BUILDING ON BUILDER:

THE PERSISTENT *ICARUS SYNDROME* AT TWENTY YEARS

BY

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A THESIS PRESENTED TO THE FACULTY OF

THE SCHOOL OF ADVANCED AIR AND SPACE STUDIES

FOR COMPLETION OF GRADUATION REQUIREMENTS

SCHOOL OF ADVANCED AIR AND SPACE STUDIES

AIR UNIVERSITY

MAXWELL AIR FORCE BASE, ALABAMA

JUNE 2013

1. REPORT DATE **JUN 2013**	2. REPORT TYPE	3. DATES COVERED **00-00-2013 to 00-00-2013**
4. TITLE AND SUBTITLE **Building On Builder: The Persistent Icarus Syndrome At Twenty Years**		5a. CONTRACT NUMBER
		5b. GRANT NUMBER
		5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)		5d. PROJECT NUMBER
		5e. TASK NUMBER
		5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **School Of Advanced Air And Space Studies,,Air University,,Maxwell Air Force Base,,AL**		8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSOR/MONITOR'S ACRONYM(S)
		11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT **Approved for public release; distribution unlimited**

13. SUPPLEMENTARY NOTES

14. ABSTRACT

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15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT **Same as Report (SAR)**	18. NUMBER OF PAGES **115**	19a. NAME OF RESPONSIBLE PERSON
a. REPORT **unclassified**	b. ABSTRACT **unclassified**	c. THIS PAGE **unclassified**			

APPROVAL

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

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COL. JEFFREY J. SMITH   (Date)

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

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ACKNOWLEDGEMENTS

ABSTRACT

The greatest challenge the USAF has faced since 1947 has come from one place—itself. The USAF was born out of the vision to find another way of waging war, focused on uniquely strategic ideas of economically meeting the ends of national security policy. The USAF existed to command the air, while also contributing to the command of other domains in meeting the ends of policy. The development and inclusion of nuclear weapons in the arsenal changed everything. This began a shift in strategic thinking to experts other than airmen and professional military members. Deterrence became diplomacy and quality discourse between civilian and military actors atrophied. The net result was that airmen could no longer effectively connect and communicate the concepts of airpower theory (the anvil) to the technological tools (the fast moving hammer). The focus of airpower slowly shifted from the ends to the means. The USAF had not forgotten *why* it existed, but confused it with *how* it did business. The misguided focus that largely rejected the ends of airpower had committed the USAF to a means-centric focus. This myopic focus consequently proved costly when the USAF engaged in intellectual debate on roles and missions. The USAF voice fell silent on debates that focused on meeting the ends of policy, and grew louder on those emphasizing the traditional means, the airplane. The USAF began, and continues, to struggle communicating the connections between the anvil and hammer to answer *HOW* and *WHY* the USAF provides what is taken for granted. Thus, the debate is ultimately about focus—requiring conceptualization of the high ground— above the means to make the connections.

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Introduction:

Revisiting the Icarus Syndrome 20 Years Later

> *Every organization has a culture; that is, a persistent, patterned way of thinking about the central tasks of, and human relationships within an organization.*
> -James Q. Wilson

The role of airpower, theory, and the culture of Airmen are the subjects of many debates. Theorists, military and civilian leaders, and politicians have all passionately argued over what aircraft could, should, and would do in peace and conflict. Visionaries thought well beyond traditional combat, expanding the lexicon of airpower's potential impacts and advantages, while others relied more heavily upon technology to improve performance and in turn lethality. The history of military aviation is full of examples that fall into the two predominant categories of "visionary" or more "technocratic." Carl Builder's 1994 *The Icarus Syndrome: The Role of Air Power Theory in the Evolution and Fate of the U.S. Air Force* provides a point of departure for this treatise. Utilizing Builder's work as a foundation, this monograph examines the role of airpower theory and the subsequent impact on organizational culture within the U.S. Air Force (USAF) since 1994.

The significance of the title *The Icarus Syndrome* is worthy of explanation. The background of the Greek myth of Daedalus and Icarus tells us that the king of Crete, Minos, employed an architect and sculptor named Daedalus to build him a home with an immense number of rooms such that no one who entered could ever find a way out. This Labyrinth pleased Minos, and he demanded that Daedalus continue inventing other wonders for him. Refusing to allow Daedalus to leave the island of Crete,

Minos ordered the shores lined with soldiers. Searching to 'find another way,' Daedalus used his skill to create a large set of wings made of wax and feathers for himself and a smaller pair for his son, Icarus. By day, they worked for Minos, and by night, they taught themselves how to fly, waiting for the perfect time to escape to the island of Sicily. Daedalus and Icarus made their initial escape flying over, not through, the soldiers lining the shore, who now were only able to stand and watch as the pair flew to freedom. Icarus, however, lost sight of the *ends* of escape, focusing on the *means* and enjoyment of flying, so much so that he flew too close to the sun, and his wings melted. Icarus fell to his death in the ocean below, while Daedalus could do nothing but fly on to the end of his journey alone.[1] In Carl Builder's sharp view of the Air Force, airpower theory, valid or not, was like the wax that held together the feathers in the wings of Icarus.[2]

The connections of the mythological story of Daedalus and Icarus to the concerns for the USAF as an organization are rooted in the conceptualization and application of airpower theory. Carl Builder claimed that Air Force leadership abandoned the institution's single unifying theory in favor of the diverse interests of its factions—and in doing so, allowed the wax in the wings to melt. This is what Builder called *The Icarus Syndrome,* and why he chose that title. It implies that the Air Force first exploited, and later neglected the important ideas that gave the institution cohesive purpose and energy.[3] In the face of competitive means—to the ends the USAF is charged to meet—the airplane has an impressive institutional record as the *praeferito optionem* (preferred option).

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[1] C Witt and Karl Witt, *Classic Mythology: A Translation* (Charleston, SC: Nabu Press, 2011), 52–53.
[2] Carl H Builder, *The Icarus Syndrome: The Role of Air Power Theory in the Evolution and Fate of the U.S. Air Force* (New Brunswick, N.J.: Transaction, 2003), 36.
[3] Builder, *The Icarus Syndrome,* 34–36.

Carl Builder began his intellectual journey by observing and studying the USAF. He identified the apparent abandonment of airpower theory, which occurred sometime in the late 1950s to early 1960s, as the root cause of 'problems' that continued to resonate in the USAF in 1994. The experiences of WWII had branded lessons on the consciousness of the now independent USAF. Further, the employment of atomic weapons had forever changed airpower and reinvigorated debate surrounding the decisiveness of airpower and its best use. While this debate endures, the counter-insurgency focused operations in Afghanistan coupled with a continued misunderstanding of airpower's limits and an overstatement of its capability appears to conflate the means and ends associated with airpower theory along strategic and tactical lines.[4] Thus, revisiting Carl Builder's *Icarus Syndrome* has never been more appropriate.

The primary audience for the following discourse is the airman in uniform. It is imperative to inform and prepare airmen to discuss the profession of arms, their contributions to waging war in the third dimension, and their individual roles in the larger organization. How the USAF approaches airpower theory informs decisions on how best to organize, train, equip, and provide strategic communication. Within the USAF, airpower theory provides the foundation and helps shape the organizational identity and culture of airmen. This affects how airmen individually view themselves, but also how they view their role in a focused subculture of a specific career.

In the current environment of government and military budget tightening, understanding the audience and context is imperative. Although the intent is that any reader could pick up this manuscript, follow the discourse, and leave better informed, the direct applicability is to the airman in uniform regardless of experience level or career specialty. Writing about organizational cultures is extremely difficult and

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[4] Chris M. Wachter, "Balancing Act: Synergy of Combat Airpower Functions" (School of Advanced Air And Space Studies, Air University, 2011), 3.

readers will find that the following chapters approach this topic in different ways, for there is no single, approved approach to unpack such topics. However, the whole is indeed greater than the sum of the parts and the following discussion attempts to provide some anchors allowing the reader to 'see' disconnects across the USAF. As the USAF enters a period of possible retrenchment, a refocused evaluation on the role of airpower theory and organizational identity is necessary and timely to ensure the USAF focus is appropriate.

This study is important because an understanding of the influence of theory carries with it great explanatory power. Carl Builder argued that the Air Force fought for service independence based on a theory of airpower; it was the belief in, and subscription to, a theory of airpower that fueled the intellectual engine of the newly minted USAF. Despite the existence of a long list of deeply knowledgeable people on specific aspects of airpower, few have a plausible claim to understanding airpower's strategic narrative.[5]

The fundamental purpose of this work is to revisit the impact of airpower theory so that the reader may re-conceptualize and better understand airpower's strategic narrative. After more than twenty years of combat and police action in Iraq, and more than ten years of continuous combat in Afghanistan, the military-government bureaucracy conflates theory, budget, and manning battles for the Air Force member. Addressing theory and our interaction with it, Carl von Clausewitz tells us "theory exists so that one need not start afresh each time sorting out the material and plowing through it, but will find it ready to hand and in good order. It is meant to educate the mind of the future commander, or more accurately, to guide him in his self-education, not to accompany him to the battlefield; just as a wise teacher guides and stimulates a young man's intellectual development, but is careful not to lead him by

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[5] Colin S. Gray, *Airpower for Strategic Effect* (Maxwell Air Force Base, AL: Air University Press, Air Force Research Institute, 2012), 1.

the hand for the rest of his life."[6] The Airman-scholar needs to translate across paradigms and subculture divides. Further taking from Clausewitz, "[theory] will light his way, ease his progress, train his judgment, and help him avoid pitfalls."[7] Too often, critics make the argument that the Air Force is lost, that the Army should subsume the Air Force back under its control, or that as a service the USAF either does not *get it,* or only cares about the F-22/F-35. This thesis attempts to separate fact from fiction and provide an informed discussion preparing the reader to understand the strengths and weaknesses of his own and opponents' arguments reconciling the connection between the *ENDS* of airpower and the *MEANS*. Airpower, and the theory associated with it, is dynamic and constantly evolving. Outlined in the specific chapters is evidence that guides the reader along a logical path to important conclusions addressing how the USAF deals with airpower theory, and provides simple recommendations.

Airpower theory is a widely researched topic and is the subject of many books, articles, and collections. However, these tend to focus specifically on how the USAF handles and deals with theory and the subsequent effects on organizational culture and identity are few. Perhaps the best known of these works is the inspiration for this thesis, Carl H. Builder's *The Icarus Syndrome: The Role of Airpower Theory in the Evolution and Fate of the U.S. Air Force.* Widely known, Builder's work still incites debate, speaking volumes towards the enduring nature of the concerns he outlined of the USAF's apparent abandonment of airpower theory, and the subsequent effects of why the USAF continues to have both an identity and direction problem.

This project asserts that Carl Builder's argument remains essentially correct: the USAF has lost sight of the ends of *WHAT* airpower

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[6] Carl von Clausewitz et al., *On war* (Princeton, NJ: Princeton University Press, 1984), 141.
[7] Clausewitz et al., *On war*, 141.

provides, has made minimal effort to reconnect, and instead, remains overly focused on the means of *HOW* aircraft deliver airpower. Testing this hypothesis relies primarily on secondary sources and inference. While many sources address this topic, they do so only tangentially or as part of broader reflections on organizational change and culture. Those that do address the topic almost always cite Carl Builder's *Icarus Syndrome.* Therefore, hypothesis testing for this project is accomplished in a similar fashion using a myriad of source data and types, including interviews and surveys. By attempting to connect Builder's argument with current USAF identity and culture, this work offers important considerations for addressing the hypothesis.

This thesis begins with an outline and review of *The Icarus Syndrome.* This is necessary for the reader to be fully familiar with Builder's central argument, support, and conclusions before moving forward to apply those concepts in a current context. Chapter 3 begins by '*Building on Builder*' in a search for answers. The chapter begins with an explanation of theory and the enduring need for vision in the USAF. The chapter transitions to the impact of technology on the USAF and the complexities with balancing operations in a technology dependent domain and addresses the role of doctrine, and USAF Chief of Staff (CSAF) published mission and vision statements.

Addressing current Air Force organizational identity and culture, Chapter 4 searches for disconnects from theory in both external and internal aspects. Specifically, external aspects represent items such as formal structures and policies; whereas norms and practices best categorize internal aspects of culture and identity. Together, external and internal aspects of culture and identity deal with the artifacts of the organization in such a way that they indeed affect organizational health and functionality. Finally, Chapter 4 applies quantitative survey data from 2010 collected from the professional military education (PME)

institutions at Air University (AU) at Maxwell AFB in order to partially measure current internal trends and perspective.

Concluding the thesis, Chapter 5 provides an analysis and synthesis of the material presented. Following the brief summary, Chapter 5 provides considerations for Air Force leadership regarding the role of airpower theory and organizational culture and identity in the increasingly complex national security environment. Finally, Chapter 5 offers the reader conclusions on the validity of Carl Builder's original argument, what has changed, and what one might expect in the future.

Chapter 2:

The Birth of Icarus

When "everyone knows," it is time to slow down and be careful.

-Carl Builder

In 1990, Carl Builder began fulfilling a project for Air University (AU) at Maxwell AFB, AL on behalf of the RAND Corporation. Specifically, the Air Command and Staff College (ACSC) sought a brief essay reminding incoming students "of the obligations of the profession of arms, their heritage in history, and where those obligations might carry them with the future of the Air Force."[1] Builder's widely read and popular treatise on culture in the different military services, *The Masks of War: American Military Styles in Strategy and Analysis*, focused on why the military services act as they do, inspiring AU to request an Air Force focused study. Once on site at Maxwell, Builder began the project interviewing first a small group of ACSC students, followed by separately interviewing faculty members, and concluding with the ACSC Commandant Brigadier General Philip J. Ford.

Widely disparate outcomes during the interviews concerned Builder as he moved forward with the project. Builder met with the Commandant and expressed his confusion at the widely differing responses; the Commandant quickly put Builder at ease. From the Commandant's perspective, Builder was 'seeing' the problem first hand; the Air Force had become 'stovepiped.'[2] "Specialists tended to look up the pipe of their own profession rather than the chain of operational command. As specialists, they would be evaluated by fellow specialists; and their loyalties followed their profession rather than the operational

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[1] Builder, *The Icarus Syndrome,* xiv.
[2] Builder, *The Icarus Syndrome,* xiv.

mission."[3] Builder took an intellectual step back and reevaluated the scope of the project.[4]

Following Builder's trip to ACSC a hypothesis began to form. Realizing that the pieces were beginning to fall into place, Builder categorized the problem into distinct elements of air power and the profession of arms. In correspondence with the Commandant, Builder used an anatomical analogy referring to air power as the heart, and the profession of arms as the soul. This conceptualization provided a framework for a deeper evaluation of the issues. Builder's initial hypothesis took shape—evidently, the heart and soul had failed each other. "The senior leadership has failed to keep the heart—the mission of air power—alive and vibrant by keeping it at the forefront of all its actions. And without that mission, the members of the Air Force have had nothing to commit themselves to except their own careers or specialties."[5]

General Ford responded immediately and positively. Builder took the feedback, and continued with the project. Creating a presentation for a wider Air University audience, the initial thesis for the essay, now titled *'In Search of The Air Force's Soul,'* emerged. "Many of the Air Force's current institutional problems could be laid at the doorstep of its neglect of air power theory as the basis for its mission or purpose."[6] A draft of Builder's paper was completed, circulated within Air University, but never published.[7]

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[3] Builder, *The Icarus Syndrome*, xvi.
[4] Dr. Grant Hammond, (USAF Center For Strategy and Technology), interview by the author, 22 January 2013. Dr. Hammond was a professional friend of Builder, having lunch meeting with him regularly when he visited Maxwell conducting research. In Dr. Hammond's words, Builder would comment that the "officers either don't understand how or why; or they just don't realize what the service does with strategy and theory."
[5] Builder, *The Icarus Syndrome*, xvii.
[6] Builder, *The Icarus Syndrome*, xviii.
[7] Colonel Ernie Howard (ret) Director LeMay Center for Wargaming, interview by the author, 16 January 2013. Col Howard was on faculty at ACSC, and participated when Carl Builder conducted all interviews and research at AU, also attending all briefings that Carl Builder presented his findings. Col Howard indicated that the monograph

The original paper was, more than anything, a collection of evidence of a problem. "One need not accept the arguments of the paper as *correct* to accept them as *indicators* of some kind of problem worth investigating."[8] Builder began to frame his concerns for the Air Force centered on the apparent abandonment of airpower theory, organizational identity, and cultural challenges. The paper became the foundation for the RAND study, commercially published by Transaction as the book *The Icarus Syndrome: The Role of Air Power Theory in the Evolution and Fate of the U.S. Air Force.*

Clearing Off The Coffee Table

Carl Builder learned early in his career conducting research that when exploring an argument's central tenet, "people of differing views could look at precisely the same evidence, including considerable amounts of scientific evidence, and come reasonably to completely different conclusions."[9] Builder recognized that deeply held views are more valued than objective evidence, and an individual must make his best case with consonant, yet limited, pieces of evidence or argumentation. When asking someone to present his argument and the supporting evidence, he would have them lay out evidence on separate sheets of paper, placing them on top of a coffee table. After he presented the thesis and evidence, Builder would take an opposing perspective, dismissing the evidence piece by piece until the table was clear. Individuals seek cognitive consistency, and align information to conform to their beliefs unless challenged.[10] Builder searched to find the opposing extremes, remaining respectful of the counterview, to "beg some understanding of their coexistence by people who had access to the same

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was discussed internally at ACSC but not published or publicly released outside of AU. However, the paper filtered up through the HQ Air Force chain of command for review, but no records exist for how widely circulated.

[8] Builder, *The Icarus Syndrome*, 4.
[9] Builder, *The Icarus Syndrome*, 9.
[10] Jervis, *Perception and Misperception in International Politics*, 117–120.

information."[11] This process of presenting a dissenting opinion tested the strength of commitment to a hypothesis when more than one answer may contain truth. At AU when he began investigating matters regarding the role of airpower theory, organizational identity, and culture within the Air Force the pertinent question was not which argument was right. The more appropriate question becomes: what are the implications if the opposing view was correct? Through Builder's conversations and interviews around the academic circle at Air University, he cleared the Air Force's coffee table.

   The Icarus Syndrome developed the premises that the problems for the Air Force are serious, unique, and require understanding to correct. The Air Force was established under the simplified dictum "over not through," and is thus accustomed to creative solutions and change. According to Builder, the Air Force has a better institutional culture for debating such issues at all levels than the other military service branches. Traditionally Air Force officers are intensely intellectual about their business, and are comfortable with new, even radical ideas. This analytical culture provides fertile soil for the Air Force to address Builder's concerns.

   The thesis that emerged with *The Icarus Syndrome* was simple and concise:

- Airpower theory was a crucial element in the evolution and success of the Air Force as an independent military institution; but
- The subsequent abandonment of air power theory in the face of competitive means (missiles and space) and ends (deterrence theory) cast the Air Force adrift from precisely those commitments that had propelled it to its institutional apogee in the 1950s.[12]

Builder tested his thesis across three main categories of theory, organizational identity, and culture in the body of work. Builder claimed

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[11] Builder, *The Icarus Syndrome*, 18.
[12] Builder, *The Icarus Syndrome*, xii.

that the Air Force had abandoned air power theory, not that the Air Force had lost its vision. This fact is pivotal to Builder's argument because the validity of airpower theory is how it evolved and how it was used to build and sustain a military institution.

Theory and Air Force Independence

Born out of the idea to find 'another way,' the United States Air Force provides options to policymakers primarily through its ability to compress time. The genesis of theoretical and strategic thinking for the USAF traces its DNA to the World War I experience, which provided the first major thoughts and experience on air power and sustained combat use of aircraft. Giulio Douhet provided insight to the future capabilities of airpower by stating "before forging an air arm we must first know what we intend to do with it and how to use it."[13] Viewed through the lens of a young Airman in the war, "air and then space [power] provided the first plausible opportunity to test the existing barriers to strategic objectives," and target the elements most vital and valuable to the enemy.[14] The carnage of trench warfare only fueled the belief in the efficacy of airpower going over the enemy vice having to go through the enemy. Early prophets had developed and articulated theory colored by not only trench warfare but also the Zeppelin and Gotha bombings against the British. The airplane provided the potential to avoid the stalemate, blood, and attrition of WWI.

The attractiveness of early airpower theory attracted a remarkable diversity of views and interests. Categorized into four groups, each revolved around striking the strategic heart of the enemy with the main idea centered on striking through the third dimension and avoiding the costs of surface warfare. First, there were military professionals such as Douhet who saw the theory as a more effective way to wage war. The

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[13] Giulio Douhet, *The Command of the Air,* Fire Ant Books (Tuscaloosa, AL: University of Alabama Press, 1998), 69.
[14] Carl H. Builder, *Keeping the Strategic Flame,* Joint Forces Quarterly, Winter 1996-97, 78.

second group was military aviators. Air power theory gave both a higher purpose to their love of flight and aircraft. Third, the public wanted to avoid repeating the bloody stalemate of WWI. Finally, fourth were political actors who saw air power theory as a way to buy defense on the cheap.

The WWI experience rooted two major ideas in the minds of leaders tasked with building military aviation. First, the primacy of the offensive inspired air power theory development more than any other proposition, and second, bombing cities would "have a demoralizing effect upon the populations supporting modern warfare" causing loss of support to continue fighting.[15] These concepts would hold the puppet-strings of air power advocates for the next forty years. The offensive approach gave rise to the concept of the self-defended battle plane—known later as simply "the bomber." No concept as effectively encapsulates the inherent idea of the offensive as directly bombing the heart of the enemy. The seductive ability of the bomber to strike directly at the home front also brought terror to the enemy population. In part, the seduction founded itself in the British experience from the Zeppelin and Gotha bombing attacks. Although initial air power theories and their application were limited in scope, they were not limited in vision and aspirations to transform security. The third dimension of air power represented a new domain, "where supremacy brings omnipresence and omnipotence."[16] William "Billy" Mitchell was one of the loudest American voices and advocates selling airpower. A common argument was that the third dimension granted an air force something the ground or navy had never known. Air power theory was more about the ends than the means, and getting directly to the central objective of war. In the words of James Fechet, Chief of the Air Corps from 1927-1931, "the objective of war is to overcome the enemy's will to resist, and the defeat of his army, his fleet

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[15] Builder, *The Icarus Syndrome*, 47.
[16] Builder, *The Icarus Syndrome*, 73.

or the occupation of his territory is merely a means to this end and none of them is the true objective."[17] In the minds of air power advocates, belief in theory and separating the ends and means allowed the logical approach to supersede the traditional when employing force in the third dimension.

Doctrine began to form and the intellectual challenges focused on defining the necessary and most effective means—targets, planes, tactics, and organization. According to Builder, the meeting of ends and means represented theory and technology—the fixed anvil and the moving hammer.[18] Theory provides the fixed anvil—the primacy of the offensive. Stanley Baldwin famously wrote, "the bomber will always get through," noting that even adequate air defenses cannot stop all attacks.[19] Even the Air Corps Tactical School (ACTS) at Maxwell told students, "a well-organized, well planned and well flown air force attack will constitute an offense that cannot be stopped."[20] Thinking about the air was offensive and centered on bombing to affect morale. Technology provided the fast moving hammer—the battle plane.[21] ACTS taught, and officers believed, that air power could be decisive. Other military services challenged the offensive approach as well as the battle plane based primarily on a lack of evidence. As the War Plans Division put it, "so far, well organized nations have surrendered only when occupied by the enemy's army or when such occupation could no longer be opposed. Aviation could assist but could not itself achieve victory."[22] ACTS generally ignored the critics, arguing that air power could attack the internal structures of the enemy

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[17] Robert Frank Futrell, *Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force, 1961-1984.* (Maxwell Air Force Base: Air University Press, 2004), 28.
[18] Builder, *The Icarus Syndrome*, 76–77.
[19] Baldwin said these famous words in a 1932 speech "A Fear For the Future" to the British Parliament.
[20] Builder, *The Icarus Syndrome*, 77.
[21] Guilio Douhet provides a vivid discussion of the battle plane in *The Command of the Air*. Though it is outside the scope of this treatise to explain the nuances of the battle plane, the best example is the B-17 at the outbreak of WW II.
[22] Maurer Maurer, *Aviation in the U.S. Army, 1919-1939* (Honolulu, HI: University Press of the Pacific, 2004), 289.

thereby affecting the enemies will to continue waging war—an effect that would ultimately be a decisive factor ending conflict.

The United States' faith in strategic bombing was excessively optimistic. The high altitude precision daylight bombing espoused by ACTS lacked reliable empirical evidence. "American air power theorists pinned their theoretical and then doctrinal faith on the long-range bomber."[23] This faith in bombing, based largely on a scientific approach to the management of war, depended upon technology. Carl Builder considered this technology-focused approach a moving hammer that struck the anvil of airpower theory. Airpower acolytes understood that precision bombing required improved technology, but also believed that it promised independent victory—air power could do what other branches of the military could not do. These men put more faith in technological progress than in the lessons of combat, focusing on acquiring technology ultimately capable of expressing airpower theory. "The swift pace of technological progress in the 1930s also minimized doubts; if the full potential of precision bombing was not immediately realizable, some imminent development would surely close the gap between dream and reality."[24] ACTS attempted to close the gap and resolve doubts by proposing large investments in the B-17 and the B-29. Even in the face of contrary evidence existing theory dominated, providing direction and energy to airmen striving for autonomy.[25] Their strong belief in airpower theory where airpower would affect the will of the enemy (the anvil), depended on the technological ability of the airplane (the moving hammer).

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[23] Gray, *Airpower for Strategic Effect*, 105.
[24] Michael S Sherry, *The Rise of American Air Power: The Creation of Armageddon* (New Haven, NJ: Yale University Press, 1987), 53.
[25] Builder, *The Icarus Syndrome*, 87–88. The contrary evidence that Builder references is associated with the new and emerging unproven technologies associated with air power. With outspoken opponents, some evidence stems from inter-service rivalry of individual services claim to efficacy in particular missions.

Air power theory now provided the foundation of the argument. The theory was not a fact or set of facts, rather it represented a road towards an end. Undergirding the employment of bombing operations in WWII, airpower theory helped build the air forces of the 1920s and 1930s. Nearing the end of WWII, the Army Air Forces (AAF) were "positioned to realize the military airmen's dream—independence and aircraft of astonishing capabilities in mind-boggling numbers."[26] During WWII and the fight for service independence names such as Mitchell, Andrews, Arnold, Eaker, Spaatz, Doolittle, Kenney, LeMay, Vandenberg, and others had become legendary. "The significance of visionaries lies not in the details but in the stream of thought they set in train."[27] As WWII ground down and air battles raged, General H.H. Arnold Commanding General US Army Air Forces laid out ten principles for [U.S] air force operations at the end of the war:

1. The main job of the Air Force is bombardment
2. Planes must be capable to function under all weather conditions
3. Daylight operations, including daylight bombing, are essential to success, for it is the only way to get precision bombing. We must operate with a precision bombsight—and by daylight—realizing full well that we will have to come to a decisive combat with the enemy air force
4. Must have highly trained and developed crews working together as a team—maintenance and in the air
5. Must carry out strategic precision bombing to key targets deep in enemy territory, such as airplane factories, oil refineries, steel mills, aluminum plants, submarine pens, navy yards, etc.
6. In addition to bombing, we must carry out tactical operations in cooperation with ground troops. For that we must have fighters, dive and light bombers for attacking enemy airfields, communication centers, motor convoys, and troops

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[26] Builder, *The Icarus Syndrome*, 94.
[27] Dr. I.B. Holley Jr., "Reflections on the Search for Airpower Theory," in *The Paths of Heaven: The Evolution of Airpower Theory*, 580.

7. Fighter airplanes must protect all types of bombing operations
8. Our Air Force must be ready for combined operations with ground forces and the Navy
9. We must maintain our research and development programs in order to have the newest equipment as soon as possible
10. Air power is not airplanes alone. Air power is a composite of airplanes, crews, maintenance, bases, supply, and sufficient replacements in both planes and crews to maintain a constant fighting strength, regardless of what losses may be inflicted by the enemy. In addition to that, we must have the backing of a large aircraft industry in the United States to provide all kinds of equipment, and a large training establishment that can furnish the personnel when called upon[28]

Arnold's list showed respect for all who served in the Air Force uniform, not just those who flew. They represent deep and abiding concerns for the importance of all Air Force people and the key role that technology would play in the institution's future. Arnold was indeed visionary, and in 1944, he established a scientific advisory group to look into the technological future.[29]

The overarching concern of the scientific advisory board was to link domestic politics with military response options. In doing so, the goal was to "reverse the mistakes of unpreparedness prior to WWII, particularly the failure to harness civilian science to military needs."[30] Arnold's foresight was brutally honest and concise, as he met with the advisory group leader Theodore von Karman to discuss future focus areas. Von Karman was a brilliant scientist with a background in aeronautics, jet engines, supersonic research, and mathematics who immigrated to the United States from Hungary in the 1930s to work at the California Institute of Technology's Aeronautics Laboratory. Von

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[28] H.H. Arnold and Ira C. Eaker, "The Army Flyer" (New York: Harper & Brothers, 1942), 3-4.
[29] Builder, *The Icarus Syndrome*, 171.
[30] Builder, *The Icarus Syndrome*, 172.

Karman held the civilian science credentials that Arnold sought to advise the new technologically driven Air Force. During the meeting, Arnold told von Karman that he could see a manless Air Force. "I see no excuse for men in fighter planes to shoot down bombers. When you lose a bomber, it is a loss of seven thousand to forty thousand man-hours, but this crazy thing [V-2] they shoot over there takes only a thousand man-hours."[31] Arnold spoke plainly and knew that the internal and external requirements of the new Air Force and the government must align, foretelling a conflict to come over competitive means to the airplane. General Arnold said that the Air Force must do only what fits into the modern picture of war, not that of past wars. If desired actions do not fit, the Air Force should be brutal and throw out those concepts. A new religion was forming, and in need of a place of worship.

Founding the Church

Following the end of WWII in 1947, the U.S. Air Force (USAF) gained independence, in large measure because its leaders advanced grand visions of air power. Newly independent, the visionaries needed to reevaluate force structure and organization in the post war period. Carl 'Tooey' Spaatz, the first Chief of Staff for the USAF, commissioned a board approximately six weeks after Japan surrendered to determine the effects of nuclear weapons on the size and force structure of the new service. Returning to familiar air power theory concepts from WWII, the Spaatz Board moved forward with the evaluation. According to Builder's analysis, "given the importance of the atomic bomb to the Air Force—to the claims of air power theory, to air forces as the delivery agents and future trustees of this decisive weapon, to the impetus it gave for an independent air force—the airmen found themselves remarkably ignorant about the bomb."[32] Despite the apparently decisive nature of the new

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[31] Sherry, *The Rise of American Air Power*, 186–187.
[32] Builder, *The Icarus Syndrome*, 134.

nuclear weapon, the Spaatz Board report based much of its findings on the experiences from the battles over Europe, not Japan.

Two major themes developed as the Spaatz Board deliberated before publishing its findings. First, that the limited production capacity for nuclear weapons equaled a continued reliance on conventional bombers and ordnance. Logically the Air Force had a large fleet of bombers from WWII, and only limited numbers were even capable of carrying the nuclear devices. Second, the board concluded that the B-29 would be the backbone of any future strategic air offensive, either nuclear or conventional. According to the board, the best solution "was to select targets that were easily identified, visually or on radar, and most vulnerable to blast, thermal, and radiation effects of the air-burst atomic bomb."[33] This meant large urban areas, not military point type targets. The conclusion was that nuclear weapons did not change the strategic air war; rather they merely added a weapon to the arsenal. The board ultimately felt a conventional bombing solution would be the principal weapon of strategic warfare for years to come.[34]

The Spaatz board, given its background, laid out seven succinct conclusions, with visions of a soon to be Cold War:

1. The atomic bomb does not at this time warrant a material change in our present conception of the employment, size, organization, and composition of the postwar Air Force
2. The atomic bomb has not altered our basic concept of the strategic air offensive but has given us an additional weapon
3. Forces using non-atomic bombs will be required for use against targets which cannot be effectively or economically attacked with the atomic bomb
4. An adequate system of outlying strategic bases must be established and maintained
5. A system of national defense to provide for maximum adaptability to new weapons must be established, and maintained at maximum effectiveness and be capable of immediate expansion

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[33] Builder, *The Icarus Syndrome*, 137.
[34] Builder, *The Icarus Syndrome*, 137.

6. An intelligence organization that will know at all times the strategic vulnerability, capabilities, and probable intentions of any potential enemy is essential
7. A large scale scientific research and development program with the development of new weapons is mandatory to insure our national security[35]

The implications of nuclear weapons on the size of the Air Force were dramatic. "The coming of the atomic bomb overshadowed in importance every previous military invention of recorded history, including gunpowder, because its effects were not only tactical but basically strategic."[36] In response to the report Ira Eaker, Chief of Air Staff in WWII, cautioned the Air Staff that it would be better to designate the entire long range bombing force as atomic vice a separate force or wing.[37] The logic was that if one wing (USAF base structure and assigned aircraft is typically referred to as a 'wing') could do the job that would be the size of the strategic force. The size of the bomber force needed to be moved to the top of the list of Air Force concerns.

The newly independent USAF seemed to meet both external and internal demands. The geopolitical situation demanded a deterrence-based posture, and the USAF delivered. The public widely accepted "deterrence through air power as the basis for national security in the Cold War."[38] Air power theory now translated into adequate forces in being and while both the Strategic Air Command (SAC) and Tactical Air Command (TAC) focused on nuclear operations, SAC garnered the spotlight of attention. Air power theory seemingly had been accepted and validated with the nuclear bomb, enhancing the totality of war. The need and concept for an alert force emerged within four months of dropping nuclear weapons on Japan.[39] Air power theory began a transformation

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[35] Builder, *The Icarus Syndrome*, 137.
[36] Bernard Brodie, *Strategy in the Missile Age* (Santa Monica, CA: RAND Corporation, 2007), V.
[37] Builder, *The Icarus Syndrome*, 138.
[38] Builder, *The Icarus Syndrome*, 145.
[39] Builder, *The Icarus Syndrome*, 138.

into deterrence theory; the anvil (affecting the will of the enemy to wage war) was now fully realized by the moving hammer (the nuclear armed bomber).

Air power theory had reached its apogee with nuclear-armed SAC bombers—the institutional ends. As a result, the focus of SAC and the USAF became operations and efficiency. "If theory were needed, it would be supplied by deterrence."[40] The focus shifted to ever more efficient delivery methods matching nuclear weapons to enemy targets. Air Force leadership also shifted to fliers and operators who had combat experience in WWII, replacing the theorists and visionaries who previously filled those positions. With bombers as the only platform capable of delivering nuclear weapons, bomber pilots quickly moved up the chain of command. In part, bomber pilot opportunities were a result of theories utilizing the bomber as the ultimate weapon for airpower, delivering the decisive nuclear weapon. The USAF rebuilt itself for the Cold War around SAC and its bombers, and the emphasis on deterrence brought with it logistical and force structure change.

General Hoyt Vandenberg, now CSAF, recognized the emerging logistical challenges and understood that to succeed the USAF must exploit the technological skill of the US. "We cannot hope to match enemy nations in manpower but we can, as in the last war, produce more and better airplanes than any other country. And we have young men with the mechanical facility for flying all the airplanes we build. Training can quickly give them efficiency."[41] Substituting equipment for people, maximizing the use of the nation's manufacturing and production base, and leveraging logistical efficiency proved the favored solution. Air power theory had little to say about limited wars. The offensive essence of air power theory meant that the constraints of engaging in a nuclear war limited air power's use to unlimited nuclear

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[40] Builder, *The Icarus Syndrome*, 145.
[41] "Vandenberg Speaking: Our Air Might", *Newsweek*, February 19, 1951, 22-24.

war. "Air power would keep the peace, but not win the wars anyone cared to fight. Air power theory, as a theory for winning wars quickly and cheaply, was being abandoned for a fleet of nuclear bombers (a nuclear force structure). The soul of the new Air Force had been bought for airplanes."[42] The national strategy for defense of the US lay in the hands of the USAF and the fleet of strategic bombers. As a result, the budget spigots were open and the USAF was at the top of the budget list.

The USAF began to wander away from a *guiding* theory of air power to a devotion to the *symbols* or means of air power—the airplanes themselves.[43] This move conveniently aligned national security wants and USAF focus, the bomber, at the top of the agenda. The B-52 would soon enter service and become the backbone of the strategic bombing force. Largely ignored by the Air Force, the Army and Navy began rocket experiments based on seized German V1 and V2 missile designs, with the Navy going so far as at to fire one from the deck of an aircraft carrier. Some saw the missiles as a more effective means than airplanes to achieve the ends of air power; however, the Air Force remained focused on building a large fleet of bombers. The intercontinental ballistic missile (ICBM) was gaining momentum representing the future. The bomber, however, represented the guiding military doctrine and the importance of strategic air power. In response to external pressure to pursue ICBM systems, SAC actively fought for the development of the B-70. Conceptualized as the successor to the B-52, the Mach 3 B-70 had "the savior" as an unofficial nickname.[44] The B-70 represented the institutional dogma of the Air Force church by bombing higher and faster than ever before. General White, the fourth CSAF, presented his case to President Eisenhower for the B-70 program:

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[42] Builder, *The Icarus Syndrome*, 148.
[43] Builder, *The Icarus Syndrome*, 151-152. Emphasis in original text.
[44] Nick Kotz, *Wild Blue Yonder: Money, Politics, and the B-1 Bomber* (Princeton, N.J.: Princeton University Press, 1989), 32.

Like an attorney making his final emotional plea for a client facing the gallows, White asked the President for the B-70, based not on its military value but on its importance to the institution to which he had devoted his life. "There is a question," he implored, "of what is to be the future of the Air Force and of flying. This shift [to missiles] has a great impingement on morale. There is no follow-on aircraft to the fighter and no new opportunity for Air Force personnel."[45]

According to Carl Builder, the golden age of airpower had begun its slow decline by divesting the visionary future thinking of airpower theory as a driver for technology.[46] The USAF had allowed technology to become theory. The anvil had become secondary to the moving hammer. The impact affected both organizational identity and culture as the USAF wandered in search of a clear definition of purpose, save the beloved heart of the USAF—the bright shiny new airplane.

Organizational Identity

To operate in the air requires a level of technological dependence. "The Air Force has long worshiped at the altar of technology—the benefactor of winged flight for man."[47] In a non-pejorative sense, this should come as no surprise and the argument is somewhat tautological. If the USAF fosters technology then that fountain of technology ensures an open-ended future for flight that in turn ensures the future of the USAF. This process requires a near continuous expansion of flight related technologies. Since the Wright brothers took flight at Kitty Hawk, aircraft design has continuously improved in both complexity and cost, and likewise drastically lengthened the acquisition process and the service life. This extension of aircraft lifespans suggests that technological obsolescence in aircraft design is slowing. However, the manner in which the USAF pursues technology comes with a price of a

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[45] Kotz, *Wild Blue Yonder*, 35.
[46] Builder, *The Icarus Syndrome*, 151.
[47] Builder, *The Icarus Syndrome*, 155.

more challenging search for reasons to replace aircraft. "Technology shows no reverence for institutional doctrine or structure. In fostering technology, even for its cherished instruments, the Air Force is necessarily instigating new concepts and capabilities that challenge the form and preferences of its institution."[48] A problem the USAF has faced is rigid doctrine that proved inflexible to the advances of technology.

A love-hate dynamic best characterizes the relationship between the USAF and technology; at times the service finds itself feeling threatened that technology will replace the airplane. In the Cold War, that threat came from missiles and space systems.

> The bomber was the central focus of identification within the Air Force. To conceive of a new weapon that might someday perform its primary task much more efficiently would require a great restructuring of beliefs...The normal reaction is to reject the disturbing new element. The Air Force's behavior in the early days of the ICBM followed this pattern...Since the Air Force officers not only understood bombers and knew they worked but often equated their own personal usefulness and well-being with that weapon it is not surprising that long range supersonic missiles were placed even further into the future.[49]

The prejudice against missiles and space was palpable and did not originate solely with pilots and operators, but also from the institutional USAF. General Thomas D. White, CSAF from 1957-1961 said, "to say that there is not a deeply ingrained prejudice in favor of aircraft among flyers would be a stupid statement."[50] According to Builder, this encounter was tantamount to the abandonment of air power theory as an institution. In Builder's words, the USAF essentially turned a blind eye towards the new technology because the pilots and operators now running the USAF dismissed missile technology.

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[48] Builder, *The Icarus Syndrome*, 156.
[49] Edmund Beard, *Developing the ICBM: A Study in Bureaucratic Politics* (New York: Columbia University Press, 1976), 229–230.
[50] Builder, *The Icarus Syndrome*, 169.

Early visionaries within the Air Force such as Arnold and Spaatz had foreseen the need to embrace alternatives to manned flight with an astonishingly clear perception of the world—as did Douhet who quipped, "victory smiles upon those who anticipate changes in the character of war, not upon those who wait to adapt themselves after the changes occur."[51] The Soviet success launching ballistic missiles and the Sputnik satellite in 1957 forced a dramatic change in USAF thinking. The efficacy of missiles and space systems were no longer deniable. Once fringe elements of the service, a new breath of life came over these families of systems, albeit reluctantly from within the USAF.

The external requirement [that Hap Arnold foresaw at the end of WWII] ultimately pushed the Air Force into the ballistic missile business. Although reluctant to focus and spend precious budget dollars on something other than manned aircraft, the Air Force's hand was forced.

> The unique Air Force institutional problem with ballistic missiles was its threat to the manned bomber—not the fighter or transport—since it offered an alternative to the one means of air power theory cherished by the airmen. The ballistic missiles did not threaten the theory itself or its ends. Indeed ballistic missiles would become the supreme means for underwriting air power theory as it applied to the Soviet Union during the Cold War.[52]

The Air Force was now playing a game of catch up, as they had lost time in neglecting the emerging technology, just as the Air Force began to fractionate when the devotion shifted from the unifying *ends* or mission of air power to its separate *means*. The shift also reluctantly forced the Air Force to accept careers outside of flying [bombers]. "In their devotion to means rather than ends, and their devotion to the symbols rather than the theory of air power, the aviators allowed all to pursue their interests and specialties, provided that airplanes and aviators came first

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[51] Douhet, *The Command of the Air*, 30.
[52] Builder, *The Icarus Syndrome*, 176.

in priorities and promotions."[53] This meant that the long suppressed tactical airpower and fighter pilots (TAC) could begin to rise up and challenge the status quo, replacing senior leaders in the highest Air Force ranks. Fighter pilots were now charged with developing theory, where they had in the past been far removed, and left much of the *new* theory that TAC espoused to originate in the Army's AirLand battle concept. "Air power theory had now devolved into deterrence theory, AirLand battle doctrine, and the dictum of air supremacy. The first had to be shared with the civilian strategists and the Navy, the second yielded the initiative to the Army, and the third was of interest only to the aviators."[54] This encapsulates Builder's 'slow fall from grace' of the Air Force by placing too much belief in false idols. The love affair with the airplane and manned flight had caught up with the Air Force.

Organizational Culture

With the commitment to the mission via air power theory now erased, Airmen reverted to their original love—procuring bright shiny aircraft and flying them. According to Builder this "narcissistic indulgence enjoyed little constituency in the public which would have to support an increasingly expensive hobby."[55] With the booming aviation industry in the civilian sector, Airmen could carry over much of their skills as part of a career or profession outside of the military. This skill crossover gave rise to a sense of *occupationalism,* which was unique to the Air Force. As a result, over time the cultural separation between the services widened. "Other men in combat performed tasks—bayoneting an enemy soldier, operating a machine gun—which had little or no counterpart in civilian life, whose only utility lay in war itself. They were simply warriors. To a considerable degree, airmen were technicians and

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[53] Builder, *The Icarus Syndrome*, 179.
[54] Builder, *The Icarus Syndrome*, 180.
[55] Builder, *The Icarus Syndrome*, 180.

professionals who happened to be waging war."[56] The bond between Airmen became more about the profession of flying than the profession of arms and focused on the means over the ends. The direct consequence of occupationalism was an insatiable appetite for "follow on" aircraft and vehicles. "The military claimed it would take an endless succession of new weapons to stay ahead of the Soviets."[57] General Twining, CSAF from 1953-1957 and Chairman of the Joint Chiefs of Staff (CJCS) from 1957-1960, in testimony to congress had dire predictions for the future of Air Force bombers. He baldy claimed in 1960 that if the B-70 were not produced by 1967 to replace the B-52, there would be no bombers left in airworthy condition.[58]

Theorists with explicit ends curbed the insatiable appetite for the means. When President Kennedy took office in 1961, he brought the 'whiz kids' to Washington. Largely comprised of civilian academics and campaign advisors from the RAND Corporation, they created focused analysis on the sources of tension between the US and the Soviet Union.[59] The whiz kids filled cabinet positions within the government, notably the Office of Secretary of Defense. With Secretary McNamara's hawkish approach and background as a data analyst for the Air Force in WWII, he was a perfect fit with the intellectuals Kennedy brought in. Both believed that numbers and analysis could save the world.[60] Air Force officers could not match the whiz kids and their analytic techniques.

Air Force leaders rejected the notion that statistical analysis or a computer-generated truth were better than the experience of those who

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[56] Builder, *The Icarus Syndrome*, 181.
[57] Kotz, *Wild Blue Yonder*, 33.
[58] Kotz, *Wild Blue Yonder*, 33.
[59] Alex Abella, *Soldiers of Reason: The Rand Corporation and the Rise of the American Empire* (Orlando: Harcourt, Inc, 2008), 133. For an interesting discussion, see Chapter 9 'Whiz Kids Rule'.
[60] Abella, *Soldiers of Reason*, 134.

actually fought.[61] Many of these leaders, including the iconic Curtis LeMay, saw the civilians as amateurs out of their league. In the eyes of the military, the whiz kids held no credibility. They could not possibly know better what the military needed or wanted than those who served in uniform. According to Builder, much of the frustration stemmed from the Air Force arguing their case through the love of traditional means— the airplane—not in the terms of a theory. The focus was on the hammer not on the anvil. The problem was that if the USAF focused on the anvil (affecting the enemy's will to wage war) then the conclusion to that premise would be hammers that did not require bombers or even airplanes in general. Therefore, the USAF centered its argument on the hammer—shiny new airplanes. "The ownership of theory had shifted to the whiz kids who called it deterrence theory, not air power or even aerospace power theory."[62] The Air Force had no counter to the civilian approach.

The resulting battles within the bureaucracy of the Pentagon and Congress were about means not ends. Specifically, how could the Air Force could get the next manned bomber and keep missiles from taking over? Again, the debates focused on a replacement for the 'aging' B-52. The Air Force again lobbied aggressively for the B-70 with its Mach 3 high altitude flight profiles, which enabled it to penetrate Soviet airspace and destroy mobile ICBMs. The Air Force continued its mission to convince the nation that it could not solely rely on missiles for two main reasons. First, was that no ICBM had been fired in combat and a missile could not offer the same degree of reliability or the experience and refinement of a bomber and crew. Further, once launched a missile had no recall option; it would hit [the target] provided the enemy did nothing to prevent detonation or impact.

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[61] Sherry, *The Rise of American Air Power*, 215.
[62] Builder, *The Icarus Syndrome*, 183.

The second reason the Air Force fought against missiles was the belief that missiles only provided minimal options. The argument was that a bomber could be airborne on fifteen-minute alert and strike any number of targets. The bomber could strike anywhere, and the Air Force argued for a preponderance of forces comprised of bombers and pushed for a new bomber. This complicated enemy defensive planning, leaving a higher likelihood of bomber mission success. Missile targets on the other hand were fixed at launch and predictable. Reluctantly, the USAF accepted missiles and created a mixed force, doing so only because the Soviet's ability to defeat an incoming missile proved next to impossible— not because the Air Force *wanted* ICBMs. Eventually the Air Force succeeded and got another bomber in the form of the B-1. However, the B-1 had its requirements drafted by Air Force pilots who approached the task more from the perspective of how they wanted the airplane to fly and look, than the best way to accomplish the bombing mission.[63] The B-1 was technically satisfactory, but was clearly a political disappointment for both the Air Force and the American public. Although the Air Force had succeeded in getting a new bomber, no new theory came with it that explained how it might bring about victory in war.[64]

Air Force leaders up to approximately 1970 had risen from a bomber background and combat experience in WWII. This modern Air Force "had little call for crusty, undiplomatic leaders like Curtis LeMay."[65] TAC always sought to escape SAC domination, and the war in Vietnam provided TAC the opportunity to reach escape velocity because strategic bombing doctrine did not apply to the realities of a limited war in the third world.[66] "The crisis came in 1965 when the United States entered the Vietnam War and the bombing of North Vietnam began.

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63 Kotz, *Wild Blue Yonder*, 92.
64 Builder, *The Icarus Syndrome*, 186.
65 Kotz, *Wild Blue Yonder*, 184.
66 Builder, *The Icarus Syndrome*, 187.

American airpower doctrine was found to be bankrupt in Vietnam because its underlying assumptions were untrue in that situation…the results were frustration, ineffective bombing, wasted blood and treasure, and eventually the renaming of Saigon to Ho Chi Minh City."[67] The Air Force never wanted to use its bombers to support ground troops in what it felt was a demeaning and supporting role. The World Wars "shaped the perspectives of an entire generation, not just Air Force officers. Fresh from the cataclysmic experiences of two world wars and thrust upon the scene as a protector of the free world, the United States sought a way to win or deter the next great war at the least cost."[68] However, drastic leadership change in the Air Force was on the horizon. Col Mike Worden coined this transition the *Rise of the Fighter Generals*.[69] Specifically four points make the case for the leadership transition:

1. The stature of the bomber pilots and SAC as the owners and core of the Air Force would decline
2. The fighter pilots would now take over the institutional leadership
3. The most prized capabilities of senior officers would shift from institution building to program management, particularly for the aircraft acquisition programs
4. The devotion of airmen would turn from their missions of institutional independence and the demonstration of air power to their own careers and aircraft[70]

According to Builder, these changes and the drive behind them were not new. Rather they represented existing struggles from the 1930s for fighter pilots to take a greater role in leadership. What had changed was these interests and incentives were *now no longer subordinated to a higher purpose*—the ends of air power theory.[71]

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[67] Colonel Dennis M. Drew and Dr. Donald M. Snow, *Making Strategy: An Introduction to National Security Processes and Problems* (Maxwell AFB: Air University Press, 2010), 167.
[68] Michael R. Worden, Col, USAF, *Rise of the Fighter Generals: The Problems of Air Force Leadership 1945-1982* (Maxwell Air Force Base, AL: Air University Press, 1998).
[69] Michael R. Worden, Col, USAF, *Rise of the Fighter Generals*, 236.
[70] Builder, *The Icarus Syndrome*, 188.
[71] Builder, *The Icarus Syndrome*, 188. Emphasis in original.

The Icarus Incident

Visionaries established the Air Force as an independent military service forwarding a sense of identity and shared purpose within the blossoming service. "Toward the end of their long and uncertain struggle for independence, independence became almost an end in itself."[72] Builder, however, hypothesized that even as the Air Force found independence two trends combined to make the path forward difficult— alternative means to the airplane, and operators replacing the visionaries as leaders. Builder's claim focuses on the concept that those pilots and operators entering the Air Force were attached to air power theory more for its means—the airplane—than for its ends. Over time as deterrence theory took hold and eclipsed air power theory as the guiding compass, the airplane still appeared to offer the most 'bang for the buck' viewed through the Air Force's internal and arguably biased lens.

Air power theory had transformed, making the *means* the institutional affection for airplanes, and the *ends* total destruction. Accepted only as additional objects for Airmen other than pilots, in reaction to Soviet developments, missile and space systems certainly did not project power. "Under the many challenges of their rapidly changing environment, Air Force leadership may have become more focused on the preservation of flying and fliers than on the mission of the institution."[73] By slowly becoming preoccupied with threats to the means, senior leaders lost sight of the ends of the Air Force they led.

Builder's central claim is that two major events caused the Air Force to neglect, if not abandon, air power theory in the 1950s and early 1960s:

1. Alternatives to the airplane suddenly became competitive for the *ends* of air power (i.e., striking decisively at the heart of the enemy through the third dimension)

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[72] Builder, *The Icarus Syndrome*, 198.
[73] Builder, *The Icarus Syndrome*, 200.

2. New national security theories—deterrence and assured destruction—emerged to dominate the design of strategic nuclear forces aimed at the heart of the enemy[74]

Air power theory subordinated itself to deterrence. "The retention of airplanes and the dominance of pilots became the institutional imperatives and, thus, the seeds of institutional fractionation were sown." Theory is the center of the debate, and if a theory of air power was the intellectual engine that created the Air Force, the same intellectual engine restarted can recover the stall. Four interrelated concepts surrounded the creation and evolution of air power theory. Succinctly summarized as theory, mission, vision, and strategy, each element is markedly different. Theory is an explanation. Mission is a purpose. Vision is a dream. Strategy is a system to make decisions. Together and separately, air power has been all of these things, and their interaction best explains air power theory's ascent.

> As a theory, air power was an idea and argument about what could and ought to be. As a mission, air power theory was a military trust to be fulfilled. As a vision, air power theory was an attainable dream of institutional independence, providing the unique sense of identity and the shared sense of purpose which have become associated with high-performing organizations. As a strategy, air power theory provided both the means and the end to the nuclear stalemate set up at the beginning of the Cold War.[75]

According to Builder, the neglect of all four elements fragmented the Air Force, and he saw no way to recover without redefining each.

In order to redefine these elements, there must be internal and external congruence. Defined in terms of a principal-agent relationship where the USAF acts as the principal (seller) and US political actors, organizations, and the general population act as the agent (buyer). Both principal and agent must share a degree of commonality in perspective,

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[74] Builder, *The Icarus Syndrome*, 205. Emphasis in original.
[75] Builder, *The Icarus Syndrome*, 209.

for the agent paying the bills and offering public support demand this, over simply accepting the agent-seller's perspective. The mission and vision of the Air Force rests on a foundation of a theory explaining '*how*' airpower works and '*why*' it is important to those supporting it.[76] Airpower must be inclusive, and must not segregate pilots from non-pilots or draw stark lines based on occupational definitions.

> If air power is a spear, then the point of that spear is the strike systems which deliver the "fire and steel" (bombs, missiles, gunfire); and the shaft of the spear is all those support systems (surveillance, communications, navigation, jamming, refueling, logistics, transport, medical, weather, security, etc.). The point of the spear is getting sharper, better aimed, and more deadly every day because of technology; but the shaft is getting longer and more important as well. With every passing year, with every advance in technology, the point of the spear gets smaller, while the shaft of the spear gets bigger.[77]

The key is balance. The support system and infrastructure is what makes the current USAF so lethal. True, precision guided weapons and advanced aircraft pack a punch, but in reality, it is the long logistical trail and the ability to balance between the "teeth" and "tail" that marks the difference between world-class air forces and flying clubs.[78]

Builder asserts that the Air Force essentially had it right in the beginning. Missions that the Air Force executes will largely be what they have been in the past, but their balance may shift; none removed, none added.[79] Builder's final assessment includes proposals circa 1994 for the U.S. Air Force:

> Mission statement: The mission of the Air Force is the military control and exploitation of the aerospace continuum in support of the national interests.[80]

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[76] Builder, *The Icarus Syndrome*, 230.
[77] Builder, *The Icarus Syndrome*, 263.
[78] Builder, *The Icarus Syndrome*, 264.
[79] Builder, *The Icarus Syndrome*, 275.
[80] Builder, *The Icarus Syndrome*, 284.

> Vision statement: The Air Force is America's only military service exclusively devoted to military operations in the aerospace environment and is, therefore, dedicated to providing unsurpassed capabilities for the nation to pursue its interests through the military control and exploitation of the aerospace continuum.[81]

Builder's proposals for mission and vision beg the question: why should anyone care? His response—this is where theory pays off. An early air power theorist would quickly respond with something along the lines of: decisively and quickly strike the heart of the enemy, avoiding a stalemate, and go over in the third dimension vice through.[82] The original visions of air power were underwritten by a theory that justified air power *whether one was a buyer or seller.*

The same unique attributes the air offered at the beginning of flight are present looking towards the future. The third dimension of air offers access, vantage point, and speed in ways other military services cannot. The preferred medium to execute military operations will be the one that affords the most favorable access and vantage point. More evidence rather than less suggests that air power is the instrument of choice for coping with disorder of a changing world. Theories are never perfect or completely unifying; however, they do provide a place from which to deviate. Carl Builder's final candidate for a theory of airpower is:

> In the emerging, less controllable world of global commerce and borderless nations, the military medium of dominance and, hence, of choice to power elites will be the aerospace continuum because of its universal, rapid access and unique vantage point. Hence, the control and exploitation of that medium, more than any other, will offer the widest range of military operations and the highest degree of military power.[83]

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[81] Builder, *The Icarus Syndrome*, 287.
[82] Builder, *The Icarus Syndrome*, 287.
[83] Builder, *The Icarus Syndrome*, 290.

The original air power theory was also not completely correct or enduring, but was not without merit. A redefined theory of air power should inspire people to join and believe in a profession of arms, and if called on, to risk their lives.[84]

Carl Builder was a hawkish observer of the U.S. Air Force, arguing that the service gained independence based on airpower theory, yet lost its way at inception. Indeed, if Builder were writing today, he could easily see evidence of a continuing crisis partly based on the increased use of remotely piloted aircraft (RPA), emerging cyber capabilities and the awkward, even at times unwillingness, that the Air Force demonstrates in integrating competitive means to the airplane.[85] Was Builder's thesis correct that a total devotion to manned aviation shapes the Air Force's culture even at the expense of its larger defense responsibilities? The following chapters attempt to "Build on Builder" in a search for answers.

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[84] Builder, *The Icarus Syndrome*, 291.
[85] Paula G Thornhill, Project Air Force (U.S.), and Rand Corporation, *"Over Not Through": The Search for a Strong, Unified Culture for America's Airmen* (Santa Monica, CA: Rand, 2012), 1.

Chapter 3

Building on Builder

Where are you going?
Which way should I go?
That depends on where you are going.
I don't know.
Then it doesn't matter which way you go.

<div align="right">

-Lewis Carroll
Alice in Wonderland

</div>

This is your last chance. After this, there is no turning back. You take the blue pill—the story ends, you wake up in your bed and believe whatever you want to believe. You take the red pill—you stay in Wonderland and I show you how deep the rabbit-hole goes. Remember that all I am offering is the truth. Nothing more.

<div align="right">

-Larry and Andy Wachowski
The Matrix

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Carl Builder argued that the USAF turned its back on airpower theory when it gained independence and instead became myopically focused on the operational and technological requirements of nuclear deterrence. Builder further suggested this loss of vision was the root cause for the stovepipes of careerism that followed. This chapter presents evidence of how the USAF has dealt with airpower theory since Builder's *Icarus Syndrome*'s publication in 1994. The intent is not to propose a new theory of airpower; the USAF has all the theory it needs. However, the following discourse demands a degree of rhetorical inflection, and attempts to make connections to evaluate the USAFs interaction with theory. As humans seek, cognitive consistency to align personal beliefs with such topics the challenge is to ask yourself not is the argument right or wrong; rather, what are the implications if it is?

General Merrill A. McPeak wrote the foreword to Builder's *The Icarus Syndrome,* and provides tacit acknowledgement that Builder uncovered a skeleton in the USAF's closet. Sanctioned and funded by Air University (AU), the project is unique because it garnered enough

attention for the sitting CSAF to write the foreword. More telling was the language McPeak used in his concluding remarks:

> *I do not agree with all that Mr. Builder has to say in these pages. But I do believe that he has raised the right questions. Has the Air Force abandoned air power theory over the years? Have the fundamentals of air and space power changed in a world of new technologies and new challenges? Does the Air Force, as an institution grasp these fundamentals? So I commend The Icarus Syndrome to you. These issues are important.*[1]

It is rare that a CASF candidly and directly address the critiques of the institution they lead. McPeak knew the issues were indeed important. This section will focus on the most accessible information that addresses these questions, and then transitions forward to the impact on the organizational identity and culture in the subsequent sections. However, the discussion must begin with airpower theory.

Theory Explained

Stated at its broadest, theory provides explanation. According to Colin Gray the meaning of airpower "yesterday, today, and tomorrow is neither mysterious nor is it, at least nor should it be, particularly controversial."[2] A general theory can encapsulate the whole subject of airpower, despite differing judgments on specific issues. This concept is as important as the issues raised by McPeak. In the foreword to Colin Gray's 2012 *Airpower For Strategic Effect*, Benjamin Lambeth begins by stating the book's purpose is to help Airmen serving worldwide think more reflectively about their calling and, in turn, to articulate its foundational principles more effectively.[3] It appears that the USAF remains in a struggle to communicate issues similar to those raised in *The Icarus Syndrome* in 1994.

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[1] Builder, *The Icarus Syndrome*, xii.
[2] Gray, *Airpower for Strategic Effect*, 267.
[3] Gray, *Airpower for Strategic Effect*, xi.

Airpower theory explains why with boldness. However, theory does this in general terms, and broad strokes. Airpower theory helps those looking at the future explain why the Air Force organizes, trains, equips, and operates the way that it does. In fact, many Airmen have difficulty with theory, because they focus on the "*doing*" part, vice understanding the explanatory "*why.*" Yet, it is necessary to insist that understanding airpower is required for it to be useful and not as an end in itself making it irrelevant. To better understand what theory accomplishes one need look no further than Dr. Harold Winton's, Professor at the USAF's School of Advanced Air and Space Studies, five basic functions of theory:

1. Define the field of study
2. Categorize the constituent parts
3. Explain how the parts relate to one another
4. Connect the field of study to other human endeavors
5. Anticipate how changes in the future will affect the field of study[4]

Conceptually, for airpower theory to meet these criteria and cover all the relevant phenomena in broad enough terms yet remain sufficiently specific to avoid banality, it must address *why* and not *how.*

Eyes on the Horizon—A Need for Vision

Historically, airpower theory in the USAF is the result of visionary thinkers making connections to define, categorize, explain, and anticipate. In many ways, it is a service focused on providing an idea— that independent airpower can be a decisive war-winning instrument in and of itself.[5] Further, "the whole historical saga of airpower has been peopled by scientists and engineers who have striven to solve technical problems so that the flying machines could perform as political, military, and commercial clients required or desired."[6] Offering an oversimplified

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[4] Harold R. Winton, "An Imperfect Jewel: Military Theory and the Military Profession," *Journal of Strategic Studies* 34, no. 6 (December 19, 2011): 37–41.

[5] David E. Johnson, *Learning Large Lessons: The Evolving Roles of Ground Power and Air Power in the Post-Cold War Era* (Santa Monica, CA: RAND Corporation, 2006), 179.

[6] Colin S. Gray, "Understanding Airpower: Bonfire of the Fallacies," *Strategic Studies Quarterly* (Winter 2008): 54.

review of early US airpower theory to provide context for further discussion, Carl Builder laid out the foundations of airpower theory by tracing the lineage of the early writings of the Air Corps Tactical School (ACTS). Billy Mitchell and Giulio Douhet provided the majority of the intellectual engine for early theory development at ACTS. Mitchell espoused the ability to do something through the air and Douhet argued for independent action. Both men and other early air-minded thinkers focused on the intellectual dimension and beliefs in the potential of airpower. Mitchell and Douhet, however, were more visionaries than they were theorists, espousing ideas that could not survive authentication.[7] However, the manners in which the military and scholars conceptualize the ways to exploit the air dynamically change as technology evolves. Both failed to realize the situation called for subtle tactics and a better understanding and anticipation of airpower achieving ends. Supposition was confused with fact, leaving unexplored and unanswered assumptions floating in midair. The institutional arrangements ACTS established to develop leaders ultimately failed to consider Winton's five attributes of theory. The faculty consisted mostly of pilots proselytizing doctrinal statements that were more illusions and visions unprepared for authentication than based in theory.[8]

Douhet, however, provided more insight into the future capabilities of airpower than simply bombardment, stating that "before forging an air arm we must first know what we intend to do with it and how to use it."[9] Viewed through the lens of an airman, "air and then space [power] provided the first plausible opportunity to test the existing barriers to strategic objectives," and target the elements most vital and valuable to

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[7] Phillip S Meilinger and School of Advanced Airpower Studies, *The Paths of Heaven: The Evolution of Air Power Theory.* (Maxwell Air Force Base, AL: Air University Press, 1997), 580–582.
[8] Meilinger and School of Advanced Airpower Studies, *The paths of heaven*, 587-588.
[9] Douhet, *The Command of the Air*, 69.

the enemy.[10] Mitchell captures this succinctly in *Winged Defense*, "as the air covers the whole world, aircraft are able to go anywhere on the planet. They are not dependent on the water as a means of sustentation, nor on the land, to keep them up … consider what this means to the future systems of national defense."[11] The independent Air Force became an expression both of the geostrategic reality and the best way to ensure a professionally expert appreciation of the aerial dimension to conflict.[12] A part of this reality was thinking ahead of existing technology.

Vision must provide ideas of the possible, while technology opens the door. Innovation occurs to find another way, and in the case of airpower theory, to avoid stalemate and win the duel that is war. Hap Arnold proved himself an early visionary, establishing a scientific advisory board in 1944 employing a group of reform-minded younger officers to look at future possibilities to maintain security and harness technology for the Air Force.[13] Arnold also asked his chief scientific advisor, Theodore von Karman (director of the Guggenheim Laboratories) to devise a plan that would entice scientists to continue working for the Air Force during peacetime. Karman's report titled *Toward New Horizons* called for the establishment of a new kind of community, a "scientific group that assists in command and staff work; a university without students and the Air Force as the only client." [14] Von Karman was advocating for the yet to be established RAND Corporation, and eventually RAND's Project Air Force. Some notable and visionary recommendations from the board were the adoption of missiles, space

[10] Carl H. Builder, "Keeping the Strategic Flame," *Joint Forces Quarterly* (Winter -97 1996): 79.

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

[12] Gray, "Understanding Airpower: Bonfire of the Fallacies," 67.

[13] Neil Sheehan, *A Fiery Peace in a Cold War: Bernard Schriever and the Ultimate Weapon* (New York: Vintage Books, 2009), 126.

[14] Abella, *Soldiers of Reason*, 11.

exploration/satellites, and development of unmanned aircraft.[15] The vision provided did much to advance the foundation for theory and drive new technology. Although theory and technology are related, they are not synonymous. "From the nineteenth century until today, ideas— strategic and other theory—generally have led technical achievements."[16] The scientific advisory board attempted to continue where the writings of Mitchell and Douhet ended, and meet the five steps to define, categorize, explain, connect, and anticipate the possibilities of airpower. Many senior leaders in the Air Force were well-educated men with advanced academic degrees in the fields of science and engineering. These men were able to directly converse and articulate visions to the scientific advisory boards in common language, transforming visions into theory, and scientific ideas into weapons.

Technology Meets Theory

Carl Builder suggests in *The Masks of War* that the USAF worships at the altar of technology, arguing "if the Air Force is to have a future of expanding horizons, it will come only from understanding, nurturing, and applying technology."[17] Admittedly, there is a hint of tautology in the argument that survival is only achievable through technology—adapt or die. The long-standing relationship between operating in a dimension other than the surface of the earth indeed requires an enduring affair between Air Force leaders, theory, vision, and technology. However, in the infancy and adolescence of the Air Force, the visions of those leading the institution and driving airpower theory were in a hierarchical relationship. Simply, vision was ahead of theory and theory ahead of technology. Early leaders such as Arnold (the 'father' of the Air Force) and Schriever (the 'father' of the ICBM) had technical education

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[15] Dr. Grant T. Hammond (USAF Center for Strategy and Technology, Maxwell AFB, AL), interview by the author, 21 Jan 2013. Also see, Sheehan, *A Fiery Peace in a Cold War.*
[16] Gray, "Understanding Airpower: Bonfire of the Fallacies," 53–54.
[17] Carl H. Builder, *The Masks of War: American Military Styles in Strategy and Analysis* (Baltimore: Johns Hopkins University Press, 1989), 4.

backgrounds that prepared them for the challenges of balancing internal and external pressures to marry vision, theory, and technology.

The theory that did evolve identified the primary objective of the air force as uniquely strategic, carrying the message that airpower matters most. Theoretical teachings ebbed and flowed, eventually returning to strategic bombardment. This trend, according to Builder, persisted through WWII and into the cold war with the logic that airpower could not only be independently decisive, but also deter in times of peace. Nuclear weapons, however, changed the game and acted as a tipping point in airpower theory development. "On the one hand, the atom bomb certainly made it possible to destroy a nation. On the other hand, nations soon learned that the balance of terror—usually presented as the doctrine of mutually assured destruction (MAD)—gave political and military leaders reason to peer over the abyss and draw back. This was deterrence, an aspect of airpower theory not envisioned by the early military theorists."[18] The appeal of total victory through nuclear weapons was seductive.

Made possible via the exploitation of a series of technological breakthroughs, nuclear weapons changed the paradigm of strategic thinking and air power application. According to Thomas Kuhn, paradigms do two things; first, sociologically paradigms define "the entire constellation of beliefs, values, techniques, and so on shared by members of a given community."[19] Second, the paradigm provides an element of the constellation giving "the concrete puzzle solutions which, employed as models or examples, can replace explicit rules as a basis for the solution of the remaining puzzles of normal science."[20] Given this, the USAF placed newfound emphasis in nuclear operations believing them 'ultimately decisive,' based on the outcome of WWII.

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[18] Meilinger, *The Paths of Heaven*, 590.
[19] Thomas S. Kuhn, *The Structure of Scientific Revolutions* (Chicago, IL: University of Chicago Press, 1996), 175.
[20] Kuhn, *The Structure of Scientific Revolutions*, 175.

With traditional airpower theory now superseded by deterrence, there was the thought that some weapons seem to be 'more equal' than others. The substitution of nuclear deterrence for airpower theory led to confusion between strategic effects and the ability to be 'strategic.' When the Air Force walked through the technological door into the nuclear arena, this relationship was forever changed. This belief moved the focus of policy and theory from fight-to-win, into the abstract of total war and an attempt to win without fighting. With the USAF the only service capable of delivering nuclear weapons at the dawn of the Cold War, airpower's lines between strategic, operational, and tactical blurred as the Strategic Air Command (SAC) took center stage.

The Air Force now existed to avoid wars through deterrence; it had previously existed and was equipped to fight battles and win wars. The game became zero-sum, and the only winning move was not to play. The increased nuclear focus dramatically changed political and military thinking, and represented the interaction between political diplomacy, technology, and a strategic air campaign. The Air Force represented an extension of diplomacy through the delivery of nuclear weapons, while thinking at the theoretical level began to atrophy—the focus turned almost exclusively to the Single Integrated Operations Plan (SIOP). Deterrence was "no doubt the riskiest military gambit in world history, but to work, it *all* had to work."[21] With only one opportunity for a first strike, "the air force that is superior in its capability of destruction plays the dominant role and has the power of decision."[22] Deep investment in a nuclear focused organization, equipment, and operations had muted the military voice when they realized deterrence was synonymous with diplomacy. The USAF had largely become a tool of deterrence a la diplomacy, and the power of decision lay in the hands of the President,

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[21] L. Douglas Keeney, *15 Minutes: General Curtis Lemay and the Countdown to Nuclear Annihilation* (New York: St. Martin's Press, 2011), 4.
[22] Keeney, *15 Minutes*, 25.

not the senior Air Force leaders. Political and military leaders began seeking fresh ideas to understand the strategic implications of nuclear weapons.

An influx of civilian advice and thinking began to flow into political and military organizations precipitated by Kennedy's deliberate use of the "nation's intellectual elite to provide gravitas" to his administration. Kennedy leaned heavily on RAND's economics division to fill seats in the Pentagon and elsewhere as he brought the 'whiz kids' to Washington D.C.[23] The USAF outsourced much of its strategic thinking, choosing instead to focus on operational matters such as the SIOP, and the means to deliver the weapon. The divestment of discourse on the ends of war to civilian run strategic "think tank" analysis proved costly both politically and militarily. Internal and external pressures were no longer in balance, the scales of theoretical thinking tipped to the RANDites and whiz kids.[24] With SAC's laser focus on the SIOP, fresh ideas were hard to come by while USAF research and development initiatives focused on long range bombing options, specifically with aircraft. "To many of these RANDites, LeMay and SAC were little short of hidebound Neanderthals, unwilling to adapt to the new times, which demand flexibility, accountability, and thrift."[25] Those inside the Air Force had largely stopped thinking critically about the connections between theory, vision, and technology. This straw man requires more explanation to satisfy critics and leads to a follow on line of logic.

The visionary thinking of men such as Hap Arnold had atrophied, in part because the Air Force did not demand or reward it. Executing exactly what was tasked—deterring war—the Air Force succeeded in its mission, but lost sight of the horizon. Vietnam provided the inflection point and ushered in détente, thereby recasting the forms of the Cold

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[23] Abella, *Soldiers of Reason*, 133.
[24] Both RANDites and Whiz Kids are colloquial terms used by Abella throughout his book describing the interaction with the military services and DOD.
[25] Abella, *Soldiers of Reason*, 139.

War.[26] In response, Air Force leaders reevaluated their relationship with vision, theory, and technology. The US strategic focus began shifting from nuclear operations in Europe and South East Asia to the Middle East. Many military thinkers, particularly in the USAF, vowed never to repeat the missteps of the Vietnam experience with logic grounded in Cold War deterrence. The changing geo-political environment fueled the intellectual engine of the Air Force at the dawn of the post-Cold War period, shifting the emphasis to technologies enabling airpower to contribute simultaneously across the spectrum of domains. This shift enabled new dialogue, and some *old ideas* suddenly seemed *new*, because the USAF had seemingly forgotten them.[27]

This renewed interest in the combination of ideas and weapons now made airpower appear to offer the best options to coerce on the cheap.[28] Airmen began to think bigger, and contribute more political-military solutions, forwarding strategies designed to address political aims directly. Visionary John Warden's strategic air campaign concept provided sharp contrast to Cold War deterrence and emphasis on nuclear delivery. Warden insisted that the USAF focus on strategic paralysis and overall systemic effect, moving away from brute force. Captured by Warden, "good tactics could not compensate for a flawed strategy" and further, that "a grand strategy depends on the integration of political and military dimensions."[29] The USAF was beginning to implement steps towards a closer alignment of internal and external dimensions.

The refocused intellectual discourse and emphasis on vision drove parallel changes in organization, training, equipment, and force

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[26] Keeney, *15 Minutes*, 1.

[27] Stephen P. Randolph, *Powerful and Brutal Weapons: Nixon, Kissinger, and the Easter Offensive* (Cambridge, Mass: Harvard University Press, 2007), 75.

[28] Robert Anthony Pape, *Bombing to Win: Air Power and Coercion in War* (Ithaca, N.Y: Cornell University Press, 1996), 13. Pape explains that military coercion seeks to change the behavior of states that still retain the capacity for organized military resistance, and airpower attempts to achieve political goals on the cheap primarily through bombing.

[29] Olsen, *John Warden and the Renaissance of American Air Power*, 22, 31.

structure. The renewed focus on training coupled with technology set the stage for the rebirth of American airpower. Although technological advancements played a role, "superior training, motivation, *proficient leadership*, tactical cleverness, and *boldness* in execution were no less important."[30] Although not entirely new thinking, Warden's concept was a watershed moment in the Air Force's theoretical development.

Operation Desert Storm provided evidence that the strategic air campaign could indeed align political and military thinking. Advancements in technology, specifically PGMs, allowed the USAF to select and strike targets in such a way that their destruction linked directly to the achievement of the desired political and military objectives.[31] Warden bridged the gap between parochial political and military thinking created by the long-standing deterrent posture. Warden brought together the components of air power into the larger picture by systematically linking *ends* (political objectives), *ways* (strategies to attain those ends), and *means* (identifying specific targets to execute the chosen strategy), which helped guide thinking at the operational level.[32] Warden clearly understood the connection between political and military actions, and concluded that the USAF should make the primary aim of employing airpower to force the enemy towards making the desired policy change. At the end of Operation Desert Storm the Air Force was the *force de jour*, although not shy in spreading that message, and the victory party was short lived.

Regaining Vision

The visionaries who helped create the Air Force as an independent service had it mostly right in the beginning. The Air Force today is largely a product of experience. Thus, we learn from the past and profit from mistakes, ideally not re-learning painful lessons. The following five

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[30] Pape, *Bombing to Win*, 152. Emphasis added.
[31] Benjamin S. Lambeth, *The Transformation of American Air Power* (Ithaca, NY: Cornell University Press, 2000), 7.
[32] Lambeth, *The Transformation of American Air Power*, 79.

lessons learned offer great reflection on this point, addressing the chief lessons with the strategic use of airpower in the last war.

1. The time [the Air Force is] given to make preparations was an essential factor in our final success. It is unthinkable that we should ever again be granted such grace
2. Airpower in this war developed a strategy and tactic of its own, peculiar to the third dimension
3. The first and absolute requirement of strategic airpower in this war was the control of the air in order to carry out sustained operations without prohibitive losses
4. We profited from the mistakes of our enemies. To rely on the probability of similar mistakes by our unknown enemies of the future would be folly. The circumstances of timing, peculiar to the last war, and which worked to our advantage, will not be repeated. This must not be forgotten.
5. Strategic airpower could not have won this war alone, without the surface forces. Airpower, however, was the spark to success. Another war, however distant in the future, would probably be decided by some form of airpower before the major surface forces were able to make contact with the enemy in major battles. That is the supreme military lesson of our period in history[33]

This sound advice and assessment is not from Iraqi Freedom or Enduring Freedom, not even Desert Storm, but from General Spaatz of the Army Air Forces in WWII. The Air Force has either failed to learn these lessons or forgotten them. The benefit of hindsight reveals the troubled and erratic development of the concept of the air weapon primarily as support for ground arms. Examining the present context to evaluate if these lessons have been internalized or learned requires looking at the genesis of current airpower theories.

John Boyd and John Warden are the most recent iterations of American airpower theorists. However, "much of what has been written on [airpower theory] is not, strictly speaking, airpower theory at all but descriptions of varied efforts to implement the then-current conception of

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[33] General Carl "Tooey" Spaatz, *Strategic Airpower: The Fulfillment of a Concept*, Foreign Affairs, April 1946, 394-396. Sincere thanks go to Dr. Grant Hammond at the USAF Center for Strategy and Technology for pointing out this historical assessment.

such theory."[34] What Clausewitz clearly describes as friction and uncertainty in war persists between theories and actual execution. The notable success of both Boyd and Warden was largely the result of cooperation between military services more than original theory, combined with the recognition of interdependence, shared friction, and uncertainty. However, in the aftermath of the failed 1980 Operation Eagle Claw to rescue hostages at the US Embassy in Iran, service interaction and interdependence was soon legally mandated.[35]

The 1986 Goldwater-Nichols Department of Defense Reorganization Act included the mandate for the CJCS to produce a Quadrennial Defense Review (QDR) providing updates to the roles and missions of the individual services.[36] It also provided clearly defined roles and missions that drove service requirements and helped inspire visions effectively meeting priorities and guidance from the National Security Strategy and National Military Strategy. Interestingly, Air Force missions have not changed drastically since what they were in 1947, or the initiation of the QDR process—they have remained relatively static. The significance of the generally static ends tasked to the USAF helps illuminate the difficulty in which the USAF communicates internally and externally the connections between *HOW* and *WHY*. Table 3.1 taken from DODD 5100 defines current USAF missions as:[37]

Table 3.1 Functions of the Air Force

DoDD 5100.01 Functions of the Air Force (21 December 2010).	
1	Conduct nuclear operations in support of strategic deterrence, to include providing and maintaining nuclear surety and capabilities.
2	Conduce offensive and defensive operations, to include appropriate air and missile defense, to gain and maintain air superiority, and air supremacy as required, to enable, the conduct of operations by U.S. and allied land, sea, air,

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[34] Meilinger and School of Advanced Airpower Studies, *The Paths of Heaven*, 597.
[35] Often referred to as Desert One, the name of the rendezvous point inside Iran, where MH-53 and C-130 aircraft crashed into each other during ground operations.
[36] Public Law 99-433—Oct 1 1986, 10 USC 153, "In preparation for each report the Chairman shall consider (among other matters) the following: A) Changes in the nature of the threats faced by the United States, B) Unnecessary duplication of effort among the armed forces, C) Changes in technology that can be applied effectively to warfare.
[37] AFDD1 references DODD 5100, as does the 2010 QDR Roles and Missions Report.

	space, and special operations forces.	
3	Conduct global precision attack, to include strategic attack, interdiction, close air support, and prompt global strike.	
4	Provide timely, global integrated ISR capability and capacity from forward deployed locations and globally distributed centers to support world-wide operations.	
5	Conduct offensive and defensive operations to gain and maintain space superiority to enable the conduct of operations by U.S. and allied land, sea, air, space, and cyberspace forces. Conduct space operations to enhance joint campaigns, in coordination with other military services, Combatant Commands, and USG departments and agencies.	
6	Provide rapid global mobility to employ and sustain organic air and space forces and other Military Service and USSOCOM forces, as directed, to include airlift forces for airborne operations, air logistical support, tanker forces for in-flight refueling, and assets for aeromedical evacuation.	
7	Provide agile combat support to enhance the air and space campaign and the deployment, employment, sustainment, and redeployment of air and space forces and other forces operating within the air and space domains, to include joint air and space bases, and for the Armed Forces other than which is organic to the individual military services and USSOCOM in coordination with the other military services, Combatant Commands, and USG departments and agencies.	
8	Conduct global personnel recovery operations including theater-wide combat and civil search and rescue, in coordination with the other military services, USJFCOM, USSOCOM, and DoD components.	
9	Conduct global integrated command and control for air and space operations.	

The Air Force functions outlined in DoDD 5100.01 are illustrative of the organization, training, and equipping decisions to meet the operational ends. Crossing the bridge t between functions and theory and practice is not far and leads the discussion to doctrine. According to former CSAF Gen Fogleman, "the ultimate goal of our doctrine should be the development of an airman's perspective on joint warfare and national security issues—not just among our generals, but among all airmen in all specialties."[38] The relationship between theory and doctrine thus requires addressing.

Doctrine, Outsourced Thinking, and White Papers

Air Force doctrine is not theory. Doctrine is representative of historical experience and best practices, and it drives institutional

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[38] Gen Ronald R. Fogleman, "Aerospace Doctrine: More Than Just a Theory," *Airpower Journal* 10, no. 2 (Summer 1996): 46.

organization.[39] The heritage of USAF doctrine traces its roots from the ACTS, established in 1931 to "educate air officers in the strategy, tactics, and techniques of air power."[40] Connecting the influence of theory on doctrine is not challenging—theory explains *why* while doctrine explains *how*. Accordingly, AFDD1 states, "Theoretical discussion is critical to a successful military. To date, however, a truly enduring, all-encompassing theory of airpower—one that is not merely a point in time—has yet to be developed ... this document is the Air Force's premier statement of warfighting principles and beliefs."[41] Basic doctrine is a logical place for Airmen to turn when attempting to understand what the service believes and uses to explain *who they are and what they do*. Discussions centered on Airmen's attempts to explain these identity questions with the LeMay Center for Doctrine Development and Education at Air University were revealing.

The doctrine of the USAF is authoritative but not directive, supported by history, debate and analysis, exercises, war games, and contingencies. The LeMay Center does not consider airpower theory an input into doctrine. In fact, airpower theory has deliberately been divorced from the doctrine writing and update process.[42] The LeMay Center's doctrine development training lists two key pillars. The first is the classic principle of war—unity of command; the second is centralized control and decentralized execution. Further, these pillars represent how the Air Force implements 'mission command,' answering for the Airman what their mission is, how and why they should organize in a specific way, and the command and control relationship.[43] Thus what we are

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[39] According to Air Force Policy Directive 10-13, 25 August 2008: "Air Force Doctrine is a statement of officially sanctioned beliefs and war fighting principles, which describe and guide the proper use of Air Force forces in military action."
[40] Air Force Doctrine 101, US Air Force Doctrine Development, 6 February 2013, 18.
[41] Air Force Doctrine Document (AFDD1), *Air Force Basic Doctrine*, 14 October 2011, Foreword.
[42] Maj. Michael A. Freeman (USAF LeMay Center for Doctrine, Maxwell AFB, AL), interview by the author, 6 February 2013.
[43] Air Force Doctrine 101, *US Air Force Doctrine Development*, 6 February 2013, 7-16.

fighting for influences what we believe, and in USAF parlance that is unity of command and centralized control and decentralized execution—an Airman controlling the air power and the assets involved. The LeMay Center insiders assert that USAF Doctrine has been 'coasting' since 1992, because the service is in desperate need of airman-scholars. This reveals the difficulty for even the professional doctrine writers to identify, and make the connections between, theory, doctrine, and practice. The transmitted message is more *how* the Air Force does things than making connections to *why*.

The role of doctrine is important to understand when evaluating how the Air Force handles theory. In reviewing *50 More Questions Every Airman Can Answer*, number 49 is of considerable interest, "why does an Airman need doctrine?" Presented in entirety, with emphasis added, the answer is:

> *Every Airman, from the newest airman basic to the most senior general, needs doctrine to fundamentally understand how he or she contributes to making our Air Force the best in the world. It tells us how to effectively and efficiently apply air and space power to help defend the nation and help it achieve its goals. Understand that your doctrine is the Airman's inheritance, passed down to us from Airmen before us. It is our warfighting legacy.* ***Doctrine tells us who we Airmen are and why our Air Force exists.*** *Doctrine is the distilled warfighting experience and thought of our Service's heroes, leaders, theorists, and scholars. But most importantly, it captures and crystallizes the warfighting lessons learned of everyday Airmen throughout our Service's history. Finally, we need to remember that it is our responsibility today to continually improve Air Force doctrine through experience and debate, so that we can pass down our best practices and our lessons learned to tomorrow's Airmen.* [44]

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[44] Frederick L. Baier, *50 More Questions Every Airman Can Answer* (Maxwell Air Force Base, AL: Air University Press, Air Force Doctrine Center, 2002), 17.

This answer fails to help one cross the bridge between theory and doctrine, where we expect the former to influence and perhaps even inform the latter. The published answer for Airman consumption further suggests that doctrine does *NOT* tell us *WHO* we are and *WHY* we exist. Rather it reinforces what theory does, which has consciously been divorced from USAF doctrine. Carl Builder identified the root cause of the breakdown for the Air Force as the focus on flying and the love of airplanes over understanding the connections and implications in meeting the ends. The "enthusiasm of pilots for flying, although understandable in itself, has led to a persistent downgrading and neglect of many supporting aspects of the air weapon."[45] Alternatively, the persistent neglect of critical thought on *why* the ends are what they are, and by focusing on *doing* and the means led to dissonance and a cluttered coffee table. Attempting to de-clutter the table, the USAF turned to external organizations in hopes that they could help make the connections.

Much of the theoretical and strategic thinking of the USAF continues to be outsourced to think tanks such as RAND and CSBA (Center for Strategy and Budgetary Assessment). This is not because those in uniform do not care, but rather because the Air Force divested this thinking with deterrence and has not actively promoted it since. Men like Arnold, Schriever, and Boyd are exceptions, with the most recent contributions coming from John Warden before Carl Builder wrote *The Icarus Syndrome.* The Air Force does not prepare its leaders to think as futurists beyond the FYDEP (Fiscal Year Defense Plan), because it is a budget battle, not an intellectual battle based on vision and theory. Although the Air Force does indeed have men and women in uniform that are capable, they are not typically in career paths to command and

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[45] Meilinger and School of Advanced Airpower Studies, *The Paths of Heaven*, 598.

promotion leading to senior ranks and broad influence. According to Dr. Ehrhard's *An Air Force Strategy for the Long Haul,*

> *Today's Air Force S&T community pales by comparison [to 1961], a result of the dissolution of Systems Command in 1992 and the steady atrophy of the link between the Service's strategic direction and its R&D activities. Within today's Air Force Material Command, led by a coalition of logistics specialists and rated generals often lacking technical education and serving brief rotations, Air Force S&T appears to be adrift, having essentially outsourced important investment decisions to mid-level technologists in the hope that they produce something useful absent strategic direction.[46] As a result, while the Air Force still spends an enormous amount on S&T, much of it may be spent unwisely—at great opportunity cost—due to lack of leadership, priorities, and connection to operational needs and emerging threats.[47]*

If intense debate at the Major and Lt Colonel level about Air Force roles, missions, theory, and doctrine do not take place, then where do they—perhaps in the professional military education curriculum (PME).

The role of PME in the theoretical thinking of Airmen must not be overlooked. According to the USAF Center for Strategy and Technology (CSAT) across all DOD PME programs, the curriculum too heavily focuses on history. Further, minimal syllabus time is spent focusing on present or future studies, and of the time spent on future studies, the focus is only five years into the future—coincidentally where the FYDEP ends.[48] However, to balance that perspective the study of history is indeed very important and helps reveal complexities and patterns—

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[46] At the time of publication in 2009, only one Air Force four-star general had an advanced degree in engineering or science.

[47] Thomas P. Ehrhard, "An Air Force Strategy for the Long Haul" (Washington DC: Center for Strategy and Budgetary Assessments, 2009), 67.

[48] Dr. Grant T. Hammond (USAF Center for Strategy and Technology, Maxwell AFB, AL), interview by the author, 21 Jan 2013. Worthy of mention is that the charter of CSAT is to advance futures studies, and conduct science and technology forecasts for the CSAF; therefore this perspective is not surprising.

aiding in accomplishing and educating students in both inductive and deductive logic. For example, consider the year 1492 and what happened, you most certainly murmured something about Christopher Columbus. However, what is important is what happened in 1493 when he returned and word spread of what he found. The Air Force is in need of inductive thinkers who can make connections and anticipate, not simply recite history. However, the takeaway is that perhaps the curriculum of PME is foundationally sound, but the timing of when it is presented to selected officers is off.

With the primary focus on PME at the basic and intermediate levels of Squadron Officer School (SOS) and Air Command and Staff College (ACSC) respectively, misses a large group of officers early in their careers. The Air and Space Basic Course was short lived and, subsequently closed for various reasons. It attempted to address some of these shortfalls but failed in reaching full institutional buy-in and support including those sent as instructors.[49] However, because of the closed nature of the military workforce, those who enter the service as Lieutenants are the future senior leaders of the Air Force. Thus, aimen establishing foundational knowledge through studies in military theory, strategy, and the application of airpower is of great importance.[50] Perhaps, the current system presents essentially the proper material but too late to make as significant an impact. Teaching a mid-career officer at ACSC about theory and airpower history is potentially too late; this foundational knowledge base should be emphasized earlier in an officer's career. Not to discount the efforts of SOS, but they only have students

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[49] Civilian faculty who were on staff and remain at AU, along with those active duty officers who attended ASBC still have mixed emotions about the program. Most responses are that it was a 'good idea, executed poorly.' Notably, officers who graduated from the Air Force Academy felt the program simply reviewed what they had learned and was for officers from other commissioning sources. ROTC and OTS graduates viewed the program more formally, and ASBC faculty consisted largely of non-volunteer Air Force members with minimal instructor experience.
[50] Chapter 4 addresses the concept of a closed work force in greater detail.

for six weeks, and have limited flexibility in syllabus material or educational approach as they focus heavily on basics of intra-service understanding of career specialties, teamwork, and briefing/speaking skills with basic writing. Further, perhaps even less beneficial is the time spent at the Air War College with senior officers (Lieutenant Colonels and Colonels) who, ideally, would at that point in their career have been exposed to and possess working knowledge of airpower history and theoretical approaches.

The Air Force requires a high tolerance for uncertainty in leaders and decision makers who must be prepared to deal with ambiguity and operating in such an environment. To address problems of the future and prepare the service, the focus must be on the young officers, not the mid-career and senior officers. However, the service cannot embark on a mission if that mission is unknown. With PME apparently not helping officers cross the bridge to make connections, perhaps then the senior leaders in uniform provide the roadmap.

In an effort to resolve some ambiguity and provide a sense of vision the SECAF and CSAF both jointly and individually sponsor, publish, and widely circulate policy papers. Often called "white papers," they are authoritative and help the reader understand an issue, solve a problem, or make a decision. Further, these papers help senior leaders express what the Air Force does, an institutional identity, and how the institution accomplishes the mission making connections to national security and military strategies. Given that these papers are instructive and descriptive, they give an Airman much to embrace. Carl Builder spoke highly of the 1990 paper titled "*The Air Force and U.S. National Security: Global Reach—Global Power,*" best known by its surname. Builder saw the paper as a tacit expression of theory, stating "the explicit purpose of the white paper was to relate the Air Force to U.S. national security, one would expect it to state somewhere the Air Force mission as a

contribution to national security."[51] Builder went on to call these White Papers "the institution's highest level and most comprehensive perspective of itself."[52] The White Papers offered signs of more than simple connections, presenting the makings for concise definitions for a service mission and vision—conceptually considered an expression of theory.

When papers such as *Global Reach—Global Power* talk of the purpose of the institution, it seems only fair to look for signs of a mission and vision. In 1992, CSAF General Merill McPeak asked a similar question, what is our [USAF] mission? Addressing a formal dinner at Maxwell AFB during his keynote speech General McPeak said:

> *But we'd not likely get an answer that goes back to a fundamental Air Force mission, to an underlying institutional purpose. This observation is not intended as a criticism. After all, as I say, strictly speaking, we have never been given a clear statement of the mission. So it is entirely understandable that at the Air Force level, we talk about organizing, training, and equipping—critical functions but not a mission. At wing level, we talk about air superiority, close air support, interdiction, long range attack, airlift—critical roles or tasks but none of them so broad, so all-encompassing as to constitute a mission for the institution and all its people. This is a very important omission—no pun intended. Air Force people are intensely loyal ...* **But, absent a clear understanding of overarching purpose, some people give their loyalty to the next best thing—their particular jobs or their equipment.**[53]

Unquestionably, General McPeak was aware of the work Builder was conducting; however, his speech is telling. Essentially the speech validates a key tenet of Builder's argument—the USAF was lost.

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[51] Builder, *The Icarus Syndrome*, 267.
[52] Builder, *The Icarus Syndrome*, 267.
[53] Merrill A. McPeak, *Selected Works 1990-1994*, (Maxwell AFB AL: Air University Press, 1995), 153. Emphasis added.

Although *Global Reach—Global Power* did not explicitly outline a mission or vision statement, it did provide Airmen with something codified and made connections. Ultimately the White Paper re-started the intellectual engine for the SECAF and CSAF to publish updated mission and vision statements.

Publishing mission and vision guidance is an important step if the Air Force is to identify and communicate who it is and what it does as an institution. Since the publication of *Global Reach—Global Power* in 1990, follow on paper names have changed. However, the major themes, much like the roles and missions of the USAF have not. Although the White Papers do not clearly come out and identify an airpower theory, no explanation other than their foundation lies in theory is appropriate. Inductively the USAF does not take on tasks that it does not already do and understand. The theory of airpower therefore is not changing dramatically; rather, the communication has changed. The simple words *Global Reach—Global Power,* some still claim best encapsulates much of what the Air Force *does*.[54] The apparent lack of ability of most Airmen to recite the mission and vision, relying on a twenty-three year old White Paper is startling. Perhaps the audience that the mission and vision statements are written for is not fully understood and therefore the message is unclear.

Communicating Mission and Vision

The language of the mission and vision statements changes on average once per SECAF and or CSAF assignment cycle, and generally in conjunction with changes in paper title. Interestingly, if the fundamental tasking for the USAF remains largely unchanged (desired ends), and the fundamental beliefs and doctrine remain largely unchanged (ways), why does the mission and vision statement need to change? Does the USAF know or understand what it wants to be, and what it wants to be capable

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[54] SAASS Class XXII Seminar Discussion arrived at this conclusion when reviewing Olsen's *Warden and American Airpower.*

of doing? In September 2012, CSAF Welsh said, "we [as a service] need to do better [telling our story], and that we are trying but something is not connecting."[55] Most would agree, but the nuance that the White Papers and USAF mission and vision statements communicate do not make the job for the Airmen making connections and telling the story easy. Table 3.2 provides example of the changes in mission and vision statements between different CSAFs:

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[55] Jeff Schogol, "Welsh Outlines 'Foundational' Missions for AF," *Air Force Times*, September 18, 2012.

Table 2: CSAF Mission & Vision Statements

CSAF	Years	Mission Statement	Vision Statement	White Paper	Core Val
Gen. McPeak	1990 1994	Global Reach--Global Power	Air Force people building the world's most respected *air and space force*...global power and reach for America. (Emphasis added)	Global Reach-Global Power 1990	Excellence in All We Do - Service Before Self - Integrity First
Gen. Fogleman	1994 1997	Global Engagement	Air Force people building the world's most respected *air and space force*...global power and reach for America. (Emphasis added)	Global Presence 1995	
Gen. Ryan	1997 2001	Global Engagement	Air Force people building the world's most respected *aerospace force*...global power and reach for America. (Emphasis added)	Global Engagement 1997	
Gen. Jumper	2001 2005	To Defend the United States and Protect its Interests Through *Air & Space Power* (Emphasis added)	Global Vigilance, Reach, and Power	N/A	
Gen. Mosley	2005 2008	The mission of the US Air force is to *deliver sovereign options* for the defense of the United States of America and its global interests-to *fly and fight in Air, Space, and Cyberspace*. Prepare for & Participate in the Joint Fight, Anywhere, Anytime, Develop, Maintain, and Sustain the Warfighter Edge, Provide Motivated, Ethical, Accountable Air Force Warriors. (Emphasis added)	Lasting Heritage...Limitless Horizons	Global Vigilance-Global Reach-Global Power 2007	
Gen. Schwartz	2008	The mission of the United States Air Force is to "*fly, fight, and win..in air, space and cyberspace*"--as an intergral member of the Joint team that ensures our Nation's freedom and security. (Emphasis added)	An Air Force ready to fulfill the commitments of today and face the challenges of tomorrow thorugh *strong stewardship, continued precision and reliability, and dedication* to persistent Global Vigilance, Reach and Power for the Nation. (Emphasis added)	Global Vigilance-Global Reach-Global Power 2008	
	2009 2012	The mission of the United States Air Force is to "*fly, fight, and win..in air, space and cyberspace*." (Emphasis added)	The United State Air Force will be a trusted, reliable joint partner with our sister services known for integrity in all our activities, including supporting the Joint mission first and foremost. We will *provide compelling air, space and cyber capabilities* for use by Combatant Commanders. We will excel as stewards of all Air Force resources in service to the American people, while *providing precise and reliable Global Vigilance, Reach and Power* for the Nation. (Emphasis added)	Global Vigilance-Global Reach-Global Power '2008	
Gen. Welsh	2012 Pres	Fly, Fight, and Win	The Worlds Greatest Air Force-- **Powered by Airmen, Fueled by Innovation**	The United States Air Force, A Tradition of "*Over Not Through*" -The World's Greatest Air Force-Powered by Airmen, Fueled by Innovation 2013	

Source: Author's original work.

During General Mosley's tenure as CSAF, an interesting addition joined the USAF mission and vision statement discussion. Undoubtedly, while reviewing Table 3.2 above, you mumbled "*sovereign options,*" searching for explanation and connections. The word choice "sovereign" options, begs the questions why add that specific verbiage now, and what does an Airmen do with that message without inducing confusion? Admittedly, that line of questioning is valid on its own merit, however the point to make now is the mention of the *joint fight.* Recall the 1986 Goldwater-Nichols reorganization act defines what the DOD considers joint today— twenty years before Gen. Mosley and his staff updated the USAF mission statement. Dr. Grant Hammond from the CSAT at AU described the USAF perspective on the 'joint' discussion better than most, saying clearly,

> *To the US Army, jointness means global mobility and close air support—things that it gets and the Air Force gives. To the US Navy, jointness means land-based aerial refueling of naval air assets and USAF combat air patrol in support of naval air assets attacking land-based targets. Here the Navy gets and the Air Force gives. The USAF, in the interest of jointness, has allowed itself to be directed by others … For the Army and the Navy, jointness is a paying proposition—literally and figuratively. They get and the USAF gives. For the USAF, jointness means it is always the supporting, never the supported service—save for the anomaly of the Gulf War.[56]*

The USAF is caught in the debate on where it fits in the joint fight, simply because as a service the focus has not been on *why.* Dating back to the late 1940s and early 1950s it was commonplace for Airmen to associate "atomic" and airpower so closely that the adjective and noun all but fused into a single, grand conception.[57] One needs to look no deeper than the genuine lack of conceptual understanding of the difference

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[56] Grant T. Hammond, "Paths to Extinction: The US Air Force in 2025" (Air Force 2025, August 1996), 2–14.
[57] Gray, "Understanding Airpower: Bonfire of the Fallacies," 50.

between strategy and strategic. When Airmen conflate policy, military strategy, and tactics, they enter a theoretical and doctrinal abyss. This type of misunderstanding encourages an under-appreciation of airpower's non-kinetic impacts, whereas the proper appreciation of airpower's strategic value may require abandoning old solutions.

Builder's Assessment Was Mostly Right

<u>YET</u>, The Air Force Continues Down a Misguided Path

Carl Builder posited that the Air Force had not forgotten *why* it existed, but confused it with *how* it did business. Guided by ideas, airpower leaders and thinkers must choose which door to walk through as a matter of human discretion. Losing touch with *WHY* has come at a high cost to the Air Force.[58] The greatest challenge the Air Force has faced since 1947 has come from one place—itself. *WHAT* the Air Force does and *HOW* it does it has not changed. What has changed is that understanding and communicating *WHY* the Air Force does what it does was lost in translation. Clear, simple language that helped Airman make connections, define, categorize, explain, and anticipate was divested and handed to external sources. The solutions that the Air Force chose to address the problem compounded and created new problems.

The new problem in 2013 is remarkably similar to where the Air Force found itself in the late 1940's with deterrence. Now the interests of the USAF, as counter-insurgency operations begin to draw down after twelve years in Afghanistan and twenty-three years in Iraq, are again focused on deterrence in air, space, and cyber. As Clausewitz said, the grammar of war is changing (again). Perhaps in the age of non-state actors and anti-access area-denial environments it is less necessary to 'win' as once was understood. Emerging technologies and capabilities support the idea that a zero-sum approach to war is fading. Particularly in the space or cyber domains, it may be less necessary to win, than

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[58] For interesting and entertaining reading, see Simon Sinek's *Start with Why: How Great Leaders Inspire Everyone to Take Action*, 2009.

achieve either a stalemate or settle for a tie. Airmen must logically ask what is best for the Air Force, not what is best for career, sub-organization, program continuance etc. Further, does the Air Force need manned airplanes to call itself an air force if the desired ends are otherwise achievable? The point is to force a clearing of the coffee table and find what the root issue is. Even with the competitive means and difficulty communicating mission and vision there are some enduring messages the Air Force espouses. The concept of 'over, not through' is the narrative and the core *WHY* that the Air Force continues to profess. This mantra points to identifying large national security problems and then finding and delivering better ways of addressing them to bolster the common defense. Similarly, the 2012 CSAF reading list and messages distributed electronically service wide, point to national defense contributions primarily through the concept of "every Airman an innovator." [59] One innovates with ideas and thinking, and those must precede technology.

The Air Force does not need a new theory of airpower. Any evidence of faulty airpower theory only demonstrates the need for better airpower theory, not the advisability of jettisoning the enterprise.[60] The theory behind airpower remains primarily a combination of experience and visionary thinking. According to Gray,

> *More than a century of extensive and intensive experience with airpower provides ample—indeed probably redundant because repetitive, albeit confirming—evidence on the basis of which to construct general theory. There is no need to wait on events, anticipate further technological change, or test more hypotheses. The century-plus from 1903, more realistically 1908, to the present can tell all that we need to know for us to make sufficient strategic sense of airpower.[61]*

[59] Thornhill, Project Air Force (U.S.), and Rand Corporation, *Over Not Through*, 9.
[60] Gray, *Airpower for Strategic Effect*, 279.
[61] Gray, *Airpower for Strategic Effect*, 304.

Airpower theory can guide us only in how to think, not what to think! If used to fight the bureaucratic battles *du jour,* it is near certain that airpower theory will lose some degree of authority. By using theory to define, categorize, explain, connect and anticipate the application of airpower to meet the ends of national security, the Air Force can again answer *WHY*. A discernable horizon comes into focus and the Air Force can escape its "wonderland" by taking control, reinvesting in thinking, and emerge from the curious dream we have been in since the 1960s.

Escaping Wonderland

The role of the USAF mission and vision statement, in general terms, is to remind Airmen who we are and what we do. Therefore, one logically expects that any Airman can recite both upon request. Recall General McPeak's statement in 1992 at Maxwell AFB, and General Welsh's comments to the AETC leadership symposium in 2012, that across twenty years Airmen still have difficulty articulating the vision or mission of the USAF in clear language. There appears to be a lack of consistency in explaining what the USAF stands for; however, there is clarity in one aspect.

The core values of the USAF have remained unchanged since SECAF Widnall and CSAF Gen Fogelman published them in 1997. Integrity first, service before self, excellence in all we do—there is elegance in the simple language. There is no confusion on what is acceptable moral behavior for an individual. The core values have remained consistent, and been adopted into the culture. The core values are visible everywhere, are consistently recited, and used as a basis for supervisor-subordinate mentor meetings. Interestingly the Air Force does not have the same success in determining the mission or vision statement for the institution. The mission and vision are fuzzy at best in explaining what the service does and why it exists to meet national security needs. The core values are clear in describing acceptable

individual actions; however, this clarity is lacking for organizational expectations.

The USAF indeed stopped directly dealing with airpower theory with the advent of nuclear deterrence, focusing too narrowly on the means—the airplane. There were indeed signs of improvement with the swift victory in Desert Storm, yet Operations Enduring Freedom and Iraqi Freedom have retarded the process preventing full commitment. Again the price for this is high and significantly affects the organizational culture and identity. Exacerbating this situation is the cessation of combat operations in Iraq, and the planned cessation in Afghanistan with commensurate budget reductions and domestic *realpolitik* occurring. The following chapter addresses the resulting impact felt within the USAF organizational culture and identity with a continued focus on artifacts and internal subcultures.

Chapter 4

Organizational Culture: Searching for Disconnects

You cannot solve problems with the same kind of thinking that created them.

-Albert Einstein

The only thing harder than getting a new idea into the military mind is to get the old one out.

-Sir Basil H. Liddell Hart

The culture of an organization represents its fundamental character—its "soul" if you will—and consists of internal and external aspects. For the USAF, the organizational culture helps Airmen define and identify professionally and personally with the organization. "Culture is to an organization what personality is to an individual ... it passes from one generation to the next ... it changes slowly if at all."[1] Closely linked, the organizational identity and culture of a large body such as the USAF are essentially synonymous. Therefore, when addressing the culture of the USAF as an organization, the external and internal aspects must be broken down into formal and informal categories respectively, to unpack and identify linkages or reveal disconnects.[2] Formal categories represent structures and policies; two examples include the budget and the presentation of forces. On the other hand, informal categories represent norms and practices. If a lack of consensus exists—a disconnect—it indicates a culture problem, because basic questions that define 'normal' behavior cannot be answered satisfactorily. Examining both the internal and external aspects requires addressing the depth of the organizational culture through artifacts, values, and basic assumptions.

[1] Lt Col James M. Smith, "Air Force Culture and Cohesion: Building an Air and Space Force for the Twenty-First Century," *Airpower Journal* (Fall 1998): 41.
[2] Joanne Martin, *Organizational Culture: Mapping the Terrain,* Foundations for Organizational Science (Thousand Oaks: Sage Publications, 2002), 55–70.

Culture Defined

Culture is a human creation. Culture provides much, but at its essence represents not only the present, but also provides a foundation of significance to understand avenues for future influence. Admittedly, culture is difficult to define. However, culture is shaped by our own behavior, and is constantly created or reenacted by our interactions with others.[3] In this sense, although the USAF is 'young' relative to the other military services, the sixty-six years of institutional independence form a strong cultural basis. However, the foundation of organizational culture is rooted in several primary occupations, some highly structured, others relatively fluid. For example, many argue that "the Air Force prioritizes the pilot as the focus of their human capital strategy because it is the pilot who commands the sophisticated and expensive technology and tenders the decisive power in combat."[4] The strength and stability of an organization's culture thus varies as a function of the organizational history, age, and strength of emotional connections.

Culture points to what is below the surface. Specifically culture helps identify actions largely executed unconsciously and carries powerful potential impacts. The act of influencing and shaping the behavior and values of others is defined as *leadership.* Therefore, leadership can create the conditions for developing a new culture. Leadership directly influences the evolution of organizational culture. The effects of leadership build stability in an organization and define not only how the organization expresses itself internally, but also externally. The stability that comes with strong organizational culture and leadership transcends individuals and leaders who leave the organization for various reasons. Personnel turnover is fairly normal in the profession

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[3] Edgar H Schein, *Organizational Culture and Leadership* (San Francisco, CA: Jossey-Bass, 2010), 3.

[4] Roger Z. George, Harvey Rishikof, and Georgetown University, *The National Security Enterprise: Navigating the Labyrinth* (Washington, DC: Georgetown University Press, 2011), 128.

of arms, thus stability is of great importance. The elements of organizational culture fit together like interlocking pieces of a puzzle and only when joined do they provide balance and stability. Reference Figure 4.1 for a graphical depiction of the interlocking stability of organizational culture.

Figure 1: Elements of Organizational Culture

Source: Author's original work.

Organizational culture contributes to the human social need for stability, consistency, and meaning. As a result, the culture of an organization is hard to change for fear of destabilizing. For example, Joanne Martin in *Organizational Culture: Mapping the Terrain*, lists twelve distinct definitions of culture indicative of the difficulty in reaching consensus. With so many definitions to choose from, the context indeed matters, and is critical to understanding the culture of an organization. Therefore, Martin provides evidence that the stability of an organization's culture is often defined through situational context. When attempting to unpack the elements of organizational culture, Martin suggests that an outside observer seeks informative details about a culture to understand what it values.[5] This is critical because observers seek "an in-depth

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[5] Martin, *Organizational Culture*, 58-60.

understanding of the patterns of meanings that link these manifestations together, sometimes in harmony, sometimes in bitter conflicts between groups, and sometimes in webs of ambiguity, paradox, and contradiction."[6] However, Edgar Schein offers the most complete and complementary definition of organizational culture that applies to this body of work in evaluating the USAF.

> *The culture of a group can now be defined as a pattern of shared basic assumptions learned by a group as it solved its problems of external adaptation and internal integration, which has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems.[7]*

In the USAF, visionary Airmen who fought for service independence and blazed the trail to go "Over Not Through" built the organizational culture just as they built the institution itself. However, culture in the USAF is more than the beliefs we intentionally endorse and advertise to others, it is also the beliefs we do not even realize we hold. Culture also consists of the assumptions and ideologies that operate subconsciously, disguised as common sense, representative of how groups differentiate from other groups or individuals.[8]

Subcultures

Best characterized as a specific section of the larger organization, subcultures focus narrowly on occupational priorities. The shared assumptions that surround and focus on the internal aspects most often create subcultures around functional units of the organization.[9] In the USAF, Carl Builder identified the subcultures as the 'stovepipes of excellence,' which focused on pilots and their reaction to the competitive

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[6] Joanne Martin, "Organizational Culture," *Stanford Graduate School of Business* no. Research Paper No. 1847, Research Paper Series (March 2004): 6.
[7] Schein, *Organizational Culture and Leadership*, 18.
[8] *Literary Theory: An Anthology*, 2nd ed (Malden, MA: Blackwell Pub, 2004), 294–304.
[9] Schein, *Organizational Culture and Leadership*, 55.

means to meet the traditional organizational ends.[10] The 'stovepipes' can be expressed as representative tribes "where operational specialties could have tacit and unwritten "prestige" that promoted friction through in-group and out-group dynamics."[11] Therefore, subcultures often emerge in response to changing demands and can serve as an outlet for members to express conflict and dissent arising during turbulent times.[12] Meese and Wilson provide an excellent example in *The National Security Enterprise,*

> *When the Cold War ended and the generation of officers whose primary concept of war had been the defeat of the Soviet Army confronted situations such as Somalia, Haiti, Bosnia, Kosovo, and Afghanistan, the [USAF] official term for those operations became "Operations Other Than War." The Cold War officers emphasized that these operations, while important, were distinctly subordinate to "real war," which many believed should be the primary, if not sole, focus [of the USAF]. It was only after challenges in Iraq that the [the USAF] reexamined its preconceived notions of warfare expressed in doctrine and concluded that "stability operations…are now given the same weight as offensive operations and defensive combat operations and are considered a critical part of U.S. military operations.*[13]

Thus, recognizing the implications of the perspective of subcultures provides a mechanism for changing less central values not applicable to the whole organization. What officers see, hear, and do really matters because their experiences affect their self-concept and the way that they provide professional military advice. The power and impact of

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[10] Carl H Builder, *The Icarus Syndrome: The Role of Air Power Theory in the Evolution and Fate of the U.S. Air Force* (New Brunswick, N.J.: Transaction, 2003), 166.
[11] Colonel Jeffrey J. Smith, "Air Force Organizational Change: Tracing the Past-Mapping the Future" (Washington State University: Department of Political Science, August 2010), 447.
[12] Alicia Boisnier and Jennifer Chatman, *The Role of Subcultures in Agile Organizations* (Division of Research, Harvard Business School, 2002), 3.
[13] George, Rishikof, and Georgetown University, *The National Security Enterprise*, 125.

subcultures requires further unpacking to assess the relationship with the parent culture.

Joanne Martin developed an elegant model to evaluate cultures and subcultures. Distinguishing between conceptualizations of organizational cultures that were cohesive and unitary or *integrated,* and those characterized as collections of subcultures or *differentiated,* allows disconnects and inconsistencies to show.[14] Recognizing and identifying disconnects is important because overemphasis on studying integration both implicitly and explicitly assumes that culture reflects a consistent, organization-wide consensus. One assumption is that the consistency occurs because the higher levels of the organization's leadership articulated a set of espoused values, sometimes in the form of a mission statement.[15] The senior leaders then reinforce these values through a variety of cultural manifestations that supposedly generate consensus. These distinctions imply that an integrated culture precludes differentiated subcultures and vice versa. Also, an organization may have a single culture with no subcultures, or that subcultures exist with no overarching organizational culture.[16] However, this strict classification does not consider the possibility that subcultures might co-exist within an overarching culture. One could easily argue that within the USAF multiple subcultures exist.

Subcultures are a part of any organization. Differentiated approaches show that coexisting and overlapping subcultures exhibit both harmony and conflict with the parent culture. "Thus, in differentiation studies, to the extent that consensus exists, it exists within subcultural boundaries."[17] From this perspective, change occurs within one or more subcultures, taking form incrementally, or triggered

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[14] Martin, *Organizational Culture,* 2002, 55–70.
[15] Martin, "Organizational Culture," March 2004, 1-5.
[16] Clifford Geertz, *The Interpretation of Cultures: Selected Essays* (New York: Basic Books, 1973).
[17] Martin, *Organizational Culture,* 2002, 7.

by the pressures from the organizational environment. However, the effects are seen in leadership when the purpose of a subculture supersedes the parent organizational culture.

The identity and background of a member affect what he is exposed to, what information he absorbs, and what reactions he exhibits. Consider the cultural impact for the future officers and leaders who "at the Air Force Academy, [where] cadets hold formation in a quadrangle surrounded by airplanes on pedestals and gaze at the cold-metal roof of the academy chapel that sweeps up to the heavens."[18] For this treatise, the subcultural orientation is important, and their 'home' perspective is easier to see than a dissenting opinion. Turning attention to the impact of cultures and subcultures on leadership in the USAF, one must consider that "the harder it is to see applicability of a particular perspective, the more likely it is that, in changed circumstances, insights from that perspective may be crucial for organizational survival."[19] Further, when making the connections between theory and culture having awareness of the perspectives less easily seen provides an opportunity to anticipate, or at least understand organizational change. Again, we must proactively engage to clear the Air Force coffee table, and the agents of change in the hierarchical USAF are the senior leaders.

Artifacts

Artifacts represent the visible relics of a culture and include observed behavior.[20] For the purpose of this discussion, artifacts represent tangible objects that reflect the beliefs and assumptions of the organizational culture. Although the primary artifacts of the USAF are the technologically sophisticated air and spacecraft, personal artifacts also contribute to culture. Such items include "distinctive uniforms, flight jackets, badges, and pay bonuses [to] retain critically skilled

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[18] George, Rishikof, and Georgetown University, *The National Security Enterprise*, 128.
[19] Martin, "Organizational Culture," March 2004, 14.
[20] Schein, *Organizational Culture and Leadership*, 24.

officers, but they have also helped to deepen individual identification with subcultures and splits between those various factions at the higher (service) level."[21] For example, informally ask a new member of the USAF arriving at his first unit to describe what he noticed most upon arrival—it may not be what you think. Identifying what the artifacts of an organization are, much like Builder's concept of clearing the coffee table, one can attempt to describe the USAF culture through the artifacts and provide valuable clues to those items of high cultural value.

Artifacts of a culture help enforce stability. In the military, artifacts related to the medium in which the service operates tend to dominate. Given the Air Force's affinity for technological solutions, according to John Law, one must think simultaneously about the social, technological, and physical artifacts together because they are intertwined and difficult to separate. Further, the form and stability of artifacts "should be seen as a function of the interaction" of cultural aspects because they "are shaped and assimilated" into the organizational culture.[22] Addressing the impact of physical artifacts "the Air Force halls in the Pentagon, like most air force headquarters and the newly dedicated air force monument, emphasize sleek, functional, modern designs, much as one would see in the corporate offices of a high-technology firm."[23] Walk or drive around Maxwell AFB's AU campus and you will find many aircraft on display. Interestingly, not one static display aircraft is from the post-Vietnam era, and there are no displays of space power, save small models inside a space operator's office. The artifacts only support Builder's claim that the USAF reached its high water mark regarding internal culture in the 1960s. In fact, many Air Force bases contain a dedicated "air park" to display the most

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[21] Smith, "Air Force Culture and Cohesion: Building an Air and Space Force for the Twenty-First Century," 45.
[22] Bijker, Pinch, and Hughes, "The Social Construction of Technological Systems," 111-114.
[23] George, Rishikof, and Georgetown University, *The National Security Enterprise*, 128.

prized physical artifact—the airplane. The artwork adorning the halls of official buildings, recruiting media, and USAF public and military only websites almost exclusively display physical artifacts, and if an individual is displayed, it is generally a pilot. The artifacts help tell the story of the USAF—airplanes matter most—and there is little room for competitive means.

Culture's Relationship to Leadership

Leadership appears a straightforward and uncomplicated concept, and like culture too easily captures 'everything and nothing.'[24] However, leadership is a nuanced concept drawing cultural connections to what a founder or leader previously imposed on a group that worked out over time.[25] Therefore, a valuable line of thinking frames leadership as the adaptation, mechanical reproduction, reinforcement, creative variation and/or rejuvenation of dominating cultural orientation within an organization.[26] "In this sense culture is ultimately created, embedded, evolved, and ultimately manipulated by leaders."[27] Leadership takes place both within, and is the product of, the cultural context of the USAF. However, leaders often transcend existing cultural patterns that contribute to a new or modified cultural creation.

The USAFs logical primary focus is flying, specifically kinetic attacks striking the heart of the enemy. A brief recounting of history demonstrates the Air Force emphasis began with strategic bombing and the battle plane, and then transitioned to fighter aircraft during and after the Vietnam War.[28] As a military service dedicated to operations in domains other than the surface of the earth the natural connection is

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[24] Neal M. Ashkanasy, Celeste PM Wilderom, and Mark F. Peterson, eds., *The Handbook of Organizational Culture and Climate*, Second (Thousand Oaks, CA: Sage Publications, 2011), 93.

[25] Schein, *Organizational Culture and Leadership*.

[26] Ashkanasy, Wilderom, and Peterson, *The Handbook of Organizational Culture and Climate*, 108.

[27] Schein, *Organizational Culture and Leadership*, 3.

[28] For an interesting discussion, reference Col Worden's *Rise of the Fighter Generals*.

that culturally, the values of the pilot bear the greatest impact. Not surprisingly, every CSAF has been a pilot—resulting in a culture that tends to view problems through the lens of a pilot. In an effort to avoid constructing a straw man, organizational leaders "stand where they sit" and comprehend the complex and diverse internal dynamics that define their organizations.[29] USAF senior leaders originally had roots in pilot experiences and culture. The bomber-laden leadership remained generally unchallenged until usurped by those with a fighter background in the early 1980s. Col Worden's widely read *Rise of the Fighter Generals* covers 1945-1982, and in the conclusion he notes,

> *[This book] highlights enduring dangers of parochialism and bias in any organization that is too homogenous in its senior leadership and culture. Homogeneity, as defined by shared experience, limits a total view of the institution's legitimate role. This organizational condition leans towards myopia and monistic thinking, often manifested in a consuming focus on a purpose or mission that favors the dominant culture.[30]*

Interestingly, his study of leadership addressed the shortfalls of the myopic views of the bomber leadership that had preceded the fighter leadership's assentation. Since publication in 1998, and perhaps more appropriately, since the 1982 bookend of Worden's research thru 2008 every CSAF had a fighter pilot background. Of note, the CSAF change of command in 2012 "gave the stick" back to a fighter pilot. The effects of leadership on culture are indeed visible in the external and internal aspects of the USAF.

External (Formal) Aspects

Formal structures and policies represent the external aspects of USAF culture. These structures and policies influence the artifacts, values, and basic assumptions of the culture. Reference Figure 4.1 to

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[29] Graham T. Allison and Phillip D Zelikow, *Essence of Decision: Explaining the Cuban Missile Crisis* (New York, NY: Longman, 1999), 307.
[30] Michael R. Worden, Col, USAF, *Rise of the Fighter Generals*, 238.

review a sample of broad organizational cultural areas where the effects of structures manifest. The discussion of doctrine in Chapter 3 provides evidence that the USAF does address structure in the roles and missions that it fulfills. Conceptually the roles and missions represent the ends that the USAF organizes, trains, and equips to meet. "Essentially, roles establish each service's primacy in its respective form or arena of war: land, sea, or air."[31] Across the DOD there is generally congruence on the roles and missions. Recall Figure 3.1, DoDD 5100 "Functions of the Air Force" and the specific missions that are agreed upon in order for the USAF to contribute to fulfilling national security. Further, a partial reason that the USAF split into TAC and SAC was to continue to supply uninterrupted close air support to the Army as promised when the USAF gained service independence. The solution to external pressure for change was the fracturing of internal homogenous culture.

Change is unnatural for an organization. "Bureaucracies—and the Pentagon has one of the world's largest—are organized primarily to execute complex routines that enable the existing way of operating to be accomplished efficiently. Bureaucracies are not optimized for innovation or change."[32] In examining the external (formal) aspects of the Air Force culture, we must remember how we got where we are today. Executing the Cold War strategy of nuclear deterrence, SAC consisted of a series of bomber and missile forces that all argued for cultural and fiscal institutional support. "The institution that evolved became the military centerpiece of the Cold War; and its effects are still evident in military planning and culture today. SAC was not conceived to defeat an enemy air force; it was designed to fulfill the Nation's highest security objective directly."[33] After the Cold War ended, competition to balance the needs

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[31] Warren A Trest, *Air Force Roles and Missions: A History* (Washington, D.C.: Air Force History and Museums Program, 1998), xi.

[32] Andrew F. Krepinevich, *7 Deadly Scenarios: A Military Futurist Explores War in the Twenty-First Century* (New York: Bantam Books Trade Paperbacksl, 2009), 17.

[33] Carl H. Builder, "Keeping the Strategic Flame," 82.

of national security objectives and the service's affinity with technology proved tricky.

External aspects of USAF culture and technology go hand in hand. Within a service dedicated to doing things in the air, the impact of technology on leaders traces back to their foundational experience. With senior leaders coming from predominately pilot backgrounds, it is noteworthy to point out that:

Information flow in the cockpit is highly sensor—and technology—dependent, highly structured and highly controllable. It is very adaptive for pilots to be very good at shutting out sources of distraction in moments of crisis. The immediate, ultimate, and unquestionable authority of the aircraft commander in the cockpit is a bedrock element of Air Force leadership culture.[34]

Of course there is more to the culture of the Air Force than pilots; however, the following survey responses connect the mentality centered on flight related technologies with external aspects of culture.

To quantitatively address the external aspects of culture, survey data from 2010 provides descriptive statistical evidence. Compiled from previous Air University surveys, the responses are representative of the greater Air Force population.[35] Specifically, more than six hundred anonymous survey responses of students attending Squadron Officer College, Air Command and Staff College, the School of Advanced Air and Space Studies, and the Air War College were organized. The sample provided inclusive data for all officer ranks from 2nd Lieutenant through Colonel, representing a cross section of various Air Force Specialty Codes (AFSC: designate operational skill set). When analyzed, the results are

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[34] George R. Mastroianni, "Occupations, Cultures, and Leadership in the Army and Air Force," *Parameters* 35, No. 4, US Army War College Quarterly (Winter 2005-06): 78–79.
[35] Smith, "Air Force Culture and Cohesion: Building an Air and Space Force for the Twenty-First Century." Survey data mined from original source survey compiled responses as presented in the cited dissertation; data reproduced and used with permission of the author.

stratified and categorized using an "agree or disagree" format statistically known as the Likert-scale.

The following questions address the artifacts, values, and basic assumptions of the USAF's organizational culture from the formal external perspective focused on structure and policy. The expectation is to see fairly similar responses across the demographic illuminating the similarities in perspective and the effects on external aspects of culture. To make the data more accessible, the graphs include all officers (all AFSC categories) from the AU academic institutions.

Figure 2 displays the general perceptions of USAF officers that the USAF is a responsible steward of its share of the DOD budget. Interestingly the responses fall in the middle of the Likert-scale, and although congruent statistically they indicate that a consensus does not exist. One could likely assume that the deviations are the result of subcultures among specific AFSCs.

Figure 2: Considering the USAF's current and future war-fighting requirements, the USAF is budgeting and spending its money on the right systems?

Source: Colonel Jeffrey J. Smith, "Air Force Organizational Change: Tracing the Past-Mapping the Future" (Augu
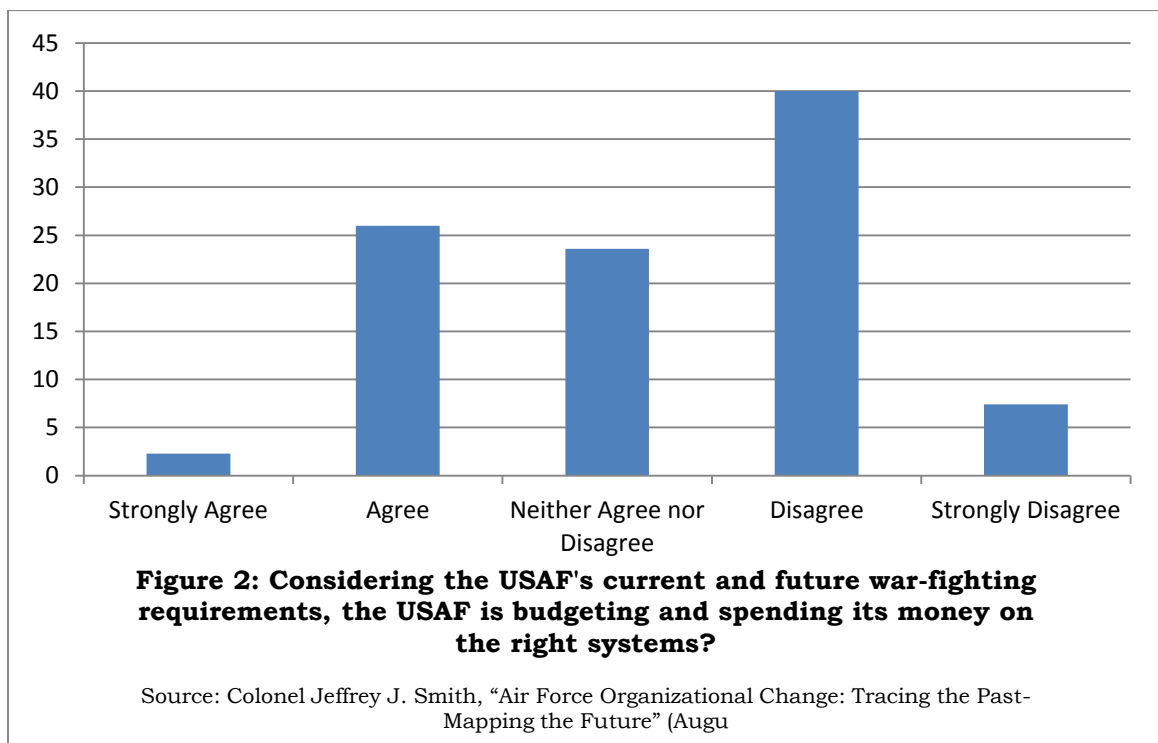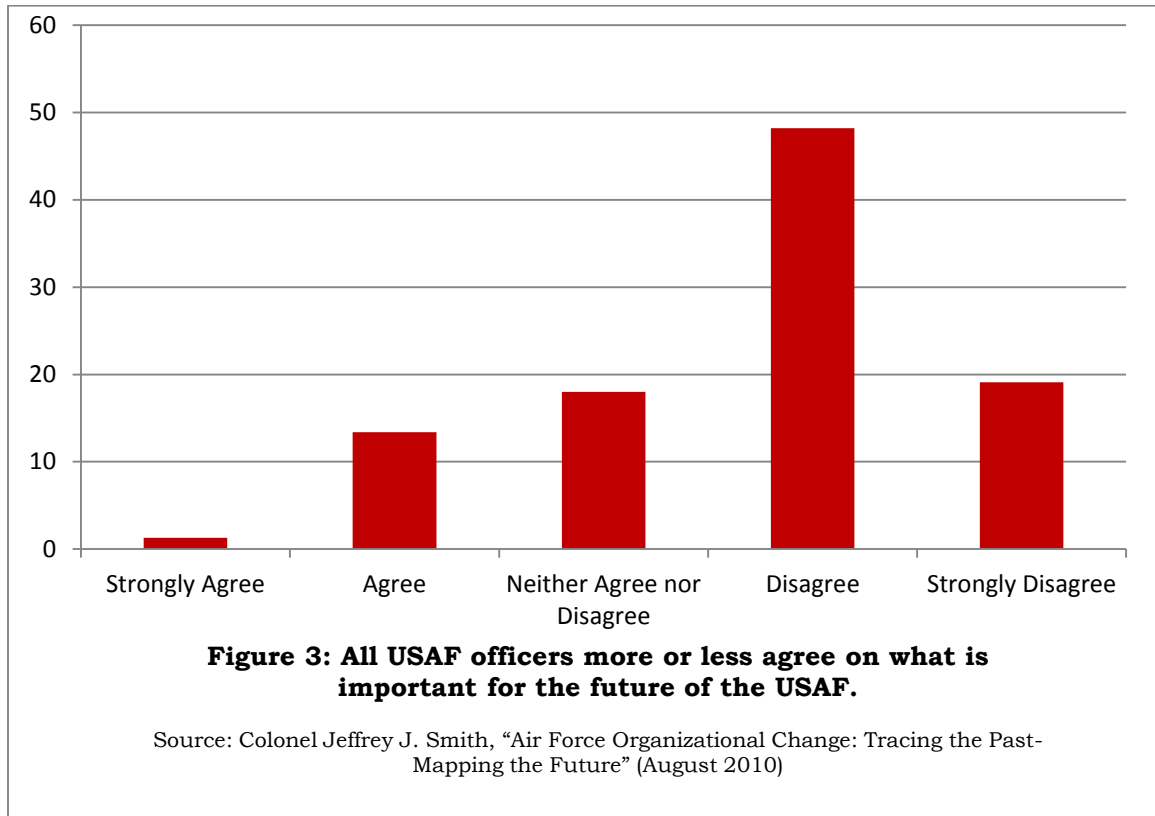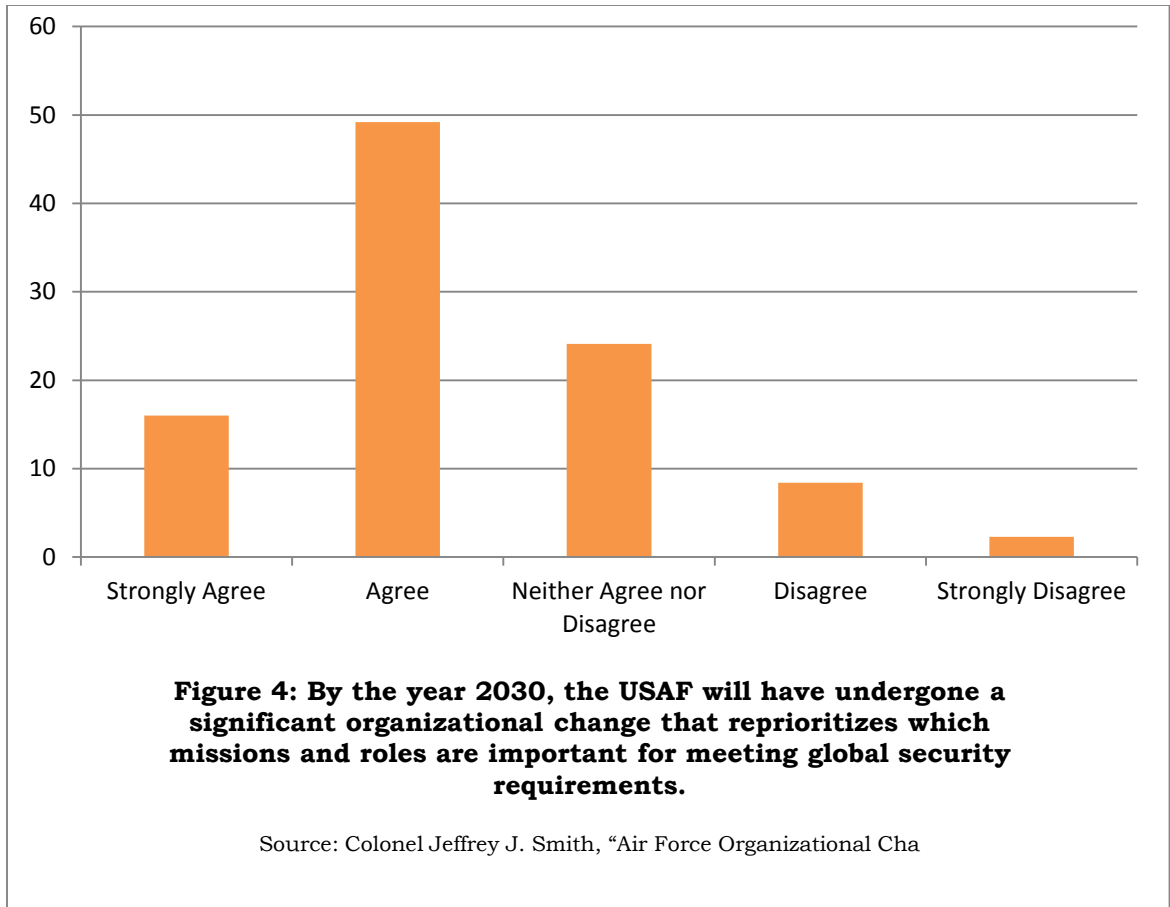
Figure 3 takes a step back from the budget, addressing the USAF through a wider aperture. The sample was asked simply if officers agree

on what is important for the future of the USAF—indicative of a connection to an accepted and common basis in airpower theory.

Figure 3: All USAF officers more or less agree on what is important for the future of the USAF.

Source: Colonel Jeffrey J. Smith, "Air Force Organizational Change: Tracing the Past-Mapping the Future" (August 2010)

Surprisingly agreement is lacking, revealing the existence of a real problem of internal identity—approximately seventy percent of officers disagree on what is important! Although dissecting the exact reasons for the disagreement is beyond the scope of this work, the responses again indicate a disconnect. If the officer corps cannot reach consensus on what is important for the future of the service, the flight path ahead is forecast to be turbulent.

Figure 4 looks further into the future towards potential mission changes. However, as outlined in Chapter 3, the missions of the USAF have not drastically changed since 1947, yet the response group feels that a significant change is likely. Without breaking out the responses in finer detail, many assumptions could be made based on the response grouping. However, what is clear is a general consensus that the role of the USAF in meeting national security requirements is changing.

Figure 4: By the year 2030, the USAF will have undergone a significant organizational change that reprioritizes which missions and roles are important for meeting global security requirements.

Source: Colonel Jeffrey J. Smith, "Air Force Organizational Cha

The survey data suggests that a cultural split might well exist. External aspects are partially in balance with the associated internal perspectives. However, only a small part of an organization's culture consists of issues and perceptions that service members see clearly and agree on. Unfortunately, however comforting and appealing, this is not likely to be useful if it ignores important internal complexities in the external world it attempts to represent.

Internal (Informal) Aspects

The internal, or informal aspects, of USAF culture represent norms and practices. Most notably internal cultural aspects are found within subcultures and based on incompletely or misunderstood conflicts between groups. Moreover, much of the internal structures, norms, and practices contain inconsistencies such as what people say they value versus what they do. This includes ambiguous and frequently used

colloquial phrases such as mission, vision, or goal statements that conflate true meanings and create irreconcilable paradoxes and contradictions.[36] To avoid such pitfalls, when AU was in the process of curriculum development for the short-lived Air and Space Basic Course, a survey collected responses from two thousand staff members, faculty, and students to identify areas requiring emphasis to avoid ambiguity.[37] The survey responses indicated that officers indeed valued unit cohesion, identified with technical specialties, and did not persuasively articulate airpower doctrine.[38] Thus, not surprising, in the absence of a shared vision or sense of mission, USAF officers turned to occupational stovepipes and the units built around those occupations to form a primary identity. "This tendency is symptomatic of a fractionated confederation of subcultures rather than a cohesive military service."[39] With the lens internally focused "to be sure, there remain differences even within the Air Force over what should be the prime focus of air power application with respect to target types and operational objectives."[40]

Differences among subcultures form the foundation of debate within the USAF regarding organizational culture and the proper use and application of airpower. As previously discussed the impact of leadership setting the course and holding the heading of the artifacts, values, and basic assumptions of culture has never been more important. Benjamin Lambeth argues in *The Transformation of American Airpower* that between 1980-2000, American airpower transformed to a point where it has finally become truly strategic in its potential effects. Further, this

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[36] Martin, *Organizational Culture,* 2002, 8-11.
[37] The goal of the Air and Space Basic Course was to give Lieutenants a common base of formal military education and establish USAF norms and practices based in historical experience.
[38] Lieutenant Colonel McCoy, "Talking Paper on Analysis of Basic Course Surveys," HQ AU/XOP, 12 December 1996.
[39] Smith, "Air Force Culture and Cohesion: Building an Air and Space Force for the Twenty-First Century," 46.
[40] Lambeth, *The Transformation of American Air Power*, 297.

transformation includes increasingly lethal weapons with precision guidance resulting in a new way of war with new concepts of operations. "Owing to precision, stealth, and expanded information availability, airmen are now paradoxically able to apply air power as first envisioned by the early advocates, but not in a way that they could even remotely have foreseen."[41] This paradox provides a driving force behind the internal debate over the best manner to present the force, and retaining heavy emphasis on technological solutions.

The shift in USAF senior leadership from bomber generals to fighter generals brought with it a shift from a more strategic to an operational focus. However, the USAF maintains its attachment to the future technologies of air, space, and cyber combat. These technologies represent the "decisive attributes" that resonate in institutional rhetoric. Following Desert Storm, "the most careful advocates of air power did not—and do not—claim that air power could have won the Gulf war single-handedly. Rather, they say something close, but with an important difference: that air power created the conditions for victory by making the endgame relatively painless for all other force components."[42] Since Desert Storm the USAF has only increased investments in high price low-observable technologies—primarily the F-22 and F-35 programs called "too big to fail"—reinforcing the tacit message that fighter aviation *is* the solution. However, these technologies are expensive, and in bureaucracies the currency of power lies in funding and manpower.

A commonly held belief is that one constant in the military bureaucracy is change. Following Desert Storm there were large defense cuts and the Air Force fared well. Simply because the USAF was "developing a clear vision of its future and demonstrating that it was ready to carry out that vision. While the other services struggled to define themselves after the Gulf War, the Air Force pushed for its faster,

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[41] Lambeth, *The Transformation of American Air Power*, 298-314.
[42] Lambeth, *The Transformation of American Air Power*, 274.

higher, stealthier future. That push, emphasized technology and rapid force projection, as well as expansions in the roles that space and information dominance would play in future conflicts."[43] With the end of Operation Iraqi Freedom, and Operation Enduring Freedom drawing to a close, the United States is facing fiscal constraints making similar (or even more severe) DOD reductions a reality. The severity remains undetermined; however, the USAF must not struggle to define itself as the DOD determines where to trim. Although Airmen know the importance of airpower to national security if that role and capability cannot be communicated clearly, the USAF will fail the nation. The impact of subcultures on the internal disconnects only muffle the organization's voice in communicating capabilities to achieve national security.

Currently, echoes of Builder's argument over the internal reluctance of the USAF to accept ICBM forces into the USAF culture exist. The current attempts to include UAS and Cyber forces has resulted in a seemingly similar formation of subcultures with emphasis on *occupationalism*, or to use Builder's pejorative, 'stovepipes.' Quantitatively addressing the internal aspects of culture, survey data from the same sample used in the External (Formal) Aspects section provides primary descriptive statistical evidence. The following questions address the artifacts, values, and basic assumptions of the USAFs organizational culture from the informal internal perspective focused on norms and practices. The expectation is to see differing responses across the demographic. Disconnects in responses represents general disagreement and provides evidence that a cultural problem exists due to a lack of shared internal beliefs. To make the data more accessible the graphs include all officers (all AFCS categories) from the AU academic institutions.

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[43] Smith, "Air Force Culture and Cohesion: Building an Air and Space Force for the Twenty-First Century," 45.

Figure 5 addresses the emphasis on manned air combat versus other capabilities. The responses are grouped similarly across the Likert-scale, indicating disagreement. As noted in earlier statistical analysis, without very specific breakdowns by particular AFSCs it is difficult to explain the cultural disconnect. If Builder's thesis holds true, the data suggests that the competitive means to manned airplanes may be the cause of the disconnect. However, it could also be explained by the differences in experience and perspective from the sample of Lieutenants thru Colonels. What is clear is that a consensus does not exist, and that indicates a cultural and identity problem.
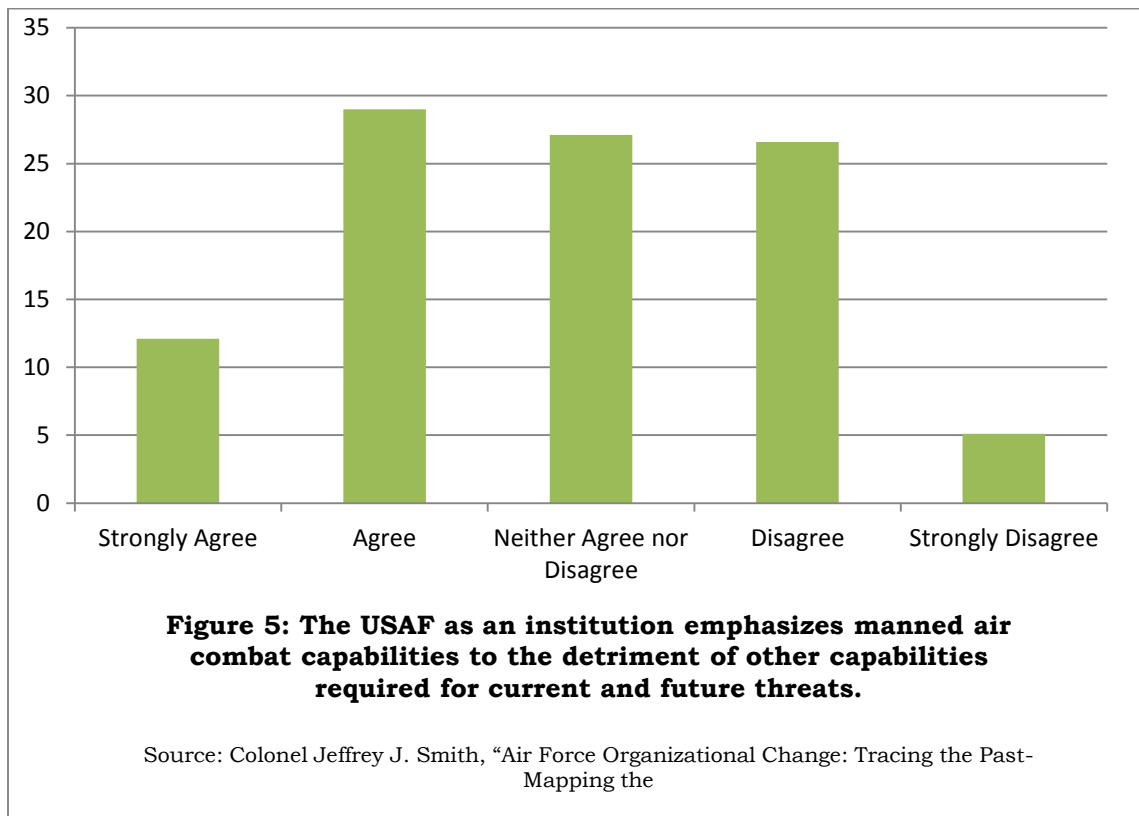

Figure 5: The USAF as an institution emphasizes manned air combat capabilities to the detriment of other capabilities required for current and future threats.

Source: Colonel Jeffrey J. Smith, "Air Force Organizational Change: Tracing the Past-Mapping the

Figure 6 clearly shows the overwhelming cultural element that a 'most valuable' career exists. Interestingly, this shows that all officers agree; although this response is somewhat expected based on the Air Force senior leadership positions being held by pilots.

Figure 6: Within the USAF officer corps, there is an unwritten "culture" that places more importance and prestige on some AFSCs over others.

Source: Colonel Jeffrey J. Smith, "Air Force Organizational Change: Tracing the Past-Mapping the Future" (August 20
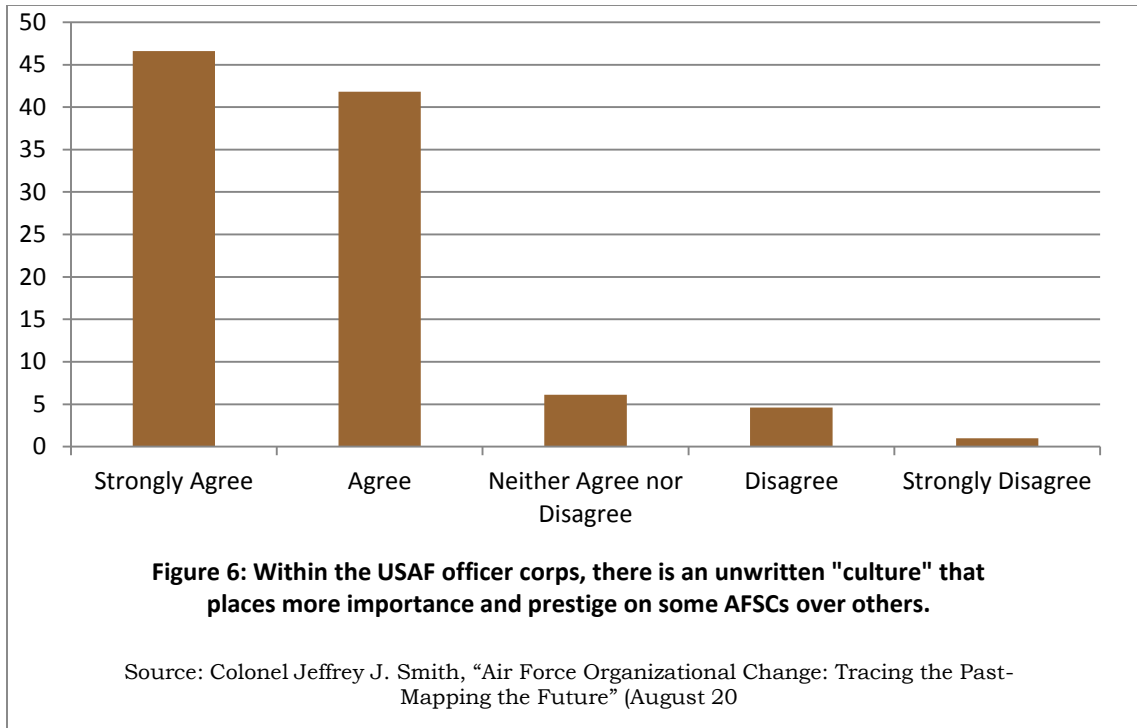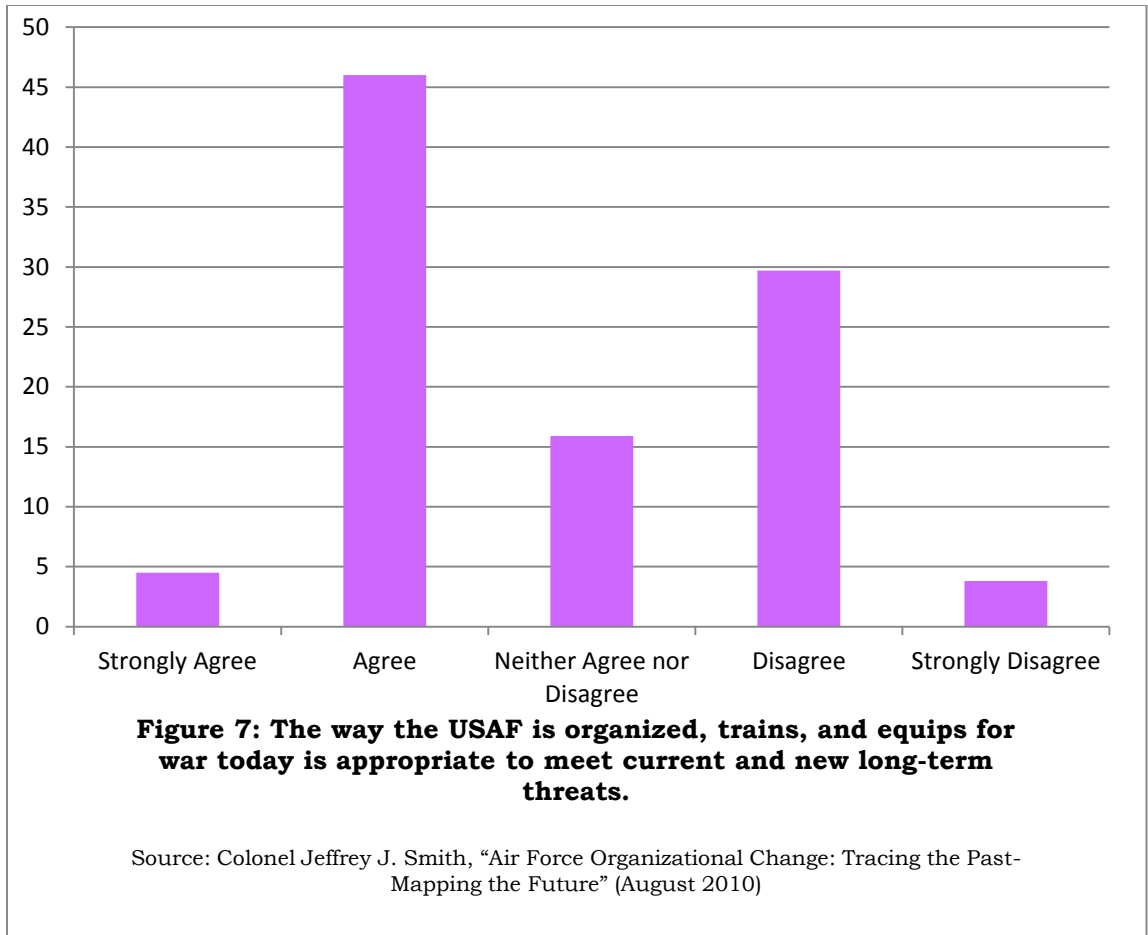
Figure 7 speaks to internal organization to meet current and long term threats. The responses vary across primarily 'agree' and 'disagree' with a sizable number of responses in the middle as 'neither'. As pervious responses showed, there is disagreement on what the focus of the USAF should be regarding organization, training, and equipping the force for current and long term threats.

Figure 7: The way the USAF is organized, trains, and equips for war today is appropriate to meet current and new long-term threats.

Source: Colonel Jeffrey J. Smith, "Air Force Organizational Change: Tracing the Past-Mapping the Future" (August 2010)

The logic and data suggests that an internal cultural split exists in the USAF. The split is likely the result of stovepipes and subcultures. The subcultures have become the focus, and gained reinforcement from senior leaders who hailed from similar stovepipes. This cycle falls back to false idols and a thin-at-best basis in airpower theory. Retired General Russell Dougherty, speaking at the Tactical Air Command Commanders' Conference on 8 October 1991 said,

> *To a very great degree, all of us are products of our experiences. We are products of our own times and our own experiences. We accept as "truth" only those wisdoms that our experience validates as being true. I would encourage you—as you start down this road of putting different people and things together in a new organizational structure—to recognize that you will not have had an opportunity to experience all of those things that your colleagues have. You*

will not be able to validate, by your own experience, all the truths that maybe they have validated by theirs.[44]

The strain between internal subcultures is holding back institutional progress. The path that the USAF took to go in the direction of the predominant subculture was the result of one subgroup winning dominance over others. While subgroups remain mired in internal *realpolitik*, the institution as a whole suffers.

The Military Profession and Education

Individuals who make military service a career strongly influence the culture. The impact is strong from continuing education derived from both civilian run institutions catering to military students and specialized military education programs. In basic terms, besides being a profession, the military is a closed labor force. Those who enter the service do so at entry levels and are then developed, trained, educated, promoted, and selectively retained. "There is very limited lateral entry into the military so that, for all intents and purposes, the workers that the military recruits this year will be the base from which it selects its middle-grade managers in twelve to eighteen years and its senior leaders in twenty-five to thirty-five years."[45] The impact of education therefore is not only is on the cognitive side, but a reinforcement of the internal and external aspects of culture.

The USAF needs leaders who can break out of a rule-based paradigm. Inductive thinking—making connections—is the Clausewitzian trait that military education systems espouse as necessary for leaders to reason through the fog of war. However, "the curriculum normally reflects the flavor of the day; it is not necessarily aimed at selected critical thinkers but at officers who show acumen at following

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[44] Michael R. Worden, Col, USAF, *Rise of the Fighter Generals*, 235.
[45] George, Rishikof, and Georgetown University, *The National Security Enterprise*, 125.

directions and who pass through the right jobs to get promoted."[46] Further, those who attend the professional military education (PME) programs have already shown an aptitude to "play by the rules" with a trip to PME as a reward accompanied by increased likelihood of promotion.

Education influences culture in similar ways to physical artifacts. The norms, values, and basic assumptions of the USAF are reinforced in military education. If the demographics of those who attend PME and the emphasis in the curriculum are largely homogenous the product is destined to follow the status quo. James Surowiecki makes a compelling argument in *The Wisdom of Crowds* that any diverse group will come up with a better answer than a single expert or a small group with similar backgrounds. "Diversity helps because it actually adds perspectives that would otherwise be absent and because it takes away, or at least weakens, some of the destructive characteristics of group decision making."[47] Thus, any conflicts with external and internal aspects are not currently addressed or solved through PME. Continuing education impacts culture through what officers see, hear, and do at these schools because the experience affects their self-concept and the way that they provide professional military advice.[48] Further research is needed in assessing how norms become entrenched and what inhibits their change in PME.

Finding the Horizon

Carl Builder argued that the USAF had lost the bubble or orientation and direction of its internal culture. Although difficult to prove exactly what if anything is missing, the signposts point in the same direction Builder identified—the concept of airpower—suggesting enduring validity of his hypothesis. Examined through the external and

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[46] Scott A. Bethel et al., "Developing Air Force Strategists: Change Culture, Reverse Careerism" JFQ Issue 58, 3rd Quarter (2010): 83.
[47] James Surowiecki, *The Wisdom of Crowds* (New York: Anchor Books, 2005), 29.
[48] George, Rishikof, and Georgetown University, *The National Security Enterprise*, 125.

internal aspects, this chapter identified significant disconnects, suggesting the USAF lacks an inclusive, homogenous culture. Further the USAF is not focused on a central theme of airpower theory to meet the needs of national security. Guilio Douhet wisely quipped, "victory smiles upon those who anticipate the changes in the character of war, not on those who wait to adapt themselves after the changes occur."[49] To find the horizon the USAF must seek a proactive learning organization.[50] "If the culture is built on fatalistic assumptions of passive acceptance, learning will become more and more difficult as the rate of change in the environment increases."[51] The USAF founded itself in airpower theory and the anticipation of the evolving security environment; it would be wise to focus on offering that to the nation besides pleas for more of its newest "toys."[52]

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[49] Douhet, *The Command of the Air*, 30.
[50] Schein, *Organizational Culture and Leadership,* 366.
[51] Schein, *Organizational Culture and Leadership,* 366.
[52] Builder, *The Icarus Syndrome*, 28.

CHAPTER 5
Analysis and Conclusions

Nothing will more quickly go to the vital interests of the Air Force or influence its future than the choices about what is included or excluded from the Air Force's definition of air power.

-Carl Builder

The challenge would be to motivate the air force and its officers to think about the objectives of warfare rather than focus only on the instruments of warfare...the USAF had grown to greatness with an air power theory built on strategic bombardment, but during the cold war had lost the theoretical foundation that had given the profession its meaning.

-John Andreas Olsen

Through his research at AU, Carl Builder effectively cleared the USAF coffee table. He cited the foundational concept of "over not through" as an indicator of the service's ability and willingness to debate and question the motives and solutions forwarded at all levels. Builder had identified transcendent concerns of a misguided focus. The evidence presented supports that the USAF continues to experience difficulty connecting and communicating the *ends* of airpower with the *means* of airpower. The net result is the persistent institutional fracture of the USAF and the creation and influence of powerful and distinct subcultures. When Builder wrote *The Icarus Syndrome,* the USAF was at a transition point post-Operation Desert Storm. This included substantial institutional reorganizations and shifting budget priorities. Similarly, the USAF currently faces transitions post-OIF and the planned cessation of combat operations in OEF. The current environment is also similarly accompanied with shifting budget priorities and likely reorganizations. Carl Builder's central argument was that the focus of the USAF had shifted from the ends to the means, thus sending the USAF on a misguided path.

According to Carl Builder

Carl Builder's assessment of the USAF was generally accurate in 1994, and remains applicable in 2013. The evidence presented supports the enduring validity of Builder's assessment for two primary reasons. The first concerns the internal USAF disconnect regarding the question of *WHY*. Born as a separate service to "find another way" of winning wars, the USAF focused on providing a uniquely strategic idea that connected the means and the ends. Early airpower advocates based their argument in, and forwarded the intellectual debate on, airpower theory and the notion of commanding the air. Everett Dolman, Professor at the School of Advanced Air and Space studies, captures this concept concisely stating,

> *Thus if the state has command of the air, an opposing state may not risk or wish to risk its own forces to challenge it. The operational purpose of airpower has thus been achieved, even if the tactical function of the air forces (which is, among other things, to destroy enemy aircraft) has not. This is an inestimable strategic distinction. The services, using tactical logic, seek to achieve results: engagement and destruction of the enemy. If tactical function is not filtered through to military strategy by the operational purpose, which is to achieve command of the medium, the logic of tactical victory can overwhelm the logic of operational and strategic ends ... In Clausewitzian parlance, the grammar of war becomes its logic.[1]*

Dolman provides connections that those in the air force at the time of service independence could readily make. However, Builder argued (and the evidence suggests) that those in uniform cannot effectively communicate such connections to others inside the service, or to civilians outside. It is the understanding and ability to communicate the interaction and close alignment of the tactical function, military strategy,

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[1] Everett C Dolman, *Pure Strategy: Power and Principle in the Space and Information Age* (London; New York: Frank Cass, 2005), 35–36.

and operational purpose of the USAF where Builder suggests the path became misguided.

The second primary enduring theme from Builder's *Icarus Syndrome* is the USAF's affinity for technological solutions; more specifically, the airplane is the USAF's primary object of affection. Although technology is required to operate within and command the air, the affinity becomes problematic when it fails to make connections and in turn replaces the ends. According to Builder, this resulted in internal disconnects and a myopic focus on the means. This misguided focus reached critical mass shortly after the conclusion of WWII and attainment of service independence for the new USAF.

The invention and inclusion of nuclear weapons changed everything. Seen as political tools of statecraft as much as weapons of military execution, the advent of nuclear weapons found the USAF caught in the middle of the discourse on connecting the ends of policy with the means of airpower. However, the initial stance of the USAF on ICBMs is best characterized as reluctance and indifference. "Contrary opinions were disregarded, contrary evidence dismissed. Men who had always flown and relied upon bombers found it hard, indeed almost impossible, to sense the revolutionary implications of ballistic missiles."[2] This all changed with the Eisenhower administration, the Soviet launch of Sputnik, and the US policy regarding nuclear weapons employment. Nuclear weapons quickly represented diplomacy, and the USAF was charged with a leading role in executing the deterrent strategy. "Combat experience and traditional common wisdom of the military were thus devalued in favor of the cool rational calculations of the defense intellectual."[3] Further exacerbating the impact of nuclear weapons on the USAF was the shift of most strategic level thinking regarding the

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[2] Edmund Beard. *Developing the ICBM: A Study in Bureaucratic Politics* (New York: NY, Columbia University Press), 8.

[3] Antoine Bousquet. *The Scientific Way of WARFARE: Order and Chaos on the Battlefields of Modernity* (New York: NY, Columbia University Press, 2009), 148.

conceptualization of their use out of the uniformed military leaders' hands, and into the hands of political leaders in Washington.

With the preponderance of theoretical and strategic thinking no longer in the hands of airmen in uniform, the focus began shifting to what was readily accessible—the artifacts of flight—airplanes. Another hawkish observer from the RAND Corporation, Bernard Brodie wrote a landmark piece titled *Strategy in the Missile Age* in 1959 on the atrophy of intellectual debate between military and civilian leaders. Brodie appropriately stated that the US rejection of preventative war committed it to a strategy of deterrence, noting that we must be willing to pay the price to make it work. Perhaps one of his most recognized contributions from the work is the "*Intellectual No-Man's Land.*" This refers to the lack of intellectual concern where military and political problems meet, "any real expansion of strategic thought to embrace the wholly new circumstances which nuclear weapons have produced will therefore have to be developed largely within the military guild itself."[4] The evidence Builder used in *The Icarus Syndrome*, and the evidence available since 1994, supports a tradition of being quiet on the debates centered on the *ends* of airpower, and loud on the debates centered on the *means* of airpower. The commitment and price paid for overly focusing on the means and ignoring the ends reveals itself in a reluctance to engage in intellectual debate on the roles and missions of the USAF.

However, using an anatomical analogy Builder suggested that the heart of the USAF was theory. "The heart is about organizational purpose or mission—airpower—and the soul is about the profession of arms—the absolute and total commitment to the mission."[5] Further, the purpose and mission of airpower is categorized through theory, and commitment explained by culture. In Builder's opinion, the heart and

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[4] Bernrd Brodie. *Strategy in the Missile Age* (Santa Monica: CA, RAND Corporation, 2007), 1–9.
[5] Builder, *The Icarus Syndrome,* xvii.

soul failed each other. Airpower theory began with offensive minded airman, who held the puppet strings of airpower for the forty years following the Wright Brothers' flight in 1903. This offensive approach gave birth to the long-range bomber—nothing better encapsulated the idea of the offensive as directly bombing the heart of the enemy. Early airpower advocates such as Mitchell successfully translated airpower theory into language that the majority both within and outside the uniformed service could understand and easily access. Further, such foundations can trace lineage to men such as Clausewitz who forwarded the concept that theory simply educates for action but does not provide the ammunition.[6] As for airpower theory, it is neither religion, faith, philosophy, doctrine (save education), nor is it legend or myth. Rather, airpower theory is a serious attempt to provide sufficiently reliable truth about airpower that rests upon history and logic, and is admittedly a social not a hard science.[7] The evidence suggests that neglected theory was the culprit of the USAF cultural fracture. By shifting focus from the ends to the means, and failing to connect the hammer and anvil, there was only one argument for airmen to make—more, faster, and better airplanes.

What Builder Mischaracterized

Builder mischaracterized the requirement of technology to operationalize airpower. Despite Builder's astute observation of the USAF, his conclusions were not entirely accurate. The USAF from inception has depended upon technology to access the domain of the air, and that continues. Technology is the currency of airpower, while theory and the vision associated with it merely provide conceptualization of the possible. Thus, technology translates the possible into reality and operationalizes airpower. The relationship of available technology and

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[6] Carl von Clausewitz et al., *On war* (Princeton, NJ: Princeton University Press, 1984), 41.

[7] Colin S. Gray.; *Airpower for Strategic Effect* (Maxwell AFB: AL, Air University Press, 2012), 265–269.

strategy is such that the former will always affect the latter. Builder argued that the love of technological solutions (the means of airpower), was so powerful that the theory (ends) was ignored. His critique is critically harsh of the service's dependence and support of technology. Specifically, he cites the USAF's neglect of, and indifference to ICBM solutions until external pressures demanded them. The neglect was not a deliberate conspiracy against ICBMs but the result of a myopia created by the USAF, representing institutional priorities and identity.[8] Of note was the new intellectual territory nuclear weapons presented across both the military and political bureaucracy. According to Stephen Peter Rosen in *Winning The Next War: Innovation and The Modern Military*,

> *With nuclear weapons, the radical novelty of the new weapon was and is such that the officer corps does not possess a body of professional experts that gives it a legitimate right to exclude civilians from decisions about how nuclear war should be fought and which theories should dominate operational behavior, innovation, and promotions. A familiar and heartfelt refrain … was that no one, military or civilian, had ever fought a nuclear war, and that military men and civilians were thus equally competent to grapple with these new problems. In fact, if anyone possessed special knowledge that gave them the right to make decisions about nuclear war, it initially appeared to be the civilian scientists who had invented the bomb.[9]*

Nuclear weapons were new and uncharted territory for all actors in the civil-military system. The USAF executed the deterrence policy of the US exactly as tasked with proficiency, skill, and innovative solutions to complex problems. However, during the bureaucratic strain to determine the policy and decision authority of nuclear weapons, the USAF fixated on what it controlled—the means.

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[8] Carl H. Builder. *The Icarus Syndrome*: The Role of Air Power Theory in the Evolution and Fate of the U.S. Air Force (New Brunswick, NJ: Transaction, 2003), 167.
[9] Stephen Peter Rosen, *Winning the Next War: Innovation and the Modern Military* (Ithaca NY: Cornell University Press, 1991), 21–22.

Airmen must understand that Carl Builder was only mostly right. However, in 2013 the USAF continues on a path remarkably similar to that identified in 1994's *Icarus Syndrome.* Builder's hypothesis that the USAF abandoned airpower theory appeared valid in 1994. This neglect was not due to a lack of relevant airpower theory, but rather a fixation on the airplane. Interestingly, the evidence suggests that because the USAF executes the tasking so well, much of the operational and strategic effects currently and continuously provided is taken for granted. The USAF exists to meet national security, and finds innovative solutions to do so by going "over, not through." Throughout this process, the USAF persistently struggles to translate and explain *how* and *why* what it provides—operational and strategic effects—is important.

The ends tasked of the Air Force have not dramatically changed since service independence; however, Airmen's ability to understand and effectively articulate the connection between airpower and national objectives has clearly declined. On 15 March 2013, CSAF Welsh held a private video-teleconference with SAASS Class XXII in which he discussed the need for 'telling the Air Force story.' Of note, he showed a picture of US forces (presumably Army and Marine Corps; see Figure 5.1) sleeping in the open daylight next to their mechanized armor and troop carriers; his message was that "nothing demonstrates [the value of] air superiority better!" General Welsh mentioned that in personal comments Major General James C. Boozer, the Deputy Commanding General/Chief of Staff of U.S. Army Europe told the CSAF, that he has **never** worried about the support or command and control of the air from the USAF.

Figure 8 "Troops Sleeping in Open"

Source: General Welsh, "SAASS XXII" Video Teleconference Slides, March 15, 2013.

The picture truly speaks volumes about what the USAF provides; those soldiers and marines sleeping are protecting themselves from horizontal fire (surface) not from airborne attack! If the USAF properly articulated the true message of airpower, then all airmen, sister service, and governmental decision makers could look at this picture and understand airpower's role. Instead, as long as the USAF continues to focus and articulate its central message on the means, then most observers (including airmen) will not initially identify the role airpower is playing in the picture. This must be addressed if the USAF is going to progress.

Shifting Focus

A simple change in perspective allows for a completely new airpower narrative. If the USAF chooses to shift focus to the ends, which this treatise advocates, that requires a renewed connection to airpower theory. The evidence suggests that control of the high ground is as important as ever, and has become an expected operational necessity. This expectation is the result of the understanding that controlling the high ground is imperative to surface force survivability. Given the capabilities provided only by the USAF, both conventional and

unconventional war depends on airpower capabilities. With the same information available, by shifting focus to the ends provided through airpower the internal and external narrative of airpower changes. Thus, as CSAF General Welsh has commented on the need for the USAF to be better at telling its story, with a shift in focus the story tells itself.

Figure 9 shows the relationship between airpower theory, the ends of national security, and the means of airpower when the USAF gained independence. Airpower theory was the foundation of the USAF debate, and the primary driver allowing one to make clear connections. Airpower theory existed in a push/pull dynamic with the means and crossed the bridge to the ends of national security.

Figure 9 Original Relationship of Airpower Theory
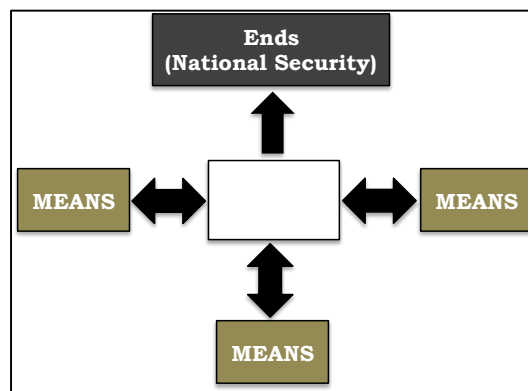
Source: Author's original work

Figure 10 shows the shift in the relationship between airpower theory, means, and ends upon which Builder commented, and the evidence supports as an ongoing relationship. In the current relationship, airpower theory no longer acts as the foundation of conceptualization. Rather airpower theory reacts and takes a secondary role to the means. This is representative of the USAF's over-willingness to abandon the primary driving principles founded in airpower theory, and listening more to the debate/question of the day, thus attempting to explain *WHAT* before explaining *WHY*. The following model depicts the relationship of airpower theory since the attacks of 11 September 2001.

Figure 5.3 Current Relationship of Airpower Theory
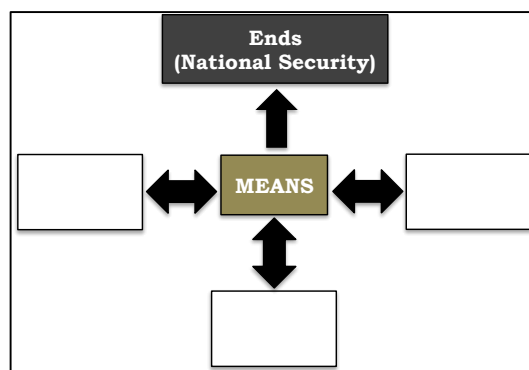
Source: Author's original work

The current debates surrounding USAF efficacy in Afghanistan (OEF) provide further examples and evidence of a shift to a means centered focus. Viewed through the lens of the means (fast moving hammer), the debate is incomplete and fails to make connections or offer explanation. Subsequently, the narrative of airpower in OEF viewed through a means focused lens offers a limited use of airpower. Further, as counter-insurgency (COIN) and special operations biased operating concepts are the preferred tactic; the use of airpower is [apparently] de-emphasized. This makes explaining the requirement for 5th generation fighters (among other acquisition programs) difficult, especially when presented with the concepts of small Special Forces teams capturing high value individuals and building relationships with locals. Where does airpower fit in this means-centric perspective? Another example of a means-centric focus that fails to make connections is the argument surrounding the use of bombers to provide pre-planned and on-call close air support (XCAS). This line of argumentation only strengthens Builder's argument and the evidence likewise supports that such a myopic focus exists. Table 5.1 depicts USAF struggles to make

connections in intellectual debate inside and outside the service when looking through the lens of the means applied to OEF.

Table 3: Means Perspective of Airpower in OEF

Unit of Measure	Means Perspective
Role of USAF	Limited use / need for USAF
Need for advanced aircraft	No requirement for 5th generation
Close Air Support (CAS)	Using bombers for CAS does not meet intent
Combined Arms	SOF de-emphasizes airpower
'Traditional' use of airpower	COIN outside standard procedures for USAF

Source: Author's original work

Viewed through the lens of the ends (the anvil) the debate shifts and becomes more holistic. Utilizing the same evidence, the argument shifts from an apparently poor capacity of the USAF to execute and support COIN and SOF tactics and procedures, to the requirement that the USAF contribute fully. Specifically, if focused on the ends, the USAF provides global command and control, persistent ISR, extensive use of RPAs, and innovative solutions for CAS to enable all forces to meet US geo-strategic goals. President Obama, known for his penchant for RPA use largely due to their precision strike capability, provides a current example. In fact, the extensive use of RPAs helped build the intelligence and pattern of life on the Abbottabad compound of Osama Bin Laden prior to the raid.[10] Table 4 displays some of the distinct differences in argument when viewing OEF through an ends-centric lens, based on the USAF's original relationship with airpower theory. By shifting the focus to the ends, connecting the hammer and anvil is less problematic and a

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[10] The uniformed officer in the famous photograph taken inside the White House situation room is of a USAF Brigadier General at a computer with surveillance video (presumably from an RPA).

substantiated argument can be based in evidence that OEF combat operations are not possible without the USAF!

Table 4: Ends Perspective of Airpower in OEF

Unit of Measure	Ends Perspective
Role of USAF	Mission un-executable without USAF
Need for advanced aircraft	Extensive use of RPA systems
Close air support	Innovative use of airpower to meet CAS requirements
Combined Arms	SOF cannot execute without airpower
'Traditional' use of airpower	Adapting to meet and enable other services to meet national security objectives

Source: Author's original work

To finally resolve the accuracy and power of Builder's observations, addressing General McPeak's three questions presented to airmen in Chapter 3, and taken from the foreword of *The Icarus Syndrome* is practical. These questions represented a synopsis of Builder's central propositions and were of particular interest to the CSAF in 1994. The first question posed was, has the Air Force abandoned airpower theory over the years?[11] When Builder wrote *The Icarus Syndrome*, he suggested that the answer was yes. However, the current evidence suggests that airpower theory has been more neglected than abandoned. Of note, General McPeak's question is remarkably similar to a question the current CSAF General Welsh commonly asks airmen to think of how to do a better job telling our [USAF] story. Airpower theory according to the evidence presented is foundationally sound. However, the result of neglecting to understand airpower theory manifests in the erosion of quality conversations that express the connection of the hammer and anvil.

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[11] Builder, *The Icarus Syndrome*, xii.

Second, have the fundamentals of air and space power changed in a world of new technologies and new challenges?[12] The evidence presented clearly suggests the answer is no. The ends with which the USAF is tasked to fulfill are very similar to what they were in 1947 when the service gained independence. Nevertheless, airmen's focus in addressing airpower disproportionately and inappropriately shifted to the means, and has remained. The adoption of a nuclear deterrence posture facilitated this shift in both ideas and resource allocation. "Because the [USAF] is a political community, innovation does not simply involve the transfer of resources from one group to another. It requires an "ideological" struggle that redefines the values that legitimate the activities of the citizens."[13] Although the fundamentals have not changed, the focus has, and the ideological struggle of redefinition wandered.

Third, does the USAF grasp these fundamentals?[14] The evidence suggests the answer is yes. However, the USAF continues to struggle explaining *WHY* and *HOW* it fulfills the obligations of national security. *What is lost in translation to those in uniform, and to those outside the service, is the connection between the hammer and anvil.* The evidence supports that the USAF suffers from powerful subcultural biases, which took root when strategic thinking shifted into the hands of those other than airmen in uniform. Although many airmen within the service do think strategically, they are not powerful enough to break the bureaucratic inertia of a means-centric focus. This misguided focus speaks to the longevity of the central argument of *The Icarus Syndrome*. Until the focus shifts, the USAF will continue to struggle explaining itself internally and externally.

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[12] Builder, *The Icarus Syndrome*, xii.
[13] Rosen, *Winning the Next War*, 19–20.
[14] Builder, *The Icarus Syndrome*, xii.

The USAF will continue to face increasing external pressure and constraints if it continues to struggle with explaining itself, and fails to shift its focus back to the anvil (ends) of airpower. The purpose of the shift is to make connections and provide an increased ability to articulate *HOW* <u>and</u> *WHY* airpower is necessary for national security. A shift in focus allows for effective communication of the operational and strategic effects that the USAF provides to other services, and ultimately national security. Airpower, viewed and articulated through a new lens, offers an avenue to escape *The Icarus Syndrome*.

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