



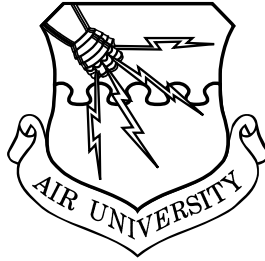
## Creating a New Military Service Historical Precedents

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Matthew Hyland  
Lieutenant Colonel, USAF



AIR UNIVERSITY  
SCHOOL OF ADVANCED AIR AND SPACE STUDIES



**Creating a New Military Service**  
*Historical Precedents*

MATTHEW HYLAND  
LIEUTENANT COLONEL, USAF

Drew Paper No. 32

Air University Press  
Curtis E. LeMay Center for Doctrine Development and Education  
Maxwell Air Force Base, Alabama

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AIR UNIVERSITY PRESS

*Director and Publisher*  
Darin Gregg  
Lieutenant Colonel, USAF

Air University Press  
600 Chennault Circle, Bldg 1405  
Maxwell AFB, AL 36112-6010  
<https://www.airuniversity.af.edu/AUPress/>

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Presented to the faculty of SAASS in June 2016  
Published by Air University Press in March 2019

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Please send inquiries or comments to

Commandant and Dean  
School of Advanced Air and Space Studies  
125 Chennault Circle  
Maxwell AFB, AL 36112  
Tel: (334) 953-5155  
DSN: 493-5155  
[saass.admin@us.af.mil](mailto:saass.admin@us.af.mil)

## Contents

<b>About the Author</b>	<i>viii</i>
<b>Acknowledgments</b>	<i>ix</i>
<b>Abstract</b>	<i>x</i>
<b>1 Introduction</b>	1
<b>2 The Rise of Airpower</b>	10
<b>3 The Emergence of Space Power</b>	44
<b>4 Cyberspace . . . The Final Frontier?</b>	63
<b>5 Conclusion and Summary</b>	78
<b>Bibliography</b>	81

## **Illustrations**

### **Table**

1	Comparison of Factors for Air and Space Independence	60
2	Comparison of Factors for Air and Cyber Independence	75

### **Figure**

1	Warfighting Domains and the Interfaces Between Them	12
2	Air Service within the Army Organization	13
3	Air Corps within the Army Organization	17
4	Army Air Forces in 1941	19
5	Wartime Army Air Forces within the Department of War	22
6	Independent Space Force	51
7	Space Corps within the Air Force	51
8	Assistant Secretary of Defense for Space	52
9	Major Force Programs	52



## **About the Author**

Lt Col Matthew Hyland was a 2001 graduate from the Reserve Officer Training Corps program at Cornell University, where he majored in Computer Science. He has served in various assignments including base telecommunications, research and development, tactical and strategic intelligence, cyberspace warfare operations, and headquarters staff. He was an Air Force Strategic Policy Fellow, has completed an internship at the Defense Advanced Research Projects Agency in Arlington, Virginia, and served as executive officer to the United States Cyber Command Director of Plans and Policy. Colonel Hyland is a certified information systems security professional, and was selected to take command of the 30th Space Communications Squadron at Vandenberg AFB, California in 2016.

## **Acknowledgments**

I would like to acknowledge the help and support of several individuals, without which I would not have been able to complete this thesis. My advisor, Col Thomas McCarthy, and reader, Dr. Stephen Chiabotti, spent countless hours reviewing drafts and providing insightful feedback. This computer scientist brazenly chose to write a comparative history, which would not have been possible without their sound advice.

Most importantly, I want to express my sincere appreciation to my wife for her love, patience, and understanding during all of the times I needed to focus on this effort in our newlywed year.

## Abstract

This paper will examine the organizational responses to the emergence of air and space as warfighting domains and, using these experiences as points of comparison, applies the same logic to consider the question: Should the Department of Defense create an independent US Cyber Force? The author determines that the Army Air Forces had achieved de facto independent status within the War Department by 1942, but airpower advocates continued to press for separation to more effectively advocate for budget share. In 1947 five forces aligned for the first time to support separating air forces from the army: (1) airpower had proven successful in recent combat during World War II; (2) the Army Air Forces had matured into an autonomous institution capable of independence; (3) Army and War Department leadership actively supported a separate airpower service; (4) vigorous presidential support emerged for airpower to have organizational parity; and (5) a comprehensive reorganization of nation's security apparatus was underway. In contrast, none of these factors were present when the Space Commission elected not to recommend the creation of an independent space force in 2001. With respect to cyber forces, only one of the five factors—broader national security reform—is partially met. As a result, creation of an independent cyber service appears unlikely in the near term.

## Chapter 1

### Introduction

*As you know, you go to war with the army you have, not the army you might want or wish to have at a later time.*

–Secretary of Defense Donald Rumsfeld  
December 2004 speech to US Troops in Kuwait

In considering the best Department of Defense (DOD) organizational construct for cyber warfare in the future, this paper turns to the past. The United States military has previously experienced the emergence of new warfighting domains and reorganized best to exploit them. This paper will examine the organizational responses to the emergence of air and space as warfighting domains and, using these experiences as points of comparison, applies the same logic to consider the question: Should the DOD create an independent cyber force?

### Why Structure Matters

The business of military strategy normally evokes images of campaign plans, orchestrating combat operations against an armed adversary, and identifying and prosecuting those targets whose destruction will compel an enemy. An equally important element in strategy is the design of organizations and supporting elements that conduct the business of war. Donald Rumsfeld's infamous quip in the epigraph above illustrates the importance of organizational design well in advance of armed conflict.<sup>1</sup>

The very structure of America's national security establishment has a noticeable effect on the strategic options available to a president. The various components of the DOD, most notably the military services, influence strategic analysis within the Department. Their institutional prerogatives cause planning to tend toward carefully constructed compromises designed to avoid challenging the status quo. Those same institutional prerogatives and plans greatly influence the types of capabilities developed and systems procured by the services, shaping strategic options for decades into the future.

The current organizational design of the DOD is the product of nearly two and a half centuries of history and tradition. A deliberate “clean-sheet” organizational design would almost certainly not produce the current byzantine structure which includes sub-Cabinet military departments, executive agents, matrix organizations, force providers, duplication of effort, and interservice rivalry. The particular path the United States has followed through history resulted in the construct we have today.

## **Differentiation by Domain**

The creation of the United States Air Force in 1947 reinforced a previously established pattern of structurally categorizing warfighting organizations by their physical mediums of combat; mediums we call warfighting domains.<sup>2</sup> Before the creation of a separate Air Force in 1947, airpower advocates had been making the case for independence for nearly three decades; success finally came through a complete post-war transformation of America’s defense establishment.<sup>3</sup>

Technological developments since that time have continued to open new frontiers people seek to exploit for the purpose of war. The existing organizational pattern of assigning responsibility for each warfighting domain to a separate military department leads many to consider the need for additional military departments for the new domains. In 1999, Congress went as far as chartering a commission to assess the management and organization of United States national security in the space domain, to include consideration of an independent military department and service for the space mission.<sup>4</sup> Unlike the 1947 case which birthed the United States Air Force, the Space Commission effort did not result in the creation of an independent space force.

In 2010, Deputy Secretary of Defense Bill Lynn formally announced that the DOD considers cyberspace to be the newest warfighting domain.<sup>5</sup> The Department is currently wrestling with how best to organize a growing cadre of cyber specialists as the cyber domain becomes increasingly important to all military missions. Military systems of all kinds are increasingly interconnected and “net-centric,” creating a critical interdependence on cyberspace for all forms of military power. Failure to operate effectively in the new domain could allow an adversary to threaten United States military dominance

without large-scale investments in conventional military capabilities. Predictably, there is a growing chorus of pundits advocating for further expansion of the existing organizational pattern by creating a new cyber service. Unfortunately, DOD's ability to evolve organizational constructs objectively is hindered by parochial budget protectionism from the existing military departments, a problem further exacerbated by current sequestration-induced resource challenges.

An underlying assumption of this separate service approach is that partitioning the nation's military apparatus into military departments aligned to the warfighting domains is necessary and appropriate, but we will see that this is not always a clear-cut truth. If the domain boundaries are the *prima facie* relevant discriminator for appropriately partitioning the nation's military apparatus, why did it take nearly 30 years to create the Air Force, and why is there still not yet an independent space force? The nature of politics in a democracy precludes any individual, even the American President, from unilaterally implementing any far-reaching change, no matter how rational such a decision may be. Alison and Zelikow's model of governmental decision-making predicts that "government leaders can substantially disturb, but rarely precisely control, the specific behavior" of large bureaucratic organizations.

As a result, the logical justification for creating an Air Force in 1947, and for considering a space force in 2001, is insufficient in considering the case for a separate cyber service. Rather, the relevant question is: What were the socio-political and economic factors which aligned for airpower 1947, but which remained disjointed for space power in 2001? Before delving further into this question, it is helpful first to gain a deeper understanding of what is meant by "military services" and "warfighting domains."

## What is a "Military Service"?

The history of the various military forces in the United States begins even before the nation was established. In 1775, the Second Continental Congress established the Continental Army, Continental Navy, and Continental Marines in order to bolster the struggle against England for independence. The Continental Army would complement the various state militias to challenge the British Army on Land.<sup>6</sup> The Continental Navy was created to hinder British maritime

commerce and military supply.<sup>7</sup> Created in the image of British marine forces with which American colonists had previously served, the Continental Marines were to serve on Navy ships as a form of sea-borne and amphibious infantry.<sup>8</sup> Having emerged victorious in the American Revolution, newly independent from England, and trepidatious of a permanent standing army, the Confederation Congress disbanded all of the Continental forces by 1785.<sup>9</sup>

The events during this early period established the basic organizational patterns that continue to influence the structural design of the American defense establishment to this day. First, the warfighting technology and doctrine of the time presented extremely limited ability and opportunity for tactical collaboration between forces on land and forces at sea. As a result, the Continental Army and Continental Navy were established as separate and independent entities. Second, the Continental Marines were established as a somewhat separate force, but with a close relationship to the Navy on whose vessels they served. The Army focused entirely on land combat, and the Navy operated at sea, with the Marines capable of bridging the two via amphibious landing or even augmenting the Army to fight on land.

Shortly after the 1785 disarmament, the drafters of the United States Constitution in 1787 proposed to endow Congress with the power to “provide and maintain a navy” and to “raise and support armies.” Upon ratification of the Constitution two years later, the newly established legislative body of the United States in its first session created an executive department to manage military and naval affairs for the new nation.<sup>10</sup> Established in August 1789, the new Department of War, headed by a secretary of war, was thus initially responsible to the president for both Army and Naval matters but had few assigned forces. The following month, Congress passed “an act to recognize and adapt to the Constitution of the United States, the establishment of the troops raised under the resolves of the United States in Congress assembled.”<sup>11</sup> This law formally established the United States Army, legitimizing the small number of forces remaining from the Continental Army.

Almost five years later, the Naval Act of 1794 reactivated the Navy, including Marine forces to serve aboard naval ships, under the auspices of the War Department.<sup>12</sup> After four years of the War Department managing the newly reactivated Navy, Congress established the Department of the Navy in April 1798.<sup>13</sup> Though the earlier acts

provided for Marines on Navy ships, they were technically part of the Navy since there was no formal Marine organization.<sup>14</sup> In July 1798, this deficiency was addressed when Congress formally established the Marine Corps. Initially organized directly under the president, Marines were part of neither the Army nor the Navy, but could be attached by the president to either “according to the nature of the service in which they shall be employed.”<sup>15</sup> This ambiguity was corrected in June 1834 with the passage of “An Act for the better organization of the United States marine corps” which clarified that the Marine Corps was to be part of the Navy unless the president specifically ordered its attachment to the Army.<sup>16</sup>

The security structure of this period built on the patterns established during the revolutionary era. The division between conflict on land and conflict at sea continued, reinforced organizationally with the establishment of two peer cabinet-level Departments of War and Navy.<sup>17</sup> The relationship between the Navy and Marine Corps was formalized, establishing two military services within the Navy Department. This pattern remained largely intact through the entire nineteenth century.

## Warfighting Domains

From the time of their origins during the American Revolution through the turn of the twentieth century, the warfighting elements of the War and Navy Departments had little reason or ability to collaborate extensively in battle. War was fought either in the land domain or the maritime domain. To the extent grand strategy bridged the two, the president needed to perform that fusion and direct his two independent warfighting departments accordingly. Effectively, the maneuver space of the land and maritime domains are two-dimensional, finite, and together encompass the entire surface of the Earth. The defining attribute of the land domain is terrain; that of the maritime domain is navigable waterways. The boundary between these two domains exists in seaports and the coastline between land and sea. Ship-borne Marines appeared tailor-made for bridging the seam with amphibious operations when necessary, and could also be attached directly to the Army to augment the land service.

While people can exist and maneuver in the land domain without technical means, armies have long developed technology for faster



maneuver. Seagoing vessels are generally required for people to enter, maneuver, and project power in and through the maritime domain. Maneuver within the land and maritime domains is governed by Newton's laws of motion, and to a certain extent at sea by Bernoulli's principle of fluid dynamics. Maneuver occurs at the speed of the motive technology used in those domains, generally 60 miles per hour or less. The speed of maneuver bounds the scale at which a given formation can conduct operations.

War in the maritime domain evolved as means of protecting a nation's ability to conduct seaborne commerce, as described by naval theorists such as Alfred Thayer Mahan and Sir Julian Corbett.<sup>18</sup> War on land deals with destroying other armies, and with seizing and holding territory as described by military theorists Carl von Clausewitz, Antoine-Henri Jomini, and others.<sup>19</sup> In short, there are differences between the objectives and activities employed by nations at war in the land and maritime domains.

In addition, much of the technology employed by armies and navies is unique to each domain. Accordingly, the systems of training, education, supply, maintenance, and other administrative activities differ as well. In sum, differences in warfighting on land and at sea led nations to develop separate and usually independent organizations, each tailored to the warfighting domain to which they were assigned.

## Summary

The last time the United States created a new military service was 1947, through a complete transformation of the nation's national security apparatus. Then, as today, the government was wrestling with how best to organize for war in a new domain. Then, as today, the nation's defense budget was shrinking after a period of growth and expeditionary combat operations. Perhaps today, as then, a fundamental rethinking of the organizational pattern is necessary to adapt to a new domain.

Consider the following historical comparison: two years after concluding his tour as Supreme Commander, Allied Expeditionary Forces in Europe, General Eisenhower declared in Congressional testimony "there was no such thing as separate land, sea or air war."<sup>20</sup> He was dismayed to find that stateside inter-service rivalries precluded the organizational unification so many fighting in World War II saw

as obvious and essential. Ultimately, rather than unify the War and Navy Departments, Congress added a third department for the Air Force and created a Secretary of Defense to coordinate the three. 70 years later, another American commander returning from Europe made a contradictory recommendation. Admiral James Stavridis, who served as Supreme Allied Commander, Europe, a direct descendant of Eisenhower's wartime command, advocated for an additional partition in the defense apparatus along domain boundaries.<sup>21</sup> This paper evaluates the merit of Admiral Stavridis' recommendation.

The rest of this paper will explore the historical precedents in organizing for emerging warfighting domains. Chapter 2 begins with a review of the events that led to the emergence of an independent United States Air Force and a summary of the rationale used at the time to justify autonomy for the air service. In Chapter 3, an additional data point is established with a review of the 1990s rationale for an independent space force culminating in the Space Commission's recommendation for the Air Force to retain the space mission. In Chapter 4, the utility of an independent cyber service is compared and contrasted to the 1990s case for space, and the 1940s rationale for an independent air force. Chapter 5 provides a summary of the paper, conclusions, and recommendations for further research.

## Notes

1. Wolf Blitzer Reports staff, “Troops put Rumsfeld in the hot seat,” (8 December 2004): accessed 21 February 2016, <http://www.cnn.com/2004/US/12/08/rumsfeld.kuwait/index.html>.

2. The United States Marine Corps exception to this pattern provides an alternative construct for including multiple service branches within a single military department. *National Security Act of 1947*, Public Law 253, 80th Cong., 1st sess., 26 July 1947, <https://research.archives.gov/id/299856>.

3. This paper follows the modern convention of for “airpower” and “warfighting” as solid compound words; where open and hyphenated forms were used in quoted text, the original form is retained.

4. *Report of the Commission to Assess United States National Security Space Management and Organization*, (Washington, DC: Commission to Assess United States National Security Space Management and Organization, 2001).

5. Recognition of cyberspace as a warfighting domain was announced in William J. Lynn III, “Defending a New Domain,” *Foreign Affairs* 89, no. 5 (2010), 101.

6. Allan R. Millett, and Peter Maslowski, *For the Common Defense: A Military History of the United States of America* (New York: Free Press, 1994-09-07), 57.

7. *Ibid.*, 79.

8. William D. Parker, *A Concise History of the United States Marine Corps, 1775-1969* (Washington, DC: US Marine Corps Historical Division, 1970), 8.

9. Successor to the Second Continental Congress in 1781, the Confederation Congress was also known as the United States in Congress Assembled. This body governed the new nation under the authority of the recently-adopted *Articles of Confederation and Perpetual Union* until 1789. It was succeeded by the Congress of the United States as established by the United States Constitution.

10. See “An Act to establish an Executive Department, to be denominated the Department of War” in Richard Peters, ed. *The Public Statutes at Large of the United States of America from 1789 to 1799* (Boston: Little and Brown, 1845), 49–50, <http://memory.loc.gov/ammem/amlaw/lwslink.html>.

11. *Ibid.*, 95–96.

12. See “An Act to provide a Naval Armament” in *Ibid.*, 350–51. <http://memory.loc.gov/ammem/amlaw/lwslink.html>.

13. See “An Act to establish an Executive department, to be denominated the Department of the Navy” in *Ibid.*, 553–54.

14. Parker, *Concise History of the Marine Corps*, 7.

15. See “An Act for the establishing and organizing a Marine Corps” in Peters, *Public Statutes at Large 1789-99*, 594–96.

16. See “An Act for the better organization of the United States’ marine corps” in Richard Peters, ed. *The Public Statutes at Large of the United States of America from 1823 to 1835* (Boston: Little and Brown, 1846), 712–14, <http://memory.loc.gov/ammem/amlaw/lwslink.html>. This paper follows the modern practice of capitalizing United States Marine Corps; where other conventions were followed in quoted text, the original form is retained.

17. During this period the Departments of War and Navy were cabinet-level departments, with the respective Secretaries reporting directly to the President. There did not yet exist an entity below the Commander-in-Chief for integrating the strategies or operations of the two departments.

18. Alfred Thayer Mahan, *The Influence of Sea Power Upon History, 1660-1783* (New York: Cosimo Classics, 2007). Sir Julian Corbett, *Some Principles of Maritime Strategy* (Annapolis, MD: Naval Institute Press, 1988).

19. Carl von Clausewitz, *On War* (Princeton: Princeton University Press, 1989). Antoine-Henri Jomini, *The Art of War* (Mineola, NY: Dover Publications, 2007).

20. *National Security Act of 1947: Hearings before the Committee on Expenditures in the Executive Departments, House of Representatives, Eightieth Congress, first session, on H. R. 2319* (Washington, DC: US Government Printing Office, 1947).

21. James Stavridis, "The New Triad: It's Time to Found a U.S. Cyber Force." *Foreign Policy* (2013): accessed 2 February 2016, <http://foreignpolicy.com/2013/06/20/the-new-triad>. Stavridis filled this NATO post from 2009 until his retirement in 2013.

## Chapter 2

### **The Rise of Air Power**

*It is probable that future war will be conducted by a special class, the air force, as it was by the armored Knights of the Middle Ages.*

–Brig Gen William “Billy” Mitchell  
*Winged Defense*

The common narrative contends that today’s independent United States Air Force was born on 18 September 1947, the day after James Forrestal was sworn in as the first Secretary of Defense to commence implementation of the National Security Act of 1947. To paraphrase a famous retort from a North Vietnamese colonel about American tactical successes in Vietnam, that may be technically true, but it is also irrelevant.<sup>1</sup>

While it is no doubt the case the Air Force formally extracted itself from the War Department and oversight by the Army Chief of Staff on that date, the United States had an essentially independent air force years earlier.<sup>2</sup> In fact, the Army’s air arm had achieved virtual autonomy within the War Department by 1942 as the Army Air Forces.<sup>3</sup> Complete independence from the War Department eventually came through the post-World War II “unification” effort to permanently apply organizational lessons learned during the war. The fruits of that effort, the National Security Act of 1947, completely transformed the nation’s national security apparatus which had been largely unchanged since the American Civil War.

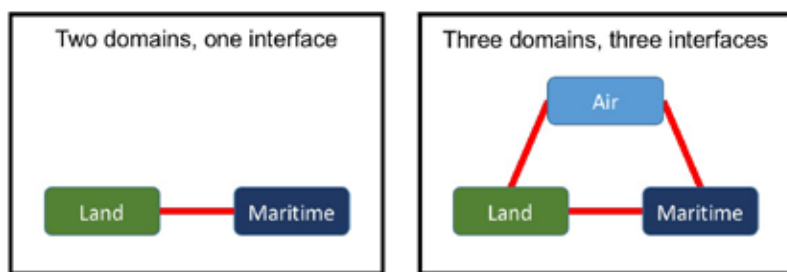
In the rest of this chapter, I will show how and why the Air Force gained independence in 1947. To fully understand the nuance of Air Force independence, we begin at the turn of the twentieth century and the birth of military aviation. First, I will briefly describe what makes the air domain different from the land and maritime domains. Next, I will summarize the 40-year path military aviation followed to emerge as the fourth American military service branch. Finally, I will distill the relevant socio-political factors for Air Force independence that can be applied in the case for cyberspace.

## The Air Domain

Challenges to the neat division of operations and independent management of land and sea forces came about as a result of continued technological advancements. Around the time of World War I, the advent of the submarine and the airplane gave man the ability to fight beneath the sea and in the air, expanding war into the third dimension.

The maneuver space of the air domain is the three-dimensional space above the land and maritime domains; technical means are required to enter and maneuver in the domain. Maneuver within the air domain is governed by Bernoulli's principle of fluid dynamics, and occurs at dramatically higher speeds than in the land and maritime domains, generally well over 100 miles per hour. The much higher speed of maneuver greatly increases the range at which air assets can conduct operations. Modern joint doctrine still highlights the uniqueness of operating in the air domain: "The speed, range, persistence, and flexibility of air assets are their greatest advantages, and their employment location and purpose may change in minutes."<sup>4</sup> Flexibility is thus a defining characteristic of operations in the air domain because airpower can range across a wide geographic area and adapt to mission changes as needed.

While air is a natural medium, the defining attributes of the air domain are largely manmade: the airports used to access the domain, and the virtual air routes and airspace boundaries constituted by governments to impose order on the domain. Because the air domain includes all of the atmosphere above the Earth's surface, it circumscribes both the land and maritime domains. As a result, a 50 percent increase in the number of warfighting domains (from two to three) tripled the number of domain interfaces (See Figure 1). Hence, combined operations in all three domains demanded a new means to harmonize action, because bilateral coordination between commanders was no longer sufficient.<sup>5</sup> Increasing complexity would become even more of a factor as additional warfighting domains emerged in the years to come.



**Figure 1. Warfighting domains and the interfaces between them.** (Author's Original Work.)

## The History of US Air Force Independence

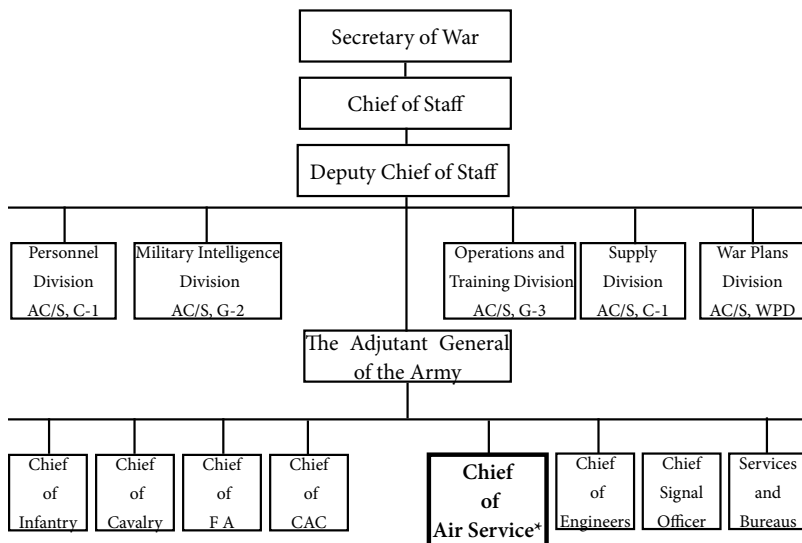
Each of the three existing services expanded into the air domain in parallel, using the airplane to support and enable its primary functions. Thus, the Army leveraged the airplane to improve upon land combat, the Navy for combat at sea, and the Marine Corps for “small wars” and amphibious operations. This early application of military aviation was what Italian airpower advocate Giulio Douhet called “auxiliary aviation,” which he described as “useless, superfluous, and harmful” because it detracted from the number of aircraft which could be allocated to decisive airpower operations.<sup>6</sup> Americans of the same mind endeavored for a more effective approach which exploited the great speed and flexibility possible in the air domain.

The Army moved first, beginning in 1907, by activating an Aeronautical Division in the Signal Corps.<sup>7</sup> Emerging from the cauldron of World War I, the Aeronautical Division became the United States Army Air Service by executive order on 21 May 1918.<sup>8</sup> Congress provided statutory recognition in 1920 with the Army Reorganization Act, designating the Air Service a combatant arm of the Army along with the Infantry, Cavalry, Field Artillery, Coast Artillery Corps, Corps of Engineers and Signal Corps (see Figure 2 below).<sup>9</sup>

The Army Air Service was responsible for the unique training, supply, and other support activities for military aviation, but tactical units remained under the command of supported ground commanders.<sup>10</sup> Sir Arthur Tedder derided this so-called “penny packet” distribution of airpower in a lecture to the Royal United Services Institute: “if your organization is such that your air power is divided up into separate packets and there is no overall unity of command at

the top . . . you will lose your powers of concentration. Air power in penny packets is worse than useless. It fritters away and achieves nothing. The old fable of the bundle of faggots compared with the individual stick is abundantly true of air power. Its strength lies in unity.”<sup>11</sup> Frustration with the inefficient penny-packet employment of airpower greatly frustrated the early airmen who saw great potential in the new air weapon.

#### Aviation in Army Organization, 1920–1934



\* Chief of Air Corps after 1926

**Figure 2. Air Service within the Army Organization.** (Reprinted from Greer, *Development of Air Doctrine in the Army*, 144)

In keeping with precedent for combatant arms of the Army, Air Service leaders immediately began to develop a professional education system for Air Service officers. The War Department authorized formation of the Air Service School on 25 February 1920.<sup>12</sup> This school served as an incubator for developing airpower theory and doctrine, and would go on to provide the intellectual foundation for future leaders of the Army’s air arm to make their case for better employment of airpower.



The Navy at the time also recognized the potential contributions aircraft could make to naval operations.<sup>13</sup> By the early 1920s, small air detachments were proving their worth to the fleet.<sup>14</sup> Organization of the nascent naval air arm was codified by Congress in 1921 with establishment of the Bureau of Aeronautics.<sup>15</sup> Even the Marine Corps was eager to enter the air domain, establishing the 1st Marine Aviation Force in 1918.<sup>16</sup>

While each of the services experimented with the new air weapon, an Army officer who served in France during World War I was perhaps the most vocal airpower advocate of all time.

### **Billy Mitchell and the Case for Airpower**

By the end of World War I, Brig Gen Billy Mitchell was in command of all American air units in France. This formative experience so convinced Mitchell of airpower's potential that after the war, as Assistant Chief of the Air Service from 1920 to 1925, Mitchell so antagonized Army and Navy leaders with his zealous promotion of airpower that he was demoted and later court-martialed for insubordination. Mitchell was concerned that continuing to maintain subordinate aeronautical forces within the existing services would hamper airpower doctrine, budget, and administration.<sup>17</sup>

Regarding doctrine, Mitchell worried Army and Navy leaders "were entirely incapable of visualizing aviation's progress."<sup>18</sup> Due to the speed and range advantage air operations had over those in the land and maritime domains, airpower could be concentrated and applied against the enemy's weaknesses anywhere in the theater. Rather than concentrate all available airpower at a decisive point, Army commanders preferred to distribute air assets across the various land formations to be employed as needed by those individual units. Airmen believed concentrated airpower, employed independently from land and maritime forces, could ultimately achieve decisive victory on its own.

Mitchell and others also worried that senior leaders in the older services would always see airpower as merely an enabling auxiliary to land or naval operations.<sup>19</sup> This would cause budgets prepared by the Army and Navy never to give due priority to aviation requirements, resulting in "incomplete, inefficient, and ultimately expensive" air forces.<sup>20</sup> Mitchell also understood that airmen were as unique from Army and Navy personnel as soldiers and sailors were from each

other, requiring “an entirely different system of training, education, reserves, and replacements from that of the other services.”<sup>21</sup> Only when organized into a separate and co-equal service on par with land and naval power could airpower overcome these hurdles to achieve the greatness it was capable of and which would be absolutely essential in future wars.

To recap, the 1920s rationale for a separate air service can be summarized as follows: (1) Army and Navy commanders were unwilling or unable to embrace the novel employment model that maximized airpower’s flexibility; (2) Army and Navy officers would not assign appropriate budget priority to a mission they viewed as an enabling auxiliary; and (3) unique administrative requirements to sustain air operations were ill served by the existing support infrastructures in the older services.

### **Army Air Corps**

Due in no small part to Mitchell’s outspoken advocacy, Congress and the American public were keenly interested in ensuring appropriate organization and focus for military aviation. Several boards and Congressional inquiries examined the issue in the early 1920s, including the Lassiter Board, the Lampert Committee, and the Morrow Board.<sup>22</sup> The 1923 Lassiter Board recommended formation of an organization within the Army to conduct independent air operations. The 1924 Lampert Committee recommended a wholly independent air force as a peer to the Army and Navy, with an overarching department of defense to coordinate all three major services.

The 1925 Morrow board proposed renaming the Air Service as the Air Corps so that it would have more prestige and to strengthen “the conception of military aviation as an offensive, striking arm rather than an auxiliary service.”<sup>23</sup> Additional elements of the Morrow board recommendation, ultimately accepted by Congress and passed as the Air Corps Act on 2 July 1926, included creating an Assistant Secretary of War for Air, and additional representation on the War Department General Staff. The Act also directed that flying unit commanders be rated pilots, and added two Air Corps assistant chiefs at the brigadier general grade.

Though the Air Corps Act directed a substantial expansion of the air fleet, Congress later undermined the procurement by neglecting to appropriate sufficient funds. Airpower advocates would blame this

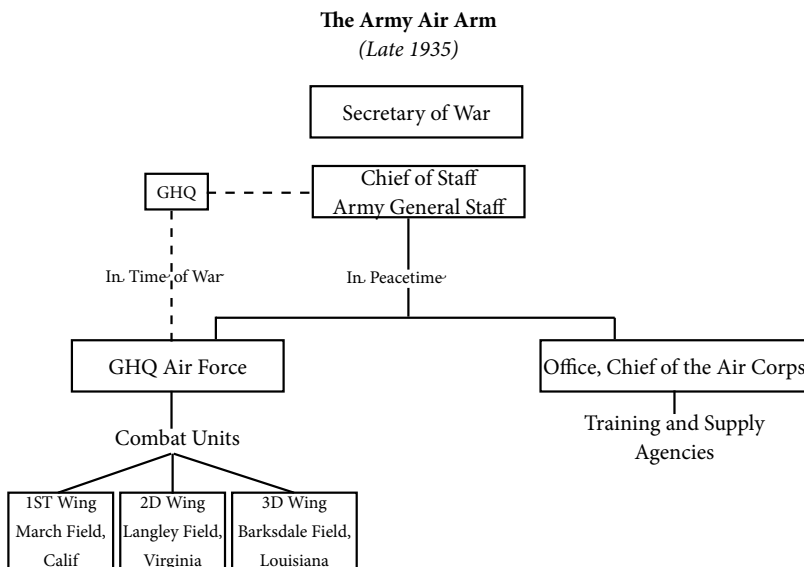
shortfall on the War Department failing to assign sufficient priority to the effort, but the great depression, which strained resources across the whole government, was more to blame.<sup>24</sup> Left largely unchanged, however, was the Air Corps' fundamental relationship with the War Department, and its responsibilities which remained squarely in the realm of training, administration, and support. In sum, the Air Corps was empowered partly to address airpower's unique administrative requirements, but could not ameliorate the budgetary concerns or the inefficient model of "penny-packet" airpower employment preferred by Army commanders.

### **General Headquarters Air Force**

Maj Gen Mason M. Patrick was Chief of the Air Service throughout the period of debate that led to the Air Corps name change.<sup>25</sup> General Patrick was a decidedly more pragmatic leader than Mitchell; though he saw the potential in more sweeping future changes, he focused on those improvements in the organization and application of airpower possible under the existing regime. Specifically, Patrick fought against "the permanent assignment of air elements to individual ground units."<sup>26</sup> A 1926 Air Corps Tactical School publication began to refine this early concept into one of the fundamental tenets of airpower: "By virtue of its great mobility this force can be used to make successive concentrations of air forces in different sectors of operation and it can be moved from one theater of operations to another with comparative ease. With such a force, it is possible to concentrate superior forces at important points where and when necessary to assume and maintain offensive action."<sup>27</sup>

While General Patrick and other air officers favored consolidation of all airpower units under the command of an airman to focus concentrated airpower for decisive action, ground commanders continued to hold the opposing view. They insisted that "attack elements should be assigned to individual field armies and remain at their disposition."<sup>28</sup> Formal War Department policy struck a compromise position: each field army would be assigned a dedicated force of attack and pursuit units, but the Army General Headquarters (GHQ) would retain a reserve of pursuit and bomber aircraft.<sup>29</sup> This reserve force could be concentrated for decisive employment according to the doctrine favored by airpower advocates.

Over the decade following formal establishment of the Air Corps in 1926, several factors combined to create an environment more favorable to the airmen's point of view. Specifically, improvements in aviation technology providing far greater flight endurance and the election of an aviation-minded president in Franklin D. Roosevelt paved the path for a more prominent role for airpower in the Army.<sup>30</sup> A pair of investigative boards in 1934 each recommended "establishment of a General Headquarters Air Force made up of all air combat units, trained as a homogeneous force and capable of either close support or independent action."<sup>31</sup> Established on 1 March 1935, the new GHQ Air Force consolidated all air combat units previously dispersed throughout Army ground commands for training and employment.



**Figure 3. Air Corps within the Army Organization.** (Reprinted from Craven and Cate, *Army Air Forces in WWII Vol. 6, 5.*)

As depicted in Figure 3 above, the GHQ Air Force reported directly to the Army Chief of Staff in time of peace, and to a theater commander while at war. The parallel Air Corps chief retained his administrative responsibilities over supply and individual training.<sup>32</sup>

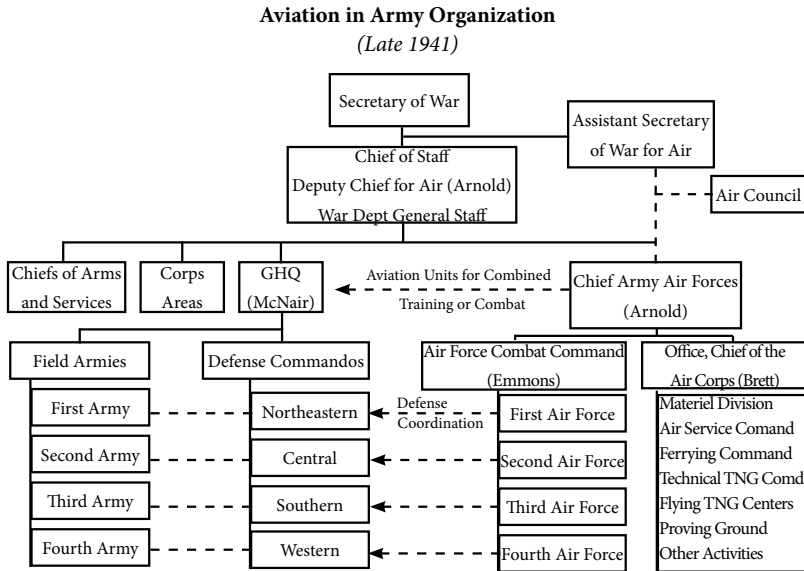
Therefore, creation of GHQ Air Force partially achieved the goal of centralizing airpower under the command of a single airman and recognized the potential for the totality of airpower to be employed as a flexible offensive arm.

There was, however, still a division of responsibility between GHQ AF and Chief of the Air Corps.<sup>33</sup> In addition, the budget process was still controlled by the Army General Staff, continuing the concern among airmen that aviation would not get an appropriate share of the budget. The GHQ structure was, however, a substantial improvement over the status quo, particularly from a doctrine perspective.

### **Army Air Forces**

Consolidation of all army air combat units under the GHQ Air Force was the first of two organizational changes which all but guaranteed Air Force independence. The second was the formation of the Army Air Forces, an essentially autonomous air service within the War Department responsible for nearly all administrative and operational aspects of airpower.

In a continuation of the movement begun by Mitchell 15 years earlier, air-minded members of Congress, who doubted the possibility of endogenous Army reform, introduced 15 bills in the first half of 1941 to wrest control of the Air Corps from the War Department.<sup>34</sup> Concerned that such a disruptive change was not prudent with the war raging in Europe, Secretary of War Henry L. Stimson directed Marshall to ameliorate the concerns of Congress and his own air arm. The resulting action, codified by Army Regulation 95-5 published 20 June 1941 and depicted in Figure 4 below, created the Army Air Forces.<sup>35</sup> The Chief, Army Air Forces was dual-hatted as the Deputy Chief of Staff for Air and had under his control an Air Staff, the Army Air Corps, and the GHQ Air Force (renamed by the same regulation to Air Force Combat Command).



**Figure 4. Army Air Forces in 1941.** (Reprinted from Craven and Cate, *Army Air Forces in WWII* Vol. 6, 27.)

Though still part of the War Department and subordinate to the Army Chief of Staff, the new Army Air Forces was a peer organization to the Army GHQ, which exercised command over all Field Armies and Defense Commands. The new organization largely satisfied the doctrinal and administrative concerns raised by Mitchell in the 1920s. The Army Air Forces had won the freedom to organize and train as it thought best. The Air Staff could set up Mitchell's "entirely different system of training, education, reserves and replacements" required for an air force.

As the Deputy Chief of Staff for Air, Gen Henry "Hap" Arnold was also in a better position to influence War Department budget submissions to satisfy airpower requirements. Spurred by the growing crisis in Europe and President Roosevelt's decisive position, Congress had not been holding back on military materiel needs, mitigating for the time worries about the War Department allocating sufficient funding for airpower programs.<sup>36</sup> In short, the Army Air Forces did not face any of the doctrinal, administrative or budgetary concerns that had earlier fueled the desire to separate from the War Department.

This was apparently sufficient progress towards air autonomy for Arnold, for “on 6 October 1941, it was decided that it would be the policy of the Army Air Forces to oppose the formation of an independent air force at this time.”<sup>37</sup> Convinced the Army Air Forces had achieved nearly all that was necessary to succeed, and that further agitation in Congress and the press would serve only as a distraction, Arnold steadfastly upheld this position in public and private, even testifying in Congress against separation from the War Department.<sup>38</sup> In addition, he wrote letters to influential civilians explaining why a separate air force was undesirable.<sup>39</sup> Marshall later remarked “I tried to give Arnold all the power I could. I tried to make him as nearly as I could Chief of Staff of the Air without any restraint although he was very subordinate. And he was very appreciative of this.”<sup>40</sup> Both men recognized that while complete independence for airpower might be a worthy and necessary goal in the future, further pursuit of that aim would be detrimental to the immediate task at hand: preparing for war.

Three factors combined to provide nearly complete autonomy for the Army Air Forces within the War Department. The first factor was General Arnold’s promotion within the War Department bureaucracy to Deputy Chief of Staff for Air.<sup>41</sup> This elevation in status paved the way for the second factor which was to recognize Arnold as a *de facto* peer to United States Army Chief of Staff Gen George C. Marshall in meetings with British military leadership. Because the Royal Air Force was already an independent service, the British delegation to conferences with their American counterparts included a separate Royal Air Force representative. Though still technically subordinate to Marshall, Arnold attended these meetings as a *de facto* counterpart to the Royal Air Force representative, a practice that would continue for the duration of the war.<sup>42</sup>

The third and most important factor towards airpower autonomy was a broad reorganization of the War Department bureaucracy. There was an overwhelming need to reform the War Department’s organization in preparation for America’s possible entry into what would become World War II. Forrest C. Pogue describes the bureaucratic morass the War Department had become in his epic 4-volume Marshall biography: “Students of the War Department’s organization on the eve of World War II have estimated that at least sixty-one officers had the right of direct access to the Chief of Staff and that he had under him thirty major and 350 smaller commands. Over a

period of years a number of semi-independent agencies and offices, as jealous of their privileges as a clutch of feudal barons, had grown up. As a result the Chief of Staff and his three deputies were completely submerged in details.”<sup>43</sup> Marshall knew a dramatic streamlining was necessary to prepare the War Department for the task ahead, should the United States enter the war.

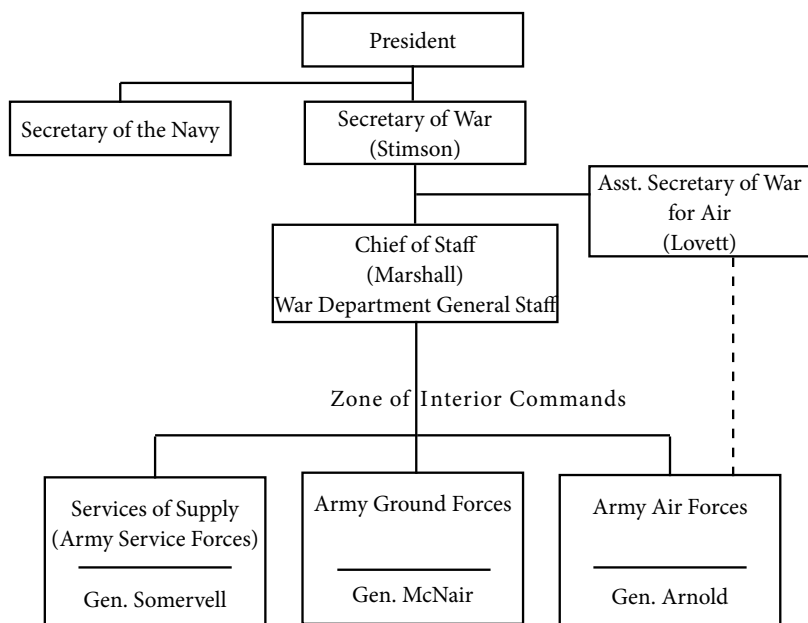
Having embraced subordination to the War Department for the foreseeable future, Arnold seized this opportunity to maximize his authority and autonomy within that structure in the fall of 1941. With the help of his Chief of Staff, Brig Gen Carl Spaatz, Arnold generated a series of options for reorganizing the War Department. Their efforts culminated on 14 November with a plan that formed the basic outline for a major reorganization implemented early the following year. In their recommendation, Arnold and Spaatz made a compelling argument for formal recognition of Army air forces as a combat arm co-equal with Army ground forces:

The development of the air force as a new and coordinated member of the combat team has introduced new methods of waging war. Although the basic Principles of War remain unchanged, the introduction of these new methods has altered the application of those Principles of War to modern combat. In the past, the military commander has been concerned with the employment of a single decisive arm, which was supported by auxiliary arms and services. . . . Today the military commander has two striking arms. These two arms are capable of operating together at a single time and place on the battlefield. But they are also capable of operating singly at places remote from each other. The great range of the air arm makes it possible to strike far from the battlefield, and attack the sources of enemy military power. The mobility of the air force makes it possible to swing the mass of that striking power from those distant objectives to any selected portion of the battlefield in a matter of hours, even though the bases of the air force may be widely separated.<sup>44</sup>

The General Staff agreed on the overall principles and began a more detailed planning effort toward implementation of the Arnold-Spaatz plan. Just days later, on 7 December Japanese aircraft attacked the United States at Pearl Harbor. The following day, Congress declared war on Japan, and within three days reciprocated declarations of war from Germany and Italy. The United States had officially entered World War II, a forcing function which encouraged rapid implementation of the Arnold-Spaatz reorganization plan.



### The AAF in the Wartime Army



**Figure 5. Wartime Army Air Forces within the Department of War, 1942.** (Source, Craven and Cate, *Army Air Forces in WWII* Vol. 6, 31.)

Based on authority granted to him by Congress in the First War Powers Act, President Roosevelt directed the new organization (See Figure 5 above) through Executive Order 9082 on 28 February 1942.<sup>45</sup> Effective 9 March 1942 until six months after the end of the war, the War Department would have a General Staff, a Ground Force, an Air Force, and a Service of Supply Command (later renamed Army Service Force). General Arnold became the commanding general, Army Air Forces. In that role, he was responsible for the administration, organization, and training of all Army air forces, and for the development and procurement of aircraft and other specialized aviation equipment.<sup>46</sup> America's airmen had achieved virtually complete autonomy within the War Department.<sup>47</sup>

### Army Air Forces as an Independent Service

The three new Army commands ceded responsibility for planning operations for overseas theaters to the War Department General Staff

and theater commands.<sup>48</sup> The individual Army commands were solely responsible for administration, organization, training, procurement, and supply—a set of administrative responsibilities today referred to as *organize, train and equip*. The regional unified commands were responsible for planning and execution of operations including forces from all of the services. This construct established an organizational pattern of assigning administrative responsibilities to the services, with unified commands handling operational planning and employment. This wartime organizational pattern would heavily influence the post-war structural design of America's national security apparatus, and continues to do so to this day.

Though not typically discussed in these terms, the 1942 reorganization effectively created a War Department comprised of three independent military service branches in much the same way the Navy Department was composed of two services, the Navy and Marine Corps. The wartime organization reflected a parity of responsibility and influence which was further solidified by the 21 July 1943 publication of a new War Department Field Manual.<sup>49</sup> Field Manual 100-20, titled "Command and Employment of Air Power," stated: "Land power and air power are coequal and interdependent; neither is an auxiliary of the other."<sup>50</sup> Airpower had become truly co-equal to land power as far as the War Department was concerned.

This arrangement continued largely intact for the duration of the war. Though absolutely subordinate to Marshall on paper, Arnold was frequently treated as essentially a peer to the Army Chief of Staff. As commanding general, Army Air Forces, Arnold enjoyed full membership on the Joint Chiefs of Staff and the Anglo-American Combined Chiefs of Staff.<sup>51</sup> The Army Air Forces had been a *de facto* independent service since 1942.

### A Push for Unification

Members of Congress were keenly aware that the president's authority to unilaterally organize the armed forces under the First War Powers Act would expire "six months after the termination of the war, or until such earlier time as the Congress by concurrent resolution or the President may designate."<sup>52</sup> If they allowed the president's wartime authority to expire without passing legislation to reform defense organization, the War and Navy Departments would be required to revert to their pre-war statutory constructs. Such a rever-

sion would be particularly detrimental to the relative autonomy achieved by the Army Air Forces within the War Department. This eventuality prompted a resurgence of Congressional interest in post-war organizational plans, even before the tide began to turn in favor of the Allies on D-Day.

To prepare for post-war legislation, in April 1944 Congress delved back into the topic with formation of the so-called Woodrum Committee charged with considering “the importance of the principle of unity of command.”<sup>53</sup> In testimony to that committee, Army Air Forces Brig Gen Haywood S. Hansell, Jr. presented the War Department position: “Those of us who have seen this war fought, either in the several theaters or on the planning and executive staffs, realize that there is no place in modern war for a separate air force, for a separate army, or for a separate navy. The Army Air Forces advocate, and strongly recommend, the integration of the nation’s fighting forces into a single united organization. Hence, our conviction demands unity rather than separation.”<sup>54</sup> Having achieved parity with the Army inside the War Department, airpower and land power advocates alike saw wisdom in uniting with their Navy and Marine Corps counterparts in Washington in much the same way they had in Europe.<sup>55</sup>

The Navy was less sanguine about unification. In particular, Secretary Forrestal and other Navy Department leaders worried that a unified department of armed forces would be detrimental to the Navy because “sea power would be weakened by people who did not understand its potential,” and further that an independent air force would subsume Naval aviation.<sup>56</sup> Marine Corps leaders also worried the unification effort would renew efforts by the Army to absorb their service’s mission, posing a potential existential threat to the Marine Corps.<sup>57</sup> As a result, Secretary Forrestal obstructed, pushing for more study of the topic before any permanent changes should be considered.

### **Joint Chiefs of Staff Special Committee for Reorganization of National Defense**

Worried that Congress might make uninformed changes, in May 1944 the Joint Chiefs formed the Special Committee for Reorganization of National Defense to formulate a recommendation based on input from theater commanders.<sup>58</sup> The Special Committee was charged with evaluating three possible constructs for armed-forces organization as divided into one, two, or three cabinet departments.<sup>59</sup>

The two-department construct would continue the status quo with War and Navy Departments, each maintaining constituent air arms. A three-department system retained those of War and Navy with the addition of a new and co-equal Department of Air. The one-department proposal would unify the armed forces into a single Department of War (or Defense), with subordinate divisions for land, naval and air services.

After ten months of work, in April 1945 the Special Committee endorsed a one-department construct. The committee concluded that unification was sorely needed in Washington because otherwise “each Army and Navy component within a specific theater belonged and owed allegiance to a separate department. Hence, the theater commander could not carry out his command decisions as efficiently as he wanted.”<sup>60</sup> Senior theater commanders from all services supported the need for unity in Washington; Army Generals MacArthur and Eisenhower as well as Navy Admirals Nimitz and Halsey endorsed the Special Committee’s “unification” proposal.<sup>61</sup> Support from these Admirals appeared to contradict the Navy Secretary’s earlier position, and Navy support for the unification effort waned as the war drew to a close.

### **Eberstadt Study**

Convinced that the Navy needed an alternative proposal rather than just offer flat opposition to unification, in June 1945 Secretary Forrestal initiated a study to consider another concept. The team of mostly naval personnel and employees worked under Ferdinand Eberstadt, former chairman of the Army and Navy Munitions Board and vice chairman of the War Production Board.<sup>62</sup> The concept under consideration was a planning-and-coordination agency to harmonize the efforts of the services, which would remain independent cabinet-level departments.

Completed in just three months, the Eberstadt report “counseled against a single department of national defense” but did endorse a separate department for air. Importantly, the new Military Department for Air would not inherit naval aviation or that of the Marine Corps; each would remain organic to those services. Fiercely committed to maintaining strict autonomy for the Naval services and thus entirely opposed to unification with the Army, Secretary Forrestal would not endorse the study’s major recommendations. He did, however,

acknowledge that some action was needed to prevent the Army Air Forces from reverting to their pre-war status.<sup>63</sup>

The attention and efforts of the Special Committee and Eberstadt Study did not go unnoticed by Congress. After Germany surrendered in May 1945, followed in August by Japan, there was an increasing sense of urgency to address post-war organization before the emergency war powers expired. During 1945, four bills were introduced to create a single department for national defense, and another four to create a separate department of air.<sup>64</sup> Though none was even considered for a floor vote, the committee hearings provided an ideal venue for the War and Navy Departments to present their respective positions.<sup>65</sup>

In October 1945 Lt Gen J. Lawton Collins presented a unification option based largely on the Special Committee recommendation which enjoyed the support of Secretary Patterson and Generals Marshall, Bradley, and Spaatz. Secretary Forrestal predictably opposed it, and advocated a coordination option generally in line with the Eberstadt report. Forrestal's position was endorsed by Assistant Navy Secretary H. Struve Hensel, Chief of Naval Operations Admiral Ernest J. King, Chief of Staff to the Commander in Chief Admiral William D. Leahy, as well as Admirals Halsey and Nimitz, who abandoned their earlier position in support of the Special Committee recommendation.<sup>66</sup>

#### President Truman Weighs In

Two days after those hearings concluded, President Truman transmitted his clear intent in a 19 December 1945 message to Congress endorsing unification of the armed forces with organizational parity for airpower:

I recommend that the Congress adopt legislation combining the War and Navy Departments into one single Department of National Defense. . . . One of the lessons which have most clearly come from the costly and dangerous experience of this war is that there must be unified direction of land, sea and air forces at home as well as in all other parts of the world. . . . Air power has been developed to a point where responsibilities are equal to those of land and sea power, and its contribution to our strategic planning is as great. In operation, air power receives its separate assignment in the execution of an over-all plan. These facts were finally recognized in this war in the organizational parity which was granted to air power within our principal unified commands. Parity for air power can be achieved in one department or in three, but not in two. As between one department and three, the former is infinitely to be preferred.<sup>67</sup>

The president's message indicates that, with respect to airpower's status, legislative action would merely formalize the organizational status achieved by executive action and validated throughout the war.

The following month, Senate Military Affairs Committee Chairman Elbert D. Thomas formed a subcommittee to draft compromise legislation which combined features of the Special Committee and Eberstadt plans.<sup>68</sup> The resulting "Common Defense Act of 1946" was a single-department unification plan derided by Secretary Forrestal as "an administrative monstrosity."<sup>69</sup> Hearings on the bill held by the Senate Committee on Naval Affairs drew much critical testimony from supporters of the naval services, including a particularly revealing assessment by Admiral Richmond K. Turner who freely admitted the parochial nature of the Navy's objections: "Frankly, I believe that the Navy as a whole objects to so-called unification because under any system the Navy will be in a numerical minority and the Army and Air Force, a military majority and scattered throughout the country, will always be in a better political position than the Navy. In spite of any possible degree of good will on the part of the Army and Air Force, I think the superior political position of those services will be used to the disadvantage of the Navy unless the Navy has at all times free and direct access to the President and Congress."<sup>70</sup> Having successfully elicited numerous and varied objections for the record, the Naval Affairs Committee adjourned hearings on the bill in May 1946.

Frustrated by the increasingly public feuding within his administration, President Truman held a meeting at the White House on 13 May 1946 to adjudicate the deadlock. At that meeting, the president directed Secretaries Patterson and Forrestal to propose a mutually agreeable compromise by the end of the month that included a single Department of National Defense. In an attempt to appease the Navy's objections, he further directed that there be three military departments, which would each "perform their separate functions under the unifying direction, authority and control of the Secretary of National Defense."<sup>71</sup>

Patterson and Forrestal returned to the White House on 4 June 1946 still at fundamental disagreement on four points: unification into a single cabinet department, creation of a coequal air arm, retention of land-based aviation in the Navy, and assignment of amphibious operations as a core function of the Marine Corps.<sup>72</sup> Determined to find a compromise which unified the armed forces

while respecting the Navy's concerns, Truman articulated his position on unification along twelve basic principles, of which the services agreed on eight, and encouraged Patterson and Forrestal to consider his suggested compromise positions on the remaining four.<sup>73</sup>

On the four principles which the services could not find common ground, Truman supported the Army's position for a single cabinet-level military department; the Army's position for three sub-cabinet coordinate services—Army, Navy and Air Force; the Army's position to transfer most land-based aviation to the Air Force; and the Navy's position to maintain a Marine Corps component in the Navy responsible for amphibious operations. Truman reiterated his twelve principles of unification in a letter to Congress, concluding: "it is my hope that the Congress will pass legislation as soon as possible effecting a unification based upon these twelve principles."<sup>74</sup>

### **Norstad-Sherman Compromise**

In an effort to forge a mutually acceptable position on unification which was "within the scope and spirit" of the president's position, Secretary Forrestal held a small-group meeting at his Georgetown home in November 1946. At this meeting, which included representatives from the Navy and War Departments, "it was decided . . . that General Norstad and Admiral Sherman should attempt to work out an agreement as a basis for the legislation which was to be drawn up in the President's office."<sup>75</sup> Norstad and Sherman worked out a compromise by January 1947 that included a Secretary of National Defense, though the three military departments would retain their cabinet-level status and maintain far more autonomy than under the proposed 1946 legislation, which was much closer to the president's position.<sup>76</sup> On 16 January 1947, Patterson and Forrestal sent a joint letter to the president outlining their mutually agreed compromise position.<sup>77</sup>

By that time, nearly 18 months had passed since Japan surrendered, ending the active combat phase of the war. Though the First War Powers Act included a termination clause set for six months after the end of the war, as a matter of practicality, the wartime organizational construct was retained while the armed forces demobilized and Congress deliberated the permanent structure. This state of affairs could not go on indefinitely; the armed forces needed eventually to be reconciled with their statutory organizational requirements, and

lest all of the progress and lessons learned from the war be forfeited, those statutory requirements needed revision.

On the eve of Congressional deliberation on the bill which would ultimately establish an independent United States Air Force, the need for a separate air force “seemed generally acceptable to the services, Congress, and the public.”<sup>78</sup> General Eisenhower particularly saw the need for an independent air force as an obvious conclusion based on his experience in Europe during the war.<sup>79</sup> As the Army Air Forces had been essentially independent within the War Department since 1942, the war was a five-year crucible which validated President Roosevelt’s executive order.

For airmen, the most important requirement was co-equal status with the Army and Navy so “the air commander [could] authoritatively present before the Supreme commander what he could accomplish, assume the responsibility for its accomplishment, and be free to carry out that responsibility with full appreciation of air capabilities and limitations.”<sup>80</sup> Maintaining parity with the other services ensured airmen could ensure appropriate employment of airpower, preventing “penny-packet” disbursement. Airmen allowed that there was a benefit to the Army and Navy retaining auxiliary airpower, and thus did not openly object to the Navy retaining both land- and ship-based aviation.<sup>81</sup> Independence and organizational parity for “primary” airpower, however, would preserve the hard-won doctrinal and administrative gains made on the eve of the war.

Budgetary concerns continued to be a major factor for airpower separatists seeking independence from the Army; they worried that, as overall spending decreased in the post-war period, airpower needs would not be given priority if they needed to compete with traditional Army programs for a share of War Department funds.<sup>82</sup> In fact, the issue of budget parity would be specifically raised in Congress.

This careful balance of conflicting bureaucratic interests defined the environment in which President Truman submitted a proposal to Congress on 27 February 1947. The draft bill, based on the Norstad-Sherman compromise as documented in the Patterson-Forrestal letter from the previous month, would become the National Security Act of 1947.<sup>83</sup>



## National Security Act of 1947

The compromise embodied by the president's 27 February proposal had official support from Secretary of War Patterson, Secretary of the Navy Forrestal, and all of the Joint Chiefs of Staff, including Generals Marshall and Arnold and Admirals Leahy and King.<sup>84</sup> The bill was about much more than Air Force independence; it completely transformed the national security apparatus of the United States. The analysis here, however, will focus exclusively on establishment of the United States Air Force as an independent service.

Hearings on the bill were held by the *Committee on Expenditures in the Executive Departments* in the House, and the *Committee on Armed Services* in the Senate. Among them, over two dozen witnesses testified on the various provisions, including many present and former senior officers from the Army, Navy, and Marine Corps. Those witnesses with Army (including Army Air Forces) background generally argued in favor of the bill, citing the importance, flexibility, decisiveness, and unique nature of airpower as reasons for separating air forces from the Army. In addition, some argued the importance of airpower demanded an independent voice not beholden to the older services to advocate for airpower resources and mission.

**Importance.** Secretary of War Robert Patterson argued that “the value of airpower to our national security requires that it be placed in a position of parity with land and sea power.”<sup>85</sup> Gen Carl Spaatz, who had taken command of the Army Air Forces upon General Arnold's retirement, added: “air power is too important in national defense to be the function of any department whose major responsibility does not lie in the development of air power.”<sup>86</sup>

**Decisiveness.** Perhaps buoyed by the success achieved with nuclear weapons to end the war in Japan, some praised the decisiveness of airpower, echoing arguments made earlier by Douhet and Mitchell. General Eisenhower, by then Army Chief of Staff, confirmed it was “certainly within the realm of possibility more than ever before” that strategic bombardment alone could eliminate an enemy.<sup>87</sup>

**Flexibility.** Airmen had long advocated against “penny packet” distribution of airpower as anathema to the inherent flexibility of the air weapon. General Eisenhower highlighted that his ability to concentrate and flex airpower was critical during the war, as “all that air force could be concentrated at any one spot at any moment . . . for one purpose.”<sup>88</sup> This so-called centralized control of airpower highlighted

the theater-wide scale at which air operations were fought and thus airmen needed to think.

**Uniqueness.** Regarding the nature of airpower, General Eisenhower acknowledged the unique administrative needs of air forces which would “have different requirements and needs [than the Army and Navy], particularly related to personnel.”<sup>89</sup> General Spaatz added that the “differences between land, sea, and air have been predetermined by the physical laws of the earth and sky. And just as sea power was developed and maintained only by men who lived by and for the sea, so air power will be developed to its fullest capacity only by men who live by and for the air.”<sup>90</sup>

**Advocacy.** Supporters of the bill repeated General Arnold’s earlier concerns about airpower needs competing for a share of the War Department budget with traditional land-power programs. Congressman John W. McCormack of Massachusetts observed: “an independent Air Force would be in a better position to sell the case of air,” and even acknowledged “the salesmanship has to be to Congress.”<sup>91</sup> It is important to note the ability to advocate for airpower from a position of parity with land and sea power was the one factor which could not easily be met without an independent Air Force.

However compelling the case for unification with organizational parity for airpower, endorsement from the Navy establishment was not forthcoming. Former members of the Navy and Marine Corps offered instead their vocal criticism. Those arguing against an independent Air Force highlighted inter-service rivalry, contradiction with the goal of unification, complications to inter-domain operations, and fear of creating a constituency of hidebound pilots who would resist future technological advancement.

**Inter-service rivalry.** Congressman Carter Manasco of Alabama raised a concern that creating a separate Air Force would mean “one more arm of our armed forces to cause that much more jealousy.”<sup>92</sup>

**Contradicts unification.** Melvin Maass, a member of the Marine Corps Reserve and president of the Marine Corps Reserve Officers Association, offered a particularly vexing position. Mr. Maass argued against the present compromise and in favor of “genuine military unification.”<sup>93</sup> He voiced concern regarding the separation of the Air Force from the Army: “this bill, while labeled ‘Unification,’ is, in actuality, a divorce.” John P. Bracken, president of the Reserve Officers of the Naval Services, expressed similar concerns, finding it “strange indeed that the public discussion of a bill which purports to unify the

Armed Forces should ignore almost completely the deliberate division of the Army into two completely separate departments—Army and Air Force—as a prerequisite to the over-all unification of our armed forces.”<sup>94</sup> In contract to Mr. Maass who advocated a “merger” of the armed forces, Mr. Bracken called for their “unification,” which he believed creating an independent Air Force precluded.

Marine Corps Brig Gen Merritt A. Edson testified in an individual capacity, but represented a position he claimed was “in agreement with those of a large number of officers of the Army, Navy, Marine Corps, and Air Forces.”<sup>95</sup> General Edson was also in favor of true unification, believing “there can be no actual compromise between two positions so widely at variance,” suggesting the disparate positions of the Army and Navy yielded a compromise which was far inferior to either starting position.<sup>96</sup>

**Complicates inter-domain operations.** Mr. Bracken further cautioned: “the mission of naval aviation is so completely tied in with naval vessels . . . that to separate naval aviation from the Navy . . . would be a tremendous mistake.” Notably, the bill under consideration did not propose to separate naval aviation from the Navy, but in comparison, he questioned the wisdom of separating land-based aviation from the Army, which he believed to be similarly “tied up.”<sup>97</sup>

**Inhibits technical evolution.** Regarding establishment of an independent Air Force, General Edson worried such an organization so completely constituted by pilots might “put a brake upon development of [guided missiles and pilotless aircraft], because one knows that it is not human nature to develop something which will put you out of a job.”<sup>98</sup> Some would argue the United States Air Force’s later reluctance to pursue guided missiles, unmanned space capabilities, and remotely piloted vehicles validates General Edson’s concern.

In the end, the most coherent arguments against the bill were actually in favor of unification and thus opposed to the compromise embodied in the “coordinating” Defense Secretary. Concerns about inter-service rivalry and technological tunnel vision had merit, but were not existential concerns. Despite the transformative nature of the proposal, aspects of the bill regarding the military services survived the legislative process largely as originally proposed. The most substantive amendments specified functions and missions of the Navy and Marine Corps to include aviation arms for both. The National Security Act of 1947, as amended, became law on 26 July 1947.

In the end, the Navy failed to prevent formation of an independent United States Air Force, but “won its point of the individual services maintaining their integrity and thereby their flexibility of action and administration.”<sup>99</sup> The services and their secretaries, including the new Air Force, maintained cabinet-level status and direct access to the president.<sup>100</sup> Navy Secretary Forrestal would go on to be the first Secretary of Defense after Patterson declined the position. Ironically, Forrestal’s struggle to coordinate the services was made more difficult by the very service autonomy he fought so hard for while leading the Navy.

## Analysis and Conclusion

The argument for an independent United States Air Force remained remarkably consistent for over 20 years. The uniqueness of the domain demanded a new way of thinking and leaders steeped in that novel doctrine. The technology required for entry to and maneuver within the domain demanded specialized administration and support, which was best served with a tailored support structure. These factors, however, did not require separation from the Army. In fact, by 1942 they were sufficiently addressed by establishing the Army Air Forces as an autonomous service with the War Department.

The determining factor for *why* airpower advocates demanded further organizational differentiation hinges on advocacy. The nation’s ability to fight effectively in and from the air had become vitally important to national security, and at least as important as fighting on land and at sea. Accordingly, organizational parity with land and sea power was needed to ensure appropriate and effective advocacy for airpower.

Nearly as important as *why* airpower needed independence was *how* it was achieved. Logical justification is not necessarily reason enough to implement change in a democracy; the context in which Congress considered the decision to create an independent United States Air Force in 1947 differed in many ways from the numerous times it was considered previously. Though countless proposals had been raised in Congress aimed solely at creating a military service for airpower co-equal with the Army and Navy, in the end it took a complete transformation of the entire defense establishment to effect permanent change.

## Political Factors for Air Independence

It may not be possible to know precisely which of the following factors were necessary and sufficient for the complex bureaucracy which is the federal government to create a new military service. However, in 1947 five forces aligned for the first time in support of separating air forces from the army: airpower had proven successful in recent combat during World War II; the Army Air Forces had matured into an autonomous institution capable of independence; Army and War Department leadership actively supported a separate airpower service; vigorous presidential support emerged for airpower to have organizational parity; and a comprehensive reorganization of the nation's security apparatus was underway.

**Recent combat success.** By 1942, the Army Air Forces had become an essentially independent service within the War Department. That organization's performance during World War II validated the temporary organizational construct put in place by President Roosevelt for the war. Though some would question the efficacy of the strategic bombing campaign, the war was a successful demonstration of how an independent air force could operate alongside the other services. Widely held views that the performance of the Army Air Forces, culminating with the use of atomic bombs to end the war, contributed to general acceptance of the need for an independent air force by many in Congress and the public.<sup>101</sup>

**Autonomous antecedent.** Before an independent airpower service on par with the Army and Navy could be created, airmen needed to demonstrate their ability to operate an autonomous organization within the existing construct. General Marshall once remarked that although the Army's airmen continually pushed for independence before the war, it "was out of the question at that time. They didn't have the trained people for it at all. . . . When they came back after the war, the Air Corps had the nucleus of very capable staff officers but that wasn't true at all at the start."<sup>102</sup> In Marshall's opinion, the air force needed to be incubated within the Army until it was capable of surviving as an independent services.

The new domain demanded a new way of thinking and leaders steeped in that novel doctrine; these ideas and leaders could not be conjured up on demand. The seeds of airpower doctrine sprouted following World War I. British aviators like Sir Arthur Tedder began to articulate the ideas which underpinned later American airpower

doctrine but those ideas needed a way to take root within the American military establishment. The Air Corps Tactical School (originally Air Service School) filled that critical role. Though its primary mission was training Air Corps officers for staff duty, instructors at the Air Corps Tactical School served “as a sounding board for ideas concerning the critical issue of the role of airpower in war.”<sup>103</sup>

The school also developed leaders steeped in that airpower doctrine who spread those ideas throughout the Army. This diffusion of airpower doctrine throughout the Army enabled the organizational changes described earlier which provided autonomy for airpower within the War Department. In fact, at the end of the War, all three Army Air Force four-star generals and 11 of 13 three-star generals had attended the school.<sup>104</sup> In sum, novel doctrine and leaders who understood it were not simply a reason for air force independence, but actually a necessary precursor. The Air Corps Tactical School provided the environment and mechanism within the Army to provide this ideological and doctrinal foundation for independence.

The Air Corps Tactical School produced ideas about airpower, as well as leaders to employ and improve those ideas throughout the course of the war. Those leaders organized and operated a cohesive institution, the Army Air Forces, within the War Department. Independence was only possible after the Army Air Forces demonstrated an ability to stand on its own, which was in turn only possible with a sufficient cadre of airpower leaders. Thus, the Air Corps Tactical School was an essential precursor to an Army Air Forces organization capable of independence.

**Host-service support.** The perspective and position of War Department and Army leaders also progressed throughout this period. In 1941, Secretary of War Henry Stimson worried that attempting to create a new cabinet department for airpower while war loomed across the Atlantic was an unnecessary risk. The less-disruptive path he preferred led to formation of the Army Air Forces and the maturation of that organization into an essentially independent service within the War Department. Army Chief of Staff George C. Marshall subscribed to this same view before and during the war, though he strove to provide as much freedom and autonomy as possible to the Chief, Army Air Forces.

As the war drew to a close, War Department leaders began to support parity and independence for airpower in the context of unification. This is evident from the Army’s position in support of the Joint Chiefs

of Staff Special Committee recommendation and Norstad-Sherman compromise, which both endorsed an independent air force. One perspective on the motivation behind the change in position from leaders in the land power service is that the air arm might come to dominate the Army if it remained in the War Department.<sup>105</sup> Regardless of the motivation, by war's end, support for air independence was essentially universal within the War Department.

**Presidential leadership and support.** As head of the federal government, the opinion of the president can significantly influence that of subordinate leaders in the services as well as members of Congress. Five men held the nation's highest office during the period covered in this review: Warren G. Harding, Calvin Coolidge, Herbert Hoover, Franklin D. Roosevelt, and Harry S. Truman. Some held strong opinions regarding independence for airpower; others focused their attention on other pressing matters.

Warren G. Harding served as president from March 1921 until his death in August 1923. Air Service Assistant Chief Brig Gen Billy Mitchell during this period loudly advocated for an independent air force. Shortly after his inauguration, Harding waded into the airpower issue at the behest of several members of his administration who oversaw agencies involved in aviation matters. Harding asked the chairman of the National Advisory Committee for Aeronautics to form a subcommittee to study aviation in the federal government.<sup>106</sup> After a short deliberation period, the subcommittee's recommendation endorsed the Army and Navy preference of maintaining coordinate aviation branches within each service. Harding endorsed this recommendation against an independent air force.

Vice Pres. Calvin Coolidge assumed office upon Harding's death in August 1923 and served until the end of a second term in March 1929. Coolidge did appear to support airpower, once stating, "the development of aircraft indicates that our national defense must be supplemented, if not dominated, by aviation."<sup>107</sup> His support for airpower in the abstract, however, did not translate into support for near-term organizational independence. Three reviews of military aviation organization were conducted near the start of Coolidge's Presidency: the 1923 Lassiter Board, the 1924 Lampert Committee, and the 1925 Morrow Board. With recommendations from the first two generally favoring more organizational independence for airpower, Coolidge appointed the Morrow Board at the behest of his Navy and War Secretaries.<sup>108</sup> The Morrow Board's report walked back

from the more aggressive recommendations of the two previous reviews, ultimately leading to little more progress during the Coolidge administration than a name change from Air Service to Air Corps.

Herbert Hoover held the office from March 1929 to March 1933, a period dominated by the Wall Street crash in October 1929 and the ensuing Great Depression. Those dire economic conditions did not bode well for presidential support of potentially expensive military organizational changes. This lack of support can be seen in Hoover's diplomatic record which revealed some of his perspectives on airpower. For example, at the 1932 League of Nations World Disarmament Conference, Hoover proposed the elimination of bomber aircraft, proclaiming: "This will do away with the military possession of types of planes capable of attacks upon civil populations and should be coupled with the total prohibition of all bombardment from the air."<sup>109</sup> Needless to say, airpower advocates made little progress towards independence during the Hoover administration.

Wartime Pres. Franklin D. Roosevelt held office from March 1933 until his death in April 1945, just short of the war's end. Known as an aviation-minded president, Roosevelt was the first to fly in an airplane while holding that office. He supported a massive buildup of warplanes and other policies which resulted in significant progress for airpower. During Roosevelt's time in office and under his authority, the Army formed the GHQ Air Force, combined it with the Air Corps to form the Army Air Forces, and then granted that organization near-complete autonomy within the War Department. He did not, however, believe it was prudent during the war to make further organizational changes such as forming a new cabinet-level department for airpower. In August 1943, Nevada Senator Pat McCarran suggested that a "unified, coordinated, autonomous air force should be created in order to help win the war," to which the President replied that a drastic change would not be appropriate at that time and could actually impede the war effort.<sup>110</sup>

Vice Pres. Harry S. Truman assumed the presidency upon Roosevelt's death in April 1945, holding the office until January 1953. Truman strongly supported an independent air force in the context of unifying the armed services at the cabinet level; he favored a single cabinet department with subordinate and equal arms for land power, sea power, and airpower. President Truman ultimately submitted to Congress a draft of the bill that became the National Security Act of 1947, formally creating the United States Air Force. His unequivocal



support and hands-on effort in facilitating the Norstad-Sherman compromise between the War and Navy Departments was essential in achieving independence for airpower.

**Comprehensive National Security reorganization.** The 1942 War Department reorganization made the Army Air Forces an essentially independent service within the War Department. Further differentiation into a separate cabinet department came only as part of the broader post-war initiative to reorganize the entire defense establishment before expiration of the First War Powers Act. The inevitable sunset of emergency presidential powers under that Act served as a deadline to force action in Congress. Navy officials did not want an independent air force, but they wanted unification even less. Without the option to continue delaying any decision further into the future, as had been the case since the 1920s, the Navy and its Congressional supporters begrudgingly accepted a third military department for air as the lesser of two evils.

## Conclusion

The arc of events which led to the establishment of the United States Air Force began in 1907 with the formation of the Signal Corps Aeronautical Division. First employed exclusively as auxiliaries to land and naval forces, airmen were afforded an opportunity at the Air Corps Tactical School to develop innovative doctrine built upon early airpower theories and lessons learned from World War I. Airmen argued the airplane's speed and mobility permitted an entirely different approach to combat that needed a certain degree of separation from land and sea forces to achieve the greatest effect. A third military cabinet department emerged from the post-war unification debate, largely a recognition of the *de facto* independence won at the war's outset and validated in the skies of Europe, Africa, Asia and the Pacific.

The new department could properly advocate for airpower's share of the defense budget. As a co-equal to America's Army and Navy, her Air Force could ensure airpower was efficaciously employed according to appropriate air doctrine. The Air Force could attend to the unique personnel, training, and education requirements for operating in the air domain. It could develop the unique expertise and processes necessary for procuring combat aircraft. In short, the new Air Force

addressed all of the concerns raised by Mitchell over twenty years prior.

Built largely in the image of the War and Navy Departments in a “compromise of diverse viewpoints” which “represented a lowest common denominator,” the Department of the Air Force also inherited myriad responsibilities not unique to air combat.<sup>111</sup> Though intended to be a more efficient national security apparatus, the unified military establishment began with duplication (adding a military department), and addition (creation of the Office of the Secretary of Defense).<sup>112</sup> Attempts by the Secretary of Defense to gain efficiency by unifying common functions were often as not met by resistance from the services. The sought-after efficiencies frequently evaporated when the skeptical military departments retained duplicative capability or insisted on elaborate processes to ensure they would not be adversely impacted by the movement toward centralization and jointness.<sup>113</sup> In addition to the efficiency challenges, creation of a third military department validated Congressman Mancuso’s prediction of exacerbating inter-service rivalry.<sup>114</sup> In sum, though the new arrangement cured the evils of a subservient air force, it created perhaps as many problems as it solved.

## Notes

1. Harry G. Summers Jr., *On Strategy: A Critical Analysis of the Vietnam War* (Novato, CA: Presidio Press, 1982), 1.
2. Throughout this document, Air Force is capitalized when referring to the United States Air Force. Discussion of air forces in general remain in lower case.
3. Though Army Air Forces appears to be plural, it refers to the singular organization bearing that name. Therefore, in this document it is considered a singular proper noun, and is capitalized accordingly.
4. JP 3-30, *Joint Publication 3-30: Command and Control of Joint Air Operations*, (Washington, DC: Joint Staff, 10 February 2014), III-9.
5. While an Army and Navy commander could coordinate a unified effort between the two of them, bilateral coordination between three parties would produce three pair-wise efforts, seen as the red lines in the right pane of Figure 1. Unified command effectively implements trilateral coordination under the direction of a single overall commander.
6. Giulio Douhet, *The Command of the Air* (Tuscaloosa, AL: University Alabama Press, 2009), 215.
7. R. Earl McClendon, *Autonomy of the air arm* (Washington, DC: Air Force History and Museums Program, 1996), 111.
8. *Ibid.*, 122. Note that while the terminology is similar, Air Service does not have the same meaning as a “military service” or “service branch” as described above; the Army Air Service was but one of seven combat arms in the Army at that time.
9. *Ibid.*, 126.
10. Thomas H. Greer, *The Development of Air Doctrine in the Army Air Arm, 1917-1941* (Maxwell Air Force Base, AL: USAF Historical Division, 1955), 4.
11. Sir Arthur W. Tedder, “Air, Land and Sea Warfare,” *Journal of the Royal United Services Institute* (January 1946), 61. In this passage Tedder uses the British term ‘faggot’ meaning a bundle of sticks or twigs, normally used as fuel or a torch.
12. Robert T. Finney, *History of the Air Corps Tactical School 1920-1940* (Washington, DC: Air Force History and Museums Program, 1998), 9.
13. Mark L. Evans, and Roy A. Grossnick, *United States Naval Aviation 1910-2010 Volume I: Chronology* (Washington, DC: Naval History and Heritage Command, 2015), 1.
14. *Ibid.*, 65.
15. The Naval Appropriations Act for 1922 stated “there is hereby created and established in the Department of the Navy a Bureau of Aeronautics, which shall be charged with matters pertaining to naval aeronautics as may be prescribed by the Secretary of the Navy.”
16. Parker, *Concise History of the Marine Corps*, 40.
17. William Mitchell, *Winged defense: the development and possibilities of modern air power—economic and military* (Tuscaloosa, AL: University of Alabama Press, 2009), 112-13.
18. *Ibid.*, 112.
19. *Ibid.*
20. *Ibid.*

21. Ibid., 113.
22. "1926 — The U.S. Army Air Corps Act." *U.S. Air Force History Fact Sheet* (4 February 2011): accessed 23 February 2016, <http://www.afhso.af.mil/topics/factsheets/factsheet.asp?id=15237>.
23. Greer, *Development of Air Doctrine in the Army*, 29.
24. Alfred Goldberg, *A History of the United States Air Force, 1907-1957* (Princeton: Van Nostrand, 1957), 37.
25. Greer, *Development of Air Doctrine in the Army*, 25.
26. Ibid., 26.
27. Employment of Combined Air Force, 6 April 1926 quoted in Ibid., 42.
28. Ibid., 39.
29. TR 440-15, *Fundamental Principles for the Employment of the Air Service*, (Washington, DC: War Department, 26 January 1926), 11.
30. Greer, *Development of Air Doctrine in the Army*, 72.
31. Recommendations of the Drum and Baker Boards quoted in Ibid., 39.
32. Ibid., 73.
33. Responsibility for all Army airpower was unified for a brief time with GHQ Air Force placed under the authority of the Chief of the Air Corps in March 1939. This alignment was short lived, and ended in November 1940. (See Chase C. Mooney, *Organization of the Army air arm, 1935-1945*. (Maxwell Air Force Base, AL: Air University USAF Historical Division, 1956), 5.) This bifurcation of operational and support responsibilities bears a striking resemblance to the contemporary responsibilities of Unified Command service components (operational employment) and military services (organize, train and equip).
34. Edwin L. Williams, *Legislative History of the AAF and USAF 1941-1951* (Maxwell Air Force Base, AL: Air Force Historical Research Agency, 1955), 34.
35. McClendon, *Autonomy of the air arm*, 132.
36. Williams, *Legislative History of the Air Force*, 13–16.
37. Ibid., 35.
38. Henry H. Arnold, "Prepared testimony to be given before the Separate Air Force Committee," 1941. *Reel 171, Henry Harley Arnold Papers*.
39. Henry H. Arnold, "Letters to Mr. Norman M. Lyon and Mr. Warren Atherton of the American Legion," September 1941. *Reel 171, Henry Harley Arnold Papers*.
40. Quoted in Forrest C. Pogue, *George C. Marshall: Ordeal and Hope, 1939-1942* (New York: Viking, 1966), 290.
41. Greer, *Development of Air Doctrine in the Army*, 127.
42. Ibid.
43. Pogue, *Ordeal and Hope*, 290.
44. McClendon, *Autonomy of the air arm*, 95.
45. Ibid., 96.
46. Pogue, *Ordeal and Hope*, 298.
47. Williams, *Legislative History of the Air Force*, 35.
48. Pogue, *Ordeal and Hope*, 298.
49. McClendon, *Autonomy of the air arm*, 142.
50. Ibid., 99.

51. Herman S. Wolk, *Toward Independence: The Emergence of the U.S. Air Force, 1945-1947* (Washington, DC: Air Force History and Museums Program, 1996), 6.

52. See the First War Powers Act of 18 December 1941 in *United States Statutes at Large 1941-1942* (Washington, DC: United States Government Printing Office, 1942), 838–41, at <http://www.loc.gov/law/help/statutes-at-large/77th-congress.php>.

53. Wolk, *Toward Independence*, 8.

54. McClendon, *Autonomy of the air arm*, 102.

55. Command in the Pacific remained divided, with Gen Douglas MacArthur ultimately commanding Army and Army Air Force units, while naval forces remained under separate command.

56. Wolk, *Toward Independence*, 11.

57. *Ibid.*, 18.

58. *Ibid.*, 9.

59. McClendon, *Autonomy of the air arm*, 103.

60. Wolk, *Toward Independence*, 9.

61. McClendon, *Autonomy of the air arm*, 105. By the end of the war, Eisenhower was Supreme Commander Allied Expeditionary Force in Europe; MacArthur led all Army ground and air forces in the Pacific; Nimitz was Commander in Chief, Pacific Ocean Areas; and Halsey commanded the Pacific Third Fleet.

62. Herman S. Wolk, *The struggle for Air Force independence, 1943-1947* (Washington, DC: Air Force History and Museums Program, 1997), 101.

63. McClendon, *Autonomy of the air arm*, 105–06.

64. *Ibid.*, 105.

65. *Ibid.*

66. *Ibid.*, 107.

67. Harry S. Truman, “Special Message to the Congress Recommending the Establishment of a Department of National Defense,” 19 December 1945. Online by Gerhard Peters and John T. Woolley, *The American Presidency Project*.

68. Wolk, *Toward Independence*, 18.

69. R. Earl McClendon, *Unification of the Armed Forces: Administrative and Legislative Developments 1945-1949* (Maxwell Air Force Base, AL: Air University Research Studies Institute, 1952), 15–16.

70. *Ibid.*, 17.

71. Williams, *Legislative History of the Air Force*, 53.

72. The Navy objected to the first three points, while the Army objected to the last. Wolk, *Toward Independence*, 19–20.

73. Harry S. Truman, “Letter to the Secretaries of War and Navy on Unification of the Armed Forces,” 15 June 1946. Online by Gerhard Peters and John T. Woolley, *The American Presidency Project*.

74. Harry S. Truman, “Letter to the Chairmen, Congressional Committees on Military and Naval Affairs on Unification of the Armed Forces,” 15 June 1946. Online by Gerhard Peters and John T. Woolley, *The American Presidency Project*.

75. McClendon, *Unification of the Armed Forces*, 30–31.

76. Wolk, *Toward Independence*, 22.

77. Williams, *Legislative History of the Air Force*, 55.

78. Roger R. Trask, *The Department of Defense, 1947-1997: Organization and Leaders*, (Washington, DC: Historical Office, Office of the Secretary of Defense, 1997), 4.
79. Bernard C. Nalty, *Winged Shield, Winged Sword: A History of the United States Air Force* (Washington, DC: Air Force History and Museums Program, 1997), 390.
80. Wolk, *Toward Independence*, 13.
81. Auxiliary airpower is aviation other than land-based strategic airpower and tactical air forces.
82. Nalty, *Winged Shield, Winged Sword*, 388.
83. Wolk, *Toward Independence*, 23.
84. Williams, *Legislative History of the Air Force*, 55.
85. *National Security Act of 1947 Hearings*, 13.
86. *Ibid.*, 342.
87. *Ibid.*, 294.
88. *Ibid.*
89. *Ibid.*, 311.
90. *Ibid.*, 329.
91. *Ibid.*, 717.
92. *Ibid.*, 343.
93. *Ibid.*, 381.
94. *Ibid.*, 414.
95. *Ibid.*, 453.
96. *Ibid.*, 454.
97. *Ibid.*, 445.
98. *Ibid.*, 466.
99. Wolk, *Toward Independence*, 30.
100. This status was short lived, however; the service secretaries lost their cabinet status in 1949 when Congress established the Department of Defense to replace the nebulous "National Military Establishment."
101. Trask, *DoD Organization and Leaders*, 4.
102. Pogue, *Ordeal and Hope*, 290.
103. Finney, *History of the Air Corps Tactical School*, 56.
104. *Ibid.*, 43.
105. Perry McCoy Smith, *The Air Force Plans for Peace, 1943-1945* (Baltimore: The Johns Hopkins University Press, 1970-04-01), 17.
106. McClendon, *Autonomy of the air arm*, 49.
107. Quoted in Greer, *Development of Air Doctrine in the Army*, 26.
108. *Ibid.*, 28.
109. Herman S Wolk, *Reflections on Air Force independence* (Washington, DC: Air Force History and Museums Program, 2007), 10.
110. *Ibid.*, 30.
111. Trask, *DoD Organization and Leaders*, 7.
112. James Forrestal, *First Report of the Secretary of Defense*, (Washington, DC: National Military Establishment, 1948), 33-34.
113. Trask, *DoD Organization and Leaders*, 50.
114. *Ibid.*, 12.

## Chapter 3

### **The Emergence of Space Power**

*A separate space force would benefit the taxpayer, it would benefit the military and it would benefit the Air Force.*

-Gen Charles "Chuck" Horner

Within 10 years of Air Force independence, the Soviet Union captivated the globe by launching the first man-made object into orbit around the planet. Sputnik, a 23-inch sphere of aluminum, magnesium and titanium, spent nearly three months in space and demonstrated to the world it was possible for man to reach the heavens. By the end of the next decade, the United States would land men on the Moon and return them safely to the Earth. These accomplishments led the American military establishment to see the potential for space to become "the ultimate high ground," eventually developing a suite of technologies that today allow incredible feats of warfighting precision and reach.

Concerned that the rise in prominence of military space power was not matched with an appropriate level of resources, Congress in 2001 explored the possibility of an independent space service along the lines of the path set by the Air Force over 50 years earlier. Though the episode did not end with a new military service for space, Congress did implement a number of changes intended to move toward that possibility in the future.

This chapter will chronicle the 2001 deliberation for military space power organization and the history which led to it. Due to myriad changes to the national military establishment from 1947 to 2001, an important aspect of military space power's organizational history is the change in defense organizational context during that period. Next, I will compare the rationale for an independent space service to the rationale for an independent air force. Finally, I will examine the 2001 political environment for the existence of the five socio-political factors which aligned in 1947 to support United States Air Force independence.

## The Space Domain

Space is a place unlike any other. Quite contrary to the desire of some Air Force leaders who view space merely as an extension of the air domain à la *aerospace*, the space domain is unique in several ways.<sup>1</sup> Like the air and maritime domains, technical means are required to enter and maneuver through the domain. Though maneuver in the space domain may *seem* to be simply the further extension of three-dimensional space above the land and maritime domains, that turns out to be of little use in actually entering or operating in the domain.

Astrodynamics, rather than aerodynamics, govern maneuver in the space domain; in addition to Newton's laws of motion, his law of universal gravitation must be considered. As a result, space vehicles cannot simply point towards an intended destination and apply thrust to get there. Gravity and orbital velocity are the defining factors rather than endurance or range.<sup>2</sup> In fact, the very concept of movement is not a function of distance between two points, but instead of the velocity changes required to transfer into an intersecting orbit.

The movement and location of objects in orbit are described by their relation to the object around which they travel.<sup>3</sup> For people on the surface of the Earth to make use of satellites in orbit, translation is required to relate the orbital frame of reference to the terrestrial frame of reference.<sup>4</sup> In addition, space vehicles travel at speeds which are orders of magnitude faster than even the fastest aircraft. As a result, just like airpower operates at a regional scale which must be correlated to the local, space power operates at a global scale which must be correlated to the regional.

Comprehending and exploiting this complex and continually changing relation between global and local realms requires a unique mindset. Accordingly, Space operators must simultaneously think in both global and local terms, and space systems must necessarily be considered global assets. In the same way airpower's ability to operate at a broader scale drove the need for unique airpower doctrine, so does space power's global range demand dedicated space doctrine.

## A Brief History of Space

The history of space exploration for the United States is undeniably dominated by competition with the Soviet Union. Peering further



into the American side of that competition, however, reveals a tension between civil and military ambitions, and inter-service rivalries within the military apparatus. Initially indifferent to emerging rocket technology in the immediate aftermath of World War II, the newly established Air Force became interested in the mission primarily to prevent the Army and Navy from laying claim to it. In this context, Air Force leaders created the term “aerospace” in 1958 to strengthen a claim to what they defined as “extensions of the Air Force’s traditional operating area.”<sup>5</sup>

### From Sputnik to Space Command

The 1957 Sputnik launch by the Soviet Union proved the possibility of artificial Earth satellites and added tension to the growing security competition between the two world superpowers. Derided by some at the time as evidence of American failure to beat the Soviets to space, Sputnik reinvigorated the American space effort and also established the important international norm of innocent passage which holds to this day.<sup>6</sup> Concerned about his ability to peer behind the iron curtain into the closed Soviet society, President Eisenhower recognized the possibility for satellites to serve as an alternative to risky and provocative U-2 reconnaissance flights into Soviet airspace. While Air Force leaders pressed for ambitious combat platforms in space such as the Dyna-Soar spaceplane and Manned Orbiting Laboratory, first Eisenhower and then President Kennedy continued to resist the temptation to weaponize space.

Reinforcing the notion that space was a sanctuary for all nations to explore peacefully kept the Soviets from threatening the United States with space weapons, and also allowed the increasingly successful American reconnaissance satellite program to continue unimpeded. In exchange for similarly binding the Soviets, President Johnson restricted the United States from exploiting the full combat possibilities of the new domain by joining the 1967 Outer Space Treaty, which imposed a sanctuary regime.<sup>7</sup> With that treaty, Johnson and his policymakers effectively tied the hands of Air Force leaders inclined to exploit the ultimate high ground of outer space.

Chastened by the Outer Space Treaty’s restrictions, the Air Force abandoned nascent space combat capabilities and spent the 1970s developing satellite systems to support strategic deterrence and nuclear warfare. Recognizing that those same capabilities could also

support conventional airpower, the Air Force established Space Command in 1982 to exploit “the ultimate high ground” in support of airpower and other conventional forces.<sup>8</sup> By 1988, the Air Force was responsible for three-quarters of the military space budget and the preponderance of space capabilities.<sup>9</sup>

Air Force Space Command developed and fielded a host of so-called “Space Force Enhancement” capabilities at the heart of the reconnaissance-strike complex. These capabilities enjoyed remarkable success during Operation Desert Storm in 1991 and other engagements later in the 1990s which relied heavily on precision strike. There were, however, concerns among Congress, the other services, and even space power advocates within the Air Force that the service was not properly managing military space efforts. For example, Senator Bob Smith of New Hampshire openly criticized the Air Force for shortchanging space capabilities by viewing space merely as a means to improve airpower. Smith went as far as making a comparison to Army officers who saw airpower merely “as a servant to ground forces and opposed to the development of a new service that would conduct a new set of roles and missions.”<sup>10</sup>

Echoing the 1920s Lassiter Board, Lampert Committee, and Morrow Board assessments of organizational constructs for airpower, Congress in 1999 chartered a “Commission to Assess United States National Security Space Management and Organization.”<sup>11</sup> The charter required the Space Commission to evaluate a number of near-, medium- and long-term changes to the management and organization of national security space functions within the Federal government. The most far-reaching task undertaken by the Commission was to evaluate the potential costs and benefits of establishing an independent service for military space operations.

### **Changes to DOD Organizational Context**

Before evaluating the Space Commission’s work in comparison with the events which led to the creation of an independent Air Force, it is important first to review changes in the organizational context of the DOD between 1947 and 2001. The net result of changes made during this period was that the functions and responsibilities of a military service in 2001 were substantially fewer than in 1947.

After fighting to moderate the power of the Defense Secretary in favor of the services during the mid-1940s unification debates, Navy

Secretary James Forrestal became the nation's first Secretary of Defense. He immediately suffered the consequences of his earlier position and sought reform.<sup>12</sup> Accordingly, in 1949 Congress amended the National Security Act of 1947 to diminish the status of the services from cabinet-level to subordinate military departments within a new cabinet-level DOD.<sup>13</sup>

Additional reforms in 1953 and 1958 strengthened civilian control over the military and consolidated authority into the Secretary of Defense at the expense of the services, but these changes did not radically alter the power balance between the services.<sup>14</sup> Continuing the pattern established in the 1940s, Army and Air Force leaders in the 1950s generally supported the move toward centralization, while those in the Navy and Marine Corps opposed. Although the Vietnam War was a humbling experience for the American armed forces, few organizational reforms were pursued throughout the 1960s and 1970s. A notable exception was the 1978 law elevating the Commandant of the Marine Corps to a full-time statutory member of the Joint Chiefs of Staff, seen by many as formal acknowledgment of the Marine Corps as a fourth military service.<sup>15</sup>

It was not until the 1980s that political forces aligned again to create large changes in the Defense establishment. Concerns about inter-service rivalry contributing to failures during the 1980 Iranian hostage rescue attempt and the 1983 Grenada invasion led to the most dramatic defense reform since 1947. A 600-page Senate Armed Services Committee staff study completed in 1985 called "Defense Organization: The Need for Change" recommended significant steps toward unification of the services which failed to take hold in 1947.<sup>16</sup> Predictably, Navy and Marine Corps leaders and advocates resisted these efforts and successfully watered down the original proposals.

As passed, the Goldwater-Nichols DOD Reorganization Act of 1986 consolidated operational authority into the joint chain of command at the expense of the services.<sup>17</sup> Thanks in part to Navy and Marine Corps obstructionism, the law focused on "jointness" between the services as opposed to "unification" into a single armed force. The Goldwater-Nichols Act marked the culmination of a long process to segment responsibility within the military establishment, completely removing the military departments from the business of warfighting and assigning that responsibility exclusively to unified commands.<sup>18</sup> This refactoring of responsibility fundamentally changed the authorities and responsibilities of the military departments after 1986.

Apart from the roles and missions for which they are responsible, the law limited the role of the military departments to a set of administrative functions colloquially referred to as “organize, train, and equip” responsibilities. These functions include recruitment; organization; supply; procuring and providing equipment (including research and development); training; servicing; mobilization and demobilization; administration; maintenance; construction, outfitting, and repair of military equipment; and the construction, maintenance, and repair of facilities and real property necessary to carry out assigned functions.<sup>19</sup> All matters regarding operational employment were reserved for combatant commanders and the joint chain of command.

As a result of the Goldwater-Nichols reform, the rationale for how best to partition roles and missions between the services changed subtly. Rather than primarily grouping functions requiring tight operational integration, similarities in the processes used to organize, train, and equip military forces became more important. For example, the Navy previously argued that naval aviation and naval vessels were so “tied up” in operations they needed to manage both within the Navy.<sup>20</sup> The new alignment of responsibility within the DOD seemed to favor consolidation of all aviation into the Air Force because all aircraft and aviation units were organized, trained and equipped in similar ways. Various airpower units would have then been available for a unified commander to allocate a portion for naval aviation missions as appropriate. Though the Goldwater-Nichols reform renewed interest in the roles and missions assigned to each service, no substantial changes were made. Instead, the services defended the status quo alignment of functions and fought to increase their responsibilities, even when change would come at the expense of the other services.<sup>21</sup> In sum, by the time of the Space Commission’s creation in 1999, the military departments (and their constituent services) continued to wield significant influence due to historical tradition, though they had substantially less statutory authority and responsibility than in 1947.<sup>22</sup>

### **The Space Commission**

In response to concerns among members of Congress, the other services, and even space power advocates within the Air Force that the service was not properly managing military space efforts, Congress

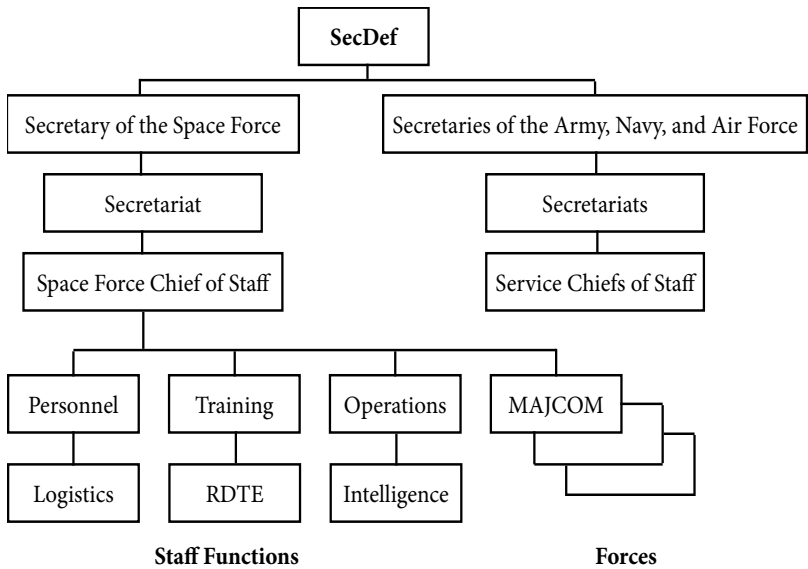
created the Commission to Assess United States National Security Space Management and Organization. Chartered by language in the National Defense Authorization Act for Fiscal Year 2000, the Space Commission evaluated a broad range of space policy options.<sup>23</sup> Regarding the military organizational construct for space, Congress directed the Commission to consider four options for space forces within the DOD: (1) a space force within a new space military department; (2) a space corps within the Air Force; 3) an Assistant Secretary of Defense for Space; and (3) a dedicated space major force program<sup>24</sup>.

The Commission also considered a set of five additional alternative and three “synthesized” options composed of a combination of the other proposals. As all eight additional options were a variation or combination of the four Congressionally-directed alternatives, they are not discussed individually in this paper. A description and a brief summary of the Space Commission’s findings for each organizational option follows.

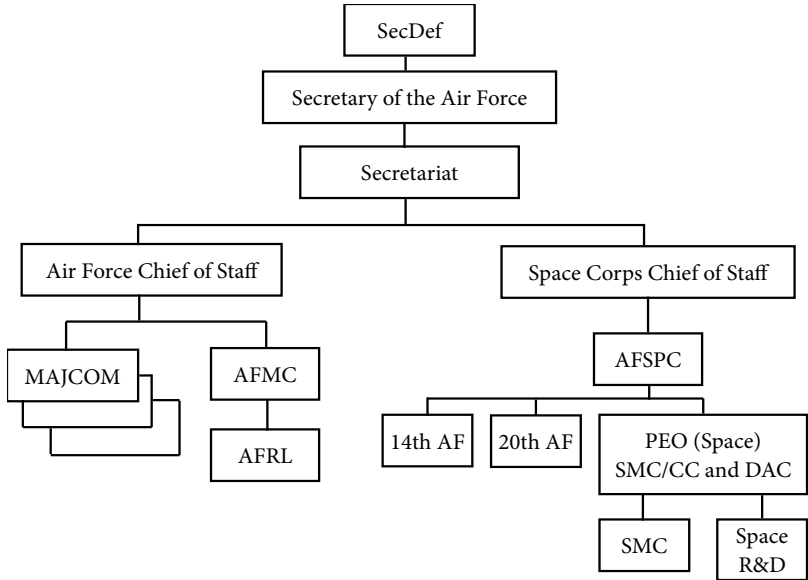
### **1) Space Force–Independent Military Department and Service.**

This option was directly analogous to the 1947 establishment of an independent Air Force. The Commission recognized this as “the traditional approach to creating a military organization with responsibility to organize, train and equip forces for operations in a defined medium of activity.”<sup>25</sup> A military department for space could attend to all of the unique administrative needs of forces operating in the space domain. Having organizational parity with the Army, Navy, and Air Force, a space military department would be a strong space advocate and a single focal point to provide forces for military and intelligence space operations.

However, commissioners were concerned about the lack of “critical mass” of personnel, budget, requirements, and missions to justify the significant overhead required to establish a new service secretariat and headquarters. In sum, the commissioners believed the costs of creating an independent military department and service for space did not justify the benefits derived from doing so.



**Figure 6. Independent space force.** (Reprinted from Kruse et al., *United States Space Management and Organization*, Chapter V)



**Figure 7. Space corps within the Air Force.** (Reprinted from Kruse et al., *United States Space Management and Organization*, Chapter V)

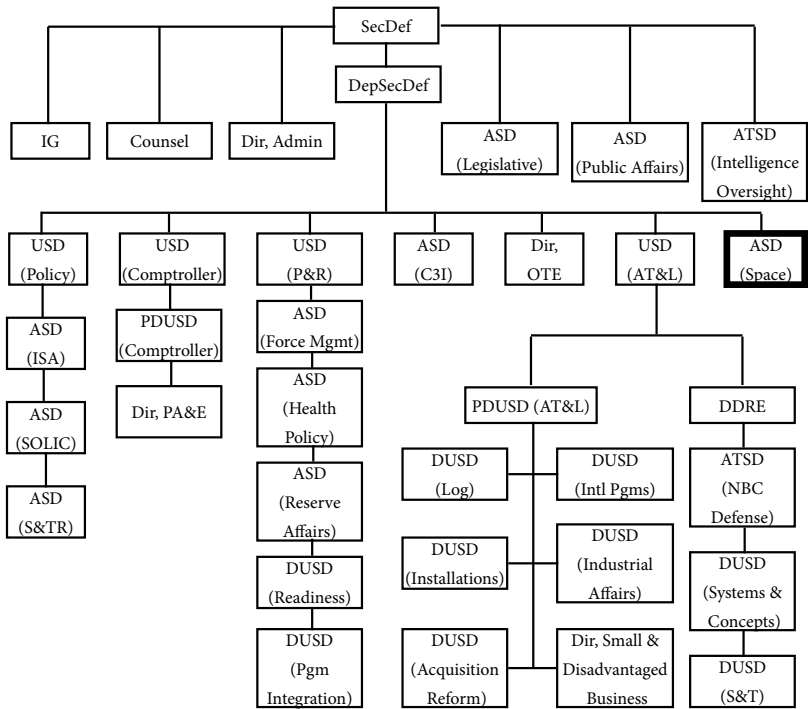
**2) Space Corps within the Department of the Air Force.** While the space corps concept is similar to the current Marine Corps construct of a second service within the Department of the Navy, a more apt model is found in the World War II-era Army Air Corps. Notably, the history of that organization provides a model for later transition to an independent military department and service. Relying upon existing Air Force logistics and support functions, and without the need to form a new military department headquarters and secretariat, a space corps within the Air Force would require less overhead than an independent space force.

However, commissioners identified that this option would not eliminate “competition for resources between air and space platforms” within the Department of the Air Force; this emerged as a key concern during witnesses’ testimony before the commission.<sup>26</sup> In addition, representatives from the other services expressed to the Space Commission their lack of confidence in the Air Force to fully resource their space requirements, a concern this option would not address.<sup>27</sup>

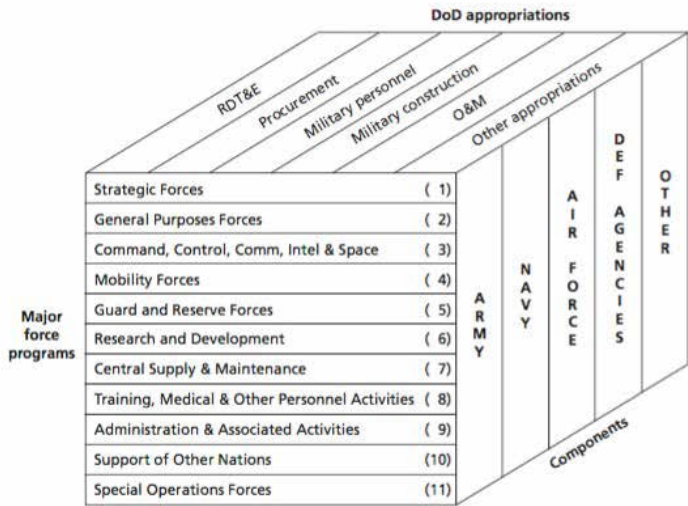
**3) Assistant Secretary of Defense for Space.** This option would not create a new military department or service for space. Instead, each of the services would continue to organize, train, and equip their own space capabilities and personnel, but the new Assistant Secretary for Space would manage the space mission across all three military departments.

However, commissioners worried “this position likely would not have sufficient influence over the evolution of United States national security space capabilities.”<sup>28</sup> In sum, commissioners saw little benefit from this minor adjustment to the DOD management and oversight bureaucracy.

**4) Space Major Force Program.** A major force program (MFP) is an accounting tool to track related budget items across all DOD components, and “reflects a macro-level force mission or a support mission of DOD and contains the resources necessary to achieve a broad objective or plan.”<sup>29</sup> Figure 9 depicts the relationship between major force programs, DOD appropriations, and the DOD components. In 1987, Congress created MFP 11 for Special Operations Forces, and granted budgetary and acquisition authorities to Special Operations Command. The combination of MPF 11 and authorities normally reserved for the military departments allows Special Operations Command to program for and acquire capabilities and items unique to Special Operations Forces.



**Figure 8. Assistant Secretary of Defense for Space.** (Reprinted from Kruse et al., *United States Space Management and Organization*, Chapter V)



**Figure 9. Major Force Programs.** (Reprinted from Loredo et al., *Authorities and Options for Funding USSOCOM*, 44)



Creating a new MPF for space would provide civilian leadership more insight into DOD-wide space capabilities and spending without changing the organizational construct. The commissioners endorsed this option in their report, recommending that DOD create a Space MPF to be “managed in a decentralized fashion similar to major force programs 1 through 10.”<sup>30</sup> The Commissioners did not, however, consider a stronger form of this option which would more closely resemble Special Operations Command’s MPF 11. If management and oversight of a space MPF were assigned to a central DOD authority (such as the Assistant Secretary in option 3), that entity could advocate for the space mission, ensuring appropriate balance within the space portfolio and priority within the Department. Managing the space MPF in this manner could allow space funding requirements to be considered alongside those of the Army, Navy, and Air Force without needing organizational parity to do so.

The Space Commission met 32 times over six months in 2000 and delivered its report to Congress on 11 January 2001. Though the Commission did not endorse the creation of an independent space force or even a space corps within the Air Force, its report unequivocally concluded that change was needed: “the United States Government is not yet arranged or focused to meet the national security space needs of the 21st century.”<sup>31</sup> The Space Commission advised a “new and more comprehensive approach” including 11 specific recommendations. The commissioners elected not to recommend the creation of a separate space service because they found the benefits of separation did not outweigh the resources needed for the overhead associated with a new service. In addition, the commissioners felt there was not yet a sufficient number of qualified military personnel steeped in space operations to staff such an entity. Here the reader is reminded that General Marshall had similar reservations about the Army’s air arm until the corps of air officers had grown and matured throughout the course of the war.

Regarding the military services, the Space Commission recommended doubling down on Air Force management of the space mission by designating the Air Force as “Executive Agent for Space within the Department of Defense.”<sup>32</sup> In recognition of the need to support the space requirements of the other services, the Commission recommended giving the Air Force statutory authority under Title 10 for “air and space operations” to “motivate the Air Force to give space activities higher priority.”<sup>33</sup> By assigning formal responsibility for the

space mission to the Air Force, the Commissioners hoped the service dedicate the appropriate amount of resources to space power requirements.

These changes may seem on the surface to be only partially responsive to the concerns which caused Congress to create the Space Commission. The commissioners, however, perhaps saw their recommendations as initial steps toward more far-reaching change in the future. For example, the commissioners opined: "once the realignment in the Air Force is complete, a logical step toward a Space Department could be to transition from the new Air Force Space Command to a space corps within the Air Force."<sup>34</sup> Much like the evolution of aviation in the Army, from the Air Service to the Air Corps to the Army Air Forces to the independent United States Air Force, the Commissioners seemingly intended for Air Force Space Command to be launched on a trajectory toward an autonomous antecedent organization capable of spinning off into an independent service. Air Force Space Command could focus on developing a cadre of space leaders and become a strong advocate within the Air Force for space doctrine and operations, including operations independent from those in the other domains. In sum, the Commissioners believed the United States might require an independent space force which would be a strong advocate for space capabilities within the DOD. On the other hand, they did not believe DOD was ready in 2001 to create one.

## **Analysis and Conclusion**

The decisive arguments which justified the need to establish an independent air force in 1947 were the uniqueness of the domain, the need for tailored administrative support, importance to the nation's security, and the need for parity with land and sea power to ensure effective advocacy for airpower. A case could be made for an independent space force along these same lines. Though the space domain appeared merely to occupy an adjacent space in the physical realm, unique entry and maneuver requirements differentiated space from the land, maritime and air domains. Accordingly, the space domain was a unique environment requiring a specialized cadre of warriors to develop and employ unique space doctrine.

The administration and support infrastructure required to provide and project space power differed from that of air, land, and sea power, and would be best served with a tailored support structure. Just as the Army Air Forces satisfied airpower's unique doctrinal, leadership, and administrative requirements, the Air Force could conceivably address these needs for space power by organizational differentiation within the service. In fact, the Air Force had a major command to address these needs for space operations since 1982.

On the other hand, even though the Army Air Forces had become an essentially independent service within the War Department by 1942, airpower advocates continued to press for a separate air force to ensure effective mission and resource advocacy. In 2001, organizational parity between the Army, Navy, and Air Force allowed a level playing field for advocacy of land, sea and airpower, but space power was subordinated within the Air Force and thus had to compete for Air Force resources against airpower needs. In sum, space power lacked a dedicated champion to advocate for mission and resources on par with airpower, land power, and sea power.

Therefore, *why* space power would benefit from an independent service closely paralleled the 1940s argument for an independent air force. As discussed in Chapter 2, however, airpower advocates made the same case for decades before Congress decisively acted upon it. Political factors, in addition to rational logic, aligned in 1947 to support the creation of an independent air force.

### Political Factors for Space Independence

Five forces aligned for the first time in 1947 in support of an independent air force: airpower had proven successful in recent combat during World War II; the Army Air Forces had matured into an autonomous institution capable of independence; Army and War Department leadership actively supported a separate airpower service; President Truman vigorously supported organizational parity for airpower; and a comprehensive reorganization of the nation's security apparatus was underway. In contrast, none of these factors were present when the Space Commission elected not to recommend creation of an independent space force in 2001.

**Recent combat success.** Operation Desert Storm has been called the first space war, or "the first major trial by fire for space forces, whereby military space systems could fulfill their promise as crucial

force multipliers.”<sup>35</sup> Merely enhancing the combat capability of air, land and sea forces, however, pales in comparison to airpower’s record of combat success during World War II. In 1947, Congress and the American public well remembered the nuclear bombs dropped by American airmen just two years prior to end the war. By the 2000 Space Commission deliberations, Desert Storm was a decade past and though space power certainly enhanced American warfighting capability in that conflict, its impact could not compare to airpower’s record of success immediately prior to the 1947 decision.

**Autonomous antecedent.** By 1942, the Army Air Forces had achieved virtual autonomy within the War Department and then validated that construct through the crucible of World War II. The Air Corps Tactical School played a significant role in developing airpower doctrine and leaders to employ and improve it throughout the course of the war. Independence for airpower was not possible until the Army Air Forces was capable of standing on its own, which was in turn not possible without a sufficient cadre of airpower leaders. World War II accelerated the creation of that cadre of airpower leaders with the operational, logistics, and support expertise required for independence.

In contrast, the DOD did not have the appropriate infrastructure in place in 2001 to develop a cadre of space power leaders. The Space Commission found “military leaders with little or no previous experience or expertise in space” leading space organizations.<sup>36</sup> In addition, military personnel staffing space organizations had insufficient experience and education. Though the Air Force had created a Space Tactics School in response to lessons learned from Desert Storm, in 1996 it was absorbed into the Air Weapons School after just two years in operation.<sup>37</sup> This move reduced the impetus to create unique space-power doctrine within an organization dedicated to teaching and refining airpower tactics and doctrine.

As a result, in 2001 the Air Force lacked the cadre of space power experts necessary to staff an autonomous antecedent organization capable of independence. The Space Commission report acknowledged this shortfall and made specific recommendations to improve space-power leadership and education opportunities and develop a cadre of military space-power experts.<sup>38</sup> The Air Force responded immediately to the Commission’s recommendation, establishing a school dedicated to space power in Colorado Springs on 28 June 2001. The Air Force

Space Operations School (later renamed National Security Space Institute) strove “to be the Air Corps Tactical School of Space.”<sup>39</sup>

**Host-service support.** Army and War Department leaders in 1947 unequivocally supported independence for the Army’s air arm. While some individual Air Force leaders advocated in the 1990s for an independent space force, the official institutional position was in fact to strengthen the service’s claim to responsibility for the domain.<sup>40</sup> In fact, Air Force Secretary F. Whitten Peters opposed the Space Commission’s role entirely, remarking in November 2000: “I really do not understand what the big problem is that justifies a national commission.”<sup>41</sup> Regarding the prospective benefits of a space service, Peters added: “the complexity of adding another player really does not seem to me to be worth the cost.” In addition, the Air Force provided a set of recommendations for the Space Commission to consider, including assigning to the airpower service statutory responsibility for the space mission.<sup>42</sup> In sum, while the Army actively and unequivocally supported a separate air force in 1947, the Air Force in 2001 fought to retain responsibility for the space mission.

**Presidential leadership and support.** In 1947, President Truman vigorously supported organizational parity for airpower. He personally mediated the negotiation between his War and Navy Secretaries and offered unequivocal written support to Congress for an independent air force. In addition, Truman submitted a draft of the bill which became the National Security Act of 1947 and created the United States Air Force.

Conversely, while Presidents Bill Clinton and George W. Bush generally supported national security space policies, neither proffered for space power anything approaching the level of support from Truman for airpower. For example, Clinton used line-item veto authority to kill military space programs which could be perceived as weaponizing space.<sup>43</sup> When Bush hired Space Commission Chairman Donald Rumsfeld to be his first Defense Secretary, many viewed this choice as an endorsement of the Space Commission’s recommendations, improving the possibility of an independent space force at some point in the future. After the 11 September 2001 terrorist attacks, however, Rumsfeld and the nation’s entire national security establishment understandably shifted focus to terrorism and homeland security. In 2002, Rumsfeld made a decision to shut down United States Space Command, combining that command’s responsibilities

with an already diverse set of functions at United States Strategic Command.

In sum, Neither Clinton nor Bush offered a position on an independent space force, nor explicit support for space power at the level Truman provided for airpower. In fact, the Space Commission's number one recommendation was: "The President should consider establishing space as a national security priority."<sup>44</sup> This implies the Commissioners believed the administration did not assign a sufficient priority to national security space policy.

**Comprehensive National Security reorganization.** After World War II ended, Congress undertook a complete transformation of the entire defense establishment which included creating an independent United States Air Force. In contrast, no such overhaul was under consideration in 2001. Though the 1986 Goldwater-Nichols Act was perhaps the most significant defense reform effort since 1947, the focus of that endeavor was to foster collaboration between the existing services rather than to consider an increase in the number of collaborators. No comprehensive defense reorganization was under consideration in 2001. Accordingly, the Space Commission was more akin to one of the myriad boards, commissions, panels, and reviews of airpower organization prior to 1947 which failed to produce an independent air force. Over the course of more than three decades, airpower advocates introduced countless unsuccessful legislative proposals aimed at creating a military service for airpower co-equal with the Army and Navy. Only a complete organizational transformation produced the United States Air Force. Likewise, organizational independence for space may require another complete transformation of the nation's military and security establishment.

## Conclusion

It took over 40 years of military experience with the air weapon and two global wars for the United States Congress to establish an independent United States Air Force. In the same way that organizational independence strengthened airpower, military space operations would benefit greatly from organizational differentiation, independent doctrine and leadership development, and tailored administrative support. The lack of a credible existential threat to national security from that domain, however, has hindered the effort to make the leap

to an independent space corps or force. Finding an insufficient and incoherent cadre of space leaders and doctrine in 2001, the Space Commission nudged the Air Force bureaucracy down a path which may in the future be more conducive to organizational independence for space power.

Airpower - 1947	Space Power - 2001
Recent combat success	
Overwhelming contribution to World War II, including war-ending use of nuclear weapons	Force multiplier during Gulf War
Autonomous antecedent	
Army Air Forces operated as a <i>de facto</i> independent service, staffed by a cadre of capable airpower experts	Insufficient cadre of space experts
Host-service support	
Universal support from War Department and Army leadership for an independent air force	Air Force leadership universally opposed separation
Presidential leadership and support	
President Truman proffered vigorous and unequivocal support for parity with the Army and Navy	No explicit presidential opinion
Comprehensive National Security reorganization	
Independence considered amidst a complete transformation of the entire National Security apparatus	Independence considered in isolation

Table 1. Comparison of Factors for Air and Space Independence. (Source, Author’s Original Work)

## Notes

1. Benjamin S Lambeth, *Mastering the Ultimate High Ground: Next Steps in the Military Uses of Space* (Santa Monica, CA: RAND Corporation, 2003), 37.
  2. Richard D. Johnson, and Charles Holbrow, eds. *Space Settlements: A Design Study* (Washington, DC: National Aeronautics and Space Administration, 1977), Ch. 2.
  3. The size (semi major axis), shape (eccentricity) and location (true anomaly) of a satellite sufficiently describes its location. AU-18, *Space Primer: Prepared by Air Command and Staff College Space Research Electives Seminar* (Maxwell Air Force Base, AL: Air University Press, 2009), 104.
  4. Inclination, right ascension and argument of perigee orient the orbital plane and allow translation to specific points on the Earth's surface. Ibid.
  5. Lambeth, *Mastering the Ultimate High Ground*, 16.
  6. David N. Spires, *Beyond Horizons: A Half Century of Air Force Space Leadership* (Maxwell Air Force Base, AL: Air University Press, 1998), 30. "Innocent passage" refers to the norm of allowing another nation's satellite to pass over sovereign territory as long there is no dangerous intent. See AU-18, *Space Primer*, 31.
  7. *Outer Space Treaty*, 1967, <http://www.armscontrol.org/documents/outerspace>.
  8. "Air Force Space Command." *U.S. Air Force Fact Sheet* (9 September 2015): accessed 27 March 2016, <http://www.afspc.af.mil/library/factsheets/factsheet.asp?id=3649>.
  9. Lambeth, *Mastering the Ultimate High Ground*, 32.
  10. Bob Smith, "The challenge of space power," *Airpower Journal* XIII, no. 1 (1999), 38.
  11. *Space Commission Report*.
  12. Forrestal, *First Report of the Secretary of Defense*, 3–4.
  13. Trask, *DoD Organization and Leaders*, 15.
  14. Reorganization Plan Number 6 in 1953 and the Defense Reorganization Act of 1958. See Ibid., 21–23 and 27.
  15. Ibid., 37.
- Validating the status of the Marine Corps as a service cemented the notion that the DOD has three military departments (Army, Navy, and Air Force) with four service branches (Army, Navy, Marine Corps, and Air Force).
16. Ibid., 42.
  17. *Goldwater-Nichols Department of Defense Reorganization Act of 1986*, Public Law 433. 99th Cong., 2nd sess., 1 October 1986, <http://www.gpo.gov/fdsys/pkg/STATUTE-100/pdf/STATUTE-100-Pg992.pdf>.
  18. Trask, *DoD Organization and Leaders*, 45.
  19. "Goldwater-Nichols Act," Sections 3013, 5013 and 8013.
  20. *National Security Act of 1947 Hearings*, 445.
  21. Trask, *DoD Organization and Leaders*, 48.
  22. Carl H. Builder, *The Masks of War: American Military Styles in Strategy and Analysis* (Baltimore: Johns Hopkins University Press, 1989), 3.
  23. *Space Commission Report*, 1.



24. Keith Kruse, *et al.*, *United States Space Management and Organization: Evaluating Organizational Options*, Prepared for the Commission to Assess United States National Security Space Management and Organization (January 2001), Chapter V.
25. *Space Commission Report*, 80.
26. *Ibid.*, 81.
27. *Ibid.*, 57.
28. *Ibid.*, 81.
29. Elvira N. Loreda, *et al.*, *Authorities and Options for Funding USSOCOM Operations*, (Santa Monica, CA: RAND Corporation, 2014), 46.
30. *Space Commission Report*, 96–97.
31. *Ibid.*, 99.
32. *Ibid.*, 89.
33. *Ibid.*, 92.
34. *Ibid.*, 93.
35. Spires, *Beyond Horizons*, 244.
36. *Space Commission Report*, 43.
37. Scott F. Large, “National Security Space Collaboration as a National Defense Imperative,” *High Frontier* 4, no. 4 (August 2008), 5.
38. *Space Commission Report*, 42–46.
39. Joseph E. Brouillard, “SOPSC Educates Space Warriors,” *High Frontier* 1, no. 1 (Summer 2004), 22.
40. For example, see General Horner’s epithet at the top of this chapter, quoted in Watkins, Steven, “Is the Space Mission Too Big to Handle?” *Air Force Times*, 7 October 1996, 32.
41. Grier, Peter, “The Force and Space,” *Air Force Magazine*, February 2001, 51.
42. Kruse, *et al.*, *Space Management and Organization Options*, Chapter V.
43. Lambeth, *Mastering the Ultimate High Ground*, 151.
44. *Space Commission Report*, 82.

## Chapter 4

### **Cyberspace . . . the Final Frontier?**

*Ultimately, we need to create a separate cyberservice, just as we have an Army, Navy, Marine Corps, Air Force, and Coast Guard. Just as we finally grasped that the skies were a new domain and created the United States Air Force over 60 years ago, it will soon be time to see that cyber is, in fact, a permanent new domain that requires a United States Cyber Force.*

-Admiral James Stavridis  
*The New Triad*

Many have witnessed the emergence of military operations in the cyber domain and made the comparison, as Admiral Stavridis does above, to the Air Force's establishment. Today's Air Force was birthed within the Army and then emerged as an independent service in 1947. In 2001, the Space Commission considered separation of space operations from the Air Force, but conditions were not right for such a change at that time. It is not clear today that a future cyber service could follow airpower's path to independence.

Organizational independence for cyber is a challenging prospect because cyberspace permeates the tools used to conduct operations in all other domains. As a result, cyber operations are intertwined throughout all of the services. Ships, tanks, airplanes, and satellites today all have at least some interface with or dependence on cyberspace. Accordingly, it is increasingly difficult to operate exclusively within the physical domains, blurring the logic of organizing forces by the domain in which they operate.

In this chapter, I will evaluate the prospect of the United States establishing an independent cyber service through historical comparison to the Air Force's creation in 1947 and the Space Commission's 2001 recommendation to retain space operations within the Air Force. First, I will briefly describe what makes the cyber domain different from those of space, air, land and sea. Part of that discussion includes an assessment of how and why cyberspace operations would benefit from separation into an independent service. I will then briefly summarize the history of organizational changes within the United States military in response to cyber threats and opportunities. Finally, I will evaluate the current political environment in the con-

text of the five socio-political factors which aligned in 1947 to support Air Force independence, but which were absent for the 2001 Space Commission recommendation.

## **The Cyberspace Domain**

While space is a place unlike any other, cyberspace isn't even a place at all. The official DOD definition of cyberspace is: "A global domain within the information environment consisting of the inter-dependent networks of information technology infrastructures and resident data, including the Internet, telecommunications networks, computer systems, and embedded processors and controllers."<sup>1</sup> In other words, nowhere and everywhere at the same time. Creating formal definitions within the DOD can be highly politicized, with the services and other defense components posturing to reach the outcome which best supports the interests of their organization. The resulting definitions are often overly complex and laden with jargon which has second- or third-order implications invisible to the casual reader. Singer and Friedman propose a more accessible version: "cyberspace is the realm of computer networks (and the users behind them) in which information is stored, shared, and communicated online."<sup>2</sup>

In contrast with the other warfighting domains, cyberspace is a virtual, man-made environment, and can itself be changed by men. Though it is composed of physical devices, the topography of cyberspace is defined by the software running on those physical components, and can be rapidly and dramatically altered. Therefore, the virtual environment of cyberspace becomes a highly dynamic maneuver space for virtual software agents which can interact with the environment itself as well as other agents within it.

The concept of distance in cyberspace has no relationship to the physical domain. Software-constructed topography may render it impossible to transit between two points in cyberspace which exist in the same physical component. Conversely, two points which are immediately adjacent in cyberspace may be constituted in physical components which are thousands of miles apart. As described by one expert, "Mountains and oceans are hard to move, but portions of cyberspace can be turned on and off with the flick of a switch; they can be created or 'moved' by insertion of new coded instructions in a router or switch."<sup>3</sup> As a result, the relationship between the virtual

cyberspace environment and the physical environment is complex, dynamic, and non-intuitive.

Comprehending and exploiting the relation between cyberspace and the physical domains requires a unique mindset. Similar to the need for space operators to simultaneously think at a local and global scale, cyberspace operators must simultaneously think in both virtual and physical terms, and cyberspace systems must necessarily be considered global assets. Like the air, land, maritime and space domains which preceded it, these unique aspects of the cyberspace domain are best served by tailored doctrine and leaders steeped in those domain-specific principles.

The DOD needs tailored recruiting, training, and retention policies to maintain a highly capable cyber workforce because existing policies may unnecessarily exclude the most highly talented cyber operators. The current American military personnel system traces back to the nineteenth century Napoleonic wars.<sup>4</sup> Physical fitness and medical requirements, rightly so, are tailored to physical combat readiness and ability. This system's organizational design, training model, and institutional culture are well suited to action by the Army, Navy, Air Force, and Marine Corps in the physical domains. Cyber warriors, however, operate in a virtual domain, and their fitness for duty has little to do with ability to accurately fire a rifle or hump a ruck for a dozen miles. The military departments have acknowledged a need for specialized recruiting and personnel standards but are challenged to adapt their institutional cultures to the unique needs of a highly-capable cyber workforce.<sup>5</sup>

In addition to these workforce development challenges, the tools used to operate and maneuver in the cyber domain also demand a unique approach. As discussed in Chapter 3, acquisition is now one of the key responsibilities of the military departments; successful acquisition of cyber weapons demands a tailored approach, executed by appropriately trained professionals. Because the environment is unique, the skills needed to acquire cyber weapons may not overlap at all with those needed to acquire ships, tanks, or airplanes. For the most part, cyber weapons are composed entirely of software code. In contrast, the DOD acquisition system is designed primarily for procuring large, physical artifacts such as ships, tanks, and airplanes, often in large quantities. Unlike traditional weapons systems which are expected to last decades, cyber tools may be individually designed for a single operation, never to be used again. Accordingly, adapting the

extensive maintenance and support requirements intended to sustain long-lived physical weapons systems drives unnecessary administrative overhead into the development of cyber weapons. Therefore, an independent cyber service should be tailored to more quickly, efficiently, and effectively acquire cyber weapons.

Separating cyber forces into an independent service is not the only solution. Just like the 1942 Army Air Forces met airpower's unique requirements within the War Department, organizational differentiation within the existing services can address the unique requirements for operating within the cyberspace domain. In addition, the Army, Navy, and Marine Corps today each appropriately tend to the needs of their organic air arms. The existing services could, therefore, create tailored policies to better support their organic cyber forces. A cyber service, however, could further differentiate from the existing services to build a unique organizational culture best suited to the needs of cyber warriors and operations in the virtual domain of cyberspace.

## **History of DOD Operations in Cyberspace**

The technology underpinning the cyber domain was itself created by the DOD. In the 1960s, DOD's Advanced Research Projects Agency (ARPA) needed a way to make computers available to scientists conducting ARPA research without paying for each of them to purchase their own underutilized computer.<sup>6</sup> If scientists in one location could access computers at other sites, each system could be more efficiently used by a larger group of researchers. The solution, a standardized method of connecting computers together, was originally called ARPANET. Over time, the network grew in size and scope, eventually evolving into the Internet.

In the same way that modern economies have realized huge leaps in productivity through digitization and automation, modern military forces leverage net-centric technologies to become more precise and effective. While military systems and networks are not typically connected directly to the public Internet, the same standardized networking hardware and communications protocols which allow teenagers to post photos on Instagram are used to connect weapons systems and military networks. While the integration of widely available commercial telecommunications technology can speed system

development and lower costs, doing so can introduce new risks to military systems.

### **Information Operations**

Information and communications technologies have changed the way war is conducted today. For instance, a pilot in the Nevada desert can remotely fly an MQ-9 Reaper aircraft sortie in the Middle East. The reconnaissance footage from this Reaper mission can be evaluated in real time by an intelligence crew in Virginia. Cyber connectivity enables this model of globally distributed operation, and countless others like it, across today's modern military.

One of the risks inherent in these globally interconnected system architectures is that they have a larger "attack surface" for potential disruption. In contrast, first-generation military systems which employed custom-built electronics were secure by virtue of their obscurity. An adversary would need to obtain the physical component, and then dedicate the time to investigate for the presence of any flaws which could be exploited. As these technologies began to mature and became commoditized in the 1990s, weapons builders increasingly incorporated commercial-off-the-shelf components into military systems to achieve gains in efficiency and productivity. Unfortunately, employing widely understood and prolific technologies in military systems means those systems also incorporated the design flaws and security vulnerabilities inherent in those components. As a result, it became much easier for an adversary to understand and exploit the technologies which enable networked military operations.<sup>7</sup>

As cyber threats systems proliferated, each of the services realized the need to defend against intrusions into military networks. Even those incursions motivated by simple teenage curiosity could pose a threat to operations and international relations. For example, two California teens in February 1998 hacked into an Air Force system in the Middle East; Defense officials originally believed Iraq was behind the intrusion.<sup>8</sup> In this case, misattribution of the attack's source could have impacted America's response in the region. Deliberate instigation by a third party could have caused the same misattribution in a more nefarious version of the same incident.

Though United States military operations became more vulnerable to disruption through cyberspace, turning the same threat around to face a potential adversary posed an opportunity: it could be possible

to similarly disrupt an adversary's networked military systems. By the mid-1990s, the military services began to explore these opportunities with activities called at that time Information Operations or Information Warfare.<sup>9</sup> Military activities to install, operate and maintain computer networks were originally considered support activities along the lines of supply, civil engineering and finance. The transition to Information Operations (later renamed Cyberspace Operations) opened the door for those same skills to be applied to military operations.

### **Air Force Stakes a Claim to Cyberspace**

Four years into the "Global War on Terrorism" era of rapidly growing military budgets, the Air Force made a claim for primacy in cyberspace. In December 2005, Air Force Secretary Michael Wynne and Chief of Staff Gen Michael Moseley amended the Air Force mission statement to include cyberspace.<sup>10</sup> To fight in the air domain, the Air Force had Air Combat Command; in the space domain, Air Force Space Command. The logical next step was to establish an operational command for cyberspace. Accordingly, Wynne and Moseley in 2006 directed establishment of Air Force Cyber Command to "enable the employment of global cyber power across the full spectrum of conflict."<sup>11</sup>

Though some might see the new Air Force mission statement and major command as an unwarranted grab for mission, budget, and prestige, there was thoughtful logic behind the move. Conceptually, the air domain provided a new high ground from which one could see more of the battlefield than from on land. Though Chapter 3 describes how the space and air domains differ in several ways, space similarly provides even higher ground from which one can observe and interact with the battlespace. As military capabilities became increasingly interconnected and networked, cyberspace would become the new high ground from which to best influence the battlespace.<sup>12</sup>

The Air Force was unable to follow through with the original plan for assuming jurisdiction over cyberspace operations within the DOD. An Air Force crew in August 2007 unknowingly transported nuclear weapons without authorization, exposing a troubling picture of mismanagement in the service's nuclear force. Already displeased with the Air Force leadership's priorities during the height of the Iraq war, this embarrassing incident led Secretary of Defense Robert Gates

to fire Wynne and Moseley in June 2008.<sup>13</sup> The Air Force focus understandably shifted to correcting problems in the nuclear force. The service's new leaders paused the cyber command effort, yielding the earlier claim of primacy in cyberspace.

### **United States Cyber Command**

In 2008, a sophisticated compromise of classified military networks awakened military leaders throughout the DOD to the growing cyber threat. This intrusion into a United States Central Command network, later attributed to a foreign intelligence service, highlighted the importance of cyberspace in the minds of warfighters across all domains and military services.<sup>14</sup> The lessons learned from the Pentagon's response to the compromise of secure networks, called Operation Buckshot Yankee, set the DOD on a new course for organizing to fight in cyberspace.

Challenges identified during Operation Buckshot Yankee convinced Defense Secretary Robert Gates to reorganize the military's various cyberspace commands and task forces. The result was a June 2009 decision to consolidate those forces into a new subunified combatant command.<sup>15</sup> The new command, United States Cyber Command, would be led by a four-star general officer, and report to United States Strategic Command. In following with standard United States military practice, each of the services would go on to build a cyber-component command through which to provide forces to Cyber Command.<sup>16</sup>

Defense Secretary Leon Panetta directed in December 2012 a substantial standardization and expansion of the cyber force.<sup>17</sup> Each of the services reorganized existing cyber forces into the Cyber Command-defined standardized "Cyber Mission Forces" template, and reallocated resources from other mission areas to grow the force by 500 percent to about 6,000 personnel.<sup>18</sup> At end state in 2018, the Cyber Mission Force will be composed of 133 teams which will be assigned to perform offensive or defensive missions in cyberspace. The Army, Navy, and Air Force will each field about 40 teams, with the balance provided by the Marine Corps.

In April 2016, Chairman of the Senate Armed Services Committee John McCain hinted at an increase in stature for Cyber Command. McCain suggested the possibility of elevating Cyber Command to unified command status, reporting directly to the Secretary of Defense rather than to Strategic Command, as is currently the case.<sup>19</sup> At the



time of this writing, the upgrade in status, which would be directed through the National Defense Authorization Act for 2017, was under committee deliberation in the United States Senate.

## **Analysis and Conclusion**

As was the case when military activity expanded into the air and space domains, many have called for creating an independent military service for operating in the cyberspace domain. Some have called the cyber service components fielded by the Army, Navy, Air Force and Marine Corps “ill-fitting appendages that attempt to operate in inhospitable cultures where technical expertise is not recognized, cultivated, or completely understood.”<sup>20</sup> Like the development of air and space forces discussed in previous chapters, organizing, training, and equipping forces to operate in cyberspace demand tailored policies and processes unique from those employed by the existing services within which cyber forces currently operate.

The rationale for creating an independent cyber service is somewhat undermined by Cyber Command’s efforts to maximize the effectiveness of military cyber forces. In a departure from the typical role of a combatant command, Cyber Command is heavily involved in the organize-train-and-equip functions normally performed exclusively by the services. For example, Cyber Command is actively involved in training, sustainment, and capability development for the Cyber Mission Forces.<sup>21</sup> Prior Cyber Command chief, Gen Keith Alexander, regularly advocated for his command to be granted additional service-like authorities for programming, budgeting, acquisition, organizing, training, and equipping forces similar to Special Operations Command.<sup>22</sup> Unique among the combatant commands, Special Operations Command “performs Service-like functions and has Military Department-like responsibilities and authorities.”<sup>23</sup> Due to these “service-like” authorities and responsibilities, Special Operations Command can reasonably be considered a fifth military service in all but name.

If Cyber Command can successfully obtain “service-like” authorities and responsibilities to address the unique needs of operational cyber forces, cyberspace separatists will find themselves in a similar position to the airmen whose unique needs were well met by the Army Air Forces after 1942. Airpower advocates at the time, however, continued to push for a separate service to achieve organizational parity with

the other services to ensure appropriate and effective advocacy for airpower. Here too, a solution is possible through Cyber Command. If Congress chose to endow Cyber Command with programming and budgeting authorities for cyber operations, Cyber Command could effectively advocate for cyber power in the same way Special Operations Command does for special operations today. In sum, a successful Cyber Command could render cyber-power advocates unable to identify *why* the United States needs an independent cyber service.

As discussed in Chapter 2, the rationale for creating an independent air force became decisive only when socio-political factors aligned in support of a complete transformation of the defense establishment. Assuming a valid case can still be made for *why* a cyber service is needed, *how* such an organizational transformation could be achieved is similarly dependent on political factors.

### **Political Factors for Cyberspace Independence**

As described in Chapter 2, five forces aligned for the first time in 1947 in support of an independent air force: airpower had proven successful in recent combat during World War II; the Army Air Forces had matured into an autonomous institution capable of independence; Army and War Department leadership actively supported a separate airpower service; President Truman vigorously supported organizational parity for airpower; and a comprehensive reorganization of the nation's security apparatus was underway. In contrast, as shown in Chapter 3, none of these factors was present when the Space Commission elected not to recommend the creation of an independent space force in 2001. Accordingly, without favorable alignment of these five political factors, an independent cyber service is more likely to follow the fate of the space than air.

**Recent combat success.** Cyber operators are challenged by the secrecy behind which much they necessarily ply their craft. Often, their successes remain hidden, while their failures make the front page of national newspapers. One notable exception was the so-called "Stuxnet" attack against the Iranian nuclear weapons program in 2010 when senior Obama administration officials revealed some of the attack's details two years later.<sup>24</sup>

One of the reasons airpower's success in World War II contributed to the creation of an independent air force was that it created a widespread enthusiasm for airpower among the general public and Congress.

World War II drove the American aerospace industry to new heights, pushing the boundaries of aviation, and the American people stood in awe of the accomplishments of military airmen. After the war, the aerospace industry found myriad civil and commercial applications for technologies developed to support the war effort.

In cyberspace, the reverse is true: the market for information technology is dominated by commercial interests, and the military is but one of many large customers of the industry. As a result, Americans do not see military cyber operations as a driving force behind the nation's cyber power in the same way they saw the Army Air Forces pushing the limits of airpower. Unlike today's cyber warriors, America's airmen captured the imagination of the nation. As a result, cyber power's contributions to national security are fewer and less visible than was airpower's record of combat success leading up to 1947.

**Autonomous antecedent.** Creation of the United States Air Force was possible in 1947 because the Army Air Forces had matured into an autonomous airpower service within the War Department.<sup>25</sup> Today, no single service has a preponderance of cyber forces, and the nexus of cyber responsibility and doctrine exists not in any of the services, but in Cyber Command. An autonomous antecedent organization akin to the Army Air Forces is unlikely to develop within any of the services; each will jealously ensure none of the others gains a disproportionate share of the cyber mission.

On the other hand, Cyber Command is more likely to mature into an antecedent organization which could theoretically evolve into an independent cyber service, particularly if granted the same service-like authorities held by Special Operations Command. As previously mentioned, however, such a condition would also undermine the very need for an independent service.

**Host-service support.** Army and War Department leaders in 1947 unequivocally supported independence for the Army's air arm. In contrast, while individual members of the armed forces today have expressed support for creating a cyber service, there is no evidence of institutional support by the services, a position that is not at all unexpected. As was the case in 1947, creation of a cyber service would likely require a transfer of resources, including personnel and budget authority, from the existing services to the new organization. Having just recently reallocated resources to build cyber service components and field their assigned Cyber Mission Force teams; it is unlikely they would willingly give up those resources to a new cyber service.

In addition, systems and networks which underpin much of what the services do to execute their primary missions requires cyberspace personnel for operation and defense in cyberspace. Demarcating which personnel and functions should be transferred to a cyber service, versus which should remain within the existing services to perform “auxiliary cyber” functions, will be complex and contentious. Such was the case for airpower, eventually requiring the President to intervene and define the roles and missions of each of the services with respect to airpower.<sup>26</sup> It is far safer, from the perspective of the existing services, to simply retain all portions of the cyber mission they presently have than to delineate “primary” from “auxiliary” cyber power.

**Presidential leadership and support.** In 1947, President Truman vigorously supported organizational parity for airpower. He personally mediated the negotiation between his War and Navy Secretaries, and offered unequivocal written support to Congress for an independent air force. In addition, Truman submitted a draft of the bill which became the National Security Act of 1947 and created the United States Air Force.

Conversely, there was no Presidential support in 2001 for a separate space force. Today, while recent Presidents have made cybersecurity a priority for their respective administrations, none has proffered for cyber power anything approaching the level of support from Truman for airpower. The best-documented evidence of the Obama administration’s priorities for cyberspace are found in a May 2011 strategy document. It details a set of policy priorities, directing the military to “Prepare for 21st Century Security Challenges” by adhering to three principles: (1) Recognize and adapt to the military’s increasing need for reliable and secure networks; (2) Build and enhance existing military alliances to confront potential threats in cyberspace, and (3) Expand cyberspace cooperation with allies and partners to increase collective security.<sup>27</sup>

If President Obama has any preference for his Defense Department’s organizational constructs for operating in cyberspace, his cyberspace strategy clearly offers no hints as to what it might be.

**Comprehensive National Security reorganization.** After World War II ended, Congress undertook a complete transformation of the entire defense establishment which included creating an independent United States Air Force. As the American armed forces withdrew from the European and Pacific theaters, the emergency authority

under which President Roosevelt had substantially reformed defense organizations approached expiration. Unless Congress passed legislation updating the permanent structure of the nation's defense apparatus, it would revert to the long-outdated prewar template. The resulting effort, the National Security Act of 1947, created the United States Air Force and was the most transformative defense reorganization in American history. Without it, creation of an independent air force as a stand-alone initiative would have likely been blocked by the Navy and its supporters, as had been the case on several previous legislative attempts.

The most recent defense reform of comparable scope, the Goldwater-Nichols Defense Reform Act of 1986, is nearly 30 years old and did not address any aspect of cyberspace operations. Recently, Defense Secretary Ash Carter and many in Congress have indicated they feel another overhaul is required.<sup>28</sup> As mentioned in the previous section, Senate Armed Services Committee Chairman John McCain has initiated a new defense reform effort which could elevate Cyber Command and might reduce the number and scope of the six regional combatant commands. It is unclear at this time, however, if McCain's reform effort will include any changes to the responsibilities and authorities of the military services, or their relationship to the combatant commands.

## **Conclusion**

At present, none of the five critical factors for separation as identified in the Chapter 2 analysis of Air Force independence align in favor of a separate cyber service. First, there is no recent record of cyberspace combat success that compares in scope or impact to that of airpower in World War II. Second, unlike the cohesive Army Air Forces which formed the corpus of the United States Air Force upon its creation in 1947, cyberspace forces today are spread throughout the four existing services.

Third, none of the existing services has indicated a willingness to cede its role in the cyberspace mission, and the resources currently allocated to it, to form a cyber service. In contrast, Army and War Department leadership in 1947 actively supported the transfer of resources necessary to create the United States Air Force. Fourth, the President's cyberspace policy takes no position on the internal DOD

organizational construct; unlike in the case for airpower, when President Truman unequivocally advocated for a separate Air Force.

The case for the fifth factor, comprehensive national security reorganization, is less straightforward. While several defense-reform efforts are presently underway in Congress with at least a modicum of support from the Defense Secretary, it is unclear if they will approach the transformative scope of the 1947 reorganization which birthed the Air Force. Nevertheless, with none of the other four factors aligned in favor of cyber independence at this time, creation of a cyber service appears highly unlikely in the near term.

<b>Airpower - 1947</b>	<b>Cyber Power - 2016</b>
<b>Recent combat success</b>	
Overwhelming contribution to World War II, including war-ending use of nuclear weapons	Successes shrouded in secrecy, failures widely publicized
<b>Autonomous antecedent</b>	
Army Air Forces operated as a <i>de facto</i> independent service, staffed by a cadre of capable airpower experts	Nexus of power and expertise concentrating in Cyber Command
<b>Host-service support</b>	
Universal support from War Department and Army leadership for an independent air force	Opposition to transfer of resources
<b>Presidential leadership and support</b>	
President Truman proffered vigorous and unequivocal support for parity with the Army and Navy	No explicit presidential opinion
<b>Comprehensive National Security reorganization</b>	
Independence considered amidst a complete transformation of the entire National Security apparatus	Unclear if recently proposed reforms will address overall DOD structure

**Table 2. Comparison of Factors for Air and Cyber Independence.** (Source, Author's original work)

## Notes

1. JP 3-12 (R), *Joint Publication 3-12 (R): Cyberspace Operations*, (Washington, DC: Joint Staff, 5 February 2013), GL-4.
2. P.W. Singer, and Allan Friedman, *Cybersecurity and Cyberwar: What Everyone Needs to Know* (New York: Oxford University Press, 2014), 13.
3. Gregory J. Rattray, "An Environmental Approach to Understanding Cyber-power," in *Cyberpower and National Security*, ed. Franklin D. Kramer, Stuart H. Starr, and Larry K. Wentz (Washington, DC: National Defense University Press, 1 April 2009), 3.
4. Ashton B. Carter, *Remarks by Secretary Carter on the Force of the Future*, As Delivered by Secretary of Defense Ash Carter, Abington Senior High School, Abington, Pennsylvania 30 March 2015).
5. Jeremy Hsu, "Cyber Warriors Need Not Be Soldiers." *Discover Magazine* (8 March 2015): <http://blogs.discovermagazine.com/lovesick-cyborg/2015/03/08/cyber-warriors-need-not-soldiers>.
6. Singer, and Friedman, *Cybersecurity and Cyberwar*, 17.
7. Jason Healey, and Karl Grindal, eds. *A Fierce Domain: Conflict in Cyberspace, 1986 to 2012* (Washington, DC: Atlantic Council, 2013-06-01), 29.
8. *Ibid.*, 122.
9. Gregory W. Ball, *Over, Not Through: The Air Force and Cyberspace Operations*, Presentation to the Society of Military History April 2015), 2.
10. Michael W. Wynne, and T. Michael Moseley, "Cyberspace added to Mission Statement," *Letter to all Airmen of the United States Air Force* (7 December 2005).
11. Michael W. Wynne, and T. Michael Moseley, "Establishment of an Operational Command for Cyberspace," *Memorandum to the Commanders of Air Combat Command, Air Education and Training Command, Air Force Materiel Command, and Air Force Space Command* (6 September 2006).
12. Ball, *Over, Not Through: The Air Force and Cyberspace Operations*, 8.
13. Barnes, Julian E., and Peter Spiegel, "Air Force's Top Leaders are Ousted." *Los Angeles Times*, 6 June 2008.
14. Lynn III, "Defending a New Domain," 97.
15. *Ibid.*, 102.
16. The service cyber component are: Second Army (Army Cyber Command), Tenth Fleet (Fleet Cyber Command), Twenty-Fourth Air Force (Air Forces Cyber), and Marine Corps Forces Cyberspace.
17. *The DoD Cyber Strategy*, (Washington, DC: Department of Defense, April 2015), 6.
18. *Department of Defense Cyber Approach: Use of the National Guard and Reserve in the Cyber Mission Force*, RFPB Report FY14-03 (Washington, DC: Reserve Forces Policy Board, 18 August 2014), 8.
19. Chris Strohm, and Nafeesa Syeed, "U.S. Cyber Warfare Unit Would Be Elevated Under McCain Plan." *Bloomberg News* (5 April 2016): <http://www.bloomberg.com/politics/articles/2016-04-05/u-s-cyber-warfare-unit-would-split-from-nsa-under-mccain-plan>.
20. Gregory Conti, and John Surdu, "Army, Navy, Air Force, and Cyber—Is it Time for a Cyberwarfare Branch of Military?" *INewsletter* 12, no. 1 (2009), 14.

21. Michael S. Rogers, *Statement of Admiral Michael S. Rogers, Commander, United States Cyber Command, Before the Senate Armed Services Committee*, 5 April 2016), 10-11.

22. Nakashima, Ellen, "Alexander: Promote Cyber Command to Full Unified Command Status." *The Washington Post*, 12 March 2014.

23. JP 3-05, *Joint Publication 3-05: Special Operations*, (Washington, DC: Joint Staff, 16 July 2014), I-3.

24. Sanger, David E., "Obama Order Sped Up Wave of Cyberattacks Against Iran." *The New York Times*, 1 June 2012.

25. See page 28 for the discussion about the Army Air Forces achieving near-complete autonomy as a *de facto* service within the War Department.

26. Office of the Secretary of Defense, *Secretary Forrestal announces results of Key West conference*. (Washington, DC: Department of Defense, 1948), 1.

27. *International Strategy for Cyberspace: Prosperity, Security, and Openness in a Networked World*, (Washington, DC: Executive Office of the President, May 2011), 20-21.

28. Jeremy Herb, "Carter Outlines Overhaul of Military Command Structure." *Politico Morning Defense* (6 April 2016): <http://www.politico.com/tipsheets/morning-defense/2016/04/carter-outlines-overhaul-of-military-command-structure-mccain-says-his-reforms-will-go-even-further-north-korea-can-reportedly-mount-nuclear-warhead-213605>.



## Chapter 5

### **Conclusion and Summary**

*There are many ways of going forward, but only one way of standing still.*

-President Franklin D. Roosevelt

### **Summary of Findings**

The United States Department of Defense is organized the way it is because of the particular series of events over a period of more than 200 years which America's military institutions have endured. Originally organized into two arms, Navy and Army, the singularly distinctive experience of World War II transformed the military establishment into three arms, adding the Air Force, loosely bound by a common Defense Secretary. The revolutionary changes to the national security apparatus in 1947 represented a lowest common denominator compromise between those who wanted to unify national defense, those who wanted to retain long-held independence, and those who desired parity for the emerging air arm. As described in Chapter 2, five forces aligned for the first time in 1947 in support of an independent air force: airpower had proven successful in recent combat during World War II; the Army Air Forces had matured into an autonomous institution capable of independence; Army and War Department leadership actively supported a separate airpower service; President Truman vigorously supported organizational parity for airpower; and a comprehensive reorganization of the nation's security apparatus was underway.

Changes to military doctrine since 1947, most notably the Goldwater-Nichols reorganization in 1986, further diminished the warfighting responsibilities of the military services in favor of unified commands. Evolutionary changes over those four decades had the cumulative effects of strengthening civilian control, consolidating authority in the Secretary of Defense, and bifurcating responsibilities into administrative (service) and operational (joint) categories.

More than 50 years after the Air Force was established, space power advocates in 2001 failed to make a compelling case to separate

space operations from the Air Force. As shown in Chapter 3, in contrast to the case for airpower, none of the five factors which aligned in 1947 to support an independent air force were present when the Space Commission elected not to recommend the creation of an independent space force.

Inspired by the 1940s case for a separate airpower service and the 1990s case for a separate space service, one could campaign for an independent cyber service to meet the unique needs of cyber forces and to more effectively advocate for cyber power. As Cyber Command increasingly addresses the unique needs of forces operating in the cyber domain, however, the case for a separate service is diminished. If granted additional service-like authorities similar to Special Operations Command, Cyber Command could be empowered to support the unique doctrine, leadership, personnel, and technology needs of cyber forces. Further, programming and budget authority would also allow Cyber Command to serve as the Department of Defense resource advocate for cyberspace, eliminating every aspect of the rationale for a separate cyber service. Assuming one could make a compelling argument for an independent cyber service, such a proposal is unlikely to succeed: at present, none of the five critical factors for separation align in favor of cyber power independence.

## **Implications of this Study**

The post-World War II unification effort ended in a grand compromise in which the Air Force was created largely in the image of the Army and Navy. As a result, the services today are responsible for unnecessarily overlapping functions and wield more power by historical tradition than warranted by their statutory authority. A consequence of this disconnect is that because the existing military departments continue to serve as a template for prospective new service branches, the extensive overhead in their design limits any future expansion to only very large new forces.

In fact, the very notion that the existing services partition warfare along domain boundaries is a convenient fiction. While the Army, Navy, and Air Force operate predominately on the land, in the sea, and in the air, their activity is not at all limited to their assigned domain. For example, all four services (including the Marine Corps) operate

extensive air arms. Speaking of the Marine Corps, America's smallest service operates in nearly every domain, with the exception of space.

Perhaps the whole concept of multiple independent military departments is an anachronism of the pre-World War II era that has no relevance in the modern age of joint warfighting, systemic design, and effects-based operations. Indeed, one of the arguments in the 1940s for the need to establish a separate department for air was simply to achieve parity with the Army and Navy to advocate more effectively for resources. Accordingly, we must take care not to unnecessarily conform the space and cyber warfare forces to a World War II organizational model unless it is a good fit for organizing those forces.

An alternative approach which might support specialized independent organizations for emerging warfighting domains would need to reevaluate the basic organizing principles of the Defense Department. One possibility would be a reconsideration of the 1940s proposal to unify the services into a single armed force with a consolidated infrastructure for common support functions. Subdivisions for air, land, and naval forces could be created to attend to the unique requirements of operations in those domains. As these streamlined organizations would not retain the duplicative overhead present in today's Air Force, Army and Navy Departments, additional arms could be created for space and cyberspace forces. Though the defense transformation currently under consideration does not appear to be this far-reaching, further study in this area may support future transformative reforms.

## Bibliography

- “1926 — The U.S. Army Air Corps Act.” *U.S. Air Force History Fact Sheet* (4 February 2011): Accessed 23 February 2016, <http://www.afhso.af.mil/topics/factsheets/factsheet.asp?id=15237>.
- “Air Force Space Command.” *U.S. Air Force Fact Sheet* (9 September 2015): Accessed 27 March 2016, <http://www.afspc.af.mil/library/factsheets/factsheet.asp?id=3649>.
- Arnold, Henry H. “Prepared testimony to be given before the Separate Air Force Committee.” 1941. *Reel 171, Henry Harley Arnold Papers*. Manuscript Division, Library of Congress, Washington, DC.
- . “Letters to Mr. Norman M. Lyon and Mr. Warren Atherton of the American Legion.” September 1941. *Reel 171, Henry Harley Arnold Papers*. Manuscript Division, Library of Congress, Washington, DC.
- AU-18. *Space Primer: Prepared by Air Command and Staff College Space Research Electives Seminar*. Maxwell Air Force Base, AL: Air University Press, 2009.
- Ball, Gregory W. *Over, Not Through: The Air Force and Cyberspace Operations*. Presentation to the Society of Military History. April 2015.
- Barnes, Julian E., and Peter Spiegel. “Air Force’s Top Leaders are Ousted.” *Los Angeles Times*, 6 June 2008.
- Brouillard, Joseph E. “SOPSC Educates Space Warriors.” *High Frontier* 1, no. 1 (Summer 2004): 22–23.
- Builder, Carl H. *The Masks of War: American Military Styles in Strategy and Analysis*. Baltimore: Johns Hopkins University Press, 1989.
- Carter, Ashton B. *Remarks by Secretary Carter on the Force of the Future*. As Delivered by Secretary of Defense Ash Carter, Abington Senior High School, Abington, Pennsylvania. 30 March 2015.
- Clausewitz, Carl von. *On War*. Princeton: Princeton University Press, 1989.
- Conti, Gregory, and John Surdu. “Army, Navy, Air Force, and Cyber—Is it Time for a Cyberwarfare Branch of Military.” *IAnewsletter* 12, no. 1 (2009): 14–18.
- Corbett, Sir Julian. *Some Principles of Maritime Strategy*. Annapolis, MD: Naval Institute Press, 1988.

- Department of Defense Cyber Approach: Use of the National Guard and Reserve in the Cyber Mission Force*. RFPB Report FY14-03. Washington, DC: Reserve Forces Policy Board, 18 August 2014.
- Douhet, Giulio. *The Command of the Air*. Tuscaloosa, AL: University Alabama Press, 2009.
- Evans, Mark L., and Roy A. Grossnick. *United States Naval Aviation 1910-2010 Volume I: Chronology*. Washington, DC: Naval History and Heritage Command, 2015.
- Finney, Robert T. *History of the Air Corps Tactical School 1920-1940*. Washington, DC: Air Force History and Museums Program, 1998.
- Forrestal, James. *First Report of the Secretary of Defense*. Washington, DC: National Military Establishment, 1948.
- Goldberg, Alfred. *A History of the United States Air Force, 1907-1957*. Princeton: Van Nostrand, 1957.
- Goldwater-Nichols Department of Defense Reorganization Act of 1986*. Public Law 433. 99th Cong., 2nd sess., 1 October 1986.
- Greer, Thomas H. *The Development of Air Doctrine in the Army Air Arm, 1917-1941*. Maxwell Air Force Base, AL: USAF Historical Division, 1955.
- Grier, Peter. "The Force and Space." *Air Force Magazine*, February 2001.
- Harford, Tim. *Adapt: Why Success Always Starts with Failure*. Picador, 2012-05-08.
- Healey, Jason, and Karl Grindal, eds. *A Fierce Domain: Conflict in Cyberspace, 1986 to 2012*. Washington, DC: Atlantic Council, 2013-06-01.
- Herb, Jeremy. "Carter Outlines Overhaul of Military Command Structure." *Politico Morning Defense* (6 April 2016): <http://www.politico.com/tipsheets/morning-defense/2016/04/carter-outlines-overhaul-of-military-command-structure-mccain-says-his-reforms-will-go-even-further-north-korea-can-reportedly-mount-nuclear-warhead-213605>.
- Hsu, Jeremy. "Cyber Warriors Need Not Be Soldiers." *Discover Magazine* (8 March 2015): <http://blogs.discovermagazine.com/lovesick-cyborg/2015/03/08/cyber-warriors-need-not-soldiers>.
- International Strategy for Cyberspace: Prosperity, Security, and*

- Openness in a Networked World*. Washington, DC: Executive Office of the President, May 2011.
- Johnson, Richard D., and Charles Holbrow, eds. *Space Settlements: A Design Study*. Washington, DC: National Aeronautics and Space Administration, 1977.
- Jomini, Antoine-Henri. *The Art of War*. Mineola, NY: Dover Publications, 2007.
- JP 3-05. *Joint Publication 3-05: Special Operations*. Washington, DC: Joint Staff, 16 July 2014.
- JP 3-12 (R). *Joint Publication 3-12 (R): Cyberspace Operations*. Washington, DC: Joint Staff, 5 February 2013.
- JP 3-30. *Joint Publication 3-30: Command and Control of Joint Air Operations*. Washington, DC: Joint Staff, 10 February 2014.
- Kruse, Keith, Charles B. Cushman Jr., Darce M. E. Noricks, and Craig Baker. *United States Space Management and Organization: Evaluating Organizational Options*. Prepared for the Commission to Assess United States National Security Space Management and Organization. January 2001.
- Lambeth, Benjamin S. *Mastering the Ultimate High Ground: Next Steps in the Military Uses of Space*. Santa Monica, CA: RAND Corporation, 2003.
- Large, Scott F. "National Security Space Collaboration as a National Defense Imperative." *High Frontier* 4, no. 4 (August 2008): 3–5.
- Loredo, Elvira N., John E. Peters, Karlyn D. Stanley, Matthew E. Boyer, William Welser IV, and Thomas S. Szayna. *Authorities and Options for Funding USSOCOM Operations*. Santa Monica, CA: RAND Corporation, 2014.
- Lynn III, William J. "Defending a New Domain." *Foreign Affairs* 89, no. 5 (2010): 97–108.
- Mahan, Alfred Thayer. *The Influence of Sea Power Upon History, 1660 - 1783*. New York: Cosimo Classics, 2007.
- McClendon, R. Earl. *Unification of the Armed Forces: Administrative and Legislative Developments 1945-1949*. Maxwell Air Force Base, AL: Air University Research Studies Institute, 1952.
- . *Autonomy of the air arm*. Washington, DC: Air Force History and Museums Program, 1996.
- Millett, Allan R., and Peter Maslowski. *For the Common Defense: A Military History of the United States of America*. New York:

- Free Press, 1994-09-07.
- Mitchell, William. *Winged defense: the development and possibilities of modern air power--economic and military*. Tuscaloosa, AL: University of Alabama Press, 2009.
- Mooney, Chase C. *Organization of the Army air arm, 1935-1945*. Maxwell Air Force Base, AL: Air University USAF Historical Division, 1956.
- Nakashima, Ellen. "Alexander: Promote Cyber Command to Full Unified Command Status." *The Washington Post*, 12 March 2014.
- Nalty, Bernard C. *Winged Shield, Winged Sword: A History of the United States Air Force*. Washington, DC: Air Force History and Museums Program, 1997.
- National Security Act of 1947*. Public Law 253. 80th Cong., 1st sess., 26 July 1947.
- National Security Act of 1947: Hearings before the Committee on Expenditures in the Executive Departments, House of Representatives, Eightieth Congress, first session, on H. R. 2319*. Washington, DC: U.S. Government Printing Office, 1947.
- Office of the Secretary of Defense. *Secretary Forrestal announces results of Key West conference*. Washington, DC: Department of Defense, 1948.
- Outer Space Treaty*. 1967.
- Parker, William D. *A Concise History of the United States Marine Corps, 1775-1969*. Washington, DC: U.S. Marine Corps Historical Division, 1970.
- Peters, Richard, ed. *The Public Statutes at Large of the United States of America from 1789 to 1799*. Boston: Little and Brown, 1845.
- Peters, Richard, ed. *The Public Statutes at Large of the United States of America from 1823 to 1835*. Boston: Little and Brown, 1846.
- Pogue, Forrest C. *George C. Marshall: Ordeal and Hope, 1939-1942*. New York: Viking, 1966.
- Rattray, Gregory J. "An Environmental Approach to Understanding Cyberpower," In *Cyberpower and National Security*, edited by Franklin D. Kramer, Stuart H. Starr, and Larry K. Wentz, Washington, DC: National Defense University Press, 1 April 2009.

- Report of the Commission to Assess United States National Security Space Management and Organization*. Washington, DC: Commission to Assess United States National Security Space Management and Organization, 2001.
- Rogers, Michael S. *Statement of Admiral Michael S. Rogers, Commander, United States Cyber Command, Before the Senate Armed Services Committee*. 5 April 2016.
- Sanger, David E. "Obama Order Sped Up Wave of Cyberattacks Against Iran." *The New York Times*, 1 June 2012.
- Singer, P.W., and Allan Friedman. *Cybersecurity and Cyberwar: What Everyone Needs to Know*. New York: Oxford University Press, 2014.
- Smith, Bob. "The challenge of space power." *Airpower Journal* XIII, no. 1 (1999): 32–40.
- Smith, Perry McCoy. *The Air Force Plans for Peace, 1943-1945*. Baltimore: The Johns Hopkins University Press, 1970-04-01.
- Spires, David N. *Beyond Horizons: A Half Century of Air Force Space Leadership*. Maxwell Air Force Base, AL: Air University Press, 1998.
- Stavridis, James. "The New Triad: It's Time to Found a U.S. Cyber Force." *Foreign Policy* (2013): Accessed 2 February 2016, <http://foreignpolicy.com/2013/06/20/the-new-triad>.
- Strohm, Chris, and Syeed, Nafeesa. "U.S. Cyber Warfare Unit Would Be Elevated Under McCain Plan." *Bloomberg News* (5 April 2016): <http://www.bloomberg.com/politics/articles/2016-04-05/u-s-cyber-warfare-unit-would-split-from-nsa-under-mccain-plan>.
- Summers Jr., Harry G. *On Strategy: A Critical Analysis of the Vietnam War*. Novato, CA: Presidio Press, 1982.
- Tedder, Sir Arthur W. "Air, Land and Sea Warfare." *Journal of the Royal United Services Institute* (January 1946): 59–68.
- The DoD Cyber Strategy*. Washington, DC: Department of Defense, April 2015.
- TR 440-15. *Fundamental Principles for the Employment of the Air Service*. Washington, DC: War Department, 26 January 1926.
- Trask, Roger R. *The Department of Defense, 1947-1997: Organization and Leaders*. Washington, DC: Historical Office, Office of the Secretary of Defense, 1997.
- Truman, Harry S. "Letter to the Chairmen, Congressional



- Committees on Military and Naval Affairs on Unification of the Armed Forces." 15 June 1946. Online by Gerhard Peters and John T. Woolley, *The American Presidency Project*. <http://www.presidency.ucsb.edu/ws/?pid=12420>.
- . "Letter to the Secretaries of War and Navy on Unification of the Armed Forces." 15 June 1946. Online by Gerhard Peters and John T. Woolley, *The American Presidency Project*. <http://www.presidency.ucsb.edu/ws/?pid=12421>.
- . "Special Message to the Congress Recommending the Establishment of a Department of National Defense." 19 December 1945. Online by Gerhard Peters and John T. Woolley, *The American Presidency Project*. <http://www.presidency.ucsb.edu/ws/?pid=12259>.
- United States Statutes at Large 1941-1942*. Washington, DC: United States Government Printing Office, 1942.
- Watkins, Steven. "Is the Space Mission Too Big to Handle?" *Air Force Times*, 7 October 1996.
- Williams, Edwin L. *Legislative History of the AAF and USAF 1941-1951*. Maxwell Air Force Base, AL: Air Force Historical Research Agency, 1955.
- Wolf Blitzer Reports staff. "Troops put Rumsfeld in the hot seat." (8 December 2004): Accessed 21 February 2016, <http://www.cnn.com/2004/US/12/08/rumsfeld.kuwait/index.html>.
- Wolk, Herman S. *Reflections on Air Force independence*. Washington, DC: Air Force History and Museums Program, 2007.
- Wolk, Herman S. *Toward Independence: The Emergence of the U.S. Air Force, 1945-1947*. Washington, DC: Air Force History and Museums Program, 1996.
- . *The struggle for Air Force independence, 1943-1947*. Washington, DC: Air Force History and Museums Program, 1997.
- Wynne, Michael W., and T. Michael Moseley. "Establishment of an Operational Command for Cyberspace." *Memorandum to the Commanders of Air Combat Command, Air Education and Training Command, Air Force Materiel Command, and Air Force Space Command* (6 September 2006).
- . "Cyberspace added to Mission Statement." *Letter to all Airmen of the United States Air Force* (7 December 2005).



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ISSN 1941-3785