

Fall 2010

## Closing the Greenland-Iceland Atlantic Air-Gap: 1939 to 1943

James F. Boland  
*Old Dominion University*

Follow this and additional works at: [https://digitalcommons.odu.edu/history\\_etds](https://digitalcommons.odu.edu/history_etds)



Part of the [Military History Commons](#)

---

### Recommended Citation

Boland, James F.. "Closing the Greenland-Iceland Atlantic Air-Gap: 1939 to 1943" (2010). Master of Arts (MA), Thesis, History, Old Dominion University, DOI: 10.25777/19y3-6a82  
[https://digitalcommons.odu.edu/history\\_etds/75](https://digitalcommons.odu.edu/history_etds/75)

This Thesis is brought to you for free and open access by the History at ODU Digital Commons. It has been accepted for inclusion in History Theses & Dissertations by an authorized administrator of ODU Digital Commons. For more information, please contact [digitalcommons@odu.edu](mailto:digitalcommons@odu.edu).

**CLOSING THE GREENLAND-ICELAND ATLANTIC AIR-GAP: 1939 TO 1943**

by

**James F. Boland**

**B.S. June 1973, United States Naval Academy**

**M.S. June 1994, National War College**

**A Thesis Submitted to the Faculty of Old Dominion University  
in Partial Fulfillment of the Requirements for the Degree of**

**MASTER OF ARTS**

**HISTORY**

**OLD DOMINION UNIVERSITY**

**December 2010**

**Approved by:**

\_\_\_\_\_  
**Lorraine M. Lees (Director)**

\_\_\_\_\_  
**Ingo Heidbrink (Member)**

\_\_\_\_\_  
**Michael Hucles (Member)**

## ABSTRACT

### CLOSING THE GREENLAND-ICELAND ATLANTIC AIR-GAP: 1939 TO 1943

James F. Boland  
Old Dominion University, 2010  
Director: Dr. Lorraine M. Lees

The Battle of the Atlantic during World War II centered on the submarine *guerre de course* of the German *Kriegsmarine*, aimed at severing the maritime bridge between Great Britain and North America. From 1939 until mid-1943 all of the belligerents involved struggled to balance the scarce resources they could marshal for the fight. For the Allies the limited number and quality of escort ships and patrol aircraft they could muster reflected this scarcity. During the summer of 1943 the Allies achieved their turning point in the battle when a complex mix of factors coalesced. Prominent among those factors was the introduction of very long-range (VLR) antisubmarine (A/S) aircraft in sufficient number and quality to close the last operational sanctuary of the U-boat force in the Greenland-Iceland Atlantic air-gap.

The most capable VLR A/S aircraft available to the Allies, the B-24 *Liberator* heavy bomber, began its production run in the summer of 1941. Although sufficient aircraft were available earlier, adequate numbers of *Liberators* were not employed in closing the air-gap until mid-1943. The complex mix of elements that led to the delayed deployment of a sufficient force of VLR aircraft included the interplay between Franklin Roosevelt and Winston Churchill, along with the conflicting views held by the Anglo-American Combined Chiefs of Staff on strategy and force allocation. Inter-service clashes over priorities and strategy also influenced decisions concerning the use of *Liberator* aircraft on both sides of the Atlantic.

This study will assess the origins and implications of the debate over VLR aircraft which shaped the decisions that brought about the closure of the Greenland-Iceland Atlantic air-gap in 1943. An assessment of these historical factors provides a new perspective on the scholarly literature concerning this aspect of World War II and the challenges of managing competing strategic priorities among allied nations and their military services.

The papers of key military leaders at the Library of Congress, Army, Navy, and Joint Staff records at the National Archives, official military service histories, personal memoirs, and other scholarly works serve as the principal source materials for this study.

Copyright, 2010, by James F. Boland, Jr., All Rights Reserved.

To my father, T/SGT James F. Boland, Sr., U.S. Army Signal Corps, who went to war in  
August 1942 with Atlantic troop convoy AT-20.

## ACKNOWLEDGEMENTS

It has been an extremely rewarding experience working with my thesis director, Dr. Lorraine M. Lees. Her insights, enthusiasm, and technical guidance have served to both motivate and inspire me during this project. I also wish to thank Dr. Ingo Heidbrink and Dr. Michael Hucles for their support as members of my thesis committee. Finally, my wife Susan has earned my deepest thanks for her patience, humor, and unfailing support.

## TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION .....	1
HISTORIOGRAPHY.....	10
II. THE LEADERS.....	19
III. SERVICE RIVALRIES .....	42
IV. EBB AND FLOW.....	61
GREAT BRITAIN STANDS ALONE .....	61
THE GRAND ALLIANCE .....	88
THE DEMISE OF THE U-BOATS .....	101
V. CONCLUSIONS.....	111
BIBLIOGRAPHY .....	119
APPENDIX.....	126
VITA .....	129



## CHAPTER I

### INTRODUCTION

A wave of fear gripped the British Isles when the first German U-boat operations began in September 1939. On the third day of the war *U-30* drew first blood several hundred miles northwest of Ireland with the sinking of the *Athenia*, a Donaldson liner carrying 1,400 passengers bound for Canada.<sup>1</sup> The people of Britain understood their dependence upon ocean commerce and immediately recognized the deadly threat posed by Germany's *U-Bootwaffe*. The Royal Navy quickly instituted merchant ship convoys, first on the east coast and followed soon after in the North Atlantic. They had learned well the advantages of this basic defensive measure during World War I. However, the enormous complexities involved in coordinating the arrivals and departures of convoys imposed a near immediate economic penalty on Great Britain. In addition to the challenges of convoy organization, protective measures such as re-routing, degaussing, mine-clearance, and escort by warships and aircraft all contributed to increased voyage times for the merchant ships that supported the British Isles. Night black-outs and attacks on the ports by the German *Luftwaffe* induced more problems which further delayed the movement of the precious cargoes of food, fuel, armaments, and ammunition being delivered via ocean convoy. In the fall of 1939 the Admiralty's First Lord, Winston

---

<sup>1</sup> *Times* (London), "The Torpedoed *Athenia*," September 5, 1939, digital archives, 1851-1980, [http://infotrac.galegroup.com.proxy.lib.odu.edu/itw/infomark/0/1/1/purl=rc6\\_TTDA?sw\\_aep=viva\\_odu](http://infotrac.galegroup.com.proxy.lib.odu.edu/itw/infomark/0/1/1/purl=rc6_TTDA?sw_aep=viva_odu) (accessed July 10, 2010) (hereafter cited as *Times* (London)).

Churchill, grimly noted that the small force of German U-boats at sea had “reduced the operative fertility of our shipping to an extent even more serious than the actual losses.”<sup>2</sup>

By 1940, attacks by the *Luftwaffe* and increased exposure to sea mines and German *Schnellboot* operations in the English Channel restricted the usefulness of Great Britain’s eastern ports. This compressed the movement of imports into a reduced number of ports centered in northwest England on the River Mersey and in western Scotland on the Firth of Clyde. Through attacks on these western ports the *Luftwaffe* exploited the vulnerable bottlenecks created by the concentration of convoy cargoes in these limited facilities. For Churchill “the driver was forty-six millions of people in an overcrowded island, carrying on a vast business of war all over the world” and the western ports “were the lungs through which we breathed.”<sup>3</sup> The western approaches therefore became the European focal point of the Battle of the Atlantic in 1940 and remained so for the rest of the war.

For Admiral Karl Dönitz, commander of the *Kriegsmarine*’s U-boats, this was the campaign he had prepared for since the end of World War I. His force of submarines would resume the tonnage war, or *Tonnageschlacht*, that had nearly strangled the British Isles in 1917. He believed this effort would have a different outcome in this war due to the quality of the submarines, weapons, and crews under his command. Dönitz’s major concern was the number of U-boats that were available. Although he had obtained commitments from Adolph Hitler and the *Kriegsmarine*’s commander, Grand Admiral Erich Raeder, to expand the 1938 naval construction Z-Plan to a new target of twenty-

---

<sup>2</sup> *Times* (London), “The War at Sea, Mr. Churchill’s Review,” September 27, 1939; Winston S. Churchill, *The Second World War*, vol. 3, *The Grand Alliance* (Boston: Houghton Mifflin, 1950), 114.

<sup>3</sup> Winston S. Churchill, *The Second World War*, vol. 2, *Their Finest Hour* (Boston: Houghton Mifflin, 1949), 599-600.

nine U-boats built per month to achieve a force of 300 submarines, Dönitz knew that such a fleet was years away and that the *Führer's* priorities were changeable.<sup>4</sup> The war had come too early for the men of the *U-Bootwaffe* and Hitler's miscalculation would afford the Allies crucial time to develop the forces needed to defend the Atlantic convoys.

The fall of France in June 1940 dramatically altered the geography of the Atlantic for Dönitz and his U-boat crews by affording them direct access to the principal convoy routes. On July 3, 1940, eight days after the effective date of the armistice between France and Germany, the Germans refueled and re-armed *U-30* at Lorient on the Biscay coast. Here Dönitz established one of several support bases for his U-boats and re-located his staff, the *Befehlshaber der Unterseeboote* (BdU).<sup>5</sup> These Atlantic coast bases reduced the transit time to the principal convoy routes for the U-boats and extended their operational endurance. Günter Hessler, a member of the BdU staff, estimated that the French U-boat bases extended operational time by a full week, a twenty-five percent increase per sortie.<sup>6</sup> Although the German occupation of France brought with it the specter of invasion for Great Britain, the Royal Air Force's (RAF) triumph during the Battle of Britain in the fall of 1940 quickly mitigated that deadly threat. The U-boats, however, would continue to threaten the Atlantic convoys from these bases until the liberation of France in 1944.

---

<sup>4</sup> Friedrich Ruge, *Der Seekrieg: The German Navy's Story, 1939-1945* (Annapolis, MD: U.S. Naval Institute, 1957), 39-40.

<sup>5</sup> David K. Brown, *Atlantic Escorts: Ships, Weapons & Tactics in World War II* (Annapolis, MD: Naval Institute Press, 2007), 55.

<sup>6</sup> Günter Hessler, *The U-Boat War in the Atlantic, 1939-1945*, vol. 1, *August 1939 – December 1941*, facsimile ed. (London: Her Majesty's Stationery Office, 1989), 48. This postwar summary of BdU operations for the UK Ministry of Defence was based on the war diaries and other primary records of the *Kriegsmarine*.

The Irish Free State's decision to adhere to a policy of neutrality created an additional complication for the British. The Irish *Taoiseach*, Éamon de Valera, ignored pressure from both Berlin to align with the Axis Powers, and especially from London to join the Allied cause. Churchill, who had become Prime Minister and Minister of Defence on May 10, 1940, viewed this policy as a betrayal. He actively considered forcing de Valera's hand through military action due to fear of a German invasion of Ireland as well as to gain access to its ports and airfields to support the anti-U-boat campaign.<sup>7</sup> The loss of these ports and airfields made the southern route into the western approaches untenable. Nicholas Monsarrat, a veteran of the Battle of the Atlantic, captured succinctly in his epic novel *The Cruel Sea* the implications of this policy for the Allies:

From these bases escorts could have sailed farther out into the Atlantic, and provided additional cover for the hard-pressed convoys: from these bases destroyers and corvettes could have been refueled quickly, and tugs sent out to ships in distress: from these bases, the Battle of the Atlantic might have been fought on something like equal terms. As it was, the bases were denied: escorts had to go the "long way around" to get to the battlefield, and return to harbor at least two days earlier than would have been necessary: the cost, in men and ships, added months to the struggle.<sup>8</sup>

Due to Irish neutrality in the south, the north coast of Ireland became the only viable channel to the Clyde and the Mersey, further restricting options for the Royal Navy in the routing of North Atlantic convoys. This situation also simplified decisions on

---

<sup>7</sup> Winston S. Churchill, telegram C-9x to Franklin D. Roosevelt on May 15, 1940. *Churchill and Roosevelt: The Complete Correspondence*, vol. 1, *Alliance Emerging, October 1933-November 1942*, Warren F. Kimball, ed. (Princeton: Princeton University Press, 1984), 37-8.

<sup>8</sup> Nicolas Monsarrat, *The Cruel Sea*. Classics of Naval Literature, ed. Jack Sweetman (Annapolis, MD: Naval Institute Press, 1988) 152.

the disposition of Dönitz's U-boats against those same convoys. The new geography of the campaign in 1940 left the British with the single option of extending convoy protection out into the Atlantic as far to the west as their forces would allow.

Convoy protection depended upon escort ships such as destroyers, corvettes, and trawlers equipped with sensors and weapons capable of detecting and destroying U-boats, along with patrol aircraft whose potency would grow as the battle progressed. However, as the Battle of the Atlantic took shape in the early months of 1940 none was available in numbers adequate to the demanding convoy escort mission. Following World War I the Royal Navy had retained an emphasis on its force of battleships along with the cruisers and destroyers that supported them in combat. Additionally, over-confidence in Asdic, a British underwater sensor developed and deployed in the early 1920s, contributed to the false belief that submarine operations could no longer threaten ocean commerce.

Although Asdic, one of the first practical active sound detection devices, provided a dramatic improvement over the passive hydrophones used against the U-boats during World War I, its tactical limitations were not well understood until the Royal Navy employed Asdic in combat during 1939 and 1940. The surfaced night attacks favored by the U-boats rendered Asdic useless and left the convoys particularly vulnerable until the British deployed shipboard and airborne radar systems later in the battle.<sup>9</sup> Churchill conceded that while out of office he too had readily accepted the Admiralty's thinking that "the submarine had been mastered" with the deployment of Asdic.<sup>10</sup> This mindset enabled the near wholesale neglect in Great Britain of the submarine threat before World

---

<sup>9</sup> S. W. Roskill, *The War at Sea, 1939-1945*, vol. 1, *The Defensive* (London: Her Majesty's Stationery Office, 1954), 130 (hereafter cited as Roskill, *The War at Sea* with volume and page numbers).

<sup>10</sup> Winston S. Churchill, *The Second World War*, vol. 1, *The Gathering Storm* (Boston: Houghton Mifflin, 1948), 416.

War II. In January 1942 it became painfully apparent that the United States had also ignored its' A/S capabilities as U-boats operating along the eastern seaboard inflicted severe shipping losses while facing woefully inadequate defensive efforts by the U.S. Navy and the USAAF.<sup>11</sup>

Major controversies early in the war revolved around the failure of the Royal Navy, and later the U.S. Navy, to prepare adequately for a second German submarine offensive. The defensive battle against the U-boats aggravated the sour relationship between the Royal Navy and the RAF since it pulled resources and shifted priorities from the bomber offensive against Germany. As the naval battle dragged on into 1941 the highly agitated commander of the RAF, Air Marshal Sir Charles Portal, complained that "a very high proportion of the bomber effort will inevitably be required to pull the Admiralty out of the mess they have gotten into."<sup>12</sup> When Samuel E. Morison interviewed Roosevelt in June 1942 on the topic of A/S warfare the President bluntly admitted that "the Navy has muffed it."<sup>13</sup> General Henry H. Arnold, the commander of the USAAF, was equally curt in his assessment of the U.S. Navy's poor performance against the U-boats during the first half of 1942 "despite the lessons available from the U-boat performance during the Great War" and saw it as "a near-tragic example of inflexibility and dogmatism."<sup>14</sup>

---

<sup>11</sup> *Washington Post*, "Coast Shipping Must Put Into Ports at Night," March 19, 1942, digital archives, 1877-1986, <http://pqasb.pqarchiver.com/washingtonpost/advancedresearch.html> (accessed August 18, 2010) (hereafter cited as *Washington Post*).

<sup>12</sup> Max Hastings, *Bomber Command* (London: Michael Joseph, Ltd., 1979), 99-100.

<sup>13</sup> Franklin D. Roosevelt, interview by Samuel E. Morison, June 12, 1942, box 4, folder 8, *Samuel Elison Morison Papers*, Naval Historical Foundation Collection, Manuscript Division, Library of Congress, Washington, DC (hereafter cited as *Morison Papers*, LOC).

<sup>14</sup> Henry H. Arnold, Acadia Conference Notes, Anti-Submarine Measures and Escorts, reel 199, folder 3, *Henry H. Arnold Papers*, Manuscript Division, Library of Congress, Washington, DC (hereafter cited as *Arnold Papers*, LOC); Dik Alan Daso, *Hap Arnold and the Evolution of American Airpower* (Washington: Smithsonian Institution Press, 2000), 177.

A variety of factors, in addition to the naval focus on battleships and overconfidence in Asdic, contributed to the lack of preparation for A/S operations. Since the British and American air services were exclusively responsible for the development of land-based aircraft they shouldered some responsibility for the low numbers of suitable A/S patrol aircraft early in the war. The airmen's fixation on bombers mirrored the admirals' attachment to the big guns of the battleship. Principal responsibility, however, for the Allies' lack of readiness to combat the U-boats clearly resided with the naval services. Although naval treaty restrictions on warship tonnage during the 1920s and early 1930s largely ignored destroyer class ships and below, both the Royal Navy and the U.S. Navy neglected these types of warships in their construction allocations.<sup>15</sup> Viable career-paths for naval officers centered on the big-gun navy, aviation, and the submarine force, while specialization in anti-submarine warfare offered limited prospects for promotion. Constrained shipbuilding budgets during the interwar years, the absence of anti-submarine advocates within the officer corps, and the U.S. Navy's focus on a potential conflict in the Pacific all contributed to the naval services lack of foresight regarding a second German submarine campaign in the Atlantic.<sup>16</sup>

The race by the British to extend a defensive umbrella into the Atlantic, although hampered by limited inventories of escort vessels and patrol aircraft, made gradual progress. By the summer of 1941 Western Approaches, the Royal Navy command responsible for Atlantic convoy defense received additional resources as the fifty destroyers retained on the east coast to repel a possible invasion in 1940 were released for

---

<sup>15</sup> Samuel Eliot Morison, *History of United States Naval Operations In World War II*, vol. 1, *The Battle of the Atlantic: 1939-1943* (Boston: Little, Brown and Co., 1966), xxxv-xxxix.

<sup>16</sup> Ernest J. King and Walter M. Whitehall, *Fleet Admiral King: A Naval Record* (New York: W. W. Norton, 1952), 236-7; Clark G. Reynolds, *Admiral John H. Towers: The Struggle for Naval Air Supremacy* (Annapolis, MD: Naval Institute Press, 1991), ix-xi.

convoy duty and the enactment of the Lend-Lease legislation in March initiated the flow of ships, aircraft, and weapons from the American arsenal of democracy.<sup>17</sup> The occupation of Iceland by British forces in May of 1940 and the arrival later that summer of PBY *Catalina* seaplanes for the RAF and the Royal Canadian Air Force (RCAF) helped to expand the maximum air escort coverage out to 700 miles from the British Isles, 600 miles from Canada, and 400 miles from Iceland. Although the situation was improving, a critical gap in air coverage of approximately 300 miles remained in the mid-Atlantic south of Greenland and Iceland.<sup>18</sup>

On the eve of World War II the senior leaders of the Royal Navy and the RAF did not fully understand the importance of aircraft as an antisubmarine (A/S) warfare tool in the fight against the U-boats. The Admiralty tended to underestimate the benefits of patrol aircraft while the Air Ministry grossly overestimated their value.<sup>19</sup> The Royal Naval Air Service, the Royal Flying Corps, and the U.S. Navy demonstrated the utility of aircraft as a counter to submarines during World War I, and some lessons learned regarding airborne A/S operations were incorporated by the naval and air services into doctrine during World War I, such as the dirigible or seaplane's natural advantages in visual search line-of-sight and speed relative to surface ships.<sup>20</sup> Nonetheless, Great Britain and the United States failed to cultivate those lessons or to adequately develop doctrine and tactics for airborne A/S operations during the inter-war years. Additionally,

---

<sup>17</sup> The Secretary of State to the Chargé in the United Kingdom (Johnson) on December 20, 1940, U.S. Department of State, *Foreign Relations of the United States Diplomatic Papers*, vol. 3 (Washington: U.S. Government Printing Office, 1958), 26-9 (hereafter cited as *FRUS* with year, vol. and page number)

<sup>18</sup> Bureau of Aeronautics office diary, U.S. Navy Department, on July 9, 1940, box 1, folder, *John H. Towers Papers*, Naval Historical Foundation Collection, Manuscript Division, Library of Congress, Washington, DC (hereafter cited as *Towers Papers*, LOC); Roskill, *The War at Sea, 1939-1945*, 1:459.

<sup>19</sup> *Ibid.*, 1:2-3.

<sup>20</sup> Roger Welles, *Publication No. 42: Antisubmarine Tactics, October 1918*, Office of Naval Intelligence, U.S. Navy Department (Washington: U.S. Government Printing Office, 1918), 5.



although aircraft reliability, speed, range and payload achieved significant advances between the wars, the naval and air services failed to effectively merge this latent capability into their plans for future submarine defense. Due to all these factors the development and manufacture of patrol aircraft optimized for A/S warfare, like their surface escort counterparts, received limited attention during the two decades between the wars.

All the belligerents involved in the Battle of the Atlantic struggled to balance the scarce resources they could marshal for the fight. The limited quantity and quality of suitable ships and aircraft available to parry the U-boats reflected that scarcity for the Allies at the outbreak of the war, as did their need to train competent crews to man them. For the first three years of the war Great Britain and then the United States in 1941 both strained to develop and produce the weapons, sensors, ships, and aircraft essential to defeating Dönitz's *U-Bootwaffe*. The nature of the battle required that every advantage derived, whether from raw materials, industry, technology, training, or intelligence, be exploited to the fullest extent to preserve the maritime bridge between North America and Great Britain. For Germany, the challenges were the same. Yet in this exiguous environment all the belligerents from time to time failed to fully capitalize upon advantages held in equipment and technology. One such failure to make full use of an advantage, the Allies employment of land-based very long range (VLR) aircraft against the U-boats on the North Atlantic convoy routes in 1942 and early 1943, is the subject of this study.

### *Historiography*

The Battle of the Atlantic has been the subject of extensive research and writing by historians, government representatives, participants in the battle, and technical experts. Grand strategy, operations, tactics, training, logistics, and command relationships in the Atlantic are all addressed in great detail by these writers. Additionally, extensive material was published on the ships, submarines, aircraft, sensors, and weapons employed by the crews who fought the long battle. The first wave of scholarly work related to the battle occurred during the first two decades following the end of the war. Completion of the multi-volume official histories commissioned by the various military services occurred during this period, along with the collection and organization of archival documents on both sides of the Atlantic. By the 1970s availability of declassified wartime documents generated new scholarly work in this field. In the 1990s cryptologic document declassification provided historians with access to details of the major role that code-breaking played for both the Allies and Germany in the battle. During the same period the arrival of 50<sup>th</sup> anniversary milestones of the battle simulated a new influx of scholarly work that offered more comprehensive analyses.

This study will focus on the period from 1939 to 1943 to assess the factors involved in achieving the decisive turning point in the battle in mid-1943. However, material from World War I and the inter-war years is also relevant in establishing the importance of aircraft in the A/S role on the eve of the war. An example is the U.S. Office of Naval Intelligence 1918 publication on Antisubmarine Tactics which established the value of patrol aircraft as a deterrent to submarine operations.<sup>21</sup> Resources

---

<sup>21</sup> Roger Welles, *Publication No. 42: Antisubmarine Tactics, October 1918*, Office of Naval Intelligence, U.S. Navy Department (Washington: U.S. Government Printing Office, 1918).

related to the air power advocacy that blossomed following World War I show the level of antagonism that existed by 1939 between the naval and air services in both Great Britain and the United States as their military airmen strove for dominance over the naval and land components in strategy and funding.

Giulio Douhet's *The Command of The Air* served as the guidebook for air power advocates.<sup>22</sup> In this treatise Douhet postulated that air power in future wars negated the need for traditional land and naval warfare through the destruction of an adversary's industrial and population centers by massed fleets of bombers. Roger Miller's excellent monograph *Billy Mitchell: Stormy Petrel of the Air*, and the controversial book *Victory Through Air Power* written in 1942 by Alexander De Seversky, a friend and disciple of Brigadier General Billy Mitchell, are other useful air power resources.<sup>23</sup> In the latter book De Seversky actively campaigned to sway American public opinion and military strategy to reject sea and land power and embrace air power as the proper path to victory over the Axis Powers.

Alfred Price's *Aircraft Versus Submarine in Two World Wars* addressed in its early chapters the development of aircraft in maritime roles during World War I and then provided a comprehensive narrative on their introduction and use by the British and United States militaries during World War II.<sup>24</sup> This work detailed the efforts of naval and aviation leaders to accelerate the introduction of VLR aircraft into the Atlantic campaign, especially the RAF Coastal Command's (RAF CC) leadership. Price offered

---

<sup>22</sup> Giulio Douhet, *The Command of The Air*, trans. Dino Ferrari (New York: Coward-McCann, 1942; Washington: Office of Air Force History, 1983).

<sup>23</sup> Roger G. Miller, *Billy Mitchell: Storm Petrel of the Air* (Washington: Office of Air Force History, 2004); Alexander P. De Seversky, *Victory Through Air Power* (New York: Simon and Schuster, 1942).

<sup>24</sup> Alfred Price, *Aircraft Versus Submarine in Two World Wars* (Barnsley, UK: Pen & Sword Books, 2004).

specific estimates on the number of aircraft that could have turned the tide. Although he did not delve into the causes of the apparent delay in the use of these aircraft in the mid-Atlantic air-gap, this work is a dependable source on airborne A/S operations during World War II.

Due to its depth and quality, the official history of the Royal Navy, *The War at Sea, 1939-1945* in three volumes by S. W. Roskill, served as a leading authoritative source on the Battle of the Atlantic as well as on Great Britain and her navy's primary role in the campaign.<sup>25</sup> It also presented the crucial role played by RAF CC. The U.S. counterpart to Roskill's history is Samuel E. Morison's highly readable *History of United States Naval Operations in World War II* in fourteen volumes. Volume one addressed the U.S. Navy's actions in the Battle of the Atlantic through 1943; this work provided a similar level of detail and analysis as found in Roskill's volumes, but with an American perspective.<sup>26</sup> The first two volumes of the five volume official history of the U.S. Army Air Force (USAAF) during the war, *The Army Air Forces In World War II*, edited by Wesley Frank Craven and James Lea Cate were invaluable resources on that service's A/S air operations, its conflicts with the U.S. Navy over tactical strategies and command arrangements, and its relationship with the RAF.<sup>27</sup>

The official post-war reports to the Secretary of the Navy, prepared by Admiral Ernest J. King, contained a complete overview of the USN's accomplishments in the

---

<sup>25</sup> S. W. Roskill, *The War at Sea, 1939-1945*. 3 vols. History of the Second World War, United Kingdom Military Series (London: Her Majesty's Stationery Office, 1954-1956).

<sup>26</sup> Samuel Eliot Morison, *History of United States Naval Operations In World War II*, vol. 1, *The Battle of the Atlantic: 1939-1943* (Boston: Little, Brown and Co., 1966).

<sup>27</sup> Wesley Frank Craven and James Lea Cate, *Plans and Early Operations, January 1939 to August 1942*, vol. 1, and *Europe: Torch to Pointblank, August 1942 to December 1943*, vol. 2, *The Army Air Forces in World War II* (Chicago: University of Chicago Press, 1948-1949).

Atlantic campaign.<sup>28</sup> King later coauthored a companion work in 1952, *Fleet Admiral King, A Naval Record*, in which he explained his perspective on how and why many of the major decisions affecting naval operations during the war occurred.<sup>29</sup>

Admiral Karl Dönitz's *Memoirs: Ten Years and Twenty Days* contained the viewpoint of the commander of the U-boat force throughout the Battle of the Atlantic.<sup>30</sup> Written by Dönitz in the late 1950s after his release from prison, he remained unaware of the Allies' success during the war in deciphering the *Enigma* codes employed by the *Kriegsmarine*. Dönitz's son-in-law, Günther Hessler, served as a U-boat captain and on his father-in-law's wartime staff and prepared an important post-war report for the British Admiralty using his father-in-law's command war diary. In *The U-Boat War in the Atlantic, 1939-1945* Hessler offered the German view at an operational level and provided confirmation of the difficulties faced by the U-boat force as Allied airborne A/S capabilities expanded.<sup>31</sup> An additional source for the German perspective was Friedrich Ruge's *Der Seekrieg: The German Navy's Story, 1939-1945* which contained useful information on the navy's pre-war plans for economic warfare against Great Britain.<sup>32</sup>

Clay Blair's two volume work *Hitler's U-Boat War* is one of the finest examinations of the campaign in the last two decades.<sup>33</sup> His thoroughly researched and well-documented analysis argued convincingly that the U-boat force never approached a

---

<sup>28</sup> Ernest J. King, *U.S. Navy at War, 1941-1945: Official Reports to the Secretary of the Navy* (Washington: Government Printing Office, 1946).

<sup>29</sup> Ernest J. King and Walter M. Whitehall, *Fleet Admiral King: A Naval Record* (New York: W. W. Norton, 1952).

<sup>30</sup> Karl Dönitz, *Memoirs: Ten Years and Twenty Days*, in collaboration with David Woodward, trans. R. H. Stevens (Cleveland, OH: World Publishing, 1959).

<sup>31</sup> Günther Hessler, *The U-Boat War in the Atlantic, 1939-1945*, 3 vol., facsimile ed. (London: Her Majesty's Stationery Office, 1989).

<sup>32</sup> Friedrich Ruge, *Der Seekrieg: The German Navy's Story, 1939-1945*, trans. M. G. Saunders (1957; repr., Annapolis, MD: U.S. Naval Institute, 1971).

<sup>33</sup> Clay Blair, *Hitler's U-Boat War, The Hunters: 1939-1942 and The Hunted: 1942-1945* (New York: Random House, 1996-1998).

point where the Atlantic bridge was truly threatened. He based this conclusion in part on an in-depth comparison of tonnage losses and ship construction rates. Allied leaders at the time, however, faced a daunting list of unknown factors and some sensed in early 1943 that they might be losing the battle in the Atlantic. Blair, like Price, described the frustration of the Royal Navy and RAF Coastal Command (CC) leaders over the priority allocation of VLR capable aircraft to the strategic bombing effort and to the Mediterranean and Pacific theaters, but he did not fully explore the reasons behind these decisions.

Michael Gannon's *Black May* is another important work that contained a well-documented and detailed narrative on the Allies' abrupt transition in May 1943 from near defeat to victory in the Atlantic.<sup>34</sup> His research uncovered that concurrent operational analysis conducted by naval staff at the Operational Intelligence Centre (OIC) developed conclusions that conflicted with Roskill's description in the official Royal Navy history of deep pessimism in the Admiralty at the end of March 1943 driven by U-boat strength in the Atlantic, construction rates in Germany, and the fact that over eighty percent of the dramatic sinkings achieved by the *U-Bootwaffe* that month were against ships in protected convoys. The author showed clearly that during the chaotic months of mid-1943 the qualitative and quantitative superiority the Allies developed against the U-boats marked the true tipping point of the campaign. This provided insight into the complexity of the battle and the difficulty all sides faced in balancing competing needs and priorities. However, Gannon failed to fully reflect in his analysis the chaotic nature of the battle at the end of 1942 that hindered the ability of all the belligerents to clearly interpret the

---

<sup>34</sup> Michael Gannon, *Black May: The Epic Story of the Allies' Defeat of the German U-Boats in May 1943* (New York: HarperCollins Publishers, 1998).

circumstances they confronted at sea. He nonetheless concisely chronicled the array of factors such as high-frequency direction-finding, intelligence, crew proficiency, and advances in ships, weapons, and sensors that overwhelmed the U-boat force, but gave precedence in his assessment to the VLR *Liberators* and the Royal Navy and U.S. Navy escort carriers and their air groups that deployed that spring.

The authoritative source for German submarine losses is Axel Niestlé's *German U-boat Losses During World War II: Details of Destruction* while Jürgen Rohwer's *Axis Submarine Successes of World War II: German, Italian and Japanese Submarine Successes, 1939-1945* is the definitive work on merchant ship and warship losses during the war.<sup>35</sup> Both these scholarly guides were consulted in this study for details and statistics related to the Battle of the Atlantic. A second work by Rohwer, *The Critical Convoy Battles of March 1943: The Battle for HX229.SC122*, provided a precise narrative of the A/S operations that forced Dönitz to temporarily withdraw his U-boats from the North Atlantic and cede the initiative to the Allies.<sup>36</sup>

On a different level is Winthrop Haskell's *Shadows on the Horizon: The Battle of Convoy HX-233* which examined many of the factors that earned the Allies success in the Atlantic from the perspective of a single convoy battle that the author participated in as a merchant mariner.<sup>37</sup> He argued persuasively that the successful defense of this convoy against a substantial U-boat force represented an important milestone in turning the tide against the Germans in the Atlantic campaign and reflected the full spectrum of

---

<sup>35</sup> Axel Niestlé, *German U-Boat Losses During World War II: Details of Destruction* (Annapolis, MD: Naval Institute Press, 1998); Jürgen Rohwer, *Axis Submarine Successes: German, Italian and Japanese Submarine Successes, 1939-1945*, trans. John A. Broadwin (Annapolis, MD: Naval Institute Press, 1983).

<sup>36</sup> Jürgen Rohwer, *The Critical Convoy Battles of March 1943: The Battle for HX.229/SC.122* (Annapolis, MD: Naval Institute Press, 1977).

<sup>37</sup> Winthrop A. Haskell, *Shadows on the Horizon: The Battle of Convoy HX-233* (Annapolis, MD: Naval Institute Press, 1998).

operations by the ships, aircraft, and crews that ultimately earned the victory in the Atlantic.

The extensive historical literature connected with the Battle of the Atlantic consistently portrays the campaign as a long and brutal conflict that mixed the risks of hunted and hunters with the often fierce elements of the North Atlantic. Yet only a small number of these works delved into the details of why VLR A/S aircraft played a pivotal role in turning the tide against the U-boats in the Greenland-Iceland air-gap in the spring of 1943. None of the literature, including the work of Gannon and Blair, examined the full spectrum of factors that impeded the introduction of sufficient numbers of these aircraft into the Greenland-Iceland air-gap until mid-1943.

The methodology for this study will involve an examination of the senior leaders of Great Britain and the United States, and of their respective naval and air services, providing a means to compare and contrast their views, decisions, and contributions to the Battle of the Atlantic and the use of land-based VLR patrol aircraft to provide persistent air escort to Allied convoys. *Churchill and Roosevelt: The Complete Correspondence*, edited by Warren Kimball in three volumes, along with the first five volumes of Churchill's *The Second World War* were used as principal sources for information on the two leaders who set the strategy and priorities for the Allies in the Atlantic.<sup>38</sup> Contemporary newspaper sources such as *The Times* of London, *The New York Times*, and the *Washington Post* were used to assess the statements of the Allied leaders and the nature of the public debate on military and political issues related to the

---

<sup>38</sup> Warren F. Kimball, ed., *Churchill and Roosevelt: The Complete Correspondence*, 3 vol. (Princeton, NJ: Princeton University Press, 1984); Winston S. Churchill, *The Second World War*, 5 vol. (Boston: Houghton Mifflin Co., 1948). Since this work is limited to Churchill's personal perspective on the war it is used primarily to contrast the public precedence he gives to the Battle of the Atlantic with his actions in support of the RAF offensive bombing campaign after 1940.



Battle of the Atlantic. The major Allied meetings from the Atlantic Conference to the Casablanca Conference are documented through the U.S. Department of State's *Foreign Relations of the United States* for 1940 to 1943.<sup>39</sup> Kimball's *The Juggler: Franklin Roosevelt as Wartime Statesman* was also drawn upon for Roosevelt's leadership, management, and negotiation habits.<sup>40</sup> *The Papers of George Catlett Marshall*, especially volume three edited by Larry I. Bland and Sharon R. Ritenour, and the manuscripts of the *John H. Towers Papers* and the *Henry Harley Arnold Papers* provided an important and fresh understanding of the roles and perspective of naval and air military leaders in the United States and Great Britain.<sup>41</sup> Both national and service priorities can be discerned by evaluating the influence these leaders exercised in the discussions and decision-making of the Allies. An in-depth examination of these sources in the context of the Atlantic campaign discloses a new interpretation of how and why the Greenland-Iceland air-gap was closed during the spring of 1943.

Probing the values and biases of the Allies' naval and air services will provide an understanding of the institutional conflicts that governed much of the policy and strategy debates during the first half of the Atlantic campaign. An assessment of the different lessons taken from the use of incipient air power during World War I and the maturation during the inter-war period of provisional air power doctrine will furnish insight into the origins of the disparate aims of the British and United States naval and air services regarding the employment of air power in the war against Germany. Interview notes

---

<sup>39</sup> U.S. Department of State, *Foreign Relations of the United States Diplomatic Papers, 1940-1943* (Washington: U.S. Government Printing Office, 1958-1970).

<sup>40</sup> Warren F. Kimball, *The Juggler: Franklin Roosevelt as Wartime Statesman* (Princeton, NJ: Princeton University Press, 1991).

<sup>41</sup> Larry I. Bland and Joellen K. Bland, eds., *The Papers of George Catlett Marshall*. 4 vols. (Baltimore: Johns Hopkins University Press, 1981-1996); *Henry Harley Arnold Papers*, Manuscript Division and *John H. Towers Papers*, Naval Historical Foundation Collection, Manuscript Division, Library of Congress, Washington, DC (hereafter cited as *Arnold Papers*, LOC and *Towers Papers*, LOC).

found in the *Samuel E. Morison Papers* provided a never used before source on RAF CC's strength and effectiveness from a former commander, Air Marshall Sir John Slessor, and members of his staff.<sup>42</sup> Clark G. Reynolds' *Admiral John H. Towers: The Struggle for Naval Air Supremacy* and Henry H. Arnold's *Global Mission* contributed important information on the leaders of the U.S. Navy and Army air forces and their relationships with British counterparts during this period.<sup>43</sup> With this awareness of the causes of each service's unique perspective and priorities, a fuller interpretation can be developed of their effects upon the employment of VLR land-based patrol aircraft during the first half of the Battle of the Atlantic.

Finally, a selective review of the first half of the battle from September 1939 to June 1943 highlights the events and actions that eventually expanded A/S air escort across the North Atlantic convoy routes. The Allies' measured transition to an offensive posture accelerated in 1942 as patrol aviation blossomed into a potent force against the submarines due to new weapons, sensors, tactics, and aircraft like the B-24 *Liberator* that became available in quantities that dramatically altered the effectiveness of the U-boat. This chronological review revealed the consequences of the competition of strategies and priorities within the Allies' command hierarchies that delayed until the summer of 1943 the tipping point which signaled the doom of Dönitz's *U-Bootwaffe*.

---

<sup>42</sup> *Samuel E. Morison Papers*, Naval Historical Foundation Collection, Manuscript Division, Library of Congress, Washington, DC (hereafter cited as *Morison Papers*, LOC).

<sup>43</sup> Clark G. Reynolds, *Admiral John H. Towers: The Struggle for Naval Air Supremacy* (Annapolis, MD: Naval Institute Press, 1991); Henry H. Arnold, *Global Mission* (New York: Harper & Brothers, 1949).

## CHAPTER II

### THE LEADERS

The national leadership of Great Britain, the United States, and Germany influenced the course of the Battle of the Atlantic in a variety of ways. The Allies' cause benefited from the strong leadership and steady attention of Churchill and Roosevelt during the long campaign in the Atlantic while decisions reached in Berlin hampered more than helped the Axis efforts. However, each Allied statesman approached the Atlantic battle from different perspectives and this induced problems for their military leaders. For Churchill, stopping the U-boats dominated his thinking and factored into every aspect of Great Britain's war strategy. Although the naval threat to his nation was not direct, Roosevelt fully understood the immense importance to the United States of a British victory in its fight against the Axis powers. The preservation of the British Isles as a bastion for the Allies and launch point for a future invasion of occupied Europe served as primary influences on Roosevelt's decisions during the Battle of the Atlantic. However, with regard to the development and deployment of land-based VLR A/S aircraft against the U-boats, both the prime minister and the president were far less decisive.

Hitler's role in the Battle of the Atlantic was limited in comparison to the Allied leaders. Nonetheless, the *Kriegsmarine* was hindered by his continental focus and lack of understanding of naval power. The Führer created opportunities for the Allies to mitigate the U-boat offensive by ordering the *U-Bootwaffe* to support land campaigns in Norway

during 1940 and again in the Mediterranean during 1942. Each time the power of the Atlantic offensive was diminished to support the *Wehrmacht*, space was created for the convoy escort forces to re-group and replenish. More importantly, Hitler's unwillingness to assign high priority to U-boat construction during the first years of the war and his failure to challenge *Reichsmarschall* Hermann Göring's refusal to allocate effective *Luftwaffe* support to the Dönitz's U-boat operations forestalled a German triumph in the Atlantic prior to the Allied victory in June 1943. Although Dönitz had the advantage of command unity over the *U-Bootwaffe*, he was shackled by the Führer's poor grasp of Germany's *guerre de course* strategy and his indecisiveness in executing it. Therefore, Hitler's influence on the battle afforded the Allies time to develop their convoy air escort forces into a decisive element in the defeat of the U-boats.<sup>44</sup>

The leaders of the Allied naval and air services played varying roles in shaping the strategy employed against the U-boats. Although the Admiralty exercised overall command of the British forces engaged in the battle, the RAF and its Coastal Command controlled the aviation forces defending the convoys. The Royal Navy deferred to the RAF in matters of air tactics since its air arm had been disestablished in 1918 and was not restored until 1937. The U.S. Navy, however, had senior airmen within its ranks and directly controlled the tactics employed by both the Navy and Army air units used against the U-boats. These command arrangements and the Allied military leaders who implemented them were examined as they also affected the course of the Battle of the Atlantic.

---

<sup>44</sup> Günter Hessler, *The U-Boat War in the Atlantic, 1939-1945*, vol. 1, facsimile ed. (London: Her Majesty's Stationery Office, 1989), 1:17-9 (hereafter cited as Hessler, *The U-Boat War in the Atlantic* with volume and page numbers).

With the very survival of his nation threatened by the U-boat offensive, it is understandable that Churchill's name is synonymous with the battle. The German submarine campaign commanded his attention as no other threat did during the first half of the war. An often cited quote from Churchill's multivolume history of the war concisely captures his concerns, "The only thing that ever really frightened me during the war was the U-boat peril. Invasion, I thought, even before the air battle, would fail. But now our life-line, even across the broad oceans and especially in the entrances to the island, was endangered."<sup>45</sup> After joining the Chamberlain government in September 1939 as First Lord of the Admiralty, Churchill's influence on the battle was immediate. He implemented sound defensive measures for convoying, naval escorts, and air patrols by RAF CC and the Royal Navy, while working from the same office at the Admiralty he had occupied during WWI when he first faced the deadly peril of U-boat warfare.<sup>46</sup>

Churchill miscalculated when he pressed for an offensive strategy against the U-boats for fear that a purely defensive posture based solely on convoy escort surrendered the initiative to the *Kriegsmarine*. He compelled a surprising turnaround for the Admiralty which argued forcefully with the Air Ministry during the 1937 RAF CC roles and missions debate that a defensive posture afforded the soundest basis for convoy protection against submarines. This was an early example of Churchill imposing his own tactical views on the British Chiefs of Staff and he persisted in this practice throughout the war. The resulting use of Royal Navy fleet carriers within A/S hunting groups quickly proved costly when *U-31* sank HMS *Courageous* with a heavy loss of life on September

---

<sup>45</sup> Winston S. Churchill, *The Second World War*, vol. 2, *Their Finest Hour* (Boston: Houghton Mifflin, 1949), 2:598 (hereafter cited as Churchill, *The Second World War* with volume and page numbers).

<sup>46</sup> *Times* (London), "War Cabinet of Nine," September 4, 1939; Churchill, *The Second World War*, 1:410.

17, 1939.<sup>47</sup> The Admiralty then abandoned the use of carriers for A/S operations until escort carriers became available in late 1942. This preference for the offensive manifested itself later in the war when Churchill established priorities for VLR aircraft that again favored the bomber offensive over the dire needs of the Admiralty and RAF CC in 1941 and 1942.

After his appointment as Prime Minister and assumption of the new cabinet post of Minister of Defence in May 1940, Churchill directly presided over British military strategy with particular attention given to the Atlantic campaign.<sup>48</sup> His leadership on multiple levels was essential to the Allies' victory over the U-boats. In his public speeches and writings, he gave priority to the Atlantic: "Battles might be won or lost, enterprises might succeed or miscarry, territories might be gained or quitted, but dominating all our power to carry on the war, or even keep ourselves alive, lay our mastery of the ocean routes and the free approach and entry to our ports."<sup>49</sup> In March 1941 Churchill concentrated efforts on the U-boat war with his declaration "everything...turned upon the Battle of the Atlantic," inspiring the British people and all who served in the Atlantic campaign. At the same time the Prime Minister's new Battle of the Atlantic Committee brought together all the key military and civilian officials with responsibilities for the anti-U-boat campaign so that rapid solutions to problems were found and implemented.<sup>50</sup> Indeed, Churchill remained personally engaged in nearly all aspects of the battle throughout the war.

---

<sup>47</sup> *Times* (London), "Warship Sunk, Loss of H.M.S. *Courageous*," September 19, 1939; Brown, *Atlantic Escorts*, 33.

<sup>48</sup> *Washington Post*, "Chamberlain Quits," May 11, 1940; Churchill, *The Second World War*, 1:667-8.

<sup>49</sup> *Ibid.*, 3:111-2.

<sup>50</sup> *Ibid.*, 3:122-3; *Times* (London), "Mr. Churchill's Review of the War," April 10, 1941.

Roosevelt's wartime leadership reflected a very different management style than the direct manner of Churchill. The President often sidestepped or deferred decisions that he was unwilling to make. Although power was concentrated within the White House, subordinates rarely received straight-forward guidance from the Commander-in-Chief.<sup>51</sup> On issues of grand strategy Roosevelt allowed decisions to evolve in response to world and domestic events; however, once a policy was set he was firm in its execution. With his military chiefs Roosevelt established a direct relationship while delegating responsibility for mobilization and domestic issues to the civilian leaders of the War and Navy departments. However, lines of responsibility were not absolute. When Roosevelt established the U.S. Joint Chiefs of Staff (JCS) in February 1942, no form of formal coordination was created with Secretary of War Stimson or Secretary of the Navy Knox. After prodding from Marshall the President appointed Admiral William Leahy as Chief of Staff to the Commander-in-Chief in July to facilitate coordination, but failed to assign him authority as a chairman of the JCS. Gradually Marshall took on the role of chairman without an explicit mandate. This reflected Roosevelt's preference for a less constrained decision-making process that preserved options and did not pin him down as issues were evaluated and policy evolved.<sup>52</sup>

As a former Assistant Secretary of the Navy in the Wilson Administration, Roosevelt was perceived by some to have a preference for the Navy. His appointment of Leahy as his military Chief of Staff did not ease those perceptions. Some Army leaders like General Joseph Stilwell, who commanded the China-Burma-India Theater, privately

---

<sup>51</sup> Kimball, *The Juggler*, 4-5.

<sup>52</sup> Mark A. Stoler, *Allies and Adversaries: The Joint Chiefs of Staff, the Grand Alliance, and U.S. Strategy in World War II* (Chapel Hill: The University of North Carolina Press, 2000), 64-6; Kimball, *The Juggler*, 4-8.

expressed contempt for Roosevelt as a military amateur who held the “Navy as the apple of his eye and the Army is the stepchild.”<sup>53</sup> However, it would be the Army’s senior officer, Marshall, who served as the de facto leader of the JCS and who learned from Roosevelt’s example during Allied discussions on the North African campaign that military “officers lack knowledge of political factors which political leaders must keep in mind.”<sup>54</sup> Nonetheless, it is likely that Roosevelt’s non-intervention in the Army-Navy conflict over control and use of land-based A/S aircraft caused concern in the USAAF that the President was in fact still a Navy-man at heart.

Churchill clearly communicated his government’s unswerving commitment to the defeat of the Axis powers and the absolute importance of success against the U-boats. He addressed these statements not just to the people of Great Britain and the Commonwealth, but also to the civilian and military leadership of the United States. The Prime Minister’s efficacy in building a rapport with the President was important for both nations, but most especially for Great Britain. The close collaboration and the very frank exchange of information that Churchill conducted with Roosevelt was an indispensable ingredient in the Allies’ ability to check the U-boat offensive until 1943 and then overwhelm it with a blend of ships, sensors, weapons, and especially aircraft. A common view on the desperate need to stop Hitler served as the foundation of their coalition. Within this collaboration Churchill fulfilled the difficult and sensitive role of negotiating a wide spectrum of support from Roosevelt. During the first three years of the war a recurring Churchill theme in correspondence, conversations, and negotiations with Roosevelt was

---

<sup>53</sup> Barbara W. Tuchman, *Stillwell and the American Experience in China, 1911-45* (New York: MacMillan, 1970), 241.

<sup>54</sup> Forrest C. Pogue interview of Marshall on September 28, 1956, Larry I. Bland and Joellen K. Bland, eds., *George C. Marshall: Interviews and Reminiscences for Forrest C. Pogue*, 3rd ed. (Lexington, VA: George C. Marshall Foundation, 1996), 545.



the need for escort vessels, merchant ships, and aircraft to defend the Atlantic convoy routes. In May 1940 he pressured Roosevelt for “the loan of forty to fifty old destroyers” and “several hundred of the latest type of aircraft” to carry the Royal Navy and RAF CC into 1941.<sup>55</sup> Two months later Churchill reminded the president that it had become “most urgent for you to let us have the destroyers, motor boats and flying-boats for which we have asked.”<sup>56</sup>

In London the government’s military focal point shifted from the U-boat menace to the dramatic air battle against the *Luftwaffe* in the summer/fall of 1940 and the threat of a cross-channel invasion. Following the RAF’s victory in October and a diminished invasion threat, the focus returned to the Atlantic. Yet, by the end of 1940 Churchill placed a new emphasis upon RAF Bomber Command (RAF BC) and offensive bombing into Germany, reflected in the Lend-Lease telegram he sent to Washington in early December. He called for a “further 2,000 combat aircraft a month” and urged “that the highest possible proportion should be heavy bombers, the weapon on which above all others we depend to shatter the foundation of German military power.”<sup>57</sup> The RAF offered the single offensive option available to Churchill with the British Army rebuilding its capabilities following the Dunkirk evacuation and the Royal Navy engaged in convoy defense. Bomber Command possessed a force of medium and heavy bombers which were expected to break the enemy’s economy using long-range precision bombing raids to destroy Germany’s industrial capacity and fulfill the air war doctrine developed

---

<sup>55</sup> Churchill telegram C-9x to Roosevelt on May 15, 1940, Warren F. Kimball, ed., *Churchill and Roosevelt: The Complete Correspondence*, 3 vol. (Princeton, NJ: Princeton University Press, 1984), 1:37-8 (hereafter cited as *Churchill-Roosevelt Correspondence* with volume and page numbers).

<sup>56</sup> Churchill telegram C-20x to Roosevelt on July 31, 1940, *Churchill-Roosevelt Correspondence*, 1:56-7.

<sup>57</sup> Churchill “Lend-Lease” telegram C-43x to Roosevelt on December 7, 1940, *Churchill-Roosevelt Correspondence*, 1:107.

by the RAF following WWI.<sup>58</sup> The heavy long-range bombers such as the British *Lancaster* and the American VLR *Liberator* would eventually carry the air offensive into Germany. Yet as the Admiralty and RAF CC sought to extend convoy air escort westward into the Atlantic, it was precisely these aircraft that possessed the range and payload to accomplish that task.

The need for a land-based heavy bomber capability to perform the long range and VLR A/S air escort mission created an enormous dilemma for Churchill. When shipping losses during the final three months of 1940 exceeded 250 ships and well over one million tons, he assigned top priority to convoy defense ahead of the bomber offensive stressing that “nothing must be spared from this task.”<sup>59</sup> On seven separate occasions in 1940 Churchill included appeals for aircraft in his telegrams to Roosevelt, concluding with the Lend-Lease telegram of December 7. The early requests were focused on pursuit aircraft for air defense and flying boats for long-range A/S patrol. However, at the end of the year he singled out the heavy bomber force as the weapon of choice to “shatter the foundation of German military power.”<sup>60</sup> The next twelve months were a watershed for RAF BC. The heavy losses sustained made 1941 an especially difficult year. Additionally, the highly critical Butt Report, prepared on behalf of Churchill’s scientific advisor, Lord Cherwell, was delivered to the Prime Minister in August. The report revealed through post-attack photo analysis that only one third of Bomber Command’s sorties against Germany came within five miles of the assigned target. Yet, the RAF and

---

<sup>58</sup> Sir John Slessor, *The Central Blue: Recollections and Reflections*, London: Cassell, 1956, 203-5; Hastings, *Bomber Command*, 57.

<sup>59</sup> Churchill, *The Second World War*, 2:607-8, 714.

<sup>60</sup> Churchill telegrams to Roosevelt between May-December 1940, including C-9x on May 15, C-11x on May 20, C-13x on June 11, C-20x on July 31, C-21x on August 15, C-36x on October 27, and C-43x on December 7, *Churchill-Roosevelt Correspondence*, 1:37-111.

Bomber Command emerged at year's end with top priority for resources among the British military services as it shifted from precision bombing to area bombing. Churchill had set this course in 1940 when he ordered the establishment in May of the Ministry of Aircraft Production to relieve the Air Ministry of those responsibilities.<sup>61</sup>

After the fall of France he wrote to Lord Beaverbrook at the Ministry of Aircraft Production that the path out of the present emergency was to bring Hitler down using "an absolutely devastating, exterminating attack by very heavy bombers from this country upon the Nazi homeland. We must be able to overwhelm him by this means, without which I do not see a way through."<sup>62</sup> Therefore, during 1941 the British airmen "gained a priority in production capacity and a primacy in strategic debate little short of intoxicating to senior RAF officers who had grown up amidst the constant real and imagined snubs of the army and the Royal Navy."<sup>63</sup>

In March 1941 Churchill emphasized to Roosevelt the need to exploit Radar and the U-boat's vulnerability to air attack as shipping losses remained high. By July 1941, however, Churchill challenged the assignment of newly received heavy bombers from the United States to RAF CC. In a letter marked "Action this day" he admonished the Chief of the Air Staff that RAF BC was not expanding and that "it would be a very good thing if these bombers were used against Germany in bombing raids."<sup>64</sup> Churchill's emphasis on the bombing campaign limited the quantity and the quality of aircraft assigned to RAF CC for the anti-U-boat campaign.

---

<sup>61</sup> Slessor, *The Central Blue*, 306; *Times* (London), "The Road to Victory, Mr. Churchill's Survey of the War, Growing Tribute to the R.A.F.," August 21, 1940.

<sup>62</sup> Churchill letter to Lord Beaverbrook on July 8, 1940, as quoted in Hastings, *Bomber Command*, 116.

<sup>63</sup> *Ibid.*, 117.

<sup>64</sup> Churchill letter to Chief of the Air Staff on July 21, 1941, *The Second World War*, 3:805-6.

Churchill enjoined Roosevelt to provide more heavy bombers to the RAF for the offensive against Germany and convoy protection in seeking to obtain sufficient aircraft to meet the requirements of both Bomber Command and Coastal Command. However, the ambitious plans of the RAF for its offensive against Germany were based upon an inventory of heavy bombers that would never be fulfilled. When Arnold learned from his RAF counterparts at the Atlantic Conference of their ultimate plan for a force of four thousand heavy bombers he confided that “the thing scares me it is so big and I know that they cannot meet it.”<sup>65</sup> Consequently the assignment of VLR aircraft to RAF CC was vigorously resisted by the Air Ministry and RAF BC. Additionally, RAF headquarters further degraded A/S operations by periodically stripping RAF CC of heavy bombers “just to announce a 1000 airship raid,” in the belief that spectacular one-thousand-bomber raids on Germany would bolster civilian morale.<sup>66</sup>

At the first Washington Conference (Acadia) in December 1941, the British presented strategy papers that included urgent recommendations to deploy USAAF bomber squadrons to Great Britain for coordinated operations with the RAF against Germany observing that “our own bomber programme has fallen short of our hopes.”<sup>67</sup> Once the United States joined the conflict Churchill transitioned to a bifurcated scheme to obtain heavy bombers for the offensive against Germany that involved requests for *Flying Fortresses* and *Liberators* from American production lines for the RAF and the earliest possible deployment of USAAF bomber groups to Great Britain.

---

<sup>65</sup> Henry H. Arnold, Roosevelt-Churchill Conference, 31 July 41-14 August 41 notes, entry on August 10, 1941, reel 2, folder 11, *Arnold Papers*, LOC.

<sup>66</sup> Sir John Slessor and John P. W. Vest, interviews on antisubmarine warfare by Morison on December 18, 1954, box 8, folder 3, notebook no. 1, 11-12, *Morison Papers*, LOC. Air Chief Marshall Slessor commanded RAF CC from February 1942 to January 1944. Capt. Vest served in a liaison role for the U.S. Navy at RAF CC, and later commanded the escort carrier USS *Croatan*.

<sup>67</sup> Memorandum by Prime Minister Churchill, December 16-20, 1941, Pre-Conference Papers, Part I – The Atlantic Front, *FRUS, The Conferences at Washington, 1941-1942, and Casablanca, 1943*, 21-6.

Following the Acadia Conference, Roosevelt increased his support in 1942 for the delivery of a full spectrum of combat aircraft to the British. His advocacy for the needs of the RAF dated back to the summer of 1940 when he promised Churchill his administration was “doing everything within our power to make it possible for the Allied Governments to obtain the latest types of aircraft in the United States.”<sup>68</sup> When Roosevelt informed Churchill that he would approve the transfer of fifty destroyers to the Royal Navy, he added that aircraft of each type requested would be included for testing.

The U.S. Navy and Army both had concerns over the magnitude of the aircraft purchases submitted by the Allies’ Consolidated Purchasing Mission, but the majority of types sought were land-based pursuit and bomber planes that the USAAF had intended to acquire. When Roosevelt asked the military services to defer scheduled aircraft acquisitions in January 1940 to facilitate delivery of 8,500 bombers and pursuit planes to the Allies by the fall of 1941, Arnold complained of the severe impact it would have on cost and readiness. On the Navy side, however, the Chief of the Bureau of Aeronautics, Rear Admiral John Towers, was prepared to support the proposal since deliveries of its *Catalina* PBY flying boats were already expanding. After public comments by Arnold the President criticized him directly at a White House meeting in mid-March for “not acting in accordance with his previously expressed desires in this matter.” The final expanded allocations were settled in July 1940 between the War and Navy Departments under the guidance of Treasury Secretary Morgenthau and involved deliveries stretching into 1942. The British were allocated 14,400 aircraft and the USAAF 12,200 planes with

---

<sup>68</sup> Roosevelt telegrams R-4x to Churchill on May 16, 1940 and R-8x on August 13, *Churchill-Roosevelt Correspondence*, 1:38-9, 58-9.

delivery to be completed by April 1942, while the U.S. Navy's portion included 6,200 aircraft to be delivered by July 1942.<sup>69</sup>

Roosevelt sustained his policy of support to the Allies with the passage of the Lend-Lease Act in March 1941.<sup>70</sup> During the next month Arnold traveled to Great Britain and met with the Prime Minister and the leaders of the RAF. At that point he reassured Portal, the RAF commander, that his mission was to "find out a practical way in which the USAAF can be of maximum aid to the British."<sup>71</sup> It was clear that Arnold, after having met face-to-face with his RAF counterparts, was now in accord with his President's desires regarding aid to the Allies. Yet the concerns held by the USAAF over the administration's policy towards support to the Allies remained over the next year a persistent element of negotiations on aircraft allocations among the War, Navy, and Treasury Departments.

Conflicts among the higher echelons of the military also factored into the course of the battle. Friction between the USAAF and the U.S. Navy escalated as both advocated expansion plans that competed for the output of the aviation industry. Since Lend Lease deliveries to the Allies restricted the available production, the competition for scarce resources generated acrimony between the War and Navy Departments in July 1941. Assistant Secretary of War Robert Lovett challenged the high priorities being placed on fleet aircraft acquisitions and argued that this hindered the USAAF heavy bomber procurement program. When his Navy Department counterpart, James Forrestal, offered to reduce by fifteen percent the Navy's original priority acquisition of 3,800 aircraft

---

<sup>69</sup> John H. Towers, BuAer office diary, U.S. Navy Department, entries on January 17, March 6, and March 13, 1940, box 1, folder 1, *Towers Papers*, LOC.

<sup>70</sup> *Lend Lease Act*, Public Law 77-11, *U.S. Statutes at Large* 55, Pt.1 (1941-1942): 31-3.

<sup>71</sup> Henry H. Arnold, trip to England, 9 April 41 – 1 May 41, notes, entry on April 13, 1941, reel 2, folder 10, *Arnold Papers*, LOC.

Lovett rejected the compromise and insisted the issue be decided by the President.

Roosevelt deferred and had the Joint Board evaluate the matter, a course of action

Forrestal had earlier recommended to Lovett.<sup>72</sup> In less than a year the issue became mute as expansion plans were again revised.<sup>73</sup>

The Roosevelt style of leadership with the military services stood in stark contrast to that practiced by Churchill. Although the Butt Report had revealed the stunning ineffectiveness of the RAF bomber offensive during 1940 and the first half of 1941, Churchill still followed through on his decision to give priority to RAF BC. This was done over the strong objections of the Royal Navy, the British army, and members of the War Cabinet. His placement of the British Joint Planning Committee under his authority and personal intervention in the assignment of RAF squadrons between Bomber Command and Coastal Command involved him in lower level decisions.<sup>74</sup> Although this caused frustration among the British military staffs, Churchill's subordinates invariably knew his intentions with precision.

Roosevelt's management and policy development methods served him well in dealing with the large issues that drove the grand strategy of the United States and the Allies. He resisted the strong consensus of his military and civilian advisors and reached unsystematic decisions regarding military aid to Great Britain in 1940 and support to the Soviet Union in 1942 that proved to be both crucial and astute. This approach, however, also resulted in an incremental process for the development of actions to implement the

---

<sup>72</sup> John H. Towers, BuAer office diary, U.S. Navy Department, entries on July 1 and July 2, 1941, box 1, folder 3, *Towers Papers*, LOC.

<sup>73</sup> Henry H. Arnold, letter to Major General Russell P. Hartle on June 10, 1942, reel 90, folder 1, SAS England, *Arnold Papers*, LOC. Arnold provided a summary of bombardment groups deploying to Great Britain in 1942 and the first quarter of 1943.

<sup>74</sup> Hastings, *Bomber Command*, 107; Slessor, *The Central Blue*, 299-300.

higher strategies, an approach that many on both sides of the Atlantic viewed as plodding and impenetrable. Henry L. Stimson compared discussions with Roosevelt to the pursuit of a beam of sunlight across an empty room. Presidential decision-making invoked a similar image for the British Secretary of State for Foreign Affairs, Anthony Eden, who complained that Washington was all “confusion and wooliness.”<sup>75</sup>

An example of the confusion Roosevelt’s leadership could induce in military plans occurred in January 1942, concurrent with the Acadia Conference. The President swept aside the estimates prepared by the Aircraft Section of the Office of Production Management (OPM) and issued a directive to dramatically expand the goals for aircraft procurement in 1942 and 1943. In response to the new goals OPM officials insisted all designs be frozen and production maximized for each aircraft type regardless of military requirements. Towers guided the successful effort by the War and Navy Departments to rebuff OPM; however, he was advised by Knox not to “bring up the matter with the President for at least six months.” Nonetheless, Towers cautioned Knox that if the directive remained unchanged “other programs could be jeopardized.” At the end of the year the inflated Presidential production goal was missed; however, the earlier OPM estimates had been surpassed.<sup>76</sup> In this case the Roosevelt technique of acting with “jaunty conviction that people can do more” had nearly induced a gross mismanagement of resources to achieve greater productivity.<sup>77</sup>

As the war progressed Churchill as Prime Minister and Minister of Defence dictated a host of strategic and tactical decisions to the military forces of Great Britain

---

<sup>75</sup> Kimball, *The Juggler*, 14.

<sup>76</sup> John H. Towers, BuAer office diary, U.S. Navy Department, entries on January 8, January 9, and January 12, 1942, box 1, folder 4, *Towers Papers*, LOC.

<sup>77</sup> Kimball, *The Juggler*, 8.



while Roosevelt as President and Commander-in-Chief cultivated an environment in which the grand strategy reflected his personal imprint but the military services retained significant latitude in the execution of the strategy. These statesmen and their contrasting styles of national and military leadership had a pronounced effect on the course of the Battle of the Atlantic.

Churchill consistently identified the U-boat campaign as the most dangerous threat to the Allies. Yet it was not until the 1943 Casablanca Conference that he, along with Roosevelt, ordered the decisive steps that assigned sufficient VLR *Liberators* to the RCAF and RAF CC and closed the U-boat sanctuary in the Greenland-Iceland air-gap. This occurred only after dramatic U-boat successes in the North Atlantic during March 1943 had stunned the Allies. Contrary to his statements on the primacy of the Atlantic battle, in the allocation of VLR heavy bombers and key technologies such as the H2S airborne radar, Churchill favored the RAF BC and its offensive bombing campaign against Germany over the RAF CC A/S operations until the *U-Bootwaffe* forced his hand in the thirty-first month of the war.

In Washington the president refrained from taking action to mediate the clash between the U.S. Army and the U.S. Navy over the control and employment of the USAAF's long-range and VLR A/S air squadrons. He also avoided any challenge to King's deployment during 1942 and early 1943 of nearly all the U.S. Navy assigned *Liberator* aircraft to the Pacific theater.<sup>78</sup> Roosevelt did not compel his JCS to develop a plan to close the Greenland-Iceland air-gap until the Casablanca Conference even though

---

<sup>78</sup> Wesley Frank Craven and James Lea Cate, *Europe: Torch to Pointblank: August 1942 to December 1943*, vol. 2, *The Army Air Forces in World War II* (Chicago: University of Chicago Press, 1948-1949), 2:388 (hereafter cited as Craven and Cate, *The Army Air Forces In World War II* with volume and page numbers); Maurice Dean, *The Royal Air Force and Two World Wars* (London: Cassell, 1979), 152-3.

sufficient VLR aircraft existed within both the U.S. Navy and USAAF inventories to have completed such steps at the end of 1942. The RAF also had significant numbers of VLR aircraft within its force, but the Air Ministry, with the Prime Minister's support, allocated nearly all of them to the bomber offensive against Germany.

Roosevelt had merely declined to act to close the air-gap until an extreme crisis arose. Churchill, however, had personally formulated the policy that limited RAF CC's VLR A/S capability. When the Prime Minister requested more VLR aircraft for RAF CC in November 1942, he was appealing to Roosevelt to resolve the shortage Churchill himself had induced by assigning first priority to RAF BC. Roosevelt deferred to his theater commander, General Dwight Eisenhower, who declined to assign his USAAF *Liberators* equipped for A/S to RAF CC.<sup>79</sup> Roosevelt likely recognized that the British had sufficient VLR aircraft to meet the RAF CC if they had altered their priorities.

The tactical outlook of the air services imparted another element into the closing of the Greenland-Iceland air-gap. The Allied airmen were imbued with the doctrine of the early air power theorists such as Giulio Douhat who emphasized the essentiality of offensive operations from the air. Douhat acknowledged the importance of measures that could mitigate the effects of "aerial offensives" against your own forces, but insisted that such measures "not decrease the strength of the offensive we might carry to the enemy."<sup>80</sup> All of the RAF's senior leaders had served during WWI and had been inculcated with the same enthusiasm for the offensive as the air power visionaries. Men such as Air Chief Marshal Charles Portal who commanded the RAF, Air Marshall Arthur Harris who led RAF BC, and Air Marshall John Slessor who assumed command of RAF

---

<sup>79</sup> Churchill telegram to Roosevelt on November 20, 1942 via Harry Hopkins, *Churchill-Roosevelt Correspondence*, 2:26-7.

<sup>80</sup> Douhet, *The Command of The Air*, 243.

CC in early 1943 viewed offensive bombing as their service's principal mission during the war. They also were uniformly confident that the bombing offensive, if properly resourced, would validate the air power doctrine of the RAF's early theorist and strategist, Lord Hugh Trenchard. Therefore, it was predictable that both the Air Ministry and RAF CC embraced the offensive approach to A/S operations in the Bay of Biscay beginning in the spring of 1941.

The Bay of Biscay patrol effort was designed to locate, attack, and destroy the U-boats as they transited to and from the Atlantic convoy routes. It required an enormous investment of resources which clearly exceeded the benefits achieved. During the crucial nine month period from June 1942 to March 1943, RAF CC committed a majority of its most capable A/S aircraft to the Biscay offensive, averaging approximately 3,500 patrol hours per month. The results, seven U-boats destroyed at the cost of one hundred aircraft due to combat losses and mishaps, did not compare favorably with the twenty-two U-boats destroyed during the same period by aircraft operating in direct support of North Atlantic convoys.<sup>81</sup> Most significantly, the decision to pursue offensive air operations at this intense level left the Greenland-Iceland air-gap open.

The USAAF demanded a similar offensive approach in 1942 when its aircraft were tasked to fly A/S operations in the western Atlantic and the Caribbean Sea in support of the U.S. Navy's struggling anti-U-boat efforts. The Army's senior aviators, like their RAF counterparts, had served in WWI and were instilled with the air power doctrine developed by Trenchard and advocated by Brigadier General Billy Mitchell during the 1920s and 1930s. This doctrine supplanted land and sea power with "Air

---

<sup>81</sup> Brereton Greenhous and others, *The Crucible of War, 1939-1945: The Official History of the Royal Canadian Air Force*, vol. 3 (Toronto: University of Toronto Press, 1994), 393-4; Donald MacIntyre, *The Battle of the Atlantic* (New York: MacMillan, 1961), 171-2.

Control.” General Arnold was a protégé of Mitchell, having served with him during WWI. Like his controversial mentor, Arnold was driven to prove the intrinsic value of air power and establish the case for an independent air force like the RAF. However, he was a leader and manager adept at working within the bureaucracy to achieve this momentous goal.<sup>82</sup> The U.S. Army’s senior airmen envisioned the offensive bombing campaign against Germany as the most compelling way to make the case for an independent service. They also believed that such a bombing campaign had to adhere to the principles that air power was inherently strategic, primarily an offensive weapon, and that it required central control by experienced airmen.<sup>83</sup>

King rebuffed those principles and the USAAF aircraft supporting the Navy’s A/S operations were assigned to individual Sea Frontier Commands and forced to transition from the area air patrols favored by the Army airmen to patrols in direct support of convoys as the routes were established in March and April. King rejected the Royal Navy’s advice that convoys be instituted, even if weakly defended. However, once escort forces increased during the second quarter of the year and a convoy system was operating King wholeheartedly agreed with the British that defensive air escort of convoys was the correct tactic against the U-boats. The U.S. Navy’s adherence to this defensive tactic and its static use of USAAF aircraft within individual Sea Frontier Commands generated fierce resistance from Arnold and other USAAF leaders.

---

<sup>82</sup> Malcolm Smith, *British Air Strategy Between the Wars* (Oxford, UK: Clarendon Press, 1984), 19-26, 42-3; Roger G. Miller, *Billy Mitchell, Stormy Petrel of the Air* (Washington: Office of Air Force History, 2004), 24-7.

<sup>83</sup> Phillip S. Meilinger, *10 Propositions Regarding Air Power*, Air Force History and Museums Program, 1995. <http://www.airforcehistory.hq.af.mil/Publication/Annotations/meilingerprops.htm> (accessed July 3, 2010).

Admiral King, qualifying as a Naval Aviator late in his career, rose to command the aircraft carrier USS *Lexington* during the mid-1930s after having proven his worth as an officer with the surface line forces. His reputation as a hard-nosed leader and a difficult man to work with was widely known among military and civilian leaders in Washington and London.<sup>84</sup> Following his first interview with King in June 1942 Morison noted him to be “hatchet-faced with keen blue eyes and a rather swarthy neck” and unimpressed by his Harvard credentials.<sup>85</sup> The hatchet-faced admiral proved to be Arnold’s nemesis as the Army and the Navy attempted to resolve the contentious issues that separated the two services.

The prolonged dysfunction between the USAAF and the U.S. Navy produced less than optimal command and tactical arrangements for the use of critical assets in the war against the U-boats. Each service put forward legitimate arguments for their positions on command arrangements and tactical employment and neither offered any meaningful compromises. The USAAF questioned the efficacy of assigning its aircraft to regional naval commands that it claimed were inept. Towers seemed to confirm the USAAF contention when he commented on a proposed reorganization of the Naval Districts, companion organizations to the Sea Frontier Commands, during the summer of 1943. He opposed the district reorganization since “their biggest handicap is the fact that a large percentage of the important positions are filled by rather old retired officers of questionable competency.” Towers also cautioned that “Fleet Subordinate Commands

---

<sup>84</sup> Reynolds, *Admiral John H. Towers*, 223-32.

<sup>85</sup> Ernest J. King interview by Morison on June 15, 1942, box 4, folder 8, *Morison Papers*, LOC.

follow sound organizational principles; they function splendidly,” but that “submergence in a District would be well nigh fatal to our plans.”<sup>86</sup>

On the opposite side of the conflict the value of the U.S. Navy’s insistence on the primacy of direct air escort of convoys was substantiated by BdU’s strategy to concentrate its operations against the convoys in those areas where persistent air escort was not present.<sup>87</sup> The airmen, however, dismissed the long established naval concept of the merchant ship convoy, perfected by the Royal Navy during the eighteenth century, as a defensive posture that conceded the initiative to the enemy. Their view that true success in the Atlantic campaign was measured by the number of U-boats destroyed ignored the ultimate objective of the convoy protection mission - the safe arrival of ships and their cargoes. First the Royal Navy and then the U.S. Navy came to understand that the disruption of a U-boat or wolf-pack attack, although less satisfying than the destruction or capture of a submarine, was an incremental success that led to ships and cargoes arriving at their destinations. Although no consensus was reached on this issue, the U.S. Navy imposed its tactics on USAAF units operating under its control in the western Atlantic and Caribbean. The Royal Navy, however, deferred to the RAF on aviation matters outside its Fleet Air Arm so Coastal Command executed its aggressive offensive in the Bay of Biscay and the Iceland – Hebrides gap from 1941 until the end of the war. Through the summer of 1943 a majority of the Allies’ best long-range and VLR A/S

---

<sup>86</sup> John H. Towers, U.S. Pacific Fleet, Air Force, Pacific Fleet, Memorandum for Admiral Nimitz on July 18, 1943, Subject: Proposed Reorganization of Naval Districts, box 3, folder 3, Naval Correspondence, *Towers Papers*, LOC.

<sup>87</sup> Hessler, *The U-Boat War in the Atlantic*, 2:86; Doenitz, *Memoirs*, 330-2.

aircraft were employed in an offensive that proved “out of all proportion to the meager results obtained.”<sup>88</sup>

The freedom that Roosevelt extended to his military leaders in executing their responsibilities enabled the Army-Navy conflict over land-based A/S aircraft to fester from 1942 until the summer of 1943. Marshall, motivated by the need to build-up sufficient military power in the British Isles to launch the Allied invasion of Europe, worked to broker a compromise that would allow the two services to prosecute the war against the U-boats. When King sensed an impasse with Arnold over the acquisition of more land-based patrol aircraft for the Navy, he wrote to Marshall on May 6, 1942 seeking his support for the Navy’s request. Negotiations with the British over aircraft allocations delayed any action on the issue. However, by mid-June Marshall had grown alarmed over shipping losses in the western Atlantic and Caribbean “that threaten our entire war effort” and asked what steps the Navy was taking to deal with the U-boats. In his reply King praised the efforts of the USAAF against the U-boats and restated the Navy’s need for more land-based aircraft.<sup>89</sup> In his memoir King described this exchange with Marshall as having broken the “theoretical log jam” with the USAAF and that an agreement resulted that provided for a “fair proportion of land-based planes to the Navy for antisubmarine work, but many valuable months had been lost.”<sup>90</sup>

---

<sup>88</sup> Gannon, *Black May*, 242; Hessler, *The U-Boat War in the Atlantic*, 2:25-6; Brian McCue, *U-Boats in the Bay of Biscay: An Essay in Operations Analysis* (Washington: National Defense University Press, 1990), 58-9.

<sup>89</sup> George C. Marshall Memorandum for Admiral King on June 19, 1942, Subject: Submarine Sinkings, Larry I. Bland and Joellen K. Bland, eds., *The Papers of George Catlett Marshall*, vol. 3 (Baltimore: Johns Hopkins University Press, 1996), 3:241-2 (hereafter cited as *Marshall Papers* with volume and page numbers); Ernest J. King Memorandum for General Marshall on June 21, 1942, reproduced in King and Whitehall, *Fleet Admiral King: A Naval Record*, 455-9.

<sup>90</sup> King and Whitehall, *Fleet Admiral King: A Naval Record*, 459; Reynolds, *Admiral John H. Towers*, 386-8.

The conflict between the services over air tactics against the U-boats and inter-service command arrangements persisted into the fifth year of the war. In May 1943 at King's request Arnold agreed to move a B-17 *Flying Fortress* squadron to support the Eastern Sea Frontier's A/S operations from Newfoundland; however, he ordered the unit to only conduct "offensive search and attack missions." King challenged Arnold's authority and used the incident to reaffirm the U.S. Navy's primary role against the U-boats.<sup>91</sup> This contributed to the complete withdrawal of the USAAF from A/S operations by September 1943 and the transfer of its A/S configured *Liberators* to the U.S. Navy in exchange for new production airframes from the Navy allocation. This represented the end of the "troubling history of the Army and Navy over control of land-based ASW aircraft."<sup>92</sup>

Roosevelt was aware of the deep institutional animosity that existed between the USAAF and the Navy's aviation arm and the disputes that frequently broke out over functions and missions. The origins of the Army-Navy quarrel dated back to WWI and it thrived in the United States during the interwar years. This rivalry carried into WWII unchecked. In the Atlantic the unprecedented threat posed by the U-boats and the unique demands of A/S warfare on the sea and in air fueled an ugly clash between the services. Marshall lacked the impartial perspective or the authority to resolve the conflict as Arnold and King proved at best unwilling to compromise and at worst incapable of it. The situation demanded forceful presidential intervention that Roosevelt failed to provide until after the crisis in the Atlantic in March 1943 brought action at the Casablanca Conference.

---

<sup>91</sup> John P. W. Vest, interview on antisubmarine warfare by Morison on December 18, 1954, box 8, folder 3, notebook no. 1, 4, *Morison Papers*, LOC.

<sup>92</sup> Blair, *The Hunted, 1942-1945*, 321-2.



On the British side of the Atlantic the genial working relationship between the Admiralty and RAF CC masked a deeper problem that mirrored the Army-Navy aviation rivalry in the United States. The Royal Navy lacked the aviation expertise that resided within the U.S. Navy since it had been stripped of its air arm when the RAF formed in 1918. Although the Fleet Air Arm was re-established in 1937 the absence of senior or mid-level naval aviators within the Royal Navy during WWII left it dependent upon the RAF for that expertise.<sup>93</sup> This dependency worked to the disadvantage of the Royal Navy's prosecution of the Atlantic campaign against the U-boats since the RAF remained fixated on Bomber Command and an offensive victory over Germany. Rather than promote a balance between the campaigns at sea and the one over Germany Churchill placed the priority on striking the heart of Germany even as the *U-Bootwaffe* threatened its ocean lifeline.

Churchill's support of the RAF bombing offensive over the anti-U-boat campaign and Roosevelt's unwillingness to resolve the Army-Navy conflict over control of land-based A/S aircraft enflamed the naval and air service rivalries on both sides of the Atlantic. These rivalries impeded the Allies' ability to make full use of the air A/S advantage they developed as the war unfolded. The aviation arm of the anti-U-boat campaign matured rapidly while the naval and air services' ability to blend their efforts against a determined foe at sea languished. The creation of this inter-service rivalry and its continuation into WWII greatly influenced the Allies' air A/S campaign against the U-boats.

---

<sup>93</sup> Roskill, *The War at Sea*, 1:29; John P. W. Vest, interview on antisubmarine warfare by Morison on December 18, 1954, box 8, folder 3, notebook no. 1, 3, *Morison Papers*, LOC.

### CHAPTER III

#### SERVICE RIVALRIES

The demand for land-based A/S aircraft during the Battle of the Atlantic created requirements for the Allied air services that challenged their priorities and doctrine. These A/S requirements conflicted with the offensive bombing strategy favored by the RAF and USAAF and reduced the number of heavy bombers available to support it. Additionally, the use of land-based aircraft in this inherently naval mission exposed flaws in the command arrangements among the Allied military services. Although the British developed a sound arrangement for the command and control of A/S aircraft prior to the war with the assignment to the Admiralty of operational control over RAF CC, in the United States the lines of responsibility for A/S operations between the Army and the Navy were poorly defined. The unanticipated naval demand for land-based heavy bombers and conflicts over the effectiveness of defensive versus offensive tactics exacerbated existing rivalries among the Allied services and impeded their ability to cooperate fully in the campaign against the U-boats.

During WWI military aviation evolved into an offensive capability for land and sea forces which provided rudimentary reconnaissance, support of ground forces and bombing behind enemy lines, and defensive anti-submarine patrols.<sup>94</sup> In Great Britain, the United States, and Germany the air forces developed during the interwar years all had distinct characteristics that reflected the perceived military and naval needs of each nation. Politics and public sentiment also influenced how these forces matured and were incorporated into military planning.

---

<sup>94</sup> Reynolds, *Admiral John H. Towers*, 120-22.

The German *Luftwaffe*, an independent air service, developed during the mid-1930s into one of the world's most capable air forces. Created to serve as a tactical force, its most prominent role was to support the army. Consequently the *Luftwaffe* developed aircraft, weapons, and tactics that were preeminent in air to air, air to ground, and medium range bombing operations. Although there were limited numbers of aircraft built for the high endurance reconnaissance role, little effort or thought was invested in long range bombing due Germany's limited industrial capacity. Like their British and American counterparts, senior German airmen gained their combat experience and perspective on the future of air warfare during WWI service. That experience led to a European focus for the *Luftwaffe* and explains the complete absence of an air arm for the *Kriegsmarine*, or provision for support to the navy by the German Air Force.<sup>95</sup>

Great Britain's historic reliance upon the Royal Navy for defense made the development of the Royal Naval Air Service (RNAS) during WWI a necessity for fleet reconnaissance, gunfire spotting, and A/S and anti-mine patrols. During the same period the British Army established its Royal Flying Corps (RFC). By 1917 German bomber attacks against London moved the British War Cabinet to commission a study by Prime Minister David Lloyd George and General Jan Smuts to assess potential solutions to this aerial offensive. The Smuts Report first addressed the defense of London while in part two assessed the nation's air organization, which was found to be dysfunctional.<sup>96</sup> Smuts emphatically recommended the immediate creation of an independent air service with an air ministry to oversee it. The War Cabinet quickly accepted his recommendations and by

---

<sup>95</sup> John Keegan, *The Second World War* (New York: Viking, 1989), 91.

<sup>96</sup> Jan Christiaan Smuts, Report to the War Cabinet on Air Organisation and the Direction of Aerial Operations of August 1917, *Air Force Magazine* <http://www.airforcemagazine.com/MagazineArchives/Document/2009/january2009/0109keeperfile> (accessed September 30, 2010)

1918 the Royal Air Force was established from the units of the RNAS and the RFC. Air power advocates such as Hugh Trenchard won the debate for an independent air service and in the process had earned the “active dislike of the older services.”<sup>97</sup>

Although important organizational steps were taken in the late 1930s to revise responsibilities assigned to the Air Ministry and the Admiralty for maritime defense, the quality and quantity of aircraft available for convoy defense and A/S patrol was wholly inadequate. Along with the transfer of the personnel and aircraft of the RNAS to the RAF, the newly created air service was also assigned sole responsibility for the development and procurement of aircraft for itself as well as the Royal Navy’s aviation ships.<sup>98</sup> The new Air Ministry quickly asserted itself, explaining to Members of Parliament in February 1918 that the “Departments respectively submit their requirement to the Air Ministry for aircraft. The Air Staff examine those requirements, and either agreed, disagreed, or modified.”<sup>99</sup> During the inter-war years the Air Staff remained focused on the development of bombers designed to fulfill the RAF doctrine of victory through precision bombing of military, industrial, and urban targets.

The Admiralty retained responsibility for the development of aircraft carriers following WWI and consequently had modern aviation ships in the fleet on the eve of WWII. Paradoxically, these modern ships were equipped with obsolete RAF developed biplanes; the *Swordfish* torpedo bomber/scout aircraft served as the mainstay of the Fleet Air Arm for the first two years of the war.<sup>100</sup> At the urging of the Cabinet this arrangement was reversed and the naval air branch was re-established as the Fleet Air

---

<sup>97</sup> Dean, *The Royal Air Force and Two World Wars*, 25.

<sup>98</sup> Roskill, *The War at Sea*, 1:29

<sup>99</sup> *Times* (London), Parliament, “The Air Service, Major Baird’s Statement,” February 22, 1918.

<sup>100</sup> Roskill, *The War at Sea*, 1:31-2

Arm (FAA) under Admiralty authority in 1937. This change, however, came too late to rectify the obsolescent state of the FAA's aircraft. Of equal importance was a second decision announced by Air Ministry directive on December 1 of the same year which fixed the primary roles of RAF CC as trade protection, reconnaissance, and support to the Royal Navy. The directive was also explicit in guaranteeing that the command's aircraft would be primarily employed in these roles.<sup>101</sup> These highly significant decisions set the foundation for the close cooperation and coordination that developed between the Admiralty and RAF CC early in World War II. A U.S. Navy liaison officer with RAF CC observed that when war came "the Royal Navy had had no aircraft for twenty-one years" and were "ready to take orders from the RAF" on aviation matters.<sup>102</sup> With only three squadrons of suitable aircraft in September 1939, one equipped with *Hudson* light bombers and two more with *Sunderland* flying boats, the Admiralty and RAF CC could not, however, deliver the robust air escort the convoys required.<sup>103</sup>

In Germany, no efforts had been undertaken to coordinate aviation support for the Navy. The lack of such foresight became evident in March 1940 when *Reichsmarschall* Hermann Göring, as commander of the *Luftwaffe*, refused to cooperate with Grand Admiral Erich Raeder when he sought bomber/reconnaissance support against the convoys. Although the Fw-200 *Condor* long range bomber/reconnaissance aircraft was well-suited to this role the naval support mission was viewed with disdain. Even after orders from Hitler to cooperate with the *Kriegsmarine*, the bomber squadron Göring temporarily assigned was ineffective due to the poor navigation and maritime skills of the

---

<sup>101</sup> Roskill, *The War at Sea*, 1:29.

<sup>102</sup> John P. W. Vest, interview on antisubmarine warfare by Morison on December 18, 1954, box 8, folder 3, notebook no. 1, 3, *Morison Papers*, LOC.

<sup>103</sup> Brown, *Atlantic Escorts*, 33

airmen. Despite the protests of the Navy no steps were taken to rectify the airmen's poor performance in support of the *U-Bootwaffe*.<sup>104</sup>

The maturation of military aviation in the United States accelerated during WWI with the rapid expansion of the Army Air Service and Naval Aviation to support the American Expeditionary Force and naval forces in Europe. By the end of the war men like Billy Mitchell and other leading American airmen had reached the conclusion that the United States needed an "air force" rather than an "air service" that would not "just fight alongside ground and naval forces," but rather function in the new "third dimension" that would revolutionize warfare.<sup>105</sup>

After Mitchell's return to the United States in 1919, he embarked on a personal campaign to justify an independent air force by arguing that the mission of coastal defense shared by the Navy and the Army's Coastal Artillery could be accomplished more efficiently through air power and at less cost than the existing scheme. This approach mirrored the successful strategy of Air Marshall Hugh Trenchard who preserved the RAF after the war by performing the colonial policing mission more efficiently and at less cost than the British army was capable. Mitchell infuriated the leaders of both the Navy and the Army by challenging a mission both services shared. In particular his unsubstantiated claim that aircraft could "sink ships, all ships, even battleships" provoked the Navy. On July 21, 1921 Mitchell appeared to prove his point when his airmen sank the ex-German battleship *Ostfriesland*, and in post-exercise reports the Navy agreed, but with several significant caveats. That the target ship was anchored, no crew was aboard to perform damage control measures, and there was no defensive

---

<sup>104</sup> Hessler, *The U-Boat War in the Atlantic*, 1:63-4, 68-9; Roskill, *The War at Sea*, 1:143.

<sup>105</sup> Roger G. Miller, *Billy Mitchell: Storm Petrel of the Air* (Washington: Office of Air Force History, 2004), 22.

antiaircraft fire were all points lost in the sensational publicity that accompanied the sinking of the *Ostfriesland* with aerial bombs launched from Army planes that were claimed “would be heard around the world.”<sup>106</sup>

For Mitchell, the inescapable conclusion from the demonstration against the moored ships was that all the United States needed for defense against invasion was an air force and he set about forcefully arguing the point in public. At the end of July he led a simulated bomber attack against New York City with seventeen aircraft and informed reporters after the event that Manhattan had been decimated “by twenty-one tons of gas, flame, and fragmentation bombs.” On their return flight to Langley Field in Virginia they simulated additional attacks against Philadelphia, Baltimore, and the U.S. Naval Academy at Annapolis, Maryland.<sup>107</sup> Mitchell submitted a withering report following these simulated attacks that condemned the Navy’s report, which minimized the significance of the ship bombing exercise, and repeated his demand for an independent air force. He went on to claim that “The First Provisional Air Brigade could have put out of action the entire Atlantic fleet in one attack.” Before the director of the Air Service, Major General Charles Menoher, could comment on it, the report was leaked to the *New York Times* and published on September 14, 1921. When Secretary of War John Weeks failed to discipline Mitchell for insubordination, Menoher resigned.<sup>108</sup>

Mitchell’s reaction to a series of Navy aviation mishaps in 1925 precipitated the final controversy that ended his career in the Army. After the crash of the Navy airship

---

<sup>106</sup> *New York Times*, “2,000-Pound Bombs From Army Planes Sink Ostfriesland,” July 22, 1921, digital archive, 1851-1980, <http://query.nytimes.com/search/query?srchst=p#top> (accessed September 21, 2010) (hereafter cited as *New York Times*); Miller, *Billy Mitchell*, 25-33.

<sup>107</sup> *New York Times*, “City ‘Wiped Out’ in Big War Game,” July 30, 1921; Miller, *Billy Mitchell*, 33-4.

<sup>108</sup> *New York Times*, “Mitchell Attacks Bomb Test Findings,” September 14, 1921; *Ibid.*, “Menoher to Quit Army Air Service,” September 16, 1921.

*Shenandoah* and mishaps with three flying boats in the Pacific Mitchell summoned a group of reporters to his office and declared “these accidents are the direct result of incompetency, criminal negligence and almost treasonable administration by the War and Navy Departments.”<sup>109</sup> His strategy of challenging the military leadership in public and in an insubordinate manner brought swift action. President Calvin Coolidge created a temporary board to examine aviation issues prior to the ordered court-martial of Mitchell. The Morrow Board, led by businessman Dwight Morrow, marginalized Mitchell and quickly concluded that the military services needed a “combined arms team” that included aviation rather than an independent air force.<sup>110</sup> In December Mitchell was convicted of insubordination and “sentenced immediately to suspension from rank and command, with forfeiture of all pay” for five years. Although Coolidge modified the sentence to half-pay, Mitchell quickly resigned from the Army.<sup>111</sup>

The Army Air Service failed to achieve the same independent status enjoyed by the RAF and the *Luftwaffe*; however, advocacy for it remained strong within the ranks of the Army airmen and that cherished goal influenced their future planning for a strategic bombing campaign. Mitchell’s greatest legacy was the cadre of leaders he mentored who in time achieved the goal of an independent Air Force, and General Henry H. Arnold proved to be the most gifted of them. The aviators of the U.S. Navy welcomed the Morrow Board’s recommendations. Their service retained its naval air arm and benefited

---

<sup>109</sup> *New York Times*, “Mitchell Charges ‘Gross Negligence’ in Shenandoah Loss,” September 5, 1925; Miller, *Billy Mitchell*, 42.

<sup>110</sup> *New York Times*, “Air Board Accord is Now Assured, Morrow Commission Rejects Mitchell Plan, Backs Present System,” November 30, 1925; Miller, *Billy Mitchell*, 42-3.

<sup>111</sup> *New York Times*, “Verdict of the Army Court-martial Convicting Mitchell of Insubordination,” December 18, 1925; *Ibid.*, “Half Pay for Colonel Mitchell,” January 27, 1926; *Ibid.*, “Expect Mitchell to Quit Army,” January 27, 1926.



from increased funding from Congress and new support from within the Navy as a result of the controversy and publicity generated by Mitchell.

On the eve of the United States' entry into World War II, air power advocates made another unsuccessful bid to establish an independent air force. Senator Patrick McCarran of Nevada sponsored legislation in the fall of 1941 to establish a separate Air Force that generated condemnation from Army and Navy leaders and was described as "a dangerous diversion" that "powerfully organized outsiders" were attempting to force through Congress.<sup>112</sup> The effort was derailed when the Under Secretary of War, Robert Patterson, declared the Army Air Corps "the finest in the world" and stressed that teamwork between the services would not be enhanced by a third independent service.<sup>113</sup> The effort exacerbated the concerns of the Navy's aviators that the USAAF's leadership remained focused on a single service controlling all military air power.

The Army and Navy air arms in the United States matured during the interwar years along very different paths. Naval aviation expanded from a reconnaissance and auxiliary force into an offensive component of the fleet centered on aircraft carriers. Although the U.S. Navy was prohibited from developing land-based aviation, it built a robust patrol force based on flying boats capable of supporting the fleet from austere bases. The leaders of U.S. Naval aviation, such as Rear Admiral John H. Towers and Admiral Ernest J. King, viewed it as an integral part of the fleet and suppressed those who argued for greater autonomy within the Navy. Their approach was based on a practical understanding of the needs of the fleet in combat and how air power could

---

<sup>112</sup> *Boston Herald*, "Separate Air Force Step Now Perilous," October 26, 1941, Record Group 107, entry 99, Sec. of War Stimson "Safe File," box 1, folder: Air Force (independent), National Archives II, College Park, MD (hereafter cited as RG 107, NA II).

<sup>113</sup> *New York Times*, "Air Forces of Army Held World Finest," November 11, 1941.

contribute to or even fulfill those requirements. This led to the development of distinct aircraft types such as torpedo and dive bombers and the PBV *Catalina* for long-range patrol that were extremely effective at sea. The growing U.S. Naval air arm prided itself on its ability to adapt aviation to the needs of the fleet.<sup>114</sup>

Within the Army the goal of a separate and independent service was an ever present ambition among its airmen. The doctrine developed by men such as the Italian air power theorist Giulio Douhet and the RAF's Hugh Trenchard was embraced as the pathway to the goal of an independent service by using strategic bombardment to relegate ground and sea warfare as secondary endeavors in future wars. Rapid advances in aircraft design and construction in the 1930s made possible the USAAF's Air War Plans Division first comprehensive document, AWPD-1 that in the summer of 1941 delineated the requirements for a precision bombing campaign against Germany. This document, later modified as AWPD-42 in 1942, "set the course for the production and employment of U.S. airpower in World War II and the independence of the Air Force a few years later."<sup>115</sup> This plan specifically cautioned against the use of heavy bombers for ancillary roles that could siphon away the offensive power of the campaign.

The Lend-Lease Act caused significant concern for Arnold since demands from Great Britain for combat aircraft manufactured in the United States significantly delayed USAAF expansion plans. With the initiation of U-boat operations along the eastern seaboard in January 1942, a new concern presented itself to Arnold as the U.S. Navy turned to the USAAF for A/S air patrols. The USAAF's operations against the U-boats steadily expanded throughout 1942 and played a major role in securing the western

---

<sup>114</sup> Reynolds, *Admiral John H. Towers*, 190-1.

<sup>115</sup> James C. Gaston, *Planning the American Air War, Four Men and Nine Days in 1941* (Washington: National Defense University Press, 1982), 107-8.

Atlantic and Caribbean convoy routes by that summer. However, pressure from the U.S. Navy for heavy bombers from the USAAF's production allocation to employ as its own VLR A/S aircraft against the U-boats, as well as for service in the Pacific theater, moved the Army to expand its own air A/S force. The motivation for this USAAF A/S expansion rested on a desire to crew its own aircraft regardless of the mission and also upon the airmen's vehement rejection of the U.S. Navy's emphasis on air escort of convoys. This defensive approach to defeating the U-boats ran counter to the offensive doctrine of air power. The naval airmen understood the tactic to be an adaptation of the traditional escort role to protect merchantmen using the speed of aircraft to dramatically expand the convoy screen. Since U-boat concentrations were invariably around the convoys it was sensible to directly support them with air escort. However, the USAAF and the RAF resisted this naval approach on the grounds that it surrendered the aircraft's tremendous ability to sweep wide ocean areas on offensive 'hunt and destroy' patrols. Employing the offensive strength of its aircraft was expected to seize the initiative from the U-boats; however, extensive offensive air operations in the Bay of Biscay failed to achieve the expected results until late in the war.

The dependency of air warfare upon the quality and quantity of airplanes available led air forces to bind doctrine and aircraft capability closely together. The arrival of the B-17 *Flying Fortress* heavy bomber in the late 1930s inspired enormous confidence among USAAF leaders. This modern long-range bomber appeared to be a powerful platform that would fulfill the air power doctrine in the coming war. In 1941, the USAAF indicated that its deployment to the Pacific would accomplish Roosevelt's objective of halting Japanese expansion in the Far East. Although it was a superb aircraft

employed to great affect by the Allied air forces, it failed to match inflated pre-war descriptions as a 'super weapon.'<sup>116</sup> When used in the Pacific during 1942 against maneuvering warships and transports, its performance was grotesquely exaggerated by aircrews unable to clearly assess the damage inflicted from high-altitude. In the heat of combat excessive claims by USAAF crews against maritime targets enflamed relations between the Army and Navy air arms. Early heroes of the USAAF in the war were Captain Colin Kelly and his B-17 crew who were credited with the destruction of the Japanese battlecruiser *Haruna* on December 9, 1941. Kelly and his crew were killed on the same date while returning to the Philippines and he was posthumously awarded the Distinguished Service Cross. However, as Roosevelt confided to Morison the following June he "doubts the *Kongo* was really sunk by Kelly."<sup>117</sup> Although no one could question the courage of the B-17 crew, Navy airmen used this incident and others like it to forcefully challenge the value of high-altitude horizontal bombing against maneuvering ships.

The USAAF steadfastly defended the effectiveness of its tactics and stood by the claims of its combat crews against ship targets. This was the same issue that had incited acrimony between Army and Navy aviators following the sinking of the moored target ship *Ostfriesland* in 1920. The renewed controversy led to an aggressive public debate on the merits of the unique combat air tactics employed by each of the services. Following a trip to the Pacific theater in 1942, Arnold complained that "there was a general campaign

---

<sup>116</sup> Waldo Heinrichs, *The Threshold of War: Franklin D. Roosevelt and American Entry into World War II* (Oxford: Oxford University Press, 1988), 175-6.

<sup>117</sup> Roosevelt interview by Morison on June 12, 1942, box 4, folder 8, *Morison Papers*, LOC; Louis Morton, *The Fall of the Philippines* (Washington: U.S. Government Printing Office, 1953, 1989), 105. *Kongo* is the class name for the *Haruna* battlecruiser. It was later determined that *Haruna* was not present in the Philippines on December 9, 1941 and that the likely target, the cruiser *Ashigara*, was damaged but not sunk by Kelly's aircraft.

in the Navy against high-altitude bombing, and it apparently went from top to bottom, although our high-altitude B-17s had made plenty of hits.”<sup>118</sup> In his trip report he concluded that “high-altitude bombing was effective,” since it permitted day-after-day efforts, and that losses were not excessive. Arnold also praised the survivability of the B-17, claiming that when air opposition was encountered they usually made it home while the Navy’s dive bombers “in many instances” did not.<sup>119</sup> His conclusion ignored the increased exposure of the dive bombers to antiaircraft defenses as they dove vertically from fifteen thousand feet to a typical release point below two thousand feet to achieve their exceptional accuracy.<sup>120</sup>

The horizontal bombing controversy reached its pinnacle following the epic sea battle at Midway between Japanese and United States aircraft carriers. In June 1942 USAAF B-17s supported the U.S. Navy’s carrier task forces by delivering attacks from Midway Island against the Japanese invasion force. U.S. carrier aircraft, especially the dive bombers, sank four large Japanese carriers and turned back the invasion force. The cost to the naval air groups was severe, with two torpedo bomber squadrons virtually destroyed. However, days later when the fleet returned to Pearl Harbor the aircrews were stunned to learn that the B-17 crews had already received a majority of the credit for the victory in the press based on their claims of two carriers sunk along with numerous other enemy ships.<sup>121</sup> *The New York Times* ran an editorial informing its readers that “the battle shows what land-based air power can do to naval and air power attacking from the open

---

<sup>118</sup> Arnold, *Global Mission*, 343.

<sup>119</sup> *Ibid.*, 346-7.

<sup>120</sup> Barrett Tillman, *The Dauntless Dive Bomber of World War II* (Annapolis, MD: Naval Institute Press, 1976), 13-4.

<sup>121</sup> Clark Lee, “2 Jap Fleets Blasted by Army Pilots,” *Washington Post*, June 12, 1942; *Washington Post*, “American Fliers Tell How Jap Fleets Defeated in Battle of Midway,” June 12, 1942.

sea when that land-based air power is alert, well-trained, courageous, and exists in sufficient quantity.”<sup>122</sup> The opinion of the naval airmen was confirmed by post-war analyses and interrogations that no hits against Japanese ships had occurred during the battle from high-altitude horizontal bombing.<sup>123</sup> Following Midway, the U.S. Pacific Fleet Commander, Admiral Chester W. Nimitz, decided to “let the claims stand with only mild amendment” in the interests of Army-Navy cooperation.<sup>124</sup>

The USAAF resented the challenge emanating from the U.S. Navy over the effectiveness of its high-altitude bombers against maritime targets. Conversely, the leaders of Naval aviation viewed with concern the growing reputation of the USAAF among the public and Congress, in this case due to inaccurate combat claims, and its possible effect on a future independent air force. This concern was based on the fear that Naval aviation would be absorbed into the new service, or at best marginalized. Those fears were elevated in August 1943 when General George C. Marshall approved a new effort to assess the benefits of an independent air force. As the then Commander, U.S. Pacific Fleet Air Forces, Towers captured the anxiety and resentment of Naval aviators towards the prospect of an independent air force in a letter to Nimitz. His themes echoed from Mitchell to Midway:

The battle against radical change has been fought out many times between 1920...and the present time. The aftermath of Midway shook Naval and Marine Aviation to the core. The units participating did a magnificent job. They suffered heavy losses. The ensuring publicity is well known. The younger element felt

---

<sup>122</sup> *New York Times*, editorial, June 9, 1942.

<sup>123</sup> Mitsuo Fuchida and Masatake Okumiya, *Midway: The Battle That Doomed Japan, The Japanese Navy's Story* (Annapolis, MD: U.S. Naval Institute, 1955), 136, 162. On June 3 nine B-17s attacked a Japanese transport convoy with no hits. On June 4 fourteen B-17s attacked the Japanese carrier *Soryu* with no hits.

<sup>124</sup> Gordon W. Prange, Donald M. Goldstein and Katherine V. Dillon, *Miracle at Midway* (New York: McGraw-Hill Book Co., 1982), 365-6.

that their dead comrades had been betrayed by the Navy. Many incidents in the South Pacific caused further feeling. The Navy is dangerously vulnerable to attack on its aviation policy. Powerful forces, Army, Congress, and the press are waiting the signal to launch the attack.<sup>125</sup>

The continuing charge and counter-charge between the USAAF and the U.S. Navy over bombing tactics, the deep resentment among Naval airmen over publicity connected with what were viewed as inflated combat claims in the Pacific Theater, and the specter of an independent air force all fed the undercurrents of the bitter rivalry that hindered the ability of the two services to cooperate. This was especially true of the A/S warfare mission that crossed the boundaries of both naval operations and land-based air operations. The success of the U-boats forced land-based military aviation into a naval warfare role that brought to the surface parochial service concerns that were largely irrelevant to an Allied victory in the Atlantic.

Arnold sought to keep the land-based portion of the A/S effort under USAAF control to prevent Navy encroachment into its aviation domain and to ensure that the mission was performed in accordance with its offensive air doctrine. During 1942 two important steps were taken by the USAAF to achieve these aims. First, Arnold established the Sea Search Attack and Development Unit at Langley Field in Virginia during the summer of 1942 to accelerate and standardize the development and introduction of technology and tactics to USAAF's A/S effort.<sup>126</sup> This was followed in

---

<sup>125</sup> John H. Towers letter to Commander in Chief, U.S. Pacific Fleet, subject: Naval Aviation on August 22, 1943, box 3, folder 3, *Towers Papers*, LOC.

<sup>126</sup> Morison, *U.S. Naval Operations in WWII*, 1:243.

October by the creation of the USAAF Antisubmarine Command (AAFAC) to ensure “unity of command for antisubmarine forces within the War Department.”<sup>127</sup>

During the summer and fall of 1942, as the USAAF enhanced its internal A/S structure, Arnold pressed for greater autonomy of the USAAF units that operated under the operational control of the Navy. The model organization from the Army aviation perspective was RAF CC where the air commander held authority to determine how best to meet the operational requirements established by the naval commander. The “deficient command organization” of the sea frontier commanders inhibited mobility, wasted precious resources, and lacked the unity of command found in the RAF CC organization. To facilitate autonomy for the air A/S commander the USAAF also argued for a single commander of all United States forces engaged against the U-boats.<sup>128</sup>

With autonomy over A/S air operations, AAFAC could have adjusted the balance between convoy support and offensive operations and placed their emphasis on search and destroy sweeps which the airmen were confident would finally defeat the U-boats. Surprisingly, the Army airmen used the largely unproductive RAF CC offensive in the Bay of Biscay, where more than half of Coastal Command’s aircraft were committed, to bolster the case for offensive A/S operations.<sup>129</sup> King appeared willing to consider the advantages of a single USAAF command organization for land-based air A/S operations that controlled Army and Navy assets. However, on the issue of overall unity of command he remained adamant it was a naval prerogative that he wielded. Additionally,

---

<sup>127</sup> A. Timothy Warnock, *Air Power versus U-boats: Confronting Hitler’s Submarine Menace in the European Theater* (Washington: Office of Air Force History, 1999), 7.

<sup>128</sup> Craven and Cate, *The Army Air Forces in World War II*, 2:384

<sup>129</sup> Morison, *U.S. Naval Operations in WWII*, 1:243.



he refused to modify his exercise of command through the Sea Frontier Commanders and remained fixed on the necessity of defensive air escort for convoys.

The Admiralty and RAF exemplar found in their A/S collaboration relied upon the Royal Navy's willingness to accept the aviation expertise of RAF CC in the campaign against the U-boats. The more contentious relationship between the naval and air services in the United States developed due to the organic aviation expertise that resided with the U.S. Navy. The fundamental difference between the air components of the Army and the Navy rested upon the principle that Naval aviation had "been built as an integral part of the Navy,"<sup>130</sup> while the Army's aviation arm through most of its existence worked aggressively towards independence rather than integration. Despite these differences there were examples of cooperation among the Allied military services such as Towers' mediation of a conflict in May 1942 between Arnold and Portal over allocations of United States aircraft production.<sup>131</sup> Yet agreement on tactics and control for land-based A/S air operations was never fully achieved.

The U.S. Navy employed USAAF forces under an agreement called "Joint Action of the Army and Navy, 1935" which offered a limited framework for cooperation between services. As temporarily assigned units the USAAF squadrons were considered "in lieu of" Navy squadrons and treated the same as naval units. The Army airmen struggled to fit into the U.S. Navy blueprint for A/S defense after having the "independent air offensive" doctrine instilled in them during their USAAF training.<sup>132</sup>

---

<sup>130</sup> John H. Towers letter to Commander in Chief, U.S. Pacific Fleet, subject: Naval Aviation on October 4, 1943, box 3, folder 3, *Towers Papers*, LOC.

<sup>131</sup> John H. Towers, BuAer office diary, U.S. Navy Department, entry on May 29, 1942, box 1, folder 4, *Towers Papers*, LOC.

<sup>132</sup> Charles E. Kirkpatrick, "Joint Planning for Operation Torch," *Parameters, U.S. Army War College Summer* (1991):73-6. [http://www.carlisle.army.mil/usawc/parameters/Articles/1991/1991\\_kirkpatrick.pdf](http://www.carlisle.army.mil/usawc/parameters/Articles/1991/1991_kirkpatrick.pdf) (accessed October 5, 2010); Craven and Cate, *The Army Air Forces in World War II*, 2: 385.

Although the agreement during the summer of 1942 to allocate a portion of the *Liberator* production output to the Navy had placated King, he remained obdurate towards Arnold's requests for Army command of the land-based portion of the air A/S effort. Even after the creation of the AAFAC in October of 1942 King stuck to his position on the issue.<sup>133</sup> To counter King's intransigence and have its airmen placed under an Army commander the War Department began a campaign to elevate the issue to the JCS and the Secretary of the Navy.

Early in 1943 a consultant to the War Department, Edward L. Bowles, advised Marshall and Secretary of War Henry L. Stimson of the dependency of the Army's overseas operations upon the Allies' ability to suppress the Germans' anti-shipping campaign in the Atlantic. Bowles had joined the War Department from the faculty of the Massachusetts Institute of Technology and had served as the director of the USAAF A/S research facility at Langley Field. By March he had completed a study of what he called "the problem of supply of U.S. and Allied forces overseas affected by enemy submarine activities." He agreed with Arnold that both a unified A/S commander and a single air A/S commander were needed to maximize the effectiveness of the United States forces engaged in the Battle of the Atlantic. Bowles found "The conclusion that an Army man should be entrusted with the primary responsibility for the safety of the supply of our overseas troops is inescapable; there is persuasive psychological and objective foundation for it. The U-boat is primarily a weapon against supply, not against naval fleets." He also recommended that specific A/S missions be assigned to Army and Navy aircraft with convoy escort to be performed by Naval aircraft. The Army's mission would be hunting

---

<sup>133</sup> King and Whitehall, *Fleet Admiral King: A Naval Record*, 451-9.

and destroying submarines, placing its “land-based airplanes on missions [which] the Army thoroughly believes in.”<sup>134</sup>

In a second memorandum two days later Bowles mirrored the USAAF practice of viewing its role through the prism of an aircraft’s strengths when he stated that the “policy of dynamic attack is much better suited to the inherent mobility of aircraft than is the convoy escort role.” The U.S. Navy contended that aircraft were most valuable supporting the convoys since this placed them where the submarines were concentrated and obliged to expose their position to conduct attacks. Bowles closed his March 3 memorandum with the conclusion that the Admiralty-RAF CC arrangement for operational control must be insisted on, stating “there must be a clear understanding and appreciation of the term ‘operational control.’ When it is stated that the Command [AAFAC] shall function under the operational control of the Navy it must be understood that such control should not be of a nature to restrict the Command in the pattern or extent of its operations. It must not be such as to detract from the freedom of the Command to attack its problem in its own way.”<sup>135</sup>

The official history of the USAAF in World War II described the Army-Navy struggle over land-based A/S air forces as a “jurisdictional and doctrinal debate” in which all compromises “foundered on the rocks of inter-service controversy.”<sup>136</sup> Morison in his volume on the first four years of the Atlantic campaign correctly states that “it is not to the credit of the two services that they wrestled over this problem of organization for

---

<sup>134</sup> Edward L. Bowles memorandum to General Marshall and Lt. General McNarney, subject: The Acute Problem of Ocean-Borne Transport and Supply on March 1, 1943, RG 107, entry 99, Sec. of War Stimson “Safe File,” box 1, folder: Anti-Submarine Warfare, NA II.

<sup>135</sup> Edward L. Bowles memorandum to General Marshall and Lt. General McNarney, subject: Army Air Antisubmarine Effort on March 3, 1943, RG 107, entry 99, Sec. of War Stimson “Safe File,” box 1, folder: Anti-Submarine Warfare, NA II.

<sup>136</sup> Craven and Cate, *The Army Air Forces In World War II*, 1:519.

eighteen of the most critical months of the war without reaching a solution.”<sup>137</sup> He attributed the failure more to the clashing personalities and service ambitions rather than the difficulty of the issues themselves. However, the controversy was also fueled by the competing aviation concepts of the two services and their distinct tactical views. The U.S. Navy’s incorporation of aviation as an integral component to the fleet ran counter to the Army airmen’s vision of aviation as a wholly independent and dominant military force. Of even greater importance was the conflict between the USAAF view that an offensive strategy is always superior and the U.S. Navy’s less doctrinal approach to strategy. However, all these points of friction were overshadowed by the apprehension within the U.S. Navy’s that its air arm would eventually be incorporated into a newly formed independent Air Force. As the Battle of the Atlantic surged forward the Allies’ naval and air services simultaneously grappled with the U-boat force and their own organizational deficiencies in the pursuit of victory.

---

<sup>137</sup> Morison, *U.S. Naval Operations in WWII*, 1:246.

## CHAPTER IV

### EBB AND FLOW

From its start in September 1939 until the decisive turning point in mid-1943 the Battle of the Atlantic alternated between success and failure for both the Allies and Germany. The chronology of this forty-six month period of ebb and flow encompasses three distinct phases. In the first phase, from September 1939 to December 1941, Great Britain and Canada stood virtually alone against Nazi Germany and Fascist Italy. The second phase began with the entry of the United States into the conflict, a point in the battle that Churchill described as the beginning of the ‘Grand Alliance.’ The final and most desperate phase of this interval of fluctuating fortunes emerged during the bitter winter of late 1942 and stretched into summer of 1943 when the Allies gained control of the North Atlantic convoy routes and held it to the end of the war. In each of these phases the leadership of Churchill and Roosevelt affected the development and use of land-based VLR aircraft against the U-boats. The differing views held by the Allied naval and air services on strategy and tactics also influenced how these valuable aircraft were employed. How these national and military leaders dealt with the U-boat threat and the competing demands for VLR aircraft was reflected in the sequence of decisions that deferred the use of these critical assets in the Greenland-Iceland air-gap until the spring of 1943.

#### *Great Britain Stands Alone*

As Adolf Hitler consolidated German control of Western Europe in 1940 Great Britain acquired desperately needed ships and crews from France, Norway, Poland, and

other governments-in-exile. The United States also gradually extended support to Great Britain as Roosevelt reacted to the growing threat of the *Kriegsmarine*'s submarine offensive against the British economy. Following the attack on Pearl Harbor in early December 1941 that support formalized and expanded as the Allies blended their resources and experience to achieve victory over the Axis powers. Ironically, the United States entry into the war provided new opportunities for the *U-Bootwaffe* in the poorly defended waters of the western Atlantic and the Caribbean Sea. The U.S. Navy and USAAF's lack of preparation for an A/S campaign mirrored the earlier failure of the Royal Navy and the RAF, and was fully exploited by Admiral Karl Dönitz from January to the summer of 1942. This sudden acceleration of the German *Tonnageschlacht* created an immediate crisis for the Allies. Throughout 1942 the Allies strained to defend the precious ships and cargoes that sustained Great Britain. No one in London or Washington could view the bloody results of that year with optimism. This second phase of the struggle at sea concluded with the bitter winter of 1942 and 1943.

The final phase in this ebb and flow interval in the Battle of the Atlantic unfolded from November 1942 to June of 1943. Dönitz's submarine force reached its greatest strength at sea during this pivotal time and extracted from the Allies an enormous toll in ships, cargoes, and crews. Simultaneously the Allies expanded their own naval and air power and American shipbuilders steadily grew their capacity to produce warships and merchant hulls. As the Battle of the Atlantic approached its climax the Allies achieved production rates that exceeded their losses at sea, a development that spelled the doom of Germany's *Tonnageschlacht*.

Although twenty-six more months of combat in the Atlantic were to come, by June 1943 Dönitz and his indomitable U-boat crews understood that victory in their campaign against the convoys was no longer obtainable. The growing strength of the escort forces, more sophisticated sensors and deadly weapon systems, accurate signals intelligence, and most especially the rapid expansion of land and sea-based A/S aircraft could not be overcome by the German submariners. An examination of the events that emerged during these climatic days shows the importance of the swift maturation of the airborne A/S forces and its central role in forcing the U-boats into a defensive posture. The influence of the national and military leaders who directed the Allied strategy in the Battle of the Atlantic and their introduction of VLR A/S aircraft into the battle at this decisive point is one important factor in this study. Another was the discord among the Allied air and naval services over the use of air power and its role in the decision-making that led the B-24 *Liberator* to serve as the dominant land-based VLR patrol aircraft in the Atlantic campaign.

The German attack on Poland on September 1, 1939 set in motion the *Kriegsmarine's* plan for commerce warfare against Great Britain. Dönitz had ordered his available U-boats to sea prior to the outbreak of hostilities. His force of twenty-one ocean submarines was deployed from the Irish Sea to the Straits of Gibraltar. Despite an initial success when *U-30* sank the passenger liner *Athenia*, BdU could not sustain this level of operational deployment and by September 18 the number of U-boats on Atlantic patrol had dropped to eleven.<sup>138</sup> The *Kriegsmarine* had worked diligently to prepare for hostilities with Great Britain, but its plan to construct a navy capable of challenging the Royal Navy was predicated on peace being sustained until the mid-1940s. Hitler's

---

<sup>138</sup> *Times* (London), "The Torpedoed *Athenia*," September 5, 1939; Roskill, *The War at Sea*, 1:103.

miscalculation sent his navy into combat unprepared. Yet despite its limited resources the *U-Bootwaffe* achieved extraordinary results during the first three and a half years of the battle, while Germany endeavored to build a fleet of submarines capable of severing the North Atlantic convoy routes. Hindered by obstacles such as competing requirements from the *Wehrmacht*, industrial capacity, production and transportation delays caused by the Allied bomber offensive, and the need to replace lost U-boats and their crews while simultaneously expanding the force, Dönitz never reached the operational strength of 300 submarines which he calculated in the first month of the war were necessary to achieve victory.<sup>139</sup> Nonetheless, his U-boat force would come close to victory in late 1942 and early 1943.

On September 2, 1939 Churchill returned as the First Lord of the Admiralty within Prime Minister Neville Chamberlain's government.<sup>140</sup> As at the start of the last war the British merchant fleet totaled some twenty-one million tons.<sup>141</sup> His immediate concern was the preservation of this fleet needed to sustain Great Britain and he oversaw the rapid establishment of defensive measures such as convoying, assigning naval escorts, and A/S air patrols to the maximum extent possible. What Churchill found was a navy and air force ill-prepared for this complex and intensive mission vital to the survival of the British Isles.

The Air Ministry and the Admiralty resolved their major organizational issues related to air support of maritime and naval operations during the late 1930s. These changes, however, arrived too late to permit development of a robust force within RAF

---

<sup>139</sup> Hessler, *The U-Boat War in the Atlantic, 1939-1945*, 1:10.

<sup>140</sup> *Times* (London), "War Cabinet of Nine," September 4, 1939; Churchill, *The Second World War*, 1:410.

<sup>141</sup> Churchill, *The Second World War*, 1:414.



CC and left the Royal Navy with a largely obsolete fleet of carrier-based planes such as the venerable *Swordfish* torpedo bomber/scout aircraft for the first two years of the war.<sup>142</sup> Churchill found additional readiness issues concerning the nascent anti-U-boat campaign. Although the Asdic submarine detection system had been tested and refined in the early 1930s and nearly two hundred ships were fitted with it at the war's start, only half of those vessels were available for convoy defense.<sup>143</sup> Despite their limited resources the Admiralty, with the First Lord's encouragement, pursued an offensive strategy against the U-boats. In some cases the established hunting groups formed around a fleet carrier. Although the *Swordfish* proved capable as a short-range patrol aircraft, the limitations of Asdic and the modest proficiency of its operators soon became apparent. On September 14 the carrier HMS *Ark Royal* narrowly escaped a torpedo attack from *U-39*. Three days later disaster struck as *U-31* sank the carrier HMS *Courageous* causing the death of 518 of her crew. In one stroke the Royal Navy lost twenty percent of its carrier force.<sup>144</sup>

The Admiralty learned the costly lesson and never again put its high-value units at deliberate risk in pursuit of U-boats. Only later when the might of its naval and air forces expanded dramatically could the Allies successfully adopt an offensive strategy against the enemy in the Atlantic. With its limited resources the Admiralty recognized that the best way to find the enemy would be in the vicinity of the convoys the U-boats hunted. That task became the mission of the small warships that made up the surface escort force for the balance of the Battle of the Atlantic. Land-based maritime patrol aircraft also

---

<sup>142</sup> Roskill, *The War at Sea*, 1:33.

<sup>143</sup> Brown, *Atlantic Escorts*, 32-3.

<sup>144</sup> *Times* (London), "Warship Sunk, Loss of H.M.S. *Courageous*," September 19, 1939; Brown, *Atlantic Escorts*, 33.

played a major role in the campaign; however, through the early years of the battle, due to their numbers and capability, their contribution was a limited one. Ultimately, improved airframes, sensors, and weapons earned the A/S patrol aircraft a position of prominence in the Atlantic victory. Regrettably for the Allies, all of that was in the future.

The volume of goods safely delivered into the British ports served as the ultimate measure of success or failure in this battle rather than the number of merchant ships sunk or U-boats destroyed. This was the yardstick Churchill continually focused on, first from his Admiralty office and later as prime minister. This was the component within the German threat that cut to his marrow and caused him to speculate whether it would “ever reach the point where our life would be destroyed?”<sup>145</sup> Pre-war imports to the British Isles were slightly above fifty million tons of foodstuffs and goods per year. The U-boats by their mere presence forced the British to accept the enormous inefficiencies inherent in the convoy system that delayed arrivals and departures and concentrated this activity into a small number of ports in the west. *Luftwaffe* attacks, defensive black-outs, transportation bottlenecks, and a growing backlog of damaged ships awaiting repair all added to the burden of the ships sunk at sea.

By the beginning of 1940 imports to the British Isles had been reduced by almost one-third from their peacetime level. The Ministry of Food calculated that the basic needs of the population could not be fulfilled if food imports dropped below fifteen million tons. An indication of Great Britain’s precarious situation is found in the Prime Minister’s Memorandum on the Import Programmes dated March 26, 1941 that instructs the Ministry of Food and the Ministry of Supply to manage any deficit in imports on the

---

<sup>145</sup> Churchill, *The Second World War*, 2:599.

“basis of one ton cut in food to two tons in supply.”<sup>146</sup> The near constant specter of malnutrition or starvation gave Churchill and the people of Britain a unique perspective that kept the Battle of the Atlantic in the forefront of their collective consciousness far longer than other threats. Of near equal concern was their absolute dependence upon the convoys that traversed the U-boat gauntlet.

Once Britain abandoned its offensive strategy against the U-boats it focused on building an effective convoy defense system and extending that defense as far westward as possible. The nerve-centers for this effort were the Admiralty’s Operational Intelligence Centre (OIC) and its Submarine Tracking Room where analysts specialized in the collection and assessment of all available information on U-boat and convoy operations.<sup>147</sup> The headquarters of Commander-in-Chief, Western Approaches, initially at Plymouth and then relocated to Liverpool in February 1941, served as a second nerve-center for the Battle of the Atlantic. This staff issued all orders for the Atlantic convoys and their surface and air escorts. The naval and air commanders for the battle “were forged into a single highly tempered weapon” as No. 15 Group of RAF CC, with responsibility for air operations in the Atlantic, co-located with Western Approaches near Liverpool<sup>148</sup>

An essential element in Britain’s convoy defense scheme was to extend protection as far westward as possible. Using the scant resources at hand the Admiralty pushed convoy defense in a slowly expanding arc to the west. The endurance of the escort ships and aircraft along with the proximity to refueling bases dictated how far they could patrol

---

<sup>146</sup> Churchill, *The Second World War*, 3:128-30.

<sup>147</sup> Roskill, *The War at Sea*, 1:18.

<sup>148</sup> Churchill, *The Second World War*, 1:118; *Times* (London), “Navy and R.A.F. Cooperation, Position of Coastal Command, Lord Trenchard’s Plea to Government,” December 19, 1940.

to the west. Through the summer and into the fall of 1940 Western Approaches stretched its reach out into the Atlantic from 12-15° West longitude in May and then in October, following the completion of refueling bases in Northern Ireland and new airfields in Scotland and the Orkneys, out to 19° West longitude. This provided the convoys protection out to 400 miles west of the Irish coast. At the same time the Canadian Halifax Escort Force provided escort to eastbound convoys for the first 300-400 miles of the voyage. In between these protective arcs the convoys generally sailed with a single armed merchant cruiser that offered little defense against a U-boat until their rendezvous with the next escort group.<sup>149</sup> As the defensive arcs expanded out into the Atlantic so did the U-boats. The resulting air-gap served as the prime hunting ground of the U-boats until escort carriers and VLR A/S aircraft closed it in mid-1943.

Defending the convoys all the way across the ocean was contingent upon the development of a chain of support bases adjacent to the North Atlantic routes. Churchill succinctly summarized the issue: "Between Canada and Great Britain are the islands of Newfoundland, Greenland, and Iceland. All these lie near the flank of the shortest, or great-circle, track between Halifax and Scotland. Forces based on these "stepping stones" could control the whole route by sectors."<sup>150</sup> Newfoundland and Greenland were important; however, the keystone to the North Atlantic was Iceland. It was of special importance as a strategic airfield site sitting astride the convoy routes. It was therefore not surprising that Britain felt it necessary to violate Icelandic neutrality and occupy the island nation on May 10, 1940. Although an act driven by desperation, it proved to be a masterstroke in the Atlantic campaign. By the spring of 1941 its airfield and refueling

---

<sup>149</sup> Roskill, *The War at Sea*, 1:343-5.

<sup>150</sup> Churchill, *The Second World War*, 3:138.

facility enabled Britain to extend its convoy umbrella out to 35° West longitude. This step provided protection roughly halfway across the ocean during a critical period in the long battle.<sup>151</sup>

The close collaboration between the Admiralty and RAF CC resulted in near simultaneous requests to the Air Ministry for additional long-range aircraft for convoy defense. In June 1940 RAF CC submitted an urgent request for heavy bombers to be employed against the U-boats; however, no aircraft were added to RAF CC since the priority for these planes rested firmly with RAF Bomber Command (RAF BC). The Admiralty's request for reconnaissance aircraft at Iceland to provide the convoys with timely information on enemy activity was also rejected since meeting the requirement would have diminished RAF BC strength.<sup>152</sup> These were some of the earliest overtures from the Admiralty and RAF CC seeking long range and VLR aircraft for their A/S mission. In large measure their aviation requirements did not receive the same high priority assigned to the larger convoy defense role because the crucial VLR A/S mission could only be fulfilled using the most modern heavy bombers available such as the *Wellington* and the newly arriving *Liberators*. Under the priorities established by Churchill these aircraft were viewed as essential to the RAF offensive bombing campaign against Germany.

The first ten months of the battle from September 1939 to June 1940 both Great Britain and Germany grappled with the same problem of limited combat platforms and crews. Yet the Royal Navy sensed in early 1940 that it had fought the *Kriegsmarine* to a stalemate in the Atlantic, for after seven months of combat the volume of imports

---

<sup>151</sup> *Times* (London), "British Troops in Iceland," May 11, 1940; Roskill, *The War at Sea*, 1:451.

<sup>152</sup> *Times* (London), "R.A.F. Strength in Iceland, Aerodromes Built in Record Time," October 28, 1941; Roskill, *The War at Sea*, 1:347.

arriving in British ports had temporarily improved.<sup>153</sup> The repeated ebbing and flowing of advantage in the campaign reflected an unmistakable characteristic of the battle as each side parried the changing tactics, technology, and power of their adversary. A wide variety of factors influenced the many changes in fortune that each belligerent endured. Germany's small but highly professional submarine force had performed exceedingly well, but their limited strength had allowed the Royal Navy to rebound at sea despite its meager A/S resources. During this period merchant ship sinkings varied significantly from month to month. By March 1940 the monthly tonnage average sunk was less than 180,000 tons. Churchill observed that "Nothing of major importance occurred in the first year of the U-boat warfare. The Battle of the Atlantic was reserved for 1941 and 1942."<sup>154</sup>

The war abruptly accelerated on May 10, 1940 when German troops invaded Holland and Belgium, British Royal Marines occupied Iceland, and Churchill became prime minister.<sup>155</sup> The pace of the war increased as the *Wehrmacht* swept across Western Europe culminating in the fall of France at the end of June. The British Isles braced for invasion. The following month the epic but brief struggle for air supremacy over the British Isles began and it demanded the near-full attention of the British people and its government. With the RAF's victory over the *Luftwaffe* in the fall of 1940 the threat of invasion diminished and Great Britain secured its role as the Allies' European bastion in the fight against the Axis. However, the Germans had not been idle at sea during the air battle. With the completion of their support mission for the Norway invasion sufficient U-boats became available in June to resume wolf-pack operations in the Atlantic. By the

---

<sup>153</sup> Blair, *The Hunters, 1939-1942*, 97.

<sup>154</sup> Churchill, *The Second World War*, 1:416.

<sup>155</sup> *Washington Post*, "Chamberlain Quits," May 11, 1940.

end of 1940 the primary threat to the British was Germany's submarine campaign.<sup>156</sup> In the coming year Dönitz would receive unprecedented levels of support from Raeder and Hitler and his *U-Bootwaffe* achieved new levels of success.

The gravity of the situation for Great Britain was reflected in the correspondence from Churchill to Roosevelt during this period that encompassed the fall of France, the Battle of Britain, and a growing U-boat force. For the first time on May 15, 1940 the prime minister asked the president for "the loan of forty or fifty of your old destroyers to bridge the gap between what we have now and the large new construction we put in hand at the beginning of the war." He also appealed for "several hundred of the latest types of aircraft, of which you are now getting delivery."<sup>157</sup> His request reflected the military priorities of the British with the U-boat menace at the forefront, along with the need for aircraft to defend the convoys and bombers to carry the fight to Germany.

Churchill emphasized the urgency of situation in a telegram sent to Roosevelt on May 20 when he alluded to the possible danger, should his government fall, of the Royal Navy falling under German control.<sup>158</sup> This strategy to encourage American material support led to an extended exchange of correspondence generated by the concern in Washington over Great Britain's precarious military position during the summer of 1940. Churchill finally put the matter to rest after the two governments reached an accord in early September on the exchange of long-term leases for naval and air bases in the Western Hemisphere in exchange for fifty WWI vintage U.S. Navy destroyers, with a provision that should "the waters of great Britain become untenable for British ships of

---

<sup>156</sup> *Times* (London), "New German Strategy, Attrition from the Air, Talk of Invasion Dropped," October 3, 1940.

<sup>157</sup> Churchill telegram C-9x to Roosevelt on May 15, 1940, *Churchill-Roosevelt Correspondence*, 1:37.

<sup>158</sup> Churchill telegram C-11x to Roosevelt on May 20, 1940, *Churchill-Roosevelt Correspondence*, 1:40

war, the latter would not be turned over to the Germans or sunk, but would be sent to other parts of the empire.”<sup>159</sup> The additional ships and aircraft were vital to Great Britain, but the establishment of American bases at the eight sites authorized in the Atlantic and Caribbean proved to be of great importance as well. Newfoundland especially would be a cornerstone of the air A/S effort in support of the convoys as the air base at Argentia expanded to sustain land-based patrols by the RCAF, USAAF, and the U.S. Navy.<sup>160</sup>

Faced with an aggressive U-boat offensive in the Atlantic at the beginning of December 1940, Churchill ordered RAF CC to intensify its patrols of the approaches to the Mersey and Clyde through the North Channel between Scotland and Northern Ireland, the single entry point of the North Atlantic convoys. The southern approach between southeast Ireland and Wales, via the St. George’s Channel, had been abandoned in July as the U-boats occupied French bases along the Biscay coast and the Irish Free State continued its neutrality policy. During 1940 the Allies had lost 300,000 tons or more of shipping each month beginning with June. The total for the period from June to December was nearly three million tons and it caused deep concern in London.<sup>161</sup> In his effort to bolster RAF CC Churchill insisted that “Nothing must be spared from this task.”<sup>162</sup> Coastal Command was assigned absolute priority with the bombing of Germany given second rank. Despite the dire threat at sea Churchill would not adhere to this priority in the coming year, even though the good results achieved by RAF CC in those

---

<sup>159</sup> Cordell Hull to British Ambassador Lothian, diplomatic note on September 2, 1940, and British Ambassador Lothian to Sumter Welles, diplomatic note on August 8, 1940, *FRUS Diplomatic Papers, 1940*, 3:74-5; Roosevelt telegram R-8x to Churchill on August 13, 1940, *Churchill-Roosevelt Correspondence*, 1:58-9.

<sup>160</sup> Roosevelt telegram R-8x to Churchill of August 13, 1940, *Churchill-Roosevelt Correspondence*, 1:58-9.

<sup>161</sup> Churchill, *The Second World War*, 2: Appendix, Table I and II, 714.

<sup>162</sup> Churchill, *The Second World War*, 2:607-8.



areas they were capable of patrolling forced BdU to withdraw its U-boats from coastal areas “where the air patrol was too dangerous.”<sup>163</sup>

It was against this background that on December 7, 1940 Churchill transmitted to Roosevelt what became known as the Lend-Lease telegram. With the successful air battle for Britain behind him the Prime Minister candidly described the situation in the British Isles: “The danger of Great Britain being destroyed by a swift overwhelming blow has for the time being very greatly receded. In its place there is a long, gradually maturing danger, less sudden and less spectacular but equally deadly. This mortal danger is the steady and increasing diminution of sea tonnage.”<sup>164</sup> He speculated that in the future the key to victory may be the application of air power against Germany, but at that moment the key to survival was shipping. They estimated that to sustain a maximum war effort forty-three million tons of imports were necessary and in September the rate was five million below the estimate. A continued decline in imports would be a mortal blow to their war endeavor. Churchill presented two immediate needs for victory, the first being the rapid buildup of all varieties of military materials, most especially aircraft, in the British Isles during 1941. The second need was the use of U.S. Naval forces to “extend their sea control over the American side of the Atlantic, so as to prevent molestation by enemy vessels of the approaches to the new line of naval and air bases which the United States is establishing in British islands in the Western Hemisphere.”<sup>165</sup> After fifteen months of combat on the Atlantic the British identified their need for aircraft as an equal priority with their requirement for escort ships in the A/S campaign and vigorously

---

<sup>163</sup> Hessler, *The U-Boat War in the Atlantic*, 1:49.

<sup>164</sup> Ibid.

<sup>165</sup> Churchill “Lend-Lease” telegram C-43x to Roosevelt on December 7, 1940, *Churchill-Roosevelt Correspondence*, 1:104-5.

pressed the United States to supply them. To lay the groundwork for his acquiescence, at the end of December Roosevelt delivered a fireside chat and called upon the nation to become “the great arsenal of democracy.” He gave Henry Morgenthau, his Treasury Secretary, instructions to prepare what became the Lend-Lease Act to allow the United States to subsidize the British war effort.<sup>166</sup>

The year 1941 opened with ominous signs for Great Britain despite the good news from Washington. The *U-Bootwaffe* was hitting its stride and realizing significant advantages from the new bases along the Biscay coast. The British relied on their long-established network of fleet bases at Gibraltar, Scapa Flow, and Halifax augmented with new bases at Iceland, Newfoundland, and Greenland to counter the geographic advantage the Germans had earned with the fall of France and Norway. However, their far-flung empire was also a disadvantage for the British had to also contend with military necessities from the Middle East to the Mediterranean Sea. These responsibilities drew assets from the Atlantic campaign throughout the first half of the war as the British sought to balance the myriad of competing demands for troops, ships, and especially aircraft. In areas such as North Africa and the Middle East British forces required significant aircraft support due to their precarious military situation. In May 1941 when the first *Catalina* flying boats began to arrive for British service, they were not added to the RAF CC effort in the Atlantic where they were desperately needed, but were deployed to Gibraltar to replace obsolete *London* flying boats to counter the presence of U-boats in the Mediterranean. At the same time a squadron of highly-capable *Sunderland*

---

<sup>166</sup> Text of Roosevelt’s “arsenal of democracy” radio address of December 29, 1940, U.S. Department of State, *Bulletin*, January 4, 1941, 3; George Bookman, “Crisis ‘Serious as War Itself’ Confronts Nation, President Says, Denying He Intends To Send Troops Abroad,” *Washington Post*, December 30, 1940; *Lend Lease Act*, Public Law 77-11, *U.S. Statutes at Large* 55, Pt.1 (1941-1942): 31-3.

flying boats was deployed to the naval base at Freetown, Sierra Leone to support West African convoys threatened by long-range U-boat operations.<sup>167</sup>

Technology provided some relief in January as both escort ships and RAF CC aircraft began to be fitted with radar sets capable of detecting a U-boat on the surface.<sup>168</sup> Deployment of this effective radar significantly mitigated the shortcomings of Asdic and it profoundly enhanced the potency of aircraft in the A/S role. More destroyers were assigned to convoy escort service as the invasion threat declined and RAF CC shifted air squadrons to support Western Approaches.<sup>169</sup> The enhanced air-umbrella over the convoys encouraged Churchill since their “success in driving the battle into the remoter reaches of the Atlantic “disrupted the dangerous combination of the U-boats and the air.”<sup>170</sup> He had been deeply concerned over the use of *Luftwaffe* VLR *Condor* bombers in support of wolf-packs and Churchill welcomed this successful challenge to their use against the Atlantic convoys. Fortunately for the Allies the German air and naval services failed to collaborate effectively at sea and shared a contentious relationship that mirrored the one between RAF BC and the Admiralty.<sup>171</sup>

In contrast to the costly friction between the *Luftwaffe* and the *Kriegsmarine*, RAF CC and the Admiralty had by 1941 developed a very high degree of coordination in the operations against the U-boats. This was especially true of the working relationship that flourished between Coastal Command headquarters and the Admiralty’s Submarine Tracking Room. The two staffs had perfected the tactical use of air escorts that in the past had simply orbited around those convoys they could reach, but were now making full use

---

<sup>167</sup> Roskill, *The War at Sea*, 1:347.

<sup>168</sup> Ibid., 1:358.

<sup>169</sup> Ibid., 1:364.

<sup>170</sup> Churchill, *The Second World War*, 3:147.

<sup>171</sup> Roskill, *The War at Sea*, 1:143.

of their speed and mobility to search ahead and on the flanks of convoys in response to intelligence from the Admiralty.<sup>172</sup>

Nonetheless, merchant ship losses reached a new high in March 1941. The prime minister, after reviewing the figures on tonnage destroyed at sea, informed Admiral Sir Dudley Pound of his intention to formally proclaim “the Battle of the Atlantic” as a way to “lift this business to the highest plane, over everything else.” Churchill used this proclamation as he had employed the “the Battle of Britain” nine months earlier during the air battle as a signal intended to concentrate all minds and all departments concerned upon the U-boat war since “everything...turned upon the Battle of the Atlantic.”<sup>173</sup> It was issued as a directive from the Minister of Defence on March 6 and was soon followed by the creation of the Battle of the Atlantic Committee that brought together all ministers and functionaries of the military and civil services with responsibilities connected to the anti-U-boat campaign. This new venue enabled Churchill to personally follow developments in the battle and solve problems rapidly throughout the many branches of government that supported the campaign. He chaired his first meeting of the committee on March 19 and continued to hold weekly meetings until the threat diminished in 1943.<sup>174</sup>

With the renewed focus on the battle came recognition that with their growing sensor and weapons capabilities, aircraft possessed an innate capacity to counter the strengths of the U-boat. During this period A/S aircraft progressed from a role as an important supplement to the surface escorts into an unequivocal weapon in its own right.

---

<sup>172</sup> Roskill, *The War at Sea*, 1:358.

<sup>173</sup> Churchill, *The Second World War*, 3:122-3; *Times* (London), “Mr. Churchill’s Review of the War,” April 10, 1941.

<sup>174</sup> Roskill, *The War at Sea*, 1:364.

Requests from the British for increased quantities and types of aircraft accelerated in the early spring of 1941. Churchill had repeatedly mentioned the specific and urgent need for flying boats during the summer of 1940, as he did in his follow-up telegram to the destroyers for bases agreement on August 15, 1940.<sup>175</sup> In the closing of his December 7 Lend-Lease telegram he invited Roosevelt to “give earnest consideration to an immediate order on joint account for a further 2,000 combat aircraft a month? Of these aircraft I would submit that the highest possible proportion should be heavy bombers, the weapon on which above all others we depend to shatter the foundation of German military power.”<sup>176</sup> Here Churchill was emphasizing the importance of the RAF BC offensive campaign against Germany; however, as the Battle of the Atlantic unfolded it would be the same heavy bombers used by RAF BC and the USAAF that proved to be the decisive aircraft in achieving A/S air escort across the full breadth of the North Atlantic convoy routes.

The use of ship-based aircraft as protection against enemy bombers and for organic A/S air patrol was an alternative concept to land-based aircraft that was developed during 1940 and began to influence the battle in 1941. Although its fleet carriers were available, the loss of HMS *Courageous* in 1939 had shown the Admiralty that A/S operations and convoy support were a high-risk use of these high-value assets. The innovative solution pursued was the use of catapults aboard naval auxiliaries and merchant ships to operate single RAF fighter aircraft. The first approach resulted in the conversion of five naval auxiliaries into Fighter-Catapult-Ships (FCS) that were primarily

---

<sup>175</sup> Churchill telegram C-21x to Roosevelt on August 15, 1940, *Churchill-Roosevelt Correspondence*, 1:60.

<sup>176</sup> Churchill “Lend-Lease” telegram C-43x to Roosevelt on December 7, 1940, *Churchill-Roosevelt Correspondence*, 1:107.

intended for defense against the threat posed by Focke-Wulf *Condor* bombers against the Gibraltar convoys. However, several of these ships operated in support of Atlantic convoys. The alternative and more ambitious approach was the Catapult-Aircraft-Merchantman (CAM) which fitted an RAF *Hurricane* fighter and catapult to a merchant ship. The initial increment involved the conversion of fifty ships, but it would not be until November 1941 when a CAM ship scored its first kill. Use of these aircraft involved a single sortie that normally ended with the pilot riding a parachute into the ocean where an escort vessel would attempt a recovery. As S. W. Roskill noted in the Royal Navy's official history, these flights "demanded a cold-blooded gallantry."<sup>177</sup> Although these aircraft offered some capability against submarines, they served in a primary role of air defense.

The ultimate remedy for organic air support to convoys proved to be the escort carrier. This more conventional concept involved installation of a flight deck on a merchant ship that would be capable of launching and recovering six to twelve naval aircraft that would provide defense against bombers and A/S patrols. The first conversion was the ex-German ship *Hannover* that was commissioned into the Royal Navy in June 1941 as HMS *Audacity*. In her brief seven month career *Audacity* proved the soundness of the escort carrier concept and led to the construction of dozens of sister ships that served in both the Royal Navy and the U.S. Navy with distinction in all theaters of the war. Escort carriers joined the Battle of the Atlantic in the spring of 1943 and were a major factor in the defeat of the U-boats. However, the *Audacity* herself was sunk by U-

---

<sup>177</sup> *Times* (London), "Fighter Catapulted Off Merchantman," October 10, 1941; Roskill, *The War at Sea*, 1:477

751 at the end of 1941 after ably defending the Gibraltar to Great Britain convoy HG-76 against air and submarine attacks.<sup>178</sup>

The use of land-based aircraft, however, remained at the forefront of the British strategy to defeat Dönitz's *Tonnageschlacht*. RAF CC continued to expand its coverage in the Atlantic and established an Area Combined Headquarters at Reykjavik that would play a pivotal role in coordinating operations from the island as aviation assets there expanded in 1942.<sup>179</sup> Churchill also emphasized in his correspondence with Roosevelt the importance of Greenland as a base for air operations. In mid-April he commented on the presence of approximately fifteen U-boats near the 30<sup>th</sup> meridian, a situation that would benefit enormously from the operation of United States flying boats from Greenland.<sup>180</sup>

After six months of deliberations within the Defence Committee the question of whether RAF CC should be transferred from the Air Ministry and placed under Admiralty authority was resolved to the satisfaction of all parties in April 1941.<sup>181</sup> With the crucial role of RAF CC becoming more and more apparent as the battle against the U-boats advanced some thought a radical transfer would enhance the command's effectiveness; however, concern over the challenges associated with such a move and the danger of disruption to operations during a time of crisis led to the decision to simply transfer operational control to the Admiralty effective on April 15, 1941.<sup>182</sup> Under this arrangement the Air Ministry remained responsible for equipment, manpower, and training while the Admiralty controlled employment of the command. In 1942 and 1943,

---

<sup>178</sup> *Times* (London), "5-Day Assault on Convoy," January 5, 1942; Roskill, *The War at Sea*, 1:477-9

<sup>179</sup> *Ibid.*, 1:452

<sup>180</sup> Churchill telegram C-81x to Roosevelt on April 24, 1941, *Churchill-Roosevelt Correspondence*, 1:172

<sup>181</sup> *Times* (London), "Navy and R.A.F. Cooperation, Position of Coastal Command, Lord Trenchard's Plea to Government," December 19, 1940.

<sup>182</sup> Roskill, *The War at Sea*, 1:360-1

as controversies enveloped the U.S. Navy and the USAAF concerning air A/S command arrangements and tactics, the near-seamless coordination between the Admiralty and RAF CC served as the desired standard. At the same time the operational control issue was resolved the Air Ministry and the Admiralty also agreed on an expansion of RAF CC squadrons and the allocation of all PBY *Catalina* flying boats on order from the United States to Coastal Command.<sup>183</sup> However, a majority of these highly effective patrol aircraft were used in the Mediterranean and the Bay of Biscay for the offensive operations that were favored by the RAF rather than in defensive support of the convoys.

At the end of March 1941 Roosevelt gave his tacit approval to the draft conference report from a series of secret discussions conducted during January and February in Washington between British Chiefs of Staff delegates and U.S. military counterparts. The report, known as ABC-1, called for continued planning for a joint strategy should the United States find itself at war with Germany. Should war with Japan occur it proposed a Germany first strategy coupled with a strategic defensive posture in the Pacific.<sup>184</sup> Roosevelt followed the ABC-1 report with an executive decision to expand “the present so-called security zone and patrol areas which have been in effect since very early in the War to a line covering all North Atlantic waters west of about west longitude 25 degrees. We propose to utilize aircraft and naval vessels working from Greenland, Newfoundland, Nova Scotia, the United States, Bermuda and West Indies, with possible extension to Brazil if this can be arranged.”<sup>185</sup> Churchill was elated by this presidential

---

<sup>183</sup> Roskill, *The War at Sea*, 1:360-1

<sup>184</sup> Joint Committee of Congress, *Investigation of the Pearl Harbor Attack (1945-1946)*, 79<sup>th</sup> Cong., 1<sup>st</sup> Sess. (Washington: Government Printing Office, 1946), pt. 15, 1485-1541. Report entitled “United States – British Staff Conversations” (ABC-1) of March 27, 1941 is reproduced in the committee records; Stoler, *Allies and Adversaries*, 37-40.

<sup>185</sup> Roosevelt telegram R-36x to Churchill on April 11, 1941 to Churchill, *Churchill-Roosevelt Correspondence*, 1:166-7.



decision that created a line along the meridian of 26° West that became the new “virtual sea frontier of the United States.”<sup>186</sup> The president also advised Churchill that United States ships and aircraft would make known to “you position aggressor ships or planes when located in our patrol area west of West longitude 25 degrees.”<sup>187</sup> This dramatic increase in the scope of the United States’ activity assigned the U.S. Navy a new and highly active role in the Battle of the Atlantic.

The movement eastward of the earlier American Neutrality Patrol Area boundary, a line that had formerly run south from Sydney, Nova Scotia along 60° West longitude to a new point off the west coast of Iceland and then south into the mid-Atlantic significantly benefited the escort groups of Western Approaches and Halifax. Through the summer of 1941 Roskill noted that changes occurred with enormous meaning to “the Admiralty, to the Flag Officers, to the captains and crews of the ships and aircraft who had for so long fought this vital and unending struggle alone, that may not easily be realised by posterity.”<sup>188</sup> A new and active partner joined them in their fight against the U-boats. In May the United States took over the leased airbase at Argentia, Newfoundland. Within five months U.S. Navy PBV *Catalina* flying boats and USAAF B-17 *Flying Fortress* heavy bombers flew A/S patrols from Argentia in close cooperation with the RCAF. At the same time *Catalinas* deployed to Iceland where they later merged into the efforts controlled by the RAF CC’s Area Combined Headquarters at Reykjavik.<sup>189</sup>

---

<sup>186</sup> Churchill telegram C-80x to Roosevelt on April 16, 1941, *Churchill-Roosevelt Correspondence*, 1:170-1; Churchill, *The Second World War*, 3:142.

<sup>187</sup> Roosevelt telegram R-36x to Churchill on April 11, 1941, *Churchill-Roosevelt Correspondence*, 1:166.

<sup>188</sup> Roskill, *The War at Sea*, 1:472.

<sup>189</sup> *Times* (London), “R.A.F. Strength in Iceland, Aerodromes Built in Record Time,” October 28, 1941; Roskill, *The War at Sea*, 1:455, 472.

Although not apparent to most Americans at the time, Roosevelt had abandoned neutrality at sea and placed the U.S. Navy into an overt supporting role of the Royal Navy and the Royal Canadian Navy's convoy efforts. The Support Group composed of three destroyer flotillas and five PBY squadrons formed within the newly created U.S. Atlantic Fleet back in February 1941 now played a direct role in aiding the British on the American side of the Atlantic. Additionally, new airbases began operations in Greenland and Bermuda as Arnold had advocated during his April meetings in Great Britain.<sup>190</sup> Both Churchill and Roosevelt agreed that after the momentous developments of the summer the time was right for them to meet face to face. That consensus led to a rendezvous by the President and the Prime Minister at Placentia Bay, Newfoundland in early August 1941.

Churchill arrived aboard the battleship HMS *Prince of Wales* while Roosevelt travelled aboard the heavy cruiser USS *Augusta*. Both ships and their escorts entered the bay on Saturday morning, August 10 and on Sunday morning Roosevelt was accompanied by several hundred servicemen, from senior staff officers to lower ranking Sailors and Marines. Churchill orchestrated much of the conference and he specifically managed how the Divine Service would be arranged aboard *Prince of Wales*. It set the tone he desired and illustrated the close collaboration that would evolve between Great Britain and the United States during the war. Churchill described it to be "a deeply moving expression of the unity of faith of our two peoples, and none who took part in it will soon forget the spectacle presented that sunlit morning on the crowded quarterdeck – the symbolism of the Union Jack and the Stars and Stripes draped side by side on the

---

<sup>190</sup> Henry H. Arnold, Trip to England, 9 April 41-1 May 41 trip notes, entry on April 22, 1941, reel 2, folder 10, *Arnold Papers*, LOC; Roskill, *The War at Sea*, 1:454-5.

pulpit; the American and British chaplains sharing in the reading of the prayers; the highest naval, military, and air officers of Britain and the United States grouped in one body behind the President and me; the close-packed ranks of British and American sailors, completely intermingles, sharing the same books and joining fervently together in the prayers and hymns familiar to both.”<sup>191</sup> Even the selection of hymns sung had been directed by Churchill and included “Onward Christian Soldiers.” Arnold, like many in attendance, found the divine services “most inspiring,” just as Churchill intended.<sup>192</sup>

The United States delegation took an informal approach to this first meeting and prepared no specific agenda. Roosevelt anticipated an opportunity for his military leaders to meet their British counterparts and begin to lay a foundation for future collaboration while the British sought a commitment from the President on when the United States would enter the war. Their discussions produced the Atlantic Charter, a general document outlining mutual commitments to liberal war aims that helped to assuage American suspicions over British colonialism and addressed the need to caution Japan against expansion into Southeast Asia. Of immediate importance to the Battle of the Atlantic, however, was Roosevelt’s announcement of his intention to have the U.S. Navy begin escort operations in the Western Atlantic. As part of this undertaking the American Support Group prepared itself to operate from Newfoundland and Iceland with U.S. patrol aircraft in direct support of U.S. forces rather than under RAF CC direction.<sup>193</sup>

The meeting at Newfoundland concluded on August 12 and twenty-three days later Roosevelt ordered the implementation of the “Western Hemisphere Defense Plan

---

<sup>191</sup> Churchill, *The Second World War*, 3:431-2.

<sup>192</sup> Roosevelt – Churchill Conference notes on August 10, 1941, reel 2, folder 11, *Arnold Papers*, LOC.

<sup>193</sup> Joint Statement by President Roosevelt and Prime Minister Churchill, August 14, 1941, *FRUS Diplomatic Papers*, 1941, 1:367-9; Patrick Abbazia, *Mr. Roosevelt’s Navy: The Private War of the U.S. Atlantic Fleet, 1939-1942* (Annapolis, MD: Naval Institute Press, 1975), 220-1.

No. 4” putting into effect the U.S. Navy’s convoy blueprint for the Western Atlantic. This permissive scheme permitted non-U.S. flag ships to sail within convoys under U.S. Navy escort and also allowed U.S. flag vessels to sail within convoys under RCN escort.

Although the Admiralty retained full responsibility for the overall convoy system, U.S. Navy warships escorted selected convoys eastward to the designated MOMP for turnover to a Royal Navy group. After refueling at Iceland the U.S. escort group accepted a westbound convoy for the voyage to a North American port. Since these arrangements included a shift of the MOMP eastward to a point almost due south of Reykjavik it significantly increased the availability of Western Approaches escort groups by eliminating the need to refuel at Iceland to complete an escort cycle.<sup>194</sup>

The aviation situation in the Atlantic had also improved. By the summer of 1941 responsibility for the coordination of all air A/S operations in the North Atlantic resided with No. 15 Group of RAF CC and the number of assets available to it had grown significantly since 1940. Its squadrons were operating a wide variety of aircraft from western airbases in the British Isles and from Iceland. The RCAF also had squadrons in Canada and Newfoundland. The RAF CC’s most capable aircraft at this point were long-range *Wellington* bombers transferred from RAF BC, *Catalina* flying boats that were being received from the United States, and a limited number of *Sunderland* flying boats. Most of these patrol aircraft operated from Great Britain; however, by July 1941 No. 204 Squadron operating *Sunderland* flying boats, No. 269 squadron equipped with *Hudson* reconnaissance aircraft, and No. 209 squadron flying *Catalinas* all operated from Iceland. Nonetheless, a nearly 800 mile gap remained in the land-based patrol aircraft coverage between Greenland and Iceland. The only aircraft capable of closing this gap was the B-

---

<sup>194</sup> Roskill, *The War at Sea*, 1:470.

24 *Liberator* and it would not be available in sufficient numbers for another six to ten months.<sup>195</sup> A testament to the effectiveness of the air patrols was the strategy adopted by BdU of concentrating its U-boats in the air-gap where they continued to operate with great effect against the convoys.

Up until May 1941, due to the limited number of escorts on hand, the Admiralty did not provide continuous protection to Atlantic convoys. Once the departure escort detached 300 to 400 miles at sea the merchant ships transited the mid-ocean steaming independently or in company with an auxiliary cruiser for limited protection against German surface raiders. On May 20 a wolf-pack attack by nine U-boats succeeded in sinking nine ships and damaged two others within HX-126, a convoy with only one auxiliary cruiser as escort. Belatedly, the scattered convoy received support from an Iceland based escort group.<sup>196</sup> The mauling of this unprotected convoy finally forced the Admiralty's hand and continuous escort was implemented. Although this decision was good news for the convoy sailors, Churchill noted in his correspondence with Roosevelt that it would "entail a considerable reduction in the scale of defence which can be provided for each convoy."<sup>197</sup>

The month of September witnessed the opening of the U.S. Navy's undeclared war on the *U-Bootwaffe*. The U.S. Navy Support Group began escorting Halifax/U.K. convoys to and from the RCN's WOMP south of Newfoundland to the MOMP turnover point with Royal Navy/RCN escort groups south of Iceland. Five U.S. destroyers

---

<sup>195</sup> Roskill, *The War at Sea*, 1:460; Henry H. Arnold, Trip to England, 22 May – 3 June 42 trip notes, entry on May 27, 1942, reel 2, folder 12, *Arnold Papers*, LOC. Arnold advised Air Marshall Portal that 140 *Liberators* could be delivered by December 1942 for RAF CC.

<sup>196</sup> Roskill, *The War at Sea*, 1:463.

<sup>197</sup> Churchill telegram C-90x to Roosevelt on May 23, 1941, *Churchill-Roosevelt Correspondence*, 1:193.

escorted convoy HX-150 to the Iceland MOMP during the second half of September without opposition; however, USS *Greer* had already conducted the first attack on a U-boat by a United States warship on September 4 when a RAF CC *Hudson* operating from Iceland alerted the destroyer to the presence of *U-652*. Although the destroyer and submarine exchanged depth-charges and torpedoes neither vessel was damaged in the encounter.<sup>198</sup> The high-risk nature of Roosevelt's armed neutrality policy became crystal clear on October 31 when *U-552* sank the USS *Reuben James* 600 miles west of Ireland as she escorted convoy HX-156. The loss of 115 of the destroyer's 160 man crew stunned the nation. Congress reacted quickly by amending the Neutrality Act to permit defensive arming of U.S. merchant ships and lifted the ban on the entry of U.S. flag vessels into European waters.<sup>199</sup>

The year 1941 had been costly for the Allies with over 2,400,000 tons of shipping lost in the North Atlantic and more than 4,300,000 tons destroyed worldwide from all causes. Nonetheless, after having begun the war ill-prepared for A/S warfare and having operated with an under strength naval and air force they had achieved considerable success. In March, reacting to limited success in the "rich target area" between Iceland and the British Isles and the loss of five U-boats that included three of the *U-Bootwaffe's* most famous captains, Dönitz temporarily withdrew his force to less well-defended areas west of Iceland and in the South Atlantic. Clay Blair cited this as a milestone for the Allies in the fight against the U-boats and "the first clear-cut defeat for the German

---

<sup>198</sup> Hedley Donovan, "Crew Believes Greer Sank Sub: Navy Hunts U-Boats Under orders to 'Eliminate' Attacker," *Washington Post*, September 6, 1941; Blair, *The Hunters, 1939-1942*, 360-5.

<sup>199</sup> *New York Times*, "Reuben James Hit, First American Warship Lost in War Torpedoed West of Iceland," October 31, 1941; Theodore Roscoe, *U.S. Destroyer Operations in World War II* (Annapolis, MD: U.S. Naval Institute, 1953), 39-40.

submarine.”<sup>200</sup> The year would also end on a positive note for the beleaguered escort forces as losses dropped below 100,000 tons in the North Atlantic during November and December. Hitler’s fixation with army operations in part caused the reduction in sinkings as he ordered a dozen U-boats into the Mediterranean Sea during October and November to help defend the vulnerable supply-lines that supported the German army in North Africa.<sup>201</sup>

After twenty-eight months of combat at sea neither side had dominated the battle and all the belligerents were poised to augment the forces engaged in the conflict. Although Dönitz had been unsuccessful in his attempt to develop effective coordination of air reconnaissance between BdU and the *Luftwaffe*, he had gain highest priority for the U-boat construction program and throughout 1941 the *Kriegsmarine* was commissioning far more submarines than the number destroyed. During the summer Dönitz’s fleet of operational submarines began to steadily grow while the total aggregate reached 236 on December 1, 1941.<sup>202</sup> The U-boat force stood on the verge of a dramatic expansion of its operational fleet.

The Allies benefited from the early initiatives put in place during the first months of the war to increase production of escort ships, patrol aircraft, and munitions. The maturation of shipboard and airborne radar that began to reach the escort forces in significant quantities during 1941 provided an added advantage. By March of 1941 the surface version of the 1.5 meter ASV-2 radar had been fitted on ninety escort vessels. Increasing numbers of escort ships with proficient crews also joined the fight, expanding

---

<sup>200</sup> *Times* (London), “Battle of the Atlantic, Effective New Defences, Losses Serious,” May 17, 1941; Blair, *The Hunters, 1939-1942*, 262.

<sup>201</sup> Hessler, *The U-Boat War in the Atlantic*, 1:89-92.

<sup>202</sup> *Ibid.*, 1:71-2; *Times* (London), “Bigger U-boat Effort, 1<sup>st</sup> Lord — Losses Still Less 1% of Ships in Convoy,” February 27, 1942.

the escort fleet to nearly eighty destroyers, 140 corvettes, and ten former U.S. Coast Guard cutters. Enhanced capabilities for the escort fleet included High Frequency Direction Finding (HF/DF). HF/DF receivers, commonly called ‘Huff Duff,’ that enabled an escort group to take tactical advantage of the frequent radio transmissions from the U-boats that the direct control exercised by BdU over their operations necessitated. Long-range HF/DF had long been in use with shore-based stations; however, their intercepts were neither timely enough nor sufficiently accurate for the tactical needs of the escorts. The early deployment of shipboard sets during the summer of 1941 delivered an important tool in pinpointing and driving off shadowing U-boats.<sup>203</sup>

As November 1941 came to close the complex patterns of the great sea battle in the Atlantic were well-established. The Allies had in place the foundation of bases, tactics, and agreements that they hoped would lead to victory in the Atlantic campaign. Their strategic and tactical architecture for defeating the U-boats was sound yet success was not guaranteed. Despite their many advances in production, technology, and training there were still not enough escorts and aircraft of the right capability to fully execute the strategy. And ominously, the Greenland-Iceland air-gap remained uncovered and available for Dönitz and his U-boat crews to exploit.

### *The Grand Alliance*

The United States’ entry into the war marked a new and distinct phase in the Battle of the Atlantic and brought mixed reactions from friend and foe alike. During their telephone conversation on December 7, 1941 Roosevelt stated the obvious in that “we are certainly in the same boat now,” while Churchill dealt with the extraordinary

---

<sup>203</sup> Brown, *Atlantic Escorts*, 57-8, 66-8, 71-4.



circumstances succinctly stating “This certainly simplifies things. God be with you.”<sup>204</sup>

At BdU Dönitz and his staff reacted with a sense of relief since in their view the United States had been a belligerent in their battle for some time. Now the restrictions imposed by Hitler would be removed. Knowing the “great effectiveness of the sudden appearance of U-boats in new areas” Dönitz quickly implemented Operation *Paukenschlag* in the western Atlantic to attack American merchant ships along the eastern seaboard and in the Caribbean. The Germans deployed five of their long range Type IX U-boats within five weeks of their declaration of war and success was immediate.<sup>205</sup>

The U-boat crews were astonished by the density of targets and the meager defensive measures they faced. Responsibility for the protection of shipping rested with Admiral King, who concluded that without adequate escort forces the use of convoying would merely concentrate merchant ship targets for the benefit of the U-boats. This ran counter to the experience of the Royal Navy where it was understood that even a lightly defended convoy was superior to slow ships steaming independently. The Admiralty and British officials in Washington urged the U.S. Navy to reconsider this policy; however, King upheld the decision even in the face of massive losses at sea. Captains like Reinhard Hardegan of *U-123* took maximum advantage of the circumstances and christened this period of the battle the second “Happy Time.” The sinking of the Panamanian oil tanker *Norness* by *U-123* off Long Island, New York on January 14, 1942 marked the beginning

---

<sup>204</sup> Churchill telephone call-2 to Roosevelt on December 7, 1941, *Churchill-Roosevelt Correspondence*, 1:281-2.

<sup>205</sup> Hessler, *The U-Boat War in the Atlantic*, 2:1-5.

of a campaign that nearly interrupted at its height the flow of war materials across the Atlantic.<sup>206</sup>

From January to June 1942 a relatively small force of U-boats sank upwards of three million tons of shipping with the vast majority destroyed in U.S. waters and less than ten percent lost while in convoy.<sup>207</sup> Some critics place the blame for this debacle squarely upon King in harsh terms. Historian Michael Gannon argued this constituted an “Atlantic Pearl Harbor” and accused King of unseemly arrogance and dereliction of duty.<sup>208</sup> Those accusations largely ignored the effects of the earlier transfer of fifty destroyers and ten Coast Guard cutters that significantly weakened the U.S. Navy’s readiness for A/S operations in 1942. Ironically, the U.S. Navy drew criticism from the beneficiaries of the transferred ships that magnified its unpreparedness for BdU’s Operation *Paukenschlag*. Additionally, the allocation of vast numbers of combat aircraft to the RAF during 1941 limited the number of suitable A/S planes available to the USAAF and the U.S. Navy. Marshall had astutely addressed the airmen’s concerns over aircraft inventories during the Acadia Conference in early 1942 by successfully arguing for the newly constituted Combined Chiefs of Staff to serve as the single source for policy on the allocation of war materials among the Allies.<sup>209</sup> Finally, King’s wise decision to make troop convoy protection a priority further limited A/S forces available for merchant ship defense. In March Churchill wrote to Harry Hopkins of his most deep concern “at the immense sinkings of tankers west of the 40<sup>th</sup> meridian and in the

---

<sup>206</sup> *New York Times*, “3 Torpedoes Hit Tanker Norness; Survivors Tell of Deliberate Attack by U-Boat Circling Ship,” January 16, 1942; Rohwer, *Axis Submarine Successes of World War Two*, 73.

<sup>207</sup> Churchill, *The Second World War*, 4:123.

<sup>208</sup> Gannon, *Operation Drumbeat*, xviii-xix.

<sup>209</sup> George C. Marshall, Washington (Acadia) Conference notes from December 23, 1941 – January 14, 1942, *Marshall Papers*, 3:63.

Caribbean Sea. In January 18 ships totaling 221,000 dead-weight ton, were sunk or damaged; in February the number rose to 34, totaling 364,941 dead-weight tons; in the first eleven days of March, seven vessels totaling 88,449 dead-weight tons, have been sunk.” Consideration given to the temporary suspension of oil tanker voyages by the Prime Minister reflected the seriousness of the situation after the destruction of sixty of these precious vessels over a ten week period.<sup>210</sup>

Progress in countering Operation *Paukensschlag* was painfully slow. Small patrol vessels, many of them converted commercial and pleasure craft, supplemented the limited escort ships available to the U.S. Navy’s Sea Frontier Commanders assigned responsibility for the protection of shipping in their geographic areas. During the Washington “Acadia Conference” in January Admiral Harold R. Stark, then the CNO, stated in response to Churchill’s inquiry about obtaining more destroyers for the Royal Navy that the situation along the American seacoast was critical and “it is desired that the British lend the United States any available vessels suitable for coastal patrol work.”<sup>211</sup> By March the force of ten corvettes and twenty-four A/S trawlers offered by the Admiralty began to join the effort against the U-boats in the Western Atlantic. For aviation support against the rampaging U-boats, however, King and Towers turned to the U.S. Army’s Air Force for “land based heavy bomber support.”<sup>212</sup> This marked the beginning of the contentious wartime collaboration between the naval and air services that went on to bear fruit and friction in equal parts.

---

<sup>210</sup> Churchill telegram to Harry Hopkins on March 12, 1942, *The Second World War*, 4:119.

<sup>211</sup> Harold R. Stark, Washington (Acadia) Conference notes, 1941-42, reel 199, folder 3, *Arnold Papers*, LOC.

<sup>212</sup> Blair, *The Hunters, 1939-1942*, 475; Henry H. Arnold, Trip to England, 22 May 42 – 3 June 42 trip notes, entry on May 26, 1942, reel 2, folder 12, *Arnold Papers*, LOC.

The U.S. Navy's Bureau of Aeronautics, due to limitations imposed by the National Defense Act of 1920, focused on the development of seaplanes for its patrol requirements and by December 1941 it operated the highly capable PBY *Catalina* as a frontline patrol aircraft. Requirements in the Pacific coupled with the large number of new production aircraft sent to the RAF, however, left the Atlantic Fleet deficient in maritime patrol aircraft. Although the USAAF had no aircraft intended for maritime operations or crews specifically trained for long-duration overwater flights, Arnold expanded the limited A/S support in place at Newfoundland since the summer of 1941 to the east coast to meet the offshore crisis. Stark's request in November 1941 for more USAAF planes in response to heightened U-boat activity off Newfoundland reflected the value the U.S. Navy placed on the Army's long range B-17 bomber and the less capable B-18 *Bolo* as A/S aircraft along with the need for support from the airmen.<sup>213</sup>

Agreements reached at the Washington 'Acadia' Conference immediately influenced the conduct of A/S operations in the Western Atlantic. Roosevelt and Churchill agreed that the early arrival of USAAF bombers in Great Britain offered important symbolism for the Allies. They further agreed that British forces in Northern Ireland would be replaced by three U.S. Army divisions to deter possible German interest in Ireland and prepare for operations in Europe. On January 2, 1942 Arnold ordered the creation of the task force that evolved into the Eighth Air Force bomber command in

---

<sup>213</sup> *National Defense Act of 1920*, Public Law 242, *U.S. Statutes at Large* 41 (1919-1921): 759-837; Craven and Cate, *The Army Air Forces In World War II*, 1:515, 519-20. The Army Air Service was renamed the Army Air Corps in 1926. The National Defense Act of 1920 formally recognized the Air Service as a combatant arm of the U.S. Army and assigned it responsibility for all aerial operations from land bases while all air activity attached to the fleet was the responsibility of the aviation forces of the U.S. Navy. Under this division of roles the U.S. Navy held responsibility for seaward patrols and the protection of shipping, but no authority to develop land planes for that purpose.

England.<sup>214</sup> This was the long awaited opportunity for the American airmen, along with RAF BC, to put into action the doctrine of victory through air power that emerged from World War I. For the remainder of the war every effort would be made by the USAAF to avoid the diversion of bombers to secondary missions such as A/S patrol. At sea, King established the safe movement of Allied troops across the Atlantic as the number one priority of the Navy. This prioritization further limited the number of escort ships available for the protection of merchant ships along the east coast of the United States.

In the near-term the losses in the Western Atlantic, Caribbean Sea, and the Gulf of Mexico mounted along with the criticism of King and the U.S. Navy. Although the USAAF cooperated in the defense of shipping significant disagreements developed with the U.S. Navy over command arrangements and tactics. The airmen sought strategic mobility, offensive tactics against the U-boats, and command over their own forces. The U.S. Navy supported none of these well-established tenets of air power, that it is inherently strategic, primarily offensive, and must be centrally controlled by airmen due to its unique characteristics.<sup>215</sup> When I Bomber Command began convoy escort and offensive aerial patrols for the U.S. Navy the Atlantic Fleet had no unified organization to control the USAAF squadrons. Instead the airmen found themselves under the tactical command of the Sea Frontier Commands that relieved the Naval Districts of responsibility for antisubmarine defense on July 1, 1941.<sup>216</sup> Formal agreement reached on March 26, 1942 temporarily resolved the command issue by placing all units of I Bomber

---

<sup>214</sup> George C. Marshall, Washington (Acadia) Conference notes from December 23, 1941 – January 14, 1942, *Marshall Papers*, 3:32-3; Craven and Cate, *The Army Air Forces In World War II*, 1:612, 631.

<sup>215</sup> Meilinger, *10 Propositions Regarding Air Power*.

<sup>216</sup> Morison, *U.S. Naval Operations in WWII*, 1:207.

Command engaged in A/S operations under the jurisdiction of the Eastern Sea Frontier.<sup>217</sup>

Starting in March 1942 progress against the U-boats in the Western Atlantic became evident as the British corvettes and trawlers joined the fight and expanded air A/S patrols enabled the establishment of daylight convoys in coastal waters. With the help of the RCN a convoy system was organized at the end of the month between New York City and Halifax. The following month two U.S. Navy escort groups transferred from mid-ocean duties and in May patrol craft ordered at the beginning of the war began to arrive in significant numbers. In mid-May 1942 the U.S. Navy finally instituted an escorted convoy system along the entire eastern seaboard.<sup>218</sup> This step induced a shift in U-boat operations into the Caribbean Sea and the Gulf of Mexico and necessitated the movement of I Bomber Command aircraft to the Gulf Sea Frontier. Although losses continued, particularly in the Caribbean Sea, by July 1942 an interlocking convoy system existed for the entire east coast, the Gulf of Mexico, and the Caribbean area.

During Operation *Paukenschlag* attempts to employ offensive air patrols failed due to the vast areas involved, the limited assets available, and the absence of effective A/S sensors and weapons. The airmen on both sides of the Atlantic, however, pressed vigorously for this tactical approach to A/S operations into 1943. The Allied naval services remained steadfast in their opposition to offensive air patrols as well as to the use of surface ships in hunter-killer groups. King fully supported the lesson learned by

---

<sup>217</sup> Ernest J. King and George C. Marshall, Joint (Army-Navy) dispatch, March 25, 1942, box 4, PSF Safe: Navy Department Mar.-Sept. 1942 Index, Franklin D. Roosevelt Library, Hyde Park, NY. <http://docs.fdrlibrary.marist.edu/PSF/BOX4/t47ak03.html> (accessed September 3, 2010); Craven and Cate, *The Army Air Forces In World War II*, 1:528.

<sup>218</sup> "The United States Navy at War, The Battle of the Atlantic," Imperial War Museum, London, <http://www.iwm.org.uk/upload/package/8/atlantic/atwar.htm> (accessed July 23, 2010).

the Royal Navy in 1940 that the best way to find the enemy was “in the vicinity of the quarry he was seeking.” A year later in May 1941 an Admiralty committee reported the conclusion that “we cannot afford to weaken our convoy escorts to provide the ships required for searching forces until far greater strength is available than is at present in prospect.”<sup>219</sup> This settled the issue regarding surface escorts, but forceful debate continued among the Allied naval and air services concerning the optimum approach for the use of A/S aircraft. King remained an energetic champion of direct support of ships in convoy by air escort and did not waver from that position until 1943 when, as the 1941 Admiralty report predicted, forces in greater strength became available to support an offensive strategy.

Two significant ideas emerged from the U-boat campaign in the Western Atlantic that affected both the U.S. Navy and the USAAF. Naval leaders in the United States quickly grasped the essential value of long range land-based aircraft to convoy protection and wanted that capability within their service. In February Rear Admiral John H. Towers at the Bureau of Aeronautics sent a formal request on behalf of King to the USAAF for the transfer of 400 B-24 *Liberator* and 900 B-25 *Mitchell* bombers to the Navy for A/S operations. One month later the USAAF pressed for a better solution to the problem of unity of command for the growing number of Army aircraft and crews assigned to the campaign against the U-boats. Turning to the highly successful model of RAF CC, Arnold proposed that the USAAF establish a similar organization that when required would operate under the control of naval authority. The proposal elicited no immediate response from King, although it was clear to the airmen that the U.S. Navy preferred the static assignment of USAAF assets to the Sea Frontier commanders with an

---

<sup>219</sup> Roskill, *The War at Sea*, I:135, 481.

emphasis on close escort of ships in convoy. As the eventful summer of 1942 progressed King's rejection of an offensive strategy against the U-boats became more rigid. The offensive concept and the unity of command proposal was further tainted in King's mind when in August 1942 the RAF CC commander, Air Marshall P. B. Joubert, remarked that his organization operated under the principle that close escort of convoys was to be avoided when possible so as to concentrate on the more effective offensive tasks of search and attack against the U-boat.<sup>220</sup>

An unsuccessful challenge to both the bomber offensive and RAF CC's emphasis on offensive operations came from the prominent British military operational analyst, Patrick M. S. Blackett who worked first for the RAF and then the Admiralty. In 1942 Blackett used data on convoy air escort effectiveness and from RAF BC to calculate the contribution of a single *Liberator* aircraft in both the convoy escort role operating from Iceland and the traditional bomber role against Germany. He estimated that a *Liberator* in the convoy escort role saved approximately six merchant ships from destruction during a typical 30-sortie service-life while in the bomber role the aircraft would drop approximately one hundred tons of bombs during its likely service-life and "kill not more than a couple dozen enemy men, women, and children, and destroy a number of houses."<sup>221</sup> However, even as the U-boats threatened the supply life-line they depended on for fuel and munitions, arguments such as Blackett's analysis did not convince the Allied air services to divert additional aircraft from the bomber offensive or to shift RAF CC aircraft to defensive sorties in direct support of the convoys.

---

<sup>220</sup> John H. Towers, BuAer office diary, U.S. Navy Department, on March 31, 1942, box 1, folder 4, *Towers Papers*, LOC; Craven and Cate, *The Army Air Forces In World War II*, 1:538-46.

<sup>221</sup> P. M. S. Blackett, "Operations Research, Recollections of Problems Studied, 1940-45," *Brassey's Annual* (1953): 104.



As the debates over A/S tactics and command arrangements increased in fervor Dönitz reacted to the improved defense in the Western Atlantic by withdrawing his force during July in preparation for a renewed effort against the main Atlantic convoy routes. More new U-boats were becoming available for deployment during the summer and autumn, with fifteen in June, thirty-two in July, another thirty-one in August, and a further thirty-two in September. The wolf-packs once again deployed for operations within the air-gap that permitted them to harass convoys for several days without interference from Allied patrol aircraft.<sup>222</sup> The respite that Operation *Paukenschlag* afforded the Royal Navy and the RCN in the North Atlantic ended as a new flotilla of German submarines arrived in the Atlantic.

An altered escort force met the renewed U-boat offensive in the summer and autumn of 1942. Increasingly the escort groups included vessels fitted with surface radars, HF/DF receivers, enhanced depth charges, and new forward firing Hedgehog A/S contact mortars. The mix of new and old vessels manned with veteran crews now executed their tactics with precision. Air support from Iceland and Newfoundland, coupled with the patrols flown from Canada, the United States, and the British Isles forced the U-boats into a more constricted air-gap in the mid-Atlantic. By early August 1942 twenty-nine British, American, and Norwegian A/S aircraft operated from Iceland. The following month No. 120 Squadron, RAF CC's only squadron operating VLR *Liberators*, deployed a detachment of six aircraft to Iceland.<sup>223</sup> The evolving mix of new capabilities among the escort ships and the increasing presence of potent A/S aircraft limited the success achieved by the U-boats from August into October of 1942. During

---

<sup>222</sup> Hessler, *The U-Boat War in the Atlantic*, 2:17, 29-31, 51.

<sup>223</sup> Blair, *The Hunters, 1939-1942*, 663.

the last two months of this period thirty-five convoys traveled between Great Britain and North America and the U-boats achieved significant action against only six of them. The three percent of the 1,700 merchant ships in these convoys destroyed by the Germans did not constitute a disaster for the Allies. For Dönitz, however, the damage inflicted by his crews did not justify the losses incurred as sixteen U-boats were destroyed with 720 of his sailors killed or captured.<sup>224</sup>

Dönitz's steadily growing force of U-boats faced new circumstances in the Atlantic. The replacement submarines brought new and inexperienced crews. The *U-Bootwaffe*'s ranks of captains contained a shrinking core of seasoned veterans and the early results in the North Atlantic reflected the change. Additionally, the westward movement of the air-gap exacerbated the limited endurance of the most numerous type of U-boat in the fleet, the Type VII. In order to extend the patrol duration of the Type VII submarines BdU employed larger Type XIV U-boats configured for re-supply and re-fueling of the smaller submarines at sea. These so called *milch cows* offered an innovative solution to the challenge of distance operations by medium range U-boats, but they also presented vulnerable targets while provisioning on the surface. During the second half of 1942 a number of the *milch cows* succumbed to air attacks while the following year they suffered severe losses to the deadly combination of escort carrier aircraft and precise Ultra signals intelligence.<sup>225</sup>

In view of the growing role of Army land-based aircraft in the campaign against the U-boats and the absence of support from the U.S Navy for a unified air A/S command, General Arnold ended the temporary nature of the I Bomber Command role as

---

<sup>224</sup> Blair, *The Hunted, 1942-1945*, 23-4, 47.

<sup>225</sup> Dönitz, *Memoirs*, 330-32; William T. Y'Blood, *Hunter-Killer: U.S. Escort Carriers in the Battle of the Atlantic* (Annapolis, MD: Bluejacket Books, Naval Institute Press, 2004), 62-75.

the USAAF's A/S warfare coordinator and provider in October and established the Army Air Forces Antisubmarine Command (AAFAC). This new command centralized control within the War Department of the Army's A/S forces but did not "specifically reduce the over-all authority of the Navy." However, the intent of this arrangement was to "attack hostile submarines wherever they may be operating."<sup>226</sup> I Bomber Command served as the nucleus for the new command; however, steps were quickly taken to expand its squadrons and re-equip with B-24 *Liberators* modified for the A/S mission. By January 1943 the command included nineteen squadrons, but only twenty of its 209 aircraft were B-24s. Those twenty radar equipped *Liberators* deployed to England rather than Newfoundland or Iceland at the end of 1942 where they participated in offensive sweeps of the Bay of Biscay under RAF CC control. Early in 1943 they re-deployed to North Africa to support Allied operations there.<sup>227</sup> The USAAF leadership recognized that the U-boat offensive posed a grave threat to their bomber operations in Great Britain and that a major role in A/S operations was necessary; however, in their view that support needed to be focused on direct offensive operations against the U-boats.

In the air offensive against the U-boats the Bay of Biscay served as the focal point. First RAF CC and then the AAFAC employed their most capable A/S aircraft there since the U-boats operating from the French ports transited to and from their patrols through those waters. The Bay of Biscay encompassed the area from Ushant Island off the coast of Brittany in France to the northwest tip of Spain at Cape Finisterre, a north to south distance of approximately 300 miles. From the Biscay ports the bay stretched some 120 miles to the west with the Atlantic beyond. The concept of offensive sweeps

---

<sup>226</sup> Craven and Cate, *The Army Air Forces In World War II*, 1:551-3.

<sup>227</sup> *Ibid.*, 2:377-8

appeared sound since nearly five of every six U-boats operating in the Atlantic transited through those waters. The Biscay operations, however, achieved little with respect to the level of effort expended by the airmen until after the *U-Bootwaffe* temporarily withdrew from the North Atlantic in the late spring of 1943. RAF CC began Biscay patrols from Great Britain and Gibraltar in 1941 and continued them with varying intensity until the French ports were abandoned in 1944 following the Normandy landings. From 1941 to April 1943 the two Allied air services flew more than 80,000 offensive patrol hours and achieved a limited number of sightings while destroying ten U-boats and inflicted damage on an additional twenty-four submarines. The airmen performed these arduous patrols with determination and courage and the success they did achieve came at the cost of 170 aircraft destroyed.<sup>228</sup>

The order of battle of the Allies Atlantic A/S air assets during the late autumn and winter of 1942 appeared impressive. At Nova Scotia and Newfoundland the RCAF and the U.S. Navy operated over one hundred aircraft that provided escort to convoys as far as 500 to 600 miles into the Atlantic. The most capable aircraft present included *Catalinas* and *Digbys*, the Canadian version of the American B-18 *Bolo*. The Iceland force numbered fifty radar equipped aircraft capable of escort out to 600 miles with the U.S. Navy's twenty-four *Catalinas* coupled with a limited ability out to 800 or 1,000 miles with the six *Liberators* flown by the RAF's No. 120 Squadron. This force, however, could not sustain persistent air escort of the North Atlantic convoys due to the very limited number of VLR aircraft based in Iceland. To the east at the Hebrides, Faeroes, northwest Scotland and Northern Ireland, the RAF CC operated forty long-range

---

<sup>228</sup> "Air Power: January to December 1942, The Battle of the Atlantic," Imperial War Museum, London, <http://www.iwm.org.uk/upload/package/8/atlantic/airjandec42.htm> (accessed July 23, 2010).

and nine VLR aircraft in support of the convoys. In contrast, along the south and southwest coast of England a force of seventy-eight highly capable aircraft with long-range and VLR ability performed the offensive mission against the transiting U-boats in the Bay of Biscay.<sup>229</sup>

As 1942 drew to a close the U-boats earned moderate success as the Allies regained access to Ultra intelligence on December 13 after having been in the dark since February when BdU introduced a new *Triton* code. With their signal intelligence restored the Admiralty once again employed evasive convoy routing with favorable results. At the same time severe weather in the North Atlantic battered the convoys and the U-boats, limiting attack opportunities for the submarines. All these factors contributed to relatively low levels of shipping losses from December to February of 1942.<sup>230</sup>

### *The Demise of the U-boats*

The fourth major Allied conference in Casablanca during January 1943 held enormous significance for the Battle of the Atlantic. A key decision affirmed at the conference gave top priority to an all-out effort to defeat the U-boat offensive in the Atlantic. With victories achieved or in reach at Stalingrad, North Africa, Guadalcanal, and New Guinea, the shift in momentum to the Allied cause could not be mistaken. Yet an invasion of Europe continued to be threatened by the *U-Bootwaffe*. Directives from Casablanca set in motion the actions that resolved the persistent air-gap between Greenland and Iceland by specifically allocating eighty additional VLR *Liberator* aircraft

---

<sup>229</sup> Blair, *The Hunted, 1942-1945*, 26-8; "Air Power: January to December 1942, The Battle of the Atlantic," Imperial War Museum, London, <http://www.iwm.org.uk/upload/package/8/atlantic/airjandec42.htm> (accessed July 23, 2010).

<sup>230</sup> "Royal Navy, January-May 1943, The Battle of the Atlantic," Imperial War Museum, London, <http://www.iwm.org.uk/upload/package/8/atlantic/rjanmay43.htm> (accessed July 23, 2010); Rohwer, *Axis Submarine Successes of World War Two*, 139-53.

to the RCAF and RAF CC. Additionally, the USAAF and the U.S. Navy expanded their inventories of *Liberators* configured for A/S operations with ASV-10 radar and enhanced fuel capacity.<sup>231</sup> These actions set in motion allocations that delivered sufficient Allied VLR aircraft to the Newfoundland and Iceland air bases and completed the air-umbrella across the North Atlantic convoy routes. After forty-one months of combat at sea the prime minister and the president sent to the Allied naval and air services the detailed orders necessary to seal the gap in April and May 1943. For the British, Canadian, and American airmen performing the often boring and always exhausting maritime air patrols against the U-boats their “glory days” had not yet arrived, but they were in sight. “When they finally arrived, the results were astounding.”<sup>232</sup>

Before the Casablanca Conference decisions on VLR aircraft could affect the Battle of the Atlantic, opportunities remained for the *U-Bootwaffe* to exploit the Greenland-Iceland air-gap and reach their ‘high-water’ mark in the *guerre de course* against the convoys, but in the end it proved to be an illusion. During late February and March 1943 Dönitz’s U-boats achieved spectacular successes against well-defended convoys on the North Atlantic routes. The most prominent of these battles revolved around two eastbound convoys, HX-229 and SC-122 that merged within the air-gap in March 1943 and stunned London and Washington with the severe losses they sustained.<sup>233</sup> Allied naval leaders temporarily lost access to Ultra intelligence at the end of February while BdU continued to receive timely information derived from the Royal

---

<sup>231</sup> Memorandum C.C.S. 155/1 on January 19, 1943, “Conduct of the War in 1943,” *FRUS, The Conferences at Washington, 1941-1942, and Casablanca, 1943*, 774-81; “Air Power: January to December 1942, The Battle of the Atlantic,” Imperial War Museum, London, <http://www.iwm.org.uk/upload/package/8/atlantic/airjandec42.htm> (accessed July 23, 2010).

<sup>232</sup> Blair, *The Hunted, 1942-1945*, 29.

<sup>233</sup> *Times* (London), “32 Allied Ships Sunk in Convoy,” March 22, 1943.

Navy's Convoy Cipher No. 3. With this advantage and their highest ever operational U-boats strength at sea Dönitz engaged the two convoys with over forty submarines.<sup>234</sup>

The overall losses for the month of March sent waves of distress through the Admiralty and the government, even though the losses numbered twenty-two ships rather than the thirty-two claimed by BdU. The destruction of over 475,000 tons of shipping in a single month approached the devastating levels of 1942; however, the punishment inflicted on HX-229 and SC-122 particularly unnerved the Allies. The combined convoys numbered eighty-eight merchant ships and fully twenty-five percent of them were sunk. Special apprehension was connected with the fact that during the month two-thirds of the ships destroyed sailed within escorted convoys.<sup>235</sup> Some within the Admiralty viewed these events as a challenge to the viability of the convoy system, but recognized there was no alternative to it. In the Royal Navy's official history Roskill described a situation where no one on the Naval Staff would openly admit it, but the fear existed that "defeat then stared us in the face."<sup>236</sup>

The complex mix of changes occurring for both the Allies and the Germans during this period created confusion that fed the pessimism within the Admiralty. Concern with the growing number of operational U-boats available to BdU masked other crucial factors that were about to dominate the battle in the Allies' favor. The surface escort force reached a critical mass during the early spring of 1943 in both quantity and quality. A majority of the escort ships had radar, HF/DF receivers, and enhanced A/S weapons, and powerful escort support groups augmented convoy protection when wolf-

---

<sup>234</sup> Jürgen Rohwer, *The Critical Convoy Battles of March 1943: The Battle for HX229/SC122* (Annapolis, MD: Naval Institute Press, 1977), 91-113.

<sup>235</sup> Blair, *The Hunted, 1942-1945*, 259-68.

<sup>236</sup> Roskill, *The War at Sea*, 2:367-8.

packs were encountered. The arrival at the same time of persistent air-escort, however, delivered an astounding and permanent shift in the balance between the adversaries at sea. This shift in power rested on new RCAF and RAF CC VLR *Liberators* operating from Newfoundland and Iceland, and the addition of newly commissioned American escort carriers (CVE) and British sister ships released from duties in the Mediterranean Sea.<sup>237</sup>

At the end of the month, as shipping losses mounted, Stimson raised these issues with Roosevelt after the president queried King and Marshall on March 18 concerning the state of submarine warfare. He pointed out to the president that “The present operating relations between the CC of the British R.A.F. and the Admiralty of the British Navy in which, although the Navy has a general operational command, the CC of the R.A.F. is left free to formulate its own plans for A/S offensive operations by aircraft, show that such cooperation is not impossible.” Stimson then addressed the U.S. Navy’s defensive mindset and said “I believe that the absence of such an offensive spirit in A/S warfare is our major obstacle today for success.”<sup>238</sup> The Secretary of War then pressed these issues upon the Secretary of the Navy, Frank Knox, with a hand-delivered letter on April 1 that he copied to Roosevelt. In the letter Stimson proposed to create within the AAFAC a “Special Task Force” of three nine-aircraft VLR *Liberator* squadrons to operate under its control. He enhanced the proposal with an offer to replace two *Flying*

---

<sup>237</sup> “Royal Navy, January-May 1943, The Battle of the Atlantic,” Imperial War Museum, London, <http://www.iwm.org.uk/upload/package/8/atlantic/rjanmay43.htm> (accessed July 23, 2010); Price, *Aircraft Versus Submarine*, 126-31.

<sup>238</sup> Henry L. Stimson letter to Roosevelt on March 26, 1943, RG 107, entry 99, Sec. of War Stimson “Safe File,” box 1, folder: Anti-Submarine Warfare, NA II.



*Fortress* squadrons operating under Navy control in Newfoundland with three nine-aircraft VLR *Liberator* squadrons.<sup>239</sup>

The memorandum King prepared for Knox to aid in his reply to Stimson was a comprehensive and blunt summary of his and the U.S. Navy's view of how the Battle of the Atlantic should be fought.

The "submarine's ability to conceal itself prevents the ready discovery of the submarine, except in those areas where he, the submarine, must congregate, and must to a greater or lesser extent disclose his presence, in order to carry out his mission. Except in such areas of concentration, discovery and attack against submarines offer such little chance of success that concentrations of search and attack forces in extraneous areas have not been found worthwhile. Even in the BAY OF BISCAY, a comparatively small area, across which practically all submarines operating in the ATLANTIC must pass, the Royal Air Force has met with little success in locating and attacking submarines. Convoys, targets of submarine attack, are the "bait" which brings U-boat concentration. Anti-U-boat warfare in the convoy vicinity, if we have the means to fully implement it, is both offensive and defensive in character. The use of aircraft enables us to greatly extend the area of convoy vicinity."<sup>240</sup>

King saw a parallel between the Admiralty's exercise of unity of command with RAF CC in A/S measures and how AAFAC was controlled by the U.S. Navy. He argued that unity of command resided with him at Headquarters, Commander in Chief, U.S. Fleet; however, Stimson, Marshall, and Arnold all rejected this interpretation.<sup>241</sup>

In April 1943 the battle around convoy HX-233 served as another milestone that marked completion of the role-reversal achieved by the Allies in the Atlantic. The fifty-

---

<sup>239</sup> Henry L. Stimson letter to the Secretary of the Navy (Knox) on April 1, 1943, RG 107, entry 99, Sec. of War Stimson "Safe File," box 1, folder: Anti-Submarine Warfare, NA II.

<sup>240</sup> Ernest J. King memorandum for the Secretary of the Navy, subject: Anti-Submarine Warfare; Organization of Special Air Task Force on April 5, 1943, RG 107, entry 99, Sec. of War Stimson "Safe File," box 1, folder: Anti-Submarine Warfare, NA II.

<sup>241</sup> Ibid.

seven merchant ships of this convoy were set upon by a force of seven U-boats as Dönitz flooded the Atlantic with submarines seeking to replicate the success achieved in March. During the battle the convoy's powerful eight ship escort was reinforced by a British support group and received timely air escort from Iceland. The U-boats managed to sink one merchant ship while the escort force destroyed *U-175* and damaged three other submarines.<sup>242</sup> This success was followed in early May by the destruction of six submarines and damage to twelve others by the surface and air escorts of westbound convoy ONS-5 when faced with "a series of determined and sustained attacks by powerful forces of U-boats."<sup>243</sup>

During April discussions continued between the War and Navy Departments over control of land-based A/S aircraft. Knox responded to Stimson on April 5 and enclosed King's memorandum. He suggested that the conflict between the War Department's proposal and the decisions reached at the Casablanca Conference must be resolved first, stating that "decisions recently made for the allocation of an increased number of very long range aircraft for use in counter-submarine measures were a result of reallocations agreed to by the CCS. I assume that the additional aircraft to be used as striking groups in your letter would have to be referred to the JCS, or CCS, for consideration as to changes in present scheduled allocations." At the same time the VLR *Liberators* committed during the Casablanca Conference and the new escort carrier groups were achieving stunning successes against the *U-Bootwaffe*. A week later Bowles notified Stimson that the Navy was establishing a unit in Rhode Island that would mimic the USAAF experimental unit at Langley Field and was "in the process of setting up an Anti-

---

<sup>242</sup> Haskell, *Shadows on the Horizon: The Battle of Convoy HX-233*, 16-9.

<sup>243</sup> *Times* (London), "U-boat Losses in Convoy Attack, Four Sunk and Six "Probables," Battles Last a Week," May 13, 1943.

Submarine Command of its own.”<sup>244</sup> This new command would eventually be called the Tenth Fleet and King informed the JCS on May 1, 1943 that the Navy Department would be establishing the command.<sup>245</sup>

The Tenth Fleet was formally established on May 20 under the direct command of King. Although all orders were issued under King’s signature, the day to day operations of Tenth Fleet were supervised by its Chief of Staff, Rear Admiral Francis Low. This was the U.S. Navy’s belated response, eighteen months into the Atlantic campaign, to the numerous calls for a unified A/S commander. The Sea Frontier Commanders became task force commanders reporting to the Tenth Fleet and allocations of A/S forces in the Atlantic were controlled by it. Additionally, control of all long-range and VLR aircraft, escort carrier groups, and escort ships resided with Tenth Fleet.<sup>246</sup> Bureaucratically King had closed the door on the War Department proposals and responded to the strong criticism he had received from Marshall in mid-April that “air operations against submarines are not being conducted efficiently and that a complete reorganization of method, particularly as applies to very long range aircraft, is plainly indicated.” Speaking for himself and Generals Arnold and McNarney, he added “we are all firmly of the opinion that the present procedure is largely ineffective and makes poor use of a valuable instrument.”<sup>247</sup> With the Tenth Fleet in place, Marshall had no leverage to use for additional changes through the JCS.

---

<sup>244</sup> Frank Knox letter to the Secretary of War on April 5, 1943, RG 107, entry 99, Sec. of War Stimson “Safe File,” box 1, folder: Anti-Submarine Warfare, NA II; Bowles memorandum for the Secretary of War, subject: Navy Antisubmarine Warfare Activities on April 12, 1943, RG 107, entry 99, Sec. of War Stimson “Safe File,” box 1, folder: Anti-Submarine Warfare, NA II.

<sup>245</sup> Ladislav Farago, *The Tenth Fleet* (New York: Drum Books, 1986), 163.

<sup>246</sup> Farago, *The Tenth Fleet*, 165-8.

<sup>247</sup> George C. Marshall memorandum for Admiral King, subject: Operational Control of Anti-Submarine Operations in Newfoundland Area on April 17, 1943, *Marshall Papers*, 3:648.

At sea Dönitz saw the spectacular results of March evaporate in April as the U-boats accounted for only one-half of the merchant ships sunk in March at a cost of seventeen submarines destroyed.<sup>248</sup> May brought total disaster as tonnage destroyed dropped below 200,000 tons and forty-three U-boats were sunk. Faced with losses his force could not sustain Dönitz ordered his U-boats on May 24 to temporarily withdraw from the North Atlantic for operations in the less dangerous waters of the Central Atlantic. The BdU War Diary for this date records that this action is “dictated by the need to avoid unnecessary losses in a period when our weapons are shown to be at a disadvantage.”<sup>249</sup>

With victory in sight Arnold addressed the air offensive against the U-boats in a memorandum to King and stated directly that “the VLR and LR shore-based air units assigned to anti-submarine tasks in the Atlantic must be unified in one air command. It should operate under an Army Air Commander.”<sup>250</sup> King did not rule out an Army Air Commander in his reply but saw no “reason why this force should operate under an Army Air Commander than under a Navy Air Commander other than the fact at the moment the Army happens to have more VLR wheeled planes engaged in anti-submarine operations than does the Navy.” He went on to stress that the AAFAC “shall be incorporated in the TENTH FLEET and that the commander thereof shall operate directly under the orders of the Commander of the TENTH FLEET.”<sup>251</sup>

---

<sup>248</sup> Niestlé, *German U-boat Losses During World War II*, 193; Blair, *The Hunted, 1942-1945*, 294.

<sup>249</sup> Hessler, *The U-Boat War in the Atlantic*, 2:112-3; Churchill, *The Second World War*, 5:10.

<sup>250</sup> Henry H. Arnold memorandum to Admiral King, subject: Air Offensive against the U-boat on May 8, 1943, RG 107, entry 99, Sec. of War Stimson “Safe File,” box 1, folder: Anti-Submarine Warfare, NA II.

<sup>251</sup> Ernest J. King memorandum to General Arnold on May 11, 1943, RG 107, entry 99, Sec. of War Stimson “Safe File,” box 1, folder: Anti-Submarine Warfare, NA II.

June brought continued domination by the Allied escort forces over the U-boats in the Atlantic and beyond, in large measure due to land-based and sea-based air A/S operations. June also marked the complete collapse of Army and Navy cooperation over the land-based air A/S force. When Arnold ordered an AAFAC B-17 squadron, deployed to Newfoundland at King's request, to conduct only "offensive search and attack missions," the ability of the two services to collaborate in this most important mission was further eroded. In July, the Navy and War Departments reached an agreement to transfer all land-based air A/S aircraft to the Navy and by September the USAAF had flown its last air A/S missions of the war.<sup>252</sup> During the long contentious struggle over command arrangements and tactics, the two services had jointly made important contributions to the Battle of the Atlantic and had provided crucial support to the RAF as well. However, it is undeniable that the inability of the U.S. Navy and USAAF to resolve these issues hindered the performance of their collective A/S forces until the mission was consolidated under Navy command in July 1943. In Great Britain the deference given to the RAF by the Royal Navy on aviation tactics enabled a misplaced emphasis on offensive operations against the U-boats to proceed largely unchallenged. Air escort of convoys was consequently diminished during the crucial period from 1941 to 1943 to support an unprofitable strategy in the Bay of Biscay.

During the summer of 1943 the *U-Bootwaffe* entered a downward spiral from which it would not recover. The final phase of the Battle of the Atlantic relegated the U-boats to the role of the hunted. During the last twenty-seven months of the conflict land-

---

<sup>252</sup> Craven and Cate, *The Army Air Forces In World War II*, 2:405-9; Warnock, *Air Power versus U-boats*, 22-3

based VLR aircraft and carrier aircraft were the principal nemesis of the U-boat crews struggling to survive.

## CHAPTER V

### CONCLUSIONS

The first six months of 1943 marked the most momentous period in the longest battle of World War II, the Battle of the Atlantic. During April and May the tide turned inexorably to the Allies' favor. In the month of March, however, the *Kriegsmarine* reached its high-water mark in its campaign against shipping and shot bolts of apprehension through the ranks of the Allied leaders on both sides of the Atlantic. That these dramatic changes in fortune occurred as the campaign entered its decisive moment was fitting, for that had been the nature of the battle since the beginning. However, the German success was fleeting, built upon temporary conditions involving numbers of U-boats and signal intelligence that the *U-Bootwaffe* could not sustain.<sup>253</sup> The Allied triumph that followed in April and May was fundamentally different in that it was erected upon a complex mix of elements which had grown to fruition at nearly the same point.

A significant feature of the Battle of the Atlantic was the struggle between the belligerents to gain a decisive advantage over the other through construction rates, crew proficiency, weapon and sensor technologies, tactics, and intelligence. Each side endeavored to use these factors as they fought to sever or sustain the Atlantic convoy routes. One potent factor available to both the Germans and the Allies was the innate ability of aircraft to either enhance the destructiveness of the U-boats or to defend the convoys against submarine attack. In this part of the crucial struggle for advantage over the foe the Allies were highly successful while the Germans were not. Both Grand Admiral Erich Raeder and Admiral Karl Dönitz sought to employ the *Luftwaffe's* long-

---

<sup>253</sup> Hessler, *The U-Boat War in the Atlantic*, 2:91-6.

range *Condor* reconnaissance bombers to locate and shadow Allied convoys and guide their wolf-packs into attack positions. However, no provisions for this role had been incorporated into the German air plans before the war and *Reichsmarschall* Hermann Göering scorned the mission. As a result, the U-boats never profited from robust air support.<sup>254</sup>

The Allies' success employing aircraft to combat the U-boats began with the Royal Navy's early coastal convoy schemes which relied extensively on air escort. Unlike the Germans, the Royal Navy and the RAF had completed plans for protection of shipping and a sound organizational model had been adopted; however, the aircraft available for this mission were inadequate in both quality and quantity.<sup>255</sup> The Admiralty quickly realized the value of the A/S aircraft and by 1941 BdU was concentrating its operations in those areas without persistent air escort. The locations of the airfields where the A/S aircraft operated and the limits of their range and endurance defined the air-gap along the North Atlantic convoy routes. Despite their limited capabilities Allied air patrols quickly extracted a toll from the U-boats with an A/S aircraft claiming partial credit for the destruction of *U-55* on January 30, 1940 while two months later an RAF BC bomber destroyed *U-31*, the first U-boat sunk solely by an aircraft.<sup>256</sup>

After the United States entered the war BdU shifted its main U-boat effort to the western Atlantic and the Caribbean to exploit the nascent United States A/S capability during the first half of 1942. Once Allied U-boat defenses matured in the western Atlantic the German focus returned to the Greenland-Iceland air-gap where, within a

---

<sup>254</sup> Hessler, *The U-Boat War in the Atlantic*, 2:88; Doenitz, *Memoirs*, 325-6.

<sup>255</sup> Roskill, *The War at Sea*, 1:31-6.

<sup>256</sup> Price, *Aircraft Versus Submarine*, 42.



three to four hundred mile wide expanse of ocean, the battle was determined.<sup>257</sup> The stage for final victory or defeat in what was arguably the greatest battle of World War II became the chasm in the Atlantic where the patrol aircraft could not reach. This study has examined the tangled mosaic of factors that brought land-based VLR aircraft into the battle in sufficient numbers to effectively patrol the Greenland-Iceland air-gap. The arrival of these aircraft, most especially the B-24 *Liberator*, was a decisive factor in forcing Dönitz to withdraw his submarines from the North Atlantic convoy routes and permanently concede the tactical initiative to the Allies' escort forces.<sup>258</sup> The spectrum of influences on the decisions that led to the closing of the air-gap is broad; however, the most influential factors involved the distinctive leadership styles of Churchill and Roosevelt, clashing institutional prerogatives among all of the Allied naval and air services, and the tactical precepts adhered to by each service.

In London Churchill involved himself directly in military decisions using his dual roles as Prime Minister and Minister of Defence to dictate priorities and policy. He directed strategy from the highest tier down to the tactical employment of land, sea, and air forces.<sup>259</sup> Churchill's public focus on the Battle of the Atlantic was pronounced and inspirational to all the Allied forces fighting the campaign. Yet paradoxically, he placed the highest priority on the offensive bombing campaign against Germany with the knowledge that RAF BC was only capable of area bombing against large urban targets.<sup>260</sup> Churchill viewed the bombing campaign as Great Britain's only option at that time to strike Germany. Although he worked unsuccessfully to expand the number of heavy

---

<sup>257</sup> Morison, *U.S. Naval Operations in WWII*, 336-7.

<sup>258</sup> Hessler, *The U-Boat War in the Atlantic*, 2:112-3.

<sup>259</sup> Churchill, *The Second World War*, 1:667-8

<sup>260</sup> Hastings, *Bomber Command*, 44, 107.

bombers capable of VLR missions allocated to the RAF from the United States to meet the needs of RAF CC, he declined to resolve the shortage internally by reassigning aircraft from RAF BC to increase Coastal Command's capability.<sup>261</sup> This decision limited the scope of air escort by RAF CC in support of the convoys and perpetuated the Greenland-Iceland air-gap until mid-1943.

In Washington the president remained fixed on issues of grand strategy while delegating the execution of that strategy to the War and Navy Departments. Roosevelt guided the major policy decisions such as the Lend-Lease policy, aid to Russia in 1941, and insistence on United States participation in what became the North African campaign in November 1942.<sup>262</sup> However, he largely remained above departmental issues and allowed subordinates to develop solutions. When faced with choices he did not fully support, Roosevelt often made partial decisions or deferred action to maintain options for action in the future. His failure to dictate a course of action when Army and Navy leaders were unwilling or unable to work out compromises on the allocation and control of land-based VLR aircraft reflected Roosevelt's management style. However, the absence of Presidential guidance permitted this alarming inter-service clash to impair the Allies' A/S efforts during a crucial juncture in the battle due to delays in the allocation of needed assets and their use in less productive offensive operations.<sup>263</sup>

On the surface the relationship between the Royal Navy and the RAF appeared sound, but deep resentment persistent in the naval service over the loss of the RNAS at

---

<sup>261</sup> Churchill Lend-Lease telegram C-43x to Roosevelt on December 7, 1940, *Churchill-Roosevelt Correspondence*, 1:102-11; Churchill letter to Chief of the Air Staff on July 21, 1941, *The Second World War*, 3:805-6.

<sup>262</sup> Kimball, *The Juggler*, 4-5, 14; Roosevelt memorandum for Marshall, King and Harry Hopkins, subject: Instructions for London Conference – July, 1942, on July 15, 1942, box 3, PSF Safe: King Index, Franklin D. Roosevelt Library <http://docs.fdrlibrary.marist.edu/psf/box3/a39e01.html> (accessed September 3, 2010).

<sup>263</sup> Blair, *The Hunters, 1939-1942*, 692-3.

the formation of the RAF in 1918. The return of its FAA in 1937 did not undo the two-decade absence of its organic aviation cadre. At the onset of the war the Royal Navy and the RAF benefitted from a practicable command arrangement for control and coordination of land-based A/S air operations with RAF CC assigned to the Admiralty for operational control. Significantly, however, the Royal Navy's inchoate FAA was incapable of adding a naval aviation perspective to RAF CC's operations since it was fully engaged in the expansion of its own shipboard air operations.<sup>264</sup> This left the RAF and RAF CC with a relatively free-hand to concentrate its best A/S platforms, many of them VLR aircraft, in an ill-timed offensive anti-U-boat campaign in the Bay of Biscay from 1941 to 1943. Their focus on the offensive effort meant that the limited numbers of VLR aircraft within the RAF CC force were not used in the North Atlantic to close the air-gap in 1942 or early 1943. The A/S effort was further handicapped by the absolute priority given to the offensive bombing campaign by the Air Ministry and RAF headquarters, with Churchill's full support. The supremacy of RAF BC caused a preponderance of the heavy bombers and VLR aircraft to be allocated to its force and thus restricted the numbers assigned to the A/S mission.

The friction between the air arms of the U.S. Navy and Army, dating back to the 1920s and the controversial efforts of the air power advocates, permeated their joint campaign against the U-boats. As the U.S. Navy asserted its control over all A/S operations and the USAAF provided a growing level of effort against the U-boats with land-based A/S aircraft, an arena was created within which the services battled over parochial boundaries and prerogatives. Even as this joint campaign grew in scale and

---

<sup>264</sup> John P. W. Vest interview on antisubmarine warfare by Morison, December 18, 1954, box 8, folder 3, notebook no. 1, 3-4, *Morison Papers*, LOC.

effectiveness, it remained encumbered by static naval command arrangements and the Army airmen's relentless pursuit of autonomy in their operations.<sup>265</sup> The USAAF's insistence upon an offensive approach to A/S operations mirrored RAF CC's efforts in the Bay of Biscay. However, the U.S. Navy prudently used its operational authority over the A/S campaign to place the priority on direct support of the convoys.<sup>266</sup> If the Admiralty had exercised a similar approach with RAF CC it is likely that greater numbers of VLR A/S aircraft would have deployed to the Greenland-Iceland air-gap prior to the summer of 1943. In view of the decisive effect these aircraft had in April and May of 1943 the consequences of an earlier deployment could have been profound.

The most profound influence on the contributions of land-based VLR A/S aircraft in closing the Greenland-Iceland air-gap proved to be the Allied air services' unshakeable attachment to the doctrine that an offensive approach was always superior to a defensive one. This dogmatic outlook was further enhanced by the airmen's tendency to reject any tactical scheme that did not maximize the innate mobility and the agility of air power. Consequently, they dismissed the naval services' pragmatic view that the limited quantities of patrol aircraft available were best employed in direct support of the convoys.<sup>267</sup> King and other naval leaders put forth the argument that the U-boats must concentrate in the vicinity of the convoys and expose themselves to launch attacks; therefore, the most productive place for A/S aircraft, for both defensive and offensive reasons, was near the convoys.<sup>268</sup> This impasse was not resolved until the Allied leaders

---

<sup>265</sup> Craven and Cate, *The Army Air Forces In World War II*, 1:518-9

<sup>266</sup> King memorandum for the Secretary of the Navy, subject: Anti-Submarine Warfare; Organization of Special Air Task Force on April 5, 1943, RG 107, entry 99, Sec. of War Stimson "Safe File," box 1, folder: Anti-Submarine Warfare, NA II.

<sup>267</sup> Stimson letter to Roosevelt on March 26, 1943, RG 107, entry 99, Sec. of War Stimson "Safe File," box 1, folder: Anti-Submarine Warfare, NA II.

<sup>268</sup> King and Whitehall, *Fleet Admiral King: A Naval Record*, 452-3.

specifically ordered the closing of the air-gap with VLR aircraft during the March 1943 Casablanca Conference. The clash between the U.S. Navy and the USAAF was eliminated rather than resolved when all A/S forces, including land-based aircraft, were assigned to the Navy in July 1943.

The offensive mindset of the air services manifested itself most prominently in their unwavering focus on bomber offensive. Both the RAF and the USAAF worked tirelessly to ensure that every heavy bomber built was used for its designed purpose against Germany and resisted with great success the re-assignment these airplanes to ancillary missions such as A/S warfare.<sup>269</sup> When presented with a rigorous study such as Patrick Blackett's 1942 assessment which quantified the heightened value of a single *Liberator* in the convoy protection role, the bomber advocates still averred that massing all VLR aircraft in the offensive bombing of Germany was the proper course.<sup>270</sup>

Among the many influences affecting the employment of VLR A/S aircraft in the Greenland-Iceland air-gap, the rigid offensive doctrine of the RAF and the USAAF in both the bombing campaign and in the A/S air support provided was the most detrimental. During the crucial months of 1942 and early 1943 adequate air patrol assets were withheld from convoy air escort to feed the offensive spirit of the Allied airmen over Germany and in the Bay of Biscay.<sup>271</sup> In 1944 the air services proved their point regarding offensive operations against the submarines when RAF CC and U.S. Navy *Liberators* and other long-range aircraft inflicted tremendous damage on the U-boats during the final months of the 'Biscay Offensive.' This occurred, however, only after

---

<sup>269</sup> John H. Towers, BuAer office diary, U.S. Navy Department, entry on May 8, 1942, box 1, folder 4, *Towers Papers*, LOC.

<sup>270</sup> Blackett, "Operations Research, Recollections of Problems Studied, 1940-45," 104.

<sup>271</sup> Hastings, *Bomber Command*, 136.

sufficient VLR aircraft were available for both the bombing campaign and the A/S campaign.<sup>272</sup>

The failure of the naval and air services of the Allies to reach agreement on the optimal use of what Marshall called a “valuable instrument” reflected poorly on all the services involved, but especially on the U.S. Navy and the USAAF.<sup>273</sup> Every party in this fractious debate held legitimate concerns while both merit and fault existed on each side. The tortuous path that led to the closing of Greenland-Iceland air-gap in the early summer of 1943 stands out as a vibrant lesson on the need for civilian and military leaders to dispassionately place the requirements of national defense and mission above individual service or affiliation.

---

<sup>272</sup> McCue, *U-Boats in the Bay of Biscay*, 58-61.

<sup>273</sup> Marshall memorandum for Admiral King, subject: Operational Control of Anti-Submarine Operations in Newfoundland Area on April 17, 1943, *Marshall Papers*, 3:648.

## BIBLIOGRAPHY

- Abbazia, Patrick. *Mr. Roosevelt's Navy: The Private War of the U.S. Atlantic Fleet, 1939-1942*. Annapolis, MD: Naval Institute Press, 1975.
- "Air War Plans Division I: The air plan that defeated Hitler." *Air & Space Power Journal*. 2003. *HighBeam Research*. <http://www.highbeam.com/doc/1P3-338640601.html> (accessed February 8, 2010).
- Arnold, Henry H. *Global Mission*. New York: Harper & Brothers, 1949.
- Blackett, P. M. "Operational Research: Recollections of Problems Studied, 1940-45." *Brassey's Annual* (1953): 88-106.
- Blair, Clay. *Hitler's U-Boat War: The Hunters, 1939-1942*. New York: Random House, 1996.
- \_\_\_\_\_. *Hitler's U-Boat War: The Hunted, 1942-1945*. New York: Random House, 1998.
- Bland, Larry I., and Joellen K. Bland, eds. *The Papers of George Catlett Marshall*. 4 vols. Baltimore: Johns Hopkins University Press, 1981-1996.
- \_\_\_\_\_. *George C. Marshall: Interviews and Reminiscences for Forrest C. Pogue*. 3rd ed. Lexington, VA: George C. Marshall Research Foundation, 1996.
- Bowman, Martin. *Combat Legend: B-24 Liberator*. Shrewbury, UK: Airlife Publishing, Ltd., 2003.
- British Bombing Survey Unit. *The Strategic Air War Against Germany, 1939-1945: Report of the British Bombing Survey Unit*. With an introduction by Sir Michael Beetham and Major General John W. Huston, and introductory material by Sebastian Cox. London: Frank Cass, 1998.
- Brown, David K. *Atlantic Escorts: Ships, Weapons & Tactics in World War II*. Annapolis, MD: Naval Institute Press, 2007.
- Churchill, Winston S. *The Second World War*. 6 vols. Boston: Houghton Mifflin, 1949-1964.
- Conn, Stetson, Rose C. Engelman, and Byron Fairchild. *The Western Hemisphere; Guarding the United States and Its Outposts*. Edited by Department of the Army Office of the Chief of Military History, United States Army in World War II. Washington: U.S. Government Printing Office, 1964.

- Cravan, Wesley Frank, and James Lea Cate. *Plans and Early Operations, January 1939 to August 1942*. Vol. 1, and *Europe: Torch to Pointblank, August 1942 to December 1943*. Vol. 2, *The Army Air Forces in World War II*. Chicago: University of Chicago Press, 1948-1949.
- Cremer, Peter, and Fritz Brustat-Naval. *U-Boat Commander: A Periscope View of the Atlantic*. Translated by Lawrence Wilson. Annapolis, MD: Naval Institute Press, 1984.
- Cutler, Thomas J. "MacArthur, FDR, and the Politics of Leyte Gulf." *Naval History*, October 2009, 16-23.
- Daso, Dik Alan. *Hap Arnold and the Evolution of American Airpower*. Washington: Smithsonian Institution Press, 2000.
- Dean, Sir Maurice. *The Royal Air Force and Two World Wars*. London: Cassell, 1979.
- Doenitz, Karl. *Memoirs: Ten Years and Twenty Days*. In collaboration with David Woodward. Translated by R. H. Stevens. Cleveland, OH: World Publishing, 1959.
- Douhet, Giulio. *The Command of The Air*. Translated by Dino Ferrari, USAF Warrior Studies. New York: Coward-McCann, 1942. Reprint, 1983, Office of Air Force History.
- Edwards, Bernard. *The Twilight of the U-Boats*. Annapolis, MD: Naval Institute Press, 2004.
- Farago, Ladislav. *The Tenth Fleet*. New York: Drum Books, 1986.
- Franklin D. Roosevelt Library. Hyde Park, NY. PSF Safe files.  
<http://docs.fdrl.marist.edu/psf/> (accessed September 3, 2010).
- Fuchida, Mitsuo, and Masatake Okumiya. *Midway: The Battle that Doomed Japan, The Japanese Navy's Story*. Annapolis, MD: U.S. Naval Institute, 1955.
- Gannon, Michael. *Operation Drumbeat: The Dramatic True Story of Germany's First U-Boat Attacks Along the American Coast in World War II*. New York: Harper & Row, 1990.
- \_\_\_\_\_. *Black May: The Epic Story of the Allies' Defeat of the German U-Boats in May 1943*. New York: HarperCollins Publishers, 1998.
- Gardner, W. J. R. *Decoding History: The Battle of the Atlantic and Ultra*. Annapolis, MD: Naval Institute Press, 1999.



- Gaston, James C. *Planning the American Air War, Four Men and Nine Days in 1941*. Washington: National Defense University Press, 1982.
- Gibbs, N. H. *History of the Second World War: Grand Strategy*. London: Her Majesty's Stationery Office, 1957.
- Greenhous, Brereton, Stephen J. Harris, William C. Johnston and William G. P. Rawling. *The Crucible of War, 1939-1945: The Official History of the Royal Canadian Air Force*. 3 vols. In cooperation with the Department of National Defence. Toronto: University of Toronto Press, 1994.
- Hart, B. H. Liddell. *History of the Second World War*. New York: G. P. Putnam & Sons, 1971.
- Haskell, Winthrop A. *Shadows on the Horizon: The Battle of Convoy HX-233*. Annapolis, MD: Naval Institute Press, 1998.
- Hastings, Max. *Bomber Command*. London: Michael Joseph Ltd., 1979.
- Heinrichs, Waldo. *The Threshold of War: Franklin D. Roosevelt and American Entry into World War II*. Oxford: Oxford University Press, 1988.
- Hessler, Günter. *The U-Boat War in the Atlantic, 1939-1945*. British Ministry of Defence (Navy) Report. Facsimile edition. London: Her Majesty's Stationery Office, 1989.
- Imperial War Museum, "The Battle of the Atlantic." London:  
<http://www.iwm.org.uk/upload/package/8/atlantic/> (accessed July 23, 2010).
- Kahn, David. *Seizing the Enigma: The Race to Break the German U-Boat Codes, 1939-1943*. New York: Barnes & Noble Books, 1998.
- Keegan, John. *The Second World War*. New York: Viking, 1989.
- Kimball, Warren F., ed. *Churchill and Roosevelt: The Complete Correspondence*. 3 vols. Princeton, NJ: Princeton University Press, 1984.
- \_\_\_\_\_. *Forged in War: Roosevelt, Churchill, and the Second World War*. New York: William Morrow and Co., 1997.
- \_\_\_\_\_. *The Juggler: Franklin Roosevelt as Wartime Statesman*. Princeton, NJ: Princeton University Press, 1991.
- King, Ernest J. *U. S. Navy at War, 1941-1945: Official Reports to the Secretary of the Navy*. Washington: U.S. Government Printing Office, 1946.

\_\_\_\_\_. and Walter Muir Whitehill. *Fleet Admiral King, A Naval Record*. New York: W. W. Norton, 1952.

Kirkpatrick, Charles E. "Joint Planning for Operation Torch." *Parameters, U.S. Army War College* (Summer 1991): 73-86.

Library of Congress, Washington, DC. Manuscript Division, *Papers of Henry Harley Arnold*.

\_\_\_\_\_. *Papers of Samuel Eliot Morison*, Naval Historical Foundation Collection.

\_\_\_\_\_. *Papers of John Henry Towers*, Naval Historical Foundation Collection.

Luck, Christopher J. "The Smuts Report: Interpreting and Misinterpreting the Promise of Airpower." Thesis, Air University, Maxwell Air Force Base, AL, 2007.

MacIntyre, Donald. *The Battle of the Atlantic*. New York: MacMillan, 1961.

Mahan, Alfred Thayer. *The Influence of Sea Power Upon History, 1660-1783*. 12th ed. Boston: Little, Brown and Co., 1890.

McCue, Brian. *U-Boats in the Bay of Biscay: An Essay in Operations Analysis*. Washington, DC: National Defense University Press, 1990.

Meilinger, Phillip. *Propositions Regarding Air Power*, Washington: Air Force History and Museums Program, 1995.  
<http://www.airforcehistory.hq.af.mil/Publication/Annotations/meilingerprops.htm>  
 (accessed July 3, 2010).

Miller, Roger G. *Billy Mitchell: Stormy Petrel of the Air*. Washington: Office of Air Force History, 2004.

Millis, Walter, ed. *The Forrestal Diaries*. With the collaboration of E. S. Duffield. New York: Viking Press, 1951.

Monsarrat, Nicolas. *The Cruel Sea*. Classics of Naval Literature, ed. Jack Sweetman. Annapolis, MD: Naval Institute Press, 1988.

Morison, Samuel Eliot. *The Battle of the Atlantic*. Vol. 1, History of United States Naval Operations in World War II. Boston: Little, Brown and Co., 1966.

Morton, Louis. *The Fall of the Philippines*. Washington, DC: U.S. Government Printing Office, 1953, 1989.

National Archives II, College Park, MD. Office of the Secretary of War, Record Group (hereafter RG) 107, Entry 99, Sec. of War Stimson "Safe File."

- \_\_\_\_\_. U.S. Strategic Bombing Survey, Munitions Division, Sub Branch "The German Submarine Industry," RG 243, Box 719 to 724.
- \_\_\_\_\_. War Department, General Staff, RG 165, Entry 421, Box 601, ABC Files.
- New York Times*, digital archive, 1851-1980,  
<http://query.nytimes.com/search/query?srchst=p#top> (accessed September 21, 2010).
- Niestlé, Axel. *German U-Boat Losses During World War II: Details of Destruction*. Annapolis, MD: Naval Institute Press, 1998.
- Padfield, Peter. *War Beneath the Sea: Submarine Conflict During World War II*. New York: John Wiley & Sons, 1998.
- Pogue, Forrest C. *George C. Marshall: Ordeal and Hope, 1939-1942*. Forward by General Omar N. Bradley. New York: Viking Press, 1966.
- \_\_\_\_\_. *George C. Marshall: Organizer of Victory, 1943-1945*. Forward by General Omar N. Bradley. New York: Viking Press, 1973.
- Prange, Gordon W., Donald M. Goldstein and Katherine V. Dillon. *Miracle at Midway*. New York: McGraw-Hill, 1982.
- Price, Alfred. *Aircraft Versus Submarine in Two World Wars*. Barnsley, UK: Pen & Sword Books, 2004.
- Reynolds, Clark G. *Admiral John H. Towers: The Struggle for Naval Air Supremacy*. Annapolis, MD: Naval Institute Press, 1991.
- Rohwer, Jürgen. *Axis Submarine Successes: German, Italian and Japanese Submarine Successes, 1939-1945*. Translated by John A. Broadwin. Annapolis, MD: Naval Institute Press, 1983.
- \_\_\_\_\_. *Chronology of the War at Sea, 1939-1945*. 3rd ed. Annapolis, MD: Naval Institute Press, 2005.
- \_\_\_\_\_. *The Critical Convoy Battles of March 1943: The Battle for HX.229/SC.122*. Annapolis, MD: Naval Institute Press, 1977.
- Roscoe, Theodore. *United States Destroyer Operations in World War II*. Annapolis, MD: United States Naval Institute, 1953. Reprint, 1966.

Roskill, S. W. *The War at Sea, 1939-1945*. Edited by J. R. M. Butler. 3 vols., History of the Second World War, United Kingdom Military Series. London: Her Majesty's Stationery Office, 1954-1956.

Royal Air Force. "The Second World War, 1939-45: Coastal Command." London: Ministry of Defence, [http://www.raf.mod.uk/rafcms/mediafiles/F21D57C4\\_9913\\_BB9830F0BB762B4E.pdf](http://www.raf.mod.uk/rafcms/mediafiles/F21D57C4_9913_BB9830F0BB762B4E.pdf) (accessed July 7, 2010).

Ruge, Friedrich. *Der Seekrieg: The German Navy's Story, 1939-1945*. Translated by M. G. Saunders. Annapolis, MD: U.S. Naval Institute, 1957.

Seversky, Alexander P. De. *Victory Through Air Power*. New York: Simon and Schuster, 1942.

Slessor, Sir John. *The Central Blue: Recollections and Reflections*. London: Cassell, 1956.

Smith, Malcolm. *British Air Strategy Between the Wars*. Oxford, UK: Clarendon Press, 1984.

Smuts, Jan Christiaan. "Air Organization and the Direction of Aerial Operations." British War Cabinet Report. London: 1917. <http://www.airforce-magazine.com/MagazineArchive/Documents/2009/january2009/0109keeperfile> (accessed September 30, 2010).

Stoler, Mark A. *Allies and Adversaries: The Joint Chiefs of Staff, the Grand Alliance, and U.S. Strategy in World War II*. Chapel Hill: The University of North Carolina Press, 2000.

Tillman, Barrett. *The Dauntless Dive Bomber of World War II*. Annapolis, MD: Naval Institute Press, 1976.

*Times* (London), digital archives, 1851-1980, [http://infotrac.galegroup.com/proxy.lib.odu.edu/itw/infomark/0/1/1/purl=rc6\\_TTDA?sw\\_aep=viva\\_odu](http://infotrac.galegroup.com/proxy.lib.odu.edu/itw/infomark/0/1/1/purl=rc6_TTDA?sw_aep=viva_odu) (accessed July 10-15, 2010).

Tuchman, Barbara W. *Stillwell and the American Experience in China, 1911-45*. New York: MacMillan, 1970.

U.S. Department of the Navy. *Fueher Conferences on Matters Dealing with the German Navy, 1939-1945*. Washington: U.S. Government Printing Office, 1947.

U.S. Department of State. *Bulletin*. Dated January 4, 1941. Washington: U.S. Government Printing Office, 1941.

\_\_\_\_\_. *Foreign Relations of the United States. Diplomatic Papers* Annual volumes, 1940-1943. Washington: U.S. Government Printing Office, 1958-1970.

\_\_\_\_\_. *Foreign Relations of the United States. The Conferences at Washington, 1941-1942, and Casablanca, 1943*. Washington: U.S. Government Printing Office, 1968.

Vat, Dan van der. *The Atlantic Campaign: World War II's Great Struggle at Sea*. New York: Harper & Row, 1988.

Vlahos, Michael. *The Blue Sword: The Naval War College and the American Mission, 1919-1941*. Newport, RI: Naval War College Press; Washington: U.S. Government Printing Office, 1980 [i.e. 1981].

Warnock, A. Timothy. "Air Power versus U-boats: Confronting Hitler's Submarine Menace in the European Theater," Air Force History and Museum Program, 1999, <http://www.airforcehistory.hq.af.mil/Publications/Annotations/warnockairpower.htm> (accessed July 7, 2010).

*Washington Post*, digital archives, 1877-1986, <http://pqasb.pqarchiver.com/washingtonpost/advancedresearch.html> (accessed August 18-21, 2010).

Welles, Roger. *Publication No. 42: Antisubmarine Tactics, October 1918*. Office of Naval Intelligence, U.S. Navy Department. Washington: U.S. Government Printing Office, 1918.

White, David Fairbank. *Bitter Ocean: The Battle of the Atlantic, 1939-1945* New York: Simon & Schuster, 2006.

Y'Blood, William T. *Hunter-Killer: U.S. Escort Carriers in the Battle of the Atlantic*, Bluejacket Books. Annapolis, MD: Naval Institute Press, 1983. Reprint, 2004.

## APPENDIX

## GLOSSARY OF TERMS

**271M** – shipboard surface 10cm radar introduced by the Royal Navy in September 1941. It was a significant improvement over earlier units capable of a 360° plot of a convoy and surfaced U-boats. In calm sea-states the 271M could detect an exposed periscope.

**AAFAC** – U.S. Army Air Forces Antisubmarine Command.

**Air-gap** – The mid-Atlantic area south and southeast of Greenland and south and southwest of Iceland that was not covered by persistent Allied air patrols until the spring of 1943.

**A/S** – Antisubmarine.

**Asdic** – An acronym that originated within the British Admiralty's Anti-Submarine Division that stood for a shipboard sound-ranging device. A returning pulse echo could indicate the bearing and range to a submerged U-boat and after 1943, its approximate depth. The equivalent U.S sensor was called Sonar.

**ASV-2** – the first large production air-to-surface radar introduced by the Allies in 1940. It operated with a 1.5 meter wavelength and a typical detection range of less than 10 miles on a surfaced U-boat.

**ASV-10** – the advanced air-to-surface radar introduced by the Allies in 1943. It operated with a 10cm wavelength and was capable of detecting large convoys at a range of 40 miles and a surfaced U-boat at 12 miles. H2S was the designation of the RAF BC version of this airborne radar unit.

**B-Dienst** – the German radio-monitoring and cryptographic service

**BdU** (*Befehlshaber der Unterseeboote*) – U-boat Force Headquarters. Initially located in Paris, and subsequently moved in 1941 to Lorient, France.

**BuAer** – U.S. Navy Bureau of Aeronautics

**Convoy designations:**

- HG – homeward bound from Gibraltar
- HX – from Halifax (eastbound)
- ON – outward bound north (westbound)
- ONS – outward bound north, slow (westbound)
- SC – slow (eastbound)

***Enigma*** – Name for the German military’s cipher machine and its encrypted product. Also see Ultra.

**FAA** – Fleet Air Arm. The Royal Navy’s aviation component established in 1937. Its predecessor was the Royal Naval Flying Service that was subsumed into the newly created Royal Air Force in 1918.

***Führer*** – the name Adolph Hitler adopted as the leader of Nazi Germany.

***Guerre de course*** – a traditional naval strategy designed to interrupt ocean commerce via attacks upon an enemy’s merchant shipping.

**H2S** – RAF BC designation for the ASV-10 airborne radar operated by Allied A/S aircraft.

**HF/DF** (“Huff-Duff”) – High-frequency/direction finding.

**Huff-Duff** – nickname given to HF/DF equipment.

***Kriegsmarine*** – the World War II German Navy, so named from 1935-1945.

***Luftwaffe*** – German Air Force.

***Milch cow*** – the Type XIV U-boat designed to replenish U-boats with fuel, ammunition, and provisions in their patrol areas to extend their endurance.

**MOMP** (Mid-Ocean Meeting Point) – pre-established turnover point south of Iceland used by U.S. Navy and British/RCN escort groups.

**OKM** (*Oberkommando der Kriegsmarine*) – The German Admiralty.

**OKW** (*Oberkommando der Wehrmacht*) – The Supreme High Command of the Armed Forces.

**OIC** – Admiralty’s Operational Intelligence Centre.

***Paukenschlag*** – operational name given to the January to July 1942 U-boat campaign in the Western Atlantic. Usually translated to the English “Operation Drumbeat.”

**RAF** – (British) Royal Air Force.

**RAF BC** – RAF Bomber Command.

**RAF CC** – RAF Coastal Command.

**RCAF** – Royal Canadian Air Force.

**RCN** – Royal Canadian Navy

**RFC** – Royal Flying Corps. The British army's aviation arm during WWI that was transferred to the newly created RAF in 1918.

**RNAS** – Royal Naval Air Service. The Royal Navy's aviation arm during WWI that was transferred to the newly created RAF in 1918.

***Rudeltaktik*** – the nighttime “Wolfpack” tactic of massing U-boats in a patrol line across a convoy's course and of engaging the convoy's formation in a radio-coordinated attack.

***Schnellboot*** – designation for the German Navy's Motor Torpedo Boats from the 1930s through the end of World War II. Called an E-boat by the Allies.

***Taoiseach*** – head of the Irish Free State government whose role is that of a prime minister.

***Tonnageschlacht*** – tonnage war

***U-Bootwaffe*** – the German submarine (U-boat) force.

**Ultra** – The source-disguising name given to information derived from the German Enigma system.

**USAAC** – U.S. Army Air Corps, established by the National Defense Act of 1920.

**USAAF** – U.S. Army Air Force, established as a separate command within the U.S. Army on March 9, 1942.

**VLR** – Very Long Range, a term used to describe land-based patrol aircraft such as certain models of the B-24 *Liberator* heavy bomber.

***Wehrmacht*** – German Armed Forces.

**WOMP** (Western Ocean Meeting Point) - pre-established turnover point south of Newfoundland used by U.S. Navy and RCN escort groups.



## VITA

James F. Boland, Jr.  
History Department  
BAL 8000  
Old Dominion University  
Norfolk, VA 23509

James F. Boland, Jr. graduated with merit in June 1973 from the U.S. Naval Academy with a Bachelor of Science degree. He was designated a Naval Aviator in November 1976 and served in antisubmarine warfare helicopter squadrons in the U.S. Atlantic Fleet and the Royal Navy. In June 1994 he received a Master of Science degree in National Security Strategy from the National War College. While on active duty he commanded two fleet helicopter squadrons and the U.S. Naval Base at Guantanamo Bay, Cuba. In June 2002 he transferred to the Retired List after twenty-nine years of service. After leaving the U.S. Navy he joined the Battelle Memorial Institute, a non-profit research and development organization, as a business developer and account manager until 2010. He now works as a freelance writer and researcher in the Hampton Roads area of Virginia.