not completed, the Allies saw an opportunity to deny completion of the German coastal defenses.⁴⁰

The Ninth AF focused on attacking 12 of the coastal defense sites. Their stated intent was to achieve a “harassing effect” to prevent completion of the sites under construction. However, only four of the twelve identified sites were incomplete. Most of the sites still under construction were located in the Normandy area, the location previously chosen for the Allied invasion. To ensure secrecy and operational security, the Allies planned to accomplish two attacks outside the invasion area for each attack around Normandy.⁴¹ The attacks reached as far north as the Pas de Calais region in keeping with a deception plan known as Operation FORTITUDE.⁴²

The 397 BG conducted attacks on coastal defenses both inside and outside the Normandy area. Their only coastal target directly on the planned invasion beaches was the defense works at Ouistreham. It lay at the eastern end of Sword Beach, the easternmost invasion location planned for attack by British troops. They attacked the site on 27 April and reported very good results with some direct hits on the aim point. The gun position at Benerville, which they bombed on 23 April, was east of the invasion beaches but close enough to require attacks by another Marauder group on D-Day. The target furthest from the planned invasion was the gun emplacements of Gravelines near Dunkirk, which they bombed on 13 May. Other missions struck targets in the Upper Normandy region including three missions to Sainte-Marie-au-Bosc, two at Octeville-sur-Mer/Le Havre and one at Varengeville. They accomplished additional diversionary missions in the Pas de Calais region with two attacks

⁴⁰ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 168-169.

⁴¹ AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, 45.

⁴² Eduard Maximilian Mark, *Aerial Interdiction: Air Power and the Land Battle in Three American Wars*, Special Studies (Washington, DC: Center for Air Force History, 1994), 236.

against defenses at Camiers and three at Etaples. The group's final attack on coastal defenses prior to D-Day took place on 3 June.

While certain elements of their missions remained consistent, the group employed varied tactics during their attacks on coastal defenses. They planned all attacks from an altitude of 12,000 feet, consistent with medium bomber procedures. In what appears an effort to achieve surprise, the group rarely attacked their targets from over the English Channel. In most cases, they proceeded inland over France prior to turning towards their target. In other attacks, they approached parallel to the shore. Such tactics might confuse gunners operating the heavy flak defenses of most coastal batteries. The group also employed "Window" on most of its missions. They usually had three aircraft fly ahead of the bombing boxes to release these packets of metallic strips in an attempt to saturate German radar. On several missions, they encountered either no or light flak and suffered no damage. They lost no aircraft while attacking coastal defenses. The group sustained significant damage during the 13 May attack at Gravelines, with 12 aircraft damaged and one crewmember killed. Their 3 June mission to Octeville-sur-Mer also resulted in flak damage to 19 aircraft. Despite these missions, the group sustained relatively minor damage and few casualties.

The 397th achieved varying levels of bombing success against the Atlantic Wall. In keeping with General Brereton's directive, they normally bombed in groups of either four or six aircraft. In all but one instance, they employed 1,000 or 2,000-pound bombs. Smaller weapons would not inflict significant damage against the steel and concrete targets. Because they bombed in smaller flights and target damage was difficult to assess, enumerating the individual bomb scores tells us little. On many missions, assessments ranged from poor to excellent in the same box. Several missions reported direct hits. The group did receive special commendation from Ninth Bomber Command for their 24 May attack at Sainte-Marie-au-Bosc. It was one of two missions they utilized Pathfinder aircraft. Following two Pathfinder leads, the group bombed in flights of 18. Although this technique existed to allow attacks in poor weather, the group executed these first two missions with

little cloud cover, apparently for training purposes. The training would prove beneficial as the use of Pathfinders later became prevalent due to poor weather over the continent.

Although the 397th's missions against coastal defenses were primarily outside the planned invasion area for OVERLORD, they were not without value. Their attacks in and around the invasion area may have hindered completion of critical defenses. However, the destructive effect of the entire campaign against the Atlantic Wall remains in dispute. Due the difficulty of real time damage assessment and the massive quantities of weapons employed on D-Day, "it was impossible to segregate the damage as to air or naval, pre-invasion or D-Day."⁴³ Of greater importance, the entire campaign helped ensure Germany remained uncertain of the Allied invasion location. The widespread attacks may have actually heightened German confusion. In addition to maintaining operational security, the Ninth AF history postulates the attacks may have caused a negative effect on the mind and morale of German forces.⁴⁴ Lastly, the missions provided the 397th with familiarity and training attacking coastal defenses, a skill they would apply the morning of 6 June as amphibious forces approached Utah Beach.

The campaign against Luftwaffe airfields

The 397th played a minor role in the Allied campaign against the German Air Force and its airfields in the Low Countries. As heavy bombers continued attacks on industrial targets in Germany that supported the Luftwaffe, the tactical air forces sought to deny Germany the use of its many forward airfields. The combined effect would minimize Luftwaffe interference during the Allied invasion.⁴⁵ Although there were approximately 100 airfields within 350 miles of Normandy, the Ninth AF attempted to neutralize those within 130 miles of the invasion. By denying German use of these nearby airfields, the Allies operating from England would at least be on a level playing

⁴³ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 170.

⁴⁴ AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, 45.

⁴⁵ Rust, *The 9th Air Force in World War II*, 70.

field with the Luftwaffe. The Allies were once again careful not to focus on airfields within the Normandy area to avoid telegraphing their invasion plans.

Although the tactical air forces had attacked German airfields for months, the concentrated campaign did not begin until May. Through April, airfields were sixth in priority. Fighter-bombers accomplished most attacks and mediums only bombed airfields as secondary targets. The 397th did not bomb any airfields that month. With higher priority afforded to airfields, Ninth AF mediums accomplished 40 airfield attacks during May.⁴⁶ In many cases, coordinated attacks included Marauders dropping their bombs followed by dive bombing and strafing attacks from fighter-bombers.

The 397th received orders to bomb three airfields in May. Their first mission, on 11 May, sent them to attack the field at Beaumont-le-Roger, France, less than 40 miles from the nearest invasion beaches. While many of the airfields in the Low Countries were unoccupied, intelligence indicated Beaumont-le-Roger had a small contingent of five German fighters. With three Window ships leading the way, they employed 250 and 500-pound bombs as flights of 18. While this tactic ran contrary to Brereton's guidance and their techniques for other targets, it is consistent with tactics employed by other groups against airfields at the time. This was likely because airfields provided an area target rather than a point target, making a wider bomb pattern desirable. Unfortunately, the group achieved poor results with the nearest bombs landing 210 yards from the desired mean point of impact. Six Marauder groups revisited the target through 24 May leaving the field thoroughly damaged. A subsequent attack on the airfield at Chartres, southwest of Paris, also yielded poor results. The 397th was one of four groups attacking the airfield that day. The group did not employ Window and experienced flak during the bomb run, damaging four aircraft. Flak brought down one aircraft from another group during the mission. Three additional B-26 groups attacked

⁴⁶ AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, 32.

Chartres on 3 June, with the combined effect leaving the runway and airfield facilities heavily damaged.⁴⁷

Poor weather prohibited the 397th from bombing on their other missions against Luftwaffe targets prior to D-Day. On 15 May, they were unable to attack the airfield at Denain-Prouvy, France, near the Belgian border. They were one of six Ninth AF bomb groups inhibited by weather that day. The group's mission for 5 June, the day prior to the invasion called for an attack on a Luftwaffe headquarters facility at Jouy-en-Josas, just outside Paris. They were recalled before reaching France due to poor weather. Four Marauder groups planned to bomb various Luftwaffe headquarters facilities that day. None were able due to the inclement weather.

With only two missions completed against Luftwaffe airfields, the 397 BG's contribution to minimizing German airpower before the invasion was minimal. Amidst multiple priorities, they primarily sought other objectives. The overall campaign, though, helped ensure minimum resistance from the Luftwaffe on D-Day. Much credit was certainly attributable to heavy bomber attacks in Germany damaging facilities and drawing fighter attention from the Low Countries. However, the destruction of forward bases, accomplished largely by tactical air forces, helped ensure Germany could not move its aircraft forward to challenge the invading forces.⁴⁸

Isolating the Battlefield: Attacks against German Transportation

The 397 BG received orders to attack transportation targets, including railroad marshalling yards, rail bridges, and highway bridges, on 15 of their 40 missions prior to D-Day. Their efforts supported the overall strategic objective of isolating the impending battlefield by denying the movement of German troops and supplies. As historian Eduard Mark explains, "Of the air forces' many responsibilities for OVERLORD, none was more crucial, nor more problematic, than impeding the movement of German reserves to the

⁴⁷ AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, 34.

⁴⁸ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 166.

beachhead.”⁴⁹ The group’s initial missions against the transportation network focused on marshalling yards in accordance with the Allied Transportation Plan. As D-Day approached, the 397th primarily attacked bridges, which supported the Transportation Plan but also reflected doubts about the efficacy of its core components.

General Eisenhower approved the Transportation Plan on 26 March 1944 amidst great debate over the optimal means to isolate the invasion area. The plan overruled the previously held notion of a short but intense interdiction operation beginning just a few days prior to D-Day. However, the Transportation Plan intended to complement, not fully replace, tactical interdiction. Its strategic approach centered on the destruction of rail centers in France and Belgium rendering the rail yards, repair shops and other facilities unusable. In short, it focused on hubs as opposed to spokes of the transportation network. Although the plan ultimately included attacks against bridges, its proponents saw these attacks as less economical due to the difficulty of destroying bridges and the large number of bombs required.⁵⁰ Much of the debate stemmed from differing perceptions of the efficacy of rail center attacks versus other interdiction efforts in Italy and Sicily.⁵¹ Despite Eisenhower’s decision, the debate continued.

The Transportation Plan was controversial for reasons beyond disagreements over how to isolate the battlefield. First, it required the support of the strategic air forces. The tactical air forces had the capacity to accomplish only half of the required attacks.⁵² General Spaatz offered the fiercest resistance, arguing to continue focus on POINTBLANK. He specifically sought to attack oil and rubber facilities in what came to be called the “Oil Plan.”⁵³ Second, the attacks against rail centers, located primarily near populated areas, had the potential to cause high levels of friendly civilian casualties. British

⁴⁹ Mark, *Aerial Interdiction*, 221.

⁵⁰ Mark, *Aerial Interdiction*, 221.

⁵¹ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 78.

⁵² Mark, *Aerial Interdiction*, 225.

⁵³ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 76-77.

Prime Minister Winston Churchill only fully endorsed the plan in mid-May when initial attacks proved casualty estimates overly pessimistic. By that time, the 397 BG had already accomplished multiple attacks against marshalling yards.

The Ninth AF conducted attacks against marshalling yards in Belgium and Northern France. Though marshaling yards were not new targets to Marauder crews, a directive from AEAFF on 1 April increased the importance and frequency of these missions.⁵⁴ The 397 BG made its first marshalling yard attack on 26 April. Through 10 May, the group attacked one Belgian and three French rail centers. Their 26 April mission bombed St. Ghislain, Belgium, near the French border. Between 28 April and 1 May, they attempted to attack the marshalling yards at Mantes-Gassicourt, west of Paris, on three occasions. Weather precluded bombing on the first two attempts before they achieved good results on their third try. The 2 May mission sent them to Busigny, France near the Belgian border and their 10 May mission attacked the marshalling yards in Creil, north of Paris. These four locations were only a small portion of the 36 rail centers the Ninth AF attacked between 1 March and D-Day.

Attacks against marshalling yards differed slightly from other missions. First, each mission for the 397th included multiple bomb groups attacking the same target. This concentrated effort, sending between two and four groups to one target area, demonstrated the high priority given to the destruction of marshalling yards. The group continued to bomb from medium altitude with most attacks planned from 12,000 feet. However, they received direction to bomb in boxes of 18 on all but their last rail center mission on 10 May.⁵⁵ Records appear to indicate Ninth Bomber Command's Operational Research

⁵⁴ AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, 36.

⁵⁵ Bombing by boxes of 18 appears to contradict General Brereton's direction to bomb by smaller flights. However, Ninth Bomber Command records indicate B-26 groups primarily bombed by boxes of 18 while attacking marshalling yards in early May and that the ORS was studying the best method of attack. Craven and Cate cite Brereton's order and state Marauders attacked by smaller flights. Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 151-152.

Section (ORS) conducted a study to identify the optimal bombing technique for these missions before determining six as the best solution.

The 397 BG, like all bomb groups, achieved mixed results with their attacks against rail centers. Their official results ranged from poor to excellent but most boxes scored either good or excellent. Even excellent results by one group, however, were generally insufficient to render a rail station unusable. As an example, the 397th's attacks on 2 May scored excellent, which equated to 45% of bombs within 500 feet of the aim point and 100% within 1000 feet. The average for Ninth AF that day, considered a day of very high precision, was 54% and 70% within 500 and 1000 feet respectively. For that reason, Ninth AF attacked most marshalling yards several times, with many bombed more than five times and one bombed 11 times. The 397th's attack at Creil on 10 May, coordinated with two other groups, destroyed 70% of the locomotive depot, destroyed the roundhouse and cut all storage and reception sidings.⁵⁶ Although they had achieved success on this mission, it was their last attack against a rail center prior to D-Day.

Beginning on 25 May, the 397th shifted their focus to bombing bridges. Thus began their path to earning the name "Bridge Busters." The change to bridge targets reflected skepticism, specifically from Eisenhower's intelligence section, over the efficacy of the Transportation Plan's emphasis on rail centers.⁵⁷ The Allies began a substantial campaign against bridge targets. Between the 25th and 31st of May, the 397th flew eight bridge bombing missions, including two on both the 27th and 28th.

As was true of the attacks against the Atlantic Wall, operations security was paramount in the bridge campaign. The Allies bombed bridges over a wide area to hide their invasions plans. The 397th's first bridge attack, in fact, was on a bridge over the Meuse River in Liege, Belgium. While destroying bridges in Belgium contributed to stopping German supplies, Liege was over 200 miles from Normandy and closer to Operation FORTITUDE's feigned invasion location

⁵⁶ AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, 38.

⁵⁷ AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, 233.

of Pas de Calais. The 397th bombed the bridge along with the 387th and reported good hits, with most bombs falling within the target area. The 397th returned to attack a different railroad bridge in Liege on the 28th and reported excellent results including multiple direct hits. Between these missions and additional Marauder attacks on the 28th and 29th, all three bridges in Liege were reported severed.⁵⁸ These two missions were the group's only bridge attacks outside France before D-Day.

On 27 May, the 397th began attacking bridges over the Seine River in France. Although Allied forces bombed some bridges over the Seine in earlier operations, the bridges were intentionally left alone for two weeks in mid-May. Beginning on 24 May, the Allies added bridges over the Seine, between Paris and Rouen, to their targeting priorities. Despite their proximity to Normandy, attacking the Seine bridges did not compromise the feint of an attack at Pas de Calais. The river lay between the two potential invasion sites so the Germans might perceive attacks on its bridges as either an effort to stop supplies moving north to Calais or south to Normandy.⁵⁹ The 397 BG attacked rail bridges at Oissel, Le Manoir, Orival, Maissons-Laffitte and Conflains. Their last two bridge attacks prior to D-Day were against highway bridges at Meulan and Rouen.

The 397th performed well in attacking bridges over the Seine. Like other Marauder groups, they bombed in flights of six. For that reason, results varied even within boxes. They primarily employed 2000-pound bombs, with each aircraft dropping two. They continued attacking from medium altitude, normally at 12,000 feet. Although group records do not describe a specific technique, it appears they attacked most bridges approximately 45 degrees off the axis of the bridge. Assessing bomb damage was difficult even with cameras mounted in at least one aircraft per flight. Yet the fact the group achieved good to excellent ratings with some bombs on virtually all missions attested to their skill. All of the 397th's bridge busting missions included other groups, and most targets required multiple missions. Fighter-bombers accomplished many

⁵⁸ AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, 49.

⁵⁹ Brereton, *The Brereton Diaries: The War in the Air in the Pacific, Middle East and Europe*, 273.

bridge attacks as well, normally attacking smaller bridges or finishing bridges damaged by Marauders or Havocs. As Craven and Cate explain, however, “it became clear that the B-26 was the weapon of choice” for bridge attacks.⁶⁰ The men of the 397th were among the most successful. When Ninth AF ORS personnel reached France in the summer, they rated the combined attack of the 397 BG and 323 BG on the bridge at Meulan as the “prettiest job of bridge busting.”⁶¹ Eight of the bridge’s nine spans lay in the water after the 30 May attack. By D-Day, only the bridges at Saint Germain and Maissons-Laffitte remained usable. All rail bridges over the Seine from Conflans to Rouen were impassible.⁶²

Missions against transportation targets did not come without cost. Although the men planned their routings to avoid known flak locations, they often encountered enemy fire in transit to and from their targets and several targets were heavily defended by flak. Once established on their final bomb run, procedure did not allow evasive maneuvers. Bombing accuracy took priority. On multiple missions, flak damaged more than one quarter of the group’s aircraft. Despite employing three dedicated Window ships, 21 of the 39 aircraft on the 28 May mission to Maissons-Laffitte Bridge were hit by flak. The group’s most significant loss prior to D-Day, however, came on 8 May. They experienced heavy flak while transiting to the railroad bridge at Oissel. Flak struck 28 of their 38 aircraft. One aircraft went down after falling out of formation with smoke trailing from both engines. RAF Spitfire pilots flying escort for the mission reported six good parachutes. The men were listed as missing in action. Fortunately, this was the only 397th aircraft shot down prior to D-Day.⁶³

Debates over the efficacy of the Transportation Plan’s various elements remained unsettled. By June, the Allies considered 51 of the 80 rail centers on

⁶⁰ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 158-159.

⁶¹ This assessment comes from a Ninth Bomb Division Intelligence Report covering 15-21 September 1944. It is located within the operations records folder for the groups 8 August mission.

⁶² AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, 50.

⁶³ History, 397th Bombardment Group, 20 April 1944, May 1944, June 1944.

the Transportation Plan target list sufficiently destroyed and unusable.⁶⁴ However, two Ninth AF studies viewed the rail center attacks as having minimal effect. They assessed the interdiction attacks on bridges and trains as decisive. Most post-war assessments viewed rail center destruction as less effective than the bridge campaign, yet disagreements continue today. Most importantly, the overall campaign achieved its primary objective. Attacks on the transportation system sufficiently denied German mobility and allowed the Allies to build up forces in Normandy faster than the Germans.⁶⁵ Additionally, destruction of the rail system diverted German forces from constructing and defending the Atlantic Wall. Nearly 30,000 enemy troops left the coastal defenses to attempt rail system repairs.⁶⁶ The 397th and other B-26 groups had supported both rail center and bridge attacks prior to the invasion. They later continued both efforts to assist the Allied advance across the continent.

As D-Day approached, the 397 BG had made significant contributions and achieved multiple successes. Although not every mission was effective, the group proved that even as the newest B-26 unit in Europe, they were among the best. Group records indicate they placed second in bombing accuracy during May among Ninth AF's eight medium bombardment units. It was their first full month in combat. They also set a Ninth Bomber Command record for the percentage of bombs within a 2000-foot margin of error. Furthermore, they set a medium bombardment safety record by flying over 2,000 sorties while losing only one aircraft.⁶⁷ Over the course of forty missions prior to 6 June, they had attacked German V-Weapons sites, coastal defense batteries, airfields and transportation targets. Their mission in the early morning hours of D-Day, however, would be unlike any other and started a new phase of operations in support of the Allied advance across Europe.

⁶⁴ Mark, *Aerial Interdiction*, 233.

⁶⁵ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 160.

⁶⁶ Rick Atkinson, *The Guns at Last Light: The War in Western Europe, 1944-1945*, 1st ed, The Liberation Trilogy, v. 3 (New York: Henry Holt and Co, 2013), 81.

⁶⁷ History, 397th Bombardment Group, May 1944, June 1944.

D-Day over Utah Beach

D-Day finally arrived on 6 June 1944. The all-important morning mission required the 397 BG provide a “maximum effort” of 54 aircraft as part of the largest air armada ever put together. They were to support American forces assaulting Utah Beach. The group also received orders to fly a second mission with 37 aircraft attacking coastal defenses near Trouville in the early evening. The group’s previous training and combat missions were largely preparatory for this day.

With takeoff scheduled for shortly after 0400 hours, D-Day began shortly after midnight for the men of the 397th. The early morning mission briefing revealed that weather would likely preclude their normal procedure of medium altitude bombing. General Anderson informed the men they would bomb visually from below the clouds, as low as 500 feet above the coast if necessary. The 397th had not yet flown at low altitude over enemy territory. The potential danger was obvious to all.⁶⁸

Bombers of the Ninth AF planned to attack seven locations on Utah Beach and five coastal battery positions.⁶⁹ Although some Marauders received orders to attack gun positions on the far eastern side of the invasion area, the 397th and the majority of the command were to bomb German defenses at westernmost Utah Beach. Each of the group’s three boxes of 18 aircraft was to attack a different infantry position along the coast. H-Hour for the amphibious assault was 0630 hours. The invasion plan called for bombing to occur immediately before troops stormed the beach. The agreed upon safety margin allowed Allied forces up to 1000 feet from the coast during the bomb runs.⁷⁰ Accuracy was clearly paramount.

The plan for medium bombers attacking Utah beach differed significantly from that of the heavies at Omaha Beach. While the Marauders planned to

⁶⁸ History, 397th Bombardment Group, June 1944.

⁶⁹ Brereton, *The Brereton Diaries: The War in the Air in the Pacific, Middle East and Europe*, 280.

⁷⁰ Stephen E. Ambrose, *D-Day, June 6, 1944: The Climactic Battle of World War II* (New York: Simon & Schuster, 1994), 241.

bomb visually from below the clouds, the heavies planned to utilize Pathfinders to bomb through the clouds. The heavies did decrease their normal altitudes of 30,000 feet to between 16,000 and 20,000 feet. Of equal significance, the Marauders planned to attack parallel to the beach while the heavies would approach perpendicular to the shore.⁷¹ The B-26's parallel approach increased their vulnerability to coastal defenses, but mitigated the risk of dropping weapons on nearby friendly forces to the East and West. Allied paratroopers had landed on the Cotentin Peninsula west of Utah Beach overnight. The amphibious landing forces would attack from the East. Weapons falling short or long from a perpendicular attack might be disastrous. At Omaha, the primary risk of the perpendicular bomb runs was weapons landing short of the coast on friendly forces. For that reason, leaders ordered Pathfinder bombardiers guiding the heavies to delay their bomb releases slightly to ensure no weapons landed short of the shoreline.⁷²

The morning was cool, damp and dark as the men readied their aircraft for flight. Maintenance crews had painted black and white stripes on each aircraft's wings and fuselage. These "invasion markings" served to distinguish Allied from enemy aircraft for air and ground forces alike. Each of the 397 BG's aircraft carried sixteen 250-pound bombs. The Marauders carried these smaller bombs with instantaneous fuses to avoid making large craters on the beach that might impede friendly ground forces.⁷³ Of the group's 54 tasked aircraft, 53 took off, with only one aborting the mission due to a mechanical malfunction. Box number two took off first at 0407 hours. Boxes one and three followed at 0414 and 0421 respectively. Despite the immense difficulty of arranging 53 aircraft into formations in darkness, the group safely marshalled its forces for the mission.⁷⁴

⁷¹ The large number of aircraft and the different orientation of the shore-line did not allow aircraft to attack parallel to the Omaha Beach. Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 143.

⁷² Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 190.; Atkinson, *The Guns at Last Light*, 55.

⁷³ Joseph Balkoski, *Utah Beach: The Amphibious Landing and Airborne Operations on D-Day, June 6, 1944*, 1st ed (Mechanicsburg, PA: Stackpole Books, 2005), 88.

⁷⁴ History, 397th Bombardment Group, June 1944.

The 397 BG bombed their targets between 0619 and 0622 hours, the last only eight minutes prior to H-Hour. Clouds in the target area were not as low as had been feared. Crews reported a solid cloud deck at 7,000 feet with scattered clouds below. The 397th dropped their bombs from between 4,000 and 7,000 feet on a southeasterly heading along the Cotentin Peninsula coast. The 17 aircraft of Box One attacked the defensive position at Les Dunes de Verreville with 16 employing their weapons. The site was an infantry position with two concrete pillboxes, five shelters and a possible anti-tank gun.⁷⁵ Each of the 18 aircraft in Box Two dropped bombs at Madeleine, which also included two pillboxes, three shelters and a possible 150-millimeter gun. Box three attacked Beau Guillot, a small infantry position and possible platoon headquarters, with 17 of 18 aircraft releasing weapons. Multiple B-26 groups attacked each of these targets to provide maximum concentration at the defended locations.

Each of the 397th's aircraft safely returned from the mission. However, it was hardly a "milk run," a term used by crews for missions with no flak defenses.⁷⁶ The group reported no flak in the target area and meager inaccurate flak on their bomb runs but moderate flak at other places on their route of flight. They also reported significant machine gun fire, a defense they did not encounter at higher altitudes. The group sustained damage to six aircraft but had none shot down and no casualties. In total, 14 of Ninth AF's Marauders attacking targets on the Cotentin Peninsula sustained damage. Two did not return from the mission. One aircraft from the 394 BG reportedly exploded after flak damage caused the right engine and bomb bay to catch fire. The 397th did not report any enemy aircraft though some B-26s claimed to have seen and engaged enemy fighters. The air opposition at the Normandy beaches was astoundingly light, primarily attributable to months of attacks by British and American air forces.

Those on the ground best judged the success or failure of this D-Day mission. The 397 BG reported results ranging from poor to good. The flight of

⁷⁵ AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, 72.

⁷⁶ Ambrose, *D-Day, June 6, 1944*, 245.

six aircraft that received a good rating was one of only three attacking Utah Beach that achieved such a rating, though several had no camera footage. The Ninth AF ORS determined only 10% of bombs fell within the target areas at Utah Beach with 34% within 500 feet and 60% on land. Such results do not appear to indicate success. However, the story on the ground was different. The ground commander at Utah Beach commended the bombers for excellent bombing with pinpoint accuracy.⁷⁷ Most historical accounts credit the B-26 attacks at Utah Beach for significantly aiding the American forces in establishing a beachhead. As Second Lieutenant Robert P. Jones of the 397th humbly explained, “We all just hoped we had made the big job a little easier for the real soldiers.” It appears they had done just that. Unfortunately, the heavy bomber attacks at Omaha Beach achieved far less success. Owing largely to the weather and the crews’ fears of dropping bombs short of the coastline, the vast majority of bombs fell well inland of the beach defenses. Though both beaches required heroic efforts by ground forces to establish a lodgment, the situation at Omaha soon became critical.

D-Day certainly did not end after the morning mission. Over the course of the day, the Allies launched 3,467 heavy bomber, 1,645 medium bomber, and 5,409 fighter sorties as fighting continued on the ground.⁷⁸ The 397 BG sent their second mission to attack the coastal defense battery at Trouville, France on the eastern side of the Normandy beaches. The 37 aircraft attacked from between 6,000 and 8,000 feet, dropping bombs ranging from 100 to 500-pounds. Guns two miles west of their target fired at landing craft as the men executed their bomb runs. Although they scored mostly good and excellent bombs, the material damage from these small bombs was likely minimal. The Ninth AF historical study postulates the most significant value of the D-Day attacks on coastal batteries may have been disruption of communications and control as well as decreased morale.⁷⁹

⁷⁷ Brereton, *The Brereton Diaries: The War in the Air in the Pacific, Middle East and Europe*, 280.

⁷⁸ Ambrose, *D-Day, June 6, 1944*, 251.

⁷⁹ AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, 76.

The much-anticipated invasion was underway. Beginning with two missions on 7 June, the men of the 397th continued their support of Allied ground forces. In the upcoming months, the group would fly many missions similar to those during the preparatory phase. However, they would also undertake new target responsibilities. They continued to battle with German flak gunners but would soon face greater resistance from the Luftwaffe fighter force. The group would “keep mobile,” moving to bases closer to the front lines to keep up with the advance across the continent. They would face significant challenges from the fall and winter European weather. In short, the 397 BG faced many more obstacles in their remaining 11 months of combat.



Chapter 4

From the Beachhead to Victory

Writing in his diary two days before D-Day, General Brereton commented, “As far as the Ninth Air Force is concerned, the invasion started back in May when we went to work on our twofold program of maintaining air superiority and isolating the battlefield.”¹ Through preparatory attacks, the 397th and his other Ninth AF groups were already accomplishing their mission of supporting ground forces. With Allied troops now established on the continent, much of the 397th's focus remained unchanged. They primarily sought to disable the enemy transportation system to prevent the movement of supplies and reinforcements. However, the status of ground forces dictated their missions and introduced new targets and responsibilities. These included attacking motor transportation facilities, road junctions, enemy troop concentrations, fuel and ammunition depots, and defended towns. Germany's V-Weapon offensive also briefly drew the group back to supporting Operation CROSSBOW. Their initial efforts, however, sought to stop the movement of German forces attempting to contest the Allied beachhead at Normandy.

Supporting the Lodgment at Normandy

On the morning of 7 June, the 156,000 Allied soldiers in Normandy remained contained in a thin beachhead, ranging from only two thousand yards deep at Omaha Beach to six miles at Sword and Juno. A week later, heavy fighting continued, but the Allied position remained much the same.² Overall, the advance moved much slower than expected. The “breakout” was more than a month away. As the Allies continued bringing forces and material ashore, Germany sought to move men and supplies to Normandy to repel the invasion.

Beginning with two missions on 7 June, the 397th focused much of their efforts against railway infrastructure in France. The goal remained to ensure

¹ Lewis H. Brereton, Lieutenant General USA, *The Brereton Diaries: The War in the Air in the Pacific, Middle East and Europe* (New York, NY: William Morrow and Company, 1946), 273.

² Rick Atkinson, *The Guns at Last Light: The War in Western Europe, 1944-1945*, 1st ed, *The Liberation Trilogy*, v. 3 (New York: Henry Holt and Co, 2013), 84-100.

Allied forces could build up strength faster than the German defenders. The majority of the group's missions attacked targets in the area between the Seine and Loire rivers known as "the Gap" or the "Paris-Orleans Gap." With most bridges over the Seine already out of commission, the Germans could not send their forces from the North and West directly to Normandy. They funneled much of their supplies and forces south into the gap.³ Before D-Day, the Allies had not bombed many of the targets south of Paris, specifically bridges over the Loire, to ensure secrecy of the invasion location. The 397th's post-invasion efforts sought to deny approaches to Normandy through the gap. This effort, like the overall campaign against German transportation, involved all types of Allied aircraft. Heavy bombers attacked marshalling yards and the distant bridges over the Loire.⁴ Fighter-bombers focused on rail-cutting and strafing attacks on vehicles but also attacked bridges and rail centers. The 397th primarily bombed rail bridges and marshalling yards.

In the two weeks following the invasion, the 397th conducted eight missions against rail targets. The clouds that forced them to low altitude on D-Day remained a factor the following day. Attempting to aid the urgent struggle on the beaches, the men accomplished low altitude attacks, as low as 3,700 feet, against the rail bridge at Le Mans and the marshalling yard at Flers. Although weather prevented most aircraft attacking at Le Mans, all 38 aircraft bombed at Flers and achieved probable damage to the rail station, tracks, roads and buildings in the area. Some of the group's gunners took the opportunity at low altitude to use their .50 caliber guns against trains and a truck convoy near the target. Such opportunities were rare for the medium altitude bombers. The group also dropped its first leaflet bomb at Flers. These bombs dispersed messages, normally printed in German, Polish and Russian, encouraging enemy

³ Eduard Maximilian Mark, *Aerial Interdiction: Air Power and the Land Battle in Three American Wars*, Special Studies (Washington, DC: Center for Air Force History, 1994), 251.

⁴ Kenn Rust, *The 9th Air Force in World War II* (Fallbrook, CA: Aero Publishers, Inc, 1967), 85.

forces to surrender. Although they never flew a mission dedicated solely to leaflet distribution, many of the 397th's later missions included leaflet bombs.⁵

Attacks at Chartres, St. Hilaire du Harcourt, and Coltainville between 14 and 17 June each yielded probable damage to bridge targets. In clearer weather, the group employed their 2,000-pound bombs from medium altitude. Each of these bridges in the gap supported movement of German forces to Normandy. Results ranged from direct hits to gross misses though most attacks scored good or excellent. Photographic evidence could not assess exact damage. As was true of most bridge attacks, however, the structures remained standing and required follow-on missions. The coordinated air effort against transportation targets was affecting German resistance. By 18 June, the Allies had established 20 full divisions on shore. By contrast, German forces included portions of 18 divisions; most were understrength and therefore German combat power added up to not more than 14 full divisions.⁶ The 397th's attacks on rail targets contributed to this superiority.

The 397th took part in a coordinated air effort to support the Allied ground advance to Cherbourg. Capturing this port on the Cotentin Peninsula would enable supplying up to thirty army divisions. Allied leaders, therefore, considered Cherbourg “the most important port in the world.”⁷ Recognizing its strategic importance, Hitler likewise ordered, “The Fortress of Cherbourg must be held at all costs.”⁸ The 397th’s mission on 10 June attacked the coastal defense battery at Quineville, approximately half way up the peninsula. Low clouds again forced the men to bomb from below 5,000 feet. They employed 250 and 500-pound bombs on buildings and defensive emplacements. They demonstrated mostly excellent accuracy and achieved suspected damage to buildings, roads, emplacements, and a communication tower. Fighter-bombers

⁵ Messages distributed by leaflet bombs varied based on time and location. This description comes from a Ninth AF Press Release from 8 August 1944 located within the 397 BG’s operations records from that day. It provides a likely representation of the leaflet contents from this mission.

⁶ Mark, *Aerial Interdiction*, 250.

⁷ Atkinson, *The Guns at Last Light*, 116.

⁸ Quoted in Wesley Frank Craven and James Lea Cate, eds., *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day* (Chicago: The University of Chicago Press, 1951), 198.; Atkinson, *The Guns at Last Light*, 105.

also attacked the defensive battery and multiple other gun positions in the area. Allied forces captured the ridge at Quineville on 14 June and rated the overall air missions against the objective as effective.⁹

The 397th also supported ground forces near the Cotentin Peninsula by bombing a road junction and highway bridge at St. Lo. The attacks, on 12 June, sought to cut enemy supply movements from the South and East. The group bombed from as low as 3,000 feet and achieved direct hits on the bridge and road junction. The bridge remained standing but the 250 and 500-pound bombs left no through tracks at the junction. The mission earned a commendation from General Anderson. The bombing also damaged several buildings and possibly a hospital in the town. Damage to the hospital was unintentional, but destruction of the town was part of the rationale behind the attacks. Supporters of the tactic desired to create a roadblock with rubble from bomb damage.¹⁰ Opponents deplored the risk to civilians and destruction of property and saw the roadblocks as ineffective and easily cleared or bypassed. Multiple groups executed similar attacks. The AAF historians maintain that these attacks on Cotentin road centers “were devastating but tactically so unimportant that their ‘deeper significance’ remained a puzzle to the enemy.”¹¹ Brereton voiced his objection to the tactic at the Allied Expeditionary Air Force (AEAF) conference in late June.¹² Nevertheless, the 397th later received orders to bomb two more French road centers; once on 30 June to stop German forces from moving forward and once on 13 August to stop their retreat.

On 22 June, the 397th provided direct support to ground forces in the final advance to Cherbourg. Their mission was part of the first major coordinated air support effort since D-Day.¹³ Following artillery attacks against flak positions, fighter-bombers initiated bombing and strafing attacks on the

⁹ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 197.

¹⁰ AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, 86.

¹¹ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 198.

¹² Brereton, *The Brereton Diaries: The War in the Air in the Pacific, Middle East and Europe*, 297.

¹³ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 199.

besieged fortress. All eleven groups from Ninth Bomber Command followed close behind, each attacking a different enemy strong point. The medium bomber attacks commenced as Allied ground forces began moving north, with each group's target progressively further north.¹⁴ Despite relatively clear weather, the 397th and five other groups employed Pathfinders, apparently in anticipation of smoke over the target area. One of the group's boxes achieved good hits. The other missed by a wide margin. After being struck by flak, one crew jettisoned its bombs prior to reaching the target. Unfortunately, the other crews in the box perceived the jettisoned bombs as the Pathfinder's signal to release. Their weapons hit over two miles short of the target. The aircraft that jettisoned its bombs went down. Although nearly 40 Allied aircraft, including 24 American fighter-bombers, were lost during the mission, this 397th aircraft was the only medium bomber lost. Despite bomb damage to some targets, the massive air effort brought relatively disappointing tactical results. Some ground forces either failed or were unable to advance according to plan. Army leaders, however, understood that the primary effect of the air attacks would be disruption of communication and decreased enemy morale.¹⁵ Post-mission analysis indicated the attacks accomplished both.¹⁶ By the next day, three American divisions had entered the city. The "most important port in the world" fell into Allied hands on 27 June.¹⁷

The 397th faced strong flak and limited fighter defenses in the weeks following the invasion. Although most missions employed three dedicated Window ships to degrade enemy radar, the group often suffered significant flak damage. However, the aircraft shot down at Cherbourg was the only loss to flak between 6 and 23 June. Eighteen of the group's other aircraft received damage at Cherbourg. Three other missions resulted in damage to more than ten aircraft, including 15 damaged on the 14 June mission to a rail bridge at Chartres. The 397th's Marauders were proving highly survivable. Enemy

¹⁴ AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, 103.

¹⁵ Brereton, *The Brereton Diaries: The War in the Air in the Pacific, Middle East and Europe*, 290.

¹⁶ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 200.

¹⁷ Atkinson, *The Guns at Last Light*, 120.

fighters rarely attacked. Of the group's three encounters with Luftwaffe fighters before 23 June, the most significant was an attack by four Me 109s on 14 June. The 397th exchanged fire with the fighters but suffered no damage. The group claimed damage to one fighter, reporting smoke trails as the enemy dove away from the bomber formation. Due to limited evidence, Ninth Bomber Command denied the group's first claim on a German fighter.

Germany's mid-June Vengeance Weapon offensive briefly interrupted the 397th's other campaigns. Although the Allies had anticipated a V-Weapon attack prior to or immediately after the invasion, the attack did not materialize until the night of 12/13 June.¹⁸ The first attack proved largely ineffectual. Of ten V-1s launched, five crashed immediately after takeoff. Only four "buzz-bombs" reached England, with one causing casualties.¹⁹ However, Germany's second attack was more successful. Just before midnight on 15 June, Germany began its attack from 55 sites in France.²⁰ Of 244 V-1s launched through noon on the following day, 73 reached London, causing significant damage and casualties.²¹ The intense attacks continued, soon averaging over 100 per day. On 18 June, a V-1 struck the crowded Guards Chapel in London killing 121 and wounding many more. With rising tension in London, Churchill implored Eisenhower to increase attacks against V-Weapons targets. Eisenhower quickly raised CROSSBOW targets to "first priority over everything except urgent requirements of the battle."²²

Despite the high priority afforded CROSSBOW, the 397th flew only three missions against NOBALL targets after the German offensive began. The group's 18 June mission to Bachimont in the Pas de Calais region employed Pathfinder tactics. Solid cloud cover prevented assessment of bombing results. Weather stopped the group from attacking three days later. Without a Pathfinder assigned to their mission, headquarters recalled the group before

¹⁸ Stanley, *V - Weapons Hunt*, 197-198.

¹⁹ Atkinson, *The Guns at Last Light*, 107.

²⁰ Stanley, *V - Weapons Hunt*, 198.

²¹ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 526.; Atkinson, *The Guns at Last Light*, 107.

²² Atkinson, *The Guns at Last Light*, 109.

they reached their target at Gorenflös. The urgent mission at Cherbourg on 22 June took priority over CROSSBOW missions, interrupting the group's brief CROSSBOW campaign. The 397th returned for their final attack on a NOBALL target on 23 June. Again using a Pathfinder lead, 32 aircraft dropped 500 and 250-pound bombs on the V-1 site at Lambus. Neither box inflicted any apparent damage on the launch facility.

The 397th and the rest of the Ninth AF played a minor role in the summer CROSSBOW campaign. During July and August, the height of the German V-1 offensive, the Allied tactical air forces combined to fly only 400 CROSSBOW sorties dropping 400 tons of bombs. In comparison, the Eighth AF alone flew 4,266 sorties and dropped 10,891 tons in support of the operation. The heavy bombers of RAF Bomber Command similarly flew 11,577 sorties employing nearly 50,000 tons.²³ Such a major diversion of airpower was highly controversial among Allied leaders. While most understood the serious nature of the German offensive and the significance of British morale, many believed the CROSSBOW attacks offered little efficiency in comparison to other uses of airpower.²⁴

By most accounts, the Allied bombing campaign against V-1 sites failed to meet its objective and was an uneconomical use of airpower.²⁵ As Collier explains, many missions attacked targets "of doubtful relevance or of no relevance at all."²⁶ Although the Allied summer campaign did attack modified sites, from which Germany launched most of its V-1s, eliminating these sites proved nearly impossible. A German officer indicated they had the ability to repair two to three damaged sites and build five new launching positions daily.²⁷

²³ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 530.

²⁴ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 528.

²⁵ Colonel Theodore Aylesworth, "A Review of the Protection of England Against V-Weapons in World War II" (Air War College, Air University, 1953), 1.; Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 540.

²⁶ Basil Collier, *The Battle of the V-Weapons: 1944-1945* (New York, NY: William Morrow and Company, 1965), 148.

²⁷ Colonel Theodore Aylesworth, "A Review of the Protection of England Against V-Weapons in World War II" (Air War College, Air University, 1953), 28.

The launching of V-1s from France only ended as ground forces captured German launching positions. The last ground-launched V-1 attack from France occurred on 1 Sep 1944.²⁸ The 397th's greatest contribution to stopping the V-Weapons offensive, therefore, may have been its support to the advancing armies.

Following their brief support to CROSSBOW, the 397th returned to their campaign against German transportation. Their 24 June mission to the Maissons-Laffitte Bridge, within the heavily defended Paris area, proved both effective and costly. The bridge was one of the few still standing over the Seine. Although the group achieved probable damage to both ends of the bridge, the mission resulted in two lost aircraft, three more missing and damage to 32 others. Six Fw 190s attacked and downed one B-26 that had already received significant flak damage. The heavy defenses, with 15 guns in the immediate target area, clearly indicated the importance of the bridge. The previous mission to Maissons-Laffitte, by other Marauders on 28 May, resulted in six lost aircraft and damage to 47. The 397th had likely hit but not dropped the bridge. Such damage to important bridges such as Maissons-Laffitte was normally temporary, as German engineers raced to repair damage.²⁹

Weather significantly hindered the 397th's operations in late June and much of July. After their 24 June mission to Maissons-Laffitte, the group did not return to action until 30 June. Each of their two missions that day attempted to attack transportation targets near Caen. Allied forces had still not taken the town they had hoped might fall on D-Day. Although weather prevented bombing on the morning mission, the 397th aided ground forces by recognizing and reporting German forces preparing an attack. The timely report quickly reached British troops, allowing them to prepare for the following day's German attack. The report gave British forces, "their first knowledge of this

²⁸ Germany continued firing V-1s from its home soil, primarily against continental targets such as Antwerp, Belgium. They also conducted air launches of V-1s from bomber aircraft. The smaller number and inaccuracy of air-launched weapons produced minimal damage. Germany began its V-2 Rocket offensive on 8 September 1944. The 397th did not play a role in combating these later German V-Weapons offensives.

²⁹ Rust, *The 9th Air Force in World War II*, 89–90.

enemy tank concentration and made possible its destruction along with a considerable number of personnel.” Along with the A-20s of the 410 BG, the 397th’s afternoon mission attacked the road center at Conde-sur-Noireau, south of Caen. They bombed with the aid of a Pathfinder. Clouds prevented damage assessment. Nearly another week passed until their next mission.

The majority of the group’s missions in the final weeks prior to the Allied “breakout” from Normandy focused on railroad targets. Their 6 July mission attempted to cut the tracks of the Dol-Rennes rail line, a “ladder of communication” from the South to the battle area.³⁰ Fighter-bombers normally conducted these rail-cutting missions, as mediums focused more on railroad bridges and embankments. The group achieved mixed results with probable damage to the rail line. Their 8 July missions stretched the Marauder’s range limits. Until 7 July, only heavy bombers attacked bridges over the Loire due to the long distance from England.³¹ However, Allied leaders determined blocking German reinforcements from the South was essential. Both missions on the 8th sent the group over 300 miles to attack the railroad bridge at Saumur. The morning mission resulted in probable damage to the bridge, but weather prevented bombing in the afternoon. On both missions, multiple aircraft low on fuel landed in southern England or at newly constructed airfields in the Normandy area. The rest made it back to Rivenhall on minimum reserves. Between 16 and 23 July, the group attacked four bridges and one railroad embankment ranging from the Paris area to the Loire. Although some missions brought little success, most achieved probable damage to the structures. The group scored direct hits with their 19 July attack on the rail bridge at La Possonniere. In addition to destroying five spans on the bridge, they reported hitting unlucky freight cars transiting during their attack.³²

The 397th also attempted to aid ground forces at Normandy by destroying German supplies of fuel. After conducting only one fuel dump attack in June, the group attacked three different fuel depots in early July.

³⁰ AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, 88–89.

³¹ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 213.

³² AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, 139.

During their 6 July bombing of the fuel dump at Foret de Conches, some of their 250-pound bombs detonated in the target area yet did not start any fires. Germany had methodically dispersed its fuel equipment within the storage areas, thereby limiting bomb damage.³³ The group's fuel dump attacks on the 11th and 12th of July utilized Pathfinders due to cloud cover. No damage assessment was possible. The net effect of Allied attacks against German fuel supplies was impossible to measure.³⁴ However, these missions complemented attacks against the transportation network, ensuring a continued shortage of fuel on the German front lines.

The 397th's primary focus during the critical first weeks of Operation OVERLORD sought to deny German mobility. Without doubt, they aided ground forces most by helping to ensure an Allied advantage in men, equipment and supplies. As Craven and Cate explain, "there is good reason for believing that the Allied air forces made their most important contribution to the victory in the Battle of Normandy through their performance in the function of isolating the battlefield."³⁵ Shortly after D-Day, an entry in the war diary of the German Seventh Army noted, "Troop movement and all supply traffic by rail to the army and within the army sector must be considered as completely shut off."³⁶ This successful isolation of the battlefield resulted from the combined efforts of British and American heavy, medium and fighter-bomber aircraft. Constant attacks against Germany's transportation system kept its supplies from the front. However, seven weeks after the invasion, Allied forces had moved no further than 30 miles from the Normandy coast.³⁷ Finally achieving the breakout required massive direct air support, including the efforts of the 397th.

³³ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 223.

³⁴ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 223.

³⁵ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 209-210.

³⁶ Quoted in AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, 94.

³⁷ Atkinson, *The Guns at Last Light*, 137.

The Allied Breakout and the Battle of France

The second phase of the invasion began in mid-July with the Allied breakout from Normandy. The static nature of the first seven weeks of fighting soon transitioned to a war of rapid movement. During the Battle of France, the 397th continued its focus on interdiction. At times, they sought to stop the movement of German forces to the battlefield. At other times, they attempted to impede a German retreat. They proved versatile by also attacking targets such as defended areas, troop concentrations, and fuel and ammunition dumps. Their first efforts in the second phase sought to enable the initial breakout.

The 397th flew as part of a large coordinated air effort for Operation GOODWOOD. The 18 July operation attempted to consolidate British and Canadian positions between Caen and Falaise and entangle German defenses to allow American forces to subsequently advance from the beachhead.³⁸ It was the biggest tank battle fought by British forces in WWII.³⁹ The 397th sent 38 aircraft as part of an Allied effort of 4,500 planes. Their attacks followed those of British and American heavy bombers. Unfortunately, the medium bombers found the target area largely obscured by smoke and haze from the earlier attacks. Only 17 of the 397th's aircraft were able to drop their bombs. Those that bombed hit targets of opportunity outside the planned target area due to the poor visibility. The group suffered flak damage to 27 aircraft with three crewmen killed. The ground advance began immediately after the medium bomber attacks. British forces gained some ground, but stiff German anti-tank defenses halted the advance. British forces advanced only seven miles.⁴⁰ Although the operation had not sprung a major breakout, German Field Marshal Gunther von Kluge reported to Hitler after the attack, "there is no way in which we could do battle with the all powerful enemy air forces...without being forced to surrender territory."⁴¹ Hitler ordered his forces to hold their ground.

³⁸ AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, 120.

³⁹ Atkinson, *The Guns at Last Light*, 133.

⁴⁰ Atkinson, *The Guns at Last Light*, 137.

⁴¹ Quoted in Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 209.

As fighting continued around Caen, Operation COBRA sought to spring the breakout in the American sector near St. Lo. Although originally planned for 21 July, weather delayed the full operation until 25 July.⁴² The 397th was part of a massive, coordinated air effort including nearly 2,500 bombers. Although ground commanders requested the bombers fly parallel to the Allied front to prevent fratricide, the request was impossible due to the large number of aircraft funneling into a small area. Fighter-bombers began the assault with bomb and strafing attacks, followed by the heavies and more fighter-bombers. The 397th and the rest of mediums bombed last. The group employed area-bombing techniques from above 10,000 feet. They dropped 260-pound fragmentation bombs with instantaneous fuses to preclude making craters that would impede Allied movement. Once again, smoke and haze in the target area proved challenging. Some of the group's bombs hit the target, but the majority fell outside the area. Contrary to the heavy damage they suffered during GOODWOOD, the group sustained no flak hits.

The massive bombardment for COBRA aided the Allied advance, but the results were not entirely positive. Errant bombs by heavies, mediums and fighter-bombers caused significant friendly casualties, including 111 killed and 490 wounded. The Allied plan, however, accepted that fratricide would likely result from such a large-scale attack in close proximity to friendly forces. Forty-two B-26s were among those that dropped within friendly lines. The 397th's bombs that landed outside the target area were plotted south and east of the target and likely did not cause any fratricide. The positive effects of Allied airpower were difficult to measure. Initial reports noted relatively light enemy casualties given the large expenditure of bombs. Craven and Cate explain, "The results of the air bombardment were definitely not all the optimists had hoped for."⁴³ On the contrary, historian Rick Atkinson contends, "In truth, German

⁴² On 24 July, the Allies initiated but then aborted COBRA due to weather. However, some fighter-bombers and heavy bombers did not receive the recall order in time and proceeded with their bomb runs. Errant bombing in challenging weather resulted in fratricide. All Ninth BC aircraft received the recall order on time. Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 230.

⁴³ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 234.

defenses had been blown to smithereens: the enemy was profoundly hurt, mortally hurt.”⁴⁴ Virtually all sources agree that the bombardment at least had a devastating effect on enemy communications and morale. Although Allied forces advanced only a mile by nightfall, the momentum of the advance picked up the following day. Within two days, the front had “busted wide open” with a five mile-wide breach of the German front.

Immediately following the start of Operation COBRA, the 397th returned their focus to bridge attacks. Around this time, they started using the nickname “Bridge Busters.”⁴⁵ Records do not describe the precise origin of the moniker, but highlight they “attained such good results with these difficult targets.” Col Coiner is said to have claimed, “...of the fourteen bridges damaged by all Bomb Groups in our 98th Bomb Wing from May 26th – June 1st, the airmen under my command accounted for nine – 64% of the total.”⁴⁶ The name proved fitting. Their late afternoon mission on 25 July knocked out the bridge at Cloyes over the Loire River. Flying between 8,000 and 9,000 feet due to clouds above, the first box’s 1000-pound bombs dropped the bridge.

Continued attacks on bridges attracted attention from German fighters. Two Me 109s attacked during the bomb run of the group’s 26 July mission to the rail bridge at Epernon. Thirteen gunners from seven Marauders fired at the German attackers. One B-26 took machine gun damage but safely made it home. The group earned its first official credit for damaging a German fighter but did not damage the bridge.

The Bridge Busters accomplished six more bridge attacks over the next eight days. Their 1 August bombing at Les Pont de Ce knocked down the bridge’s south span. Once again, German fighters challenged the bomb run. Four fighters attacked simultaneously, with two Me 109s approaching from behind and two Fw 190s attacking from the left. The group’s gunners received

⁴⁴ Atkinson, *The Guns at Last Light*, 144.

⁴⁵ History, 397th Bombardment Group, July 1944. The 597 BS history for July 1944, submitted on 20 August, provides the first mention of the nickname “Bridge Busters” in the group’s records.

⁴⁶ Quoted in Graham Smith, *Essex Airfields in the Second World War* (Newbury: Countryside Books, 1996), 220.

credit for shooting down both a Me 109 and a Fw 190. They also damaged one of each type. Unfortunately, the fighters also brought down a Marauder, though reports indicated the crew successfully parachuted from the aircraft. The following day, the 397th attacked multiple rail bridges at Cinq Mars over the Loire. Post-mission reconnaissance showed the eastern bridge ruptured in three places, the approach to the western bridge cut and the rail line crossing the river unserviceable. Not all missions proved as successful. The 3 August attack on the bridge at Courtelain left the bridge undamaged. Furthermore, two of the group's aircraft collided during evasive maneuvers. Although one successfully made an emergency landing in Normandy, the other crashed with no parachutes observed. Despite this disappointing and tragic mission, the 397th and the rest of the Ninth AF's medium bombers were proving highly effective at bridge attacks. They had put six out the seven selected bridges over the Loire out of commission and had caused significant damage to several bridges over the Seine and in the gap. Without bridges, enemy forces slowly crossed rivers by ferry. Without rail access to the battle area, many troops hiked long distances to the fight. Some German forces marched between 6 and 12 days to reach Normandy.⁴⁷ Germany's frantic attempts to repair many of the bridges clearly indicated their importance.⁴⁸

The Bridge Busters again provided direct support to ground forces advancing from Normandy on 30 July. The group flew two missions attacking defended areas at Caumont ahead of British forces. The morning mission included nine groups from Ninth Bomber Command while the afternoon included six. Flak was non-existent during the morning attacks but increased progressively in the afternoon. As one of the last groups to attack, the 397th suffered the heaviest damage with 18 aircraft hit. Due to cloud cover, all groups employed Pathfinders. Although the weather precluded bomb damage assessment, the British ground forces reported the attacks aided their advance, the true measure of merit for such operations.⁴⁹

⁴⁷ AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, 152.

⁴⁸ AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, 139.

⁴⁹ AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, 134.

The continued advance of Allied forces required the 397th to make their first change of station in early August. The group moved from Rivenhall to Hurn, also known as Station 492, in southern England. The move put them closer to Normandy and targets in the Paris area. The group's advance party left in late July, followed by the flight echelon on 4 August and the rear party on the 5th. They lived up to General Brereton's "keep mobile" slogan by returning to combat two days after departing Rivenhall.⁵⁰ They would spend less than a month at Hurn, flying their one hundredth combat mission while stationed there. They achieved the feat on 16 August, less than four months after beginning combat operations.⁵¹

The 397th's August missions from Hurn pursued a wide range of objectives. Communications targets, including rail and highway infrastructure, remained first priority. However, the rapidly changing battlefield forced significant changes to the interdiction plan. A series of policies issued between 2 and 17 August defined and prioritized bridges to be attacked and those that were off-limits. The plan was closely coordinated with ground forces to cut German movements at the proper locations but not destroy bridges and infrastructure useful to the Allies.⁵² For example, bridges and fuel dumps in the Brittany area were off limits. The American VIII Corps planned to utilize the bridges in their advance and then capture the German fuel supplies. By 17 August, all bridge attacks required express authorization from AEAF. Fuel and ammunitions dumps took second and third priority respectively but direct requests from ground units also drove many bombing missions.⁵³

The 397th flew 11 bridge bombing missions between 7 and 17 August. Their first mission from Hurn, on 7 August, sent them to attack the rail bridge at Neuvy-sur-Loire, the easternmost target they had attacked to date. By cutting the bridge, the Allies sought to deny movement to the Paris area from

⁵⁰ Although Maj Gen Hoyt Vandenberg took command of the Ninth AF on 8 August 1944, "keep mobile" remained a central theme throughout the war. Lt Gen Brereton took command of the First Allied Airborne Army.

⁵¹ History, 397th Bombardment Group, August 1944.

⁵² AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, 205–209.

⁵³ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 259-260.

the South.⁵⁴ Despite uneven bombing accuracy, the attack probably destroyed part of the bridge and damaged rail cars in the vicinity. This mission came at the cost of one aircraft downed by flak and 13 others damaged. They returned to attack the bridge for their one hundredth combat mission on the 16th but could not bomb due to weather.

The group's other bridge attacks as part of the interdiction program focused on the area between Paris and Rouen. Their 8 August attack at Mantes-Gassicourt, a top priority bridge, cut the rail lines west of a temporary span erected by German engineers.⁵⁵ Although they encountered little resistance to this attack, other missions proved costly. In clear recognition of their importance, Germany had surrounded several bridges with large concentrations of flak guns.⁵⁶ While achieving mostly excellent bomb results and probable damage to the bridge at Nogent on 10 August, the group took damage to 20 aircraft and lost one. They lost another aircraft and crew the following day while attacking the rail bridge at Oissel. Flak damaged 26 other aircraft. Unfortunately, their Pathfinder-aided attacks yielded poor results and no damage to the bridge. The attack at Oissel was their last mission against a French bridge identified as part of the interdiction plan. Their remaining bridge attacks sought not to deny German forces from entering the battle area, but rather to impede their retreat. Before the retreat began in earnest, the group supported ground forces in other ways.

The 397 BG flew three missions against German fuel and ammunition depots in early August. The two against ammunition supplies yielded little apparent results. During their 7 August mission to the small depot in the wooded area of Foret de Blois, the group delivered relatively accurate attacks but noted no secondary explosions. Poor weather stopped them from bombing on their 9 August mission to the ammunition dump at Beaugency, near Orleans. Their 13 August mission to the fuel transfer point and marshalling yard at Corbeil south of Paris, however, proved both successful and

⁵⁴ AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, 206.

⁵⁵ AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, 209.

⁵⁶ Rust, *The 9th Air Force in World War II*, 100.

sensational. Individual bombing results ranged from poor to excellent but crews noted significant explosions in the target area. The true damage only came to light in September when Allied forces captured the area. An ORS report noted the group's attack hit five rail cars in the marshalling yard filled with 200,000 pounds of explosives. Three trains in the immediate vicinity carried military equipment and approximately 45 Germans. Two other trains carried benzene and gasoline. The massive explosion ignited by the group's bombs created a crater 360 feet long, 120 feet wide and 30 feet deep. In total, the explosion destroyed 13 trains, 250 cars and multiple factories in the immediate vicinity. Damage extended nearly half a mile from the target area.⁵⁷

The 397th flew two missions in support of the Allied advance to St. Malo on the French coast. The plan for OVERLORD identified St. Malo and other port cities in Brittany among its top priorities.⁵⁸ The 397th was one of two B-26 groups sent to attack the nearby citadel at St. Servan on 8 August. The group delivered 1,000-pound bombs on the underground fortress comprised of pillboxes, gun emplacements and strong points, all protected by heavy reinforced concrete.⁵⁹ As besieged German forces continued holding their position in the port city, the 397th returned with two other groups on 15 August to bomb gun defenses. This time, they employed 100-pound incendiary bombs. The Marauders' attacks yielded negligible results. The official AAF history notes, "The capture of the citadel at St. Malo on 17 August was one for which ground action was solely responsible."⁶⁰ The 1,000-pound bombs could not penetrate the fortified targets and incendiaries had little effect. Captured German soldiers indicated the bombardment did not influence their surrender.

Beginning on 13 August, much of the 397 BG's efforts turned to stopping retreating German forces. They were one of nine medium bomber groups sent that morning to attack road junctions near Lisieux. The missions attempted to contain German forces in the "Falaise Pocket" to enable a pincer movement by

⁵⁷ History, 397th Bombardment Group, September 1944.

⁵⁸ Atkinson, *The Guns at Last Light*, 150–151.

⁵⁹ AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, 219.

⁶⁰ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 262.

Canadian forces from the North.⁶¹ Six days prior, Hitler had ordered a risky counterattack at Mortain with the intent of separating the American First and Third Armies. After the counteroffensive stalled, the Allies sought to capitalize on the risky advance by enveloping the now vulnerable enemy forces near Falaise. As Atkinson explains, Allied leaders hoped the Canadian move from the North would, “cinch the sack, and trap more than twenty divisions.”⁶² Allied plans also called on airpower to stop the retreating forces. Contrary to previous road center attacks, the mission at Lisieux sought to avoid damage to towns but cut roads in up to 70 locations. Weather over the target area varied significantly throughout the attacks. As the first group to attack, the 397th encountered significant cloud cover. Only 16 aircraft were able to drop on their primary target, with eight dropping on secondary targets and 12 not bombing. The group achieved probable damage to multiple road points. In total, the 281 attacking aircraft cut roads in 30 places.⁶³

Based on requests from the Army, the 397th attacked bridges over the Touques and Risle rivers between 14 and 17 August. Although written policy at the time prohibited attacks on bridges west of the Seine, stopping the German retreat took priority. The morning mission on the 14th sent half of the group to bomb the bridge at Notre Dame de Courson while the other half attacked the bridge at nearby St. Martin. Some of their aircraft bombed the wrong location at Notre Dame de Courson, but others achieved hits and probable damage to the primary bridge. The afternoon mission sent the full group back to St. Martin. The combined attacks achieved mixed results with possible damage to the bridge and probable damage to roads. The afternoon mission on 16 August again split the group between road bridges at Brionne and Pont Authou. Bombing using a Pathfinder lead, neither attack yielded damage. Again attacking with the aid of a Pathfinder, their 17 August attack achieved probable damage to the bridge. Later investigation showed these blind-bombing attacks

⁶¹ John O. Moench, *Marauder Men: An Account of the Martin B-26 Marauder: A Story of the Martin B-26 Marauder and the Men Who Flew and Supported It, a Special Account of the 323rd Bombardment Group (M) of the Eighth and Ninth Air Forces in Europe*, 1st ed (Longwood, Fla: Malia Enterprises, 1989), 239.; Atkinson, *The Guns at Last Light*, 161.

⁶² Atkinson, *The Guns at Last Light*, 159.

⁶³ AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, 215.

at Brionne temporarily halted traffic due to road craters but unfortunately caused damage to the town and civilian casualties.⁶⁴ The group's 17 August attacks on two road bridges at La Rabellerie were their last bridge-busting missions in France. Again using Pathfinder techniques due to weather, they achieved gross to fair results with no damage to the structures.

The German retreat, which began in earnest on 15 August, faced significant obstacles. A concentrated effort by American and British airpower cut many routes of travel and directly attacked the retreating armies. The effect was significant. Seven retreating Panzer divisions, for example, were only able to move 24 tanks and 60 artillery pieces across the Seine.⁶⁵ Nearly 10,000 Germans were killed and 50,000 captured in the Falaise Pocket, which was finally mopped up on 20 August.⁶⁶ Although the Allies had captured Falaise, their air forces continued pursuing the withdrawing German forces.

Beyond bridge busting, the 397th hindered the German retreat by bombing enemy troops and their supplies. On 20 August, they attacked a troop concentration at Foret de La Londe, just west of the Seine. With the aid of a Pathfinder, they dropped nearly 500 fragmentation bombs on German forces waiting to cross the river. This attack complemented the efforts of fighter-bombers who continually harassed the retreating enemy. Visual assessment of the attack was not possible, though the confined enemy forces likely suffered significant losses.⁶⁷ However, Germany had augmented the 16 known flak guns in the area with mobile guns to cover their withdrawal. The 397th took damage to 11 aircraft. They returned to bomb troop and vehicle concentrations at nearby Rouen the afternoon of 26 August. As part of a four-group attack comprised of 179 aircraft, they employed 260-pound fragmentation bombs using an area bombing technique. They again suffered heavy flak damage with one aircraft missing, one making a crash landing and 18 others damaged. The other mission on 26 August attempted to destroy German fuel reserves in the

⁶⁴ AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, 216.

⁶⁵ Thomas Alexander Hughes, *Overlord: General Pete Quesada and the Triumph of Tactical Air Power in World War II* (New York: Free Press, 1995), 245.

⁶⁶ Atkinson, *The Guns at Last Light*, 159.

⁶⁷ AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, 217.

Compeigne Forest north of Paris. The accurate attack resulted in most bombs hitting the target area and setting off explosions and fires. The final mission of August similarly bombed a fuel dump northwest of Paris at Barisis. Some bombs fell outside the target area and may have damaged a residential area. Those that hit the target, however, damaged the fuel tank, rail tracks and roads and started fires in the area. Although the 397th attempted to hinder the German retreat, the war was quickly moving east. As August closed, the group began its move to the continent to keep close to the fight.

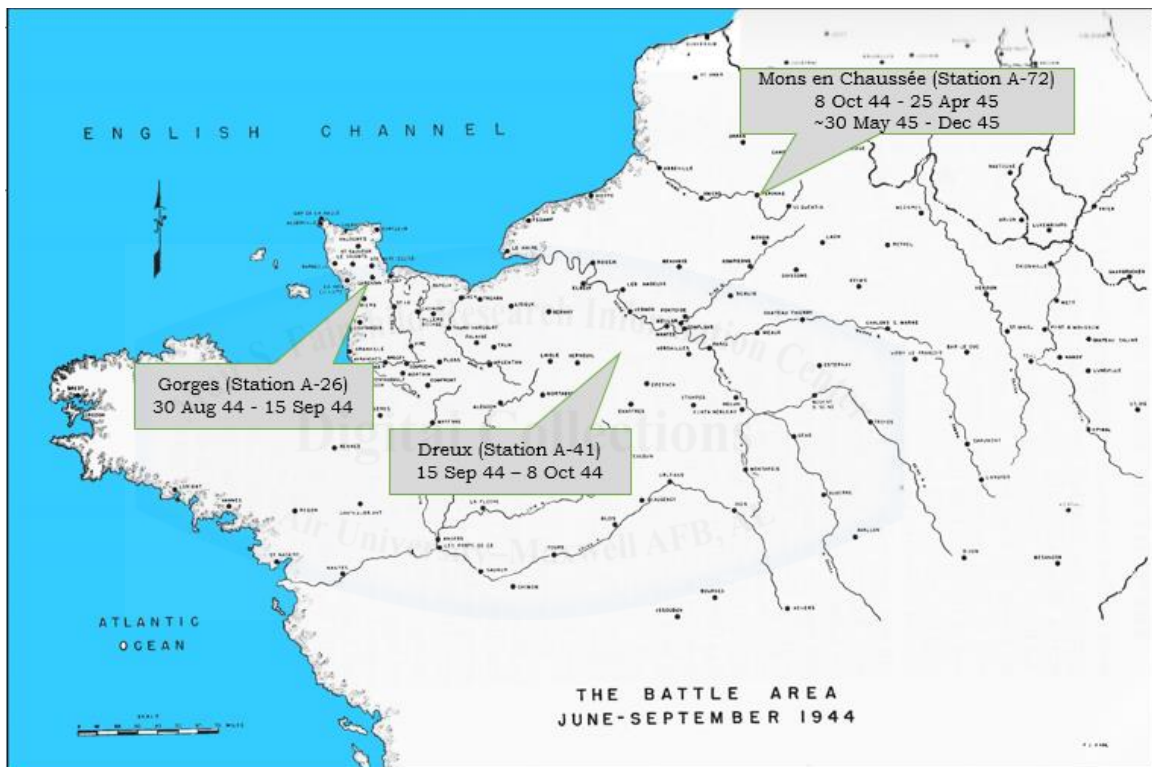


Figure 3: 397 BG Operating Locations in France

Source: Craven and Cate, *The Army Air Forces in World War II, vol 3, Europe: Argument to V-3 Day, Page 229;*

Online at http://www.ibiblio.org/hyperwar/AAF/III/maps/AAF-III-map_229.jpg

After less than a month at Hurn, the 397th departed England for France. They had sent an advance party to their new station at Gorges, or Station A-26, on 17 August. The remainder of the group followed on 30 August. Their new location, in the lower Normandy region near the base of the Cotentin Peninsula, offered little in terms of amenities. The men slept and worked in tents and used pit latrines. Interestingly, many found the food at the austere base preferable

to what they had in England. The two significant problems with the base, however, were the airstrip and its distance from the quickly moving front. Group records describe the field as “little more than a path of level muddy ground in the midst of a sea of mud.” The perforated steel planks forming the expeditionary runway did little to keep the mud down “as the heavy Normandy rains continued to soak the field.” Additionally, the steel matting quickly began to break under the weight of the B-26.⁶⁸ More significantly, the war front kept moving east, placing potential targets at or beyond the range of medium bombers. Paris had fallen on 25 August and Allied forces continued advancing toward Germany. For these reasons, the group’s time at Gorges was short. They stayed just over two weeks and flew only four missions, all to targets located nearby in the Brittany region of France.

The 397 BG flew their first combat mission from the continent on 1 September, just two days after departing England. Over the course of a week, they flew four missions against defended areas at the port of Brest. They had flown one previous mission in support of the Brest campaign before leaving England. That mission occurred on 25 August as part of the opening of the combined air-ground assault on the port. As fighter-bombers primarily attacked shipping, the mediums attacked coastal defenses, anti-aircraft batteries and strong points. The 397th bombed a heavy anti-aircraft battery east of Brest at Kerdrein. Their area bombing of nearly one thousand 100-pound bombs did not appear to damage the defenses. The group’s remaining four missions to Brest sought to attack strong points in the fortified port with 1,000-pound bombs. Weather in the target area prevented bombing on 1 September. Their attacks on 5 September and the morning of 6 September both yielded results ranging from fair to excellent. Weather forced the group to low altitude in the afternoon of 6 September. That was the last day the 397th and the other medium bombers supported the assault on Brest. Fighter-bombers continued the effort until Allied forces captured the port on 19 September.⁶⁹

⁶⁸ History, 397th Bombardment Group, September 1944 and medical report for 1944.

⁶⁹ AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, 222–226.

The effect of the 397 BG and other medium bombers on the Brest campaign is difficult to assess. The impact of the overall campaign is clearer. Relatively poor communication between air and ground units was especially problematic for medium and heavy bombers. They often had only coordinates rather than descriptions or photos of their targets and were unsure of the target construction. As such, many of the targets were impervious to attack by the 1,000-pound bombs employed by Marauders. The Ninth AF history does indicate, "Attacks by mediums on open emplacements seem to have produced good results" but notes such assessment is difficult given the sustained barrage of bombs and artillery over the nearly month-long campaign.⁷⁰ Due to the poor air-ground coordination, Craven and Cate contrarily assert, "The missions of the heavies and mediums alike involved a considerable waste of effort."⁷¹ Most damning is the fact the Allies never used the port at Brest, primarily because it was nearly 500 miles from Germany. Allied leaders argued it was too dangerous to leave the German garrison in place. Atkinson disagrees, stating, "The diversion of five divisions to Brittany reflected an inflexible adherence to the OVERLORD plan."⁷²

With the fight moving east, the 397th had to "keep mobile" to maintain the enemy within range. Allied armies had pushed the line nearly 400 miles in August and early September. The group departed Gorges for Station A-41 near Dreux, France, with elements leaving between 10 and 15 September. The Luftwaffe had recently abandoned the base. Although many of the facilities were heavily bomb-damaged, the paved runway was in good repair, a welcome change from the muddy strip at Gorges. The men again lived and worked primarily in tents.⁷³ Their new home put them within striking distance of the enemy homeland. As the group quickly readied for operations, the Allied advance came to a halt.

⁷⁰ AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, 227.

⁷¹ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 264.

⁷² Atkinson, *The Guns at Last Light*, 152.

⁷³ History, 397th Bombardment Group, September 1944.

The Build Up and Assault on Germany

The 397th returned to action on 19 September. The Allied advance had stopped near the German border. The group's initial mission from Dreux was their first into Germany but was against a familiar target type. They attacked a railroad marshalling yard in Bitburg. The following two days, they attacked a nearby marshalling yard at Trier and a rail junction at Gerolstein. All three targets lay close to the German Siegfried Line near Luxembourg. Army commanders requested the missions to deny supplies and reinforcements arriving from Cologne and Coblenz. Additionally, by denying movement by rail, the Allies sought to force German forces to use motor transportation, thereby exacerbating their fuel shortage. All three of the group's attacks yielded damage to tracks, rail wagons and buildings in the target areas. The intelligence assessment singled out the attack at Trier as "exceptionally good" with a major explosion near the engine repair shop indicating hits on ammunition or fuel supplies.⁷⁴ The attacks at Trier and Gerolstein likely blocked all through lines. With the exception of the initial mission to Bitburg, on which 13 aircraft took damage, flak defenses in Germany were initially light.

The European fall weather curtailed operations in late September. It soon got worse. The group was unable to bomb troop concentrations in the Foret de Parroy on both 28 and 29 September. Medium bombers attempted to bomb the site for three straight days to aid the American Third Army. Out of four groups, only 37 aircraft were able to bomb on the 28th. The medium bombers similarly delivered only partial support to a First Army request to bomb a defended area at Herbach on 2 October. The mission sent five groups to the target, but less than half of the aircraft were able to bomb. The only six aircraft that attacked from the 397th hit the target area with half of their bombs. Weather was significantly hindering support to ground forces.

On a rare day of relatively clear weather, the group conducted two successful missions on the 29th. The morning mission attacked a barracks

⁷⁴ Ninth Bomber Command, "Intelligence Report to Combat Crews of Operations, 15 September – 21 September 1944," Located within the 397 BG Operations Records, Mission Summary for Mission #89.

area near the marshalling yards at Bitburg. Army intelligence believed the barracks housed replacements for the Siegfried Line garrison and wanted, “these green troops bombed wherever they are found to destroy them and their morale.”⁷⁵ The first box hit several of the target buildings causing destruction or severe damage. Eighteen aircraft were unable to bomb due to smoke in the target area from the attack. Bitburg again proved heavily defended. One aircraft was confirmed lost after breaking formation over the target due to flak damage and another was reported missing. Twenty-four of the group’s other 35 aircraft were damaged. The afternoon mission attacked warehouses adjacent to the marshalling yards at Julich near the Aachen sector of the Siegfried Line. Despite uneven bombing accuracy, the attack caused probable damage to the target building.

After less than a month at Dreux, the Bridge Busters again moved closer to the battle area. They moved to Station A-72 near the village of Mons en Chaussée, France between 4 and 8 October.⁷⁶ Operating from this base in northern France put targets in central Germany within reach. It was another abandoned Luftwaffe field with damage to many facilities inflicted by Allied bombs and retreating German forces. Ground personnel lived in tents, while combat crews lived in barracks in Mons en Chaussée erected by the Germans. The group was combat ready one day after the aircraft arrived, but weather delayed their entry to combat from station A-72.

A change of Allied policy in early October allowed the 397th to begin bridge busting again. Before 7 October, the interdiction program focused primarily on rail line cutting by fighter-bombers and marshalling yard attacks by medium and heavy bombers. The program prohibited bridge attacks, apparently in expectation of a quick breakthrough into Germany. As the war stagnated, several bridges became viable targets and the Ninth AF’s medium

⁷⁵ Ninth Bomber Command, “Intelligence Report to Combat Crews of Operations, 29 September – 15 October 1944,” Located within the 397 BG Operations Records, Mission Summary for Mission #119.

⁷⁶ History, 397th Bombardment Group, October 1944. Some records refer to the base at Mons en Chaussée as Peronne. Mons en Chaussée was the village adjacent to the field. Peronne was a larger town approximately five miles away.

bombers received orders to accomplish many bridge attacks.⁷⁷ Nearly two months since their last bridge busting mission, the group bombed the bridge at Ahrweiler, Germany on 12 October. Weather allowed visual bombing from medium altitude. They achieved possible damage to the primary bridge and cut the rail tracks. Portions of the group were unable to locate the primary target and bombed alternate bridges with probable damage to bridges and tracks.

Adverse weather drastically reduced operations for the rest of the month. Across Ninth AF, aircrews aborted 25% of missions flown between 15 September and 25 October due to weather. On another 50%, weather limited attacks on primary targets.⁷⁸ These telling statistics did not even include the many planned missions cancelled before takeoff. The 397th flew only two more missions in October, both bridge attacks using Pathfinders. On 20 Oct, they were one of four medium bomber groups sent to attack bridges in the Netherlands. Their attack at Geertruidenberg yielded no likely damage. Clouds prevented assessment of the group's 29 October mission to the German bridge at Euskirchen. The attack at Euskirchen was in preparation for American advances planned for early November.⁷⁹

The European weather limited the efficacy of the overall interdiction program for multiple reasons. It decreased both the number and accuracy of Allied attacks. Even when attacks achieved damage, German workers proved proficient at making repairs. Without consistent flight operations, the Allies found it difficult to keep bridges out of commission. Additionally, the weather often prohibited damage assessment, thereby limiting knowledge of Germany's transportation capabilities and complicating targeting decisions. The overall interdiction campaign of September and October fell short of the earlier success achieved isolating the battlefield in France.⁸⁰ Although they later returned their

⁷⁷ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 618.

⁷⁸ AAF Historical Office, *Ninth Air Force in the ETO: April to November 1944*, 255.

⁷⁹ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 623.

⁸⁰ AAF Historical Office, *Ninth Air Force in the ETO: 16 Oct 1943 to 16 April 1944*, 260–263, 287.

focus to the German rail network, the 397th's late fall and early winter missions sought to aid ground forces in other ways.

The Bridge Busters spent most of November supporting the American First, Third and Ninth Armies by attacking stores depots and defended areas. Unlike the fighter-bombers and reconnaissance aircraft of the tactical air commands, the Ninth Bombardment Division's medium and light bombers were not directly associated with a particular army.⁸¹ They flew missions in various sectors as dictated by need. The group's 4 November mission attacked a stores depot at Baumholder near Trier in the Ninth Army sector. Only half of the group bombed due to a Pathfinder equipment failure. Two days later, they attacked an ammunition depot at Homburg which intelligence believed contained weapons for the Luxembourg, Metz and Belfort sectors. Clouds prevented visual or photographic assessment of the Pathfinder-led attacks. The Bridge Busters made three attempts to hit an ammunition dump at Landau on 9 and 10 November. The missions indirectly supported Operation MADISON, an advance of the Third Army toward Metz. The plan called for the coordinated support of heavies, mediums and fighter-bombers.⁸² Even with Pathfinders, dense clouds and thunderstorms prevented the group from attacking. The majority of the Ninth Bomb Division returned without bombing both days. As MADISON continued, the 397th briefly returned to bridge busting. Their 11 November mission targeted a rail bridge at Mayen on a north to south rail line used to transport enemy troops and supplies between sectors. The results of their Pathfinder-aided attacks could not be determined. Despite the limiting effect of weather, the overall bombardment did aid the advancing American forces, who captured Metz on 19 November.⁸³

A brief spell of clear weather allowed the Ninth Bomb Division to launch a large tactical air effort on 18 November. As part of a force of more than 350 bombers, the 397th attacked a barracks area at Reichenbach. Unfortunately, they were the second group to the target. Enemy flak gunners were prepared

⁸¹ Ninth Bomber Command became the Ninth Bombardment Division in August 1944.

⁸² Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 622-627.

⁸³ Atkinson, *The Guns at Last Light*, 345-348.

for their arrival and damaged 25 of the group's 38 aircraft. One bombardier died from a flak impact during the bomb run causing confusion for the flight. The group's accuracy suffered, as only one flight scored excellent and many bombs missed the target area.

The preponderance of the 397th's missions from mid-November to mid-December supported the American First and Ninth Armies. The armies launched Operation QUEEN, a joint air-ground operation, on 16 November.⁸⁴ Its objective was to advance from Aachen, Germany west to the Roer River and ultimately to the Rhine.⁸⁵ QUEEN officially ended on 30 November but American forces continued advancing with support from air forces through 13 December. Although weather prevented to 397th and most of Ninth Bomb Division from flying on the opening day, the group bombed eight defended areas and towns in the region during the campaign. The defended towns included Elsdorf, Stockheim, Huchem, Nideggen, Gemund, and Hellental. The group also attacked defended areas at Mariaweiler and Bergstein. On each attack, they dropped 250-pound bombs. The large quantity of smaller bombs enabled wider bomb coverage and made smaller craters to avoid hindering a future advance. The group employed Pathfinders on most missions due to the persistent cloud cover. In virtually all cases, individual bombing results were undetermined. Various German units took heavy losses in attacks on towns and defended areas. The attacks aided Operation QUEEN, though ground forces advanced much slower than anticipated. The Ninth Army reached the Roer after three weeks of fighting, while the more southern First Army did not reach the river until mid-December. In thirty-seven days, the First Army gained seven miles.⁸⁶ The 397th played a role in enabling the advance.

The middle of November brought the beginning of significant operations for a new aircraft type in the Ninth Bomb Division. The new Douglas A-26 Invader represented the AAF's vision for the future of medium bombardment. Although designated an "attack" aircraft, the AAF desired to replace its light

⁸⁴ Rust, *The 9th Air Force in World War II*, 126–127.

⁸⁵ Atkinson, *The Guns at Last Light*, 333.

⁸⁶ Atkinson, *The Guns at Last Light*, 336–337.

and medium bombers with the Invader. With a top speed of 360 mph, it was faster than the “hot” Marauder. Its normal combat radius of approximately 500 miles exceeded that of the B-26 and its maximum bomb load of 6,000 pounds and 18 machine guns brought improvements in offensive capabilities.⁸⁷

Although a B-26 group, the 386 BG, flew the first combat mission tests with the Invader in September 1944, the 416 BG was the first group to convert fully to the A-26. They traded in their A-20s and flew their first full-group combat mission in the new airplane on 17 November.⁸⁸ Between November and the end of hostilities three more groups from the Ninth Bomb Division, two B-26 groups and one A-20 group, converted to the A-26.⁸⁹ The 397th remained a Marauder unit but now operated alongside other Marauders as well as Havocs and Invaders.

From mid-November through mid-December, the Bridge Busters attacked several targets to aid the American Third Army. After General George Patton’s forces conquered Metz on 19 November, several outlying forts remained held by the enemy.⁹⁰ The 397th bombed an ordnance depot, two defended areas and one defended town. Due to weather difficulties, only 12 of the group’s 39 dispatched aircraft bombed the ordnance depot at Pirmasens on 19 November. As was becoming normal, results were unknown. The entire group did not bomb on their 1 December attack on the defended area at Saarlautern due to a failure of Pathfinder equipment. They returned to the same target along with five other groups the next day. The mission was not among the group’s best. Although some of Box One’s weapons hit the target area, a bombardier in Box Two accidentally toggled his bomb release switch due to flak bursts immediately in front of the aircraft. The weapons landed in friendly territory, possibly causing casualties among American forces. The overall

⁸⁷ Wesley Frank Craven and James Lea Cate, eds., *The Army Air Forces in World War II*, vol.6, *Men and Planes* (1955; new imprint, Washington, DC: Office of Air Force History, 1983), 201.

⁸⁸ Jerry. Scutts, *US Medium Bomber Units of World War 2: Northwest Europe* (Hersham: Ian Allen Pub., 2001), 91-112.

⁸⁹ J. K. Havener, *The Martin B-26 Marauder*, 1st ed (Blue Ridge Summit, PA: AERO, 1988), 58. The 409 BG converted from A-20s to A-26s in December 1944. The 386 BG and 391 BG switched from B-26s to A-26s in March and April respectively. The 410 BG converted to A-26s from A-20s after the end of hostilities.

⁹⁰ Atkinson, *The Guns at Last Light*, 348.

mission to Saarlautern, however, proved successful. Craven and Cate explain, “The defenders were so dazed and disorganized that when attacking troops entered the bombed areas, they encountered very little opposition.”⁹¹ The group’s support to the Third Army continued with two attacks on the defended towns of Losheim and Weisbach on 9 December. The results of both Pathfinder-aided missions were unknown. Again, the Bridge Busters’ support aided the ground advance. By 15 December, the Third Army had captured most of the Saar region of Germany.

As Germany made final preparations for the surprise Ardennes offensive, the 397th attacked an oil depot at Ruthen, Germany. The 15 December mission sent three Marauder groups to attack the facility, which held oil and antifreeze for German Panzer divisions. Once again, the results of the attack were unknown due to weather. They encountered very little flak and no fighter defenses on the mission. Although the group occasionally sighted enemy aircraft, they had not exchanged fire with the Luftwaffe since early August. The Ninth Bomb Division’s daily flak analysis for 15 December stated, “Flak has been at a minimum for the past few days. The next few weeks should provide the answer as to why the enemy has not been putting up the AA [anti-aircraft] defenses as previously encountered.” The answer came sooner than expected.

Support to the Battle of the Bulge

Germans forces launched the Ardennes counter-offensive in the early morning hours of 16 December. Outnumbered troops in the First Army lines “were almost everywhere overwhelmed and were either cut off completely or forced to beat a hasty and disorganized retreat.”⁹² The German command had carefully planned to attack during a period of sustained poor weather to minimize the Allied airpower advantage. The weather cooperated with the plan and severely curtailed operations of all aircraft types during the initial stages of the Battle of the Bulge. Although 165 medium bombers were able to fly on 18

⁹¹ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 629.

⁹² Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 683.

December, weather precluded the 397th and several other groups from operating until 23 December.

As the weather cleared on 23 December, the 397th sought to apply their bridge busting skills to aid the embattled Allied ground forces. Their mission to attack the rail bridge at Eller, Germany was part of a major new interdiction program designed to stop enemy movement to the battle area. The plan involved American and British heavy bombers attacking rail centers and marshalling yards. Medium and light bombers primarily attacked rail and highway bridges. Fighter-bombers provided direct support to ground forces but also attacked rail lines.

From the beginning, the mission to Eller did not go as planned. The group's 35-aircraft formation, including one pathfinder and three Window ships, could not locate its fighter escort.⁹³ On previous missions, they were ordered to turn back if unable to rendezvous with fighters. The critical situation on the ground, however, required they continue without support. Unfortunately, the Luftwaffe flew nearly 800 fighter missions that day. Furthermore, Germany had hoarded ample flak reserves. The 397th encountered intense, accurate, heavy flak over Belgium which continued into Germany. The flak brought down two aircraft before the group reached the target

The remaining aircraft continued the bomb run. Although the weather had improved dramatically, clouds partially obscured the target. The group bombed on the cue of their Pathfinder lead, dropping their 1,000-pound bombs from between 11,500 and 12,500 feet. Shortly after turning off target, the first of between 15 to 25 Luftwaffe fighters attacked. The German fighters quickly shot down two of the three Window ships in front of the bomber formation. Three Me 109s subsequently began the attack on the bomber formation with what crews believed were decoy tactics. Between 15 and 22 Fw 190s then aggressively attacked in rapid succession, either alone or in pairs. They primarily approached from behind the bombers and continued their assault for

⁹³ Rust, *The 9th Air Force in World War II*, 134.

more than 10 minutes. The Marauders maintained a tight defensive formation, accomplished evasive turns and returned fire. Thirty-one of the group's gunners fired at the enemy fighters over the course of the battle.

The attack at Eller accomplished its task but proved highly costly. Although the initial bomb results were inconclusive, the group later received credit for severing the vital rail bridge. In total, the 397th lost ten aircraft, and reported 67 men missing and four injured. All but the two aircraft downed by flak prior to the bomb run were believed to have been shot down by enemy fighters. Seventeen of the surviving Marauders received battle damage. The Luftwaffe, however, also paid a heavy price, as the men of the 397th proved capable in air-to-air combat. The Bridge Busters destroyed six Fw 190s and one Me 109. They received credit for the probable destruction of four additional Fw 190s and damage to six more. The 397th earned a Distinguished Unit Citation for their "extraordinary heroism in conflict with the enemy" that day.⁹⁴

Other Marauder groups had similar encounters on 23 December. This first day of major B-26 operations in the Battle of the Bulge represented the most significant encounter by medium bombers with Luftwaffe fighters to date. Additionally, over 56% of the Marauders flying the morning mission were hit by flak. In total, Ninth Bomb Division lost 35 medium bombers that day alone.⁹⁵

The 397th provided continued support to the Battle of the Bulge by bombing road and communications centers. Along with the rest of the medium bombers, they primarily attacked areas west of the Rhine River. The missions sought to block traffic by destroying roads and piling rubble in the narrow town streets. In stark contrast to the previous day's mission, the 24 December attack on Nideggen encountered neither flak nor fighter resistance. The group's accurate bombing likely hindered the passage of traffic through the town. In a clear demonstration of the unpredictability of German defenses, the group encountered moderate to intense accurate flak on their Christmas morning attack on the road center at Vianden. Intelligence had plotted no known flak

⁹⁴ A copy of the 397 BG's Distinguished Unit Citation is located in the group's Unit History files for August 1945.

⁹⁵ Rust, *The 9th Air Force in World War II*, 133.

positions in the area. The apparently mobile defenses shot down one and damaged 16 of the group's aircraft. The afternoon attack on the defended village of Ahrdorf similarly encountered mobile flak that damaged 11 aircraft. The 397th attempted two more road center attacks in early January but were unable to bomb on both missions, primarily due to Pathfinder equipment malfunctions.

Beginning on 27 December, the 397th shifted their focus back to rail system and bridge attacks. The interdiction program was already beginning to accomplish its objectives. The 2nd Panzer Division, for example, had run out of gasoline by 26 December.⁹⁶ Continued emphasis on rail interdiction sought to exacerbate Germany's problem. The group's 27 December attack on the railhead at Kall yielded excellent results with more than 80% of bombs detonating in the target area. Unfortunately, the brief period of good flying weather ended. The group flew only 10 missions in January and most required Pathfinder support. Their 13 January mission to the rail bridge at Dasburg was the first time they bombed that month. Results were undetermined due to weather. Clear weather allowed visual bombing of the rail bridge at Ahrweiler the following day. Post-mission reconnaissance confirmed the group rendered the bridge unserviceable. By doing so, they cut to sole remaining rail artery from Cologne to the battle area. German forces repaired the bridge, requiring the Bridge Busters to return on 3 February. The results of that Pathfinder-led attack were undetermined.

As German forces began withdrawing from the Ardennes area in mid-January, the 397th continued attacking rail system targets. Their 16 January attack at Erkelenz damaged the marshalling yard, tracks and rail cars. The 22 January attack at Bullay, however, yielded no apparent damage to the bridge. The 397th returned to bomb the rail bridge at Eller on 25 January. Only 25 aircraft made the trip as six were unable to start their engines due to the extreme cold. The attack resulted in possible damage to the bridge's north end.

⁹⁶ Rust, *The 9th Air Force in World War II*, 137.

Unlike their fateful 23 December mission, they encountered no German fighters and took no damage from flak.

The Battle of the Bulge came to a close in late January. Allied forces successfully repelled the German attack and began reclaiming lost ground. The air interdiction effort certainly played a key role. German forces were unable to maintain sufficient fuel or ammunition to continue their assault.⁹⁷ Although only part of the overall interdiction effort, bridge busting proved effective. German Field Marshal von Rundstedt explained, “the cutting of bridges...devastatingly contributed to the halting of the Ardennes offensive.”⁹⁸ The 397th now threw their support to the Allied advance into Germany.

Beginning in late December, many of the original crewmembers successfully completed their sixty-fifth combat mission. By doing so, they earned reassignment to the United States. Although the group and its four squadrons had received replacement personnel throughout their time in Europe, early 1945 brought the most significant turnover to date. By the end of January, 182 group personnel completed their combat tours.⁹⁹ Across the AAF, replacing veteran combat aircrews with less experienced personnel often proved problematic, resulting in decreases in bombing accuracy and increases in operational losses. Because most of the 397th's missions in early 1945 yielded unknown results due to cloud cover, the effect on the group's bombing accuracy is impossible to determine. However, records do attribute multiple flight accidents to inexperienced aircrews. Specifically, new aircrew members had difficulty during takeoff and landing in the seemingly ever-present snow, ice, and mud of the French winter.¹⁰⁰

Despite turnover among its aircrews, the 397 BG benefited from consistent leadership at the top. Although most groups across the AAF changed command due to death, injury, or reassignment, Colonel Coiner remained at the helm of the 397th through the end of hostilities. The 397 BG

⁹⁷ Atkinson, *The Guns at Last Light*, 489.

⁹⁸ Quoted in Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 705.

⁹⁹ History, 397th Bombardment Group, December 1944.

¹⁰⁰ History, 397th Bombardment Group, January 1945.

and 391 BG were the only two groups in Ninth Bomb Division who maintained a single group commander throughout their combat tours. Being two of the three shortest tenured Marauder groups certainly helped. However, four other groups in Ninth Bomb Division, including one B-26 and three A-20 groups that entered combat between March and May 1944 all experienced at least one group change of command before the war's end.¹⁰¹ Although the direct impact of consistent leadership is difficult to assess from records, continuity of command likely aided the Bridge Busters' combat efficacy.

During the winter, the 397 BG began participating in an Air-Ground Liaison Program with the intent, "to further mutual understanding of both forces' problems."¹⁰² Records do not indicate the precise start date, though the group's January history is the first mention of the program. The group hosted personnel from American ground units including the Third Cavalry Group, Ninety-Fourth Infantry Division, and Tenth Armored Division. As part of the program, the group and squadrons posted personnel on temporary duty at the headquarters of Ninth and Nineteenth Tactical Air Commands, which were collocated with the American First and Third Armies respectively. Fighter-bomber units of the tactical air commands had previously benefited from improved coordination with ground forces. Such improvements for the mediums proved beneficial in the ensuing advance up to and across the Rhine.

Advance to the Rhine

After repelling the Ardennes offensive, the Allies sought to continue their planned advance into Germany in February. During this phase of the war, the 397th continued proving flexible by striking targets including bridges, marshaling yards, towns, and motor transport areas. Winter weather continued to limit flight operations, and often made blind bombing techniques necessary and target damage assessment difficult.

With Canadian forces planning to kick off an offensive on 8 February, the 397th began the month accomplishing preparatory interdiction missions. Their

¹⁰¹ Rust, *The 9th Air Force in World War II*, 234.

¹⁰² History, 397th Bombardment Group, January 1945, February 1945.

1 February strike on the rail bridge at Engers used Pathfinder tactics and produced undetermined results. On 2 February, the group's tenacity proved costly. The mission was to attack the rail bridge at Rosbach. Their fighter escort failed to materialize at the rendezvous point. The group received orders to proceed into Germany for four minutes and abort the mission if unable to locate their fighters. The escort did not show up, but the formation elected to bomb a secondary target, the Eller rail bridge. Finding the bridge at Eller obscured by clouds, they located an additional bridge but found it already out of commission. They proceeded to yet a third bridge. Unfortunately, they encountered heavy, accurate flak while attempting to bomb a bridge at Coblenz. Two aircraft struck by flak during the attack made crash landings and one crewmen died. Twelve other aircraft suffered damaged. The group failed to hit the target. The following day, the Bridge Busters returned to the bridge at Ahrweiler, a target they had temporarily put out of commission in January. This time, the results of their Pathfinder-led attack on the repaired structure were unknown.

Following their early month interdiction efforts, the remainder of the group's February missions pursued a wide range of objectives. In almost all cases, the results were undetermined due to weather. On the sixth, they bombed the defended town of Sotenich ahead of the American First Army. Their 8 February mission was a rare attack in support of Canadian forces. The maximum effort attack sent 49 of the Bridge Busters to bomb defensive positions in the northwest German town of Materborn. The mission sought to minimize resistance to a Canadian offensive codenamed Operation VERITABLE.¹⁰³ Three other Marauder groups took part in the bombing of Materborn, while four other groups bombed nearby defended areas. Heavy and fighter-bombers similarly supported VERITABLE. The 397th and most other Marauders employed GEE-bombing, a blind-bombing technique that did not require the aid of Pathfinders. Like the Pathfinders' OBOE system, GEE used ground-based signals sent to the aircraft to help determine its position. Three ground stations sent signals to the aircraft, which displayed GEE coordinates

¹⁰³ Rust, *The 9th Air Force in World War II*, 146.

on a cathode ray tube. Navigators located their positions by plotting these coordinates on a special map. Aircrews either released weapons from a pre-determined GEE-fix or flew a timed course to their bomb release point.¹⁰⁴ GEE's accuracy, ranging from one-half to five miles depending on distance from the transmitters, was inferior to OBOE's.¹⁰⁵ However, individual bomb groups possessed the required equipment and the method allowed more aircraft to bomb in adverse weather given the limited availability of Pathfinders. Although weather precluded measuring individual bomb results at Materborn, the overall air effort enabled Canadian forces to make substantial advances on the first day.¹⁰⁶

The 397th's next several missions attacked targets further south near the American and British sectors. The Americans were preparing to begin an offensive codenamed Operation GRENADE. On 9 February, the 397th bombed road junctions at Viersen, west of Dusseldorf, to hinder German movement opposite the American forces. Allied leaders postponed Operation GRENADE after German forces opened the floodgates of a Roer river dam on 10 February, flooding the proposed area for the offensive. During the delay, the 397th continued preparing the battle area by hindering German mobility. On the 10th, they attacked a motor transport center at Berg-Gladbach. The facility was a primary parts and repair depot for armored vehicles. They bombed another motor center at Schwelm three days later. The results of both were undetermined. The group's other missions in mid-February focused primarily on rail system targets. They attacked the marshalling yard at Modrath but achieved minimal likely damage. They sent two missions to bomb the rail bridge at Mayen and another two against the bridge at Irlich. None of the missions achieved major damage to the bridges, but all resulted in significant flak damage to aircraft. On 21 February, the group made their deepest penetration into Germany yet when they attacked a rail bridge at Herford. For

¹⁰⁴ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 667.

¹⁰⁵ Randall T. Wakelam, *The Science of Bombing: Operational Research in RAF Bomber Command* (Toronto ; Buffalo: University of Toronto Press, 2009), 242.

¹⁰⁶ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 757.

a change, they were able to make a visual attack in relatively clear weather. They scored likely direct hits on both the primary and secondary bridges.

On 22 February, the 397th took part in a massive coordinated interdiction effort codenamed Operation CLARION. The operation sought both a physical and moral objective. By simultaneously attacking transportation targets across the entire country, the Allies believed they could hinder Germany's repair capabilities.¹⁰⁷ They also believed attacks on yet-untouched areas of Germany would produce widespread effects on the morale of the German population.¹⁰⁸ The 397th, like all other medium and light bomber groups, attacked multiple targets. The group sent 26 aircraft to bomb the rail bridge at Rheda while eight attacked platforms and bridges at Scherfede and four bombed the railroad viaduct at Neuenbeken. Bombing results ranged from superior to undetermined with the best effects likely occurring at Scherfede. The mission also called for the Marauders to descend to low altitude after their bomb runs for strafing attacks. They shot up a rail depot, trains, buildings, and personnel and claimed excellent strafing results. The 397th was the only medium bomber group to encounter German fighters that day. Two Me 109s attacked the group as they returned from their attacks. The Marauders shot down one and earned credit for probable destruction of the other. The group's only loss was a single aircraft due to flak. The physical effects of CLARION remained up for debate even after the war. The effect on German morale seemed minimal. Some concluded the operations sought to, "injure the morale of a people who had no morale."¹⁰⁹

On the heels of CLARION, the Ninth Army launched Operation GRENADE in the early morning hours of 23 February. The 397th flew two missions that day attacking communications centers at Elsdorf and Jackerath. Both towns lay in front of the advancing American forces. Results were mostly undetermined though the few observed bombs appeared to have little effect. The group bombed the defended town of nearby Grevenbroich on 25 February,

¹⁰⁷ Rust, *The 9th Air Force in World War II*, 148.

¹⁰⁸ Atkinson, *The Guns at Last Light*, 535.

¹⁰⁹ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 735.

this time achieving superior to excellent results with damage to the buildings throughout the town. They attempted to bomb a rail and road junction at Begrheim, just behind the immediate battle area, on 26 March. When their Pathfinder's equipment failed, they used GEE to attack an alternate target at nearby Kappellen with unknown results.

As Allied forces advanced toward the Rhine, the 397th spent the end of February and beginning of March bombing transportation targets on or near the river. Their missions from 27 February to 4 March focused on the area between Dusseldorf and Coblenz. Bridges such as Ahrweiler and Mayen were primary arteries for German troop movements. Ground commanders specifically requested the group's 1 March attack on the communications center of Pulheim to stop German forces retreating to the banks of the Rhine. Each of the missions required blind bombing techniques. The results of all were undetermined.

Between 4 and 14 March, the 397th pursued several objectives. Their targets were primarily east of the Rhine. They bombed five marshalling yards spanning from Bingen, near Frankfurt, in the South to Westerberg in the North. The marshalling yard attacks primarily sought to disrupt the movement of German forces and supplies from reinforcing defenses in the Ruhr Valley. Each of the five attacks yielded undetermined results. The group also bombed an ordnance depot and two ammunition-filling plants. All three were located in the Ruhr region. The ordnance depot at Unna, attacked on 5 March, was one of three major depots identified by Allied intelligence that supplied German forces. Again, the results of their efforts were unknown. The group also attacked two German airfields. Their 11 March bombing at Breitscheid was part of a large effort by the Ninth Bomb Division that day against Luftwaffe locations. The Luftwaffe had been launching dive-bombing operations against the recently established Allied bridgehead east of the Rhine from the field.¹¹⁰ Two days later, the 397th and two other groups attacked the airfield at Frankfurt/Rhein. It was a known operating location for Luftwaffe jet aircraft. For the first time in

¹¹⁰ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 770.

weeks, the group was able to determine the results of their attacks. Portions of the formation had difficulty locating the target and missed. However, half delivered excellent to superior bombs and damaged the runway. They had a brief encounter with German fighters but their P-51 escorts successfully thwarted the threat. Flak defenses, however, brought down two aircraft and damaged 18 more.

The Bridge Busters flew their 200th combat mission on 14 March. They had been in combat for just under 11 months. Fittingly, the objective was to isolate the Ruhr Valley by attacking the rail bridge at Nieder-Marberg. The group bombed visually from medium altitude. Although the majority of the bombs missed the bridge, portions of the lead box earned superior marks and achieved hits on the south approach.

On 15 March, the 397th turned their attention further south to aid the advance of the American Seventh Army. The mission supported Operation UNDERTONE and was part of combined effort of medium bombers and fighter-bombers. Along with five other groups, they bombed communications centers in Pirmasens. Finding clear weather at the target, their precise bombing damaged buildings, trench works and gun positions. Their greatest effect, however, may have been in completely demoralizing the German defenders.¹¹¹ American forces continued moving east towards the Rhine.

For the next week, the 397th focused almost exclusively on attacking marshalling yards. The attacks sought to prevent movement to the Ruhr Valley and to destroy supplies located within the yards themselves.¹¹² The group achieved varying levels of individual success, but each mission included multiple groups. This heavy concentration of effort clearly demonstrated the importance placed on disrupting the German rail system. Results of the Pathfinder-led mission to Siegen on 17 March were undetermined for all three attacking groups. The following day's four-group mission proved successful. Finding the target weather clear, the 397th took over from their assigned

¹¹¹ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 768.

¹¹² Rust, *The 9th Air Force in World War II*, 164.

Pathfinder and bombed visually. The results were excellent. In fact, much of the group had to shift to an alternate aim point because of large amounts of smoke covering the target. In addition to damage to the primary target, they hit rail tracks, buildings, factories and roads in the area. The successful attack did come at the expense of one aircraft downed by flak and 14 others damaged. Combined attacks on the marshalling yards at Engelskirchen, Barmen and Giesecke on the 19th and 20th caused significant damage and disruption at all three locations. As an example of the damage wrought, post-mission reconnaissance showed all through lines at Giesecke cut.

The 397th quickly shifted to supporting Allied forces in the North. Between 21 and 24 March, they flew six missions in preparation for Operations PLUNDER and VARSITY. The Allies planned Operation PLUNDER, the Rhine River crossing in northwest Germany, for the night of 23 March. Less than twelve hours later, Operation VARSITY would insert American and British gliders and paratroopers into the area.¹¹³ For three days prior, the 397th bombed communications centers to disrupt enemy movements near the proposed crossing area. On the morning of the 21st, they joined four other groups of Marauders and A-26 Invaders in attacking the communication center at Coesfeld. They returned in the afternoon to bomb nearby Haltern. In both cases, results varied but portions of the 397th delivered accurate bombs damaging roads and buildings. Both missions encountered significant flak with 41 aircraft damaged for the day. Over the next two days, they bombed communication centers at Ahaus, Haltern, Borcken and Schermbeck with similarly mixed results. The official Army Air Forces history notes the attacks on Coesfeld, Borcken and Schermbeck as particularly devastating. It notes the overall campaign produced both physical destruction and a “shattering effect upon the morale of both the civilian population and of the troops.”¹¹⁴

In preparation for VARSITY’s airborne assault, the 397th also attempted to bomb nearby flak positions. Their objective was to minimize Germany’s

¹¹³ Atkinson, *The Guns at Last Light*, 559.

¹¹⁴ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 773.

concentrated air defenses, which might prove devastating to gliders and slow moving cargo aircraft. While the majority of the group bombed Schermbeck on 23 March, six aircraft attempted to take out flak guns. Some results were undetermined but the group had little apparent success. The morning of VARSITY, all of Ninth Bomb Division set out to attack flak positions near Bocholt. With haze and smoke severely limiting visibility, most of the attacks used Pathfinders. Results varied significantly with groups reporting unsatisfactory to superior results. Unfortunately, the 397th's Pathfinder suffered an equipment failure, requiring the group to bomb alternate targets in the towns of Coesfeld and Goor. The air assault began less than thirty minutes after the mediums dropped their bombs.

The 397th played a small role in a massive coordinated air effort to support PLUNDER and VARSITY. The Allies dropped 15,000 tons of bombs over three days in preparation for the Rhine crossing.¹¹⁵ The Bridge Busters' bombing represented slightly less than two percent of the total. By most accounts, PLUNDER was a success. Allied forces quickly took the east banks of the Rhine. The results of VARSITY were more controversial. The airborne troops certainly aided the advancing forces but took heavy losses. Despite the preparatory bombing of anti-aircraft defenses, German flak gunners shot down 46 transport aircraft.¹¹⁶ Nevertheless, Allied forces in the north began advancing from the Rhine. Armies further south similarly crossed the river at the end of March. Along a 250-mile front, Allied troops began the advance to Berlin.

The Battle of Central Europe

The 397th opened their Central Europe campaign the afternoon of 24 March. Although they did not know at the time, they had just under a month of combat remaining. Through their final mission on 20 April, the group primarily attacked railroad marshalling yards, oil facilities and ordnance depots to aid the Allied advance to Berlin.

¹¹⁵ Atkinson, *The Guns at Last Light*, 559.

¹¹⁶ Rust, *The 9th Air Force in World War II*, 159.

On 24 March, the Bridge Busters made their final attack on a German bridge. Along with two other groups, they bombed a rail bridge near the town of Vlotho. Like most German bridges, it had suffered previous damage from air attacks. Their mission was to keep it unserviceable to help isolate the Ruhr Valley as Allied ground forces prepared to encircle the critical region.¹¹⁷ The three-group attack blanketed the bridge and its approaches with 2,000-pound bombs likely resulting in heavy damage. Although finished with their bridge-busting campaign, the group maintained focus on stopping Germany's rail system.

Marshalling yards took the brunt of the 397th's remaining attacks. With two missions on the 25th and one on the 26th, they attacked three rail yards in central Germany. The heavily trafficked yard at Limburg was a critical hub for shuttling supplies to German forces opposing the Allied bridgeheads at Remagen and Oppenheim. Five groups bombed the yard in an effort to cut the rail lines and destroy the estimated 350 rail cars located there. The 397th and the other groups bombed accurately. With smoke and fire covering the area, part of the group could not even see the aim point and had to bomb alternate targets nearby. In the end, the attacks severed all rail lines and damaged many rail cars, likely holding critical supplies. The afternoon mission to Friedburg yielded similar results. This time, four groups caused extensive damage and fires in the yard along a rail line bringing supplies from Frankfurt to German forces opposing the American Third Army. The group's attack at Flieden on the 28th also disrupted German rail movements in central Germany. Once again, a coordinated attack of three medium bomb groups severed all of the yard's rail lines. The three effective missions aided American forces advancing in the central region of Germany.

In late March, the 397th began a brief campaign against German oil system targets. Their only previous attack of the sort in Germany occurred on 15 December, the day before the Ardennes offensive. Beginning on 28 March, oil system targets received third priority for medium bomber attacks behind ordnance installations and communications targets such as marshalling

¹¹⁷ Atkinson, *The Guns at Last Light*, 571–585.

yards.¹¹⁸ Poor weather hindered their initial attempts. On the 28th, half of the group used a Pathfinder to bomb the oil storage depot at Ebrach in southern Germany with unknown results. The other half, separated due to weather, bombed an alternate target using GEE. Weather similarly stopped most of the group from bombing the oil storage depot at Ebenhausen, on 30 March. The 397th returned to bomb the Ebrach depot on 4 April. This time, 30 aircraft successfully dropped using a Pathfinder lead. All three missions against southern German oil fields included multiple groups, but the results for all were unknown due to weather.

Two additional missions against oil targets in central Germany yielded definitive results. Under clear skies, the 397th sent 45 Marauders as part of a four-group, 192-bomber attack on the oil refinery at Nienhagen on 8 April. The crews reported excellent results, but smoke blanketing the area made the photographic evidence useless. The massive medium bomber assault apparently caused severe damage to the facility. The group lost one aircraft to flak on the mission. It was the final 397th aircraft downed by German defenses. The following day, they were part of a smaller, two-group attack on the oil depot at Bad-Berka. Again finding the target area obscured by smoke from previous attacks, most of the group bombed alternate aim points including roads and rail lines leading to the facility. Nearly all of the bombs earned a superior rating. The attack appeared to damage the storage facility and its road and rail access lines. The mission was the group's last attack on Germany's oil supplies.

During the first two weeks of April, the 397th attacked four more marshalling yards in central and northern Germany. They bombed the rail yard at Holzminden on 3 April. The mission objective was to stop the movement of German troops from Holland to central Germany. All four groups attacking the target used blind-bombing techniques with unknown results. Ninth Bomb Division again sent multiple units to attack the marshalling yard at Northeim on 7 April. Due to clouds in the area, the group bombed from as low

¹¹⁸ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 780.

as 5,000 feet with extreme precision. Post-mission photographs showed 100% of the group's bombs landing within 1,000 feet of the aim point. As was becoming common, the large-force attack left the marshalling yard unserviceable with many lines cut and damage to rail cars and nearby buildings. Attacks at marshalling yards at Jena and Aschersleben on 9 and 11 April yielded similar devastation. At Jena, three groups of medium bombers attacked the yard while fighter-bombers hit the adjacent rail sidings. Much of the group again bombed alternative targets because smoke and fire obscured the primary aim point. With concentrated effort, the 397th and the rest of Ninth AF were leaving rail yards throughout central Germany significantly degraded.

Ordnance depots and repair facilities maintained highest priority for medium bombers in April.¹¹⁹ The 397th bombed four such targets in the middle of the month. They accurately delivered 500-pound general-purpose bombs on the ordnance depot at Rudolstadt on 10 April, damaging roads and buildings in the area. Subsequent groups employed incendiary bombs, starting fires throughout the complex. Once again as part of a three-group effort, the 397th attacked a motor transport and tank assembly plant at Bamberg the following day. They left the facility nearly 50% destroyed, hindering Germany's ability to produce and fix critical military vehicles.

The attack at Bamberg was the beginning of a geographic shift in the 397th's missions. During their last ten days at war, the group primarily attacked targets in the southern portion of Germany. At the time, the Allies believed German forces might retreat to the Alps to establish a so-called "National Redoubt." Nazi leadership, they feared, might attempt to stage a final stand or initiate a guerilla war in the mountainous region.¹²⁰ All but one of the 397th's remaining missions focused on the area. On 12 April, they bombed an ordnance depot at Kempten near the Bavarian Alps. Although they achieved mixed results, some of their bombs damaged the target buildings and started

¹¹⁹ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 778.

¹²⁰ Atkinson, *The Guns at Last Light*, 590-593.

fires in the complex. Other groups also had uneven results and one was unable to bomb due to weather. Nevertheless, damage appeared significant. However, leaders considered the target important enough to send the Bridge Busters and four other groups back less than a week later. On the 16th, the 397th dropped 100% of their bombs within 1,000 feet of the aim point. Other groups bombed with similar accuracy. The complex suffered serious damage. The group interrupted their campaign against the National Redoubt area with one final appearance further north.

Magdeburg, Germany was the closest the 397th got to Berlin. On 17 April, all eleven groups in the Ninth Bomb Division attacked locations in the defended town on the Elbe River. The city lay approximately 80 miles from the German capital. The American Ninth Army was moving toward the town and the substantial air effort sought to soften German resistance. The mission was well coordinated to prevent fratricide. American ground troops laid yellow panels on the ground to mark their positions. Aircrews were ordered to bomb visually or with the aid of a Pathfinder. Orders prohibited bombing using GEE. The coordinated attack severely damaged the town. The 397th's bombs hit buildings and roads. Portions of the group elected to bomb alternate aim points in the town due to the smoke-shroud covering the city. In all, the medium and light bombers dropped over 780 tons of bombs in preparation for the ground assault. The nearly 800 mile round trip from Mons en Chaussée certainly tested the Marauder's limits, though records indicate only a small number of the group's aircraft had to stop for fuel on the way home. The Ninth Army took Magdeberg that day.

The 397th appropriately flew their last four missions attacking the German transportation system. They bombed four different marshalling yards between 19 and 20 April. Each was located in southern Germany. Allied predictions of a German National Redoubt had not come to fruition. At the time, however, continued fear that a garrison in the Alps might extend the war drove the Allies to attempt to stop movement into the area. Each of the group's final missions was successful. The three-group attack at Ulm on 19 April wrought significant damage. The mission to Gunzberg that afternoon also

resulted in damage to rail lines, buildings and roads. However, the group suffered its last combat casualties when one of its aircraft crashed on takeoff for unknown reasons. One of its bombs exploded on impact, killing all six men aboard.

The 397th flew their final two missions on 20 April. The morning missions sent them and two other groups of mediums to the marshalling yard at Memmingen. Perhaps the biggest problem the group faced was smoke and fire in the target area obstructing their view of the aim point. Those that could see the target bombed with great accuracy. The others shifted to alternate targets in the rail yard. In the afternoon, they attacked the rail yard at Nordlingen. Each of the 35 aircraft dispatched dropped both of their 2,000-pound bombs. Four of the group's six flights earned excellent or superior marks. The results for the remaining two flights could not be determined due to the previous damage caused by their fellow Bridge Busters. The attack set off an explosion in the yard as they turned and headed for home. Their last true combat excitement came when four Me 109s approached after the bomb run. One Luftwaffe fighter attacked. One Marauder fired at the attacker. The group's P-47 escorts chased the enemy fighters away and claimed one kill. The men of the 397 BG had no idea their combat mission was over. Their final mission was exactly one year since their 20 April 1944 entry to combat, which itself was one year since their 20 April 1943 activation.

After 195 days at Mon en Chaussée, the 397th received orders on 23 April to move closer to the advancing front lines. Two days later, they moved to the abandoned German airfield at Venlo, Holland, also known as Station Y-55. They were quickly ready to return to battle, but weather kept them grounded for several days. One squadron's records stated they, "looked forward eagerly to the continuation of pressing home the attacks against the enemy, leading to the knock-out blow."¹²¹ Despite planning and briefing several missions, they never got the chance. Air operations across Europe were slowing significantly. The Eighth AF flew its last attack on an industrial target on 25 April and completed

¹²¹ History, 397th Bombardment Group, April 1945.

its combat mission in Europe by early May.¹²² The Ninth Bomb Division completed its operations on 3 May. Germany delivered its unconditional surrender four days later.

In one year of fighting, the Bridge Busters flew 239 combat missions and sent over 7,000 aircraft into enemy territory. They pursued a multitude of objectives, including crippling the German transportation system, attacking its V-Weapons sites, destroying stocks of fuel and ammunition, and providing direct support to Allied ground forces. They earned official recognition for participating in six Allied campaigns: the Air Offensive, Europe; Normandy; Northern France; Rhineland; Ardennes-Alsace; and Central Europe. No less than 1,000 of their aircraft were hit by German flak and 12 were damaged by fighters. Although a precise number of downed aircraft is difficult to determine from available records, the group maintained a high survival rate.¹²³ Their ability to withstand stout defenses was a testament to both their skill and the toughness of their aircraft. By 1944, Ninth AF B-26s achieved the lowest loss rate of any aircraft in the ETO with an astounding rate of less than 0.5%.¹²⁴ At war's end, group records indicated 49 men killed in action and 119 wounded with an additional 203 missing. Allied forces moving into Germany, however, found and freed many of the missing men from prison camps.¹²⁵

The 397 BG remained at Venlo for six weeks. They returned to their previous home at Mons en Chaussée on 24 May. Individual group members began receiving orders to redeploy to the United States based upon a point system. Those that remained in Europe continued accomplishing ground and flight training. The last of the group's personnel departed for home in

¹²² Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 783-784.

¹²³ The May 1945 group history states 12 aircraft were missing over enemy territory and 23 aircraft crashed over friendly territory due to battle damage or weather. While the crashes over friendly territory appears consistent with other records, the twelve aircraft missing over enemy territory conflicts with daily records and the number of men listed as missing. As such, this paper does not present those aircraft loss numbers.

¹²⁴ William Green, *Famous Bombers of the Second World War* (London: Macdonald & Co., 1959), 107.

¹²⁵ History, 397th Bombardment Group, April 1945.

December, seven months after completing combat operations. They left their Marauders behind. The aircraft were soon demolished for scrap—as a result very few B-26s survive today. The Army Air Forces officially deactivated the 397th Bombardment Group in early January 1946. Their mission was complete.



Conclusion

Most unit histories end at the conclusion of the war. Their purpose is to document the unit's accomplishments and contributions for posterity. This thesis similarly seeks to record the history of the 397th Bombardment Group Bridge Busters. Beyond telling their story, however, it also seeks to use the details of their year at war to analyze the previously under-examined concept of medium bombardment in World War II, the role of the B-26 Marauder, and the implications for airpower writ large.

The Bridge Busters' story encapsulates the maturity of medium bombardment in the European Theater. As the last B-26 group deployed to Europe, the 397th benefited from the hard-learned lessons of those who preceded them. By the time the group entered combat, the Marauder's early problems were behind it. Through trial and error and sometimes-tragic experience, early Marauder groups honed an effective combat capability. The 397th was only one of eight Marauder groups in the Ninth AF. Without doubt, their story does not perfectly match the experiences of all B-26 groups in Western Europe nor those of groups in the Mediterranean or Pacific Theaters. However, their year at war provides a representative lens through which to assess the contributions of the Marauder and its aircrews, and (more generally) medium bombers in the European Theater of WWII. The issues and implications surrounding medium bombardment addressed here are not exhaustive, but present a few significant considerations for the understanding of WWII and airpower in general.

The story of the 397 BG enables analysis of several questions. First, what role did B-26 medium bombardment units play in the European Theater of Operations? Second, did their role conform to pre-war expectations? Third, was the B-26 an effective instrument of airpower within the context of WWII? Lastly, what insights does this story offer to Airmen of today?

What role did the B-26 play in WWII Europe?

Perhaps the best way to understand the role of the B-26 is to begin with what it was not. The B-26 was not a strategic bomber. Noted airpower historian Richard Overy describes the concept of strategic bombing during WWII as “independent” and “operationally distinct from the actions of ground forces.”¹ Tami Davis-Biddle adds, “The concept implies aircraft carrying bombs to an enemy’s vital centers.”² The vast majority of B-26 missions fell well outside these definitions. The Marauder’s limited range precluded it from significant participation in the strategic bombing offensive. The B-26 and the 397 BG, however, did accomplish missions that broadly fulfilled strategic bombing’s objectives. Early Marauder groups in the ETO attacked coke plants and electric stations. All B-26 groups bombed German airfields in an effort to complement the effects of the strategic bombing campaign against the German aircraft industry. During the end of March and beginning of April 1945, the 397 BG conducted multiple missions against oil facilities in central and southern Germany. Despite these exceptions, the majority of B-26 missions fell outside the AAF’s vision of strategic bombing.

On the opposite extreme, the AAF did not use the B-26 primarily at the battle line in direct support of ground forces. That role fell largely to fighter-bombers. Marauder groups, including the 397th, did accomplish direct support missions, though such missions were exceptional. The 397th’s direct support missions included supporting troop advances to Cherbourg and enabling the Allied breakout from Normandy through Operation COBRA. Attacks on defended towns just beyond the forward line of troops, such as the Bridge Busters’ April 1945 attack at Magdeburg, Germany might meet some definitions of direct support. Yet the vast majority of the 397 BG and other Marauder groups’ missions attacked targets beyond the battle line.

¹ R. J. Overy, *The Air War, 1939-1945*, 1st ed, Cornerstones of Military History (Washington, DC: Potomac Books, Inc, 2005), 12.

² Tami Davis Biddle, *Rhetoric and Reality in Air Warfare: The Evolution of British and American Ideas About Strategic Bombing, 1914-1945* (Princeton, N.J.: Princeton University Press, 2002), 3.

The B-26 was also not a pure attack aviation platform. This point, however, requires clarification. Definitions of attack aviation differed and evolved both before and during the war. The Air Corps had long preferred accomplishing the attack mission through indirect, vice direct, support to ground forces.³ Prior to the war, the Air Corps assigned the attack role and multiple underlying missions to the light bomber. These attack missions included destruction of aircraft on the ground, neutralization of anti-aircraft systems, attacks on vessels and personnel in coastal defense roles, and disruption of hostile forces and their systems of supply and replacement. Within systems of supply and replacement, the Air Corps included, “lines of communication, supply and manufacturing establishments, light bridges, transportation equipment and concentration of troops.”⁴ As the 397 BG story illustrated, many B-26 missions fell within this broad definition of attack aviation. To call the Marauder an attack aircraft, however, confuses the record. In accordance with Army preferences for direct support, fighter-bombers largely overtook the attack mission. Historian Richard Hallion argues the fighter-bomber caused the demise of the specialized attack airplane, stating, “the ‘attack’ airplane was dead; long live the fighter bomber.”⁵ Although the B-26 offered capabilities within the broad pre-war AAF definition of attack aviation, the term fails to capture the scope of the Marauder’s responsibilities.

The ultimate role of the B-26 in the ETO, then, is simple to see though difficult to define. Put simply, Marauder units provided airpower through bombardment against any necessary target within their range. Of the many definitions of airpower, none more elegantly describes the concept than Brigadier General Billy Mitchell’s “the ability to do something in or through the air.”⁶ As the Bridge Busters’ combat experience demonstrates, Allied leaders

³ Major Gary Cox, “Beyond the Battle Line: US Air Attack Theory and Doctrine, 1919-1941” (School of Advanced Air and Space Studies, Air University, April 1996), v.

⁴ Air Corps Tactical School, *Light Bombardment Aviation*, (Maxwell Field, AL, 15 January 1940). Section 1 Page 1. 248-101-11, Air Force Historical Research Agency, Maxwell AFB.

⁵ Richard Hallion, *Strike from the Sky: The History of Battlefield Air Attack, 1910-1945* (Tuscaloosa: University of Alabama Press, 2010), 225.

⁶ William Mitchell, *Winged Defense: The Development and Possibilities of Modern Air Power--Economic and Military* (Tuscaloosa, AL: University of Alabama Press, 2009), 3-4.

employed the B-26 to “do” many different “things” through the air. Their missions ranged from direct support of ground forces to attacks on infrastructure in the heart of Germany. In between these extremes, they focused primarily on indirect support to Allied armies by disabling the enemy rail and road network, damaging its supply depots and “softening up” defended areas in preparation for Allied ground advances. Because the vast majority of B-26 missions supported ground objectives, the term “tactical bomber” seems a tempting label. Yet like “attack,” the definition of “tactical” varied with interpretation. The Ninth AF was a tactical air force, but Marauders were in the Bomb Division. Fighter-bombers made up the Tactical Air Commands. Major General John Moench, a B-26 pilot during WWII, described the B-26 force as a “non-tactical/non-strategic ‘in between air force.’”⁷ They provided capabilities in a seam between, and to some extent overlapping, pure doctrinal missions.

Expectation versus Reality

Like most aircraft of WWII, the B-26’s role in the ETO only partially conformed to pre-war expectations. The realities of combat required the adaptation of roles and missions across the AAF. The heavy bomber operating in direct support of ground forces was a definite divergence from pre-war thought. Similarly, the evolution of the fighter-bomber represented a significant wartime change. An assessment of pre-war expectation versus wartime reality for the Marauder, however, is less clear. This thesis offers two conclusions on the subject. First, the Marauder’s ultimate role, almost paradoxically, more closely resembled pre-war thinking than did the roles applied to most other aircraft types. The B-26 entered the war without a clearly defined role, but the war radically altered the roles of all aircraft. Second, B-26 units, like all Airmen of WWII, adapted throughout the war. Whereas most Airmen deviated from relatively rigid pre-war doctrines, B-26 crews began from a comparatively clean slate requiring trial and error even in initial operations.

⁷ John O. Moench, *Marauder Men: An Account of the Martin B-26 Marauder: A Story of the Martin B-26 Marauder and the Men Who Flew and Supported It, a Special Account of the 323rd Bombardment Group (M) of the Eighth and Ninth Air Forces in Europe*, 1st ed (Longwood, Fla: Malia Enterprises, 1989), xii.

As described in Chapter 1, the B-26 entered combat without a clearly defined mission. The Air Corps produced clear performance specifications for the medium bomber but, unlike other platforms, did not assign it a specific role. In pre-war thinking, the heavy bomber would primarily provide long-range strategic bombing. The light bomber would provide support to ground forces. Fighter aircraft would operate primarily in an air-to-air role. The Air Board of 1939 offered perhaps the most specific definition of the medium bomber's utility in stating it would, "meet many of our requirements for bombardment not necessitating the extreme range of our heavy bomber."⁸

AWPD-1, the Air Corps' primary pre-war airpower plan, included medium bombers in its bombardment forces, yet the Marauder was clearly unable to accomplish the plan's primary tasks. The plan centered on long-range strikes against the German heartland which, it theorized, might make an Allied invasion unnecessary.⁹ As such, the plan sought to replace the medium bombers with longer-range aircraft as soon as possible. Although not specifically defined, the B-26's proposed utility appeared confined to supporting the "intermediate objectives" including "military targets developed in the interim" and "battlefield targets."¹⁰ In reality, these descriptions proved prescient of the Marauder's ultimate role. Much as the Air Board had defined, the B-26 would attack a multitude of targets not necessitating the extreme range of heavy bombers. So too, however, would the heavy bombers and fighter-bombers.

By 1944, the rigid distinctions of pre-war roles and missions were largely gone. The strategic bombing campaign did not eliminate the need for invasion. After the invasion, the overarching priority for all air forces was to support the Allied ground advance, either directly or indirectly.¹¹ Historian Thomas Hughes

⁸ War Department Office of the Adjutant General, "Air Board Report," 15 September 1939, Table 1, 167.6-9, Air Force Historical Research Agency, Maxwell AFB.

⁹ Overy, *The Air War, 1939-1945*, 62.

¹⁰ Haywood S. Hansell Jr, "The Development of the US Concept of Bombardment Operations" (lecture Presented at the Air War College, 19 September 1951) 21-22, K239.716251-75, Air Force Historical Research Agency.

¹¹ Wesley Frank Craven and James Lea Cate, eds., *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day* (Chicago: The University of Chicago Press, 1951), 804.

explains, “Warfare had muddied the distinctions between tactical and strategic air power.”¹² The 397 BG’s story clearly demonstrated the validity of this assertion. They operated in concert with fighter-bombers, light bombers and heavy bombers alike. In some cases, such as Operation COBRA, all four aircraft types worked together on a single mission. As described above, the group’s wide responsibilities spanned the definitions of both strategic and tactical airpower. The same was true for other aircraft types. More than with other aircraft units, however, medium bombardment groups entered the war with an apparent expectation to do so. The B-26 began as a non-strategic, non-tactical airpower platform. Its role as an “in-between” capability more closely reflected the realities of WWII than did the rigid pre-war distinctions applied to other aircraft types.

As was true of all Airmen in WWII, B-26 personnel adapted throughout the war. Unlike those assigned to heavy bomber and fighter units, however, they did not begin with a clear pre-war doctrine from which to diverge. Early operations in the Pacific clearly demonstrated the Marauder would accomplish a wide range of tasks. Their responsibilities included long-range attacks against the garrison at Rabaul, anti-shipping missions, and direct attacks on troops in the jungle terrain of New Guinea. They developed tactics and techniques appropriate for the threats and operational environment of the Pacific. Although most pre-war conceptions of bombardment eschewed low altitude operations, the decision to operate at low altitude panned out in the Pacific. As discussed in Chapter 2, small targets, poor weather, and limited bombing technology required such tactics. With their primary threat being Japanese fighters and not heavy concentrations of flak, low altitude operations proved tenable.

The MTO provided a significantly different threat but demanded a similarly wide range of responsibilities. The dangers of low altitude operations quickly became apparent due to intense German flak, prompting an adaptation of basic tactics. Marauder units proved flexible in attacking ships, harbors,

¹² Thomas Alexander Hughes, *Overlord: General Pete Quesada and the Triumph of Tactical Air Power in World War II* (New York: Free Press, 1995), 16.

airfields and troop positions. As more aircraft became available, they developed tactics involving larger formations. They also showed improved precision using the Norden bombsight from medium altitude. During operations against targets on the Italian mainland, B-26 groups demonstrated greater efficacy bombing enemy supply lines. Their successful efforts bombing bridges largely foreshadowed Marauder operations in Northwest Europe. B-26 groups in the MTO also overcame the Marauder's range limitation by continually moving forward to support the Allied advance northward.

Many of the lessons and improvement demonstrated by Marauder groups in the MTO proved beneficial for groups in the ETO. Unfortunately, Marauders again learned by experience the dangers of low altitude operations by medium bombers when facing heavy concentrations of German flak. The subsequent transition to larger formations and medium altitude tactics shaped the mature concept of B-26 operations in Europe. As was true in other theaters, the B-26 shouldered wide-ranging target responsibilities including airfields, coastal defenses, transportation targets and V-Weapons sites.

The 397th benefited from this process of trial and error. Their training reflected the mature concept of B-26 operations and prepared them well for combat. The learning process continued until the end. The Air Ground Liaison Program, in which the 397th participated in the winter and spring of 1945, indicated both Army and AAF units had learned the need for improved cooperation.¹³ Through adaptation and trial and error, the B-26 units found their role and continued developing capabilities to succeed in that role.

Was the B-26 Medium Bomber an Effective Instrument of Airpower?

Disagreements over the value of the medium bomber emerged before the aircraft's inception and continued throughout the B-26's service life and beyond. This section addresses whether the B-26 was an effective instrument of airpower within the context of WWII. To provide structure for a brief analysis, this thesis assesses the capabilities of the B-26 and its crews in light of characteristics of airpower identified in current Air Force doctrine. Air Force

¹³ History, 397th Bombardment Group, February 1945.

Doctrine Document (AFDD) 1, *Air Force Basic Doctrine Organization and Command*, identifies speed, range, precision, lethality, and flexibility among the most significant attributes of airpower.¹⁴ Although not all instruments of airpower must possess each of these characteristics, they present a framework for analyzing the B-26 within the context of WWII.

Speed is a basic attribute of airpower when compared to surface forces. Speed enables airpower to compress the time dimension and control the tempo of operations.¹⁵ Viewed in this light, both the B-26 and its predecessor, the much slower B-18, offered the basic attribute of speed. The desire for higher airspeed, however, largely drove the design specifications for the B-26. Airmen sought both offensive and defensive advantages through higher airspeed. Ultimately, the Marauder's speed advantage proved relatively limited. Incremental weight additions decreased the B-26's airspeed capability.¹⁶ Furthermore, crews often bombed as slow as 185 knots, far below the B-26's specified top speed. The B-26's speed did enable it to negate some threats. Marauders in the Pacific, for example, were often able to outrun attacking Japanese Zeroes at low level. The Marauder's speed likely contributed to its high survivability rate in Europe, but its resilience to flak and machine gun damage was far more significant. As the 397 BG history clearly indicated, rather than being able to negate flak through speed, Marauder's routinely suffered heavy flak damage. Furthermore, as their 23 December mission to Eller Bridge illustrated, B-26's were unable to outrun attacking German fighters. Speed, therefore, was not a primary determinant of the B-26's success or failure as an instrument of airpower. The Marauder demonstrated the basic characteristic of speed similar to other aircraft of its era. Perhaps most importantly, the attribute of speed implies more than airspeed. To capitalize fully on speed, instruments of airpower should demonstrate responsiveness to enable rapid transition between objectives. A discussion of the responsiveness

¹⁴ Air Force Doctrine Document (AFDD) 1, *Air Force Basic Doctrine, Organization and Command*, October 14, 2011, 16.

¹⁵ Air Force Doctrine Document (AFDD) 1, *Air Force Basic Doctrine, Organization and Command*, 12.

¹⁶ J. K. Havener, *The Martin B-26 Marauder*, 1st ed (Blue Ridge Summit, PA: AERO, 1988), 20.

of B-26 units in WWII appears below along with an assessment of their flexibility.

The attribute of range enables bombers to hold targets at risk across a wide area. Range was the B-26's greatest limitation. However, Marauder groups, specifically those in the ETO and MTO, mitigated their inherent lack of range through unit mobility. As the battle-line moved, B-26s moved with it. The 397th, for example, stayed at Gorges for only two weeks and at Dreux for less than a month to keep within range of targets. By achieving Ninth AF's goal of rapid mobility, they provided nearly continuous airpower in support of the ground advance. The needs of ground forces never failed to provide sufficient targets within the medium bomber's range. Mobility, however, cannot compensate for range in all contexts. The Marauder's limited range and relative difficulty on austere airfields proved problematic in the Pacific theater. In the ETO and MTO, however, units were consistently able to deploy forward to suitable airfields. The criticality of mobility highlights an often-overlooked aspect of airpower. Airpower requires more than aircraft and aircrews. Without the superior efforts of the Ninth Engineer Command in establishing forward air bases, the B-26 would have been out of action by late summer 1944. Although the medium bomber's range was its most significant weakness, the limitation did not negate its overall contribution to Allied airpower.

Precision describes the ability to generate effects at an intended location. For bombers, precision is the capacity to locate and hit a desired target. Even utilizing advanced technologies of the day, such as the Norden bombsight or the OBOE blind bombing system, bombing with the unguided weapons of WWII was imprecise by modern standards. The missions of the 397 BG demonstrate the limits of WWII precision. Many missions failed to achieve desired results and many targets required multiple missions. Yet when considered in light of their era, the 397 BG and the B-26 provided relatively effective precision bombing

capabilities. The post war analysis of Ninth AF operations stated, “The greatest capability of medium bombers was precision bombing of well-defined targets.”¹⁷

The ability to hit bridges, a skill demonstrated by the 397th and Marauder groups across the AAF, presents a case in point. A RAND Corporation study titled *Air Interdiction: Lessons from Past Campaigns* commented on WWII interdiction, “Bridges were only occasionally chosen as specific targets for heavy bombers because they were so difficult to hit.” Still acknowledging the difficulty of the mission, the study continues, “...medium bombers coming in at lower altitudes sometimes had considerable success in attacks against bridges...”¹⁸ This point is not to imply medium bombers or the B-26 presented superior precision capabilities over other aircraft types and classes. Such an argument is neither provable nor productive. The history presented in this thesis clearly indicates different airpower platforms achieved success in varying missions. The argument here is simply the 397 BG and the B-26 demonstrated effective precision relative to the technologies and limitations of their era.

Related to the attribute of precision, lethality describes the ability to achieve desired weapons effects on a target. Once again, the Marauder, and airpower of WWII in general, demonstrated lethality but had clear limitations. Operation COBRA, for example, illustrated the lethal capabilities of WWII airpower against surface forces, especially when employed in a massive coordinated effort. COBRA, however, also brought to light an apparent divide between optimistic expectations of airpower’s lethality and its true capability. The effects of bombing on the operation’s first day destroyed much of the German defenses yet did not live up to some optimistic expectations.¹⁹

¹⁷ Office of Air Force History, United States Air Force, *Condensed Analysis of the Ninth Air Force in the European Theatre of Operations*, USAF Warrior Studies (Washington, DC, 1946), 125.

¹⁸ Edmund Dews and Felix Kozaczka, *Air Interdiction: Lessons from Past Campaigns*, (RAND Corp, September 1981), 13, <http://www.rand.org/pubs/notes/N1743.html> (accessed 13 April 2015)

¹⁹ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 234.; Rick Atkinson, *The Guns at Last Light: The War in Western Europe, 1944-1945*, 1st ed, The Liberation Trilogy, v. 3 (New York: Henry Holt and Co, 2013), 144.

Airpower's lethality against ground forces alone did not ensure the Allied breakout but rather complemented the efforts of surface forces.

The attribute of lethality applies beyond fielded forces. The 397 BG proved most lethal against infrastructure targets. Their efforts resulted in significant damage to many targets including bridges, marshalling yards and supply depots. Their 30 May 1944 attack on the bridge at Meulan dropped eight of the bridge's nine spans. Lethality against infrastructure, however, was often incomplete and temporary. For example, the 397th and other Marauder groups concentrated much of their late-war efforts attacking marshalling yards in Germany. These attacks significantly limited the German transportation system and harmed its economy but never fully stopped high priority troop movements.²⁰ German forces demonstrated competence in repairing critical infrastructure, even targets that had suffered significant damage.

The 397 BG's attacks on coastal defenses and heavily fortified positions further highlight the limits of airpower's lethality in WWII. Despite achieving accurate attacks against the fortified concrete defenses at Brest, for example, the group's missions likely produced no significant damage. The targets were impervious to their 1,000 or 2,000-pound bombs. Even 12,000-pound "Tallboy" bombs employed by RAF heavy bombers were unable to destroy these hardened targets.²¹ In several cases, the most significant effect of bomb attacks on hardened targets was disruption of enemy communications and decreased morale. Although not lethal, the attacks produced positive effects in aiding ground forces. As is true today, air and ground commanders needed to appreciate the limitations of lethality through the air.

The story of the 397 BG brings to light another consideration related to precision and lethality in WWII. Precision and lethality combine to produce desired weapons effects, but require post attack assessment. Recognizing the importance of assessment, the AAF installed cameras to record bombing results

²⁰ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 796.

²¹ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 263-264.

and employed post-strike reconnaissance aircraft. Nevertheless, weather often made this assessment impossible. The 397th often flew several consecutive missions without knowing the effects. The lack of target assessment complicated the efforts of airpower planners and often resulted in re-targeting damaged facilities. It also had the potential to decrease crew morale. Across the AAF, the continued pursuit of bombing objectives without feedback as to their effect is a testament to the will of WWII Airmen.

The last attribute of airpower examined here represents perhaps the 397 BG and B-26's greatest attribute. AFDD-1 explains, "Flexibility allows airpower to shift from one campaign objective to another, quickly and decisively; to go 'downtown' on one sortie, then hit fielded enemy forces on the next; to re-role assets quickly from a preplanned mission to support an unanticipated need for close air support of friendly troops in contact with enemy forces."²² Marauder units across the AAF demonstrated significant flexibility. In early operations, B-26s executed wide-ranging missions including anti-shipping patrols, interdiction missions, and even torpedo attacks. As the concept of medium bombardment matured, the Marauder settled into its role as a medium altitude bomber against continental targets. However, B-26 units continued demonstrating flexibility by attacking virtually any desired target within their range. Between the 22d and 24th of June 1944, for example, the 397th bombed an enemy strong point, a NOBALL facility, and a rail bridge. In these three days, they provided both direct and indirect support to ground forces and pursued defense of the British homeland. Such flexibility enabled concurrent pursuit of multiple objectives.

As noted in AFDD-1, true flexibility also implies responsiveness. Medium bombers and heavy bombers alike never fully capitalized on the speed of airpower by developing a responsive capability to attack targets of opportunity identified by ground forces. The medium bombers' lack of in-flight flexibility, in fact, became a common critique of ground commanders.²³ Although some

²² Air Force Doctrine Document (AFDD) 1, Air Force Basic Doctrine, Organization and Command, 40.

²³ Hallion, *Strike from the Sky*, 224.

believed a close radio liaison between the Tactical Air Commands and the Ninth Bomb Division would have enabled such a capability, it was never developed. The official post-war analysis of Ninth AF operations recommended developing a future capability to divert medium bombers to targets of opportunity.²⁴ This capability would have enabled responsiveness and improved direct support of ground forces. As was true of all attributes of airpower, the B-26 and its crews demonstrated significant though imperfect flexibility. Improvements for bombers in what is now termed close air support came after WWII.

The statement “Flexibility is the key to airpower” has become cliché among modern Airmen. The experience of WWII, though, proved this truism. Unfortunately, historians often attribute flexibility primarily to the AAF’s heavy bombers. On the final page of the official AAF history of European Theater operations, Craven and Cate state, “Finally, the frequent summoning of the heavy bombers from their strategic war to render direct assistance to the ground forces revealed as never before the flexibility and versatility of airpower.”²⁵ The history of the 397 BG, and their accomplishment of wide-ranging objectives, proves an equal flexibility. Although under-documented, the Marauder’s flexibility proved its greatest asset.

Ultimately, the B-26 became a capable instrument of airpower within the context of WWII. As the above brief analysis suggests, it offered significant capabilities but also had multiple limitations. Some limitations were specific to the B-26 as a medium bomber but most reflected the overall state of airpower development during WWII. Although less often remembered, the B-26 was a valuable contributor to the Allied victory over Germany.

Implications

The history of the B-26 Marauder is largely one of capability development and wartime improvement. The B-26 and its crews traveled a difficult and complicated path from troubled asset to successful combat capability.

²⁴ Office of Air Force History, United States Air Force, *Condensed Analysis of the Ninth Air Force in the European Theatre of Operations*, 125–126.

²⁵ Craven and Cate, *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day*, 808.

Although the story unfolded within the specific context of WWII, it reveals some issues and lessons still relevant today.

Assets and Capabilities

The development of the B-26 sheds light on the distinction between assets and capabilities. As theorist Colin Gray explains, “These two concepts differ critically in meaning, even though habitually confused. Whereas assets should refer strictly to input, to what one has, capabilities express a judgment as to what the assets should be expected to accomplish.”²⁶ Capabilities support strategy and produce desired effects. They ultimately matter more than assets.

The B-26 began essentially as an asset and not a capability. Facing a dire threat from Germany, America clearly needed airpower assets. Roosevelt’s call for early mobilization of the aircraft industry enabled the necessary growth. As a cheaper and more readily procurable aircraft than the heavy bomber, the medium bomber allowed for a more rapid accumulation of assets. How the medium bomber would provide capabilities to contribute to the American air strategy, however, was largely unknown, or at least not widely accepted. The decision to seek a quantitative advantage in aircraft proved sound in WWII. America’s vast air power resources enabled it to pursue what historian Richard Overy describes as a “general air strategy.” He explains their strategy pursued, “all four of the major aspects of air doctrine...air defense, strategic bombing, aero-naval co-operation and air support for ground troops.”²⁷ Ultimately, the B-26 directly provided strategic bombing, naval cooperation and support for ground forces and indirectly supported air defense by bombing airfields. Yet it entered the war as a relatively undefined capability and only arrived at its role through trial and error based on early combat experience. In truth, all American aircraft in WWII adapted throughout the war, as pre-war theories and doctrine proved either insufficient or incorrect. This was a strength of American airpower at the time and a necessity for warfare in general. In the famous words of General Helmuth von Moltke, “No plan of operations extends with

²⁶ Colin S. Gray, *Airpower for Strategic Effect* (Maxwell Air Force Base, Ala: Air University Press, Air Force Research Institute, 2012), 17–18.

²⁷ Overy, *The Air War, 1939-1945*, 204.

certainty beyond the first encounter with the enemy's main strength."²⁸ This truism, however, does not obviate the need for pursuing and developing capabilities vice assets.

The distinction between assets and capabilities remains a key consideration for strategists of today. Military acquisition programs should begin with the capabilities of a new technology in mind. Current Department of Defense acquisitions procedures attempt to guard against the development of assets that do not support strategy. Created in 1986, the Joint Requirements Oversight Council, for example, now formally assesses Joint programs to ensure they support a core mission area of the National Military Strategy.²⁹ Such procedures minimize, though may not eliminate the possibility of developing assets as opposed to capabilities. Military decision makers must understand the distinction. Without doubt, adaptation remains a critical component of military success. The capabilities expected from a particular asset or technology must adjust to differing contexts. Yet a clear expectation of utility provides a starting point from which to diverge.

Troubled Aircraft Development Programs

The story of the B-26 also provides a quintessential case study of a troubled military development program. Unfortunately, the Marauder was not the last. Although not perfectly analogous, the development of the B-26 bears striking similarity to the complicated history of the V-22 Osprey. While the B-26 was a relatively radical design for its era, the tilt-rotor Osprey represented a far more revolutionary technology. Both aircraft experienced multiple tragic accidents. Four Osprey crashes between 1991 and 2000, three of which were fatal, killed 30 crewmembers. On multiple occasions during its development, the V-22 was grounded due to safety issues and required modification to correct design problems. Like the Marauder, the Osprey also had complications with

²⁸ Helmuth von Moltke and Daniel Hughes, *Moltke on the Art of War: Selected Writings* (Novato, CA: Presidio Press, 1995), 45.

²⁹ United States Code, Title 10, Armed Forces, Section 181, Joint Requirements Oversight Council, 112th Cong, 1st sess., 175.
<http://www.gpo.gov/fdsys/pkg/USCODE-2011-title10/pdf/USCODE-2011-title10-subtitleA-partI-chap7-sec181.pdf>. (accessed 10 April 2015)

reliability and maintenance. The 2001 Department of Defense Blue Ribbon Panel investigation of the V-22 bore some resemblance to the multiple Air Corps investigations of the B-26.³⁰ In all cases, the investigations recommended the programs continue, but with changes. Perhaps most significantly, both aircraft proved largely successful in combat trials. The United States Marine Corps accomplished a safe and successful deployment to Iraq from 2007 to 2009.³¹ As of this writing, the Department of Defense (DoD) continues to invest in V-22 Ospreys. Ospreys currently accomplish a wide variety of roles across the DoD.

The similarities between the complex stories of the B-26 Marauder and V-22 Osprey are obvious. This author does not intend to suggest that controversial and potentially dangerous acquisitions programs will ultimately result in success given sufficient persistence. The line between persistence and stubbornness, in fact, can be thin and difficult to discern. Each situation requires assessment of the specific context. In the case of the Marauder, the overwhelming need for airpower made immediate removal of the aircraft an untenable option. This allowed B-26 units the opportunity to prove their capabilities, including returning to combat following the Imjuiden mission. Other factors, including congressional support and the promise of significant advances in speed, range, and altitude over helicopters helped keep the Osprey alive.³² Both aircraft might have failed. The Marauder's story is complete. The Osprey's story continues. From the current vantage point, persistence and improvements appear to have paid off in both cases. Additionally, these cases demonstrate that history offers potential lessons for current strategists. With a detailed study of the B-26's development process, a member of the Osprey development team might have gleaned useful insights during the program's troubled years.

³⁰ Christopher Bolkom, "V-22 Osprey Tilt-Rotor Aircraft" (Congressional Research Service, January 2, 2009), 1-8, www.dtic.mil/get-tr-doc/pdf?AD=ADA493355. (accessed 10 April 2015)

³¹ "Defense Acquisitions. Assessments Needed to Address the V-22 Aircraft Operational and Cost Concerns to Define Future Investments" (Government Accountability Office, May 2009), 1-11, www.dtic.mil/get-tr-doc/pdf?AD=ADA501434.

³² "Defense Acquisitions. Assessments Needed to Address the V-22 Aircraft Operational and Cost Concerns to Define Future Investments," 11.

The Martin B-26 Marauder's Legacy

When compared to other aircraft of WWII, the Martin B-26 Marauder's legacy appears minimal. Post-war histories largely neglected its contribution to Allied victory. In the immediate aftermath of WWII, two significant factors ensured continued attention on strategic airpower and heavy bombers. The first was the impact of nuclear, and later thermonuclear, weapons. American airpower shifted even more in favor of heavy, long-range bombers in the nuclear age. The second factor was the AAF's continued desire for independence. In post-war analysis, the AAF emphasized the effects of its strategic, independent operations to support its desire to become an independent service.³³ After gaining independence in 1947, the newly established Air Force (AF) implemented a change that even further clouded the legacy of the Marauder. The AF removed the use of "attack" in the naming convention for aircraft. As such, the A-26 Invader became the B-26. Confusion over the distinction between the two aircraft persists today.

The term medium bomber no longer exists in the parlance of American airpower. The renamed B-26 Invader was the sole WWII medium bomber still in the AF inventory to fight in the Korean War. By that time, however, the Invader was termed a light bomber in comparison to the even larger heavy bombers of the era. Amazingly, the B-29 Superfortress earned the label of a medium bomber when compared to the massive B-36 Peacemaker.³⁴ If the term ever held meaning, it certainly lost that meaning when the B-29 became a medium bomber. Although current aircraft differ in size, range, and bomb load capability, the AF no longer applies the rigid classifications common in earlier eras. Furthermore, the AF no longer differentiates aircraft as either strategic or tactical nor assigns specific tasks based only on aircraft type. AFDD-1 declares, "Doctrine is about effects, not platforms."³⁵ Although the classification of aircraft as strategic and tactical remained for many years, the experiences of

³³ Hughes, *Over Lord*, 13.

³⁴ Conrad C. Crane, *American Airpower Strategy in Korea, 1950-1953*, Modern War Studies (Lawrence, KS: University Press of Kansas, 2000), 18-21.

³⁵ "Air Force Doctrine Document (AFDD) 1, Air Force Basic Doctrine, Organization and Command," 1.

WWII proved that those rigid distinctions were largely illusory. The classification “medium bomber” is rightfully gone, but the B-26 Marauder’s role in WWII did play a part in shaping post-WWII and current AF doctrine.

The B-26 Marauder’s primary legacy in the AF may be its contribution to demonstrating the efficacy of air interdiction. The interdiction campaigns of WWII required the persistent efforts of Airmen employing multiple aircraft types. B-26 units were key participants. Post-war studies drew varying conclusions over the efficacy of specific aspects of the campaigns. Interdiction never fully stopped the movement of troops or supplies, yet the overall result was clear. Interdiction played a significant role in Allied success in both the Mediterranean and European Theaters of WWII. Subsequent war plans sought to achieve similar or greater success.

Air Interdiction has played a prominent role in most conflicts since WWII and remains a key airpower mission today. Interdiction comprised approximately half of the American ground attack missions in both Korea and Vietnam.³⁶ AirLand Battle doctrine, developed for a potential land war against the Soviet Union, emphasized the importance of interdiction. The doctrine even included an additional concept termed Battlefield Air Interdiction involving offensive action against the second echelon of hostile forces.³⁷ In Operation DESERT STORM, General Colin Powell famously declared his strategy to defeat the Iraqi Army in stating, “First, we’re going to cut it off, and then we’re going to kill it.”³⁸ Air interdiction missions, including the destruction of 37 road bridges and all nine rail bridges south of Baghdad accomplished the “cut it off” portion of the strategy. Interdiction in Operation IRAQI FREEDOM focused primarily on attacking hostile forces and supplies moving to the battle area.³⁹ In current doctrine, Air Interdiction and Close Air Support are the two sub-

³⁶ Dews and Kozaczka, *Air Interdiction: Lessons from Past Campaigns*, 7.

³⁷ John Andreas Olsen, *John Warden and the Renaissance of American Air Power*, 1st ed (Washington, DC: Potomac Books, 2007), 121.; Major David Hamilton, “Close Air Support and Battlefield Air Interdiction in the Airland Battle” (US Army Command and General Staff College, 6 October 1983), 9.

³⁸ John Andreas Olsen, ed., *A History of Air Warfare*, 1st ed (Washington, DC: Potomac Books, 2010), 191.

³⁹ Olsen, *A History of Air Warfare*, 279-296.

elements comprising AF Counterland Operations. With the advent of precision weapons, the task is more efficient and no longer requires massive formations of more than 30 aircraft to attack a single target. The intended effects, however, remain the same. Airpower still seeks to, "divert, disrupt, delay, or to destroy the enemy's military surface capabilities before it can be brought to bear effectively against friendly forces." The mission still requires the "sustained and concentrated pressure" demonstrated by the 397 BG and units across the AAF in WWII.⁴⁰

Epilogue

The author of this thesis is the proud grandson of a 397 BG Bridge Buster, 1st Lt Robert P. Jones. The idea for this investigation, however, was not simply the desire to understand family history. Certainly, that played a role. The ability to research and tell the previously unwritten story of the 397 BG and understand the contributions made by Lt Jones and his fellow Bridge Busters was a once in a lifetime opportunity. Of equal importance, the idea for this thesis stemmed from the recognition that the B-26 Marauder is largely unknown to current AF members and not discussed in Professional Military Education. This thesis sought to address that issue, albeit in a small way. The story told here describes the heroic efforts of a little known bombardment group flying a little known aircraft. It sought to shed light on their ultimate impact on Allied victory. While providing an "in between" capability that never met the opposing idealized conceptions of airpower held by many Army and AAF leaders at the time, the B-26 Marauder and the men who flew them played a significant role in defeating Nazi Germany.

⁴⁰ Air Force Doctrine, Volume 4, *Operations*, 29 October 2013, Annex 3-03 Counterland Operations. <https://doctrine.af.mil/download.jsp?filename=3-03-D05-LAND-Interdiction-Fun.pdf> (accessed 24 April 2015)

Appendix A

397th BOMBARDMENT GROUP MISSIONS

Mission #	Date	Target Type	Target Location	Remarks
1	20-Apr-44	NOBALL	Le Plouy Ferme	
2	21-Apr-44	NOBALL	Fruges-Bois de Coupelle	
3	22-Apr-44	NOBALL	Vacqueriette	
4	23-Apr-44	Gun Position	Benerville	
5	25-Apr-44	NOBALL	Bois Coquerel	Did not bomb- weather
6	26-Apr-44	Marshalling Yard	St. Ghislain	
7	27-Apr-44	Coastal Defense Works	Ouistreham	
8	28-Apr-44	Marshalling Yard	Mantes- Gassicourt	Did not bomb-weather
9	29-Apr-44	Marshalling Yard	Mantes- Gassicourt	Did not bomb - recalled for weather
10	30-Apr-44	NOBALL	Lottinghem	
11	1-May-44	Marshalling Yard / Railroad Bridge	Mantes- Gassicourt	
12	2-May-44	Marshalling Yard	Busigny	
13	4-May-44	Gun Emplacements	Etaples	
14	8-May-44	Railroad Bridge	Oissel	
15	9-May-44	NOBALL	Le Grismont	
16	10-May-44	Marshalling Yard	Creil	
17	11-May-44	Airfield	Beaumont - Le - Roger	
18	12-May-44	Gun Emplacements	Etaples -	
19	13-May-44	Coastal Defenses	Gravelines	
20	15-May-44	Airfield	Denain -Prouvy	Did not bomb- weather
21	19-May-44	Gun Emplacements	Etaples - St Cecily	
22	20-May-44	Gun Position	St Marie-Au-Bosc	
23	20-May-44	Gun Position	Varengeville	
24	22-May-44	Coastal Defenses	St Marie-Au-Bosc	
25	24-May-44	Coastal Defenses	St Marie-Au-Bosc	
26	24-May-44	Port Area	Dieppe	
27	25-May-44	Railroad Bridge	Leige/ Kinkempois	
28	26-May-44	Airfield	Chartres	
29	27-May-44	Railroad Bridge	Le Manoir	
30	27-May-44	Railroad Bridge	Orival (Check Spelling)	
31	28-May-44	Railroad Bridge	Liege/Renory	
32	28-May-44	Railroad Bridge	Maisons-Laffitte	
33	29-May-44	Railroad Bridge	Conflains	
34	29-May-44	NOBALL	Beauvoir	
35	30-May-44	Highway Bridge	Meulan	

Appendix A

Mission #	Date	Target Type	Target Location	Remarks
36	31-May-44	Highway Bridge	Rouen	
37	1-Jun-44	Gun Emplacements	Octeville-Sur-Mer / Le Havre	
38	2-Jun-44	Gun Position	Camiers	
39	3-Jun-44	Coastal Defenses	Octeville-Sur-Mer / Le Havre	
40	5-Jun-44	German AF Headquarters	Jouy-en-Josas	Did not bomb - recalled for weather
41	6-Jun-44	Gun Emplacements/ Coastal Defenses	Les Dunes de Verreville, Madeleine, Baeu Guillot	D-Day
41*	6-Jun-44	Coastal defenses	Trouville	Both 6 June missions accounted for as mission #41
42	7-Jun-44	Railroad Bridge / Area	Le Mans	
43	7-Jun-44	Marshalling Yard	Flers (Conde-sur-Noireau)	
44	8-Jun-44	Railroad Bridge	Rennes	
45	10-Jun-44	Coastal Defenses	Quineville	
46	11-Jun-44	Road Junction / Highway Bridge	St. Lo	Did not bomb - recalled for weather
47	12-Jun-44	Road Junction / Highway Bridge	St. Lo	
48	13-Jun-44	Fuel Dump	Foret d'Andaine	
49	14-Jun-44	Railroad Bridge / Embankment	Chartres	
50	14-Jun-44	Rail and Highway Bridges	St. Hilaire du Harcouet	
51	15-Jun-44	Railroad Bridge	Coltainville	
52	17-Jun-44	Railroad Bridge	Coulainville	
53	18-Jun-44	Marshalling Yard	Mezidon	Did not bomb - recalled for weather
54	18-Jun-44	NOBALL	Bachimont	
55	21-Jun-44	NOBALL	Gorenflos	
56	23-Jun-44	Enemy Strong Point	Cherbourg Area	
57	23-Jun-44	NOBALL	Lambus	
58	24-Jun-44	Railroad Bridge	Maisons-Laffitte	
59	30-Jun-44	Highway Bridge	Thury-Harcourt	Did not bomb - weather
60	30-Jun-44	Road Centers	Conde Sur Noireau	
61	6-Jul-44	Rail Line	Dol-Rennes	
62	6-Jul-44	Fuel Dump	Foret de Conches	
63	7-Jul-44	Motor Transport Area	2.5 miles Northwest of Ussy	Did not bomb - weather
64	8-Jul-44	Railroad Bridge	Saumur	
65	8-Jul-44	Railroad Bridge	Saumur	Did not bomb - weather
66	9-Jul-44	Rail Overpass	Ablis	
67	11-Jul-44	Fuel Dump	Chateau-de-Tertu	
68	12-Jul-44	Fuel Dump	Foret D'Ecouves	
69	16-Jul-44	Rail Embankment	Boissei La Londe	
70	16-Jul-44	Railroad Bridge	Nantes	
71	18-Jul-44	Defended Area	Demouville	
72	18-Jul-44	Railroad Bridge	Cherisy	

Appendix A

Mission #	Date	Target Type	Target Location	Remarks
73	19-Jul-44	Railroad Bridge	La Possonniere	
74	23-Jul-44	Railroad Bridge	Argentan	
75	24-Jul-44	Ammunition Storage	Livarot	
76	25-Jul-44	Defended Area	St. Lo	
77	25-Jul-44	Railroad Bridge	Cloyes	
78	26-Jul-44	Railroad Bridge/ Embankment	Epernon	
79	28-Jul-44	Railroad Bridge	Courcelles	
80	30-Jul-44	Defended Area	Caumont	
81	30-Jul-44	Defended Area	Caumont	
82	31-Jul-44	Rail Viaduct	Mayenne	
83	1-Aug-44	Railroad Bridge	Les Ponts de Ce	
84	2-Aug-44	Railroad Bridges	Cinq Mars	
85	3-Aug-44	Railroad Bridge	Courtalain	
86	4-Aug-44	Rail Embankment	Epernon	
87	7-Aug-44	Railroad Bridge	Neuvy Sur Loire	
88	7-Aug-44	Ammunition Dump	Foret De Blois	
89	8-Aug-44	Railroad Bridge/ Embankment	Mantes Gassicourt	
90	8-Aug-44	Coastal Defense Battery	St. Malo/St. Servan	
91	9-Aug-44	Railroad Bridge/ Embankment	Pontoise	
92	9-Aug-44	Ammunition Dump	Beaugency/Orleans	Did not bomb – weather
93	10-Aug-44	Railroad Bridge	Nogent	
94	11-Aug-44	Railroad Bridge	Oissel	
95	13-Aug-44	Road Chokepoints	Lisieux	
96	13-Aug-44	Fuel Transfer Point/ M/Y	Corbeil	
97	14-Aug-44	Highway Bridge	Notre Dame de Courson	
98	14-Aug-44	Railroad Bridge	St. Martin	
99	15-Aug-44	Gun Battery	St. Malo	
100	16-Aug-44	Railroad Bridge	Neuvy Sur Loire	Did not bomb – weather
101	16-Aug-44	Highway Bridges	Brionne/Pont Authou	
102	17-Aug-44	Road Bridges	Brionne	
103	17-Aug-44	Road Bridges	La Rabellerie	
104	20-Aug-44	Troop Concentration	Foret de la Londe	
105	25-Aug-44	Heavy Anti-Aircraft Battery	Kerdrein	
106	26-Aug-44	Fuel Dump	Compeigne Forest	
107	26-Aug-44	Troup and Vehicle Concentration	Rouen	
108	28-Aug-44	Fuel Tanks	Barisis	
109	1-Sep-44	Defended Area	Brest	Did not bomb – weather
110	5-Sep-44	Defended Area	Brest	
111	6-Sep-44	Defended Area	Brest	

Appendix A

Mission #	Date	Target Type	Target Location	Remarks
112	6-Sep-44	Defended Area	Brest	
113	19-Sep-44	Marshalling Yard	Bitburg	First mission to Germany
114	20-Sep-44	Marshalling Yard	Trier	
115	21-Sep-44	Marshalling Yard	Gerolstein	
116	27-Sep-44	Troop Concentration	Foret de Parroy	Did not bomb – weather
117	28-Sep-44	Tank and Troop Concentration	Foret de Parroy	Did not bomb – weather
118	29-Sep-44	Warehouses	Julich	
119	29-Sep-44	Troop Concentration/ Barracks area	Bitburg	
120	2-Oct-44	Defended Area	Herbach	
135*	6-Oct-44	Marshalling Yard	Hengelo	No Attack - No Fighter Escort (mission credit awarded in November)
121	12-Oct-44	Railroad Bridge	Ahrweiler	
122	20-Oct-44	Highway Bridge	Geertruidenberg	
123	29-Oct-44	Railroad Bridge	Euskirchen	
124	4-Nov-44	Stores Depot	Baumholder	
125	5-Nov-44	Ordnance Depot	Homburg	
126	9-Nov-44	Ordnance Arsenal	Landau	Did not bomb –weather
127	9-Nov-44	Ordnance Arsenal	Landau	Did not bomb – weather
128	10-Nov-44	Ordnance Arsenal	Landau	Did not bomb – weather
129	11-Nov-44	Railroad Bridge	Mayen	
130	18-Nov-44	Barracks Area	Reichenbach	
131	19-Nov-44	Defended Area	Mariaweiler	
132	19-Nov-44	Ordnance Depot	Pirmasens	
133	21-Nov-44	Defended Area	Bergstein	
134	29-Nov-44	Defended Town	Elsdorf	
136	30-Nov-44	Defended Town	Stockheim	
137	1-Dec-44	Defended Area	Saarlautern	Did not bomb - Pathfinder equipment failure
138	2-Dec-44	Defended Area	Saarlautern	
139	5-Dec-44	Defended Village	Huchem	
140	6-Dec-44	Defended Town	Nideggen	
141	9-Dec-44	Defended Town	Losheim	
142	9-Dec-44	Defended Town	Weisbach	
143	12-Dec-44	Defended Town	Gemund	
144	13-Dec-44	Defended Town	Hellenthal	
145	15-Dec-44	Oil Depot	Ruthen	
146	23-Dec-44	Railroad Bridge	Eller	Earned Distinguished Unit Citation
147	24-Dec-44	Road Junction/Comm Center	Nideggen	
148	25-Dec-44	Road Junction/ Comm Center	Vainden	
149	25-Dec-44	Defended Area	Ahrdorf	

Appendix A

Mission #	Date	Target Type	Target Location	Remarks
150	27-Dec-44	Railhead	Kail	
151	1-Jan-45	Railroad Bridge	Bullay	Did not bomb - Pathfinder did not bomb
152	5-Jan-45	Road Junction	Trois Viergas	Did not bomb - Pathfinder equipment failure
153	11-Jan-45	Communications Center	Clervaux	Did not bomb - Pathfinder did not bomb
154	13-Jan-45	Railroad Bridge	Dasburg	
155	14-Jan-45	Railroad Bridge	Ahrweiler	
156	16-Jan-45	Railway Siding	Erkelenz	
157	22-Jan-45	Railroad Bridge	Bullay	
158	25-Jan-45	Railroad Bridge	Eller	
159	29-Jan-45	Railroad Bridge	Engers	
160	29-Jan-45	Railroad Bridge	Rinntal	
161	1-Feb-45	Railroad Bridge	Engers	
162	2-Feb-45	Railroad Bridge	Rosbach	
163	3-Feb-45	Railroad Bridge	Ahrweiler	
164	6-Feb-45	Defended Town	Sotenich	
165	8-Feb-45	Defended Town	Materborn	
166	9-Feb-45	Road Junctions	Viersen	
167	10-Feb-45	Motor Transport Center	Berg-Gladbach	
168	11-Feb-45	Marshalling Yard	Modrath	
169	13-Feb-45	Motor Transport Area	Schwelm	
170	14-Feb-45	Railroad Bridge	Mayen	
171	14-Feb-45	Communications Center	Grevenbroich	
172	15-Feb-45	Railroad Bridge	Mayen	
173	19-Feb-45	Railroad Bridge	Neuwied/Irlich	
174	21-Feb-45	Railroad Bridge	Herford	
175	22-Feb-45	Railroad Bridges, Platforms and Viaduct	Rheda, Scherfede, Neuenbeken	
176	23-Feb-45	Defended Town	Elsdorf	
177	23-Feb-45	Defended Town	Jackerath	
178	24-Feb-45	Railroad Bridge	Neuwied / Irlich	
179	25-Feb-45	Defended Town	Grevenbroich	
180	26-Feb-45	Railroad and Road Junction	Bergheim	
181	27-Feb-45	Railroad Bridge	Ahrweiler	
182	28-Feb-45	Railroad Bridge	Mayen	
183	1-Mar-45	Communications Center	Pulheim	
184	2-Mar-45	Railroad Bridge	Eller	
185	2-Mar-45	Railroad Bridge	Sinzig	
186	4-Mar-45	Road Junction	Bruhl	
187	5-Mar-45	Ordnance Depot	Unna	
188	5-Mar-45	Marshalling Yard	Bingen	

Appendix A

Mission #	Date	Target Type	Target Location	Remarks
189	6-Mar-45	Marshalling Yard	Siegburg	
190	8-Mar-45	Motor Transport Depot	Wulfrath	
191	9-Mar-45	Marshalling Yard	Wiesbaden	
192	9-Mar-45	Ammunition Filling Plant	Dortmund / Lunen	
193	10-Mar-45	Communications Center	Altenkirchen	
194	11-Mar-45	Airfield	Breitscheid	
195	11-Mar-45	Communications Center	Weyerbusch	
196	12-Mar-45	Marshalling Yard	Arnsberg	
197	12-Mar-45	Ammunition Filling Plant	Sythen	
198	13-Mar-45	Marshalling Yard	Westerburg	
199	13-Mar-45	Airfield	Frankfurt / Rhein - Main	
200	14-Mar-45	Railroad Bridge	Nieder-Marberg	
201	15-Mar-45	Communications Center	Pirmasens	
202	16-Mar-45	Railroad Bridge	Niederscheld	
203	17-Mar-45	Marshalling Yard	Siegen	
204	17-Mar-45	Ordnance Depot	Giessen	
205	18-Mar-45	Marshalling Yard	Worms	
206	19-Mar-45	Marshalling Yard	Engelskirchen	
207	19-Mar-45	Marshalling Yard	Barmen	
208	20-Mar-45	Marshalling Yard	Giesecke	
209	21-Mar-45	Communications Center	Coesfeld	
210	21-Mar-45	Communications Center	Haltern	
211	22-Mar-45	Communications Center	Ahaus	
212	22-Mar-45	Communications Center	Haltern	
213	23-Mar-45	Communications Center	Borken	
214	23-Mar-45	Communications Center	Schermbbeck	
215	24-Mar-45	Flak Position	Bocholt	
216	24-Mar-45	Railroad Bridge	Vlotho	
217	25-Mar-45	Marshalling Yard	Limburg	
218	25-Mar-45	Marshalling Yard	Friedburg	
219	26-Mar-45	Marshalling Yard	Flieden	
220	28-Mar-45	Oil Storage Depot	Ebrach	
221	30-Mar-45	Oil Storage Depot	Ebenhausen	
222	3-Apr-45	Marshalling Yard	Holzminden	
223	4-Apr-45	Oil Storage Depot	Ebrach	
224	7-Apr-45	Marshalling Yard	Northhein	
225	8-Apr-45	Oil Refinery	Nienhagen	
226	9-Apr-45	Oil Storage Depot	Bad Berka	
227	9-Apr-45	Marshalling Yard	Jena	
228	10-Apr-45	Ordnance Depot	Rudolstadt	

Appendix A

Mission #	Date	Target Type	Target Location	Remarks
229	11-Apr-45	Marshalling Yard	Aschersleben	
230	11-Apr-45	Tank Assembly Plant, Flak Position	Bamberg	
231	12-Apr-45	Ordnance Depot	Kempton	
232	15-Apr-45	Marshalling Yard	Grunzberg	
233	16-Apr-45	Marshalling Yard	Gunzenhausen	
234	16-Apr-45	Ordnance Depot	Kempton	
235	17-Apr-45	Defended Town	Magdeburg	
236	19-Apr-45	Marshalling Yard	Uln	
237	19-Apr-45	Marshalling Yard	Gunzburg	
238	20-Apr-45	Marshalling Yard	Memmingen	
239	20-Apr-45	Marshalling Yard	Nordlingen	



Appendix B

397th BOMBARDMENT GROUP UNIT HISTORY RESOURCES

Source: Official 397 BG history files, located at the Air Force Historical Research Agency at Maxwell Air Force Base, AL. The “Main” identifier for each of these files is: “GROUP/0397/BOMBARDMENT (MEDIUM).”

IRIS #	Beginning Date	End Date	Call #	IRIS Reference	Microfilm Reel	Microfilm Slide #	PDF Page #	Contents
89354	4/20/1943	3/31/1944	GP-397-HI	B0456	1625	1749	1675	Apr 43-Mar 44
89355	11/1/1943	12/31/1943	GP-397-HI	B0456	1625	1782	1706	Nov 43, Dec 43
89356	1/1/1944	2/29/1944	GP-397-HI	B0456	1625	1841	1738	Jan 44, Feb 44
89357	1/1/1944	12/31/1944	GP-397-HI (BOMB) (MEDICAL)	B0456	1625	1881	1801	Med Report- 44
89358	4/1/1944	5/31/1944	GP-397-HI	B0456	1625	1907	1825	Apr 44, May 44
89359	6/1/1944	6/30/1944	GP-397-HI	B0456	1625	1938	1854	Jun 44
89360	7/1/1944	7/31/1944	GP-397-HI	B0456	1625	1961	1875	Jul 44
89361	8/31/1944	8/31/1944	GP-397-HI	B0456	1625	1977	1891	Aug 44
89362	9/1/1944	9/30/1944	GP-397-HI	B0456	1625	1997	1909	Sep 44
89363	10/1/1944	10/31/1944	GP-397-HI	B0456	1625	2012	1922	Oct 44
89364	11/1/1944	11/30/1944	GP-397-HI	B0456	1625	2024	1932	Nov 44
89365	12/1/1944	12/31/1944	GP-397-HI	B0456	1625	2038	1944	Dec 44
89366	1/1/1945	1/31/1945	GP-397-HI	B0456	1625	2056	1960	Jan 45
89367	2/1/1945	2/28/1945	GP-397-HI	B0456	1625	2074	1976	Feb 45
89368	3/1/1945	3/31/1945	GP-397-HI	B0456	1625	2093	1993	Mar 45
89369	4/1/1945	4/30/1945	GP-397-HI (BOMB)	B0457	1626	4	2	Apr 45
89370	5/1/1945	5/31/1945	GP-397-HI (BOMB)	B0457	1626	24	20	May 45
89371	7/1/1945	7/31/1945	GP-397-HI	B0457	1626	39	33	Jul 45
89372	6/1/1945	6/30/1945	GP-397-HI (BOMB)	B0457	1626	52	44	Jun 45
89373	8/1/1945	8/31/1945	GP-397-HI (BOMB)	B0457	1626	65	55	Aug 45
89374	9/1/1945	9/30/1945	GP-397-HI (BOMB)	B0457	1626	76	64	Sep 45
89375	10/1/1945	10/31/1945	GP-397-HI	B0457	1626	88	74	Oct 45

Appendix C

397th BOMBARDMENT GROUP OPERATIONS RECORDS RESOURCES

Source: Official 397 BG operations records, located at the Air Force Historical Research Agency at Maxwell Air Force Base, AL. The “Main” identifier for each of these files is: “GROUP/0397/BOMBARDMENT (MEDIUM).” The “call number” for each file is “GP-397-SU-GP-S”. Mission (Msn) Folders annotated with a ** primarily include aircrew initial reports. Other folders include reports to higher headquarters, aircrew loading lists and other relevant mission data.

IRIS #	Beginning Date	End Date	IRIS Reference	Microfilm Reel	Microfilm Frame	PDF Page #	Contents
89376	6/1/1943	5/31/1944	B0457	1626	130	114	Intelligence Journals
89377	4/1/1944	4/30/1944	B0457	1626	438	420	Msn Summaries - Msns #1-10
89378	4/20/1944	7/31/1944	B0457	1626	662	642	OPREPS- Apr 44-Jul 44
89379	4/20/1944	4/20/1944	B0457	1626	834	812	Msn Folder - Msn #1
89380	4/21/1944	4/21/1944	B0457	1626	868	844	Msn Folder - Msn #2
89381	4/21/1944	4/21/1944	B0457	1626	878	852	Msn Folder - Msn #2 **
89382	4/22/1944	4/22/1944	B0457	1626	910	882	Msn Folder - Msn #3
89383	4/23/1944	4/23/1944	B0457	1626	995	925	Msn Folder - Msn #4
89384	4/25/1944	4/25/1944	B0457	1626	995	963	Msn Folder - Msn #5
89385	4/26/1944	4/26/1944	B0457	1626	1025	991	Msn Folder - Msn #6
89386	4/27/1944	4/27/1944	B0457	1626	1065	1029	Msn Folder - Msn #7
89387	4/28/1944	4/28/1944	B0457	1626	1103	1066	Msn Folder - Msn #8
89388	4/29/1944	4/29/1944	B0457	1626	1127	1087	Msn Folder - Msn #9
89389	4/30/1944	4/30/1944	B0457	1626	1145	1103	Msn Folder - Msn #10
89390	5/1/1944	5/1/1944	B0457	1626	1185	1141	Msn Folder - Msn #11
89391	5/1/1944	5/30/1944	B0457	1626	1239	1193	Intelligence - May 44-Dec 44
89392	5/1/1944	5/19/1944	B0457	1626	1667	1619	Msn Summaries - Msns #11-21
89393	5/1/1944	4/13/1945	B0458	1627	4	2	Training & Msn Reports
89394	5/2/1944	5/2/1944	B0458	1627	99	96	Msn Folder - Msn #12
89395	5/4/1944	5/4/1944	B0458	1627	149	143	Msn Folder - Msn #13
89396	5/8/1944	5/8/1944	B0458	1627	207	199	Msn Folder - Msn #14
89397	5/9/1944	5/9/1944	B0458	1627	282	272	Msn Folder - Msn #15
89398	5/10/1944	5/10/1944	B0458	1627	346	334	Msn Folder - Msn #16
89399	5/11/1944	5/11/1944	B0458	1627	420	406	Msn Folder - Msn #17
89400	5/12/1944	5/12/1944	B0458	1627	484	468	Msn Folder - Msn #18
89401	5/13/1944	5/13/1944	B0458	1627	577	559	Msn Folder - Msn #19
89402	5/15/1944	5/15/1944	B0458	1627	672	652	Msn Folder - Msn #20
89403	5/19/1944	5/19/1944	B0458	1627	723	701	Msn Folder - Msn #21
89404	5/20/1944	5/20/1944	B0458	1627	804	780	Msn Folder - Msn #22
89405	5/20/1944	5/20/1944	B0458	1627	875	849	Msn Folder - Msn #23
89406	5/20/1944	5/20/1944	B0458	1627	943	915	Msn Summaries - Msns #22-36
89407	5/22/1944	5/22/1944	B0458	1627	1441	1411	Msn Folder - Msn #24
89408	5/24/1944	5/24/1944	B0458	1627	1500	1468	Msn Folder - Msn #25
89409	5/24/1944	5/24/1944	B0458	1627	1552	1518	Msn Folder - Msn #26

Appendix C

IRIS #	Beginning Date	End Date	IRIS Reference	Microfilm Reel	Microfilm Frame	PDF Page #	Contents
89410	5/25/1944	5/25/1944	B0458	1627	1625	1589	Msn Folder - Msn #27
89411	5/26/1944	5/26/1944	B0458	1627	1690	1652	Msn Folder - Msn #28
89412	5/27/1944	5/27/1944	B0458	1627	1759	1719	Msn Folder - Msn #29
89413	5/27/1944	5/27/1944	B0458	1627	1835	1793	Msn Folder - Msn #30
89414	5/28/1944	5/28/1944	B0458	1627	1890	1846	Msn Folder - Msn #31
89415	5/28/1944	5/28/1944	B0459	1628	4	2	Msn Folder - Msn #32
89416	5/29/1944	5/29/1944	B0459	1628	52	48	Msn Folder - Msn #31 **
89417	5/29/1944	5/29/1944	B0459	1628	115	109	Msn Folder - Msn #33
89418	5/30/1944	5/30/1944	B0459	1628	184	176	Msn Folder - Msn #35
89419	5/31/1944	5/31/1944	B0459	1628	240	230	Msn Folder - Msn #36
89420	6/1/1944	6/1/1944	B0459	1628	308	296	Msn Folder - Msn #37
89421	6/1/1944	6/15/1944	B0459	1628	366	352	Msn Summaries - Msns #37-48
89422	6/2/1944	6/2/1944	B0459	1628	874	858	Msn Folder - Msn #38
89423	6/3/1944	6/3/1944	B0459	1628	944	926	Msn Folder - Msn #39
89424	6/5/1944	6/5/1944	B0459	1628	1010	990	Msn Folder - Msn #40
89425	6/6/1944	6/6/1944	B0459	1628	1039	1017	Msn Folder - Msn #41 (AM)
89426	6/6/1944	6/6/1944	B0459	1628	1110	1086	Msn Folder - Msn #41 (PM)
89427	6/7/1944	6/7/1944	B0459	1628	1148	1122	Msn Folder - Msn #42
89428	6/7/1944	6/7/1944	B0459	1628	1187	1159	Msn Folder - Msn #43
89429	6/8/1944	6/8/1944	B0459	1628	1254	1224	Msn Folder - Msn #44
89430	6/8/1944	6/8/1944	B0459	1628	1319	1287	Msn Folder - No credit given
89431	6/10/1944	6/10/1944	B0459	1628	1343	1309	Msn Folder - Msn #45
89432	6/10/1944	6/10/1944	B0459	1628	1403	1367	Msn Folder - No credit given
89433	6/11/1944	6/11/1944	B0459	1628	1424	1386	Msn Folder - Msn #46
89434	6/12/1944	6/12/1944	B0459	1628	1461	1421	Msn Folder - Msn #47
89435	6/13/1944	6/13/1944	B0459	1628	1552	1480	Msn Folder - Msn #48
89436	6/14/1944	6/14/1944	B0459	1628	1579	1534	Msn Folder - Msn #49
89437	6/14/1944	6/14/1944	B0459	1628	1633	1586	Msn Folder - Msn #50
89438	6/14/1944	6/30/1944	B0460	1629	4	2	Msn Summaries - Msns #49-60
89439	6/15/1944	6/15/1944	B0460	1629	454	450	Msn Folder - Msn #51
89440	6/17/1944	6/17/1944	B0460	1629	524	518	Msn Folder - Msn #52
89441	6/18/1944	6/18/1944	B0460	1629	602	594	Msn Folder - Msn #53
89442	6/18/1944	6/18/1944	B0460	1629	636	626	Msn Folder - Msn #54
89443	6/21/1944	6/21/1944	B0460	1629	667	655	Msn Folder - Msn #55
89444	6/22/1944	6/22/1944	B0460	1629	703	689	Msn Folder - Msn #56
89445	6/23/1944	6/23/1944	B0460	1629	762	746	Msn Folder - Msn #57
89446	6/24/1944	6/24/1944	B0460	1629	803	785	Msn Folder - Msn #58
89447	6/30/1944	6/30/1944	B0460	1629	924	904	Msn Folder - Msn #59
89448	6/30/1944	6/30/1944	B0460	1629	964	942	Msn Folder - Msn #60
89449	7/1/1944	7/19/1944	B0460	1629	1005	981	Msn Summaries - Msns #61-73
89450	7/6/1944	7/6/1944	B0460	1629	1506	1480	Msn Folder - Msn #61
89451	7/6/1944	7/6/1944	B0460	1629	1568	1540	Msn Folder - Msn #62
89452	7/7/1944	7/7/1944	B0460	1629	1638	1608	Msn Folder - Msn #63
89453	7/8/1944	7/8/1944	B0460	1629	1676	1644	Msn Folder - Msn #64
89454	7/8/1944	7/8/1944	B0460	1629	1741	1707	Msn Folder - Msn #65
89455	7/9/1944	7/9/1944	B0460	1629	1783	1747	Msn Folder - Msn #66

Appendix C

IRIS #	Beginning Date	End Date	IRIS Reference	Microfilm Reel	Microfilm Frame	PDF Page #	Contents
89456	7/11/1944	7/11/1944	B0460	1629	1834	1796	Msn Folder - Msn #67
89457	7/12/1944	7/12/1944	B0460	1629	1869	1829	Msn Folder - Msn #68
89458	7/16/1944	7/16/1944	B0460	1629	1903	1861	Msn Folder - Msn #69
89459	7/16/1944	7/16/1944	B0460	1629	1953	1909	Msn Folder - Msn #70
89460	7/18/1944	7/18/1944	B0460	1629	2014	1968	Msn Folder - Msn #71
89461	7/18/1944	7/18/1944	B0460	1629	2063	2015	Msn Folder - Msn #72
89462	7/19/1944	7/19/1944	B0461	1630	4	2	Msn Folder - Msn #73
89463	7/23/1944	7/23/1944	B0461	1630	70	66	Msn Folder - Msn #74
89464	7/24/1944	7/24/1944	B0461	1630	101	94	Msn Folder - Msn #75
89465	7/24/1944	7/31/1944	B0461	1630	150	141	Msn Summaries - Msns #74-82
89466	7/25/1944	7/25/1944	B0461	1630	484	472	Msn Folder - Msn #76
89467	7/25/1944	7/25/1944	B0461	1630	540	526	Msn Folder - Msn #77
89468	7/26/1944	7/26/1944	B0461	1630	597	581	Msn Folder - Msn #78
89469	7/28/1944	7/28/1944	B0461	1630	661	643	Msn Folder - Msn #79
89470	7/30/1944	7/30/1944	B0461	1630	700	680	Msn Folder - Msn #80
89471	7/30/1944	7/30/1944	B0461	1630	731	708	Msn Folder - Msn #81
89472	7/31/1944	7/31/1944	B0461	1630	767	742	Msn Folder - Msn #82
89473	8/1/1944	8/1/1944	B0461	1630	816	789	Msn Folder - Msn #83
89474	8/1/1944	8/1/1944	B0461	1630	952	923	Msn Folder - Msn #83 **
89475	8/1/1944	9/30/1944	B0461	1630	1113	1082	Mission Info- Msns #83-117
89476	8/1/1944	8/11/1944	B0461	1630	1222	1189	Msn Summaries - Msns #83-94
89477	8/2/1944	8/2/1944	B0461	1630	1709	1672	Msn Folder - Msn #84 **
89478	8/2/1944	8/2/1944	B0461	1630	1872	1833	Msn Folder- Msns #80/81 **
89479	8/2/1944	8/2/1944	B0461	1630	2094	2053	Msn Folder - Msn #84
89480	8/3/1944	8/3/1944	B0462	1631	4	2	Msn Folder - Msn #85 **
89481	8/3/1944	8/3/1944	B0462	1631	150	146	Msn Folder - Msn #85
89482	8/4/1944	8/4/1944	B0462	1631	206	200	Msn Folder - Msn #86 **
89483	8/4/1944	8/4/1944	B0462	1631	348	340	Msn Folder - Msn #86
89484	8/7/1944	8/7/1944	B0462	1631	399	389	Msn Folder - Msn #88 **
89485	8/7/1944	8/7/1944	B0462	1631	544	532	Msn Folder - Msn #87 **
89486	8/7/1944	8/7/1944	B0462	1631	695	681	Msn Folder - Msn #87
89487	8/7/1944	8/7/1944	B0462	1631	770	754	Msn Folder - Msn #88
89488	8/8/1944	8/8/1944	B0462	1631	835	817	Msn Folder - Msn #89 **
89489	8/8/1944	8/8/1944	B0462	1631	994	974	Msn Folder - Msn #90 **
89490	8/8/1944	8/8/1944	B0462	1631	1142	1120	Msn Folder - Msn #89
89491	8/8/1944	8/8/1944	B0462	1631	1202	1178	Msn Folder - Msn #90
89492	8/9/1944	8/9/1944	B0462	1631	1268	1242	Msn Folder - Msn #91 **
89493	8/9/1944	8/9/1944	B0462	1631	1317	1289	Msn Folder - Msn #92 **
89494	8/9/1944	8/9/1944	B0462	1631	1480	1450	Msn Folder - Msn #91
89495	8/9/1944	8/9/1944	B0462	1631	1553	1521	Msn Folder - Msn #92
89496	8/10/1944	8/10/1944	B0462	1631	1592	1558	Msn Folder - Msn #93
89497	8/10/1944	8/10/1944	B0462	1631	1668	1632	Msn Folder - Msn #93 **
89498	8/10/1944	8/10/1944	B0462	1631	1832	1794	Msn Folder - Msn #94
89499	8/11/1944	8/11/1944	B0462	1631	1896	1856	Msn Folder - Msn #94 **
89500	8/12/1944	8/12/1944	B0462	1631	2061	2019	Msn Summaries - Msns #95-108
89501	8/13/1944	8/13/1944	B0463	1632	4	2	Msn Folder - Msn #95 **

Appendix C

IRIS #	Beginning Date	End Date	IRIS Reference	Microfilm Reel	Microfilm Frame	PDF Page #	Contents
89502	8/13/1944	8/13/1944	B0463	1632	156	152	Msn Folder - Msn #96 **
89503	8/13/1944	8/13/1944	B0463	1632	311	305	Msn Folder - Msn #95
89504	8/13/1944	8/13/1944	B0463	1632	382	374	Msn Folder - Msn #96
89505	8/14/1944	8/14/1944	B0463	1632	456	446	Msn Folder - Msn #97
89506	8/14/1944	8/14/1944	B0463	1632	508	496	Msn Folder - Msn #98
89507	8/14/1944	8/14/1944	B0463	1632	571	557	Msn Folder - Msn #98 **
89508	8/15/1944	8/15/1944	B0463	1632	717	701	Msn Folder - Msn #99
89509	8/15/1944	8/15/1944	B0463	1632	767	749	Msn Folder - Msn #99 **
89510	8/16/1944	8/16/1944	B0463	1632	1063	1043	Msn Folder - Msn #100
89511	8/16/1944	8/16/1944	B0463	1632	1101	1079	Msn Folder - Msn #101 **
89512	8/16/1944	8/16/1944	B0463	1632	1235	1211	Msn Folder - Msn #100 **
89513	8/16/1944	8/16/1944	B0463	1632	1383	1357	Msn Folder - Msn #101
89514	8/17/1944	8/17/1944	B0463	1632	1424	1396	Msn Folder - Msn #102 **
89515	8/17/1944	8/17/1944	B0463	1632	1512	1482	Msn Folder - Msn #103 **
89516	8/17/1944	8/17/1944	B0463	1632	1627	1627	Msn Folder - Msn #102
89517	8/17/1944	8/17/1944	B0463	1632	1693	1659	Msn Folder - Msn #103
89518	8/20/1944	8/20/1944	B0463	1632	1735	1699	Msn Folder - Msn #104
89519	8/20/1944	8/20/1944	B0463	1632	1779	1741	Msn Folder - Msn #104 **
89520	8/20/1944	8/20/1944	B0463	1632	1914	1874	Msn Folder - Msn #105 **
89521	8/25/1944	8/25/1944	B0463	1632	2075	2033	Msn Folder - Msn #105
89522	8/26/1944	8/26/1944	B0463	1632	2131	2087	Msn Folder - Msn #106
89523	8/26/1944	8/26/1944	B0463	1632	2190	2144	Msn Folder - Msn #107
89524	8/26/1944	8/26/1944	B0463	1632	2247	2199	Target Info - Angers France
89525	8/26/1944	8/26/1944	B0463	1632	2272	2222	Msn Folder - Msn #106 **
89526	8/26/1944	8/26/1944	B0464	1633	4	2	Msn Folder - Msn #107 **
89527	8/28/1944	8/28/1944	B0464	1633	178	174	Msn Folder - Msn #108 **
89528	8/28/1944	8/28/1944	B0464	1633	347	341	Msn Folder - Msn #108
89529	9/1/1944	9/1/1944	B0464	1633	393	385	Msn Folder - Msn #109
89530	9/1/1944	9/1/1944	B0464	1633	416	406	Msn Folder - Msn #109 **
89531	9/1/1944	9/29/1944	B0464	1633	583	571	Msn Summaries - Msns #109-119
89532	9/5/1944	9/5/1944	B0464	1633	923	909	Msn Folder - Msn #110 **
89533	9/5/1944	9/5/1944	B0464	1633	1098	1082	Msn Folder - Msn #110
89534	9/6/1944	9/6/1944	B0464	1633	1150	1132	Msn Folder - Msn #111 **
89535	9/6/1944	9/6/1944	B0464	1633	1329	1309	Msn Folder - Msn #112 **
89536	9/6/1944	9/6/1944	B0464	1633	1493	1471	Msn Folder - Msn #111
89537	9/6/1944	9/6/1944	B0464	1633	1559	1535	Msn Folder - Msn #112
89538	9/17/1944	9/17/1944	B0464	1633	1609	1583	Msn Folder - Msn #113
89539	9/19/1944	9/19/1944	B0464	1633	1701	1673	Msn Folder - Msn #113 **
89540	9/19/1944	9/19/1944	B0464	1633	1878	1848	Msn Folder - Msn #113
89541	9/20/1944	9/20/1944	B0464	1633	1924	1892	Msn Folder - Msn #114 **
89452	9/20/1944	9/20/1944	B0464A	1634	4	2	Msn Folder - Msn #114
89543	9/21/2004	9/21/1944	B0464A	1634	58	54	Msn Folder - Msn #115
89544	9/21/1944	9/21/1944	B0464A	1634	118	112	Msn Folder - Msn #115 **
89545	9/27/1944	9/27/1944	B0465	1635	4	2	Msn Folder - Msn #116 **
89546	9/27/1944	9/27/1944	B0465	1635	162	158	Msn Folder - Msn #116
89547	9/28/1944	9/29/1944	B0465	1635	195	189	Msn Folder - Msn #117 **

Appendix C

IRIS #	Beginning Date	End Date	IRIS Reference	Microfilm Reel	Microfilm Frame	PDF Page #	Contents
89548	9/28/1944	9/28/1944	B0465	1635	359	351	Msn Folder - Msn #117
89549	9/29/1944	9/29/1944	B0465	1635	390	380	Msn Folder - Msn #119 **
89550	9/29/1944	9/29/1944	B0465	1635	560	548	Msn Folder - Msn #118 **
89551	9/29/1944	9/29/1944	B0465	1635	719	705	Msn Folder - Msn #119
89552	9/29/1944	9/29/1944	B0465	1635	785	769	Msn Folder - Msn #118
89553	10/1/1944	11/30/1944	B0465	1635	843	825	OPREPS- Sep 44 - Nov 44
89554	10/2/1944	10/2/1944	B0465	1635	933	913	Msn Folder - Msn #120
89555	10/2/1944	10/2/1944	B0465	1635	982	960	Msn Folder - Msn #120 **
89556	10/6/1944	10/20/1944	B0465	1635	1149	1125	Msn Summaries - Msns #120-123
89557	10/6/1944	10/6/1944	B0465	1635	1295	1260	Msn Folder - Msn #135 **
89558	10/6/1944	10/6/1944	B0465	1635	1456	1428	Msn Folder - Msn #135
89559	10/12/1944	10/12/1944	B0465	1635	1469	1439	Msn Folder - Msn #121
89560	10/12/1944	10/12/1944	B0465	1635	1549	1517	Msn Folder - Msn #121 **
89561	10/20/1944	10/20/1944	B0465	1635	1719	1685	Msn Folder - Msn #122 **
89562	10/20/1944	10/20/1944	B0465	1635	1874	1838	Msn Folder - Msn #122
89563	10/29/1944	10/29/1944	B0465	1635	1918	1880	Msn Folder - Msn #123 **
89564	10/29/1944	10/29/1944	B0465	1635	2078	2038	Msn Folder - Msn #123
89565	11/1/1944	11/30/1944	B0465	1635	2123	2081	Msn Summaries - Msns #124-136
89566	11/4/1944	11/4/1944	B0466	1636	4	2	Msn Folder - Msn #124 **
89567	11/4/1944	11/4/1944	B0466	1636	151	147	Msn Folder - Msn #124
89568	11/5/1944	11/5/1944	B0466	1636	188	182	Msn Folder - Msn #125
89569	11/5/1944	11/5/1944	B0466	1636	224	216	Msn Folder - Msn #125 **
89570	11/9/1944	11/9/1944	B0466	1636	369	359	Msn Folder - Msn #126 **
89571	11/9/1944	11/9/1944	B0466	1636	605	593	Msn Folder - Msn #127 **
89572	11/9/1944	11/9/1944	B0466	1636	701	687	Msn Folder - Msn #126
89573	11/9/1944	11/9/1944	B0466	1636	746	730	Msn Folder - Msn #127
89574	11/10/1944	11/10/1944	B0466	1636	766	748	Msn Folder - Msn #128 **
89575	11/10/1944	11/10/1944	B0466	1636	900	880	Msn Folder - Msn #128
89576	11/11/1944	11/11/1944	B0466	1636	934	912	Msn Folder - Msn #129 **
89577	11/18/1944	11/18/1944	B0466	1636	1083	1059	Msn Folder - Msn #130 **
89578	11/11/1944	11/11/1944	B0466	1636	1247	1221	Msn Folder - Msn #129
89579	11/18/1944	11/18/1944	B0466	1636	1299	1271	Msn Folder - Msn #130
89580	11/19/1944	11/19/1944	B0466	1636	1350	1320	Msn Folder - Msn #131 **
89581	11/19/1944	11/19/1944	B0466	1636	1500	1468	Msn Folder - Msn #132 **
89582	11/19/1944	11/19/1944	B0466	1636	1664	1630	Msn Folder - Msn #131
89583	11/19/1944	11/19/1944	B0466	1636	1703	1667	Msn Folder - Msn #132
89584	11/21/1944	11/21/1944	B0466	1636	1730	1692	Msn Folder - Msn #133 **
89585	12/14/1944	12-14-2001*	B0466	1636	1887	1847	Msn Folder - Msn #133
89586	11/29/2004	11/29/1944	B0466	1636	1928	1928	Msn Folder - Msn #134 **
89587	11/29/1944	11/29/1944	B0466	1636	1990	1946	Msn Folder - Msn #134
89588	11/30/1944	11/30/1944	B0466	1636	2026	1980	Msn Folder - Msn #136
89589	11/30/1944	11/30/1944	B0466	1636	2071	2071	Msn Folder - Msn #136 **
89590	12/1/1944	12/31/1944	B0467	1637	4	2	Msn Summaries - Msns #137-150
89591	12/1/1944	12/1/1944	B0467	1637	572	558	Msn Folder - Msn #137
89592	12/1/1944	12/1/1944	B0467	1637	604	598	Msn Folder - Msn #137 **

Appendix C

IRIS #	Beginning Date	End Date	IRIS Reference	Microfilm Reel	Microfilm Frame	PDF Page #	Contents
89593	12/1/1944	1/31/1945	B0467	1637	769	761	OPREPS- Dec 44 - Jan 45
89594	12/2/1944	12/2/1944	B0467	1637	837	827	Msn Folder - Msn #138 **
89595	12/2/1944	12/2/1944	B0467	1637	943	931	Msn Folder - Msn #138
89596	12/5/1944	12/5/1944	B0467	1637	979	965	Msn Folder - Msn #139
89597	12/5/1944	12/5/1944	B0467	1637	1024	1008	Msn Folder - Msn #139 **
89598	12/6/1944	12/6/1944	B0467	1637	1184	1166	Msn Folder - Msn #140 **
89599	12/6/1944	12/6/1944	B0467	1637	1343	1323	Msn Folder - Msn #140
89600	12/6/1944	1/9/1945	B0467	1637	1392	1370	Intelligence Sheets- Dec 44-Apr 45
89601	12/6/1944	5/8/1945	B0467	1637	1692	1668	Intelligence Journals-Dec 44-May 45
89602	12/9/1944	12/9/1944	B0467	1637	1873	1847	Msn Folder - Msn #142
89603	12/9/1944	12/9/1944	B0467	1637	1904	1876	Msn Folder - Msn #141
89604	12/9/1944	12/9/1944	B0467	1637	1940	1910	Msn Folder - Msn #141 **
89605	12/9/1944	12/9/1944	B0468	1638	4	2	Msn Folder - Msn #142 **
89606	12/12/1944	12/12/1944	B0468	1638	149	145	Msn Folder - Msn #143 **
89607	12/12/1944	12/12/1944	B0468	1638	310	304	Msn Folder - Msn #143
89608	12/13/1944	12/13/1944	B0468	1638	355	347	Msn Folder - Msn #144 **
89609	12/13/1944	12/13/1944	B0468	1638	515	505	Msn Folder - Msn #144
89610	12/15/1944	12/15/1944	B0468	1638	552	540	Msn Folder - Msn #145 **
89611	12/15/1944	12/15/1944	B0468	1638	685	671	Msn Folder - Msn #145
89612	12/23/1944	12/23/1944	B0468	1638	726	710	Msn Folder - Msn #146
89613	12/23/1944	12/23/1944	B0468	1638	811	793	Msn Folder - Msn #146 **
89614	12/24/1944	12/24/1944	B0468	1638	985	965	Msn Folder - Msn #147
89615	12/24/1944	12/24/1944	B0468	1638	1040	1018	Msn Folder - Msn #149 **
89616	12/25/1944	12/25/1944	B0468	1638	1152	1128	Msn Folder - Msn #148
89617	12/25/1944	12/25/1944	B0468	1638	1216	1190	Msn Folder - Msn #147 **
89618	12/25/1944	12/25/1944	B0468	1638	1369	1341	Msn Folder - Msn #148 **
89619	12/25/1944	12/25/1944	B0468	1638	1520	1490	Msn Folder - Msn #149
89620	12/27/1944	12/27/1944	B0468	1638	1560	1528	Msn Folder - Msn #150 **
89621	12/27/1944	12/27/1944	B0468	1638	1715	1681	Msn Folder - Msn #150
89622	1/1/1945	1/31/1945	B0468	1638	1769	1733	Msn Summaries - Msns #151-160
89623	1/1/1945	1/1/1945	B0468	1638	2148	2110	Msn Folder - Msn #151 **
89624	1/1/1945	1/1/1945	B0468	1638	2293	2253	Msn Folder - Msn #151
89625	1/5/1945	1/5/1945	B0468	1638	2342	2300	Msn Folder - Msn #152
89626	1/5/1945	1/5/1945	B0468	1638	2385	2341	Msn Folder - Msn #152 **
89627	N/A	N/A	B0469	1639	4	2	Msn Folder - Msn #153 **
89628	N/A	N/A	B0469	1639	172	168	Msn Folder - Msn #153
89629	N/A	N/A	B0469	1639	230	224	Msn Folder - Msn #154 **
89630	N/A	N/A	B0469	1639	345	338	Msn Folder - Msn #154
89631	N/A	N/A	B0469	1639	393	383	Msn Folder - Msn #155 **
89632	N/A	N/A	B0469	1639	517	505	Msn Folder - Msn #155
89633	N/A	N/A	B0469	1639	583	569	Msn Folder - Msn #156 **
89634	N/A	N/A	B0469	1639	724	708	Msn Folder - Msn #156
89635	N/A	N/A	B0469	1639	780	762	Msn Folder - Msn #157 **
89636	N/A	N/A	B0469	1639	936	916	Msn Folder - Msn #157
89637	N/A	N/A	B0469	1639	982	959	Msn Folder - Msn #158

Appendix C

IRIS #	Beginning Date	End Date	IRIS Reference	Microfilm Reel	Microfilm Frame	PDF Page #	Contents
89638	N/A	N/A	B0469	1639	1050	1026	Msn Folder - Msn #158 **
89639	N/A	N/A	B0469	1639	1158	1132	Msn Folder - Msn #160
89640	N/A	N/A	B0469	1639	1186	1158	Msn Folder - Msn #159
89641	N/A	N/A	B0469	1639	1228	1198	Msn Folder - Msn #160
89642	N/A	N/A	B0469	1639	1252	1220	Msn Folder - Msn #160 **
89643	2/1/1945	2/21/1945	B0469	1639	1377	1343	Msn Summaries - Msns #161-174
89644	2/1/1945	3/31/1945	B0469	1639	1930	1894	OPREPS - Feb 45 - Mar 45
89465	N/A	N/A	B0469	1639	2071	2033	Msn Folder - Msn #161
89646	N/A	N/A	B0469	1639	2109	2069	Msn Folder - Msn #161 **
89647	N/A	N/A	B0469	1639	2196	2154	Msn Folder - Msn #162 **
89468	N/A	N/A	B0469	1639	2367	2323	Msn Folder - Msn #163 **
89649	N/A	N/A	B0469	1639	2529	2483	Msn Folder - Msn #163
89650	N/A	N/A	B0469	1639	2569	2521	Msn Folder - Msn #164 **
89651	2/6/1945	2/6/1945	B0470	1640	4	2	Msn Folder - Msn #164
89652	2/8/1945	2/8/1945	B0470	1640	45	41	Msn Folder - Msn #165 **
89653	2/8/1945	2/8/1945	B0470	1640	251	245	Msn Folder - Msn #165
89654	2/9/1945	2/9/1945	B0470	1640	296	288	Msn Folder - Msn #166 **
89655	2/9/1945	2/9/1945	B0470	1640	449	439	Msn Folder - Msn #166
89656	2/10/1945	2/10/1945	B0470	1640	494	482	Msn Folder - Msn #167 **
89657	2/10/1945	2/10/1945	B0470	1640	636	622	Msn Folder - Msn #167
89658	2/11/1945	2/11/1945	B0470	1640	679	663	Msn Folder - Msn #168 **
89659	2/11/1945	2/11/1945	B0470	1640	830	812	Msn Folder - Msn #168
89660	2/13/1945	2/13/1945	B0470	1640	866	846	Msn Folder - Msn #169
89661	2/13/1945	2/13/1945	B0470	1640	908	886	Msn Folder - Msn #169 **
89662	2/14/1945	2/14/1945	B0470	1640	1042	1018	Msn Folder - Msn #171 **
89663	2/14/1945	2/14/1945	B0470	1640	1162	1137	Msn Folder - Msn #170 **
89664	2/14/1945	2/14/1945	B0470	1640	1307	1279	Msn Folder - Msn #170
89665	2/14/1945	2/14/1945	B0470	1640	1370	1340	Msn Folder - Msn #171
89666	2/15/1945	2/15/1945	B0470	1640	1433	1401	Msn Folder - Msn #172 **
89667	2/15/1945	2/15/1945	B0470	1640	1541	1507	Msn Folder - Msn #172
89668	2/19/1945	2/19/1945	B0470	1640	1586	1550	Msn Folder - Msn #173 **
89669	2/19/1945	2/19/1945	B0470	1640	1730	1692	Msn Folder - Msn #173
89670	2/21/1945	2/21/1945	B0470	1640	1768	1728	Msn Folder - Msn #174
89671	2/21/1945	2/21/1945	B0470	1640	1840	1798	Msn Folder - Msn #174 **
89672	2/22/1945	2/28/1945	B0470	1640	1965	1921	Msn Summaries - Msns #175-182
89673	2/22/1945	2/28/1945	B0470	1640	2276	2230	Msn Folder - Msn #175 **
89674	2/22/1945	2/22/1945	B0471	1641	4	2	Msn Folder - Msn #175
89675	2/23/1945	2/23/1945	B0471	1641	97	93	Msn Folder - Msn #177 **
89676	2/23/1945	2/23/1945	B0471	1641	230	224	Msn Folder - Msn #176 **
89677	2/23/1945	2/23/1945	B0471	1641	282	274	Msn Folder - Msn #176
89678	2/23/1945	2/23/1945	B0471	1641	307	297	Msn Folder - Msn #177
89679	2/24/1945	2/24/1945	B0471	1641	358	346	Msn Folder - Msn #178 **
89680	2/24/1945	2/24/1945	B0471	1641	467	453	Msn Folder - Msn #178
89681	2/25/1945	2/25/1945	B0471	1641	513	497	Msn Folder - Msn #179 **
89682	2/25/1945	2/25/1945	B0471	1641	647	629	Msn Folder - Msn #179

Appendix C

IRIS #	Beginning Date	End Date	IRIS Reference	Microfilm Reel	Microfilm Frame	PDF Page #	Contents
89683	2/26/1945	2/26/1945	B0471	1641	701	681	Msn Folder - Msn #180 **
89684	2/26/1945	2/26/1945	B0471	1641	814	792	Msn Folder - Msn #180
89685	2/27/1945	2/27/1945	B0471	1641	854	830	Msn Folder - Msn #181 **
89686	2/27/1945	2/27/1945	B0471	1641	1000	974	Msn Folder - Msn #181
89687	2/28/1945	2/28/1945	B0471	1641	1035	1007	Msn Folder - Msn #182 **
89688	2/28/1945	2/28/1945	B0471	1641	1190	1160	Msn Folder - Msn #182
89689	3/1/1945	3/1/1945	B0471	1641	1227	1195	Msn Summaries - Msns #183-195
89690	3/1/1945	3/1/1945	B0471	1641	1711	1677	Msn Folder - Msn #183 **
89691	3/1/1945	3/1/1945	B0471	1641	1863	1827	Msn Folder - Msn #183
89692	3/2/1945	3/2/1945	B0471A	1642	4	2	Msn Folder - Msn #184
89693	3/2/1945	3/2/1945	B0471A	1642	46	42	Msn Folder - Msn #185
89694	3/2/1945	3/2/1945	B0471A	1642	103	97	Msn Folder - Msn #184 **
89695	3/2/1945	3/2/1945	B0471A	1642	230	222	Msn Folder - Msn #185 **
89696	3/4/1945	3/4/1945	B0471A	1642	283	273	Msn Folder - Msn #186 **
89697	3/4/1945	3/4/1945	B0471A	1642	359	347	Msn Folder - Msn #186
89698	3/5/1945	3/5/1945	B0471A	1642	416	402	Msn Folder - Msn #187
89699	3/5/1945	3/5/1945	B0471A	1642	461	445	Msn Folder - Msn #188
89700	3/5/1945	3/5/1945	B0471A	1642	505	487	Msn Folder - Msn #185/187 **
89701	3/5/1945	3/5/1945	B0472	1643	4	2	Msn Folder - Msn #188 **
89702	3/6/1945	3/6/1945	B0472	1643	141	137	Msn Folder - Msn #189 **
89703	3/6/1945	3/6/1945	B0472	1643	280	274	Msn Folder - Msn #189
89704	3/8/1945	3/8/1945	B0472	1643	330	322	Msn Folder - Msn #190 **
89705	3/8/1945	3/8/1945	B0472	1643	471	461	Msn Folder - Msn #190
89706	3/9/1945	3/9/1945	B0472	1643	507	495	Msn Folder - Msn #191 **
89707	3/9/1945	3/9/1945	B0472	1643	655	641	Msn Folder - Msn #191
89708	3/9/1945	3/9/1945	B0472	1643	691	675	Msn Folder - Msn #192 **
89709	3/9/1945	3/9/1945	B0472	1643	845	827	Msn Folder - Msn #192
89710	3/10/1945	3/10/1945	B0472	1643	884	864	Msn Folder - Msn #193 **
89711	3/10/1945	3/10/1945	B0472	1643	1016	994	Msn Folder - Msn #193
89712	3/11/1945	3/11/1945	B0472	1643	1054	1030	Msn Folder - Msn #194 **
89713	3/11/1945	3/11/1945	B0472	1643	1202	1176	Msn Folder - Msn #195 **
89714	3/11/1945	3/11/1945	B0472	1643	1347	1319	Msn Folder - Msn #194
89715	3/11/1945	3/11/1945	B0472	1643	1380	1350	Msn Folder - Msn #195
89716	3/19/1945	3/19/1945	B0472	1643	1421	1389	Msn Summaries - Msns #196-207
89717	3/12/1945	3/12/1945	B0472	1643	1887	1853	Msn Folder - Msn #196 **
89718	3/12/1945	3/12/1945	B0472	1643	2026	1990	Msn Folder - Msn #197 **
89719	3/12/1945	3/12/1945	B0472A	1644	4	2	Msn Folder - Msn #196
89720	3/12/1945	3/12/1945	B0472A	1644	38	34	Msn Folder - Msn #197
89721	3/13/1945	3/13/1945	B0472A	1644	74	68	Msn Folder - Msn #199 **
89722	3/13/1945	3/13/1945	B0472A	1644	245	237	Msn Folder - Msn #198 **
89723	3/13/1945	3/13/1945	B0472A	1644	393	383	Msn Folder - Msn #198
89724	3/13/1945	3/13/1945	B0472A	1644	424	412	Msn Folder - Msn #199
89725	3/14/1945	3/14/1945	B0472A	1644	497	483	Msn Folder - Msn #200 **
89726	3/14/1945	3/14/1945	B0472A	1644	615	599	Msn Folder - Msn #200
89727	3/15/1945	3/15/1945	B0473	1645	4	3	Msn Folder - Msn #201 **

Appendix C

IRIS #	Beginning Date	End Date	IRIS Reference	Microfilm Reel	Microfilm Frame	PDF Page #	Contents
89728	3/15/1945	3/15/1945	B0473	1645	117	114	Msn Folder - Msn #201
89729	3/16/1945	3/16/1945	B0473	1645	180	175	Msn Folder - Msn #202 **
89730	3/16/1945	3/16/1945	B0473	1645	294	287	Msn Folder - Msn #202
89731	3/17/1945	3/17/1945	B0473	1645	357	348	Msn Folder - Msn #203 **
89732	3/17/1945	3/17/1945	B0473	1645	481	470	Msn Folder - Msn #204 **
89733	3/17/1945	3/17/1945	B0473	1645	608	595	Msn Folder - Msn #203
89734	3/17/1945	3/17/1945	B0473	1645	646	631	Msn Folder - Msn #204
89735	3/18/1945	3/18/1945	B0473	1645	694	677	Msn Folder - Msn #205 **
89736	3/18/1945	3/18/1945	B0473	1645	829	810	Msn Folder - Msn #205
89737	3/19/1945	3/19/1945	B0473	1645	896	875	Msn Folder - Msn #206 **
89738	3/19/1945	3/19/1945	B0473	1645	1032	1009	Msn Folder - Msn #207 **
89739	3/19/1945	3/19/1945	B0473	1645	1174	1149	Msn Folder - Msn #206
89740	3/19/1945	3/19/1945	B0473	1645	1230	1203	Msn Folder - Msn #207
89741	3/20/1945	3/30/1945	B0473	1645	1280	1251	Msn Summaries - Msns #208-221
89742	3/20/1945	3/20/1945	B0473	1645	1850	1819	Msn Folder - Msn #208 **
89743	3/20/1945	3/20/1945	B0473	1645	1989	1956	Msn Folder - Msn #208
89744	3/21/1945	3/21/1945	B0474	1646	4	3	Msn Folder - Msn #209 **
89745	3/21/1945	3/21/1945	B0474	1646	150	147	Msn Folder - Msn #210 **
89746	3/21/1945	3/21/1945	B0474	1646	261	256	Msn Folder - Msn #209
89747	3/21/1945	3/21/1945	B0474	1646	316	309	Msn Folder - Msn #210
89748	3/22/1945	3/22/1945	B0474	1646	381	372	Msn Folder - Msn #211 **
89749	3/22/1945	3/22/1945	B0474	1646	525	514	Msn Folder - Msn #211
89750	3/22/1945	3/22/1945	B0474	1646	592	579	Msn Folder - Msn #212
89751	3/23/1945	3/23/1945	B0474	1646	668	654	Msn Folder - Msn #214 **
89752	3/23/1945	3/23/1945	B0474	1646	792	775	Msn Folder - Msn #213 **
89753	3/23/1945	3/23/1945	B0474	1646	929	910	Msn Folder - Msn #212 **
89754	3/23/1945	3/23/1945	B0474	1646	1063	1042	Msn Folder - Msn #213
89755	3/23/1945	3/23/1945	B0474	1646	1133	1110	Msn Folder - Msn #214
89756	3/24/1945	3/24/1945	B0474	1646	1205	1180	Msn Folder - Msn #215 **
89757	3/24/1945	3/24/1945	B0474	1646	1341	1314	Msn Folder - Msn #216 **
89758	3/24/1945	3/24/1945	B0474	1646	1446	1417	Msn Folder - Msn #215
89759	3/24/1945	3/24/1945	B0474	1646	1510	1479	Msn Folder - Msn #216
89760	3/25/1945	3/25/1945	B0474	1646	1578	1545	Msn Folder - Msn #217
89761	3/25/1945	3/25/1945	B0474	1646	1649	1614	Msn Folder - Msn #218
89762	3/25/1945	3/25/1945	B0474	1646	1716	1679	Msn Folder - Msn #217 **
89763	3/25/1945	3/25/1945	B0474	1646	1868	1829	Msn Folder - Msn #218 **
89764	3/26/1945	3/26/1945	B0474	1646	2021	1980	Msn Folder - Msn #219
89765	3/26/1945	3/26/1945	B0474	1646	2088	2045	Msn Folder - Msn #219 **
89766	3/28/1945	3/28/1945	B0474	1646	2211	2166	Msn Folder - Msn #220 **
89767	3/28/1945	3/28/1945	B0474	1646	2345	2298	Msn Folder - Msn #220
89768	3/30/1945	3/30/1945	B0474	1646	2387	2338	Msn Folder - Msn #221
89769	3/30/1945	3/30/1945	B0475	1647	4	3	Msn Folder - Msn #221 **
89770	4/1/1945	5/31/1945	B0475	1647	135	132	OPREPS - Apr 45 - May 45
89771	4/3/1945	4/3/1945	B0475	1647	184	179	Msn Summaries - Msns #222-235
89772	4/3/1945	4/3/1945	B0475	1647	688	681	Msn Folder - Msn #222 **

Appendix C

IRIS #	Beginning Date	End Date	IRIS Reference	Microfilm Reel	Microfilm Frame	PDF Page #	Contents
89773	4/3/1945	4/3/1945	B0475	1647	824	815	Msn Folder - Msn #222
89774	4/4/1945	4/4/1945	B0475	1647	865	854	Msn Folder - Msn #223 **
89775	4/4/1945	4/4/1945	B0475	1647	999	986	Msn Folder - Msn #223
89776	4/7/1945	4/7/1945	B0475	1647	1042	1027	Msn Folder - Msn #224 **
89777	4/7/1945	4/7/1945	B0475	1647	1204	1187	Msn Folder - Msn #224
89778	4/8/1945	4/8/1945	B0475	1647	1261	1242	Msn Folder - Msn #225 **
89779	4/8/1945	4/8/1945	B0475	1647	1430	1409	Msn Folder - Msn #225
89780	4/9/1945	4/9/1945	B0475	1647	1493	1470	Msn Folder - Msn #227 **
89781	4/9/1945	4/9/1945	B0475	1647	1650	1625	Msn Folder - Msn #226 **
89782	4/9/1945	4/9/1945	B0475	1647	1773	1746	Msn Folder - Msn #226
89783	4/9/1945	4/9/1945	B0475	1647	1838	1809	Msn Folder - Msn #227
89784	4/10/1945	4/10/1945	B0475	1647	1902	1871	Msn Folder - Msn #228
89785	4/10/1945	4/10/1945	B0475	1647	1967	1934	Msn Folder - Msn #228 **
89786	4/11/1945	4/11/1945	B0475	1647	2127	2092	Msn Folder - Msn #230 **
89787	4/11/1945	4/11/1945	B0475	1647	2292	2255	Msn Folder - Msn #229 **
89788	4/11/1945	4/11/1945	B0476	1648	4	3	Msn Folder - Msn #229
89789	4/11/1945	4/11/1945	B0476	1648	57	53	Msn Folder - Msn #230
89790	4/12/1945	4/12/1945	B0476	1648	118	113	Msn Folder - Msn #231 **
89791	4/12/1945	4/12/1945	B0476	1648	300	293	Msn Folder - Msn #231
89792	4/15/1945	4/15/1945	B0476	1648	362	353	Msn Folder - Msn #232 **
89793	4/15/1945	4/15/1945	B0476	1648	500	489	Msn Folder - Msn #232
89794	4/16/1945	4/16/1945	B0476	1648	536	523	Msn Folder - Msn #233 **
89795	4/16/1945	4/16/1945	B0476	1648	659	644	Msn Folder - Msn #234 **
89796	4/16/1945	4/16/1945	B0476	1648	801	784	Msn Folder - Msn #233
89797	4/16/1945	4/16/1945	B0476	1648	845	826	Msn Folder - Msn #234
89798	4/17/1945	4/17/1945	B0476	1648	910	889	Msn Folder - Msn #235 **
89799	4/17/1945	4/17/1945	B0476	1648	1057	1034	Msn Folder - Msn #235
89800	4/19/1945	4/19/1945	B0476	1648	1121	1096	Msn Folder - Msn #236 **
89801	4/19/1945	4/19/1945	B0476	1648	1265	1238	Msn Folder - Msn #237 **
89802	4/19/1945	4/19/1945	B0476	1648	1312	1283	Msn Folder - Msn #236
89803	4/19/1945	4/19/1945	B0476	1648	1374	1343	Msn Folder - Msn #237
89804	4/19/1945	4/20/1945	B0476	1648	1418	1418	Msn Summaries - Msns #236-239
89805	4/20/1945	4/20/1945	B0476	1648	1570	1535	Msn Folder - Msn #238 **
89806	4/20/1945	4/20/1945	B0476	1648	1710	1673	Msn Folder - Msn #239 **
89807	4/20/1945	4/20/1945	B0476	1648	1841	1802	Msn Folder - Msn #238
89808	4/20/1945	4/20/1945	B0476	1648	1899	1858	Msn Folder - Msn #239

Bibliography

Academic Papers

- Aylesworth, Colonel Theodore. "A Review of the Protection of England Against V-Weapons in World War II." Air War College, Air University, 1953.
- Cox, Major Gary. "Beyond the Battle Line: US Air Attack Theory and Doctrine, 1919-1941." School of Advanced Air and Space Studies, Air University, 1996.
- Hamilton, Major David. "Close Air Support and Battlefield Air Interdiction in the Airland Battle." US Army Command and General Staff College, 1983.

Books

- Ambrose, Stephen E. *D-Day, June 6, 1944: The Climactic Battle of World War II*. New York: Simon & Schuster, 1994.
- Arnold, H. H., Major General, and Colonel Ira C. Eaker. *Winged Warfare*. New York, NY: Harper and Brothers, 1941.
- Atkinson, Rick. *The Guns at Last Light: The War in Western Europe, 1944-1945*. 1st ed. The Liberation Trilogy, v. 3. New York: Henry Holt and Co, 2013.
- Baird, W. D., ed. *17th Bomb Group*. Limited ed. Paducah, Ky: Turner, 1995.
- Balkoski, Joseph. *Utah Beach: The Amphibious Landing and Airborne Operations on D-Day, June 6, 1944*. 1st ed. Mechanicsburg, PA: Stackpole Books, 2005.
- Bergerud, Eric M. *Fire in the Sky: The Air War in the South Pacific*. Boulder, CO: Westview, 2001.
- Biddle, Tami Davis. *Rhetoric and Reality in Air Warfare: The Evolution of British and American Ideas About Strategic Bombing, 1914-1945*. Princeton, N.J.: Princeton University Press, 2002.
- Bowyer, Michael J. F. *Action Stations: 1. Military Airfields of East Anglia*. Wellingborough: Stephens, 1990.
- Brereton, Lewis H., Lieutenant General USA. *The Brereton Diaries: The War in the Air in the Pacific, Middle East and Europe*. New York, NY: William Morrow and Company, 1946.

- Collier, Basil. *The Battle of the V-Weapons: 1944-1945*. New York, NY: William Morrow and Company, 1965.
- Crane, Conrad C. *American Airpower Strategy in Korea, 1950-1953*. Modern War Studies. Lawrence, KS: University Press of Kansas, 2000.
- Craven, Wesley Frank and James Lea Cate, eds. *The Army Air Forces in World War II*, vol. 1, *Plans and Early Operations January 1939 - August 1942*. Chicago: The University of Chicago Press, 1948.
- . *The Army Air Forces in World War II*, vol. 2, *Europe: Torch to Pointblank August 1942 - December 1943*. Chicago: The University of Chicago Press, 1949.
- . *The Army Air Forces in World War II*, vol. 3, *Europe: Argument to V-E Day January 1944 - May 1945*. Chicago: The University of Chicago Press, 1951.
- . *The Army Air Forces in World War II*, vol. 4, *The Pacific- Guadalcanal to Saipan August 1942 - Jul 1944*. Chicago: The University of Chicago Press, 1950.
- . *The Army Air Forces in World War II*, vol. 6, *Men and Planes*. 1955; New imprint, Washington DC: Office of Air Force History, 1983.
- Doolittle, James Harold. *I Could Never Be So Lucky Again: An Autobiography*. New York, N.Y.: Bantam Books, 1991.
- Evans, Don L., ed. *Revenge of the Red Raiders: The Illustrated History of the 22nd Bombardment Group During World War II*. Eagles over the Pacific, v. 2. Boulder, CO: International Research and Pub. Corp, 2006.
- Finney, Robert. *History of the Air Corps Tactical School 1920-1940*. New imprint, Washington, DC: Center for Air Force History, 1992.
- Francillon, Rene. *USAAF Medium Bomber Units: ETO and MTO, 1942-45*. Vol. 7. Aircam/Airwar Series. New York, N.Y.: Sky Books Press Ltd., 1977.
- Freeman, Roger A. *B-26 Marauder at War*. New York, NY: Charles Scribner's Sons, 1977.
- Glines, Carroll V. *Jimmy Doolittle: Daredevil Aviator and Scientist*. Air Force Academy Series. New York, NY: The Macmillan Company, 1972.
- Gray, Colin S. *Airpower for Strategic Effect*. Maxwell Air Force Base, Ala: Air University Press, Air Force Research Institute, 2012.
- Green, William. *Famous Bombers of the Second World War*. London: Macdonald & Co., 1959.

- . *The Warplanes of the Third Reich*. Garden City, NY: Doubleday and Co, 1970.
- Greer, Thomas H. *The Development of Air Doctrine in the Army Air Arm 1917-1941*. 1955; New imprint, Washington DC: Office of Air Force History, 1985.
- Havener, J. K. *The Martin B-26 Marauder*. 1st ed. Blue Ridge Summit, PA: AERO, 1988.
- Holley Jr, Irving Brinton. *Buying Aircraft: Materiel Procurement for the Army Air Forces*. U.S. Army in World War II. Washington, DC: Center of Military History, United States Army, 1964.
- Hughes, Thomas Alexander. *Overlord: General Pete Quesada and the Triumph of Tactical Air Power in World War II*. New York: Free Press, 1995.
- Jones, Lloyd. *U.S. Bombers: B1-B70*. Los Angeles, CA: Aero Publishers, Inc, 1962.
- Lindbergh, Charles A. *The Wartime Journals of Charles A. Lindbergh*. 1st ed. New York: Harcourt, Brace, Jovanovich, 1970.
- Mark, Eduard Maximilian. *Aerial Interdiction: Air Power and the Land Battle in Three American Wars*. Special Studies. Washington, DC: Center for Air Force History, 1994.
- Mendenhall, Charles A. *Deadly Duo: The B-25 and B-26 in WWII*. Osceola, WI: Specialty Press Publishers, 1981.
- Moench, John O. *Marauder Men: An Account of the Martin B-26 Marauder: A Story of the Martin B-26 Marauder and the Men Who Flew and Supported It, a Special Account of the 323rd Bombardment Group (M) of the Eighth and Ninth Air Forces in Europe*. 1st ed. Longwood, Fla: Malia Enterprises, 1989.
- Mitchell, William. *Winged Defense: The Development and Possibilities of Modern Air Power--Economic and Military*. Tuscaloosa, AL: University of Alabama Press, 2009.
- Moltke, Helmuth von, and Daniel Hughes. *Moltke on the Art of War: Selected Writings*. Novato, CA: Presidio Press, 1995.
- Office of Air Force History, United States Air Force. *Condensed Analysis of the Ninth Air Force in the European Theatre of Operations*. USAF Warrior Studies. Washington, DC, 1946.
- Olsen, John Andreas, ed. *A History of Air Warfare*. 1st ed. Washington, DC: Potomac Books, 2010.

- . *John Warden and the Renaissance of American Air Power*. 1st ed. Washington, DC: Potomac Books, 2007.
- Overy, R. J. *The Air War, 1939-1945*. 1st ed. Cornerstones of Military History. Washington, DC: Potomac Books, Inc, 2005.
- Pace, Steve. *B-25 Mitchell*. Osceola, WI: Motorbooks International, 1994.
- Russell, Edward T., and Robert M. Johnson. *Africa to the Alps: The Army Air Forces in the Mediterranean Theater*. The U.S. Army Air Forces in World War II. Air Force History and Museums Program, 1999.
- Rust, Kenn. *Fifth Air Force Story in World War II*. Temple City, CA: Historical Aviation Album, 1973.
- . *The 9th Air Force in World War II*. Fallbrook, CA: Aero Publishers, Inc, 1967.
- . *Twelfth Air Force Story in World War II*. Temple City, CA: Historical Aviation Album, 1975.
- Scutts, Jerry. *B-26 Marauder Units of the Eighth and Ninth Air Forces*. London: Osprey Aerospace, 1997.
- . *US Medium Bomber Units of World War 2: Northwest Europe*. Hersham: Ian Allen Pub., 2001.
- Smith, Graham. *Essex Airfields in the Second World War*. Newbury: Countryside Books, 1996.
- Stovall, Jack D. *Wings of Courage*. Memphis, TN: Global Press, 1991.
- Stanley, Roy M. *V - Weapons Hunt: Defeating German Secret Weapons*. Barnsley: Pen & Sword Military, 2010.
- Tannehill, Victor, C. *Boomerang! Story of the 320th Bombardment Group in WWII*. Racine, WI: Victor Tannehill, 1978.
- . *Saga of the 320th, a B-26 Marauder Group in WWII*. Arvada, CO: Boomerang Publishers, 1984.
- Tate, James P. *The Army and Its Air Corps: Army Policy toward Aviation, 1919-1941*. Maxwell AFB, AL: Air University Press, 1998.
- Wakelam, Randall T. *The Science of Bombing: Operational Research in RAF Bomber Command*. Toronto; Buffalo: University of Toronto Press, 2009.
- Wolf, William. *Martin B-26 Marauder*. Atglen, PA: Schiffer Pub. Ltd, 2014.

Government Documents

AAF Historical Office. *Ninth Air Force in the ETO: 16 Oct 1943 to 16 April 1944*. Army Air Forces Historical Studies: No 32. AAF Historical Division, 1945. <http://www.afhra.af.mil/studies/numberedusafhistoricalstudies.asp>. (accessed 11 February 2015).

AAF Historical Office. *Ninth Air Force in the ETO: April to November 1944*. Army Air Forces Historical Studies: No 36. Headquarters AAF, 1945. <http://www.afhra.af.mil/studies/numberedusafhistoricalstudies.asp>. (accessed 11 February 2015).

Air Corps Tactical School. *Attack Aviation*. Maxwell Field, AL, 1938. 248.101-10, Air Force Historical Research Agency, Maxwell AFB.

———. *Bombardment Aviation*. Maxwell Field, AL, 1 January 1938. 248.101-9. Air Force Historical Research Agency, Maxwell AFB.

———. *Light Bombardment Aviation*. Maxwell Field, AL, 15 January 1940. 248.101-11. Air Force Historical Research Agency, Maxwell AFB.

Air Historical Office. *The Development of Tactical Doctrines at AAFSAT and AAFTAC*, Army Air Forces Historical Studies: No 13, Headquarters AAF, 1944. <http://www.afhra.af.mil/studies/numberedusafhistoricalstudies.asp>. (accessed 11 February 2015).

Air Force Doctrine Document (AFDD) 1, *Air Force Basic Doctrine, Organization and Command*, October 14, 2011.

Air Force Doctrine, Volume 4, *Operations*, 29 October 2013. <https://doctrine.af.mil/download.jsp?filename=3-03-D05-LAND-Interdiction-Fun.pdf> (accessed 24 April 2015).

Bolkom, Christopher. "V-22 Osprey Tilt-Rotor Aircraft." Congressional Research Service, January 2, 2009. www.dtic.mil/get-tr-doc/pdf?AD=ADA493355 (accessed 10 April 2015).

Defense Acquisitions. "Assessments Needed to Address the V-22 Aircraft Operational and Cost Concerns to Define Future Investments." Government Accountability Office, May 2009. www.dtic.mil/get-tr-doc/pdf?AD=ADA501434 (accessed 10 April 2015).

Special Committee Investigating the National Defense Program, "Investigation of the National Defense Program - Aircraft," United States Government Printing Office, 7 July 1943. http://www.aviation-history.com/engines/Truman_Committee_SRes71.pdf (accessed 3 February 2015).

"Training Regulation No 440-15: Fundamental Principles for the Employment of the Air Service," 26 January 1926. www.au.af.mil/au/awc/awcgate/documents/tr440-15.htm (accessed 11 February 2015).

United States Code, Title 10, Armed Force, Section 181, Joint Requirements Oversight Council. 112th Cong., 1st sess. 2011. <http://gpo.gov/fdsys/pkg/USCODE-2011-title10/pdf/USCODE-2011-title10-subtitleA-part1-chap7-sec181.pdf> (accessed 10 April 2015).

War Department Office of the Adjutant General. "Air Board Report," 15 September 1939. 167.6-9, Air Force Historical Research Agency, Maxwell AFB.

Lectures / Letters / Official Biographies

"Biography of Coiner, R.T. Jr." n.d. Department of the Air Force. Microfilm Reel 23235 frames 300-303 (on Microfilm only). Air Force Historical Research Agency, Maxwell AFB.

Hansell, Haywood S. Jr. "The Development of the US Concept of Bombardment Operations." Lecture Presented at the Air War College, 19 September 1951. K239.716251-75. Air Force Historical Research Agency, Maxwell AFB.

Lindbergh, Charles A. to General Henry Arnold, Chief of the United States Army Air Corps. Letter, 29 November 1938. Personal Collection of Henry H. Arnold, 168.65-40. Air Force Historical Research Agency, Maxwell AFB.

Reports

Dews, Edmund, and Felix Kozaczka. *Air Interdiction: Lessons from Past Campaigns.* RAND Corp, September 1981. <http://www.rand.org/pubs/notes/N1743.html>. (accessed 13 April 2015).

Sallagar, F.M. *Operation 'STRANGLE' (Italy, Spring 1944): A Case Study of Tactical Air Interdiction.* USAF Project RAND, February 1972. <http://www.rand.org/content/dam/rand/pubs/reports/2006/R851.pdf>. (accessed 23 February 2015).

Unit History Information

History. 397th Bombardment Group, April 1943-October 1945. See Appendix B.
Operations Records. 397th Bombardment Group, April 1944-April 1945. See Appendix C.

